



INSTALLATION INSTRUCTIONS

ACCEL/DFI Pro 7 Electronic Ignition Control Module for Distributor Equipped Engines

PART NO. 75609

PARTS INCLUDED:

- | | |
|-----------------------------|-----------------------------|
| 1 Ignition Control Module | 5 1/4" Male Disconnects |
| 4 #10 Sheet Metal Screws | 5 1/4" Female Disconnects |
| 2 Wire Ties | 1 Rubber Grommet |
| 2 Ring Terminals, Insulated | 2 Cable Clamps |
| 1 1-amp/100 volt Diode | 1 Magnetic Pickup Extension |
| 2 1/4" Tab Terminals | |

GENERAL INFORMATION

BATTERY

This Ignition Control Module operates on any negative ground, 12 volt electrical system with a distributor. It will also work with 16 volt batteries and can withstand a momentary spike of 24 volts in case of jump starts. This system delivers full voltage with a supply of 10-18 volts, and operates with a supply voltage as low as 8 volts. If your application does not use an alternator, allow at least 15 amp/hour for every half hour of operation. If you crank the engine with the same battery or other accessories, such as an electric fuel or water pump, increase the amp/hour rating.

COILS

For optimum performance with your Ignition Control Module, use a matching coil such as ACCEL/DFI Pro 7 Coil 75608.

TACHOMETERS

The yellow wire on the Ignition Control Module provides a trigger signal for tachometers, shift lights, or other add-on RPM activated devices. This wire produces a 12 volts square wave signal with a 20% duty cycle. Some vehicles with factory tachometers may require a tach adapter to work with the Ignition Control Module. If your GM vehicle uses an inline filter, it may cause the tach to drop to zero on acceleration. If this occurs, bypass the filter. For more information on tachometers, see pages 3 & 4.

SPARK PLUGS

Using the correct spark plug and heat range is important for optimum performance. Because there are so many variables to consider, we suggest starting with your engine manufacturer's spark plug recommendation. From there, you can experiment with small changes in plug gap and heat range to obtain the best performance from your engine. We also recommend non-resistor spark plugs.

SPARK PLUG WIRES

High quality, spiral wound wire and proper routing are essential to the operation of the Ignition Control Module. This type of wire provides a good path for the spark to follow while minimizing electromagnetic interference (EMI).

NOTE: Do not use solid core spark plug wires with this Ignition Control.

ROUTING

Wires should be routed away from sharp edges, moving objects, and heat sources. Wires that are next to each other in the engine's firing order should be separated. For example, in a Chevy V8 with a firing order of 1-8-4-3-6-5-7-2, the #5 and #7 cylinders are positioned next to each other on the engine as well as in the firing order. Voltage from the #5 wire could jump to the #7 wire. This could cause detonation and engine damage. For added protection against cross-fire, ACCEL offers PRO SLEEVE (P/N170071). Pro Sleeve is a glass woven, silicone coated protective sleeve that slides over your plug wires. It also helps reduce damage from heat and sharp objects.

MISCELLANEOUS INFORMATION

SEALING

Do not attempt to seal the Ignition Control Module. All of the circuits receive a conformal coating of sealant that protects the electronics from moisture. Sealing the Ignition will not allow any moisture that seeps in through the grommets to drain and may result in corrosion.

WELDING

To avoid any damage to the Ignition Control Module when welding on the vehicle, disconnect the positive (red) and negative (black) power cables of the Ignition Control Module. It is also a good idea to disconnect the tachometer ground wire as well.

DISTRIBUTOR CAP AND ROTOR

We recommend installing a new distributor cap and rotor when installing the Ignition Control Module. Be sure the cap is clean inside and out, especially the terminals and rotor tip. On vehicles with smaller caps, it is possible for the air inside the cap to become electrically charged causing crossfire which can result in misfire. You can prevent this by drilling a couple of vent holes in the cap. Drill the holes between terminals at rotor height, facing away from the intake. If needed, place a small piece of non-metallic screen over the holes to act as a filter.

CYLINDER SELECTION

Your Ignition comes from the factory set up for 8 cylinder operation. If you want to use this ignition with a 4 or 6 cylinder engine, you must first remove the four screws that hold the endplate. Once the endplate is removed, you'll see the end of the circuit board. Use rotary switch to select number of cylinders: #4 = 4 cylinders, #6 = 6 cylinders, #8 = 8 cylinders.

MOUNTING

The Ignition Control Module can be mounted in any position. If you mount it in the engine compartment, keep it away from moving objects and heat sources. Do not mount the unit in a closed area, such as the glovebox. When you find a suitable location to mount the unit, make sure all wires of the ignition reach their connections. Hold the ignition in place and mark the location of the mounting holes. Use a 1/8" drill bit to drill the holes. Use the supplied self-tapping screws to mount the box.

WIRING

WIRE LENGTH

All of the wires of the Ignition Control Module may be shortened as long as quality connectors are used or soldered in place. To lengthen the wires, use one size larger gauge wire (12 gauge for power leads, 16 gauge for all others). Use the proper connectors to terminate all wires. All connections must be soldered and sealed.

GROUNDING

A poor ground connection can cause many frustrating problems. When a wire is specified to go to ground, connect it to the chassis. Always connect a ground strap between the engine and chassis. Connect any ground wires to a clean, paint-free metal surface.

BALLAST RESISTOR

If your vehicle has a ballast resistor in line with the coil wiring, it is not necessary to bypass it. This is because the Ignition Control Module receives its main power directly from the battery.

WIRE FUNCTIONS

Power Leads

The two heavy gauge wires (14 gauge) that deliver battery voltage to the ignition:

- Heavy Red** Connects directly to the battery positive (+) terminal or to a positive battery junction.
NOTE: Never connect this wire to the alternator.
- Heavy Black** Connects to frame or chassis ground.

Trigger and Coil Leads

- Red/White** Connects to a switched 12 volt source, such as the ignition key. Must be hot in crank and run positions.
- Red** Connects to the positive (+) terminal of the coil.
NOTE: This is the only wire that makes electrical contact with the coil positive (+) terminal.
- (Shielded)**
- Small Black** Connects to the negative (-) terminal of the coil.
NOTE: This is the only wire that makes electrical contact with the coil positive (-) terminal.

TRIGGER WIRES

Either of two circuits will trigger the Ignition Control Module: a points circuit (dark blue) or a magnetic pickup circuit (violet and green wires).

NOTE: The two circuits will never be used together.

- Dark Blue** Connects to the ACCEL/DFI EST (Dk.Blue wire/pin H of 8 pin ignition connector) or to points, electronic ignition amplifier output or to the green wire of most timing accessories. When this wire is used, the magnetic pickup connector is not used.
- Violet/Green** These wires are routed together in one harness to form the magnetic pickup connector. The connector plugs directly into most aftermarket distributors or crank trigger. It will also connect to factory magnetic pickups or other aftermarket pickups. The violet wire is positive (+) and the green is negative (-). When these wires are used, the dark blue wire is not used. Consult the chart that shows the polarity of other common magnetic pickups. An extension harness is available if needed. Mallory #29787
- Yellow** Connects to the tachometer.
- Light Blue** Rev Limit - See pg 12

ROUTING WIRES

Route all wires away from heat sources, sharp edges, and moving objects. Route the trigger wires separate from the other wires and spark plug wires. If possible, route them along a ground plane, such as the block or firewall, which creates an electrical shield. The magnetic pickup wires should be routed separately and twisted together to help reduce extraneous interference. For best results use Shielded Ground Cable.

