INFORMATION

UPDATE INSTRUCTION FOR THE ELECTRONIC TIMED EXHAUST VALVE SYSTEM (E-RAVE)

Dear Customer,

to assure the proper function of the E-RAVE system the following changes are requested.


Update kit 481 265

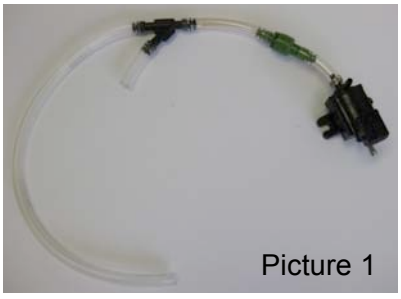
Note: The following instruction is valid for all 125 MAX evo and 125 MAX DD2 evo engines as well as all engines that have been upgraded with the E-RAVE kit 481 260.

This modification should be performed by authorized Rotax Service Centers/Dealers only!

For the update the update kit 481 265 is required.

Please follow the procedure step by step.

- ► Disconnect the cable harness from the magnet valve.
- ► Disconnect the pressure hose (from magnet valve to exhaust valve housing) at the magnet valve.
- ► Disconnect the pressure hose from the impulse connection on the crankcase.
- ► Disconnect the pressure hose from the impulse connection on the fuel pump.
- ► Remove the two Allen screws with washers and locking nuts of the magnet valve (washers and locking nuts will be reused again) and remove the magnet valve with hoses from the support plate (see picture 1).
- ► By means of a small screw driver open the lock of the hose clamp and remove the hose from the magnet valve (see picture 2).

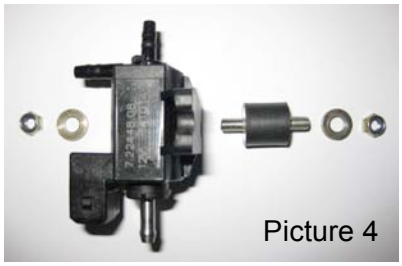

Picture 1


Picture 2

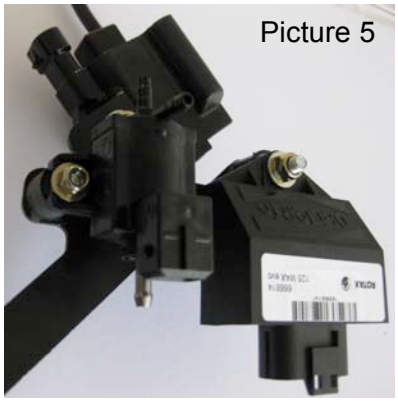
► Cut both hoses of the green one way valve (see picture 3) with a Stanley knife and remove the hoses from the one way valve.
The black “Y” piece (see picture 1) is no more needed.


Picture 3

► Mount the magnet valve by means of one rubber buffer (included in the kit 481 265), washers and locking nuts to the support plate (see picture 4).

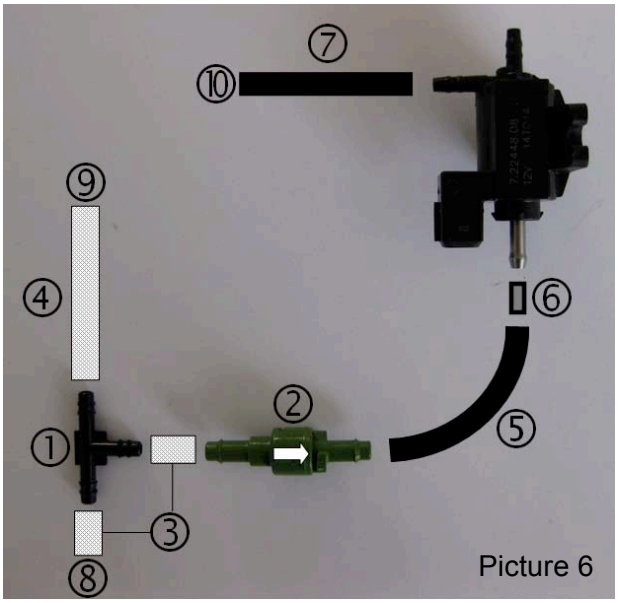

Picture 4

► The magnet valve has to be fixed to the support plate in the position that the metal hose connection of the magnet valve shows downwards (see picture 5).


