# Summary

KILL SWITCH

The ignition uses the Kill switch input as a selector between <u>3 functions</u> :
- Setup
- rev-limiter
- Stop engine.

Let's see them...

Setup Mode

1) Turn the **Kill Switch ON** (*blue wire connected to ground*) PRIOR to power on the ignition box.

2) **Power on** the ignition box with a 12v battery.
When the ignition box detects that the kill switch is already grounded, it turns into SETUP Mode.

3) The **Blue Led** inside the box <u>blinks 3 times</u> then flash every <u>5 seconds</u>.

4) The ignition box starts a **WiFi AP** (*Access Point*)

5) On your phone, laptop, PC, whatever, go to the **Wifi setting** and search for a new SSID called **Transmic_ign**
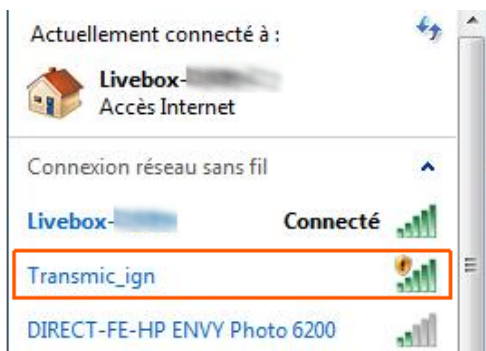
6) **Connect** to it (*there is no password*)
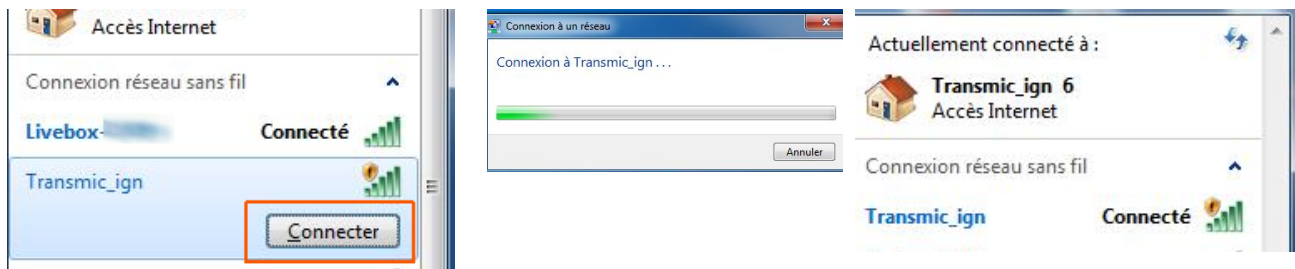
8) Once your device is connected to the AP, open up a **browser** and head over to http://**192.168.4.1**

