

DELLORTO IGNITION SYSTEM HOW TO ASSURE FAULTLESS FUNCTION

We have verified different complaints from the market regarding malfunctions of the ignition system.

The following guideline should help to assure a faultless function of the ignition system.

Complaints

- Engine is not running “clean”
- Engine starts misfiring above 10.000 rpm
- Engine was revving up to high rpm but suddenly it does not rev above approx. 12.000 rpm

Possible failure reason no. 1

The crankshaft pickup is collecting the rpm signal for the ECU. Every turn of the crankshaft provides a clear signal but also some signal noise which is eliminated by filters inside the ECU. Vibrations of the crankshaft (created by excessive radial or axial clearance of the crank shaft in the main bearings) can raise the level of signal noise. If the level of noise signals exceeds the filter level of the ECU, it will process the noise as additional ignition signals. This will cause misfiring of the engine.

Because of such a noisy signal the ECU also assumes that the engine is already revving 15.000 rpm and does not allow the engine to increase the rpm even if in reality the engine just revs around 12.000 rpm.

How to avoid failure reason no. 1?

If a Dellorto ignition system is used, it is highly recommended to fit a gasket (Rotax 431 500) between the pickup sensor and the rubber sealing ring of the sensor. The increased distance from the crankshaft to the pickup sensor reduces the signal magnitude generally - the incorrect signals will be eliminated by the filters of the ECU. It is possible to fit up to two gaskets (Rotax 431 500) without any negative impact on the function of the ignition system. As of engine production August 2015 all engines with Dellorto ignition system will be assembled with this gasket.

Possible failure reason no. 2

The way the wiring harness is fitted to the chassis can create additional stress to the cables and electrical connections due to the vibration of these components. Out of this electrical cables can break which result in a malfunction of the engine.

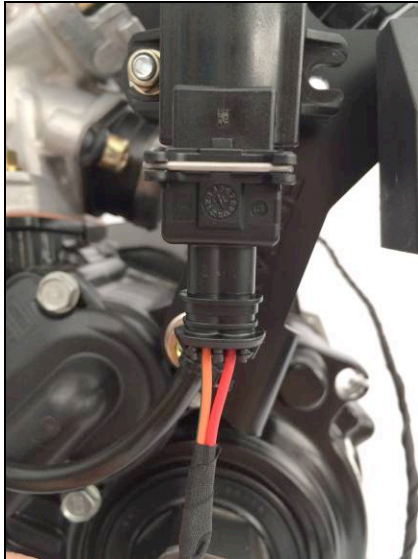
How to avoid failure reason no. 2?

It is mandatory to fix the cable harness to the connectors by using cable ties as shown on the following pictures.

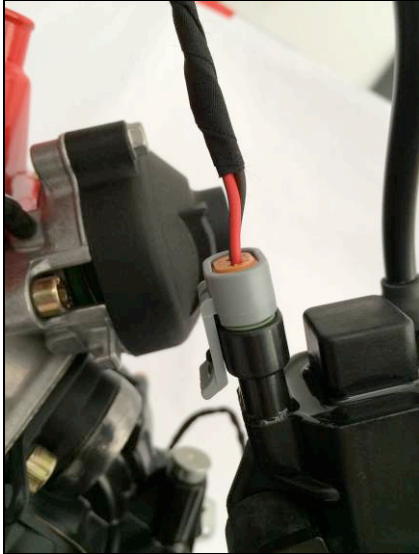
ECU connector



Solenoid connector



Ignition coil connector



Also take care when fixing the wiring harness to the chassis do not create any tension on the ground cable attached to the cylinder head as well as all cables for OFF/ON/START switch and the starter relay.

Possible failure reason no. 3

The female contact pins inside the connector for the ECU can start lifting up because of vibrations. This can result a temporary contact failure and consequently misfiring of the ignition system.

How to avoid failure reason no. 3?

Apply Molykote 111 (Rotax part no. 897161) and force it into the connector.

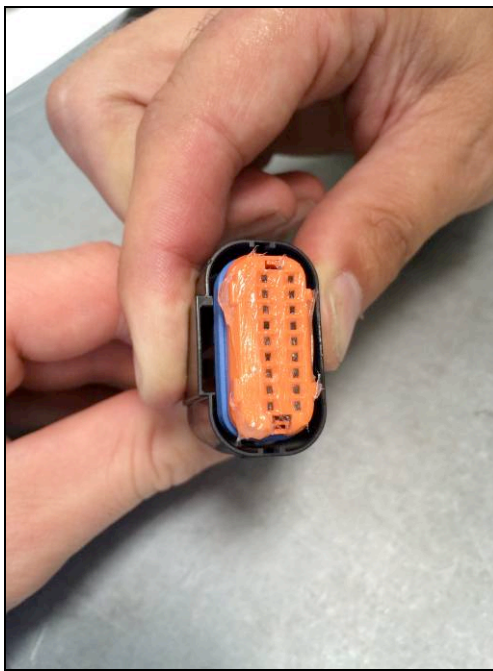
The Molykote inside the connector acts as a damping medium for the female contact pins which assures a sufficient electrical contact between female and male contact pins at any time.



Step 1



Step 2



Step 3



part no. 897161

Possible failure reason no. 4

The wiring harness is unified for both 125 MAX evo and 125 MAX DD2 evo.

On 125 MAX DD2 evo the cable for the electronic shift assistant (shifting from 1st to 2nd gear at wide open throttle) has to be connected to the shift contact assy.

Every time when the shift contact is closed, ignition will be switched off for approximately 0.05 seconds.

How to avoid failure reason no. 4?

When fitting the wiring harness on a 125 MAX evo engine you have to assure that the cable for the electronic shift assistant does not get ground contact at any time. For this purpose please double check the wire is 100% insulated and fixed to the rest of the wiring harness.

Possible failure reason no. 5

Vibrations of the spark plug cap cause a brass dust inside the spark plug cap which can produce a misfire.

How to avoid failure reason no. 5?

Our recommendation in this case is to please keep the spark plug and spark plug cover clean.

Possible failure reason no. 6

The ECU seems to be defect. We have received some of them back and we could not reproduce this failure, on any of them. The malfunction of the engine has been caused by a different reason for sure.

How to verify failure reason no. 6?

The ECU tester (Rotax part no. 276 230) is checking the ECU also on a real function test.

If the ECU has passed this test with result “**!!TEST OK!!**” you can be sure that the ECU is working properly.

Complaint

Start button is pushed in position “start”, a click in the starter relay is noticeable but the starter motor does not run.

Possible failure reasons

- Check the correct electrical ground contact on the cylinder head cover
- Check the appropriate condition of the ground cable of the wiring harness

If ground cable is broken replace cable harness

- Check if the starter motor is connected to the cable harness

Connect starter motor to cable harness

Complaint

The start button is pushed in position start, not even a click in the starter relay is noticeable and the starter motor does not run.

Possible failure reasons

- Check the correct electrical connection from battery to wiring harness.

If battery was not connected, connect battery to wiring harness (red [+], black [-]).

- Check OFF/ON/START button

If it is still common, please replace OFF/ON/START button