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INSTALLATION GUIDE

Capacitive Discharge Ignition System (with Rev Limiter)

Part Number: 150 DL



*** Always disconnect the battery *before* attempting any electrical work on your vehicle.***

KIT COMPONENTS

◇ **Ignition Control System, including wiring harness and extension.**

◇ **Hardware Pack (Note:** This ignition system comes with a pre-existing white wire trigger.

If your application requires the use of the violet/green wire trigger included in the hardware kit, simply cap the white wire, and insert the violet/green wire in your system.)

GENERAL INFORMATION

This Ignition System is designed to be used with any 4, 6, or 8 cylinder internal-combustion engine that uses a distributor. It may be used for racing, off-road, or marine applications. It will NOT work with a distributor-less ignition system (DIS).

WARNING:

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

***Note:** Solid Core spark plug wires cannot be used with this Intellitronix CD system.

BATTERY

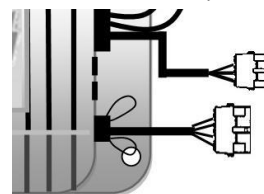
The Intellitronix CD Ignition System will operate on any negative ground, 12 volt electrical system with a distributor. It can be used with 16 volt batteries and can withstand a momentary 24 volts in case of jump starts. This System will deliver full spark voltage with a supply of 5 – 18 volts and will operate with a supply voltage as low as 5 volts.

COILS

This System can be used with most stock coils and after-market coils designed to replace the stock coils. Also included is a unique coil-protection feature.

TACHOMETERS

This Ignition System features a Tach Output wire that provides a trigger signal for tachometers, a shift light or other add-on rpm activated devices. The Tach Output produces a 12 volt square wave signal with a 25% duty cycle. Some vehicles with factory tachometers may require a Tach Adapter to operate with this Ignition System. If your GM vehicle has an inline filter it may cause the Tach to drop to zero on acceleration or to operate in erratic fashion. If this occurs, bypass the filter by running the gray tach wire directly to the input wire of your tachometer.



FOREIGN VEHICLES

Due to the fuel injection systems, some foreign vehicles may require a special Tach/Fuel Injection Adapter for use with this System. See page 12 for wiring and Tach Adapter information.

***Note:** Vehicles originally equipped with a CD ignition control **cannot** use this Intellitronix Ignition System.

SPARK PLUGS AND WIRES

Spark plug wires are very important to the operation of your ignition system. A good quality, helical-wound wire and proper routing are required to get the best performance from your ignition. Route all wires away from direct heat and as far away from all high heat sources as possible. For best results, we recommend following the advice of the engine builder or manufacturer's specification for spark plugs. Following that advice, you may then experiment with the plug gap to obtain the best performance. The gap of the plugs can be opened in 0.005" increments, and then tested until the best performance is obtained.

***Note:** Solid Core spark plug wires cannot be used with this Ignition System.

MISCELLANEOUS INFORMATION

Sealing

Do not attempt to seal this System. All of the circuits of this system receive a thick conformal coating for resistance against moisture. Rubber plugs are supplied to protect the RPM dials.

Welding

If you are welding on your vehicle, to avoid the chance of damage you should always disconnect **both** 18 gauge power cables from this system and the tach ground wire.

Mounting

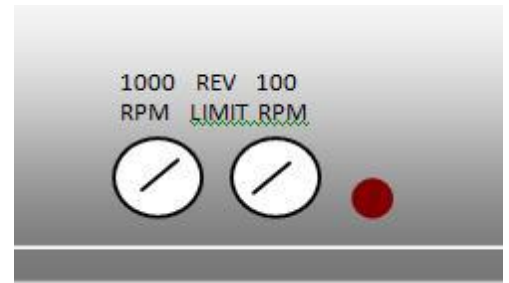
This System can be mounted in most positions except for directly upside-down. It can be mounted in the engine compartment as long as it is away from any direct engine heat sources. When you locate a suitable position, make sure that the wires reach all their proper connections. Hold the System housing in place and mark the location of the holes; drill with a 1/8" bit.

Cylinder Select

The Rev Limiter built into this System is programmed for operation on an 8-cylinder engine. If you are installing one of these units on a 4 or 6-cylinder even-fire engine, the cylinder count must be selected. This is easily achieved through the cylinder select wire loops on the side of the housing. To program the unit, cut the loops as shown in the diagram.

Cylinders	Cut Loops
8	None
6	Orange
4	Orange & Blue

The Rev Limiter is designed to prevent over-acceleration, by functioning like a speed governor. The settings are easily accessed through the two small holes near the base of the unit, adjacent to the cylinder select loops – (on your right as you look at the cover). With a narrow screw-driver blade, turn the dial on the left button for thousands, while the right button is for hundreds.



LED

There is a diagnostic indicator LED next to the RPM dials. It will be powered on when this System is on. The LED will blink with each trigger signal. The LED will flash if it detects a shorted coil and the Ignition System will shut itself off. Once the coil has been replaced the system will automatically restart itself.

WIRING INSTRUCTIONS

Note: *Automotive circuit connectors are the preferred method of connecting wires. However, you may solder if you prefer.*

Wire Length

All of the wires on this System may be shortened as long as quality connectors are used or soldered into place. To lengthen the wires, use one size bigger gauge wire (10 gauge for the power leads and 16 gauge for the other wires) with the proper connections.

Grounds

A poor ground connection will cause many frustrating issues. When a wire is specified to go to a ground, it should be connected to the battery negative terminal or directly to the engine block. Always securely connect the ground wire to a clean, paint- and rust-free metal surface. There should **always** be a good quality ground strap between the engine and the chassis.

Wire Functions

*Ground (14 gauge) - **Black*** Connect to a good ground, as explained above.

*Power (14 gauge) - **Red*** Connect directly to the positive (+) terminal of the battery, or to a positive battery junction on the positive side of the starter solenoid.

Note: Never connect to the alternator.

*Ignition - **Red*** Connect to a switched 12V source such as the ignition key or switch.

*Coil Ground - **Black*** Connect to the negative (-) coil terminal.

Note: This is the only wire that makes electrical contact with the negative coil terminal.

*Coil Power - **Orange*** Connect to the positive (+) coil terminal.

Note: This is the only wire that makes electrical contact with the positive coil terminal.

*Tachometer - **Gray*** Connect to the tachometer or other RPM device.

*Trigger wires - **White OR Violet and Green*** There are different circuits that can be used to trigger the Ignition System:

♦ **A Points** circuit (use the **White** wire). This is used to connect to the points or electronic ignition amplifier output.

