Installing the digital ignition unit 350/500 cc Morini optical sensor

SWF Ignition systems BV

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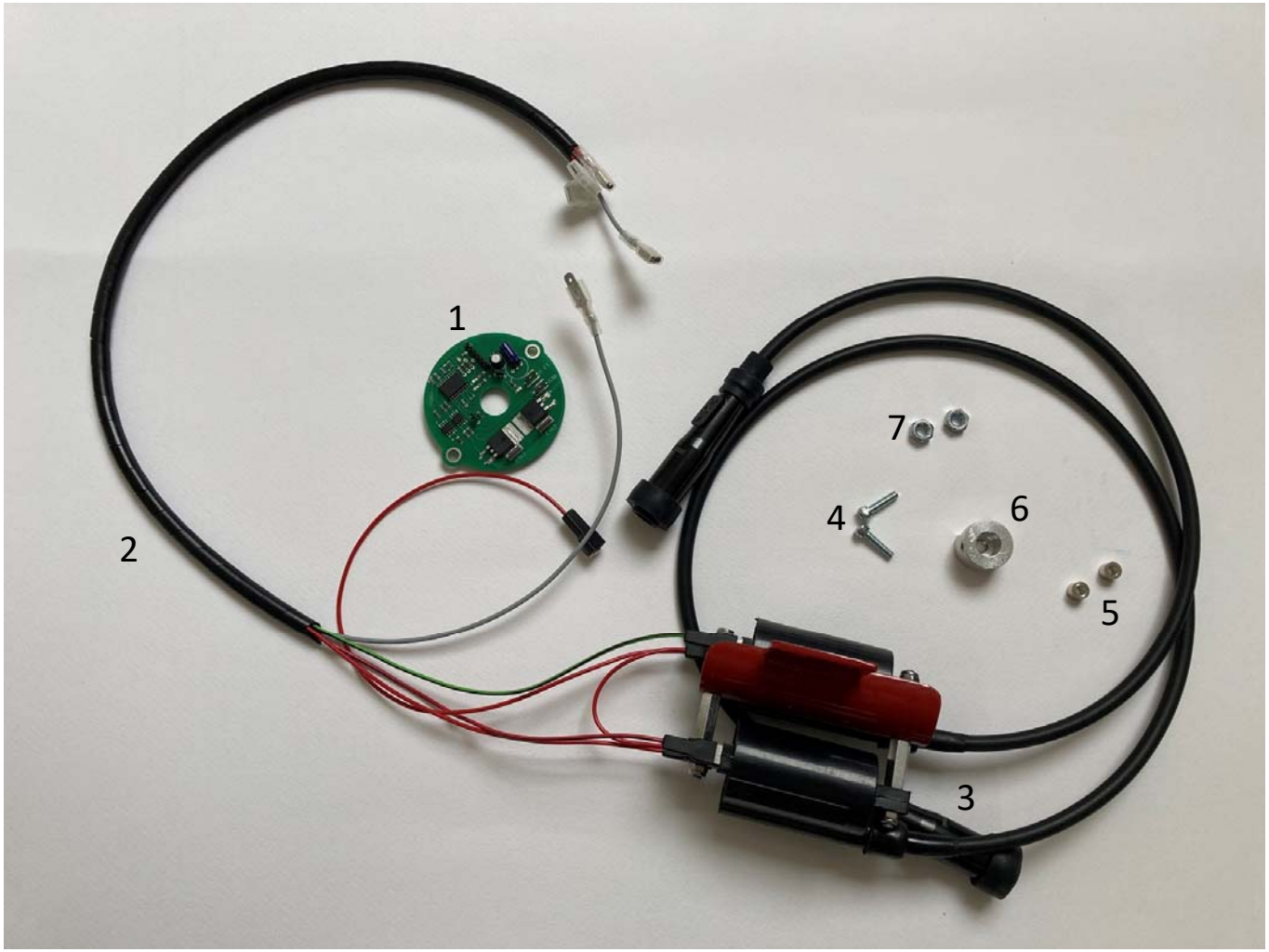
Installation manual to the digital ignition of a 350/500cc Morini.

