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Dave Sparte

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Fat Duc O₂ Manipulator

INNOVATION OF THE MONTH

THERE IS NOTHING more frustrating for a mechanic than to understand the cause of a serious problem, only to find the obvious solution impossible to implement.

Strike one such problem off the list, thanks to the Fat Duc O₂ Manipulator. Designed to compensate for overly lean closed-loop Euro 3 emission settings on select Ducati models manufactured since 2006, the Fat Duc O₂ Manipulator modifies the signal sent by the O₂ sensor, tricking the electronic control unit (ECU) into thinking the bike is running leaner than it is. It does this by modifying the strength of the signal sent by the O₂ sensor mounted in the exhaust system. The ECU then dutifully adds more fuel to achieve the target O₂ reading. A small rheostat on the O₂ Manipulator allows fine tuning of the resulting air/fuel ratio between 13.0:1 and 14.2:1 for optimum performance without ruining the gas mileage. The result is a responsive, smooth running motor, with no back-firing, no glowing header pipes or troublesome flat spots in the powerband.

Prior to Ducati's switch to closed-loop injection, it was possible to fine-tune the base fuel/air ratio (the base trim setting, affecting idle and off idle conditions) via a software interface with the ECU. Closed-loop EFI eliminated this option. If fuel was added to the base trim setting, the O₂ sensor immediately removed it. Prior to the availability of Fat Duc's product, Ducati owners who experienced chronic surging and rough running had no recourse for the engine's lean fuel conditions beyond purchasing the expensive Ducati Performance ECU.



Interestingly, the Ducati Performance ECU is an open-loop controller, completely ignoring the O₂ sensor. Like the Fat Duc O₂ Manipulator, it is also classified for "Race Use Only."

Hoping to avoid major expense, some frustrated owners decided to simply unplug the O₂ sensor. Unfortunately, this causes further complications. First, the "check engine" idiot light shows continuously in the instrument display. Second, it can cause the stock ECU to confuse the lack of an O₂ signal with serious engine trouble, so that it revert to "limp-home"—an accurate description of the degraded powerband created—designed to run well enough only to help the rider reach a factory service location.

MCN noted on several occasions the overly lean fuel mapping problems we encountered on early examples of Ducati's closed-loop injection systems. In particular, the 2007 GT1000 was badly impaired by this condition. Around the same time, we were not surprised to see Ducati send the first of its 1098 superbikes to various magazines pre-fitted with Ducati Performance exhausts and ECUs, presumably in order to avoid exposing the issue.

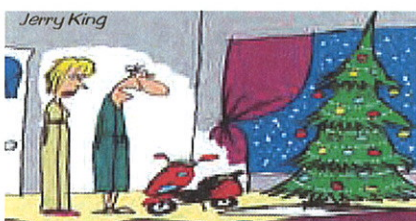
Alas, the early closed-loop fuel injection ECU appeared impregnable, and we lamented the inability to rectify the situation. Now, for the paltry sum of \$80, the Fat Duc O₂ Manipulator comes to the rescue of Ducati owners with closed-loop fuel-injection problems. Installation takes all of 30 seconds via the quick-connect harness. Tuning is simple and quick; adjusting the rheostat with a small jeweler's screwdriver. Perhaps its best attribute is that it is non-invasive, meaning it can be installed and removed quickly without cutting or splicing. And both connectors are the correct weather-proof OEM type for proper fit.

The unit works well with both stock and lightly modified engines (aftermarket exhaust systems) and we haven't experienced any problems. And, to be fair, Ducati appears to have solved the lean-running problems with its later systems (and Siemens ECUs are now standard).

The O₂ Manipulator comes with a 30-day trial period and a one-year warranty. It is available for purchase through dealers or directly from Fat Duc's web site.

—LT Snyder

Contact: www.fatduc.com



I asked for a motorcycle and Santa got me this? Did I somehow get on his "naughty" list?

Next Month

- Suzuki M90 muscle cruiser test
- Aprilia Mana 850 evaluation
- New BMW G650GS 1st Impression
- Milan Show highlights

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