



## FAST® XR-i Ignition Points Conversion Ignition System

Thank you for choosing FAST® products; we are proud to be your manufacturer of choice. Please read this instruction sheet carefully before beginning installation, and also take a moment to review the included limited warranty information. Contact us toll free at 1.877.334.8355 or at [www.fuelairspark.com](http://www.fuelairspark.com) under Tech Help with any questions.

### Overview

The XR-i electronic ignition module is designed to replace conventional breaker points on small block Chevrolet and Ford V8 engines with single point distributors. The XR-i requires ballast resistance to limit coil current.

The XR-i ignition uses a Hall Effect Sensor to detect the lobes of the distributor points cam. Dwell is controlled by the battery voltage and engine RPM to provide maximum ignition energy and minimum component heating. The mechanical and vacuum advance mechanisms work the same as with the original breaker points.

### Ignition Inspection

The XR-i ignition requires an OE specification distributor cap and rotor to avoid clearance problems and arcing. You should replace the rotor and cap when installing the new ignition system. For best results, you should also replace the spark plugs, plug wires, and ignition coil. Carefully inspect wiring to the coil and replace any worn or frayed sections. For maximum performance, use FAST® coils and FireWire™ spark plug wires.

**CAUTION:** *Disconnect the vehicle's battery ground cable before continuing installation.*

*Study the ballast resistance sections carefully. Most installation problems result from improper ballast resistance.*

### Ballast Resistance

1. All vehicles with OE breaker points ignition are factory equipped with ballast resistance. This can be external resistance in the form of a ceramic ballast resistor or a resistance wire between the ignition key and COIL+ terminal. Most Chevrolet vehicles have a resistance wire. Ballast resistance can also be in the form of internal resistance within the coil. Coils with internal resistance will measure 3 to 4 ohms from COIL- to COIL+ terminals.
2. If you are changing coils and your vehicle has a ceramic ballast resistor or resistance wire, do not use any additional ballast resistor that may be provided with the coil.
3. If your OE coil had internal resistance and you are changing to a new coil with lower resistance (such as an aftermarket performance coil), you must add a 1.2 to 1.9 ohm ballast resistor. If a resistor is not supplied with the new coil, use a Chrysler style two terminal ballast resistor such as Echlin ICR23 or Wells CR107. Connect the ballast resistor between the COIL+ terminal and ignition switch.

### Quick Test for Ballast Resistance

*You can determine if your vehicle has external ballast resistance with this simple test. Disconnect any wires going to COIL-. Reconnect battery. Turn the ignition key on but do not start the engine. Use a voltmeter as shown in Fig. 2 and read voltage between COIL+ terminal and ground. It should be about 12 volts. Then momentarily jumper the COIL- terminal to ground. If voltage at COIL+ terminal drops below 8 volts, there is ballast resistance between the ignition key and COIL+ terminal. To determine if your coil has internal ballast resistance, use an ohm meter as shown in Fig. 1. Coils with internal resistance will read 3 to 4 ohms from COIL- to COIL+ terminals.*

## GM 8 Cylinder Distributor

1. Refer to Fig. 3. Use the supplied hardware. Check the orientation of the adapter bracket, it will only fit one way.
2. Apply thermal grease to the bottom side of the XR-i module. Install the 6-32 hardware by hand to secure the module to the adapter plate. The module will be positioned to adjust the air gap later.
3. Apply thermal grease to the bottom of the adapter plate. Install the module and adapter plate in the location that the breaker points were removed from. Firmly tighten the 8-32 supplied hardware to secure the adapter plate to the distributor.
4. Route the wires as shown in Fig. 4. Be sure that the wires do not interfere with the vacuum advance mechanism.
5. Install the supplied grommet over the wire harness and insert into the cable exit of the distributor. A lubricant such as WD40® is helpful in installing the grommet. Install the cable clamp as shown in Fig. 4 using the supplied 8-32 screw.
6. Loosen the 6-32 hardware to allow the XR-i module to slide on the adapter plate. Push the module as close to the points cam as possible without touching the points cam lobe. Tighten the hardware to secure the module in place.