◇ A **Magnetic Pickup** circuit (use the **Violet and Green** wires). These wires are routed together in one harness to form the Magnetic Pickup connector. The connector plugs directly into a distributor with a magnetic pickup. It will also connect to factory magnetic pickups or other after-market pickups. The Violet wire is positive (+) and the Green is negative (-).

These two circuits are NEVER used together.

Common Magnetic Pickup Wires		
	Mag +	Mag -
SUMMIT Distributor	Orange/Black	Violet/Black
Ford	Orange	Violet
Accel 46/4800 Series	Orange/Black	Violet/Black
Accel 51/6100 Series	Red	Black
Chrysler	Orange/White	Black
Mallory	Orange/Black	Violet/Black

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

Routing Wires

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

Warning: The Intellitronix 150DL CD Ignition System is a capacitive discharge ignition. High voltage is present at the coil primary terminals. Do not touch the coil or connect test equipment to the terminals.

PRE-START CHECK LIST

- ◇ The only wires connected to the coil terminals are: *Orange* to coil positive, and *Black* to coil negative.
- ◇ The small Red wire of the system is connected to a switched 12V source.
- ◇ If you are running a 4 or 6-cylinder engine, the cylinder select has been modified.
- ◇ The power leads are connected directly to the battery positive and negative terminals.
- ◇ The battery is connected and fully charged if not using an alternator.
- ◇ The engine is equipped with at least one good ground strap.
- ◇ The rev limiter is set to the highest RPM value desired.

TROUBLESHOOTING

Every Intellitronix 150DL Ignition System undergoes numerous quality control checks including a four hour burn-in test. If you experience a problem with your ignition, our research has shown that the majority of problems are due to improper installation or poor connections.

MISSES AND INTERMITTENT PROBLEMS

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

- ◇ Always inspect the plug wires at the cap and at the plug for a tight connection and visually inspect for cuts, abrasions, or burns.

◇ Inspect the Primary Coil Wire connections. Because this is a capacitive ignition and it receives a direct 12V source from the battery, there will not be any voltage at the positive (+) coil terminal even with the key turned on. During cranking or while the engine is running, however, **very high voltage** will be present and no test equipment should be connected.

◇ Make sure that the battery is fully charged and the connections are clean and tight. If you are not running an alternator this is an imperative check. If the battery voltage falls below 5V during a race, the CDI output voltage will drop.

◇ Is the engine running clean? Inspect the spark plugs and the complete fuel system.

◇ Inspect all the wiring connections for corrosion or damage. Remember to always use proper connections followed by soldering and seal the connections completely.

Warning: Do not touch the coil terminals during cranking or while the engine is running. There are 500+ Volts present across the circuit while it is on!



Various wiring diagrams follow. If your installation is not explained here, please call the Intellitronix Support Line at 1-440-210-7646, during normal business hours, EST, M-F, or if you prefer, you may send an e-mail to: support@intellitronix.com

Fig. 1 INSTALLING A DISTRIBUTOR WITH A MAGNETIC PICKUP

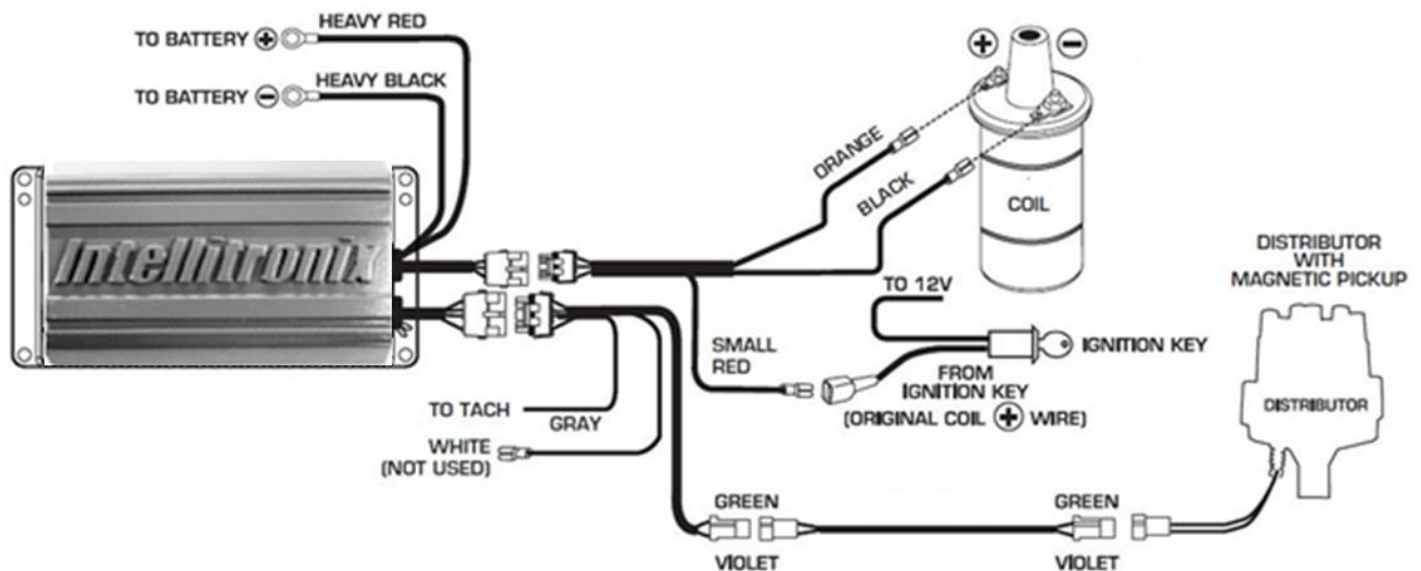


Fig. 2 WIRING A DUAL CONNECTOR GM COIL

NOTE: Cut and splice the two Pink wires (coil positive) together and connect to Orange wire of the ignition. Cut and splice the two White wires (coil negative) together and connect to the White of the ignition. If the vehicle is not equipped with a factory tach, there will only be one White wire.

