



HYPERSPARK EFI IGNITION BOX 556-151

Qty.	Description
1	Ignition
1	Harness
4	Mounting Screws
4	Lock Washers

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 the HyperSpark EFI Ignition Box.

NOTE: The HyperSpark EFI Ignition Box cannot be used with distributorless ignition systems (DIS).

GENERAL INFORMATION:

BATTERY:

The HyperSpark EFI Ignition box 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. The Ignition will deliver full output with a supply of 9 - 18 volts and will operate with a supply voltage as low as 7 volts.

COILS:

The HyperSpark EFI Ignition can be used with most stock coils and aftermarket coils designed to replace the stock coils. If you have any questions concerning coils, contact Technical Support at 866-464-6553.

RECOMMENDED IGNITION COIL:

HyperSpark Ignition Coil – P/N 556-152

SPARK PLUGS & WIRES:

Spark plug wires are very important to the operation of your ignition system. A good quality, helically wound, suppression-type wire and proper routing are required to get the best performance from your ignition, such as the super conductor MSD spark plug wires.

NOTE: Solid Core spark plug wires cannot be used with the HyperSpark EFI Ignition.

Spark Plugs: Choosing the correct spark plug design and heat range is important when trying to get the best performance possible. It is recommended to follow the engine builder or manufacturer's specification for spark plugs. With that, you can then experiment with the plug gap to obtain the best performance. The gap of the plugs can be opened in 0.005" increments, then tested until the best performance is achieved.

MISCELLANEOUS INFORMATION:

Welding: If you are welding on your vehicle, to avoid the chance of damage, always disconnect both Heavy Power cables of the HyperSpark ignition box from the Battery. You should also disconnect the tach ground wire.

MOUNTING:

The HyperSpark EFI Ignition can be mounted in most positions, except directly upside down (if upside down, moisture or water cannot escape). It can be mounted in the engine compartment as long as it is away from direct engine heat sources. It is not recommended to mount the unit in an enclosed area, such as the glove box.

When you find a suitable location to mount the unit, make sure the 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 may be shortened as long as quality connectors are used or soldered in 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 can cause many frustrating problems.

When a wire is specified to go to ground, it should be connected to the battery negative terminal, engine block or chassis. There should always be a ground strap between the engine and the chassis. Always securely connect the ground wire to a clean, paint free metal surface.

WIRE FUNCTIONS:

POWER LEADS	These are the two heavy gauge wires (14 gauge) and are responsible for getting direct battery voltage to the Ignition.
HEAVY RED	This wire connects directly to the battery positive (+) terminal or to a positive battery junction or the positive side of the starter solenoid. Note: Never connect to the alternator.
HEAVY BLACK	This wire connects to a good ground, either at the battery negative (-) terminal or to the engine.
RED	Connects to a switched 12 volt source, such as the ignition key or switch.
ORANGE	Connects to the positive (+) terminal of the coil. This is the only wire that makes electrical contact with the coil positive terminal.
BROWN/ORANGE	Connects to the negative (-) terminal of the coil. This is the only wire that makes electrical contact with the coil negative terminal.
WHITE	This wire is used to connect to the points or electronic ignition amplifier output.

