



AEROFLOW DISTRIBUTOR INSTALLATION INSTRUCTIONS

The terminals of the Ready-To-Run Distributors require spark plug style terminals. The terminals and boots of your wires may need to be changed. AeroFlow offers the AF4030-3311 (BLACK) or AF4530-3311 (GREY) which are supplied with 2 boots & 2 terminals per kit or 9 boots & 9 terminals per kit.

Parts Included

1 x CNC Billet Distributor
 1 x Rotor
 1 x Distributor Cap
 1 x Advance kit

1 x O-ring Seal
 1 x Vacuum Advance Lock-Out Kit
 1 x Satchel of Gear Lubricant
 1 x Wiring Harness
 1 x Grey Tach Jumper

TIMING FUNCTIONS

Initial Timing – This is the base/idle timing of the engine before the centrifugal advance begins.

Centrifugal Advance – The centrifugal/mechanical advance mechanism is made up of weights, springs, cam advances and an advance stop bushing. The amount of rate and advance that your distributor is capable of is determined by the centrifugal timing. If you are thinking about locking out the centrifugal advance, refer to the centrifugal advance section.

Total Timing – This is the total of the initial timing and the centrifugal advance together.

Vacuum Advance – The vacuum advance will advance the timing up to around 12° during partial throttle driving with around 15 In.Hg of vacuum. Ensure that the vacuum line should be routed to a ported vacuum outlet above the throttle plates.

RPM LIMIT AND TACHOMETER INFO

Tach Signal – The AeroFlow Ready-To-Run distributor features a gray tach output wire that should provide a clean signal for most tachometers and some aftermarket fuel injection systems. The signal output is a 12v square wave with a 20° duty cycle. This is the wire that is also responsible for programming the built-in rev limiter.

Rev Limiter – The Ready-To-Run distributor has a built in rev limiter than can easily be adjusted anywhere from 2000rpm to 10000rpm! It is set at 10000rpm as default. To set up the rev limiter, run the engine to half the desired rpm and ground the grey tachometer wire for approximately one second. Each time the key is now turned to the “ON” position, the tach will display the programmed rpm limit.

HOW TO CHOOSE AN ADVANCE CURVE

An advance curve matches the ignition timing to the burning rate of the fuel and the rpm of the engine. Any factor that changes the burning rate of the fuel or the engine speed can cause a need for an ignition timing change. Most factors will change throughout the range of the engine operation. The timing mechanism on the distributor must make changes in timing based on these factors. The best way to arrive at a suitable ignition advance curve for your engine is to use an Ignition Timing Factors chart along with an Advance Graph. When selecting an advance curve, use detonation as an indicator of too much advance and decrease in power as too little advance.

Tips on selecting an advance curve:

- Use as much initial advance as possible without excessive starter load.
- Start the advance just above the base idle rpm
- The starting point of the curve is controlled by the installed length and tension of the spring
- How quickly the slope comes in is controlled by the spring stiffness because the stiffer the spring, the slower the advance curve
- The amount of advance can be controlled by the advance bushing. The bigger the bushing, the smaller the advance

FACTOR	ADVANCE TIMING FOR	RETARD TIMING FOR
Cylinder Pressure	Low	High
Vacuum	High	Low
Energy of ignition	Low	High
Fuel Octane	High	Low
Mixture (Air/Fuel)	Rich	Lean
Temperature	Cool	Hot
Combustion Chamber Shape	Open	Compact
Spark Plug Location	Offset	Centre
Combustion Turbulence	Low	High
Load	Light	Heavy

CENTRIFUGAL ADVANCE CURVE

Selecting Advance Springs

How quick or the rate of the advance curve is determined by the springs that are installed in the distributor. The Aeroflow distributors come equipped with two heavy silver springs already installed. These are to give you the slowest and most linear advance curve as possible. The parts kit with that comes with the distributor has two additional sets of springs which can be used to match the advance curve to your specific application.

To change the springs, remove the cap and rotor from the top of the distributor using needle nose pliers to remove the springs. Ensure that the new springs are seated in the groove on the pin.

