

The logo features the letters 'MSD' in a large, bold, red font with a registered trademark symbol. Below it, the word 'IGNITION' is written in a black, stylized font with red highlights on the letters 'I', 'G', and 'N'.

MSD
IGNITION

The text 'Wiring Diagrams and Tech Notes' is printed in a bold, black, sans-serif font, arranged in four lines and slightly rotated to follow the angle of the card.

**Wiring
Diagrams
and
Tech Notes**

A smaller version of the MSD Ignition logo is visible on a card in the background, showing the text 'MSD 6AL' and 'PART NO. 64' below it.

MSD 6AL
PART NO. 64

Tech Tips



Diagrams



Troubleshooting

MSD TECH LINE: (915) 855-7123
www.msdisignition.com



WIRING DIAGRAMS AND TECH NOTES

MSD believes that customer service does not end at just producing the best ignition components available, but helping the customer is also a number one priority. That is why we have assembled this MSD Ignition Wiring Diagrams and Tech Notes Book. This book is a collection of component installation procedures, applications and technical information. Wiring descriptions and troubleshooting procedures for most MSD products can be found within these pages.

Once you buy an MSD Ignition, you will never be alone. We stand behind our products with a highly trained customer service staff that is more than willing to answer your questions and give you component recommendations. Our Customer Support Technicians are available by phone, fax and email. If you cannot find a wiring diagram for your specific application or simply need more information, contact our Customer Support Technicians at (915) 855-7123. Our trained technicians are available from 8 - 5 (MST) to answer your questions or comments. You can also email the techs at msdtech@msdignition.com and will generally receive an reply within 48-72 hours.

Good luck in your performance and racing endeavors and remember, technical assistance is only a few pages, key strokes or a phone call away.

REPAIR AND SERVICE

If you would like to have your MSD components tested during the off season or need something repaired, you can send your MSD parts to our Customer Support Department and have them inspected by specialized technicians for a minor cost.

When an Ignition Control comes in to be checked, all of the circuits are closely inspected and any updates that we may have made since your component was built will be installed (except on potted units). Prices are capped at a very reasonable rate but it varies between products. Check with our Customer Support Techs for an estimate on your components.

When sending a component in, leave all of the wires at the length in which they are installed. Also include a detailed description of any problems and what components and accessories are being used. Repair usually takes 10 - 18 working days. The repaired unit will be delivered by ground shipping, COD for any charges. Send the components to:

MSD Ignition, Customer Service Department, 12120 Esther Lama, Dock 5, El Paso, TX 79936.

LIMITED WARRANTY

Autotronic Controls Corporation warrants MSD Ignition products to be free from defects in material and workmanship under normal use and if properly installed for a period of one year from date of purchase. If found to be defective as mentioned above, it will be replaced or repaired if returned prepaid along with proof of date of purchase. This shall constitute the sole remedy of the purchaser and the sole liability of Autotronic Controls Corporation. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall Autotronic Controls Corporation be liable for special or consequential damages.

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COIL COMPATIBILITY LIST

This chart lists the compatibility of various coils with MSD Ignition Controls. It is impossible to list every coil combination and it is recommended to check with the coil manufacturer before installation.

★ - Indicates preferred coils for model indicated. YES - Coil is compatible with the model indicated. NO - Coil is NOT compatible. Do not use.	MSD-5/ BLASTER	MSD-6 SERIES	7AL-2, 7AL-3 SERIES	DIGITAL-7 SERIES
MSD Blaster 2 Coil PN 8200 Chrome	★	★	YES	YES
MSD Pro Power Coil PN 8201 (Drag Race Only)	NO	NO	★	NO
MSD Blaster 2 Coil PN 8202 Red	★	★	YES	YES
MSD Blaster 2 Coil PN 8203 w/hardware	★	★	YES	YES
MSD Blaster 2 Coil PN 8205 (Ford style Nail Head)	★	★	YES	YES
MSD Extra Duty RV Coil PN 8206	YES	YES	YES	YES
MSD Blaster 2 High Vibration Coil PN 8222	★	★	YES	YES
MSD Blaster 3 Power Tower Coil PN 8223	★	★	YES	YES
MSD GM HEI High Output Coil PN 8225	NO	YES	YES	YES
MSD TFI Blaster Coil PN 8227	YES	YES	YES	YES
MSD GM Blaster Coil PN 8226	YES	YES	YES	YES
MSD SS Blaster Coil PN 8207	YES	YES	YES	YES
MSD HVC Blaster Coil PN 8252	YES	YES	YES	YES
MSD HVC Pro Power Coil PN 8251	NO	NO	★	★
MSD 6 HVC Coil PN 8250 (Use only with PN 6600 Ignition)	NO	NO	NO	NO
MSD Pro Coupler Coil PN 8209R (Use only with MSD 10, PN 7500)	NO	NO	NO	NO
Accel BEI 140004 (Race use only)	NO	NO	YES	NO
Accel HEI Super Coils 140003, 140005	NO	YES	YES	NO
Accel BEI 140004 (Racing use only)	NO	NO	YES	NO
Accel Super Coil 140008, 140001	YES	YES	NO	NO
Accel 140108	YES	YES	YES	NO
Accel 140205	YES	YES	YES	NO
Accel 140207	YES	YES	YES	NO
Accel 140305	YES	YES	YES	NO
Accel 140306	NO	NO	NO	NO
Accel 7750	YES	YES	YES	NO
Accel 7751	YES	YES	YES	NO
Accel 7752	YES	YES	YES	NO
Accel 7753	YES	YES	YES	NO
Accel 8140, 8140C	YES	YES	YES	NO
Allison PS-10	NO	NO	NO	NO
Allison PS-15	NO	NO	NO	NO
Allison PS-20	YES	YES	YES	NO
Allison PS-30	YES	YES	YES	NO
Bosch (Blue Coil)	NO	YES	YES	NO
Bosch (Red Coil)	YES	YES	YES	NO
Bosch 0221 121001	NO	NO	YES	NO
Chrysler 2875004	NO	NO	NO	NO
Chrysler 3690560	NO	NO	NO	NO
Chrysler E12495531	YES	YES	YES	NO
Chrysler OEM12V Coil*	YES	YES	YES	NO
Crane PS-20, PS-40	YES	YES	NO	NO
Crane PS-91	YES	YES	NO	NO
Crane PS-92	NO	NO	NO	NO
Delco 190-12V	YES	YES	YES	NO
Delco 202	YES	YES	YES	NO
Ford D5TE	YES	YES	YES	NO
Ford D6VE-AA	NO	YES	YES	NO
Ford D7VE-AA	NO	YES	YES	NO
Ford D7AE-1209AA	YES	YES	YES	NO
Ford TFI Coil	YES	YES	YES	NO
Ford OEM 12V Coil*	YES	YES	YES	NO



GM Transistor	NO	NO	NO	NO
GM HEI Coil	NO	YES	YES	NO
GM OEM 12V Coil	YES	YES	YES	NO
Holley 33-27	YES	YES	YES	NO
Holley 820-100	NO	YES	YES	NO
Holley 820-200	NO	YES	YES	NO
Holley 820-300	NO	NO	YES	NO
Holley 820-101	NO	YES	NO	NO
Holley 820-102	NO	YES	NO	NO
Holley 820-201	YES	YES	NO	NO
Holley 820-202	YES	YES	NO	NO
Holley 820-111	NO	YES	NO	NO
Holley 820-211	YES	YES	NO	NO
Holley 820-112	NO	YES	NO	NO
Holley 820-212	YES	YES	NO	NO
Holley 820-113	NO	YES	NO	NO
Holley 820-213	YES	YES	NO	NO
Holley 820-114	NO	YES	NO	NO
Holley 820-214	YES	YES	NO	NO
Holley 820-116	NO	YES	NO	NO
Holley 820-216	YES	YES	NO	NO
Jacobs Compu-Coil 380672	YES	YES	YES	NO
Jacobs Ultra Coils (380871-380877)	YES	YES	YES	NO
Jacobs 380272	YES	YES	NO	NO
Jacobs 380272F	YES	YES	YES	NO
Jacobs 380282	YES	YES	NO	NO
Jacobs 380672F	YES	YES	YES	NO
Jacobs 380672T	YES	YES	YES	NO
Jacobs 380677	YES	YES	NO	NO
Jacobs Energy Team Coils (380772-38077)	YES	YES	YES	NO
Mallory 28880	NO	NO	YES	NO
Mallory 29212 HEI-Low rpm	YES	YES	YES	NO
Mallory 29213 Ford TFI Low rpm	YES	YES	YES	NO
Mallory 29214	YES	YES	YES	NO
Mallory 29215	YES	YES	YES	NO
Mallory 29216	YES	YES	YES	NO
Mallory 28675	YES	YES	NO	NO
Mallory 28720	YES	YES	NO	NO
Mallory 29150	YES	YES	YES	NO
Mallory 29217	YES	YES	YES	NO
Mallory 29440	NO	YES	YES	NO
Mallory 29620	YES	YES	NO	NO
Mallory 29625	YES	YES	NO	NO
Mallory 29901	NO	NO	YES	NO
Mallory Super Mag 28900	NO	NO	NO	NO
Moroso 72350	YES	YES	YES	NO
Any foreign or domestic 12V Coil*	YES	YES	YES	NO

* The factory coil from any vehicle that has a 12 volt negative ground electrical system and has a ballast resistor or resistance wiring in the original ignition key wire will work with the MSD.

HELPFUL COIL INFORMATION

- A ballast resistor is not necessary with any MSD Series Ignition but can be left in-line if originally equipped.
- The MSD Blaster Coils and any other oil-filled, canister style coils should be mounted so that the high voltage coil tower is pointed upward. Also, mount the coil so the coil wire is as short as possible to keep resistance low.
- Use of any coil that is not compatible may damage the MSD and void the warranty.



GENERAL INSTALLATION TIPS

MOUNTING

MSD Ignition Controls are designed to withstand underhood temperatures but should be mounted away from direct engine heat sources such as headers or manifolds. The ignition control can be mounted in most positions except upside down. Mounting the unit in an enclosed area such as the glovebox is not recommended. When running, the housing of the MSD will be hot to the touch.

When a suitable location is found, make sure the wires and harness will reach the coil and battery. Use the ignition as a template and mark the mounting hole locations. Remove the ignition and drill the mounting hole locations. If extremely high vibrations and shocks are expected, use a set of MSD Vibration Mounts to help protect the ignition. The mounts come in sets of four; PN 8823 for the Blaster Ignition, MSD 5 and 6 Ignitions, PN 8800 for MSD 7, 8 or 10 Ignitions.

Sealing MSD Units

While applying some type of sealant between the MSD case and base plate would seem to be smart, it is not recommended. All MSD Ignitions have a special water resistant treatment to prevent water damage. By sealing the base plate to the case the condensation and water that seeps past the cables is trapped in the unit which may result in corrosion. Always allow the unit to drain by not sealing the base plate.

WIRING TIPS

When making permanent electrical connections it is imperative that proper terminals, connectors and soldering be used. Using connectors such as MSD's Weathertight or Deutsch connectors provide positive locking, sealed connections. Never simply "twist and tape" wires together. Faulty wiring will result in ignition and electrical problems.

MSD Power Cables

The Power Cables of the MSD 6, 7, 8 and 10 Ignitions are the heavy (12 gauge) Red and Black wires. The Black wire connects to battery negative (-) or ground and the Red goes to battery positive (+). No switch or fuse should be used.

The Red wire must be connected directly to the battery positive terminal or to the constant positive side of the starter solenoid.

The Black wire must be connected to the battery negative (-) terminal or to a good engine or chassis ground.

MSD offers a Noise Filter, PN 8830, for the Power Leads. This Filter goes inline on the power cables and will protect the Ignition from voltage spikes or battery failure. The Filter will also help eliminate a major cause of radio noise that may affect engine or other on-vehicle electronics.

NOTE: If you ever need to turn the engine over without starting it, disconnect the small Red wire on the MSD 6, 7, 8 or 10 Series.

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 a common solid ground on the chassis. Always connect the ground to a clean, paint free metal surface and always have a ground strap between the engine and the chassis. **Do not rely on solid engine mounts as a ground between the chassis and engine.**

Wire Length

The power leads and the wires of the MSD can be shortened, however the correct connectors should be properly installed and soldered in place. If the wires of your MSD Ignition are not long enough for your application, they can be lengthened if properly done. If lengthening the heavy Power Cables, the next size larger (10 gauge) must be used. For the 14 gauge wiring, use the same size or 12 gauge. Always take the time to solder and insulate these connections. Doing it right the first time will save you frustration later!

Ballast Resistors

When using an MSD 5 or Blaster Ignition, if a ballast resistor was originally used in the coil wiring, it should be bypassed. If a ballast resistor was not used, it is not necessary to install one. When an aftermarket coil is used with the Blaster Ignition or MSD 5, follow the coil recommendation for a resistor. A factory ballast resistor does not need to be bypassed with an MSD 6, 7, 8 or 10 Ignition.

GENERAL INSTALLATION TIPS

Plastic Spacers

MSD no longer supplies the plastic spacers that were used on some coil installations. This is due to the changes in coil housings and connectors not requiring the spacers. The spacers were used to simplify wiring on canister coil applications. There is no electrical continuity between the coil post and the outside terminal of the plastic spacer.



BATTERY

The battery is one of the most important parts of the automotive electrical system. A MINIMUM battery rating, when used with an alternator, should be no less than 25 amp/hours. If no alternator is used, allow at least 15 amp/hour for every 1/2 hour of MSD operation. If the engine is cranked using the same battery or other accessories such as fuel pumps and electric fans are used, the rating should be more.

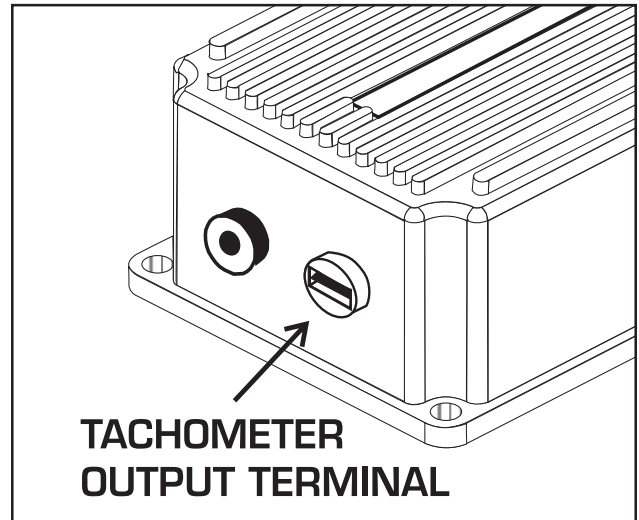
In all cases, to ensure adequate running time, the battery should be fully charged at the start of operation. A fully charged 12 volt battery will read around 12.6 volts on a voltmeter and should not drop below 8 volts when cranking. Each cell of a fully charged battery will read 1.260 on a hydrometer.

An MSD Ignition Control will operate at full strength with 11-18 volts.

Here are a few battery tips on charging and jump starts:

- When charging the battery, DO NOT run the engine. Some chargers may produce potentially damaging high voltage spikes that could damage the ignition control.
- It is not necessary to disconnect the MSD when charging the battery, as long as the charger is making good contact with the battery.
- Receiving a jump from another battery or car will not damage the MSD Ignition.

TACH OUTPUT AND ADAPTERS



The MSD 6, 7, 8 and 10 Ignition Controls all feature a Tach Output terminal to provide a trigger signal to tachometers, an MSD Shift Light, or rpm activated switches. The Tach Output Terminal produces a 12 volt square wave signal with a 30% duty cycle. A standard female faston terminal is supplied for easy installation. Most factory and aftermarket tachometers will accept this signal, however there are exceptions (see the chart on page 10).

Some factory and "budget" tachometers may require a Tach Adapter to operate correctly. MSD offers a couple different adapters for various applications. Before purchasing an Adapter, try connecting the tachometer's trigger wire directly to the MSD's tach output terminal. If the tach still does not operate (and is properly wired) you may need a Tach Adapter. There are two main Tach Adapters available for single channel, MSD Ignitions:

PN 8920: If you are using the magnetic pickup connector (Green and Violet wires) to trigger the MSD, you need the PN 8920 Adapter.

PN 8910: If your tachometer was originally triggered from the coil negative terminal (you are using the White wire of the MSD), you need the PN 8910 Adapter.

The chart on page 10 lists common tachometers.

GENERAL INSTALLATION TIPS

Tachometer Compatibility List

AFTERMARKET TACHOMETER	WHITE WIRE TRIGGER	MAGNETIC TRIGGER CONNECTOR
AUTOGAGE	8910	8920
AUTOMETER	NONE	NONE
FORD MOTORSPORTS	NONE	NONE
MALLORY	NONE	NONE
MOROSO	NONE	NONE
STEWART	8910	8920
S.W. & BI TORX	NONE	NONE
SUN	8910	8920
VDO	8910	8920
AMC (JEEP)	8910	8920
CHRYSLER	8910	8920
FORD (Before 1976)	8910	8920
FORD (After 1976)	8910	8920
GENERAL MOTORS	Bypass In-Line Filter	Bypass In-line filter
IMPORTS	8910	8920

Note: On the list above, the trigger wire on tachometers that are marked NONE may be connected to the Tach Output Terminal on the MSD 6 Series Ignition Unit using the supplied Female Faston Receptacle.

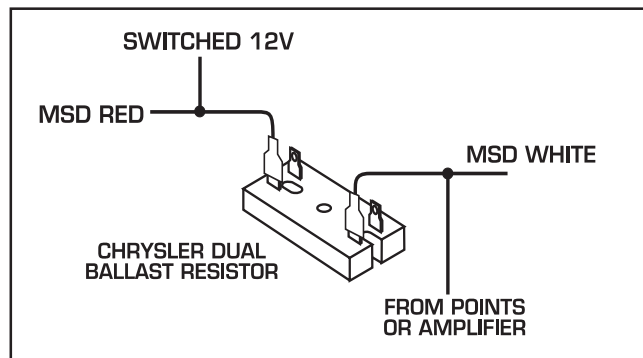
No Run on Some Foreign Vehicles

There is a chance that some electronic fuel injected import vehicles may require an MSD PN 8910 Tach Adapter in order to start and run. This is because some fuel management systems use the same trigger source for the EFI and the MSD. With both components connected, the voltage signal is not strong enough to accurately trigger the EFI. The MSD PN 8910 Adapter will boost this signal and generally remedy the problem.

NOTE: If the PN 8910 Adapter does not fix the no-run situation, MSD offers a few "special application" adapters. Call our Customer Support Department for the correct Adapter for your application.

Current Triggered Tachs

If you have a current triggered tachometer (originally triggered from coil +) and are using the White wire of the MSD as a trigger, a Chrysler Dual Ballast Resistor (used from '73-'76) may be used to cure the tachometer. The diagram below shows the correct wiring.

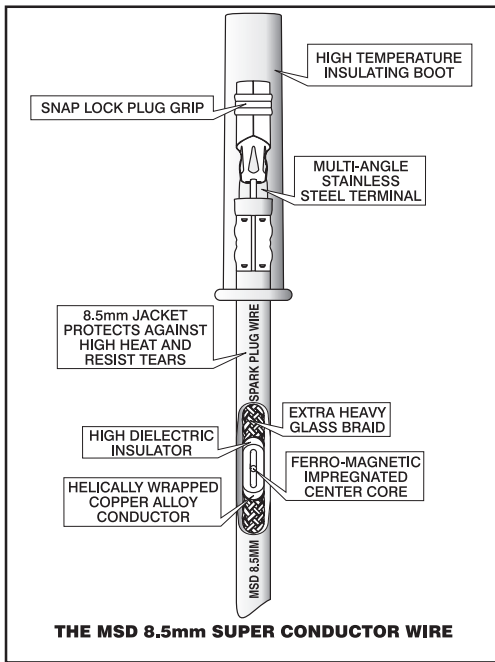




SPARK PLUG WIRES AND SPARK PLUGS

Spark Plug Wires

Spark plug wires have two main objectives; transfer the spark energy to the plugs and suppress the Electro Magnetic Interference (EMI) that the spark voltage projects. Too high of resistance decreases the spark energy, yet too low of resistance may generate too much EMI noise which will interfere with the operation of other electronics on the vehicle. A good quality wire, proper routing and routine inspection are all important in getting the most performance out of your ignition system.



MSD offers two great spark plug wires; Heli-Core Wire and the 8.5mm Super Conductor Wire. The Heli-Core Wires are a premium performance wire upgrade for any car or truck. For serious performance, the 8.5mm Super Conductor Wire is the wire of choice. Both sets of wires feature a conductor that is helically wound around a special center core that is designed to suppress, or

choke, EMI. Helically wound, sometimes called spiral core, must be used with an MSD Ignition Control. Solid core wires do not suppress EMI so there could be interference with the ignition or other electronics on the vehicle.

The Super Conductor Wire has less than 50 ohms per foot, the lowest available in a helically wound wire. A special copper-alloy conductor is wrapped very tightly around a ferro-magnetic impregnated center core which gives the wire extremely high EMI suppression. This design ensures that optimum spark energy will reach the spark plugs while EMI noise is held at a minimum.

Note: Solid Core spark plug wires cannot be used with any MSD Ignition controls or Pro Mags.

Just like tires, oil or spark plugs, the spark plug wires are a maintenance item. Service of the wires hinges on your application and ignition control. If you have a 6AL Ignition and use the car as a daily driver, the wires will last for thousands of miles. Conversely, if you are racing a high compression engine with nitrous and an MSD 10, the wires should be inspected and even replaced during the race season. When checking wires, closely inspect for signs of burning or arc-through. Look at the boots for signs of cracking or burning and using an ohm meter to check resistance of each wire is a good idea. Also, keep in mind that the coil wire is delivering eight times the spark so it should be checked closely. When checking resistance of the wires note that the longer wires will have more total resistance, but their values should average out. If one wire stands out among the others, it should be replaced.

CHECKING THE RESISTANCE OF SPARK PLUG WIRES

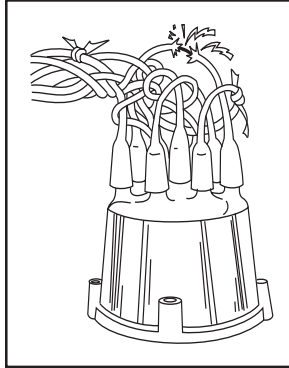
RESISTANCE

8MM HELI-CORE WIRE (BLUE)	750-1200 OHMS PER FOOT
8.5MM SUPER CONDUCTOR WIRE (RED)	40-50 OHMS PER FOOT

SPARK PLUGS WIRES AND SPARK PLUGS

Plug Wire Tips

To keep your engine's spark plug wires in tip-top condition there are a few simple steps you can take. For starters, apply a small amount of MSD Spark Guard, PN 8804, a dielectric grease, to each wire terminal. This keeps any moisture out of the boot while lubricating and insulating the terminal-to-plug connection. It also aids in pulling the plug socket off without tearing the boot or wire.



Extra protection from heat is always a good idea. MSD wires have a very durable sleeve but in applications with tight engine compartments and close exhaust systems, additional protection is a benefit. MSD offers Pro-Heat Sleeve, PN 3411, a silicone coated woven glass sleeve that slides over your wires for added protection. If you're looking for protection around the boot MSD's Pro-Boot Guard, PN 3412, is the answer. This is an extra thick sleeve of woven glass with a silicone coating and will protect the boot from excessive heat.

Another important point to consider is the way the plug wires are routed. Using good wire separators is a key in preventing inductive crossfire which occurs when two wires that are consecutive in the firing order are run next to each other. MSD offers a variety of Separators that will help position the wires away from exhaust manifolds and sharp edges while keeping the engine compartment looking good.

Note: Distributor caps that re-route the wires to the left and right are not recommended with an MSD Ignition Control.

Coil Wire Routing

In some applications, the coil is mounted in the passenger compartment of the car. In this case, the coil wire must be routed through the firewall. To prevent voltage leaks, use an MSD Firewall Feed-Thru, PN 8211, 8212. This provides 1/2" of insulation and keeps the spark from jumping to ground.

Spark Plugs

Choosing the correct spark plug design and heat range is important when trying to get all the performance possible. Since there are so many engine combinations and manufacturers, MSD cannot recommend which plug or what size gap is exactly right for your car. It is recommended to follow the engine builder's or manufacturer's recommendations for plug heat range and gap.

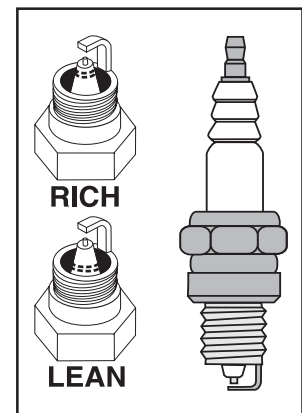
Once a proper plug is selected, you can experiment with the gap to get the best performance. By using these recommendations as a starting point, you can experiment by opening the gap in 0.005" increments then test. When the performance falls off, the gap is too large. Carbureted or fuel injection engines can use larger gaps, but turbo or supercharged engines should stick with the smaller gap. If no significant gains are achieved, go with the smaller gap. Remember, the larger gap taxes the plug, wires, cap and rotor.

Rule of Thumb Plug Gap

COMPRESSION	GAP
UP TO 10.5:1	.040 - .045
10.5:1 - 13:1	.032 - .040
OVER 13:1	.025 - .032

Note: These are recommended for normally aspirated engines only. Reduce the gap for blower, turbo or nitrous applications.

After changing the gap, reading the spark plugs is a helpful tool in getting the right tune up. The air/fuel ratio and how it's burning can be read on the ceramic portion of the spark plug. A ring can be seen where the effective heat transfer takes place. The closer this ring is to the tip, the richer the mixture. Closer to the base of the plug means the engine is running more lean.



DISTRIBUTOR SETUP TIPS

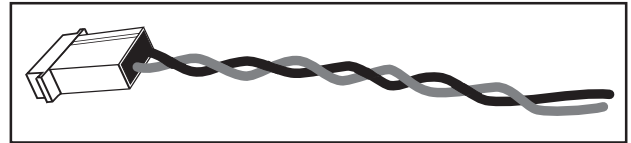
Distributor Setup

MSD offers a variety of distributors designed for different applications ranging from low profile and small diameter models to a front drive distributor. You can have the most powerful ignition available, but if you are not accurately triggering all of that energy or not getting it to the right spark plug at the precise moment, all of that power is being wasted. Due to the increased energy output of an MSD Ignition Control, proper setup of the distributor is very important. A good quality cap and rotor should always be used and inspected on a regular basis. Note that areas with higher humidity are more susceptible to carbon tracking or spark scatter due to condensation build up. Another problem that can arise within a distributor cap is called ionization.

Ionization occurs when the air inside the cap becomes electrically charged resulting in spark scatter or crossfire. It is more prevalent in smaller caps and again in areas with higher humidity. MSD rotors are designed with high vanes to help stir up the air preventing a charged area from building up. For more prevention, you can drill vent holes in the cap to release the pressure and to introduce fresh air. The holes should be at the height of the rotor skirt and at least 1/4" in diameter. Also, position the holes opposite the intake manifold and in dusty climates, it is a good idea to epoxy screens over the holes. MSD offers a pre-drilled cap for V8 GM "window" style caps, PN 8438.

If clearance is not an issue on your application, use as large a cap as possible such as the MSD Cap-A-Dapt, PN 8420 and PN 8445 or the Pro-Cap, PN 7445.

Magnetic Pickup Wires



MSD Distributors use a magnetic pickup to trigger the ignition. This pickup is maintenance-free and extremely reliable. There are two wires that come out of the pickup and are routed into a 2-pin connector that mates with the connector from the MSD Ignition. The Black/Violet wire is negative (-) while the Black/Orange is positive (+). The wires that come out of the MSD are Violet(+) and Green (-). The 2-Pin connectors are designed to only connect one way so the wiring cannot be switched. If for some reason the connectors are changed, be sure the wires are connected with matching polarity. If they are not, the engine may or may not start, but if it does the timing will be inconsistent and it will run rough and not accelerate.

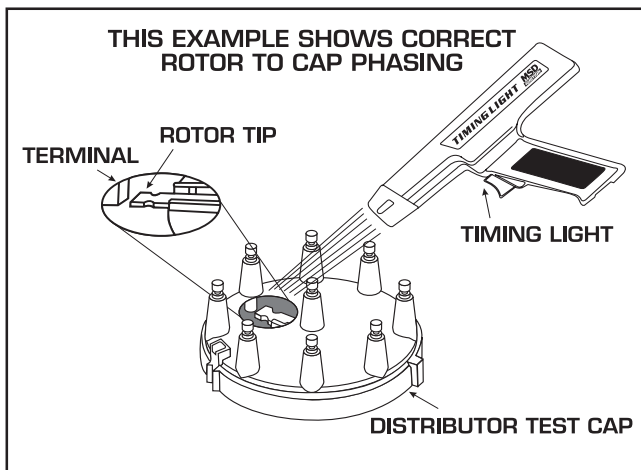
The magnetic pickup wires should always be routed clear of the spark plug wires and coil wires. It is ideal to route the wires near the frame or engine because there is less electrical activity near these surfaces. The wires should always be twisted to help prevent any EMI interference. In applications with a lot of wiring such as electrical fuel injection systems, a shielded harness is recommended. MSD offers a shielded magnetic pickup harness, PN 8862, that ensures an EMI-free trigger signal to the MSD Ignition.

DISTRIBUTOR SETUP TIPS

Rotor Phasing

Rotor phasing is the alignment between the rotor tip and the distributor cap terminal when the spark occurs. If the rotor tip is not aligned with the post when the spark occurs, the spark may find another path to ground resulting in scattered timing or a missfire. On engines with extreme cylinder pressures such as nitrous or superchargers the rotor phasing becomes even more important.

To check rotor phasing, you need an extra cap that you can drill or cut a hole in to expose a terminal. It may help to mark a reference center line on the rotor tip and the terminal post with white correction fluid. Connect a timing light to the wire of the exposed terminal. With the engine running, the phasing can be observed. It is correct when the center line reference marks are aligned.

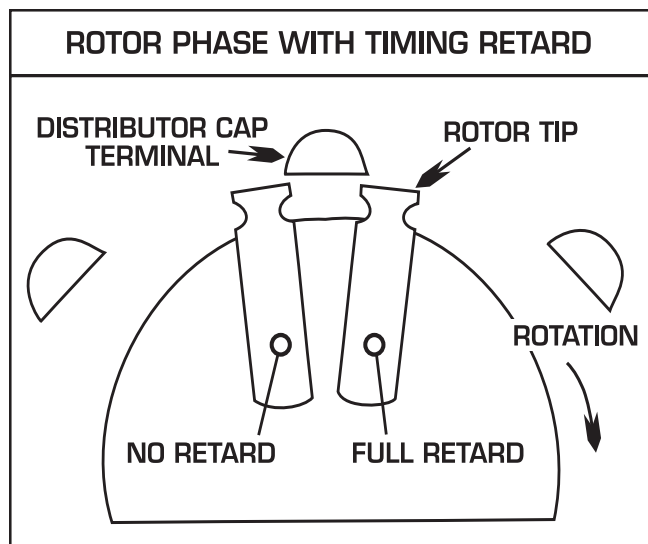


If the distributor has vacuum advance, leave it connected and check the phasing at your average driving rpm and at a lower rpm. At high rpm, note the rotor position and mark it on the cap terminal, then check it at low rpm and again mark the rotor position. The phasing should be set in the middle.

If the phasing is not correct on a points or electronic triggered distributor, the trigger device must be moved until rotor/terminal alignment is achieved. (MSD magnetic pickup distributors are set at the factory and should not require adjusting.) If your application does require adjustment MSD offers a Cap-A-Dapt with an adjustable rotor, PN 8420. This compensates for the phasing without having to move the trigger mechanism.

If you are using a Crank Trigger system to trigger the ignition, rotor phasing is easy to set by adjusting the housing of the distributor.

For applications that advance or retard the timing electronically, rotor phasing must be taken into consideration. If a multiple stage nitrous engine removes 16° of timing at top end, the rotor tip will be past the cap terminal when the spark is triggered.



MECHANICAL ADVANCE SETUP TIPS

Most MSD Distributors with a magnetic pickup features an adjustable mechanical advance assembly. The distributors with this feature are supplied with three sets of advance springs and four stop bushings.

The advance assembly is made up of weights, springs, an advance cam and an advance stop bushing. The distributor can be used in a wide selection of applications by changing the springs and stop bushing only. There is no need to change the weights or advance cam.

Timing Functions

There are several different timing specifications that are used when referring to the ignition timing.

Initial Timing: This is the base or idle timing. It is the amount of timing set in the engine before any advance begins.

Mechanical Advance (Centrifugal): This is a mechanical feature on most distributors that advances the timing as engine rpm increases. The amount of advance is determined by the stop bushing and the rate of advance is determined by the tension of the springs.

Vacuum Advance: Some of the MSD Distributors are equipped with a vacuum advance canister. Under partial throttle (high vacuum) conditions this vacuum advance increases the timing to increase the economy.

Total Timing: This is the total of the Initial Timing, Centrifugal advance and if equipped, the vacuum advance. For example: 8° Initial + 21° Centrifugal = 29° Total Timing.

Tips on Choosing an Advance Curve

The function of the advance curve is to match the ignition timing to the burning rate of the fuel and speed (rpm) of the engine. Any factor changing the burning rate of the fuel or the engine speed can cause a need for an ignition timing change. These factors range from fuel octane to the shape of the combustion chamber. Check with your engine builder to determine what ignition curve will best suit your engine and driving habits.

Selecting the Advance Springs

The advance springs determine how quick the advance comes in. The starting point of the advance curve is controlled by the length and tension of the spring. The slope, or how fast the curve comes in is determined by spring tension.

To change the advance springs, simply use a set of needle nose pliers and pull the spring off.

SPRING COMBINATION	RATE OF ADVANCE
2-Heavy Silver	SLOWEST
1-Heavy Silver	↑
1-Light Blue	
1-Heavy Silver	
1-Light Silver	
2-Light Blue	↑
1-Light Silver	
1-Light Blue	↑
2-Light Silver	

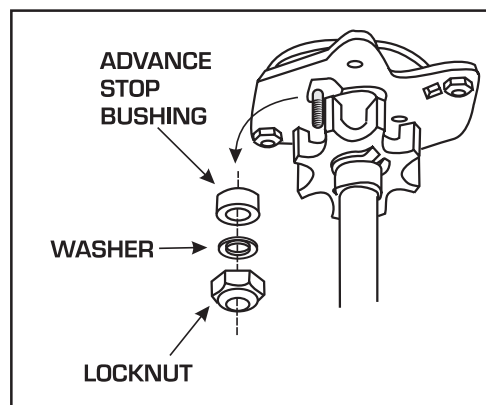
Selecting the Advance Stop Bushings

The advance stop bushing determines the amount of advance available to the centrifugal assembly. There are four different bushings with their amounts shown below.

Red - 28°
Silver - 25°

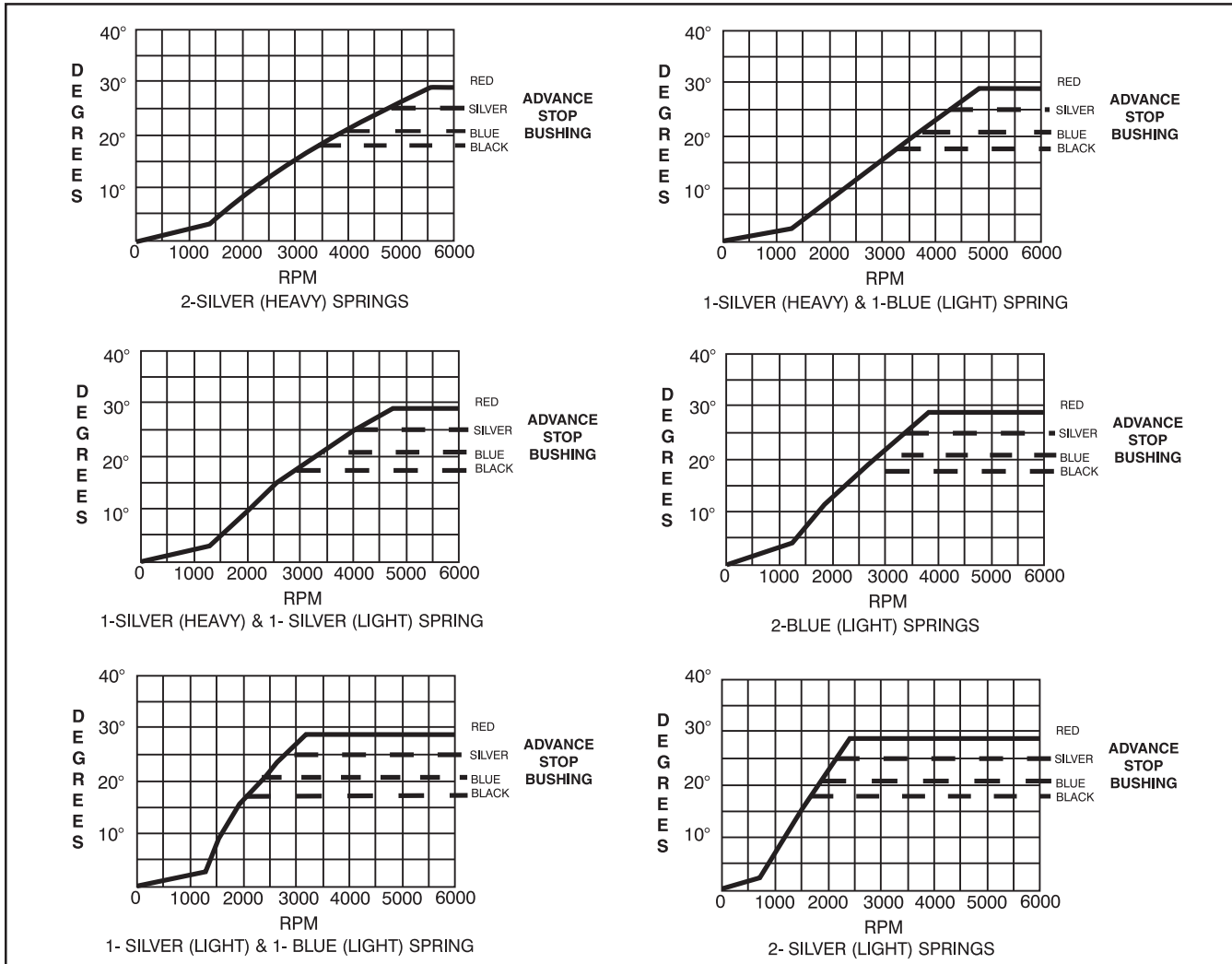
Blue - 21°
Black - 18°

To change the advance stop bushing, remove the locknut and washer on the bottom of the advance assembly. Remove the bushing and install the new one.



Distributor Advance Graphs

The following charts show the variety of ignition curves you can achieve with an MSD Distributor.

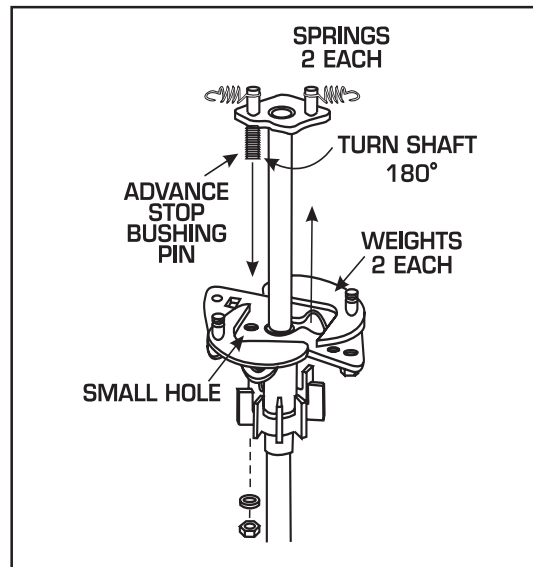


Locking Out the Centrifugal Advance

If you would like to lock out the centrifugal advance or are converting to a Flying Magnet Crank Trigger, the MSD centrifugal advance can easily be locked out.

To begin, remove the advance springs and weights. Next, remove the roll pin from the end of the shaft so the shaft can be pulled out of the advance assembly about two inches. Rotate the shaft 180° and position the stop bushing pin in the small hole on the advance assembly. Install the locknut and washer to the stop bushing pin, then install the roll pin.

Note: This is a general overview of locking-out the mechanical advance. Refer to your distributor's instructions for specific applications.



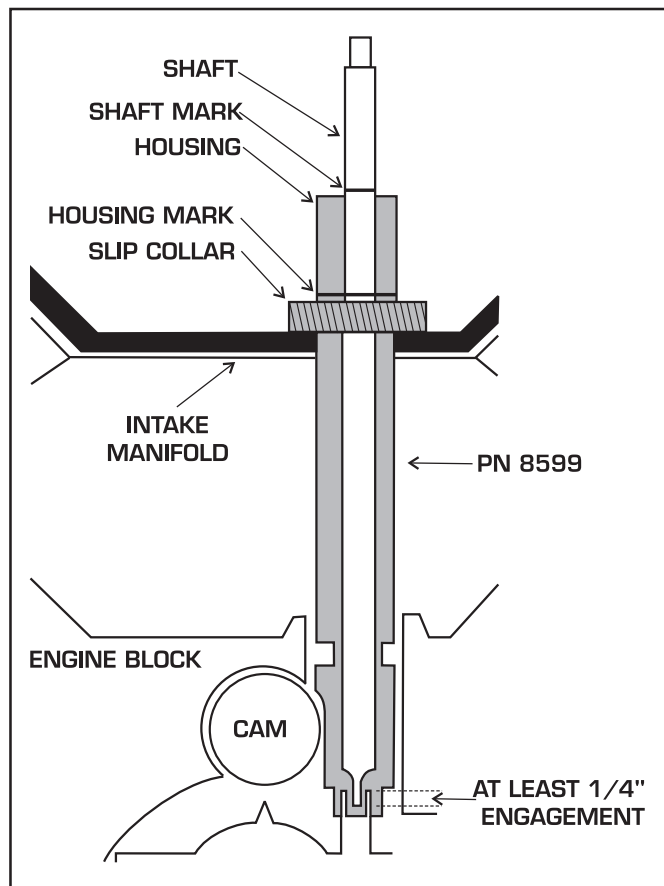
Locking Out the Centrifugal Advance.

DISTRIBUTOR SETUP TIPS

3-In-1 Chevrolet Distributor Tool

The MSD 3-In-1 Distributor Set Up Tool, PN 8599, allows you to perform three checks and measurements on Chevrolet engines: The oil pump intermediate shaft engagement, Setting the height of the adjustable slip collar on MSD Distributors, and Oil priming the engine prior to starting it.

All of these measurements are important to the performance and life of your engine and should be checked. If the deck height or heads have been machined or you are using exotic intake manifolds these measurements must be taken.



Setting the Slip Collar

1. Loosen the slip collar of the 3-In-1 tool and install the housing into the engine block. Make sure the cut out area of the tool is lined up with the cam gear.
2. Position the slip collar to the base of the intake manifold and tighten the collar in place.

Checking the Intermediate Shaft Length

1. Install housing into the block making sure that the cut out area of the tool lines up with the cam gear.
2. Insert the 3-In-1 shaft into the housing making sure it falls into the groove on the intermediate shaft.
3. When the shaft is in place, the shaft index mark should line up or be below the top of the housing. If the index mark is above the housing, there is not enough engagement and the shaft is too short.

Oil Priming the Engine

1. Install the housing and shaft into the engine. Make sure the shaft tongue and the oil pump intermediate shaft are engaged properly.
2. Use a 3/8" or 1/2" chuck on an electric drill to spin the shaft. Turn shaft clockwise.

FLYING MAGNET CRANK TRIGGER TIPS

The MSD Flying Magnet Crank Trigger System is the most accurate way possible to trigger the ignition. This is due to fact that the trigger signal is coming directly from the source of piston position in the cylinder; the crankshaft.

Distributors are accurate, but the piston position is derived through the timing chain, the camshaft, cam gear and finally to the distributor shaft. There are no mechanical variables in piston position when using a crank trigger system.

Non-Magnetic Pickup

The MSD Crank Trigger System uses a non-magnetic pickup to trigger the ignition. Magnets are embedded in the flywheel to produce the trigger signal. The non-magnetic pickup can only be triggered by the magnets in the flywheel. This design prevents the chance of false triggering.

When installing the pickup, it is recommended to twist the wires together and route the wires near the frame or engine. These areas act as an electrical shield against electrical interference in the air. Also keep the wires away from any spark plug wires, coil wires and ignition wires.



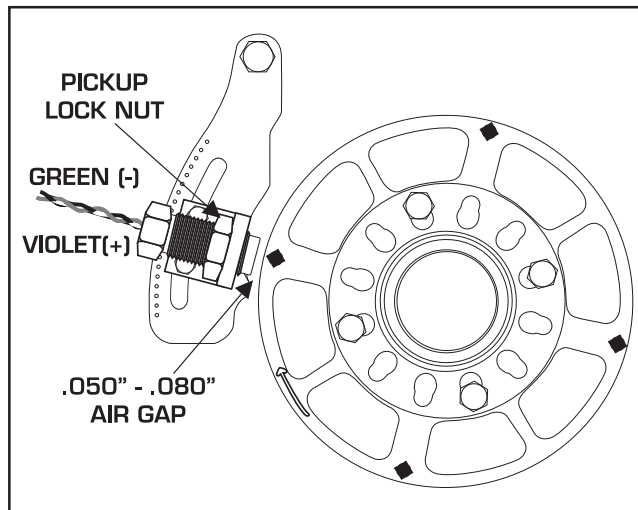
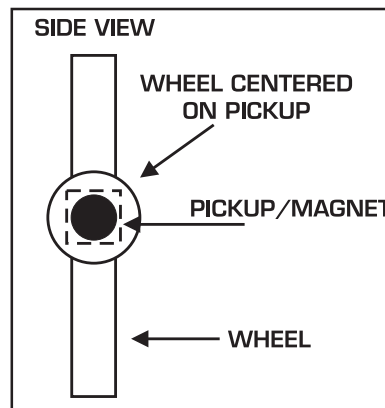
Pickup Mounting

The MSD Crank Trigger Kits come with all of the hardware needed to mount the pickup. Many kits feature a bracket that can be installed on either side of the engine block. Some kits are also supplied with several spacers to help obtain the correct alignment of the pickup and wheel. Due to the variety of balancers and pulleys, some modifying may be required to achieve the correct positioning of the bracket and pickup.

Trigger Wheel Mounting

Unlike conventional crank trigger systems using a magnetic pickup, the MSD trigger wheel must be mounted in the proper position. This is due to the polarity of the magnets in the wheel. If the wheel is reversed, the trigger signal will be affected and may advance the timing and cause inconsistent triggering accuracy. On the wheel there is an arrow which must point in the same direction as the engine rotation. Make sure this is installed correctly.

When the wheel and trigger pickup bracket are mounted, make sure the pickup is positioned in the center of the trigger wheel. If it is not, the trigger signal can be affected. If they are not aligned, the bracket may require different spacers.



Setting the Air Gap

The air gap between the pickup and trigger wheel is important, however it does not affect the performance in regards to your ET or mph. It affects the strength of the trigger signal. The farther away the pickup is from the wheel the weaker the trigger signal becomes. This could come into effect at cranking rpm.

The minimum air gap is 0.050" and any closer the chance of the wheel hitting the pickup at high rpm comes into play. Some big cubic inch engine builders (600-800ci) recommend 0.060" - 0.080" air gap due to the flexing of the crankshaft.

A good rule of thumb is to run the pickup all the way in until contacts the trigger wheel. Then, back the pickup out one full turn. This will set approximately 0.060" airgap, but always check the gap with a set of feeler gauges and in different areas of the wheel.

INSTALLING AN MSD 5, PN 5200, OR BLASTER IGNITION, PN 5900

The MSD 5 and Blaster Ignitions are inductive ignitions which enhance the spark of the vehicle's stock ignition. The MSD 5 is a multiple spark ignition, while the Blaster is a single spark, long duration design. Both are designed for entry level and budget build-ups and can be triggered with points or electronic ignitions. The Blaster can also be triggered by a magnetic pickup distributor such as the MSD Pro-Billet Distributors.

Ballast Resistors: If the vehicle has a ballast resistor or resistor wiring leading to the coil, leave it inline and connect the Red wire of the ignition before the resistor. If there are no resistors originally, the Blaster Ignition and MSD 5 do not require it. For aftermarket coils, use the coil manufacturer's recommendations.

NOTE: Not recommended for use with a GM HEI Internal Coil Distributor.

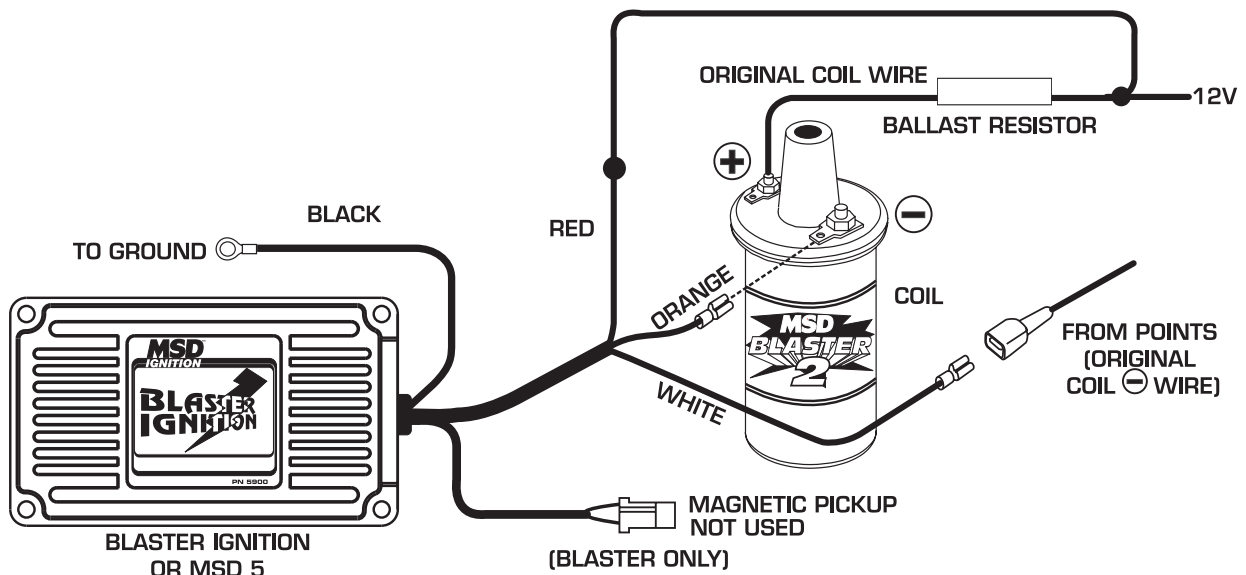
Wire Functions

- Red:** Connects to the positive (+) terminal of the coil, or a switched 12v.
- Black:** Connects to ground.
- Orange:** Connects to the negative (-) terminal of the coil.
- White:** Connects to the points or electronic ignition amplifier output.

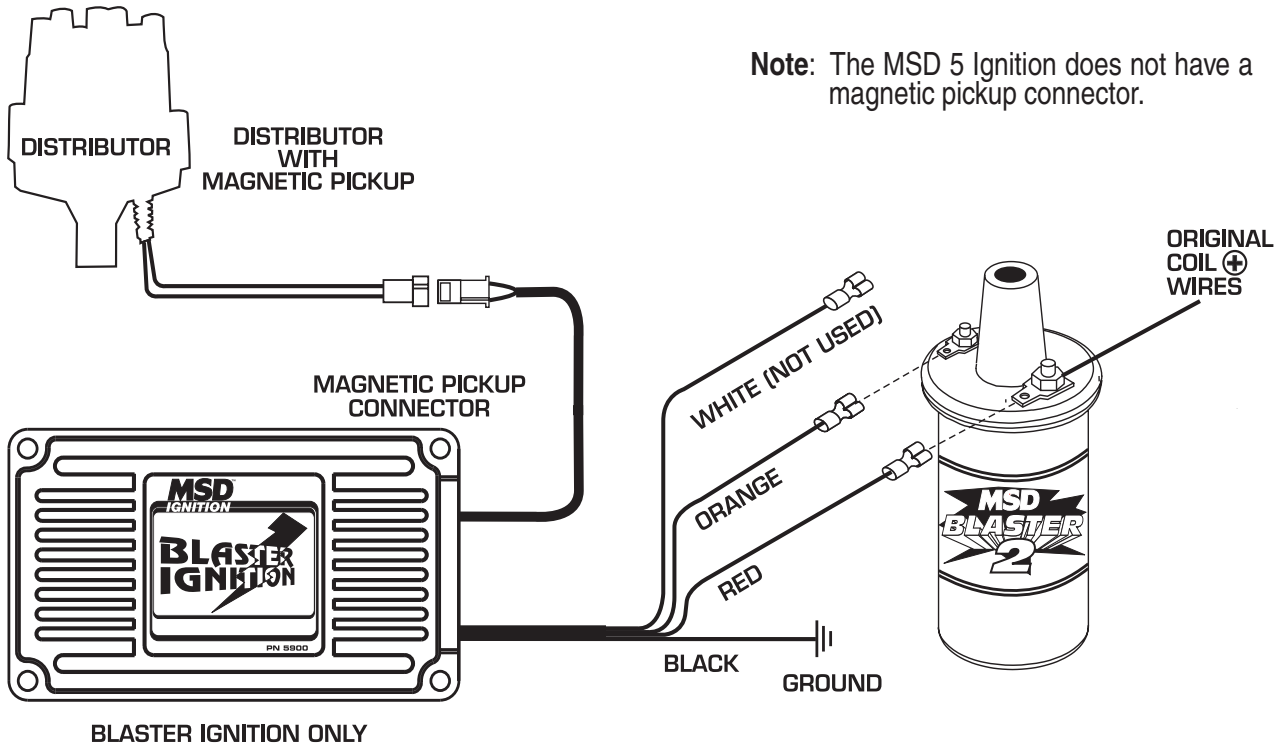
Blaster Ignition Only

- Green:** Magnetic pickup negative (-).
- Violet:** Magnetic pickup positive (+).

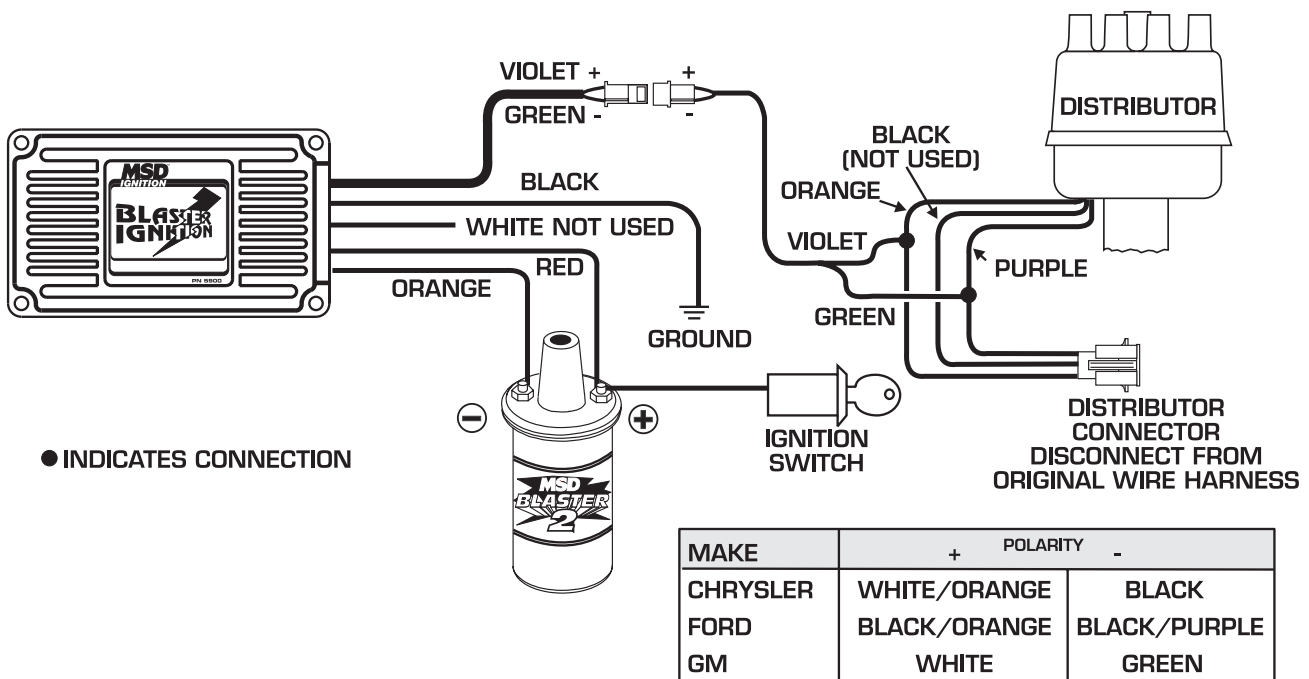
ORIGINAL BALLAST RESISTOR WIRING WITH A BLASTER IGNITION OR MSD 5 IGNITION



BLASTER IGNITION TO MAGNETIC PICKUP

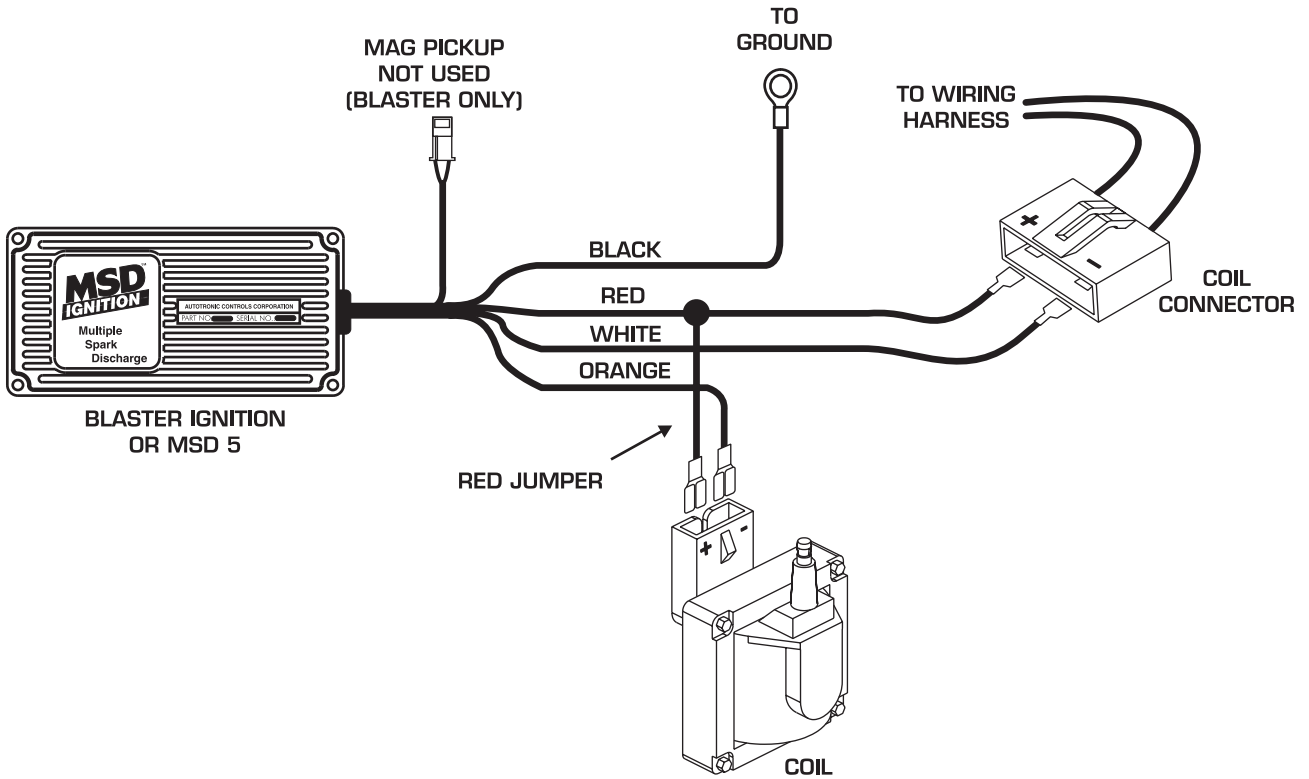


BLASTER IGNITION TO STOCK MAGNETIC PICKUP DISTRIBUTOR

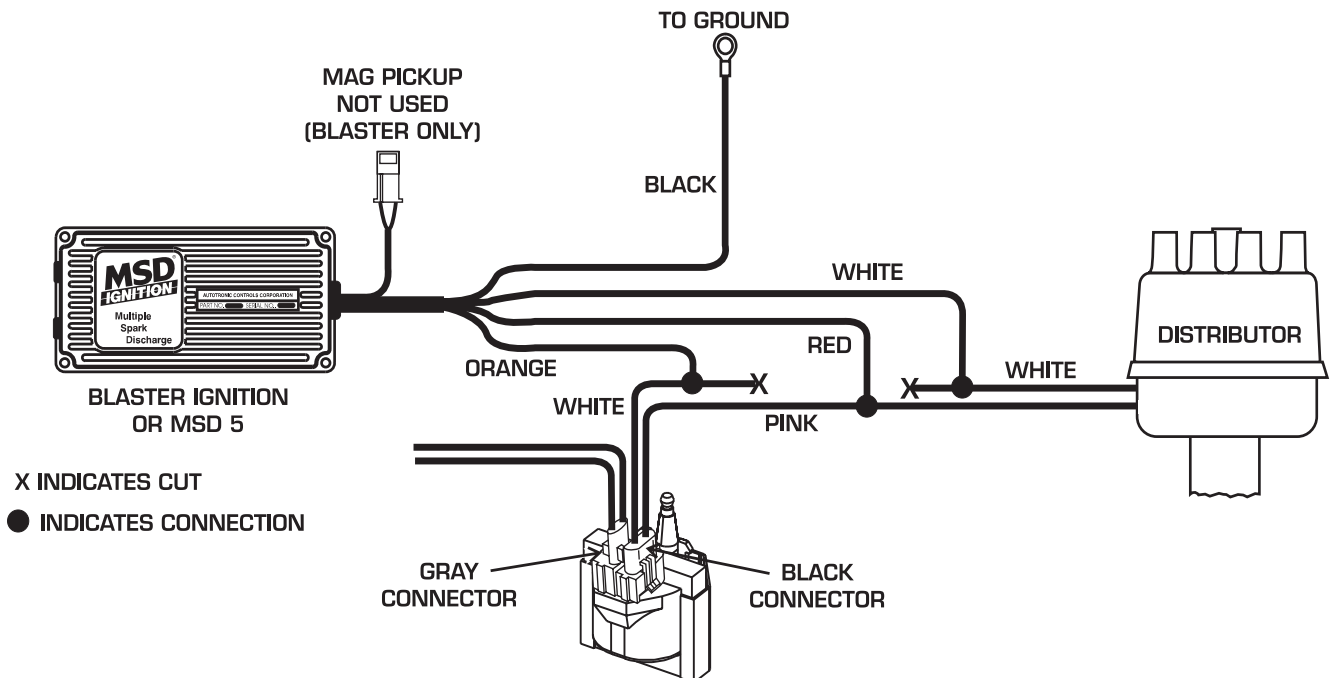




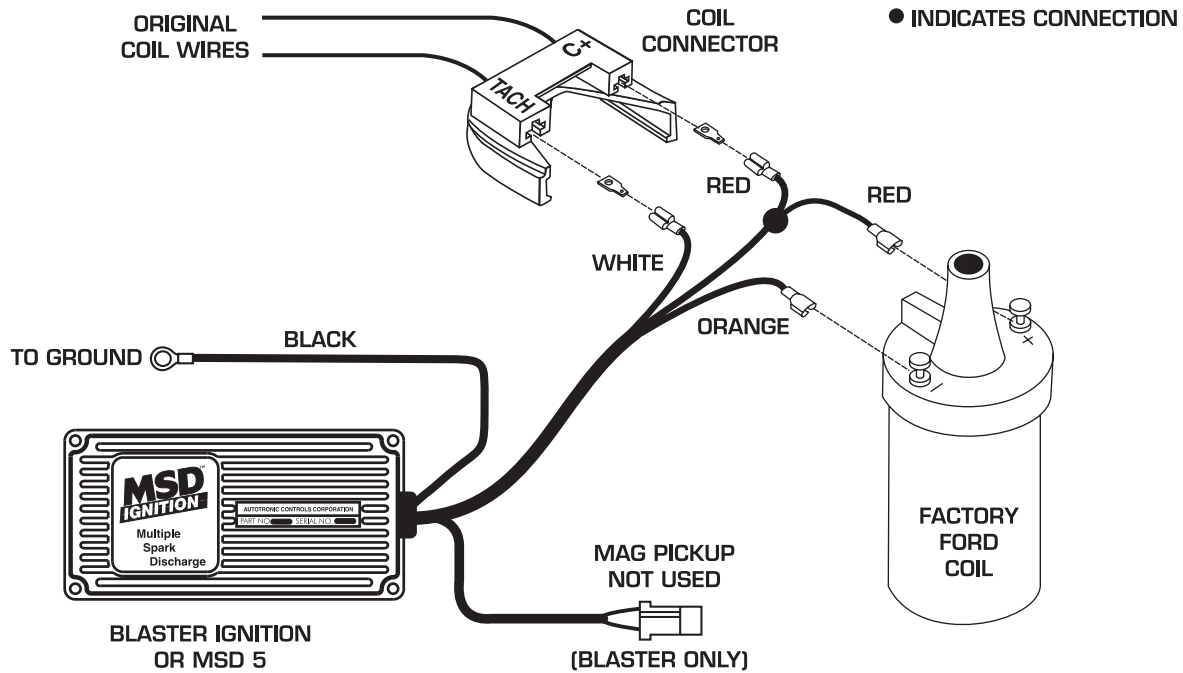
BLASTER/MSD 5 TO FORD TFI IGNITION



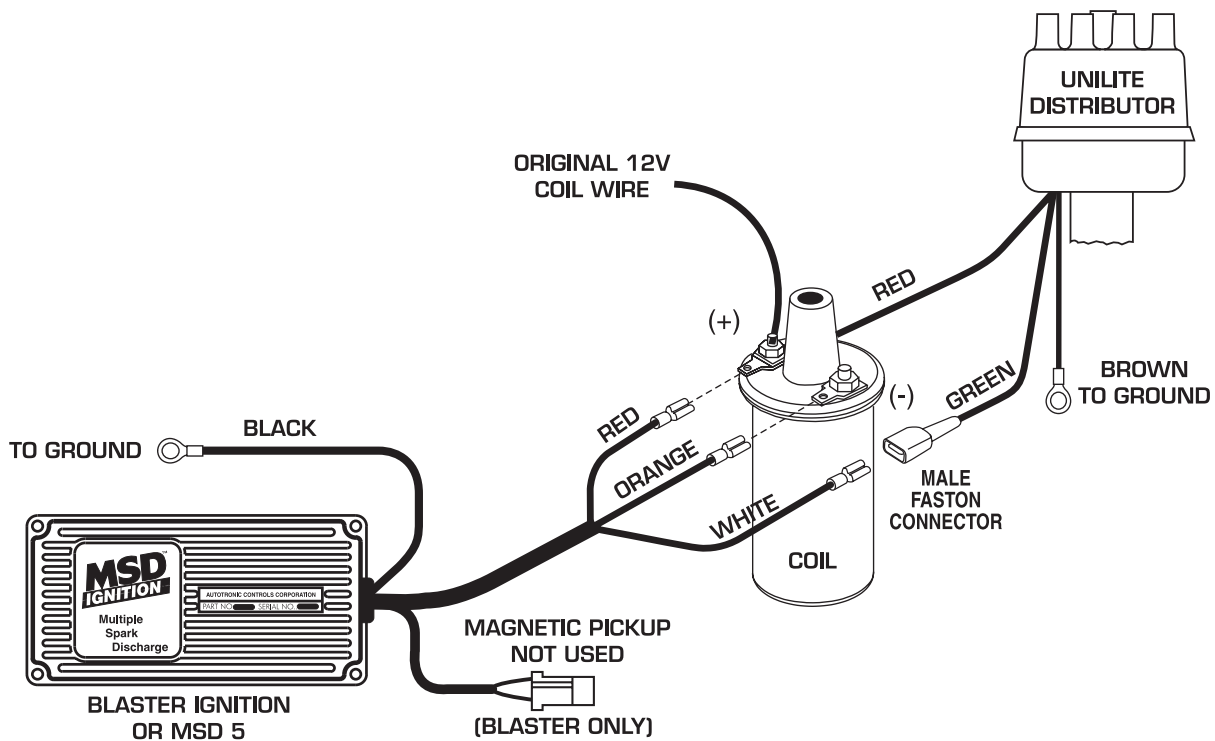
BLASTER/MSD 5 TO GM DUAL CONNECTOR, EXTERNAL COIL



BLASTER/MSD 5 TO FORD DURASPARK ELECTRONIC IGNITION



BLASTER/MSD 5 TO MALLORY UNILITE





INSTALLING AN MSD 6A, 6T, 6AL OR 6BTM IGNITION CONTROL

This section covers the installation of the MSD 6A, 6AL, 6BTM, 6T and the SCI Ignition Controls. These Ignition Controls feature capacitive discharge circuitry and multiple sparks. They will install to most vehicles with a 12 Volt electrical system and a distributor that is triggered with points, electronic amplifiers or magnetic pickups.