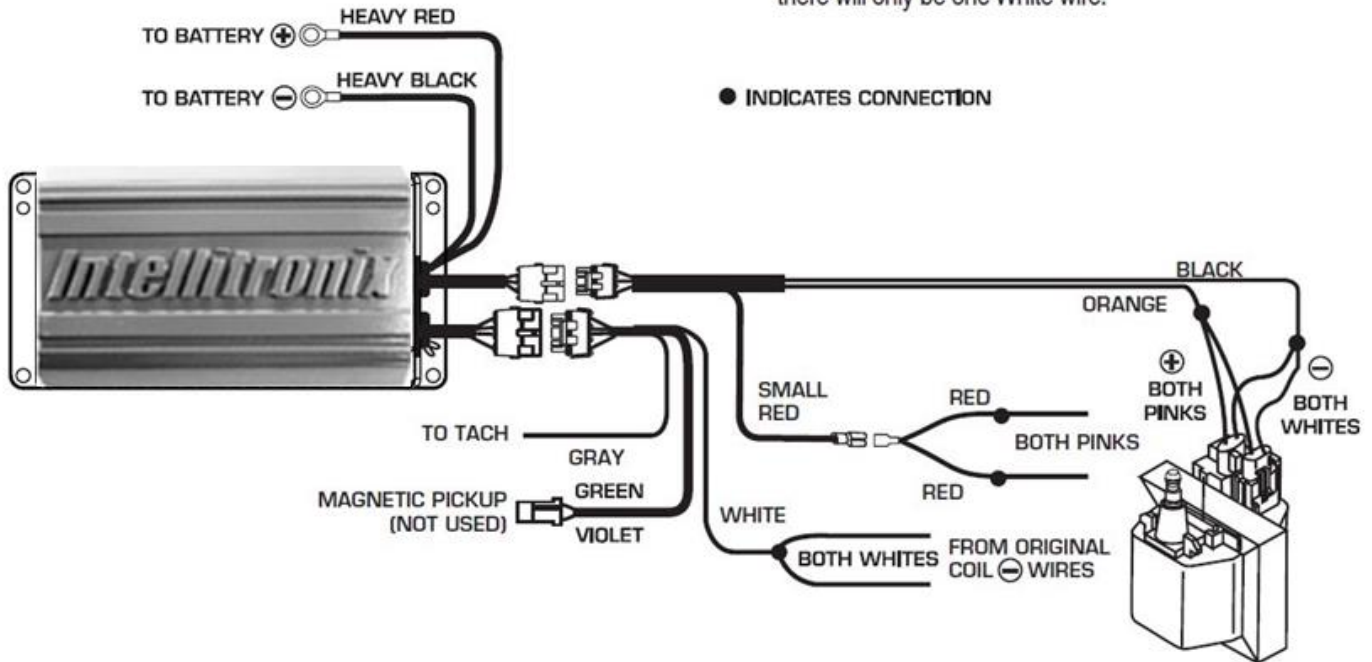


Fig. 3 INSTALLING TO A POINTS AMPLIFIER SYSTEM

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

NOTE: Ballast Resistor is not necessary.

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

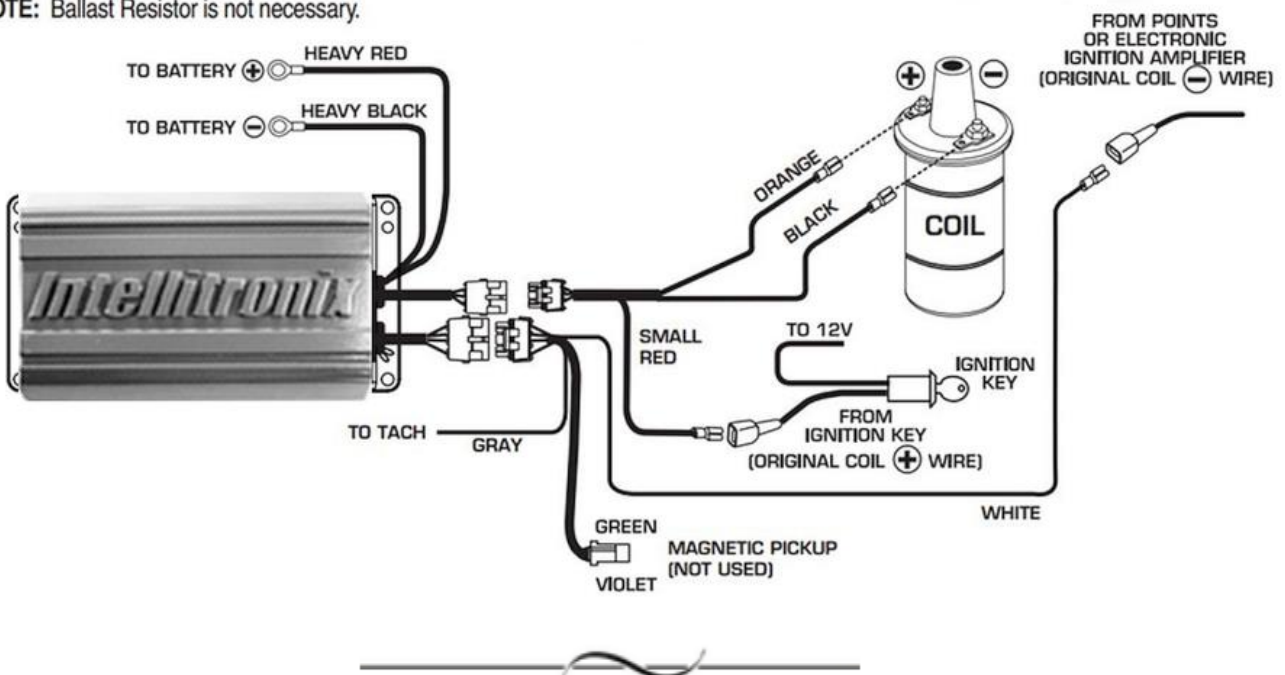


Diagram illustrating the wiring for the Inteltronix Ignitor system. The components and their connections are as follows:

- 3 WIRE READY-TO-RUN DIST**: The distributor's red wire connects to the 12V source. The black wire connects to ground. The orange wire connects to the coil.
- TO 12V**: The 12V source connects to the distributor's red wire.
- IGNITION**: The 12V source connects to the distributor's red wire.
- TO GROUND**: The distributor's black wire connects to ground.
- WHITE**: A white wire connects the distributor's black wire to the battery's heavy black wire.
- BATTERY**: The battery's heavy red wire connects to the distributor's red wire. The heavy black wire connects to the distributor's black wire.
- COIL**: The coil's orange wire connects to the distributor's orange wire.
- TO TACH**: The distributor's gray wire connects to the tachometer.
- MAGNETIC PICKUP (NOT USED)**: The green and violet wires are shown but not connected.

The diagram illustrates three different connector pin configurations. Each configuration consists of a central rectangular component with two circular mounting holes on the left and right sides. The 'FOUR PIN' configuration has two pins on each side, totaling four pins. The 'FIVE PIN' configuration has two pins on the left and three pins on the right, totaling five pins. The 'SEVEN PIN' configuration has two pins on the left and five pins on the right, totaling seven pins. The labels 'FOUR PIN', 'FIVE PIN', and 'SEVEN PIN' are centered below their respective diagrams.

Note: Some 5-pin models may experience a hesitation or stall on deceleration. If this occurs, contact the Intellitronix Support Line at 1-440-210-7646 for the required bolt-in diode to correct the problem.