Figure 2 The Factory Equipped Curve

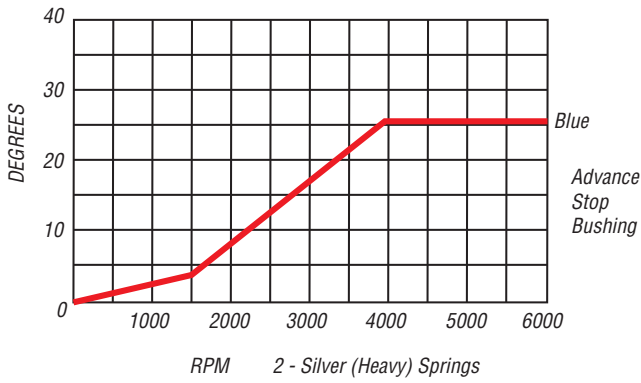
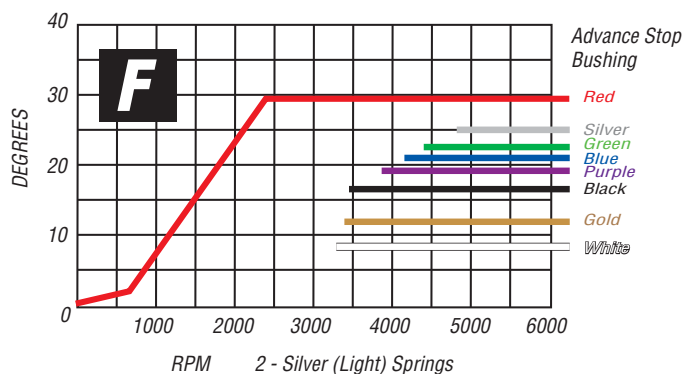
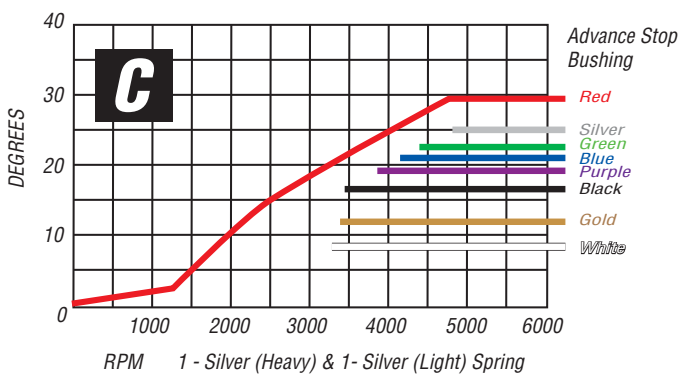
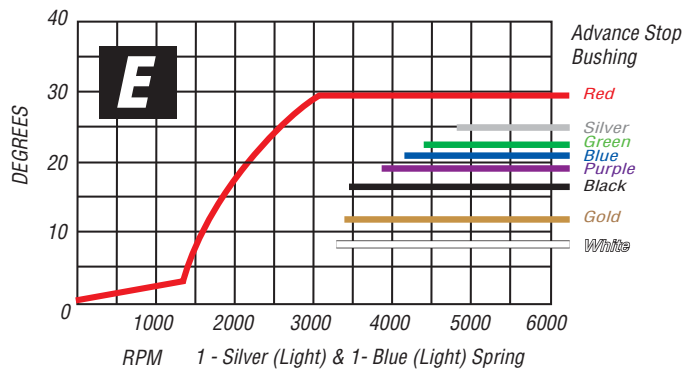
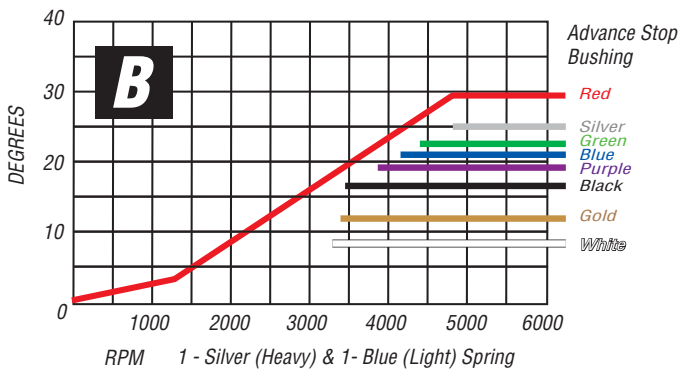
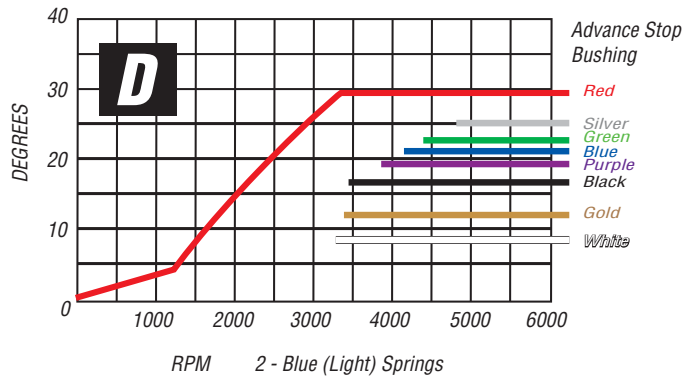
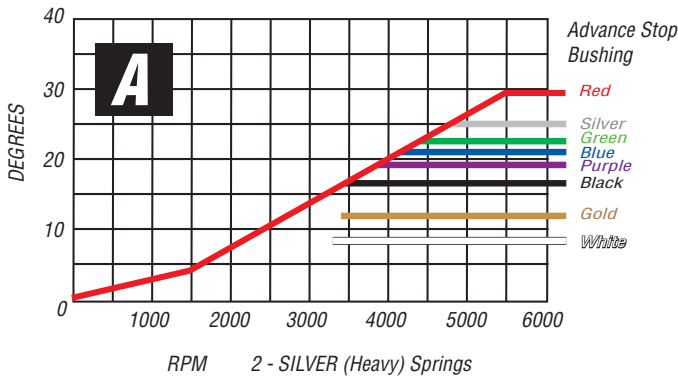


