

Installation Guide

Ready to Run Distributor (4-Wire)



Overview

This RTR distributor is equipped with a digital inductive ignition control module that features a high-performance digital microprocessor -controlled circuitry with a 7.5 Amp rated dwell control circuit that produces a long duration spark for maximum burn efficiency. It delivers over 400 volts and 120 to 200 mJ of spark energy to the ignition coil, depending on which coil is used.

The single stage engine protection rev limiter is easy to use and set.

The tachometer lead produces a 25% duty cycle square wave signal that can be used with both multifunction tachometers as well as some of the most popular aftermarket EFI systems that require a 20-40% duty cycle square wave tachometer input signal.

The automatic timing start retard feature provides for easier and quicker hot restarts and lowers the load on the starter / electrical system on engines with high static compression ratios.

Included Parts

- (1) Billet Chevrolet V8 Distributor
- (1) Distributor Cap and Rotor
- (1) Distributor Cap Wire Retainer with screws
- (1) Mechanical Advance Curve Kit
- (1) Harness
- (1) Vacuum Advance lock out kit

WARNING

During installation, disconnect both battery cables.

When disconnecting the battery cables always remove the negative cable first and reconnect it last.

PLEASE READ THE COMPLETE INSTRUCTIONS BEFORE INSTALLATION.

Installation

1. If the distributor to be replaced has not already been removed from the engine, remove its cap. Do not remove the spark plug wires at this time.
2. Crank the engine manually until #1 cylinder is at TDC position. Remove the cap with the wire still attached and note the rotor blade aims at a fixed point on the engine or firewall. Note this point for future reference.
3. Unplug all external connectors coming from the distributor.
4. Now put the existing cap back on and note, mark which spark plug wire the rotor (blade) is pointing at. Then number the wires according to cylinder and remove the wires. If in doubt you can leave the wires connected to the old cap, transfer them to the new cap and distributor later in the process (see point # 9).
5. Loosen and remove the distributor hold-down bolt and clamp. Lift the old distributor out. At this point the rotor may spin and move from its position. This is because of the distributor gear.
6. Install the gasket on the new distributor and apply lubricant to gear. Lower the new distributor into position. The rotor should be aimed at the same fixed point as was the rotor from the old distributor. After the new distributor has been lowered into place, you may find that it hasn't seated firmly against the intake manifold. This indicates that the lower end of the distributor shaft is not properly aligned with the oil pump drive rod. Do not attempt to force the distributor into position.
7. Reinstall the hold-down clamp and thread the bolt just enough to exert a very slight pressure against the distributor. If the distributor was not firmly seated, manually rotate the engine until the distributor drops down into place. You are aligning both the camshaft gear and oil pump drive at the same time.
8. With the distributor properly seated, tighten the hold-down bolt just enough so that the distributor is held in place, but can still be rotated with a little effort.
9. Remove the plug wires one at a time from the old cap and install them in the corresponding positions of the new cap. After all wires have been transferred, verify that the wire in the terminal post is aligned with the rotor leads to #1 cylinder. If you are unsure of cylinder number position or firing order, this information is found in the service manual that covers your particular engine. Install the distributor cap.
10. Install the harness to the distributor, coil and engine as noted below. You can now begin timing the engine.

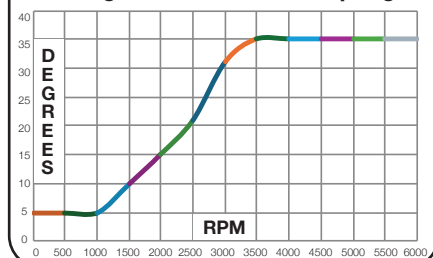
Advance Curve: Spring Selection

This distributor comes with the medium tension Blue springs installed. In the included advance parts kit you received two sets of optional tension springs. The HD silver-metallic springs are heavy tension and the light silver springs are light tension.