## Ford 8 Cylinder Distributor

*Remove distributor from vehicle. Ford distributors require removal of original points plate assembly. Refer to Fig. 5 to perform the following steps:*

1. Remove the e-clip holding the vacuum linkage arm to the points plate with a small screwdriver.
2. Remove the 2 screws and the vacuum mechanism from the distributor body and set aside.
3. Carefully remove the 2 screws holding the points plate assembly to the inside of the distributor. Use WD40® or similar solvent to lubricate these screws to avoid damage to threads in the distributor body.
4. Remove the points plate assembly from the distributor. This assembly should be saved since replacements are not available.

*Refer to Fig. 6 to perform the following steps for installation of adapter plates and the XR-i ignition:*

1. Press the nylon center ring into the bottom plate and ensure it is fully seated.
2. Test fit the top adapter plate on the center ring. If it does not rotate smoothly, polish the inner diameter of the top adapter plate with fine emery cloth until it rotates smoothly.
3. Press the four supplied nylon slides into the top plate from the bottom side.
4. Assemble the adapter plates and the center ring. Align the two small cut outs in the top plate with the mounting holes in the bottom plate. If they do not align, flip the bottom plate over.
5. Place the adapter plate assembly into the distributor and align the holes in the bottom plate with the holes in the distributor body.
6. Place the larger ring terminal of the jumper wire on one of the supplied 8-32 screws with the flat side of the ring terminal facing away from the head of the screw.
7. Secure the adapter plate assembly to distributor with the 8-32 screws, plastic washers, and aluminum spacers as shown. It is recommended to apply a thread lock compound such as Loctite™ to the screw before installing them in the distributor.
8. Route the XR-i wire harness through the hole in the distributor as shown.
9. Install the supplied grommet over the wire harness and insert into the cable exit of the distributor. A lubricant such as WD40® is helpful in installing the grommet.
10. Apply thermal grease to the bottom side of the XR-i module. Install the 6-32 hardware but do not tighten. The jumper wire must be installed on the XR-i mounting ear with the metal pad. The flat side of the ring terminal should contact the XR-i mounting ear.

11. Push the module as close to the points cam as possible without touching the points cam lobe. Tighten the hardware to secure the module in place.

### **Completing the Installation**

1. Refer to Fig. 7. Connect the black/yellow wire of the module to the Coil- terminal of the coil with one of the ring terminals, and connect the other ring terminal to the black/red wire of the module and connect this to the COIL + terminal of the COIL.
2. Double check all connections. Reconnect the battery if you have not already done so. Momentarily crank engine and visually check for clearance around all parts.
3. Start your engine and set ignition timing according to manufacturer's specifications. Note: Dwell meter readings are meaningless with electronic ignitions and should be ignored.

### **Troubleshooting**

#### ***Tach Inoperative***

1. Most tachs are connected to the COIL- terminal. If the tach is inoperative, trace out the wire. Refer to the vehicle service manual for further information.
2. If the tach is erratic or reads high, you can put a resistor in the tach wire to reduce the signal level. Start with a 10K ohm 1/2 watt. You can go as low as 1K ohm 1/2 watt. You can buy the resistors from electronics suppliers. Solder into tach wire and wrap with electrical tape for protection. If the resistor fix does not help, you may require a tach adapter.

#### ***Engine Will Not Start***

1. Pull the high voltage coil wire out of the distributor and connect it to a test spark plug or place the wire 3/8" away from ground. Crank the engine. If sparks fire, the problem is in the secondary system. Possible causes: rotor left out, rotor, cap, or spark plug wires defective, or timing is off (distributor was moved, or plug wire firing order was changed).
2. If there are no sparks, connect a test light between COIL- (negative) terminal and ground. Crank the engine. If the light flashes on and off, the module is okay, but the coil may have failed. Try another coil.
3. If the light does not flash, repeat test in step 2 with a known good coil. Try disconnecting any wires to COIL- other than the black/ yellow wire from the FAST® module. The only extra wire normally connected to COIL- is the tach wire. If the light still does not flash, the module may have failed.
4. Fuel injected vehicles only. The fuel injection system typically requires a trigger signal from the COIL- terminal. Refer to vehicle service manual for details.

