

## INSTRUCTION SHEET FOR SINGLE FIRE IGNITION

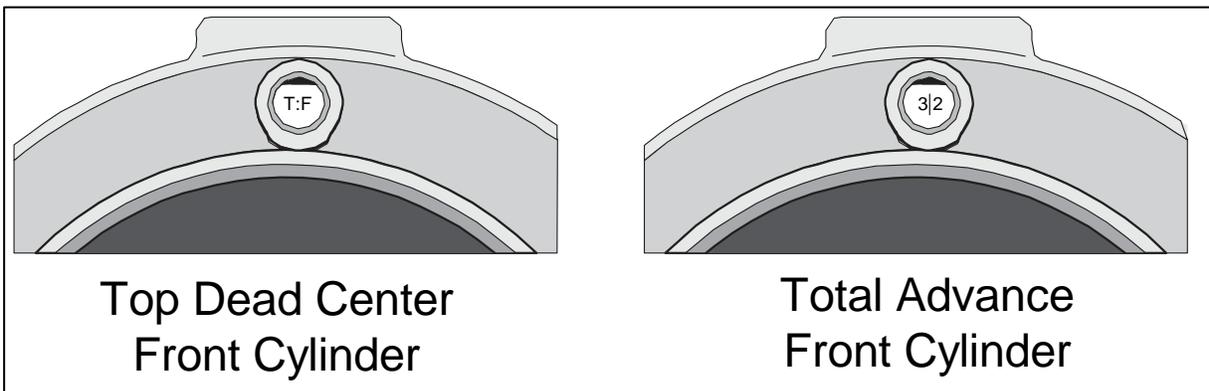
### Introduction

Your new ignition is true single fire, even at cranking speed. Each cylinder is fired independently and only on its compression stroke. Single fire operation improves engine performance at high RPM, helps starting, and reduces the likelihood of backfiring at low RPM. Please verify that your ignition is set to operate in single-fire/single-strike mode (see table 1).

### Coil recommendation when used with single plug heads

Use Crane 8-3001 coil. This is a "Siamese" coil with two independent sections and will fit in the stock mounting location on most H-D<sup>®</sup> motorcycles. You can also use two dual spark tower coils and ground one of the towers on each coil to the engine case or frame. You will have to fabricate a bracket to mount the second coil.

Crane FireWire spiral core wires are recommended for maximum performance. Do not use non-suppression solid-core spark plug wires – they will cause interference with your electronic ignition system and/or accessories.



### Initial static timing procedure

In most cases, aligning the V notch on the ignition plate to the same location as the OE plate will set the timing close enough to start the engine. If the engine will not start or runs very rough, you can use the following static timing procedure.

Remove spark plugs and turn the engine over until the TDC mark appears in observation hole. Ground spark plugs with an alligator clip so you will not shock yourself. Turn on the ignition but do not start the motorcycle. Loosen the standoffs holding the ignition module and rotate the unit clockwise until the timing LED goes out. The point at which the timing LED goes off is TDC. Timing is now set approximately at TDC. Turn off ignition and re-install spark plugs. Once the engine has been started, you must set the timing with a timing light.

## Setting advance timing using standard timing light

**Warning:** Do not allow engine to overheat. Overheating can cause catastrophic engine failure, and is not covered under any warranty.

This timing procedure requires that a VOES switch be connected to the ignition. For racing applications without a VOES switch, you must ground the VOES input (ignition green wire) while setting the timing. Connect a timing light to the front cylinder. Run the engine at 2,400 to 2,500 RPM. Adjust ignition position until the "Total Advance Front Cylinder" reference mark is centered in the observation hole. Tighten the standoffs and verify that timing has not shifted.

*Note: TP Engineering made flywheels with different "Total Advance Front Cylinder" markings depending upon date of manufacture. Your flywheel may have a " F| " mark OR a " 3|2 " mark to indicate "Total Advance Front Cylinder". Some flywheels are also stamped with "R•" indicating "Total Advance Rear Cylinder".*

## Troubleshooting

Did the engine run properly before installation of the ignition? If not, remove the ignition, reinstall the original ignition or another known good unit and then find and correct the original problem. Did the ignition function correctly before the problem occurred? If the answer is yes, did you change anything that may have affected it? Try going back to the last setup that worked properly to help isolate the problem. If the engine will not start, or runs rough or intermittently, use the following checklist steps:

### ENGINE WILL NOT START

1. Check that timing LED lights up when ignition key is first turned on. If not, check for +12 volts on red wire from the ignition.
2. Check that timing LED blinks while engine is cranked. If not, the ignition may be defective.
3. If the timing LED blinks, but engine will not start, recheck all wire harness connections or replace coil(s).
4. Check for low voltage from a faulty or marginal charging system and battery.

**NOTE:** *The battery ground on most motorcycles is connected to the frame behind the seat. In order to provide a dedicated ground for the high starter current, another cable should be installed from the point on the frame that the battery is already grounded to the starter mounting flange. This cable should be the same diameter as the battery ground cable presently on the bike, and will help prevent damage to your electronic components.*

### CHECKING FOR SPARK

To crank the engine and check for spark, use a KD Tools test plug or H-D® tool HD-26792. These test plugs come with an alligator clip that must be attached to frame or engine ground. Use a length of spark plug wire to connect the test plug to the coil.