WARNING: The Ignition Control Module is a capacitive discharge ignition. High voltage is present at the coil primary terminals. Do not touch these terminals or connect test equipment to them.

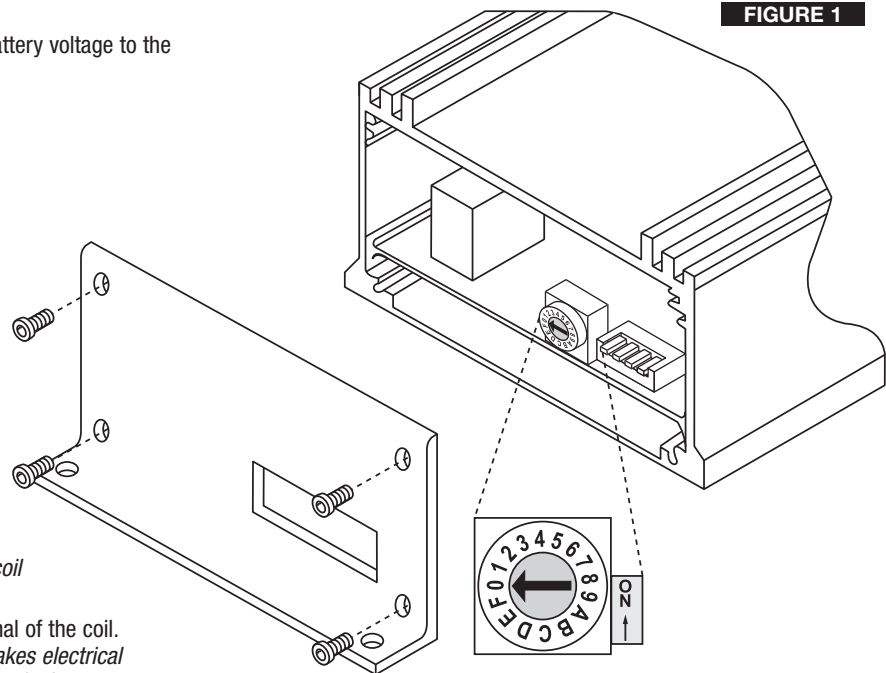


FIGURE 1

COMMON COLORS FOR MAG PICKUP WIRES		
Distributor	Mag +(Crk +)	Mag -(Crk -)
Mallory Crank Trigger	Purple	Green
Mallory Billet Competition Distributor, Series Nos. 81 and 84	Orange	Purple
Mallory Comp® 9000 Series Nos. 96-99	Orange	Purple
Mallory Harness P/N 29040	Red	Black
MSD distributor's	Orange/Black	Violet/Black
MSD Crank Trigger	Orange/Black	Violet/Black
Ford	Orange	Purple
Accel 46/48000 Series	Orange/Black	Violet/Black
Accel 51/61000 Series	Red	Black
Chrysler	Orange/White	Black

PRESTART CHECKLIST

- The only wires connected to the coil terminals should be the shielded red connected to coil positive (+) and black connected to coil negative (-).
- The small red/white wire is connected to a switched 12 volt source, such as the ignition key. Must be hot in crank and run positions.
- Power leads are connected directly to the battery positive and negative terminals.
- If you're not using an alternator, the battery should be connected and fully charged.
- The engine **MUST** be equipped with at least one ground strap to the chassis.

THEFT DETERRENT

The Ignition Control Module provides an easy way to install a theft deterrent kill switch. See Figure 2.

MAGNETIC PICKUP TRIGGER

When using the Mag. pickup to trigger the Ignition Control Module, install a switch across the dark blue (points) wire to ground. When the dark blue wire is grounded, the vehicle will crank but will not start.

WHITE WIRE TRIGGER

When using the dark blue wire to trigger the Ignition Control Module, install a switch across the purple (Mag. +) wire and the other side to ground. When the purple (Mag. +) wire is grounded, the vehicle will crank but will not start.

TROUBLESHOOTING

This section offers several tests and checks you can perform to ensure proper installation and operation of the Pro 7 Ignition Control Module. If you experience a problem with your Pro 7, first check for proper installation and poor connections. You can eliminate many problems by checking these items. If you have any questions concerning your Pro 7 Ignition Control Module contact the ACCEL/DFI Technical Service Department at 248-380-2780, Monday through Friday, 8:00 am to 5:00 pm Eastern time.

TACH ADAPTERS

If your tachometer does not operate correctly, you probably need a tach adapter such as those made by Mallory. Consult the Tachometer Compatibility List for common tachometers and compatible tach adapters.

INOPERATIVE TACHOMETERS

If your tachometer fails to operate with the Pro 7 installed, you may need a Mallory tach adapter. Before purchasing a tach adapter, try connecting your tachometer trigger wire to the yellow wire of the Pro 7 Ignition Control Module. This output produces a 12 volt, square wave. If the tach still does not operate, you will need a tach adapter. Two different tach adapters are available:

PN 29078 If you are using the magnetic pickup connector (green and violet wires) to trigger the Pro 7, you will need this adapter.

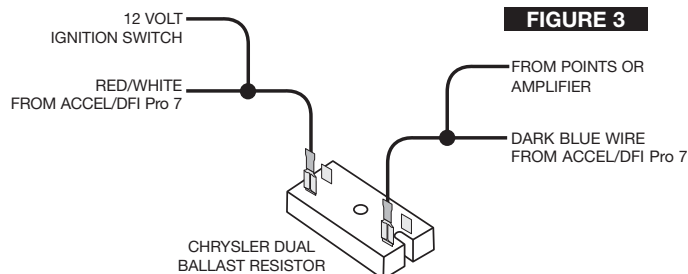
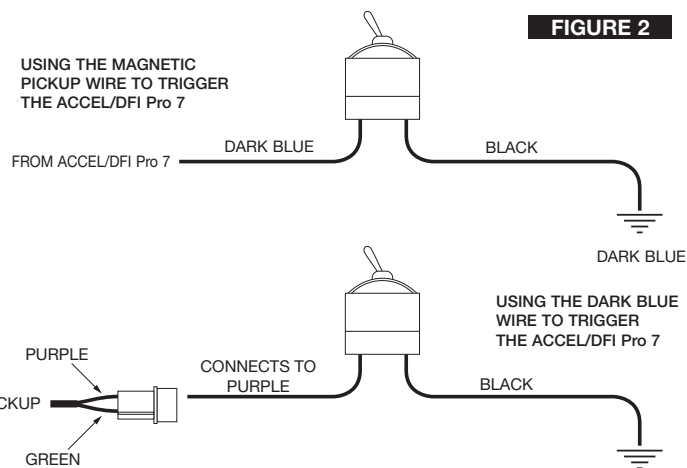
PN 29074 If your tach was triggered from the coil negative terminal (voltage trigger) and you are using the dark blue wire to trigger the Pro 7, you will need this adapter

BALLAST RESISTOR

If you have a current trigger tach (originally connected to coil (+) positive) and use the dark blue wire of the Ignition for triggering, you can purchase a Chrysler Dual Ballast Resistor (1973-76 applications). Wire it as shown in Figure 3.

