



# HYFIRE® IA SERIES OF ELECTRONIC IGNITION CONTROLS

HYFIRE® IA IGNITION SYSTEM PART NO. 29026A

## INSTALLATION INSTRUCTIONS

**NOTICE: THIS PRODUCT IS LEGAL TO SELL, DISTRIBUTE OR INSTALL ON VEHICLES IN CALIFORNIA. EXECUTIVE ORDER D-70-25.**

**NOTE: The HYFIRE® IA Ignition System is not compatible with positive ground applications and will not work properly with odd-fire or semi-even fire V6 applications. The HYFIRE® IA Ignition System is not for marine use.**

### LIST OF PARTS:

- |  |                              |
|--|------------------------------|
| 1 HYFIRE® IA Electronic Ignition Control - Part No. 29026A | 2 Spade Terminals            |
| 1 Ignition Control Harness - Part No. 29348                | 8 Ring Terminals, 1/4"       |
| 1 (Pair) Ring Terminal Connectors - Part No. 450:          | 1 Ring Terminal, 3/8"        |
| 2 Ring Terminal Connectors Bodies                          | 5 Spade Receptacle Terminals |
| 2 Ring Terminal Connectors Caps                            | 4 Mounting Brackets          |
| 2 10-32 Brass Nuts   | 4 #10 Sheet Metal Screws     |
| 2 Washers  | 4 10-32 Screws               |
| 1 Bypass Connector   | 4 #10 Lock Washers           |
| 4 Cable Ties   |                              |

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## GENERAL INFORMATION

The HYFIRE<sup>®</sup> IA Ignition System is not for marine use. Use Marine HYFIRE<sup>®</sup> IV Ignition System Part No. 697M for marine applications.

### Ignition Ballast Resistor / Loom Resistance Wire:

The HYFIRE<sup>®</sup> IA Ignition System's performance is not affected by the presence of the factory ignition resistors or ignition ballast resistors in the wire from the ignition switch.

### Standard Ignition Bypass (Bypass Connector):

The Bypass Connector (supplied) fits into the Ignition Control Harness to convert back to standard ignition. If you use the Bypass Connector, use ignition ballast resistors designed for the particular distributor and coil in the wire from the ignition switch (see diagrams for more information on ignition ballast resistors). **Racing Applications: It is not necessary to install ignition ballast resistors as specified by the instructions for the particular distributor and coil. However, do not use the Bypass Connector until the ignition ballast resistors designed for the particular distributor and coil are installed in the wire from the ignition switch.**

### Ignition Coils:

The HYFIRE<sup>®</sup> IA Ignition System is designed to work with most original equipment ignition coils. For optimum performance use the Mallory PROMASTER<sup>®</sup> Coil Part No. 29440 (up to 6,000 RPM) or Part No. 29625 (up to 8,100 RPM). **DO NOT use Accel<sup>®</sup> Super Coil Part No. 140001, Mallory Ignition Coil Part Nos. 29216 or 29217, Mallory VOLTMASER<sup>®</sup> Mark II Coil Part Nos. 29675, 29150 or 29180, Mallory PROMASTER<sup>®</sup> Coil Part No. 28720 or any other similar high inductance ignition coil with the HYFIRE<sup>®</sup> IA Electronic Ignition Control.**

### Spark Plug Wires:

**YOU MUST USE suppression type (carbon core; spiral core; suppression core) spark plug wire.** We recommend spiral core ignition wire, such as Mallory PRO SIDEWINDER<sup>®</sup> Ignition Wire. Suppression type spark plug wires prevent false triggering and the possibility of premature ignition or accessory failures.

**DO NOT USE solid core (copper core; stainless steel core) spark plug wire with any electronic ignition system or accessory.** Solid core spark plug wire causes radio frequency interference (ignition noise; static). Radio frequency interference causes false triggering (pre-ignition; spark-scatter) and premature ignition or accessory failures. Prevent false triggering and the possibility of premature ignition or accessory failures, use suppression type spark plug wire (carbon core; spiral core; suppression core). We recommend spiral core ignition wire, such as Mallory PRO SIDEWINDER<sup>®</sup> Ignition Wire.