NOTE: An MSD 6 Series Ignition Control cannot be used with distributorless ignition systems. The DIS-2 and DIS-4 Ignition controls are designed for these systems.

Operating Specifications

Operating Voltage:	+12 - 18 volts, will run down to 5 volts	NOTE: MSD SCI Ignitions share the same wiring as the 6 Series.
Current Requirements:	5 amps @ 5,000 rpm 10 amps @ 10,000 rpm	
RPM Range:	15,000 rpm with 14.4 volt supply	
Spark Duration:	20 degrees (crankshaft rotation)	
Primary Voltage Output:	460 - 480 volts	
Weight and Size:	6A and SCI: 2.75lbs., 8"L x 3.5"W x 2.25"H 6T: 3lbs., 8"L x 3.5"W x 2.25"H 6AL and SCI-L: 3lbs., 8"L x 4"W x 2.25"H 6BTM: 3lbs., 8"L x 4"W x 2.25"H	

Wire Functions

- Power Cables:** The heavy red connects to the battery positive (+) terminal. The heavy Black connects to the battery negative (-) terminal or other good engine ground.
- Red:** Connects to a switched 12 volts source.
- 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 the only wire that makes electrical contact with the coil negative terminal.***
- White:** This is one of the wires that provides a trigger signal for the MSD. It connects to the breaker points, electronic ignition amplifier output or to the Yellow wire of an MSD timing accessory. When this wire is used, the Magnetic connector is not (Violet and Green wires).
- Violet and Green:** These wires are routed together in one harness to form the magnetic pickup connector. They plug directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When they are used, the White wire is not.

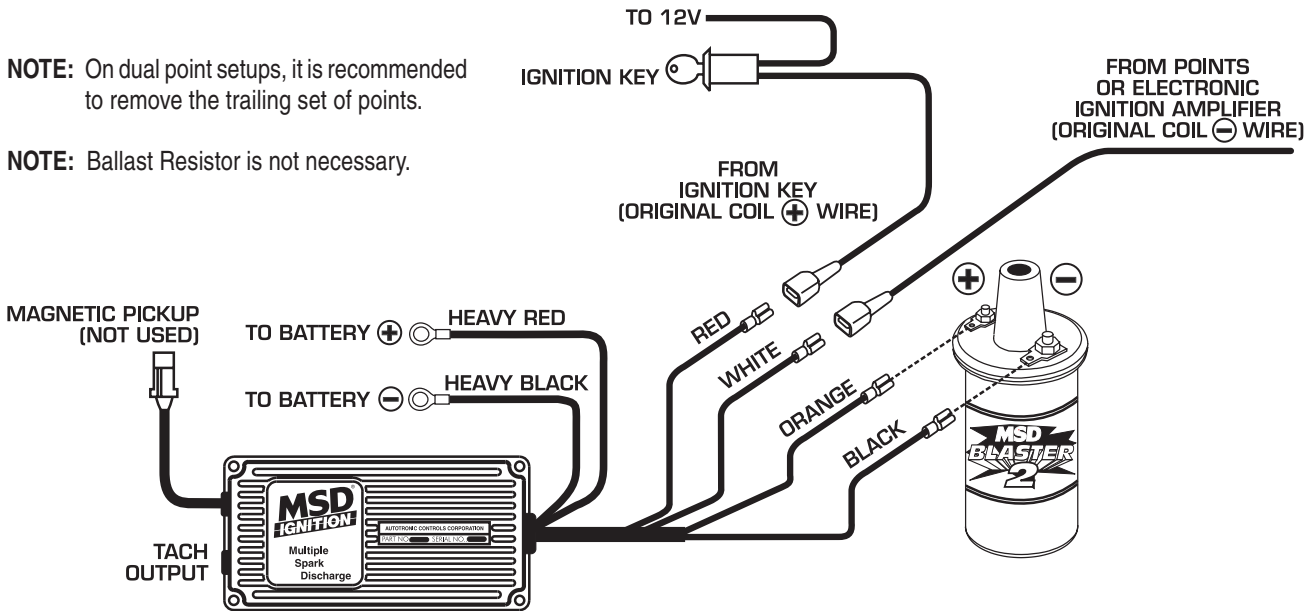
WARNING: When using a capacitive discharge ignition control, there is high voltage present at the coil primary terminals. Never touch the coil or connect test equipment to these terminals.

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

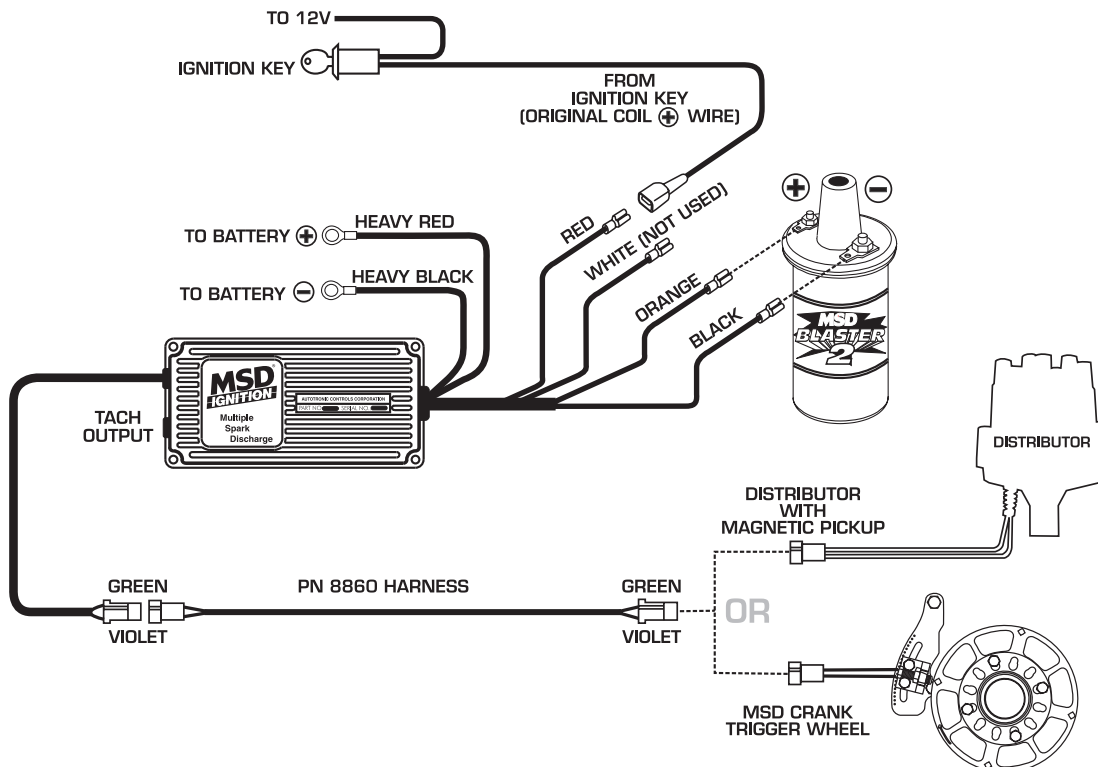
MSD 6 SERIES TO POINTS/AMPLIFIER

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

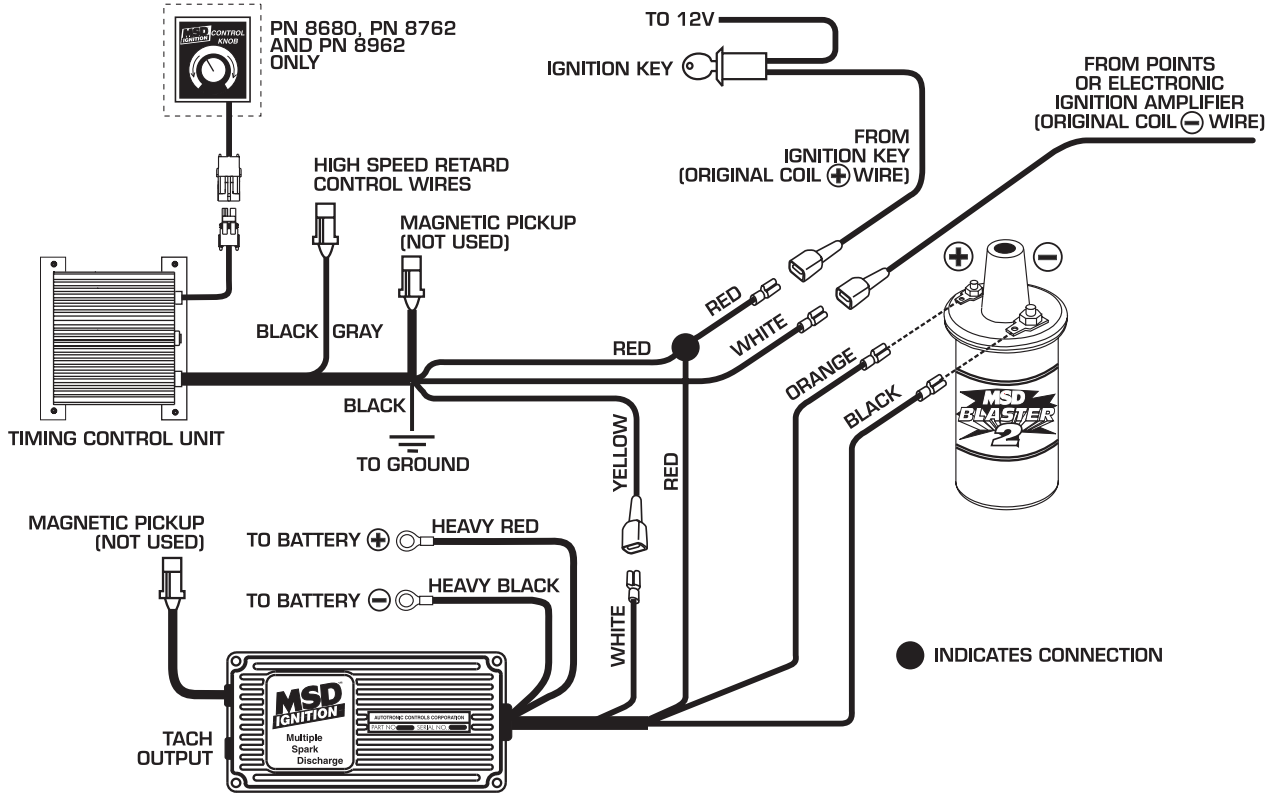
NOTE: Ballast Resistor is not necessary.



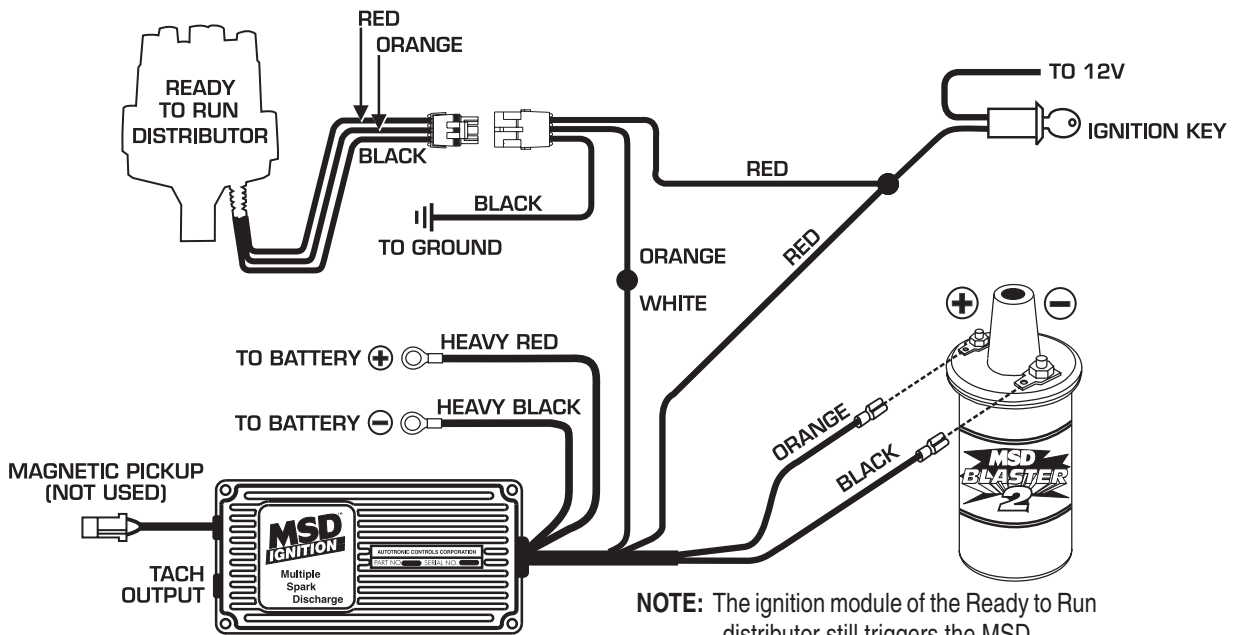
MSD 6 SERIES TO AN MSD DISTRIBUTOR OR CRANK TRIGGER



MSD 6 SERIES WITH AN MSD TIMING ACCESSORY



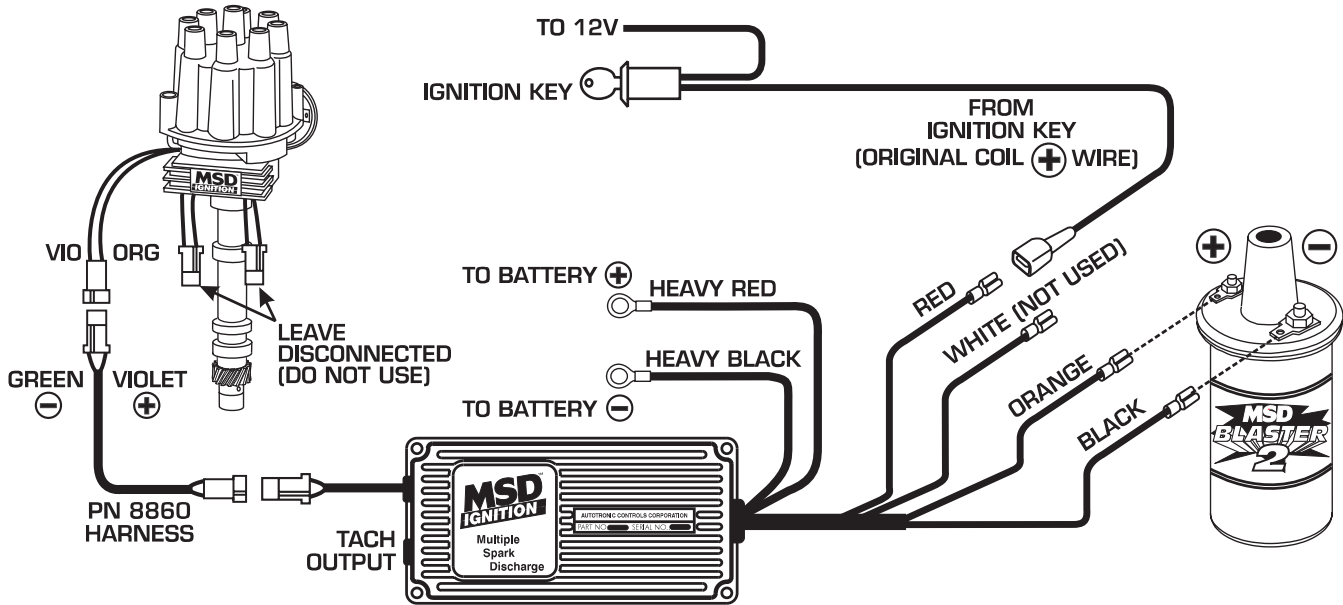
MSD 6 SERIES TO AN MSD READY-TO-RUN DISTRIBUTOR



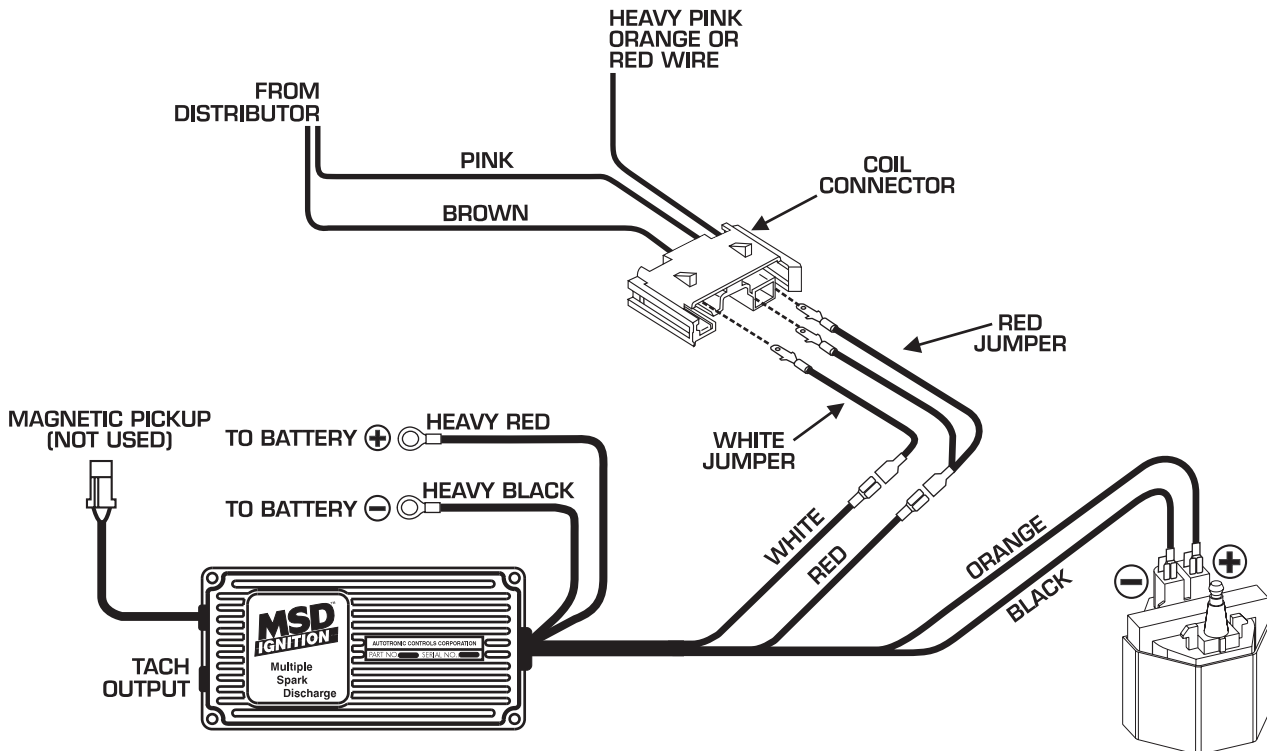
● INDICATES CONNECTION

MSD 6 SERIES TO AN MSD PN 8460 DISTRIBUTOR

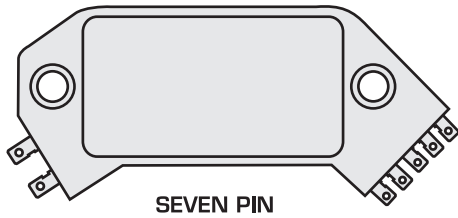
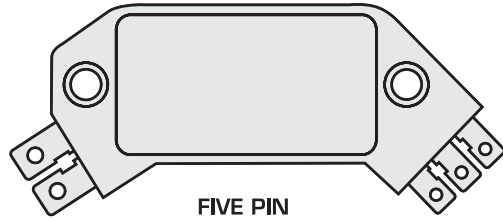
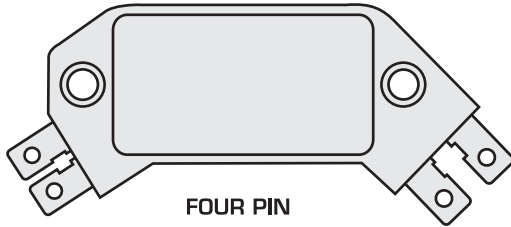
NOTE: The PN 8460 distributor has been discontinued.



MSD 6 SERIES TO EARLY GM SINGLE CONNECTOR COIL



MSD AND LARGE CAP GM HEI DISTRIBUTORS



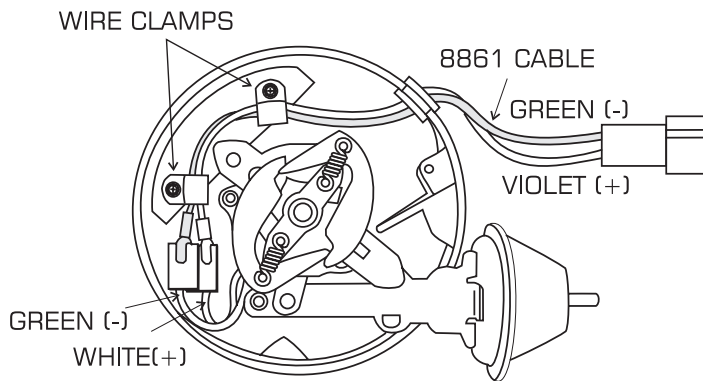
There are three different large cap HEI distributors. To identify which of the following diagrams fit your specific application, remove the distributor cap and rotor and locate the ignition module at the base of the distributor. Count the number of terminals on both ends of the module and follow the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

NOTE: Some 5-pin models may experience a hesitation or stall on deceleration. If this occurs, contact MSD Tech Line for the required bolt-in diode to correct the problem. MSD Tech Line (915) 855-7123

THE MSD 6 SERIES TO GM HEI 4-PIN MODULE

If the distributor has a 4-pin module, the module must be removed and the MSD will use the magnetic pickup to trigger the ignition. A harness, PN 8861, is required for this installation.

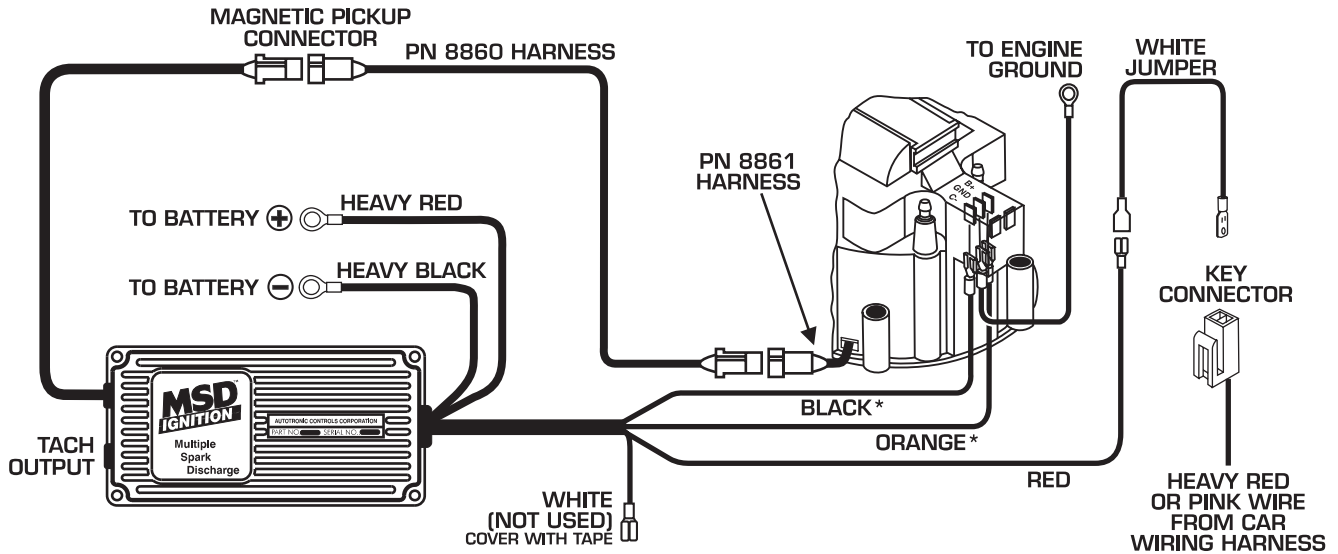
CONNECTING THE PN 8861 CABLE TO THE GM HEI MAGNETIC PICKUP



NOTE: The PN 8861 cable is supplied with the MSD 6 Series.

1. Remove the distributor cap and rotor.
2. Disconnect the connector with the white and green wires from the module, and remove the module, condenser and cable from the distributor.
3. Install the PN 8861 cable as shown using the module mounting screws and the wire clamps supplied in the MSD Parts kit. Push the two tabs on the PN 8861 cable into the connector from the HEI magnetic pickup (Green to Green, Violet to White). Notice that the tabs are different sizes so they can be installed one way only.
4. Reinstall the cap and rotor and connect the MSD Ignition control as shown in the next diagram.

MSD 6 SERIES TO GM HEI 4-PIN MODULE

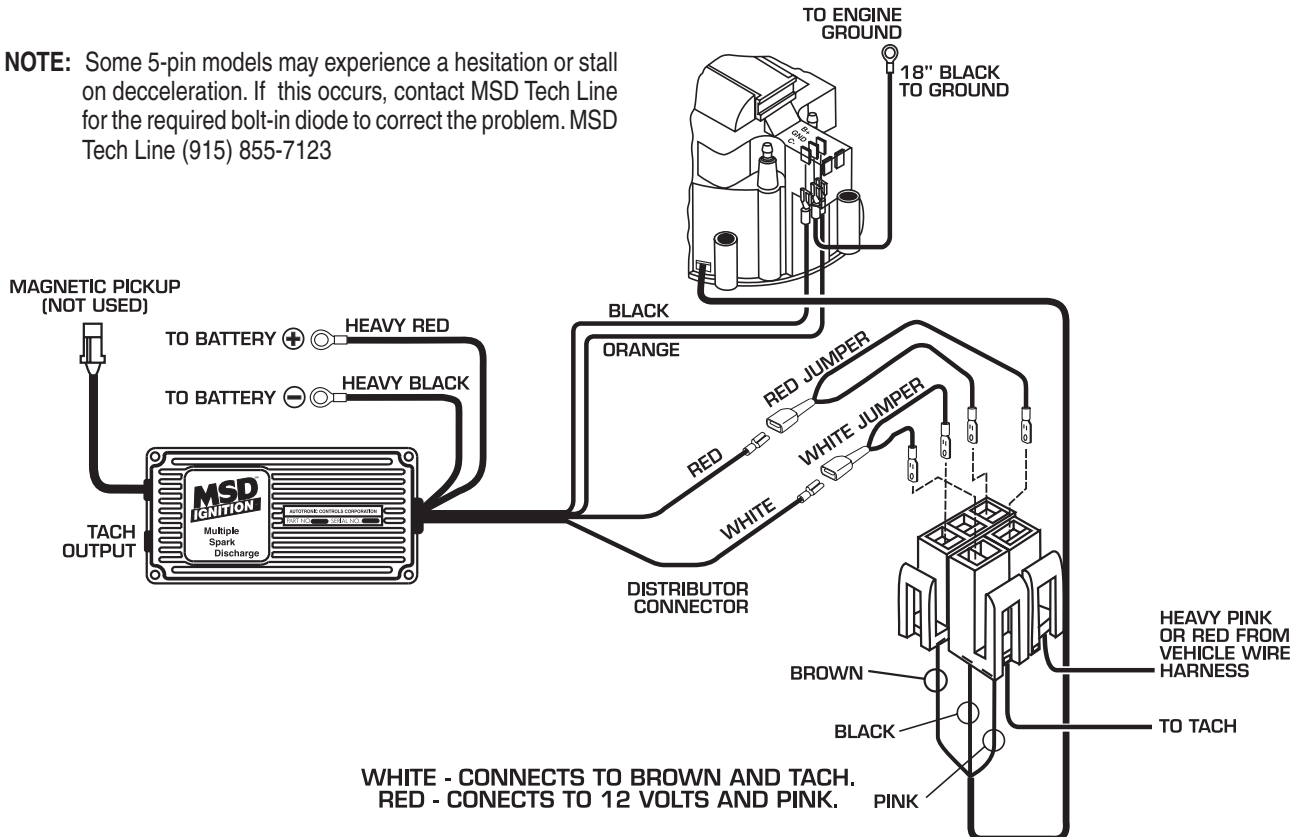


* ORANGE - CONNECTS TO B+
 * BLACK - CONNECTS TO C-

NOTE: The GM Ignition Module is removed and replaced with the MSD PN 8861 Wire Harness. See page 27.

MSD 6 SERIES TO GM HEI 5 OR 7-PIN MODULE

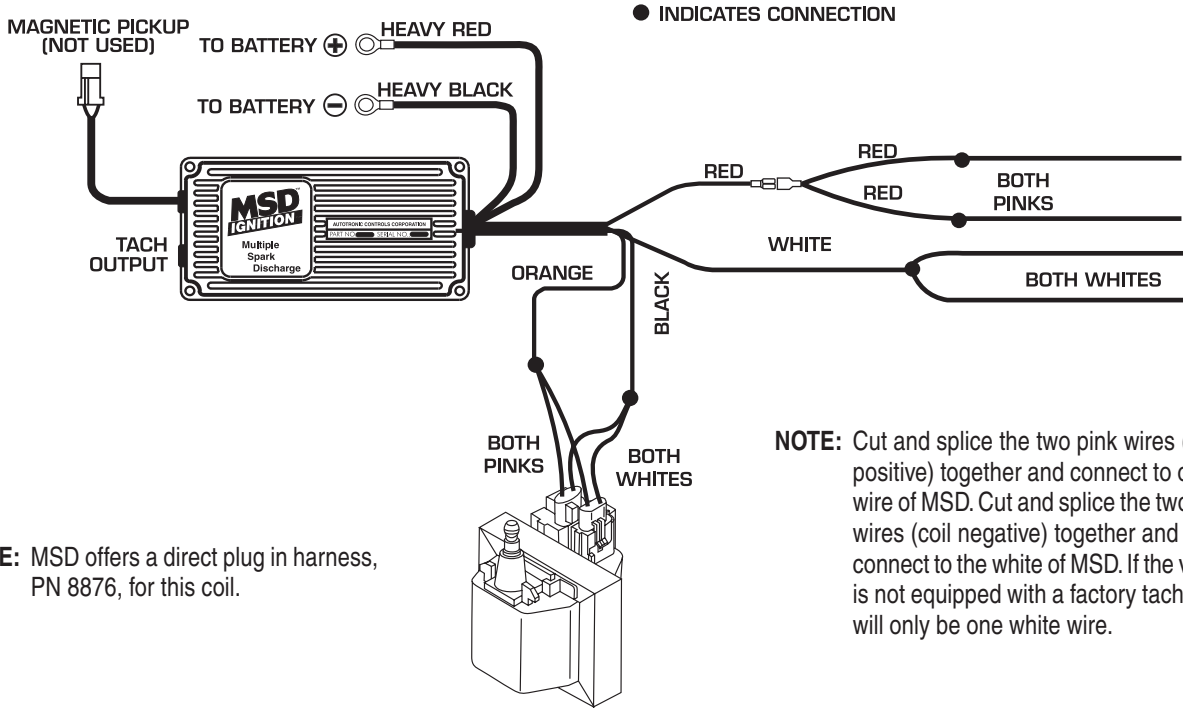
NOTE: Some 5-pin models may experience a hesitation or stall on deceleration. If this occurs, contact MSD Tech Line for the required bolt-in diode to correct the problem. MSD Tech Line (915) 855-7123



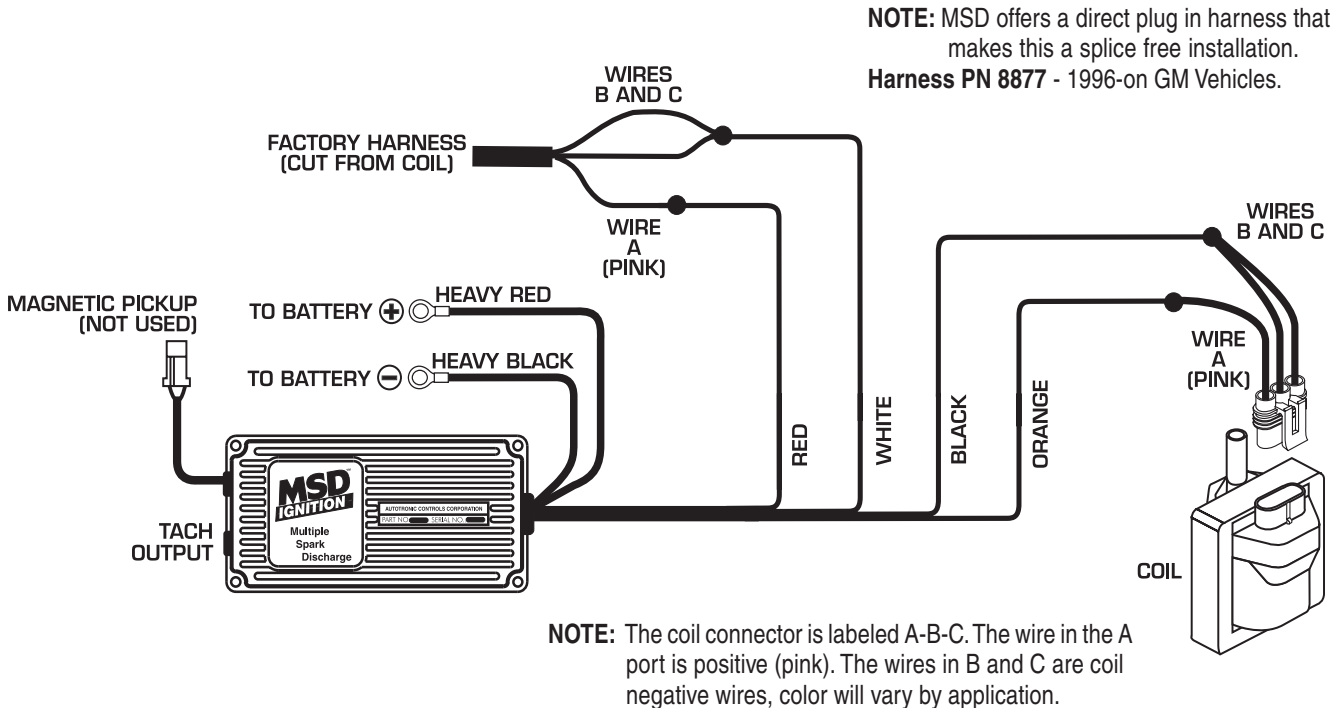
WHITE - CONNECTS TO BROWN AND TACH.
 RED - CONNECTS TO 12 VOLTS AND PINK.



MSD 6 SERIES TO GM DUAL CONNECTOR COIL

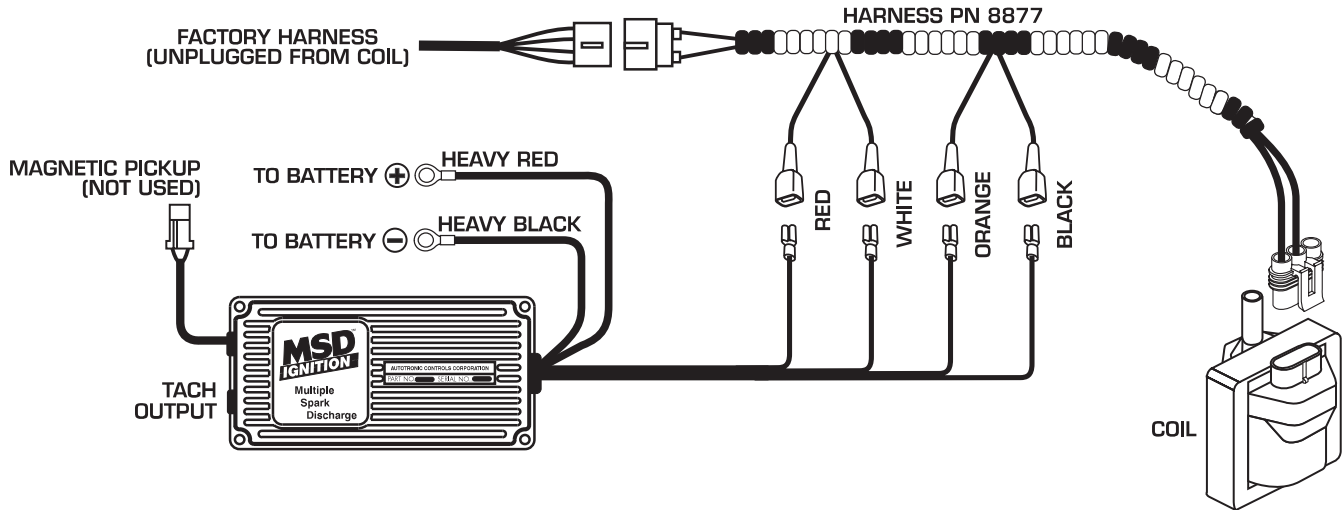


MSD 6 SERIES TO '96 AND UP SINGLE CONNECTOR COIL



MSD 6 SERIES WITH GM HARNESS

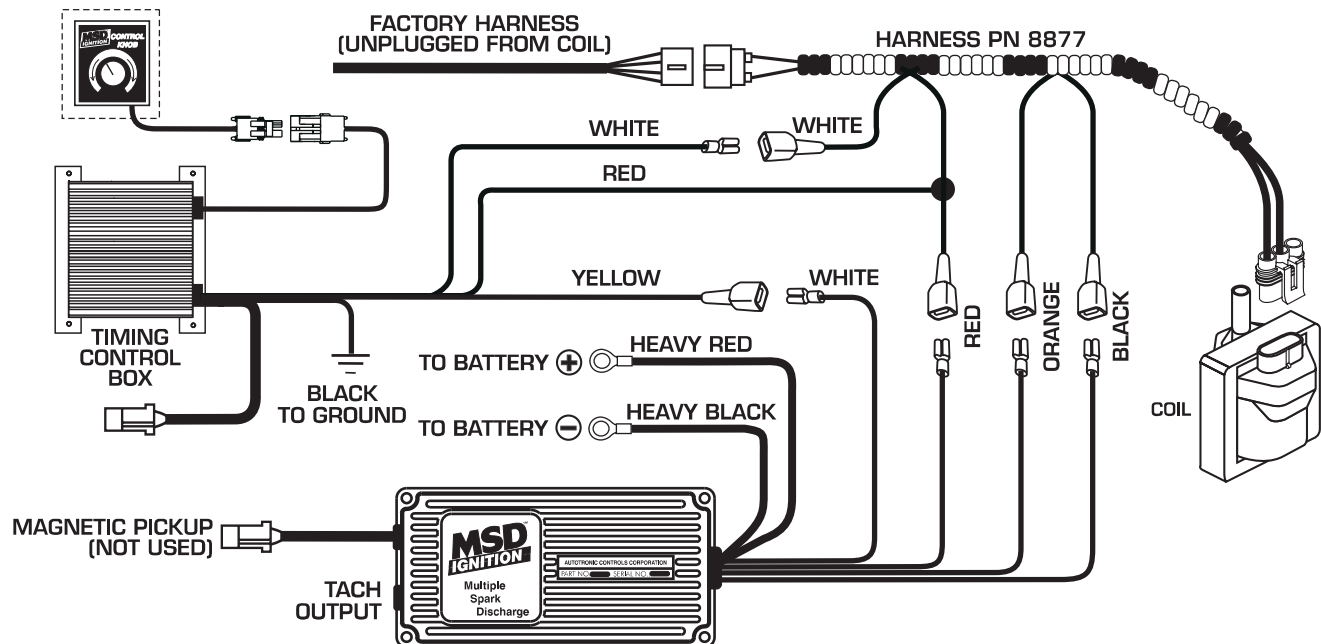
Harness PN 8876 - Dual Connector Coil.
 Harness PN 8877 - 1996-on GM Vehicles.



MSD 6 SERIES WITH GM HARNESS AND TIMING CONTROL

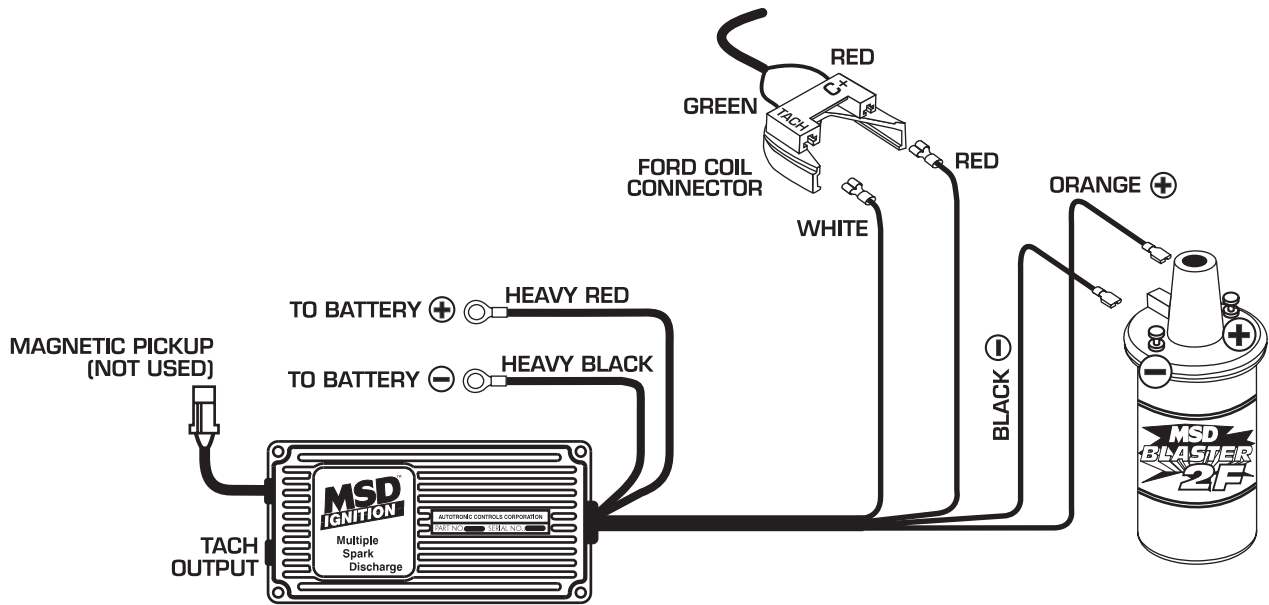
PN 8680, PN 8762
 AND PN 8962 ONLY

Harness PN 8876 - Dual Connector Coil.
 Harness PN 8877 - 1996-on GM Vehicles.

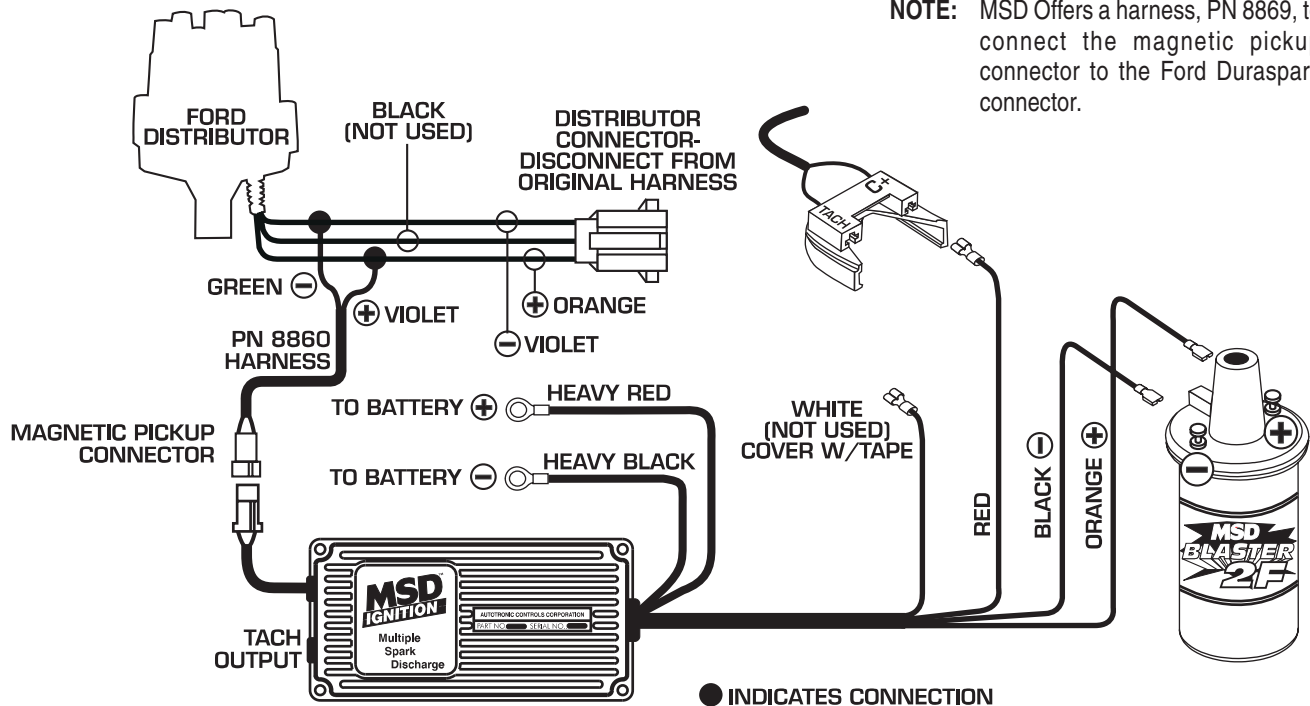




MSD 6 SERIES TO FORD DURASPARK USING POINTS TRIGGER

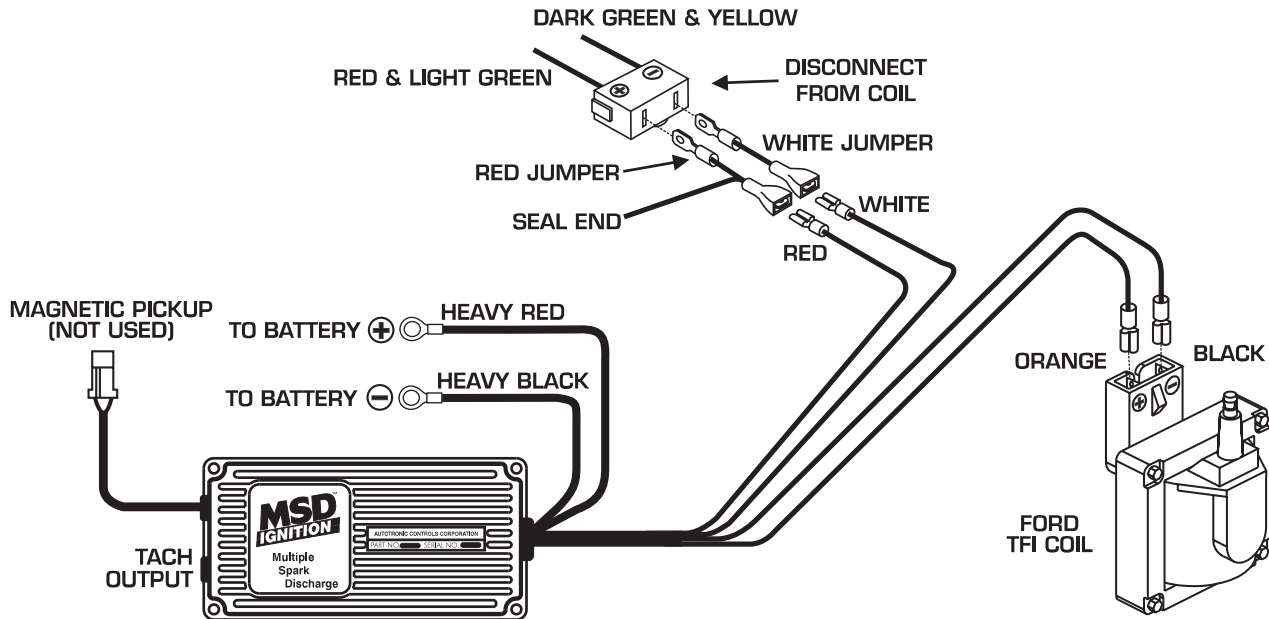


MSD 6 SERIES TO FORD DURASPARK USING MAGNETIC PICKUP

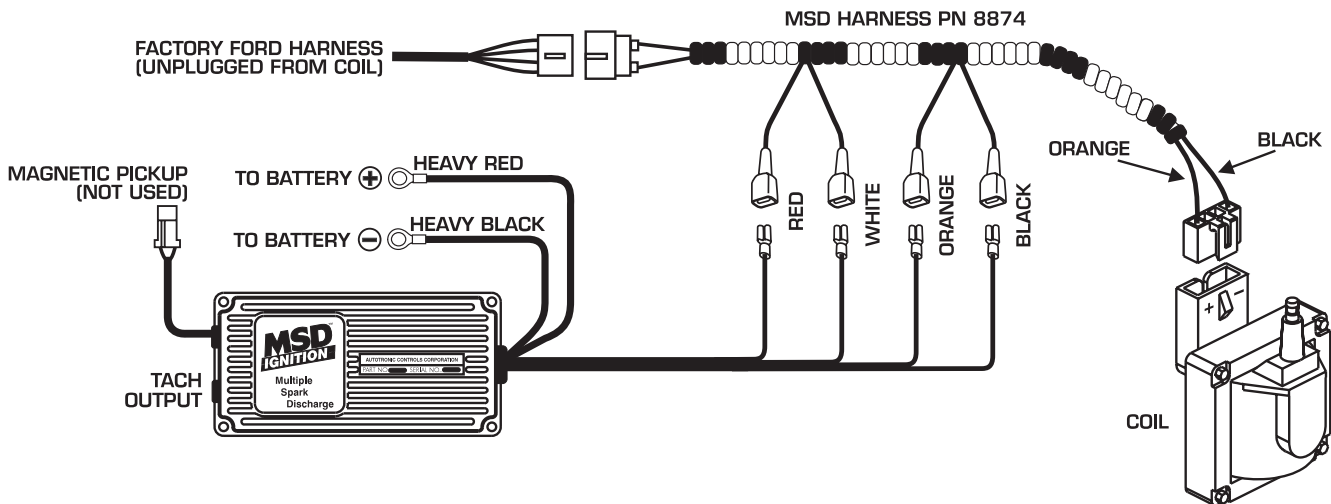


NOTE: MSD Offers a harness, PN 8869, to connect the magnetic pickup connector to the Ford Duraspark connector.

MSD 6 SERIES TO FORD TFI COIL (WITHOUT HARNESS)

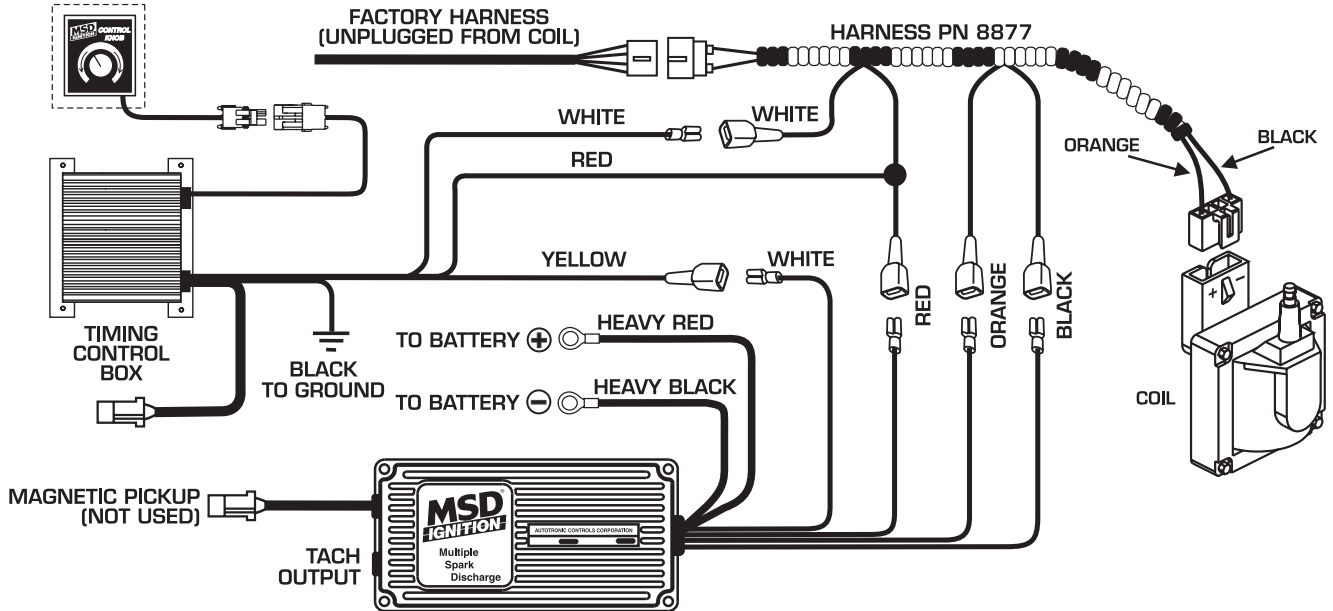


MSD 6 SERIES TO FORD TFI COIL WITH HARNESS, PN 8874

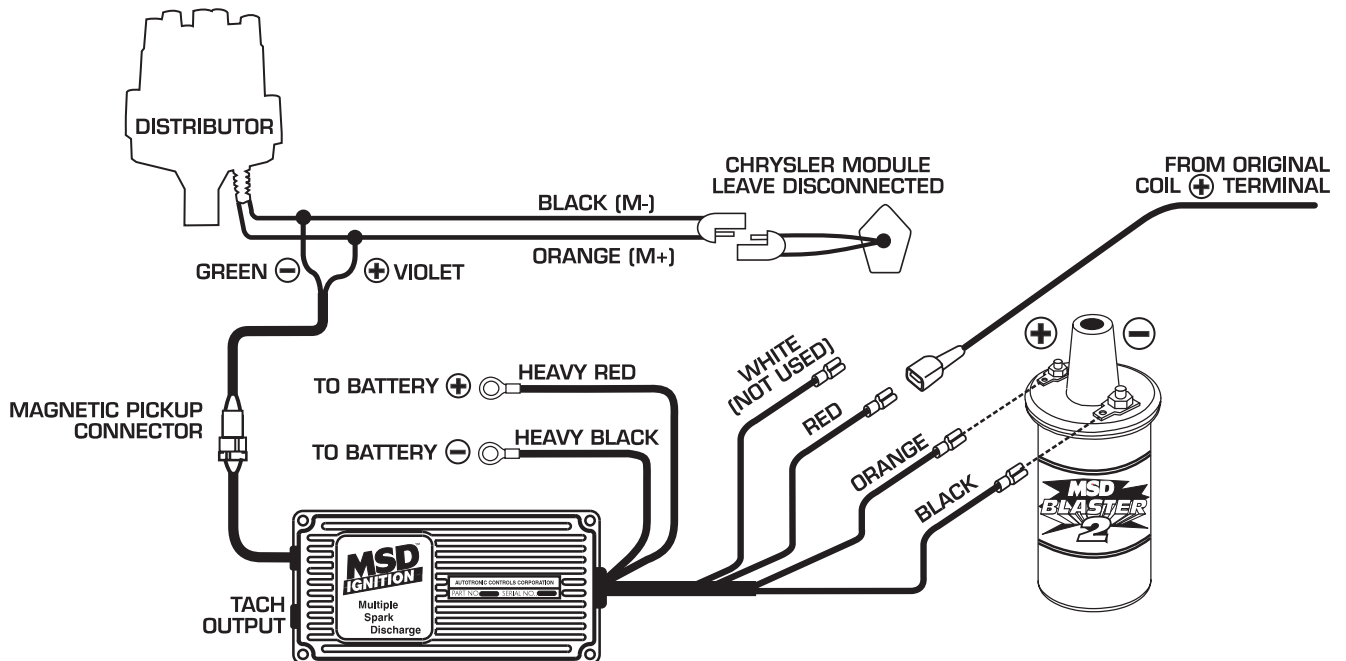


MSD 6 SERIES WITH FORD TFI HARNESS AND TIMING CONTROL

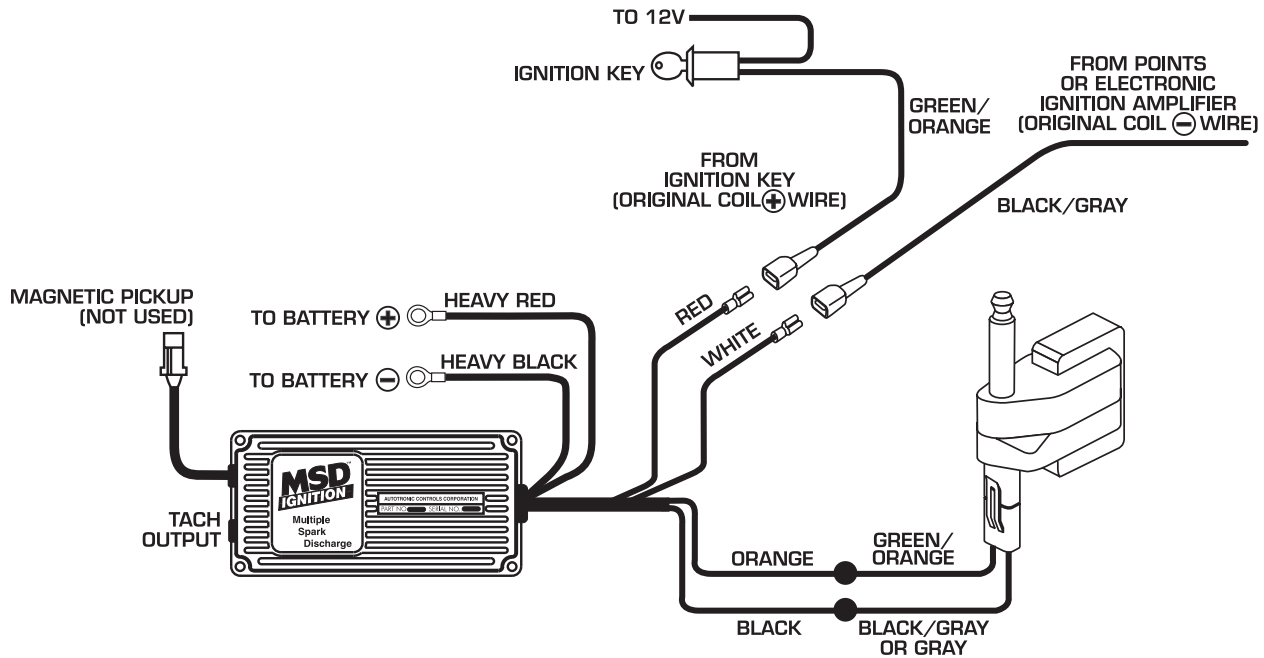
PN 8680, PN 8762 AND PN 8962 ONLY



MSD 6 SERIES TO CHRYSLER ELECTRONIC IGNITION USING MAGNETIC PICKUP

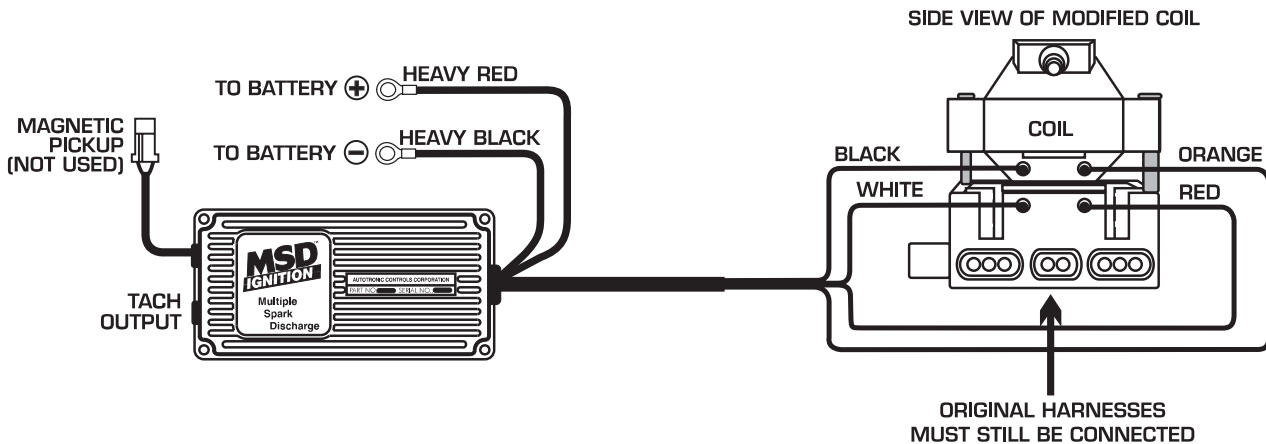


MSD 6 SERIES TO LATE MODEL DODGE WITH 2-PIN COIL

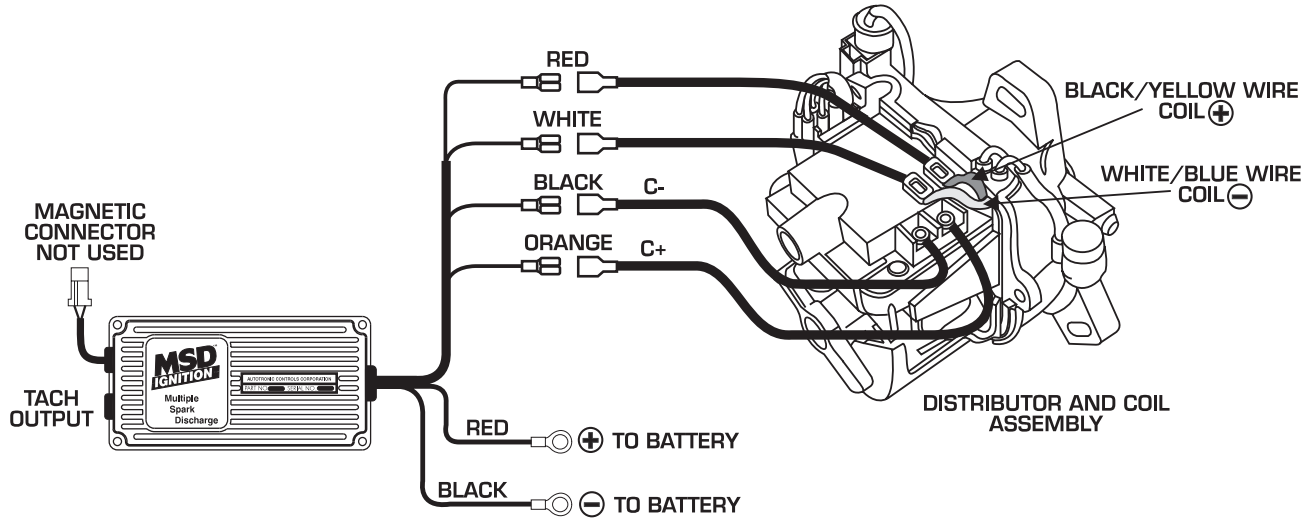


MSD 6 SERIES TO JEEP WITH INTEGRATED COIL/MODULE ASSEMBLY

MSD offers a Wiring Kit, PN 8813, that allows you to modify the original Jeep Ignition Module/Coil assembly. The drawing shows the installation with the coil already modified.

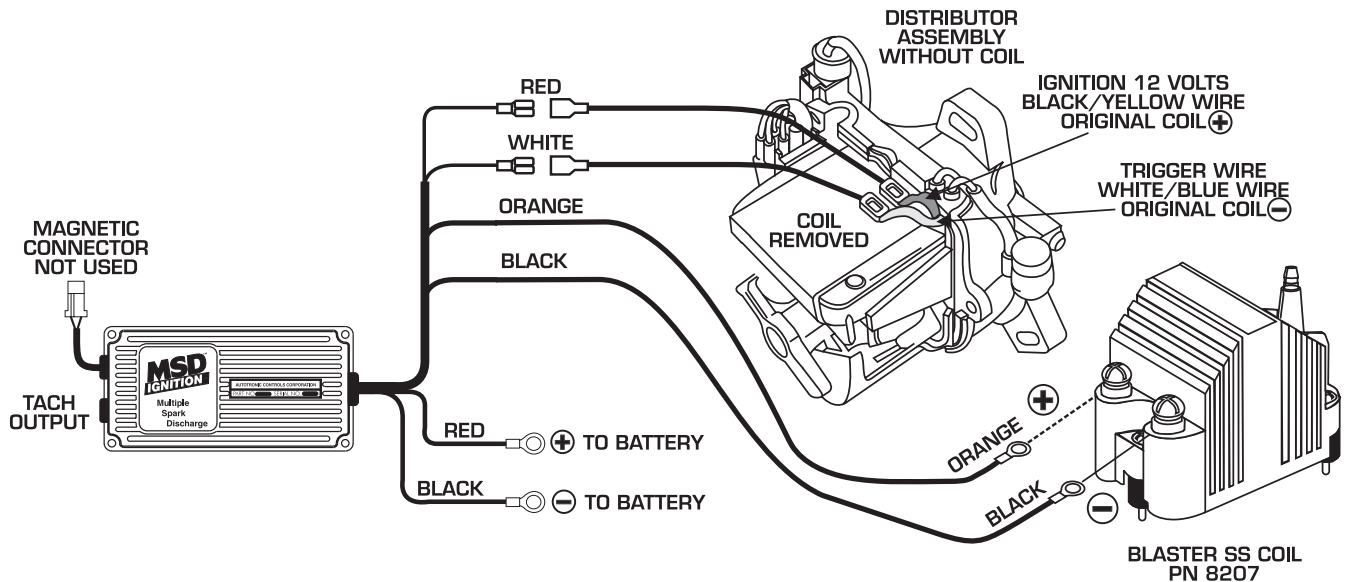


MSD 6 AND SCI SERIES TO HONDA/ACURA WITH INTERNAL COIL

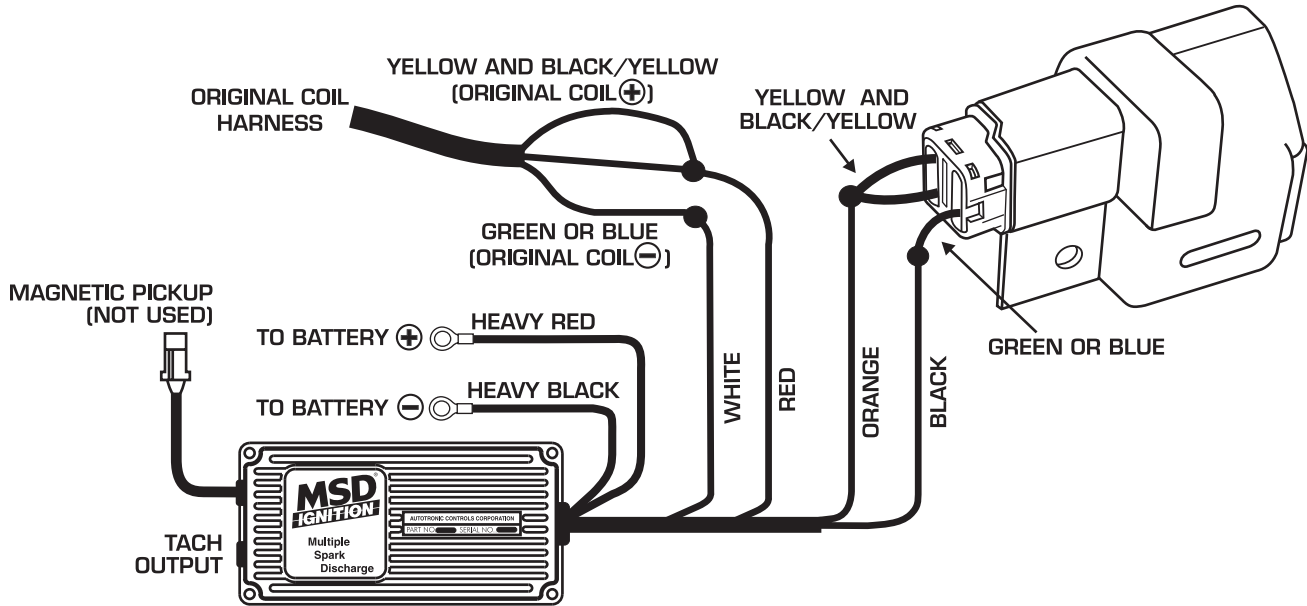


MSD 6 AND SCI SERIES TO HONDA/ACURA WITH BLASTER COIL AND POWER CAP

NOTE: MSD offers a variety of Honda Distributor Caps that accept an external coil wire.

