

Marathon 125 PRO E4

On Board Diagnostic (OBD)



RIEJU

...for everyday adventure

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Introduction

Introduction

This document describes the characteristics of the On Board Diagnostic system (OBD) used by the ECU and assembled on the 2017 Marathon Euro 4 PRO.

The OBD system checks and shows one or more faults concerning:

- Emission up to Euro 4 limits.
- Engine power limitation.

On this document you can find all information needed to solve the OBD Errors found on the bikes.

The components checked by the OBD System are:

Device	Check	Type
CDI	Key in ON position	Internal
Pick-Up sensor	Key in ON position and engine running	Sensor
Engine temperature sensor	Each 500 μ S	Sensor
Coil primary circuit	Each 125 μ S	Actuator

OBD System

OBD System

The ECU is provided by the OBD system, when the OBD detects a failure it shows the following symbol on the dashboard:



To know the cause of the failure you will need to connect to the ECU with a OBDII reader, this tool can be show the diagnostic Error and erase it, once the error has been erased the symbol on the dashboard will switch off, if after erasing the failure the symbol continues it means that the problem is not solved.

When the problem disappears, the error is automatically erased after 10 complete cycles of use (bike running around 5 minutes), for example if one customer unplugs the temperature sensor switch the error symbol will appear, if they reconnect the connector the error will disappear after 10 uses.

Specific tool

To connect the bike at the OBDII reader is necessary have on harness adapter to connect the standard connector of the bike to the connector SAE J1962 Type A use on the OBDII readers.

Rieju has the next part available to use the OBD systems:

0/000.160.6022 – HARNESS SUPPLEMENT OBD E4



System for auto diagnostics

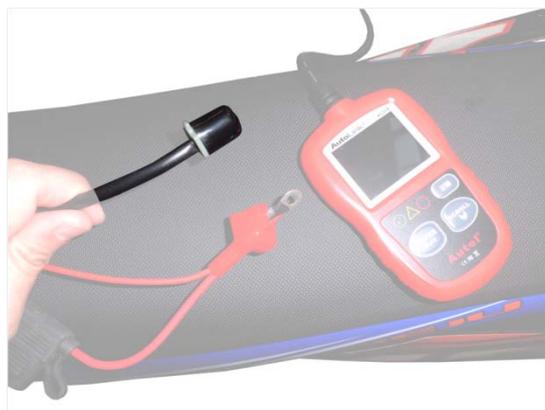
0/K00.160.6000 – KIT OBD READER WITH HARNESS SUPPLEMENT



If you have a standard OBD reader you will need only the harness supplement to connect it with the ECU of the bike. If you don't have an OBD reader Rieju suggest use the KIT OBD READER WITH HARNESS SUPPLEMENT, this kit has been tested on Rieju bikes and its operation is guaranteed

Connection OBD reader with the bike

The OBD connector is placed under the seat next to the battery cables.



OBD System

1. Check that the key is in OFF position.
2. Take out the cap protection.
3. Plug the OBD harness supplement with the main harness.
4. Plug the OBD reader on the harness.



5. Turn ON the key (it will not necessary run the bike).

When the key is in the ON position the OBD reader will switch ON automatically. Look at the OBD reader instructions to know the error codes and erase it if necessary.

If the OBD reader does not switch ON, and the OBD reader is not supplied by Rieju it's possible that your OBD reader is not compatible with the OBD II system and you will need replace it.

If the OBD reader is provided by Rieju but it cannot switch ON please check the battery is correctly connected and is full charged, check the fuse of the main harness and the harness supplement. If the problem continues contact with the Rieju after sales department.



Error code

Error code

Once the OBD reader is connected with the ECU we can find the following error code:

Code	Component	Error
P0601	ECU	Internal error
P0335	Pick-up sensor	Open circuit or value out of tolerances.
P0118	Engine temperature sensor	Resistance value on the limits.
P0117	Engine temperature sensor	Resistance value under limits.
P0351	Coil	Primary resistance value on the limits.
P2300	Coil	Primary resistance value under limits.

P0601 error:

This fail means an internal ECU fail, check the following points:

1.- Check the correct status of the battery.

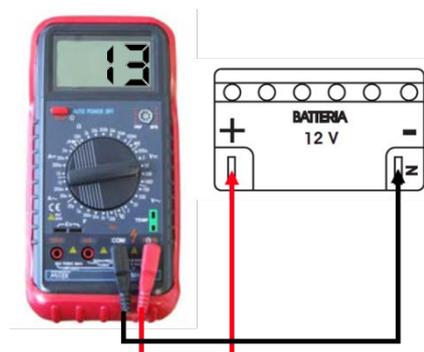
Nominal voltage will 12,5 V en DC

Clean the terminal and check the correct contact between the terminals and the harness.