### Spark Plug Gaps:

For street applications, use your engine manufacturer's specifications. For racing applications, start with your engine manufacturer's specifications, then experiment with and closely monitor various gaps to achieve maximum performance.

### Electric Welding:

Unplug the Ignition Control Harness from the HYFIRE<sup>®</sup> IA Ignition Module and unplug any distributor harnesses (if possible) before any welding is done on the vehicle.

### External RPM Limiters:

• Mallory Proportional RPM Limiter Part Nos. 641-4, 641-6, 641-8, 642, 643 and 644 cannot handle the increased load generated by the HYFIRE<sup>®</sup> IA Ignition System. DO NOT use these RPM limiters with the HYFIRE<sup>®</sup> IA Ignition System.

- Mallory PRO TACH<sup>®</sup> Tachometer Part Nos. 657, 662 and 681 proportional controller that limit RPM will work with the HYFIRE<sup>®</sup> IA Ignition System. However, the RPM limiter should not be used as an engine speed governor. The RPM limiter is designed for momentary use to prevent overrev due to driveline failure or missed shift. Repeatedly or continuously holding the engine "against the RPM limiter" will damage the RPM limiter.
- Avoid using the Mallory HYFIRE<sup>®</sup> IV RPM Limiting Adapter Part No. 619L or similar RPM limiters **unless** the HYFIRE<sup>®</sup> IA Ignition System will be triggered by one of the Mallory Electronic Ignition Distributors.

### Mallory PRO TACH<sup>®</sup> I, IV and VI:

The tachometer shift light and RPM limiter will work with the HYFIRE<sup>®</sup> IA Ignition System. However, the RPM limiter should not be used as an engine speed governor. The RPM limiter is designed for momentary use to prevent overrev due to driveline failure or missed shift. Repeatedly or continuously holding the engine "against the RPM limiter" will damage the RPM limiter.

## MOUNTING PROCEDURE

### Step 1

Disconnect the battery (-) cable to cut power to the system.

### Step 2

Select a convenient location to mount the HYFIRE<sup>®</sup> IA Electronic Ignition Control. Keep the unit away from hot engine components or extreme heat such as the exhaust system and manifolds. Keep the unit away from moving devices, such as fans, belts and linkages. The location must be dry. Moisture will damage components inside the unit.

### Step 3

Choose one mounting method listed below for mounting the HYFIRE<sup>®</sup> IA Electronic Ignition Control. Follow steps outlined in the corresponding sections (3a, 3b or 3c).

- a) Mounting to a flat surface without mounting brackets. (This method takes up less mounting space than other methods.)
- b) Mounting to a flat surface with shock mounts. (See page 5 - Optional Ignition Accessories.)
- c) Mounting to a flat or uneven surface using brackets.

### 3a. Mounting to a flat surface without mounting brackets

- Center-punch the mounting pattern on the mounting surface using the mounting template to mark locations for drilling mounting holes. Drill mounting holes using a 7/32" drill bit.
- Hold the HYFIRE<sup>®</sup> IA Electronic Ignition Control in position over the mounting holes.
- From the backside of the mounting surface, insert the 10-32 screws with lock washers through the mounting holes and into the tapped holes in the bottom plate of HYFIRE<sup>®</sup> IA Electronic Ignition Control. Tighten each screw until snug.

### 3b. Mounting to a flat surface with shock mounts (supplied separately).

#### Mallory Shock Mount Kit Part No. 29069

The Mallory Shock Mounts absorb vibration found in oval track, offroad and drag racing that normally could adversely affect the reliability of the HYFIRE<sup>®</sup> IA Electronic Ignition Control. 4 per set.

- Center-punch the mounting pattern on the mounting surface using the mounting template to mark locations for drilling mounting holes. Drill mounting holes using a 7/32" drill bit.

- Install the shock mounts into the bottom plate of the HYFIRE® IA Electronic Ignition Control. Hold the unit in position where it will be mounted.
- From the backside of the mounting surface, insert the 10-32 nuts with lock washers onto the shock mount studs. Tighten each nut until snug.

### 3c. Mounting to a flat or uneven surface with mounting brackets

Refer to Figure 1 while doing the following steps.

