



Direct Ignition Coil Control with MegaSquirt-II

MegaSquirt-II, in conjunction with a V3 main board, can control a single coil directly (it still needs a distributor, unless you have a 1 cylinder engine). The high current circuit use the VB921 dedicated coil driver IC, which limits coil current to about 7 Amps.

Wiring the Coil to the High Current Driver

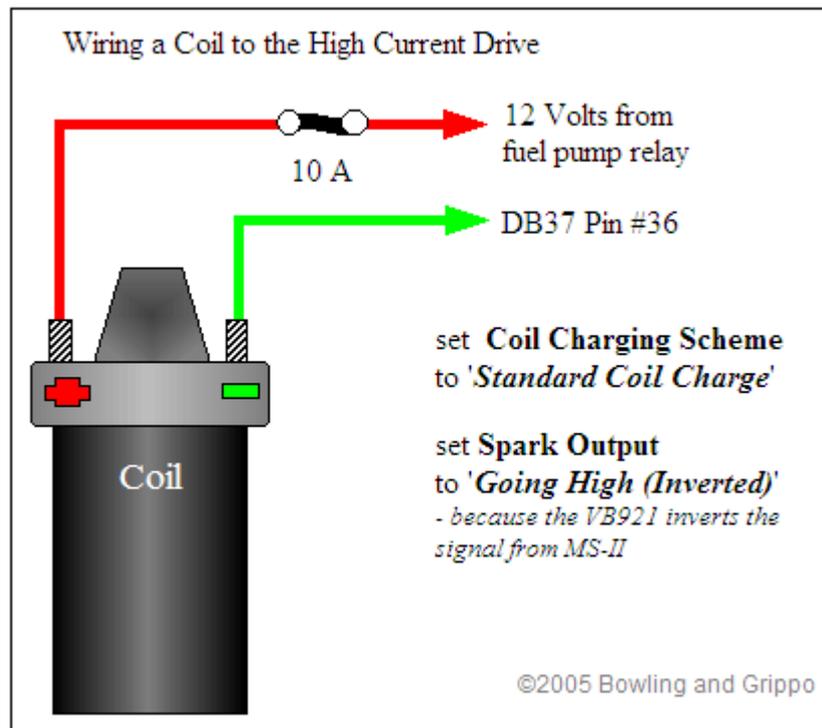
To use the high current driver (with the VB921 dedicated coil driver IC), you must install the high current ignition driver circuit at [step#65](#) of the assembly of your V3 main board.

Make sure you did not install **R57**. If you have installed it, remove it (or cut one lead to disable it). R57 is located about 1 inch (25mm) from the DB37, and 1 inch (25mm) from the heat sink. R57 interferes with the signal from the processor to the VB921, so it must be removed, or your dwell and timing will be wrong.

If you have connected the high current driver, you installed jumpers:

- **IGBTIN** (near the heat sink side of the DB37 on the bottom of the board) to **JS10** (under the 40-pin CPU socket on the bottom of the PCB)
- **IGBTOUT** to **IGN** - near the Heat sink end of the DB37 on the bottom of the PCB (this brings the ignition control signal out on DB37 pin #36)

Wiring the high current circuit to the coil is very easy. You need to supply a switched 12 Volt supply to one side of the coil, to the positive (+) terminal. Use the fuel pump relay for this source, as the coil will then not be powered during a stall, etc. Put a 10 Amp fuse in this wire. The other terminal (negative (-)) is wired to pin 36 of the MegaSquirt® DB37 (this connects to the relay board terminal S5, if you are using the relay board).



You need to set the parameters in MegaTune. Set:

- **Coil Charging Scheme** to '*standard coil charge*',
- **Spark Output** to '*going high (inverted)*'.

Finally, you need to set the dwell parameters to match your coil. Generally, you want to set this as low as possible, while still not creating any misfires. Typical dwell settings are 2.5 to 3.5 milliseconds. Generally people should start with about 3.0 to 3.1 milliseconds, and adjust from there. Lower it if there are no misfires, raise it until they are gone.

In setting up the dwell parameters, make sure you have enough heatsink capability (and have used heat sink grease between the VB921 and heat sink) and keep the dwell down to the point of where it just starts current limiting. This is why there is the 0.01 Ohm resistor (R43) in the circuit, you can put an oscilloscope across this and measure the current ramp-up directly.

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MegaSquirt® is an experimental device intended for educational purposes.
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