Figure 3 Spring Combination Chart

SPRING COMBINATION	RATE OF ADVANCE	FIGURE 4
2 x Heavy Silver	SLOWEST	A
1 x Heavy Silver 1 x Blue	↕	B
1 x Heavy Silver 1 x Light Silver		C
2 x Blue	↕	D
1 x Light Silver 1 x Blue		E
2 x Light Silver	FASTEST	F

Figure 4 Advance Curves



Selecting The Advance Stop Bushing

Supplied with the Aeroflow Distributor are 8 different advance stop bushing kits. The distributor comes with a Silver 21° bushing pre-installed. When a different amount of centrifugal advance is desired, follow the procedure below to change the bushings. The following chart gives the size and approximate degrees for the corresponding bushings.

BUSHING SIZE	APPROX CRANKSHAFT DEGREES
Red	28
Silver	25
Green	23
Blue	21
Purple	19
Black	18
Gold	12
White	8

Changing The Advance Stop Bushings

- Remove the distributor cap and rotor
- Remove the locknut and washer on the bottom of the advance assembly
- Remove the bushing and install a new one ensuring that you also install the washer and locknut back in.



Figure 6 Changing the Advance Stop Bushing



Figure 7 Removing the Retaining Sleeve

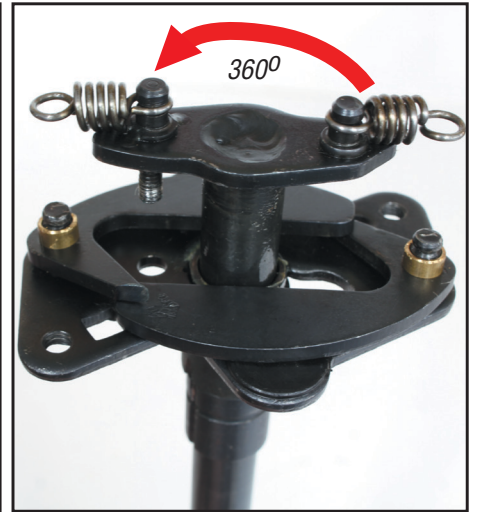


Figure 8 Locking out the centrifugal advance

Locking out the Centrifugal Advance

- Remove the distributor cap and rotor
- Remove advance springs, weights and the stop bushing from the advance assembly.
- Remove the roll pin from the shaft and slide the retaining sleeve down. It should not be necessary to remove the distributor gear.
- Slide the shaft two inches out of the housing
- Rotate the shaft 180° and insert the advance stop bushing pin into the small hole on the advance plate.
- Install the locknut and washer to the advance stop bushing pin.
- Finally, install the retaining sleeve and roll pin.