#### ***Check Electrical Connections***

1. Check ground connection. Verify continuity from the tin plated tab of the module to chassis ground. If there is no continuity, remove 6-32 screw and lockwasher, clean with isopropyl alcohol, and reinstall.
2. Check voltage at COIL+ (positive) terminal while cranking engine. Reading should be at least 9 volts. If less than 9 volts, check battery and starter system. If the reading is close to zero, check wiring back to ignition switch and battery. Some applications use a starter bypass to bypass the ballast resistor while cranking. This wire comes from the starter solenoid, relay, or ignition switch. Check wiring diagram.

#### ***Rough or Intermittent Operation***

1. Check for disconnected or cracked vacuum hoses, stuck PCV valve, or clogged fuel filter. These problems may cause symptoms similar to ignition trouble.
2. Check electrical connections and optical trigger as explained in the above sections. Check for loose or corroded connections and broken wires. Try a different ground connection point on the engine block or chassis. Check distributor for loose or misaligned parts in optical trigger assembly or advance mechanism.
3. Replace spark plugs. Check for proper heat range and gap size. Replace rotor, cap, spark plug wires, and coil.

### Rev Limit Setting

The rev limit of the XR-i ignition is intended to be used as a safety feature to prevent engine damage in over-revving situations such as missed shifts. The potentiometer rotates 270 degrees with full counter clockwise position representing 4000 RPM and full clockwise representing 8000 RPM. Refer to Fig. 8 for a detailed view of the rev limit adjuster. The rev limit in Fig. 8 is set to 6000 RPM.

