

SPARK PLUG WIRES

Choice of spark plug wires is an important consideration when using an electronic ignition system. Use ONLY Resistor (CARBON CORE) or Approved Spiral Wound Spark Plug Wires & Resistor Spark Plugs. Solid or Spiral unapproved spiral wound wires will damage the ignition module and void the warranty!

SPARK PLUGS

You must use a resistor spark plug with electronic ignitions. 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:

Spark plug Multi-Spark 0.025-0.032

Many things effect spark plug gap settings:

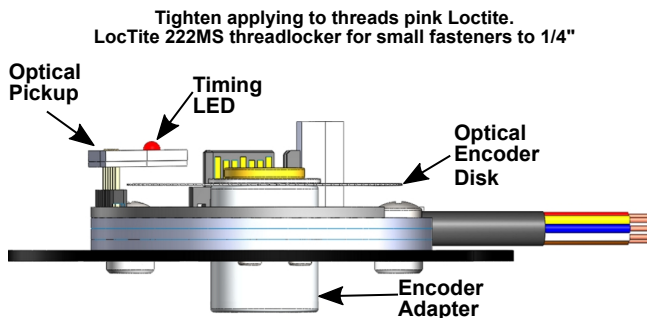
Compression Ratio: The higher the engine compression, the more voltage required to fire the plug, and the narrower the plug gap should be.

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.

Encoder (rotor) Installation and Cam end play

Cam end play should not exceed 0.020". The encoder disk should be fall the constraints of the optical pickup triggers.



Optical Encoder Disk can not strike the Ignition Module or Optical Pickup at anytime during operation. Cam walk is normally outward so position Encoder Disk appropriately using shim washers.

OWNERS MANUAL

All information contained in this owner manual is the property of Power Arc Ignitions 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.

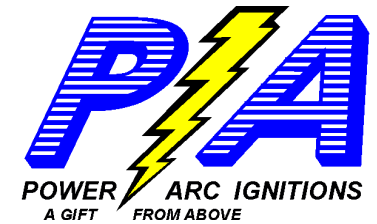
Power Arc Ignitions Co., Inc.
2518 N.E. 102 Ave.
Ankeny, IA 50021
(515) 964-7608

The following customer actions automatically voids the warranty.

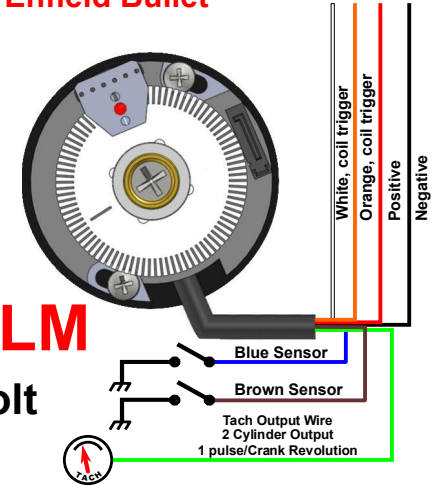
1) Use of any other spark plug wires other than resistor type wires with at least 800 ohms of resistance. 2) Use of non-resistor spark plugs. 3) Drilling or cutting of any kind into the module. 4) Incorrect wiring of the module. 5) Use of module on systems with defective charging systems. 6) Use of defective or incorrect 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

Power Arc Ignition Co., Inc. warrants to the original retail purchaser of a Power Arc IDS ignition that it will, free of charge, repair or replace at its own option, the product if returned to Power Arc Ignition Co., Inc. within 6 months after purchase and if found by Power Arc 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 Power Arc 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 Power Arc 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) Power Arc Ignition Co., Inc. will notify the customer and if the customer wants the defective equipment returned Power Arc 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 Power Arc Ignition Co., Inc. will return the module with a \$30.00 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. Power Arc Ignition Co., Inc. warranty obligations are limited to those set forth herein and no other obligations, expressed or implied, are assumed by Power Arc 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.



