Auto Advance Unit Wobble

A person with a 1970 Triumph asked how does the mark on the end of the ignition cam help with ignition timing and why is my ignition firing twice for every revolution of the ignition cam? The answers are included here because they apply to every British bike with a Lucas battery-coil ignition, which includes singles, twins and triples.

1) The mark on the ignition cam is only there to indicate the proper place to adjust the point gap *before* setting the timing. It is not used in setting the timing itself. The marks for setting the ignition timing are usually on the alternator, generally found under a small window on the opposite side of the engine. Unlike most cars, the ignition on Brit bikes is set at full advance. This is most accurately done with a strobe light at 2500 RPM or higher.

2) The battery-coil ignition cam* has a long duration lobe which *should* hold the points open (at the same gap) for approximately 180 degrees of ignition cam rotation. The ignition cam is part of the AAU (auto-advance unit) that is mounted on the end of the engine's camshaft using a taper fit. When the AAU center bolt is over-tightened, the AAU body is unevenly pushed into the taper. The camshaft, being very hard metal, has no difficulty distorting the taper on the AAU. After this, the AAU runs eccentric and the ignition cam will wobble back and forth. This wobble can make the points open more than once per revolution, causing an erratic ignition spark.

Additionally, some internal fits within the AAU become excessively loose due to wear and age. This can also cause a double ignition spark.

The only repair for this is to install a new AAU, or, for approximately the same price, install a Boyer electronic ignition. Even with a brand new AAU you will never be sure of the advance curve. The consistency of the advance curve determines how smoothly the engine runs, so most people choose the Boyer, which has the advance curve programmed into the internal software versus relying on mechanical fits and spring tolerances.

Hope this helps!

Richard Whatley
Rodi British Bikes

* The ET (Energy Transfer) ignition cam is very short dwell and has only a 5° advance

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