The installation sequence is as follows:

1. install coils
2. Install pcb, (printed circuit board)
3. Connect wiring
4. Time the engine/ignition

Contents of package



1. Ignition PCB
2. 12V wiring-harness
3. Coils, mounting lug, HT-leads and plugcaps
4. 2 M4-allen bolts
5. 2spacers
6. Spacer, ring and timing disk
7. M7-nuts

Spacer, ring and interrupt disk are tied together with a tyrap. (6)

coils

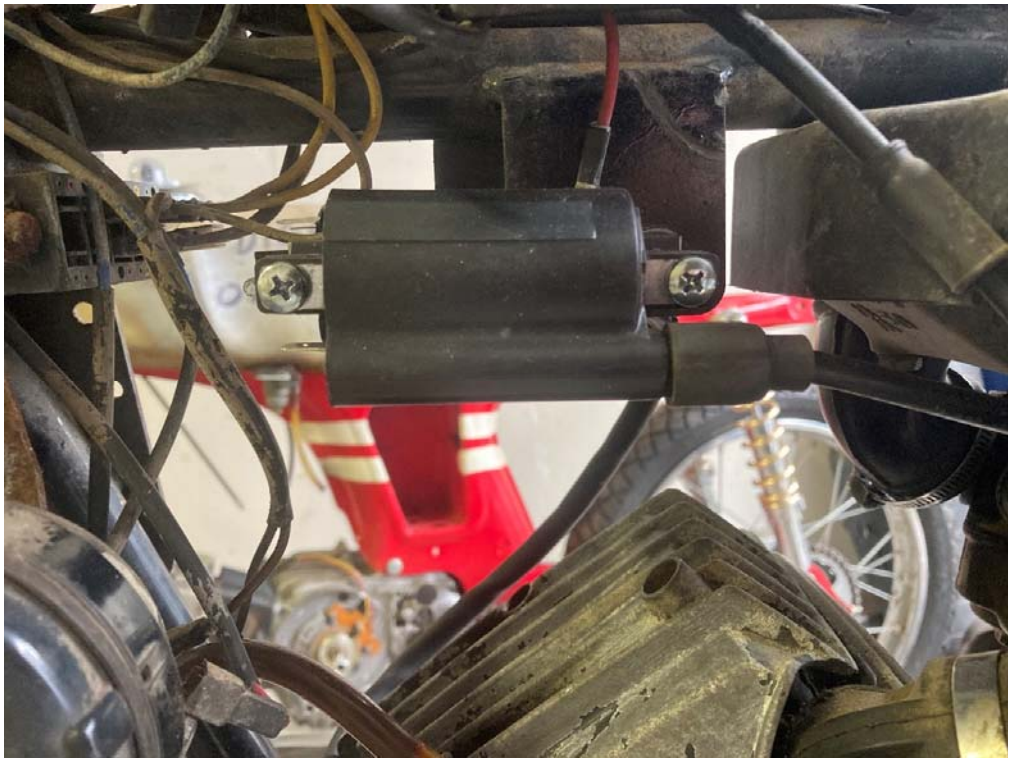
- Fitting the coils is rather straightforward
  - remove the old ignition packs
  - use the same mounting points to fit the coils

- see next slide
  - the short bolt fits in the middle hole
  - the longer bolts clamp the coil to the strip
  - the rings are fitted to the backside of the rubber grommets

After fitting the coils it should look more or less like this.