Put the key in **ON** position and run the bike, with a multimeter in 20V DC position check the correct charge of the battery.

- Multimeter will show one value between 13,5 and 15V.

If the battery doesn't have the correct charge level the electronics will not work correctly and show an internal error code.



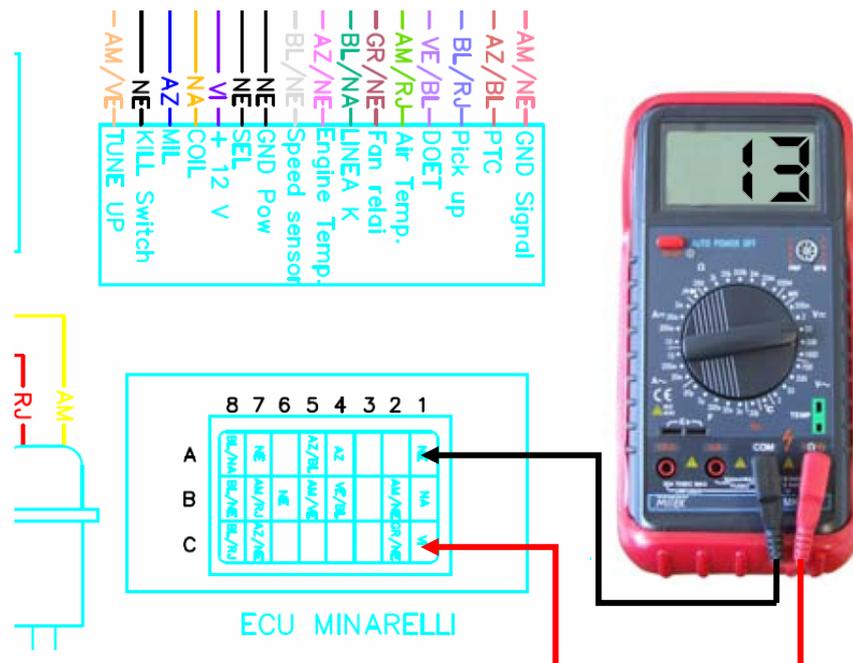
Once the battery is checked, and replaced if necessary, erase the error with the OBD reader. Switch ON the bike and run it, if the Error appears other time check point 2.

Error code

2.- Check the harness continuity.

With one multimeter, in position 20V DC checks the harness continuity.

Put the key in ON position and check the voltage between the cables Purple (C1) and black (A1) on the ECU connector, if the voltage values are under 12,5V check the pin status and the continuity of the cables purple and black. If the cables are cut off replace the harness.



3.- Change the ECU.

If all the checks before are OK and the error continues change the ECU by one new part. Check that the new ECU has the marks "WR4".

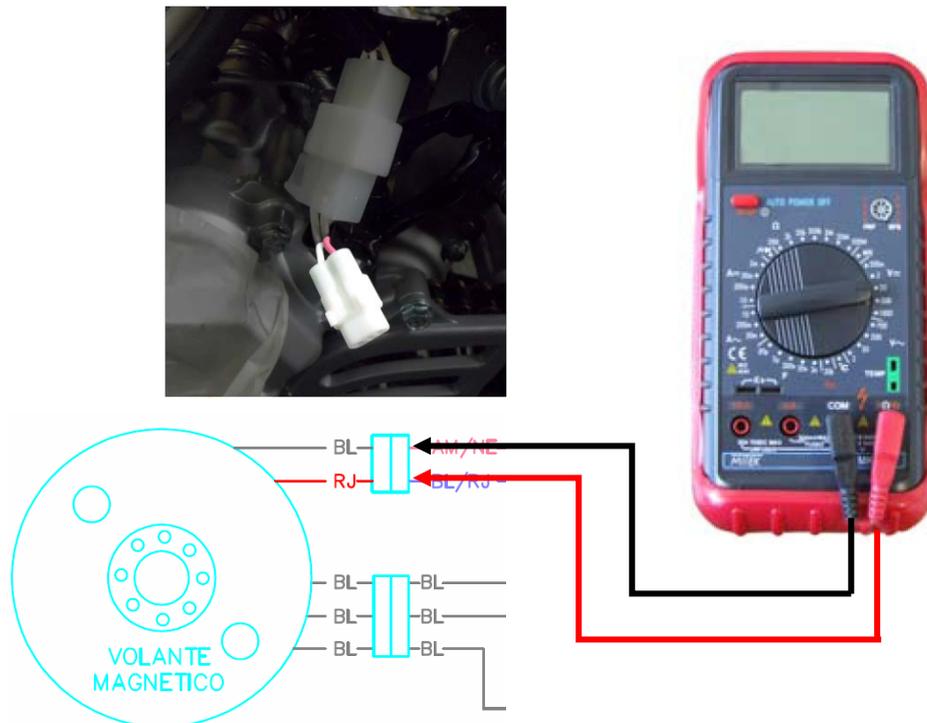


Error code

P0335 error :

This error show a fail on the pick-up sensor, the points to check will be the next:

1.- Whit the multimeter in 2K Ω position check the pick-up resistance (wires red and White on the engine)



Unplug the connector of the engine and measure directly on the pins, the resistance value will **265 Ω \pm 20%**, if the values found are out of tolerance change the magnetic wheel fly.

