SUMMIT RACING STREET & STRIP DIGITAL CD IGNITION
Part No. SUM-850602 without Rev Limter

PARTS INCLUDED:
1 Summit Street & Strip Ignition
4 #10 Sheet Metal Screws
2 Wire Ties
2 Ring Terminals, Insulated
1 1 amp/100 volt Diode
2 1/4" Tab Terminals
5 1/4" Male Disconnects
5 1/4" Female Disconnects
1 Rubber Grommet
2 Cable Clamps
1 Magnetic Pickup Extension
1 Red Jumper Harness
1 White Jumper Harness
1 1.5 ft. Ground Wire
1 HEI Pickup Harness
1 Rubber Grommet
2 Cable Clamps
1 Magnetic Pickup Extension
1 Red Jumper Harness
1 White Jumper Harness
1 1.5 ft. Ground Wire
1 HEI Pickup Harness

GENERAL INFORMATION

Battery
The Summit Racing Street & Strip Ignition 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.

Coils
For optimum performance with your Summit Racing Street & Strip Ignition, we recommend Summit brand or any aftermarket CD coil to be used.

Tachometers
The yellow wire on the Summit Racing Street & Strip Ignition provides a trigger signal for tachometers, shift lights, or other add-on RPM activated devices. This wire produces a 12 volt square wave signal with a 20% duty cycle.

Some vehicles with factory tachometers may require a tach adapter to work with the Summit Racing Street & Strip Ignition. 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 page 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.

Foreign Vehicles
Because of modern fuel injection systems, some foreign vehicles may require a tachometer/fuel injection adapter to work with the Summit Racing Street & Strip Ignition.

NOTE: Do not install the Summit Racing Street & Strip Ignition Control in any vehicle that is originally equipped with a CD ignition control.

Wires
High quality, spiral wound wire and proper routing are essential to the operation of the Summit Racing Street & Strip Ignition. 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 the Summit Racing Street & Strip Ignition.

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.
**WIRING**

**Wire Length**
All of the wires of the Summit Racing Street & Strip Ignition 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.

**Grounds**
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 inline with the coil wiring, it is not necessary to bypass it. This is because the Summit Racing Street & Strip Ignition receives its main power directly from the battery.

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**Sealing**
Do not attempt to seal the Summit Racing Street & Strip Ignition. All of the circuits of a Summit Racing Street & Strip Ignition receive a conformal coating of sealant that protects the electronics from moisture. Sealing the Summit Racing Street & Strip 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 Summit Racing Street & Strip Ignition when welding on the vehicle, disconnect the positive (red) and negative (black) power cables of the Summit Racing Street & Strip Ignition.

**Distributor Cap and Rotor**
We recommend installing a new distributor cap and rotor when installing the Summit Racing Street & Strip Ignition. Be sure the cap is clean inside and out, especially the terminals and rotor tip.

**Diagnostic LED**
On the end panel of your Summit Racing Street & Strip Ignition there is a small hole. Behind this hole is a red LED indicator. This serves two purposes: when you first turn on the ignition switch, the LED will flash rapidly 3 times. This indicates that the ignition system has power, and that the microprocessor is running properly. In addition, the LED will flash when receiving a proper trigger signal from the vehicle. If, after a normal power-up, the LED doesn’t flash when cranking the engine, you should check your triggering circuit for problems. If the LED flashes when the engine is cranked, but there is still no spark, the problem lies somewhere else.

**Cylinder Selection**
Your Summit Racing Street & Strip 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 end plate with the LED hole. Once the end plate is removed, you’ll see the end of the circuit board. Look for the two-section switch. To select 4 cylinder mode, move the switch marked “1” to the “ON” position. To select 6 cylinder mode, move the switch marked “2” to the “ON” position. If both switches are “OFF”, or both are “ON”, the ignition will run in the 8 cylinder mode. See Figure 1.

**Mounting**
The Summit Racing Street & Strip Ignition can be mounted in any position. If you mount it in the engine compartment, keep it away from moving objects, excessive moisture and heat sources, and as far from the distributor as possible. 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.
WIRE FUNCTIONS

Power Leads
The two heavy gauge wires (14 gauge) in the black sleeving that deliver battery voltage to the ignition:

- **Heavy Red**: Connects directly to the battery positive (+) terminal or to a positive battery junction. It could also be connected to the positive side of the starter solenoid. NOTE: Never connect this wire to the alternator.

- **Heavy Black**: Connects to frame, chassis ground, or battery negative (−).

Trigger and Coil Leads
- **Small Red**: Connects to a switched 12 volt source, such as the ignition key.
- **Orange**: Connects to the positive (+) terminal of the coil. NOTE: This is the only wire that makes electrical contact with the coil positive (+) terminal.
- **Small Black**: Connects to the negative (−) terminal of the coil. NOTE: This is the only wire that makes electrical contact with the coil negative (−) terminal.
- **White**: Connects to points, electronic ignition amplifier output or to the green wire of a timing accessory. When this wire is used, the magnetic pickup connector is not used. Tape this wire when not used.
- **Violet/Green**: These wires are routed together in one harness to form the magnetic pickup connector. The connector plugs directly into a distributor 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 white wire is not used. Consult the chart that shows the polarity of other common magnetic pickups.
- **Yellow**: Connects to the tachometer trigger wire.

