

## SPARK PLUG WIRES

Choice of spark plug wires is an important consideration when using an electronic ignition system. You must use carbon core resistor spark plug wires. Solid or Spiral wound wires will damage the ignition module and void the warranty!

## SPARK PLUGS

You must use a resistor spark plug with electronic ignitions. Stock spark plugs are resistor type plugs and will work. Spark plug gap should be limited to as small as possible, while still maintaining performance.

A wide spark plug gap can cause the following problems: Hard cold starting, misfires during rich or lean fuel conditions, and reduction of upper rpm range.

Initial settings for spark plug gaps are:

Single plug Multi-Spark	0.028-0.032
Dual plug Multi-Spark	0.025-0.030

### Many things effect spark plug gap settings:

**Compression Ratio:** The higher the engine compression, the more voltage required to fire the plug, and the narrower the plug gap should be.

**RPM:** The higher the rpm's the less time the coil has to charge to break over voltage or complete saturation. A narrower spark plug gap will help high rpm stability.

**Multi-Spark:** To maintain a good secondary spark within a wider rpm range it is wise to run a narrower spark plug gap. It is better to precisely place two stable, consistent sparks than to fire one wider spark that may cause misfires in rich or lean conditions, or from any of the above reasons.

### For your information/Tech Tips

When using the Quick Time Method the typical start-up (static timing) is set at 5° BTDC, the ignition starts a 5° then after approximately 3 revolutions of the crank the ignition advances to 25°. As set from the factory the ignition will advance to 35° at 2100 RPM's. If the static timing is set a 0°, then after approximately 3 revolutions of the crank, the ignition advances to 20°. As set from the factory the ignition will advance to 30° at 2100 RPM's.

This last step of advance can be modified by turning the advance SET adjuster screw ¼ turn=500. CCW the raise the RPM at which the 10° step of advance occurs.

**starting:** if you experience kick back on the starter you are too far advanced at startup, retard the module CCW or check the advance SET adjustment to see if it is set at 2100 RPM's or higher.

If the engine starts hard & idle is low you may be too far retarded at startup and may need to advance the module CW.

If you experience pinging in the midrange, retard the module or raise the last step of the advance curve to a higher RPM by turning the advance SET adj. set screw CCW ¼=500, the LED will light indicating when advance occurs.

## OWNERS MANUAL

All information contained in this owner manual is the property of P. A. Ignition Co., Inc. and cannot be duplicated in whole or in part by any means or disseminated or distributed without the prior written consent of P. A. Ignitions Co., Inc. The information in this manual has been carefully compiled and checked for accuracy and is believed to be correct. However, P. A. Ignition Co., accepts no responsibility for inaccuracies which may occur. All specifications in this manual are subject to change without notice.

**Power Arc Ignitions Co., Inc.**  
2518 N.E. 102 Ave.  
Ankeny, IA 50021  
(515) 964-7608

THE FOLLOWING CUSTOMER ACTIONS AUTOMATICALLY VOIDS THE WARRANTY

1) Use of any other spark plug wires other than resistor type wires with at least 3,000 ohms of resistance. 2) Use of non-resistor spark plugs. 3) Drilling or cutting of any kind into the module 4) Incorrect wiring of the module. 5) Use of module on systems with defective charging systems. 6) Use of defective coils. 7) Directly shorting the coil output wires to +12 VDC. 8) Physical damage to the ignition. 9) Any other items covered in the warranty & instruction manual..

