Procomp 6 Series Installation Instructions
6A, 6AL

WARNING: During installation, disconnect the battery cables. When disconnecting the battery always remove the Negative cable first and install it last.

Note: Solid Core spark plug wires **cannot** be used with a CD Ignition.

Note: A Procomp 6 Series cannot be used with distributorless ignition systems (DIS).

THE 6 SERIES IGNITION

CAPACITIVE DISCHARGE TECHNOLOGY

The Procomp 6 Series Ignitions use capacitive discharge (CD) technology to produce a very high primary voltage to the coil. This high voltage is always present regardless if you're at idle or racing down the straight away at 10,000rpm. The high quality transformer is hand wound and instantly steps up the supply voltage from the battery then stores this high voltage in a large capacitor. When the ignition is triggered the capacitor releases all of this voltage to the coil so the primary voltage is at full power at any rpm. These high powered sparks ensure complete combustion of the fuel air mixture at racing rpm which in turn produces more power!

MULTIPLE SPARKS

The 6 Series ignitions produce multiple sparks up to at least 3,000rpm. This series of sparks (each spark is at full voltage), whether there are two or six, will always last for 20° of crankshaft rotation. This powerful series will improve the starting ability, idle quality & throttle response. If you have a multiple carb setup that is a little off at idle or an engine that burns a little oil, the spark series will help prevent the cylinders from loading up. At higher rpm there isn't enough time to fire the plug more than once during the combustion stroke so there is only a single, full power spark. With the Procomp CD technology, this is always at full power even through 10,000+rpm so you know the fuel mixture is being burned efficiently, creating maximum power!

REV LIMITER

6AL1 and 6AL,: These ignitions are equipped with built-in Adjustable Soft Touch circuitry that provides an accurate and smooth limit without loading up the cylinders or excessive backfires. Even if your car is a mild street machine, a rev limiter can save you from expensive engine damage due to driveline failure or a missed shift.

UPGRADEABLE

You can run a Procomp 6A ignition with your stock distributor, then upgrade to a Pro-Billet model or even a crank trigger. You don't have to buy everything at once or spend money on features that you will never use.

GENERAL INFORMATION

BATTERY

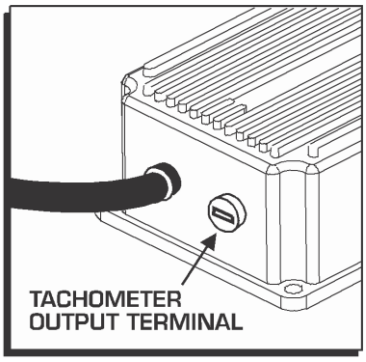
The 6 Series Ignitions will operate on any negative ground, 12 volt electrical system with a distributor.

COILS

The 6 Series Ignitions can be used with most stock coils and aftermarket coils designed to replace the stock coils. There are some “race only" coils that cannot be used with a 6 Series Ignition Control.

TACHOMETERS

The Procomp Ignition features a Tach Output Terminal on the side of the unit. This terminal provides a trigger signal for tachometers, a shift light or other add-on rpm activated devices. The Tach Output Terminal produces a 12 volt square wave signal with a 20% duty cycle.
Some vehicles with factory tachometers may require a Tach Adapter to operate with the Procomp 6A boxes.
If your GM vehicle has an inline filter it may cause the Tach to drop to zero on acceleration. If this occurs, bypass the filter.



SPARK PLUGS AND WIRES

Spark plug wires are very important to the operation of your ignition system. A good quality, helically wound wire and proper routing are required to get the best performance from your ignition, such as the Procomp 10.5 mm Wires.

Note: Solid Core spark plug wires cannot be used with a Procomp Ignition system.
We do not recommend them in any application.

A helically, or spiral wound wire must be used. This style wire provides a good path for the spark to follow while keeping Electro Magnetic Interference (EMI) to a minimum. Excessive EMI, such as the amount that solid core wires produce, will interfere with the operation of the ignition and other electronics in your vehicle.

Routing: Correct routing of the plug wires is also important to performance. Wires should be routed away from sharp edges and engine heat sources. If there are two wires that are next to each other in the engine's firing order, the wires should be routed away from each other to avoid inducing a spark into the other wire. For example, in a Chevy V8, the firing order is 1-8-4-3-6-5-7-2. The #5 and #7 cylinders are next to each other in the engine and in the firing order. If the voltage from the #5 wire is induced into #7 detonation could occur and cause engine damage. To add more heat protection to your plug wires, various companies offer plug wire heat guards. It is usually a glass woven and silicone coated protective sleeve that you slide over your plug wires for extra protection of the spark plug boots.

Spark Plugs: Choosing the correct spark plug design and heat range is important when trying to get the best performance possible. Since there are so many engine combinations and manufacturers, Procomp does not recommend which plug or gap is exactly right for your application.
It is recommended to follow the engine builder or manufacturer's specification for spark plugs. With that, you can then experiment with the plug gap to obtain the best performance. The gap of the plugs can be opened in 0.005” increments, and then tested until the best performance is obtained. Plug gap can be judged by compression and engine components:

These examples are just staring points to get you going in the right direction. Every application is different and should be tested and tuned.

Compression	Spark Plug Gap
Up to 10.5:1:	0.040" - 0.045"
10.5:1 - 13.0:1:	0.030" - 0.035"
Above 13.0:1:	0.025" - 0.030"

MISCELLANEOUS INFORMATION

Sealing: Do not attempt to seal the 6A box. All of the circuits receive a thick conformal coating. This sealant protects the electronics from moisture. If you were to seal the unit, any moisture or water that may seep in through the wiring grommets will not be able to drain and may result in corrosion.

Welding: If you are welding on your vehicle, to avoid the chance of damage, always disconnect both Heavy Power cables of the 6A. (You should also disconnect the Tach ground wire as well).

Distributor Cap and Rotor: It is recommended to install a new distributor cap and rotor when installing the Procomp Ignition Control. The cap should be clean inside and out especially the terminals and rotor tip. On vehicles with smaller caps, it is possible for the air inside the cap to become electrically charged causing crossfire which can result in misfire. This can be prevented by drilling a couple vent holes in the cap. The holes should be placed between the terminals, at rotor height and face away from the intake. If your environment demands it, place a small piece of screen over the hole to act as a filter.

Initial Spark: It is normal, yet not very common, for the ignition box to produce a spark when the ignition key is turned on. This is due to the capacitor being charged and if the pickup is in the right position, it could trigger the ignition momentarily. This could also occur when installing the positive battery cable.

MOUNTING

The 6A can be mounted in most positions, except directly upside down (if upside down, moisture or water cannot escape). It can be mounted in the engine compartment as long as it is away from direct engine heat sources. It is not recommended to mount the unit in an enclosed area such as the glove box.
When you find a suitable location to mount the unit, make sure the wires of the ignition reach their connections. Hold the Ignition in place and mark the location of the mounting holes.