9) Once connected your browser should display:
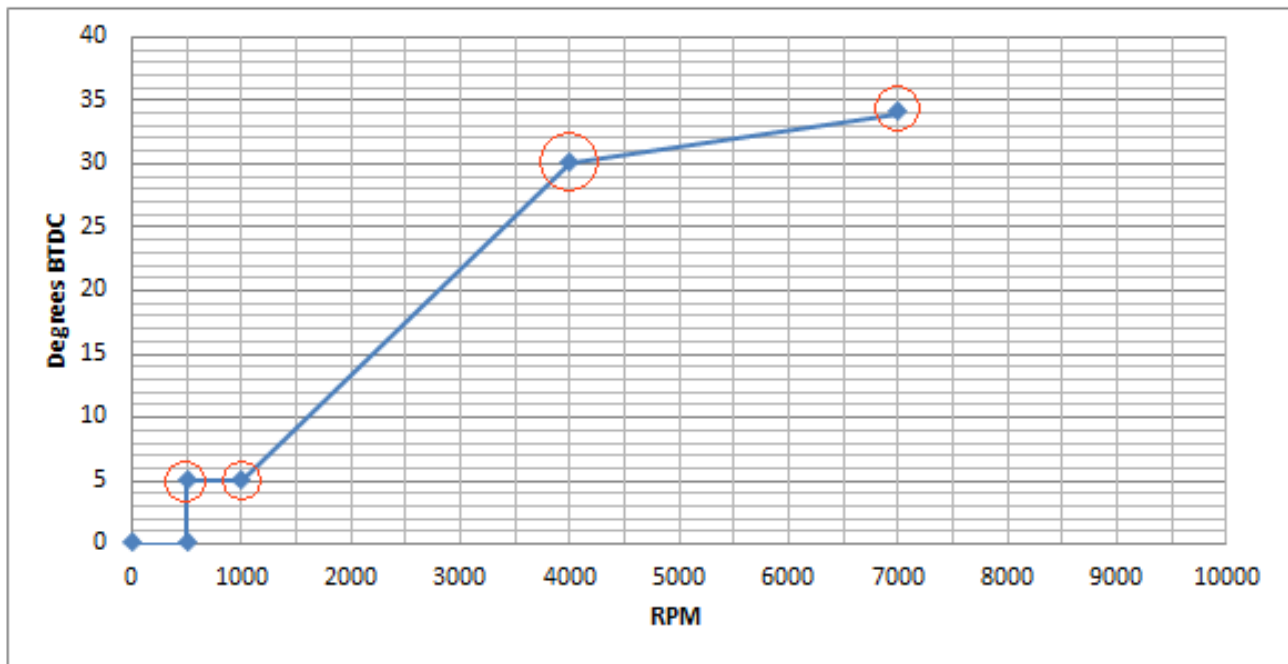

TRANSMIC.FR

TCI v11r0c0

You are now connected
to your ignition box.
Serial: 2201

Configuration

V11R4C0

Ignition Timing

Assuming you want this ignition timing:

One can define this curve with 4 points but you can use up to 13 points.

(0 to 500rpm at 0° BTDC is hard coded for no kickback.)

The curve above is defined by 4 pairs of values

```
500  rpm     =      5°  BTDC
1000 rpm     =      5°  BTDC
4000 rpm     =     30°  BTDC
7000 rpm     =     34°  BTDC
```

Those values will be filled out in the form in ascending order of RPM along with the pickup position.

V11R4C0

Setup

1) Go back to the browser and first thing first, enter the **Pickup Position** then click **Send**

See Appendix 1 to find the pickup position.

2) The **blue Led flashes** when value is processed then the *Pickup Position* appear on the left hand side of the form.

3) Proceed now to enter the advance timing.

We want to setup:

```
500  rpm     =      5°  BTDC
1000 rpm     =      5°  BTDC
4000 rpm     =      30° BTDC
7000 rpm     =      34° BTDC
```

Enter values in ascending order of RPM !
Pair 500:5 first etc etc…
7000 being the last value, it's the hard rev-limiter: no more sparks at 7001 RPM !
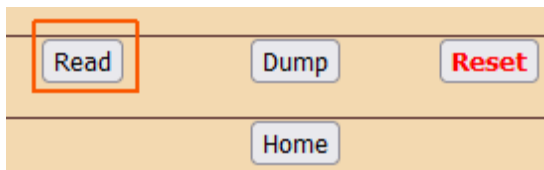

V11R4C0

RPM can be entered with a precision of 100rpm

Timing can be entered with a precision of 1°Read

To display the values that have been set, click on the **Read** button on the **Home** page :

Read	Dump	Reset
	Home	

Stored Values:

Timing Curve:

0	500
4	5
8	1000
12	5
16	4000
20	30
24	7000
28	34
32	0
36	0
40	0
44	0
48	0
52	0
56	0
60	0
64	0
68	0
72	0
76	0
80	0
84	0
88	0
92	0
96	0
100	0

Settings:

208	0	Autospark (TCI)
212	0	Pickup Type
216	50	Pickup Position
220	0	DwellType (TCI)
224	2	Dwell (TCI)
228	0	Console output
232	0	Bypass
236	0	
240	0	
244	1	Last pkp polarity detected
248	513	Starts

Home

Modification

Say you want to modify the advance timing for 7000rpm and set 35° instead of 34°

In *Read* mode above, we saw that RPM 7000 is stored at address 24 and timing for 7000rpm is at address 28.

