



Manual

# BDM100



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## Important

### Disclaimer / Warranty

The BDM module is for use by qualified personnel only. A warranty on our part for direct damages and consequential damages, caused by the improper handling of our product or additional products is excluded.



The interconnection between the BDM100 Module and the appropriate ECU is very easy. Nevertheless you should read this manual carefully, because any failure may result in the destruction of the ECU.

**! To avoid damages on your BDM100-module or on an ECU, please carefully read this manual before you start running the BDM100 Module with an ECU !**

## The BDM100 Module

In all cases, always connect the BDM100 module with your PC or notebook, first!

The lower of the both blue LEDs on the Front panel now should start flashing as shown in picture A.

The BDM100 module has no own power source. It's an USB-Device and obtains its power via the USB cable.

Always make sure that **all** necessary connections are done, **before** you apply power to an ECU!

The upper of the both blue LEDs indicates that an ECU connected to the BDM100 module is supplied with the required voltage (picture B).



**Pict. A: The BDM100 Module is always connected to the USB cable first.**



**Pict. B: The BDM100 module connected to an engaged ECU.**

## Interconnections for Bosch EDC16 and ME9 ECUs

When the Bosch EDC16 or ME9 ECU is opened, you may look for a typical 14-pads arrangement near the back border of the printed connection board of the ECU. It should look like as shown in Picture A.

This is the BDM-Port of the Bosch ECUs.

Note that at all only 10 pads of the total 14 pads are used for the EDC16 or ME9 programming port. The pads with the numbers 3, 4, 13 and 14 are not used.

Ensure that the pads are clean and free of remaining flux agent.

Now place the BDM143 probe into the positioning frame and connect it to the BDM100 module

Ensure that the switch of the BDM143 probe is in its 'OFF'-position.

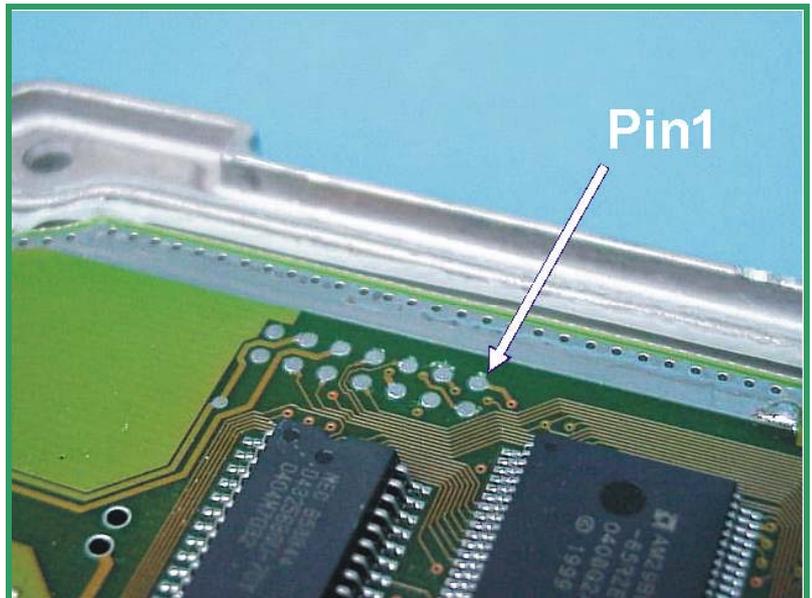
Carefully put the tips of the spring contact probes on the pads on the board as shown in picture B.

The power supply of the BDM143 probe is plugged into the power source connector as shown in picture B.

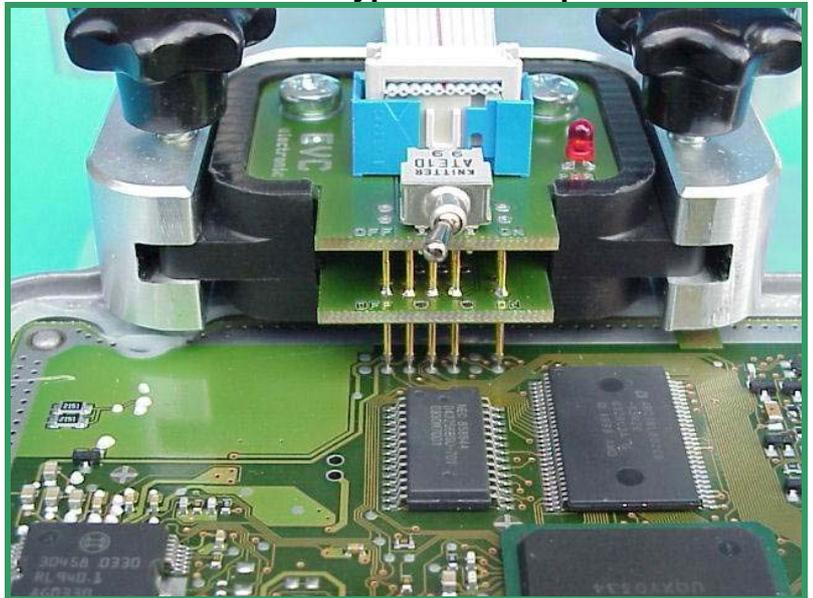
Now put the switch of the BDM143 in its 'ON'-position.

The red LED of the BDM143 and also the upper of the two blue LEDs on the front panel of the BDM100 module should light up to indicate that the ECU board is supplied with the required voltage.

The BDM100 module is now operational.



**Pict. A:** These are the typical Bosch pads for BDM.



**Pict. B:** The BDM143 probe contacting the pads.



**Pict. C:** Finally the power will be applied.

## Interconnections for Bosch EDC7 ECUs

On the EDC7 board the BDM port pads are located very near the MPC555 processor.

On Picture A the orientation of the pads arrangement is shown.

Note that at all only 10 pads of the total 14 are used for the EDC7 programming port.

The pads with the numbers 2,3,13 and 14 are not used.

Ensure that the pads are clean and free of remaining flux agent.

On the EDC7 board the required pads are also located in the very middle of the whole board. Because of this you must not place the BDM143 probe completely into the guide slot of the positioning frame (as shown in picture B)

Now connect the BDM143 probe to the BDM100 module

Ensure that the switch of the BDM143 probe is in its 'OFF'-position.

Carefully put the tips of the spring contact probes on the pads on the board as shown in picture B.

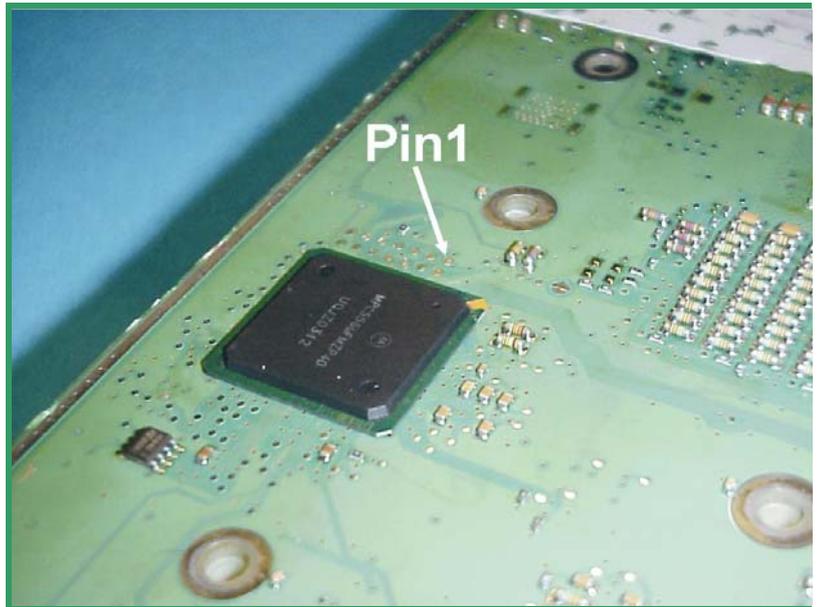
It is recommended to use an isolation foil, in order to avoid that the arm of the positioning frame produces short-circuits between larger components on the top side of the board.

The power for the board will applied over the power jack on the BDM143 adapter.

If you prefer to use the other BDM port on the side of the ECU where the main connectors are mounted on, a BDM141 adapter is required (Pict. C).

In that case the power to the EDC7 board is provided by the following pins of the main connectors (A,B):

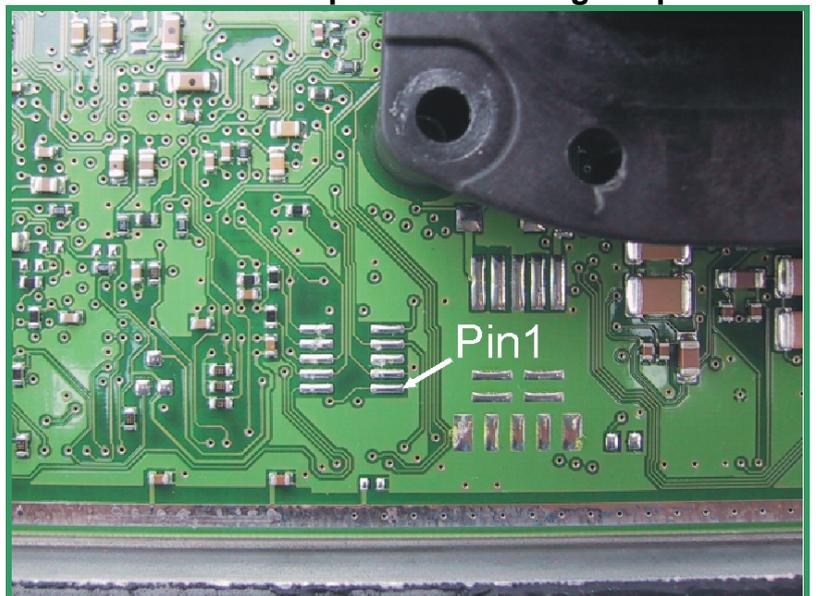
	<b>GND</b>	<b>BAT+</b>	<b>IGN</b>
<b>EDC7 IVECO</b>	B2	B12	B39
<b>EDC7 MAN</b>	A15	A7	B36



**Pict. A:** This is the characteristic arrangement of the Bosch BDM pads.



**Pict. B:** The BDM143 probe contacting the pads.



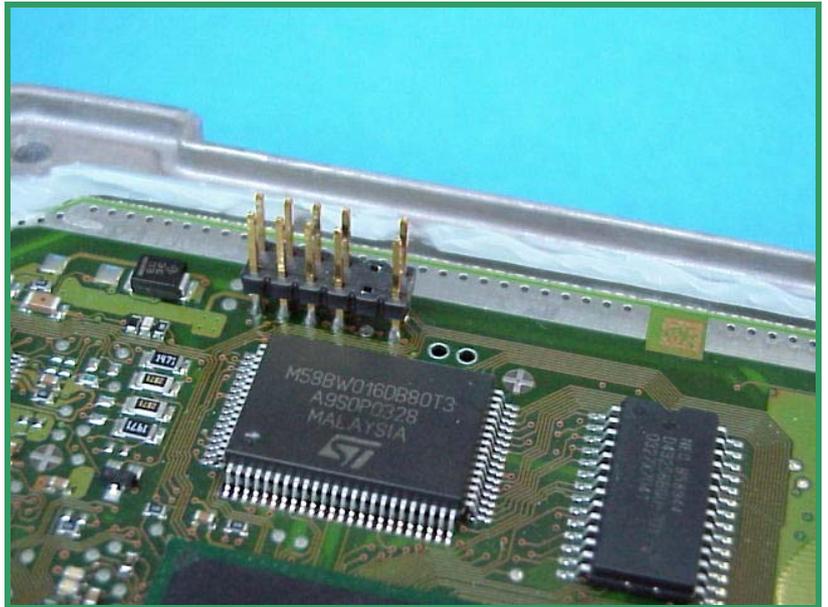
**Pict. C:** The other BDM-port on the top side.

## Interconnections for Bosch ECUs using a BDM120 Cable

For connecting the BDM100 module to the EDC16 or to the ME9 ECUs the BDM120 cable is required which is equipped with an own power supply

First solder the 12way pin header onto the pads for the BDM port of the EDC16 or ME9 board (picture A).

Note that at all only 10 pads of the total 14 pads are used for the EDC16 or ME9 programming port.



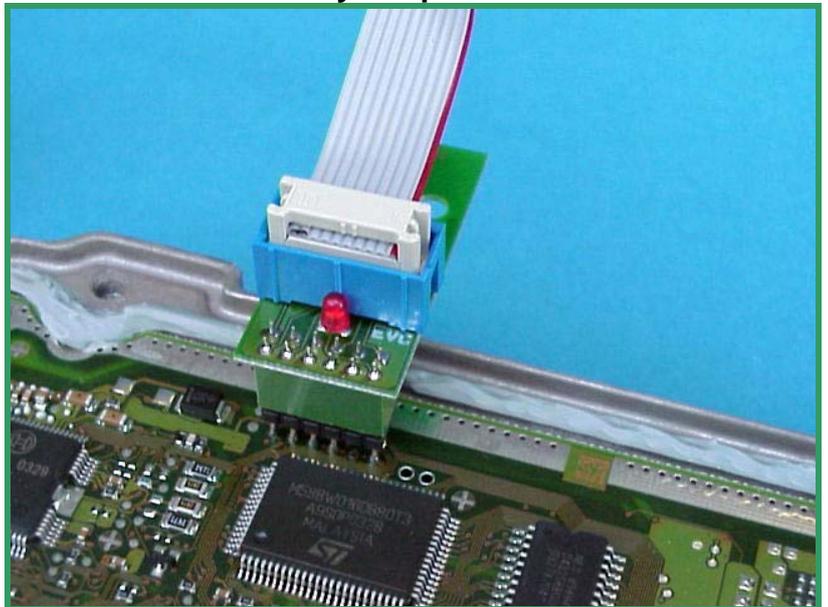
Pict. A: This is the way the pin header will soldered..

Now take the BDM110 cable and connect it with the BDM120 cable as shown in picture B.

Then connect the other side of the BDM100 cable to the BDM100 module.

Ensure that you have plugged the 12way connector in the 12way header **exactly as shown in picture B!**

Again, ensure that all connections are plugged in the right direction.



Pict. B: The direction the BDM120 must plugged!

Finally, the power supply of the BDM120 cable is plugged into the power source connector (picture C).

The upper of the two blue LEDs on the front panel should light up to indicate that the ECU board is now supplied with the required voltage.

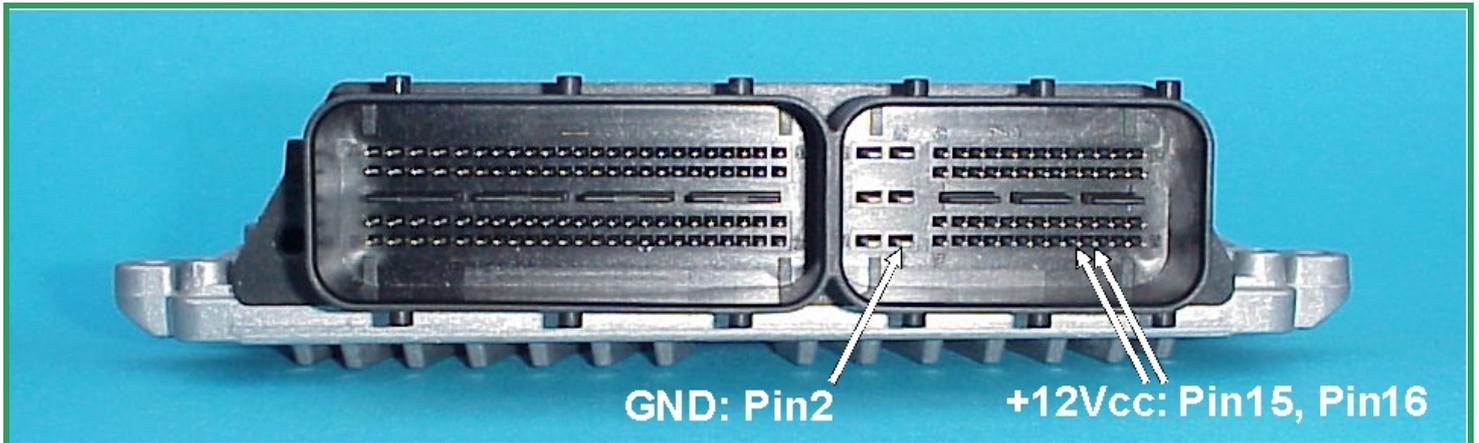
The BDM100 module is now operational.

After finishing your work always remove the power supply from the power plug connector **first** before disconnecting any other connection!



Pict. C: Finally the power will applied.

## Interconnections Bosch ME9.0 ECUs



**Pict. A: The main connector of the Bosch ME9.0 ECU.**

On the Bosch ME9.0 ECU the power distribution is provided by the pins of the main connector.

Use separate wires with matching connectors to connect GND and +12Vcc to the pins of the main connector shown in picture A.

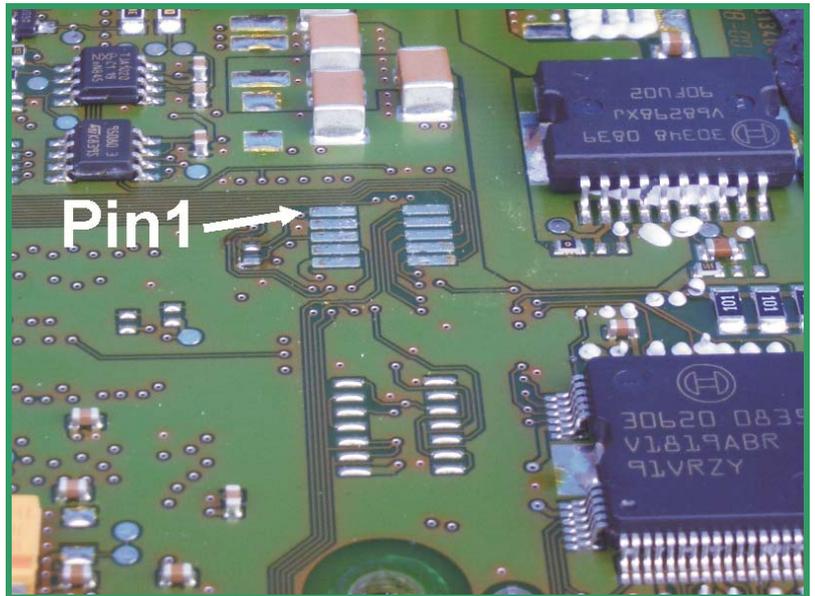
Now place a BDM144 probe into the positioning frame and carefully center the tips of the spring contact probes on the BDM-pads on the board as shown in picture B.

The tips of the spring contact probes should reach a spring travel of 1.5 mm minimum for best contact conditions.

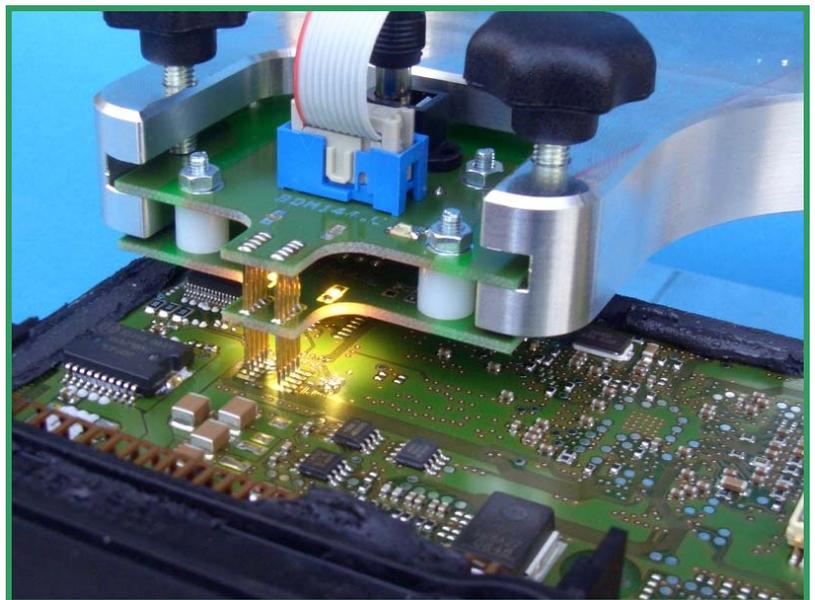
Then connect the BDM110 flat wire cable to the BDM100 module which should already be connected to your computer.

If you then applying power to the main connector of the ECU the red LED on the BDM144 probe lights up to indicate that the logic on the board is supplied with the required voltage

The BDM100 module is now operational.