CYLINDER SELECT

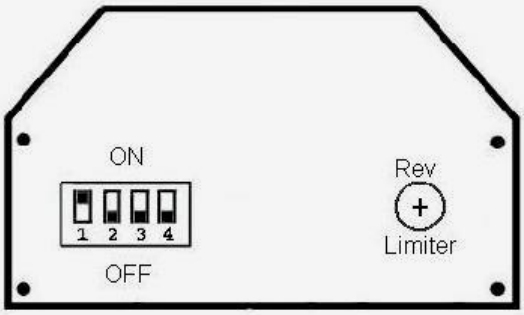
The Soft Touch Rev Limiter that is built into the 6AL is programmed for operation on an 8-cylinder engine. If you are installing one of these units on a 4 or 6- cylinder even-fire engine, the ignition must be modified. This is easily achieved through the cylinder select wires on the side of the ignition.

FOR PC-2011 (6A module) and PC-2015 (6AL)
1. Locate the red and blue wire loops.
2. Refer to the chart in Figure 2 to determine which loop to cut for your application.
3. After cutting the loop(s), turn the wire ends away from each other so they cannot come into contact.

CYLINDERS	CUT LOOPS
8	NONE
6	RED
4	RED & BLUE

FOR PC-2115 (6AL2)

Dial No#	Switch #1 Off	On
0	4500	8500
1	4750	8750
2	5000	9000
3	5250	9250
4	5500	9500
5	5750	9750
6	6000	10000
7	6250	10250
8	6500	10500
9	6750	10750
A	7000	11000
B	7250	11250
C	7500	11500
D	7750	11750
E	8000	12000
F	8250	No Limit



REV - LIMITER SETTING

Number of Cylinders	Switch #2	Switch #3
4 Cylinders	On	Off
6 Cylinders	Off	On
8 Cylinders	Off	Off

Switch #4 Must be OFF.

WIRING

GENERAL WIRING INFORMATION

Wire Length: All of the wires of the Ignition box may be shortened as long as quality connectors are used or soldered in place. To lengthen the wires, use one size bigger gauge wire (10 gauge for the power leads and 16 gauge for the other wires) with the proper connections. All connections must be soldered and sealed.

Grounds: A poor ground connection can cause many frustrating problems. When a wire is specified to go to ground, it should be connected to the battery negative terminal, engine block or chassis. There should always be a ground strap between the engine and the chassis. Always securely connect the ground wire to a clean, paint free metal surface.

Ballast Resistor: If your vehicle has a ballast resistor in line with the coil wiring, it is recommended to bypass it.

ROUTING WIRES

The wires should be routed away from direct heat sources such as exhaust manifolds and headers and any sharp edges. The trigger wires should be routed separate from the other wires and spark plug wires. It is best if they are routed along a ground plane such as the block or firewall which creates an electrical shield. The magnetic pickup wires should always be routed separately and should be twisted together to help reduce extraneous interference.

WIRE FUNCTIONS

Heavy Red	This wire connects directly to the battery positive (+) terminal, to a positive battery junction, or the positive side of the starter solenoid. Note: Never connect to the alternator.
Heavy Black	This wire connects to a good ground, either at the battery negative (-) terminal or to the engine
Red	Connects to a switched 12 volt source. Such as the ignition key or switch (must have power while cranking)
Orange	Connects to the positive (+) terminal of the coil**. This is the only wire that makes electrical contact with the coil positive terminal.**
Black	Connects to the negative (-) terminal of the coil. **This is the only wire that makes electrical contact with the coil negative terminal.**
Trigger Wires	There are two circuits that can be used to trigger the MSD Ignition; a Points circuit (White wire) and a Magnetic Pickup circuit (Violet and Green wires). **The two circuits will never be used together.**
White (Points Trigger)	This wire is used to connect to the points, electronic ignition amplifier. **When this wire is used, the Magnetic Pickup connector is not used.**
Violet And Green (Magnetic Pickup Connector)	These wires are routed together in one harness to form the Magnetic Pickup connector. The connector plugs directly into a Procomp distributor or crank trigger. It will also connect to most factory magnetic pickups or other aftermarket pickups. The Violet wire is positive (+) and the Green is negative (-). **When these wires are used, the White wire is not.**

The chart shows the polarity of other common magnetic pickups

Common Magnetic Pickup Wires

Distributor	Colors	
	Mag (+)	Mag (-)
MSD	Orange/Black	Violet/Black
MSD Crank Trigger	Violet	Green
Ford	Orange	Violet
Accel 46/48000 Series	Orange/Black	Violet/Black
Accel 51/61000 Series	Red	Black
Chrysler	Orange/White	Black
Mallory	Orange/Black	Violet/Black

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WARNING: The 6 Series Ignitions are capacitive discharge ignitions. High voltage is present at the coil primary terminals. Do not touch the coil or connect test equipment to the terminals.

PRESTART CHECK LIST

- The only wires connected to the coil terminals are the 6A Orange to coil positive and Black to coil negative.
- The small red wire is connected to a switched 12 volt source with power while cranking.
- If running a 4 or 6-cylinder engine, the cylinder select must be modified.
- The heavy power leads are connected directly to the battery positive and negative terminals.
- The battery is connected and fully charged if not using an alternator.
- The engine is equipped with at least one ground strap to the chassis.

THEFT DETERRENT

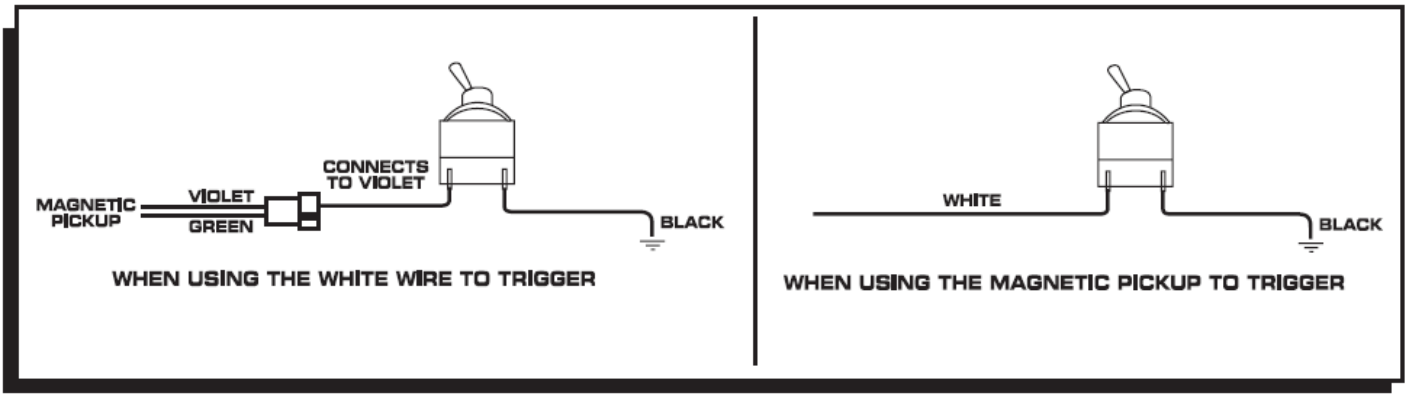
The 6A provides the opportunity to easily install a theft deterrent kill switch.

White Wire Trigger

When using the WHITE wire to trigger the 6A, install a switch across the magnetic pickup VIOLET wire to ground. When the VIOLET wire is grounded, the vehicle will crank but not start.

Magnetic Pickup Trigger

When using the mag pickup to trigger the 6A, install a switch to the WHITE wire and the other side to ground. When the WHITE wire is grounded, the vehicle will crank but will not start.