The diagram illustrates the process of removing and installing the GM module. On the left, labeled 'REMOVE MODULE', the GM module is shown being pulled out of the condenser housing. On the right, labeled 'INSTALL HARNESS', the GM module is shown being inserted back into the housing. Labels include: CONDENSER, GM-CABLE HARNESS, GM MODULE, GROMMET, and WIRE CLAMP.

FIG. 6 GM IGNITIONS – WIRING AN HEI 4-PIN MODULE (MAGNETIC PICKUP TRIGGER (continued))

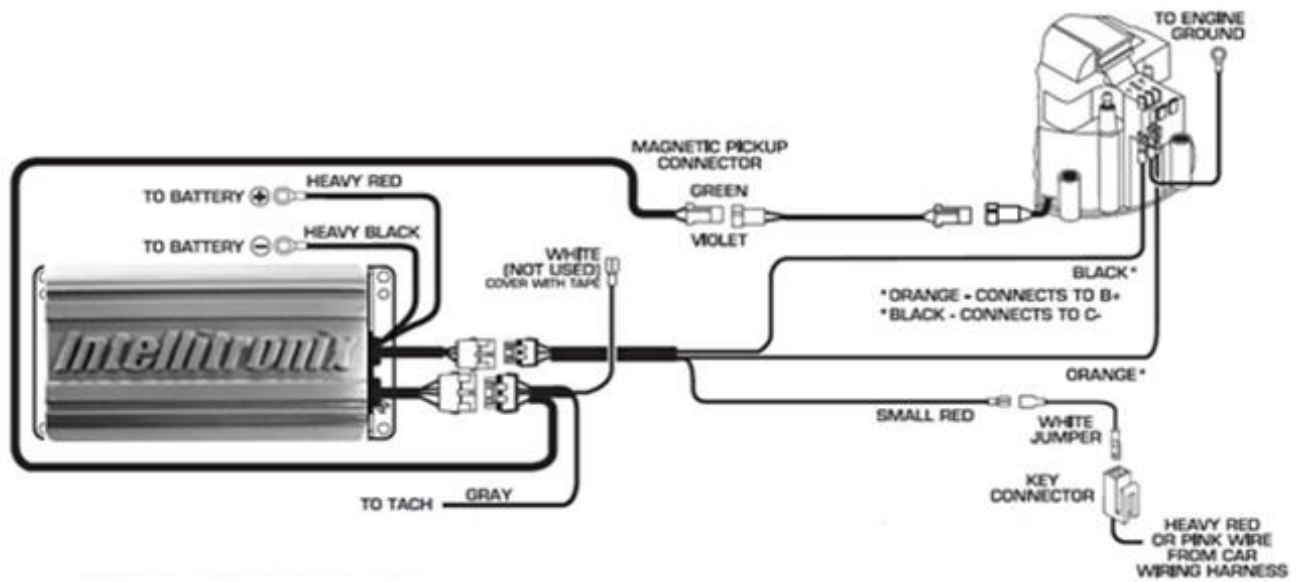


FIG. 7 GM IGNITIONS – HEI 5 OR 7 PIN MODULE – (AMPLIFIER TRIGGER)