ENGINE RUN-ON

If your engine continues to run even when the ignition is turned off, you are experiencing engine run-on. Usually, older vehicles with an external voltage regulator are susceptible to this condition. Because the Ignition Control Module 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/white wire (even if the key is turned off).



GM 1973-83 WITH DELCOTRON ALTERNATORS

GM Delcotron alternators use an internal voltage regulator. Install the diode in-line on the smallest wire exiting the alternator (see Figure 5). It is usually a brown wire.

Most other applications: To eliminate run-on, place a resistor in-line to the small red/white wire to keep voltage from leaking into the Ignition Control Module.

MISSES AND INTERMITTENT PROBLEMS

Experience has shown that if your engine is misfiring or hesitating at higher RPM, it is usually not an ignition problem. Most common causes include a coil or plug wire failure, arcing from the cap or boot plug to ground or spark ionization inside the cap. Perform the following checks:

- Inspect the plug wires at the cap and at the spark plug for a tight connection. Visually inspect for cuts, abrasions, or burns.
- Inspect the primary coil wire connections. Because the Ignition Control Module receives a direct 12 volt source from the battery, there will not be any voltage at the coil positive (+) terminal, even with the key turned on. **WARNING:** During cranking, or while the engine is running, very high voltage will be present and no test equipment should be connected. **WARNING:** Do not touch the coil terminals during cranking or while the engine is running.
- Make sure 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 drops below 10 volts during a race, the Ignition Control Module output voltage will drop.
- Is the engine running lean? Inspect the spark plugs and the entire fuel system.
- Check all wiring connections for corrosion or damage. Remember to use proper connections followed by soldering, then seal the connections completely.

Aftermarket Tachometer	White Wire Trigger	Magnetic Trigger Connector
Autogage	Mallory 29074	Mallory 29078
Autometer	—	—
Ford Motorsport	—	—
Moroso	—	—
Stewart	Mallory 29074	Mallory 29078
S.W. & Bi Torx	—	—
Sun	Mallory 29074	Mallory 29078
VDO	Mallory 8910	Mallory 29078
AMC (Jeep)	Mallory 29074	Mallory 29078
Chrysler	Mallory 29074	Mallory 29078
Ford (Before 1976)	Mallory 29074	Mallory 29078
Ford (After 1976)	Mallory 29074	Mallory 29078
GM	Bypass in-line filter	Bypass in-line filter
Imports	Mallory 29074	Mallory 29078

Early Ford and GM: To solve the run-on problem, a diode is supplied with the Ignition Control. By installing this diode in-line of the wire that goes to the charging indicator, the voltage is blocked from entering the Ignition Control Module. Figure 4 shows the proper diode 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 4.

Ford: Install the diode in-line to the wire going to the #1 terminal.

GM: Install the diode in-line to the wire going to the #4 terminal.

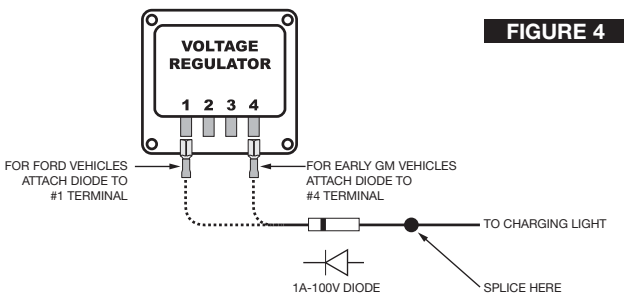


FIGURE 4

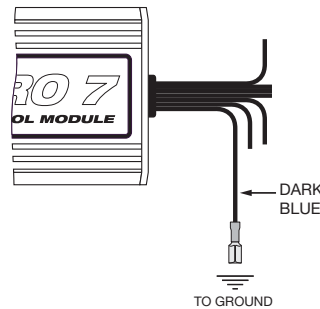


FIGURE 6

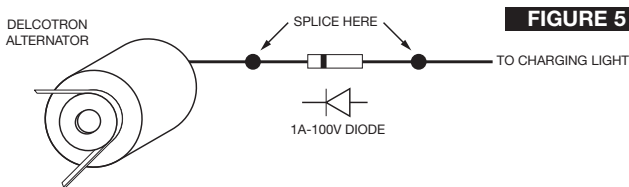


FIGURE 5

CHECKING FOR SPARK

If Triggering the Ignition with the Dark Blue Wire: (See Figure 6)

1. Make sure the ignition switch is in the "OFF" position.
2. Remove the coil wire from the distributor cap and set the terminal approximately 1/4" from ground.
3. Disconnect the Ignition Control Module dark blue wire from the distributor's points or ignition amplifier.
4. Turn the ignition to the "ON" position. Do not crank the engine.
5. Tap the dark blue wire to ground several times. Each time you pull the wire from ground, a spark should jump from the coil wire to ground. If spark is present, the ignition is working properly. If there is no spark, skip to Step 6 on next page.

If Triggering With the Magnetic Pickup: (See Figure 7)

1. Make sure the ignition switch is in the OFF position.
2. Remove the coil wire from the distributor cap and set the terminal approximately 1/4" from ground.
3. Disconnect the Ignition Control Module magnetic pickup wires from the distributor.
4. Turn the ignition to the ON position. Do not crank the engine.
5. With a small jumper wire, short the Ignition Control Module green and violet magnetic pickup wires together. Each time you break this short, a spark should jump from the coil wire to ground. If spark is present, the ignition is working properly. If there is no spark skip to Step 6 below.
6. If there is no spark.
 - A. Inspect all of the wiring.
 - B. Substitute another coil and repeat the test. If there is now spark, the coil is at fault.
 - C. If there is still no spark, check to make sure there is 12 volts on the small red/white wire from the Ignition Control Module when

the key is in the ON position. If 12 volts is not present, find another switched 12 volts source and repeat the test.

- D. If, after following the test procedures and inspecting all of the wiring, there is still no spark, the Ignition Control Module is in need of repair. See the Warranty and Service section for information.

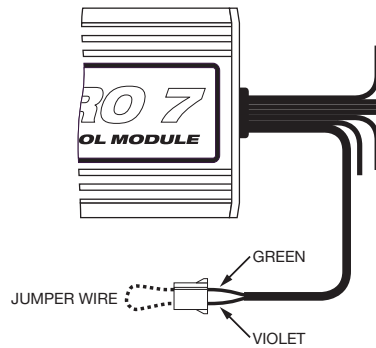


FIGURE 7

Installing the ACCEL/DFI Pro 7 with a Points/Amplifier Style Ignition or ACCEL/DFI GEN 7