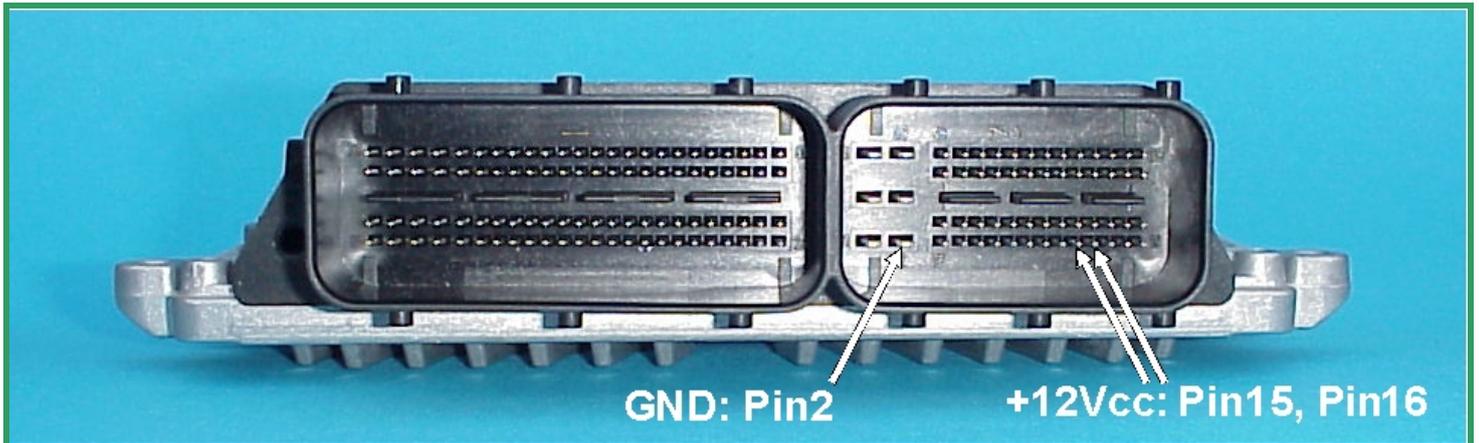


**Pict. B: These are the required pads for the BDM Interface.**



**Pict. C: This way the BDM144 probe contacts the Bosch ME9.0 ECU board..**

## Interconnections Bosch ME9.7 ECUs



**Pict. A: The main connector of the Bosch ME9.7 ECU.**

On the Bosch ME9.7 ECU the power distribution is provided by the pins of the main connector.

Use separate wires with matching connectors to connect GND and +12Vcc to the pins of the main connector shown in picture A.

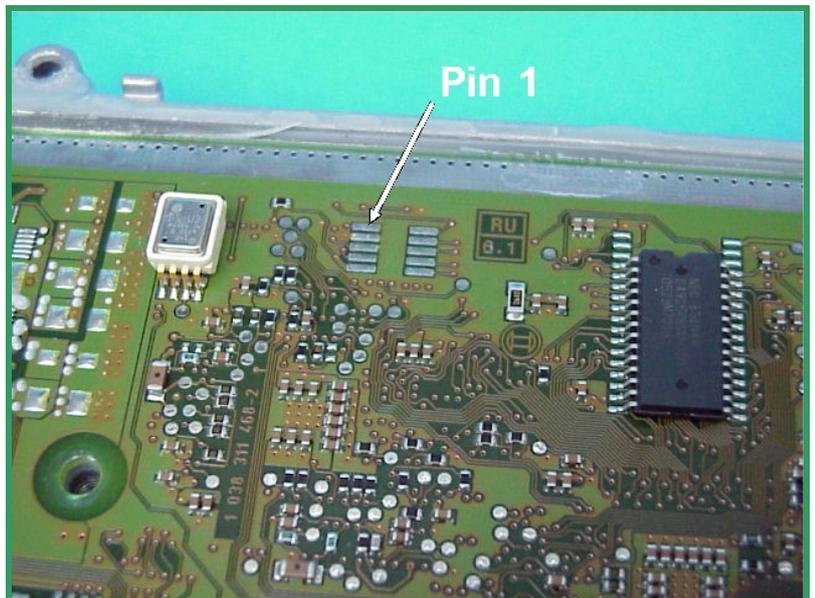
Now place a BDM141 probe into the positioning frame and carefully center the tips of the spring contact probes on the BDM-pads on the board as shown in picture B.

The tips of the spring contact probes should reach a spring travel of 1.5 mm minimum for best contact conditions.

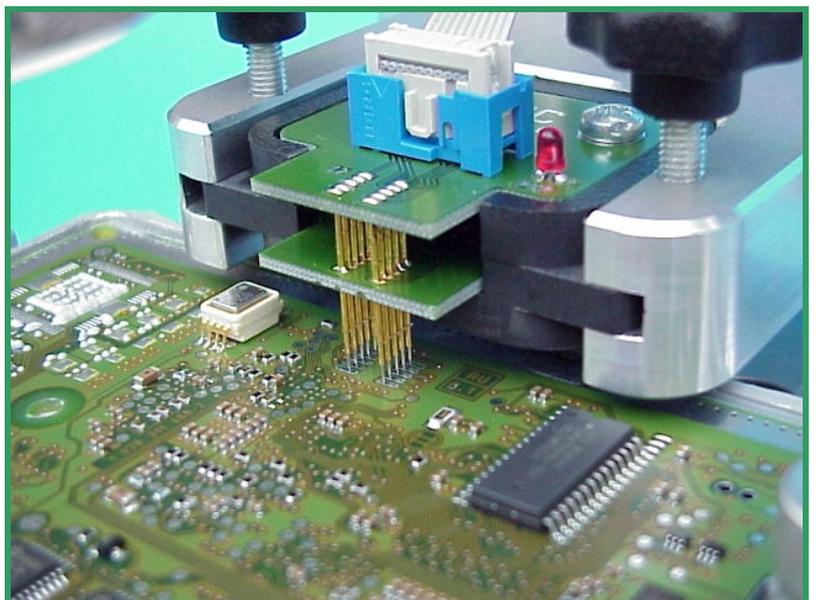
Then connect the BDM110 flat wire cable to the BDM100 module which should already be connected to your computer.

If you then applying power to the main connector of the ECU the red LED on the BDM141 probe lights up to indicate that the logic on the board is supplied with the required voltage

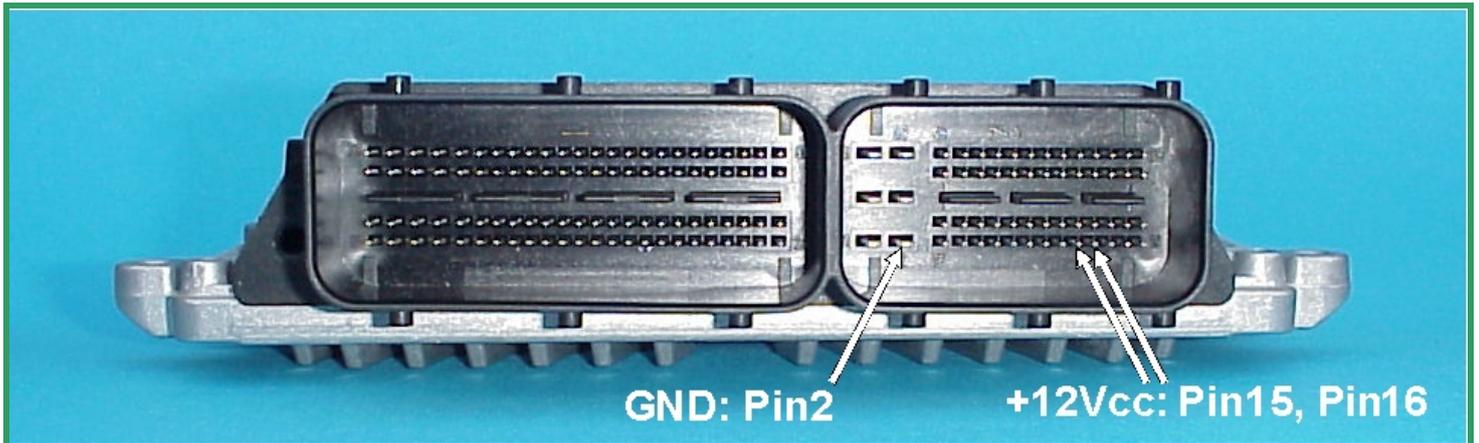
The BDM100 module is now operational.



**Pict. B: These are the required pads for the BDM Interface.**



**Pict. C: This way the BDM141 probe contacts the board of the Bosch ME9.0 ECU..**



**Pict. A: The main connector of the Bosch MED9.7 ECU.**

On the Bosch ME9.7 ECU the power distribution is provided by the pins of the main connector.

Use separate wires with matching connectors to connect GND and +12Vcc to the pins of the main connector shown in picture A.

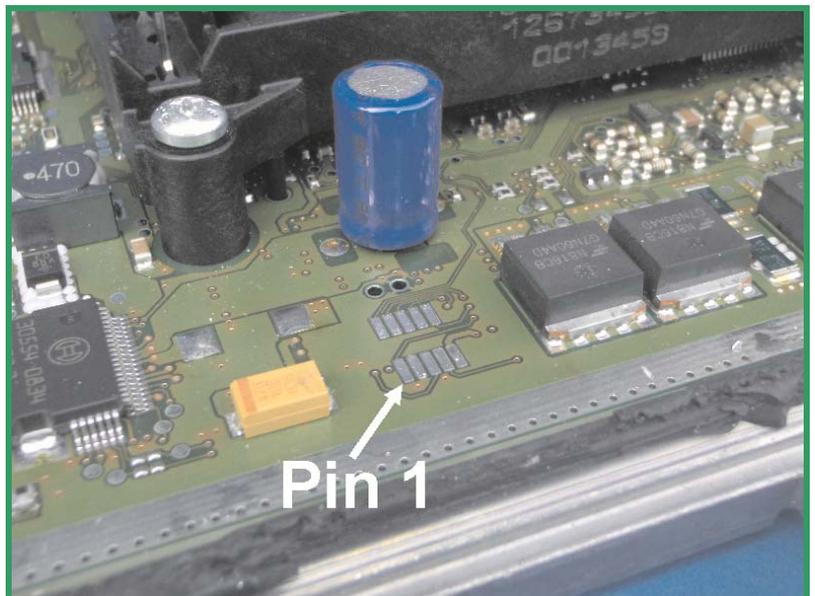
Now place a BDM150 probe into the positioning frame and carefully center the tips of the spring contact probes on the BDM-pads on the board as shown in picture B.

The tips of the spring contact probes should reach a spring travel of 1.5 mm minimum for best contact conditions.

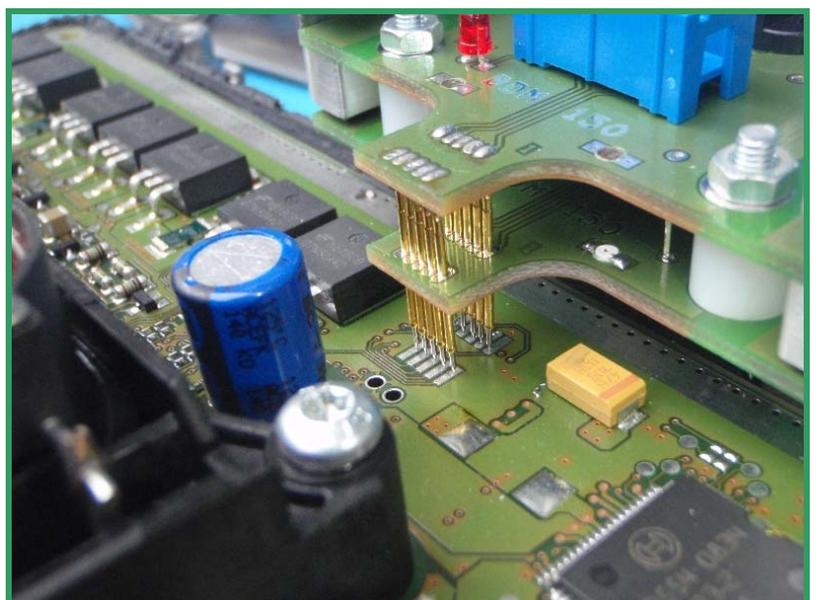
Then connect the BDM110 flat wire cable to the BDM100 module which should already be connected to your computer.

If you then applying power to the main connector of the ECU the red LED on the BDM150 probe lights up to indicate that the logic on the board is supplied with the required voltage

The BDM100 module is now operational.



**Pict. B: These are the required pads for the BDM Interface.**



**Pict. C: This way the BDM150 probe contacts the Bosch MED9.7 ECU board..**

## Interconnections for Daimler-Crysler ETC5 (P02) V1.1

On the ETC5 ECU the power distribution is provided by the following contacts of the "black" contact chamber (the other contact chambers are marked with colour bars).

The required contacts for powering up the ECU are shown in Picture A.

Use separate wires with matching connectors to connect GND and +12Vcc to these contact pins.

After removing the top lid of the ECU, you can see that the PCB is embedded in a clear but sticky and wobbly silicone mass.

For some versions of the ETC5 ECU, a BDM149 probe is used to contact the BDM-pads on the board by poking the spring contact pins through the silicone mass.

If you do not use a BDM149 probe, solder a 10-pin header onto the BDM-pads.

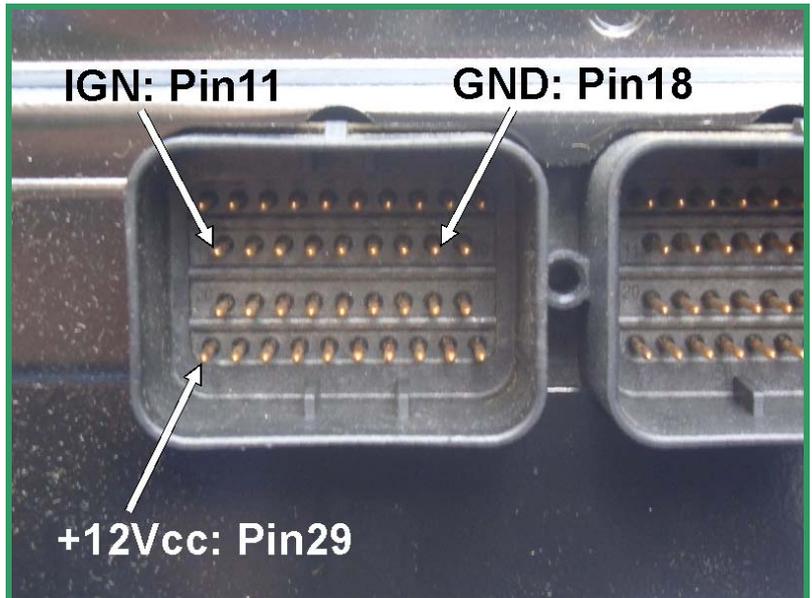
The position of pin1- location of the BDM-pads is already marked in the PCB layout.

To make the P02- version of the ETC5 ECU readable and programmable, a track on the PCB must be disrupted as shown in picture B. For that operation, the silicone mass must be removed.

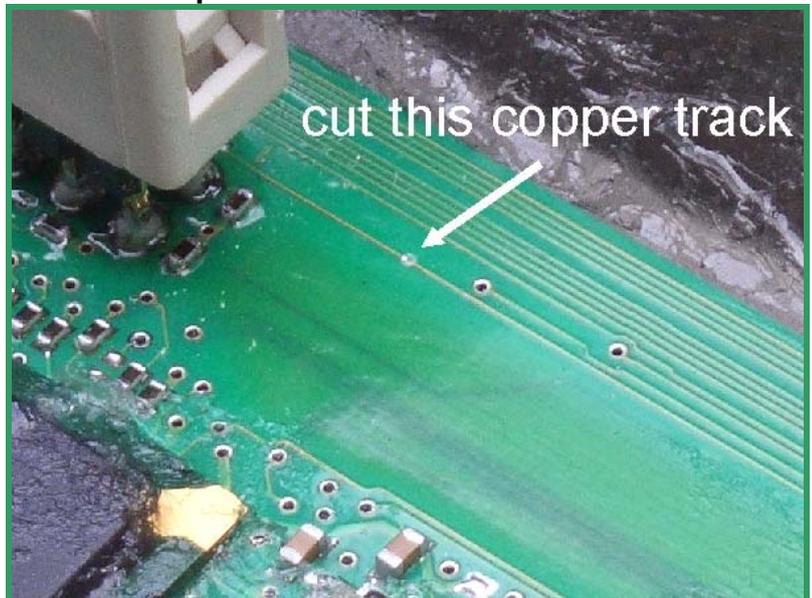
If you then applying power to the main connector of the ECU the red LED of the BDM149 probe (if used) lights up to indicate that the logic on the board is supplied with the required voltage.

The BDM100 module is now operational.

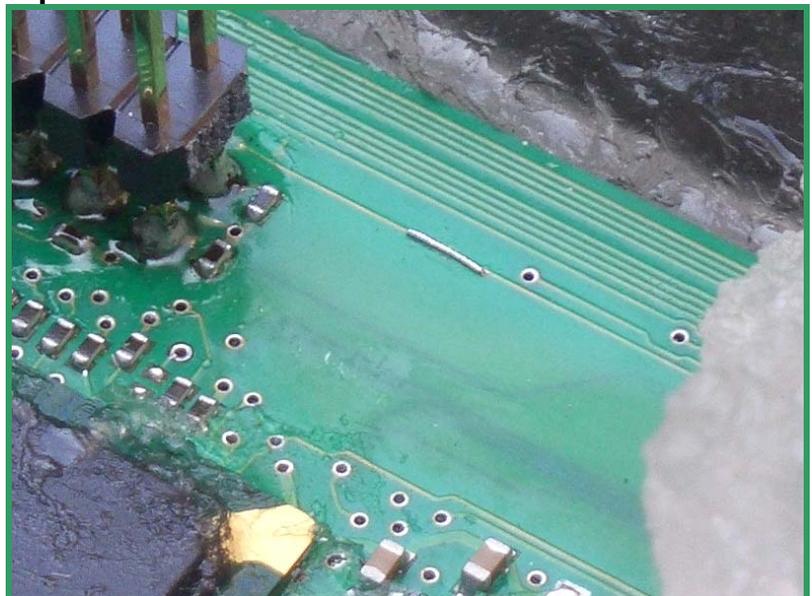
After programming the ECU, it is recommended to reconnect the disrupted PCB-track as shown in Picture C.



**Pict. A: The power connection on the ETC5 ECU.**



**Pict. B: The position of the track that must be disrupted.**



**Pict. C The reconnected track on the ETC5 board.**

## Interconnections for Delphi ECUs



**Pict. A: The main connector of the Delphi ECU**

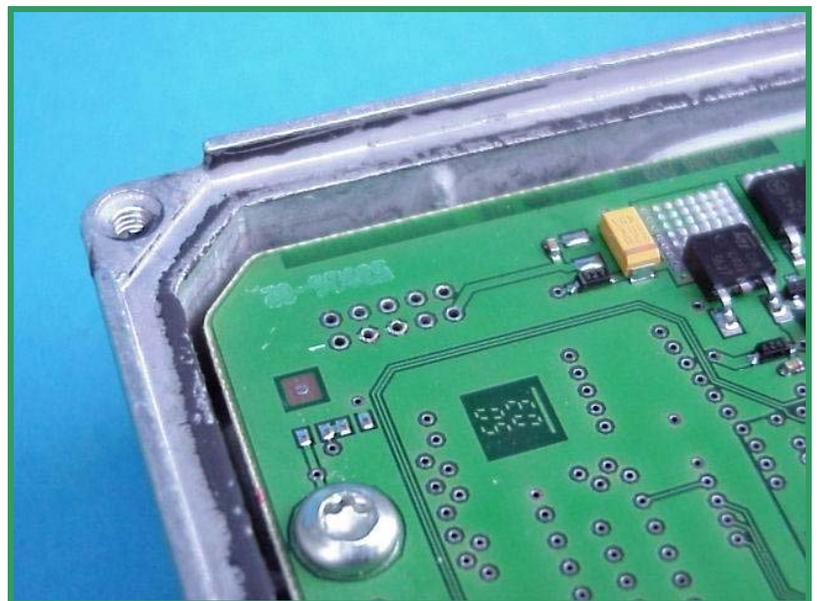
In case of a Delphi ECU the power distribution cannot be provided by special pads of the BDM port.

Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A.

The voltage is provided by a stabilized power supply or by the main connector of the ECU at the cable harness of the car.

**! Warning !** Please always remind, if the open ECU is connected to the cable harness of the car, it is already connected to the battery!