Vacuum Advance

Your distributor is equipped with an optional vacuum advance canister. Vacuum advance is generally important in order to improve cruising economy and driveability. To connect the vacuum advance, connect a vacuum hose from the canister to a ported vacuum source on the carburettor or throttle body. Ported vacuum sources are generally located above the throttle plates so there will not be an excessive amount of timing advance at idle and lower engine speeds. Vacuum advance must be connected to a vacuum source to insure correct rotor phasing.

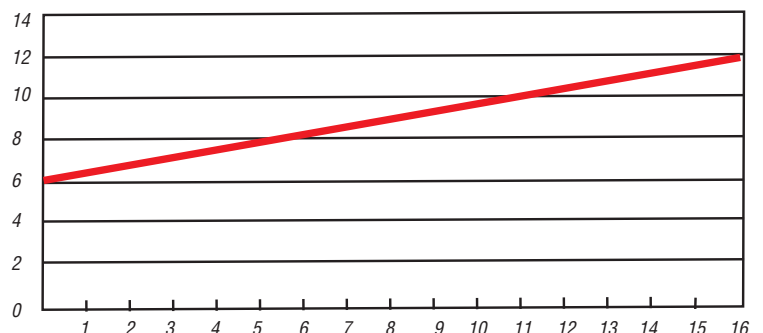
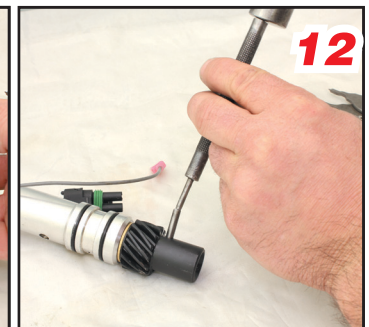
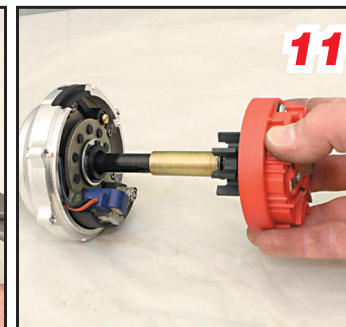
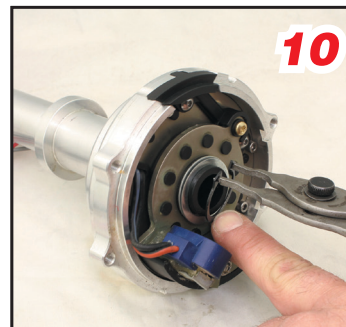
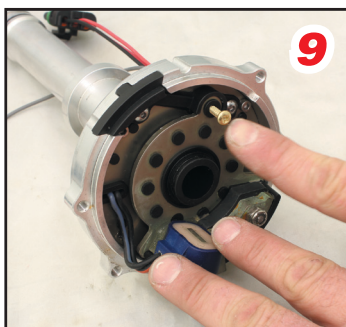
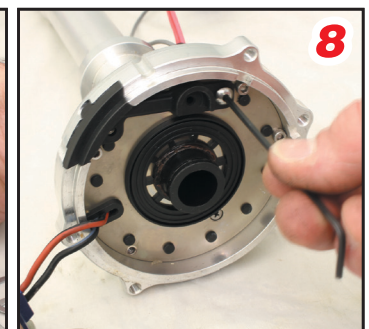
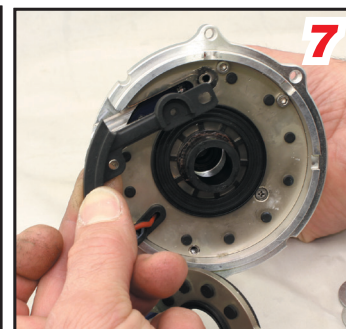
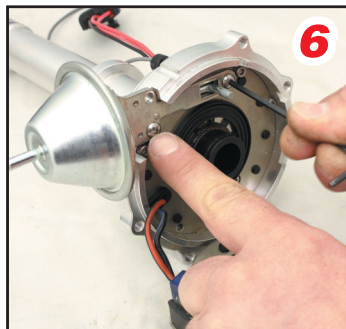
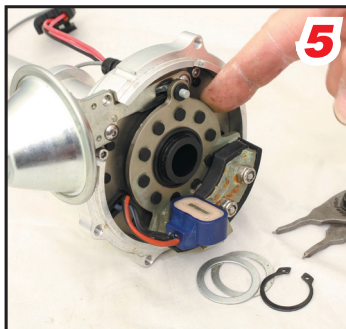
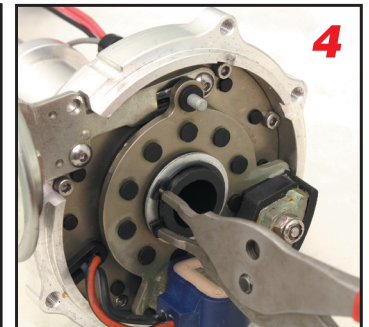
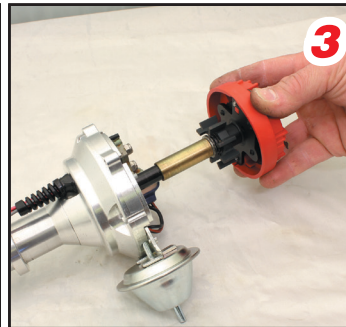
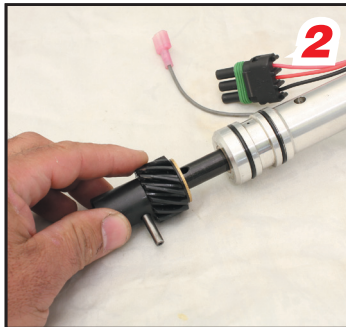
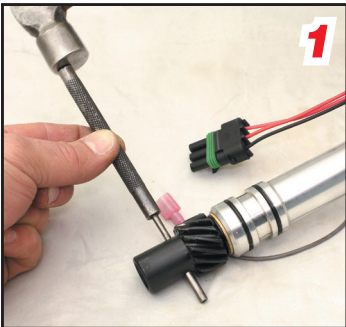
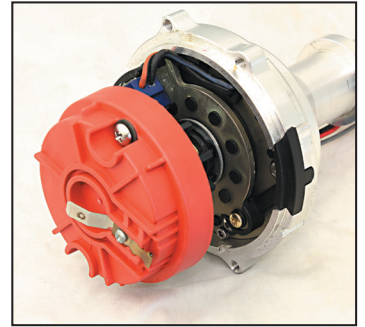


