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Function **: Idle and Engine Brake Ctrl**

Parts **: Throttle Body**

Version **: 1.2 (01/01/19)**

Machine **: TRIUMPH 675 2013>**

Application : World Supersport

ECU **: WSS600_A**

: TR675WSS (2019 only)

This quick reference document is drawn up with the aim to be simple and fast for user consultation, assisting the user or technician in their calibration work.

Will not be in-depth concepts considered fundamental, technical control, PID logic and procedures for writing data or parameters.

This document is the reference for the STRATEGIES section of the control firmware only.

Mectronik will not be responsible for all the effects resulting from the calibrations performed by the user using the tools provided, of not achieved competitive results or not achieved goals. The user is always suggested to verify through simulation, the effect of the calibrations on control algorithms.

⚠️

IN THE DRIVE BY WIRE SYSTEM, THE INCONSISTENCY OF CERTAIN PARAMETERS REGARDING THE MANAGEMENT OF THE THROTTLE BODY, MAY DETERMINE NOT ITENDED AND UNCONTROLLED EVENTS. THE USER ASSUMES THE FULL RESPONSIBILITY WHEN USING ANY TOOL ABLE TO MODIFY CALIBRATION PARAMETERS.

In cases where it is deemed useful to verify through simulation actions resulting from the changes made to the data, and not being in possession of the appropriate tools, contact technical service.

INTRODUCTION

To obtain the maximum benefits from the ECU, a reconfiguration of the hoses mounted on the throttle bodies is necessary.

Specifically, the standard configuration has a MAP (manifold air pressure) sensor that measures pressure from pipes connected to all 3 cylinders.

The race ECU, is able to read pressure with angle base sample (every 5 crank shaft degrees). By using this type of sampling, it is possible to more accurately measure and calculate the intake air quantity.

At the same time, the ECU uses this signal to detect the Intake Stroke for cylinder 1 (for synchronisation).

Please check the technical rules of your specific championship to ensure that these changes are allowed (notably British Supersport). In case this is not allowed, be sure to use an ENGINE CALIBRATION (.DIS distribution file) that uses the CAM sensor instead of MAP sensor for engine synchronisation .