TROUBLESHOOTING

If you experience a problem with your 6A, the majority of problems are due to improper installation or poor connections. The Troubleshooting section has several checks and tests you can perform to ensure proper Installation and operation of the 6A. If you have any questions concerning your 6A, call our Customer Support Department at (909) 605-1123, 8am – 5pm pacific time.

TACH/FUEL ADAPTERS

If your tachometer does not operate correctly or if you experience a no-run situation with your foreign vehicle you probably need a Procomp Tach adapter. The chart below lists common tachometers and if an adapter is necessary.

Tachometer Compatibility List		
AFTERMARKET TACHOMETER	WHITE WIRE TRIGGER	MAGNETIC TRIGGER CONNECTOR
AUTOGAGE	2029	20302
AUTOMETER	NONE	NONE
FORD MOTORSPORTS	NONE	NONE
MALLORY	NONE	NONE
MOROSO	NONE	NONE
STEWART (voltage triggered)	2029	8920
S.W. & BI TORX	NONE	NONE
SUN	2029	2030
VDO	2029	2030
AMC (JEEP)	2029	2030
CHRYSLER	2029	2030
FORD (voltage triggered)	2029	2030
GENERAL MOTORS	Bypass In-Line Filter	Bypass In-line filter
IMPORTS	2029	2030
Note: On the list above, the trigger wire on tachometers that are marked NONE may be connected to the Tach Output Terminal on the 6 Series Ignition Unit using a Female Faston Receptacle.		

NO-RUN ON FOREIGN VEHICLES

Some foreign vehicles with fuel injection systems may require a Tach adapter to run with a 6 Series Ignition. This is because many of these systems use the same trigger source to operate the 6A, tachometer, and the fuel injection. This results in a voltage signal that is too low to accurately trigger the fuel injection. To fix this, the Tach adapter, PN 2029, will remedy the problem on the majority of vehicles.

INOPERATIVE TACHOMETERS

If your tachometer fails to operate with the 6A installed you may need a Procomp Tach adapter. Before getting an Adapter, try connecting your tachometer trigger wire to the Tach output terminal on the side of the 6A. This output produces a 12 volt, square wave (see page 2). If the Tach still does not operate, you will need a Tach Adapter. There are two Tach Adapters:

MISSES AND INTERMITTENT PROBLEMS

Experience at the races has shown that if your engine is experiencing a miss or hesitation at higher rpm, it is usually not directly ignition. Most probable causes include a coil or plug wire failure, arcing from the cap or boot plug to ground or spark ionization inside the cap. Several items to inspect are:

- Always inspect the plug wires at the cap and at the plug for a tight connection and visually inspect for cuts, abrasions or burns.
- Inspect the Primary Coil Wire connections. Because the 6A is a Capacitive Discharge ignition and it receives a direct 12 volt source from the battery, there will not be any voltage at the Coil Positive (+) terminal even with the key turned on. During cranking or while the engine is running, very high voltage will be present and no test equipment should be connected.

WARNING: Do not touch the coil terminals during cranking or while the engine is running!

- Make sure the battery is fully charged and the connections are clean and tight. If you are not

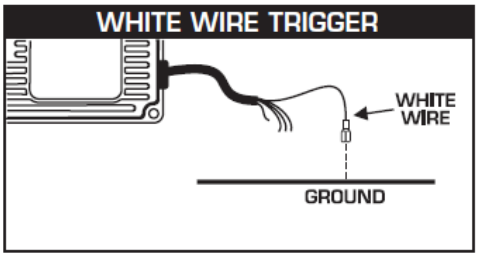
running an alternator this is an imperative check. If the battery voltage falls below 10 volts during a race, the output voltage will drop significantly.

- Is the engine running lean? Inspect the spark plugs and complete fuel system.
- Inspect all wiring connections for corrosion or damage. Remember to always use proper connections followed by soldering and seal the connections completely.

If everything checks positive, use the following procedure to test the ignition for spark. Procomp also offers an Ignition Tester, PN 2010. This tool allows you to check your complete ignition system while it is in the car as well as the operation of rpm limits, activated switches and shift lights.

CHECKING FOR SPARK

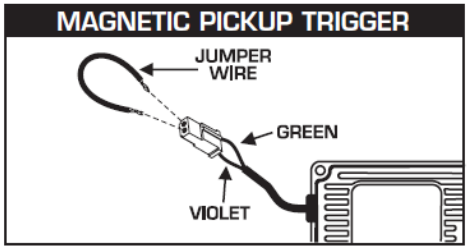
If triggering the ignition with the White wire:



Checking for Spark with the White Wire.

1. Make sure the ignition switch is in the “Off" position.
2. Remove the coil wire from the distributor cap and set the terminal approximately 1/2" from ground.
3. Disconnect the 6A White wire from the distributor's points or ignition amplifier.
4. Turn the ignition to the on position. Do not crank the engine.
5. Tap the White wire to ground several times. Each time you pull the wire from ground, a spark should jump from the coil wire to ground. If spark is present, the ignition is working properly. If there is no spark skip to step 6 below:

If triggering with the Magnetic Pickup:



Checking for Spark with Magnetic Pickup.

1. Make sure the ignition switch is in the "Off" position.
2. Remove the coil wire from the distributor cap and set the terminal approximately 1/2” from ground.
3. Disconnect the 6A magnetic pickup wires from the distributor.
4. Turn the ignition to the on position. Do not crank the engine.
5. With a small jumper wire, short the 6A’s Green and Violet magnetic pickup wires together. Each time you break this short, a spark should jump from the coil wire to ground. If spark is present, the ignition is working properly. If there is no spark skip to step 6 below:

6. If there is no spark:

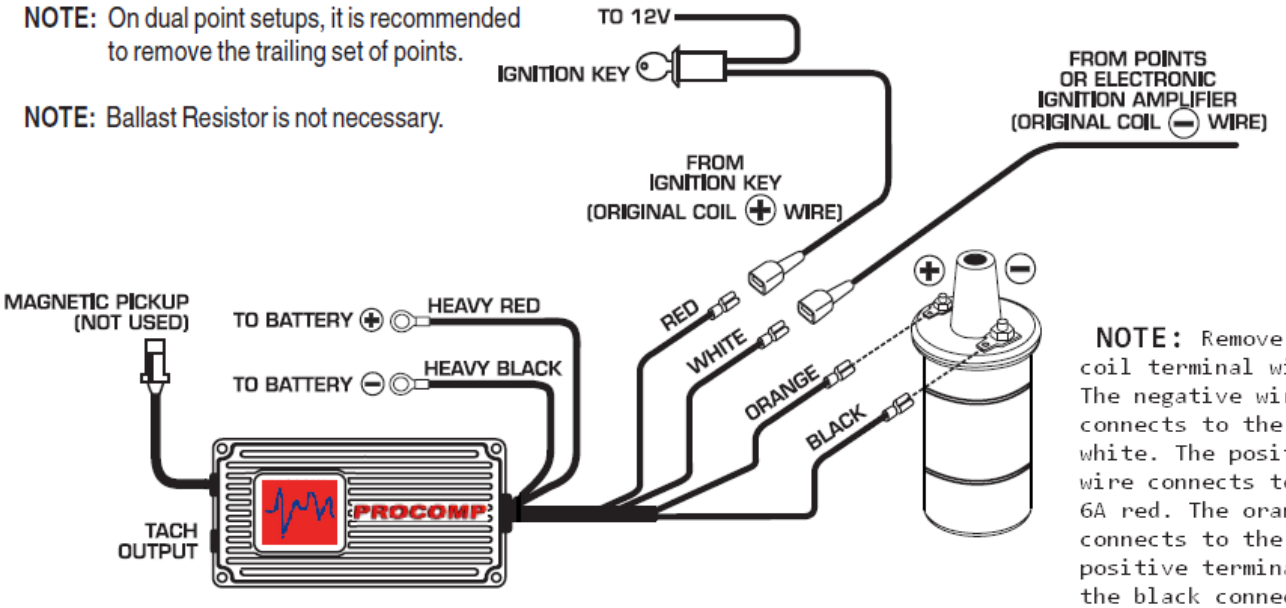
A. Inspect all of the wiring.
B. Substitute another coil and repeat the test. If there is now spark, the coil is at fault.
C. If there is still no spark, check to make sure there is 12 volts on the small Red wire from the MSD when the key is in the on position. If 12 volts is not present, find another switched 12 volt source and repeat the test.
D. If, after following the test procedures and inspecting all of the wiring, there is still no spark, the 6A ignition is in need of repair.