**Please, ensure that the ignition is switched off while plugging the connections!**

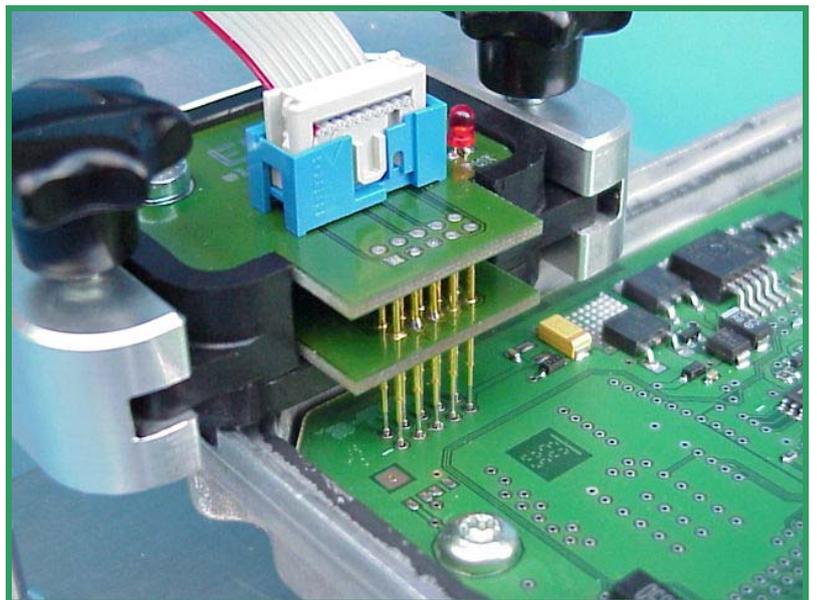


**Pict. B: The BDM pads of the Delphi ECU.**

Now place the BDM142 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board as shown in picture C.

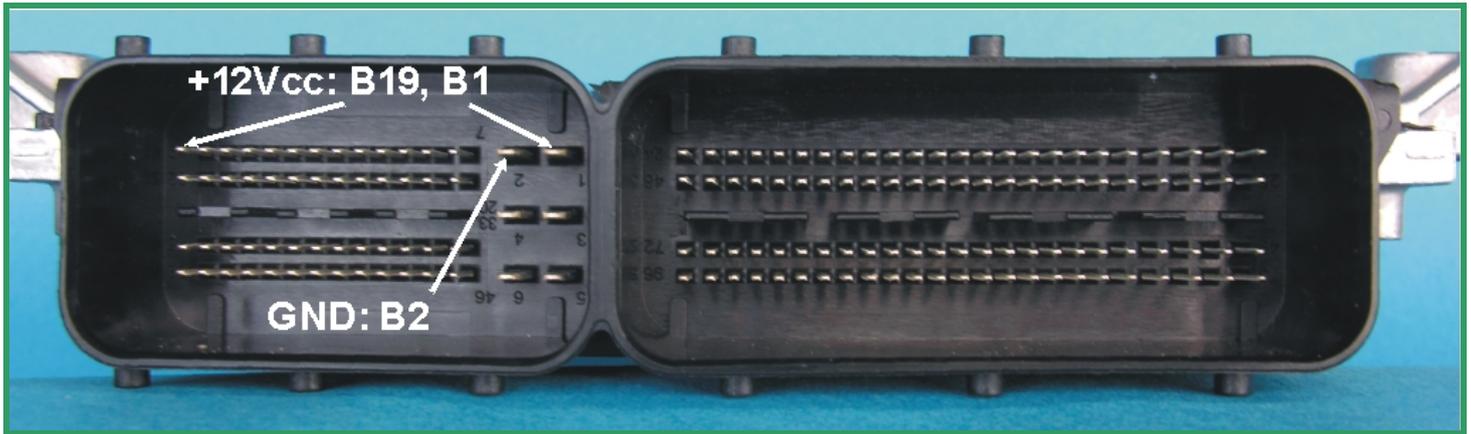
The tips of the spring contact probes should reach a spring travel of 2mm minimum for best contact conditions.

If you then applying power to the main connector of the ECU the red LED of the BDM142 probe lights up to indicate that the logic on the board is supplied with the required voltage.



**Pict. C: The BDM142 probe contacting the BDM port pads of a Delphi ECU.**

## Interconnections for Delphi DCM3.2 ECUs



Pict. A: The main connector of the Delphi DCM3.2 ECU.

On the DCM3.2 the required contacts are located in the smaller chamber of the main connector (Pict. A)

Use separate wires with matching connectors to connect GND and +12Vcc to the pins of the main connector shown in picture A.

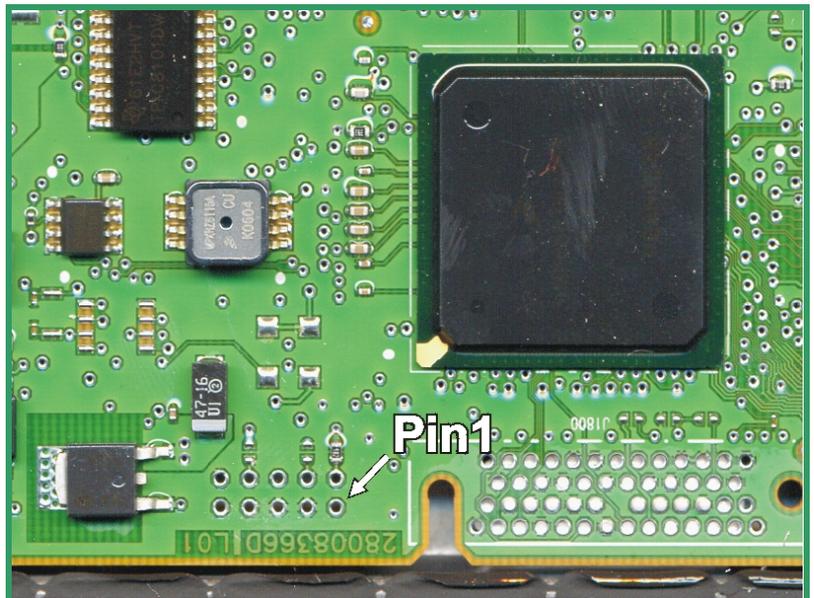
Compared to the standard BDM pin out, the pin out of the BDM-pads on that board is **mirrored**, probably due the board was programmed first in the factory before mounting it into the case (Pict. B).

Now place a BDM147 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board as shown in picture C.

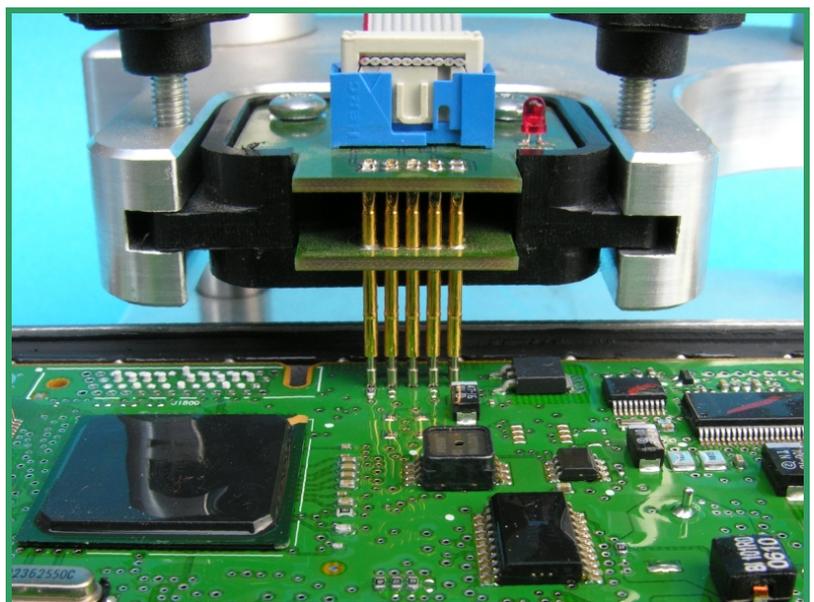
The tips of the spring contact probes should reach a spring travel minimum of 2mm for best contact conditions.

If you then applying power to the main connector of the ECU the red LED of the BDM147 probe lights up to indicate that the logic on the board is supplied with the required voltage.

The BDM100 module is now operational.

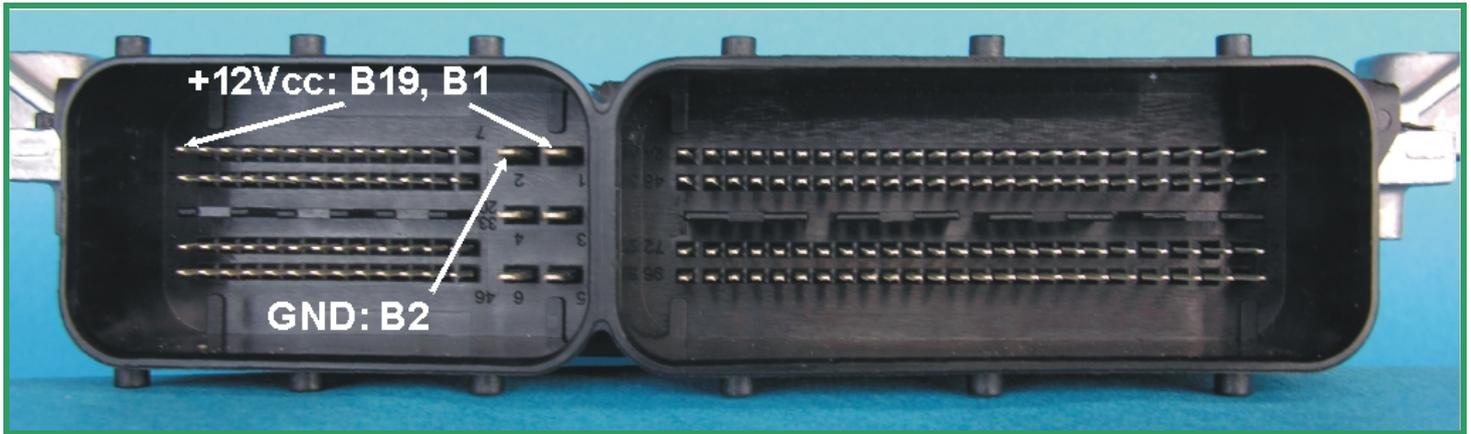


Pict. B: The location of the required Pads.



Pict. C: Like that the BDM147 probe will be positioned over the DCM3.2 board.

## Interconnections for Delphi DCM3.x (MB Version)



Pict. A: The main connector of the Delphi DCM3.2 ECU from Daimler-Chrysler.

On the DCM3.2 the required contacts are located in the smaller chamber of the main connector (Pict. A)

Use separate wires with matching connectors to connect GND and +12Vcc to the pins of the main connector shown in picture A

The PCB-Layout of the DCM3.2 from MB differs slightly from the other versions. You have to close two jumpers first before this ECU is readable! (Pict. B)

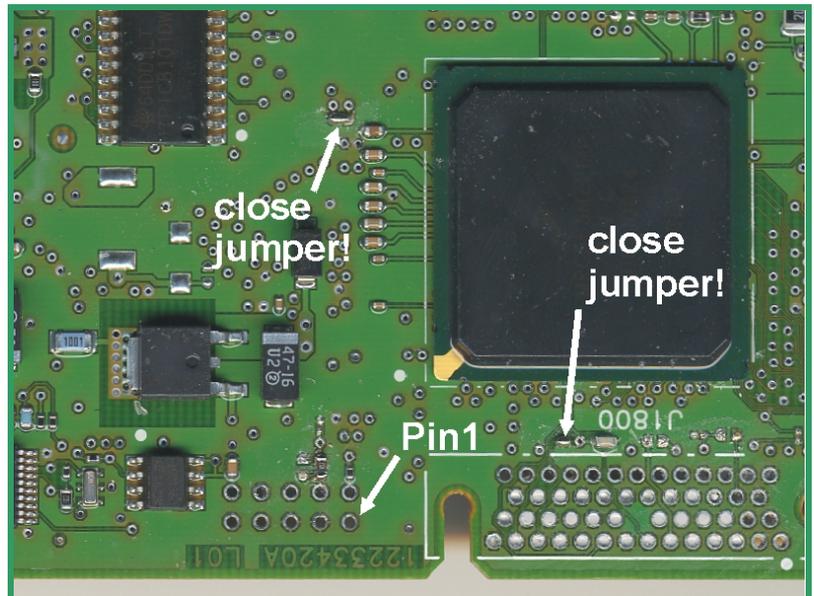
Compared to the standard BDM pin out, the pin out of the BDM-pads on that board is **mirrored**, probably due the board was programmed first in the factory before mounting it into the case (Pict. B).

Now place a BDM147 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board as shown in picture C.

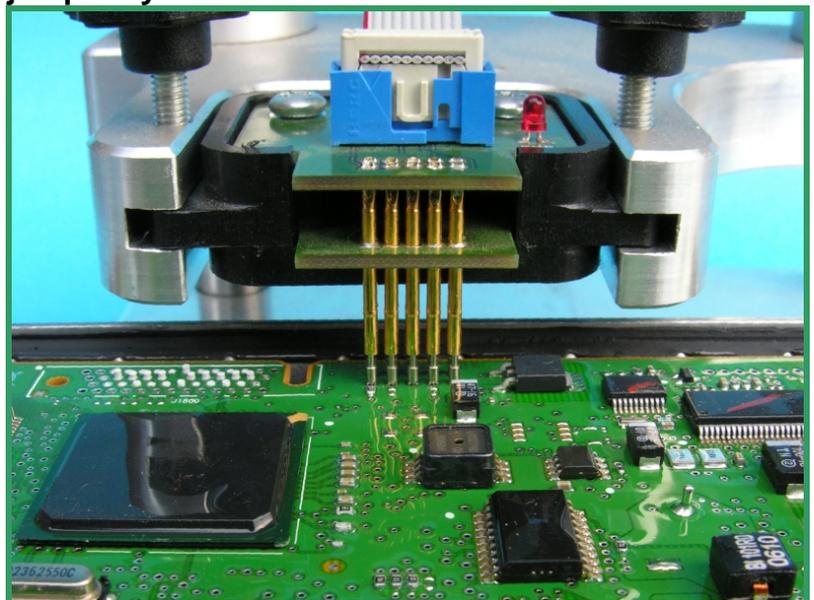
The tips of the spring contact probes should reach a spring travel minimum of 2mm for best contact conditions.

If you then applying power to the main connector of the ECU the red LED of the BDM147 probe lights up to indicate that the logic on the board is supplied with the required voltage.

The BDM100 module is now operational.

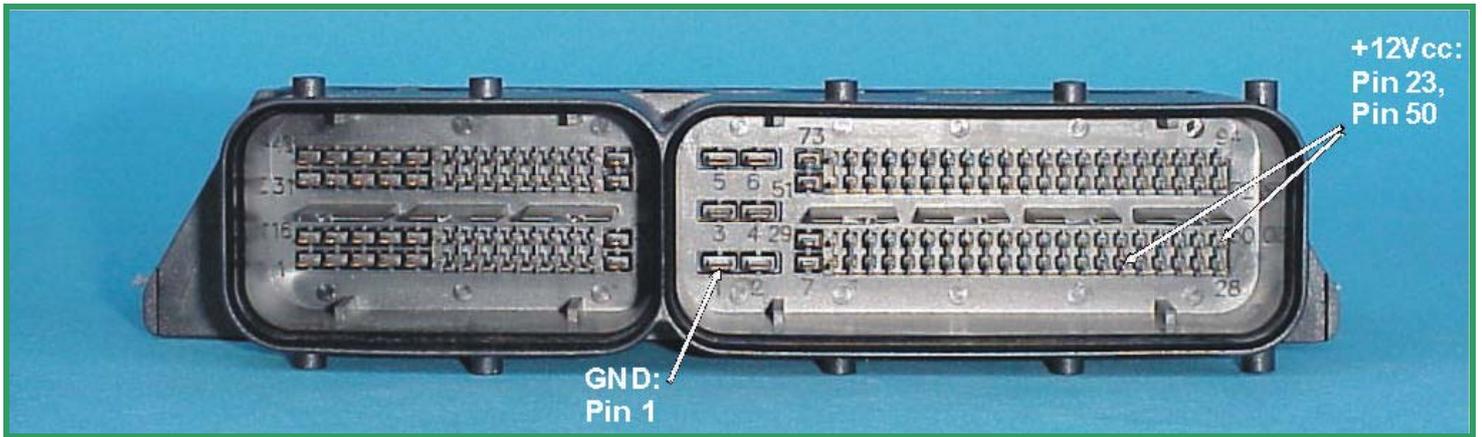


Pict. B: The location of the BDM pads and the two jumpers you have to close first.



Pict. C: Like that the BDM147 probe will be positioned over the DCM3.2 board.

## Interconnections for Marelli ECUs



**Pict. A: The main connector of the Marelli ECU**

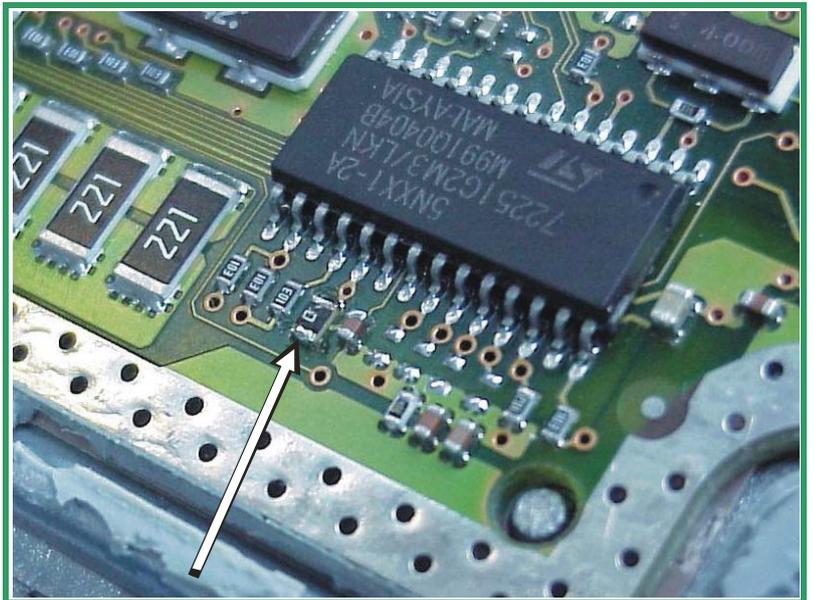
In case of a Marelli ECU the power distribution cannot be provided by special pads of the BDM port.

Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A.

The voltage is provided by a stabilized power supply or by the main connector of the ECU at the cable harness of the car.

**! Warning !** Please always remind, if the open ECU is connected to the cable harness, it is already connected to the battery!

**Please, ensure that the ignition is switched off at beginning!**

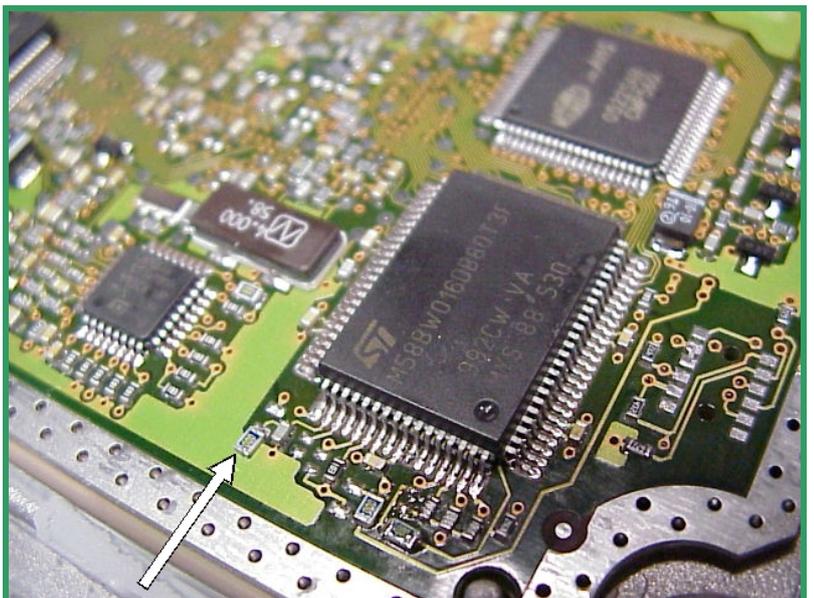


**Pict. B: The location of the zero-ohm resistor witch will be out-soldered.**

Before you can start to read out or program a Marelli ECU, you must solder out the zero-ohm resistor witch is next pin19 of the component with SO28 package in the corner of the ECU board (Pict. B).

There is also another Type of the Marelli MJD- ECU which has another PCB-layout and some other components. There the zero-ohm resistor is placed near the flash-EPROM (Pict. C).