Since we want to modify the advance timing at line 28, we now have to enter :

Line   **28**

New value   **35**

then   **Send**

Same thing to change any other values.

Add points

Say you want to add one advance timing of 34° @ 8000rpm

In *Read* mode above, we saw that last RPM 7000 is stored at address 24 and timing for 7000rpm is at address 28.

The next 2 empty slots available are:

Address **32** for RPM and Address **36** for timing

We now have to enter :

Line   **32**

New value   **8000**

then   **Send**

Line   **36**

New value   **34**

then   **Send**

Dump

Read EEPROM addresses and display them in HEX values for <u>debug</u> purpose.

Dump EEPROM Hex Values:

```
0    F4 01 00 00 05 00 00 00
8    40 1F 00 00 28 00 00 00
16   34 21 00 00 28 00 00 00
24   00 00 00 00 00 00 00 00
32   00 00 00 00 00 00 00 00
40   00 00 00 00 00 00 00 00
48   00 00 00 00 00 00 00 00
56   00 00 00 00 00 00 00 00
64   00 00 00 00 00 00 00 00
72   00 00 00 00 00 00 00 00
80   00 00 00 00 00 00 00 00
88   00 00 00 00 00 00 00 00
96   00 00 00 00 00 00 00 00
104  00 00 00 00 00 00 00 00
112  00 00 00 00 00 00 00 00
120  00 00 00 00 00 00 00 00
128  00 00 00 00 00 00 00 00
136  FE 00 00 00 00 00 00 00
144  00 00 00 00 00 00 00 00
152  00 00 00 00 00 00 00 00
160  00 00 00 00 00 00 00 00
168  00 00 00 00 00 00 00 00
176  00 00 00 00 00 00 00 00
184  00 00 00 00 00 00 00 00
192  00 00 00 00 00 00 00 00
200  00 00 00 00 00 00 00 00
208  00 00 00 00 00 00 00 00
216  32 00 00 00 00 00 00 00
224  02 00 00 00 00 00 00 00
232  00 00 00 00 00 00 00 00
240  00 00 00 00 01 00 00 00
```

Home

Reset

Reset button will **clear ALL values** WITHOUT confirmation.
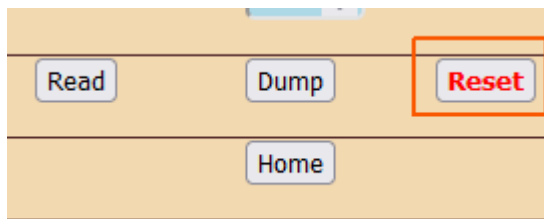
Browser shows :

Restart the ignition box. (power off/power on)

Don't forget the Kill switch position if you want to return in Setup mode….

Restricted Mode

Default: Off

This function create a **temporary rev-limiter** that restrict the engine to **4000rpm** max.

It is useful for 50cc bikes to seem to be « *Street legal* » in countries where there are limited to 50km/h or to lend the bike to a rookie… ;-)

This setup lets you enable [1] or disable [0] the option of capping the maximum RPM to 4000 when Kill wire is connected to ground during the 30 first seconds following the very first spark.

LEGAL REV LIMIT [0]	○ Off (0) ○ On	Send

When "Legal Rev Limiter" is enabled [1], to enter in this restricted mode :

- Turn on the master ignition key.
- **Start** the bike
- Flip the **Kill switch** ON then OFF once during **the first 30 seconds**.
- Engine is **now limited** to 4000rpm until you turn off the master key.