The following wiring diagrams illustrate numerous installations on different vehicles and applications. If you experience difficulties when installing your 6A box, contact our Customer Support Department at (909) 605-1123 (8 - 5 Pacific time)

Installing to Points/Amplifier Style Ignition.

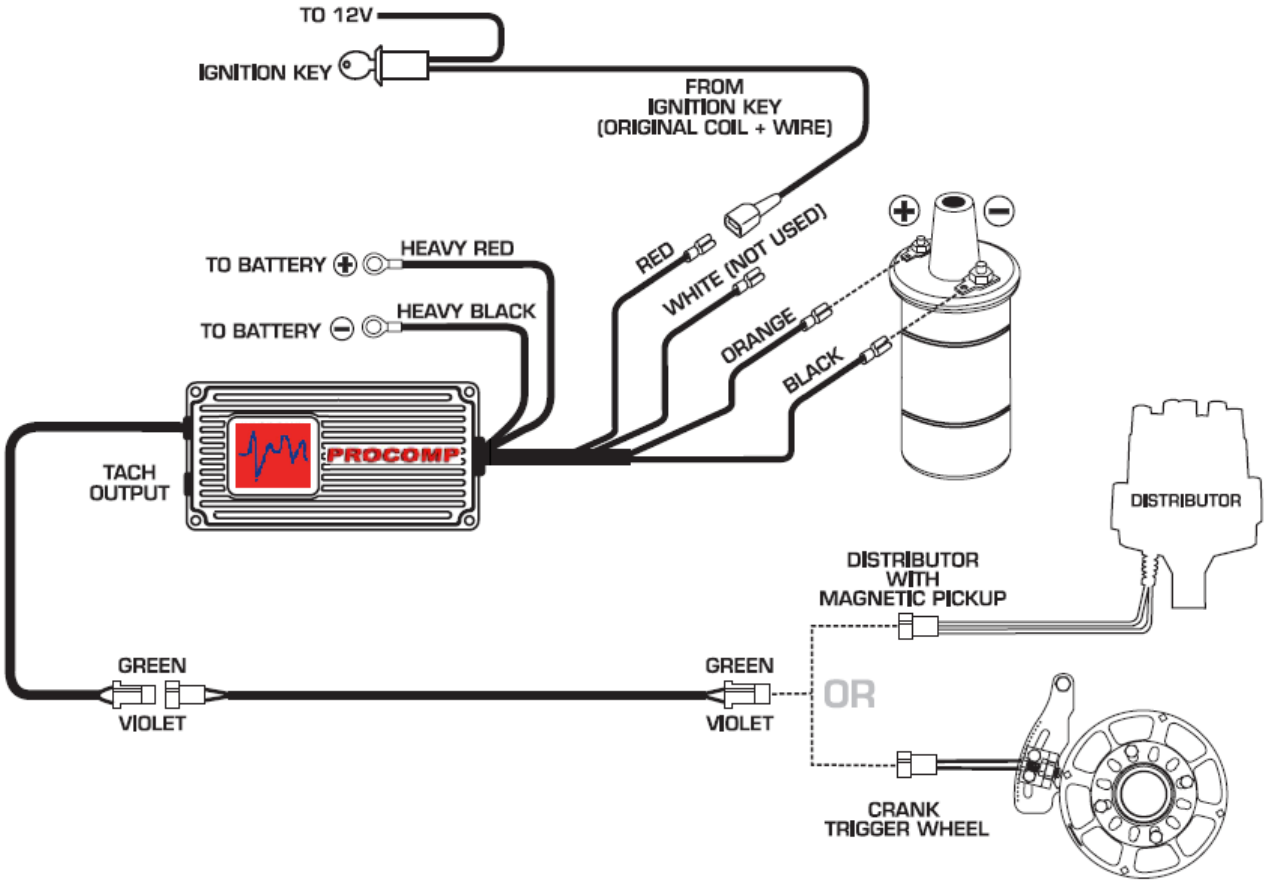
NOTE: On dual point setups, it is recommended to remove the trailing set of points.

NOTE: Ballast Resistor is not necessary.

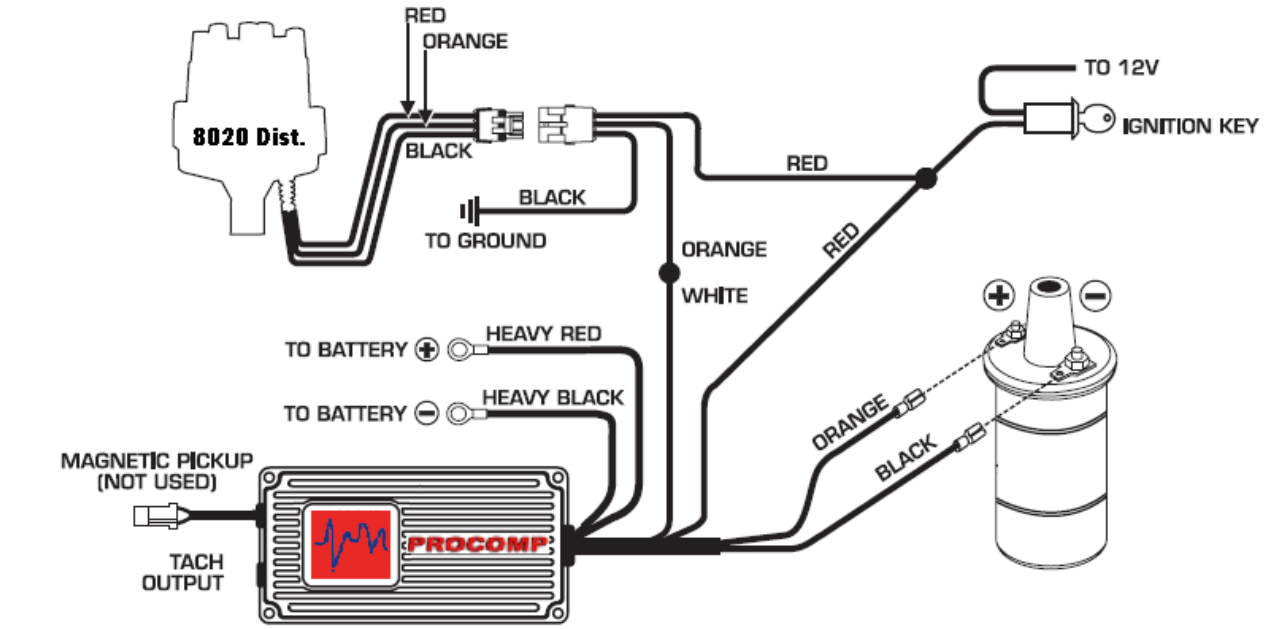


NOTE: Remove the coil terminal wires. The negative wire connects to the 6A white. The positive wire connects to the 6A red. The orange connects to the coil positive terminal and the black connects to the coil negative.