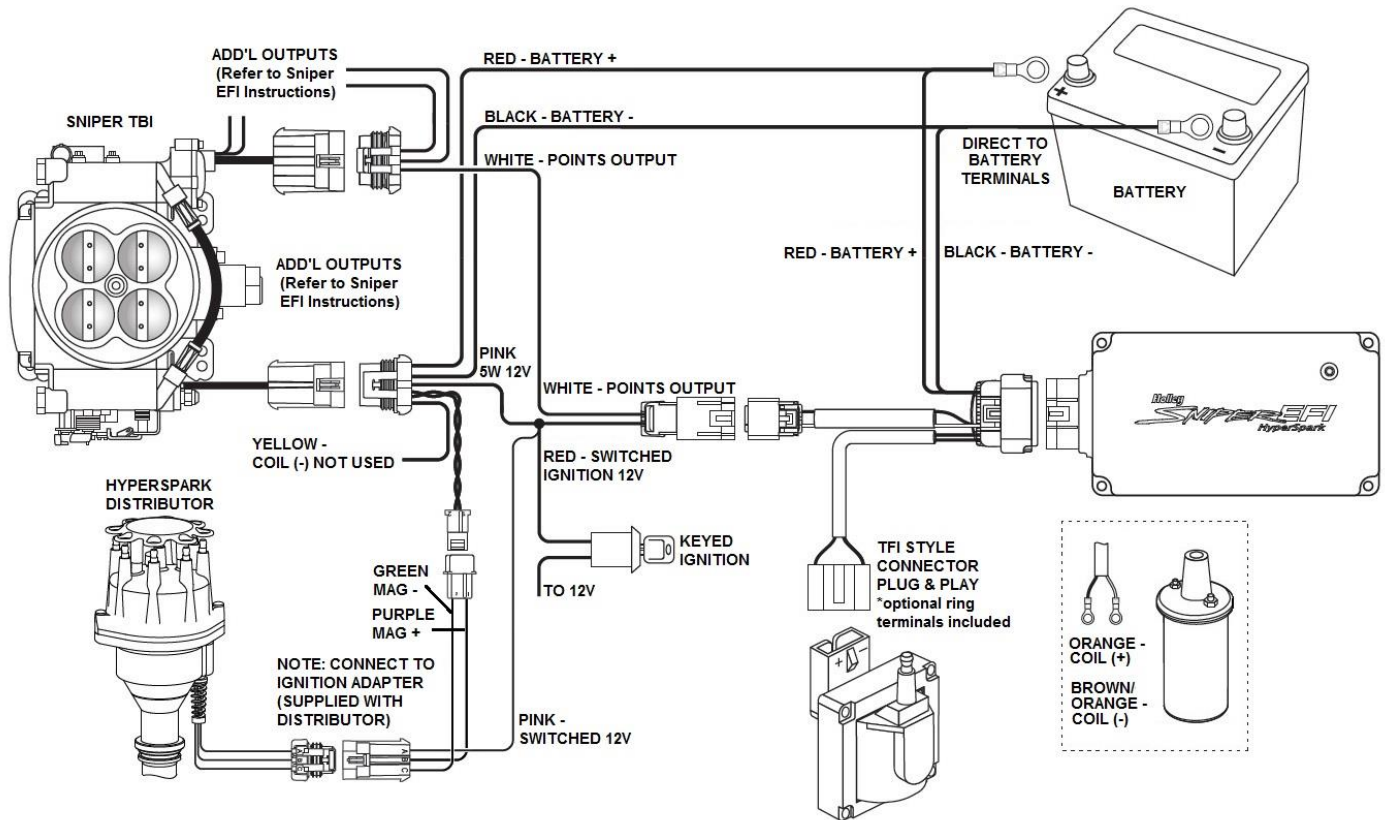
Ballast Resistor: If your vehicle has a ballast resistor in line with the coil wiring, it is recommended to bypass it.

ROUTING WIRES:

The spark plug wires should be routed away from direct heat sources, such as exhaust manifolds and headers and any sharp edges. The trigger wires should be routed separate 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 always be routed separately and should be twisted together to help reduce extraneous interference.

WARNING! The HyperSpark EFI Ignition is a capacitive discharge ignition. High voltage is at the coil primary terminals. Do not touch the coil or connect test equipment to the terminals.

HYPERSPARK WIRING DIAGRAM:



TROUBLESHOOTING:

Every HyperSpark EFI Ignition 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.

The Troubleshooting section has several checks and tests you can perform to ensure proper installation and operation of the HyperSpark EFI Ignition. If you have any questions, call our Technical Support Department at 866-464-6553.

LED:

The LED on the side of the HyperSpark EFI ignition monitors several operating conditions of the ignition. If the LED indicates that there is a problem with the ignition system, follow the steps through the Troubleshooting section. The LED will appear to be on steady at above idle speeds when everything is functioning properly.

- If there is an ignition problem (coil or converter shorted), the LED will be **SOLID RED**.
- If the engine is OFF (no RPM), the LED will be **SOLID ORANGE**.
- If the engine is ON (there is RPM), the LED will be **SOLID GREEN**.

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 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 the HyperSpark EFI ignition is a Capacitive Discharge ignition and it 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 falls below 10 volts during a race, the CDI output voltage will drop.
- Is the engine running lean? Inspect the spark plugs and complete fuel system.
- Inspect all wiring connections for corrosion or damage. Remember to always use proper connections followed by soldering and seal the connections completely.

If everything checks positive, use the following procedure to test the ignition for spark.

White Wire Trigger:

If you are using the White wire (points or electronic amplifier) of the MSD to trigger the ignition, follow these steps:

1. Make sure the ignition switch is in the OFF position.
2. Remove the coil wire from the distributor cap and position the terminal so it is approximately 1/2" from a good ground.
3. Disconnect the MSD White wire from the distributor points or the 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 the wire is pulled away from ground a spark should jump from the coil wire to ground. If spark is present, the ignition is working properly.

MSD offers Ignition Testers (PN 8998 or 89981). This tool allows you to check your complete ignition system while it is in the car as well as the operation of RPM limits, activated switches, and shift lights.

RECOMMENDED IGNITION COIL:

HyperSpark Ignition Coil – P/N 556-152

Technical Support: 1-866-464-6553

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