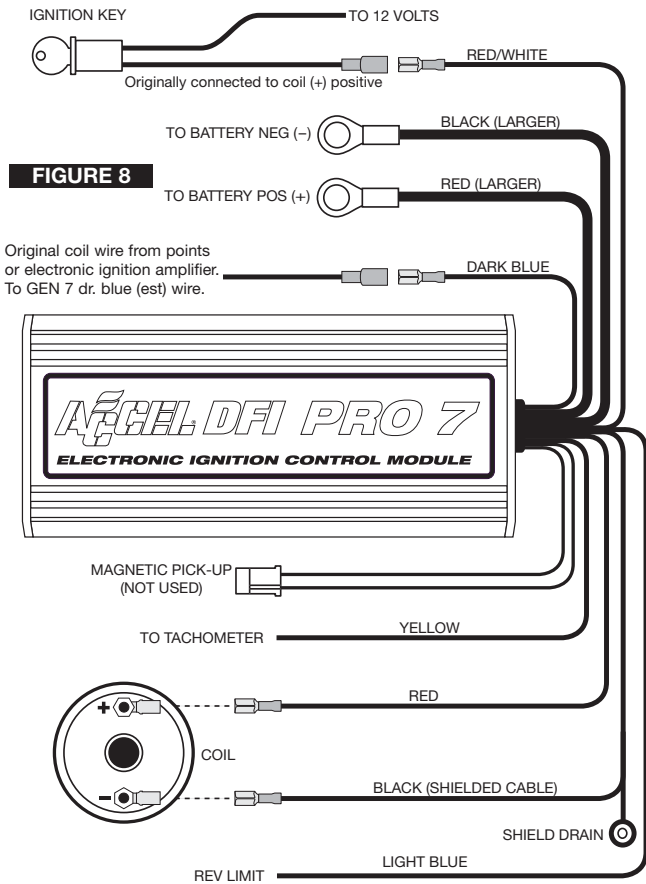


FIGURE 8

Installing the ACCEL/DFI Pro 7 with a Magnetic Pickup Distributor or Crank Trigger

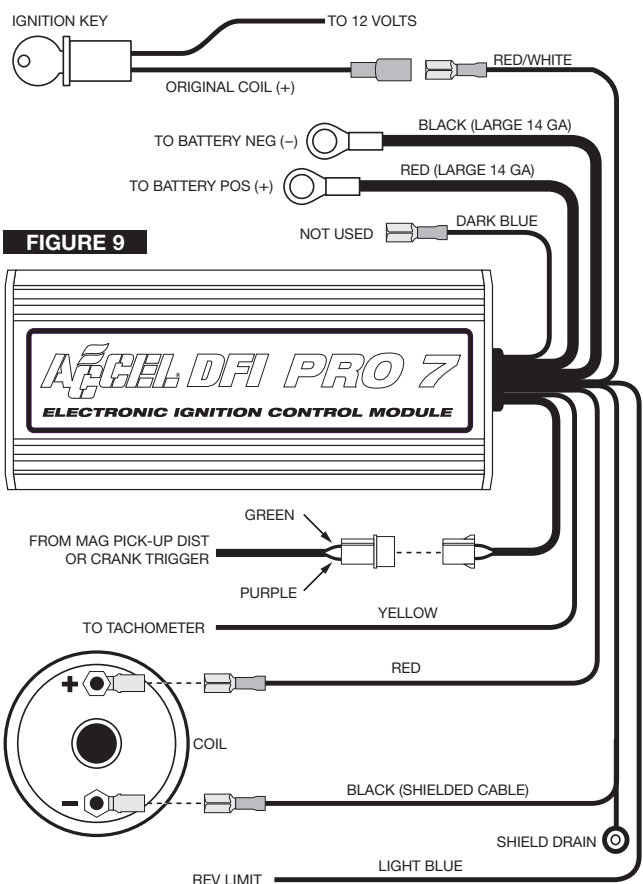
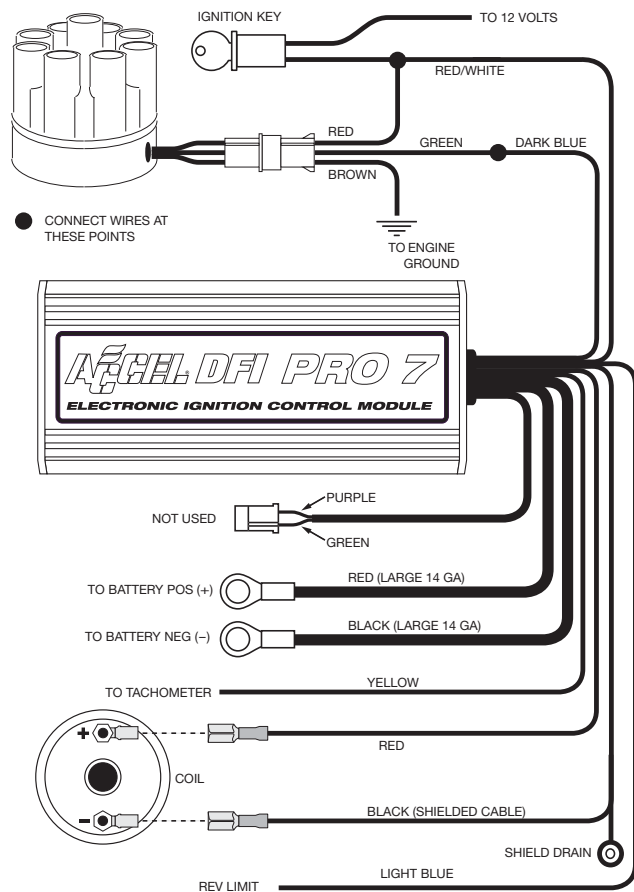


FIGURE 9

FIGURE 10

Installing the ACCEL/DFI Pro 7 with a Mallory UNILITE® or Magnetic Breakerless Distributor