### Installation Wiring Diagrams

Fig. 1 Coil Resistance Test

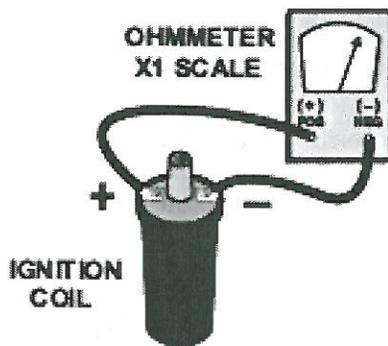


Fig. 2 External Ballast Resistance Test

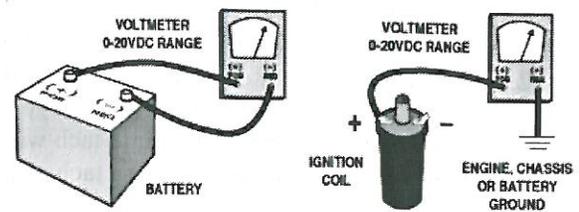


Fig. 3 GM Installation

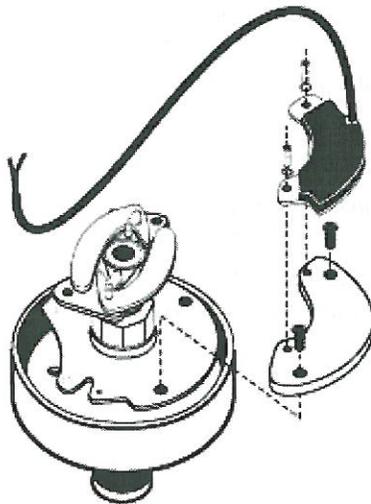
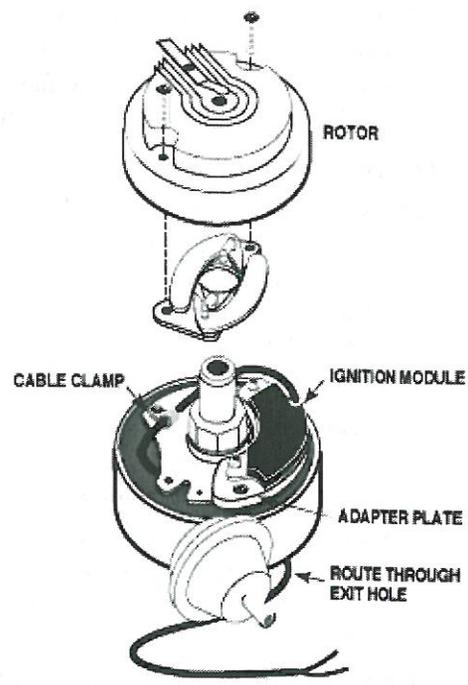
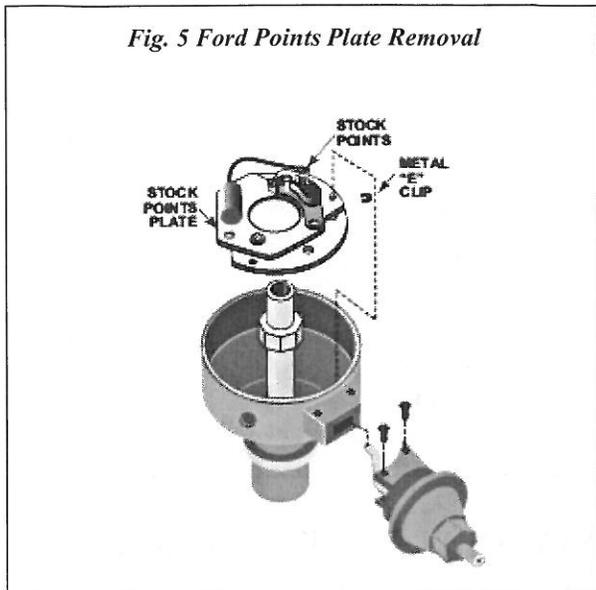


