



# Twin Tec Quick Start Guide for TC88 Twin Cam Ignition

**CAUTION: CAREFULLY READ INSTRUCTIONS BEFORE PROCEEDING. NOT LEGAL FOR SALE OR USE IN CALIFORNIA OR ON ANY POLLUTION CONTROLLED VEHICLES.**

Figure 1 - Typical Installation



## INSTALLATION

1. Turn off the ignition switch and disconnect the battery ground cable before proceeding.
2. Find and remove the OE ignition module. The OE module is usually located under the seat or under a side cover. You may need to use a small flat screwdriver to press on the connector locking tabs.
3. Install the new Twin Tec module. Figure 1 shows a typical installation under a side cover. You can reuse the original mounting hardware.
4. Reconnect the battery ground cable.

## OPERATING MODES

A single 10 position rotary switch is used to select the operating modes. Switch settings are as follows:

- 0 Multi-spark disabled
- 1 Multi-spark enabled
- 2-7 Not used
- 8-9 Boot load mode (see text)

We recommend that you use mode switch setting 1 (multi-spark enabled). When multi-spark is enabled, a continuous series of sparks is fired from the advanced timing point until TDC. Most air-cooled engines require relatively cold spark plugs to prevent detonation under high load. Multi-spark reduces the consequent tendency for plug fouling at idle.

## RECOMMENDED TIMING SETTINGS

Switch setting 5 corresponds to nominal timing. Lower switch settings decrease (retard) the initial timing and higher switch settings increase (advance) the initial timing in one-degree steps.

Tuning a particular engine setup always requires some trial and error experimentation, but maximum power is usually obtained by using the highest advance settings possible without audible spark knock. Some recommended starting points are given below:

For stock engines run on normal pump gas (87-89 octane), use initial timing setting 5 and advance slope setting 5.

For stock or mildly modified engines run on 92 or higher octane gas, use initial timing setting 5 and advance slope setting 7.

For high compression engines, use initial timing setting 2 and advance slope setting 2.

If you experience spark knock only at low RPM, you can try reducing the initial timing switch setting while maintaining an aggressive advance slope for maximum power at high RPM by increasing the advance slope switch setting. If spark knock is a problem at high RPM, decrease the advance slope switch setting.

**TUNING TIP: Lean air/fuel ratio (AFR) increases the tendency for spark knock. Check AFR and rejet carburetor before optimizing ignition timing. Test the motorcycle on a dyno with an exhaust gas sniffer or use our WEGO.**

## RPM LIMITER SETTING

You can set the RPM limit from 3,000 to 9,900 RPM in 100 RPM increments by means of two rotary switches. The RPM limit is X100 switch setting (i.e. 57 = 5,700 RPM). Inadvertent settings below 3,000 RPM are ignored and result in a 3,000 RPM limit.

Set a safe RPM limit that is appropriate for your engine. Most Twin Cam 88® engines with OE valvetrain components should not be run over 5,700 RPM.

**If you are not using a bank angle sensor or TSSM module, you must ground the wire going to pin 10 on the black connector. The engine will not start unless you ground this wire.**

## CHECK ENGINE LED DIAGNOSTICS

The TC88 has a diagnostic routine that communicates fault conditions by means of the check engine LED located on the instrument cluster. Please note that the TC88 is not compatible with H-D® scan tools that connect to the OE diagnostic link.

When the ignition switch is first turned on, the check engine LED illuminates. The LED will remain on until the engine is started. If a diagnostic fault is detected, the LED will flash a number of times and then pause for several seconds. The number of flashes indicates the fault condition as follows:

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**1 Flash. Crankshaft position (CKP) sensor signal lost.** This fault occurs if the engine stalls while the ignition is on. It may also indicate a defective CKP sensor or intermittent wire harness connection.

**2 Flashes. Security system (TSSM) or bank angle sensor fault.** This fault occurs if the security system (2001 and later models only) is activated or the bank angle sensor indicates a "tipped over" condition. It may also indicate a defective TSSM or bank angle sensor module or intermittent wire harness connection.

**3 Flashes. Manifold pressure (MAP) sensor rationality check failure.** The MAP sensor signal is outside the expected range. The sensor may be defective or have an intermittent wire harness connection.

**4 Flashes. Low battery voltage.** This fault warns that the battery is almost totally discharged. The most likely cause is a defective voltage regulator, alternator, or battery. This fault may occur immediately after cranking if the battery is weak but should be cleared within several minutes if the charging system is functioning.

**5 Flashes. High battery voltage.** The most likely cause is a defective battery or voltage regulator or loose battery connection.