### MISFIRE OR INTERMITTENT OPERATION

Field experience has shown that popping back through the carburetor, misfiring, and intermittent failure (especially after the engine gets hot) are usually not caused by electrical problems within the ignition. Carburetor problems, fouled spark plugs, coil failure, and loose wire harness connections are the most common causes. Verify that spiral core or suppression type spark plug wires and resistor spark plugs are being used.

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## TACH INOPERATIVE

Damage to the HI-4 circuitry may have occurred if 12 volts was applied to the brown tach wire at any time. The ignition tach output is compatible with ground sensing tachs, including most OE and aftermarket tachs. Some tachs require a high voltage trigger pulse. In this case, you must connect the tach to the coil terminal (ignition black wire). Note that the tach will read correctly at the rev limit only if it is connected to the brown wire from the ignition.

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<b>TP Engineering Pro-Series® Ignition Switch Settings</b>	
Switch Setting	Mode of Operation
0	Dual Fire – Single Strike
1	Dual Fire – Dual Strike
<b>2</b>	<b>Single Fire – Single Strike</b>
3	Single Fire – Dual Strike

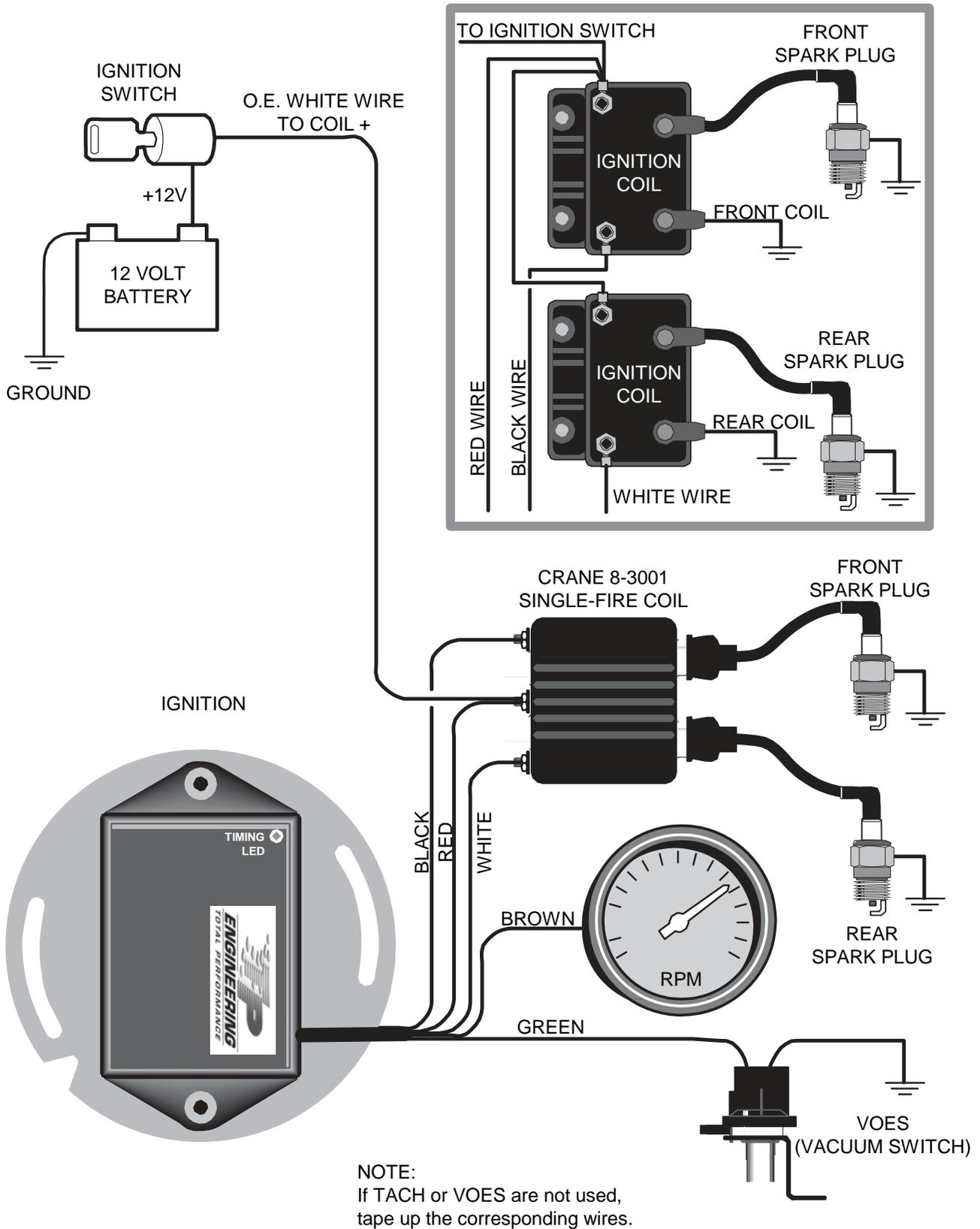
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**TP Engineering recommends only Setting 2**

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Table 1

# SINGLE FIRE SYSTEM HOOKUP WITH SINGLE PLUG HEADS



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