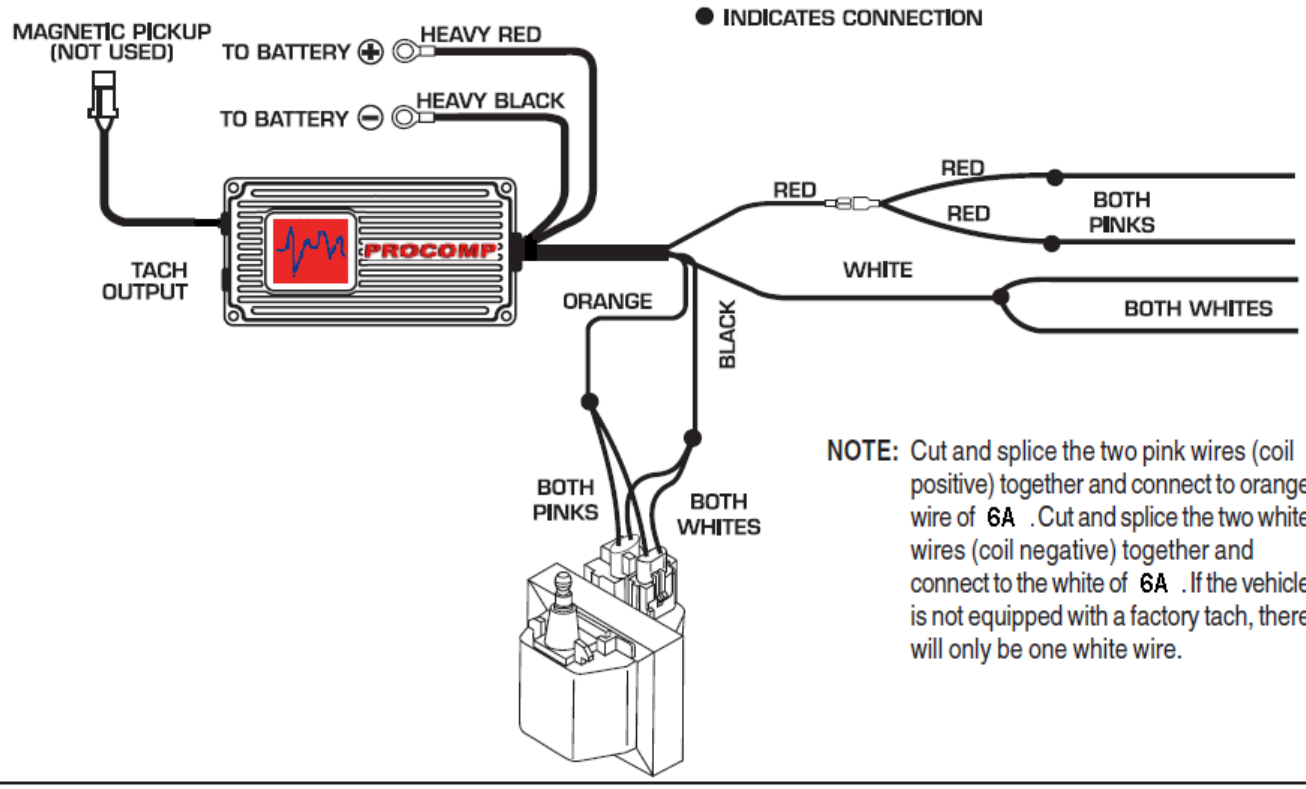
Installing to a Distributor/Crank Trigger.



Installing to a 8020 Series Distributor

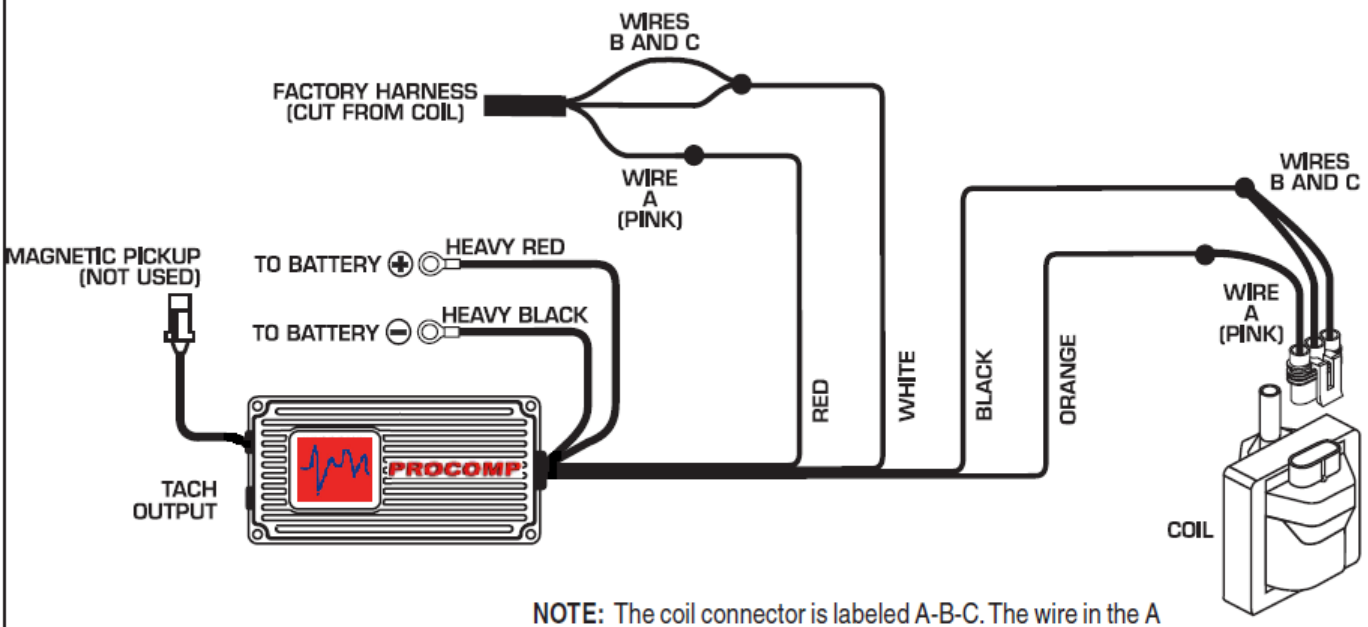


GM IGNITIONS Wiring a Dual Connector Coil.