Kill

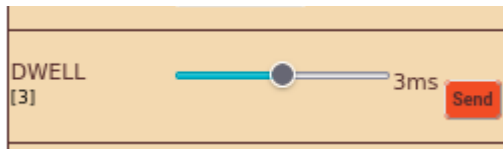After 30 seconds since the first spark, the Kill switch acts normally and stops the ignition.

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Dwell

Dwell time is the charge time for the ignition coil.

It vary with different types of ignition coil and is typically 2 milliseconds for many modern coils and 4 or 5 milliseconds for older ignition coils.
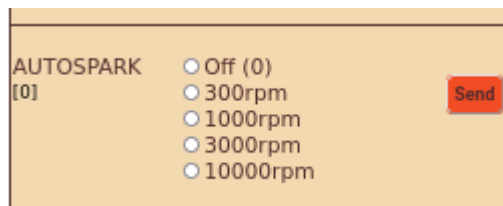
Spark appends when the current flow is stopped after Dwell time.

AutoSpark

This **autotest function** is usable on TCI only.
The TCI ignition sends sparks at 300/1000/3000/10000rpm WITHOUT any pickup connected.

This way you can test the wiring, the TCI, the coil and sparkplug.

Bypass

Default: Off

This function bypass the advance timing and trigger a spark AS SOON AS a pickup pulse has been detected.

This function comes handy when you want to know the pickup position with a Timing Lamp :
Remove the sparkplug out of the engine and connect it to the metal frame then rotate the engine with a drill machine.

With points and mechanical advance system, TCI in Bypass mode is acting as a simple Transistorized Ignition.

/!\ Don't use the function on a running engine with pickups or hall sensors otherwise the spark will append way too soon and can harm the piston !!

Pickup Polarity

When "*Pickup Type*" has been set to "*Auto(0)*" the ignition try to detect the polarity of the pickup.

Its finding is logged in the Eprom at the address 244 and is accessible by clicking the "READ" button.

0 = pickup not detected
1 = pickup detected as PN type (Positive first then Negative)
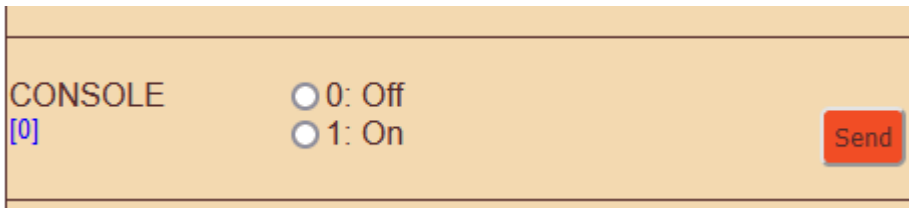2 = pickup detected as NP type (Negative first then Positive)

Console

Enable the Console output:

- Turn the ignition box in **Setup Mode**

- Go to "**CONSOLE**", check "1" to enable the console output, press Send

- Power **off** the ignition box

- **Disconnect** the **Kill** wire from ground

1) **Power on** the ignition box, it goes in "**Run Mode**"

2) The **blue LED** stays on (if pickup Auto mode) or blinks one time (if pickup forced to NP or PN)

4) The ignition box also creates a **WiFi AP** (*Access Point*)

5) On your phone, laptop, PC, whatever, go to the **Wifi setting** and search for a new SSID called **Transmic_ign**

6) **Connect** to it (*there is no password*)