### LIMITED WARRANTY

P. A. Ignition Co., Inc. warrants to the original retail purchaser of a PowerArc CDS ignition that it will, free of charge, repair or replace at its own option, the product if returned to P. A. Ignition Co., Inc. within 6 months after purchase and if found by P. A. Ignition Co., Inc. to be defective in material or workmanship. This warranty is not transferable by the purchaser and shall be voided: if alterations not authorized by P. A. Ignition Co., Inc. are made in the equipment or if the serial number or date of manufacture has been altered, defaced or removed. Nor does this warranty apply: if the equipment has been subjected to accident, misuse, improper hookup, damaged by flood, fire, or act of God, or has been used on circuits or voltages other than those indicated in its instruction manual. If the equipment is found to be defective in materials or workmanship the equipment will be returned and P. A. Ignition Co., Inc. will pay the return shipping (this does not include next day shipping, second day shipping, shipments outside of the continental U. S. A. or shipments outside of the U.S.A.). All warranty work outside of the U.S.A. must include prepayment of return shipping. Customs, duties or tariffs are not covered by this warranty. If the equipment is found to be defective but is due to customer misuse (as described in warranty) P. A. Ignition Co., Inc. will notify the customer and if the customer wants the defective equipment returned P. A. Ignition Co., Inc. will return the equipment C.O.D. freight. If the equipment is found to be in operational order when returned to the factory P. A. Ignition Co., Inc. will return the module with a \$15.00 service charge plus freight and C.O.D. Charges.

**Any module returned under the warranty must include note of explanation of failure and be accompanied by a dated bill of sale.**

P. A. Ignition Co., Inc. warranty obligations are limited to those set forth herein and no other obligations, expressed or implied, are assumed by P. A. Ignitions Co., Inc.

Some states do not allow the exclusions or limitations of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



## POWER ARC CDS OWNER'S MANUAL

**MULTI-SPARK  
SINGLE OR DOUBLE FIRE  
ELECTRONIC IGNITION SYSTEM FOR  
HARLEY-DAVIDSON MOTORCYCLES**

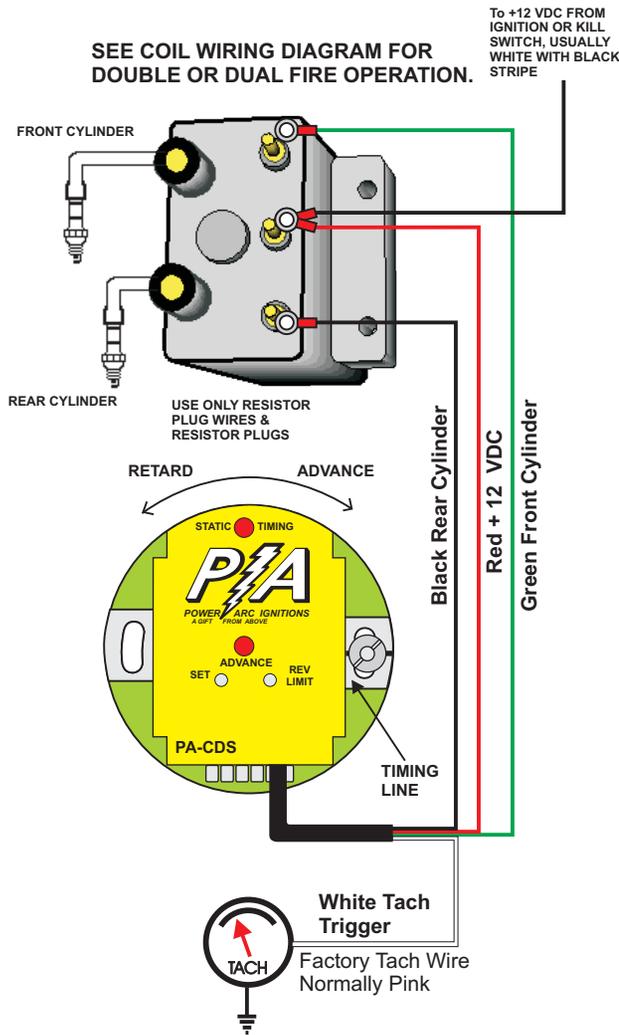


- SINGLE OR DOUBLE FIRE OPERATION
- ADJUSTABLE ADVANCE CURVE
- EXTREME SPARK STABILITY
- MULTI-SPARK OPERATION
- COIL SATURATION CONTROL
- COIL SAFETY SHUTOFF
- LED STATIC TIMING INDICATOR
- CORRECTED TACHOMETER OUTPUT
- EASY INSTALLATION
- CONE MOUNT