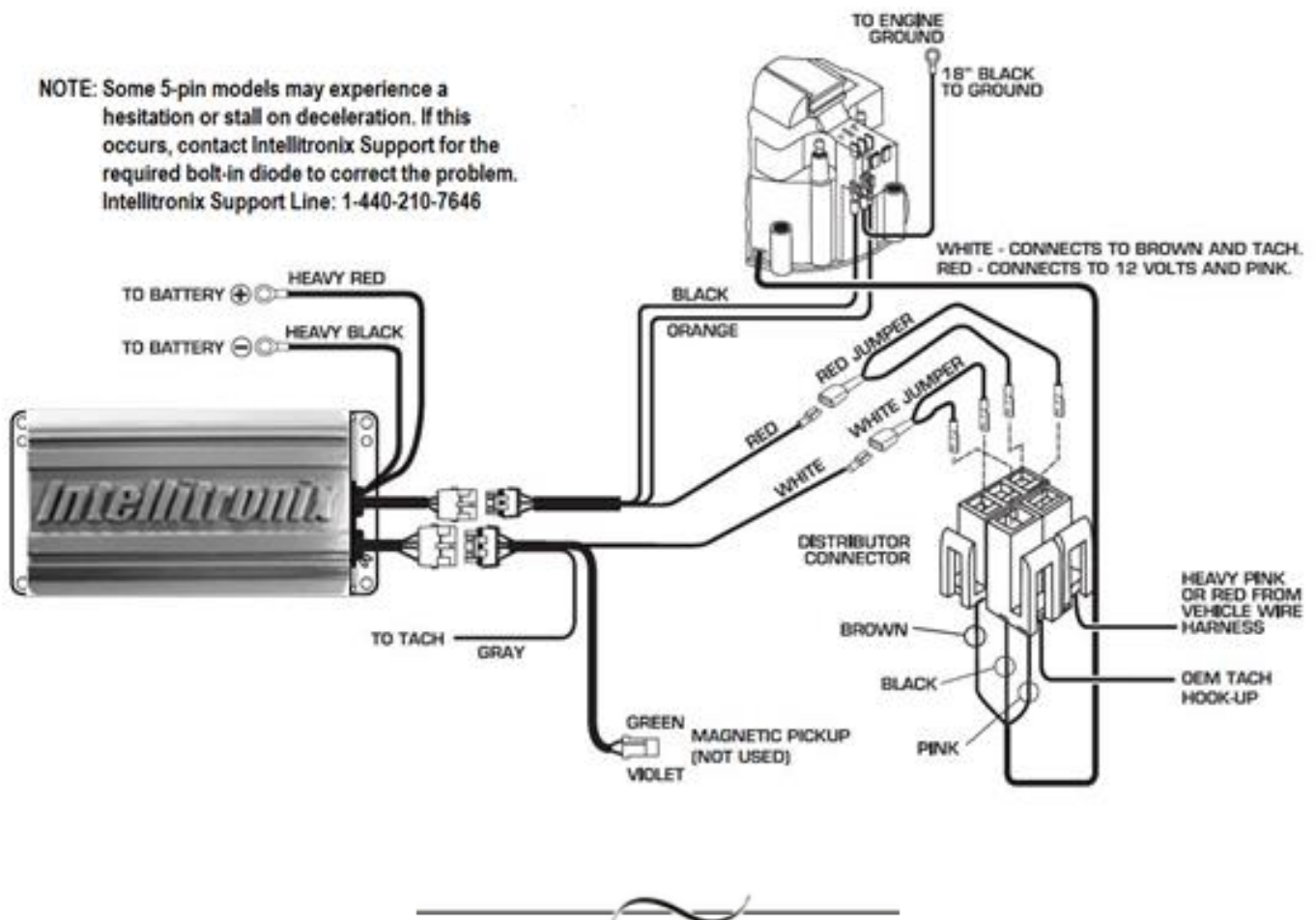


FIG. 8 – FORD IGNITIONS: FORD DURASPARK USING WHITE WIRE TRIGGER

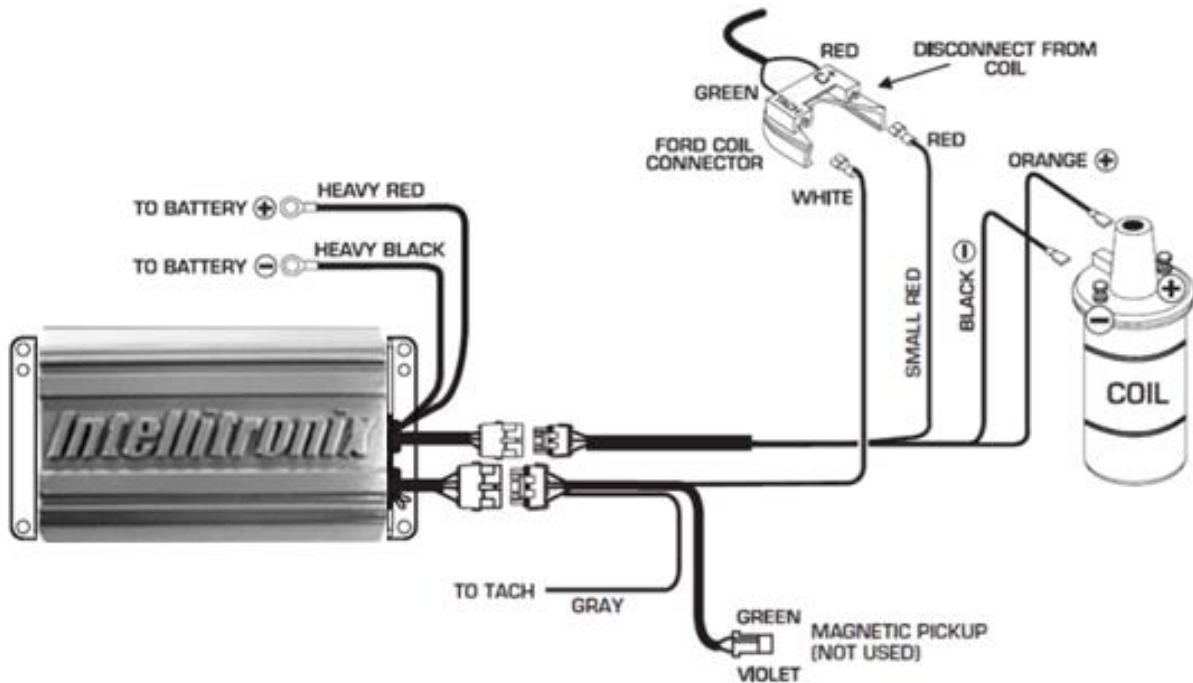


FIG. 9 – FORD IGNITIONS: FORD DURASPARK USING MAGNETIC PICKUP TRIGGER

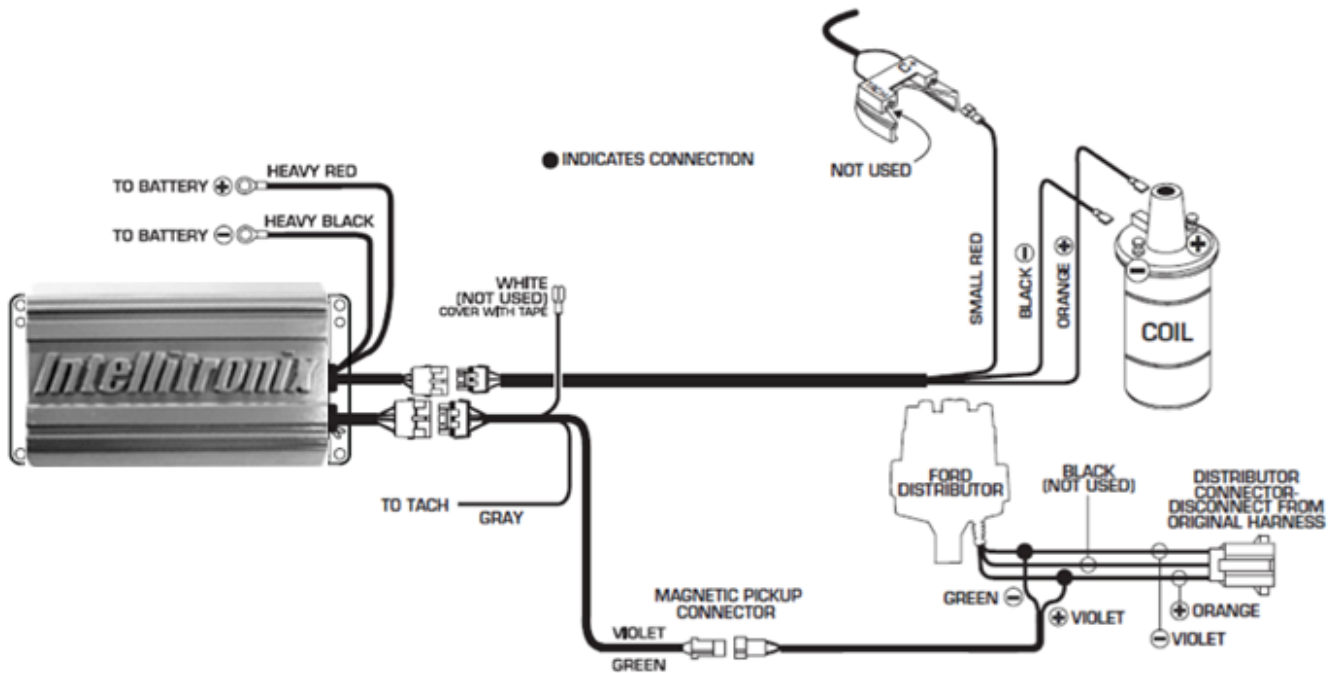


FIG. 10 – FORD IGNITIONS: FORD TFI WITH HARNESS

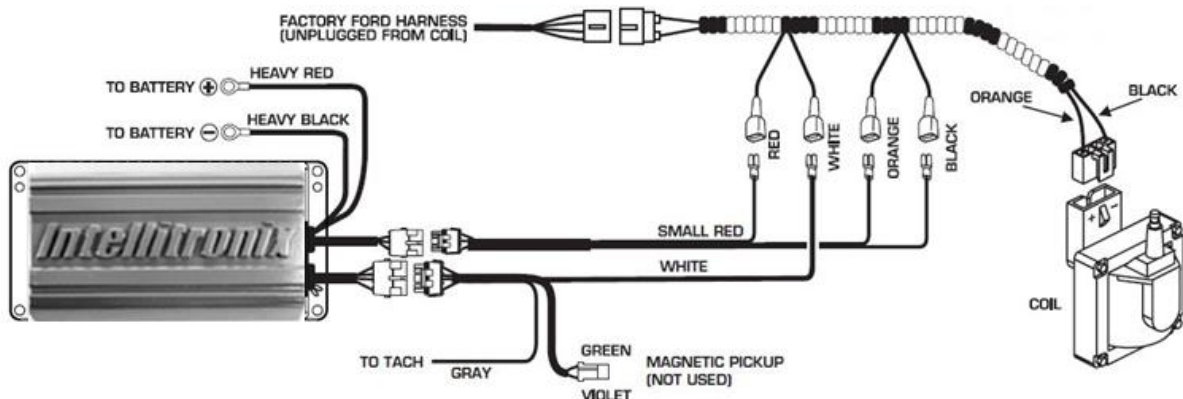


FIG. 11 – FORD IGNITIONS: FORD TFI WITHOUT HARNESS

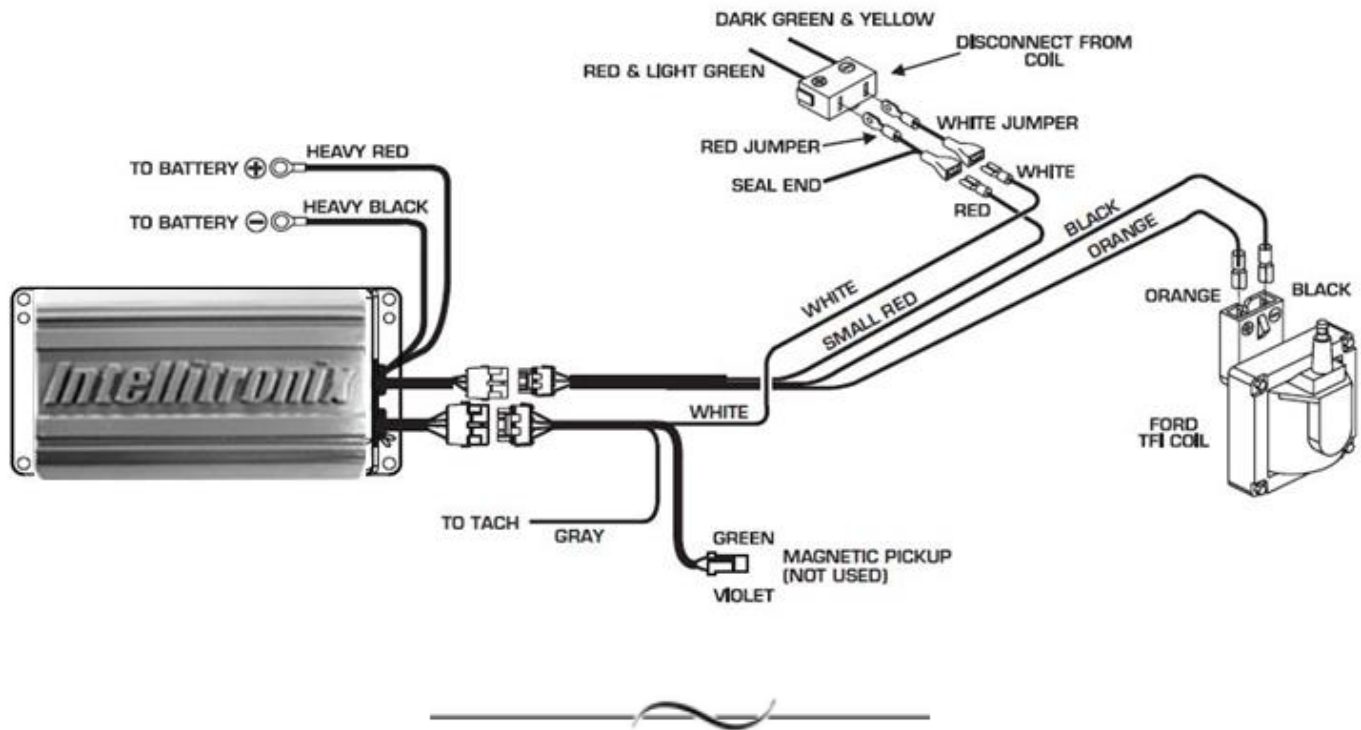