V11R4C0
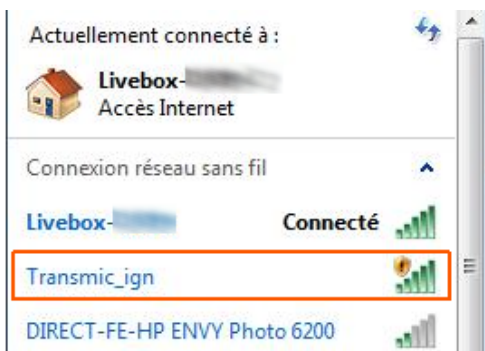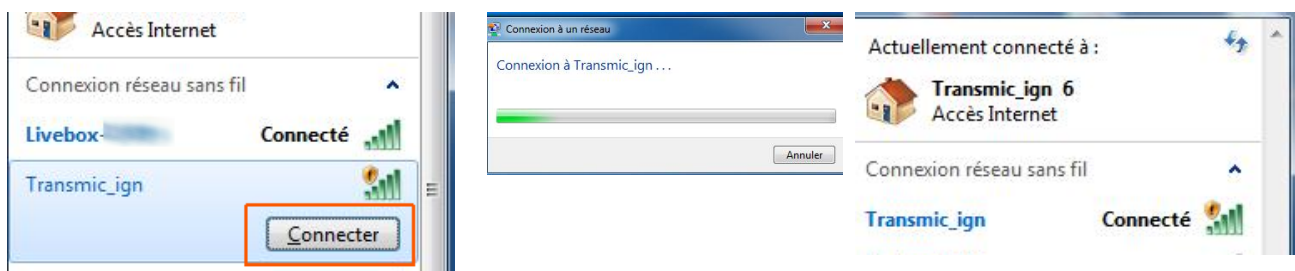
8) Once your device is connected to the AP, open up a **browser** and head over to
http://**192.168.4.1**

9) Once connected your browser should display:

RPM vs ADV

Wait for pickup...
undefined

rpm:
adv:

10) **Start** the engine

11) After a few seconds, the browser should display both the **RPM and the advance timing** in degrees BTDC followed by 2 bargraphs.
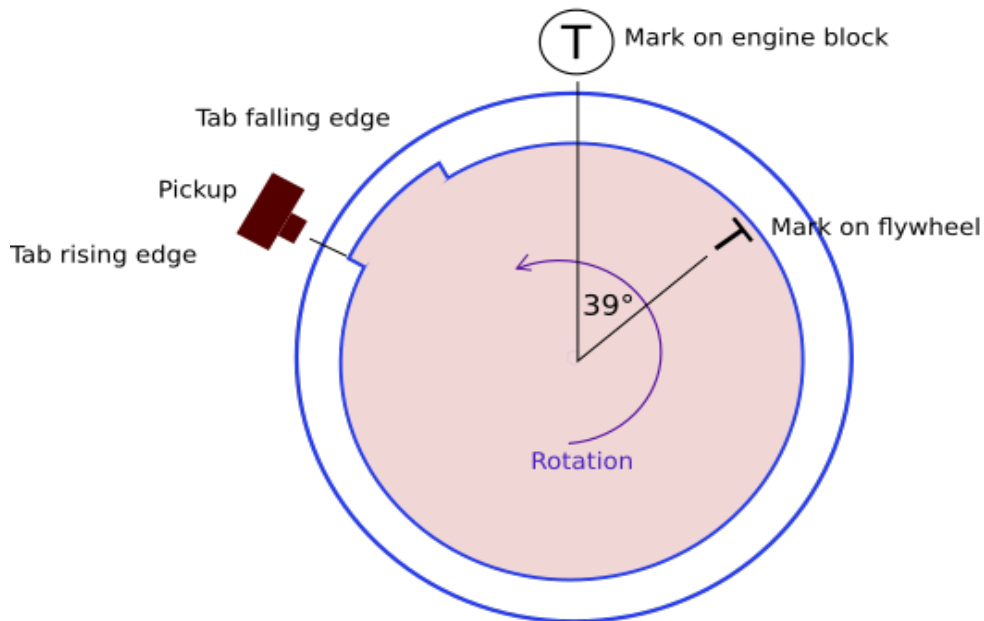
RPM vs ADV

3360
39.29

rpm:
adv:

Appendix 1

Find the pickup position.