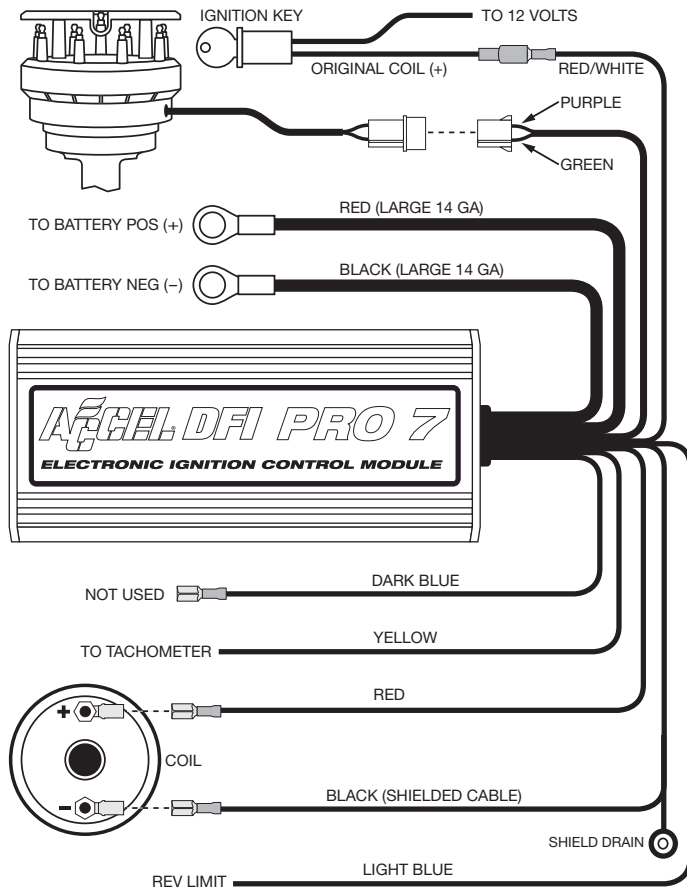
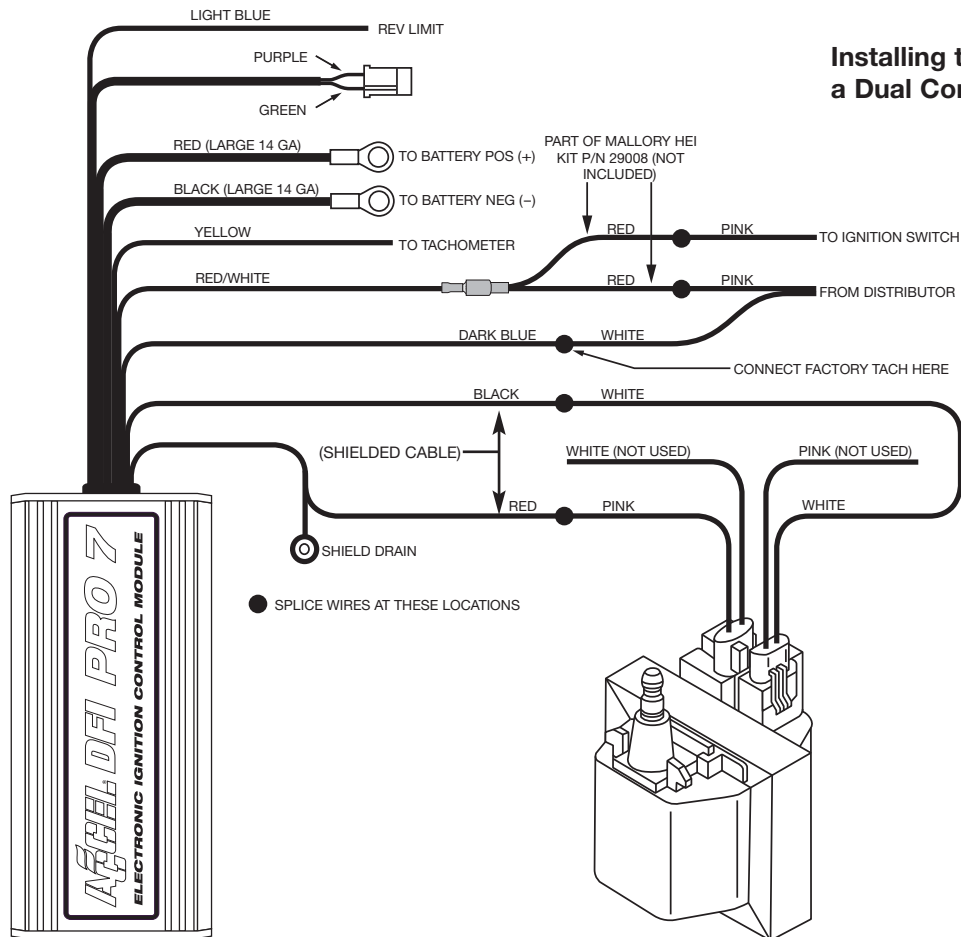


FIGURE 11

Installing the ACCEL/DFI Pro 7 with a Mallory 81-84 Series Distributor (2-Wire Magnetic Pickup)



Installing the ACCEL/DFI Pro 7 with a Dual Connector Coil HEI System

FIGURE 12

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 modules may experience a hesitation or stall on deceleration. If this occurs, contact the ACCEL/DFI Technical Service Department for the required bolt-in diode to correct the problem.

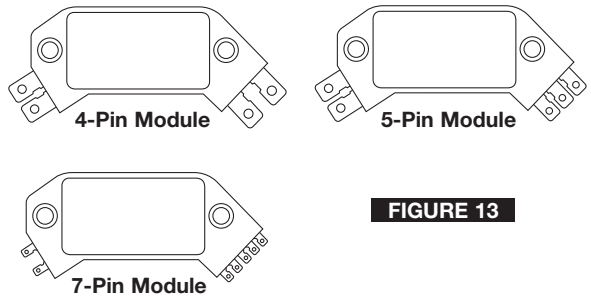


FIGURE 13

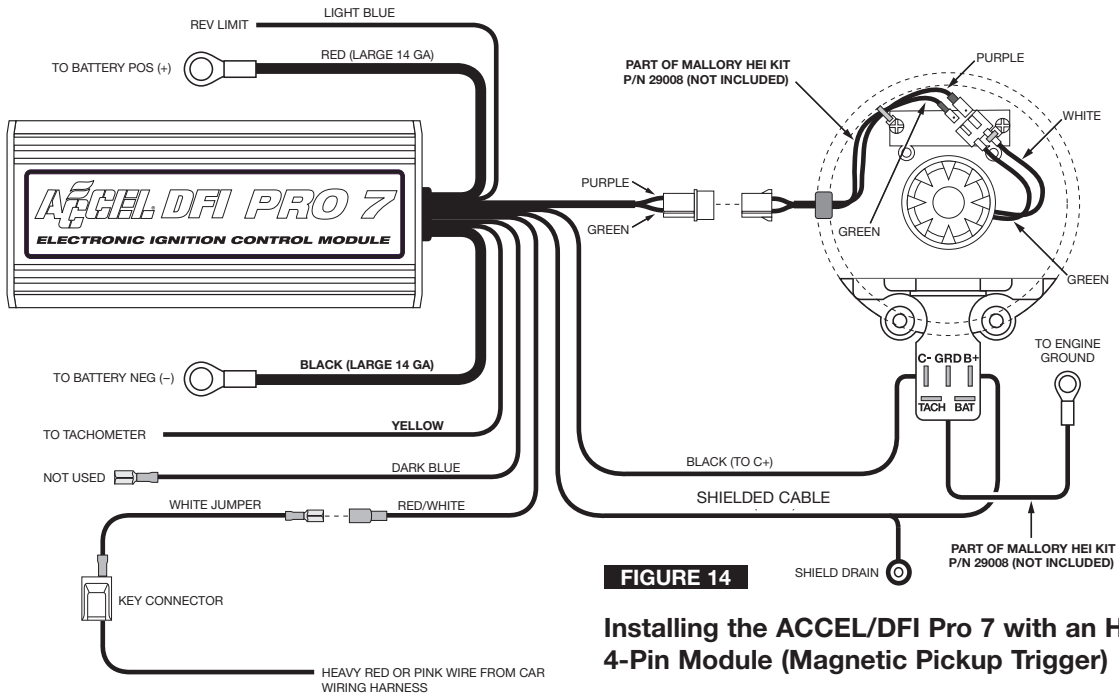


FIGURE 14

Installing the ACCEL/DFI Pro 7 with an HEI 4-Pin Module (Magnetic Pickup Trigger)