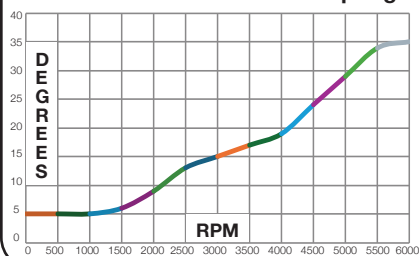
The springs can be used in sets or mixed depending on the advance curve you desire. *See charts on this page for specific set up combinations.*

To change the springs you will need needle nose pliers. First remove the distributor cap and rotor. You will find the springs under the rotor. Take the needle nose pliers and carefully lift the springs off their posts (so you can reuse them if needed). When installing the new springs make sure that the eyelet of the spring sits completely in the groove on the post.

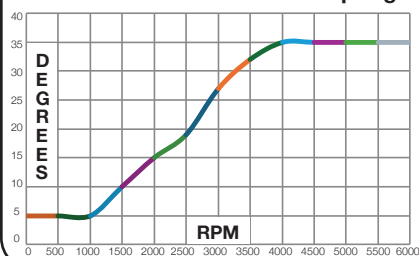
Timing Curve - 2 LT Silver Springs



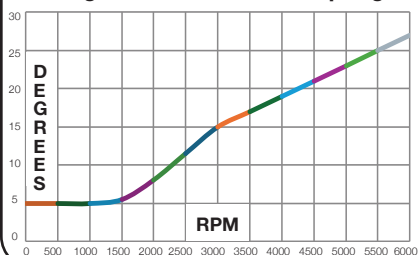
Timing Curve - 1 HD Silver Spring
& 1 LT Silver Spring



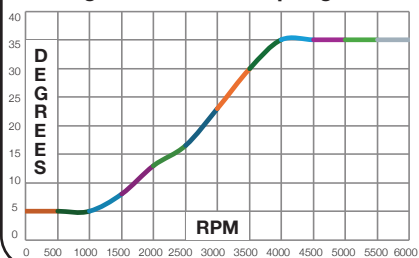
Timing Curve - 1 Blue Spring
& 1 LT Silver Spring



Timing Curve - 2 HD Silver Springs



Timing Curve - 2 Blue Springs

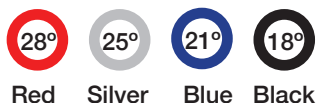


Advance Setup

Advance Bushings

There are 3 different advance bushings included in the hardware package. The distributor comes with the Blue 21° bushing already installed. If a different degree of mechanical advance is desired, follow the procedures to change the bushings.

Bushing Sizes:



How to set up the Advance Bushings

- Remove the distributor cap & rotor.
- Remove the locknut and washer on the bottom of the advance assembly.
- Remove the bushing and install the new one.
- Install the washer and locknut.

How to set up the Mechanical Advance Lock Out

1. Remove the advance components including the springs, weights and the advance stop bushing from the advance assembly.
2. Remove the roll-pin from the drive gear and remove the gear from the shaft.
3. Slide the shaft two inches out of the housing.

4. Rotate the shaft 180° and insert the advance stop bushing pin into the small hole on the advance plate.
5. Install the locknut and washer to the advance stop bushing pin. This locks the advance in place.
6. Install the drive gear and roll-pin.

How to set up the Vacuum Advance Lock Out

1. Remove the two Allen head screws that hold the advance canister
2. Remove the snap ring that holds the magnetic pickup assembly in place.
3. Gently lift up on the mag pickup plate and slide the vacuum canister out.
4. Install the Lockout Plate in place of the canister. Install two retaining screws.
5. Install the supplied screw and washer through the Lockout and tighten.
6. It is important to make sure the pickup plate is parallel with the housing of the distributor. If it is cocked or slanted, the paddles of the reluctor may contact the pickup. Check the clearance by rotating the distributor shaft. If necessary, use the supplied shims under the Lockout hold-down to correctly position the pickup plate.

Note: If no shims were required, use one beneath the washer of the Lock-Out Hold Down Screw.

Note: Do not forget to plug the original vacuum advance hose.