Figure 9 Vacuum advance and timing chart

Optional Vacuum Advance Lockout

You do not have to use the vacuum advance canister with the Aeroflow Distributor if you do not want to as we have supplied the distributor with a lockout mechanism. The lockout bolts are in the position of the vacuum canister and will hold the pickup assembly firmly in place. The installation is easiest if you have the distributor out of the engine.

1. Lightly tap out the roll pin in the distributor gear with a punch being carefull not to flare or damage the pin. Note: Ford distributors also require the retaining sleeve and roll pin removed.
2. Slide off the gear and bushes.
3. Slide out the cap and shaft assembly.
4. Release and remove the sir-clip washer.
5. Remove the advance plate.
6. Unscrew the vacuum plate assembly and remove
7. Insert the Vacuum advance lockout plate making sure the holes line up and the out rings line up.
8. Re-install the two screws
9. Install the gold torx screw to lock down the advance plate.
10. Re-install the bushings and sir-clip
11. Re-install the shaft and cap assembly
12. Tap the the roll pin back in carefully



Installing the Distributor

- Remove the existing distributor cap without disconnecting any of the spark plug wires.
 - With the cap off, crank the engine until the rotor is aimed at a fixed point on the engine. Mark this position down.
 - Place the distributor cap back on note which plug wire the rotor is pointing to. Ensure that you mark the spark plug wires and remove the distributor cap.
 - Disconnect the wiring from the distributor.
 - Loosen the distributor hold-down clamp, sliding the clamp out of the way and lift the distributor out of the engine.
 - Install the supplied O-ring seal in the groove on the distributor. It is worthwhile to apply a thin layer of oil to the housing O-ring.
 - Apply a liberal amount of the supplied break-in lubricant to the gear.
 - Install the distributor making sure that the rotor comes to a resting point at the fixed mark. If it does not fully seat with the rotor pointing to the marked position, you may need to rotate the oil pump shaft until the rotor lines up and the distributor fully seats.
 - Position and tighten the hold-down clamp onto the distributor.
 - Install the rotor and cap and it is recommended to use a drop of Blue Loctite on the distributor cap hold down bolts.
 - Install the spark plug wires from the old cap one at a time to ensure correct location
- Connect the supplied wiring harness to the distributor routing the wires to their connections.