- Position one hole of each mounting bracket over each tapped hole in the bottom plate of HYFIRE® IA Electronic Ignition Control. Insert 10-32 screws with lock washers through these holes and into the tapped hole in the bottom plate of the HYFIRE® IA Electronic Ignition Control. Tighten each screw until snug.
- Hold the HYFIRE® IA Electronic Ignition Control in position where it will be mounted. Bend the mounting brackets slightly to meet uneven surfaces. Center-punch the mounting pattern on the mounting surface to mark locations for drilling mounting holes. Drill mounting holes using a 9/64" drill bit.
- Insert the #10 sheet metal screws through the remaining holes in the mounting brackets and into the mounting holes in the mounting surface. Tighten each screw until snug.

## WIRING PROCEDURE

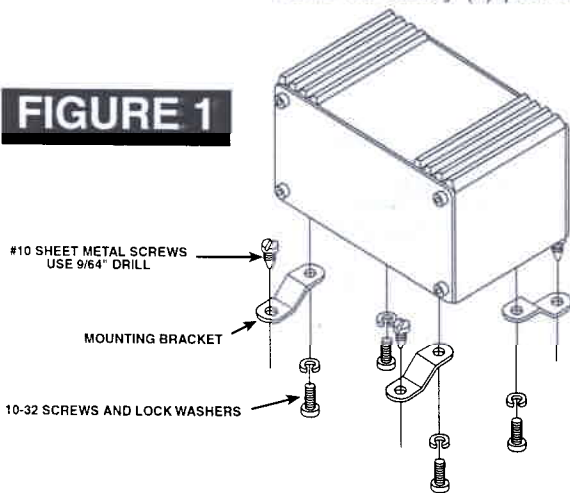
### Step 1

Ensure that your vehicle is equipped with a ground cable between the engine block and firewall (10 gauge or larger is required). Locate one LONG RED WIRE and one LONG BLACK WIRE at the end plate of the HYFIRE® IA Electronic Ignition Control.

Refer to Figure 2 while doing the following steps.

- Connect the LONG RED WIRE to the battery (+) post or battery (+)

**FIGURE 1**



terminal on the starter solenoid.

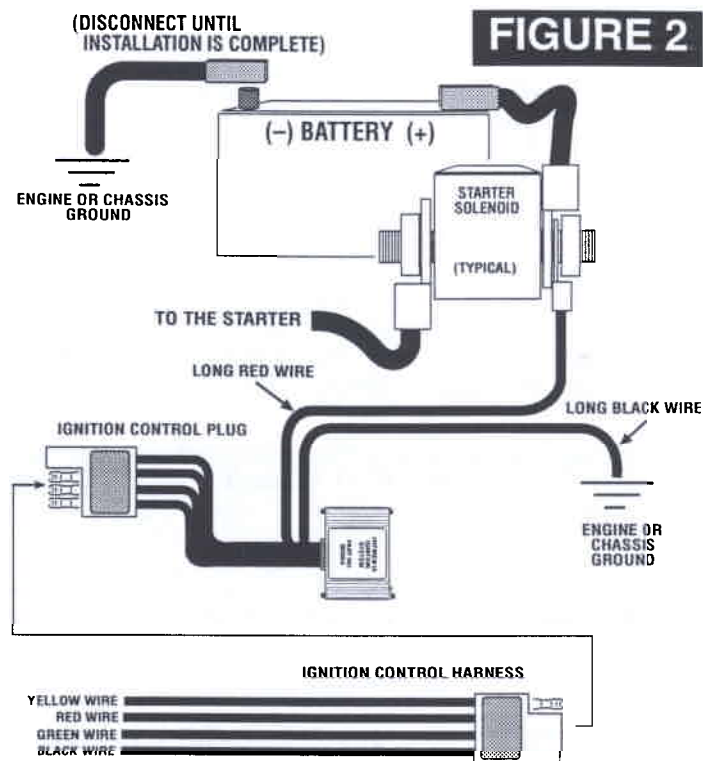
- Connect the LONG BLACK WIRE to engine or chassis ground.
- Connect the Ignition Control Harness to the Ignition Control Plug at the end plate of the HYFIRE® IA Electronic Ignition Control.