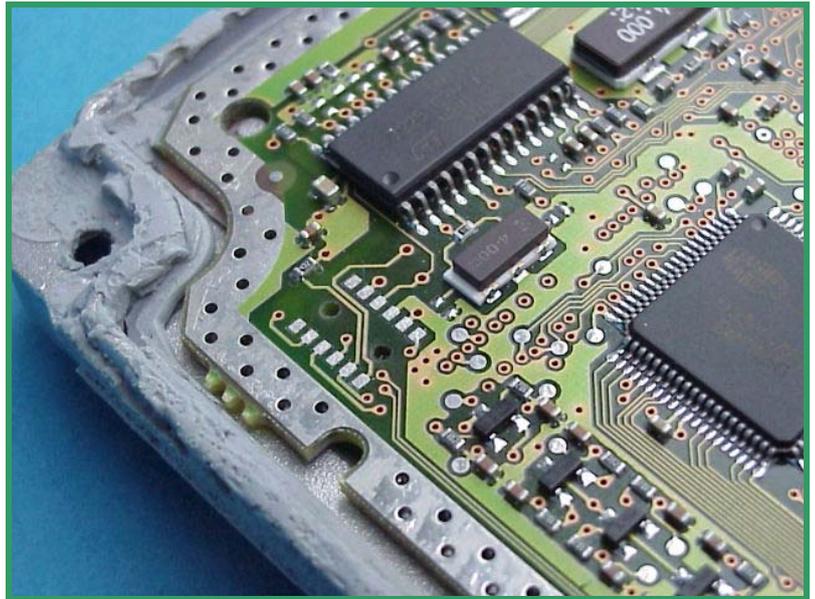
Don't forget to solder the zero-ohm resistor on its place again when the work with the BDM equipment is done.



**Pict. C: On this Marelli MJD-ECU (with another PCB-design) the resistor is already out-soldered.**

The BDM110-cable is made for connecting the BDM100 module with ECUs using a 10way standard BDM-port with a 0.1' pitch.

On a Marelli board you will find a 12pad array with 0.05' pitch for the BDM port. Two of them, pad 11 and pad 12 are unused (Pict. D).



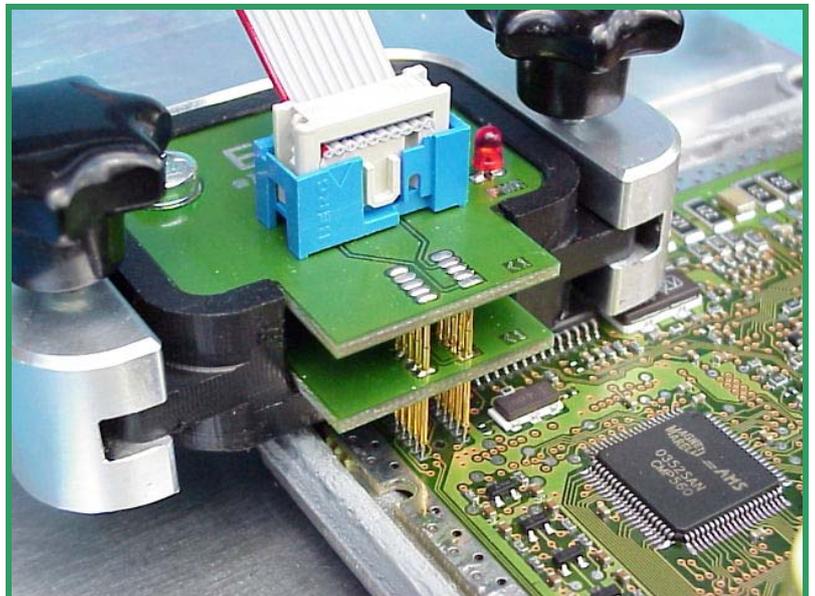
**Pict. D: The BDM pads of the Marelli ECU.**

Now place the BDM144 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board as shown in picture E.

If the length of the spring contact pins should be too short, pull the spring contact pins up to the first rest position from the receptacles.

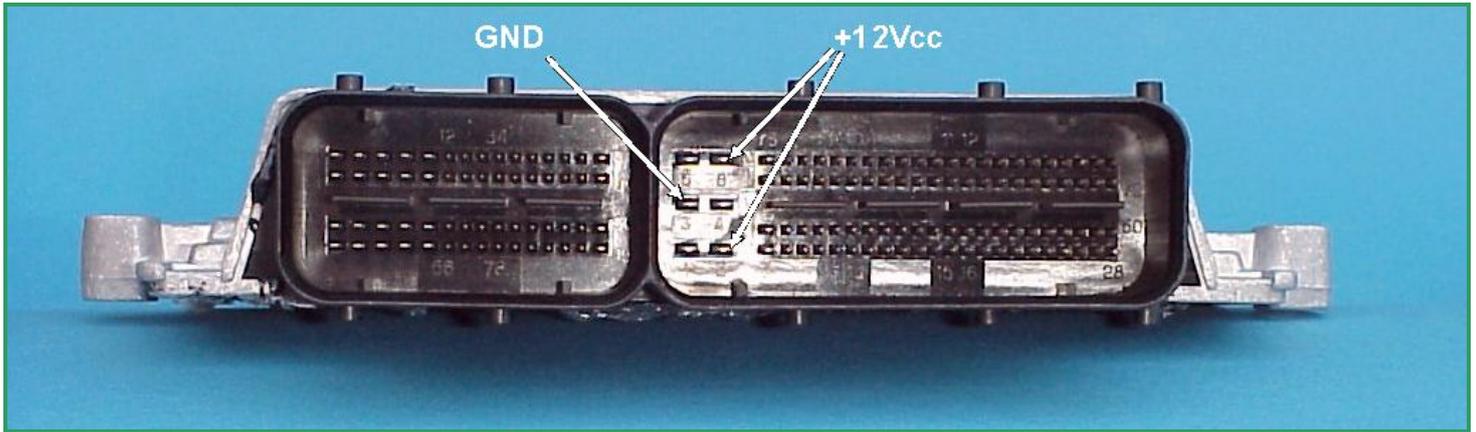
The tips of the spring contact probes should reach a spring travel of 2mm minimum for best contact conditions.

If you then applying power to the main connector of the ECU the red LED of the BDM144 probe lights up to indicate that the logic on the board is supplied with the required voltage.



**Pict. E: The BDM144 probe contacting the BDM port pads of a Marelli ECU.**

## Interconnections Siemens HMC Theta PI ECUs



**Pict. A: The main connector of the Siemens HMC Theta PI-ECU.**

On the Siemens MS45 ECU the power distribution is provided by the pins of the main connector as shown in picture A. Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A.

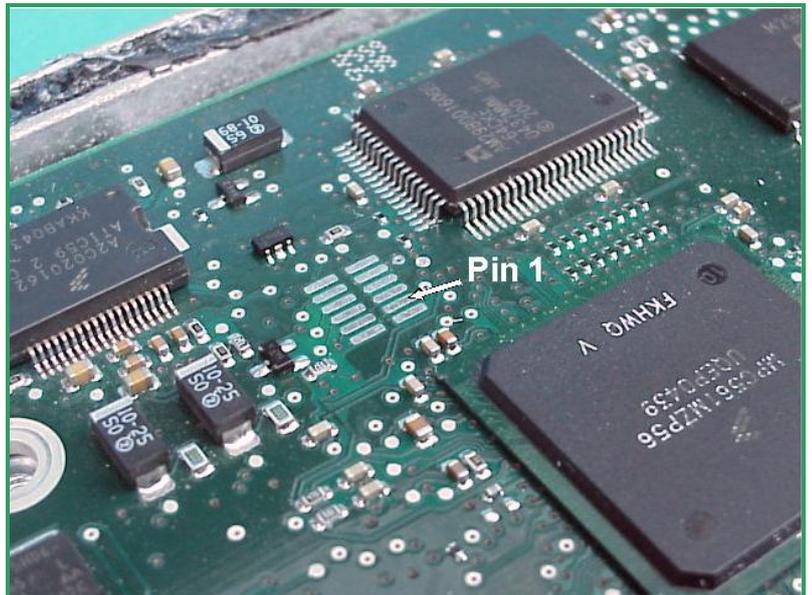
Now place the BDM144 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board as shown in picture C.

If the length of the spring contact pins should be too short, pull the spring contact pins up to the first rest position from the receptacles.

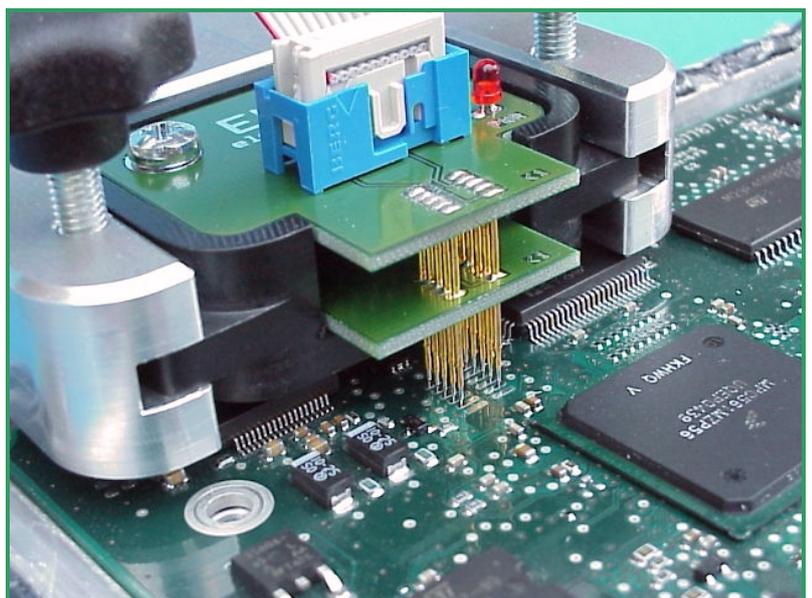
The tips of the spring contact probes should reach a spring travel of 1mm minimum for best contact conditions.

If you then applying power to the main connector of the ECU the red LED of the BDM144 probe lights up to indicate that the logic on the board is supplied with the required voltage

The BDM100 module is now operational

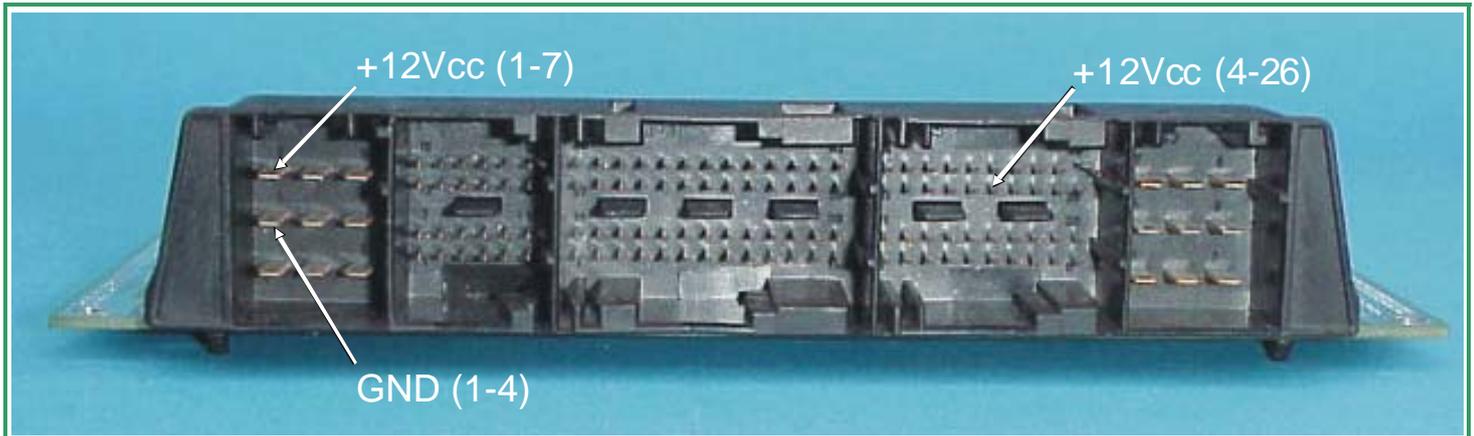


**Pict. B: Only ten of the present 12 pads will be used. The extra both are not connected.**



**Pict. C: The tips of the spring contact probes should reach a spring travel of 2mm minimum for best contact conditions**

## Interconnections for Siemens MS45 ECUs



**Pict.A: The main connector of the MS45 ECU.**

In case of the Siemens MS45 ECU the power distribution is provided by the pins of the main connector marked in picture 19.

Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A.

The voltage is provided by a stabilized power supply or by the main connector of the ECU at the cable harness of the car.

**! Warning !** Please always remind, if the open ECU is connected to the cable harness of the car, it is already connected to the battery!

**Please, ensure that the ignition is switched off at beginning!**

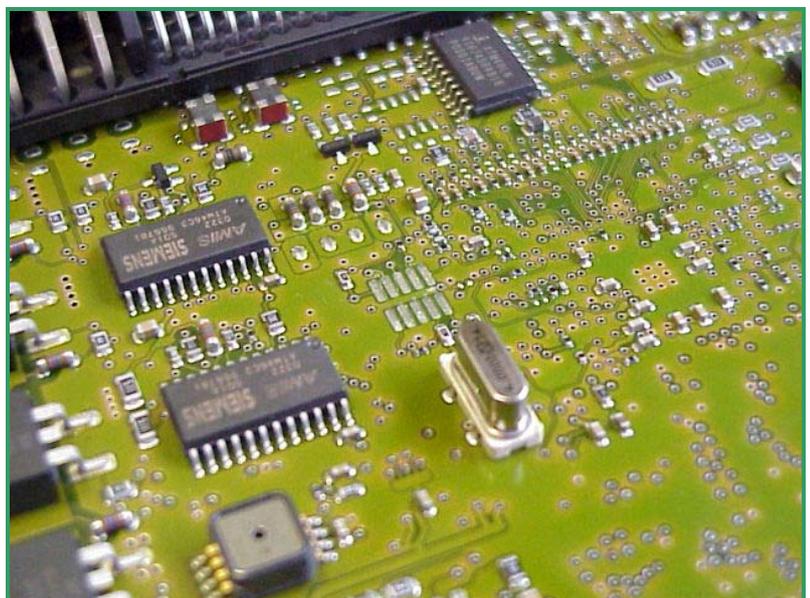
Now place the BDM141 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board as shown in picture C.

If the length of the spring contact pins should be too short, pull the spring contact pins up to the first rest position from the receptacles.

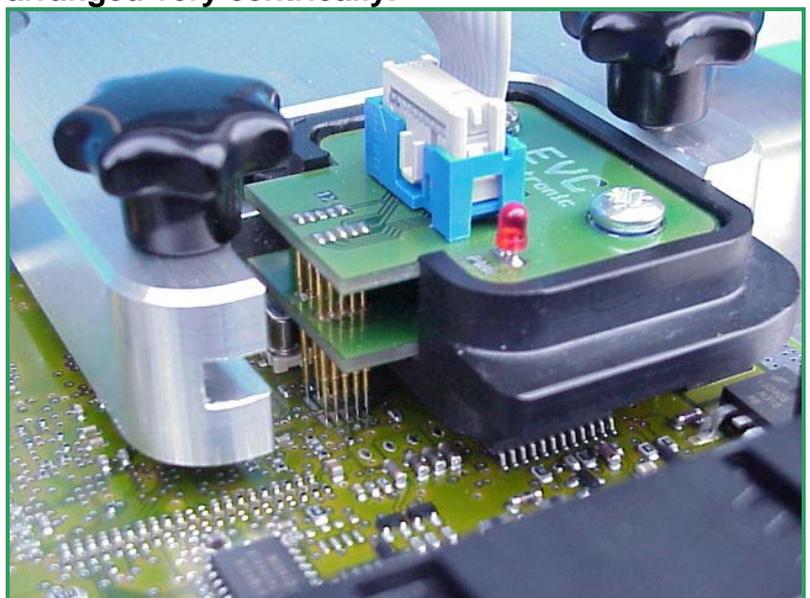
The tips of the spring contact probes should reach a spring travel of 1mm minimum for best contact conditions.

If you then applying power to the main connector of the ECU the red LED of the BDM141 probe lights up to indicate that the logic on the board is supplied with the required voltage

The BDM100 module is now operational.

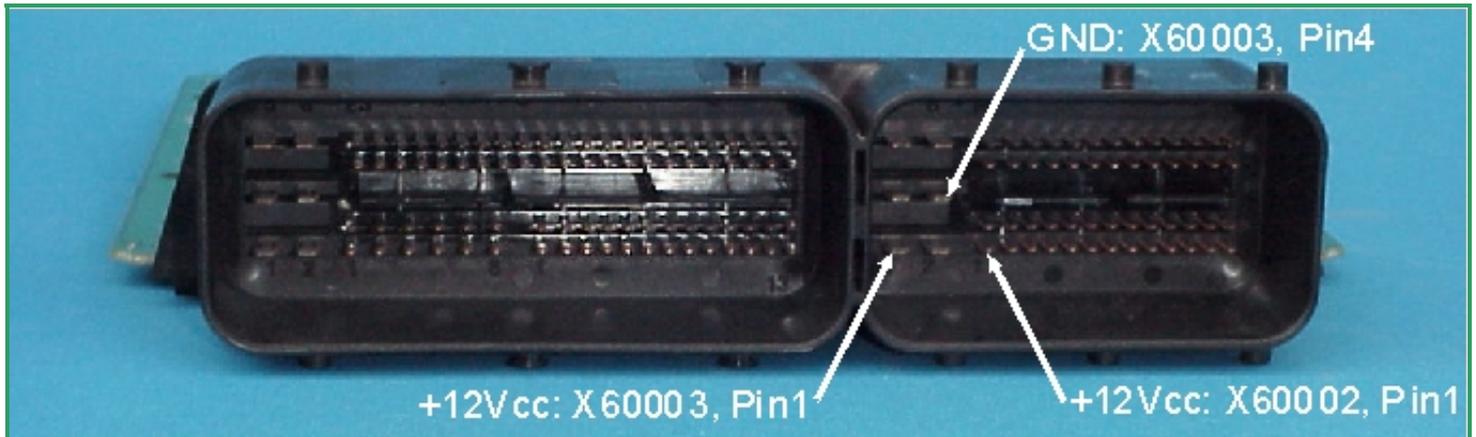


**Pict. B: On the MS45 board the BDM-Pads are arranged very centrally.**



**Pict. C: The BDM141 contacting BDM- Pads.**

## Interconnections for Siemens MSS65 ECUs



**Pict.A: The main connector of the MSS65 ECU.**

On the Siemens MS45 ECU the power distribution is provided by the pins of the main connector as shown in picture 19a. Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A.

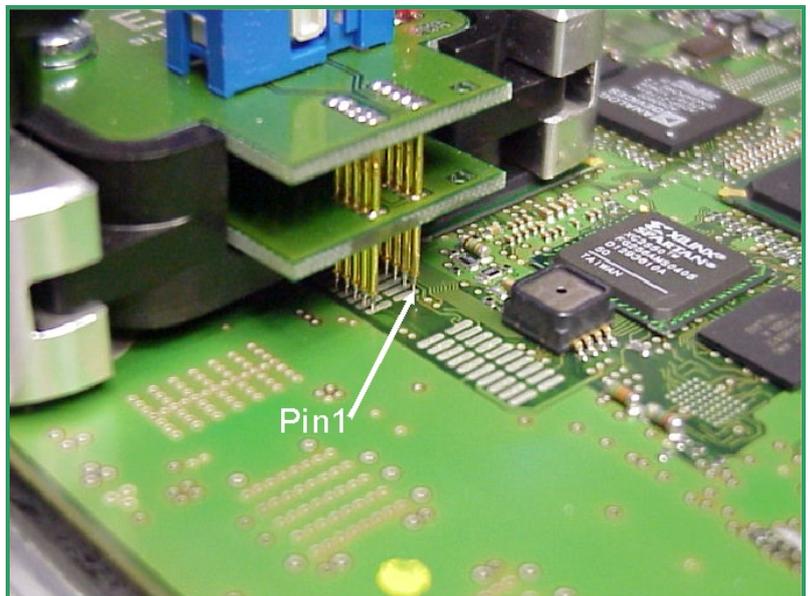
On the MSS65 board there are two processors which each own programming port pad arrays. Each array consists of 30 pads but only the first 10 of them are used for BDM purposes. For connecting the BDM-pads controllable the BDM141 and also the BDM144 probe are required.

Now place the BDM probes in succession into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board as shown in picture B and picture C.