Royal Enfield Bullet



CD2-LM

12 Volt

CD2-LM Ignition System

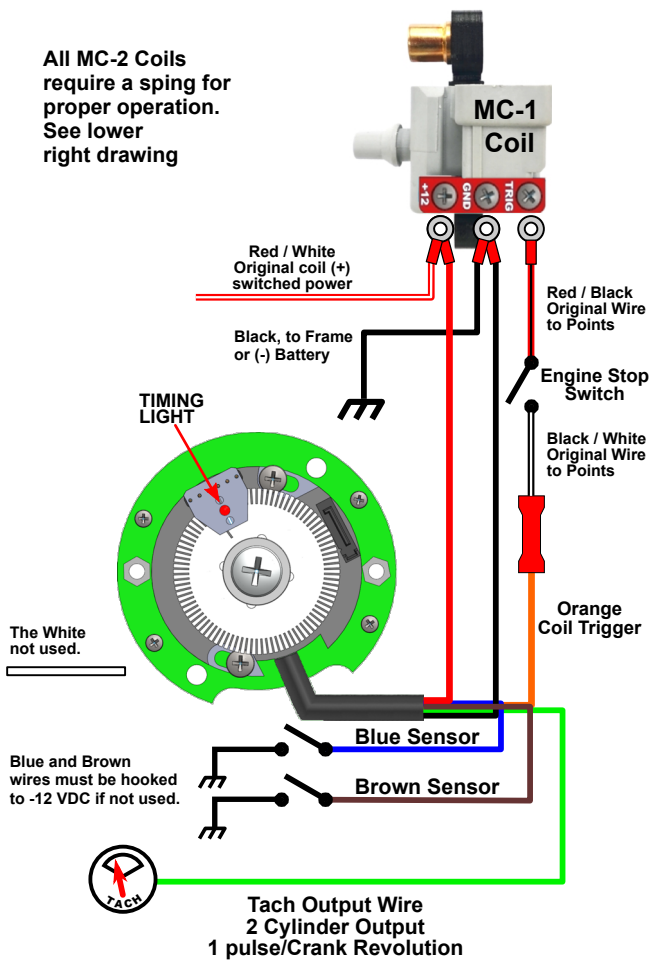
- Negative or Positive Ground Operation
- CW or CCW Cam Operation
- No External Module
- Low Voltage Operation
- Uses less Energy than Points Systems
- For 1 or 2 Cylinder Engine (with coil change)
- Multi-Spark 3 Sparks / Compression Stroke
- Automatic Coil Safety Shutoff
- Precision Rev limiter
- Static Timing Light
- Stainless Steel Encoder Disk
- Electronic Tach Output

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

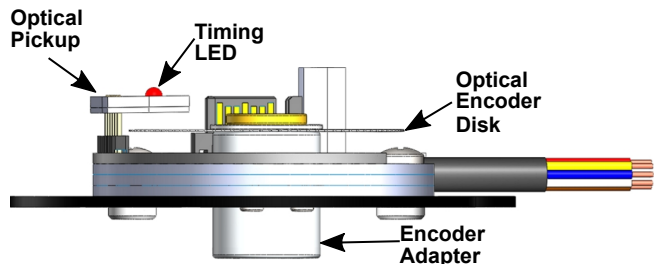
Single Fire
(Fires on Compress Only)
1 Cylinder, 1 Plug/Cylinder
(Negative Ground)

Stop
Before wiring
disconnect
the power!!

All MC-2 Coils
require a spring for
proper operation.
See lower
right drawing



Tighten applying to threads pink Loctite.
Loctite 222MS threadlocker for small fasteners to 1/4"



Optical Encoder Disk can not strike the Ignition Module or Optical Pickup at anytime during operation. Cam walk is normally outward so position Encoder Disk appropriately using shim washers.

WARNING: Do not touch coil output wires Orange or White to +12. DO NOT use Solid or Spiral wound suppression spark plug wires of less than 800 Ω per foot. DO NOT bundle module control wires with HV spark plug wires. DO NOT use with lithium ion batteries. Failure to observe these precautions will damage Ignition & Void the Warranty.