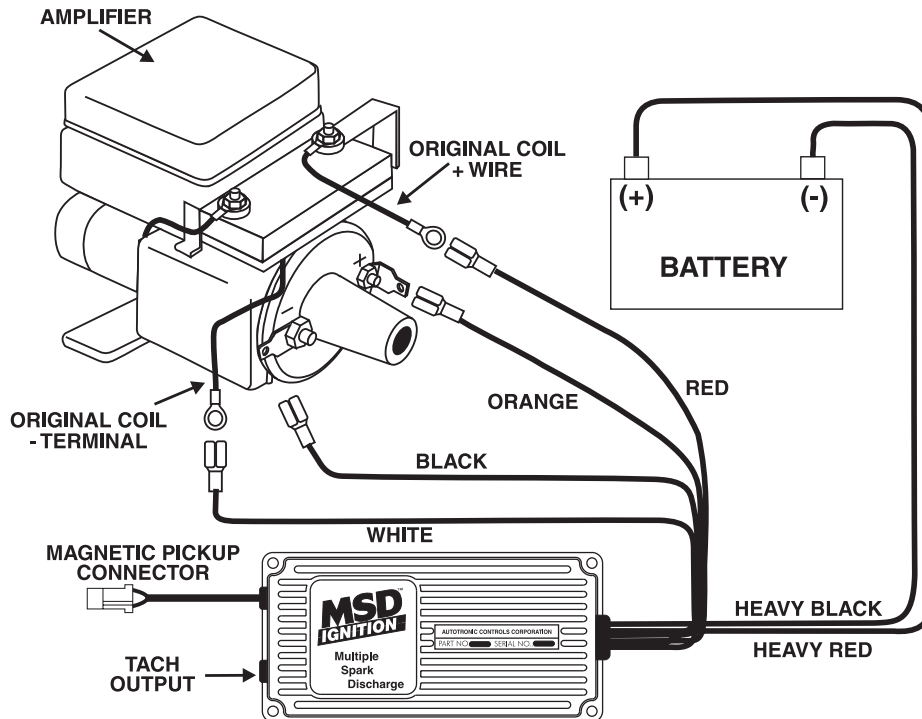


MSD 6 AND SCI SERIES TO FACTORY EXTERNAL COIL HONDA/ACURA

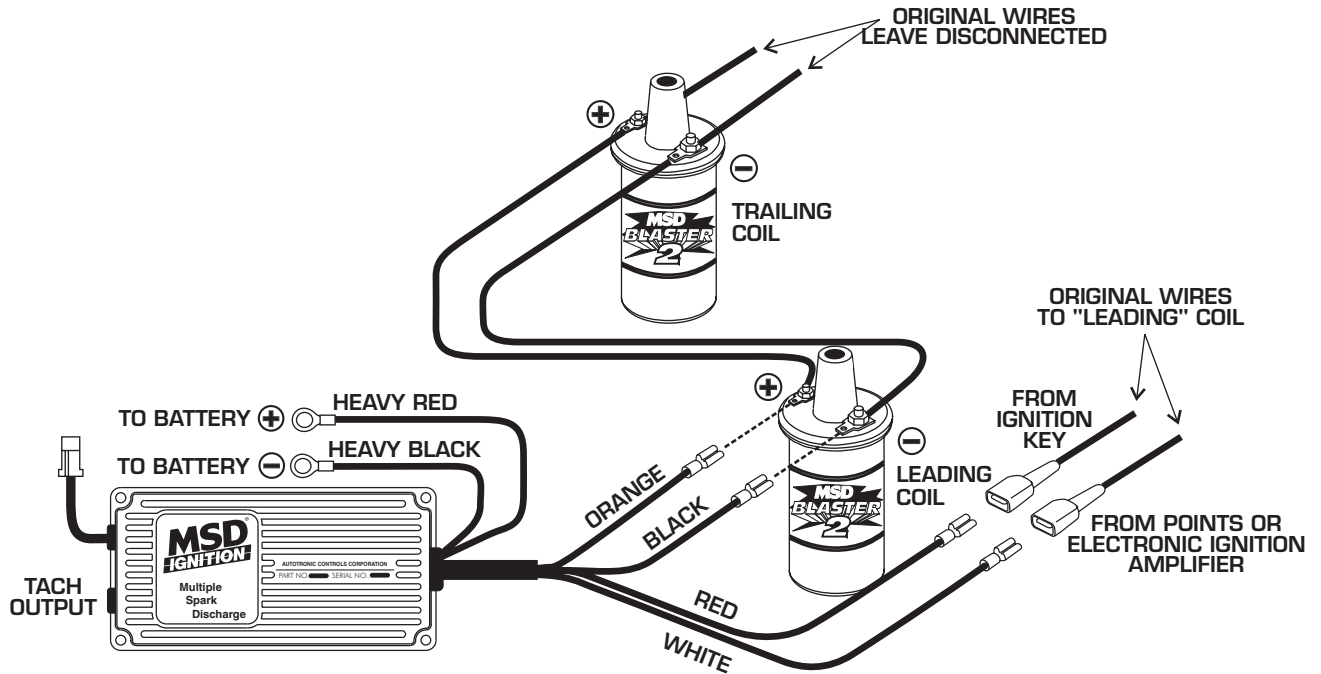


MSD 6 AND SCI SERIES TO GENERAL IMPORT WIRING

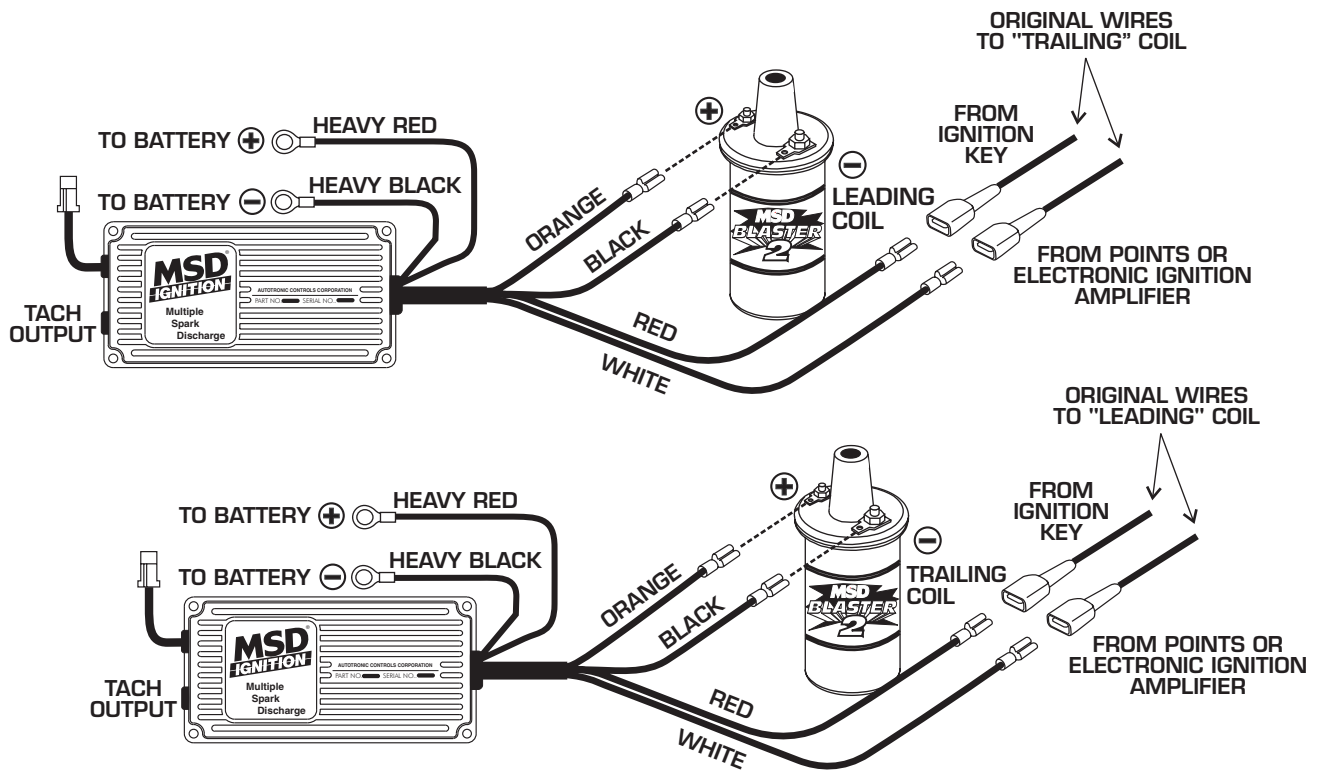
NOTE: Remove the coil terminal wires. The negative wire connects to MSD White. The positive wire connects to MSD small Red. The MSD Orange connects to the coil positive terminal, Black connects to the coil negative terminal.



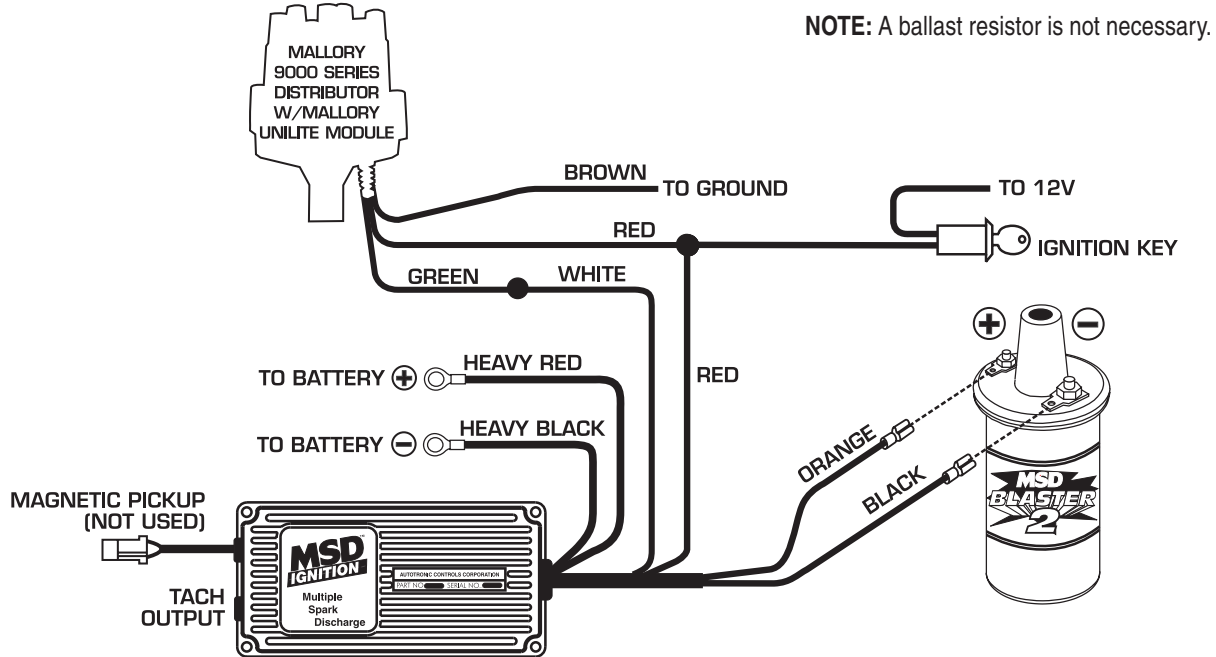
MSD 6 SERIES TO MAZDA ROTARY WITH SINGLE MSD UNIT



MSD 6 SERIES TO MAZDA ROTARY WITH TWO MSD UNITS

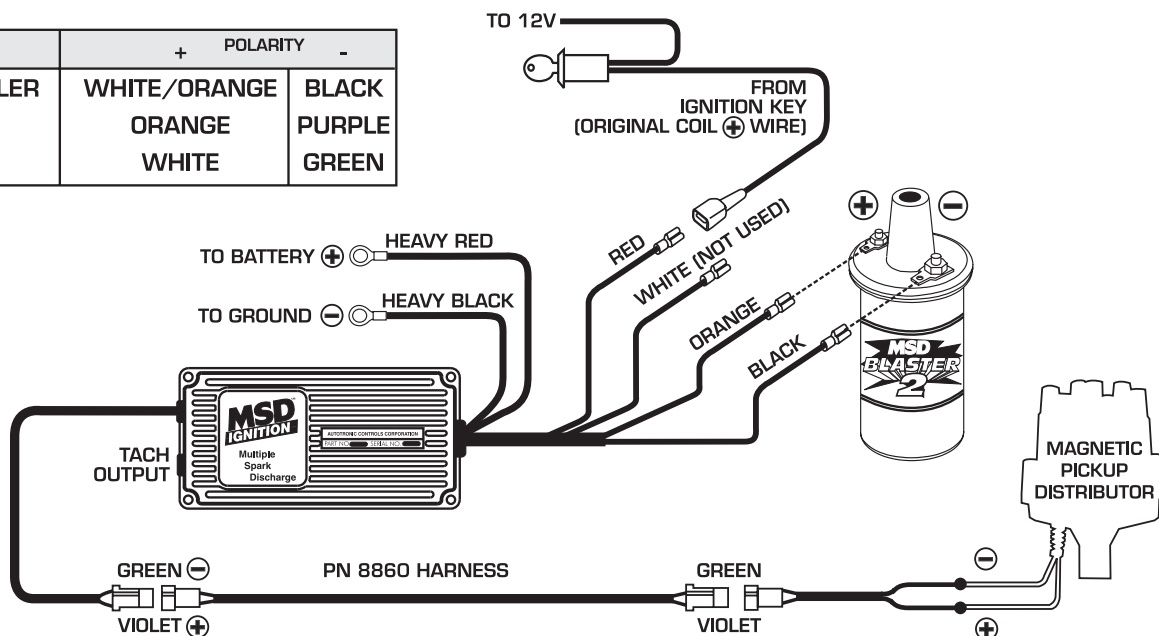


MSD 6 SERIES TO MALLORY UNILITE DISTRIBUTOR



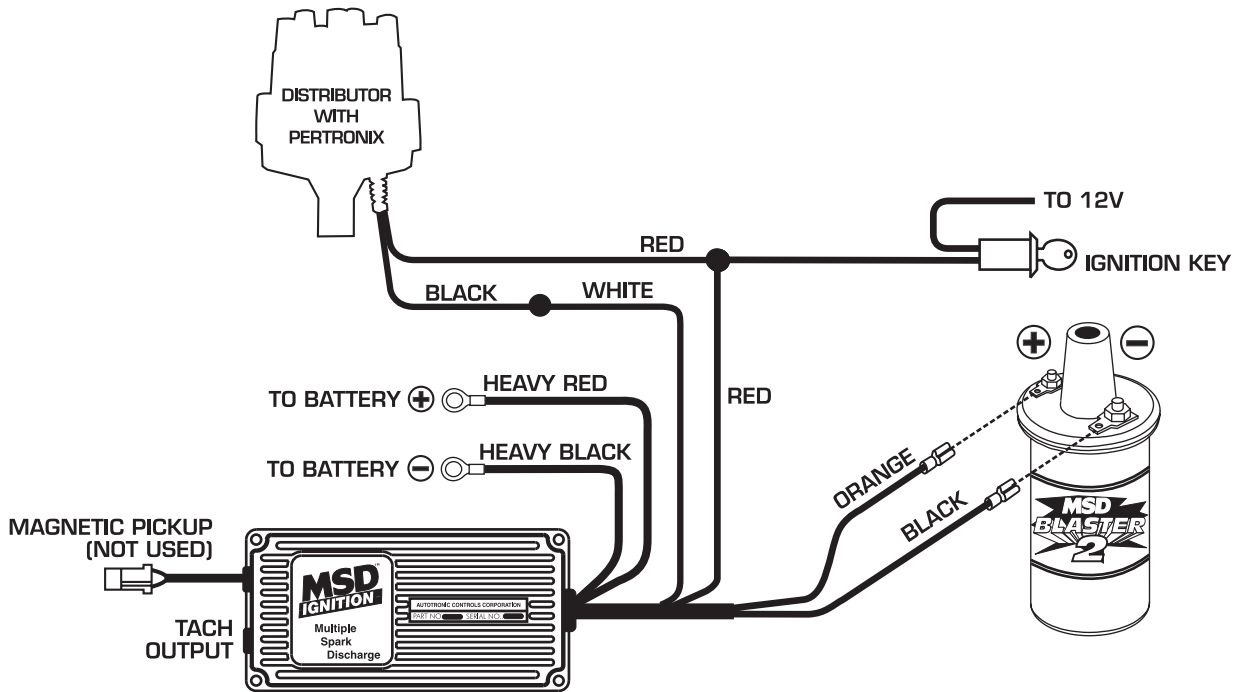
MSD 6 SERIES TO OTHER MAGNETIC PICKUP DISTRIBUTORS

MAKE	POLARITY	
	+	-
CHRYSLER	WHITE/ORANGE	BLACK
FORD	ORANGE	PURPLE
GM	WHITE	GREEN

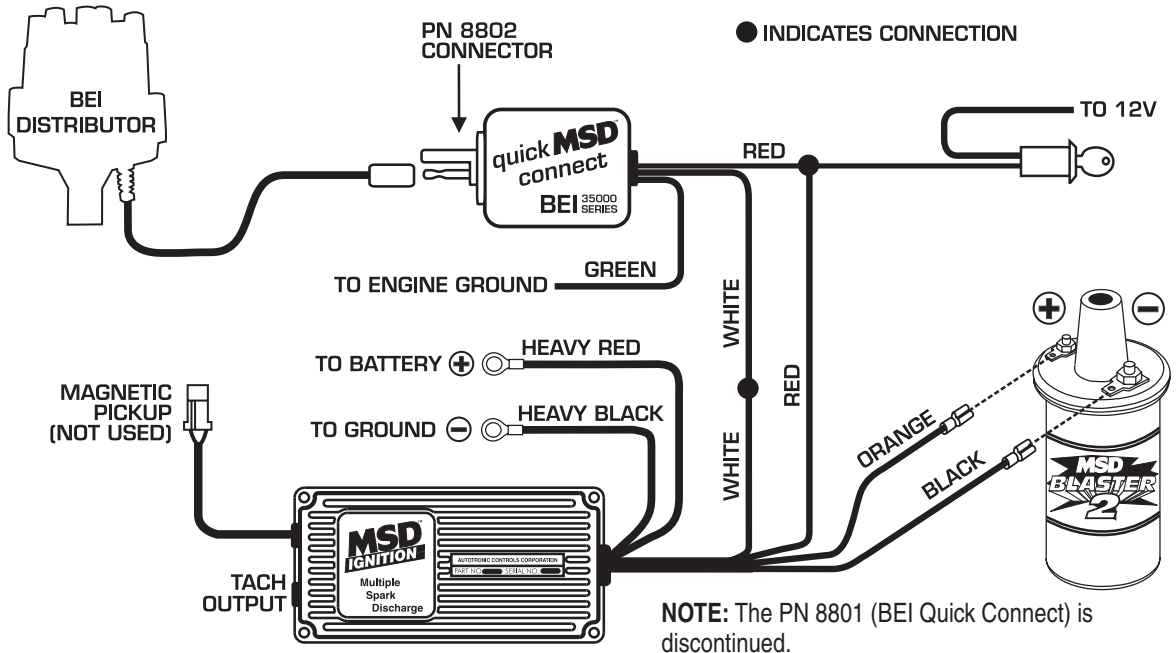




MSD 6 SERIES TO PERTRONIX KIT



MSD 6 SERIES TO ACCEL BEI DISTRIBUTOR



If you did not find a schematic to match your application, or if you need assistance, please contact MSD Tech at (915) 855-7123.

INSTALLING MSD 6TN, 6ALN AND 6HVC DUAL RACE IGNITIONS

This section covers how to wire redundant ignition systems featuring the MSD 6TN, 6ALN, GM Heavy Duty Ignition and the 6 HVC Professional Ignition. These ignitions are designed primarily for circle track and road course racing where running a redundant ignition system is commonplace.

These Ignition Controls feature NASCAR approved Weathertight connectors, a clear baseplate for easy tech inspection and a clear silicone potting for added vibration protection.

There are many different options when running a redundant ignition. MSD also offers several components such as Dual Pickup Distributors and an Automatic Coil Selector for these systems.

Operating Specifications	6TN, 6ALN, GM	6 HVC
Operating Voltage:	10-18 Volts	10-18 Volts
Current Requirements:	1 Amp per 1,000 rpm	.7 Amps per 1,000 rpm
RPM Range:	15,000 w/ 14.4 Volts	15,000 w/ 14.4 Volts
Spark Series Duration:	20° Crankshaft	20° Crankshaft
Primary Voltage:	460-480 Volts	550 Volts
Energy Output Maxes:	105-115 Millijoules	150 Millijoules

NOTE: The 6-HVC Ignition must be used with the HVC Coil, PN 8250.

Wire Functions

Power Cables: The heavy red connects to the battery positive (+) terminal. The heavy Black connects to the battery negative (-) terminal or other good engine ground.

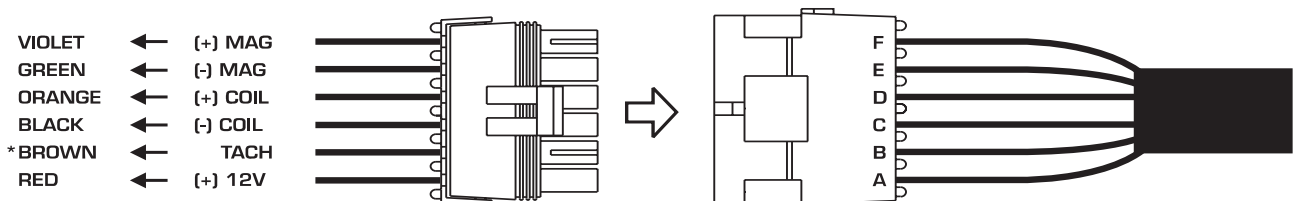
Red: Connects to a switched 12 volts source.

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 the only wire that makes electrical contact with the coil negative terminal.***

White: This is one of the wires that provides a trigger signal for the MSD. It connects to the breaker points, electronic ignition amplifier output or to the Yellow wire of an MSD timing accessory. When this wire is used, the Magnetic pickup wires are not (Violet and Green wires).

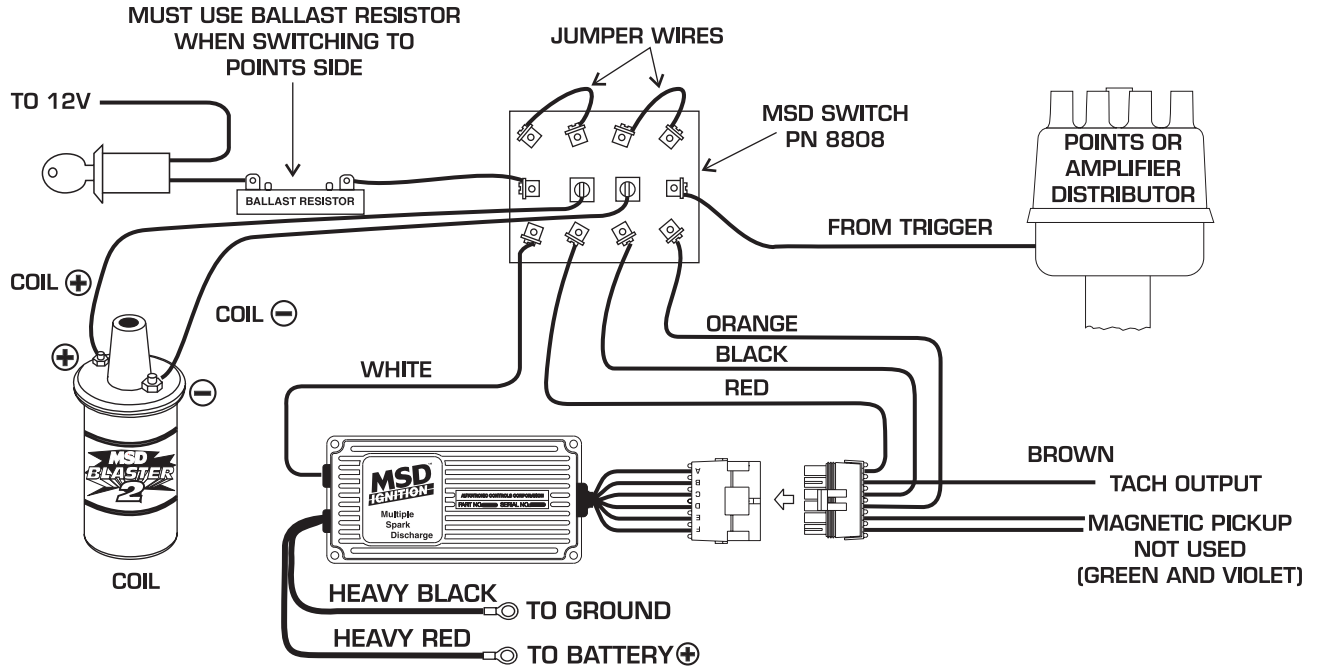
Violet and Green: These wires are routed together in one harness to form the magnetic pickup connector. They plug directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When they are used, the White wire is not.



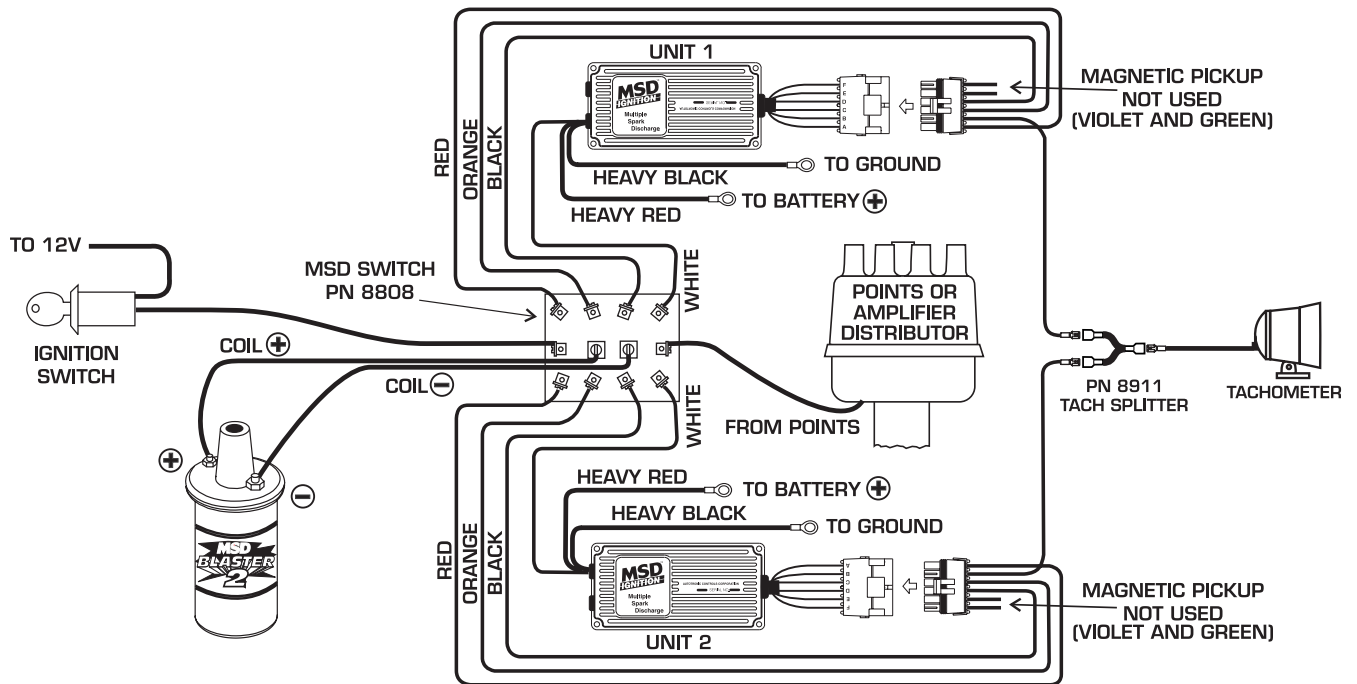
* THIS WIRE IS WHITE ON GM IGNITIONS AND IS BROWN ON THE MSD. THIS WIRE GOES TO THE TACH.

* GM HEAVY DUTY IGNITIONS DO NOT HAVE A POINTS TRIGGER WIRE.

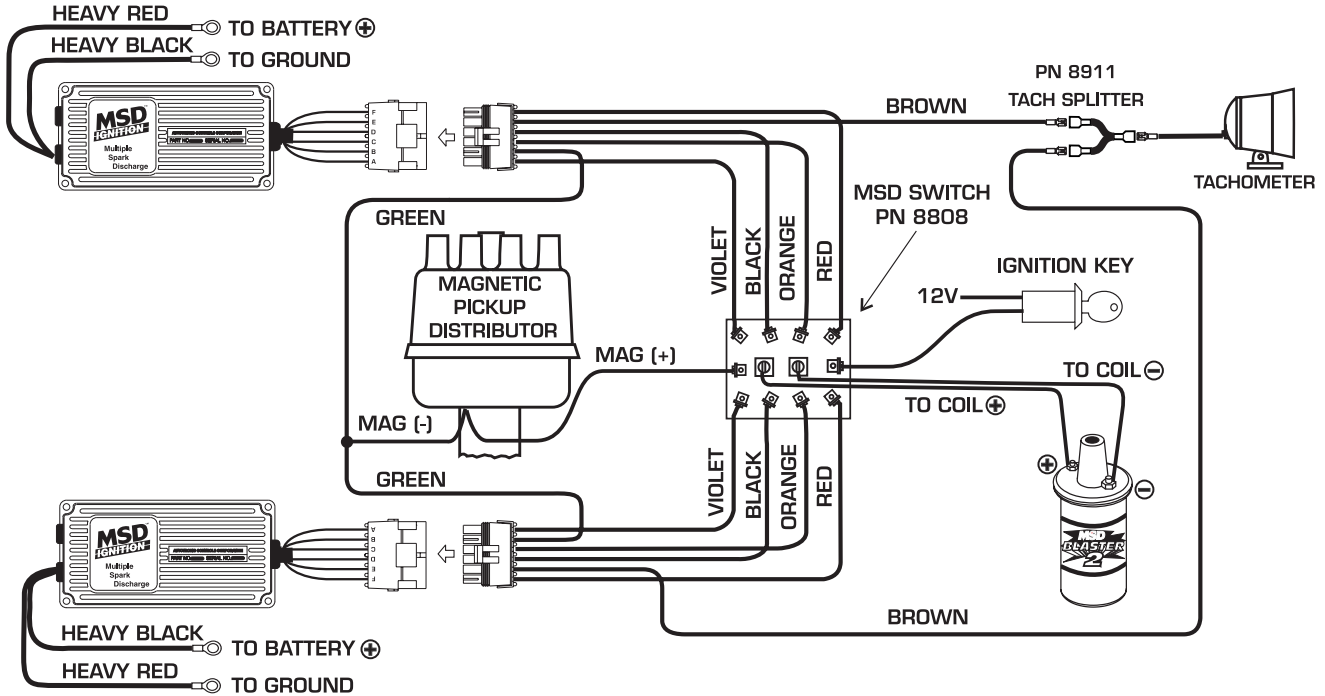
SWITCHING BETWEEN POINTS/AMPLIFIER AND MSD



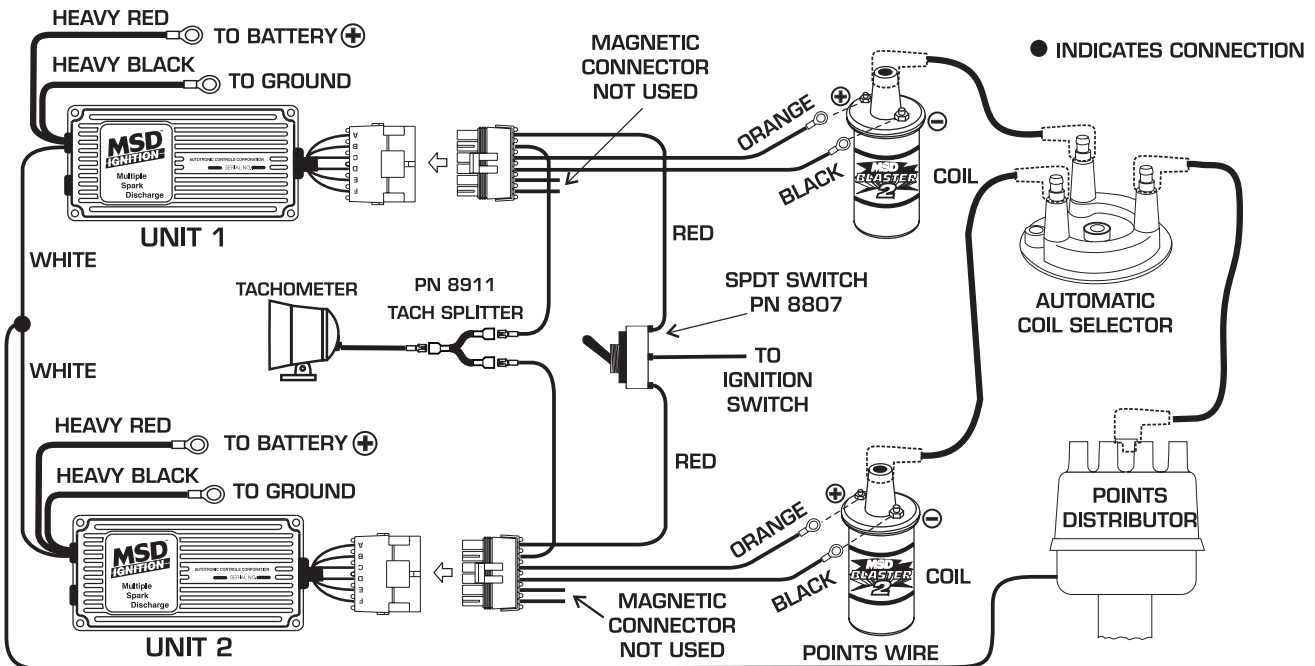
TWO MSD 6 SERIES WITH A POINTS DISTRIBUTOR



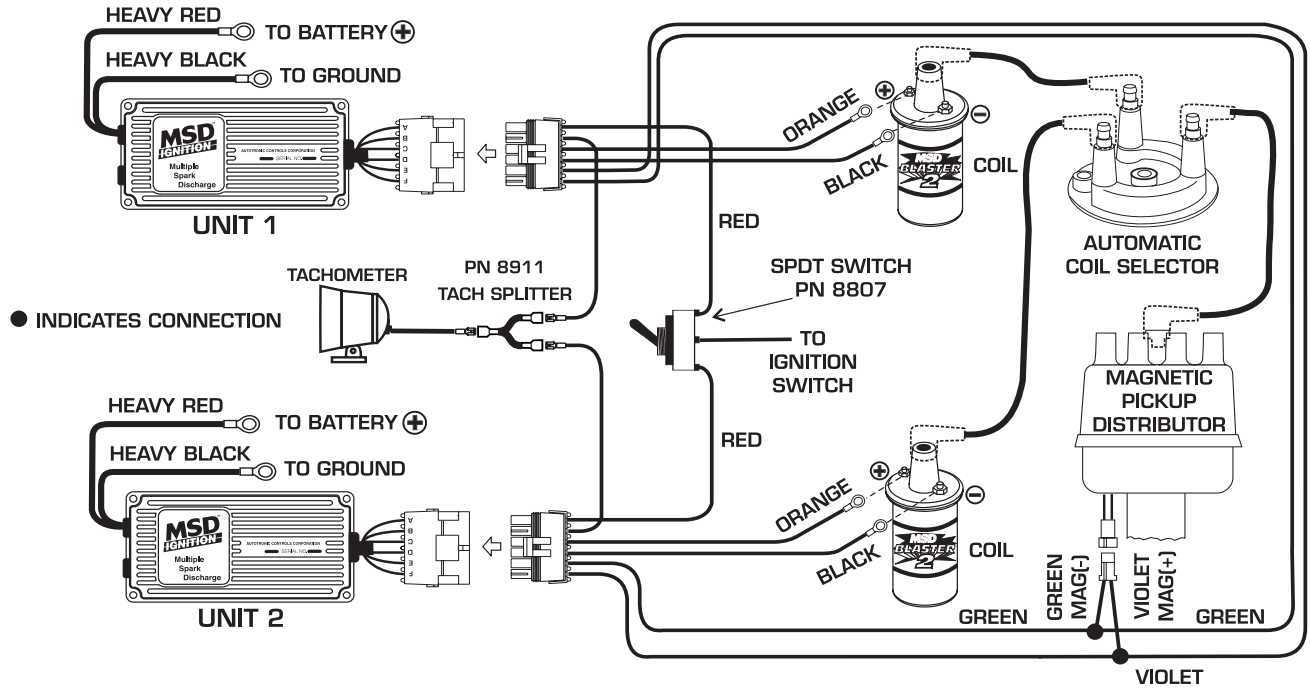
TWO MSD 6 SERIES WITH A SINGLE MAGNETIC PICKUP DISTRIBUTOR



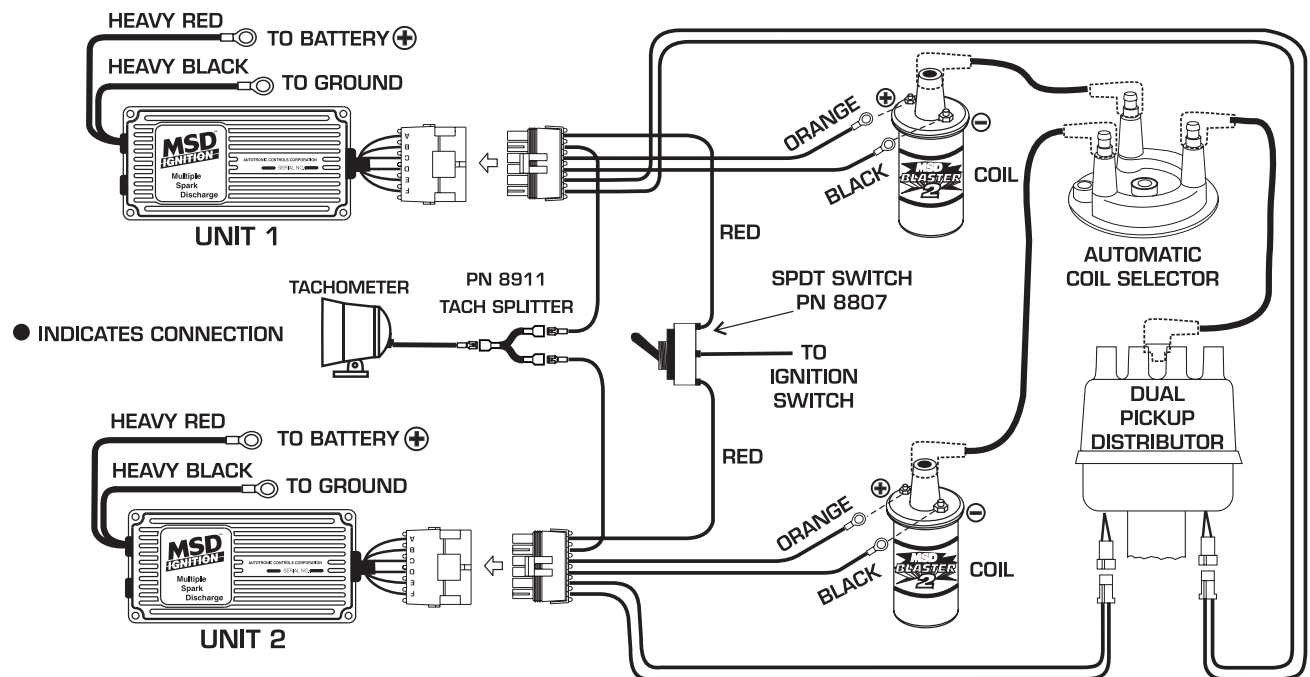
TWO MSD 6 SERIES AND COILS WITH A SINGLE POINTS DISTRIBUTOR



TWO MSD 6 SERIES AND COILS WITH A SINGLE MAGNETIC PICKUP DISTRIBUTOR



TWO MSD 6 SERIES AND COILS WITH A DUAL MAGNETIC PICKUP DISTRIBUTOR





MSD DIGITAL-6 PLUS, PN 6520, AND DIGITAL-7 PLUS, PN 7520, IGNITIONS

This section covers the MSD Digital-6 Plus and the Digital-7 Plus. These ignitions share the same wiring and functions. The main difference is that the Digital-7 Plus produces more spark energy and is intended for racing applications only. The 6 Plus is designed for street/strip use and even carries a CARB Approval Number.

Both ignitions will install to most vehicles with a 12 volt electrical system and a distributor that is triggered with points, electronic amplifiers or magnetic pickups.

Operating Specifications	Digital-6 Plus	Digital-7 Plus
Operating Voltage:	12 - 18 Volts	12 - 18 Volts
Current Requirements:	.7 Amp per 1,000 rpm	1.1 Amp per 1,000 rpm
RPM Range:	12,500 w/ 14.4 Volts	12,500 w/ 14.4 Volts
Spark Series Duration:	20° Crankshaft	20° Crankshaft
Primary Voltage:	535 Volts	535 Volts
Energy Output Max:	135 millijoules	190 millijoules
Weight and Size:	3.7 lbs, 8.5"x4.5"x2.2"	3.7 lbs, 8.5"x4.5"x2.2"

Wire Functions

- Power Cables:** The heavy Red connects to the battery positive (+) terminal. The heavy Black connects the battery negative (-) terminal or other good engine ground.
- Red:** Connects to a switched 12 volts source.
- Orange:** Connects to the positive (+) coil terminal. *This is the only wire that makes electrical contact with the coil positive terminal.*
- Black:** Connects to the negative (-) coil terminal. *This is the only wire that makes electrical contact with the coil negative terminal.*
- White:** Connects to a points or amplifier trigger source. When this wire is used, the Magnetic Pickup is not (Green and Violet).
- Green/Violet:** These wires are routed into a 2-pin connector. It connects to the magnetic pickup of an MSD Distributor or Crank Trigger. The Violet is mag positive (+) and the Green is negative (-). If this connector is used, the White wire will not be connected.
- Blue:** This wire is used to activate the Two Step Rev Limit. When 12 volts are applied, the Launch rpm limit is activated.
- Pink:** This is the Retard activation wire. When 12 volts are applied, the Retard stage is activated.
- Green Loop:** Magnetic Pickup Compensation circuit adjusts for different style pickups. See page 45 for programming information.

WARNING: When using a capacitive discharge ignition control, there is high voltage present at the coil primary terminals. Never touch the coil or connect test equipment to these terminals.

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

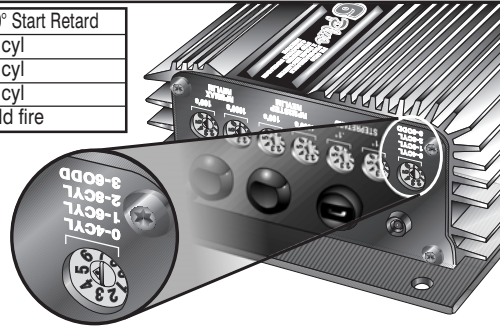
DIGITAL-6 OR 7 PLUS IGNITION PROGRAMMING

Cylinder Select: The Digital Plus Series Ignitions are set at the factory for operation on an 8-cylinder engine. For other engines, use the cylinder select dial.

Start Retard: There is also an optional 20 degree start retard that will occur during cranking. When selected, the timing will retard 20 degrees until the engine reaches 800 RPM.

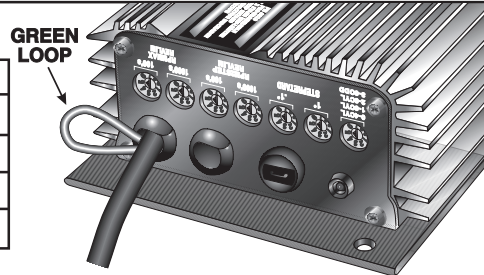
Cylinder Select	Cyl.Select w/ 20° Start Retard
0 - 4 cyl	4 - 4 cyl
1 - 6 cyl	5 - 6 cyl
2 - 8 cyl	6 - 8 cyl
3 - 6 odd	7 - 6 odd fire

Note: Positions 8 and 9 cause the ignition NOT to run. Use as a theft deterrent.



GREEN LOOP

CUT LOOP	DO NOT CUT
MSD Distributors	Points (Stock, Mallory, Accel)
Factory Ford	Electronic Amplifiers
Chrysler	GM HEI
	MSD Crank Trigger

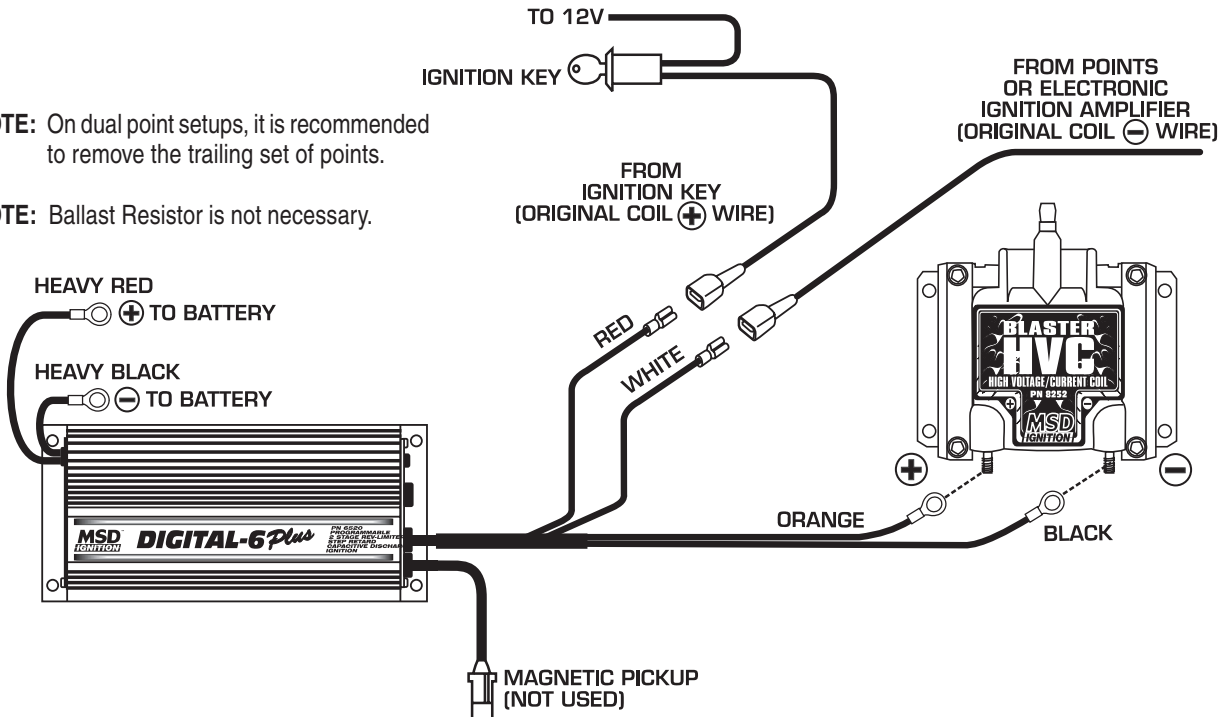


Note: If your application uses the MSD's white wire for the trigger input, the magnetic compensation circuit is not used.

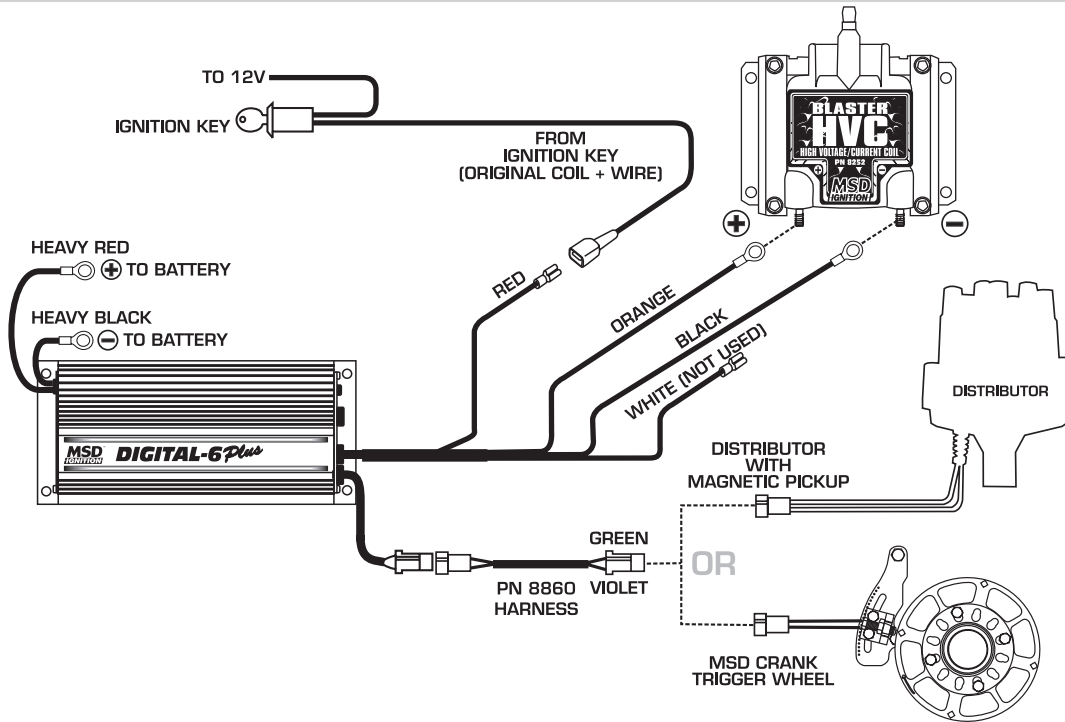
DIGITAL-6 OR 7 PLUS IGNITION WITH POINTS

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

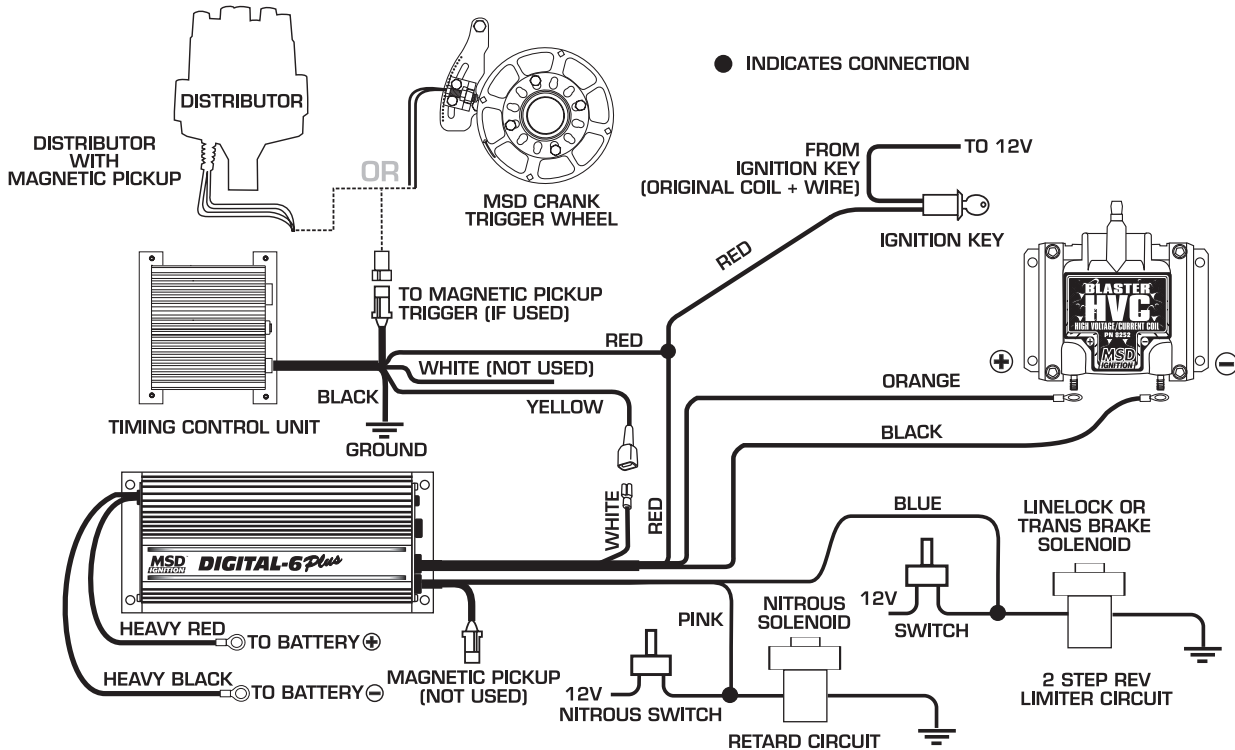
NOTE: Ballast Resistor is not necessary.



DIGITAL-6 OR 7 PLUS IGNITIONS WITH MAGNETIC PICKUP



DIGITAL-6 OR 7 PLUS IGNITIONS WITH TIMING ACCESSORY





INSTALLING AN MSD 7AL-2 AND 7AL-3 IGNITION CONTROL

This section covers the MSD 7AL-2 and 7AL-3 Ignition Controls. These ignitions share the same wiring to run the vehicle, but the 7AL-3 has several optional accessories that can be connected. The 7AL-2 has a single stage rev limiter while the 7AL-3 has a Three Step Rev Control along with other accessories which are explained on the next page.

Both ignitions will install to most vehicles with a 12 volt electrical system and a distributor that is triggered with points, electronic amplifiers or magnetic pickups.

Operating Specifications

7AL-2

7AL-3

Operating Voltage:	12 - 18 Volts	12 - 18 Volts
Current Requirements:	1 Amp per 1,000 rpm	1 Amp per 1,000 rpm
RPM Range:	14,000 w/ 14.4 Volts	14,000 w/ 14.4 Volts
Spark Series Duration:	20° Crankshaft	20° Crankshaft
Primary Voltage:	470 Volts	550 Volts
Energy Output Max:	115 millijoules	160 Millijoules
Weight and Size:	4.75lbs, 8"x 3.75"x5.75"	4.75lbs, 8"x 3.75"x5.75"

Wire Functions

Power Cables: The heavy Red connects to the battery positive (+) terminal. The heavy Black connects to the battery negative (-) terminal or other good engine ground. On the 7AL-3 these are called out as Batt+ and Batt -.

Red (IGN): Connects to a switched 12 volt source.

Orange (COIL +): Connects to the positive (+) terminal of the coil. ***This is the only wire that makes electrical contact with the coil (+) terminal.***

Black (COIL -): Connects to the negative (-) terminal of the coil. ***This the only wire that makes electrical contact with the coil negative terminal.***

White (PNTS): Connects to a points or amplifier trigger source. When this wire is used, the Magnetic Pickup is not (Green and Violet).

Violet (Mag +): These wires are routed into a 2-pin connector. It connects to the magnetic pickup of an MSD Distributor or Crank Trigger. The Violet is mag positive (+) and the Green is negative (-). If this connector is used, the White wire will not be connected.

On the 7AL-2 there is a ground stud located below the rpm socket. Other electrical accessories can be connected to this ground.

WARNING: When using a capacitive discharge ignition control, there is high voltage present at the coil primary terminals. Never touch the coil or connect test equipment to these terminals.

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

MSD 7AL-3 ACCESSORIES

The 7AL-3 shares the same wiring colors and specifications as the 7AL-2 when it comes to coil terminals, battery supply voltage and triggering. However, the 7AL-3 has many accessories that can be used. The following information explains their wiring and operation.

Three Step Rev Control

Three rev limits can be set to be activated at different times. The overrev rpm limit is active when the other limits are not activated. The Burnout or Launch rev limits are activated when 12 volts are applied to the corresponding terminal. If both limits are supplied with 12 volts, the Launch limit will override the Burnout limit.

Note: If no rpm module is installed, there will be no rev limit.

Start Retard

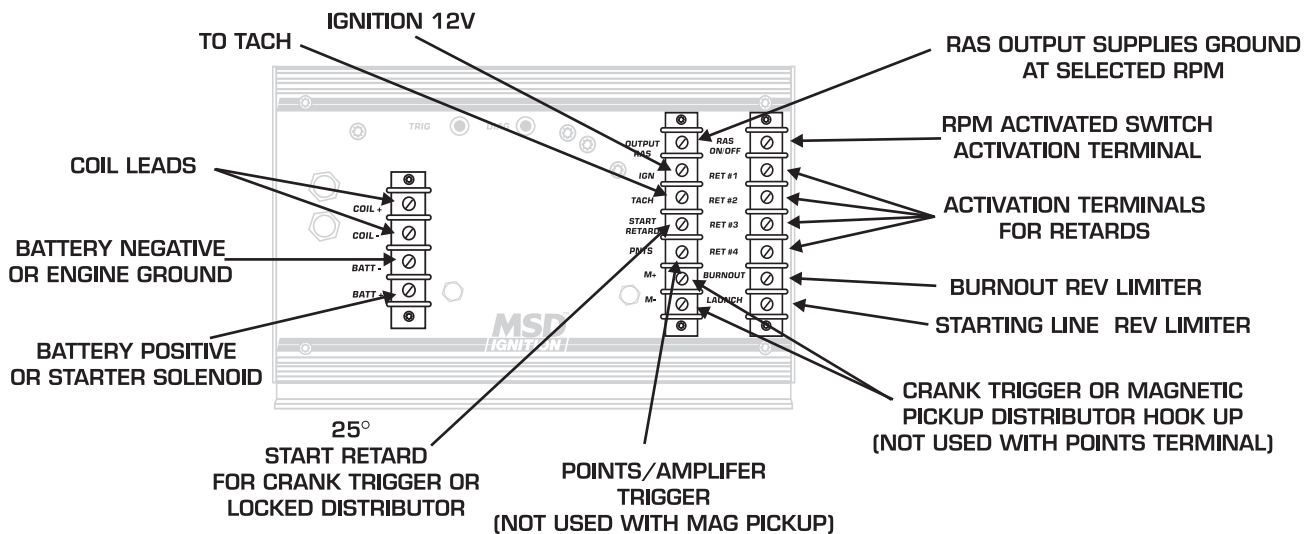
When 12 volts are applied to this terminal, the timing will be retarded 25° until the engine reaches 1300 rpm where it deactivates. This can be connected to the starter solenoid to receive 12 volts when cranking or can be connected directly to 12 volts such as from the IGN terminal.

Retard Stages

There are four stages of retard. The amounts are cumulative with a total of 20° being the max retard. Each stage is activated when the corresponding terminal is REMOVED from ground. If a stage is not going to be used, a Zero degree module MUST be installed or the terminal(s) must be grounded.

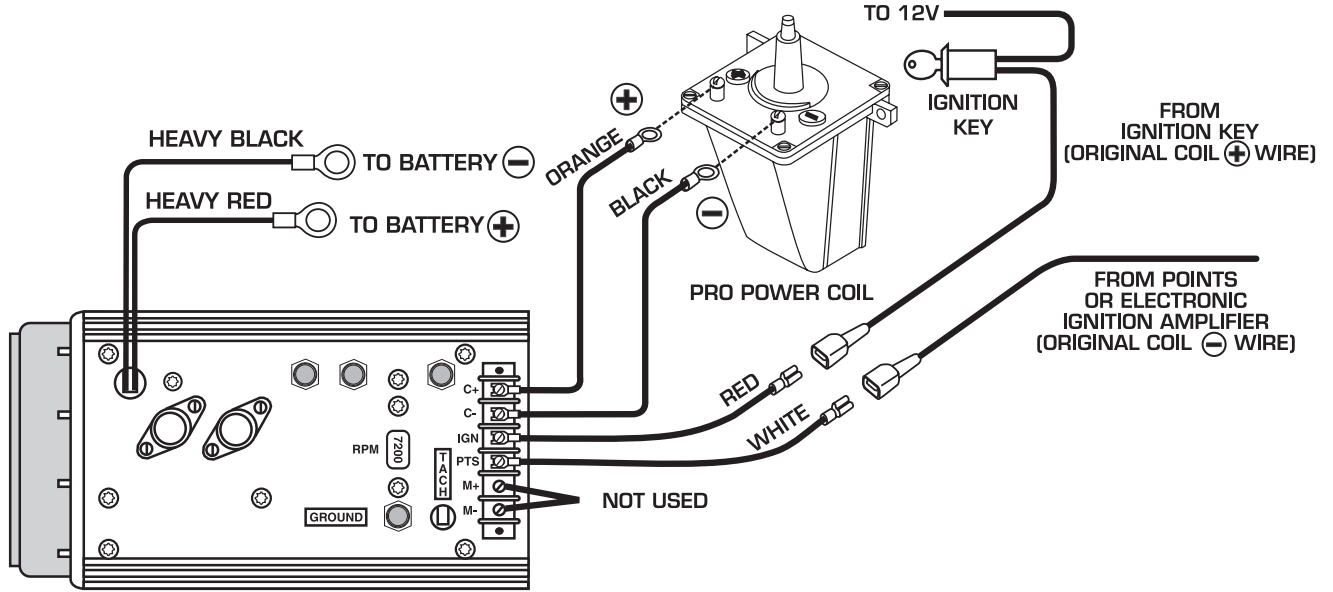
RPM Activated Switch

Two terminals are used to make up this circuit; RAS On/Off and Output RAS. The Output RAS terminal will supply a ground path to activate a circuit at a desired rpm (capable of up to 10 Amps). To use this circuit, 12 volts must be supplied to the RAS On/Off terminal.

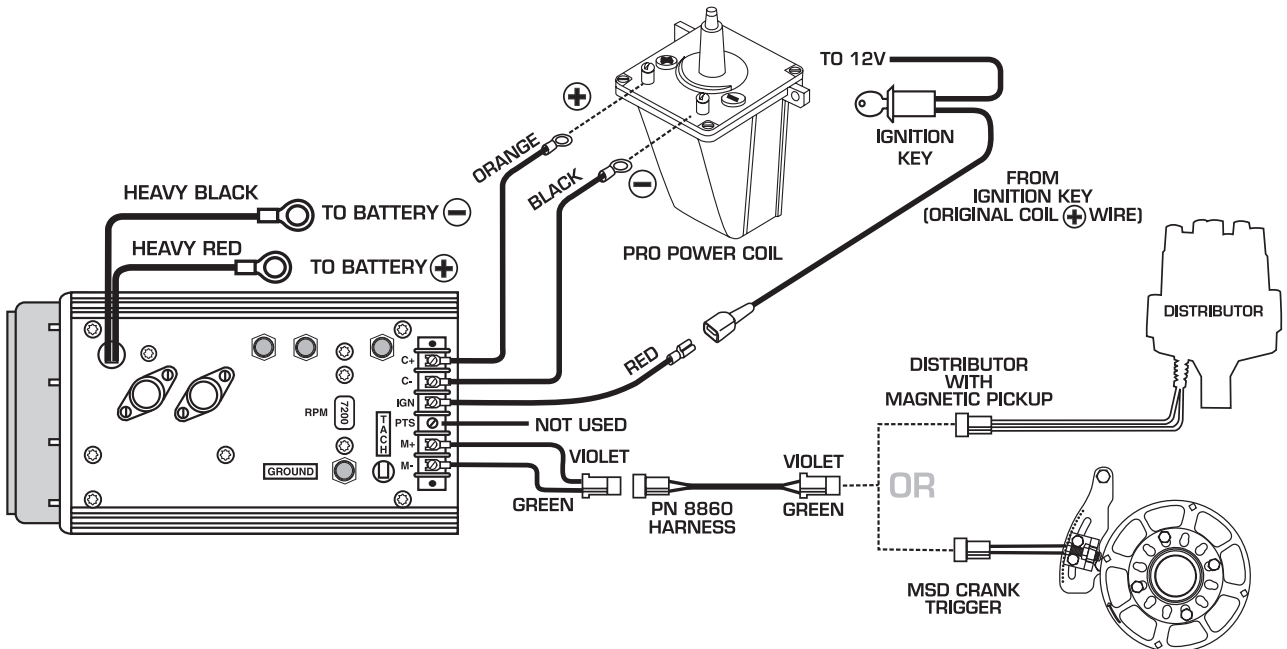




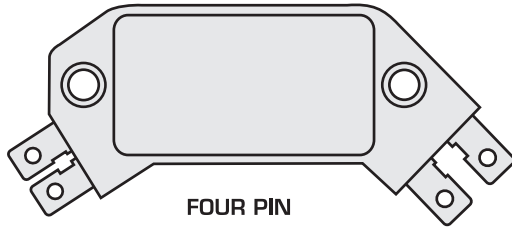
MSD 7 SERIES IGNITION WITH POINTS



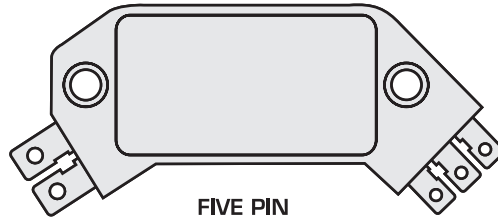
MSD 7 SERIES IGNITION WITH MAGNETIC PICKUP



MSD 7 SERIES TO GM LARGE CAP HEI DISTRIBUTORS



FOUR PIN



FIVE PIN



SEVEN PIN

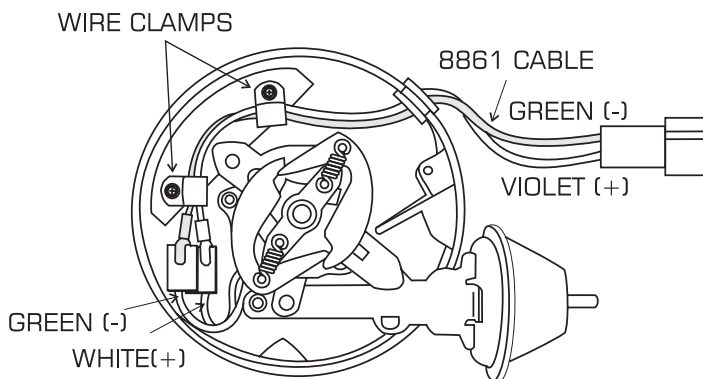
There are three different large cap HEI distributors. To identify which of the following diagrams fit your specific application, remove the distributor cap and rotor and locate the ignition module at the base of the distributor. Count the number of terminals on both ends of the module and follow the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

NOTE: Some 5-pin models may experience a hesitation or stall on deceleration. If this occurs, contact MSD Tech Line for the required bolt-in diode to correct the problem. MSD Tech Line (915) 855-7123

THE MSD 7 SERIES TO GM HEI 4-PIN MODULE

If the distributor has a 4-pin module, the module must be removed and the MSD will use the magnetic pickup to trigger the ignition. A harness, PN 8861, is required for this installation.