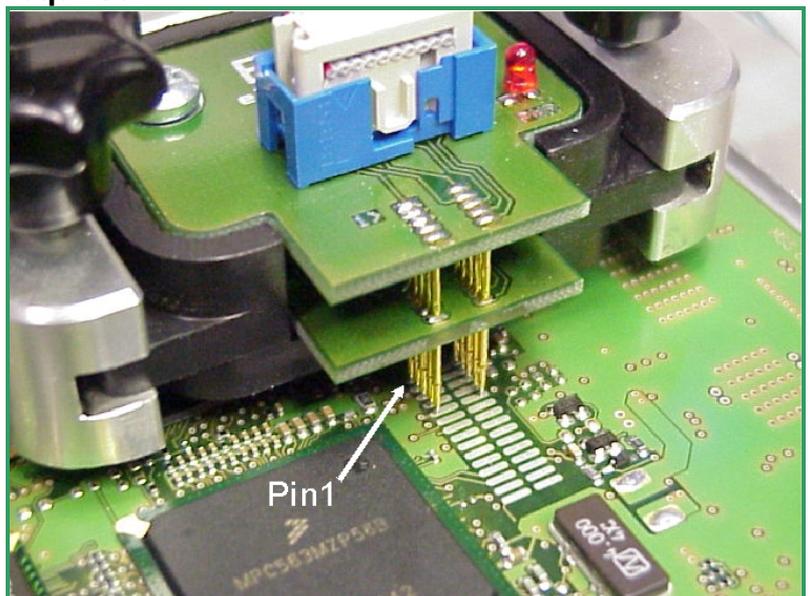
If the length of the spring contact pins should be too short, pull the spring contact pins up to the first rest position from the receptacles. The tips of the spring contact probes should reach a spring travel of 1mm minimum for best contact conditions.

If you then applying power to the main connector of the ECU the red LED of the BDM14x probe lights up to indicate that the logic on the board is supplied with the required voltage

The BDM100 module is now operational

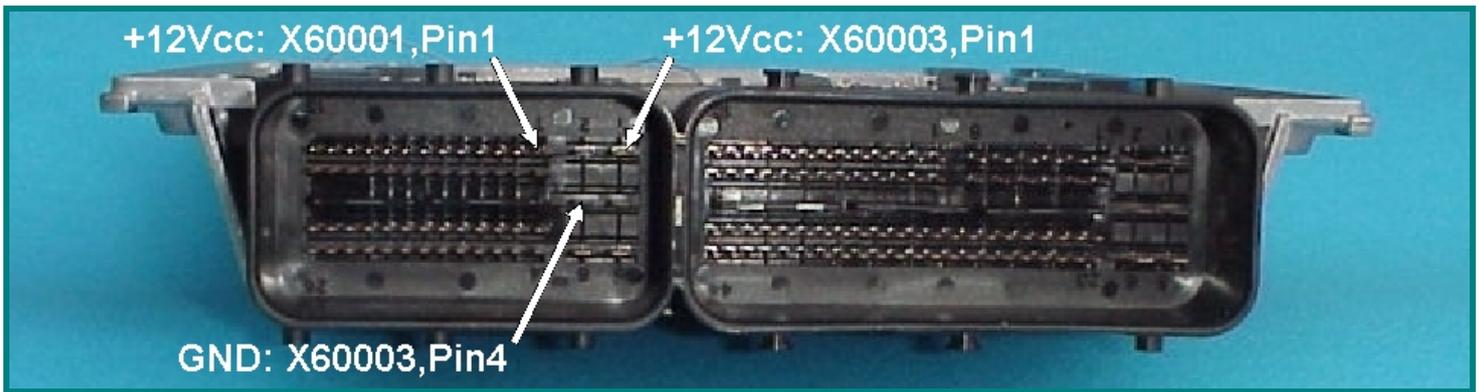


**Pict. B: On the MSS65 board both the BDM144 (shown in this picture) and the BDM141 probes are required.**



**Pict. C: The BDM141 probe contacting the BDM-pads of the second processor..**

## Interconnections for Siemens MSS70 ECUs



**Pict. A:** The main connector of the Siemens MSS70 ECU like on the MSV70 ECU.

The programming of the MSS70 ECU is very similar to the programming of the MSV70 ECU.

On the Siemens MSS70 ECU the power distribution is provided by the pins of the main connector as shown in picture A.

Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A

Don't forget to close the jumper pads shown on picture B!

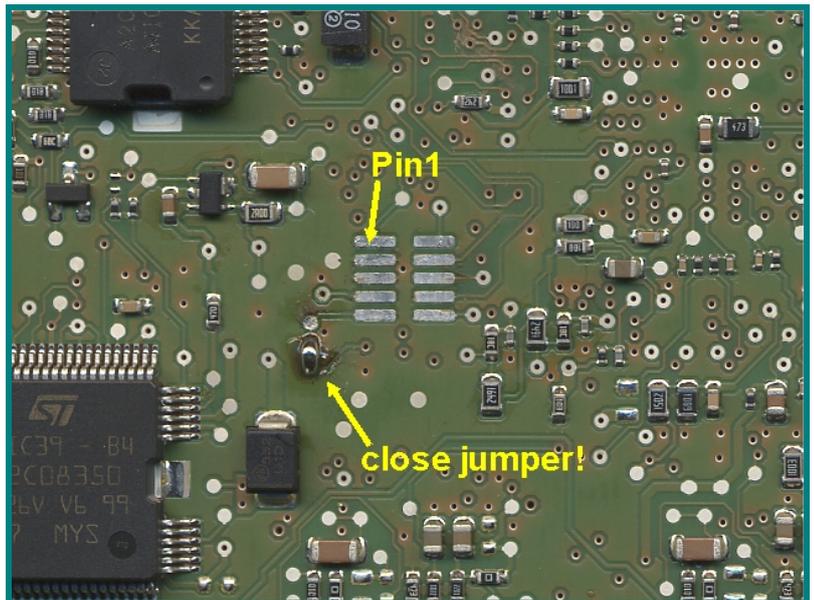
Now place the BDM141 probe into the positioning frame and carefully centre the tips of the spring contact probes on the BDM-pads on the board as shown in picture B.

Then connect the BDM110 flat wire cable to the BDM100 module which must already be connected to your computer.

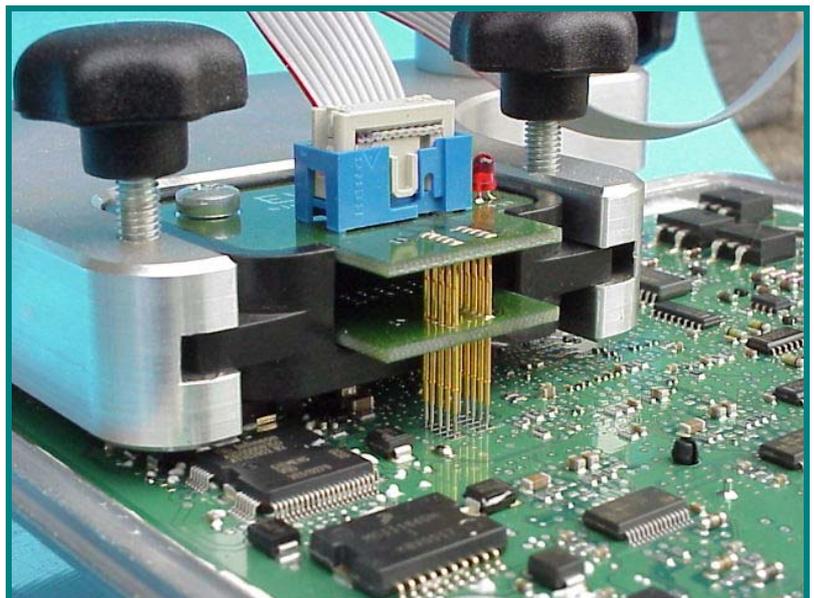
The tips of the spring contact probes should reach a spring travel of 1mm minimum for best contact conditions.

If you then applying power to the main connector of the ECU the red LED of the BDM141 probe lights up to indicate that the logic on the board is supplied with the required voltage

The BDM100 module is now operational.

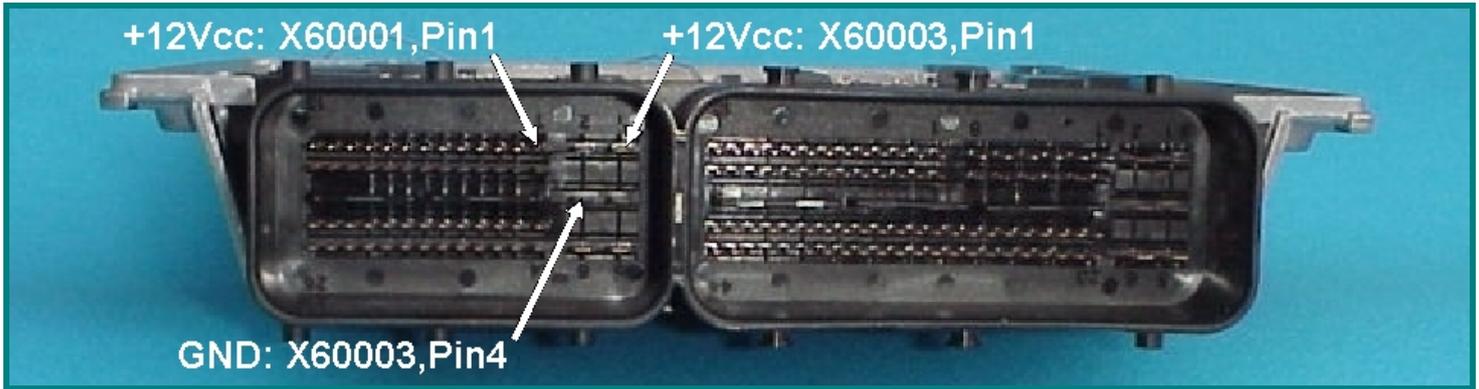


**Pict. B:** This are the pads which are required for the BDM interface.



**Pict.C:** Make sure, that you are not producing short circuits, if you are lowering the arm of the positioning frame!

## Interconnections for Siemens MSV70 ECUs



**Pict. A:** The main connector of the Siemens MSV70 ECU (equal to the one of the MSS65 ECU).

On the Siemens MSV70 ECU the power distribution is provided by the pins of the main connector as shown in picture 31.

Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A

To make the BDM100-Modul able to recognize the ECU, a drop of solder or a zero-Ohm resistor is required. Place it between the both solder pads which are marked by a yellow circle on picture B.

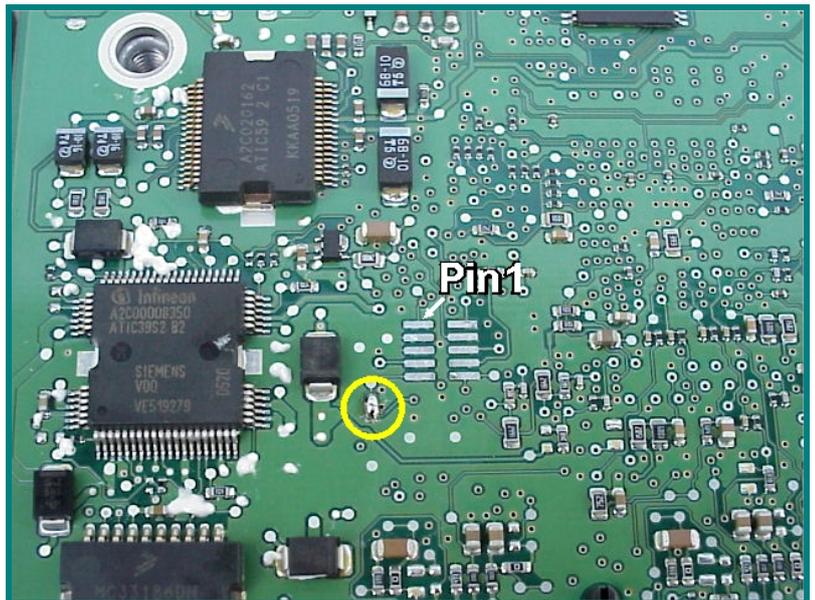
Now place the BDM141 probe into the positioning frame and carefully center the tips of the spring contact probes on the BDM-pads on the board as shown in picture C.

Then connect the BDM110 flat wire cable to the BDM100 module which must already be connected to your computer.

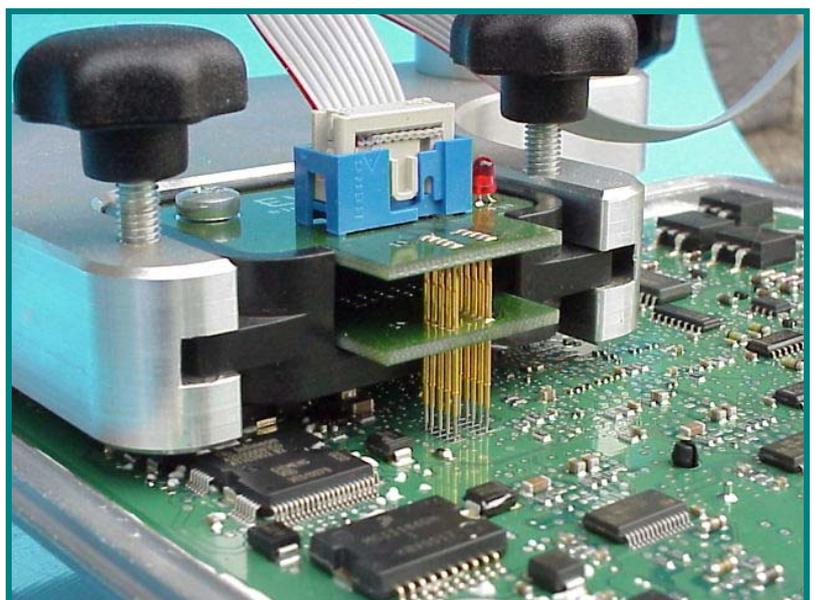
The tips of the spring contact probes should reach a spring travel of 1mm minimum for best contact conditions.

If you then applying power to the main connector of the ECU the red LED of the BDM141 probe lights up to indicate that the logic on the board is supplied with the required voltage

The BDM100 module is now operational.

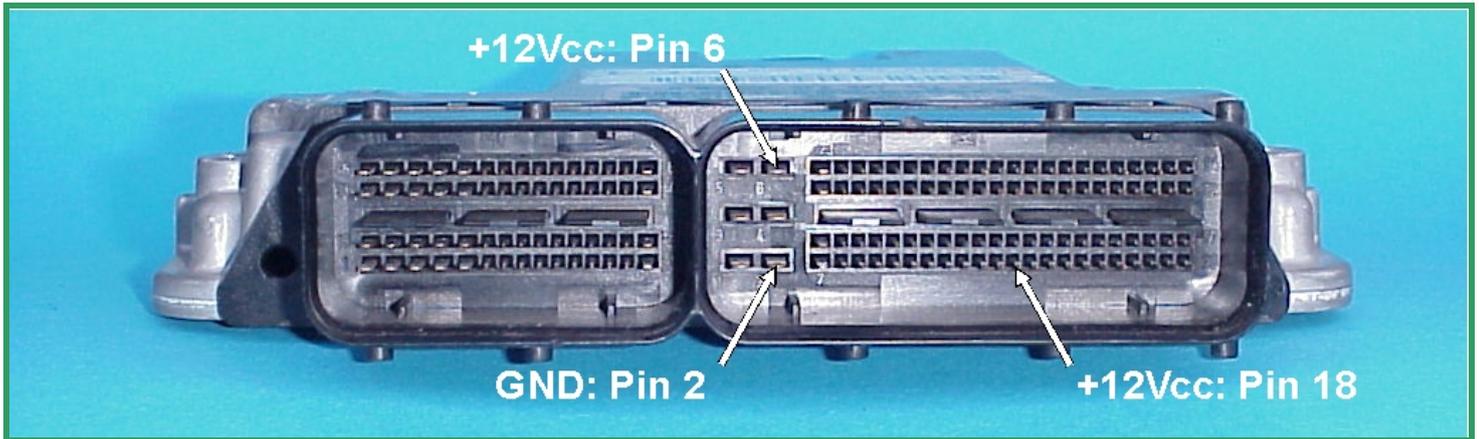


**Pict. B:** This are the pads which are required for the BDM interface. The required jumper is marked by a yellow circle.



**Pict.C:** Make sure, that you are not producing short circuits, if you are lowering the arm of the positioning frame!

## Interconnections for Siemens PPD1.1 ECUs



**Pict. A: The main connector of the Siemens PPD1.1 ECU.**

On the Siemens PPD1.1 ECU the power distribution is provided by the pins of the main connector as shown in picture A.

Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A

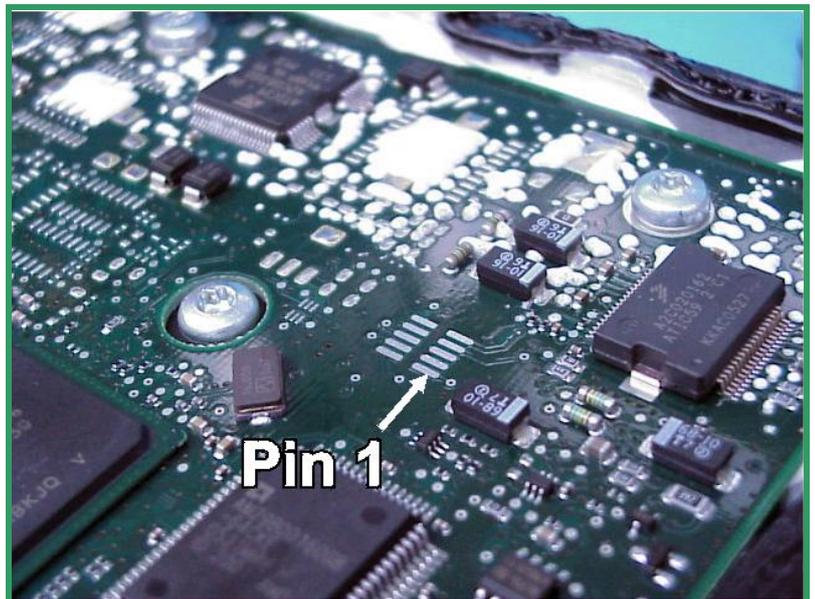
Now place the BDM144 probe into the positioning frame and carefully center the tips of the spring contact probes on the BDM-pads on the board as shown in picture B.

Then connect the BDM110 flat wire cable to the BDM100 module which is already connected to your computer.

The tips of the spring contact probes should reach a spring travel of 1mm minimum for good contact conditions.

If you then applying power to the main connector of the ECU the red LED on the BDM144 probe lights up to indicate that the logic on the board is supplied with the required voltage

The BDM100 module is now operational.

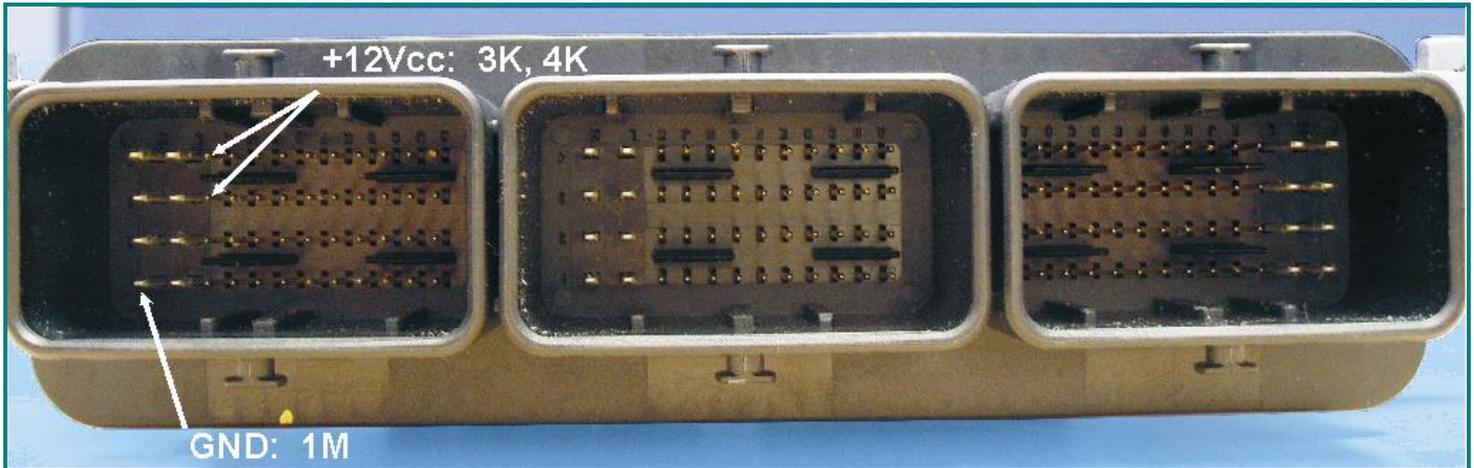


**Pict. B: This are the pads which are required for the BDM interface.**



**Pict. C: In this case the BDM144 probe is best suited for contacting the BDM-pads on the PPD1.1.**

## Interconnections for Siemens SID201 ECUs



**Pict.A: The main connector of the Siemens SID201 ECU.**

In case of the Siemens SID201 ECU the power distribution is provided by the pins of the main connector marked in picture A. Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A.