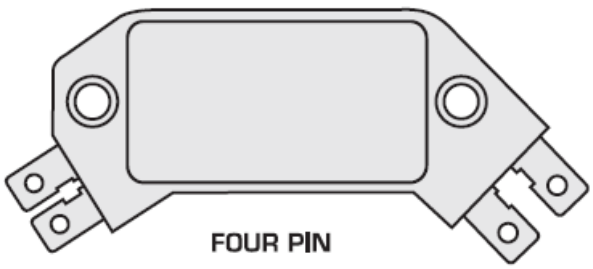
NOTE: Cut and splice the two pink wires (coil positive) together and connect to orange wire of 6A . Cut and splice the two white wires (coil negative) together and connect to the white of 6A . If the vehicle is not equipped with a factory tach, there will only be one white wire.

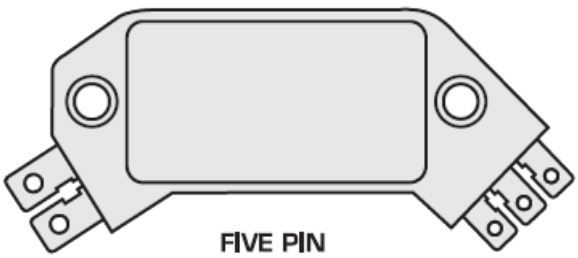
GM IGNITIONS Wiring the 1996 and up single connector coil without harness.

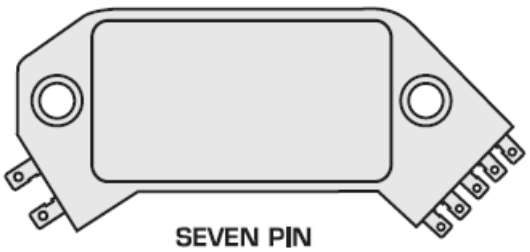


NOTE: The coil connector is labeled A-B-C. The wire in the A port is positive (pink). The wires in B and C are coil negative wires, color will vary by application.

