IMPACT ECU · CRANKING BUTTON GUIDE

Cranking Ignition Advance

This curve sets the spark timing while the starter turns the engine, by engine speed (RPM). Starting timing is kept low, near **top dead center** (TDC: the piston at the very top, 0°), so the engine doesn't kick back against the starter.

Your tune came with this set for your bike. **You should never need to change it.**

> **WHERE TO FIND IT**
> **Cranking ▸ Cranking ignition advance** shows when Tuning View is Full

The numbers in these pictures come from one example bike. Your tune's numbers will be different, so don't copy them. Units are Metric (°C, kPa, km/h). Red numbers in each picture match the table below it.

When it's used

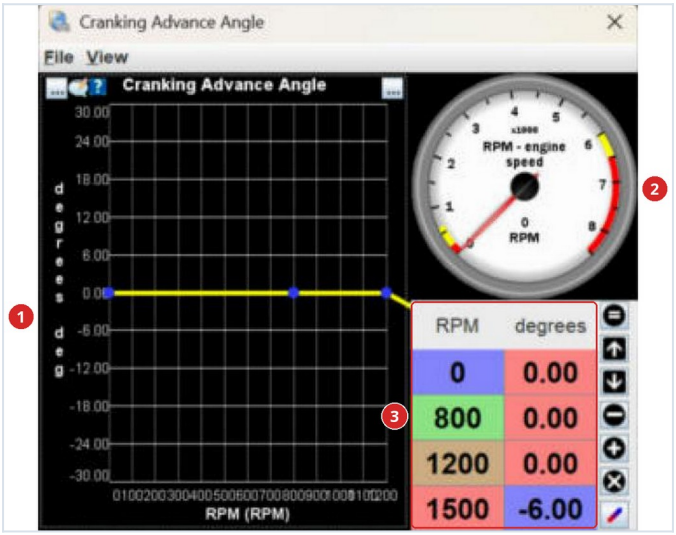
- Only while cranking: from a stop until the engine first reaches the **Cranking RPM limit** (600 here). After that, the normal timing tables in the Ignition button take over.
- Only when **Cranking ▸ Cranking settings ▸ Timing Advance mode** is **Table**, as in our tunes. With **Fixed (auto taper)**, the timing starts at the **Fixed cranking advance** instead and blends toward the normal timing as RPM rises, and this menu item is greyed out.
- No timing corrections are used while cranking: not the engine temperature or air temperature corrections, and not **Idle ▸ Closed-loop idle timing**.
- If **Ignition ▸ Ignition settings ▸ Timing Mode** is **fixed**, the Fixed Timing number is used instead, even while cranking.

Good to know

- Kicks back against the starter, or pops while cranking? Too much cranking advance can do that. Call us before changing this curve.
- The coil charge time while cranking is the **Fixed Cranking Dwell** in Cranking settings.
- In a datalog (a recording of what the engine is doing), **Ign: Timing Cyl 1** (rear) and **Ign: Timing Cyl 2** (front) show the timing in use, while cranking too.

The settings

The window is titled **Cranking Advance Angle**.



#	SETTING	WHAT IT DOES
1	**Cranking Advance Angle** LEAVE AS SET	A graph of the timing against RPM. Its numbers are in 3. The graph only goes up to 1200 RPM, so the 1500 RPM point is off its right edge.
2	**RPM gauge** DISPLAY ONLY	Live engine speed. It reads 0 when TunerStudio isn't connected.
3	**RPM and degrees columns** LEAVE AS SET	The timing at each RPM, in degrees before top dead center (a negative number fires after it). In this example: **0°** at 0, 800 and 1200 RPM, and **−6°** at 1500 RPM.

Cranking ends at the Cranking RPM limit (600 RPM here), so the ECU only uses the line between the 0 and 800 RPM points. Both are **0°** here, so this bike cranks at 0° every time. The 1200 and 1500 RPM points are never used. The grey help box at the bottom of the window (below the part in the picture) mentions "useSeparateAdvanceForCranking": that's **Timing Advance mode** in Cranking settings.

Burn means save. Changes go to the ECU as you make them, but they are only kept after you click **Burn**.

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