The voltage is provided by a stabilized power supply or by the main connector of the ECU at the cable harness of the car.

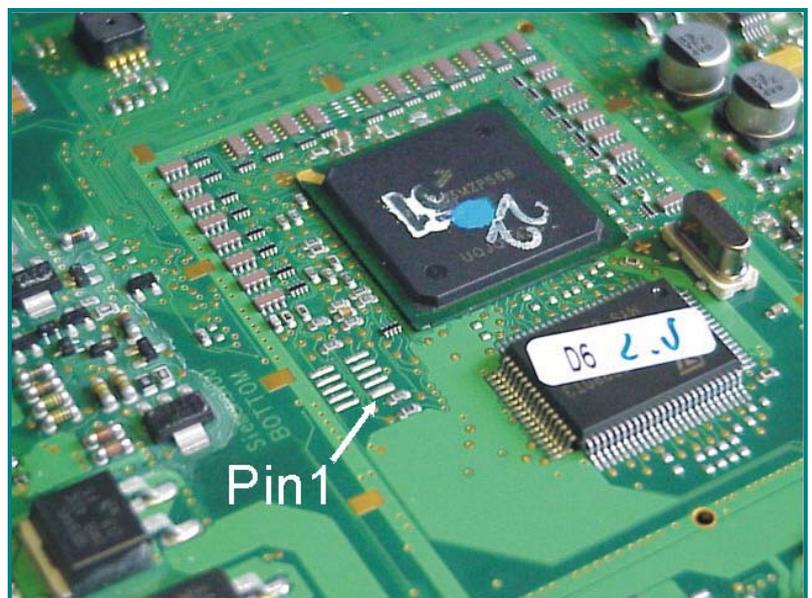
**! Warning !** Please always remind, if the open ECU is connected to the cable harness of the car, it is already connected to the battery!

**Please, ensure that the ignition is switched off at beginning!**

Now place the BDM141 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board. If the length of the spring contact pins is not long enough, pull the spring contact pins up to the first rast position from the receptacles.

The tips of the spring contact probes should reach a spring travel of 1mm minimum for best contact conditions.

If you then apply power to the main connector of the ECU, the red LED of the BDM141 probe lights up to indicate that the logic on the board is supplied with the required voltage

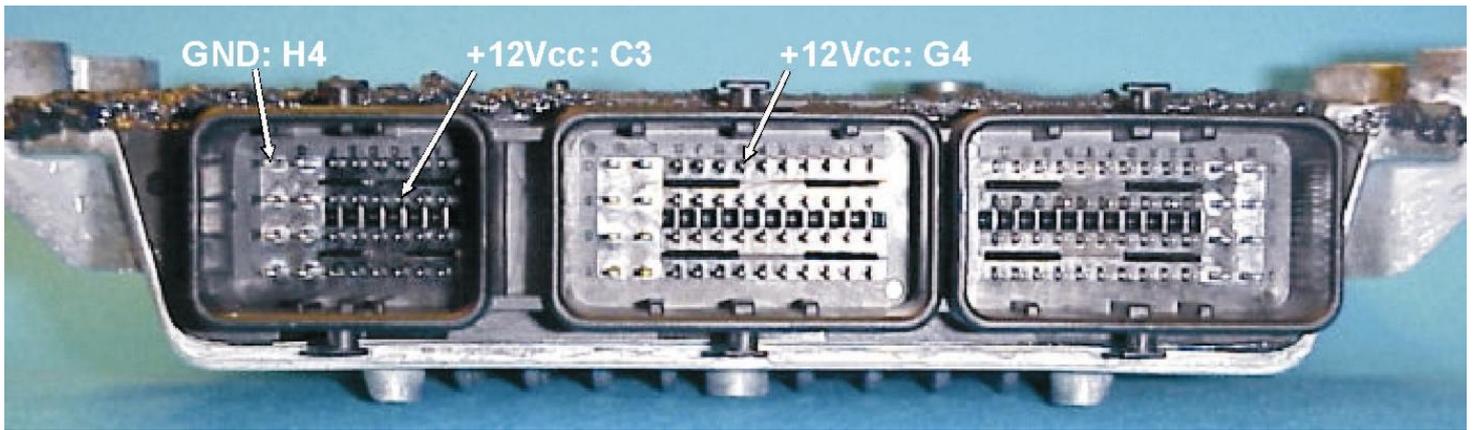


**Pict. B: The location of the BDM- Pads on the board of the Siemens SID201 ECU.**



**Pict. C: The BDM141 contacting the BDM- Pads.**

## Interconnections for Siemens SID202 and SID803A ECUs



**Pict.A: The connections for power and ignition for the SID202 ECU are the same as on the Siemens SID803(A) ECU.**

This instruction for the SID202 ECU is also valid for the SID803A ECU.

In case of the Siemens SID202 ECU the power distribution is provided by the pins of the main connector marked in picture 16a. Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A.

The voltage is provided by a stabilized power supply or by the main connector of the ECU at the cable harness of the car.

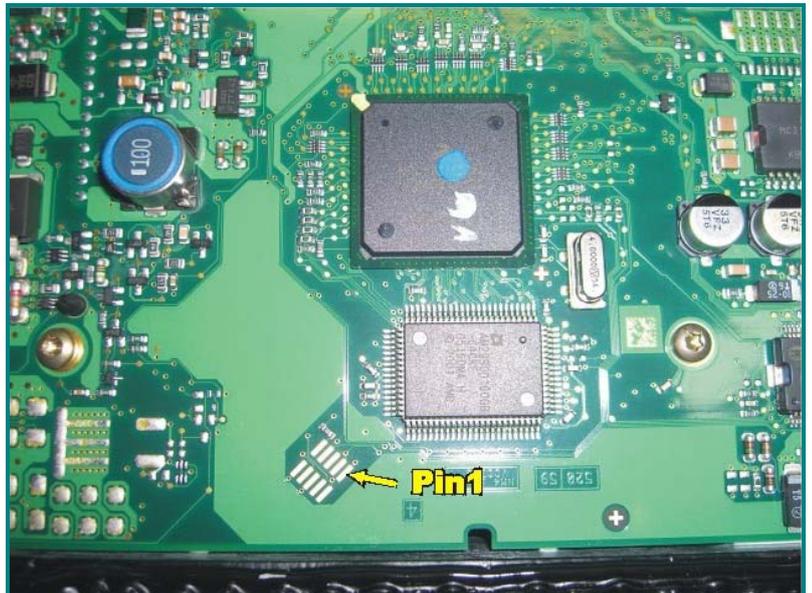
**! Warning !** Please always remind, if the open ECU is connected to the cable harness of the car, it is already connected to the battery!

**Please, ensure that the ignition is switched off at beginning!**

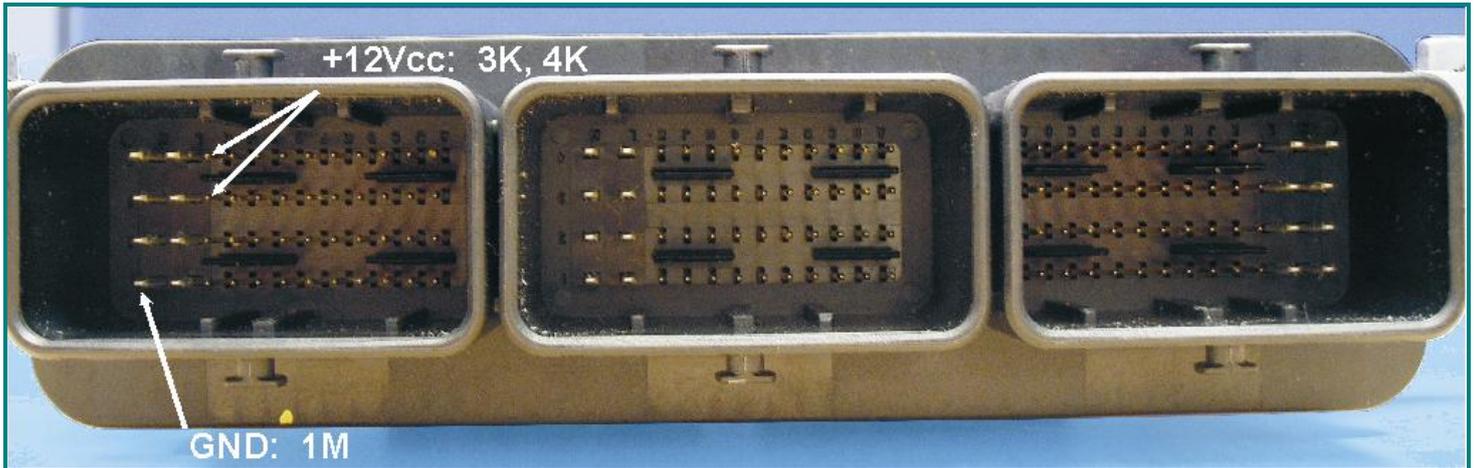
Now place the BDM141 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board. If the length of the spring contact pins is not long enough, pull the spring contact pins up to the first rest position from the receptacles.

The tips of the spring contact probes should reach a spring travel of 1mm minimum for best contact conditions.

If you then apply power to the main connector of the ECU, the red LED of the BDM141 probe lights up to indicate that the logic on the board is supplied with the required voltage



**Pict. B: The location of the BDM- Pads on the board of the Siemens SID202 ECU**



**Pict.A:** The connections for power and ignition for the SID203 ECU are the same as on the Siemens SID201 ECU.

In case of the Siemens SID203 ECU the power distribution is provided by the pins of the main connector marked in picture 16a. Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A.

The voltage is provided by a stabilized power supply or by the main connector of the ECU at the cable harness of the car.

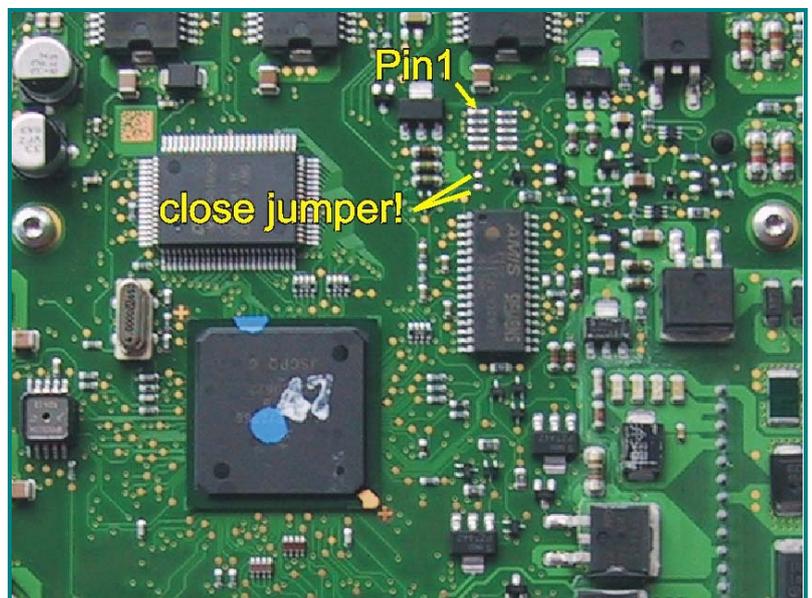
**! Warning !** Please always remind, if the open ECU is connected to the cable harness of the car, it is already connected to the battery!

**Please, ensure that the ignition is switched off at beginning!**

Now place the BDM141 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board. If the length of the spring contact pins is not long enough, pull the spring contact pins up to the first rest position from the receptacles.

The tips of the spring contact probes should reach a spring travel of 1mm minimum for best contact conditions.

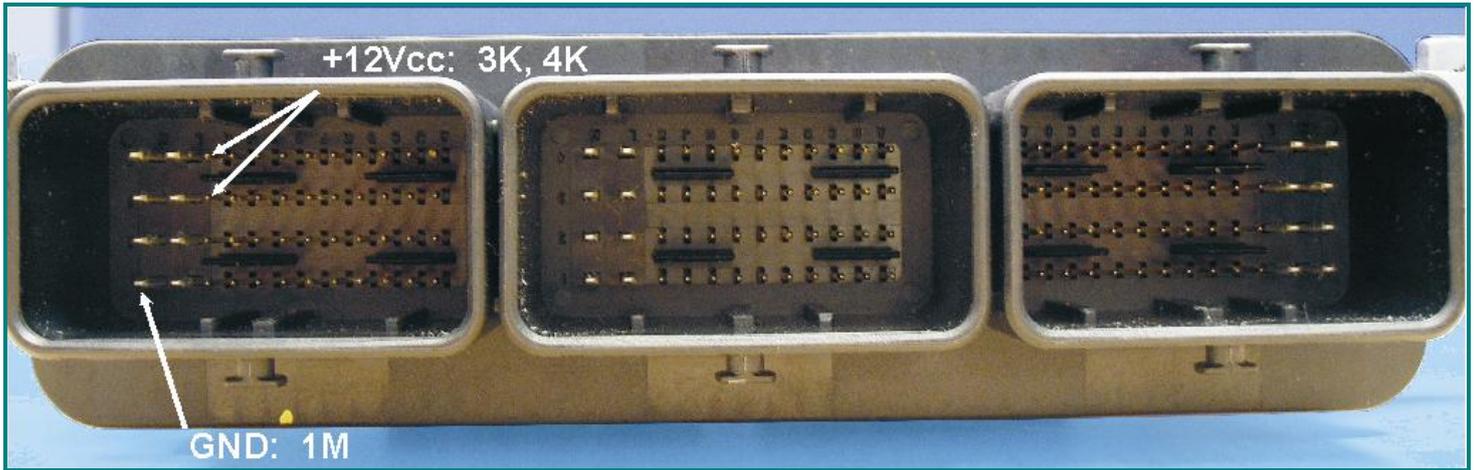
If you then apply power to the main connector of the ECU, the red LED of the BDM141 probe lights up to indicate that the logic on the board is supplied with the required voltage



**Pict. B:** The location of the BDM- Pads on the board of the Siemens SID203 ECU.

**Don't forget to close the jumper! For the BDM-module this is necessary to recognize the ECU.**

## Interconnections for Siemens SID204 ECUs



**Pict.A:** The connections for power and ignition for the SID204 ECU are the same as on the Siemens SID201 ECU.

In case of the Siemens SID204 ECU the power distribution is provided by the pins of the main connector marked in picture 16a. Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A.

The voltage is provided by a stabilized power supply or by the main connector of the ECU at the cable harness of the car.

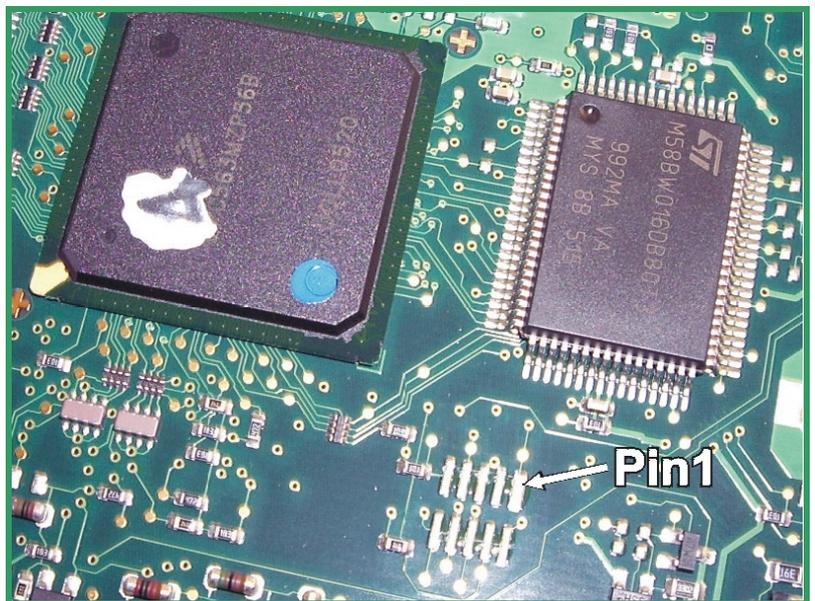
**! Warning !** Please always remind, if the open ECU is connected to the cable harness of the car, it is already connected to the battery!

**Please, ensure that the ignition is switched off at beginning!**

Now place the BDM141 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board. If the length of the spring contact pins is not long enough, pull the spring contact pins up to the first rast position from the receptacles.

The tips of the spring contact probes should reach a spring travel of 1mm minimum for best contact conditions.

If you then apply power to the main connector of the ECU, the red LED of the BDM141 probe lights up to indicate that the logic on the board is supplied with the required voltage

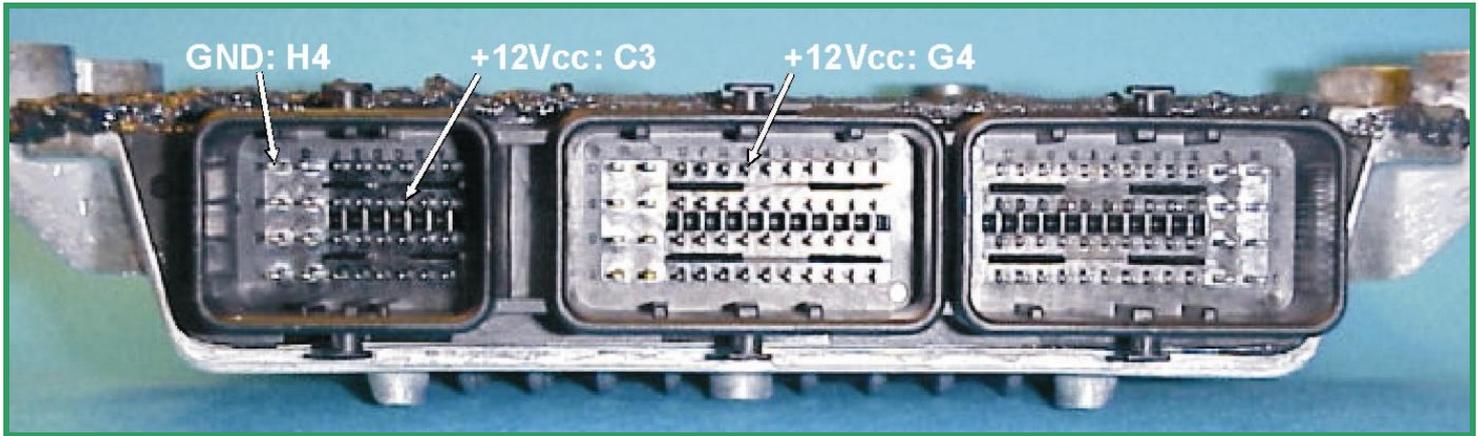


**Pict. B:** The location of the BDM- Pads on the board of the Siemens SID204 ECU.



**Pict. C:** The BDM141 probe contacting the BDM pads on the board of the Siemens SID204 ECU

## Interconnections for Siemens SID206 ECUs



**Pict.A:** The connections for power and ignition for the SID206 ECU are the same as on the Siemens SID803 ECU.

In case of the Siemens SID206 ECU the power distribution is provided by the pins of the main connector. The concerned pins are marked in picture 16a.

Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A

The voltage is provided by a stabilized power supply or by the main connector of the ECU at the cable harness of the car.