2.- If the resistance values found are corrects check the continuity of the next wires:

Yellow / Black: Wire that connect the pick-up connector and the pin C2 on the ECU connector.

White / Red: Wire that connect the pick-up connector and the pin C8 of the ECU connector.

Error code

P0117 and P0118 errors:

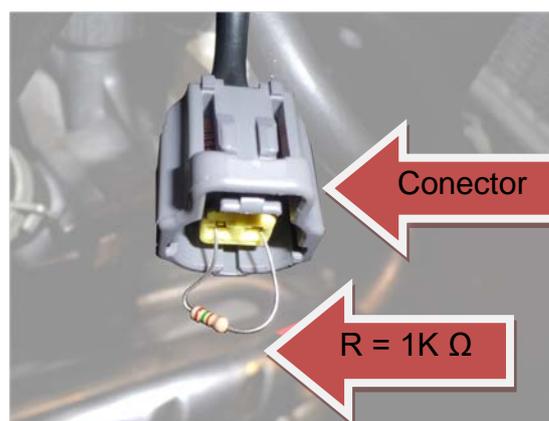
These errors show a fail on the engine temperature sensor. This sensor is a NTC, so the resistance value change on function of the temperature, for this reason is very difficult to do an exact control of the resistance values. The next points to check are:

1.- Unplug the temperature engine sensor, with one multimeter in 20K Ω position check the resistance value on the engine temperature sensor.



If the multimeter shows short-circuit or open-circuit changes the temperature sensor and erase the OBD error.

2.- Switch of the bike and put one resistor of 1K Ω directly on the harness temperature connector (like a show on the picture), with the OBD reader erase the error and switch on the bike if the error disappears change the temperature sensor, if the error appears another time check the point 3.

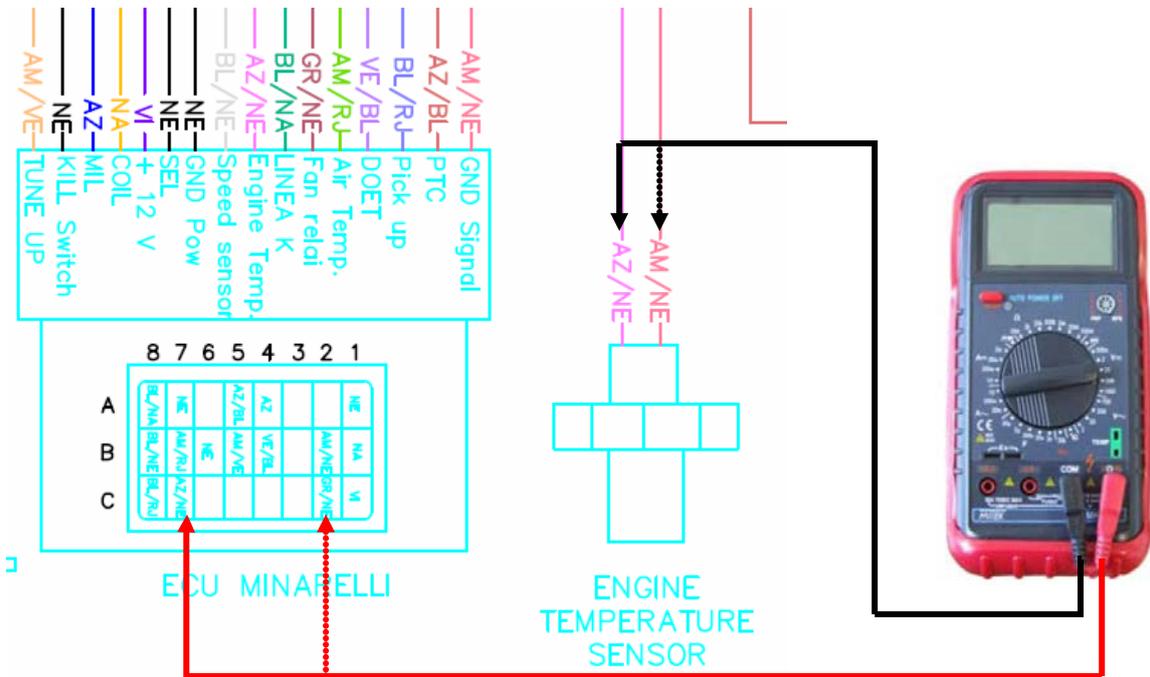


Error code

3.- With one multimeter check the continuity of the following wires:

Yellow / Black: Wire that connect the temperature sensor connector and the pin C2 on the ECU connector.