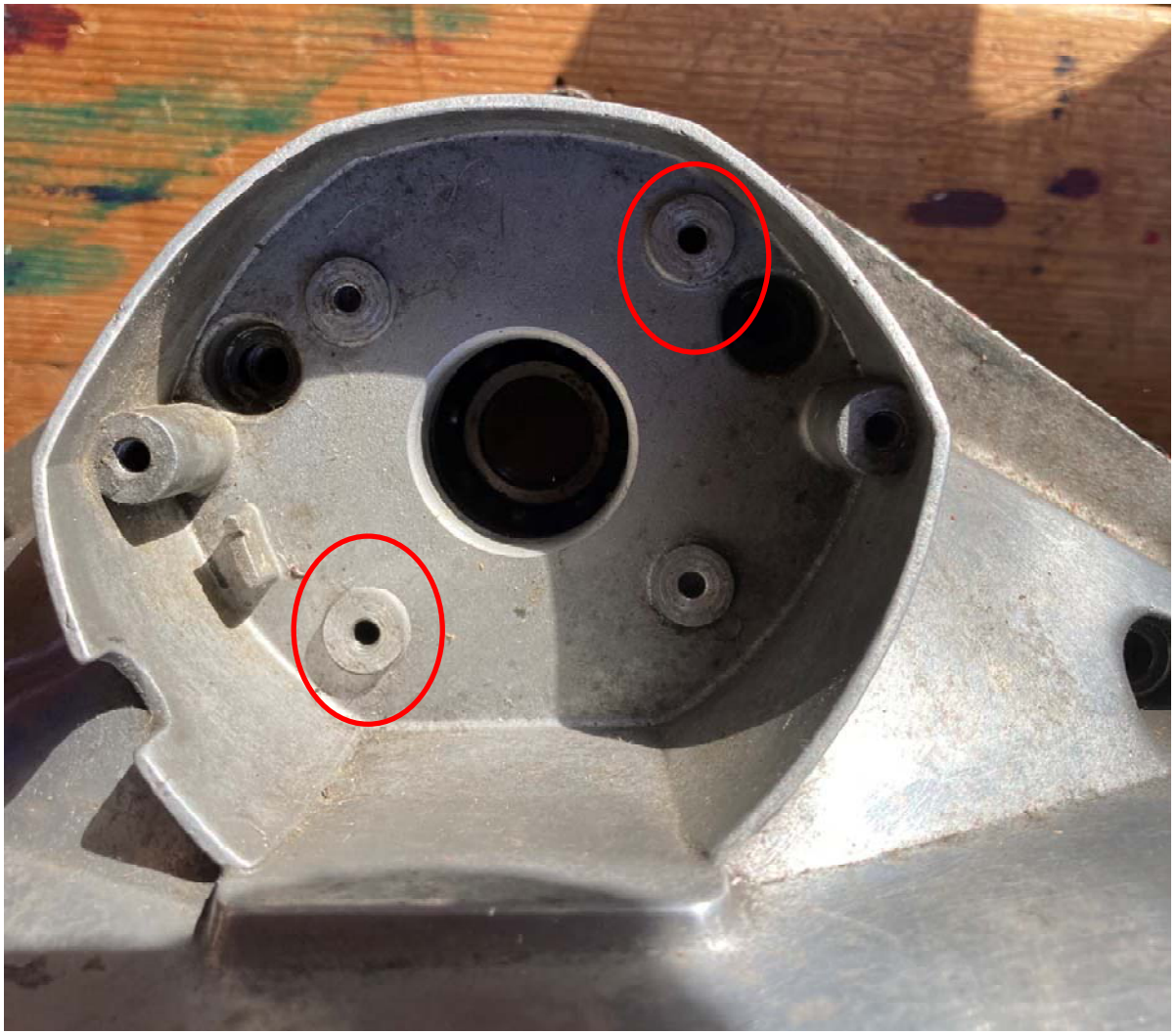
Looking at the left side of the bike, left coil, long HT-lead, for the rear cylinder

You might want to shorten the front HT-lead



Install Printed Circuit Board

1. clean the mounting point of the left casing thoroughly. These surfaces should be very clean as they are part of the return current path.
2. Fit the spacer/distance (11,5 mm) piece over the camshaft
3. Fit the pcb using the the 2 Allen bolts and smaller spacers (6 mm)
4. Fit interrupter disk, spacer and M7-nut