### Step 2

Refer to: Figure 3, page 4, for breaker point distributors; Figure 4, page 5, for Mallory UNILITE® Distributors, Magnetic Breakerless Distributors or Electronic Advance Distributors (three wire/red, brown, green)

### Connecting the Ignition Control Harness

- Route the Ignition Control Harness to the ignition coil so that its wires do not make contact with extreme heat, sharp objects or moving devices such as fans, belts and linkages.



- Disconnect ALL wires located on the ignition coil (+) terminal. These include the wires from the ignition switch/ignition ballast resistor, start/ignition bypass and any other wires normally connected to the ignition coil (+) terminal. Connect these wires to the RED WIRE. **NOTE: The RED WIRE must get voltage when the ignition switch is in the START and RUN positions. If you are using a Mallory Electronic Ignition, connect its BROWN WIRE to engine ground and add its RED WIRE to the Ignition Control Harness RED WIRE. Use Ring Terminal Connectors to join wires together. (See page 2 - Ignition Ballast Resistor / Loom Resistance Wire and Standard Ignition Bypass.)**
- Similarly, disconnect ALL wires located on the ignition coil (-) terminal. Connect these wires to the GREEN WIRE. If you are using a Mallory Electronic Ignition, add its GREEN WIRE to the Ignition Control Harness GREEN WIRE. Use Ring Terminal Connectors to join wires together.
- Connect the YELLOW WIRE to the ignition coil (+) terminal. DO NOT allow any wire except the YELLOW WIRE to make contact with the ignition coil (+) terminal.
- Connect the BLACK WIRE to the ignition coil (-) terminal.

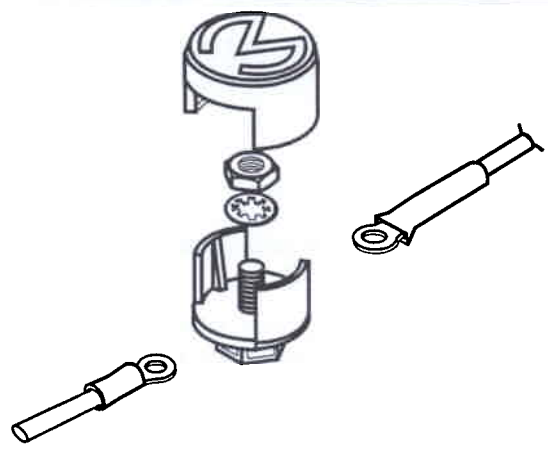
### Tachometer Operation:

If a tachometer is used, connect tachometer ignition sensing lead to the ignition coil (-) terminal.

**Ring Terminal Connectors:**

Furnished with the HYFIRE® IA Electronic Ignition Controls are two Ring Terminal Connectors for the convenience of getting a neat installation when the HYFIRE® IA Electronic Ignition Control is added to an existing ignition system. These Ring Terminal Connectors allow the existing ignition system wiring to remain in the area of the ignition coil.

- Move wires onto the stud that is inside the Ring Terminal Connector body.
- Secure these wires to the stud with the nut and washer.
- Install the Ring Terminal Connector cap.



**Step 3**

Secure all wires with cable ties to prevent contact with extreme heat, sharp objects or moving devices such as fans, belts and linkages.

**Step 4**

Recheck all wire and connections to ensure they are correct before applying power.