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.

WARNING: The Summit Racing Street & Strip Ignition 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.

PRESTART CHECKLIST
- The only wires connected to the coil terminals should be the orange connected to coil positive (+) and black connected to coil negative (−).
- The small red wire is connected to a switched 12 volts source, such as the ignition key.
- 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 is equipped with at least one 4 gauge or larger ground strap to the chassis.

TROUBLESHOOTING
This section offers several tests and checks you can perform to ensure proper installation and operation of the Summit Racing Street & Strip Ignition. If you experience a problem with your Summit Racing Street & Strip Ignition, first check for proper installation and poor connections. You can eliminate many problems by checking these items. If you have any questions concerning your Summit Racing Street & Strip Ignition, contact the Summit Racing Equipment Technical Department at 1-800-230-3030 EXT. 1000, Monday through Friday, 9:00 am to 9:00 pm Eastern time.

Tach/Fuel Adapters
If your tachometer does not operate correctly, you probably need a Summit tach adapter. Consult the Tachometer Compatibility List on page 4 for common tachometers and compatible tach adapters.

No-Run on Foreign Vehicles
Some foreign vehicles with fuel injection systems may require a tachometer/fuel injection adapter to run with the Summit Racing Street & Strip Ignition. Often, the same trigger source is used to operate an ignition, tachometer, and fuel injection. This results in a voltage signal that is too low to trigger the fuel injection. A tach/fuel injection adapter will usually solve this problem.

<table>
<thead>
<tr>
<th>COMMON COLORS FOR MAG PICKUP WIRES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distributor</strong></td>
</tr>
<tr>
<td>Summit Billet Competition distributor</td>
</tr>
<tr>
<td>Mallory Series Nos. 81 and 84</td>
</tr>
<tr>
<td>Mallory Harness P/N 29040</td>
</tr>
<tr>
<td>Mallory Crank Trigger</td>
</tr>
<tr>
<td>MSD</td>
</tr>
<tr>
<td>MSD Crank Trigger</td>
</tr>
<tr>
<td>Ford</td>
</tr>
<tr>
<td>ACC-46/48000 Series</td>
</tr>
<tr>
<td>Chrysler</td>
</tr>
<tr>
<td>51/61000 Series</td>
</tr>
</tbody>
</table>
**Ballast Resistor**
If you have a current trigger tach (originally connected to coil (+) positive) and use the white wire of the Summit Racing Street & Strip 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 Summit Racing Street & Strip Ignition 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 with the Summit Racing Street & Strip Ignition. By installing this diode inline of the wire that goes to the charging indicator, the voltage is blocked from entering the Summit Racing Street & Strip Ignition. 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 inline to the wire going to the #1 terminal.
GM: Install the diode inline to the wire going to the #4 terminal.

**GM 1973-83 with Delcotron Alternators**
GM Delcotron alternators use an internal voltage regulator. Install the diode inline on the smallest wire exiting the alternator (see Figure 5A). It is usually a brown wire and it is the “charge” light wire.

Most other applications: To eliminate run-on, place a resistor inline to the Summit Racing Street & Strip Ignition’s small red wire to keep voltage from leaking into the ignition. See Figure 5B.

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**TACHOMETER COMPATIBILITY LIST**

<table>
<thead>
<tr>
<th>Aftermarket Tachometer</th>
<th>White Wire Trigger</th>
<th>Magnetic Trigger Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autogage</td>
<td>SUM-850511</td>
<td>SUM-850512</td>
</tr>
<tr>
<td>Autometer</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Ford Motorsport</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Moroso</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Stewart</td>
<td>SUM-850511</td>
<td>SUM-850512</td>
</tr>
<tr>
<td>S.W. &amp; Bi Torx</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Sun</td>
<td>SUM-850511</td>
<td>SUM-850512</td>
</tr>
<tr>
<td>VDO</td>
<td>—</td>
<td>SUM-850512</td>
</tr>
<tr>
<td>AMC (Jeep)</td>
<td>SUM-850511</td>
<td>SUM-850512</td>
</tr>
<tr>
<td>Chrysler</td>
<td>SUM-850511</td>
<td>SUM-850512</td>
</tr>
<tr>
<td>Ford (Before 1976)</td>
<td>SUM-850511</td>
<td>SUM-850512</td>
</tr>
<tr>
<td>Ford (After 1976)</td>
<td>SUM-850511</td>
<td>SUM-850512</td>
</tr>
<tr>
<td>GM</td>
<td>Bypass inline filter</td>
<td>Bypass inline filter</td>
</tr>
<tr>
<td>Imports</td>
<td>SUM-850511</td>
<td>SUM-850512</td>
</tr>
</tbody>
</table>

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**FIGURE 3**
![Figure 3](image3.png)

**FIGURE 4**
![Figure 4](image4.png)

**FIGURE 5A**
![Figure 5A](image5a.png)

**FIGURE 5B**
![Figure 5B](image5b.png)
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 Summit Racing Street & Strip Ignition 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. 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 Summit Racing Street & Strip Ignition 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.