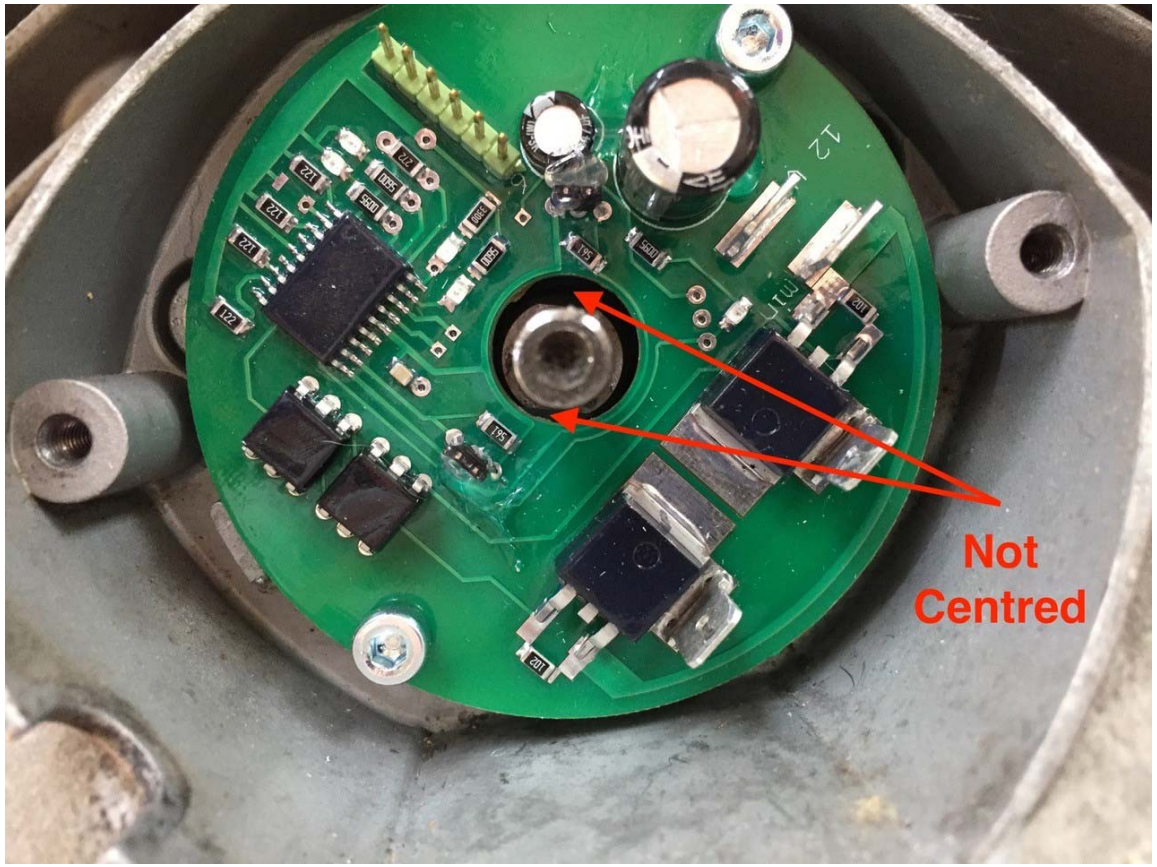


Installing the unit is straightforward:

1. Remove the old unit, retain the nut.

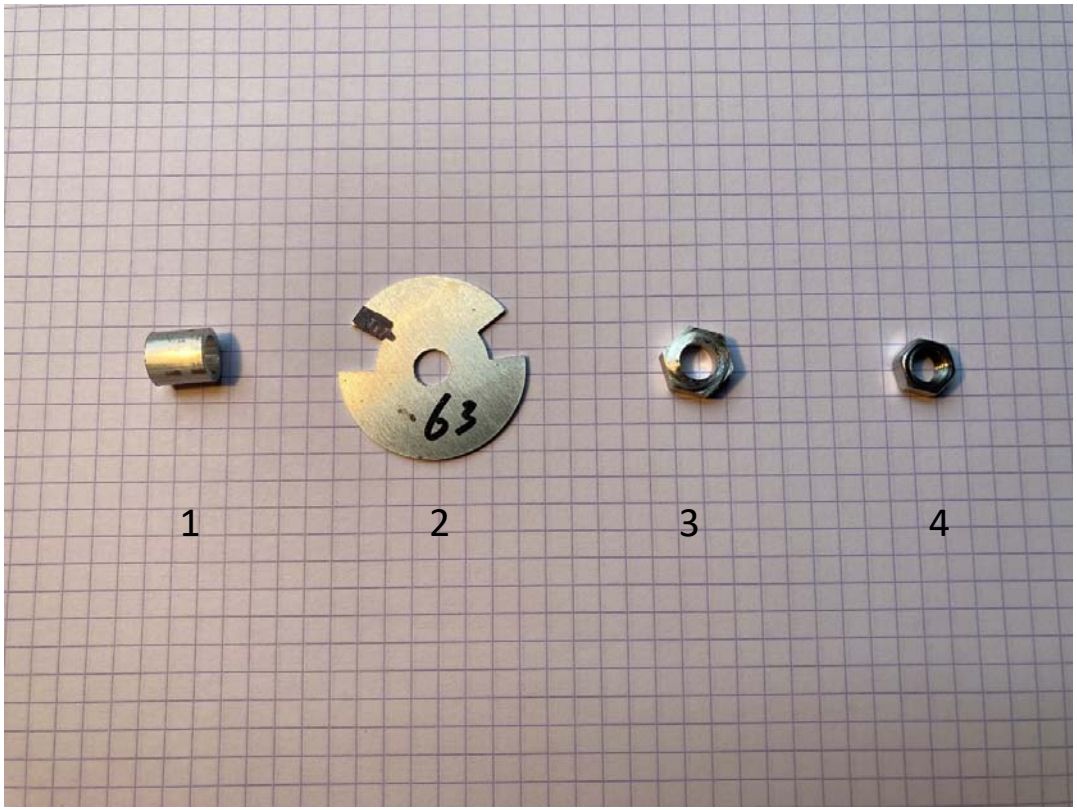
2. Make sure that the aluminum surface of the mounting holes is completely clean. This surface is part of the return current path.

3. If these surfaces are coated it forms some sort of insulation preventing the ignition unit to work properly



Installing the unit is straightforward:

1. The backplane has offset holes and should be fitted with the camshaft centrally positioned. If the camshaft looks offset, turn backplane 180 degrees.



So after fitting the PCB the sequence is

1. Bush
2. Interrupt disk
3. Spacer/ring
4. M7-nut

Just slide these over the camshaft into position.

Interupter disk

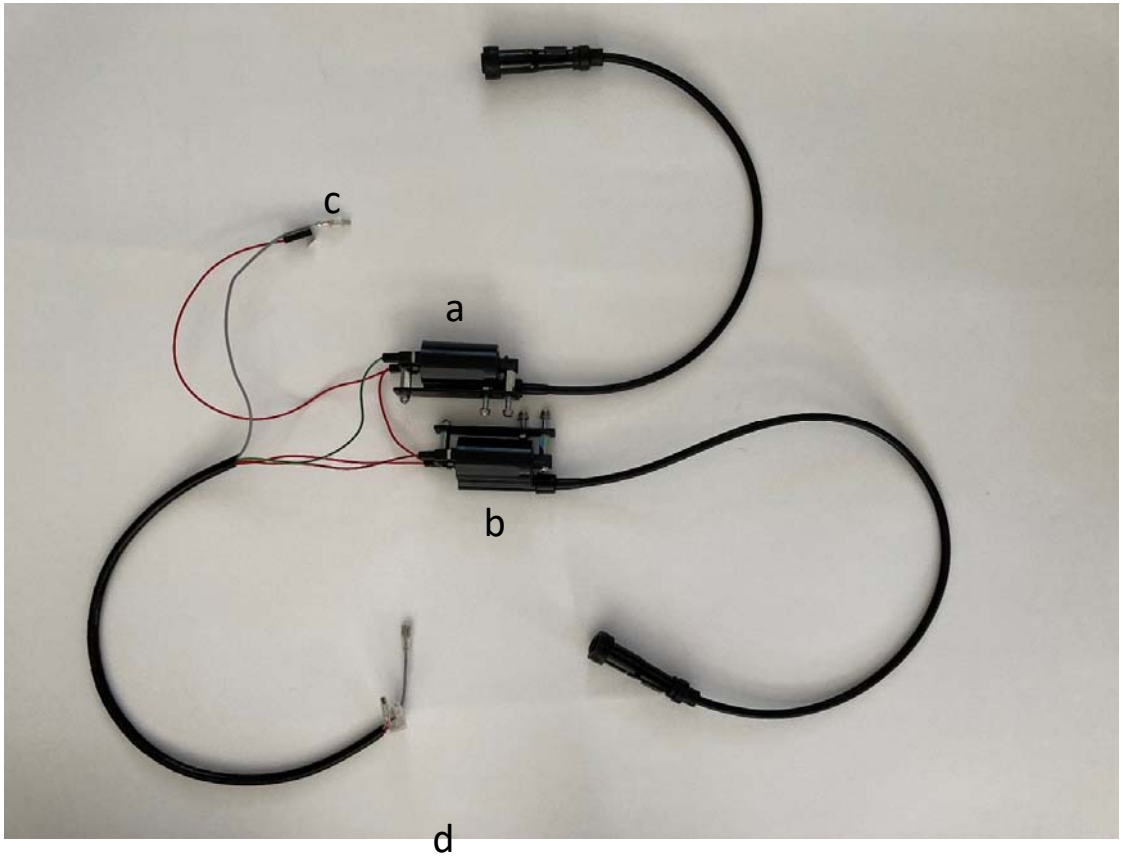
The interuptdisk should run in the middle of the optical sensor.
Should run free from sensor, doesn't touch.