FIG. 12 – CHRYSLER IGNITIONS: CHRYSLER ELECTRONIC IGNITION USING MAGNETIC PICKUP TRIGGER

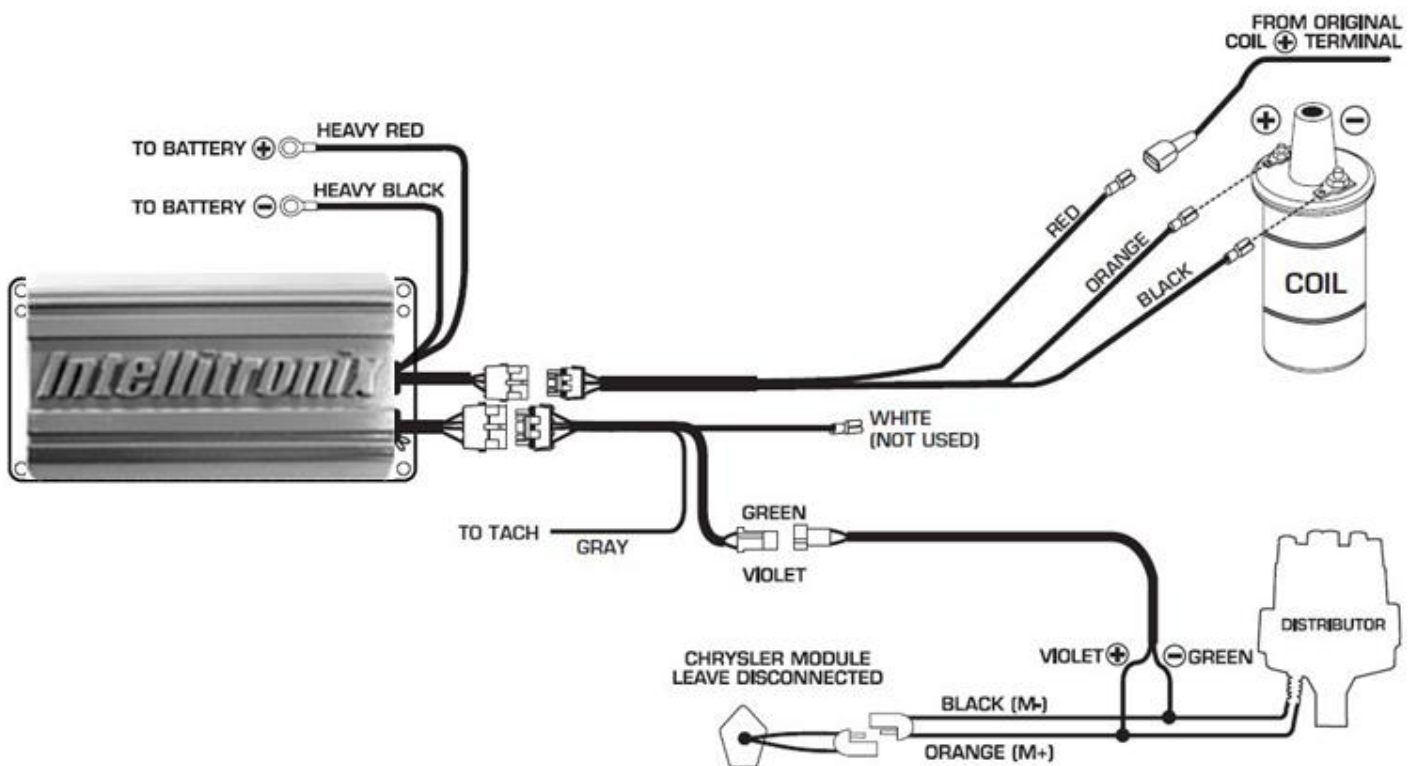
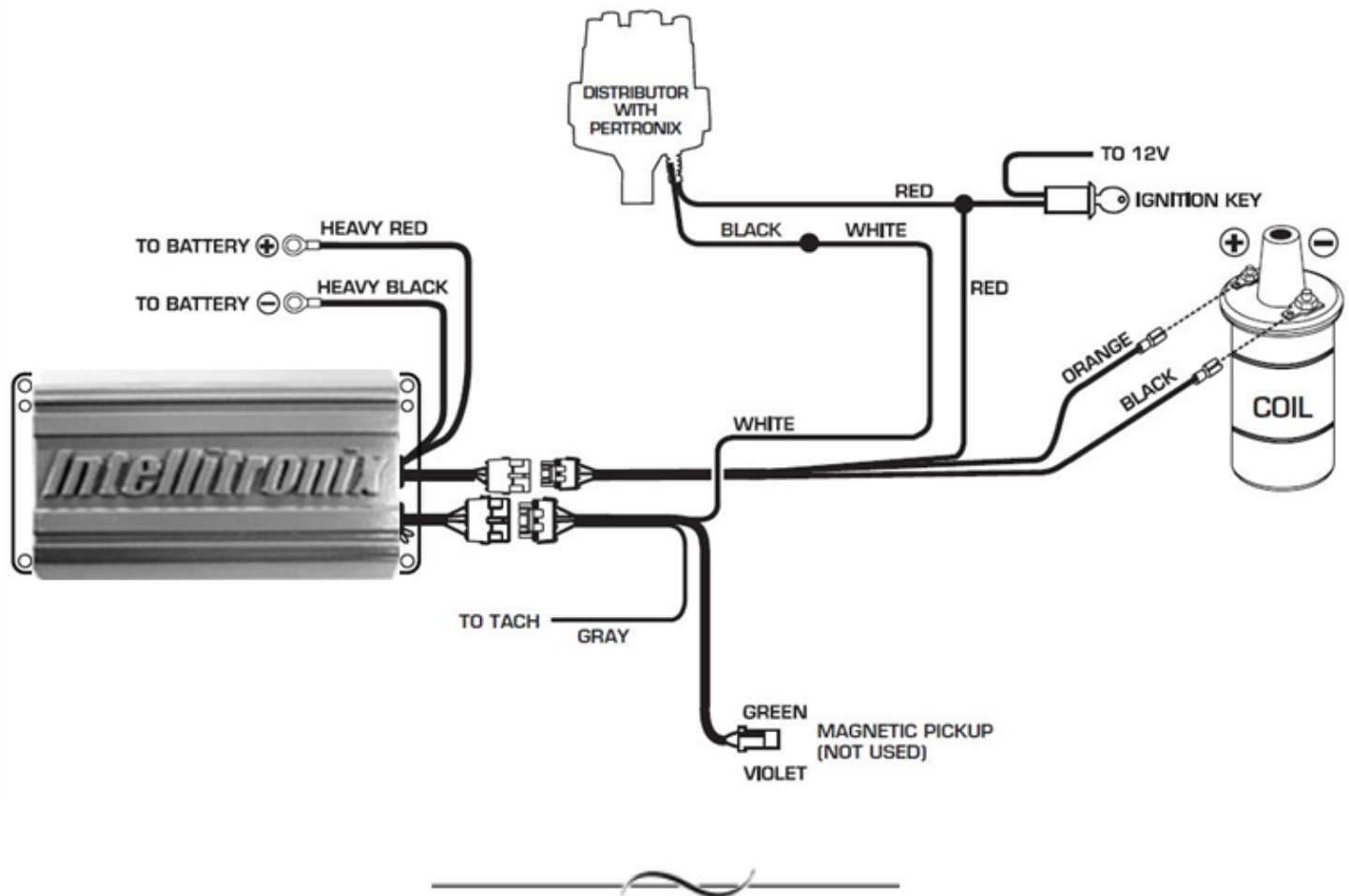


FIG. 13 AFTERMARKET - WIRING TO A PERTRONIX IGNITION KIT



Intellitronix Tachometer Compatibility List

Aftermarket Tachometer	White Wire Trigger	Magnetic Trigger Connector
AUTOGAGE	INCLUDED	INCLUDED
AUTOMETER	NONE	NONE
FORD MOTORSPORTS	NONE	NONE
MALLORY	NONE	NONE
MOROSO	NONE	NONE
STEWART (Voltage Triggered)	INCLUDED	INCLUDED
S.W. & BI TOREX	NONE	NONE
SUN	INCLUDED	INCLUDED
VDO	INCLUDED	INCLUDED
AMC (JEEP)	INCLUDED	INCLUDED
CHRYSLER	INCLUDED	INCLUDED
FORD (Voltage Triggered)	INCLUDED	INCLUDED
GENERAL MOTORS	Bypass In-Line Filter	Bypass In-Line Filter
IMPORTS	INCLUDED	INCLUDED
TOYOTA		NONE

Note: On the above list, the trigger wire on the tachometers that are marked NONE may be connected to the Tach Output wire on the Intellitronix Ignition Box.