Below are the throttle body hoses after the reconfiguration:
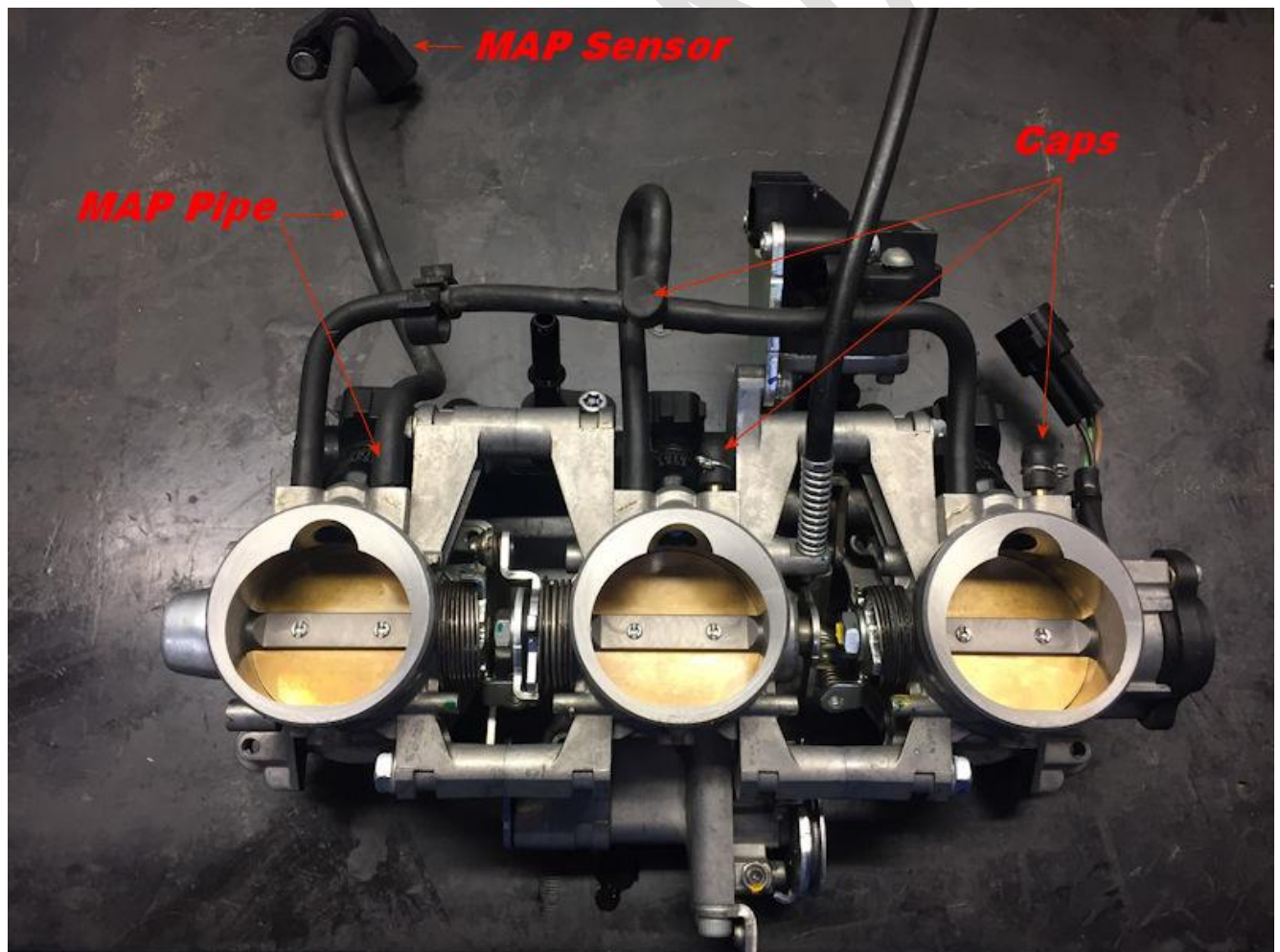
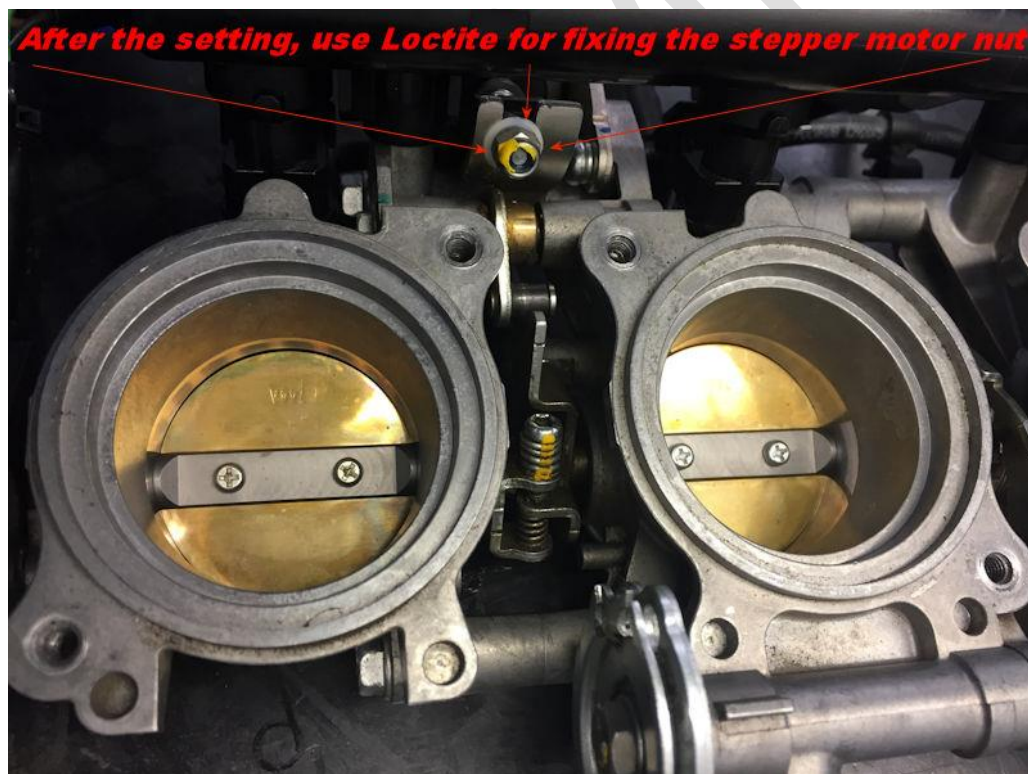MAP sensor must be connected to Cylinder 1:

To be able to use the idle control stepper motor in an optimized way for engine brake and idle control make the following update:

Two washers must be added to increase the spring load:


Add two washers under the spring

The BOLT for stepper command lock, must be opened (calibration is then possible using STEPPER.PY python script), and then it must be fixed with Loctite, see next page for details:

After the setting, use Loctite for fixing the stepper motor nut

STEPPER ACTUATOR CALIBRATION

To be able to use the idle control stepper motor in an optimized way for engine brake and idle control you need to calibrate the maximum stroke of the actuator.

First select the stepper information page from menu CALIBRATION / STEPPER ACTUATOR:
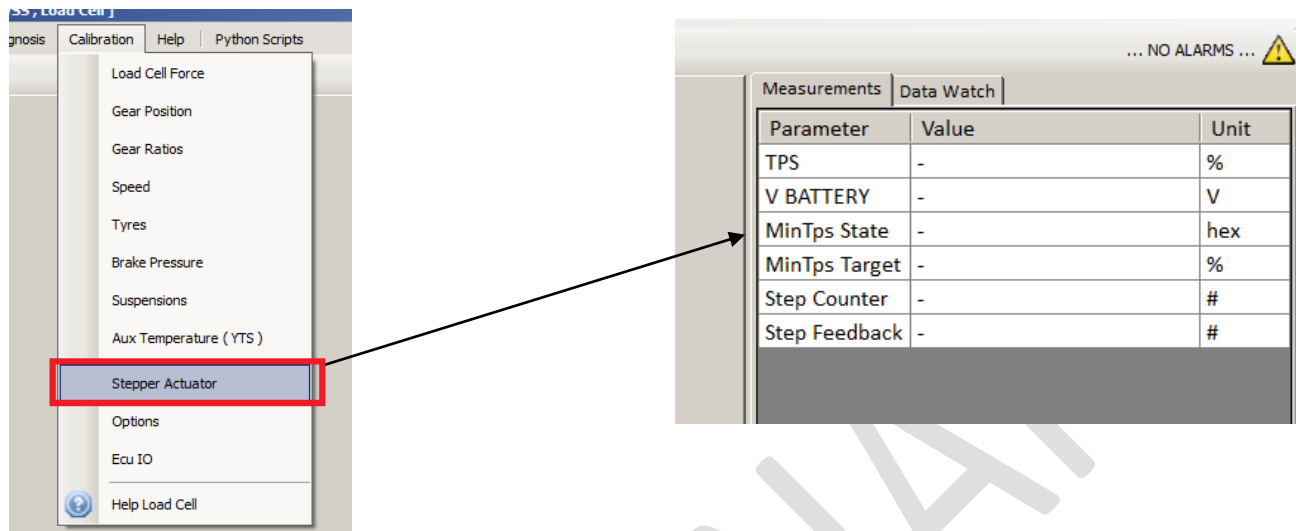
When you are connected with MeCal to the ECU, you will see some information about the actuator.

The **MinTps State**, shows you if the actuator is working in closed loop. During IDLE control and ENGINE BRAKE control the minimum throttle position (closed throttle position) is controlled by the ECU.