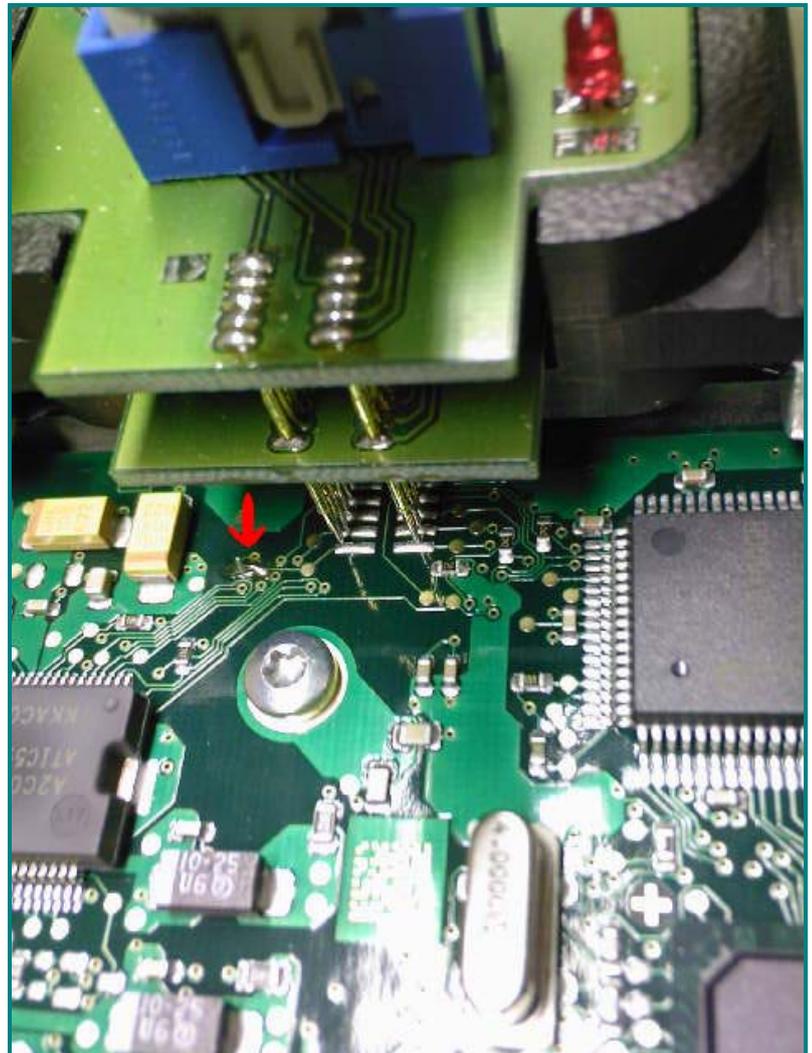
**! Warning !** Please always remind, if the open ECU is connected to the cable harness of the car, it is already connected to the battery!

**Please, ensure that the ignition is switched off at beginning!**

Now place the BDM141 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board. If the length of the spring contact pins is not long enough, pull the spring contact pins up to the first raste position from the receptacles.

The tips of the spring contact probes should reach a spring travel of 1mm minimum for best contact conditions.

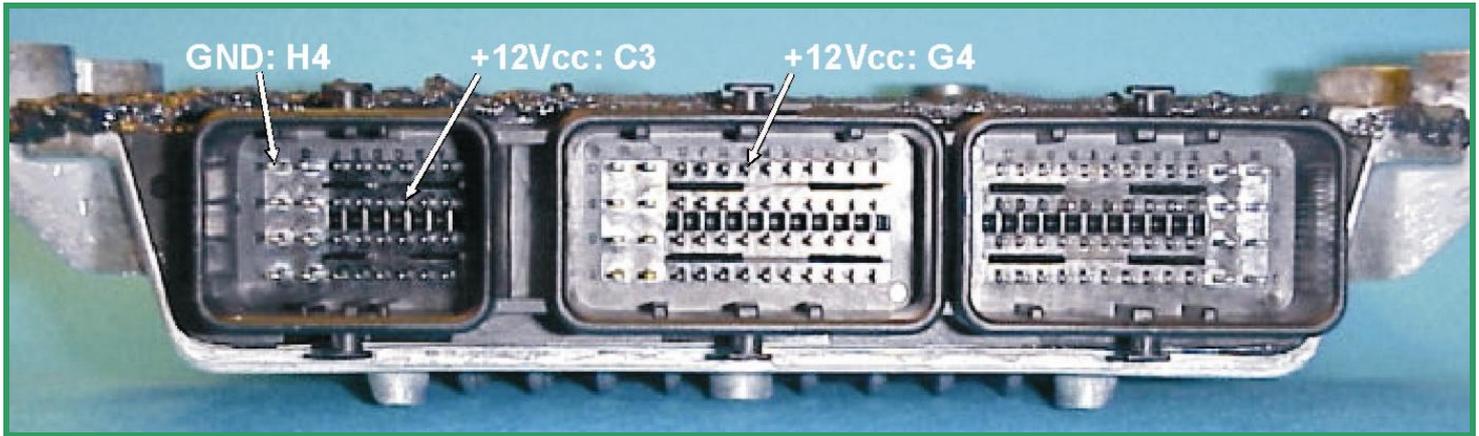
If you then apply power to the main connector of the ECU, the red LED of the BDM141 probe lights up to indicate that the logic on the board is supplied with the required voltage



**Pict. B:** The BDM141 probe contacting the BDM pads on the board of the Siemens SID206 ECU

The position of pin1 you can infer from the BDM141 probe above the pads. Don't forget to close the jumper (red arrow).

## Interconnections for Siemens SID803 ECUs



**Pict.A: The main connector of the Siemens SID803 ECU.**

In case of the Siemens SID803 ECU the power distribution is provided by the pins of the main connector marked in picture 16. Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A.

The voltage is provided by a stabilized power supply or by the main connector of the ECU at the cable harness of the car.

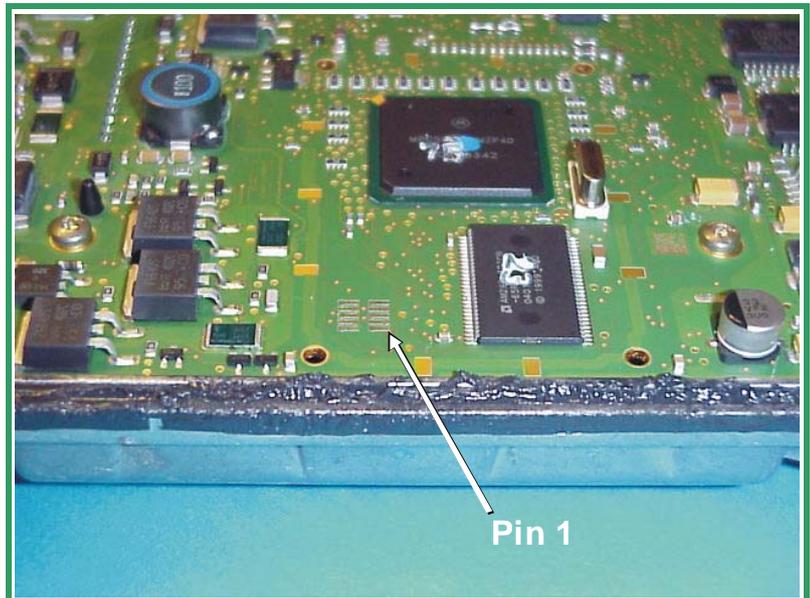
**! Warning !** Please always remind, if the open ECU is connected to the cable harness of the car, it is already connected to the battery!

**Please, ensure that the ignition is switched off at beginning!**

Now place the BDM141 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board as shown in picture 18. If the length of the spring contact pins should be too short, pull the spring contact pins up to the first rest position from the receptacles.

The tips of the spring contact probes should reach a spring travel of 1mm minimum for best contact conditions.

If you then applying power to the main connector of the ECU the red LED of the BDM141 probe lights up to indicate that the logic on the board is supplied with the required voltage

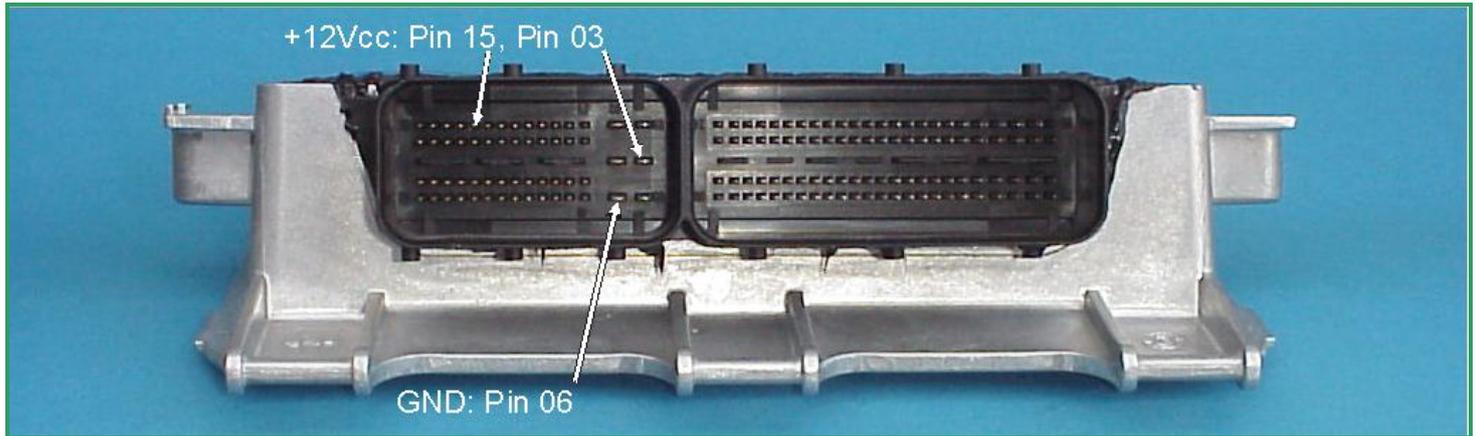


**Pict. B: The location of the BDM- Pads on the board of the Siemens SID803 ECU.**



**Pict. C: The BDM141 contacting the BDM- Pads.**

## Interconnections for Siemens SIM266 ECUs



**Pict. A: The main connector of the SIM266 ECUs.**

On the Siemens SIM266 ECU the power distribution is provided by the pins of the main connector as shown in picture A.

Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture.A

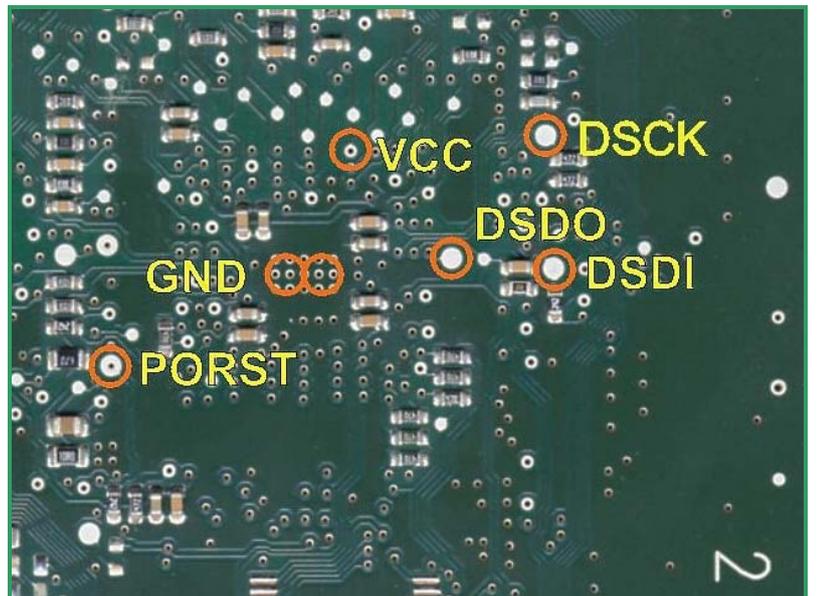
Although the BDM pads don't appear in a well-known arrangement on the Siemens SIM266 ECU board, the BDM145 probe provides a solution to contact the required BDM pads which are scattered all over the top side of the ECU board.

After removing the back plate of the ECU you will look for the PCP area the required pads are located in (as shown in Pict. B).

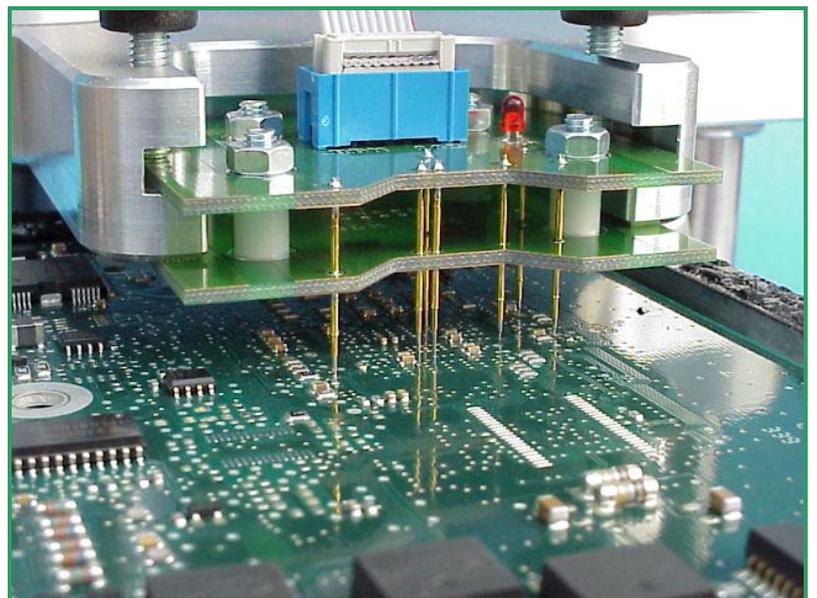
Use a support padding with 10mm thickness and 100mm x 150mm in size under the ECU to get a horizontally alignment of the ECU board with the positioning frame base plate.

Now place the BDM145 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board as shown in picture C.

Use the representation in Pict. 26 for orientation and make sure that the spring contact probe hits centrally the correct pads before you switch on the power.

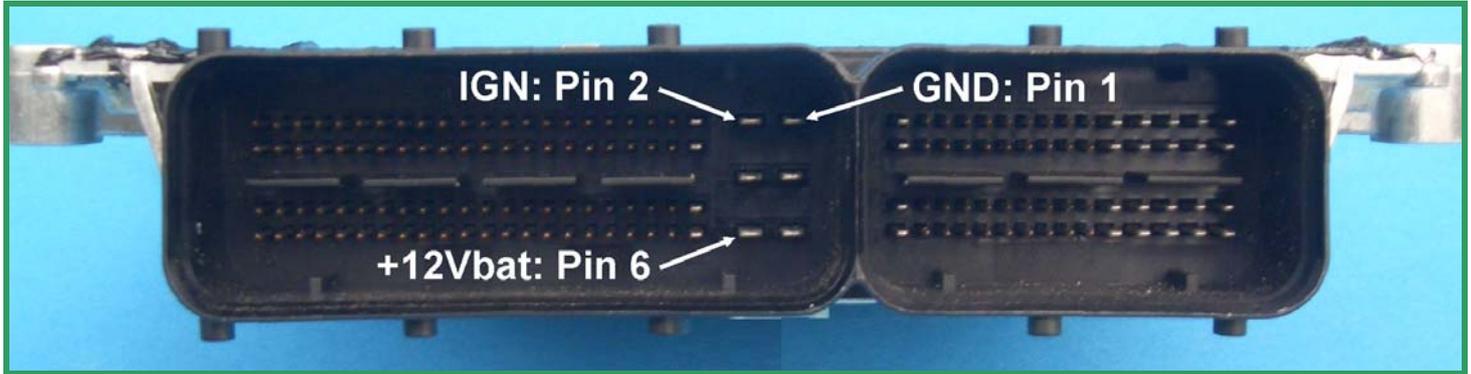


**Pict. B: This are the pads which are required for the BDM interface.**



**Pict. C: The tips of the spring contact probes should reach a spring travel of 2mm minimum for best contact conditions**

## Interconnections for Siemens SIM2K ECUs



**Pict. A: The main connector of the SIM2K ECU.**

On the SIM2K ECU the power distribution is provided by the stronger contact pins of the large contact chamber of the main connector.

Use separate wires to connect GND, IGN and +12Vcc to the pins of the main connector shown in picture.A

Attention:

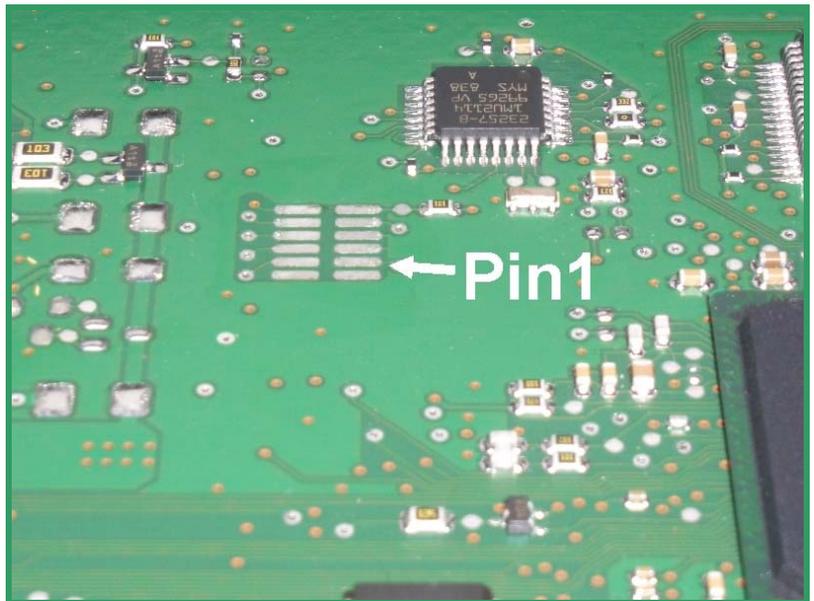
On the SIM2K board a 12-pad array is located as shown in picture B

Two opposite pads of that pad-array are not connected to a conductor trace and that is why they left uncontacted both.

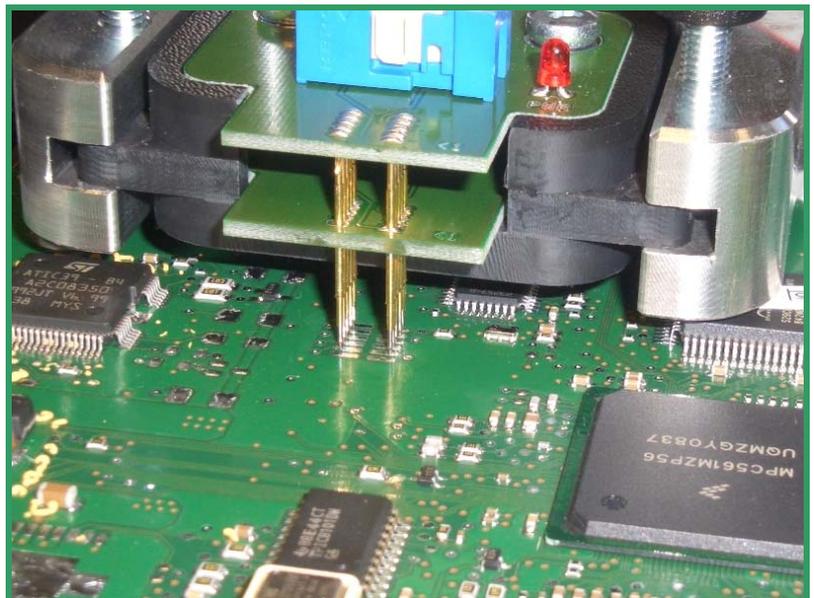
**The ten spring contacts of the BDM144 probe will only contact the lower ten pads of the pad array.**

The both pads in front of the array will not be contacted as shown in picture C.

Now place the BDM144 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board. If the length of the spring contact pins is not long enough, pull the spring contact pins up to the first rast position from their receptacles.