FOREIGN VEHICLES

Some foreign vehicles with fuel injection systems may require a Tach/Fuel Injection Adapter to run with the Intellitronix Ignition Box. This is because many of these systems use the same trigger source to operate the ignition, the tachometer and the fuel injection. This results in a voltage signal that is too low to accurately trigger the fuel injection. To fix this, a white wire Tach Adapter will remedy the problem on the majority of vehicles. If it doesn't, the magnetic trigger violet/green wire adapter included in the hardware pack will be required.

Note: Toyotas and Ford Probes will require an Adapter.

INOPERATIVE TACHOMETERS

If your tachometer fails to operate with the Intellitronix Ignition Box installed, you may need a Tach Adapter. Before getting an adapter, try connecting your tachometer trigger wire to the Gray Wire. This output produces a 12-volt, square wave (see page 1). If the Tach still does not operate, you will most likely need the magnetic pickup wire adapter included in the hardware pack. (If you are using the Magnetic Pickup connector (Green/Violet wires) to trigger the CDI, you will need the violet/green wire adapter. Conversely, the white wire trigger will require the white wire adapter.)

BALLAST RESISTOR

If you have a current trigger tach (originally coil positive) and use the White wire of the ignition, you can purchase a Chrysler Dual Ballast Resistor (used from 1973-1976) and wire it as shown in Figure 14.

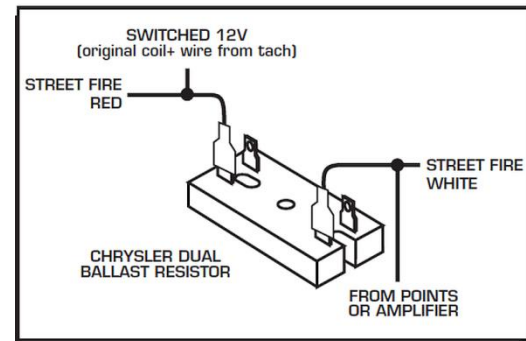


Fig. 14 Wiring the Dual Ballast Resistor

ENGINE RUN-ON

If your engine continues to run even when the ignition is turned off, you are experiencing engine Run-On. This usually only occurs on older vehicles with an external voltage regulator. Because the System receives power directly from the battery, it does not require much current to keep the unit energized. If you are experiencing Run-On, it is due to a small amount of voltage going through the charging lamp indicator and feeding the small Red wire, even if the key is turned off.

Early Ford and GM: To solve the Run-On problem, a Diode is supplied in the parts bag. By installing this Diode inline of the wire that goes to the Charging indicator, the voltage is kept from entering the ignition. Figure 15 shows the proper installation for early Ford and GM vehicles.

NOTE: Diodes are used to allow voltage to flow only one way. Make sure the Diode is installed facing the proper direction (as shown in Figure 5.)

Ford: Install the Diode inline to the wire going to the #1 terminal.

GM: Install the Diode inline to the wire going to terminal #4.

GM 1973-1983 with Delcotron Alternators

GM Delcotron Alternators use an internal voltage regulator. Install the Diode inline on the smallest wire exiting from the alternator (Figure 15.) It is usually a brown wire.

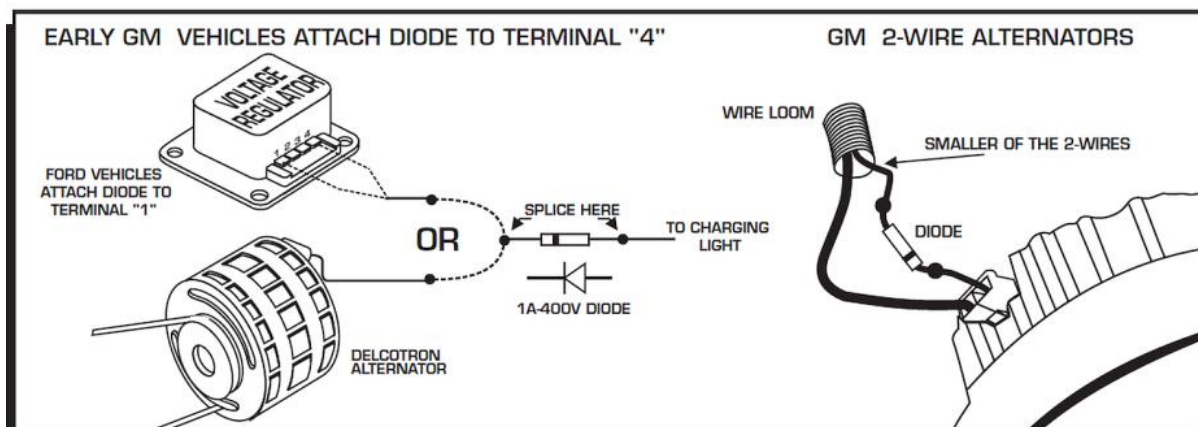


Fig. 15 Installing the Diode to fix Run-on.

Most other applications: On other applications where engine Run-On is experienced, a Resistor can be put in-line to the Intellitronix Ignition Box's small Red wire ((Figure16). This resistor will keep voltage from leaking through to the Intellitronix Ignition Box.

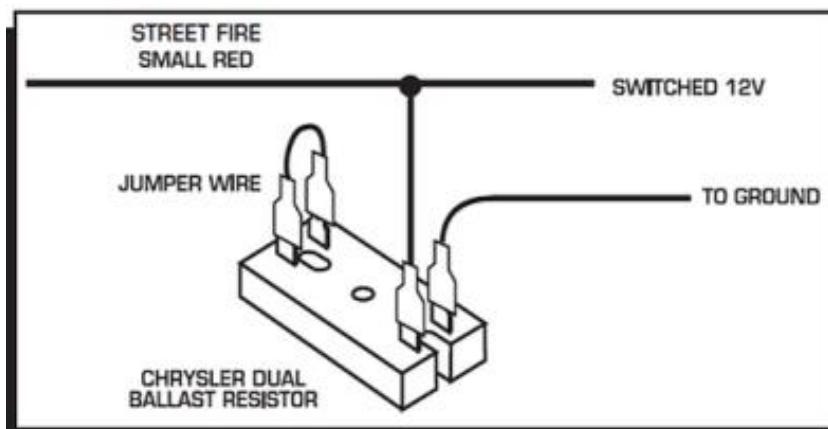


Fig. 16 – Wiring the Dual Ballast Resistor for Run-On.

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9am to 5pm EST

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support@intellitronix.com



This product carries a limited Lifetime Warranty.

This warranty is limited to replacement or repair of the unit at the discretion of Intellitronix.