Application:

OEM in Standard 2014 production

Bolt-on kit for all production bikes (2011, 2012, 2013)

Features:

Improved starting by electrical assistance to the ECU

Better electrical wiring efficiency

Cleaner look of the bike (less cables hanging in front of the bike)

Warning:

On the 2013 Tr280i models, we recommend to replace the cylinder head for the 2014 version cylinder head to improve starting efficiency. Otherwise, in case of light kick starting, engine tends to counter rotate, reducing starting efficiency of the bike.

Also, the kicking technique plays a big role on bike starting

Overview:

The ECU is an electronical device which requires electricity to operate. In standard form, the electricity is produced by the alternator, regulated and rectified by the regulator, sent by the ECU to the sensors, modulated by the sensors, received back again on to the ECU, processed, and used to operate the required electromechanical devices for starting the bike such like the fuel injector, the fuel pump and the ignition coil at the desired time in order to start the bike in a efficient way. All this work must be done in tenths of second, as it is what takes to start the bike. In case that the kick is not strong enough and can not supply enough power to the alternator, then this process is not done correctly. Also, the ECU needs to calculate the rotational speed before the top dead center in order to decide the ignition timing for starting, so if we start the kick being very near the top dead center, we can not calculate this parameter efficiently, and we must use the 2nd revolution calculation in order to start the bike. If we already have the ECU running, it will have the output values of the sensors already processed, and the position of the piston will be known, so all the calculations needed for starting will be ready as soon as the first revolution is completed, improving the efficiency of the starting up to a 95% of success. This success is achieved if we already have the right pressure in the fuel line. It is advisable to have 4 strong kicks the first time the bike is going to be started on the day in order to achieve this fuel pressure, which will be kept stable for at least, one day of riding. If the pressure regulator of the fuel pump is on bad condition, it will lose this pressure easily, making start difficult. In that case, a fuel pump test will diagnose this failure.

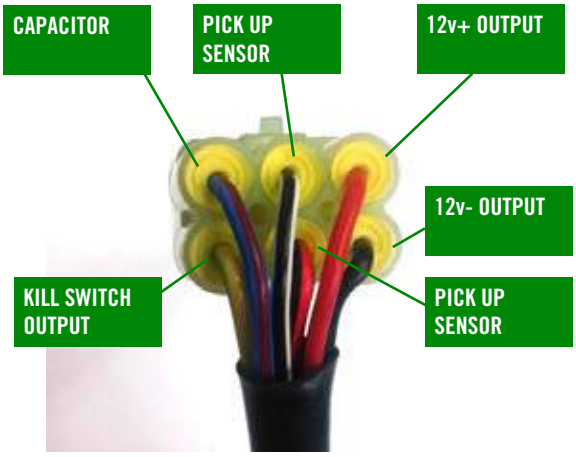
The system substitutes the standard capacitor and has one already built in.

Operating the system

The system can operate on two modes, RAC and FWAC (Rider Armed Condition and Flywheel Armed Condition). RAC mode is selected by pressing the kill switch button attached on to the handlebar. This activates the system, which sends 10V directly to the ECU in order to feed all the sensors and engine control unit for a 30s period. After this time has passed, the system gets disarmed again. When the engine is running, pressing the kill switch button will stop the bike as in other standard applications. The system uses a small rechargeable AAA battery in order to suply this initial voltage wich is amplified from 1,2v to 10v, which is enough for keeping the ECU operative. This small battery is supposed to be maintenance free, but it can be easily replaced in case it got damaged.

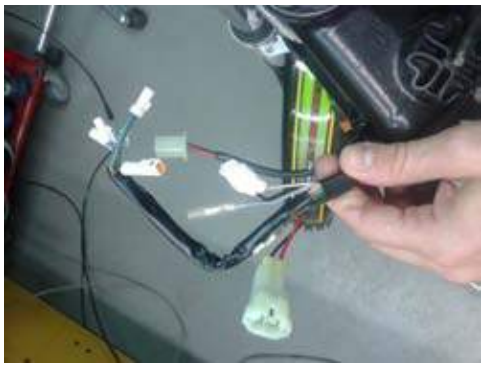
The second condition FWAC, is activated when the system detects flywheel rotation. When flywheel rotation is caused, the first pulse that the pick-up detects, is used to arm the system, but not at enough time to start the bike in a slow kick, but it arms the system for 30s, so if we can supply the bike with another kick in this time period, we will have the system armed, so our start efficiency will be the same as if we have pressed the button in this second kick. The bolt-on kit, cannot have this function in standard form, in case it is required, wiring has to be modified by an experienced technician.

System Description



Bolt-on kit Assembly instructions

1 Detach front light plate



2 Start assist module installation

Remove the pins of the connector lifting the small tab with a small flat screwdriver or steel needle and route the cable between the frame tubes placing the cables next the radiator cap and reinstall the plastic connector

3 Auxiliary wiring connection

Connect the auxiliary wiring connection to the module, and remove the plastic connectors from both output cables, and pass the cables to the front of the bike through the frame tubing. After that reattach the plastic connectors taking in consideration cable position and connect to the wiring harness of the bike, also connect the LED to the power supply to the tachometer and the kill switch button to the module directly

4 Modify the main relay harness

Search for the main relay and detach the blue and red cable from the connecting box by pressing the small tab in font of the connector with a small screwdriver or steel needle. Then cut the head of the fast on connector and peel the cable from the original wiring harness of the bike. Then adjust the length of the cable of the auxiliary wiring and peel it.

Then join both ends together and clamp them with the supplied fast on connector. Then install it again into the connecing box, and reinstall the relay. This will connect the capacitor directly to the fan, reducing the charge loss that causes having the capacitor connected in paralel to the ECU at bike starting.






5 Bolt the module to the front plate

You can use the standard headlight after drilling some holes for securing the module into it or get the new ones where the module gets attached directly to it. Then route the cables accordingly.

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In case you have any doubt, please contact me at

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