CONNECTING THE PN 8861 CABLE TO THE GM HEI MAGNETIC PICKUP

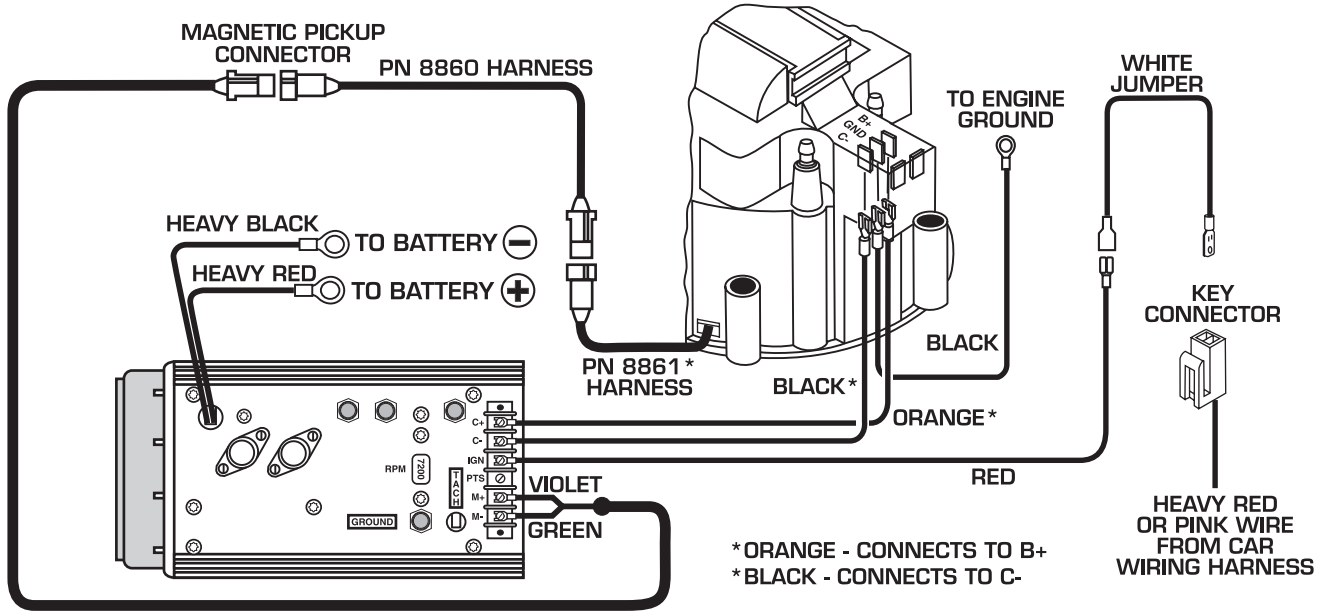


NOTE: The PN 8861 cable is not supplied with the MSD 7 Ignition.

NOTE: A Low Resistance HEI Rotor Bushing, PN 8412, must be used with an MSD 7AL Ignition.

1. Remove the distributor cap and rotor.
2. Disconnect the connector with the white and green wires from the module, and remove the module, condenser and cable from the distributor.
3. Install the PN 8861 cable as shown using the module mounting screws and the wire clamps supplied in the MSD Parts kit. Push the two tabs on the PN 8861 cable into the connector from the HEI magnetic pickup (Green to Green, Violet to White). Notice that the tabs are different sizes so they can be installed one way only.
4. Reinstall the cap and rotor and connect the MSD Ignition control as shown in the next diagram.

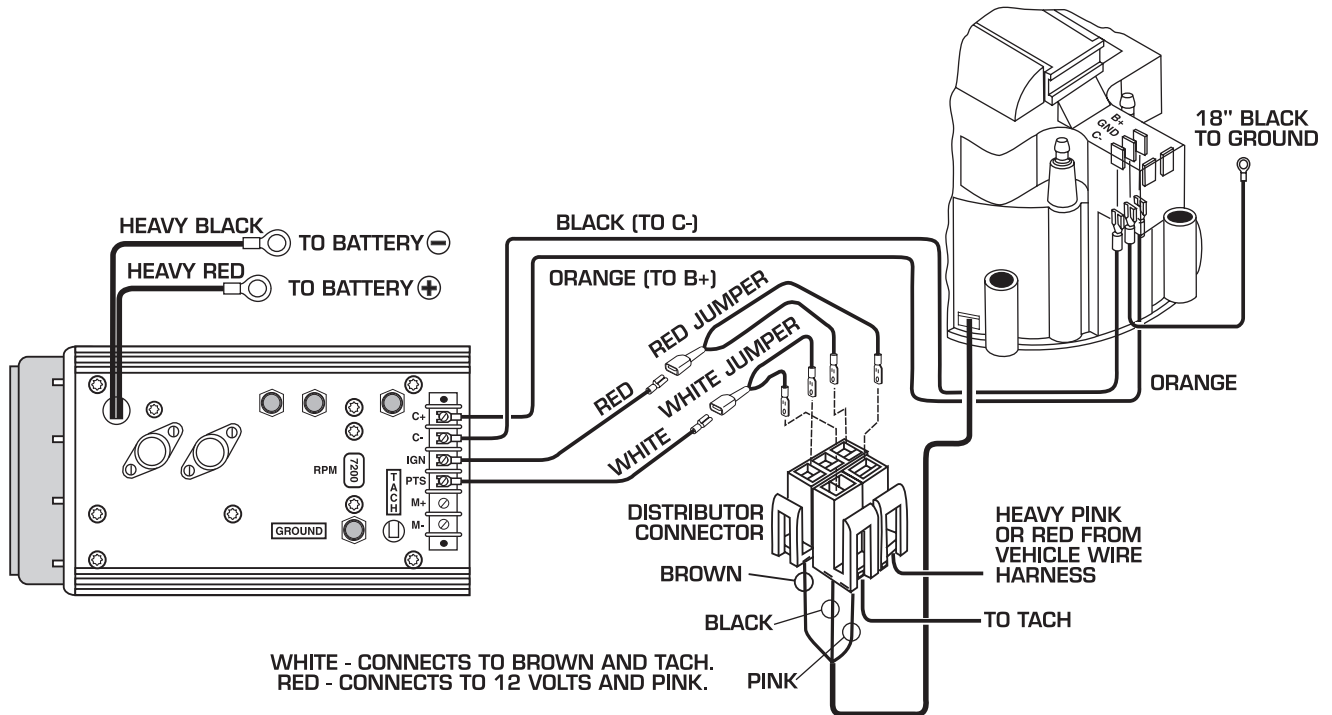
MSD 7 SERIES TO GM HEI 4-PIN MODULE DISTRIBUTOR



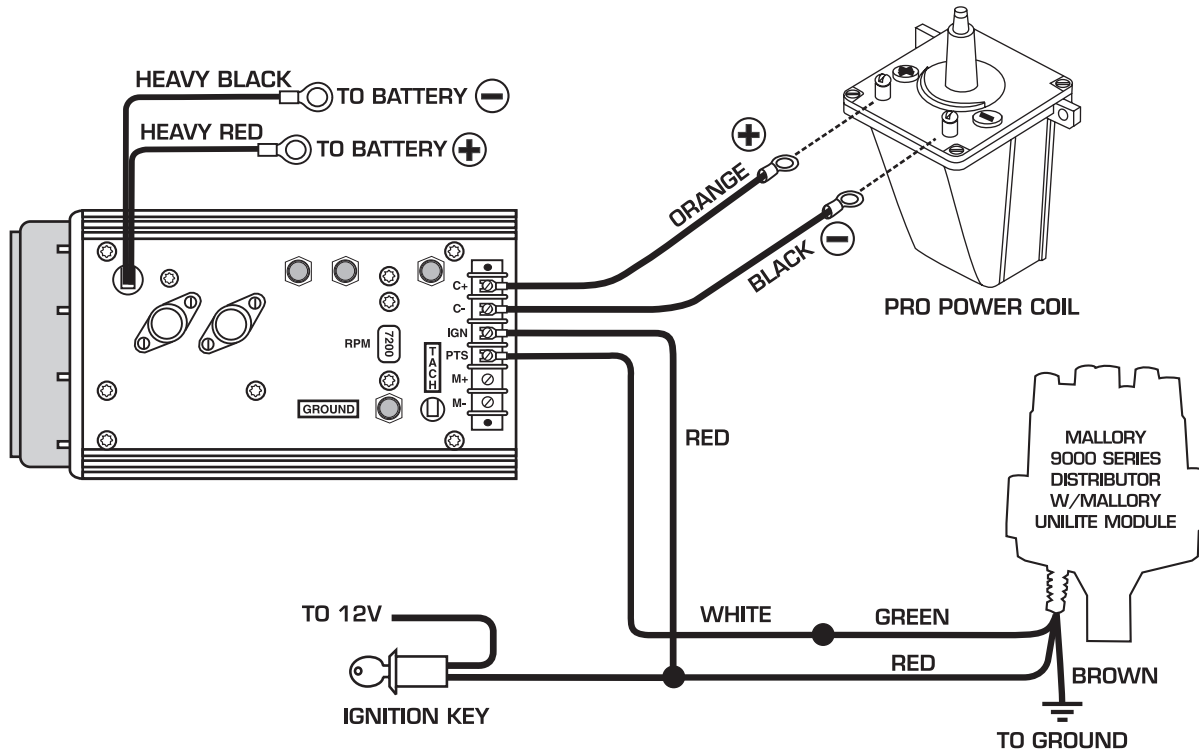
* THE PN 8861 HARNESS IS NOT SUPPLIED WITH THE 7 SERIES IGNITION.

NOTE: A Low Resistance HEI Rotor Bushing, PN 8412, must be used with an MSD 7AL Ignition.

MSD 7 SERIES TO GM HEI WITH A 5 OR 7-PIN MODULE (AMPLIFIER TRIGGER)

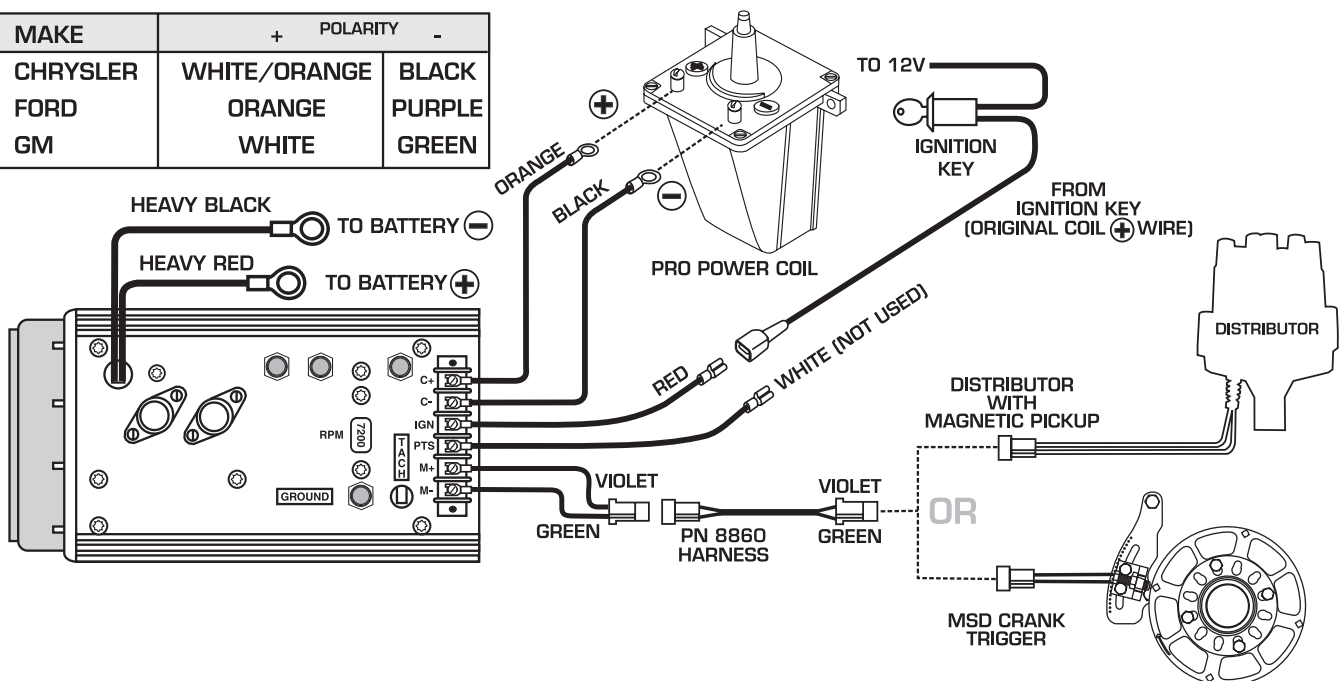


MSD 7 SERIES TO MALLORY UNILITE

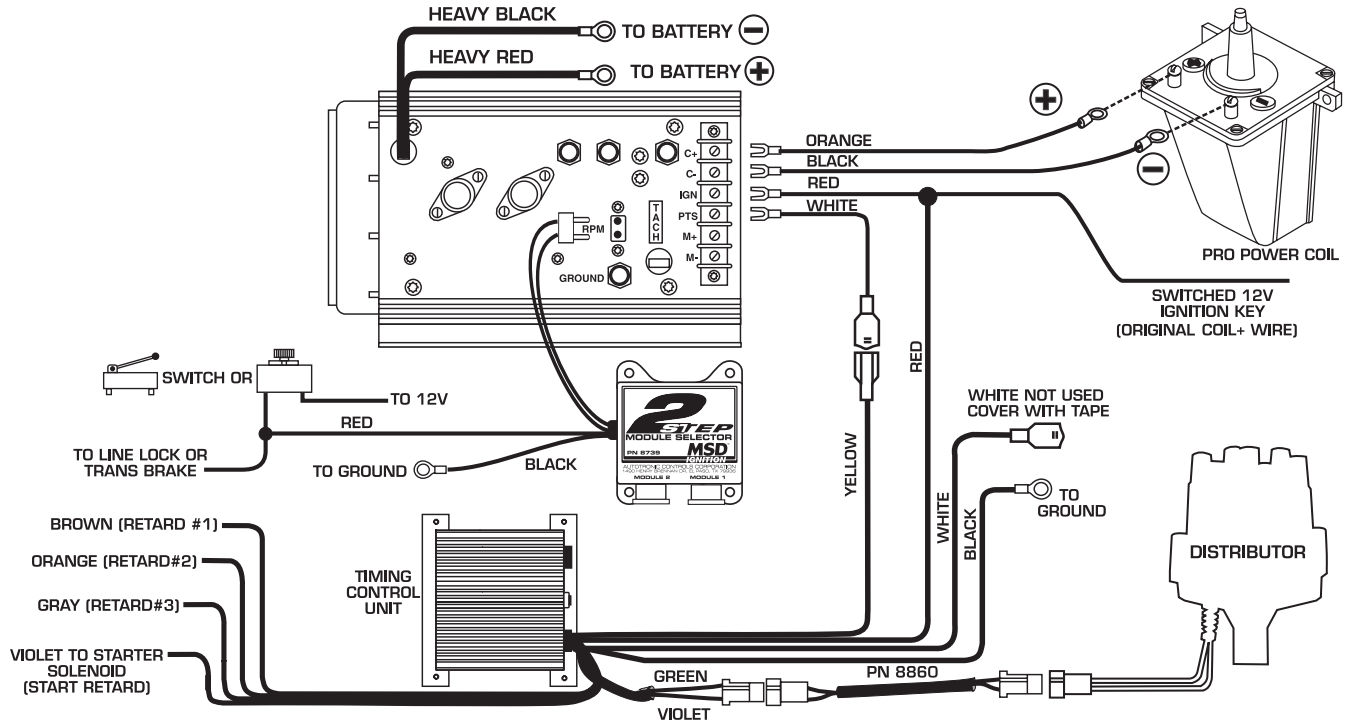


MSD 7 SERIES TO MAGNETIC PICKUP TRIGGERS

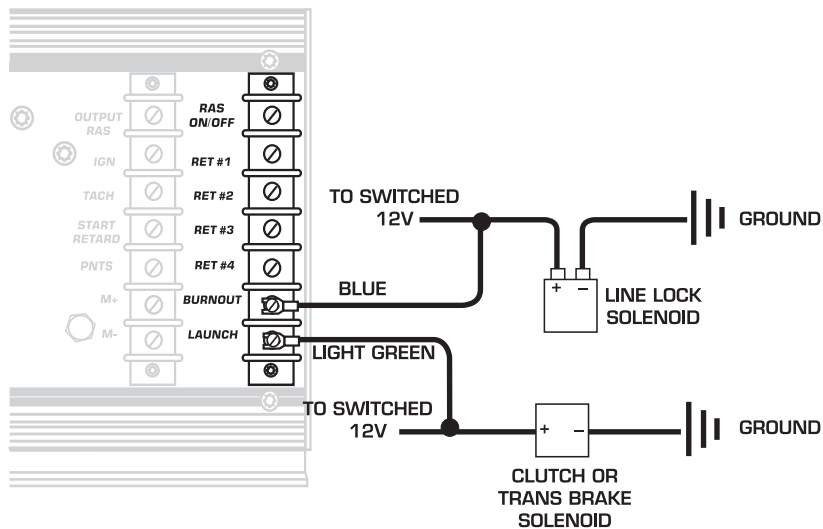
MAKE	POLARITY	
	+	-
CHRYSLER	WHITE/ORANGE	BLACK
FORD	ORANGE	PURPLE
GM	WHITE	GREEN



MSD 7AL-2 WITH MODULE SELECTOR AND MULTIPLE RETARD

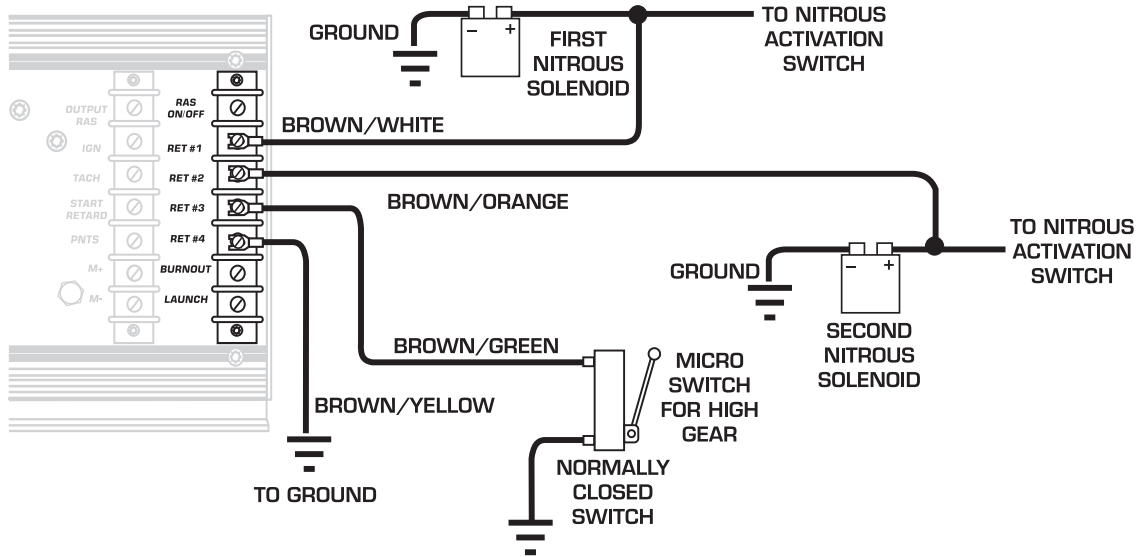


MSD 7AL-3 WITH REV LIMITERS



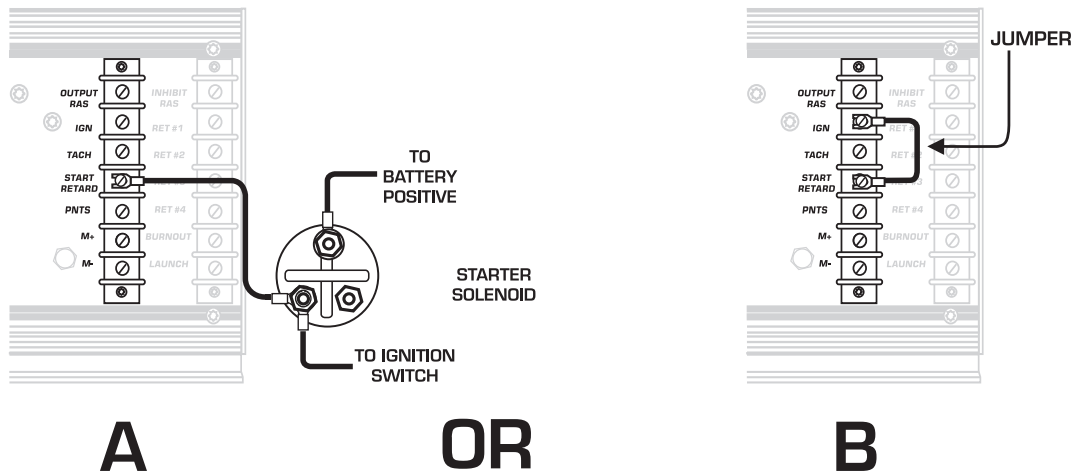
NOTE: The rev limiter activates when 12 Volts are supplied to the "Burnout" or "Launch" terminal.

MSD 7AL-3 USING RETARD FUNCTIONS



NOTE: The retards will activate when removed from ground. The positive side of the solenoid will provide ground until activated.
NOTE: If a stage is not used, a ZERO Degree module must be installed or the terminal must be grounded.

MSD 7AL-3 USING START RETARD FUNCTION

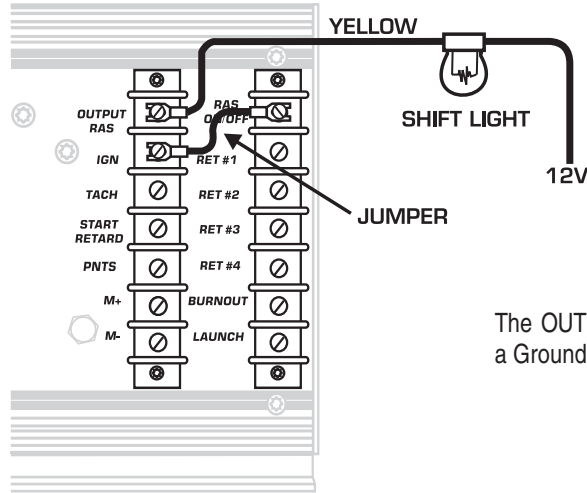


NOTE: The 25° start retard activates when supplied with 12 Volts.

NOTE: Once the engine revs past 1,300 rpm the 25° start retard will not activate again until the ignition is shut off.



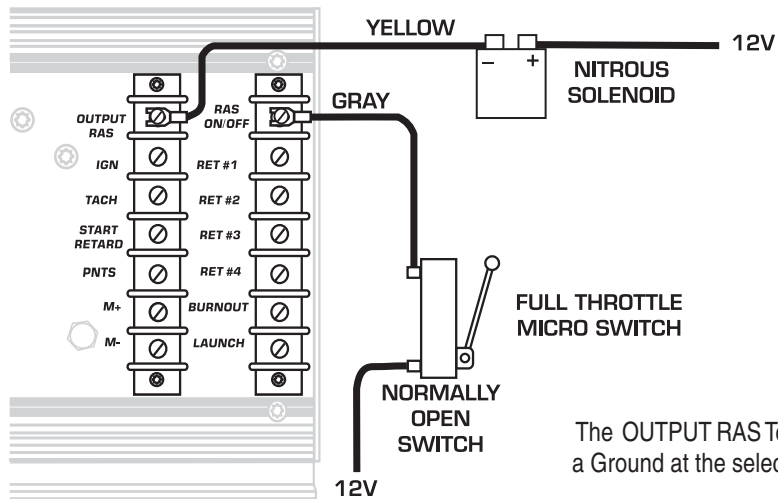
MSD 7AL-3 USING RPM ACTIVATED SWITCH FOR SHIFT LIGHT



The OUTPUT RAS Terminal will supply a Ground at the selected RPM.

NOTE: A short jumper is supplied that can be used to provide a switched 12 Volts from the "IGN" terminal to the "RAS ON/OFF" terminal.

MSD 7AL-3 USING RPM ACTIVATED SWITCH TO ACTIVATE NITROUS



The OUTPUT RAS Terminal will supply a Ground at the selected RPM.



INSTALLING AN MSD PROGRAMMABLE DIGITAL-7 IGNITION CONTROL

This section covers the basic wiring and accessories of the MSD Programmable Digital-7 Ignition, PN 7530. This is a powerful ignition with a list of programmable timing and rpm features. It can be programmed with a PC or with MSD's hand held Programmer/Monitor. It can be triggered by points, amplifiers, magnetic pickups or the trigger output of an ECU for fuel injection systems.

Operating Specifications

Operating Voltage:	+12 - 18 volts
Current Requirements:	1.1 Amp per 1,000 RPM
RPM Range:	12,500 rpm with 14.4 volt supply
Spark Duration:	20° Crankshaft
Primary Voltage Output:	535 Volts
Spark Energy Output:	190 millijoules Per Spark
Weight and Size:	4.7lbs., 9.5"L x 4.5"W x 2.2"H

Note: The Pro Power HVC Coil, PN 8251, is the only coil recommended for use with the PN 7530.

Optional Accessories

Pro-Data+ Software

The Pro-Data+ software is a Windows based, easy to use software. It opens quickly and displays a plotted rpm/timing chart for the entire run and for the launch. There is also a tachometer and dial showing the timing retard plus a complete ladder of all of the adjustments. The software can be used with any PC running Windows 95, 98 or NT. It is available on a 3.5 floppy or can be downloaded through the MSD Ignition website at: www.msdisignition.com

Programmer/Monitor, PN 7550 and PN 7553

If you do not have a laptop or PC, all of the Programmable 7 Ignition Control's optional programs can be set with this hand held Programmer/Monitor. The Programmer communicates to the Programmable Ignition via the 9-pin cable. The LCD will display the programming options which you can scroll through to adjust or view the program that is already in the ignition.

Manual RPM Launch Control, PN 7551

This handy controller lets you change the launch rpm setting of the Programmable 7 Ignition Control manually and at the last minute. It plugs into the 9-pin harness. There are two control knobs and the launch setting can be adjusted from 3,000 to 12,500 rpm in 100 rpm increments. The rpm limit can be changed with the engine running and the new setting is verified with the flash of a built-in LED.

Synchronization Pickup Kit

In order to take advantage of the Programmable Digital-7's Individual Cylinder Management system, a synchronization pickup must be incorporated so the ignition knows exactly which cylinder is firing. With this information the MSD can begin your unique timing sequence through each cylinder! MSD offers two ways to accomplish this.

Cam Sync Pickup Kit, PN 2346

The Pickup Kit is supplied with a non-magnetic pickup, connectors, the magnet and retainer. You will need to fabricate a bracket assembly and install the magnet.

Spark Plug Wire Sync Kit, PN 7555

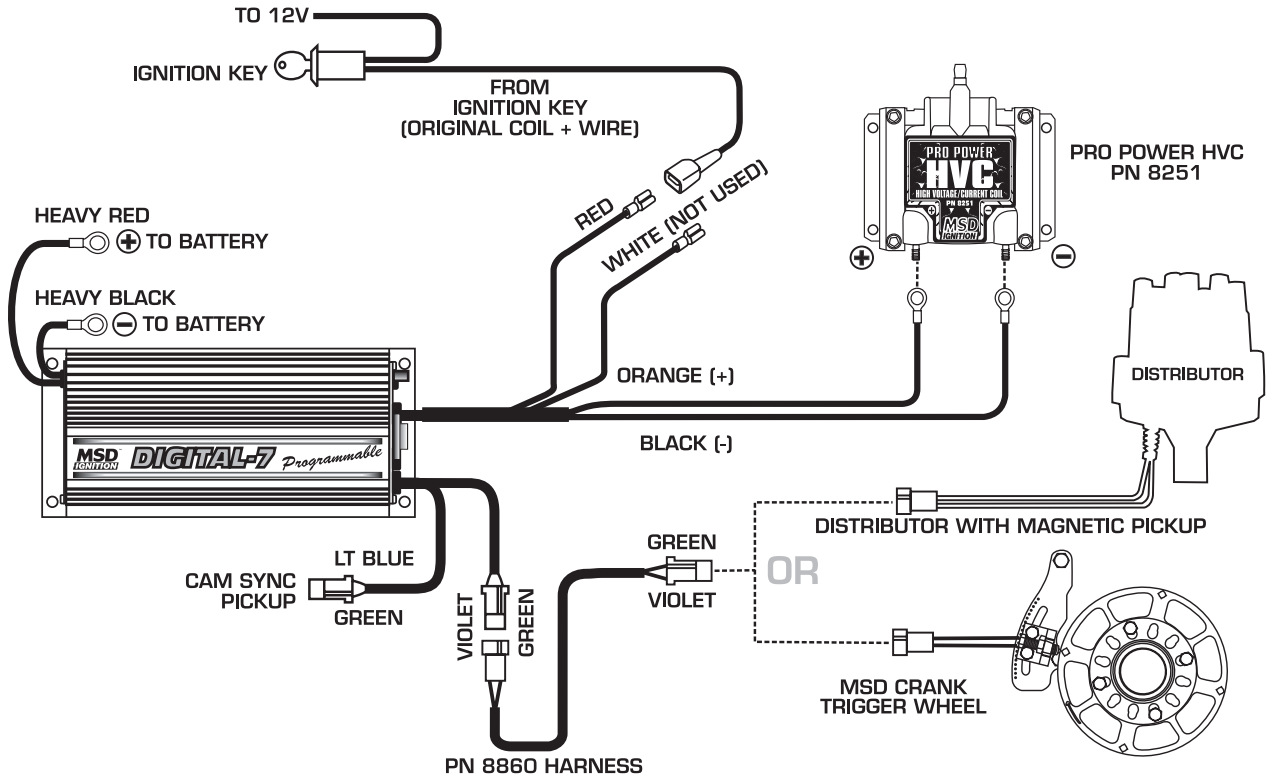
This pickup simply installs to the number one spark plug wire and senses the trigger signal. A fiber optic cable connects to the ignition to send the signal.



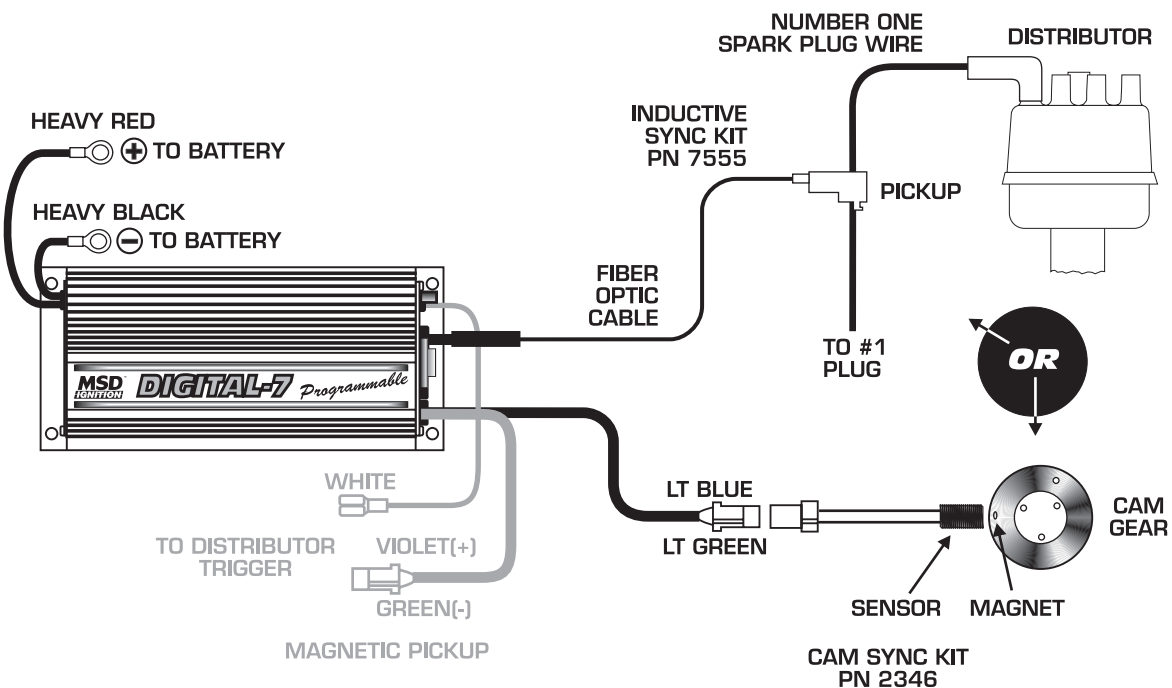
PROGRAMMABLE WIRE OPERATION

Power Leads	These are the two heavy 12 gauge wires and are responsible for getting direct battery voltage to the ignition. The Ignition is load protected from reverse battery connections and will automatically shut down if there is over 27 volts input.
Heavy Red	This wire connects directly to the battery positive (+) terminal or a positive battery junction such as the starter solenoid. Note: Do not connect to the alternator.
Heavy Black	This wire connects to a good ground, either at the battery negative (-) terminal or to the engine.
Red	This wire is responsible for turning the MSD On and Off. Connects to a switched 12 volt source such as the ignition key or switch.
Orange	This wire connects to the coil positive (+) terminal. This is the ONLY wire that makes electrical contact with the positive coil terminal.
Black	This wire connects to the coil negative (-) terminal. This is the ONLY wire that makes electrical contact with the negative coil terminal.
Trigger Wires	There are two circuits that can be used to trigger the MSD Ignition; a Points circuit (the White wire) and a Magnetic Pickup circuit (the Green and Violet wires). The two circuits will never be used at the same time.
White	This wire is used to connect to breaker points, electronic ignition amplifier output or to the trigger output of the ECU. 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 as the magnetic pickup connector. The connector plugs directly into an MSD distributor or crank trigger. It will also connect to aftermarket pickups. The Violet wire is positive (+) and the Green wire is negative (-). When these wires are used, the White wire is not.
Cam Sync Lt Blue and Lt Green	This 2-pin connector plugs into a Cam Sync Sensor to indicate when the number one cylinder is triggered. The wires are Lt Blue and Lt Green.
Fiber Optic Connection	This is where the fiber optic cable of the PN 7555 Inductive Sync Kit connects to take advantage of the Individual Cylinder Management feature. This must be covered when using the 2-pin cam sync input.
Accessories	
Dark Blue	When 12 volts are applied, this wire activates several features including; Launch rev limit, Launch Retard value, Launch Timing Curve and will reset the Shift Light sequence to 1 st gear.
Light Blue	This wire activates the Burnout rev limit when 12 volts are applied.
Pink	This wire activates the first retard stage when it is applied to 12 volts. When 12 volts is removed the retard is deactivated.
Violet	This wire activates the second retard stage when it is applied to 12 volts. When 12 volts is removed the retard is deactivated.
Tan	This wire activates the third retard stage when it is applied to 12 volts. When 12 volts is removed the retard is deactivated.
Yellow	Shift Light activation wire. Supplies ground to activate a light.
Brown/White	RPM Activation Switch. This wire will supply a ground to complete a circuit at a desired rpm. It will handle up to 3 amps continuous.

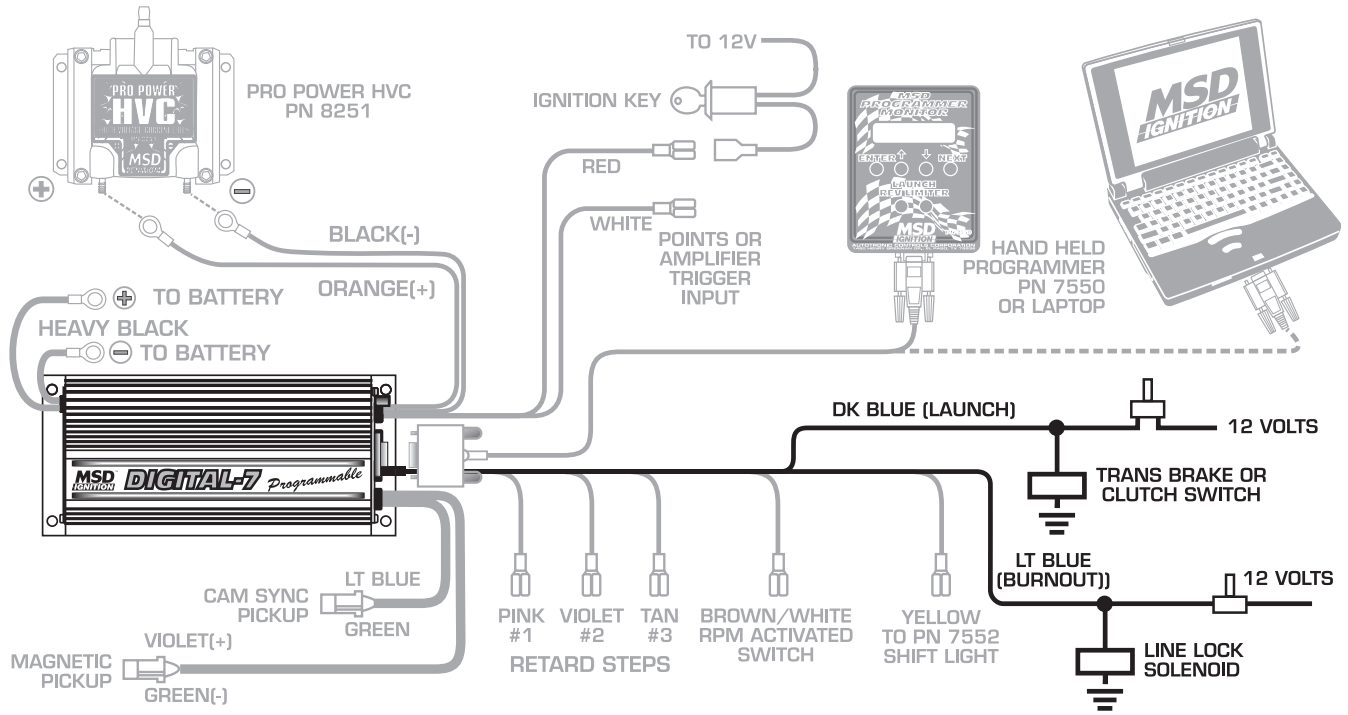
PROGRAMMABLE DIGITAL-7 TO MSD DISTRIBUTOR OR CRANK TRIGGER



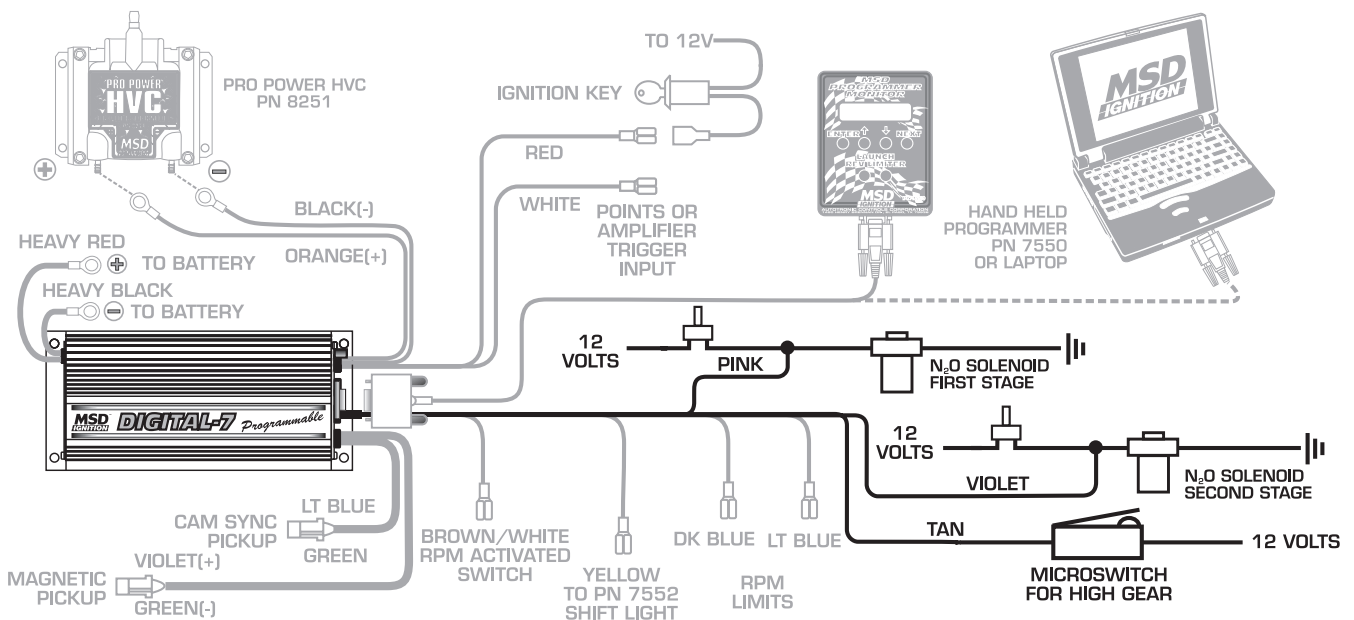
CONNECTING THE CAM SYNC TO THE PROGRAMMABLE DIGITAL-7



WIRING THE REV LIMITS TO THE PROGRAMMABLE DIGITAL-7



WIRING THE STAGE RETARD TO THE PROGRAMMABLE DIGITAL-7



HAND HELD PROGRAMMER/MONITORS FOR MSD PROGRAMMABLE IGNITION

For racers that do not use a PC to program their Programmable Digital Ignition Components, MSD offers two Programmer Monitors. These provide total programming control and feature an LCD monitor screen with push buttons for editing the programs.

Both of the Programmers can be used with MSD's line of Programmable Digital Ignitions and Controls including Part Numbers; 6212, 6562, 6563, 7530, 8977, 8979. (The timing dials of the PN 7553 will not control the timing of the PN 6214, Midget Ignition System, but will support these functions with its programming buttons.)

The Monitors both connect to the MSDs through a 9-pin computer type harness. They can be left connected or removed when the engine is running. There are four buttons across the top of each Monitor:

ENTER – This is used to open the selected field for further programming or to load a new program.

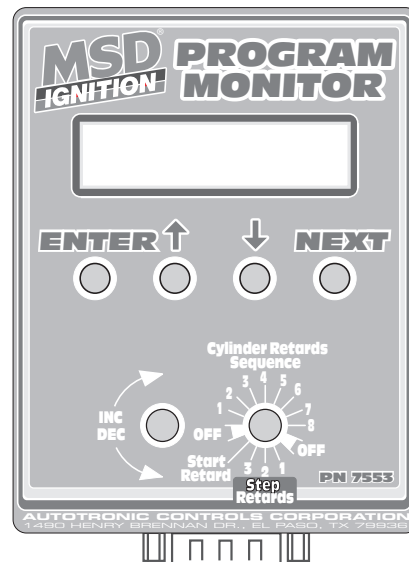
NEXT – Pressing this button moves the cursor to the next field. After making adjustments to a program, pressing NEXT will take you to the SAVE menu.

UP (↑) and DOWN (↓) ARROWS – These are used to change the settings of programs such as rpm or timing. Pressing the Up button increases the value while the down arrow lowers it.



PN 7550

PN 7550 – Launch Rev Limiter – These buttons take you directly to the RPM Launch setting for quick starting line changes. From this screen, the rpm value automatically is saved without having to go to the Save menu.



PN 7553

PN 7553 – Degree and Timing Dials – These two control dials provide instant editing of the cylinder-to-cylinder timing, step retards and the start retard values in 0.1° increments. This is ideal when working on a dyno and tuning in the cylinder-to-cylinder timing or step retards. When a change is made using the dials, it is instantly saved within the MSD.

PN 7530 FLOW CHART WITH HAND HELD MONITOR, PN 7555

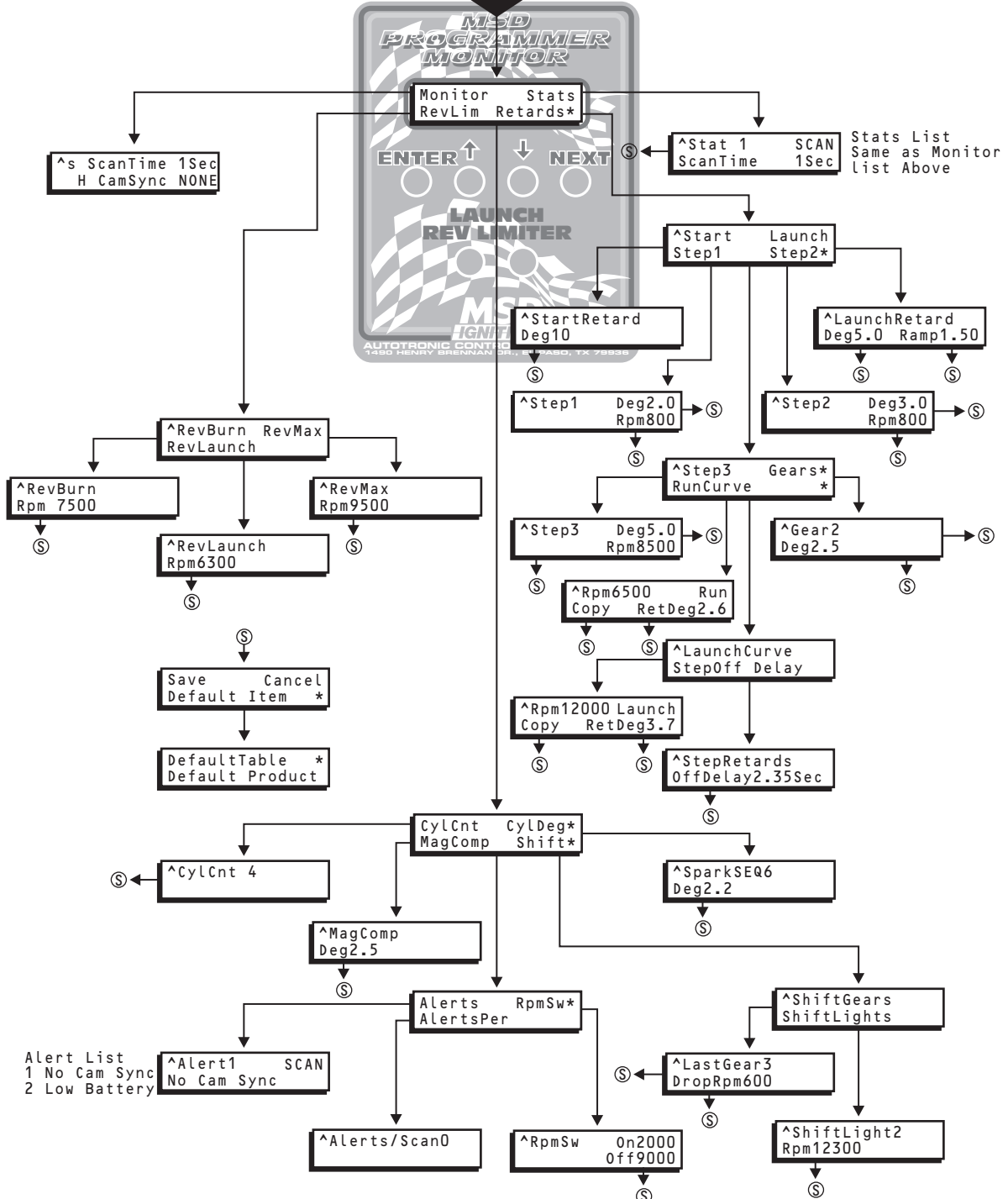
MENU TREE

The following menu tree shows the different screens and programs of the PN 7530 and Monitor.

- Monitor List:
- | | | | |
|---|---------------|----|---------------|
| 1 | ScanTime 1Sec | 9 | MaxCylDeg 2.2 |
| 2 | CamSync NONE | 10 | TrigSrc NONE |
| 3 | Rpm 12500 | 11 | Step1In OFF |
| 4 | RetSum 10.0 | 12 | Step2In OFF |
| 5 | LowBatt OK | 13 | Step3In OFF |
| 6 | ShiftLt OFF | 14 | RevLaunI OFF |
| 7 | Gear 5 | 15 | RevBurnIn OFF |

7530 M16 Terminal Screens
As Displayed on the 7550 Terminal

Menus





MSD 8 SERIES IGNITION CONTROLS

This section covers the MSD 8 Series Ignition Controls. The MSD 8, PN 7800, is a race only ignition system. The MSD Pro Power Coil, PN 8201 is the only coil recommended for the MSD 8 Ignitions. A current filter, PN 8830, is also recommended to help suppress EMI noise and voltage spikes.

There is not a rev limiter built into the MSD 8 Ignitions. MSD offers an Engine Saver, PN 8978, that will provide an overrev limit as well as a launch rpm limit.

Operating Specifications

Operating Voltage:	+12 - 18 volts
Current Requirements:	36 Amps @ 12,000 rpm
RPM Range:	15,000 rpm with 14.4 volt supply
Spark Duration:	20° Crankshaft
Primary Voltage Output:	480 Volts
Spark Energy:	315 - 345 milliJoules per spark
Weight and Size:	PN 7800; 7lbs., 10"L x 3.75"W x 5.75"H

Note: The Dual Coil MSD 8, PN 7802, has been discontinued. This Ignition fires two coils at the same time, for use in dual plug heads. (Two distributor heads are required.)

Wire Functions

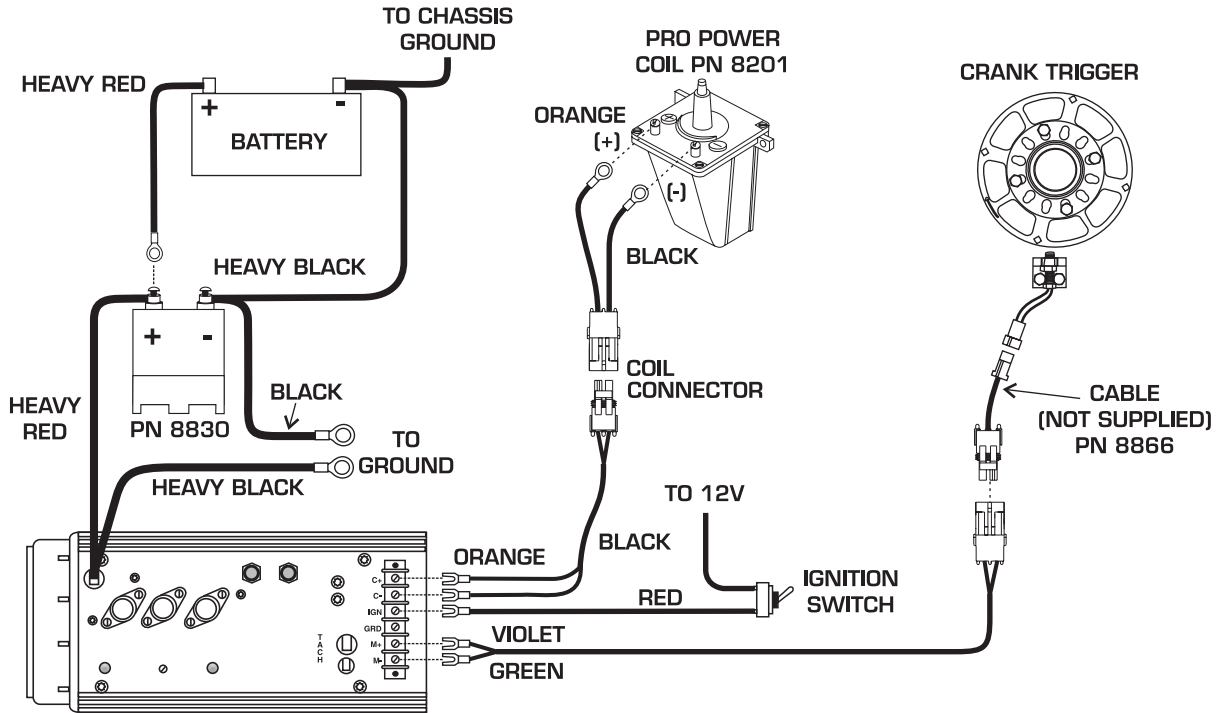
Power Cables:	The heavy Red connects to the battery positive (+) terminal. The heavy Black connects to the battery negative (-) terminal or other good engine ground.
Red (IGN):	Connects to a switched 12 volt source.
Orange (COIL +):	Connects to the positive (+) terminal of the coil. <i>This is the only wire that makes electrical contact with the coil (+) terminal.</i>
Black (COIL-):	Connects to the negative (-) terminal of the coil. <i>This the only wire that makes electrical contact with the coil negative terminal.</i>
Green (Mag-):	These wires are routed into a 2-pin connector. It connects to the magnetic pickup of an MSD Distributor or Crank Trigger.
Violet (Mag+):	The Violet is mag positive (+) and the Green is negative (-).

Note: If using a points/amplifier trigger signal, connect it to the Mag + terminal.

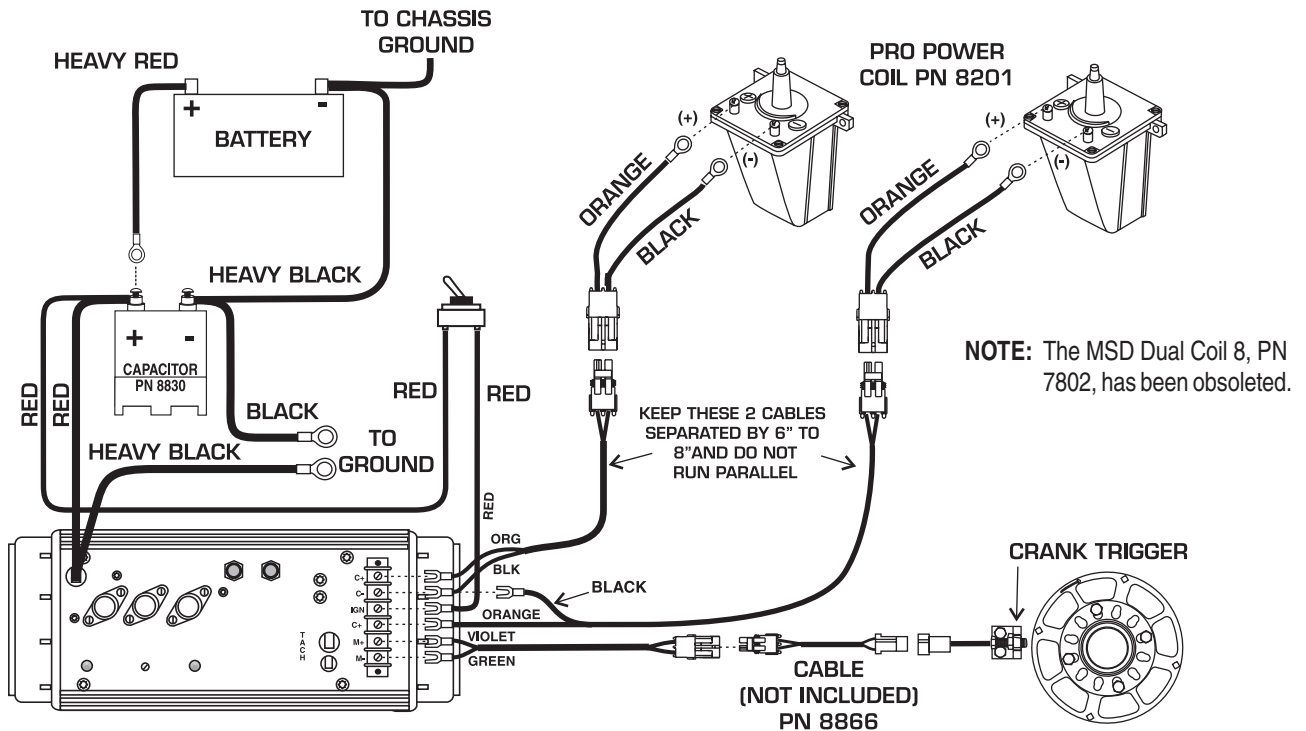
WARNING: When using a capacitive discharge ignition control, there is high voltage present at the coil primary terminals. Never touch the coil or connect test equipment to these terminals.

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

MSD 8 IGNITION TO MAGNETIC PICKUP



MSD DUAL COIL 8 IGNITION TO MAGNETIC PICKUP





INSTALLING AN MSD 10 IGNITION CONTROL

This section covers the MSD 10 Ignition Control. The MSD 10, PN 7500, is a race only ignition system and is unique in that it incorporates two ignition coils. The MSD Pro Power Coil, PN 8201, is the coil responsible for the Capacitive Discharge side of the ignition while the Pro Power Coupler Coil, PN 8209R, is a high performance inductive coil. The coils run in parallel sending two sparks that work as one. The CD is responsible for ionizing the spark plug gap, then the current from both coils produce a high level of sustained spark for increased spark duration.

The MSD 10 also has a built-in Two Step Rev Control.

Operating Specifications

Operating Voltage:	12 - 18 volts
Current Requirements:	17 Amps @ 8,000 rpm
RPM Range:	13,000 rpm with 14.4 volt supply
Spark Duration:	CD Coil; 20° Crankshaft Inductive Coil; 20° - 30° Crankshaft
Primary Voltage Output:	520 Volts
Spark Energy:	CD Coil; 130 millijoules per spark Inductive Coil; 500 millijoules stored
Weight and Size:	4.8lbs., 9"L x 4"W x 5.75"H

Wire Functions

The MSD 10 features two terminal strips.

- Power Cables:** The heavy Red connects to the battery positive (+) terminal. The heavy Black connects the battery negative (-) terminal or other good engine ground.
- Ignition (Red):** Connects to a switched 12 volts source.
- Power Coil + (Red):** Connects to the positive side of the Pro Power Coupler Coil.
- Power Coil - (Blue):** Connects to the negative side of the Pro Power Coupler Coil.
- CD Coil - (Black):** Connects to the negative (-) coil terminal. *This is the only wire that makes electrical contact with the coil negative terminal.*
- CD Coil + (Orange):** Connects to the positive (+) coil terminal. *This is the only wire that makes electrical contact with the coil positive terminal.*
- Points (White):** This is the trigger input terminal for points, amplifiers, a timing control or from an ECU. If this is connected, the magnetic pickup terminals will not be used.
- Mag + (Violet):** These are the magnetic pickup terminals that connect to an MSD Distributor or Crank Trigger. If these terminals are connected, the Points terminal will not be used.
- Mag - (Green)**
- Tach (Gray):** This is the tach output terminal. It provides a 12 volt square wave signal that most tachometers will accept.
- Two Step (Yellow):** This is the Two Step activation terminal. When this wire is grounded, Module 2 is activated. When not grounded, Module 1 is active.
- Kill (Brown):** This can be used as an emergency kill switch. When grounded, the ignition system is turned Off.

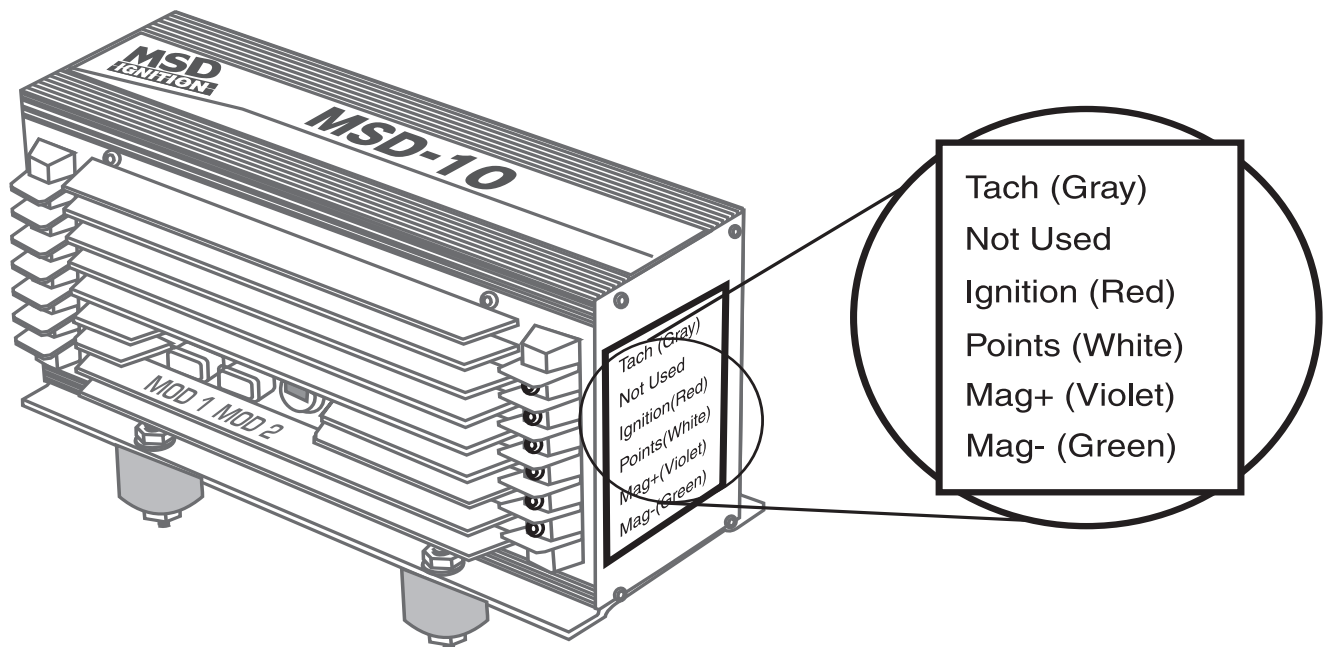
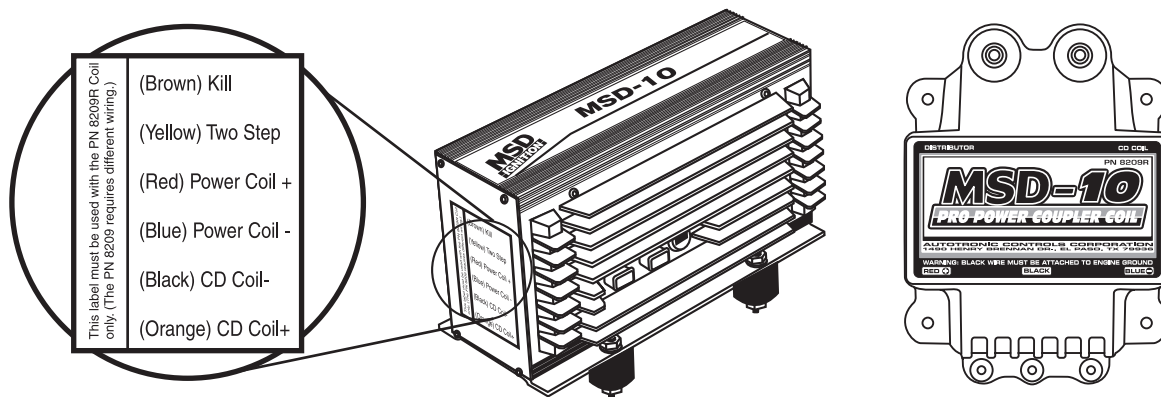


MSD 10 SERIES IGNITION INFORMATION

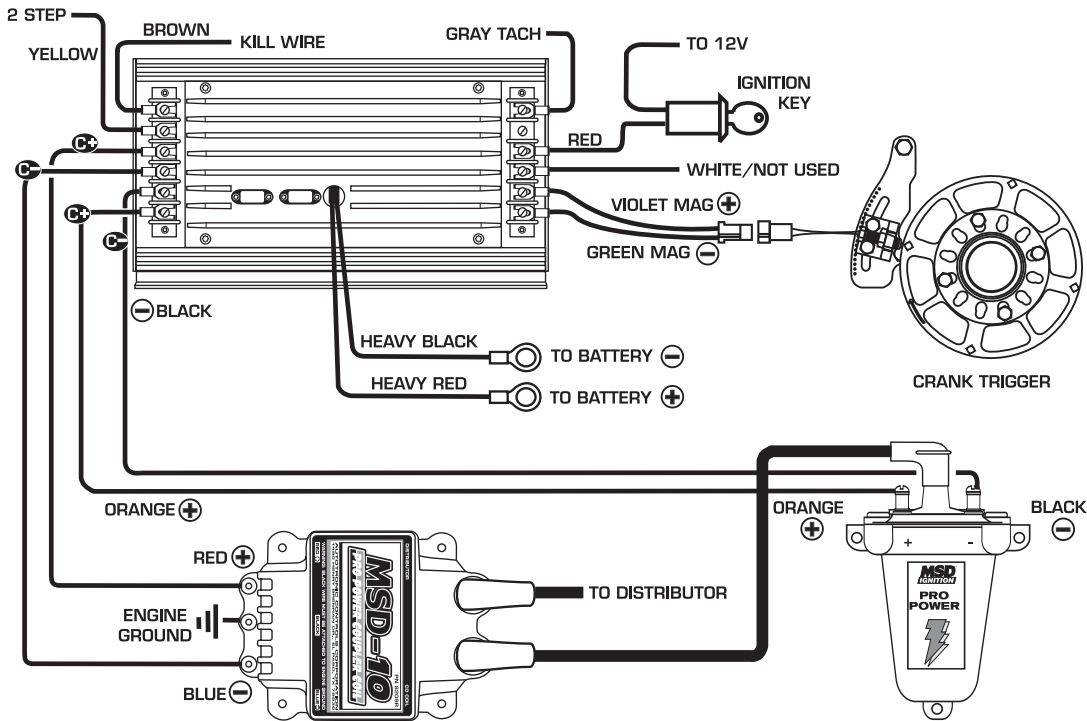
UPDATE:

Before connecting the MSD 10, inspect the Pro Power Coupler Coil. It must be Part Number 8209R. Originally, this Coil was solid black with the number PN 8209 but it was revised to a red housing with a new part number of PN 8209R. This running change also affected the wiring to the ignition Control.