**POWER ARC IGNITIONS CO., INC.**  
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ANKENY, IA 50021  
(515) 964-7608

<http://www.powerarc.com>  
PATENT #4,951,629 OTHER PATENTS PENDING

SEE COIL WIRING DIAGRAM FOR DOUBLE OR DUAL FIRE OPERATION.



Rev limiter is preset to 6300 RPM's, turn CCW to raise activation point & CW to lower.

Module advances 10° when advance LED lights, Advance is preset to 2100 RPM's.

USE ONLY RESISTOR (CARBON CORE) SPARK PLUG WIRES & RESISTOR SPARK PLUGS.

DO NOT USE SPIRAL WOUND SUPPRESSION OR SOLID TYPE SPARK PLUG WIRES!

STOCK SPARK PLUG WIRES ARE CARBON CORE WIRES & WILL WORK.

IF THIS IS NOT DONE IT WILL DAMAGE THE IGNITION MODULE OR COIL.

## INSTALLATION INSTRUCTIONS

**WARNING: DO NOT TOUCH COIL OUTPUT WIRES (GREEN & BLACK) TO +12 VDC. DO NOT USE SOLID OR SPIRAL WOUND SUPPRESSION SPARK PLUG WIRES, USE RESISTOR WIRES ONLY. FAILURE TO OBSERVE THESE PRECAUTIONS WILL DAMAGE MODULE & VOID THE WARRANTY.**

**IMPORTANT: Disconnect battery ground during installation. Do not hook up the coils until the very last thing.**

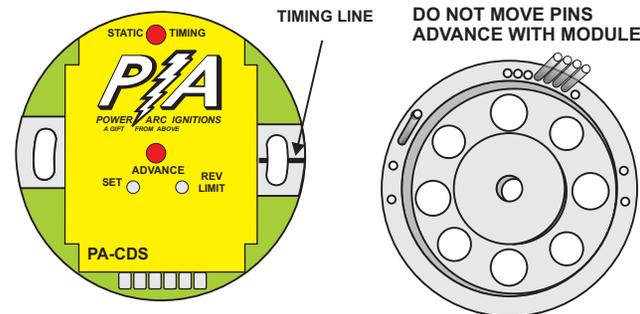
1. Remove all components from the ignition cone cam cover area, exposing the rotor cam shaft end. Install the rotor cam shaft end, aligning the notch on rotor with cam notch & attach with supplied washer & screw. If you have a stock module leave it mounted in place, but disconnect it from the coil, tachometer and ignition switch wire.
2. Pull ignition wire through wire hole & rock ignition into cone. The STATIC TIMING LED at top & quick time arrow pointing forward at hold down screw. In the case of a sportster everything is rotated 90° clockwise with LED facing forward and hold down screws in the vertical position.
3. Insert the rear lock down screw, point the timing line on ignition as shown in the Quick Time method centered of the front lockdown screw, insert front lock down screw & tighten both.
4. Hook ignition positive (red) wire to the ignition supply, usually at the coil positive (center terminal) is best with the kill or ignition switch wire.
5. Hook the white ignition wire to the tach trigger wire of motorcycle (usually pink) if used.
6. Hook the green front cylinder wire to the front coil & the black wire to the rear cylinder coil. If you wish to use the ignition in the dual fire mode with a dual fire coil, connect the green & black wire together and hook to the coil trigger (see dual fire wiring diagram).
7. Reconnect battery ground.