1. Turn the ignition switch **OFF**, put transmission in neutral. Remove and replace the existing ignition coil with a Power Arc MC-1 coil (1 cylinder).
2. Remove all components from the ignition distributor (points and advancer assembly), exposing the cam shaft end. See Image A:
3. Insert ignition into the distributor with the optical pickup pointing to the rear of the bike. Insert the two standoff screws & tighten.
4. Connect ignition positive (red) wire of module and the original +12 VDC Red/White wire to the coil (+12) terminal post.
5. Connect Red/Black wire that was originally connected to the (-) coil post of the Coil to the (TRIG) post of the new coil.
6. Connect the Black/White wire originally connected to points to the Orange wire of the ignition module.
7. Ground the Blue a Brown wire from module not used.
8. Hook the green wire to the tachometer trigger wire if used.
9. Connect the Black wire of the module to the GND of the coil and a wire from the GND of the coil to The frame or battery (-) Negative.
10. Insert the encoder adapter through the center hole of the ignition . Rest the optical encoder wheel centered on the Encoder Standoff. Place the stainless shim washer on to the step washer, push through the center of the Encoder Disk into the Encoder Standoff. Using the existing flyweight screw or bolt apply pink Loctite to the screw and insert the hex head screw through the center of the adapter and lightly tighten, making sure the optical encoder (see diagram below).
11. Rotate the engine to TOP DEAD CENTER Compression Stroke.
12. Turn the engine stop switch OFF and the ignition switch ON. Rotate the optical encoder counter clockwise until the static timing LED lights and stop. Holding the optical encoder tighten the adapter screw firmly to hold the encoder wheel in place. Recheck top dead center to make sure the timing has not moved.
13. Turn the engine stop switch to the ON position.
14. Start the Engine.

2 Sensor Wires may be Grounded or Ungrounded to switch between 4 timing curves.

Progression from most to least advance	
Blue Sensor 1	Brown Sensor 2
1	Grounded
2	UnGrounded
3	Grounded
4	UnGrounded

Normal Stock Application
Ground Blue and Brown Wires
Higher Compression or lower octane fuels may require less advance. This can be achieved by ungrounding the appropriate Sensor wires or the addition of a VOES, vacuum switch.

Royal Enfield Bullet
coil and run stop switch explained

Red / White wire is the original coil switched power (Ignition Switch). This wire hooked to the stock coil (+) terminal powering the coil and any devices hooked to it such as a tachometer light.

Stock wiring of the Run Stop Switch (Kill Switch) on the Royal Enfield Bullet did not kill the power to the coil but opened the (-) connection between the coil and the points preventing the points from grounding and turning the coil on and off.

Red / Black original wire to (-) side of the coil went to the Run Stop Switch (Kill Switch). When opened this disconnected the points from the coil.

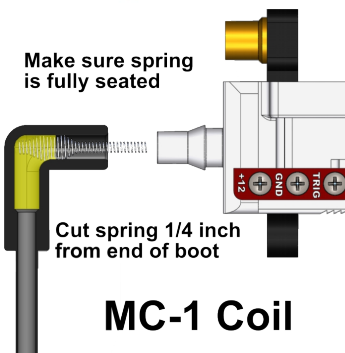
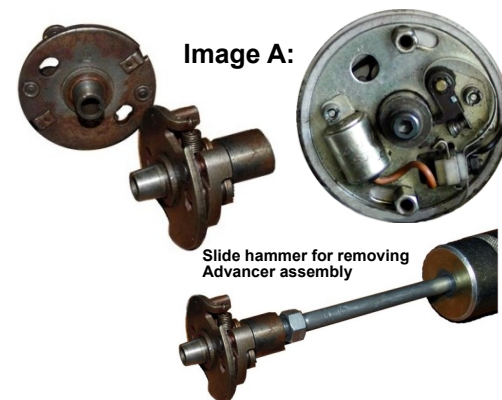
Black / White original wire from the to Run Stop Switch (Kill Switch) to the Points. When opened this disconnected the power through Red / Black original wire to the points which controls the coil on/off cycle stopping the engine..

When wiring the Power Arc:

The original Red / White wire, switched power from the Ignition Switch is wired to turn the ignition control module ON/OFF

The original Red / Black and original Black / White wire are used to break the connection of the Orange trigger wire of the module from controlling the signal to the coil stopping the engine.

Grounding or allowing the the Orange trigger wire of the coil to contact negative will to the coil on and cause over heating and may damage the coil.



MC-1 Coil