In the example below the pickup is set at 39° BTDC

Method N°1
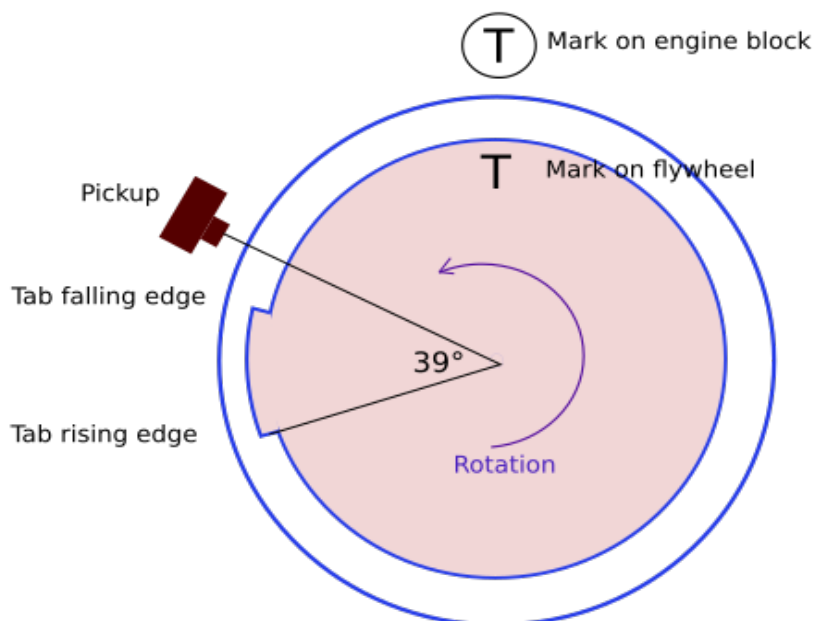## Pickup aligned with rising edge
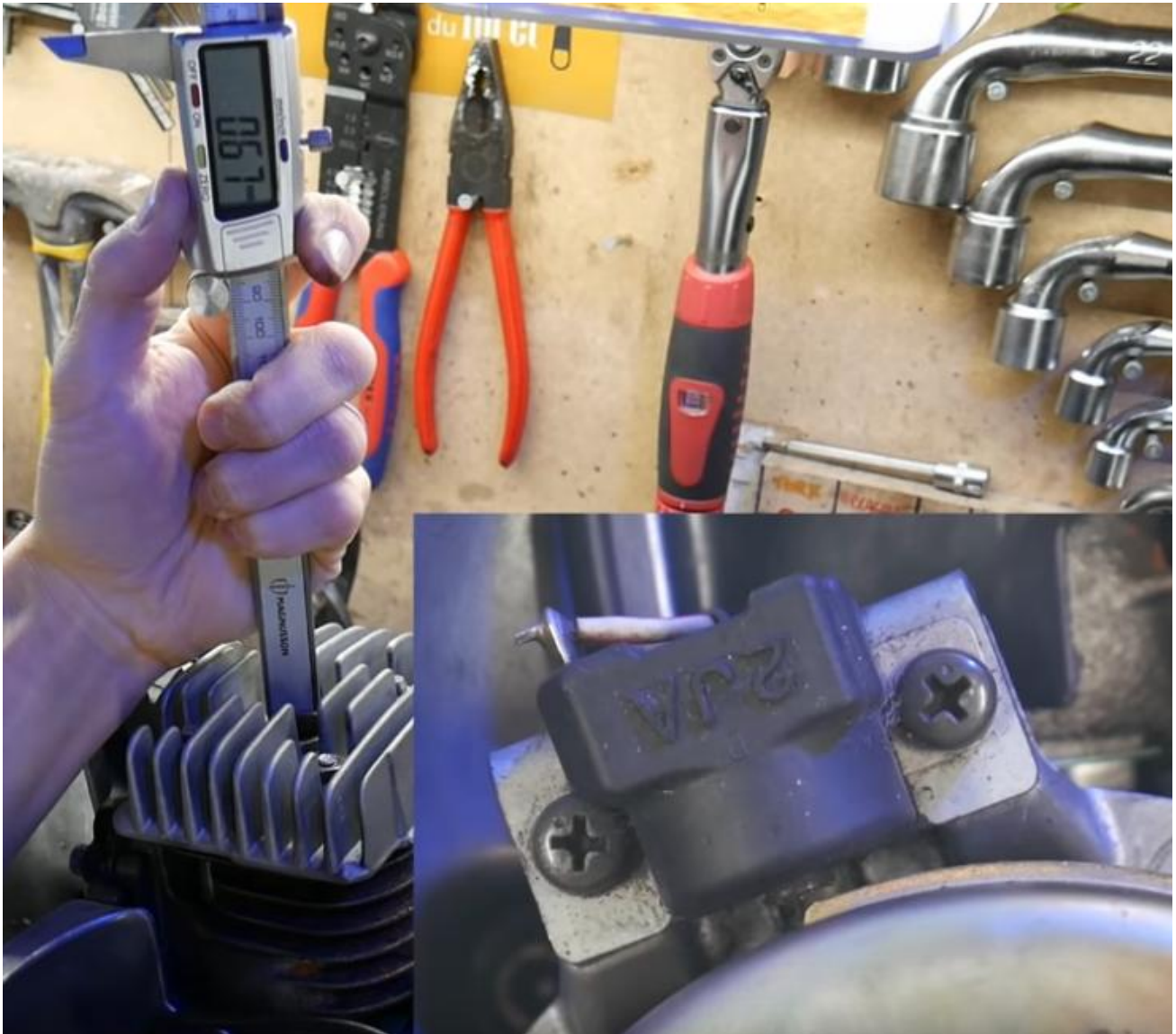