If everything checks positive, use the procedure explained at right to test the ignition for spark.

**CHECKING FOR SPARK**

*If triggering the ignition with the white 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 Summit Racing Street & Strip Ignition white 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 white 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 below.

*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 Summit Racing Street & Strip Ignition 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 Summit Racing Street & Strip Ignition 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 are 12 volts on the small red wire from the Summit Racing Street & Strip Ignition when the key is in the ON position. If 12 volts are not present, find another switched 12 volt source and repeat the test.
   D. If, after following the test procedures and inspecting all of the wiring, there is still no spark, the Summit Racing Street & Strip Ignition is in need of repair. See the Warranty and Service section for information.

*If you still have no spark, contact the Summit Racing Equipment Technical Department at 1-800-230-3030 ext. 1000 for further assistance.*

*The illustrations on the following pages show the best way to install the Summit Racing Street & Strip Ignition on various applications. If you have any problems or questions while installing this device on your vehicle, contact the Summit Racing Equipment Technical Department at 1-800-230-3030 ext. 1000, 8:00 AM to 9:00 PM Eastern time.*
Installing the Summit Racing Street & Strip Ignition with a Points/Amplifier Style Ignition

- Original coil wire from points or electronic ignition amplifier
- Magnetic pickup (not used)
- To tachometer

Original coil wire to 12 volts
- RED
- TO BATTERY NEG (-)
- BLACK (LARGER)
- TO BATTERY POS (+)
- RED (LARGER)

Original coil wire to 12 volts
- RED (SMALL 18 GA)
- TO BATTERY NEG (-)
- BLACK (LARGER)
- TO BATTERY POS (+)
- RED (LARGE 14 GA)

Installing the Summit Racing Street & Strip Ignition with a Magnetic Pickup Distributor or Crank Trigger

- Magnetic pickup distributor or crank trigger
- From mag pickup dist or crank trigger
- GREEN
- TO TACHOMETER
- ORANGE
- TO TACHOMETER
- BLACK (SMALLER)

FIGURE 8

FIGURE 9

Installing the Summit Racing Street & Strip Ignition with a Mallory UNILITE® or Magnetic Breakerless Distributor

- Not used
- GREEN
- WHITE

FIGURE 10

Installing the Summit Racing Street & Strip Ignition with a Mallory UNILITE® or Magnetic Breakerless Distributor

- Connect wires at these points
- RED
- GREEN
- WHITE

FIGURE 10
Installing the Summit Racing Street & Strip Ignition with a 2-Wire Magnetic Pickup
SUM-850050

FIGURE 11

Installing the Summit Racing Street & Strip Ignition 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 Summit Racing Equipment Technical Department for the required bolt-in diode to correct the problem.

FIGURE 13

FIGURE 14

Installing the Summit Racing Street & Strip Ignition with an HEI 4-Pin Module Removed (Magnetic Pickup Trigger)

FIGURE 15

Installing the Summit Racing Street & Strip Ignition with an HEI 4-Pin, 5-Pin or 7-Pin Module In Place (Amplifier Trigger)
Installing the Summit Racing Street & Strip Ignition with an External 4-Terminal Coil (Single Connector)

Installing the Summit Racing Street & Strip Ignition with a Ford Duraspark using the White Wire Trigger
Installing the Summit Racing Street & Strip Ignition with a Ford TFI (Without Harness)

FIGURE 18

Installing the Summit Racing Street & Strip Ignition with a Chrysler Electronic Ignition using a Magnetic Pickup Trigger

FIGURE 19
Installing the Summit Racing Street & Strip Ignition with a Late Model Dodge (with 2-Pin Connector)

FIGURE 20

Installing the Summit Racing Street & Strip Ignition with a Typical Import Application

FIGURE 21
FORD IGNITIONS
Wiring a Ford TFI with Harness
SUM-850518

FIGURE 22

FACTORY FORD HARNESS
(UNPLUGGED FROM COIL)

TO BATTERY HEAVY RED
TO BATTERY HEAVY BLACK

TACH OUTPUT MAGNETIC PICKUP
(NOT USED)

COIL
**SUMMIT RACING STREET & STRIP DIGITAL CD IGNITION CONTROL WARRANTY**

Summit Racing Equipment warrants this product for 1 year from date of purchase. If used for racing or competition, this warranty is limited to manufacturer defects only; wear and breakage are not covered under any circumstances.

If the product shows, in our opinion, evidence of being used or installed contrary to the instructions and/or subjected to improper handling, packaging, or shipping by the customer, it will not be covered by our limited warranty.

Summit Racing Equipment’s liability for losses or damages, arising out of any cause whatsoever, is limited to full refund of the purchase price or, at our option, repair or replacement of the product(s).

Summit Racing Equipment shall not be liable for any consequential or incidental damages. Some states do not allow exclusion or limitation of consequential or incidental damages, so the above limitation or exclusion may not apply to you.