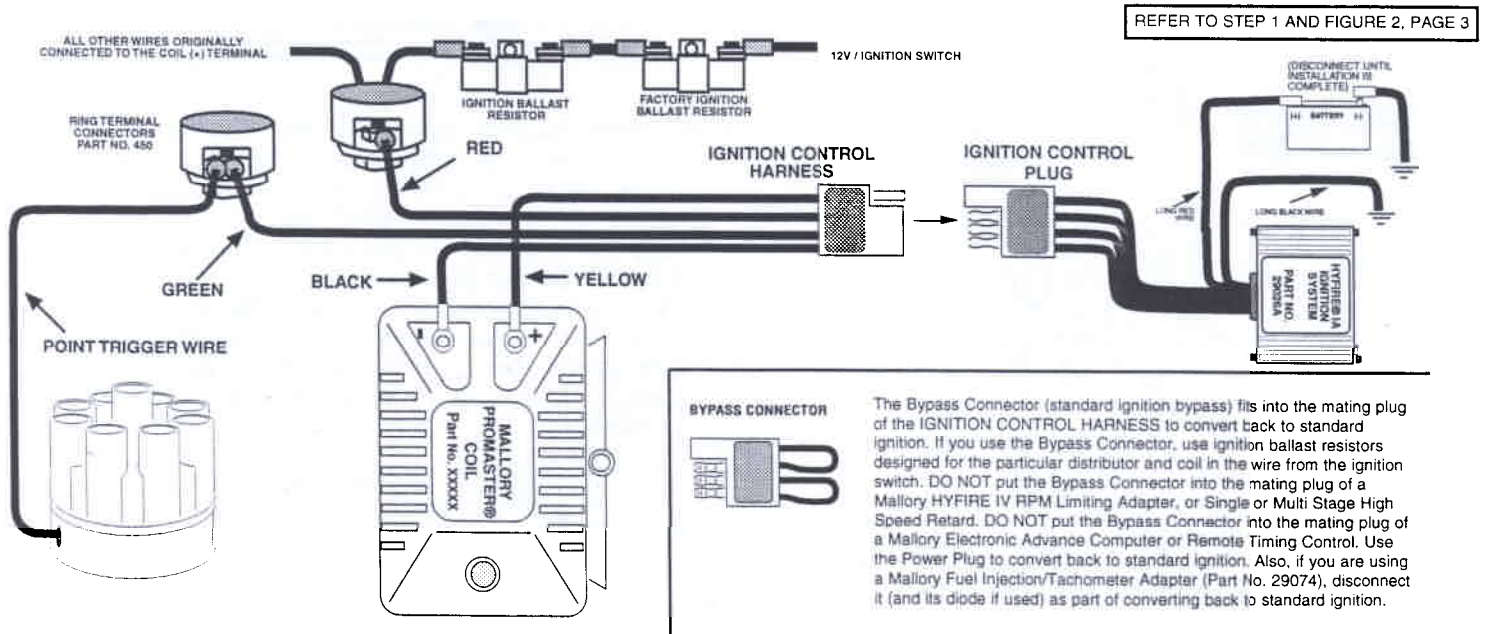
**Step 5**

Connect the battery (-) terminal cable. Start engine and check operation of the ignition system.

If the tachometer does not work after being connected to the ignition coil (-) terminal, connect the tachometer ignition sensing lead to the GREEN WIRE from the Ignition Control Harness. Install the Mallory Fuel Injection and Tachometer Adapter Part No. 29074 to supply the proper signal for the tachometer to operate.