Method N°2
Engine at TDC

Appendix 2

A) Remove the sparkplug, find the TDC position with a *dial indicator gauge* or a *caliper rule*:

B) Align the pickup with the beginning of the magnet on the rotor and measure the travel of the piston with the caliper rule:
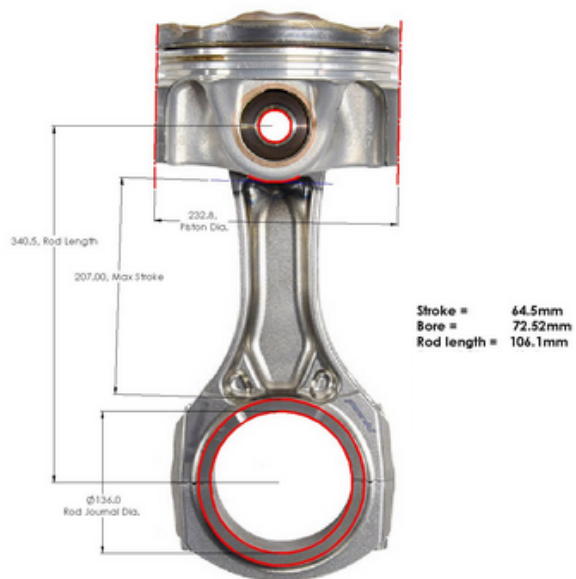
C) Use an online timing calculator to convert millimeters into degrees:

https://lambretta-images.com/tuningh/port-timing-calculators/degrees-to-mm-timing-calculator/
or
http://www.ajcshop.fr/Calculettes/html/calculette-convertisseur-allumage.htm

ie:

Stroke =   64.5mm
Bore =   72.52mm
Rod length =   106.1mm

=>

1	->	64.5	Course en mm
2	->	106.1	Longueur de bielle (entraxe) en mm
3	->		Diamètre (D) du volant en mm (uniquemer
4	->	0.67	Avance en mm
Calculer	10.25		Avance en degrés (angle α) (renseigner 1, 2, 4) Le résultat est en ° et centièmes de °