Blue / Black: wire that connect the temperature sensor connector and the pin C7 on the ECU connector.



If the continuity on one of these wires is Not OK, check the pin status and replace the harness if necessary.

Error code

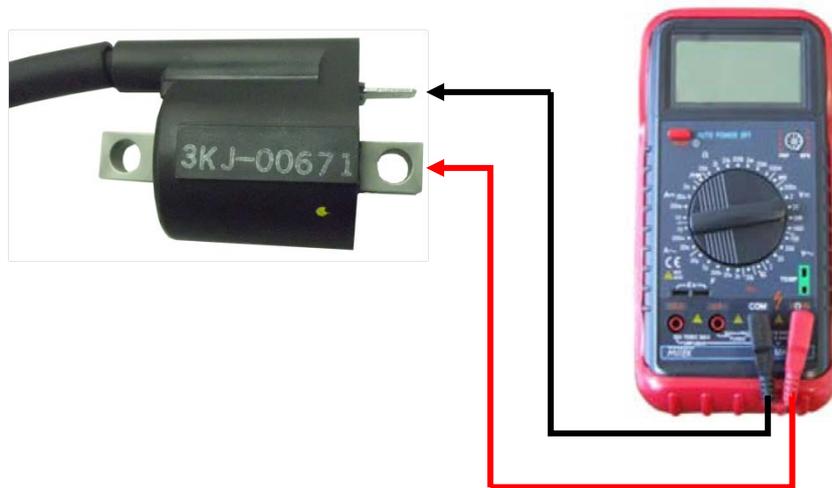
P0351 and P2300 error:

These errors show a fail on the engine coil, the points to check are the next:

1.- Check that the coil is correctly assembled and connected, the contact is clean and without oxide or dust that can affected the contact resistance.



2.- Check the coil resistance, with one multimeter in 200 Ω measure the resistance of the primary circuit (check picture), the resistance can be between 0,2 and 1 Ω .



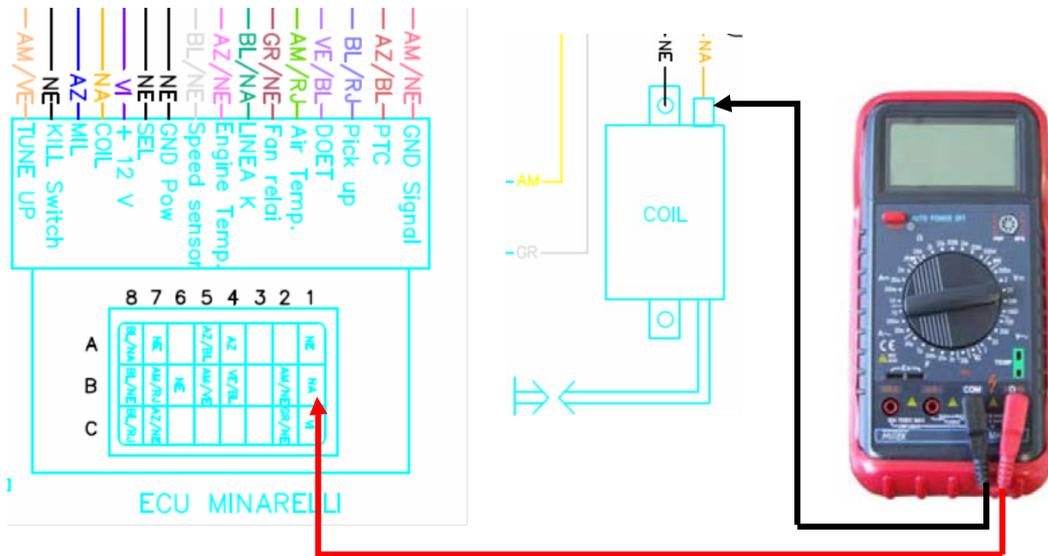
If the values found are incorrect change the coil, erase the error with the OBD reader and run the bike to confirm that the error is complete erase. If the error continues check the point 3.

Note: If the multimeter doesn't have a good quality the resistance value found can vary and the value shown will different to the real value of the part (Values up to 1 Ω) this incorrect value can mislead the mechanic and reject a perfectly good part.

Error code

3.- With one multimeter check the continuity of the following wires:

Orange: It is the wire that connects the pint of the coil with the pin B1 of the ECU connector.



If the continuity of the wire is Not OK, check the pin status and replace the harness if necessary.



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