**FIGURE 3**

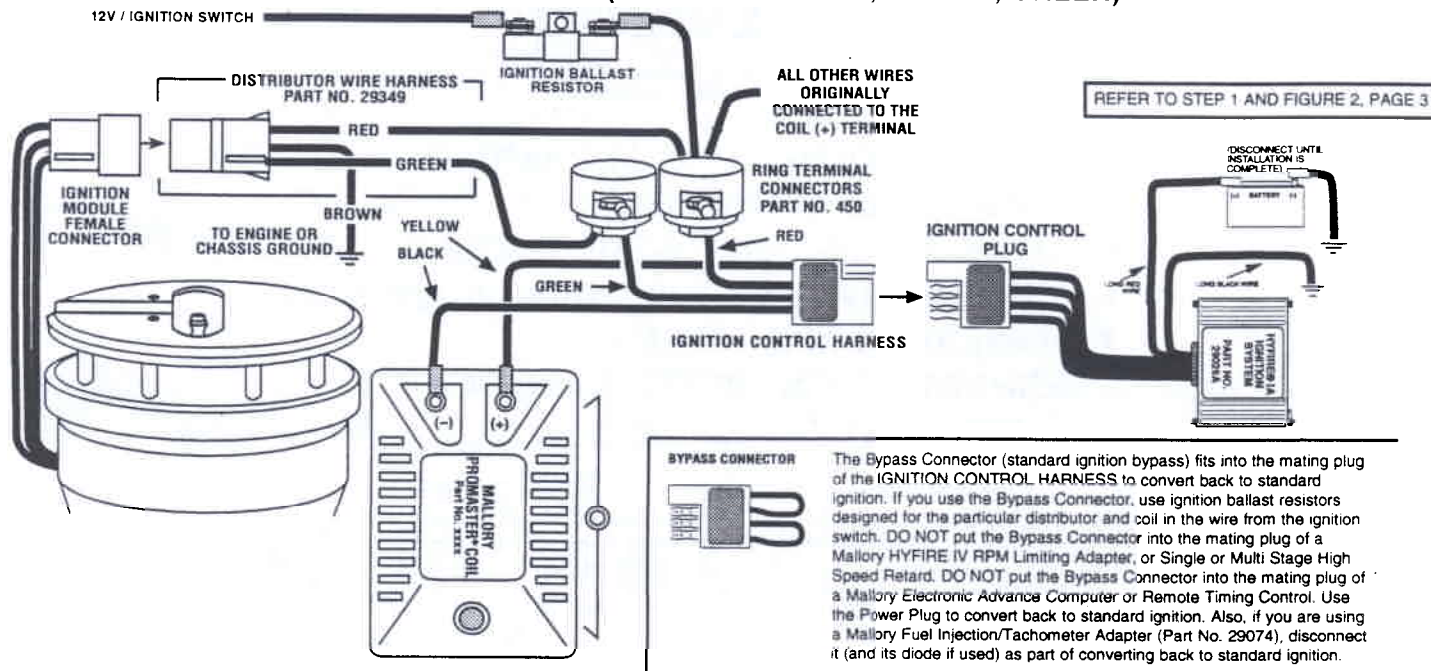
**SINGLE OR DUAL BREAKER POINT DISTRIBUTORS**



**FIGURE 4**

# MALLORY UNILITE® DISTRIBUTORS, MAGNETIC BREAKERLESS DISTRIBUTORS OR ELECTRONIC ADVANCE DISTRIBUTORS

(THREE WIRE: RED; BROWN; GREEN)



## OPTIONAL IGNITION ACCESSORIES

### Mallory HYFIRE® IV RPM Limiting Adapter Part No. 619L

The Mallory HYFIRE® IV RPM Limiting Adapter is an external engine safety control that protects your valuable engine from over-revving. This RPM Limiter is designed with matching mating plugs so it can be added between the HYFIRE® IA Electronic Ignition Control and the Ignition Control Harness. The RPM limiter is programmable from 3,000 - 10,000 RPM in increments of 200 RPM. The proportional controller limits RPM by power reduction, not sudden engine cutout, by removing selected ignition pulses. Settings include 4, 6 (even-fire) and 8 cylinders. A jack is provided to plug in the external Mallory HYFIRE® IV Staging Control Part No. 639-4 to control RPM speeds on the starting line or during pit stops.

**NOTE: The Mallory HYFIRE® IV RPM Limiting Adapter will not work properly with odd-fire V6 applications or point trigger distributors. This RPM limiter is not recommended as an engine speed governor. Problems resulting from fuel build up in the exhaust system may adversely affect the application. Similarly, this RPM limiter is not recommended for applications equipped with a catalytic converter. Also, this accessory is not for marine use.**

### Mallory HYFIRE® IV Staging Control Part No. 639-4

The Mallory HYFIRE® IV Staging Control is the low (second) RPM limit setting to control RPM speeds on the starting line while waiting for the green light or during pit stops. This RPM limiter is designed to be added to the Mallory HYFIRE® IV RPM Limiting Adapter Part No. 619L. This RPM limiter is programmable from 2,000 - 9,000 RPM in increments of 200 RPM.

### Mallory Single Stage High Speed Retard Part No. 618-1

The Mallory Single Stage High Speed Retard is a finger tip adjustable ignition timing retard control. The finger tip adjustment knob provides the full adjustment range of 0°-15°. This retard is designed with matching mating plugs so it can be added between the HYFIRE® IA Electronic Ignition Control and the Ignition Control Harness.