### QUICK TIME METHOD:

Place timing line as shown in drawing below so that it points to dead center of the front hold down screw. The timing will be set at approximately 5° BTDC static 35° total timing. If pointed approximately 1/16" below (clockwise) of dead center of front hold down screw. Timing will be set at approximately 10° BTDC static 40° total timing. In the case of a sportster everything is rotated 90° clockwise with LED facing forward and hold down screws in the vertical position.

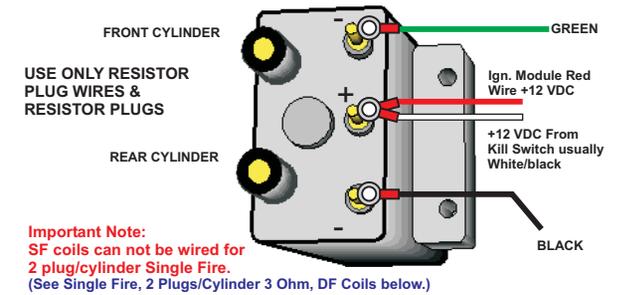
### TOP DEAD CENTER TIMING METHOD:

Turn the engine over to the TDC mark of the compression stroke on the fly wheel. With the power on (+12 VDC), rotate the trigger plate all the way clockwise. Next, rotate the trigger plate (CCW) counterclockwise until the red LED static timing light on the #1 (front cylinder) trigger just begins to light. Lock down the trigger plate hold down screws. Recheck engine TDC mark to make sure no movement has occurred. Peg #1 will be set at approximately 8° BTDC. Additional adjustments may be made to meet your engines specific requirements.

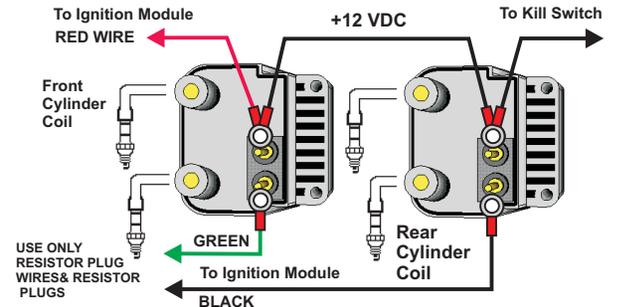


## COIL HOOKUP DRAWINGS

### Single Fire, 1 Plug/Cylinder, 3 Ohm, SF Coil

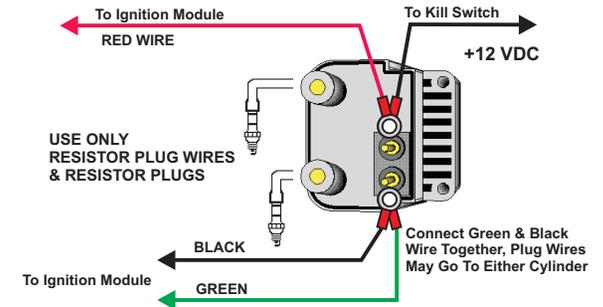


### Single Fire, 2 Plugs/Cylinder, 3 Ohm, DF Coils



**Important Note: DF coils can not be wired for 2 plug per cylinder Dual Fire.** You are jumping double the gap under compression when dual plugging. If both plug on same cylinder are gapped at 0.040" your jumping 0.080 under pressure. Would you gap a single plug at 0.080 under raised compression.

### Dual Fire, 1 Plug/Cylinder, 3 Ohm, DF Coil



## COIL HOOKUP GUIDELINES

1. Use only resistor plugs & resistor plug wires even when grounding outputs on two output coils for single output use.
2. Do not touch the green or brown coil output wires to +12 vdc.
3. A total of 2.8 ohms is the minimum allowable coil resistance.
4. Do not hook up coils with power (12 vdc) applied to the coils & ignition module.
5. Be sure the coil used does not require a ballast resistor, if it does, it must be used.
6. Make sure not to run wiring near high heat areas of the motorcycle, such as the exhaust system..
7. Use only new or known to be good coils.