GM IGNITIONS GM Large Cap HEI Distributors

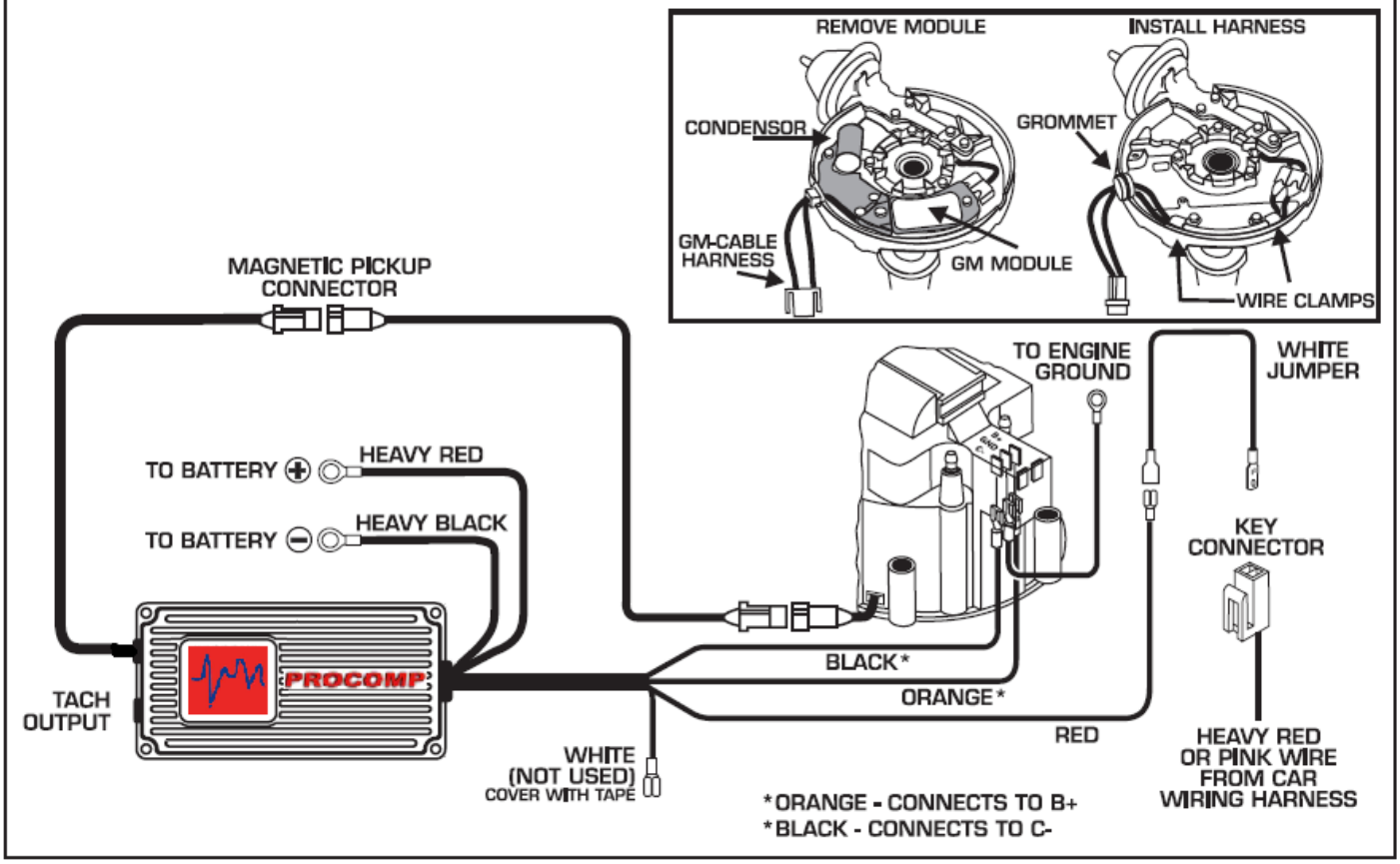




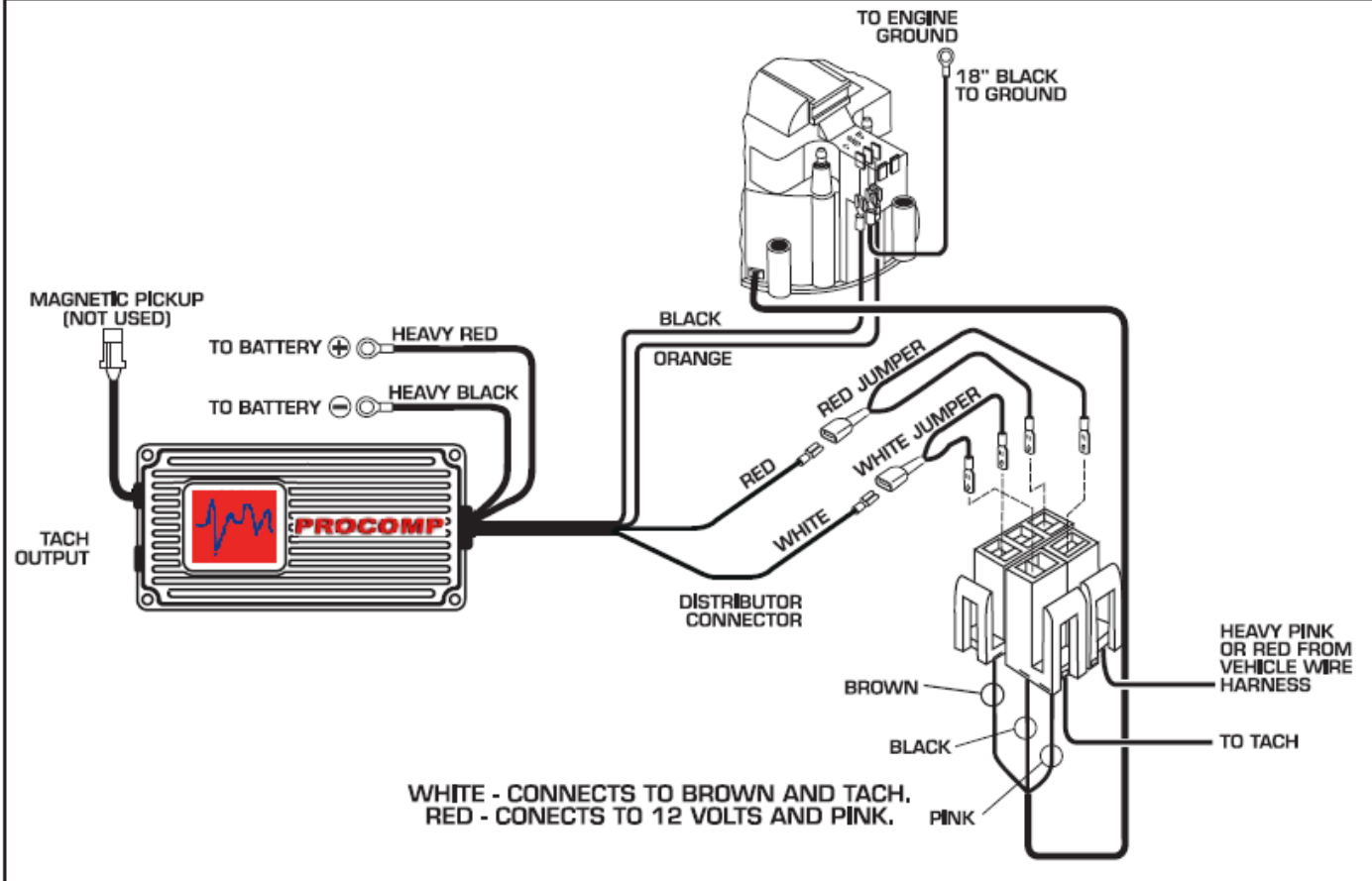


There are three different large cap HEI distributors. To indentify which of the following diagrams fit you specific application, remove the distributor cap and rotor and locate the ignition module at the base of the distributor. Count the number of terminals on both ends of the module and follow the corresponding diagram. GM used 4, 5, and 7-pin modules in these distributors.

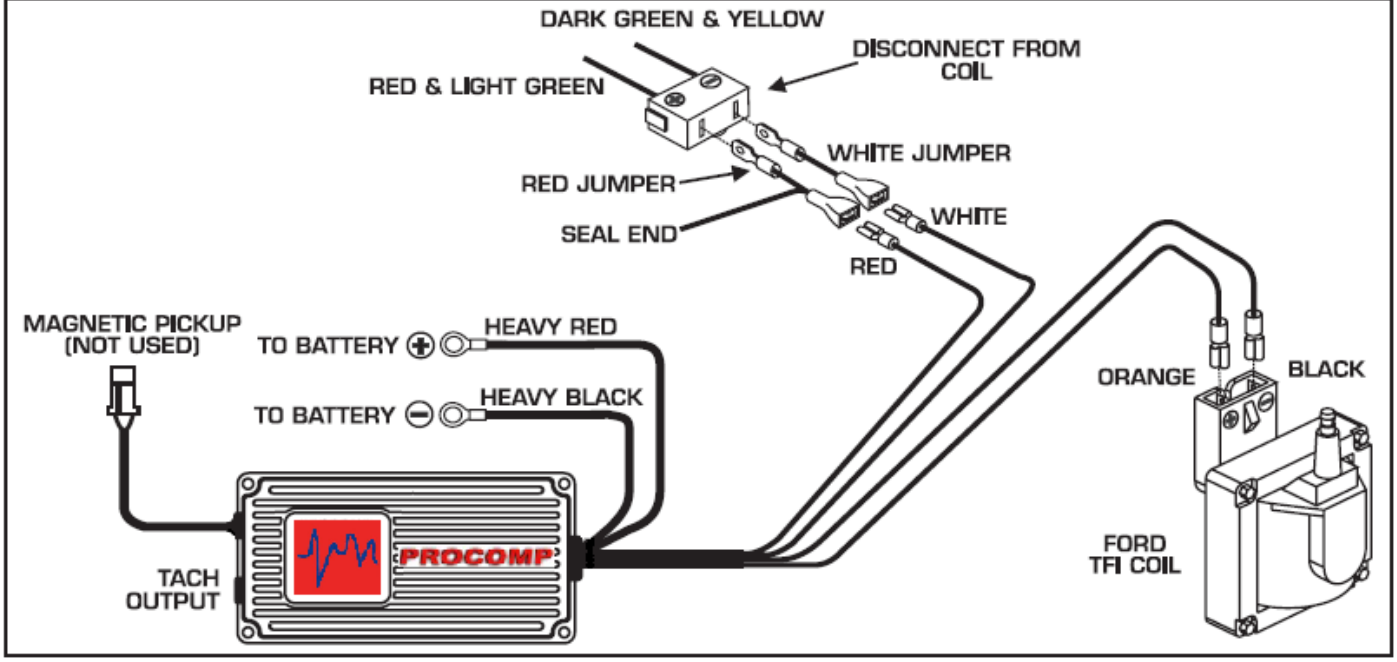
GM IGNITIONS Wiring an HEI 4-pin Module (Magnetic Pickup Trigger).