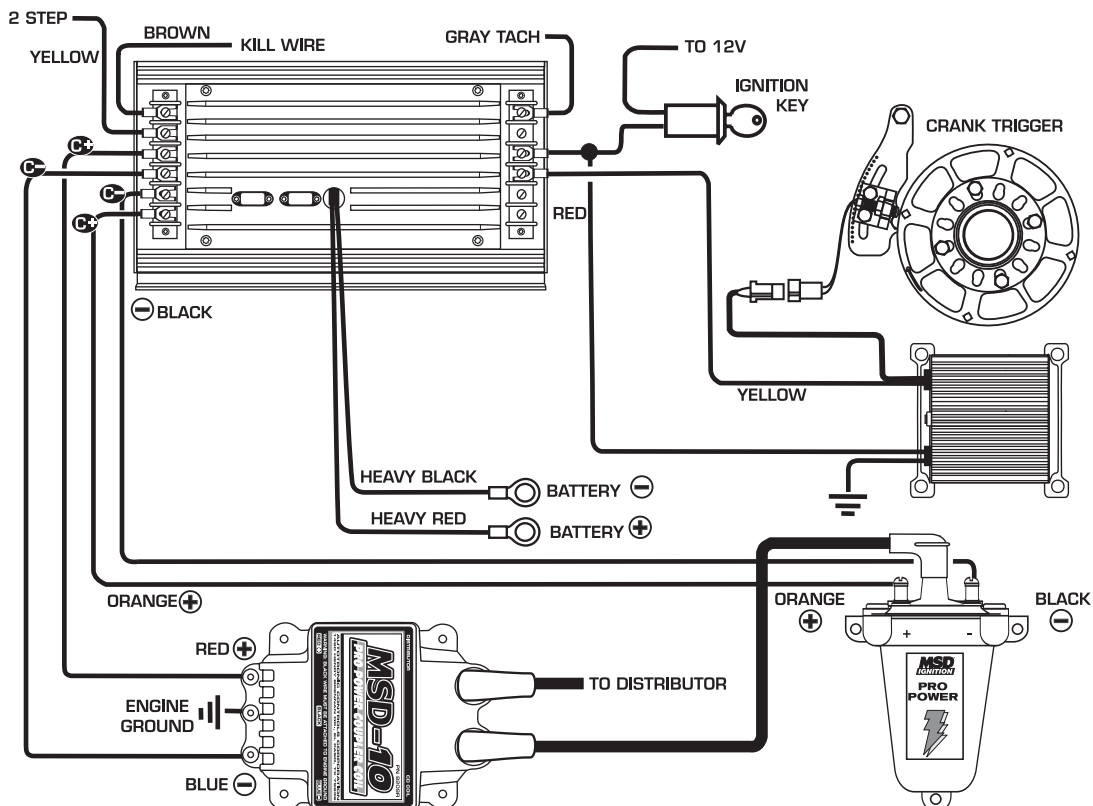
The decal describing the coils' wiring should be silver and black (on the left side of the Ignition). It is also noted as to being the correct decal to use with the updated PN 8209R Coupler Coil.



MSD 10 IGNITION TO MAGNETIC PICKUP



MSD 10 IGNITION WITH TIMING ACCESSORY





INSTALLING AN MSD DIS-2/DIS-4 IGNITION CONTROL

This section covers the MSD DIS-2 and DIS-4 line of Ignition Controls. The DIS-2 Ignitions can be used on 4-cylinder engines equipped with two dual output coils. The DIS-4 Ignitions can be used on 4, 6 or 8-cylinder engines equipped with up to four dual output coils. They will accept trigger inputs from electronic DIS type ignition systems.

The DIS-HO Ignitions are designed for race only applications.

Operating Specifications DIS-2/DIS-4 DIS-2HO/DIS-4HO

Operating Voltage:	12 - 18 Volts	12 - 18 Volts
Current Requirements:	4.0A/ 7.4A at 10K rpm	5.3A/10A at 10K rpm
RPM Output:	14,000 w/ 14.4 Volts	14,000 w/ 14.4 Volts
Spark Series Duration:	20° Crankshaft	20° Crankshaft
Primary Voltage:	470 Volts	470 Volts
Energy Output Max:	115 millijoules	170 millijoules
Weight and Size:	DIS-2 3.7lbs, 8.5"x 4.5"x2.2"	DIS-2 3.7lbs, 8.5"x 4.5"x2.2"
	DIS-4 4.5lbs, 9.5"x 4.5"x2.2"	DIS-4 4.5lbs, 9.5"x 4.5"x2.2"

Wire Functions

Power Cables:	The heavy Red connects to the battery positive (+) terminal. The heavy Black connects the battery negative (-) terminal or other good engine ground.
Red:	Connects to a switched 12 volts source.
Brown/Orange:	Connects to the positive (+) coil terminal/wire.
Brown/White:	Connects to the negative (-) terminal/wire of the coil (Channel 1).
Brown/Green:	Connects to the negative (-) terminal/wire of the coil (Channel 2).
Brown/Yellow:	Connects to the negative (-) terminal/wire of the coil (Channel 3, DIS-4 only).
Brown/Violet:	Connects to the negative (-) terminal/wire of the coil (Channel 4, DIS-4 only).

Trigger Wires

There are two or more circuits that can be used to trigger the MSD DIS Ignitions from the electronic amplifier.

White:	Connects to the electronic ignition amplifier output of channel 1.
Green:	Connects to the electronic ignition amplifier output of channel 2.
Yellow:	Connects to the electronic ignition amplifier output of channel 3.
Violet:	Connects to the electronic ignition amplifier output of channel 4.

Accessories

Blue:	Two Step Activation wire. When connected to ground, the lower or launch rpm limit is activated.
Brown:	Ignition interrupt feature. When connected to ground the ignition output is interrupted.

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

MAX/MIN REV LIMIT (+)

Selector, S1, extends the range of the Max Speed Rev Limit and the Staging Rev Limit by 4000 rpm. Set selector S1 to ON to increase the indicated Rev Limit points by 4000 rpm.

HIGH SPEED RETARD

When the High Speed Retard selector, S2, is ON the ignitions high speed retard feature will retard the ignition timing 20° starting at 1000 rpm before the Max Speed Rev Limit point.

ELECTRIC START

Selector S3 programs the ignition spark to occur after one revolution for electric starter equipped engines or immediately for hand crank/kick start type engines. Set selector S3 to ON for hand crank/kick start engines only.

WASTE SPARK

Selector S4 programs the ignition for use with single (coil per cylinder) or dual output (coil pack) type coils. Set selector S4 to OFF for engines equipped with one coil per cylinder (720° firing) or to ON for all coil pack (360° firing) equipped engines.

MAX TIMING

The Max Timing selectors, S6, S7 and S8 are for a feature which is not programmed into this model. Changing the position of the Max Timing selectors will not affect the operation of this ignition.

STAGING REV LIMIT

Selectors S1, S2, S3 and S4 set the rpm point at which the Staging Rev Limit feature limits the engine rpm at. Position the selectors to the desired rpm below.

RPM	S1	S2	S3	S4
3000	OFF	OFF	OFF	OFF
3250	ON	OFF	OFF	OFF
3500	OFF	ON	OFF	OFF
3750	ON	ON	OFF	OFF
4000	OFF	OFF	ON	OFF
4250	ON	OFF	ON	OFF
4500	OFF	ON	ON	OFF
4750	ON	ON	ON	OFF
5000	OFF	OFF	OFF	ON
5250	ON	OFF	OFF	ON
5500	OFF	ON	OFF	ON
5750	ON	ON	OFF	ON
6000	OFF	OFF	ON	ON
6250	ON	OFF	ON	ON
6500	OFF	ON	ON	ON

MAX SPEED RETARD

The Max Speed Retard sets the amount of ignition retard that occurs between the Retard Begin Speed and the Max Speed Rev Limit. Position selectors S5, S6, S7 and S8 to the amount of retard desired.

DEG	S5	S6	S7	S8
0	OFF	OFF	OFF	OFF
1°	ON	OFF	OFF	OFF
2°	OFF	ON	OFF	OFF
3°	ON	ON	OFF	OFF
4°	OFF	OFF	ON	OFF
5°	ON	OFF	ON	OFF
6°	OFF	ON	ON	OFF
7°	ON	ON	ON	OFF
8°	OFF	OFF	OFF	ON
9°	ON	OFF	OFF	ON
10°	OFF	ON	OFF	ON
11°	ON	ON	OFF	ON
12°	OFF	OFF	ON	ON
13°	ON	OFF	ON	ON
14°	OFF	ON	ON	ON
15°	ON	ON	ON	ON

RETARD BEGIN SPEED

The Retard Begin Speed, S1, S2 and S3 of Switch 3 determines the rpm point at which the ignition's retard function will begin to retard the timing. Position the switches to the desired rpm point shown in the graph below.

RPM	S1	S2	S3
4000	OFF	OFF	OFF
4500	ON	OFF	OFF
5000	OFF	ON	OFF
5500	ON	ON	OFF
6000	OFF	OFF	ON
6500	ON	OFF	ON
7000	OFF	ON	ON
7500	ON	ON	ON

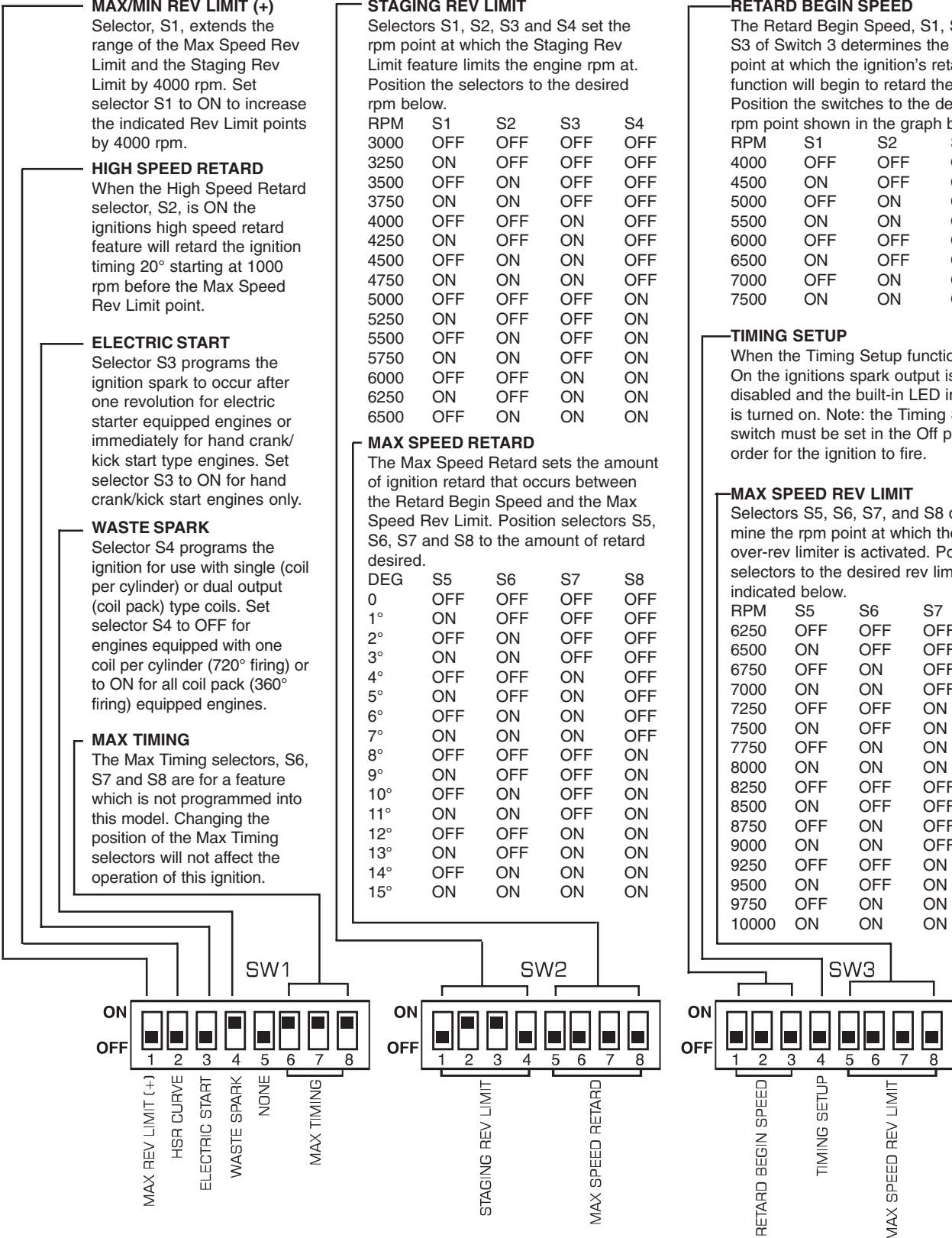
TIMING SETUP

When the Timing Setup function, S4, is ON the ignitions spark output is disabled and the built-in LED indicator is turned on. Note: the Timing Setup switch must be set in the Off position in order for the ignition to fire.

MAX SPEED REV LIMIT

Selectors S5, S6, S7, and S8 determine the rpm point at which the engine over-rev limiter is activated. Position the selectors to the desired rev limit indicated below.

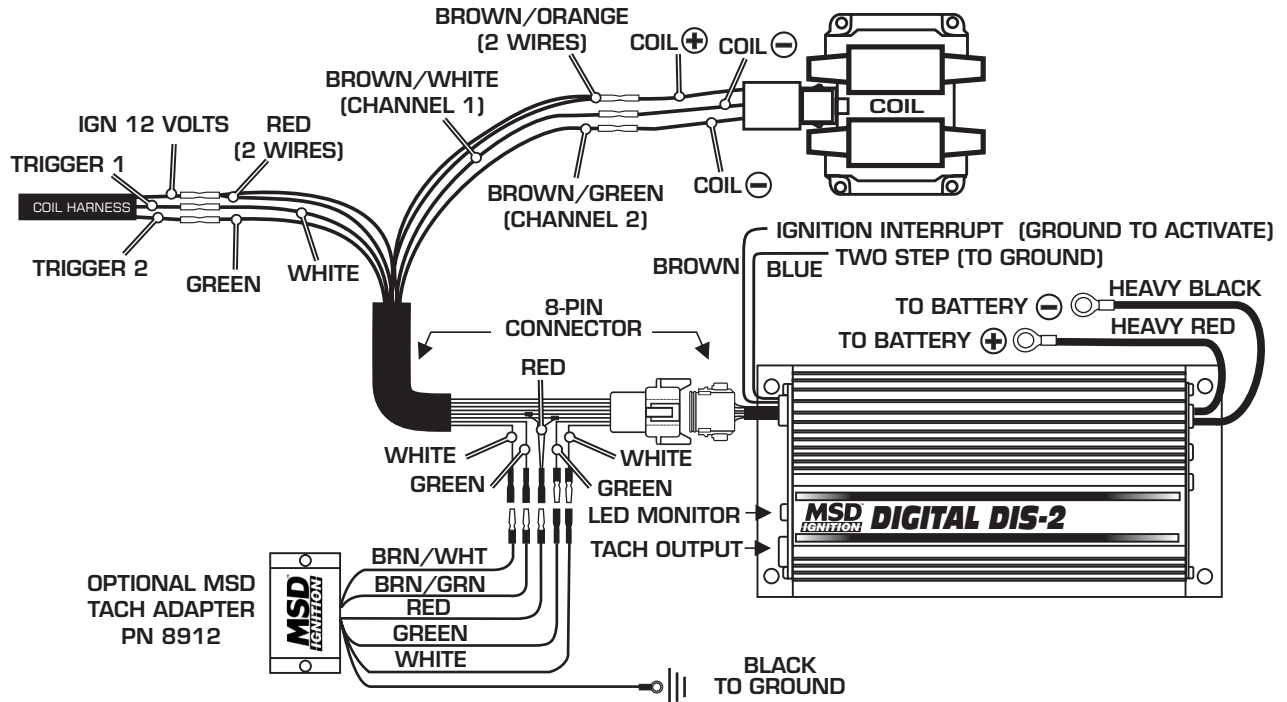
RPM	S5	S6	S7	S8
6250	OFF	OFF	OFF	OFF
6500	ON	OFF	OFF	OFF
6750	OFF	ON	OFF	OFF
7000	ON	ON	OFF	OFF
7250	OFF	OFF	ON	OFF
7500	ON	OFF	ON	OFF
7750	OFF	ON	ON	OFF
8000	ON	ON	ON	OFF
8250	OFF	OFF	OFF	ON
8500	ON	OFF	OFF	ON
8750	OFF	ON	OFF	ON
9000	ON	ON	OFF	ON
9250	OFF	OFF	ON	ON
9500	ON	OFF	ON	ON
9750	OFF	ON	ON	ON
10000	ON	ON	ON	ON



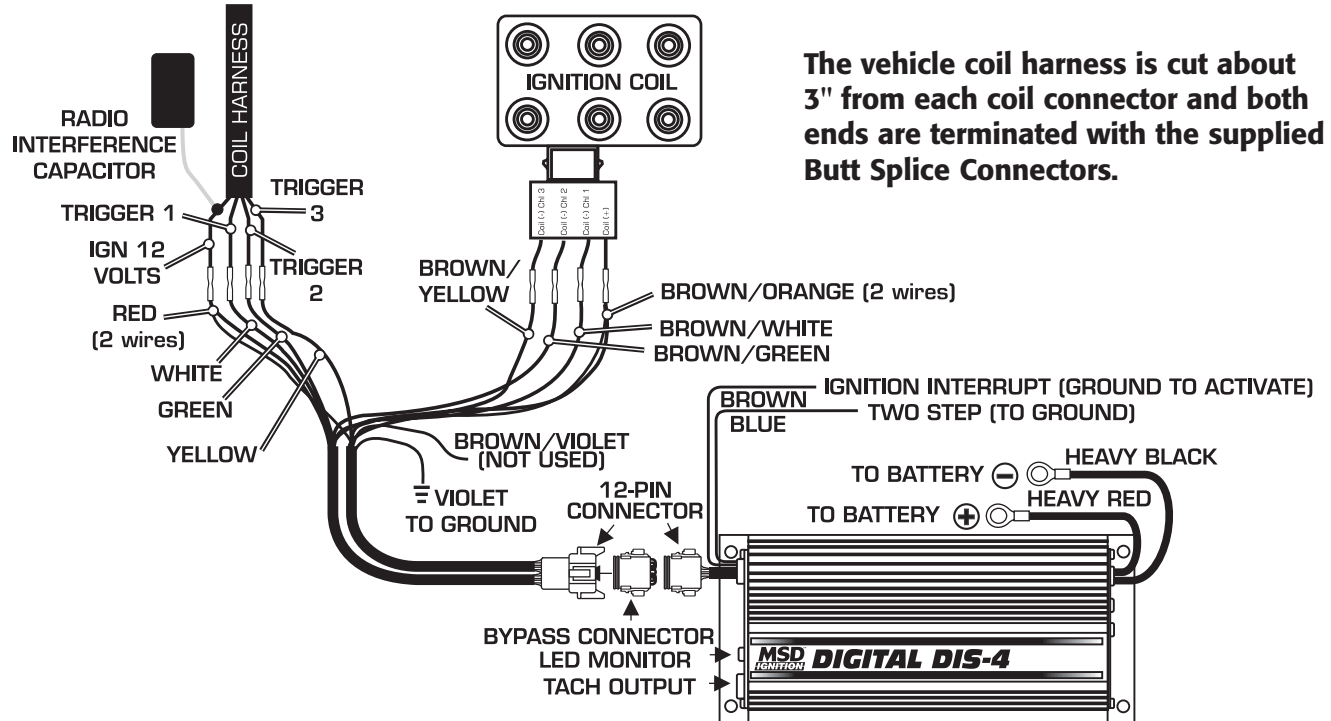
DEFAULT SWITCH POSITIONS SHOWN

NOTE: The ignition switch must be turned ON then OFF before new program changes will take effect.

MSD DIS-2 TO TYPICAL 4-CYLINDER IGNITION

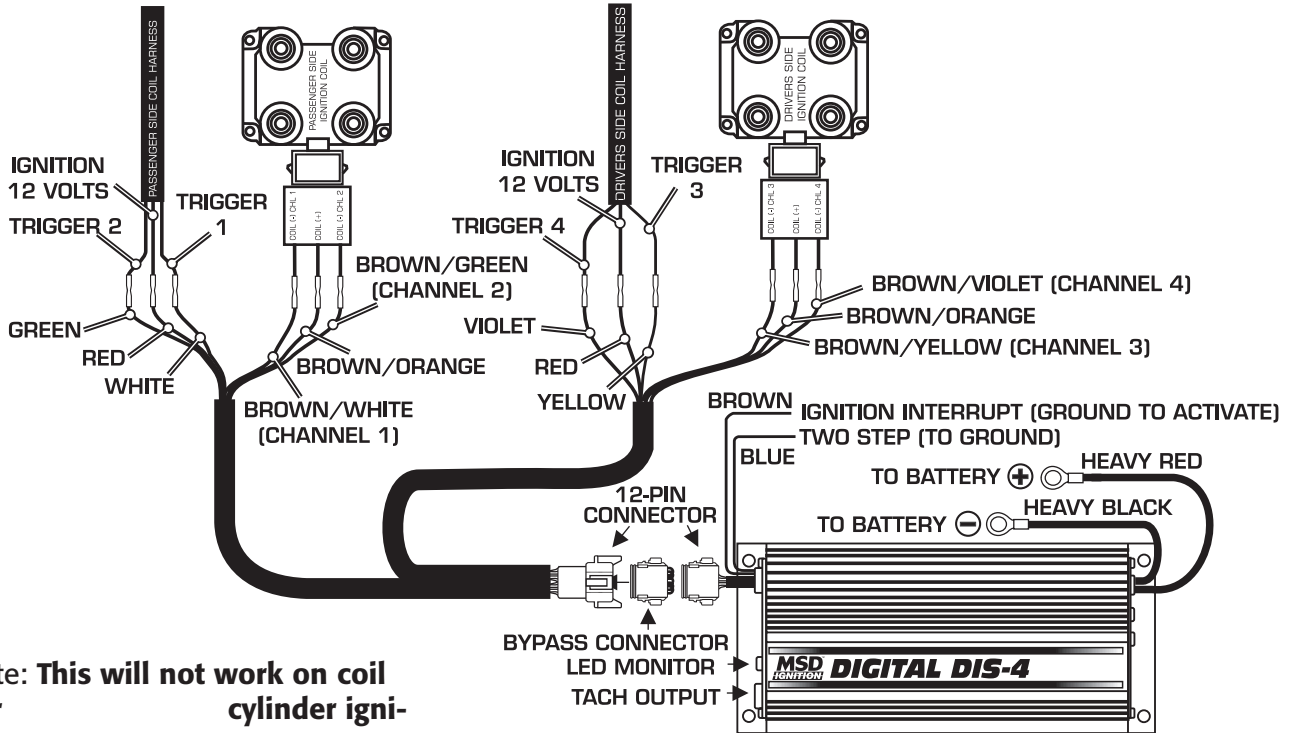


MSD DIS-4 TO TYPICAL 6-CYLINDER IGNITION



The vehicle coil harness is cut about 3" from each coil connector and both ends are terminated with the supplied Butt Splice Connectors.

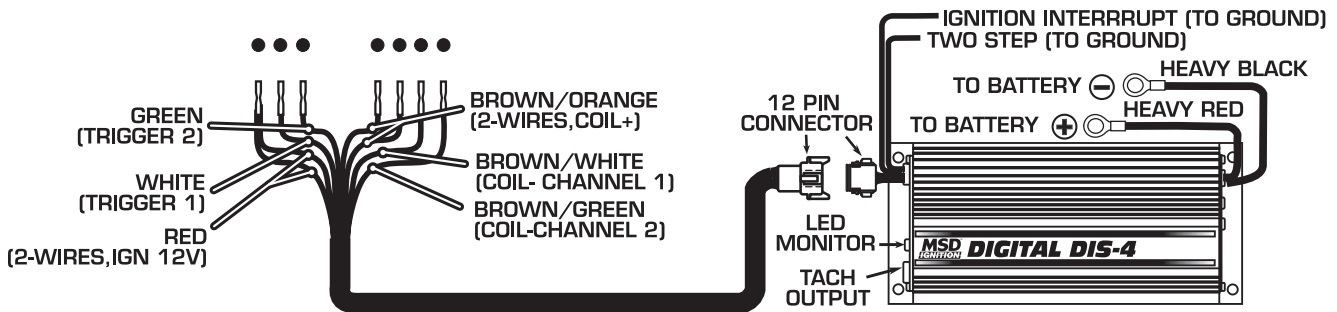
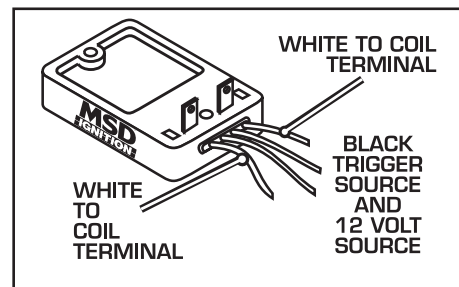
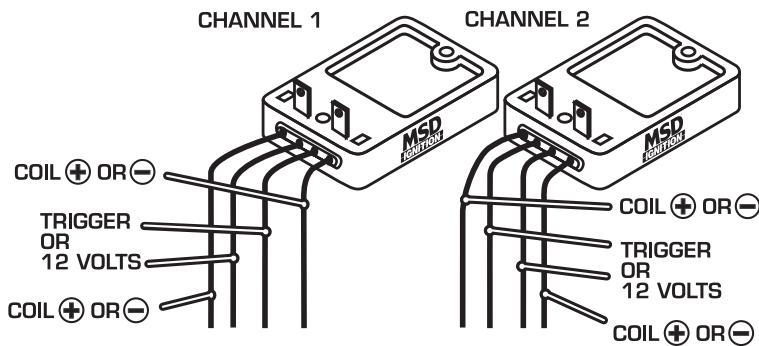
MSD DIS-4 WITH A TYPICAL DISTRIBUTORLESS V-8 IGNITION



Note: This will not work on coil per cylinder ignitions.

MSD DIS-2 WITH PN 8870 COIL SPACERS

START BY INDICATING WHICH TERMINAL IS THE 12 VOLT SIDE OF MODULE





MSD STACKER IGNITION CONTROLS

The Stacker Advantage

The MSD Stacker Ignitions utilize the best characteristics of both the conventional factory inductive ignition and a multiple sparking, capacitive discharge (CD) ignition system. The inductive side of the ignition provides the engine with a long duration spark while the Stackers CD design provides a full power spark with high voltage and energy. The Patented design of the Stacker Ignitions allow the system to run parallel with the stock ignition resulting in simplified installation and compatibility with the rest of the vehicle's electronics.

Capacitive Discharge: The MSD Stacker Ignitions feature a capacitive discharge ignition design. The majority of factory ignition systems are inductive ignitions. In an inductive ignition, the coil must store and step up the voltage to maximum strength in between each firing. At higher rpm, since there is less time to charge the coil to full capacity, the voltage falls short of reaching maximum energy resulting in a loss of power or top end miss. The MSD Stacker Ignitions feature a step up transformer and capacitor which is quickly charged to full power (120 millijoules) in less than one millisecond. This produces a full power spark throughout the entire rpm range of the engine.

Multiple Sparks: Due to the quick charge time of the Stacker's CD design, they are capable of delivering a series of full power sparks to each spark plug. Under 3,000 rpm, the Stackers deliver a series of sparks that lasts for 20° of crankshaft rotation for each firing of the spark plug. The number of sparks that occur depends on rpm. Above 3,000 rpm there is simply not enough time to fire the spark plug more than once, but there is always one full power spark.

The high output and multiple sparks of the Stacker Ignitions work together with the stock inductive spark to ensure complete combustion of the fuel mixture. Improved combustion results in quick starts, smooth idle, quick throttle response and increased performance.

Specifications:

- Operating Voltage:** 10-18 Volts,
- Current Requirements:** 1 Amp per 1,000 rpm
- RPM Range:** 15,000 RPM with 14 Volt Input
- Spark Series Duration:** 20°
- Primary Voltage:** 250 Volts
- Energy Output:** 120 millijoules

Stacker Ignition, Single Channel, PN 7000
For 4, 6 or 8-cylinder engines with a distributor, points or electronic.

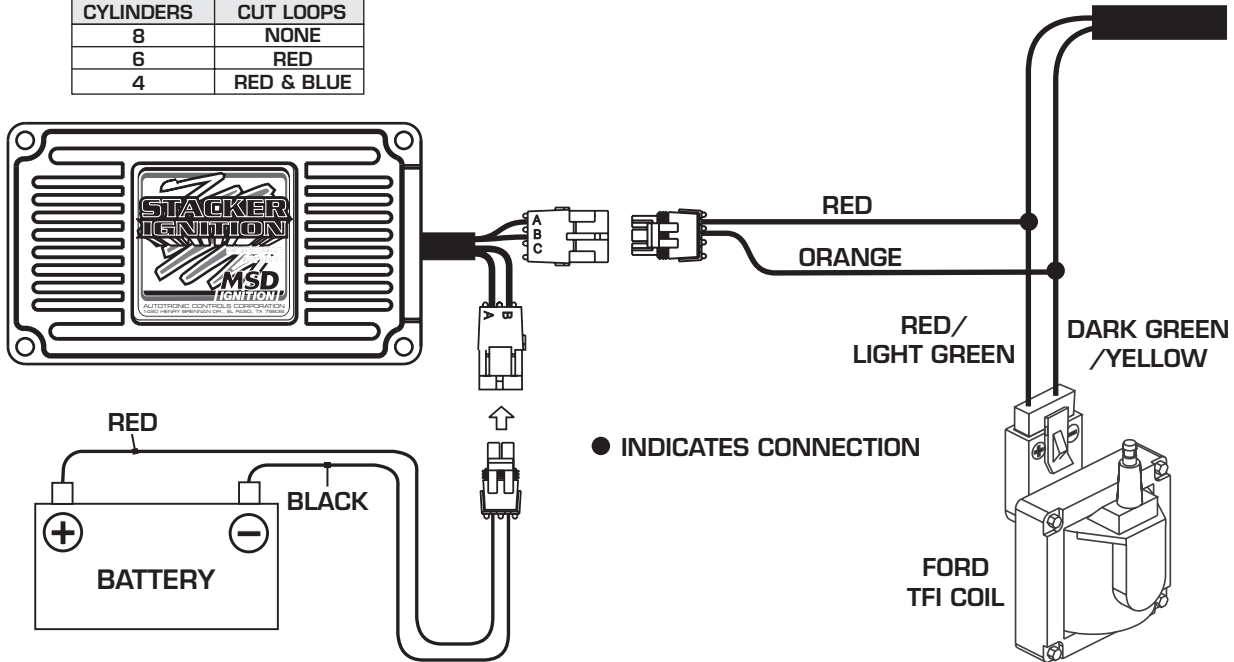
Stacker-4 Ignition, PN 7010
Designed to work with four channel DIS vehicles.

Stacker-8 Ignition, PN 7020
Designed for engines with individual coils per cylinder. Up to eight cylinders.

Power Leads	These are the Red and Black wires (14 gauge) and are responsible for getting direct battery voltage to the ignition. The ignition has an internal fuse so no fuse is necessary.
Red(14 Gauge)	This wire connects to the battery positive (+) terminal.
Black(14 Gauge)	This wire connects to ground, either at the battery negative (-) terminal or to the engine.
Red(18 Gauge)	This wire turns the Stacker On and needs to be connected to a switched 12 volt source. A coil positive (+) wire is a wire that can be spliced into.
Trigger/Output	
Orange Wires (18 Gauge)	The Orange wire(s) on the MSD Stackers, one on the Stacker, four on the Stacker-4, eight on the Stacker-8, are the trigger wires and need to be connected to each coil's negative wire. Use the supplied ring lug or Blue tab splice connectors to connect the Orange wires to their connection (Figure 1). Note: If your application does not use all of the Orange wires (the channels), the remaining Orange wires should be connected to an active channel.

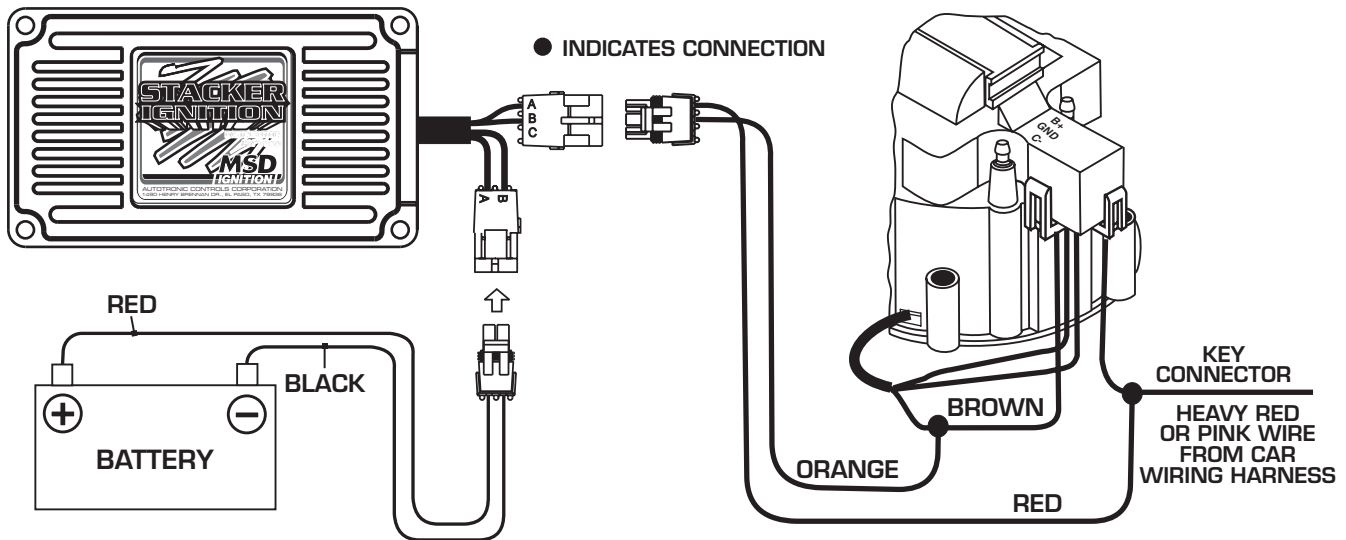
MSD STACKER, PN 7000, TO FORD TFI

CYLINDERS	CUT LOOPS
8	NONE
6	RED
4	RED & BLUE



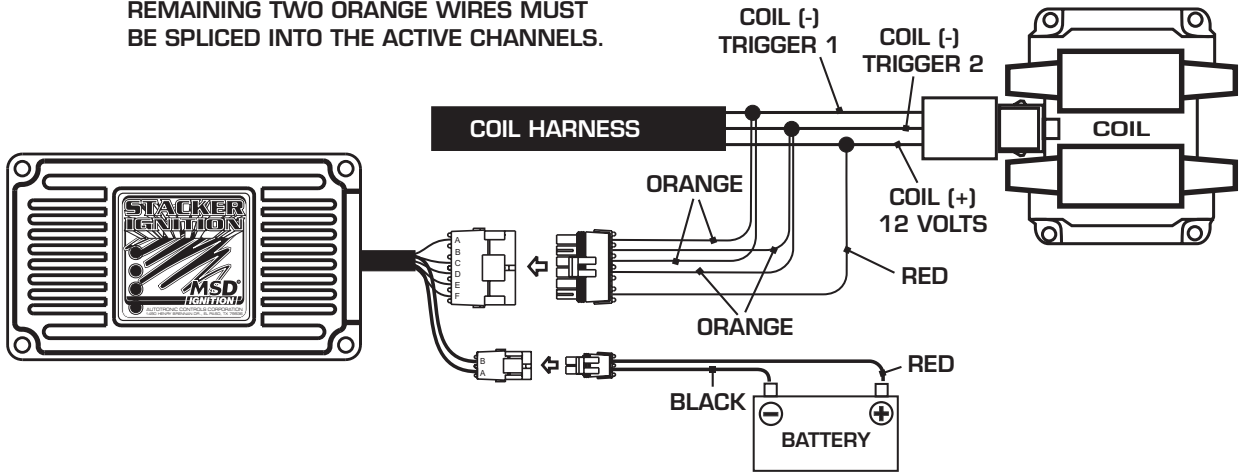
MSD STACKER, PN 7000, TO GM HEI

CYLINDERS	CUT LOOPS
8	NONE
6	RED
4	RED & BLUE

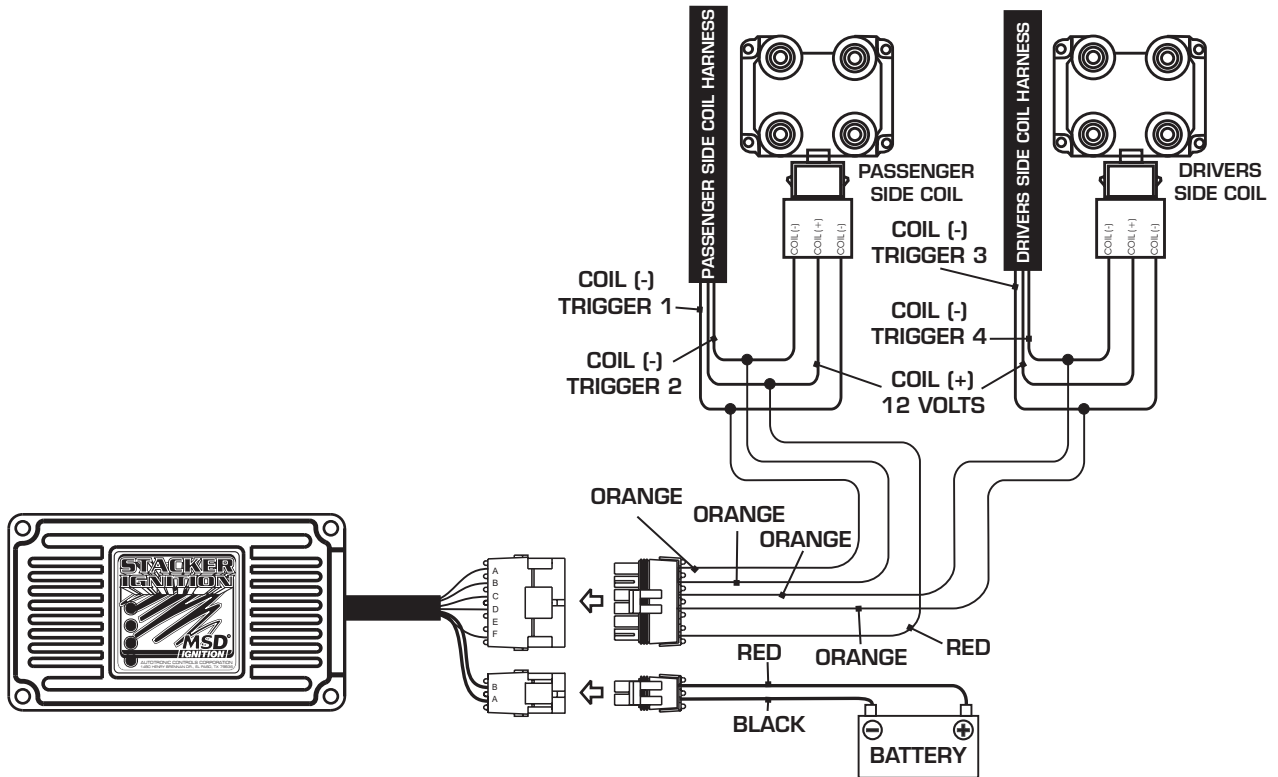


MSD STACKER-4 TO 4-CYLINDER COIL PACK IGNITION

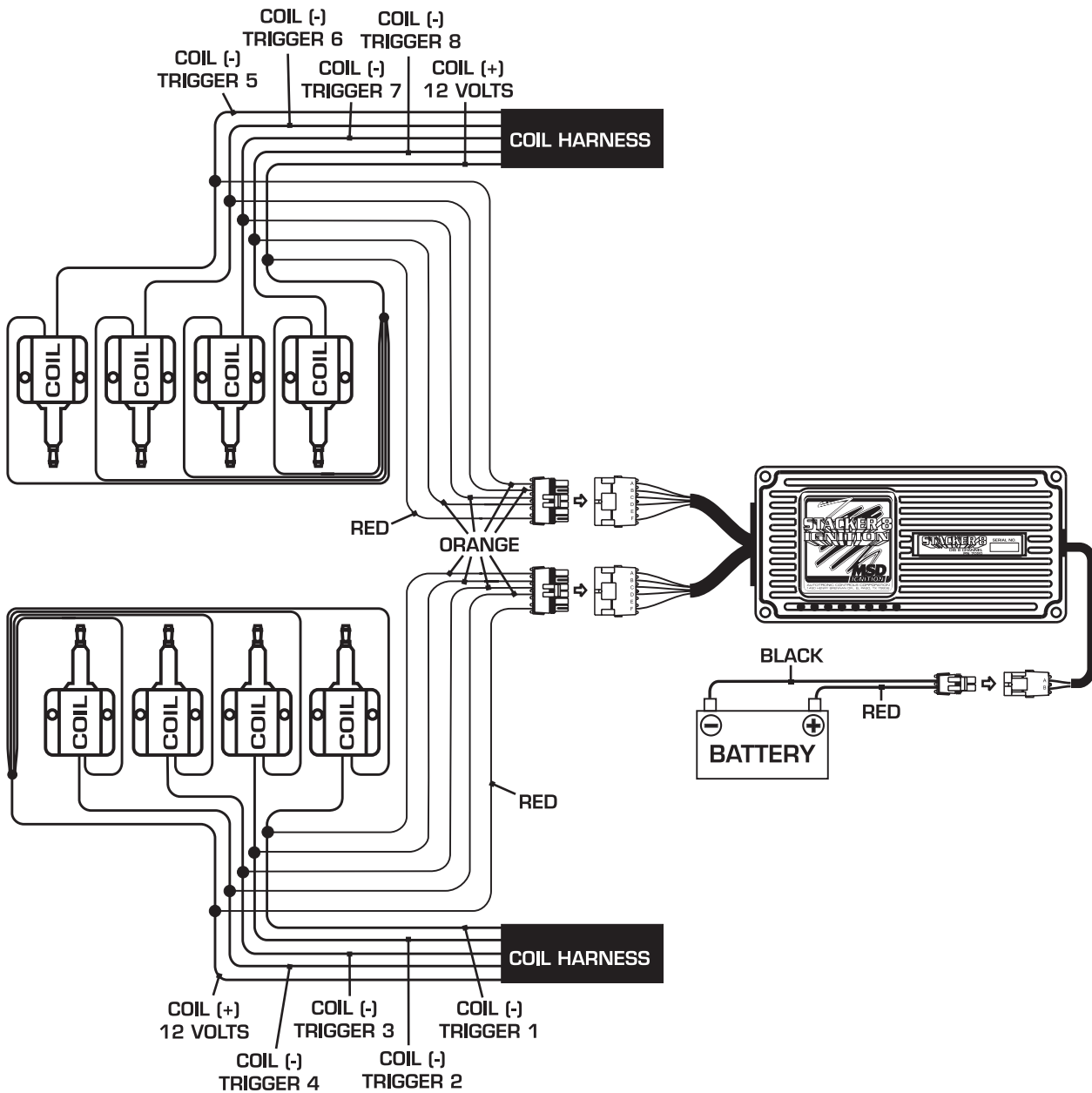
NOTE: ONLY TWO CHANNELS ARE USED SO THE REMAINING TWO ORANGE WIRES MUST BE SPLICED INTO THE ACTIVE CHANNELS.



MSD STACKER-4 TO 8-CYLINDER COIL PACK IGNITION



MSD STACKER-8 TO 8-CYLINDER COIL PER CYLINDER IGNITION





SOFT TOUCH REV CONTROLS

The MSD Soft Touch Rev Control, PN 8728, is designed for inductive style ignition systems. It cannot be used with an MSD CD Ignition such as any 6 or 7 Series Ignition Control.

The Rev Limit is set with plug-in rpm modules. When the rpm reaches the specified limit, the Control will randomly drop the spark to the cylinders to keep the rpm at the limit. If no module is installed, there will be no rev limit.

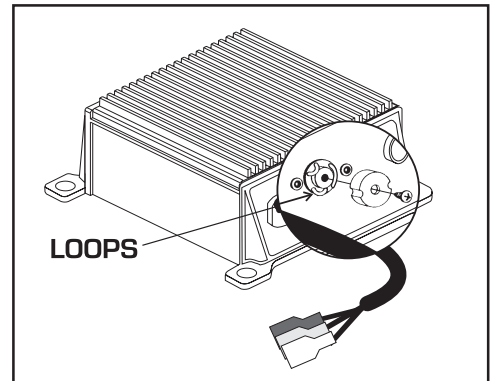
Wire Functions

- Red:** Connects to a switched 12 volt source.
- Black:** Connects to ground.
- Trigger Pickup Wires:**
- Green:** Connects to the coil negative (-) terminal.
- White:** Connects to Points or Amplifier trigger wire.
- Violet:** Connects to the magnetic pickup positive (+) wire.

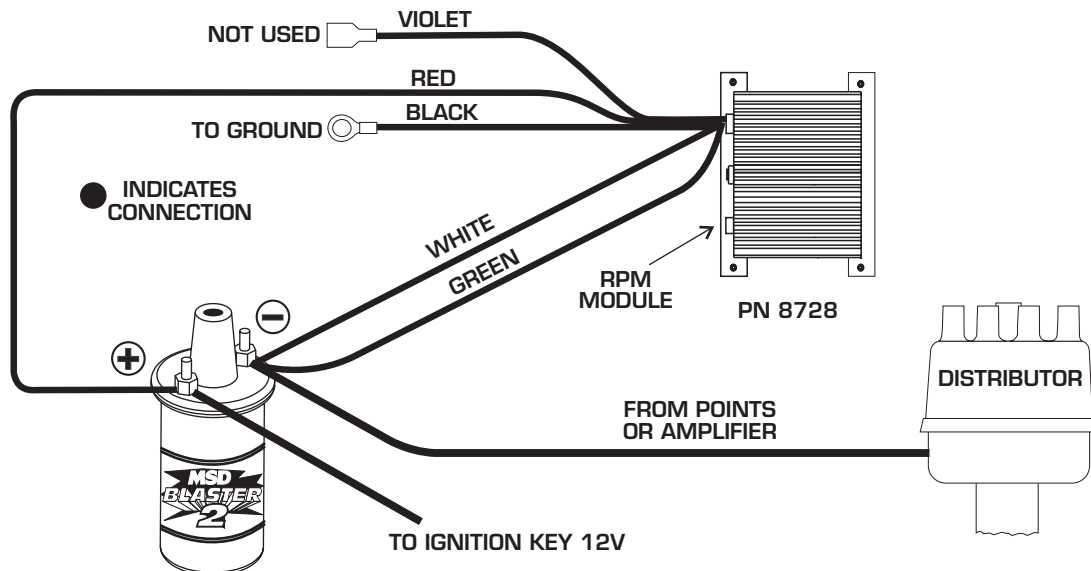
Cylinder Programming Loops: There are two wire loops, Red and Blue under a small cover on the side of the Control. For a 6-cylinder engine, cut the Red loop. For 4-cylinder applications, cut the Blue and Red loops.

Note: MSD also offers another Soft Touch Rev Control, PN 8738. This Control can only be used with an MSD 6T, 6TN and 6-HVC Ignition Control.

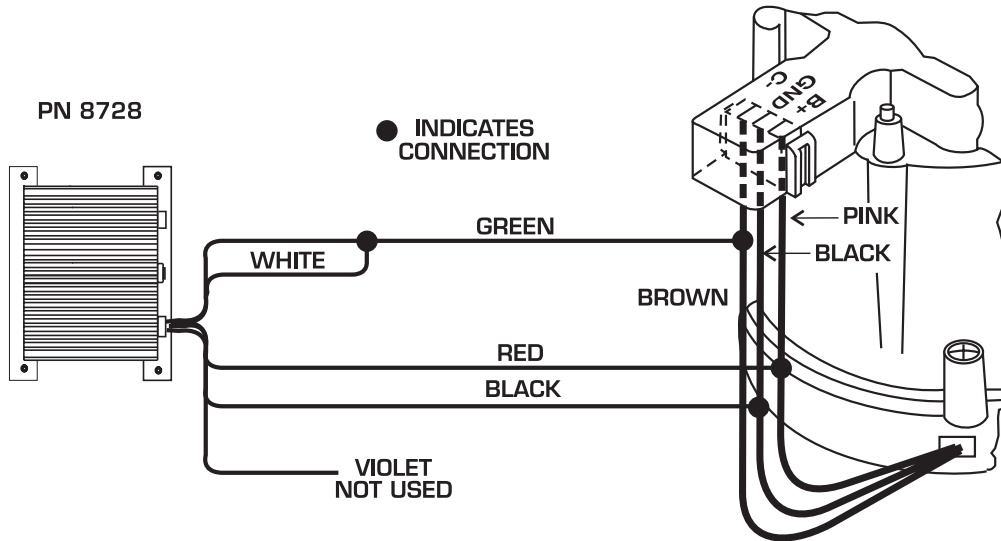
Note: This Rev Control is not recommended for Chrysler Gold and Chrome Ignition boxes.



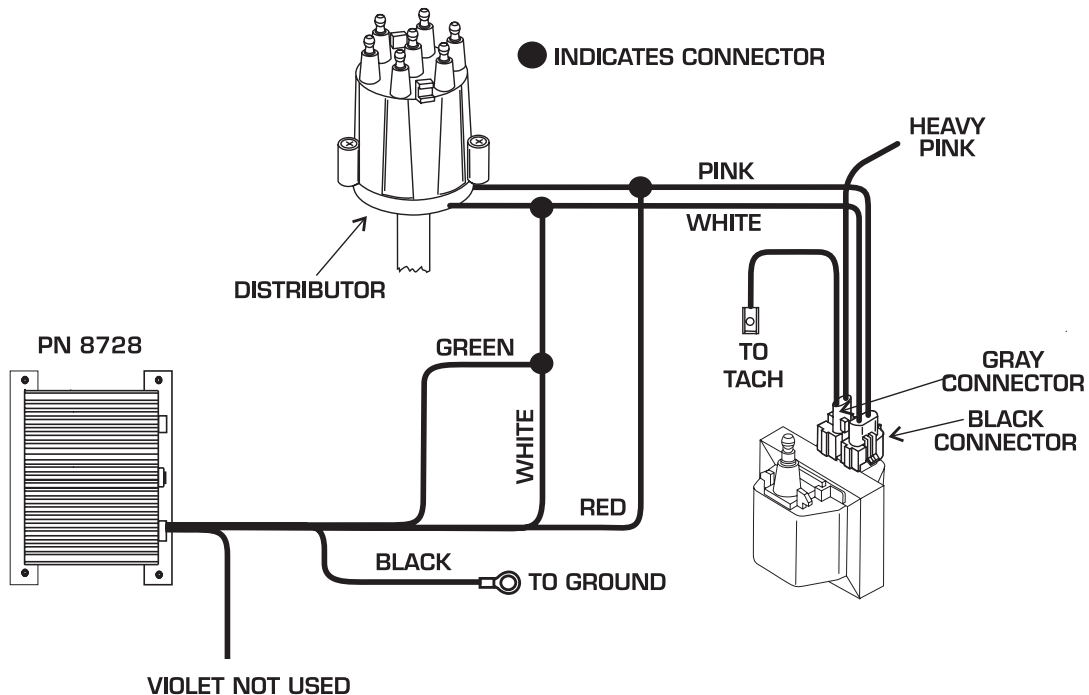
SOFT TOUCH REV CONTROL PN 8728 WITH POINTS/AMPLIFIER IGNITION



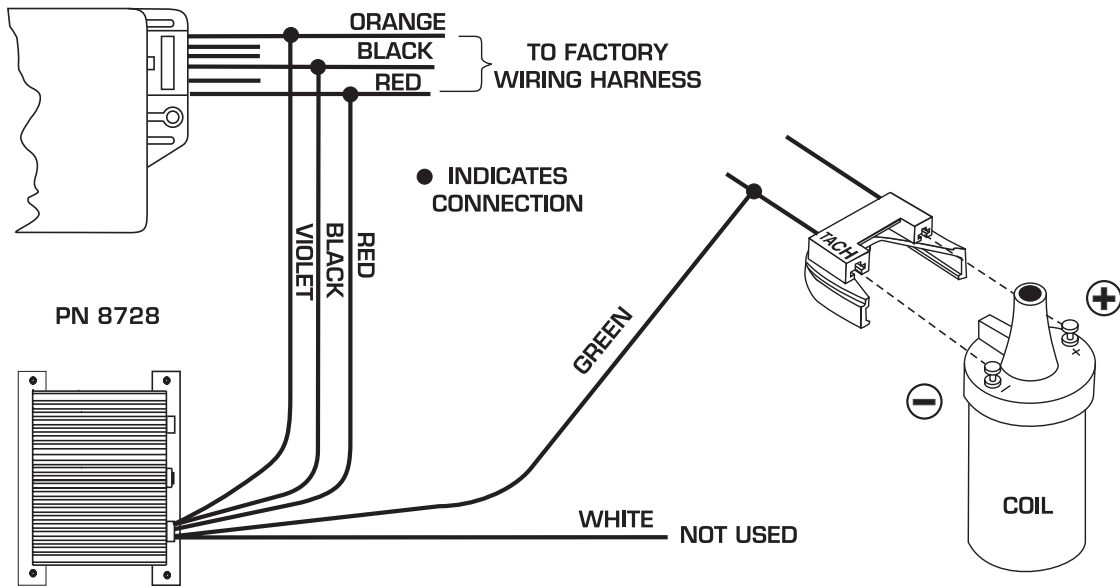
SOFT TOUCH REV CONTROL PN 8728 WITH GM HEI



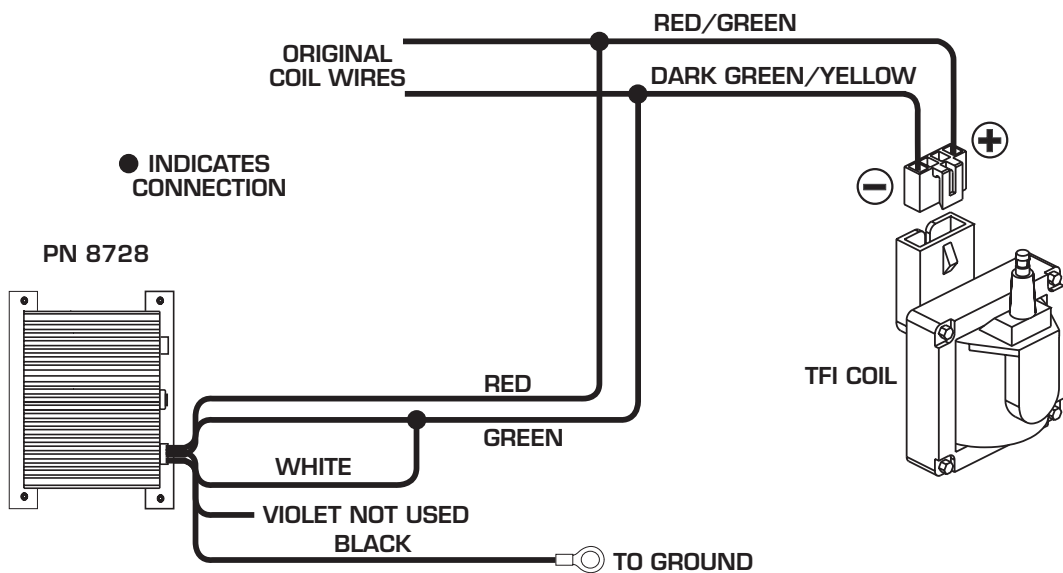
SOFT TOUCH REV CONTROL PN 8728 WITH GM DUAL COIL CONNECTOR



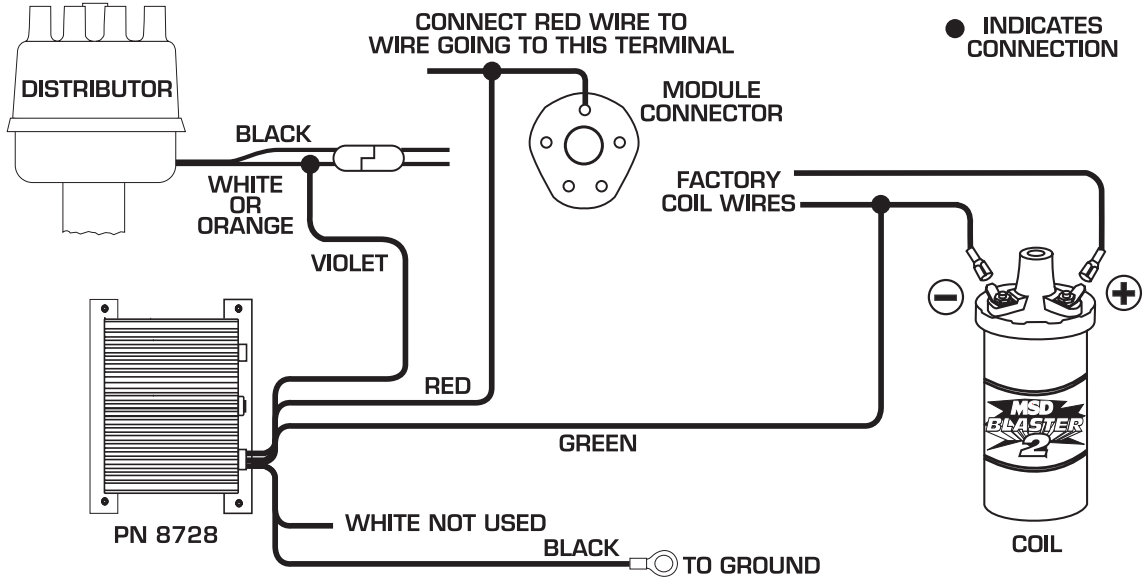
SOFT TOUCH REV CONTROL PN 8728 WITH FORD DURASPARK IGNITION



SOFT TOUCH REV CONTROL PN 8728 WITH FORD TFI IGNITION

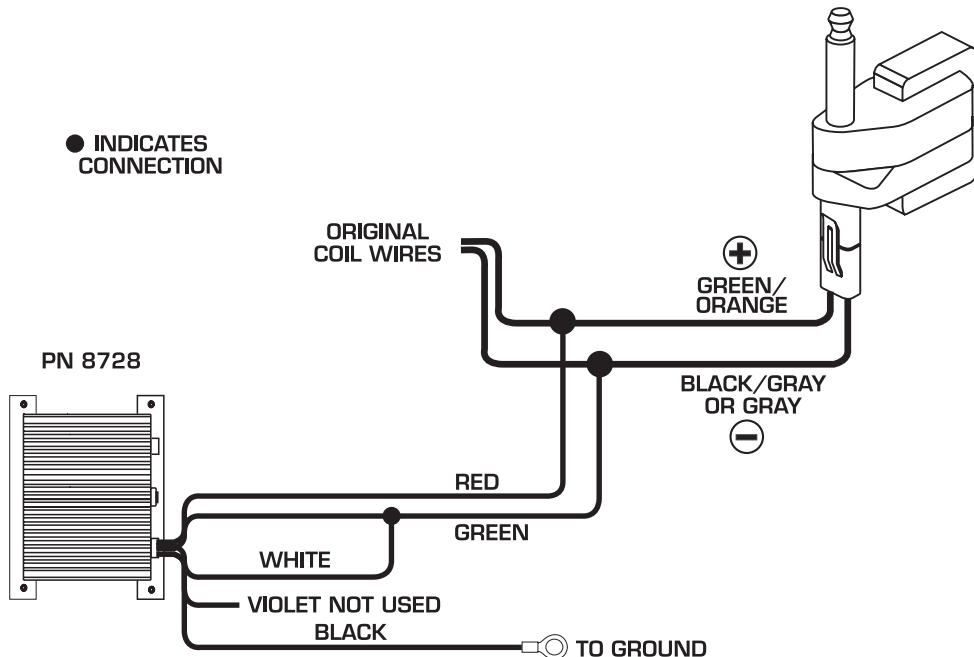


SOFT TOUCH REV CONTROL PN 8728 WITH CHRYSLER MAGNETIC PICKUP



Note: This Rev Control is not recommended for Chrysler Gold and Chrome Ignition boxes.

SOFT TOUCH REV CONTROL PN 8728 WITH LATE MODEL CHRYSLER



TWO AND THREE STEP MODULE SELECTORS

The MSD Two Step, PN 8739, Three Step, PN 8737, and Launch Control, PN 8735, Module Selectors allow you to switch between two or three different rpm or retard modules. The different modules are activated when 12 volts are applied to the corresponding wire. They must be used with an MSD component equipped with a rev control or timing control module.

Wire Functions

Two Pin Connector: Plugs into the module holder of the MSD component.

Black: Connects to engine ground.

Red: Activation wire, when 12 Volts are applied.

Blue: Activation wire (Three Step and Launch Control only), when 12 Volts are applied.

Two Step Operation

When there is 12 volts applied to the Red wire, Module 1 is activated.

When no voltage (grounded or open) is present on the Red wire, Module 2 is activated.

Three Step Operation

When there is no voltage present on the Red or Blue wires, Module 2 is engaged.

When there are 12 volts applied to the Red wire, Module 1 is activated.

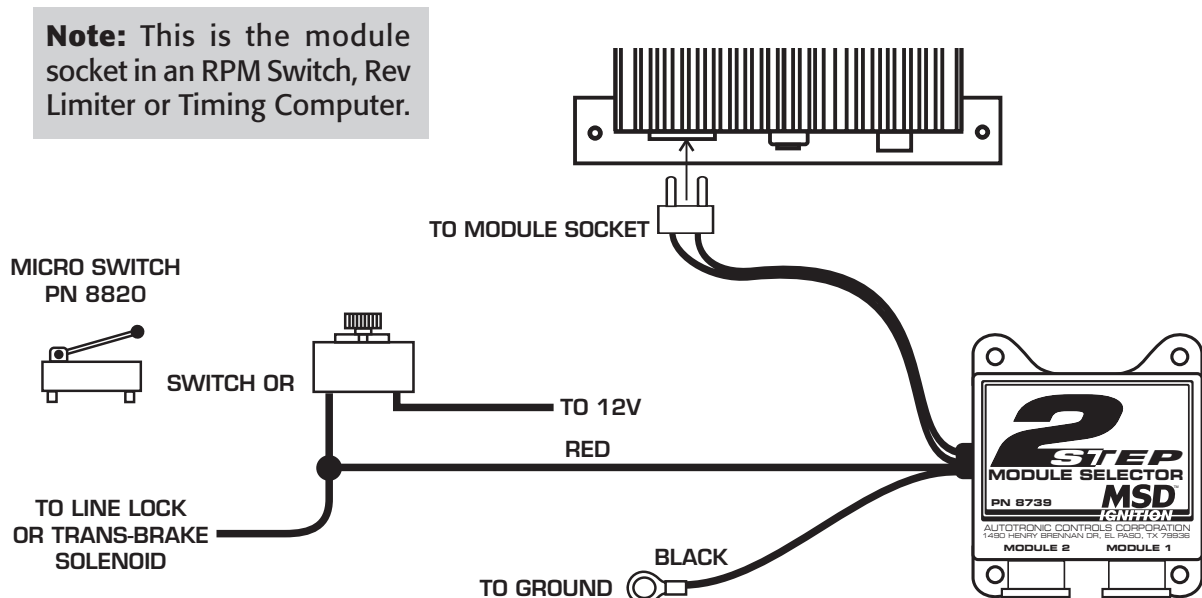
When there are 12 volts applied to the Blue wire, Module 3 is activated.

If the Red and Blue wire are activated at the same time, only Module 3 (Blue wire) will be activated. Module 3 overrides the other modules.

Note: Page 81 has information about the MSD Launch Control, PN 8735.

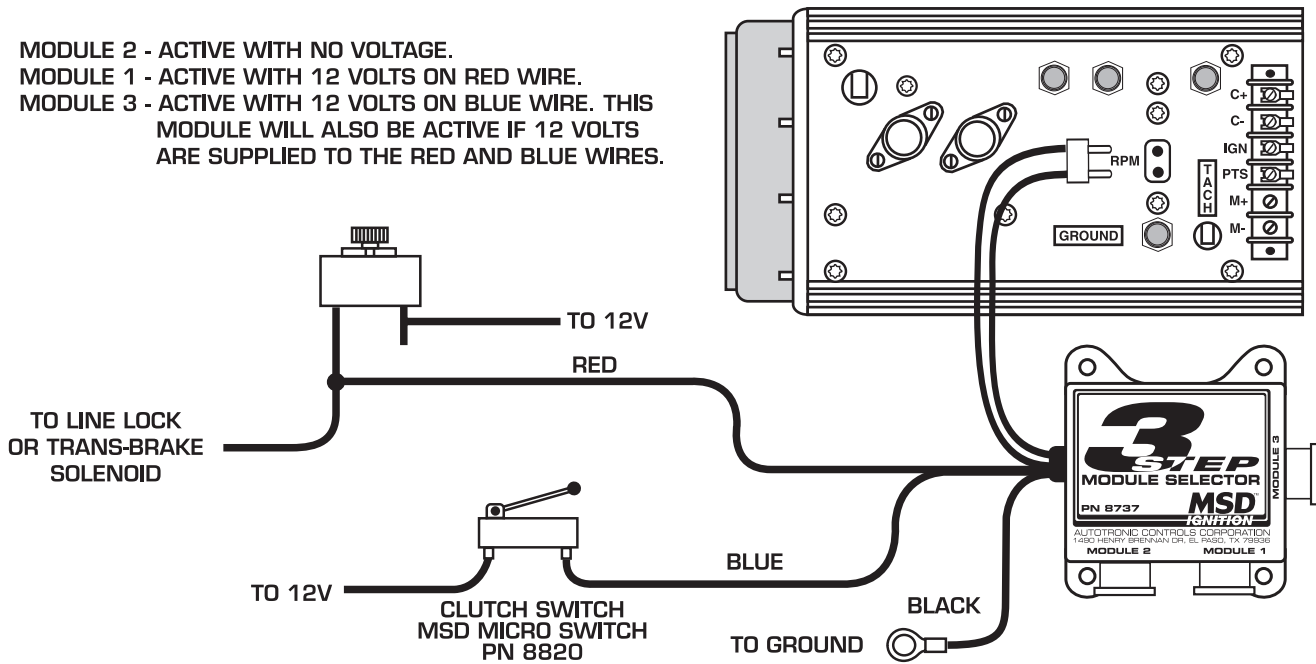
BASIC TWO STEP MODULE SELECTOR INSTALLATION

When 12 volts are applied to the Red wire of the Two Step (button depressed), Module 1 will be engaged. When the button is released, Module 2 will automatically engage.

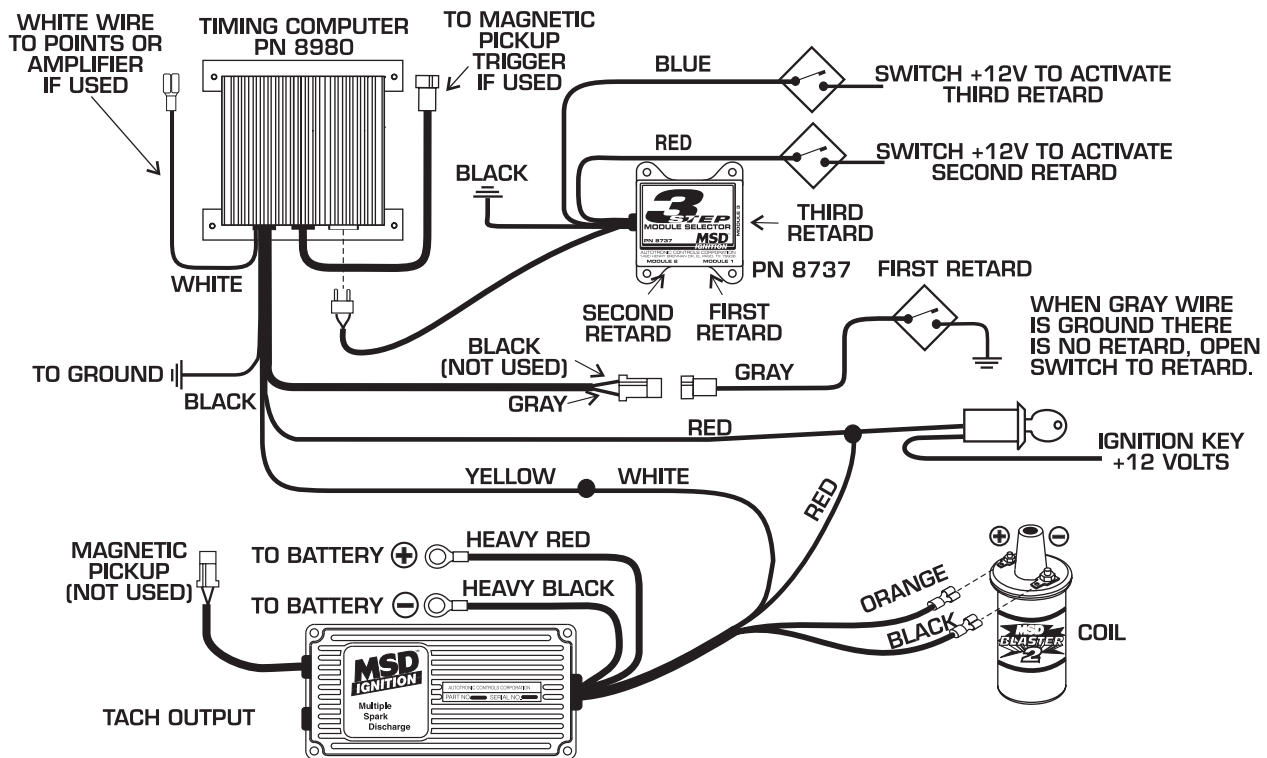


THREE STEP TO MSD 7AL-2

MODULE 2 - ACTIVE WITH NO VOLTAGE.
 MODULE 1 - ACTIVE WITH 12 VOLTS ON RED WIRE.
 MODULE 3 - ACTIVE WITH 12 VOLTS ON BLUE WIRE. THIS MODULE WILL ALSO BE ACTIVE IF 12 VOLTS ARE SUPPLIED TO THE RED AND BLUE WIRES.