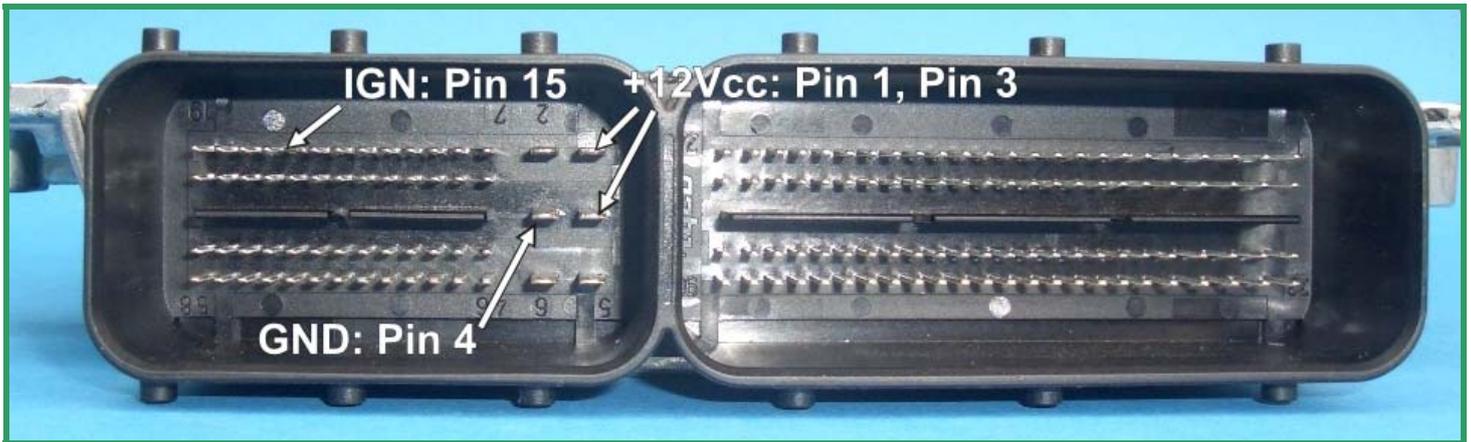


**Pict. B: the text on the left explains why in this case Pin1 is on the second position.**



**Pict. C: The BDM144 probe contacts the board of the SIM2K ECU.**

## Interconnections for Siemens SIM90E



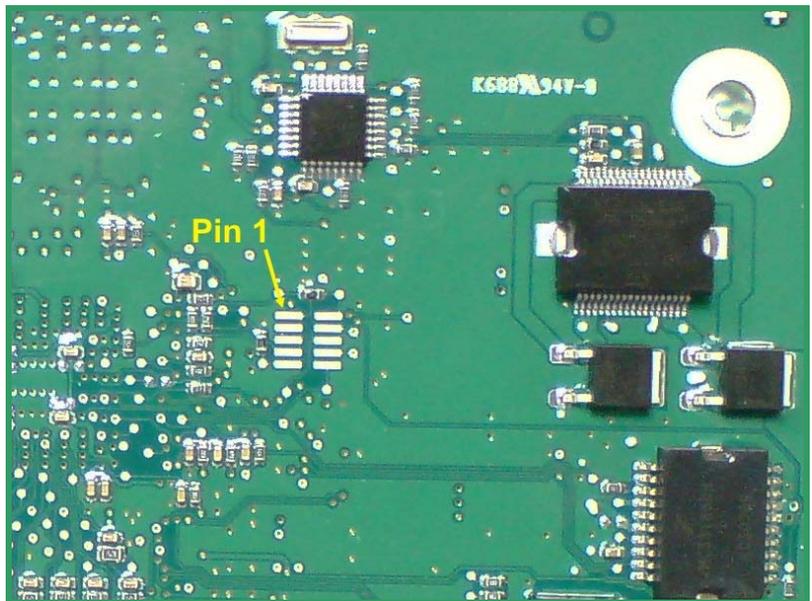
Pict. A: The main connector on the SIM90E ECU.

On the SIM90P ECU the power connections are made to the smaller one of the two contact chambers.

Use separate wires with matching connectors to connect GND, IGN and +12Vcc to the pins of the main connector as shown in picture A.

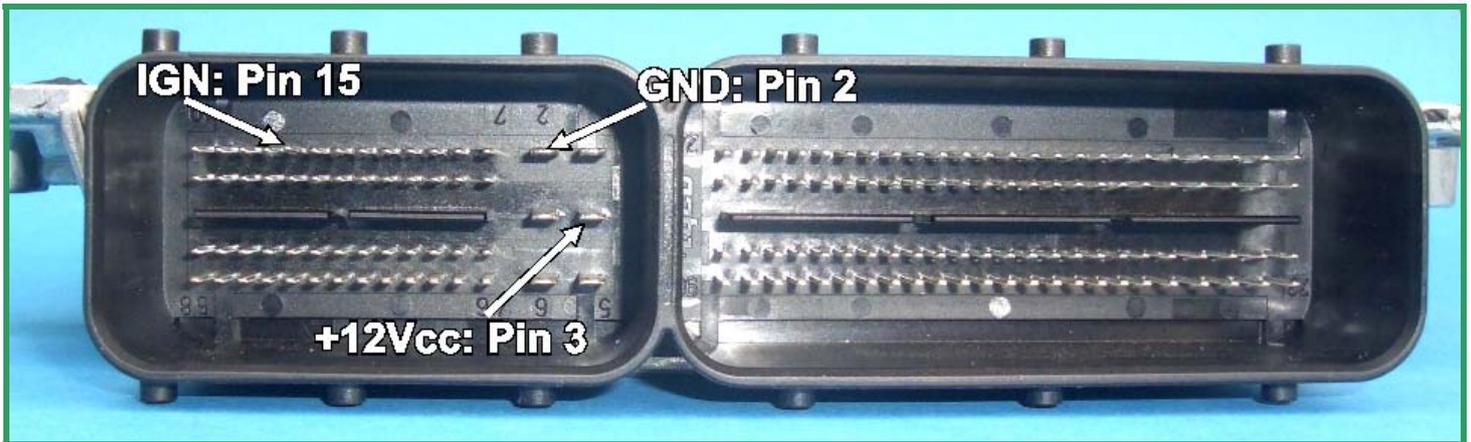
The position of the required array and the alignment of pin 1 is shown in picture B.

For contacting the pad array you best use a BDM141 probe in the positioning frame.



Pict. B: the BDM-port on the Sim90E ECU.

## Interconnections for Siemens SIM90P



Pict. A: The main connector on the SIM90P ECU.

On the SIM90P ECU the power connections are made to the smaller one of the two contact chambers.

Use separate wires with matching connectors to connect GND, IGN and +12Vcc to the pins of the main connector as shown in picture A.

Caution!

There are **two** pad arrays on the ECU board which are looking like BDM-Ports.

Please ensure that you chose the right one.

The position of the required array and the alignment of pin 1 is shown in picture B.

For contacting the pad array you best use a BDM141 probe in the positioning frame.

To make the ECU programmable, a jumper must be made on the side of the board where the microcontroller is placed. On picture C, the both concerned pads already are connected with a drop of solder.

That connection is necessary for making the BDM-interface operable but it does not affect the functionality of the ECU so it may remain.

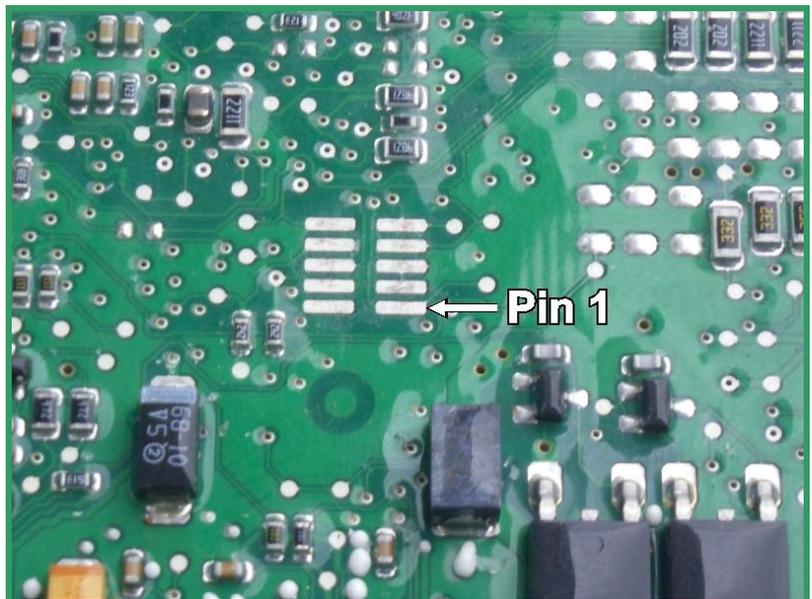
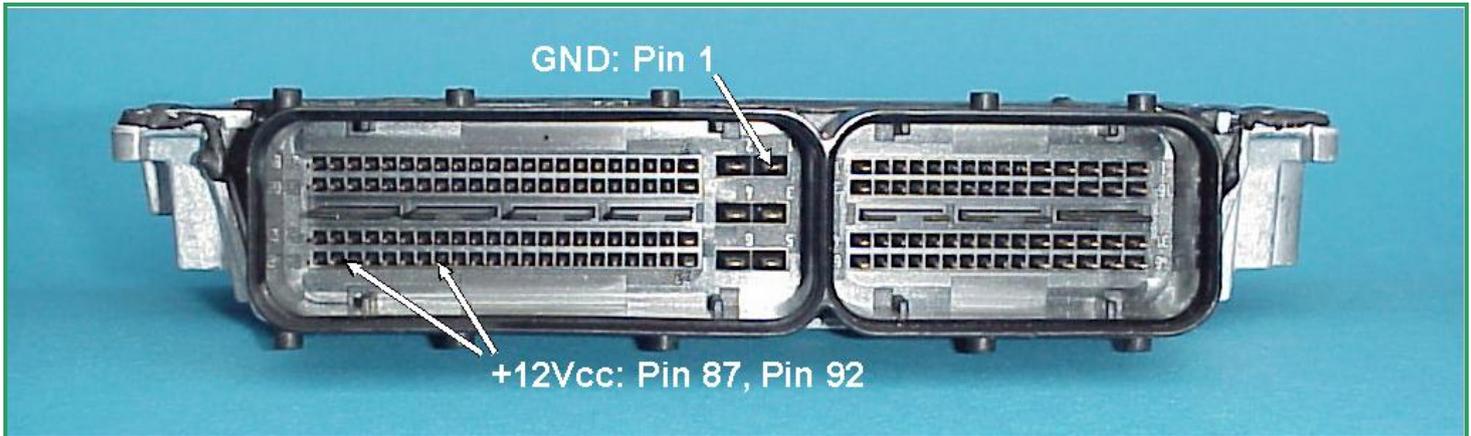


Bild B: This is the pad array of the BDM-port. Do not take the wrong of the both pad arrays!



Bild C: This is the location for the required jumper.

## Interconnections for Siemens SIMOS-6.x ECUs



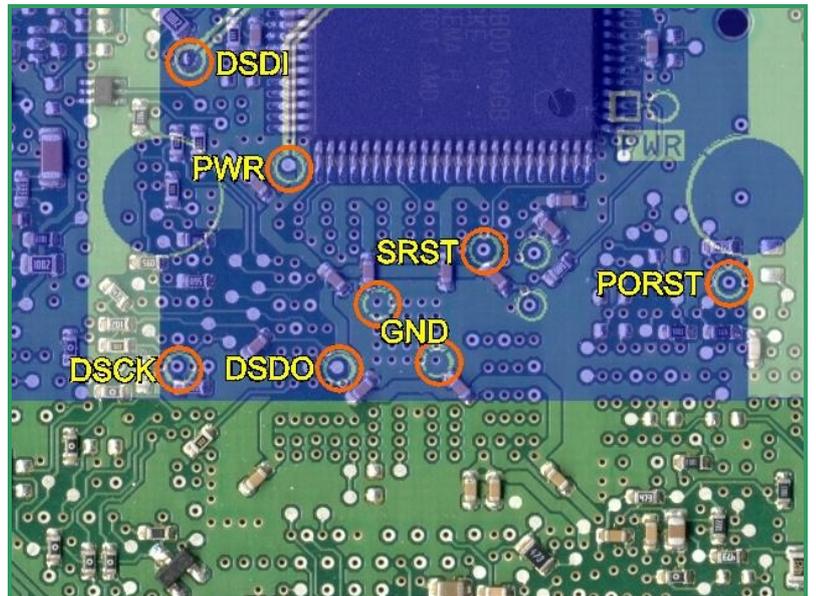
**Pict. A: : The main connector of the SIMOS-6.x ECU series.**

On the Siemens SIMOS-6.x ECU series the power distribution is provided by the pins of the main connector as shown in picture A.

Use separate wires to connect GND and +12Vcc to the pins of the main connector shown in picture A

Although the BDM pads do not appear in a well-known arrangement on the ECU board, the BDM146 probe provides a solution to contact the required BDM pads which are scattered all over the top side of the ECU board like shown in Pict.B.

The required pads are marked with orange circles and the resulting location of the BDM146 probe board is shown like a blue shadow.



**Pict. B: This are the pads which are required for the BDM interface.**

After removing the back plate of the ECU you will look for the PCP area the required pads are located in (as shown in Pict. B).

Now place the BDM146 probe into the positioning frame and carefully put the tips of the spring contact probes on the pads on the board as shown in picture C.

Then connect the BDM110 flat wire cable to the BDM100 module which must already be connected to your computer.

Use the representation in Pict. B for orientation and make sure that the spring contact probe hits centrally the correct pads before you switch on the power.

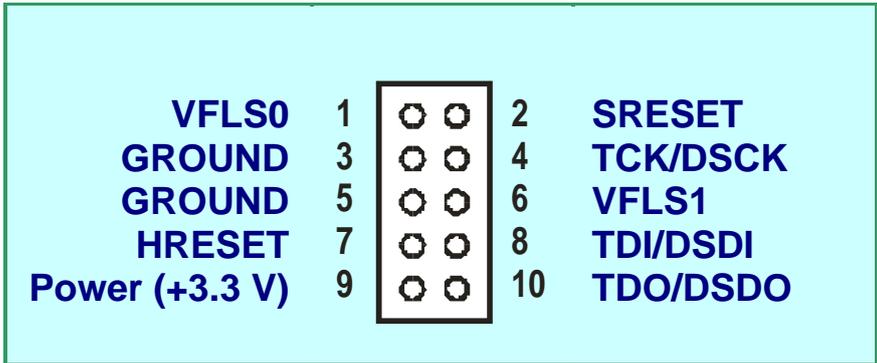


**Pict. C: The tips of the spring contact probes should reach a spring travel of 2mm minimum for best contact conditions**

## The Alignment of the BDM-Port Pads

On the most ECU Boards the location of pin 1 of the BDM-port pads are not marked in any way. This application note will demonstrate how you can estimate the location of Pin1 of the BDM-port pads in the very most cases.

The figure on the right shows the Motorola (TM) standard pinout of the BDM-port:

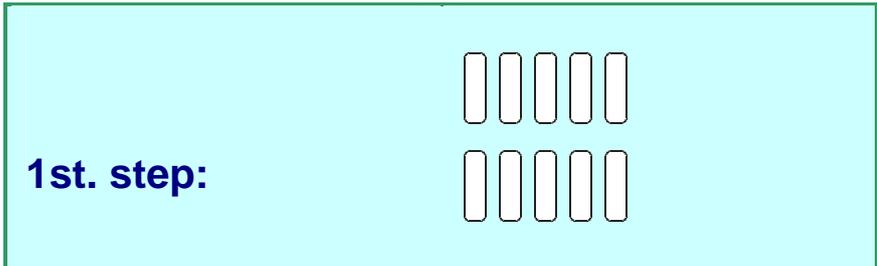


**Fig. 1: This is the standard BDM-port pinout.**

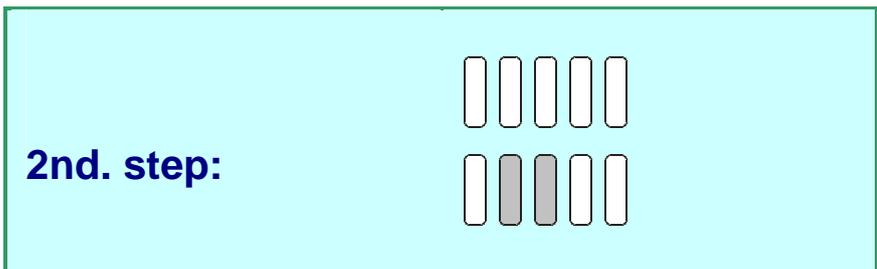
Regarding the pinout of the standard BDM-port it is obvious that two of them are grounded. These are the pins 3 and 5. So the pin 1 is above them.

Which of the pads are grounded you can find out simply using an ohmmeter or a diode-tester.

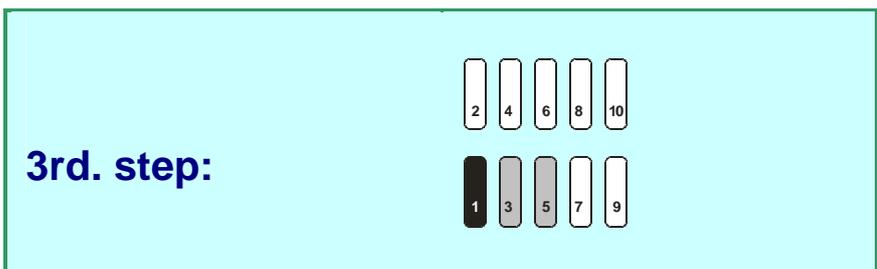
Finally let us demonstrate this again in the next three steps using a SMD footprint of the BDM-port pads:



**Fig. 2: This the typical arrangement of the BDM pads.**



**Fig. 3: Then estimate which pads are grounded**



**Fig. 4: The pin1 is left of the two grounded pins, as agreed.**

## Pin Out BDM100 Module

Picture A shows the pinout of the 10way pin header located on the back of the BDM100 Module.

This pinout appropriates the standard BDM port pinout.

On ECUs equipped with a 10way BDM-port the interconnection can made by using a simple 10way flat- wire cable. In this case the location of pin 1 of the BDM-port on the ECU board should be known.



**Pict. A:** The pinout of the 10way pin header

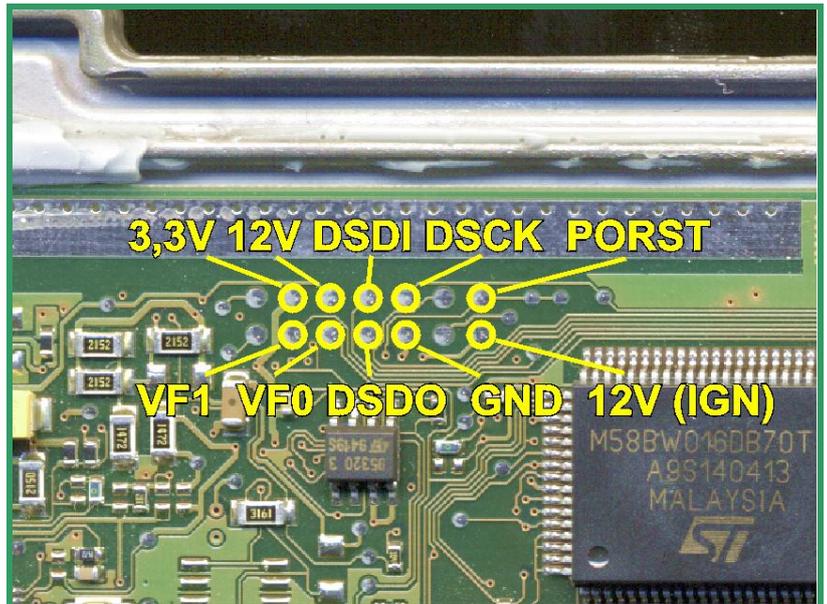
## Pin Out BOSCH System Programming Pads

The pad arrangement of the BOSCH ECUs differs from the MOTOROLA standard.

The 12Vcc clamp voltage from the battery and also the 12Vcc from the Ignition or wake up circuit are present in that pad array.

Picture B shows which signals and voltages were assigned to the pads.

Please consider that in early EDC16 ECUs the 3.3V pad is driven by a 5V circuit.



**Pict. B:** The pinout of the BOSCH programming pads.

## Signal Names Assignment

The table on the right shows the signal names assignment for both by Bosch and by Motorola.

The pin numbering is only valid for the BDM interface by Motorola.

In which manner the pad array by Bosch will be counted, is unknown.

Pin Nr.	Motorola	Bosch
1.....	VFLS0.....	VF0
2.....	SRESET#.....	nicht vorhanden
3.....	GND.....	GND
4.....	DSCK.....	DSCK
5.....	GND.....	GND
6.....	VFLS1.....	VF1
7.....	HRESET#.....	PORST
8.....	DSDI.....	DSDI
9.....	VDD SENSE.....	3.3V
10.....	DSDO.....	DSDO

## Some ECUs with BDM capability

Producer	Name	Cars (e.g.)	Processor	Used Adapters
Bosch	EDC16	VAG Diesel	MPC556	BDM143
Bosch	EDC16+	PSA Diesel	MPC562	BDM143
Bosch	ME9 Volvo	Volvo Gasoline	MPC562	BDM143
Bosch	ME9 BMW	BMW v8	MPC555	BDM143
Delphi	-	Ford Mondeo	MPC555	BDM142*
Delphi	DCM3.2	Ssangyong	MPC564	BDM147*
Marelli	MJD	Opel, Fiat	MPC555	BDM144*
Siemens	SID201	Jaguar 2.7D	MPC563	BDM141*
Siemens	SID803	Volvo Diesel	MPC555	BDM141*
Siemens	MS45	BMW 6-Zyl	MPC555	BDM141*
Siemens	MSS65	BMW M5 V10	MPC555	BDM141+BDM144*
Siemens	SIM266	MB A200	MPC561	BDM145*
Siemens	Simos 6.x	Audi A6 2.4L V6	MPC561	BDM146*

\* with this ECUs an external power supply is required. In the case of using a professional laboratory power supply the knowledge of the main connector pinout of the ECU is necessary

## BDM 100 Manual

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Although we were afforded to describe all details with the highest possible precision, nevertheless we cannot guarantee an error free content of this manual.



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