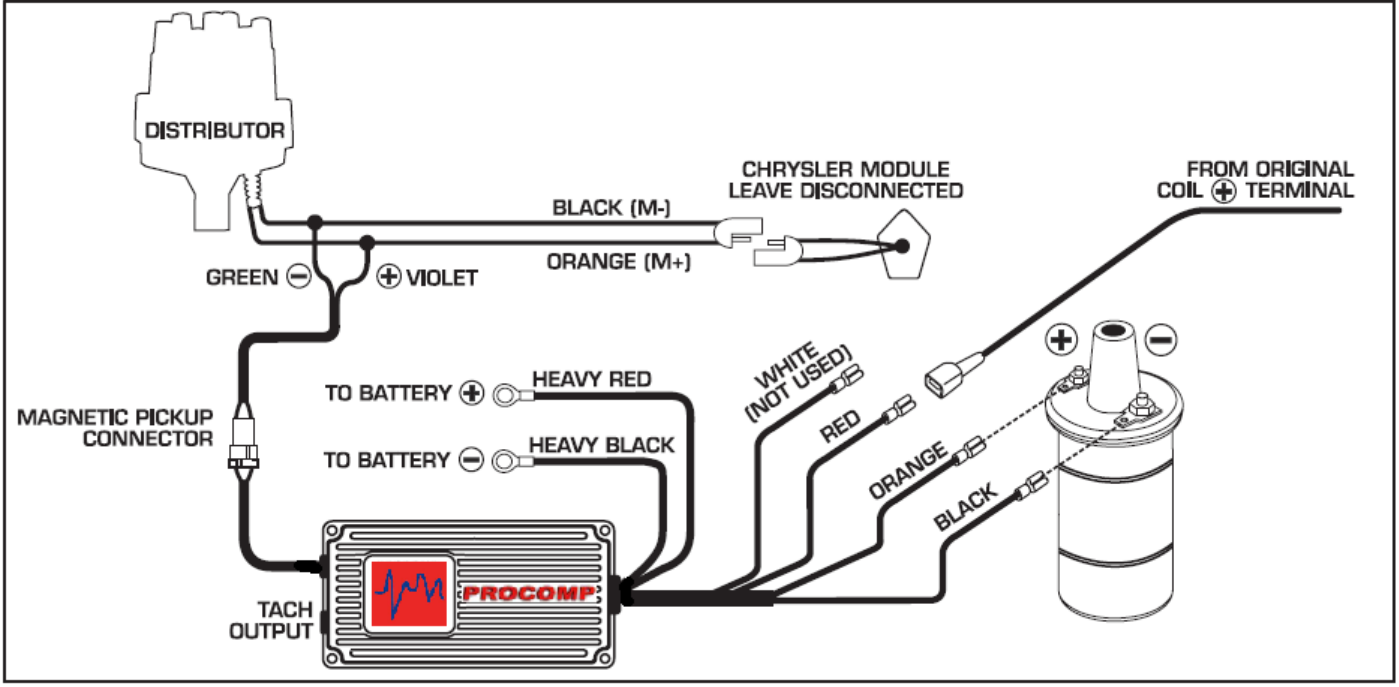
GM IGNITIONS Wiring an HEI 5 or 7-pin Module (Amplifier Trigger).



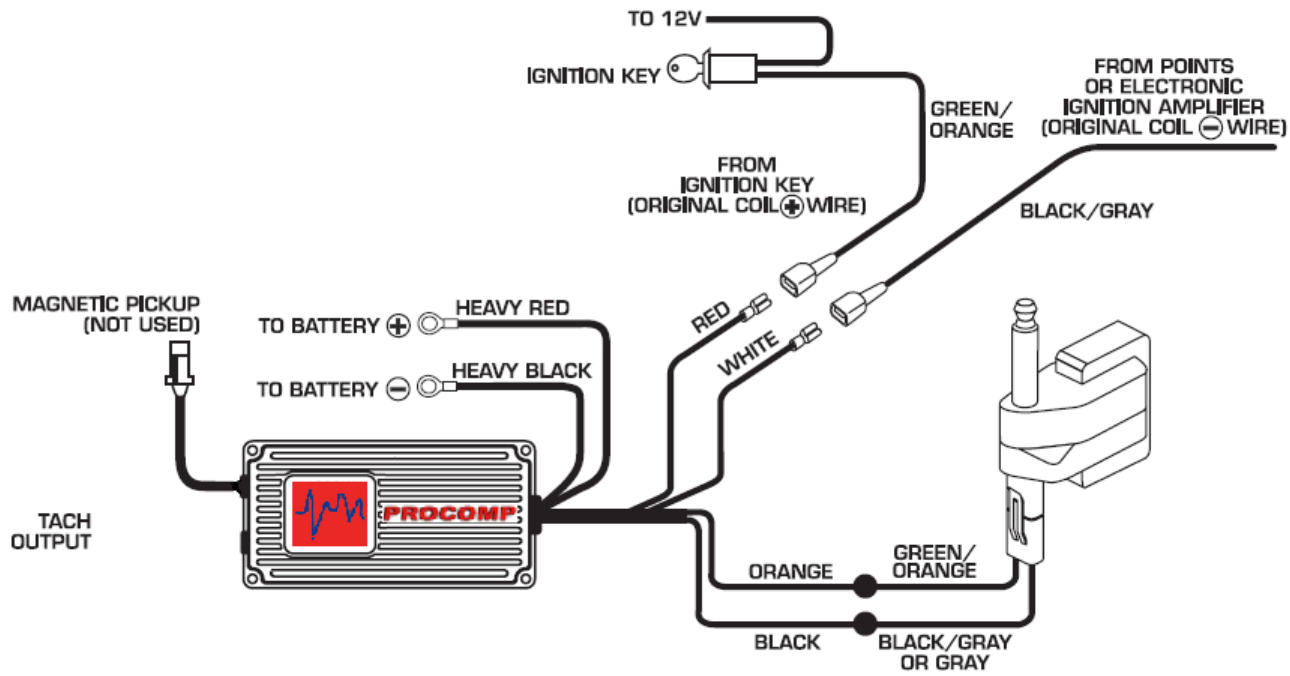
FORD IGNITIONS Wiring a Ford TFI (without Harness).



CHRYSLER IGNITIONS Wiring a Chrysler Electronic Ignition using Magnetic Pickup Trigger.



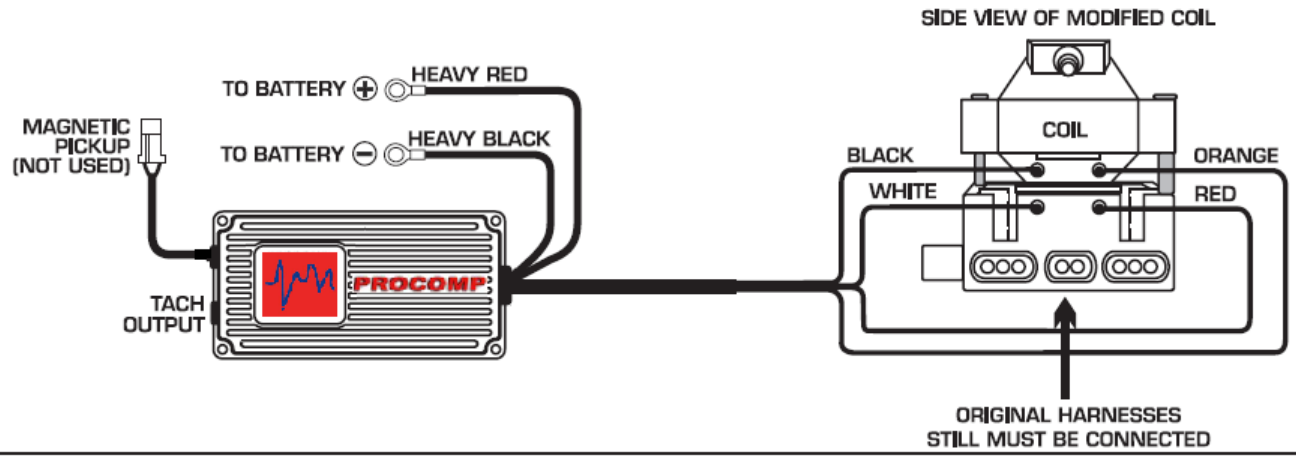
CHRYSLER IGNITIONS Wiring a Late Model Dodge with 2-pin connector.



NOTE: Original coil wiring will be cut

CHRYSLER IGNITIONS Wiring a Jeep with Integrated Coil/Module Assembly.

This style of ignition is used in many 1987-1989 models. The drawing shows the installation with the coil already modified.



AFTERMARKET COMPONENTS [redacted] Wiring a 9000 Series using Magnetic Pickup.