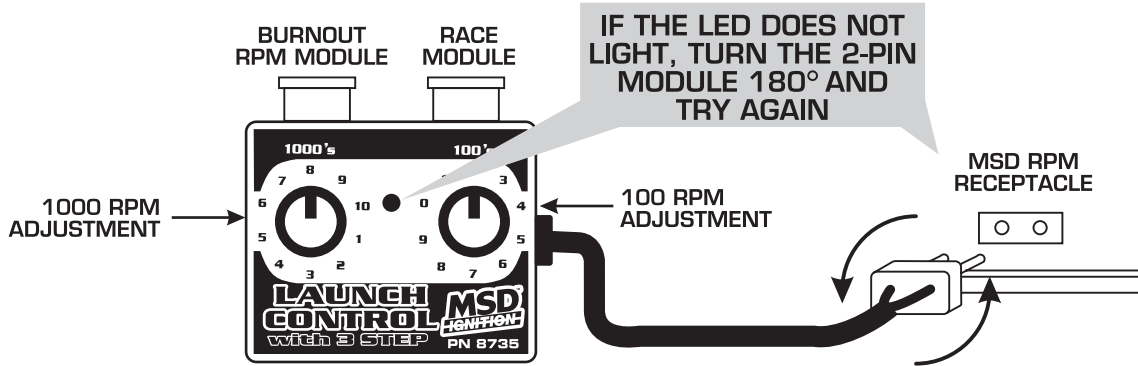
THREE STEP TO TIMING CONTROL FOR MULTIPLE RETARDS



MSD LAUNCH CONTROL, PN 8735

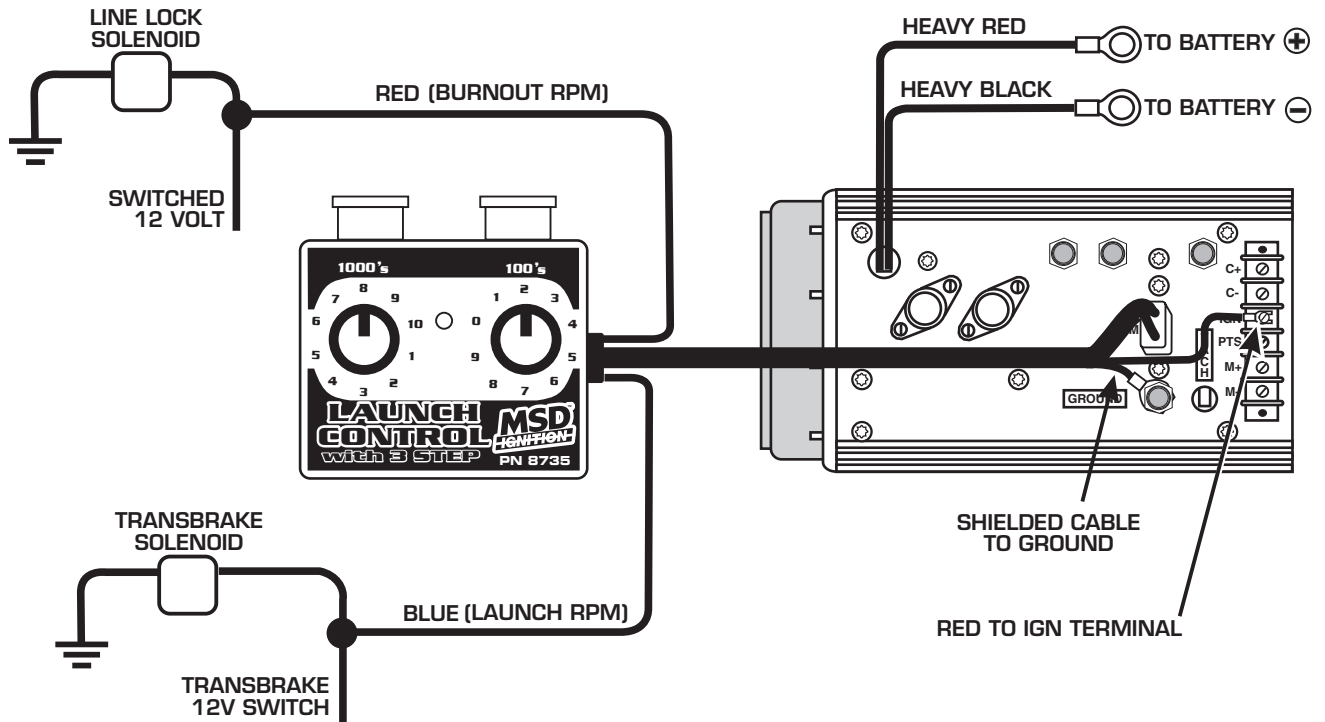
The 2-pin connector of the Launch Control can only be installed one way to operate correctly. There is an LED on the control that will light when the connector is in the correct position.

Bare Wire: Connects to ground. This ground acts as an EMI shield for the wiring of the control.



MSD LAUNCH CONTROL TO MSD 7AL-2

- BURNOUT** - ACTIVE WITH 12 VOLTS ON RED WIRE.
- LAUNCH** - ACTIVE WITH 12 VOLTS ON BLUE WIRE. THIS LIMIT WILL BE ACTIVE IF 12 VOLTS ARE ON THE RED AND BLUE WIRES.
- RACE** - ACTIVE WITH NO VOLTAGE.



MSD RPM ACTIVATED SWITCHES

This section covers the MSD RPM Activated Switch, PN 8950, and the Window Switch, PN 8956. The PN 8950 will activate a circuit at a desired rpm by supplying or removing ground. The PN 8956 Window Switch will activate a circuit by supplying ground, then will deactivate the same circuit at a different rpm.

The MSD Switches are capable of switching approximately 2 amps continuously. If too much current or the circuit heats up over time, the Switches will shut off to prevent damage. For circuits that require more current for an extended time, MSD recommends a Relay. Page 84 shows a relay wiring example.

If no module is installed, the switch will not activate.

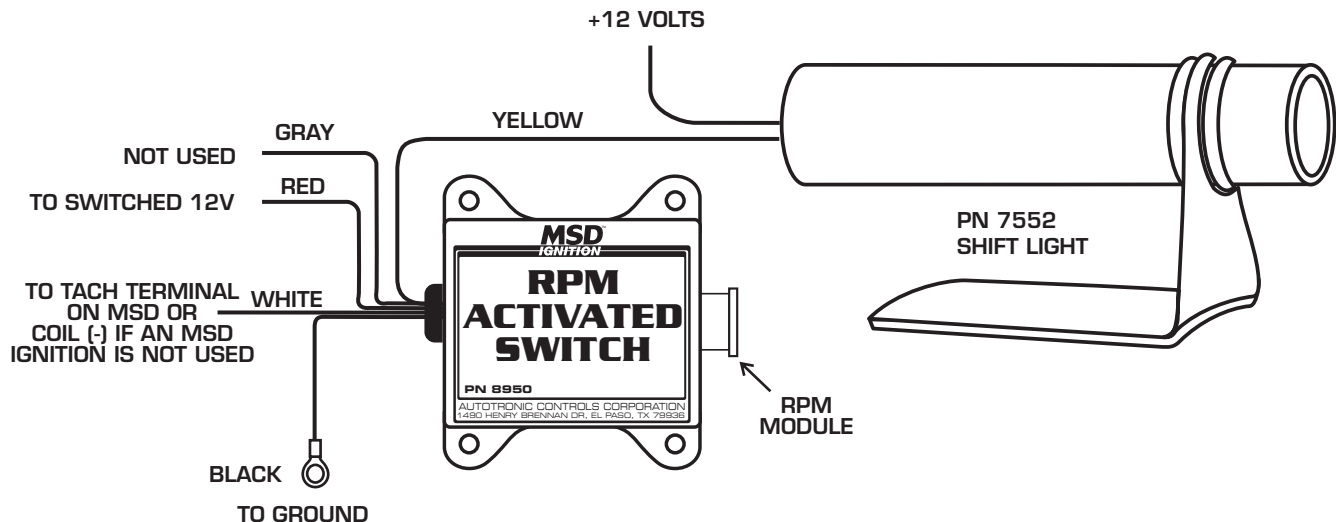
An RPM Activated Switch for magnetos is also available as PN 8957. It shares the same wiring as the PN 8950.

Wire Functions

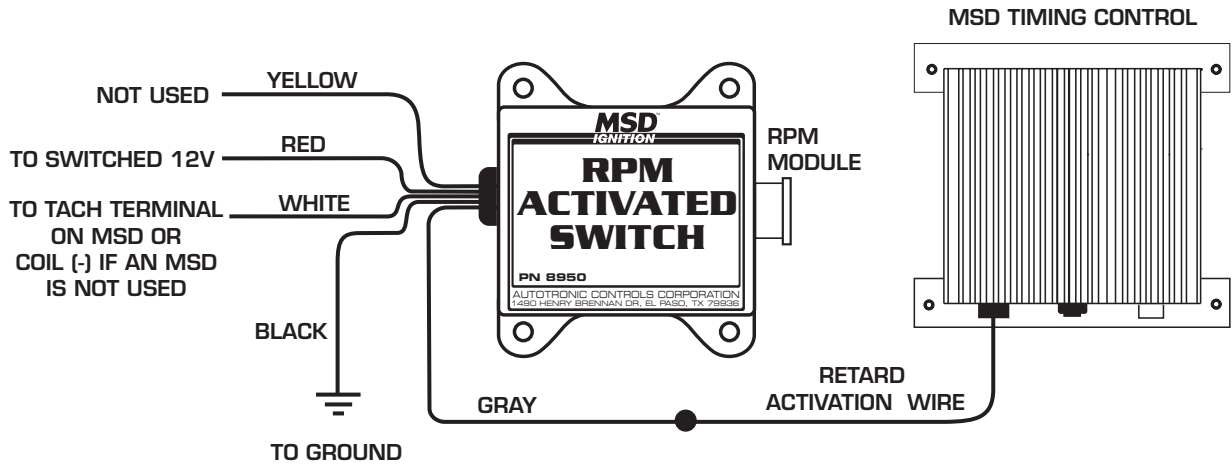
- Red:** Connects to a switched 12 volt source.
 - Black:** Connects to ground.
 - White:** The rpm input wire that picks up engine rpm. It connects to the tach output terminal of an MSD Ignition. When used with inductive or factory ignitions it connects to the coil negative terminal.
- Activation Wires:**
- Yellow:** This wire is normally open and will switch to ground at your desired rpm to complete a circuit.
 - Gray:** This is on the PN 8950 only. This wire is normally closed to ground and will open a circuit at your desired rpm.

Cylinder Programming Loops: There are two wire loops, Red and Blue, on the side of the Control. For a 6-cylinder engine, cut the Red loop. For 4-cylinder applications, cut the Blue and Red loops.

RPM ACTIVATED SWITCH TO A SHIFT LIGHT

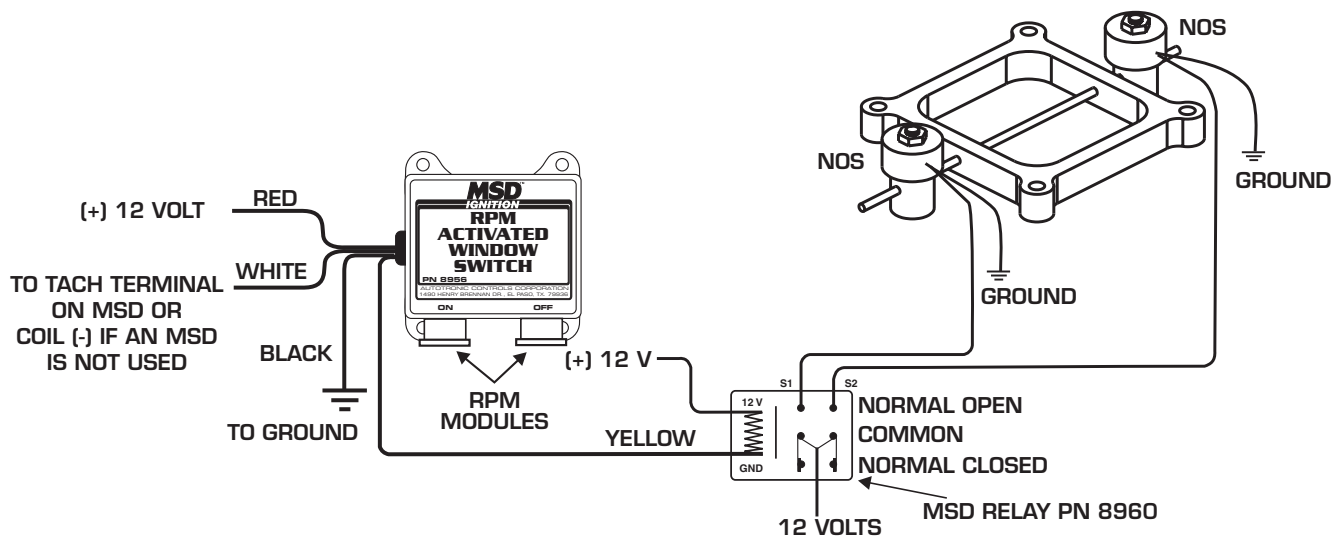


RPM ACTIVATED SWITCH TO TIMING CONTROL RETARD



● INDICATES CONNECTIONS

RPM ACTIVATED WINDOW SWITCH TO ACTIVATE NITROUS



MSD RELAYS, SINGLE POLE, PN 8961, DOUBLE POLE, PN 8960

MSD Relays will allow you to activate a variety of accessories that require high current. These are ideal to tie in with rpm activated switches such as nitrous or air shifter solenoids or even a horn or fuel pump.

The most common use of a relay is to switch the relay on (energize its coil) using a small amount of power (12V/ 1 amp) which then moves the relay's armature so it can transfer a large amount of power (12V/30 amp) to the device which you need to activate.

- The PN 8960 will handle a 30 amp load, on each side, with an input voltage of 12 volts.
- The PN 8961 Relay will handle a 30 amp load and is ideal for multiple accessories.

Relays have a variety of specifications to understand for your application. A few things to consider include:

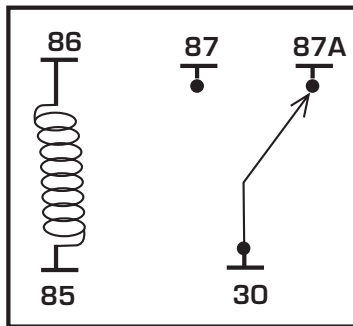
- Make sure the Relay can accept and handle the voltage and current required to activate the desired circuit.
- The number of bobbins to use with different circuits (generally 1-2).
- The number of electrical contacts for the armature (generally 1-2).
- If the Relay is Normally Open (NO) or Normally Closed (NC).

MSD RELAYS

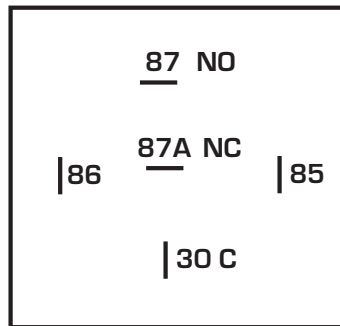
MSD PN 8961 RELAY

NO - NORMALLY OPEN
NC - NORMALLY CLOSED
C - COMMON

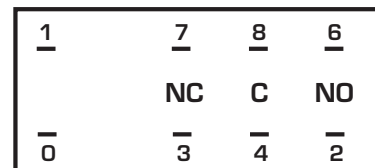
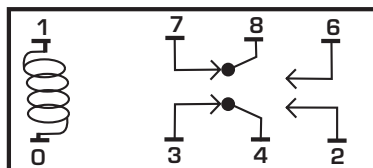
INSIDE



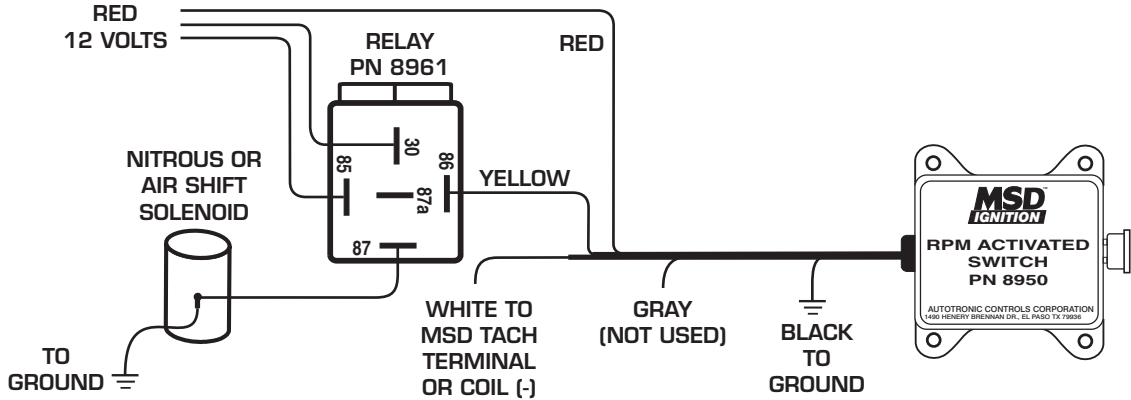
LOCATION OF PIN'S



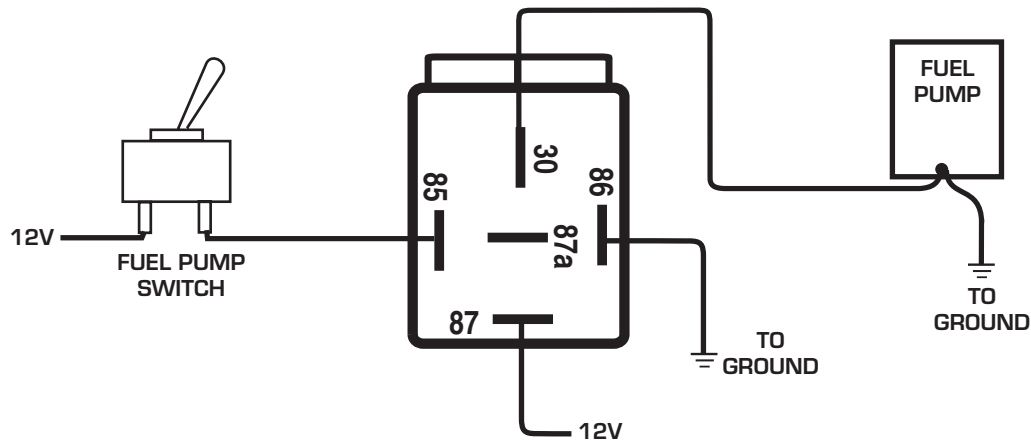
MSD PN 8960 RELAY



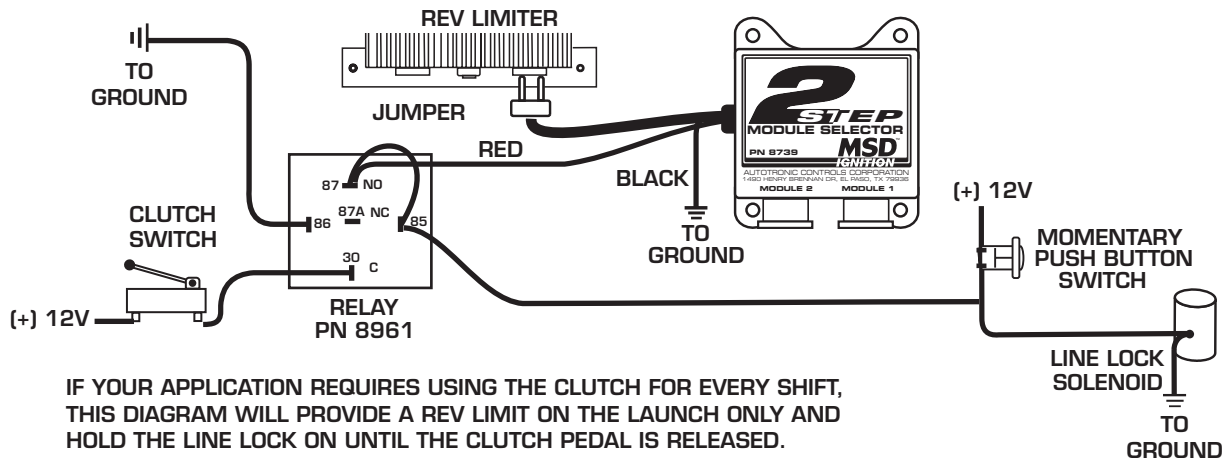
MSD RPM ACTIVATED SWITCH, SOLENOID AND PN 8961 RELAY



MSD PN 8961 RELAY TO AN ELECTRIC FUEL PUMP



MSD PN 8961 RELAY, 2-STEP AND CLUTCH SWITCH



IF YOUR APPLICATION REQUIRES USING THE CLUTCH FOR EVERY SHIFT, THIS DIAGRAM WILL PROVIDE A REV LIMIT ON THE LAUNCH ONLY AND HOLD THE LINE LOCK ON UNTIL THE CLUTCH PEDAL IS RELEASED.

MSD SHIFT LIGHT, PN 8952

This section covers the MSD Shift Light, PN 8952. The Light will activate at a desired rpm which is controlled by MSD's white RPM Modules. If no rpm module is installed in the Light, it will not turn on. The Light can be used with stock ignitions or with MSD Ignition Controls.

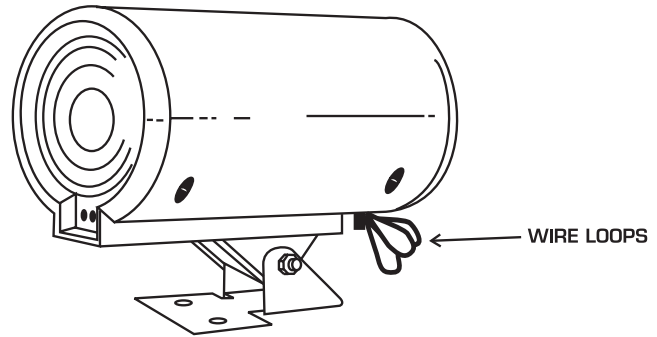
Wire Functions

- Red:** Connects to switched 12 volt source
- Black:** Connects to ground
- Green:** This is the rpm input wire that picks up engine rpm. It connects to the tach output terminal of an MSD Ignition. When used with inductive or factory ignitions it connects to the coil negative terminal.

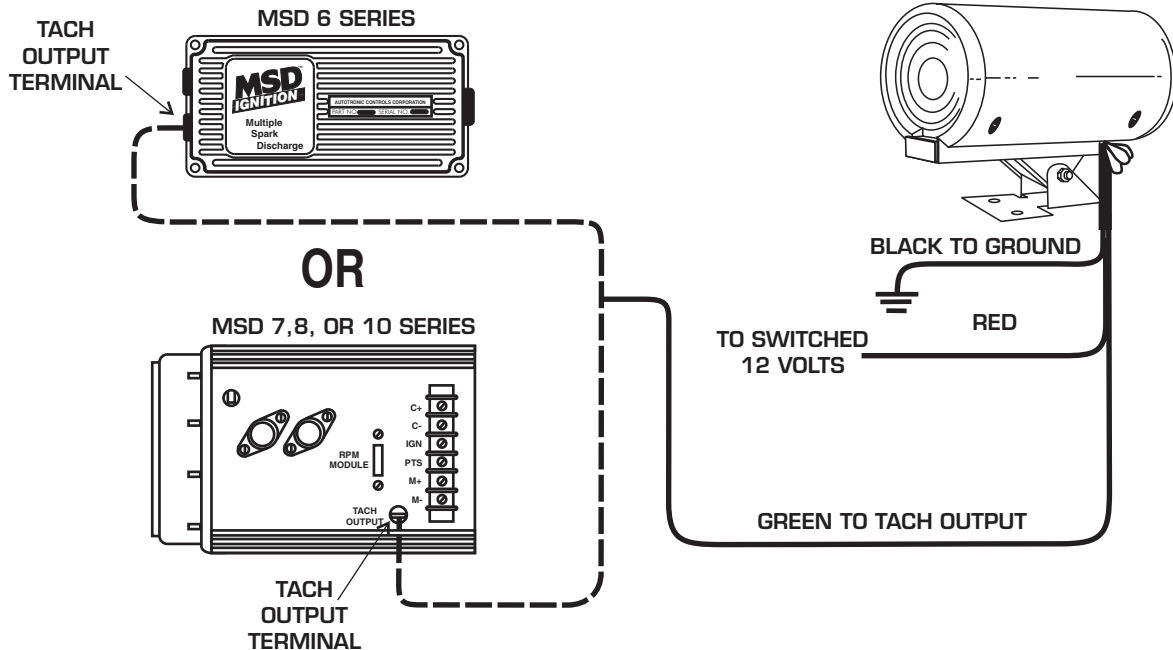
Cylinder Programming

The Shift Light is programmed for 8-cylinder operation. There are three wire loops, that need to be modified for use on other engine configuration. For a 6-cylinder engine, cut one loop. Cut two loops for 4-cylinder engines and three loops for two cylinder engines.

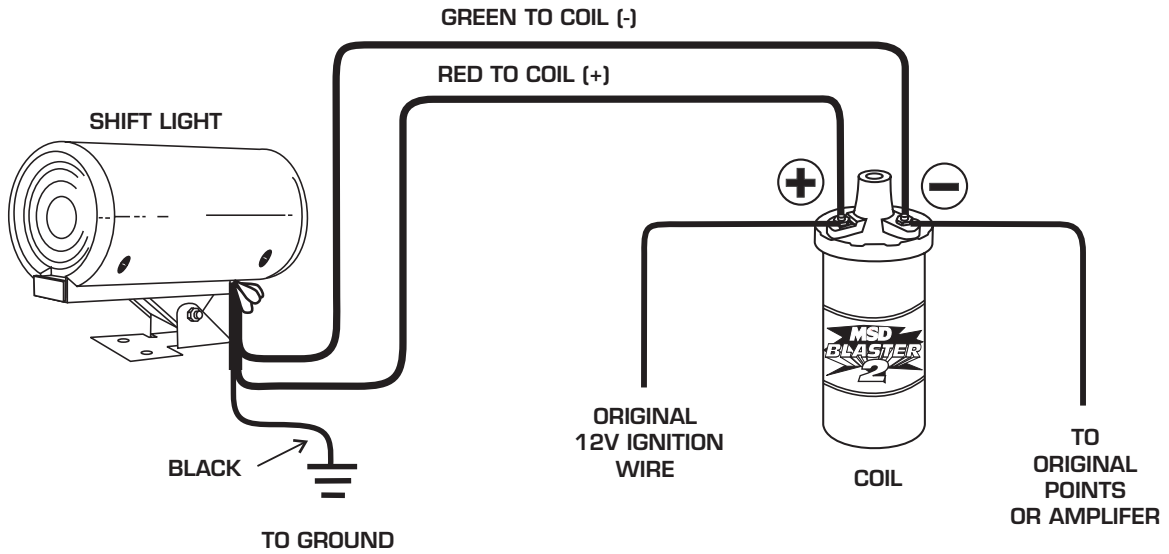
Note: Once installed, whenever the ignition is turned On, the Shift Light will flash to confirm operation.



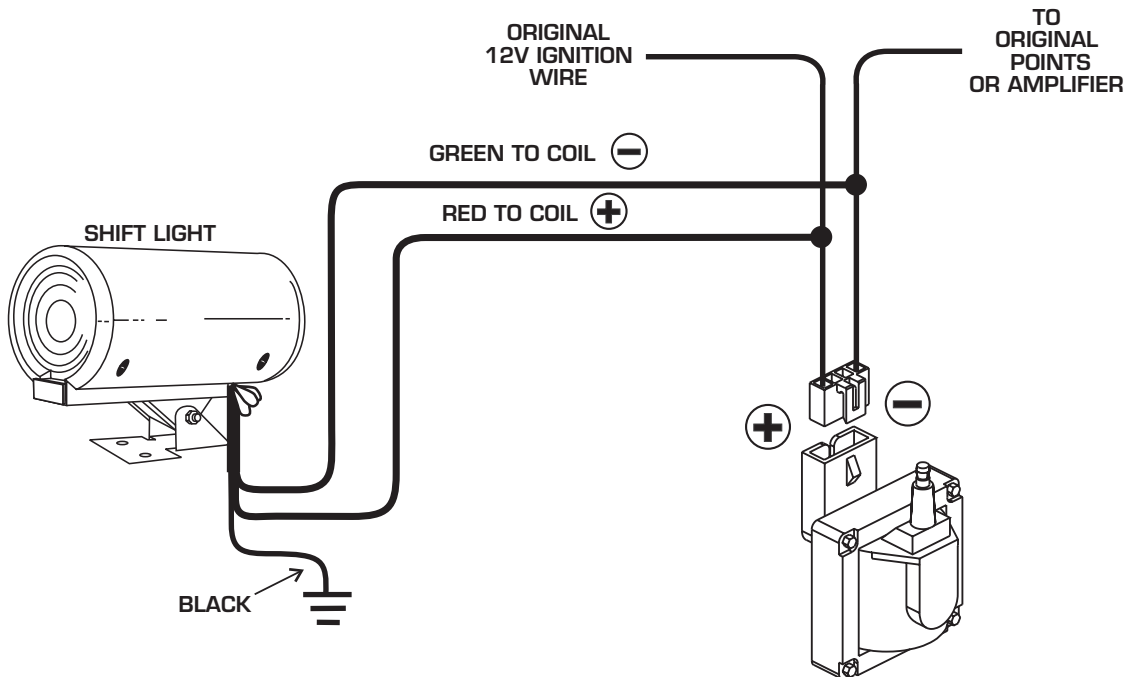
MSD SHIFT LIGHT, PN 8952, TO MSD IGNITION



MSD SHIFT LIGHT, PN 8952, TO POINTS/AMPLIFIER IGNITION

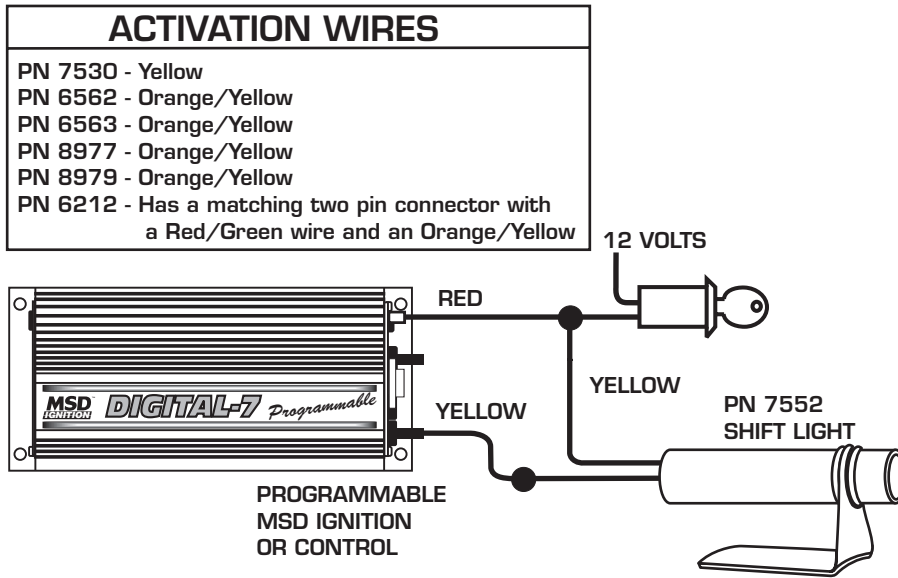


MSD SHIFT LIGHT, PN 8952, TO FORD TFI IGNITION

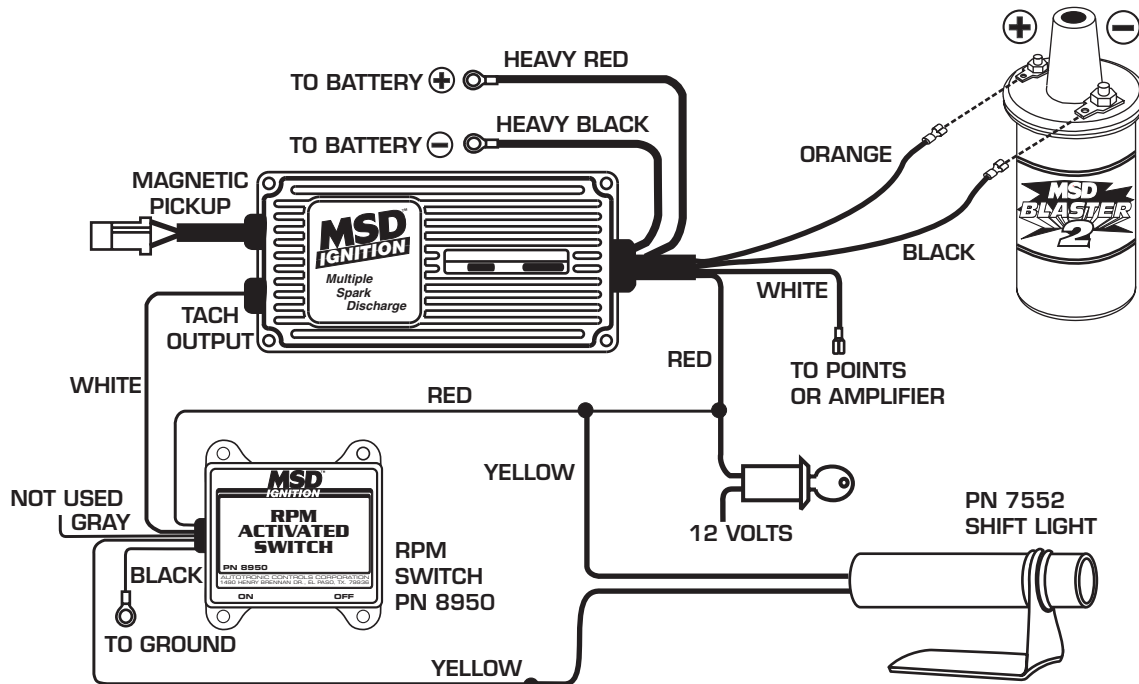


SHIFT LIGHT PN 7552

The MSD Shift Light, PN 7552, features a bright LED that will alert you to shift at an rpm point. The Shift Light requires a 12 volt source (maximum of 18 volts) and ground. It is activated when a ground is supplied to complete the circuit. There is no polarity to the Light's two Yellow wires. This LED system is not sensitive to polarity, unlike other LED circuits.



SHIFT LIGHT PN 7552 TO MSD RPM ACTIVATED SWITCH



BOOST TIMING MASTER, PN 5462

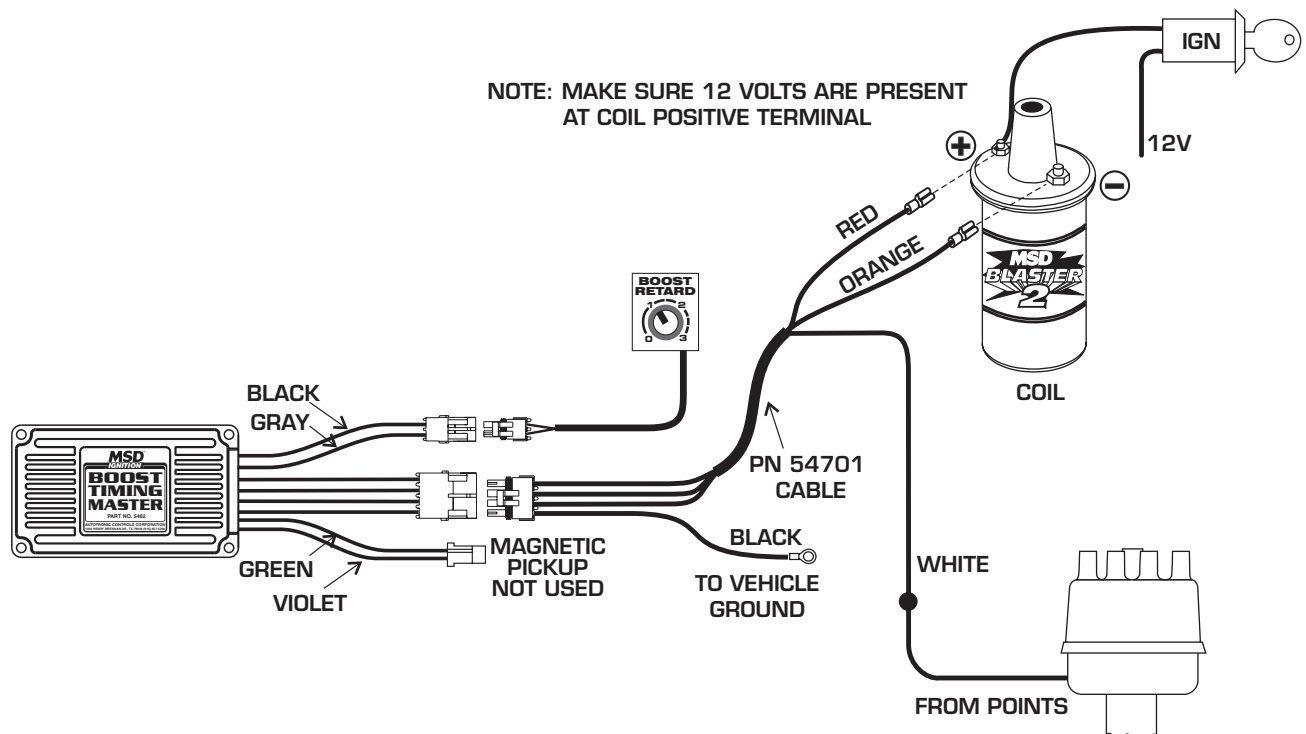
The Universal Boost Timing Master, PN 5462, is a Timing Control and ignition enhancer in-one. It allows you to adjust the timing up to 15° as the boost pressure of the turbo or supercharger increases. It also increases the stock inductive ignition spark energy and voltage creating a powerful spark to completely ignite the fuel mixture. The Universal BTM connects to most single coil factory and aftermarket ignition amplifiers and points style distributors. It can also be used as a stand alone ignition with an MSD Distributor.

Note: If you are already using an MSD 6, 7, 8, or 10 Ignition Control, use BTM, PN 8762 (See page 92).

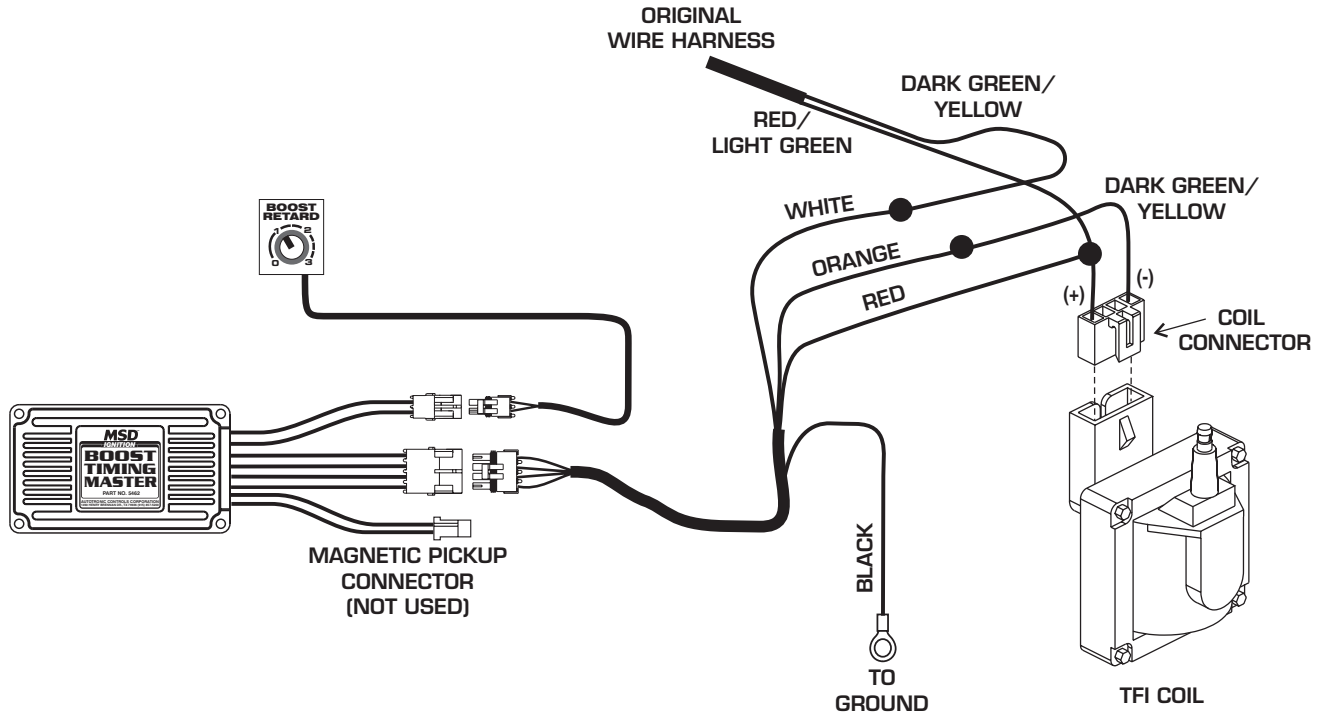
Wire Functions

- Black and Gray:** These wires are routed together into a Weathertight Connector to hook to the Adjustable Timing Control Knob.
- Orange:** Connects to the coil negative (-) terminal.
- Red:** Connects to the original switched 12 volt wire that used to connect to the coil positive (+) terminal. With the BTM, the wires hook together, but not on the coil terminal.
- Black:** Connects to engine or chassis ground.
- Violet:** The supplied violet jumper connects from the battery positive (+) terminal to the coil (+) terminal.
- White:** This is the trigger signal wire and connects to the points or electronic ignition trigger wire.
- MAGNETIC CONNECTOR:** This connector is used when triggering the ignition from a magnetic pickup.
 - Violet:** Magnetic pickup positive (+).
 - Green:** Magnetic pickup negative (-).

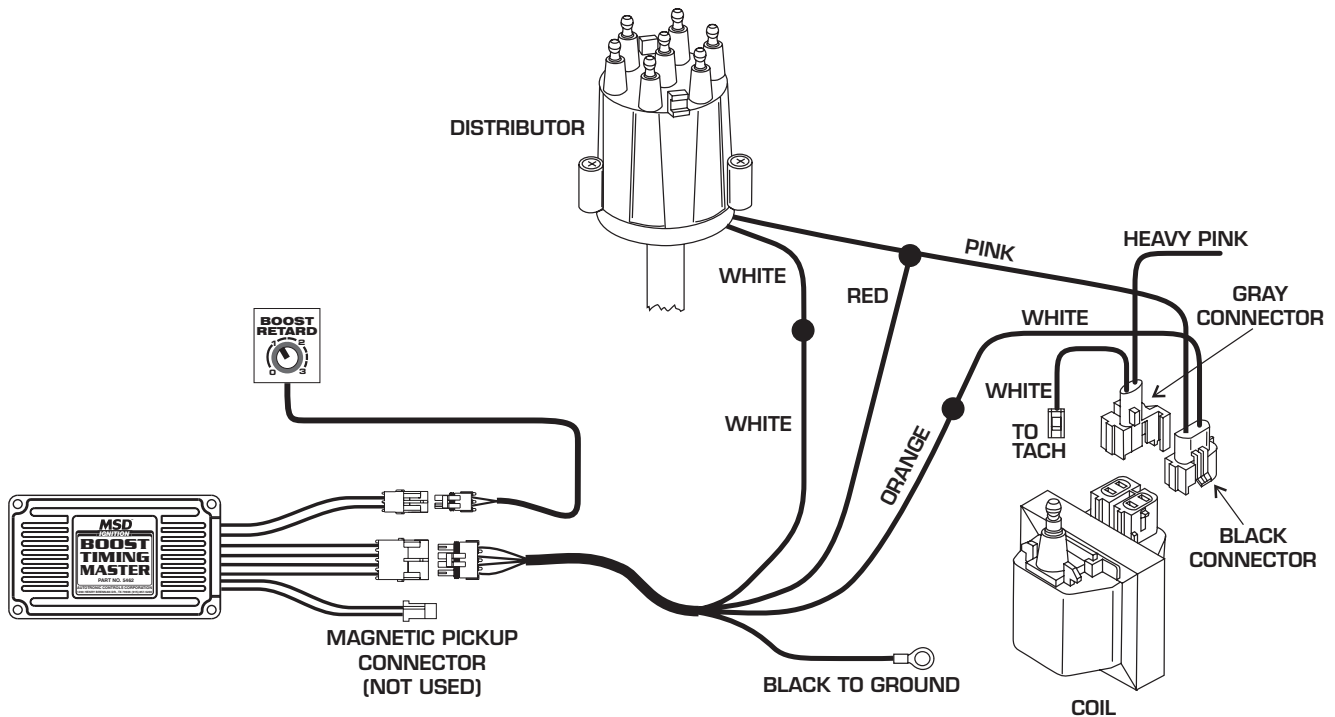
UNIVERSAL BOOST TIMING MASTER USING POINTS



UNIVERSAL BOOST TIMING MASTER TO FORD TFI



UNIVERSAL BOOST TIMING MASTER TO GM DUAL CONNECTOR COIL





TIMING CONTROLS FOR MSD IGNITIONS

MSD offers a variety of Timing Controls that must be used with an MSD Ignition. Each Control has different functions and options but they share common wiring. The Controls wire before the Ignition and always connect to the MSD through the Ignition's White wire, or Points terminal.

Just like an MSD Ignition, the Timing Controls have two inputs; a White wire for points or amplifiers or a 2-pin magnetic pickup for MSD Distributors or Crank Triggers.

General Wiring

- Red:** Connects to switched 12 volt source.
- Black:** Connects to ground.
- Yellow:** This is the trigger output to the Ignition. It will connect to the MSD's White wire or Points terminal.

Trigger Wires

- White:** Connects to points or an ignition amplifier output. When this wire is used the Magnetic Pickup is not (Violet and Green).
- Violet and Green:** These wires are routed together in one harness and form the magnetic pickup connector. This connector plugs directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When this connector is used, the White wire is not and should be sealed.

Activation Wires

Depending on which Timing Control you have, there will be a variety of colors and functions. The following pages explain the operation of each Control and their wiring functions.

NOTE: It is recommended to check your ignition timing after installing any Timing Control. In some cases the timing may be altered due to magnetic pickup compensation circuits.

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

Programming Loops

CYLINDERS	CUT LOOPS
8	NONE
6	RED
4	RED & BLUE

RETARD	CUT LOOP
10°	NONE
25°	VIOLET

* AVAILABLE ON CERTAIN CONTROLS ONLY

MAGNETIC PICKUP LOOP (WHITE)	
MSD DIST., CRANK TRIGGER	CUT LOOP
POINTS/AMPLIFIER DIST.	DO NOT CUT
* AVAILABLE ON CERTAIN CONTROLS ONLY	

BOOST TIMING MASTER FOR MSD IGNITIONS, PN 8762 WITH VACUUM ADVANCE , PN 8962

The Boost Timing Masters are designed to be used with an MSD Ignition Control. They allow you to retard the timing in relation to boost pressure created by a turbo or supercharger. Timing adjustments can be made by the driver with a dash mounted control knob. The timing can be retarded up to a maximum of 20°.

Part Number 8962 is a BTM with an additional vacuum advance feature. When vacuum is present, you can adjust up to 20° of timing advance. This adjustment is made with a locking potentiometer on the side of the unit.

Both BTM's must be used with an MSD Ignition Control and can be used on 4, 6 or 8-cylinder engines, see page 91.

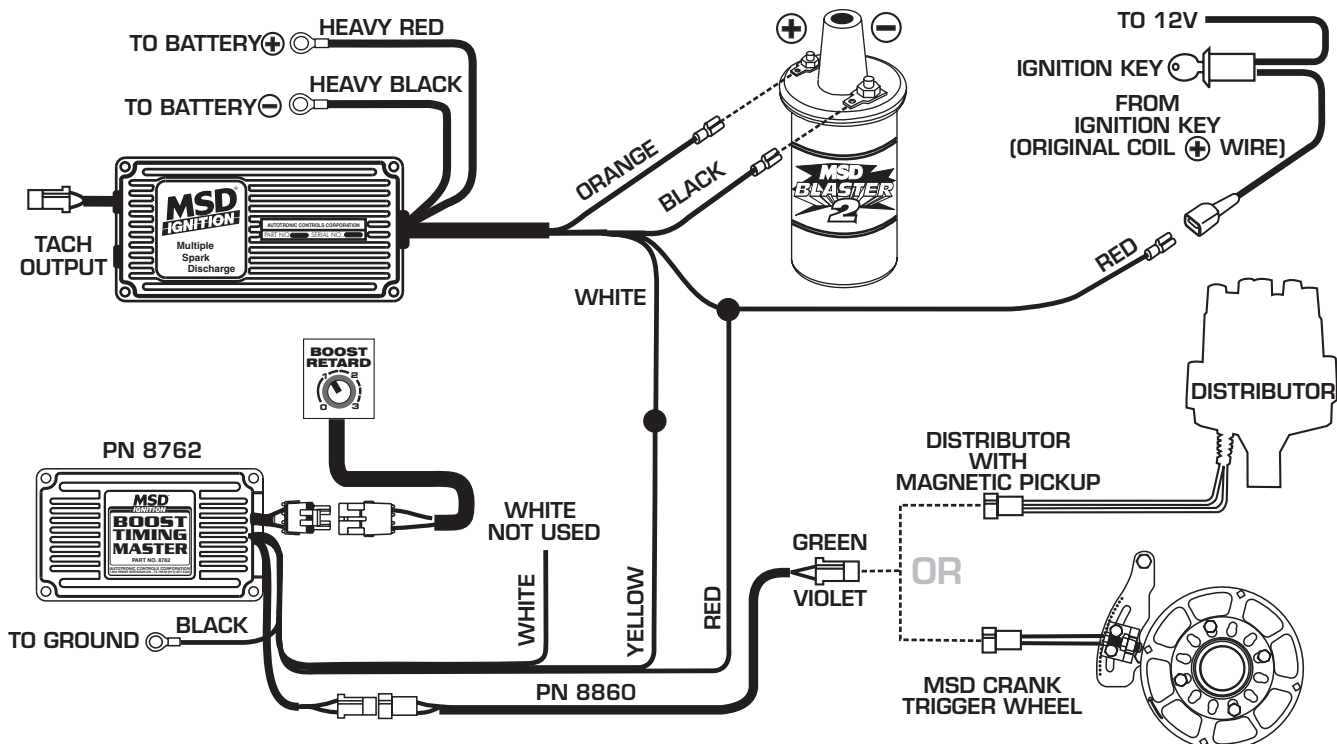
General Wiring

- Red:** Connects to switched 12 volt source.
- Black:** Connects to ground.
- Yellow:** This is the trigger output to the Ignition. It will connect to the MSD's White wire or Points terminal.

Trigger Wires

- White:** Connects to points or an ignition amplifier output. When this wire is used the Magnetic Pickup is not (Violet and Green).
- Violet and Green:** These wires are routed together in one harness and form the magnetic pickup connector. This connector plugs directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When this connector is used, the White wire is not and should be sealed.

Control Knob: The control knob wiring is routed through a 2-Pin Weathertight Connector. It does not matter which color wire is connected to which. The control knob shows 1°, 2° and 3° increments. The ignition timing will be retarded 1°, 2° or 3° per pound of boost with a maximum of 15°. (With the knob set at 2°, at 6-lbs of boost there will be 12° of retard.) When the control knob is at full counterclockwise position, there will be no retard.



ADJUSTABLE TIMING CONTROL, PN 8680

The PN 8680 Timing Control easily connects to an MSD Ignition. Timing adjustments can be made by the driver with a dash mounted control knob. The timing can be retarded up to 15°. When the control knob is at full clockwise position, the timing will be at the factory setting.

General Wiring

- Red:** Connects to switched 12 volt source.
- Black:** Connects to ground.
- Yellow:** This is the trigger output to the Ignition. It will connect to the MSD's White wire or Points terminal.

Trigger Wires

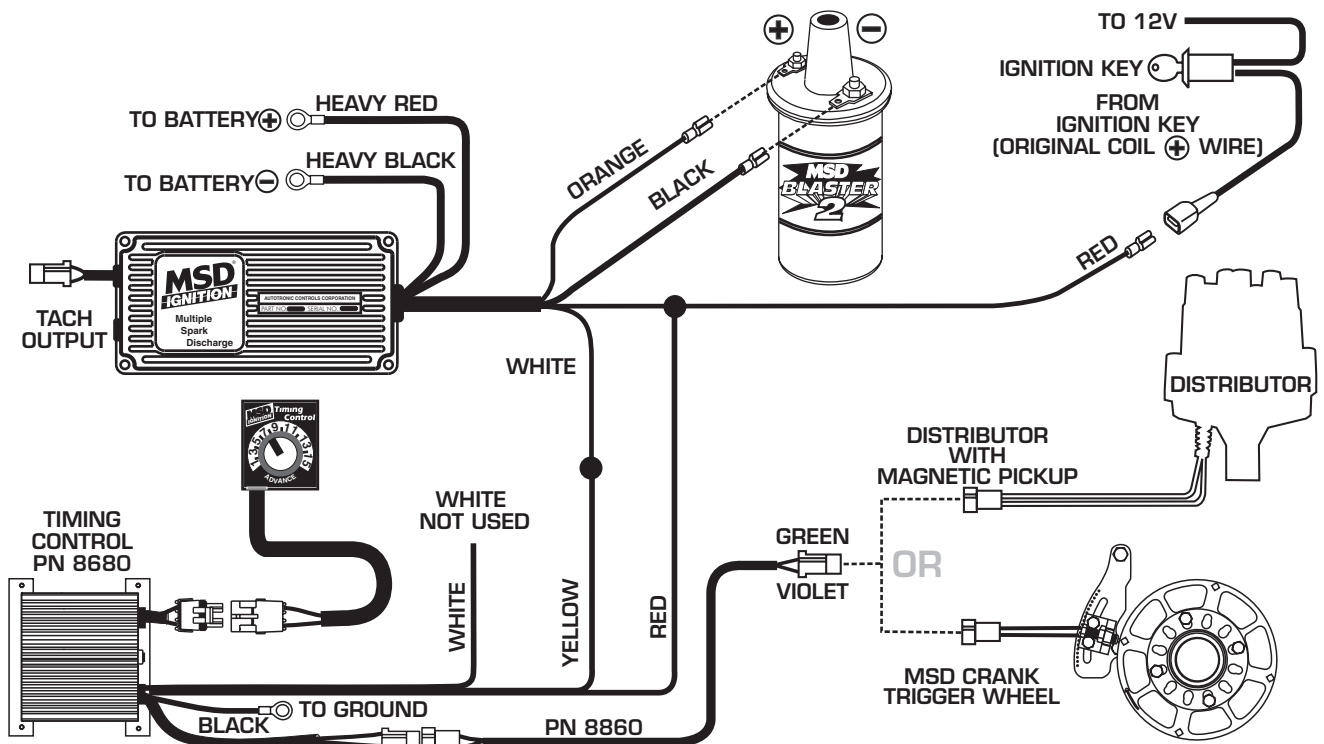
- White:** Connects to points or an ignition amplifier output. When this wire is used the Magnetic Pickup is not (Violet and Green).
- Violet and Green:** These wires are routed together in one harness and form the magnetic pickup connector. This connector plugs directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When this connector is used, the White wire is not and should be sealed.

Magnetic Pickup Loop: When used with a magnetic pickup, a white wire loop must be cut. The loop is with the cylinder select loops. See page 91.

Control Knob: The control knob wiring is routed through a 2-Pin Weathertight Connector. It does not matter which color wire is connected to which.

Cylinder Select: There are two wire loops under the small cover on the side of the control. For 6-cylinder operation, cut the Red loop, for 4-cylinder engines, cut both the Red and Blue loop. See page 91.

PN 8680 TO MAGNETIC PICKUP





3-STAGE RETARD, PN 8970, AND MULTI-STEP RETARD, PN 8972

The 3-Stage Retard, PN 8970, supercedes the Multi-Step Retard, PN 8972. They both are designed to provide up to three different retard rates that can be activated at different times. The three stages are cumulative up to 20° (6° on first stage, 4° second, 2° third means 12° total).

There are three retard module sockets on the side of the unit, each with their own activation wire. Each stage is activated when the corresponding wire is removed from ground. If a stage is not going to be used, its activation wire **MUST** be connected to ground, or a Zero degree rpm module **MUST** be installed.

General Wiring

- Red:** Connects to switched 12 volt source.
- Black:** Connects to ground.
- Yellow:** This is the trigger output to the Ignition. It will connect to the MSD's White wire or Points terminal.

Trigger Wires

- White:** Connects to points or an ignition amplifier output. When this wire is used the Magnetic Pickup is not (Violet and Green).
- Violet and Green:** These wires are routed together in one harness and form the magnetic pickup connector. This connector plugs directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When this connector is used, the White wire is not and should be sealed.

Activation Wires

- Brown:** When removed from ground, the **FIRST** stage is activated.
- Orange:** When removed from ground, the **SECOND** stage is activated.
- Gray:** When removed from ground, the **THIRD** stage is activated.

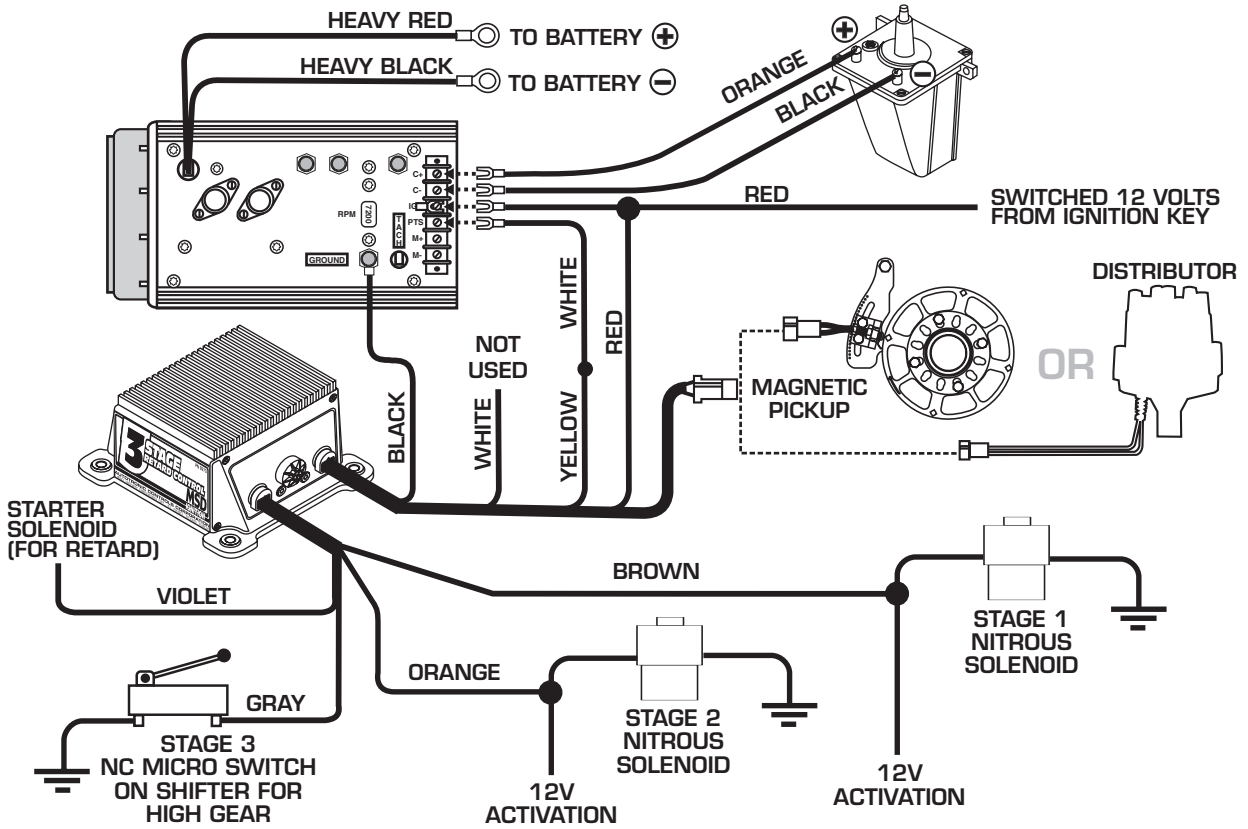
Note: If a stage is not going to be used, the wire should be grounded or a Zero degree module must be installed.

Start Retard

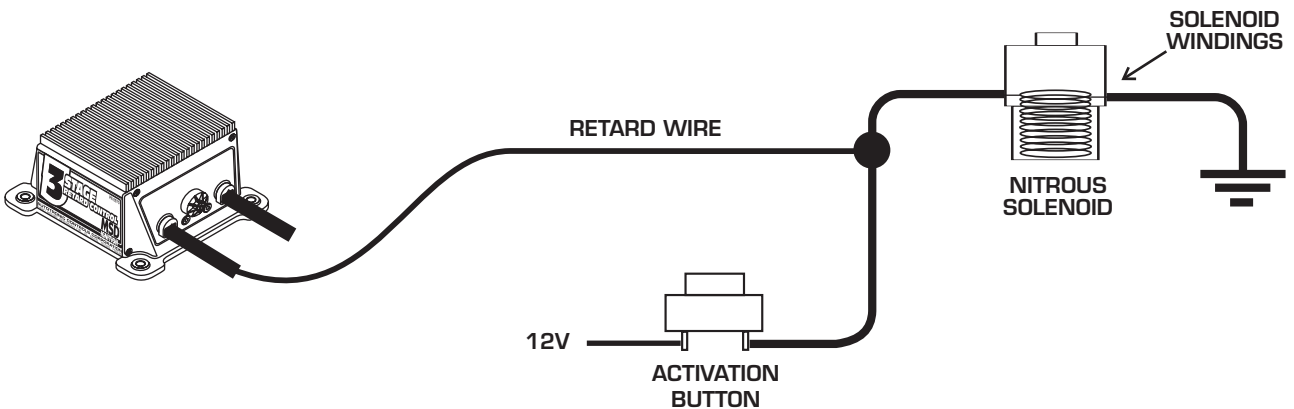
- Violet:** Activates the start retard when supplied with 12 volts. The PN 8970 will automatically deactivate the retard once the engine reaches over 1300 rpm and will not return again until the ignition is turned Off or engine rpm drops below 400 rpm. The PN 8972 requires momentary 12 volts to activate and will deactivate when 12 Volts are removed.
- Violet Loop:** Under the cover next to the Blue and Red cylinder loops is a Violet loop. This adjusts the start retard of the PN 8970 only. When it is not cut, the retard is 10°, cutting it will retard it 25°.

Cylinder Select: There are two wire loops under the small cover on the side of the control. For 6-cylinder operation, cut the Red loop, for 4-cylinder engines, cut both the Red and Blue loop. See page 91.

PN 8970, PN 8972 TIMING CONTROL



CONNECTING A RETARD STAGE THROUGH A NITROUS SOLENOID



By connecting the retard wire to the 12 volt activation wire of the nitrous solenoid, the wire receives a ground path through the windings of the solenoid. When the activation button is pressed, 12 volts is applied to the wire, thus removing the ground path and activating the retard stage.



DIGITAL RETARD PN 8975

The Digital Retard Control, PN 8975, provides up to four different retard rates that can be activated at different times. The four stages are cumulative up to 20° (6° on first stage, 4° second, 3° third, 2° fourth produces 15° total). Instead of using rpm modules, this unit has four rotary dials that range from 0° - 9° in one degree increments.

Each stage is activated when the corresponding wire is removed from ground. If a stage is not going to be used, its activation wire **MUST** be connected to ground, or positioned at zero on its dial.

Any time a setting is changed with a rotary dial, the ignition must be turned Off/On to reset.

General Wiring

- Red:** Connects to switched 12 volt source.
- Black:** Connects to ground.
- Yellow:** This is the trigger output to the Ignition. It will connect to the MSD's White wire or Points terminal.

Trigger Wires

- White:** Connects to points or an ignition amplifier output. When this wire is used the Magnetic Pickup is not (Violet and Green).
- Violet and Green:** These wires are routed together in one harness and form the magnetic pickup connector. This connector plugs directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When this connector is used, the White wire is not and should be sealed.

Activation Wires

- Brown:** When removed from ground, the **FIRST** stage is activated.
- Orange:** When removed from ground, the **SECOND** stage is activated.
- Gray:** When removed from ground, the **THIRD** stage is activated.
- Dark Blue:** When removed from ground, the **FOURTH** stage is activated.

Note: If a stage is not going to be used, the wire should be grounded or the rotary switch must be turned to Zero.

Start Retard

Activates the start retard when supplied to 12 volts. Once the engine reaches over 800 rpm, the retard will be deactivated and will not return again until the ignition is turned Off or engine rpm drops below 500 rpm. There is a rotary dial that controls the amount of retard in 5° increments with a max of 20°.

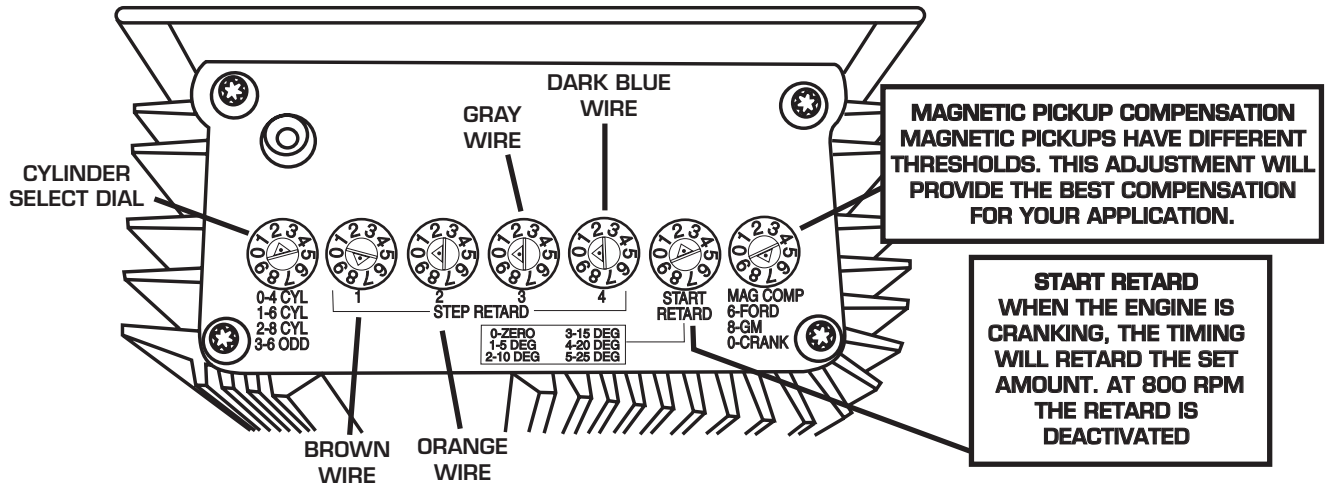
Cylinder Select

A rotary dial is used to select the number of cylinders. See page 97.