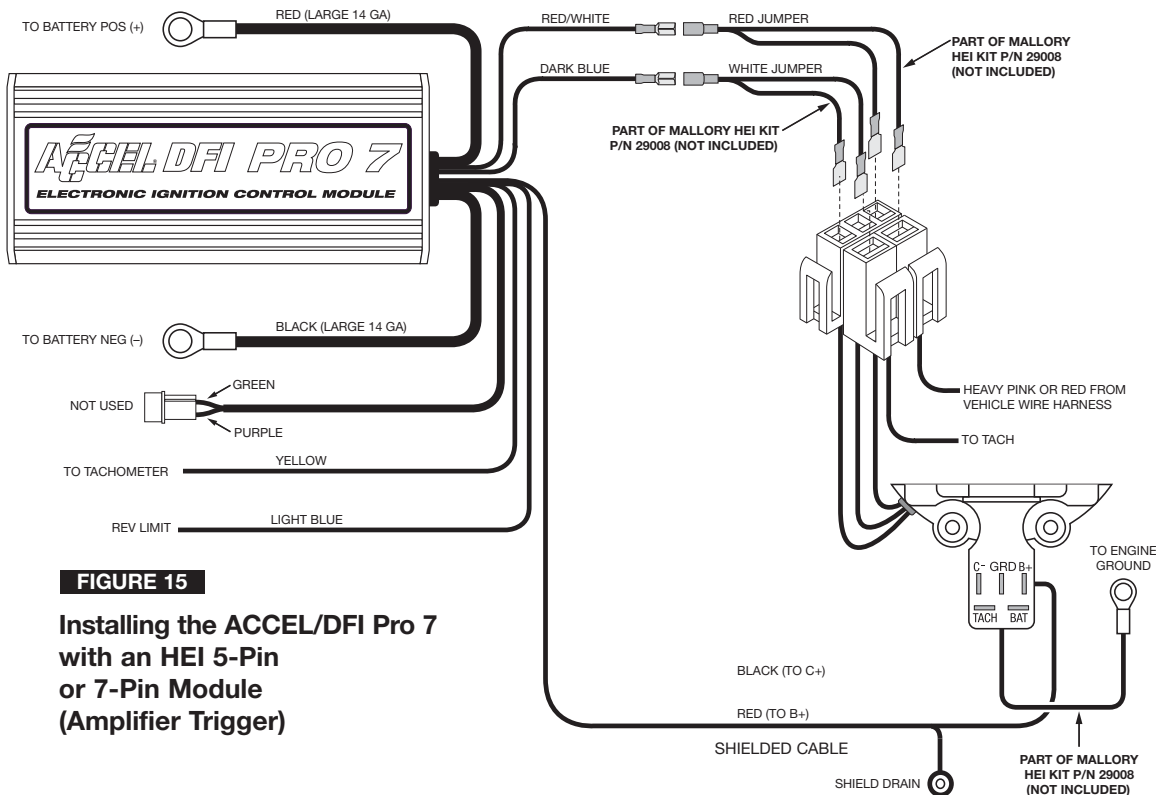


FIGURE 15

Installing the ACCEL/DFI Pro 7 with an HEI 5-Pin or 7-Pin Module (Amplifier Trigger)

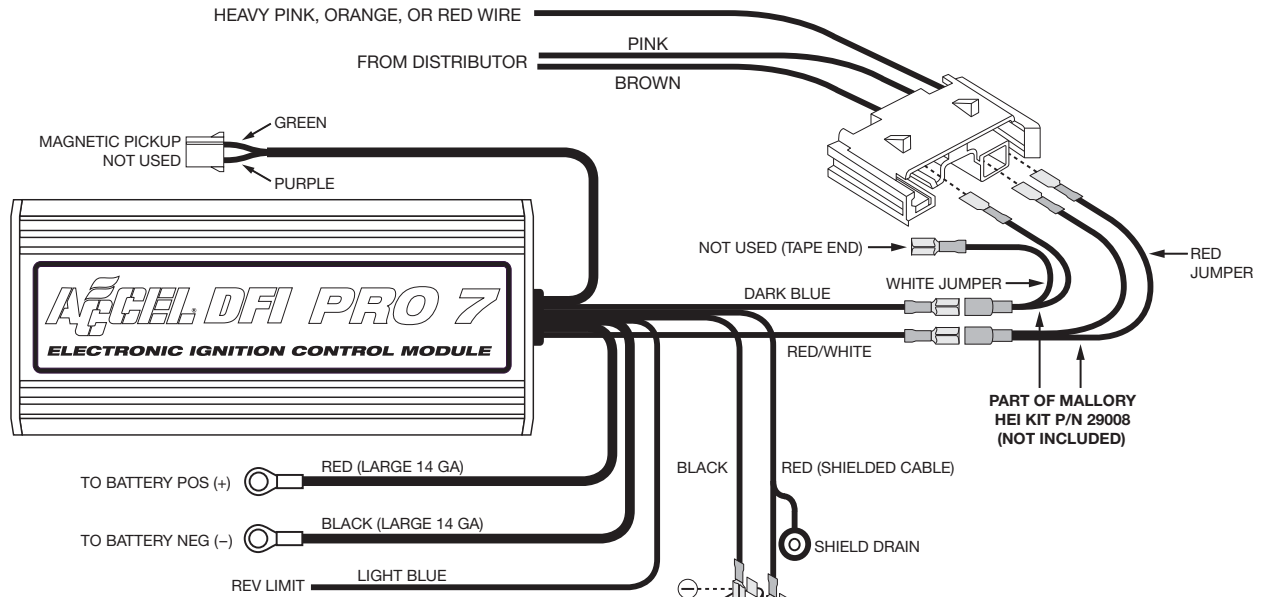


FIGURE 16
Installing the ACCEL/DFI Pro 7 with an External 4-Terminal Coil (Single Connector)

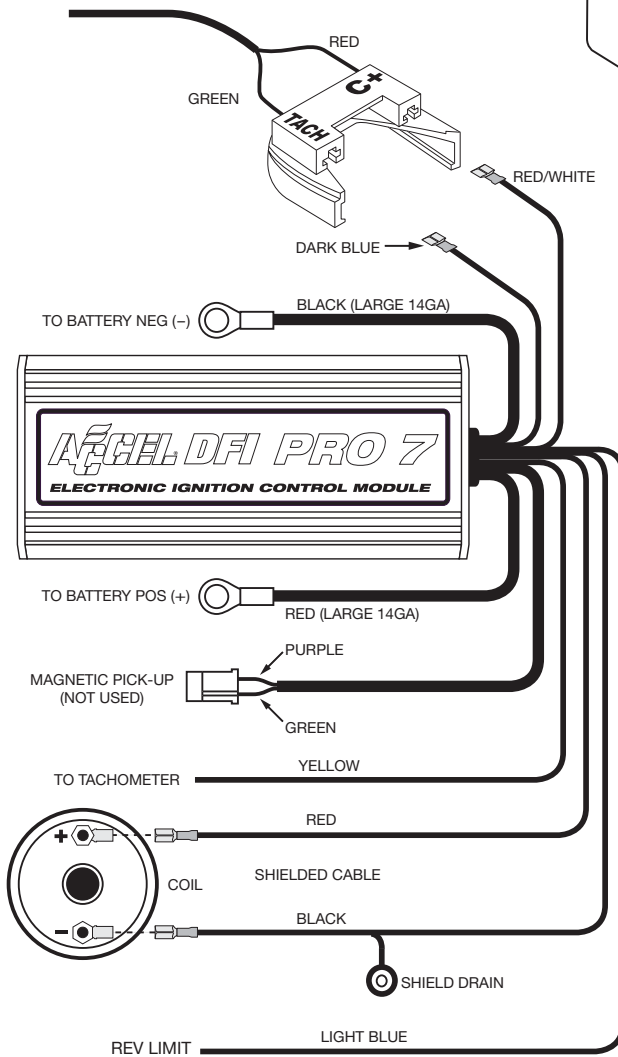


FIGURE 17
Installing the ACCEL/DFI Pro 7 with a Ford Duraspark using the Dark Blue Wire Trigger