Digital Inductive Control Module

Digital Operations

The digital inductive control module in this RTR distributor uses a high-speed digital microprocessor to control its functionality. This microprocessor constantly analyzes the input signals and makes extremely fast calculations for dwell control and RPM limit. The control module has been designed with protection from EMI/RFI (static noise and interference).

Protection

The digital inductive control module in this RTR distributor has built-in reverse polarity protection. The control module also features an isolated ground (Black wire connected to engine block) to ensure constant connection to ground, just encase the distributor body is not in constant contact with the engine block or intake manifold.

Welding: To avoid damaging the control module's digital circuitry, ALWAYS disconnect the harness connector on this RTR distributor as well as the tachometer wire when welding on the vehicle.

Battery and Charging System

The digital control module in this RTR distributor is designed for a negative ground, 12-volt electrical system. This RTR distributor can NOT be used on a positive ground system. This RTR distributor can NOT be

used with a 16-volt battery. Be very careful when jump starting the vehicle as attaching the jumper cable incorrectly can result in a 24-volt system and that will damage the digital control module. Make sure the vehicle's electronic voltage regulator is working correctly. Do NOT use this RTR distributor on a vehicle with older mechanical points type voltage regulator. Those older mechanical points type voltage regulators create a tremendous amount of EMI/RFI noise which can damage the digital circuitry of the control module in this RTR distributor.

Ignition Coils

The digital control module in this RTR distributor **MUST** be properly matched with an ignition coil that has a primary resistance of 0.3 to 0.7 Ohms and a primary inductance of 4 to 7 milli Henrys. If necessary, check with the coil manufacturer for their specifications. It is highly recommended that you use the following p/n ignition coils; 555-40110, 555-40118, 555-40119, or 555-40150.

The digital control module in this RTR distributor should **NEVER** be used with a points style ignition coil, as both the coil and control module may be damaged. This RTR distributor can NOT be used with a ballast resistance. Any existing ballast resistors or resistance wires must be bypassed with a copper wire for best performance (see note below). This RTR distributor can NOT be used with a coil that is specifically designed for 6 or 7 Series CD type ignition systems.

Tachometer & Rev Limiter

Failure to use the correct coil with this RTR distributor will result in damage to the digital control module and void any / all product warranties, given or implied for this RTR distributor.

NOTE: You need to make sure that a full 12 volts is present at the ignition coil positive (+) terminal at all of the following times; key on engine off mode, during engine cranking mode and while the engine running. If necessary, run a new 14ga wire from the switched positive source in the fuse box to the coil positive (+) terminal, protected with a 15 Amp fuse.

Automatic Start Timing Retard

The start timing retard feature with this RTR distributor is fully automatic, requiring no input or any type of programming. It provides 4 degrees of crank shaft timing retard during cranking mode. The timing retard is fully dialed out by 300 engine RPM. This provides for easier and quicker hot restarts and lowers the load on the starter / electrical system on engines with high static compression ratios.

Tachometer

This RTR distributor has a Grey colored tachometer output lead wire that provides a 25% duty cycle square wave signal. This works well with most full feature aftermarket tachometers. It also works well with aftermarket fuel injection systems that require a 20-40% duty cycle square wave tachometer input signal. If your tachometer requires a simple switched negative input signal, then hook your tachometer up so that the input signal comes from the ignition coil negative (-) terminal.

Rev Limiter

The digital control module in this RTR distributor features a built-in rev limiting control feature which functions, when turned on and activated, by dropping the spark to individual cylinders. The rev limiter's software uses an averaging function that eliminate jiggers from the valve train and the distributor, resulting in a very smooth activation.

Note: *As delivered from the factory, the rev limiting function of the digital control module in this RTR distributor is turned OFF. It should only be turned ON and utilized with a carbureted equipped engine. If the engine is equipped with a fuel injection system, then the rev limiting function in this RTR distributor's control module must be left OFF and instead you MUST set and controlled the engine rev limiting function via the fuel injection system's software.*

Tachometer & Rev Limiter Contd.