**NOTE: The Mallory Single Stage High Speed Retard will not work properly with odd-fire V6 applications or point trigger distributors. This accessory is not for marine use.**

### Mallory Multi Stage High Speed Retard Part No. 618-3

The Mallory Multi Stage High Speed Retard is a finger tip adjustable three stage timing retard control. The adjustment range for the first and second stage is 0°-15° while the third stage is 0°-20°. Each succeeding stage overrides the previous stage. This means the racer can take out, or put back in, some ignition timing on a succeeding stage. This retard is designed with matching mating plugs so it can be added between the HYFIRE® IA Electronic Ignition Control and the Ignition Control Harness.

**NOTE: The Mallory Multi Stage High Speed Retard will not work properly with odd-fire V6 applications or point trigger distributors. This accessory is not for marine use.**

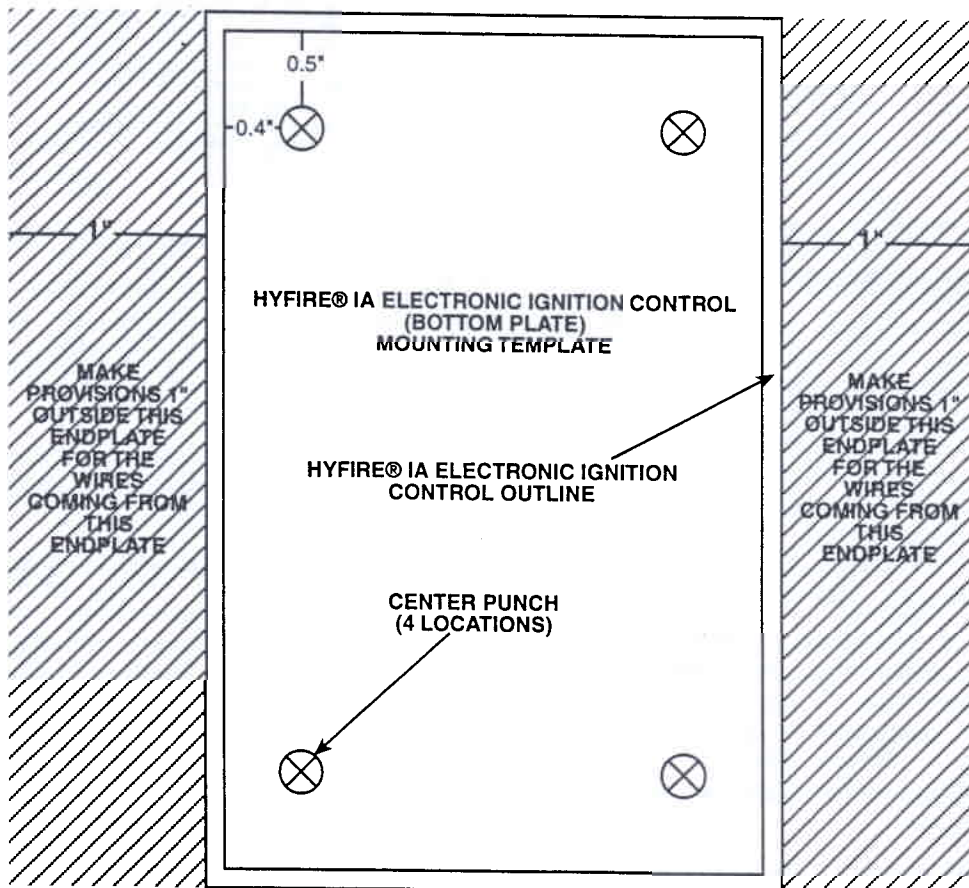
### Mallory RPM Activated Switch Part No. 627A

The Mallory RPM Activated Switch is programmable from 3,000 - 10,800 RPM in increments of 100 RPM. This has integral 5 amp relay contacts to operate 12-volt or ground circuits with connections for normally open and normally closed operation. The RPM Activated Switch is for any 8, 6 or 4 cylinder applications.

## OTHER QUALITY PRODUCTS FROM



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