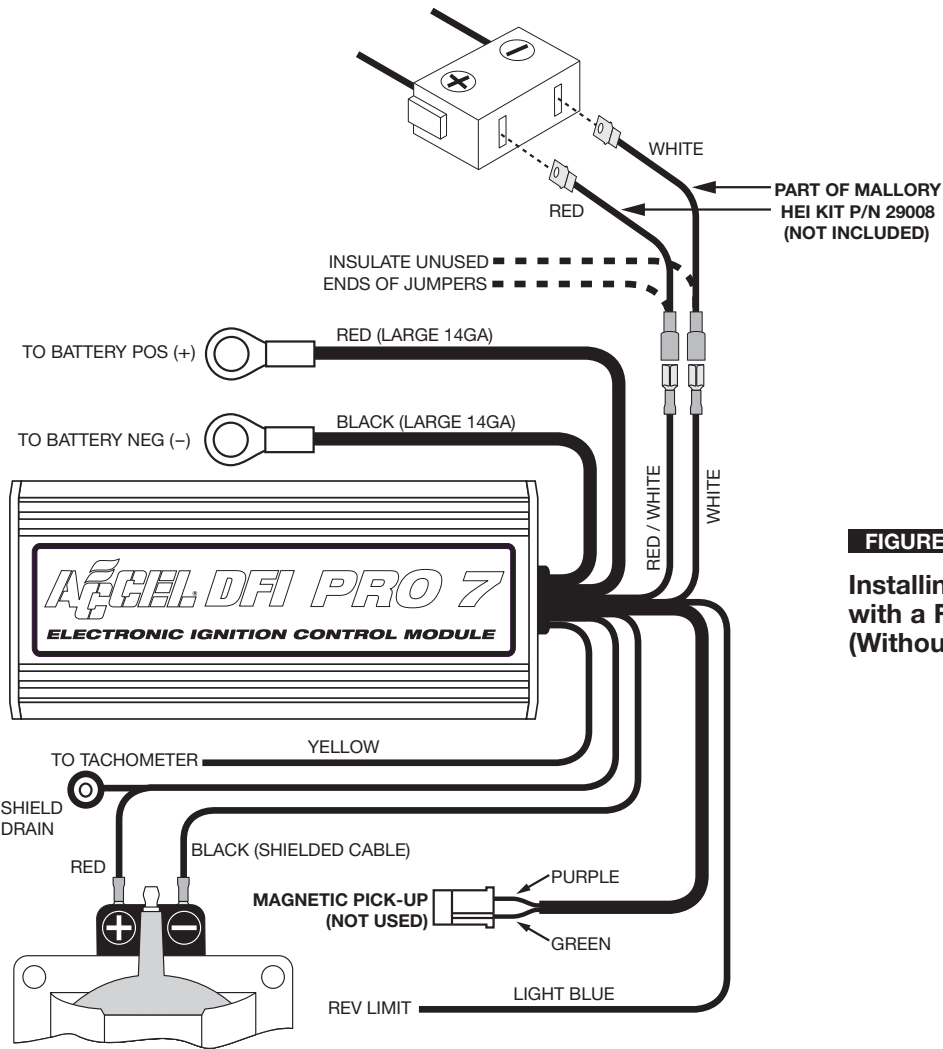


FIGURE 18

Installing the ACCEL/DFI Pro 7 with a Ford TFI (Without Harness)

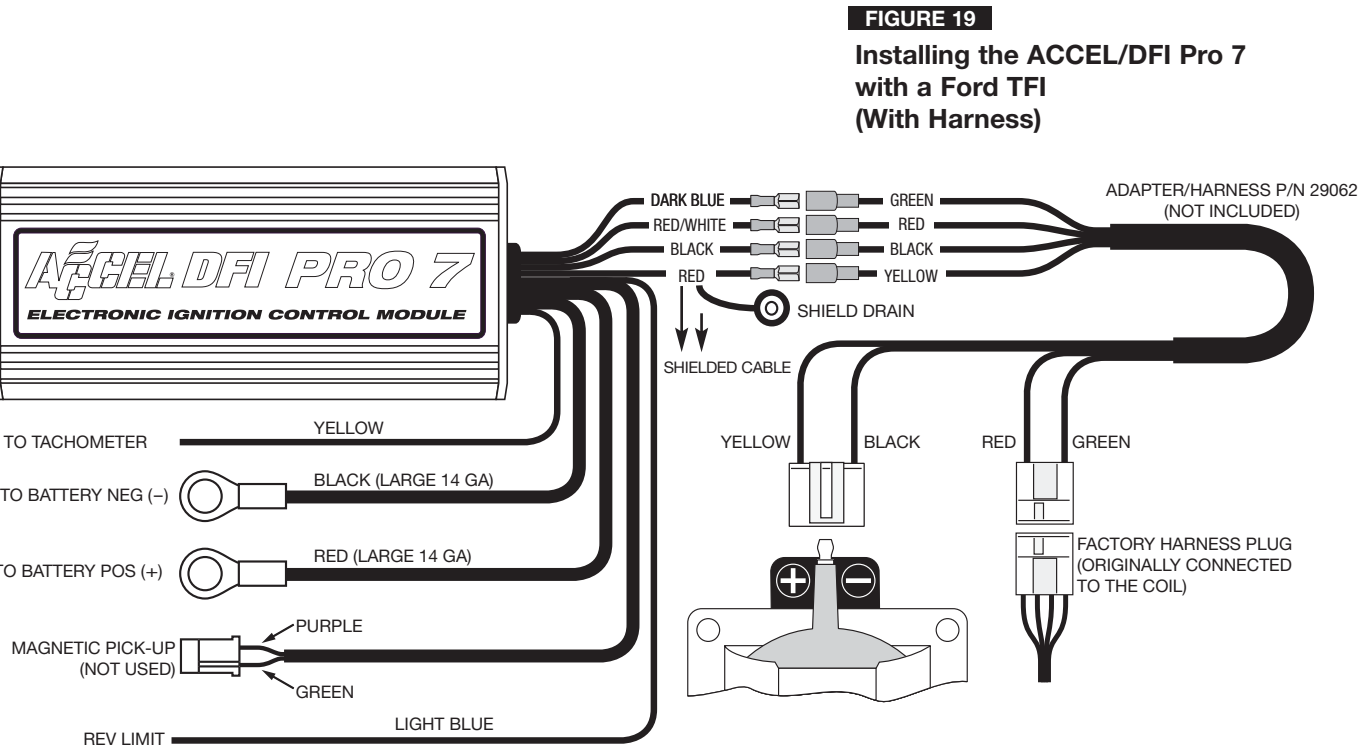


FIGURE 19

Installing the ACCEL/DFI Pro 7 with a Ford TFI (With Harness)