Ring

Nut M7

The nut is a SLW10/M7.
When running a mechanical tacho you can use the original nut for the tacho-pickup

Wiring



The coil (a) with the short HT-lead is mounted the right tab on the frame.
The HT-lead goes to the front cylinder
Connect the green/black wire

The coil (b) with the long HT-lead is mounted the left tab on the frame.
The HT-lead goes to the rear cylinder
Connect the red/black wire

The grey connection (c) goes to the revcounter pickup.

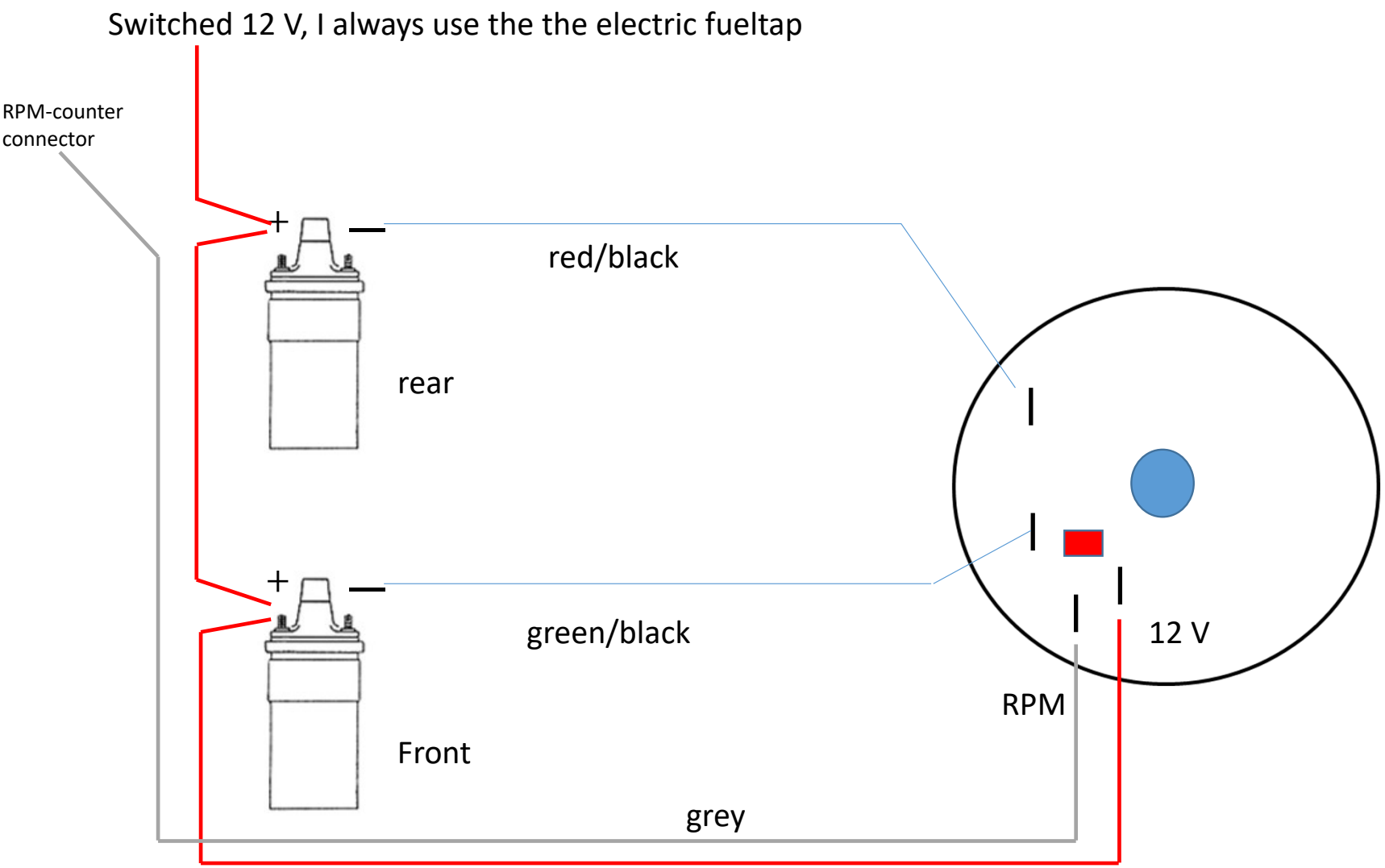
The red connection (c) is the 12V-power supply to the ignition and should be connected to the electric fueltap.