Note: *Rev limiter settings require the use of the separate Grey tachometer output lead wire, NOT the coil negative (-) lead.*

The Grey tachometer output lead wire has a male ¼" quick disconnect terminal. It may be handy if you have a mating female terminal or a T-adaptor wiring lead made up ahead of time when setting the rev limiter, especially if you are using an aftermarket tachometer that requires a 20-40% square wave input signal. It may also be easier with the help of a second person.

How to Turn ON the Rev Limiting Function

Turn the ignition key ON without starting the engine. Within a 10-second time frame, tap the Grey tachometer output lead wire to ground three (3) times. If you are successful and you are using an aftermarket tachometer that requires a 20-40% square wave input signal, then the tachometer will sweep up to 1000 RPM to show that the rev limiting function is now activated. If the sweep function does not happen, turn the ignition OFF and then repeat this procedure. Please note that the confirmation tachometer sweep function only works with an aftermarket tachometer that uses the 20-40% duty cycle square wave input signal. If you are using a tachometer with a signal lead that connects to the coil negative (-) terminal, then the sweep to confirm function is not available to you. Now, turn the ignition OFF before starting the engine.

How to Turn OFF the Rev Limiting Function

Turn the ignition key ON without starting the engine. Within a 10 second time frame, tap the Grey tachometer output lead wire to ground five (5) times. If you are successful and you are using an aftermarket tachometer that requires a 20-40% square wave input signal, then the tachometer will sweep up to 1500 RPM to show that the rev limiting function is now deactivated. If the sweep function does not happen, turn the ignition OFF and then repeat this procedure. Please note that the confirmation tachometer sweep function only works with an aftermarket tachometer that uses the 20-40% duty cycle square wave input signal. If you are using a tachometer with a signal lead that connects to the coil negative (-) terminal, then the sweep to confirm function is not available to you. Now, turn the ignition OFF before starting the engine.

How to Set the Rev Limiter

Start the engine and bring the engine RPM up to one half of the desired rev limiter setting and hold the engine RPM level as steady as possible. For example, if you want the rev limiter to be set at 5000 RPM, you would bring the engine speed up to 2500 RPM. Now tap the Grey tachometer output lead wire to ground one (1) time. The control module will verify the setting by sweeping the tachometer up monetarily to the actual RPM rev limiting setting, which

Tachometer & Rev Limiter Contd.

in this example would be 5000 RPM. If the rev limiting setting is not exactly where you wanted it to be, as shown during the sweep function, you can repeat this process as many times as necessary to get the desired RPM rev limiter set correctly. If you are using a tachometer with a signal lead that connects to the coil negative (-) terminal, then the sweep to confirm function is not available to you.

Spark Plug & Spark Plug Wires

The correct spark plug type, reach and heat range is important when maximizing the performance of your engine. It is recommended that you follow the manufacturer's specification or engine builder's recommendation for spark plugs. Resistor type spark plugs must ALWAYS be used with this RTR distributor's digital control module to minimize any EMI/RFI noise issues.

Spark plug wires are very important to the overall operation of your ignition system. A high quality, spiral wound core spark plug wire, and proper routing should be used to get the best performance from your ignition. Spiral wound core wires provide an excellent low resistance path for the ignition energy to reach the spark plug, while minimizing EMI/RFI noise issues.

Note: Solid core spark plug wires can NOT

be used with this RTR distributor's digital control module

The correct routing of the spark plug wires is also very important. Spark plug wires should be routed away from sharp edges and engine heat sources. If there are two spark plug wires that are next to each other on the engine and in the engine's firing order, the spark plug wires must be routed away from each other to avoid inducing a spark into the other wire.