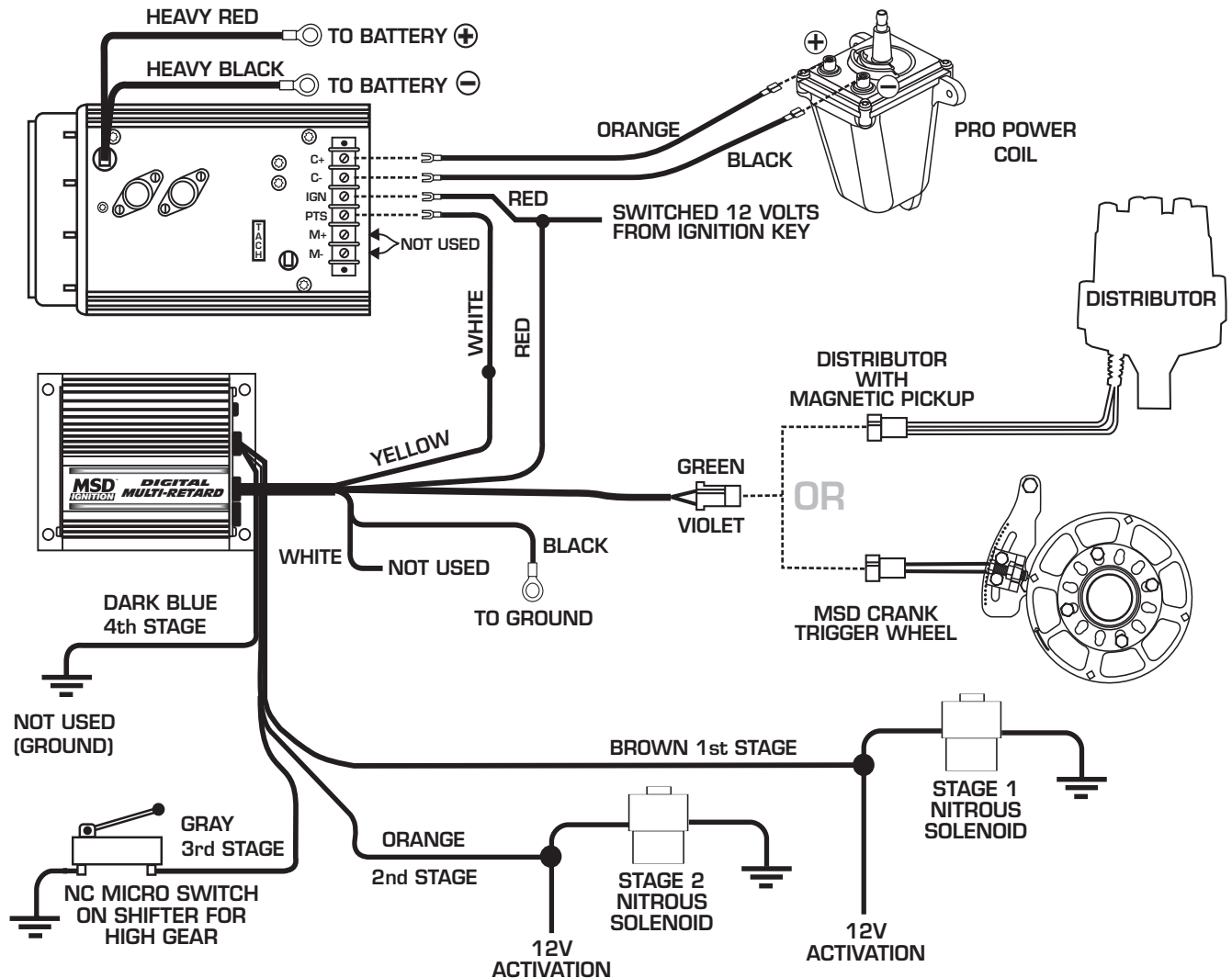
Magnetic Pickup Compensation

This circuit provides a timing compensation circuit for different style pickups. This adjustment is more important for crank triggers and locked-out timing systems. If you are using the White wire for a trigger input, no adjustment is necessary.

DIGITAL RETARD, PN 8975



MULTI-RETARD TO MAGNETIC PICKUP



TIMING COMPUTER, PN 8980

The MSD Timing Computer has a built-in timing curve designed for engines with locked-out timing. It is an electronic version of a centrifugal advance. When the engine is cranking the timing retards 20° from the mechanical locked out timing and remains there until 1,000 rpm. At this point, the timing begins to ramp back up and reaches your mechanical setting by 3,000 rpm. This curve is not adjustable. This Control also has a single stage of retard that is adjustable with plug-in modules. For 4 or 6-cylinder engines, see page 91 to program the control.

General Wiring

- Red:** Connects to switched 12 volt source.
- Black:** Connects to ground.
- Yellow:** This is the trigger output to the Ignition. It will connect to the MSD's White wire or Points terminal.

Trigger Wires

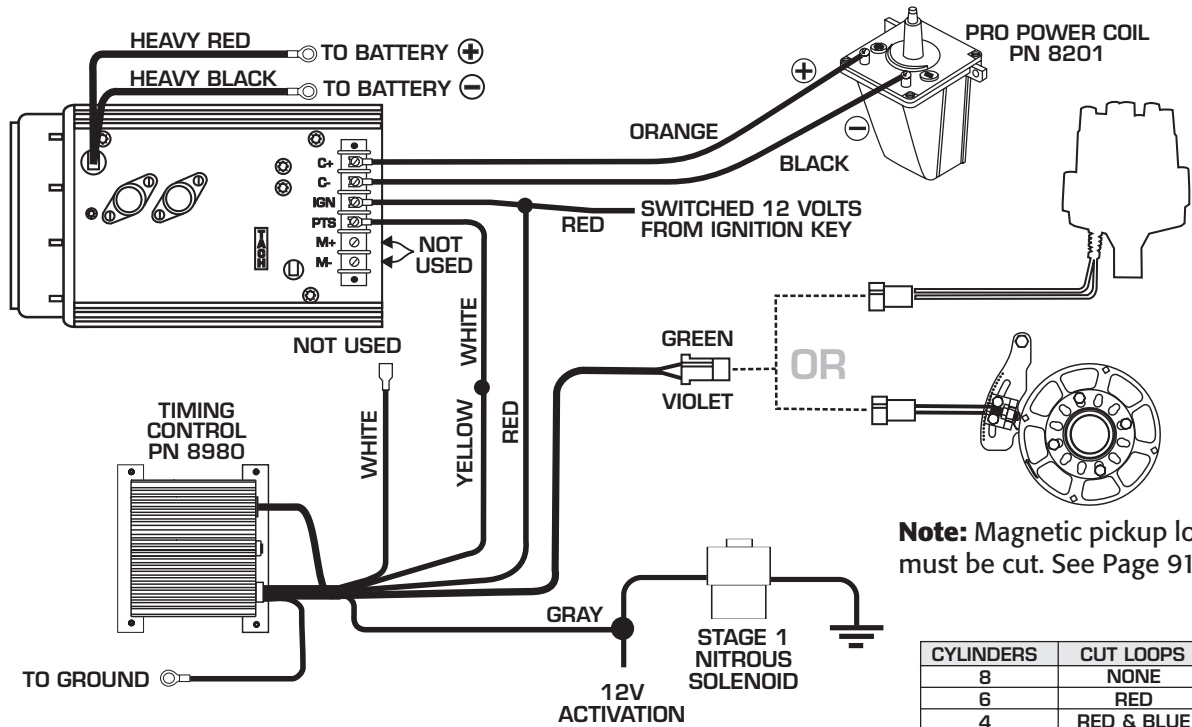
- White:** Connects to points or an ignition amplifier output. When this wire is used the Magnetic Pickup is not (Violet and Green).
- Violet and Green:** These wires are routed together in one harness and form the magnetic pickup connector. This connector plugs directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When this connector is used, the White wire is not and should be sealed.

Retard Stage

There is a Gray and Black wire routed together into a 2-pin connector. The Gray is the activation wire for the retard stage. The black is a ground wire.

- Gray:** When this wire is removed from ground, the retard stage is activated.
- Black:** This is a ground wire. By connecting this to the Gray wire, the retard will not activate. A mating connector is supplied to jump the two together

TIMING COMPUTER, PN 8980



PROGRAMMABLE TIMING CONTROL PN 8981

The MSD Programmable Timing Control allows you to program an advance curve for engines with locked-out timing. It is a programmable electronic version of a centrifugal advance. There is also an optional single stage of retard and 20° start retard.

The timing curve is programmed with three locking potentiometers. When all of the pots are turned to full clockwise position, there is no timing curve. This is where you should begin all adjustments. The total timing must be set in the engine before beginning any adjustments.

General Wiring

- Red:** Connects to switched 12 volt source.
- Black:** Connects to ground.
- Yellow:** This is the trigger output to the Ignition. It will connect to the MSD's White wire or Points terminal.

Trigger Wires

- White:** Connects to points or an ignition amplifier output. When this wire is used the Magnetic Pickup is not (Violet and Green).
- Violet and Green:** These wires are routed together in one harness and form the magnetic pickup connector. This connector plugs directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When this connector is used, the White wire is not and should be sealed.

Retard Stage

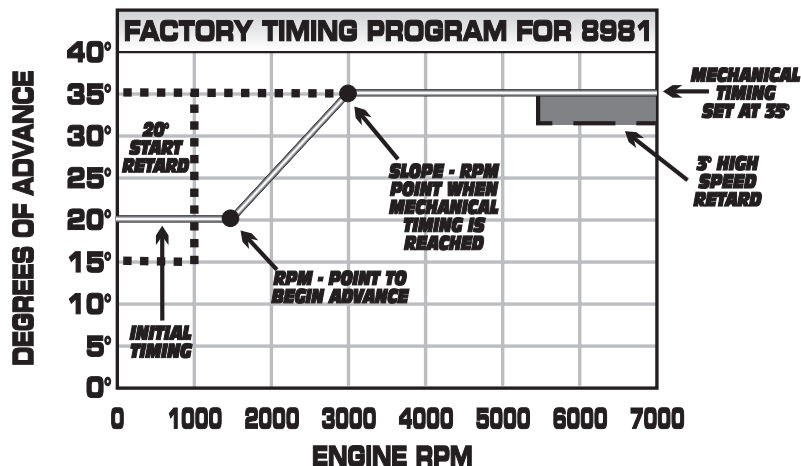
There is a single stage of retard that is activated when the Gray wire is removed from ground. The amount of retard is adjustable with plug-in modules. When the retard is not being used, the Gray wire MUST be grounded or a Zero degree module must be installed.

- Gray:** When this wire is removed from ground, the retard stage is activated.

Start Retard

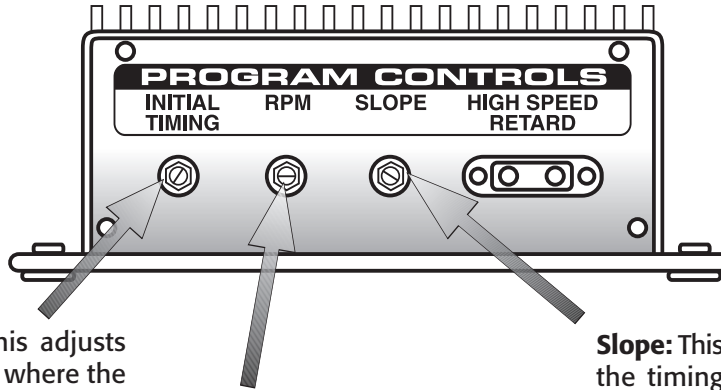
When 12 volts is present on the Violet wire, the timing will be retarded 20° during cranking.

- Violet:** Activates 20° of retard when connected to 12 volts. Connect to the start side of the starter solenoid wiring.



TIMING COMPUTER, PN 8981

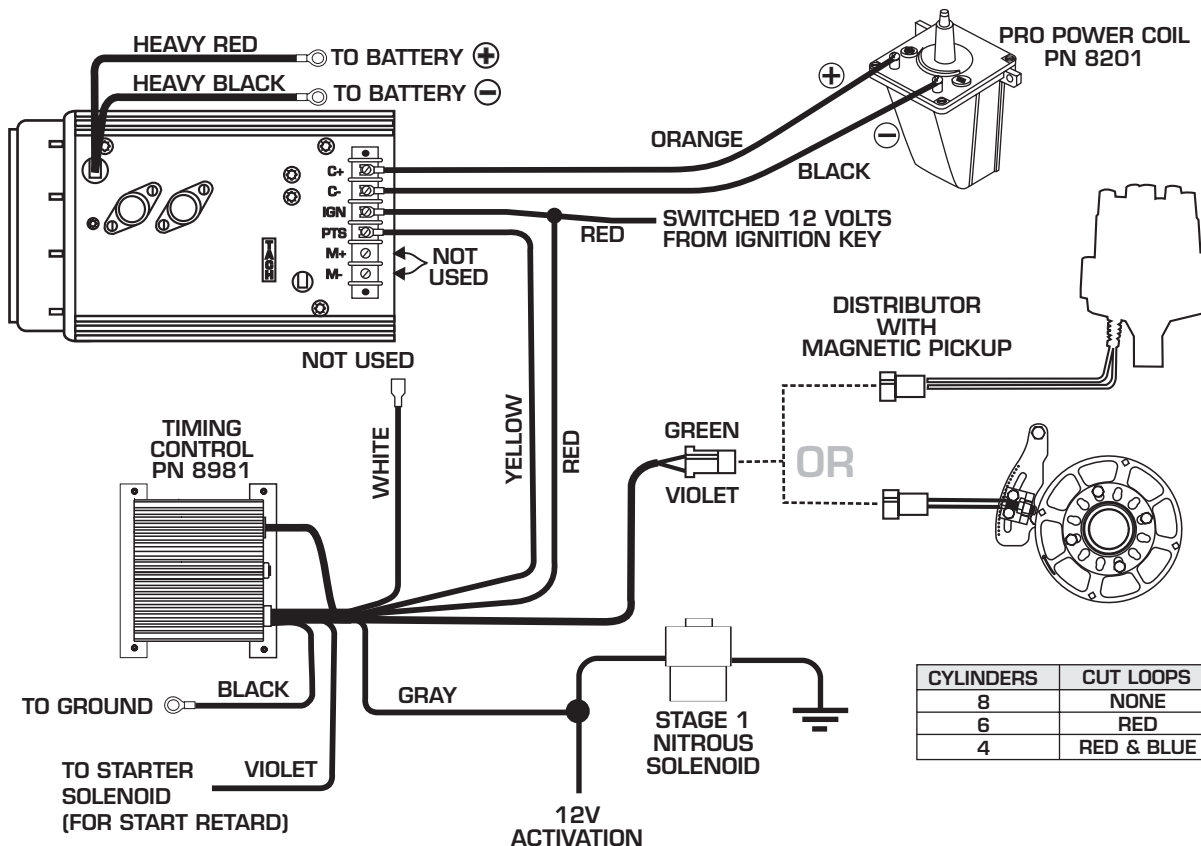
All adjustments of the Timing Computer are taken from your Mechanical, or total timing setting. The Mechanical timing is set by the position of the crank trigger or distributor. Before making any adjustments, be sure to have your mechanical timing set to your specifications.



Initial Timing: This adjusts the timing setting where the engine idles. This amount can be adjusted 20° from where the mechanical timing is set. To adjust the initial timing, turn the control pot counterclockwise. It will retard the timing up to 20° from the mechanical timing.

RPM: This is the rpm point in which the advance will begin. To set this, accelerate the engine to the rpm point that you want the advance to start. Turn the RPM control pot counterclockwise until the timing begins to change.

Slope: This is the point where the timing advances to the mechanical timing again. To set this, rev the engine up to the rpm point that the timing should be completely in at. Turn the Slope control pot counterclockwise until the timing begins to change.





START/RETARD CONTROL, PN 8982

The MSD Start Retard Control provides a start retard and a single stage of retard. The start retard can be set for 10° or 25° during cranking. When the engine is cranked, the timing will retard until the engine reaches over 1,300 rpm. At this point it will return and stay at the set timing.

There is also a step retard that is adjustable with plug-in modules. This retard is controlled by the Gray wire. It will be activated when the Gray wire is removed from ground.

The PN 8982 must be used with an MSD Ignition Control and can be used on 4, 6 or 8-cylinder engines.

General Wiring

- Red:** Connects to switched 12 volt source.
- Black:** Connects to ground.
- Yellow:** This is the trigger output to the Ignition. It will connect to the MSD's White wire or Points terminal.

Trigger Wires

- White:** Connects to points or an ignition amplifier output. When this wire is used the Magnetic Pickup is not (Violet and Green).
- Violet and Green:** These wires are routed together in one harness and form the magnetic pickup connector. This connector plugs directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When this connector is used, the White wire is not and should be sealed.

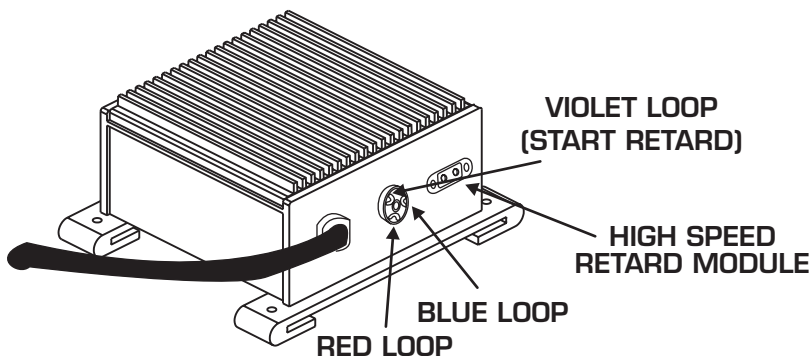
Start Retard

- Violet:** Activates the start retard when supplied to 12 volts. Once the engine reaches over 1,300 rpm, the retard will be deactivated and will not return again until the ignition is turned Off or engine rpm drops below 400 rpm.
- Violet Loop:** Under the cover next to the Blue and Red cylinder loops is a Violet loop. This adjusts the start retard. When it is not cut, the retard is 10°, cutting it will retard it 25°.

Retard Stage

There is a single stage of retard that is activated when the Gray wire is removed from ground. When the retard is not being used, the Gray wire MUST be grounded or a Zero degree module must be installed.

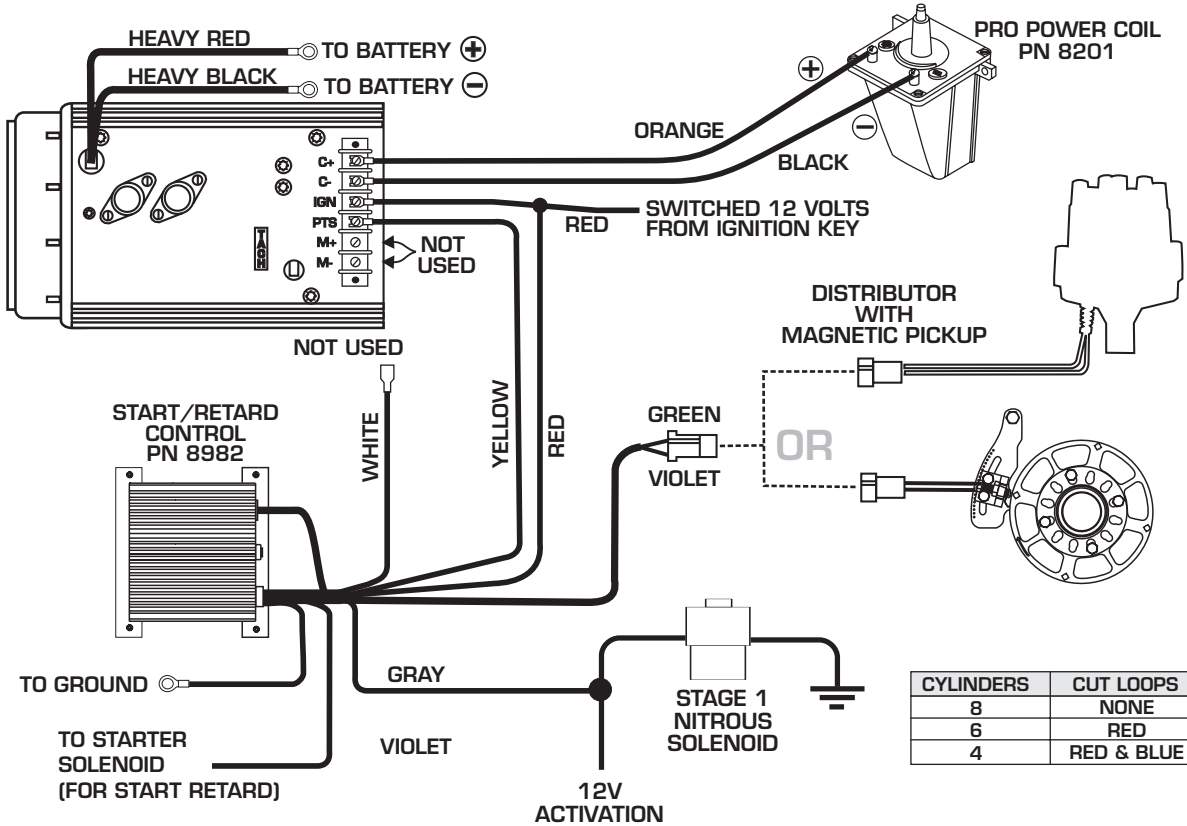
- Gray:** When this wire is removed from ground, the retard stage is activated.



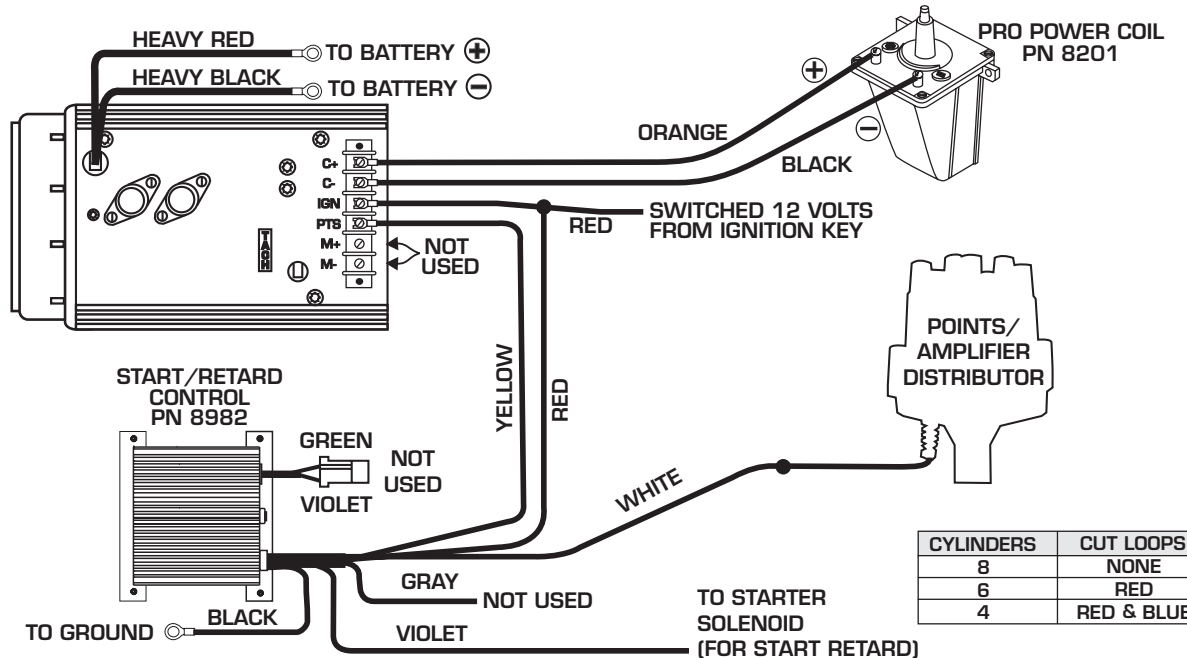
CYLINDERS	CUT LOOPS
8	NONE
6	RED
4	RED & BLUE

RETARD	CUT LOOP
10°	NONE
25°	VIOLET

START/RETARD CONTROL, PN 8982, WITH MAGNETIC PICKUP



START/RETARD CONTROL, PN 8982, WITH WHITE WIRE TRIGGER





VARI-CURVE CONTROL, PN 8983

The MSD Vari-Curve allows you to set an ignition curve for advance or to retard throughout the rpm range. The starting and ending rpm points of the curve are selected with rpm modules. The range of timing change is set with degree modules and installed in either a negative (retard) or positive (advance) module position.

There are also two retard stages that are adjustable with plug-in modules. These retard steps will be activated when their corresponding control wires are removed from ground. There is also an optional start retard that can be set to retard the timing either 10° or 25° while the engine cranks.

The PN 8983 must be used with an MSD Ignition Control and can be used on 4, 6 or 8-cylinder engines.

General Wiring

- Red:** Connects to switched 12 volt source.
- Black:** Connects to ground.
- Yellow:** This is the trigger output to the Ignition. It will connect to the MSD's White wire or Points terminal.

Trigger Wires

- White:** Connects to points or an ignition amplifier output. When this wire is used the Magnetic Pickup is not (Violet and Green).
- Violet and Green:** These wires are routed together in one harness and form the magnetic pickup connector. This connector plugs directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When this connector is used, the White wire is not and should be sealed.

Start Retard

- Violet:** Activates the start retard when supplied to 12 volts. Once the engine reaches over 1,300 rpm, the retard will be deactivated and will not return again until the ignition is turned Off or engine rpm drops below 400 rpm.
- Violet Loop:** Under the cover next to the Blue and Red cylinder loops is a Violet loop. This adjusts the start retard. When is not cut, the retard is 10°, cutting it will retard it 25°.

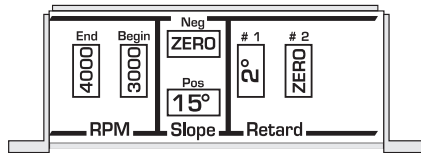
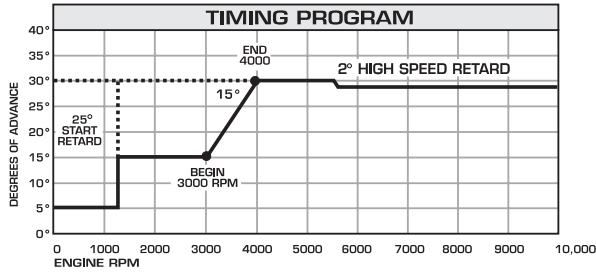
Retard Stage

There are two retard stages that can activated independently. If used at the same time, the retard rates are cumulative. When the retard is not being used, the activation wire(s) MUST be grounded or a Zero degree module must be installed. If not, the timing will be retarded the default amount, 20°.

- Brown/Orange:** When this wire is removed from ground, the #1 retard stage is activated.
- Brown/White:** When this wire is removed from ground, the #2 retard stage is activated.

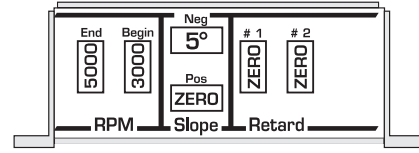
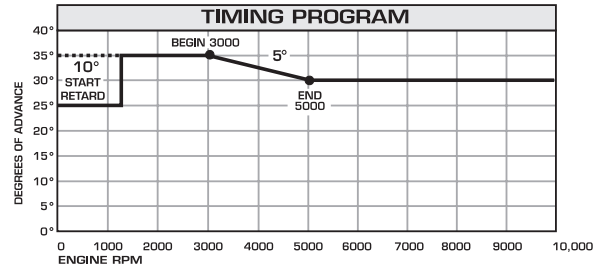
Cylinder Select: There are two wire loops under the small cover on the side of the control. For 6-cylinder operation, cut the Red loop, for 4-cylinder engines, cut both the Red and Blue loop. See page 91.

TIMING CURVE EXAMPLES



FOR AN ADVANCE CURVE

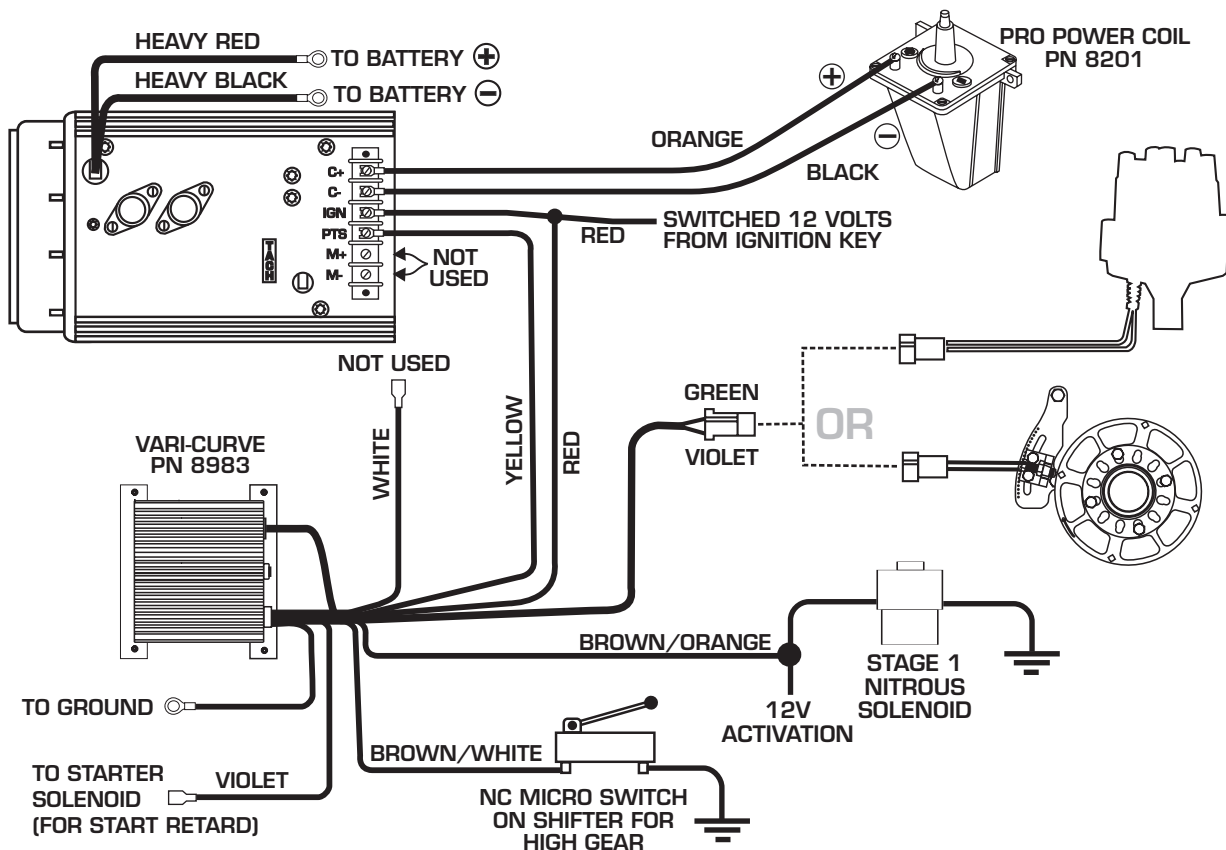
First, you must set the mechanical timing to what will be the maximum amount of timing that the curve reaches. Install a ZERO module in the "Neg" jack and 15° module in the "Pos" jack. This will determine how much advance you want to add.



FOR A RETARD CURVE

Install a ZERO module in the "Pos" jack and a 5° module in the "Neg" jack. This will determine the total amount of timing that is removed by the "End" rpm.

VARI-CURVE, PN 8983

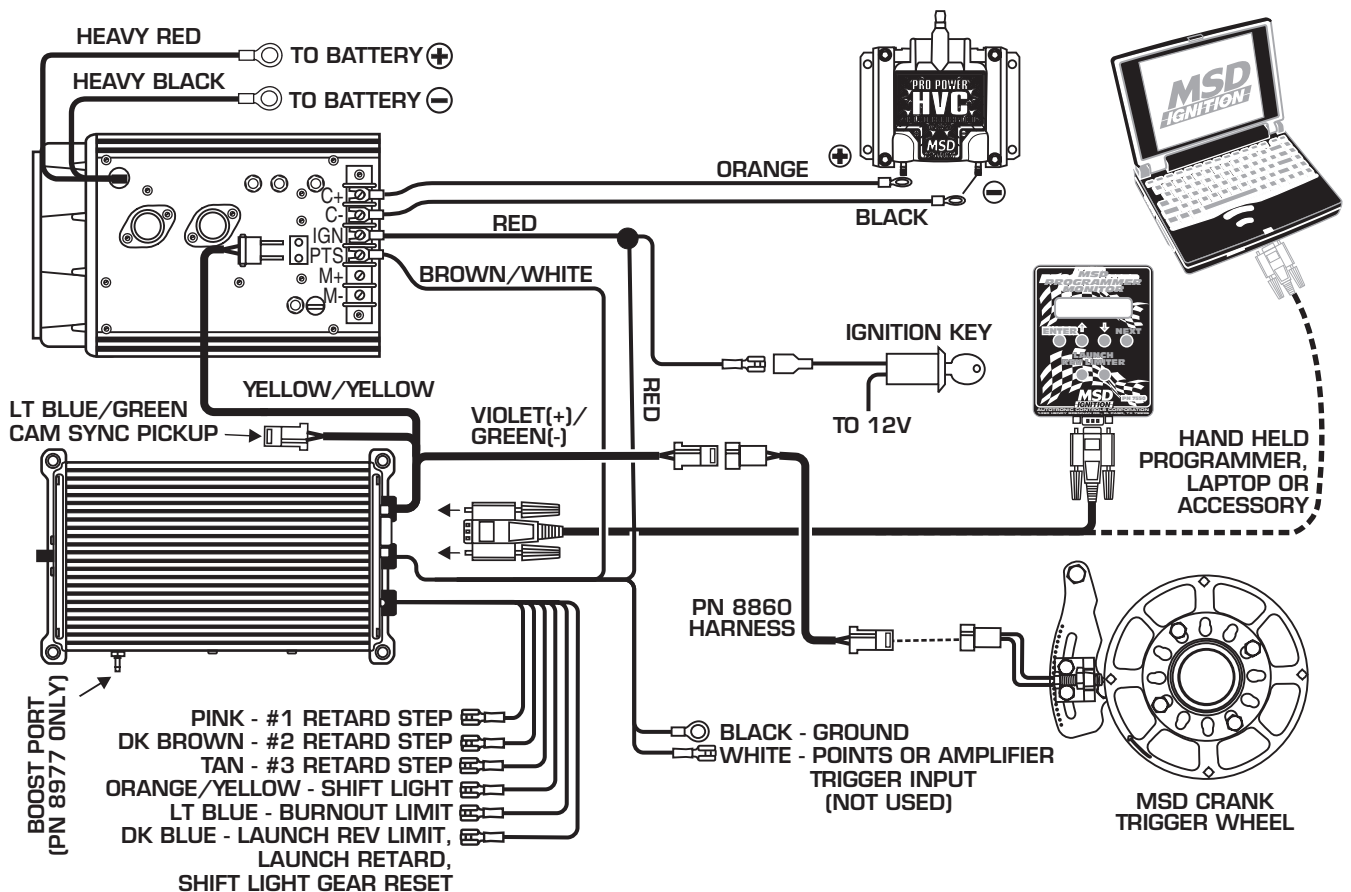


MULTI-FUNCTION IGNITION CONTROLLER, PN 8979, PN 8977 with BOOST RETARD

The Multi-Function Ignition Controllers must be used with a single channel MSD Ignition Control such as a 6AL, 7AL-2, etc. The Controllers allow you to program and control a variety of timing and rpm options. Many of these options are explained in the wiring on the following page. The Controllers wire to your existing MSD just like most other Timing Controls and will accept trigger signals from magnetic pickups, amplifiers or points.

Programming the features of the Controllers can be done with a PC using MSD's Pro-Data+ software, or with the MSD Hand Held Monitor, PN 7550 (See Page 60). This software can be downloaded from www.msdisignition.com at no charge.

Note: After installation, the engine's mechanical timing must be checked and reset.





Red	This wire is responsible for turning the MSD On and Off. Connects to a switched 12 volt source such as the ignition key or switch.
Black	This wire connects to a good ground, either at the battery negative (-) terminal or to the engine.
Trigger Wires	There are two circuits that can be used to trigger the Controller; a Points circuit (the White wire) and a Magnetic Pickup circuit (the Green and Violet wires). The two circuits will never be used at the same time.
White	This wire is used to connect to breaker points, electronic ignition amplifier output or to the trigger output of the ECU. When this wire is used, the Magnetic Pickup connector is not used.
Violet & Green (Magnetic Pickup Connector)	These wires are routed together in one harness as the magnetic pickup connector. The connector plugs directly into an MSD distributor or crank trigger. It will also connect to aftermarket pickups. The Violet wire is positive (+) and the Green wire is negative (-). When these wires are used, the White wire is not.
Brown/White	This is the output trigger signal. It connects to the points input of the MSD Ignition Control.
Cam Sync	
Lt Blue and Lt Green	This 2-pin connector plugs into a Cam Sync Sensor to indicate when the number one cylinder is triggered. The wires are Lt Blue and Lt Green.
Fiber Optic Connection	This is where the fiber optic cable of the PN 7555 Inductive Sync Kit connects to take advantage of the Individual Cylinder Management feature. This must be covered when using the 2-pin cam sync input.
RPM Controls	
Yellow 2-Pin Plug	This connector plugs into the MSD Ignition Control's rpm module receptacle.
Dark Blue	When 12 volts are applied, this wire activates several features including; Launch rev limit, Launch Retard value and will reset the Shift Light sequence to 1 st gear.
Light Blue	This wire activates the Burnout rev limit when 12 volts are applied.
Orange/Yellow	Shift Light activation wire. Supplies ground to activate a light.
Retard Stages	
Pink	This wire activates the first retard stage when it is applied to 12 volts. When 12 volts is removed the retard is deactivated.
Dark Brown	This wire activates the second retard stage when it is applied to 12 volts. When 12 volts is removed the retard is deactivated.
Tan	This wire activates the third retard stage when it is applied to 12 volts. When 12 volts is removed the retard is deactivated.

LED - The LED will verify the trigger signals. It will also flash a trouble code 11 if there is a problem with the Cam Sync signal (for individual cylinder management).

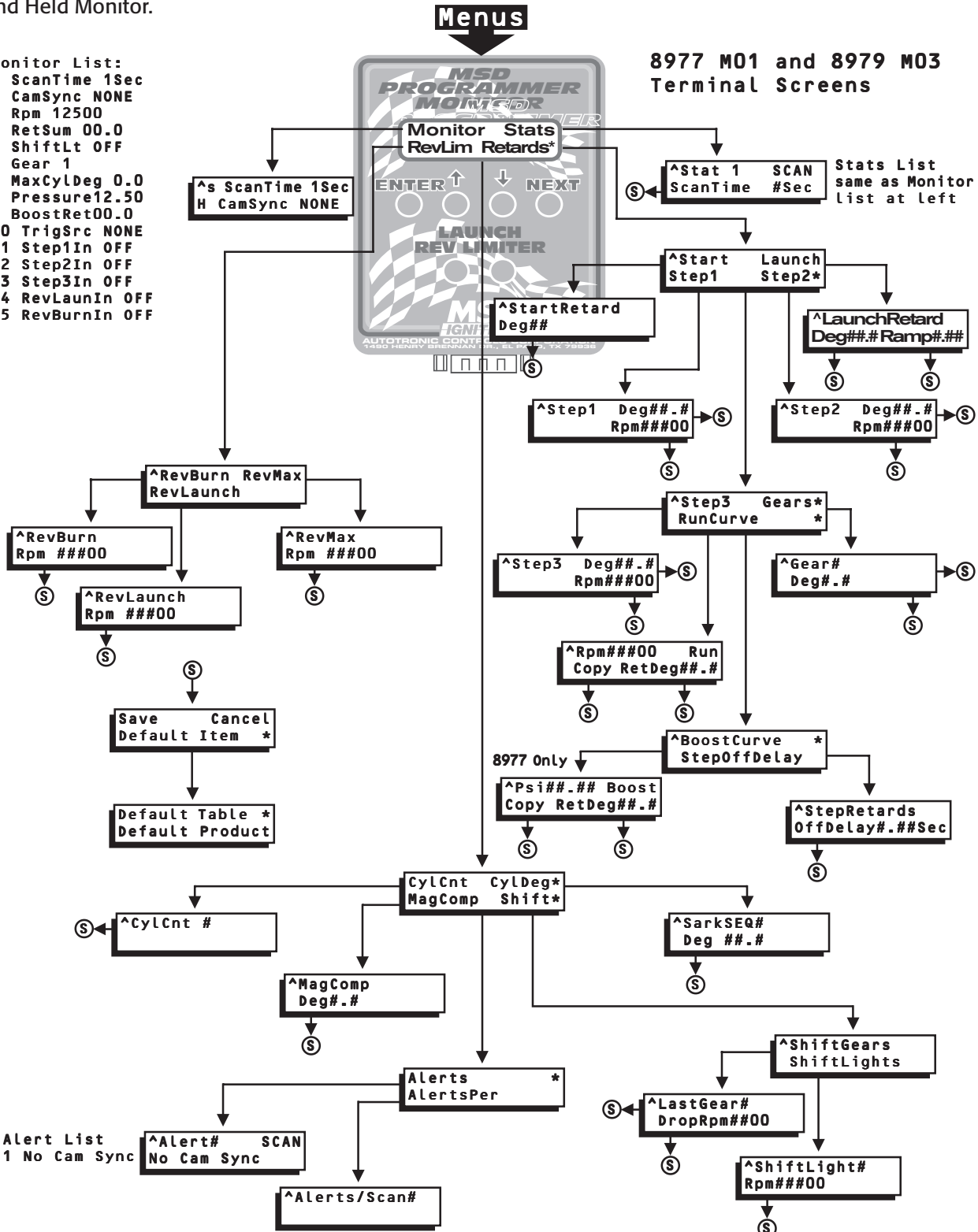
The Controllers share many of the same features as the Programmable Digital-7 Ignition. See page 56 for more information and wiring samples.

PN 8977 AND PN 8979 FLOW CHART WITH HAND HELD MONITOR

MENU TREE

The following menu tree shows the different screens and programs of the Multi-Function Ignition Controls with the Hand Held Monitor.

- Monitor List:
- 1 ScanTime 1Sec
 - 2 CamSync NONE
 - 3 Rpm 12500
 - 4 RetSum 00.0
 - 5 ShiftLt OFF
 - 6 Gear 1
 - 7 MaxCylDeg 0.0
 - 8 Pressure12.50
 - 9 BoostRet00.0
 - 10 TrigSrc NONE
 - 11 Step1In OFF
 - 12 Step2In OFF
 - 13 Step3In OFF
 - 14 RevLaunIn OFF
 - 15 RevBurnIn OFF





MSD PROGRAMMABLE DIS-2, PN 6212

The Programmable DIS-2 Ignition Control is a programmable, high output ignition control designed for distributorless ignition systems. It delivers high powered CD multiple sparks and provides the ability to program and control a variety of rpm and timing functions ranging from Individual Cylinder Timing to retards for each gear.

Programming the features of the Controllers can be done with a PC using MSD's Pro-Data+ software, or with the MSD Hand Held Monitor, PN 7550 (See Page 60). This software can be downloaded from www.msdisignition.com at no charge.

Operating Specifications

- Operating Voltage:** 11-18 Volts, Negative ground
- Current Requirements:** 8 Amps at 10,000 rpm
- RPM Range:** 15,000 with 14 Volts
- Spark Series Duration:** 20° Crankshaft
- Primary Voltage:** 500 Volts
- Energy Output:** 190 Millijoules

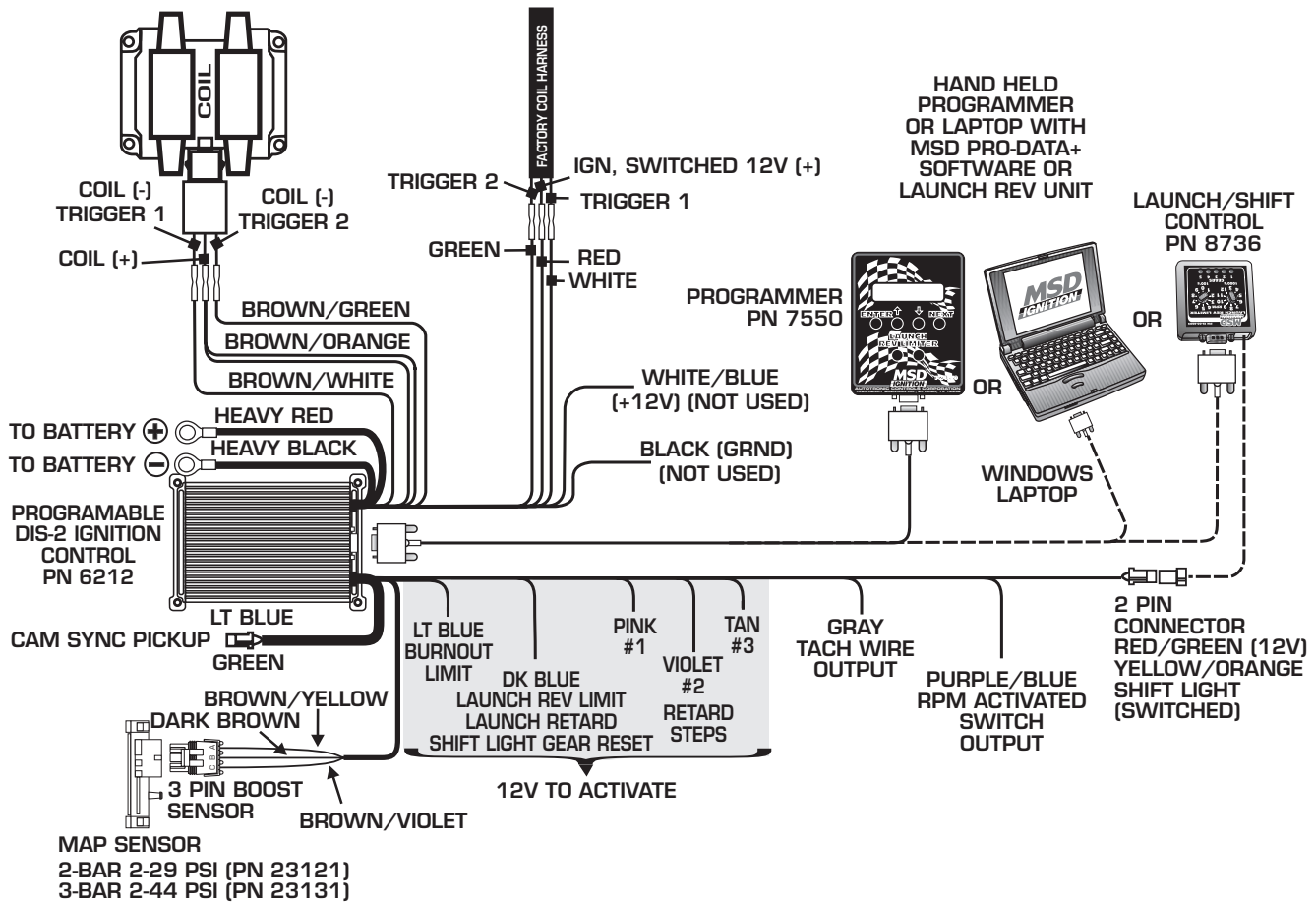
Note: The programming and features of the Programmable DIS-2 are explained at length in the installation instructions. These can be downloaded at www.msdisignition.com or contact the MSD Customer Support Department and they will send you a copy (915-855-7123).

Power Leads		These are the two heavy 12 gauge wires and are responsible for getting direct battery voltage to the ignition. The Ignition is load protected from reverse battery connections and will automatically shut down if there is over 27 volts input.
Heavy Red		This wire connects directly to the battery positive (+) terminal or a positive battery junction such as the starter solenoid. Note: Do not connect to the alternator.
Heavy Black		This wire connects to a good ground, either at the battery negative (-) terminal or to the engine. Note: Engine must be grounded to battery negative.
Ignition Switch		
Red		This wire is responsible for turning the DIS-2 On and Off. Connect to a switched 12 volt source such as the ignition key or switch.
Coils		
Coil 1	Brown/Orange	This wire connects to the coil 1 positive (+) terminal. This is the ONLY wire that makes electrical contact with the positive coil terminal.
	Brown/White	This wire connects to the coil 1 negative (-) terminal. This is the ONLY wire that makes electrical contact with the negative coil terminal.
Coil 2	Brown/Orange	This wire connects to the coil 2 positive (+) terminal. This is the ONLY wire that makes electrical contact with the positive coil terminal.
	Brown/Green	This wire connects to the coil 2 negative (-) terminal. This is the ONLY wire that makes electrical contact with the negative coil terminal.

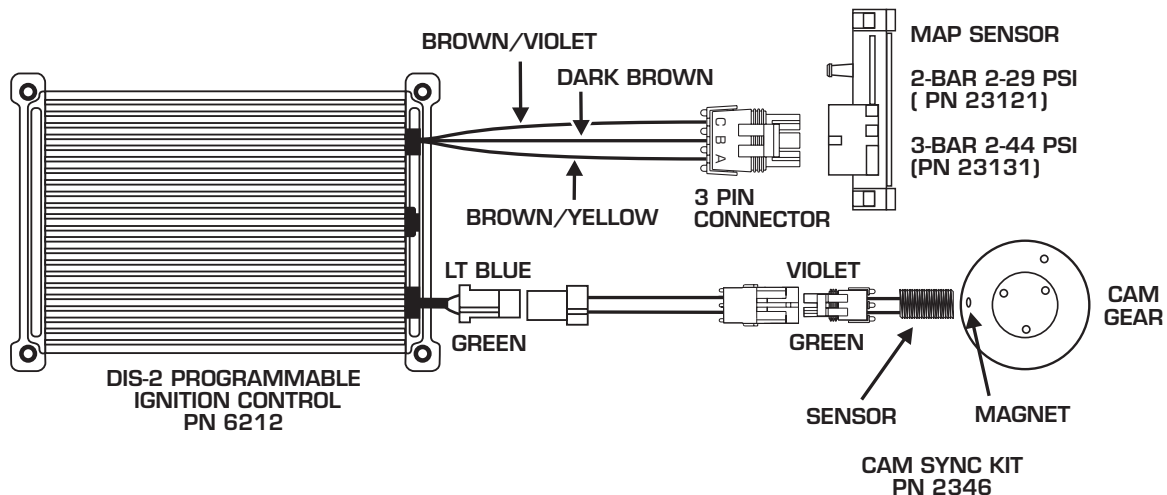


4 - Pin Connector	Trigger Pickups	
	White/Blue	Not Used - This wire has 12 volts and must be sealed.
	Black	Not Used
	White (Coil 1)	This wire is used to connect to the electronic ignition amplifier output or to the trigger output of the ECU for coil 1.
	Green (Coil 2)	This wire is used to connect to the electronic ignition amplifier output or to the trigger output of the ECU for coil 2.
	2 - Pin Connector	
	Cam Sync	This 2-pin connector plugs into a Cam Sync Sensor to indicate when the number one cylinder is triggered.
	Accessories	
	3-Step Rev	
	Light Blue	This wire activates the Burnout rev limit when 12 volts are applied.
	Dark Blue	When 12 volts are applied, this wire activates several features including; Launch rev limit, Launch Retard value, Launch Timing Curve and will reset the Shift Light sequence to 1 st gear & Step 3 slope.
	Tach Output	
	Gray	Used to provide a tach signal to rpm sensing devices. 12 volt square wave with 30° duty cycle.
	3-Step Retard	
	Pink	This wire activates the first retard stage when it is applied to 12 volts. When 12 volts are removed the retard is deactivated.
	Violet	This wire activates the second retard stage when it is applied to 12 volts. When 12 volts are removed the retard is deactivated.
	Tan	This wire activates the third retard stage when it is applied to 12 volts. When 12 volts are removed the retard is deactivated if ramp value = 0. Step 3 retard ramp can be activated by this wire providing a progressive retard ramp that is programmable from .1 to 9.9 seconds.
	Shift Light/Shifter 2 Pin Connector	
	Red/Green Yellow/Orange	Shift Light activation wire. Connects to the Shift Light PN 7552 or to any device with a 3 amp or less current draw. A 3 amp fuse is in line on the Red/Green wire.
	RPM Switch	
	Purple/Blue	RPM Activation Switch. This wire will supply a ground to complete a circuit at a desired rpm. It will handle up to 3 amps continuous.
	Map Sensor 3 Pin Connector	
	Brown/Violet Brown/Yellow Dark Brown	Three Pin Connector - Used for an optional external pressure sensor for turbo or supercharger applications. (2 - Bar/2-29 psi - PN 23121) (3 - Bar/2-44 psi - PN 23131).

MSD PROGRAMMABLE DIS-2, PN 6212



PROGRAMMABLE DIS-2 TO SYNC SIGNAL OR MAP SENSOR

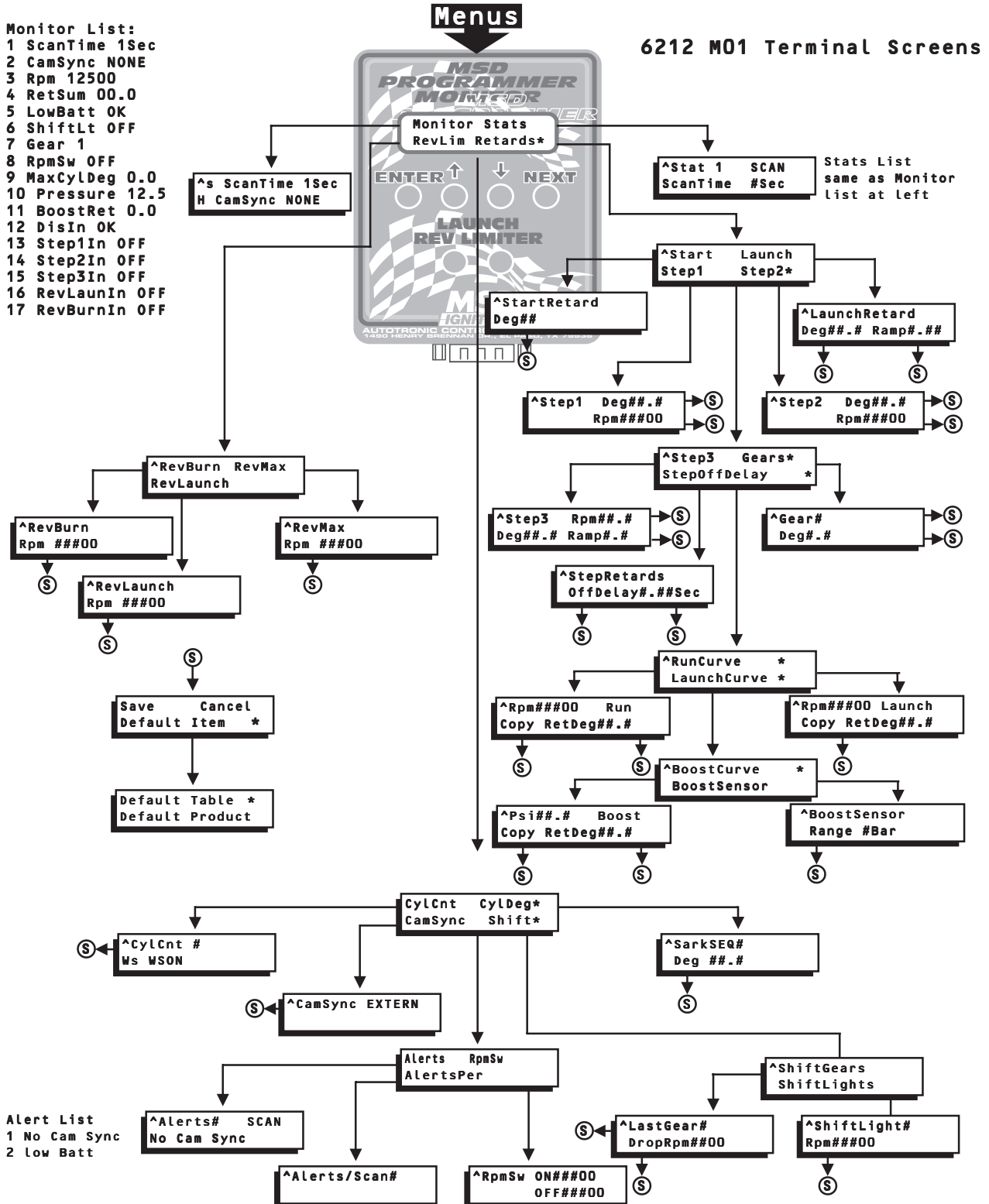


PN 6212 FLOW CHART WITH HAND HELD MONITOR

MENU TREE

The following menu tree shows the different screens and programs of the PN 6212 and Monitor.

- Monitor List:
- 1 ScanTime 1Sec
 - 2 CamSync NONE
 - 3 Rpm 12500
 - 4 RetSum 00.0
 - 5 LowBatt OK
 - 6 ShiftLt OFF
 - 7 Gear 1
 - 8 RpmSw OFF
 - 9 MaxCylDeg 0.0
 - 10 Pressure 12.5
 - 11 BoostRet 0.0
 - 12 DisIn OK
 - 13 Step1In OFF
 - 14 Step2In OFF
 - 15 Step3In OFF
 - 16 RevLaunIn OFF
 - 17 RevBurnIn OFF



DIS-4 MULTI-CHANNEL PROGRAMMABLE BOOST CONTROLLER, PN 6562 WITH FUEL ADDER, PN 6563

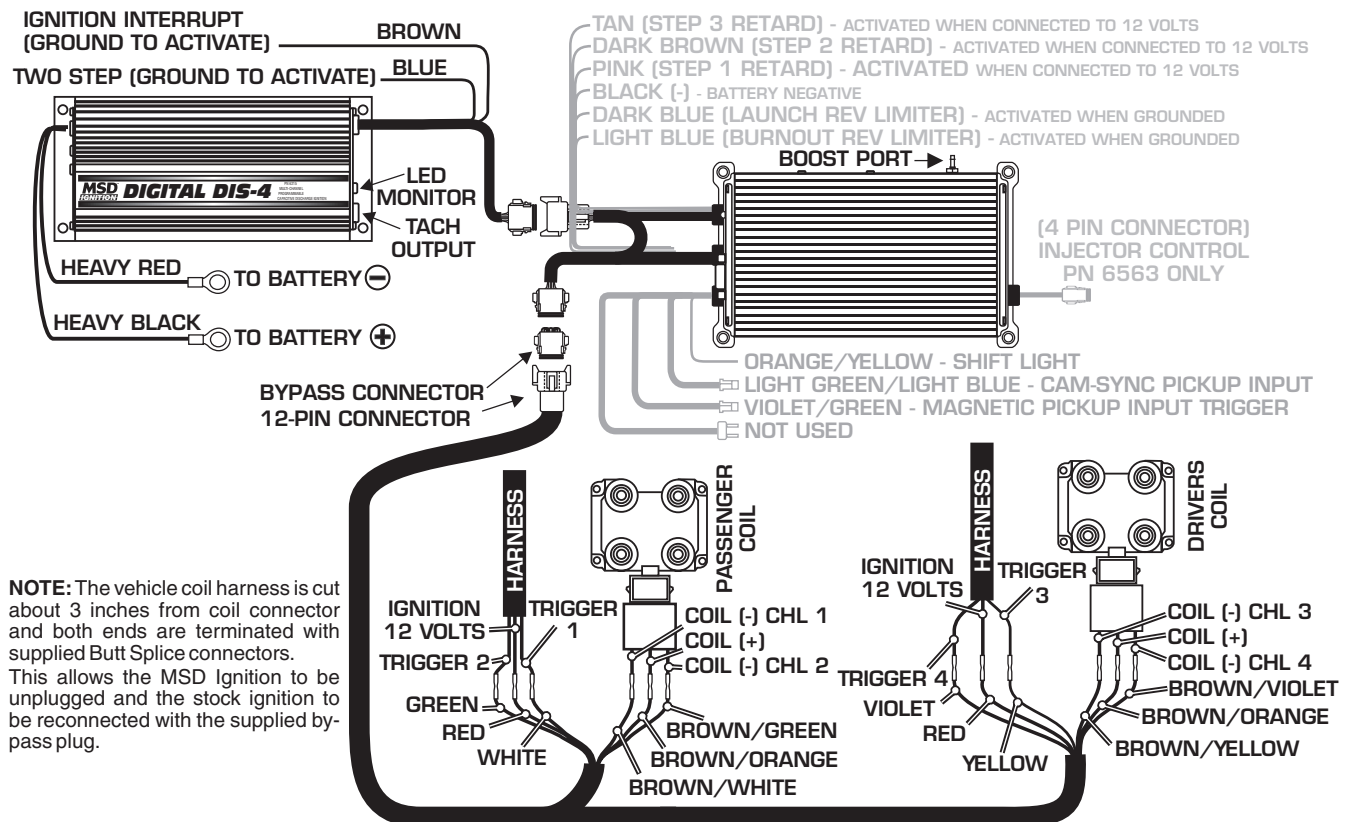
The Multi-Channel Programmable Boost Controllers are designed to be used with the MSD DIS-4, PN 6215, or DIS-4HO, PN 62151, though it can also be used with MSD single channel ignitions (MSD 7AL-2). The controllers allow users to program and control a variety of rpm and timing functions ranging from Individual Cylinder Timing to retards for each gear.

Programming the features of the Controllers can be done with a PC using MSD's Pro-Data+ software, or with the MSD Hand Held Monitor, PN 7550 (See Page 60). This software can be downloaded from www.msdisignition.com at no charge.

The PN 6563 features a Fuel Adder circuit that gives you the ability to program the output of up to four additional fuel injectors.

Note: The programming and features of these Controllers are explained at length in the installation instructions. These can be downloaded at www.msdisignition.com or contact the MSD Customer Support Department and they will send you a copy (915-855-7123).

DIS-4 MULTI-CHANNEL PROGRAMMABLE TO V-8 COIL PACK IGNITION





Red	This wire is responsible for turning the MSD On and Off. Connects to a switched 12 volt source such as the ignition key or switch.
Black	This wire connects to a good ground, either at the battery negative (-) terminal or to the engine.
Trigger Wires	There are two circuits that can be used to trigger the Controller; a Points/Amplifier circuit (the White, Green, Yellow, Violet wire) and a Magnetic Pickup circuit (the Green and Violet wires). The two circuits will never be used at the same time.
White (Channel 1)	This wire connects to electronic ignition amplifier output or to the trigger output of the ECU. When this wire is used, the Magnetic Pickup connector is not used.
Green (Channel 2)	This wire connects to electronic ignition amplifier output or to the trigger output of the ECU. When this wire is used, the Magnetic Pickup connector is not used.
Yellow (Channel 3)	This wire connects to electronic ignition amplifier output or to the trigger output of the ECU. When this wire is used, the Magnetic Pickup connector is not used.
Violet (Channel 4)	This wire connects to electronic ignition amplifier output or to the trigger output of the ECU. When this wire is used, the Magnetic Pickup connector is not used.
Violet & Green (Magnetic Pickup Connector)	These wires are routed together in one harness as the magnetic pickup connector. The connector plugs directly into an MSD distributor or crank trigger. It will also connect to aftermarket pickups. The Violet wire is positive (+) and the Green wire is negative (-). When these wires are used, the White, Green, Yellow, Violet wire are not. (Distributor applications only.)
Brown/White	Channel 1 output trigger signal. It connects to the trigger input of the MSD Ignition Control.
Brown/Green	Channel 2 output trigger signal. It connects to the trigger input of the MSD Ignition Control.
Brown/Yellow	Channel 3 output trigger signal. It connects to the trigger input of the MSD Ignition Control.
Brown/Violet	Channel 4 output trigger signal. It connects to the trigger input of the MSD Ignition Control.
Cam Sync	
Lt Blue and Lt Green	This 2-pin connector plugs into a Cam Sync Sensor to indicate when the number one cylinder is triggered. The wires are Lt Blue and Lt Green.
Fuel Adder	
White/Blue	Injector output #1 to Fuel Injector
Violet/Blue	Injector output #2 to Fuel Injector
Red/Green	(+) 12 Volts to Fuel Injectors.
RPM Controls	
Yellow 2-Pin Plug	This connector plugs into the MSD Ignition Control's rpm module receptacle. Not used with MSD DIS Ignitions.
Dark Blue	When grounded, this wire activates several features including; Launch Retard value and will reset the Shift Light sequence to 1 st gear. (On single channel ignitions it also activates the Launch rpm limit.) Splice it into the DIS Ignition's blue wire.
Light Blue	This wire activates the Burnout rev limit when grounded, when used with single channel ignitions only.
Orange/Yellow	Shift Light activation wire. Supplies ground to activate a light.
Retard Stages	
Pink	This wire activates the first retard stage when it is applied to 12 volts. When 12 volts is removed the retard is deactivated.
Dark Brown	This wire activates the second retard stage when it is applied to 12 volts. When 12 volts is removed the retard is deactivated.
Tan	This wire activates the third retard stage when it is applied to 12 volts. When 12 volts is removed the retard is deactivated.



MSD MARINE IGNITION SYSTEM

MSD offers several ignition components designed for marine applications; the MSD 6M-2 Ignition Control PN 6460, 7ML-2 Ignition Control PN 7250, Marine Rev Limiter PN 8768, Universal Marine Engine Protector PN 5468 and several Pro-Billet Distributors. The Distributors are for use with boats equipped with automotive style engines. All of the Marine Ignition components are equipped with Weathertight connectors and the corresponding connectors.

The 6M-2 is a capacitive discharge, multiple spark ignition and will install to points, electronic ignitions and magnetic pickups. The 6M-2 is U.L. approved for Marine use. The MSD 7ML-2 Ignition is not U.L. approved and wires the same as the 7AL-2.

NOTE: The 6M-2 and 7ML-2 cannot be used with distributorless ignition models.