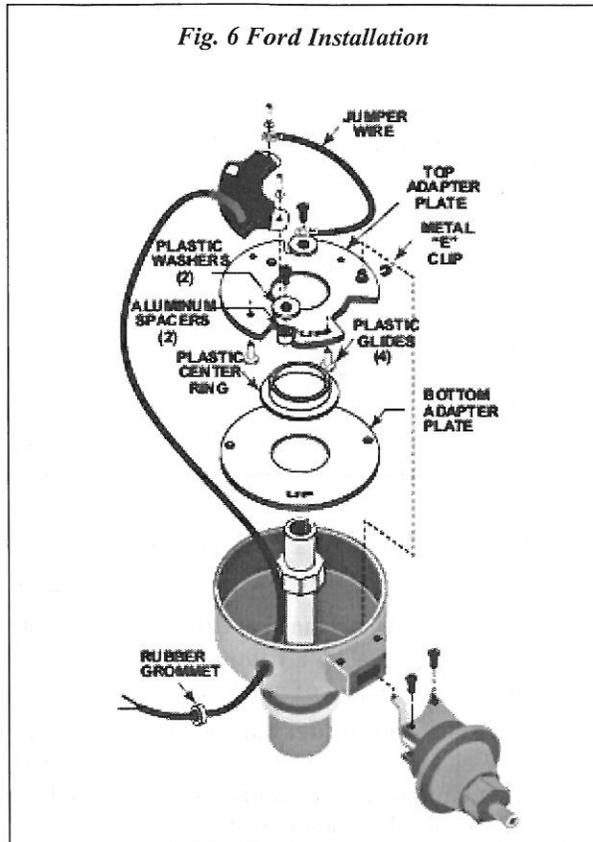
Fig. 4 Chevy Wire Routing



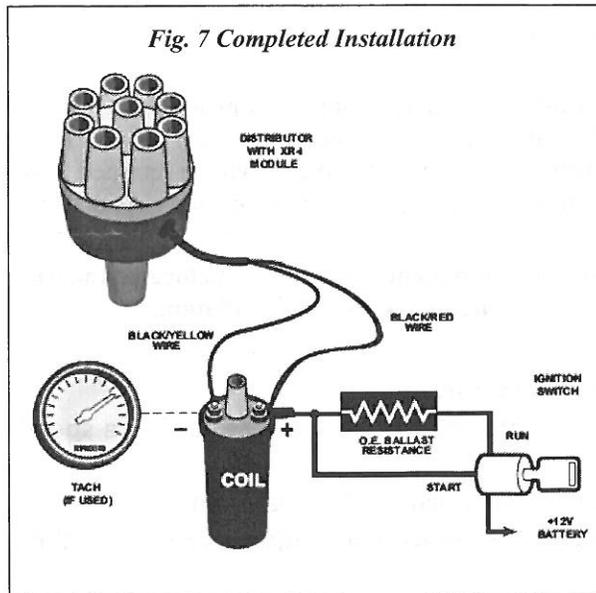
*Fig. 5 Ford Points Plate Removal*



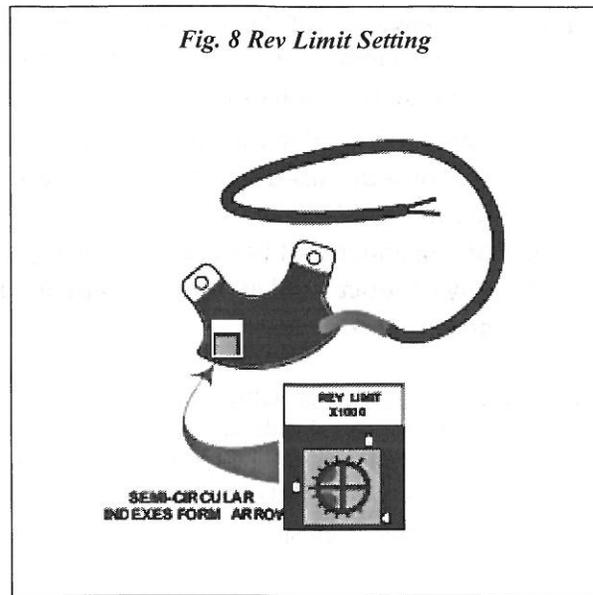
*Fig. 6 Ford Installation*



*Fig. 7 Completed Installation*



*Fig. 8 Rev Limit Setting*



### Social Media

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## FAST® LIMITED LIFETIME WARRANTY AND LIMITED WARRANTY

FAST® warrants that its EZ-EFI™ products are free from defects in material and workmanship for the lifetime of the product. This **Limited Lifetime Warranty** shall cover **only** the original purchaser. All other FAST® products are covered by a **Limited Warranty** which covers defects in material and workmanship for a period of **one year** from the date of purchase.

**FAST's obligation under this warranty is limited to the repair or replacement of its product.** To make a warranty claim, the part must be returned directly to FAST® at the address listed below with a valid Return Merchant Authorization Number (RMA), freight prepaid. Items covered under warranty will be returned to you freight collect. To obtain an RMA, call 877-334-8355 to report the issue you are experiencing. At that time, FAST® will attempt to trouble shoot your issue.

**It is the responsibility of the installer to ensure that all of the components are correct before installation. We assume no liability for any errors made in tolerances, component selection or installation.**

**There is absolutely no warranty on the following:**

- A. Any parts used in racing applications or subject to excessive wear;**
- B. Any product used in marine applications, unless that product is listed by FAST® as a specific marine product;**
- C. Any product that has been physically altered improperly installed or maintained;**
- D. Any product used in improper applications, abused, or not used in conjunction with the proper parts.**

There are no implied warranties of merchantability or fitness for a particular purpose. There are no warranties which extend beyond the description of the face hereof. FAST® will not be responsible for incidental and consequential damages, property damage or personal injury damages. Where required by law, implied warranties or merchantability and fitness are limited to terms outline above.

This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.

### CALIFORNIA PROPOSITION 65 WARNING

This product may contain one or more substances or chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.