RTR Distributor Wiring

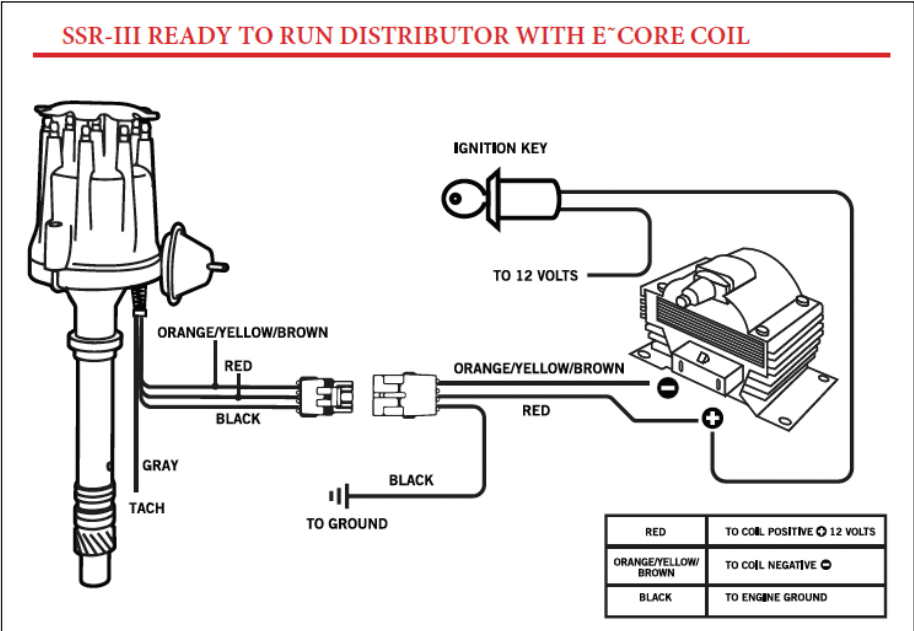
3-pin connector – main power, ground and coil control

- **Red** lead goes to the ignition coil positive (+) terminal
- **Orange** lead goes to the ignition coil negative (-) terminal
- **Black** lead is the isolated ground and should go to a bolt on the engine

Single lead - **Grey** lead is tachometer output 25% duty cycle square wave signal.

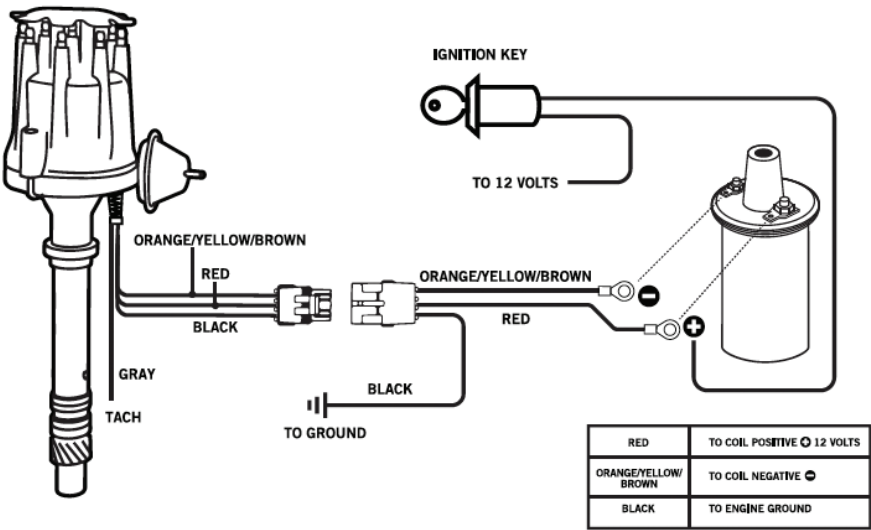
Wiring Diagram

SSR-III READY TO RUN DISTRIBUTOR WITH E-CORE COIL



Wiring Diagram

SSR-III READY TO RUN DISTRIBUTOR WITH CANISTER COIL



If you have any issues, or if this distributor is damaged, please contact customer service at: 1.800.345.4545.

Return Information: *Once this distributor has been modified, it will not be accepted for return.*



1-800-345-4545