Specifications:	6M-2	7ML-2
Operating Voltage:	11 - 18 volts	12 - 18 Volts
Current Requirements:	1 Amp per 1,000 rpm	1 Amp per 1,000 rpm
RPM Range:	15,000 rpm with 14.4 volt supply	14,000 w/ 14.4 Volts
Spark Duration:	20° (crankshaft rotation)	20° (crankshaft rotation)
Primary Voltage Output:	460 - 480 volts	470 Volts
Spark Energy Output:	105 - 115 millijoules	115 millijoules
Weight and Size:	6M-2: 2.75lbs., 8"L x 3.5"W x 2.25"H	4.75lbs, 8"x 3.75"x5.75"

Wire Functions

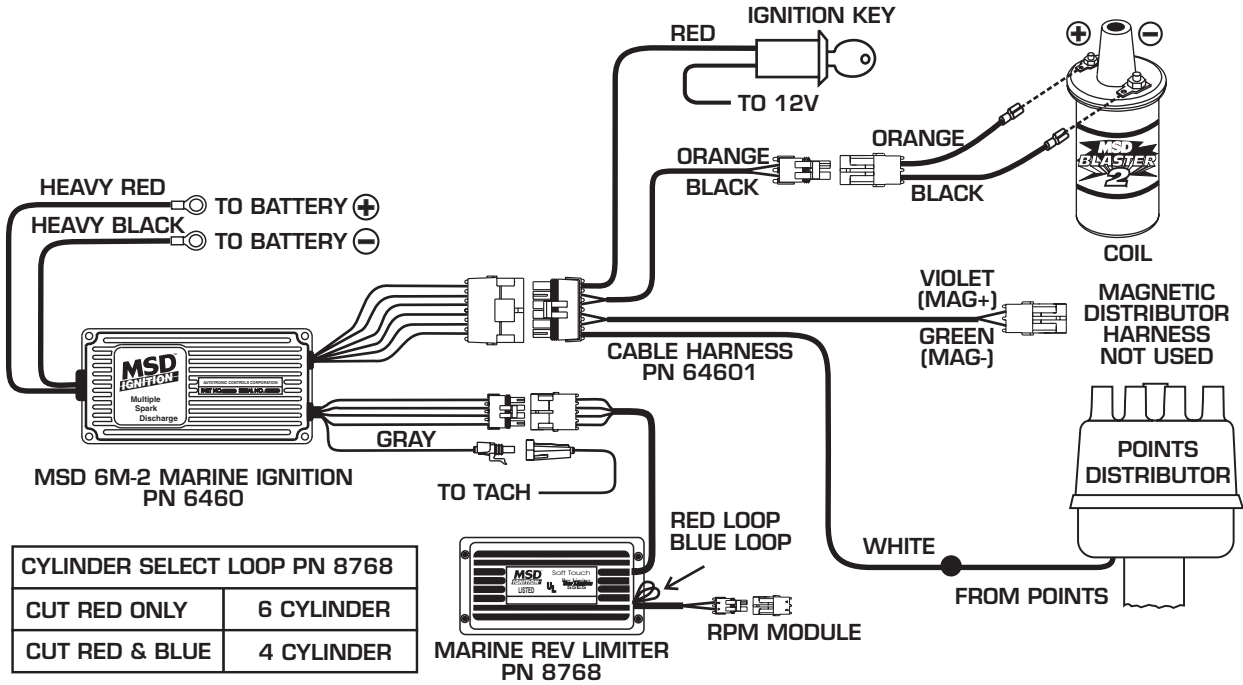
- Power Cables:** The heavy Red connects to the battery positive (+) terminal. The heavy Black connects to the battery negative (-) terminal or other good engine ground.
- Red:** Connects to a switched 12 volt source.
- Orange:** Connects to the positive (+) terminal of the coil. *This is the only wire 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.*
- White:** This is one of the wires that provides a trigger signal for the MSD. It connects to the breaker points or electronic ignition output. When this wire is used the Magnetic pickup connector is not (Violet and Green).
- Violet and Green:** These wires are routed in the same 2-pin connector. they plug directly into the 2-pin connector of the MSD Marine Distributors. The Violet wire is positive (+) and the Green wire is negative (-). When they are used, the White wire is not.

Accessory Wires (6M-2 Only)

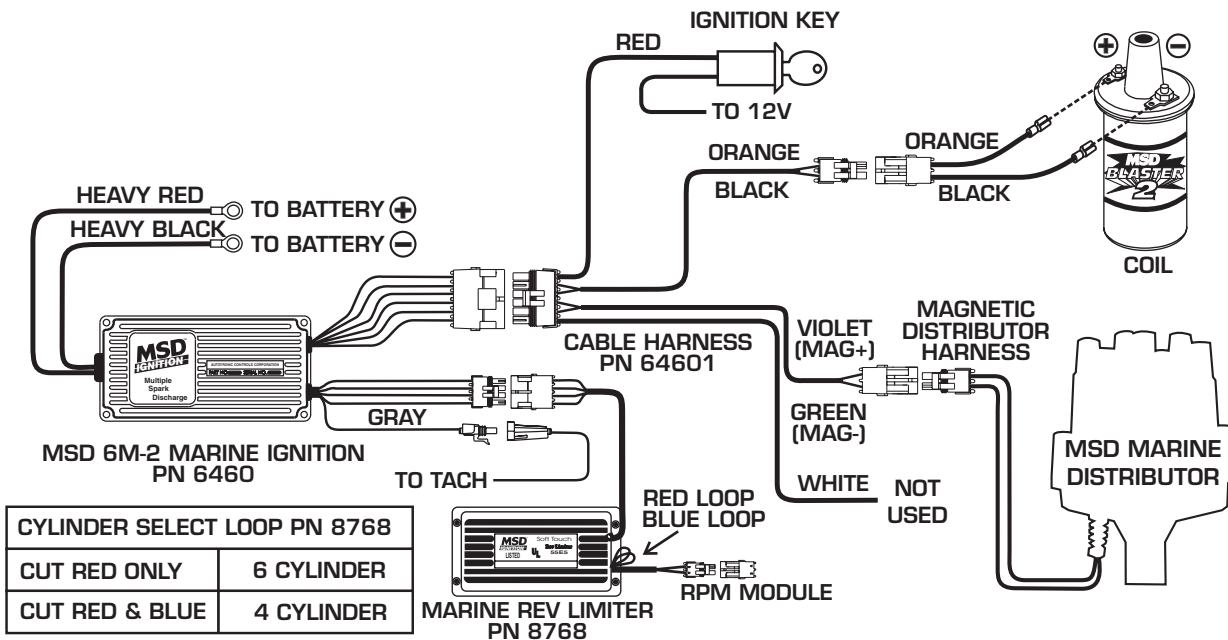
- Gray:** This is the tach signal wire and connects directly to the tachometer. It produces a 12 volt square wave signal.
- Four Pin Connector:** This connector plugs directly into the MSD Marine Rev Limiter, PN 8768.

WARNING: When using a capacitive discharge ignition control, there is high voltage present at the coil primary terminals. Do not touch the coil or connect test equipment to these terminals.

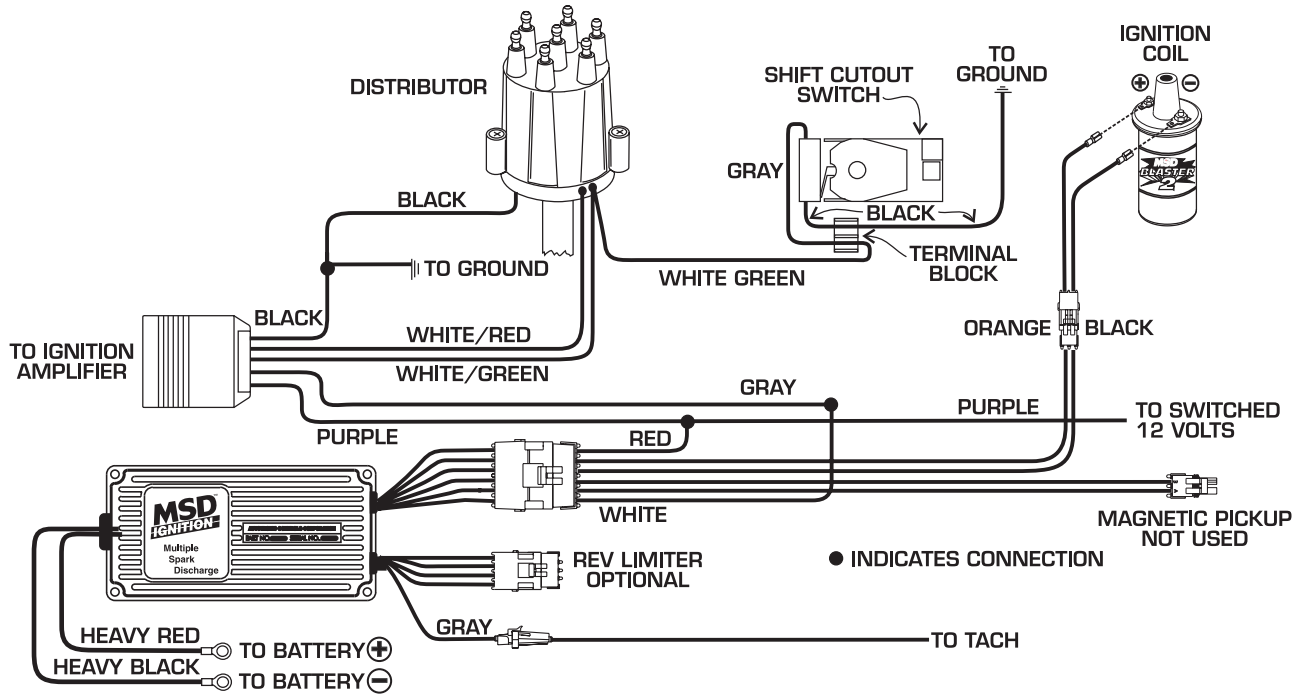
MSD MARINE IGNITION TO POINTS IGNITION SYSTEM



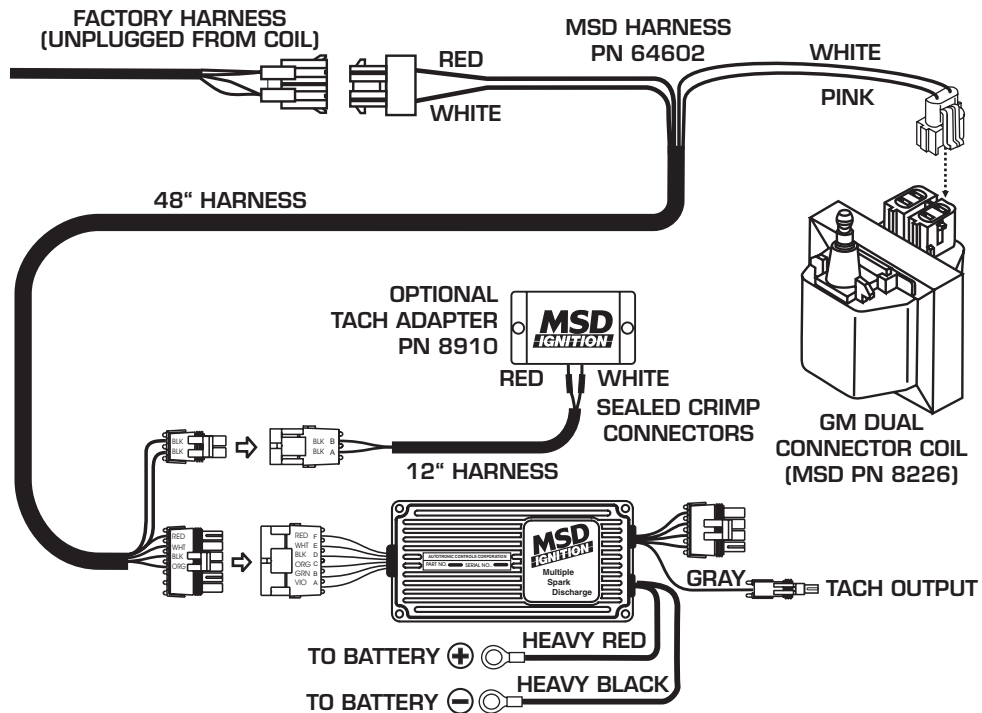
MSD MARINE IGNITION TO MAGNETIC PICKUP DISTRIBUTOR



MSD MARINE IGNITION TO MERCURISER ELECTRONIC IGNITION



MSD 6M-2 TO GM DUAL CONNECTOR COIL



MARINE ENGINE PROTECTOR, PN 5468

The Marine Engine Protector is a universal rev limiter that can be used with inductive ignition controls. The rpm limit is adjusted with a potentiometer from 3,000 to 8,000 rpm. It can be used on 4, 6 and 8-cylinder automotive style engines. It cannot be used with an MSD Ignition.

Wire Functions

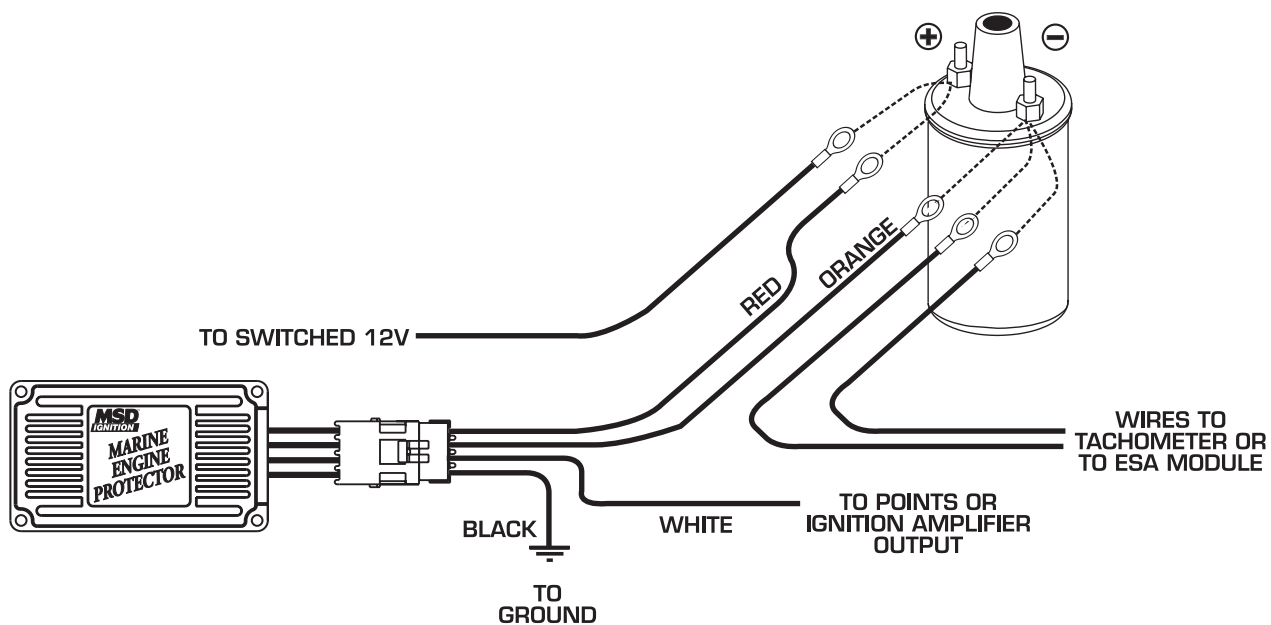
- Red:** To the coil positive (+) terminal.
- Black:** Connects to engine ground.
- Orange:** Connects to the coil negative (-) terminal.
- White:** Connects to the points output or electronic amplifier trigger wire.

Adjusting the Rev Limit

When the potentiometer is turned to the full counterclockwise position there is no rpm limit.

When the potentiometer is turned to the full clockwise position the limit is approximately 8,000 rpm for an 8-cylinder, 10,000 on a 6-cylinder and 16,000 on a 4-cylinder.

GENERAL INSTALLATION OF THE MSD MARINE ENGINE PROTECTOR





TACHOMETER INFORMATION

This section is designed to aid you in the installation of any aftermarket, or factory tachometer. The Tach Output Terminal on the MSD Ignition Unit produces a 12V, square wave signal with a 30% duty cycle which will drive most tachometers, however, some may require either an MSD PN 8910, PN 8910EIS or PN 8920 Tach Adapter.

The installation and operation of the tachometer is going to depend on how the MSD Ignition Unit is installed on the vehicle. The MSD Ignition Unit is installed either using the WHITE wire for triggering or the Magnetic Connector.

Below is a chart listing some popular aftermarket tachometer brand names and the names of some auto manufacturer's factory tachometers and which Tach Adapter may be required. The trigger wire on tachometers that are marked NONE may be connected to the Tach Output Terminal on the MSD Ignition Unit using the supplied female faston terminal.

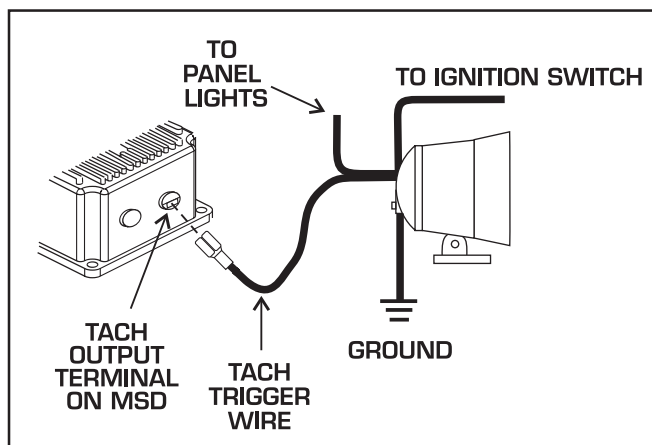
AFTERMARKET TACHOMETERS	WHITE WIRE TRIGGER	MAGNETIC TRIGGER CONNECTOR
AUTOGAGE	8910*	8920
AUTOMETER	NONE	NONE
CLASSIC	8910*	8920
DIXCO	8910*	8920
FARIA	8910*	8920
FORD MOTORSPORTS	NONE	NONE
MSD FAST TACH	NONE	NONE
MALLORY	NONE	NONE
MEDALLION	8910*	8920
MOROSO	NONE	NONE
PRO-FORM	8910*	8920
SMITH (2000 and older)	8920*	8920
STEWART WARNER	8910*	8920
S.W. & BI TORX	NONE	NONE
SUN	8910*	8920
VEGLIA BORLETTI	8910*	8920
VDO (1999 and older)	8910*	8920
VDO (2000 and newer)	NONE	NONE
*If your installation is being used on a factory style electronic ignition, use PN 8910EIS		
FACTORY TACHOMETERS	WHITE WIRE TRIGGER	MAGNETIC TRIGGER CONNECTOR
AMC	SEE NOTE #1 - 8910	SEE NOTE #1 - 8920
CHRYSLER	8910	8920
FORD (Before 1976)	SEE NOTE #1 - 8910	SEE NOTE #1 - 8920
FORD (After 1976)	SEE NOTE #2 - 8910	SEE NOTE #2 - 8920
GENERAL MOTORS	SEE NOTE #3	SEE NOTE #3
IMPORTS	SEE NOTE #1 - 8910	SEE NOTE #1 - 8920
Notes are on following pages.		

Note: For DIS, multichannel, equipped vehicles, MSD offers a two channel Tach Adapter, PN 8912. The MSD DIS-2 would require one, while the DIS-4 Ignitions would need two PN 8912, for certain applications. See page 124.

TACHOMETER INFORMATION

Tachometer Trigger Wire

This diagram shows a typical wiring schematic for aftermarket tachometers. These tachometers will usually have three wires and sometimes a fourth for a panel light. The tach trigger wire is the wire that originally went from the Tachometer to the Negative side of the coil. With an MSD installed, remove the wire that is connected to the coil negative terminal and connect it to the MSD Tach Output Terminal as shown.

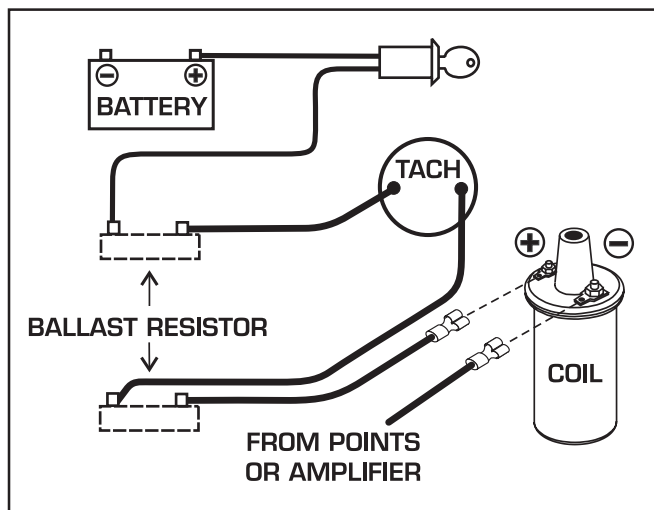


NOTES

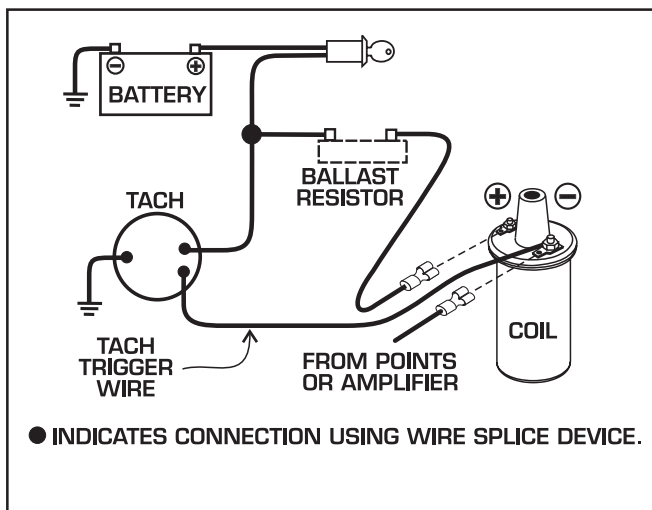
Note #1 Tachometer Types

There are basically two types of tachometers: Current Triggered Tachometers and Voltage Triggered Tachometers. The type of tachometer that is on the vehicle may be recognized by the way it is connected to the ignition coil. The drawings below show two wiring diagrams to help in determining which type of tachometer is on the vehicle.

Current Triggered Tach



Voltage Triggered Tach



Note #2 Tach Manufacturers

Auto manufacturers use tachometers made by different tachometer manufacturers. Some will work when connected to the MSD Ignition Unit Tach Output Terminal, others may require an MSD Tach Adapter. Connect the tachometer trigger wire to the Tach Output Terminal of the MSD to determine if the tachometer is operating correctly. If it does not operate correctly, go back to the chart to determine which MSD Tach Adapter should be used. See the chart on page 119.



TACHOMETER INFORMATION

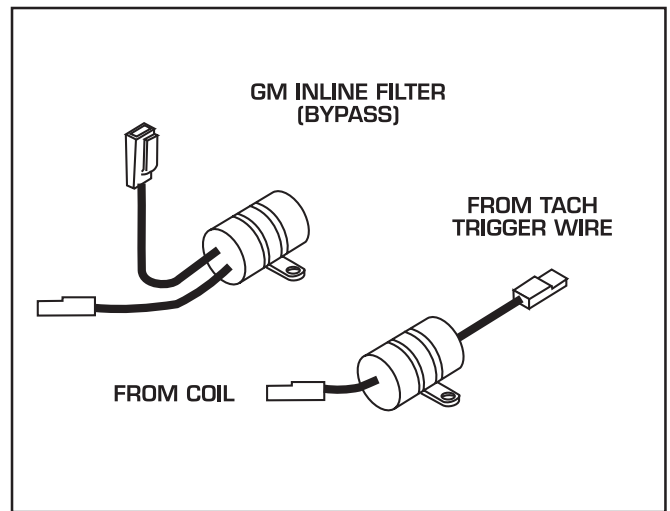
Note #3 GM Inline Filters

Many General Motors Corporation vehicles have an in-line filter that should be bypassed when the factory tachometer drops back to zero as the engine RPM is increasing.

The drawings at the right show what the filter might look like. Locate the filter by tracing the wire from the TACH Terminal on vehicles equipped with an HEI Ignition System.

On vehicles equipped without an HEI, trace the wire from the coil negative terminal until the filter is found.

Disconnect both wires from the filter and leave disconnected. Connect the wire going to the tachometer to the MSD Ignition Unit Tach Output Terminal as shown in this Figure.

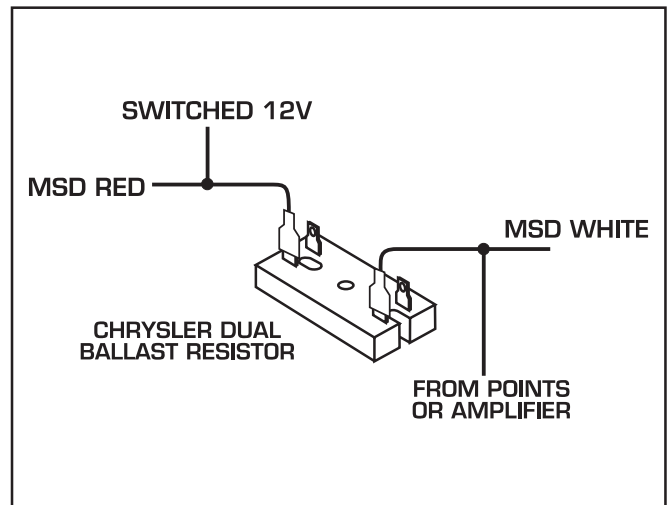


Note #4 Current Triggered

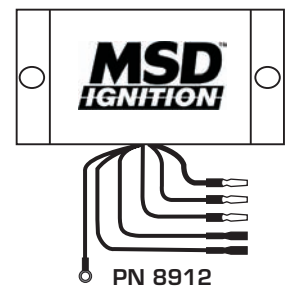
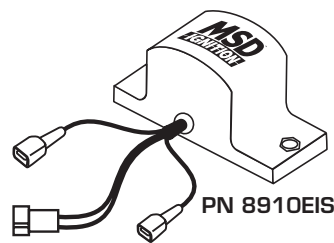
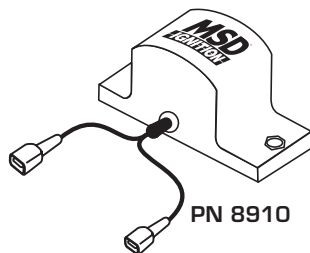
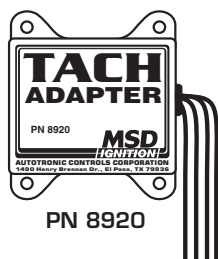
If the tachometer is connected to the positive side of the ignition coil, do not attempt to connect this tachometer to the tach output terminal on the MSD Unit.

See Note #1 for a diagram of an original current triggered tach. The tachometer is connected to the positive side of the ignition coil. The ballast resistor or resistance wire can be on either side of the coil.

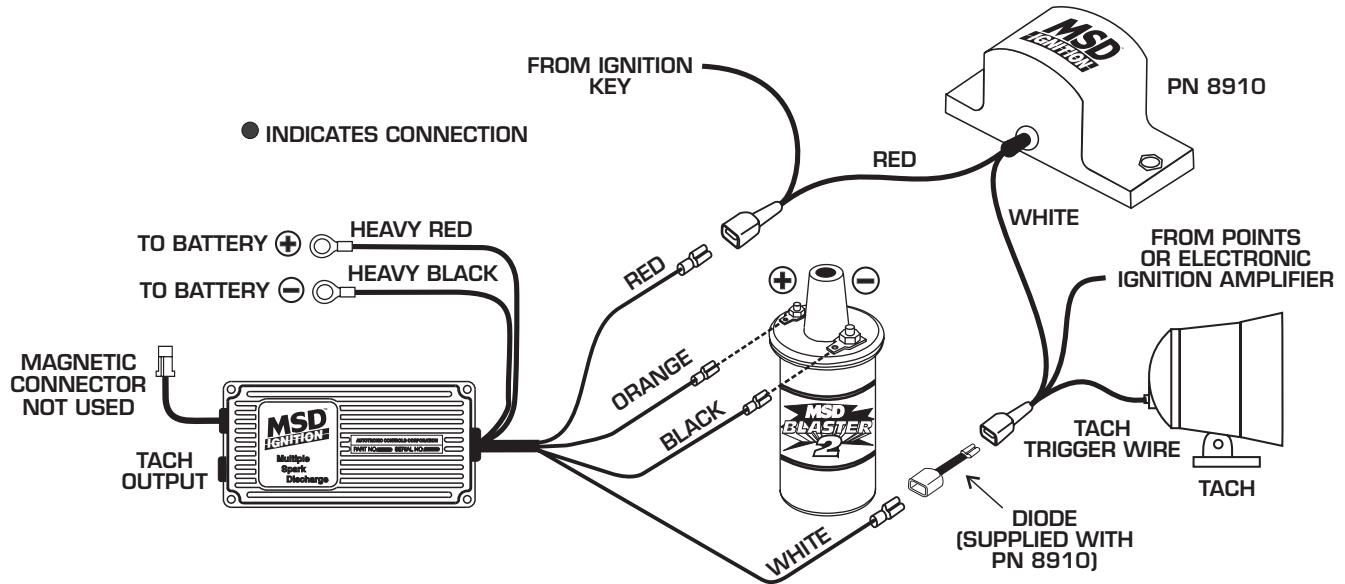
The diagram to the right shows a Chrysler Dual Ballast Resistor being used with a WHITE Wire Triggered installation. The Chrysler Dual Ballast Resistor is from a 1973 to 1976 Chrysler electronic ignition system and may be purchased from any auto parts store. The additional resistance may correct the tachometer function.



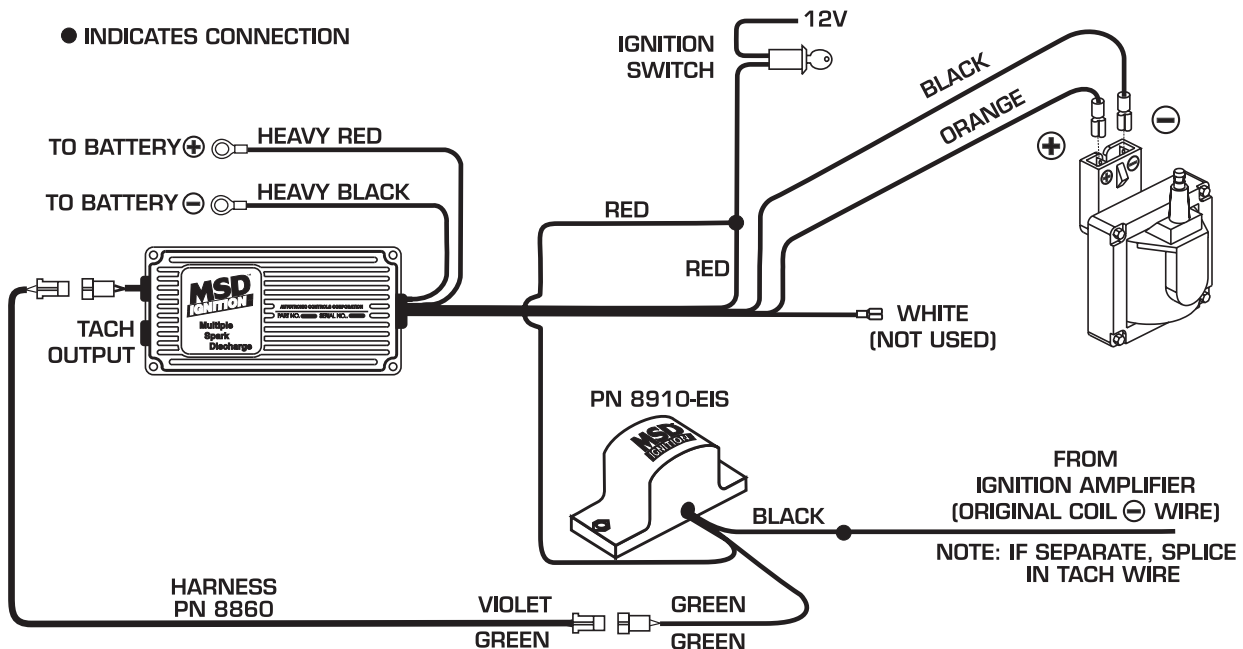
TACH ADAPTERS



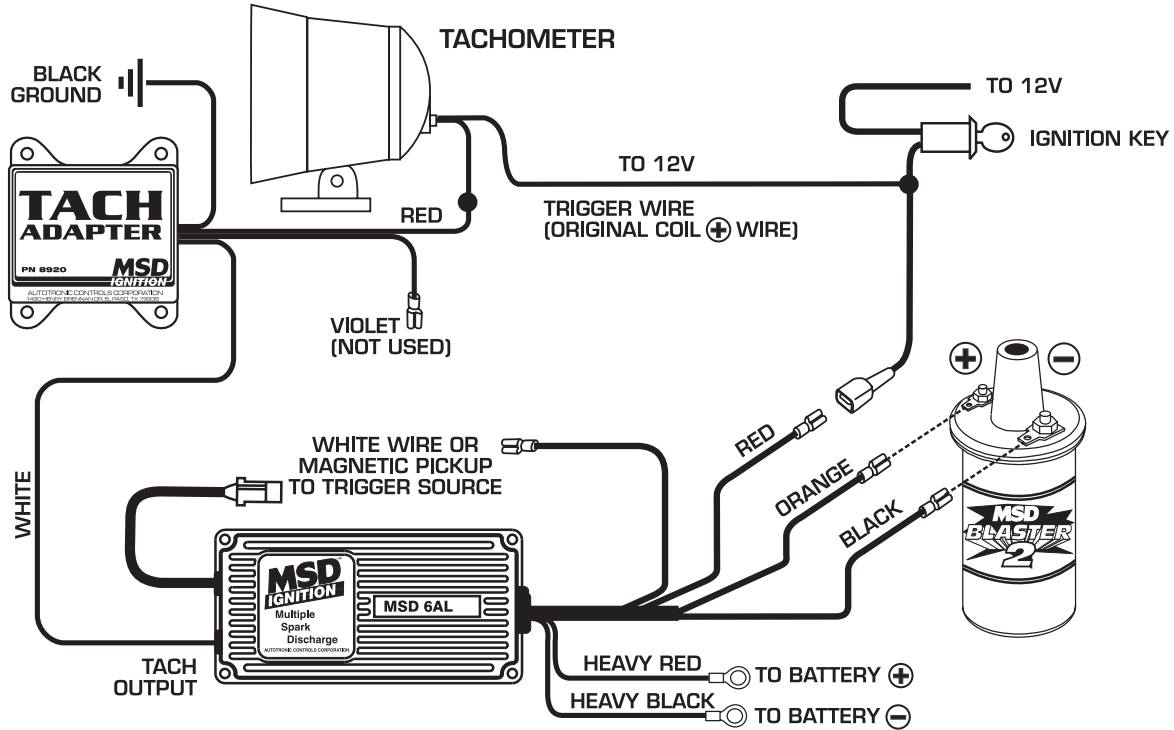
MSD TACH ADAPTER PN 8910 TO VOLTAGE TRIGGERED TACH



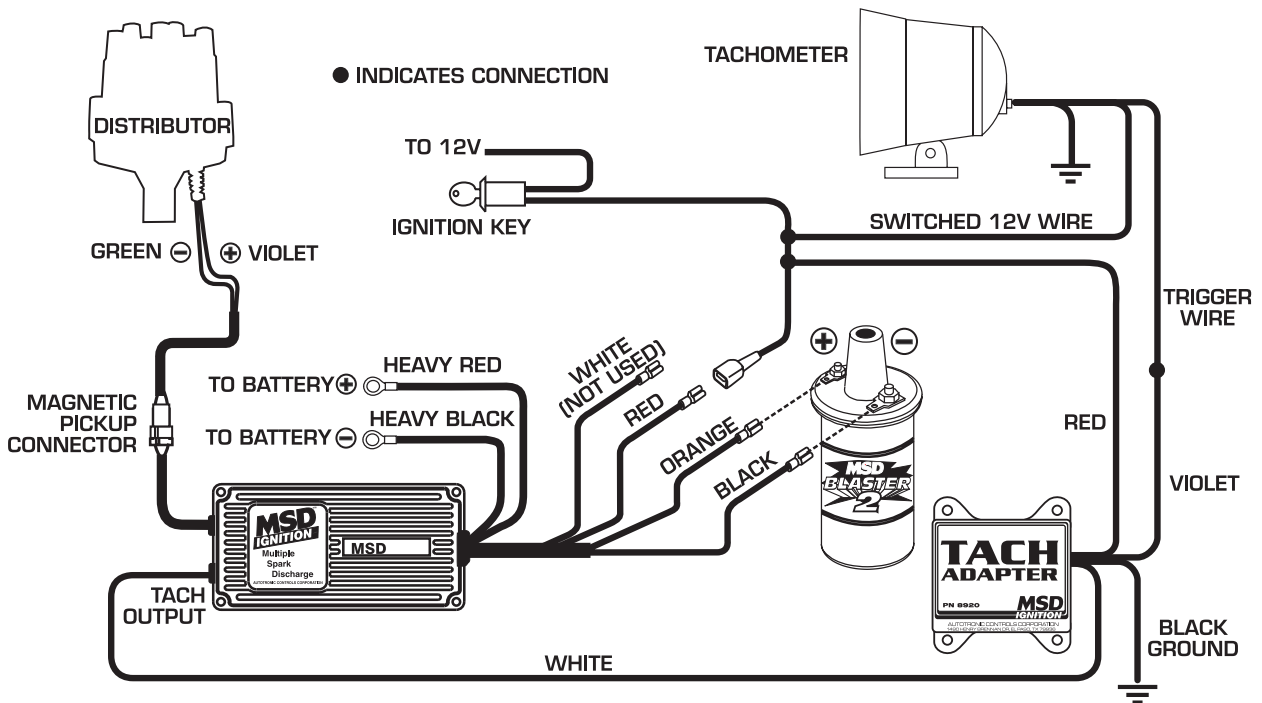
MSD TACH ADAPTER PN 8910-EIS



MSD TACH ADAPTER PN 8920 TO CURRENT TRIGGERED TACH



MSD TACH ADAPTER PN 8920 TO VOLTAGE TRIGGERED TACH



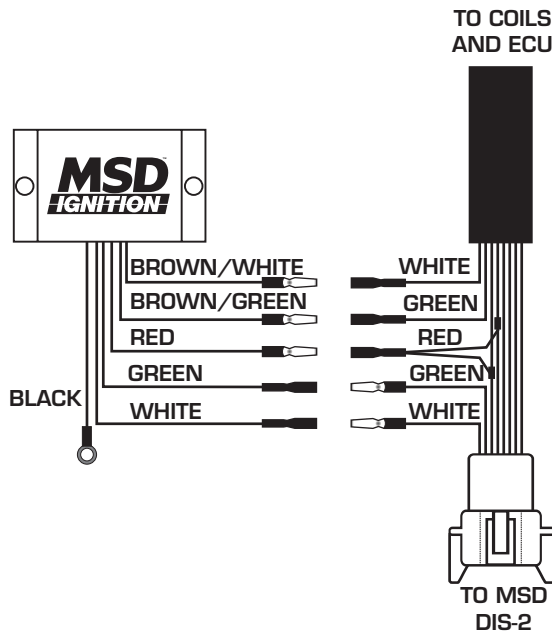
MSD TACH ADAPTER PN 8912

The PN 8912 is a dual channel adapter that will only be used with MSD line of DIS-2 or DIS-4 Ignition (the DIS-4 requires two). The Adapter has six wires that need to be connected and the DIS Ignition already have the matching connectors.

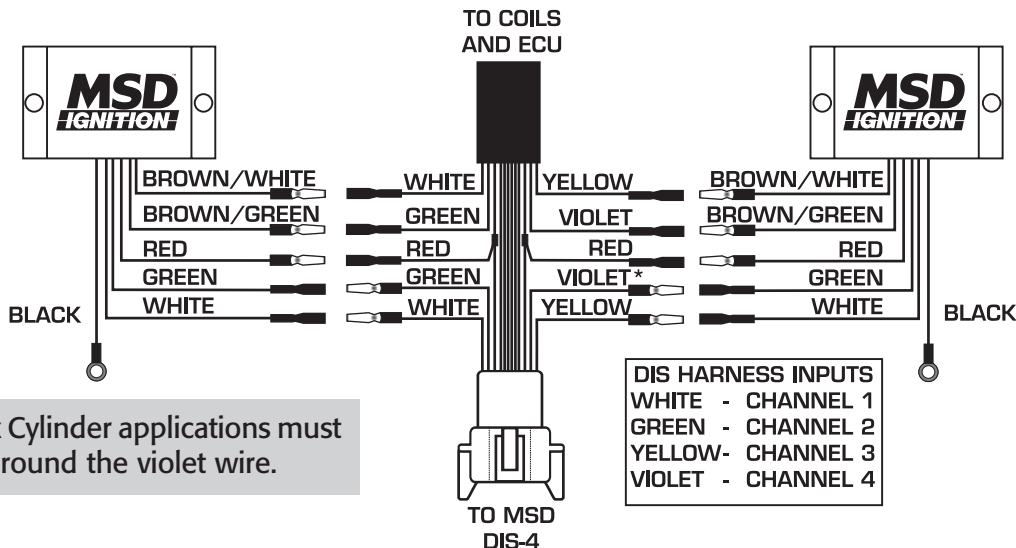
General Wiring

- Black:** Connects to Ground.
- Red:** Connects to 12 volts (ignition).
- Brown/White:** Connects to the White wire going to the Coils and ECU.
- Brown/Green:** Connects to the Green wire going to the Coils and ECU.
- White:** Connects to the White wire going to the MSD DIS Ignition.
- Green:** Connects to the Green wire going to the MSD DIS Ignition.

MSD TACH ADAPTER PN 8912 TO DIS-2



MSD TACH ADAPTER PN 8912 TO DIS-4



Note: Six Cylinder applications must ground the violet wire.



MSD IGNITION TESTER, PN 8998

MSD's Ignition Tester, PN 8998, will give you a quick way to confirm the operation of your MSD Ignition and Coil. It will also let you check rev limits, rpm switches and the camshaft sync signal of controls with Individual Cylinder Management circuits.

The Tester connects easily to a 12 volt source, ground and a trigger wire. The PN 8998 will simulate a trigger signal through either the points (White) wire or magnetic pickup connector of the ignition. A test plug is supplied that connects to the coil secondary wire leading to the distributor and ground. When the Tester is turned on, a spark will jump the gap of the test plug confirming operation of the Ignition and Coil.

The PN 8998 is designed for testing single channel MSD Ignitions such as the 6A, Digital-7 and even the MSD 10. It can also be used with MSD Timing Controls. For Multi-Channel Ignitions, see page 128.

Note: The Tester, PN 8998, supercedes PN 8995.

General Wiring

Red: Connects to switched 12 volt source.

Black: Connects to ground.

Trigger Wires

White: Connects to points or an ignition amplifier output. When this wire is used the Magnetic Pickup is not (Violet and Green).

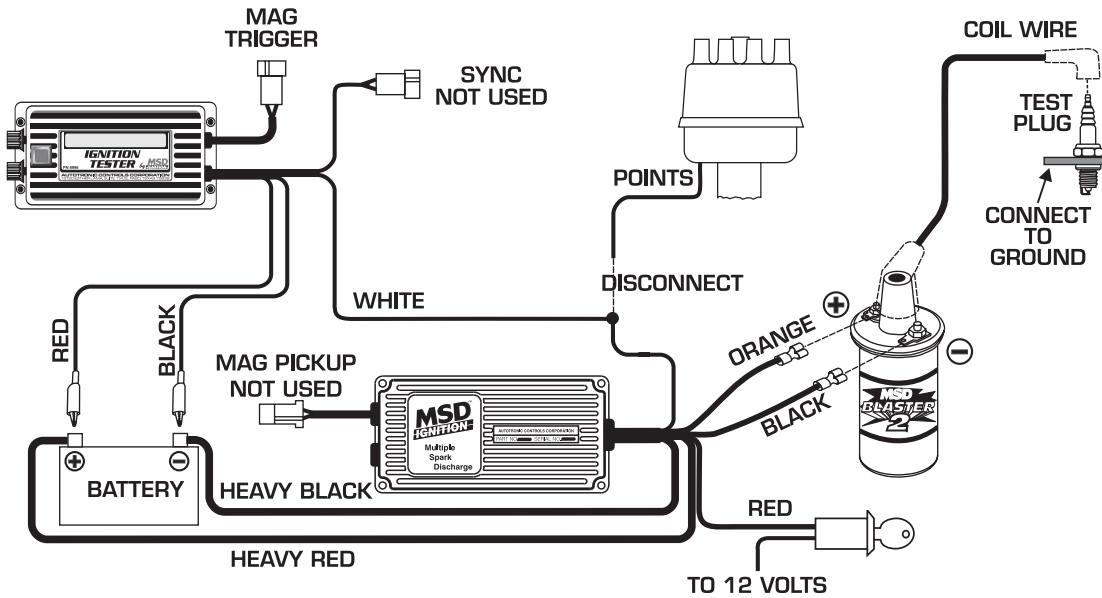
Violet and Green: These wires are routed together in one harness and form the magnetic pickup connector. This connector plugs directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). When this connector is used, the White wire is not.

Cam Sync

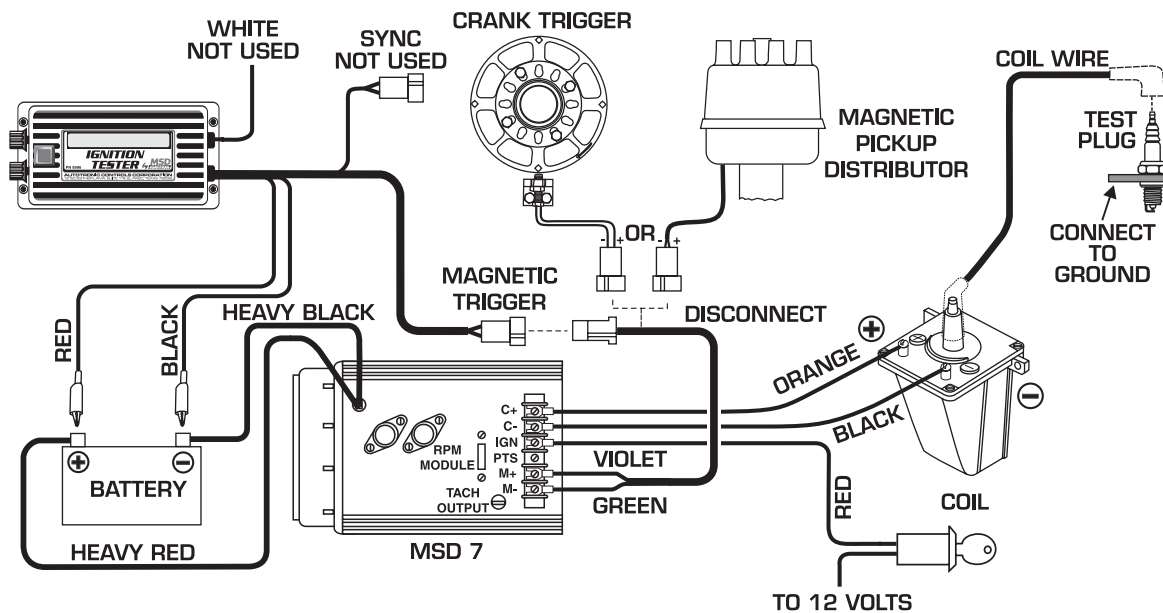
Light Blue and Green: This connector is used to confirm the cam sync signal for use with Individual Cylinder Management circuit. When the engine runs, it will show "Cam Sync - Sync" for a good signal "Cam Sync - None" if there is a problem.

Cylinder Select: Push the Program Selection button on top of the PN 8998 to select 4, 6 or 8-cylinder operation. (There is a toggle switch on the PN 8995 for cylinder selection.)

MSD IGNITION TESTER TO MSD 6 SERIES IGNITION WITH POINTS

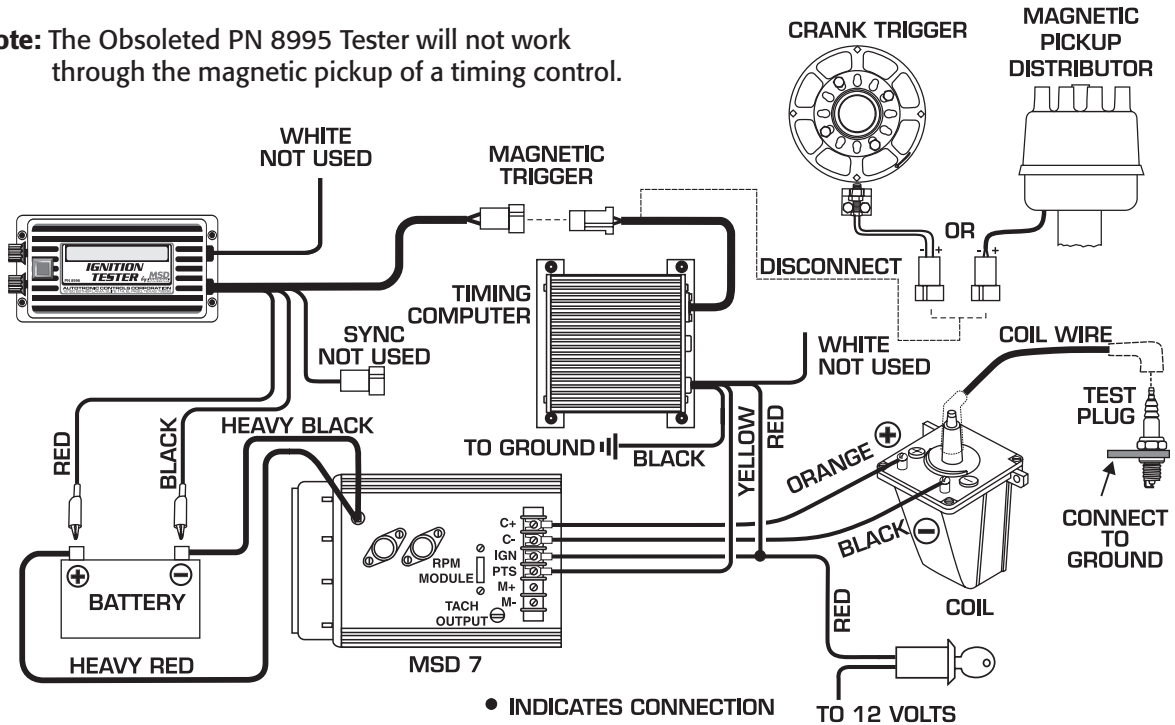


MSD IGNITION TESTER TO MSD 7 SERIES IGNITION WITH MAG PICKUP

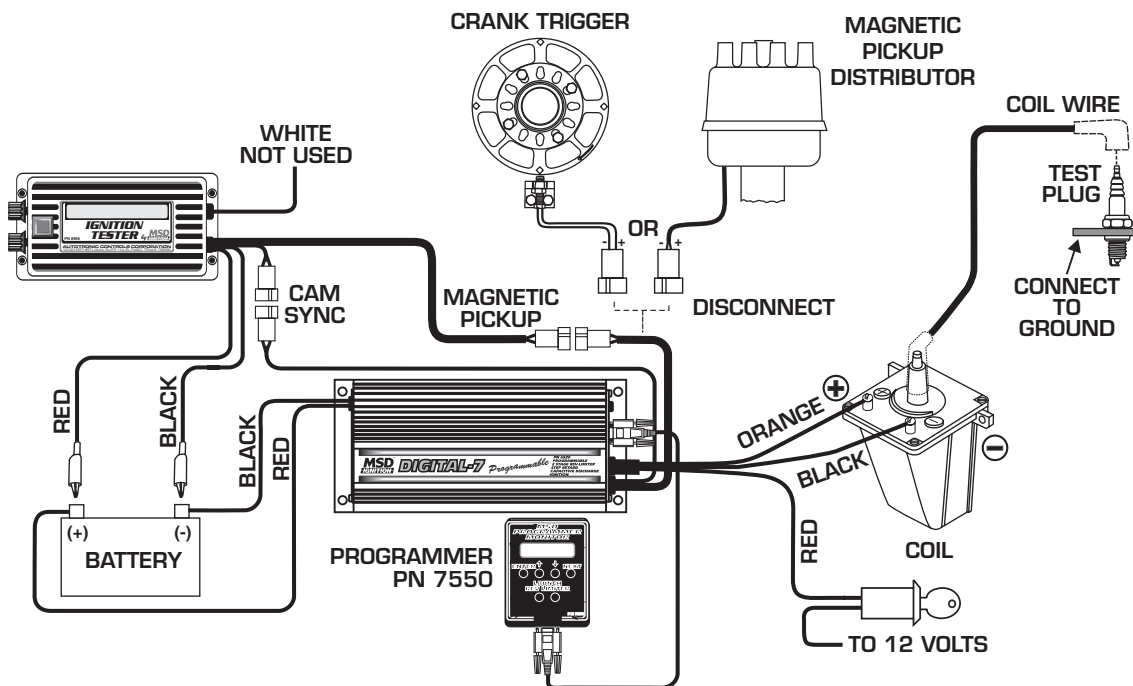


MSD IGNITION TESTER TO MSD 7 SERIES IGNITION WITH TIMING CONTROL

Note: The Obsoleted PN 8995 Tester will not work through the magnetic pickup of a timing control.



MSD IGNITION TESTER TO MSD PROGRAMMABLE DIGITAL-7 IGNITION



MSD IGNITION TESTERS, PN 8996

The Multi-Channel Ignition Testers, PN 8996, can check the channels of the MSD DIS Ignition Controls. It connects easily and will simulate a trigger signal through the four (if used) trigger wires. A test plug is supplied that connects to the spark plug wires and ground. When the Tester is turned on, a spark will jump the gap of the test plug confirming operation of the Ignition and Coil.

Though designed for Multi-Channel Ignitions, the PN 8996 Tester can be used to test standard MSD Ignitions as well.

General Wiring

- Red:** Connects to switched 12 volt source.
- Black:** Connects to ground.

Trigger Wires

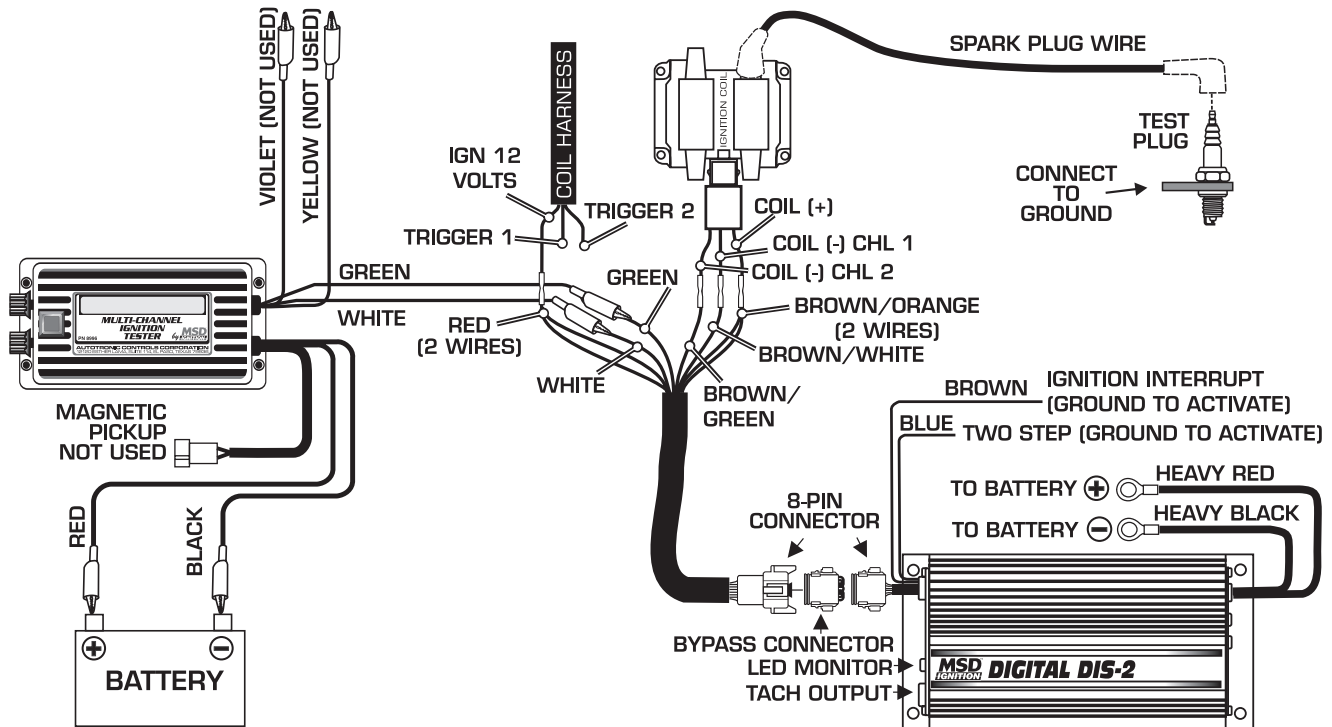
- White:** Channel 1 Trigger wire.
- Green:** Channel 2 Trigger wire.
- Yellow:** Channel 3 Trigger wire.
- Violet:** Channel 4 Trigger wire.

Magnetic Pickup Connector

Violet and Green: These wires are routed together in one harness and form the magnetic pickup connector. This connector plugs directly into an MSD Distributor or Crank Trigger. The Violet wire is positive (+) and the Green wire is negative (-). This connector is used with standard, single channel MSD Ignitions, not for the DIS Ignitions.

Cylinder Select: Push the Program Selection button on top of the Tester to select 4, 6 or 8-cylinder standard or DIS operation.

WARNING: Do not connect more than one channel of the Tester unless each spark plug wire is removed from the spark plug in the cylinders and placed close to ground. If left connected to the plugs, a spark will occur in the cylinder igniting any fuel in the cylinder.





TROUBLESHOOTING

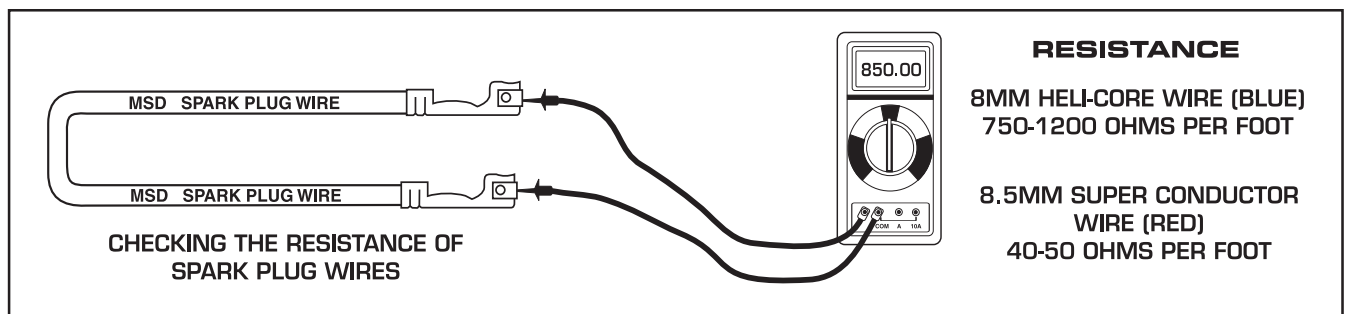
MSD Spark Plug Wires

If you suspect a spark plug wire to be open, or the cause for poor engine performance, the resistance of each wire can be checked. This will tell you two things:

1. That there is continuity (plug wire is not open).
2. That there is too much resistance in the wire.

Using an Ohm Meter, connect the terminals to the spark plug wire connectors. It is a good idea to try to push the boot up, to ensure that a good contact is being made. The resistance should be:

- A. Heli-Core Wire: 150 - 1,200 ohms per foot of wire
- B. 8.5mm Super Conductor: 40 - 50 ohms, per foot of wire

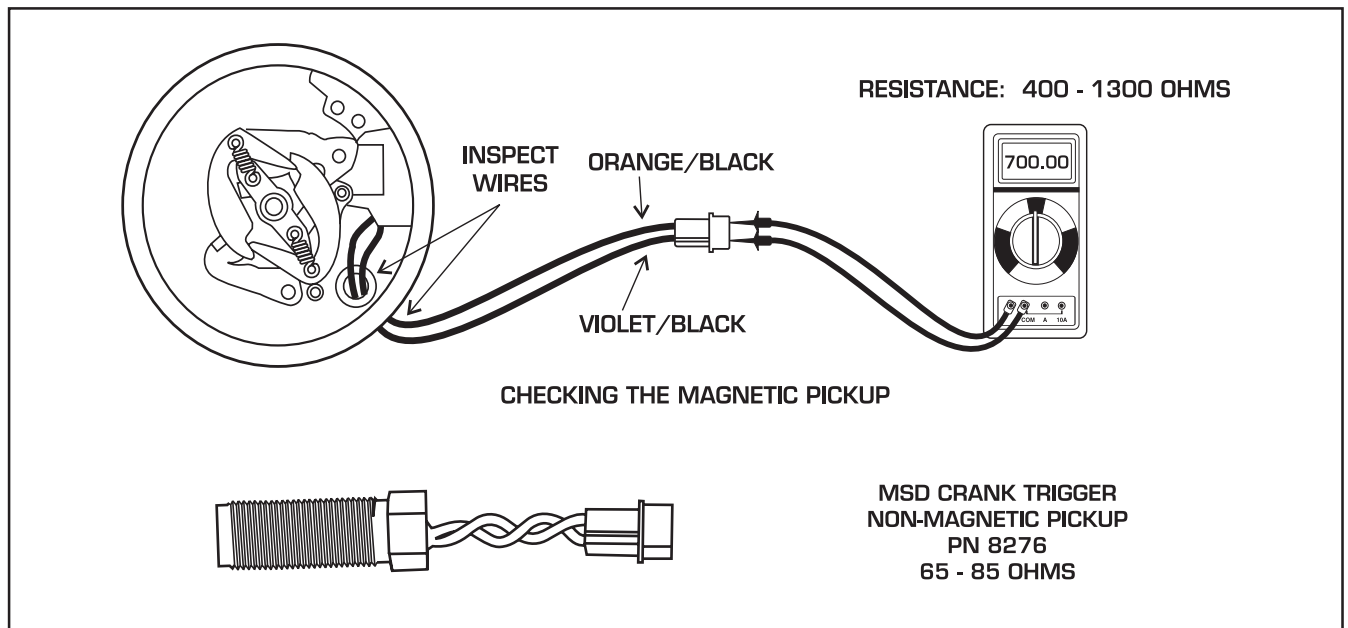


NOTE: For other brand wires check with the manufacturer for their specifications.

Checking Pickups

You can check the resistance of the magnetic pickup of an MSD Distributor. Using an Ohm Meter, connect the leads to the VIOLET and ORANGE wires at the two wire distributor connector.

- A. The resistance should be: 400 - 1,300 ohms.
- B. If the resistance is out of this specification, check all of the wiring connections. If the wires are okay, the magnetic pickup is at fault.

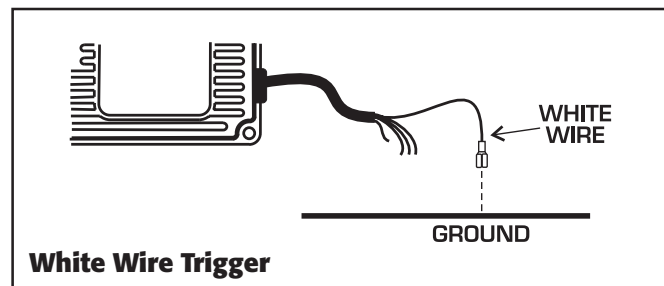
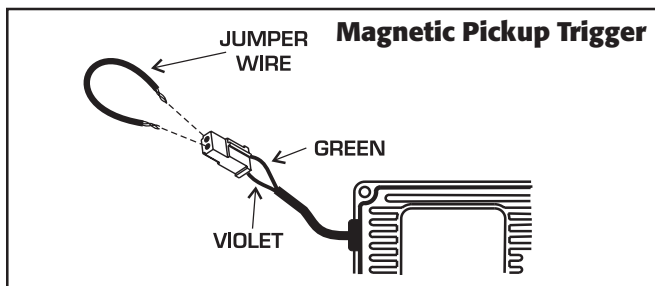


HOW TO TEST AN MSD SERIES IGNITION CONTROL

If for some reason you feel that you have a non-functioning MSD Ignition Control, this simple test can be performed to determine if the MSD Ignition Control is functioning properly.

If triggering the MSD using the magnetic pickup connector (Violet and Green Wire) of the MSD:

- A. Make sure the ignition switch is in the "OFF" position.
- B. Remove the coil wire from the distributor cap and set the wire 1/2" from ground, such as the intake manifold or cylinder head.
- C. Disconnect the magnetic pickup wires from the distributor or crank trigger pickup. Turn the ignition switch to the "ON" position. Do not attempt to crank the engine.
- D. With a small jumper wire, short the Green and Violet magnetic pickup wire going to the MSD together several times. Continue to step E below.



If triggering using the White wire of the MSD Series Ignition:

- A. Make sure the ignition switch is in the "OFF" position.
- B. Remove the coil wire from the distributor cap and set the wire 1/2" from ground, such as the intake manifold or cylinder head. (Do not crank or attempt to start the engine.)
- C. Disconnect the MSD White wire from the distributor's points or ignition amplifier. Turn the ignition switch to the "ON" position. Do not attempt to crank the engine.
- D. Tap the White wire to ground several times.
- E. Each time the magnetic pickup wires (Violet and Green) are shorted together or the White wire is tapped to ground, a spark should jump from the coil wire to ground. If there is no spark substitute another coil and repeat the test. After repeating the test with another coil, if a spark still does not occur from the coil wire, remove the small "Red" wire from your MSD going to your ignition key "On/Off" source and attach it directly to the positive (+) terminal on your battery.

NOTE: Attaching the "Red" wire directly to the positive side of the battery will cause the engine not to shut off when the ignition key is turned off. If attaching the wire to the positive side of the battery cures the problem, then you must find a different "On/Off" 12 volt source for the small "Red" wire from the MSD. If after all of the above tests have been performed and no spark appears, then your box is in need of repair.

In case of malfunction, the MSD will be repaired free of charge according to the terms of the warranty. When returning an MSD Ignition Unit for service, proof of purchase must be supplied for warranty verification. After the warranty period has expired, repair service is charged between a minimum and maximum charge.

Send the unit prepaid with proof of purchase to the attention of: Customer Service Department, Autotronic Controls Corporation, 12120 Esther Lama Drive, Dock 5, El Paso, Texas 79936. The repaired unit will be returned as soon as possible after receipt, C.O.D. regular ground UPS (unless otherwise noted) for any charges (Ground shipping is covered under warranty). Be sure you include a detailed account of any problems experienced.



RECOMENDATION FORM

NOTE: Technical information is available by mail, phone or the internet.

MSD Ignition
1490 Henry Brennan Dr.
El Paso, Texas 79936
Attn: Customer Service Dept.

Telephone: (915) 855-7123, Fax: (915) 857-3344
8 a.m. - 5 p.m. Mountain Standard Time

E-mail: msdtech@msdisignition.com

Name: _____
Address: _____
City: _____ State: _____ Zip: _____
Telephone: _____

1. Please fill in the information below concerning your application:

Vehicle Model, Make & Year: _____
Engine Size: _____ How many Cylinders: _____
Computer Controlled? Yes No
Compression Ratio: _____
Fuel Injection Type (Check all that apply, list model, brand and type if available):
Carburetor: _____ Fuel Injected: _____ NO₂: _____
Turbocharger: _____ Blower: _____ Boost Pressure: _____
What Type of Cam Do You Have?
Hydraulic Lifter Solid Lifter
Roller Other (Specify): _____
RPM Range of Engine: From _____ To _____ RPM
Type of Exhaust: Stock _____ Headers _____ Other _____
Approx. Weight of Car: _____
Transmission Type: Automatic Other
Stall Speed of Torque Converter: _____
What Type of Fuel Do You Use: _____

2. How will this engine be used?

- | | | | | |
|---|---|---|-------------------------------|-------------------------------------|
| <input type="checkbox"/> Economy/Street | <input type="checkbox"/> Bracket Race | <input type="checkbox"/> Marine: Pleasure | <input type="checkbox"/> Race | <input type="checkbox"/> Drag Race: |
| <input type="checkbox"/> Performance/Street | <input type="checkbox"/> Road Race | <input type="checkbox"/> Recreational Vehicle | | What Class? |
| <input type="checkbox"/> Tow Vehicle | <input type="checkbox"/> Street Rod | <input type="checkbox"/> Off-Road | | _____ |
| <input type="checkbox"/> Street & Strip | <input type="checkbox"/> Oval Track: Dirt <input type="checkbox"/> Asphalt <input type="checkbox"/> | <input type="checkbox"/> Other _____ | | _____ |

3. What type of ignition are you currently using?

Ignition Control: _____ Spark Plug Wires: _____
Distributor: _____ Tachometer: _____
Coil: _____ Accessories, ie. Timing Control, Rev Control: _____

4. Please list any additional information you feel should be considered for your application.

When completed, please mail this form to the address at the top left of page, or fax it to (915) 857-3344. Additional copies of this form are available from MSD Ignition.

AUTOTRONIC CONTROLS CORPORATION

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