

FuelTech

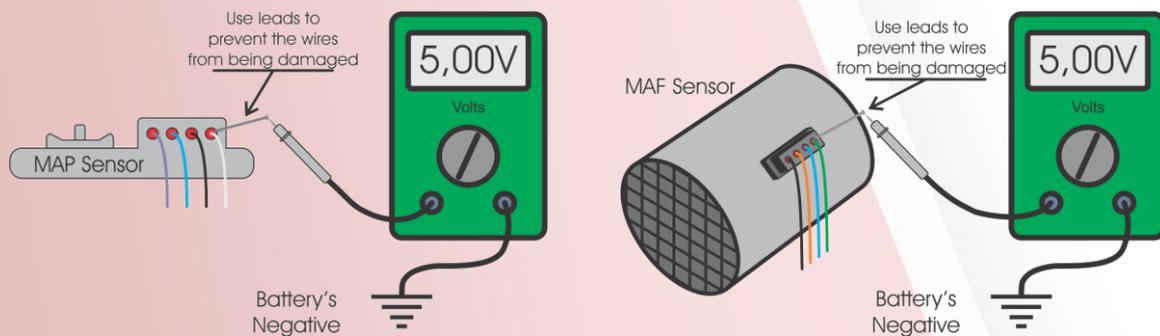
FuelTech Clamper – Instructions Manual

When installing a turbocharger in an aspirated engine or increasing the pressure of turbocharged engines, some sensors from the original fuel injection control system display a failure alert. That happens because these sensors were not designed to read positive pressures. Electronically speaking, when MAP (or MAF) reads the turbo pressure, its output signal increases to a value with which the original fuel injection system is not used to working.

FuelTech Clamper is connected in parallel with the MAP or MAF sensor's signal wire, preventing the sensor's output signal from surpassing what has been configured. In other words, the Clamper "clamps" the signal from the sensor making it work only within the range in which it was designed to working. If the sensor signal rises above the configured maximum, the FuelTech Clamper drains the exceeding voltage, therefore limiting its variation range.

Identifying the Sensor's Signal Wire

The two images below show how to measure the wires from the sensor in which the Clamper will be used. The wires must not be cut and, to avoid the insulation from being damaged, we recommend the use of a pin, as the multimeter leads can damage the insulation and the original wires' connector.



In order to find the sensor's signal wire, have the multimeter set to the 20VDC range and connect it as shown in the images above, one lead to the battery's negative terminal and the other lead to the sensor's wires. With the engine powered on, set the multimeter and accelerate. The voltage from the signal wire must range between 0 and 5V.

Then, connect the FuelTech Clamper to the car as follows:

- **Red** wire: switched 12V
- **Black** wire: battery's negative terminal
- **White** wire: connected to the sensor's signal wire

The sensor's signal wire **must not be cut**. Just strip and splice it with FuelTech Clamper's white wire.

Clamper Adjustment

MAP: After the Clamper is installed (leave the regulating screw at 5V), keep measuring the sensor's signal voltage with the use of a multimeter, but have the ignition key turned on and the engine powered off. The sensor will be measuring the atmospheric pressure and most likely the signal voltage will be at approximately 4.2V. Turn the Clamper's regulating screw to the left until the voltage read by the multimeter starts lowering. Usually, the value in which failures on MAP sensors are eliminated is a little lower than the value shown when the car is turned off. In this case, the ideal would be 4.1V.

MAF: To initiate the adjustment, it is recommended to have the regulating screw set at halfway of its complete range and to drive the car. In order to define the position of the Clamper's regulating screw, the operator must find the position in which the original fuel injection system no longer detects any anomaly in the sensor when the car is moving, both in full and low throttle.

Even when that position is defined, it is still possible to modify a little the position of the regulating screw. That is because the Clamper, when limiting the sensor range, induces the original fuel injection system to exclusively read the vacuum, which means that the ignition curves will also vary according to the limit value set by the Clamper, therefore changing the engine's performance.

It might be interesting to carry out some tests in fine tuning this adjustment. Significant improvement on the engine performance can be obtained when the FuelTech Clamper is well tuned.

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