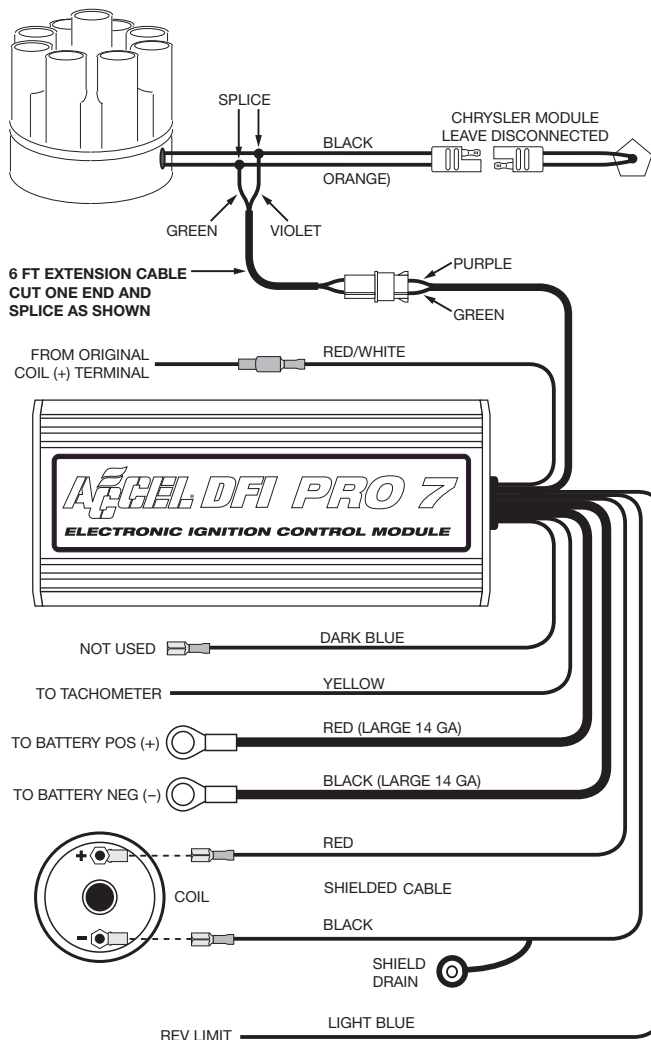
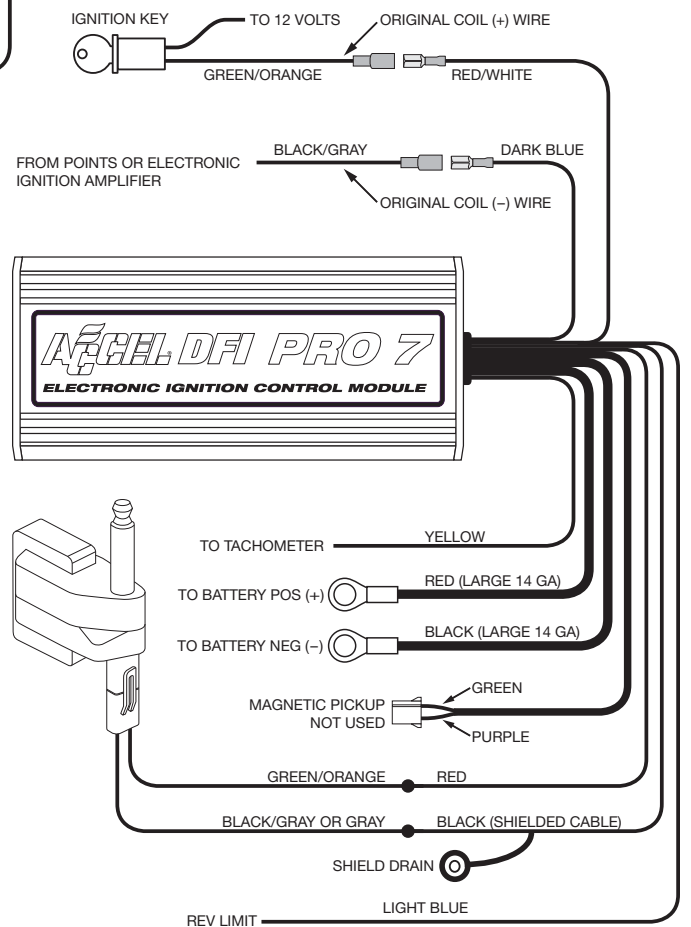


FIGURE 20

Installing the ACCEL/DFI Pro 7 with a Chrysler Electronic Ignition using a Magnetic Pickup Trigger

FIGURE 21
Installing the ACCEL/DFI Pro 7 with a Late Model Dodge (with 2-Pin Connector)



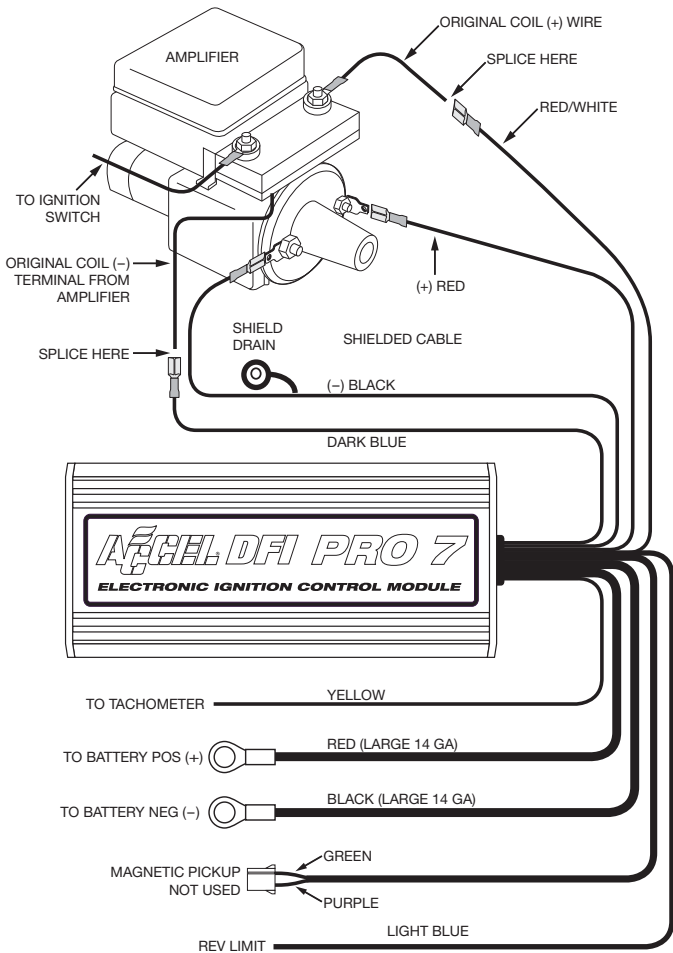
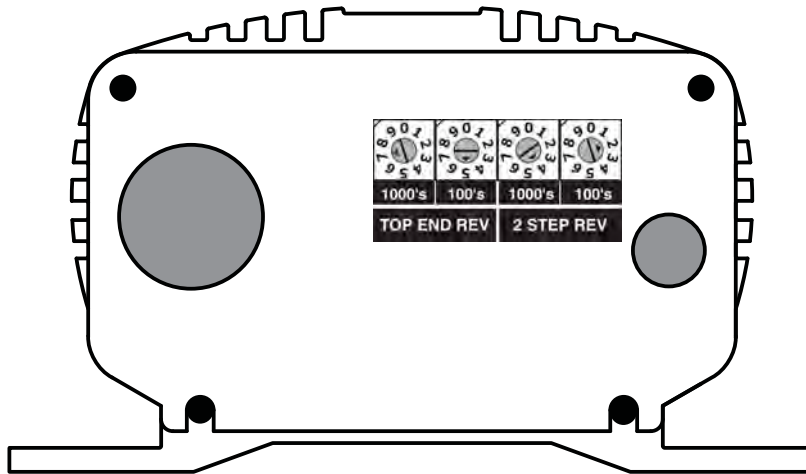


FIGURE 22
Installing the ACCEL/DFI Pro 7
with a Typical Import Application

REV LIMIT SELECTION DIAGRAM



Light blue rev limit wire - used for switching between rev limits. When this wire is attached to +12V the two step rev limiter is active. When grounded the top end rev limit is active.



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