We supply a python script that can help you to manage the stepper, to install this script perform the following steps:

First download the STEPPER.PY script from the MECAL CLOUD, then insert the script in your menu:
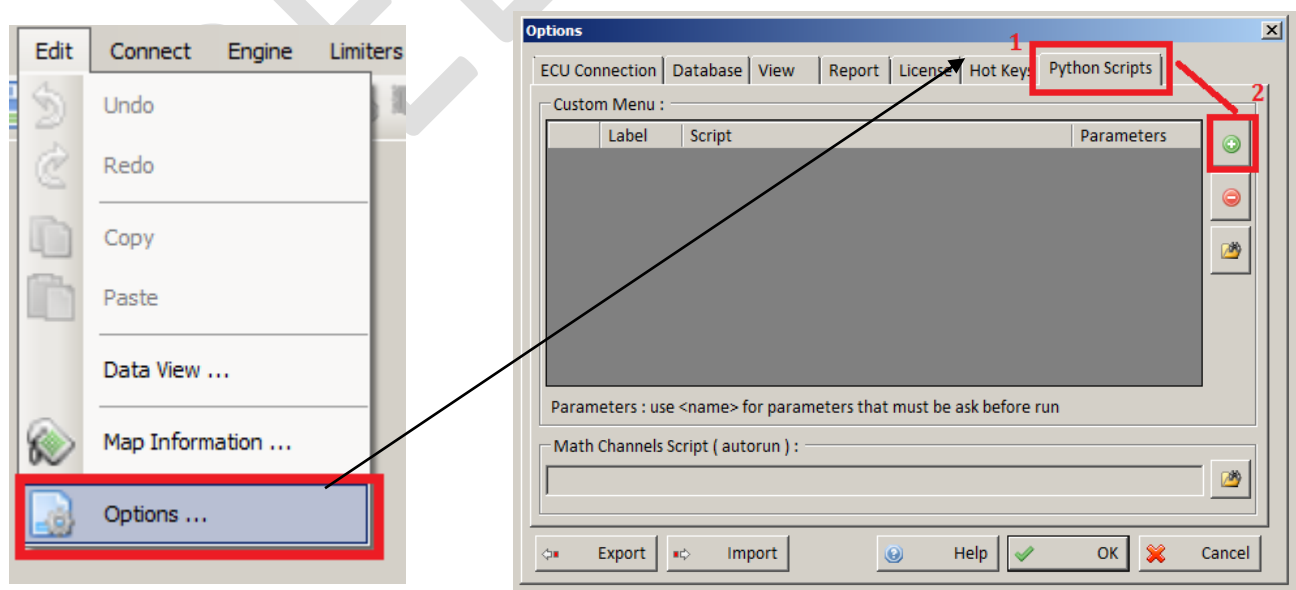
Double click on the new line, and select STEPPER.PY from your hard disk, under label you can write a name/description of your choice that will be added to the menu.
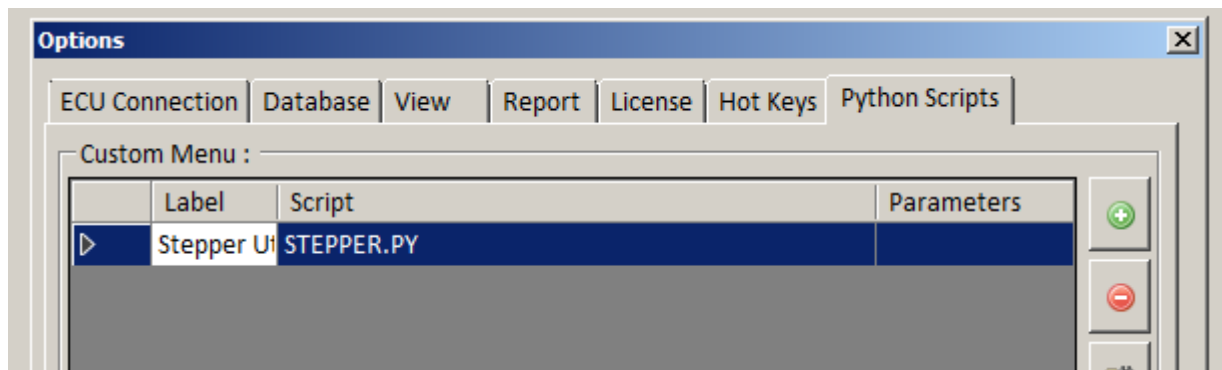
After that You will have a new menu item and pressing it a utility window will be shown. Below a screenshot of what you will see when you calibrate your throttle body:
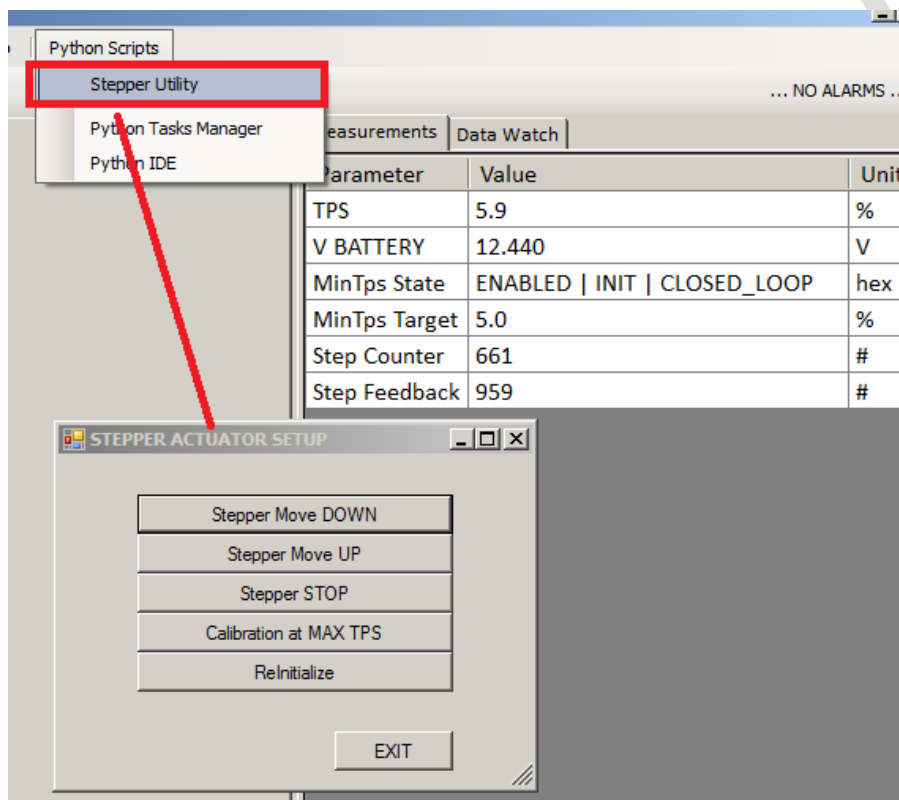
From this window you will have full control of the stepper actuator. You can move the stepper DOWN and UP or you can STOP it.

You can also enter a special CALIBRATION for Max position.

Finally you can REINITIALIZE it, this is the same initialization that ECU makes at startup.

We recommend performing the following steps:

1. Fully open the STEPPER by using the 'Stepper Move UP' button. As soon as you see that stepper is at maximum position, press 'Stepper STOP'.
2. Adjust the BOLT that adjusts the stepper actuator whilst looking at TPS channel in MeCal. Adjust the bolt until the TPS channel reads between 5.8 and 5.9%.
3. Press 'Calibration at MAX TPS'
4. Now try to open and close TPS manually, the system must ENTER and EXIT automatically from CLOSED LOOP control.
5. Finally press 'Reinitialize' - the ECU will move the TPS (in closed loop mode) to a better position for engine starting.