Picture 5

Parts description and connections (picture 6)

① T-Fitting, 660 550*
② One way valve 660 543, supplied with the engine/upgrade kit.
③ 2 x fuel hose, length = 25 mm, use fuel hose supplied with the engine.
④ Fuel hose 400 mm length, use fuel hose supplied with the engine.
⑤ Pressure hose 201 576* (black, length = 420 mm)
⑥ Impulse nozzle 956 305*
⑦ Pressure hose 660 575 (black, length = 220 mm) use pressure hose supplied with the engine/upgrade kit.
⑧ To be connected to impulse connection of fuel pump.
⑨ To be connected to impulse connection of crank case.
⑩ To be connected to impulse connection of exhaust valve housing.



Picture 6

* Parts marked with a * are included in the update kit 481 265

Note: The arrow on the one way valve ② must show towards the magnet valve.

Stretch the inner diameter of pressure hose ⑤ with pliers before fitting onto the one way valve ②.

The impulse nozzle ⑥ must be fitted into the pressure hose ⑤ – no specific direction of the nozzle ⑤ is required.

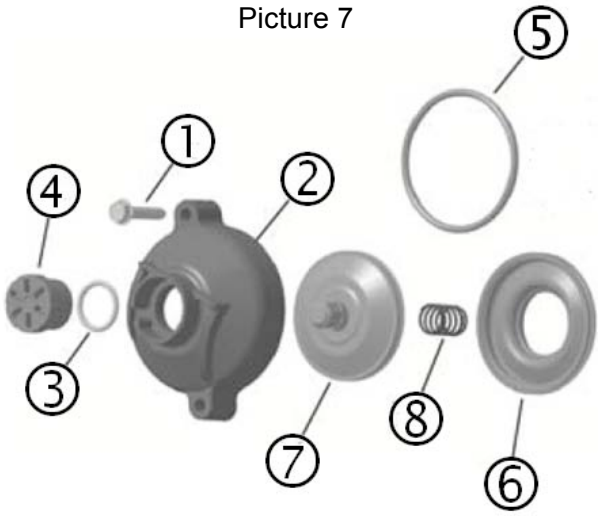
The indicated lengths of the hoses ③, ④, ⑤ and ⑦ must be respected.

Assure that the system is tight by using the original hoses. Any leakage will result into a malfunction of the system.

Changes on the mechanical components of the exhaust valve (picture 7)

- ► Disassemble the two Taptite screws ① and remove the cover ② together with o-ring ③ and adjustment screw ④.
- ► Remove the hose spring ⑤ from the bellow ⑥ and strip the bellow of the exhaust valve piston ⑦.
- ► Disassemble the exhaust valve piston ⑦ and remove the spring ⑧.
- ► Mount the exhaust valve piston ⑦ and fit the bellow ⑥ onto the exhaust valve piston ⑦.
- ► Mount the hose spring ⑤ onto the bellow ⑥.

Picture 7



- ► Fit the new pressure spring (Rotax 239 952, included in the update kit 481 265) between the exhaust valve piston ⑦ and the adjustment screw ④.
- ► Mount the exhaust valve cover ② together with the o-ring ③ and adjustment screw ④.
- ► Fix the exhaust valve cover ② with the two Taptite screws ① to the exhaust valve housing.

Function of the updated E-Rave system

The ECU of the engine is responsible for the timing of the magnet valve.
The positive pressure of the crankcase is used to open the exhaust valve.
The pressure spring outside the exhaust valve piston is used to close the exhaust valve.

Engine rpm	**Position of the exhaust valve**
0	Open or closed
0 – 2.000	Open or closed – no effect on engine performance.
2.000 – X	Closed, positive impact on bottom end performance
X – max. rpm	Open, positive impact on top end performance

X:

125 MAX evo	7.900 rpm (RAVE ground wire on cylinder head not connected).
	7.600 rpm (RAVE ground wire on cylinder head connected).
125 MAX DD2 evo	9.100 rpm (RAVE ground wire on cylinder head not connected).
	8.800 rpm (RAVE ground wire on cylinder head connected).

The impulse nozzle ⑥ (picture 6) is restricting the flow in the pressure hose and therefore influencing the speed of the opening of the exhaust valve (not the timing).
The time difference from close to open between impulse nozzle fitted or removed is approx. 0,5 seconds.
This will result into slightly different performance characteristics after the opening of the exhaust valve.
It is an allowed adjustment to fit or remove the impulse nozzle form the pressure hose to adapt to the personal preferred characteristic.

The setting of the adjustment screw ④ (picture 7) is free (insignificant impact on the engine characteristic).

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