The connections (d) go to the PCB

The grey wire is sometimes blue or yellow, depending on which color is on stock

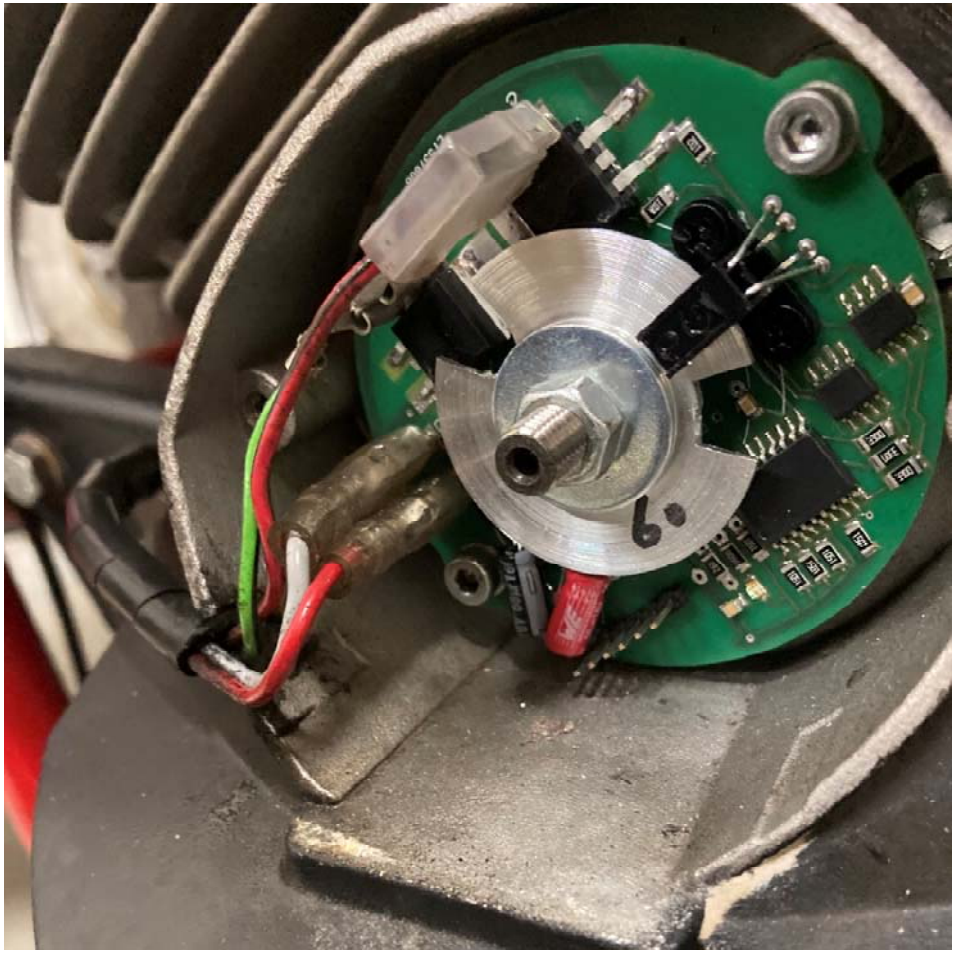
Electrical connections

- Connect the green/black wire to the tab for the front cylinder (position CYL1) and use the red/black one for the rear cylinder (pos CYL2). Connect both wires to the minus-tab of the coils.
- The right coil is front cyl, the left coil is rear cyl.
- Connect the red piggyback-connector to the fueltap-connection.
- Connect the red connectors to the plus-tab of the coils. The other red wire is to connect the unit itself to the 12 Volt.


Switched 12 V, I always use the the electric fueltap
RPM-counter connector
+
–
red/black
rear
+
–
green/black
Front
grey
RPM
12 V

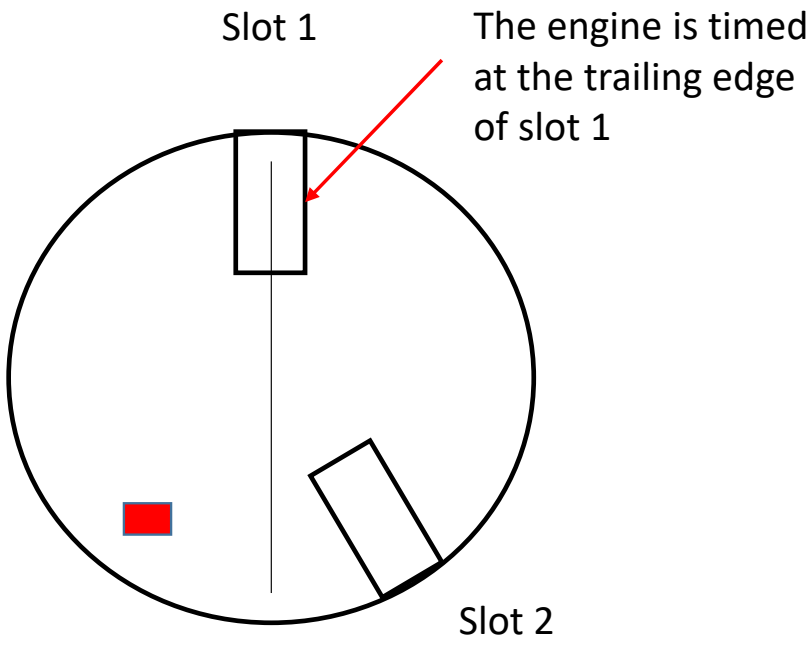
The grey wire is for the electronic rev-counter.
If you have a mechanical one leave the wire out to prevent shorts circuits.

Wiring connections at the PCB look like this



Timing the unit

- The Morini has an irregular firing interval. The angle between both cylinders is 72 degrees and the firing angle of the cylinders is 288/432 degrees. The interrupt disk has two 60drg-wide slots positioned at 0 and 144 drg apart.



Timing Procedure

1. Set the crankshaft at 0 degrees before TDC, compression stroke of the front cylinder. See the Morini manual.
2. Turn the ignition on, led flashing
3. Turn the interrupt disk anticlockwise until the red led extinguishes.
4. Use the correct slot 1
5. Lock the triggerhead with the M7-nut, done.

- You’re all done now

- Always keep the sparkplug-caps connected to the plugs and the plugs connected to the frame otherwise the unit will be damaged.
- Always use resistor-type sparkplug
- I’m running my MM500 with NGK BPR7ES

- When you switch your bike on, the leds will flash briefly and the green one will light indicating 12 Volt is present and the unit is on.
- After some seconds, one led will start to flash regularly. This indicates the “waiting mode”. Both coils are switched off, will not heat up and drain your battery.
- Drive safely.