INSTALLATION INSTRUCTIONS

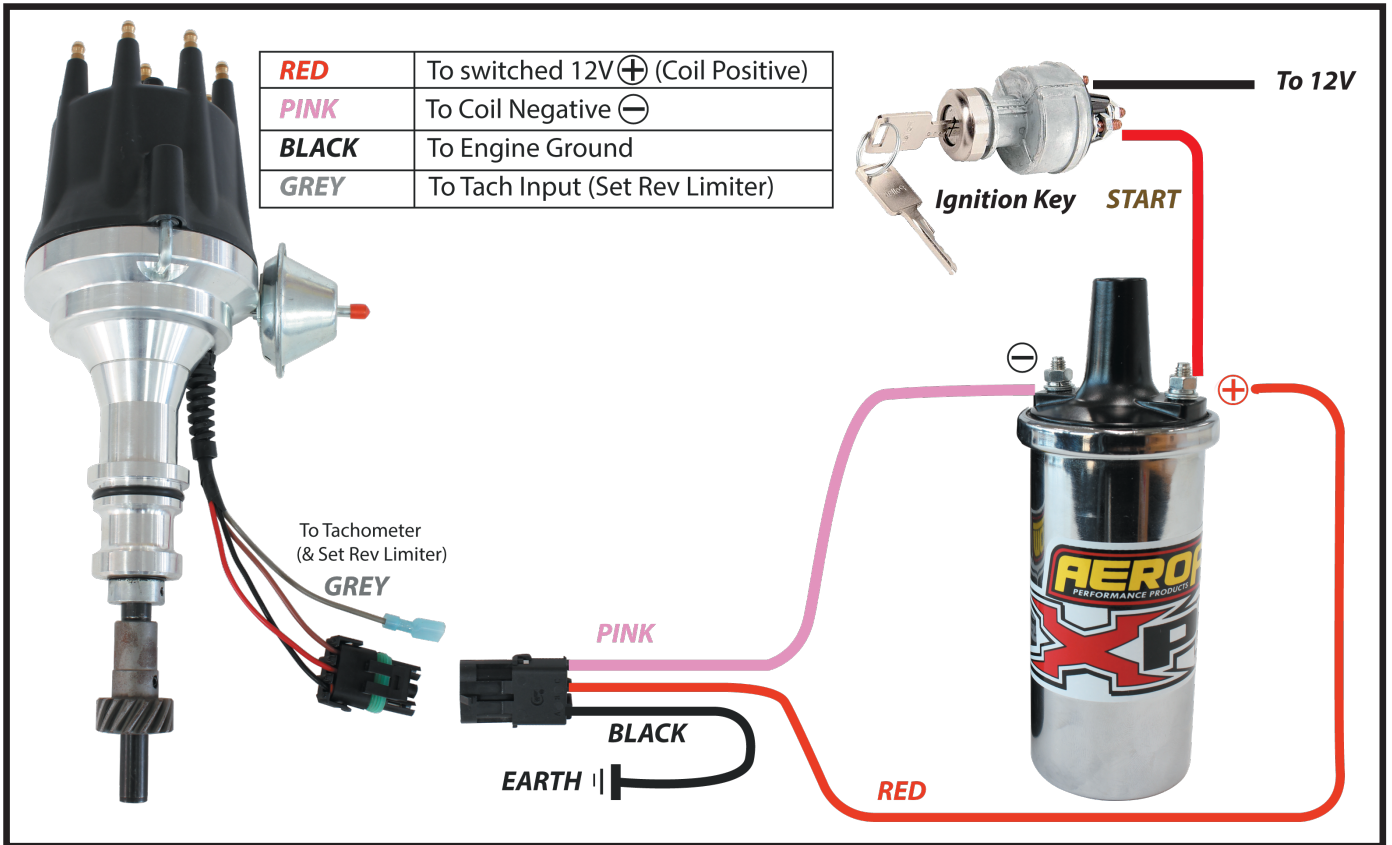


Figure 13 Wiring the Ready to Run Distributor

Supplying 12V to the Ready-Run-Distributor

Many vehicles, mainly those that were originally equipped with breaker points have resistance wiring or a ballast resistor in the coil positive wiring. This reduces the voltage at the coil positive terminal. An Aeroflow Ready-To-Run Distributor requires a solid 12 volts for operation at its full potential. By adding a relay you can ensure that the distributor receives a full 12 volts during cranking and whilst running.

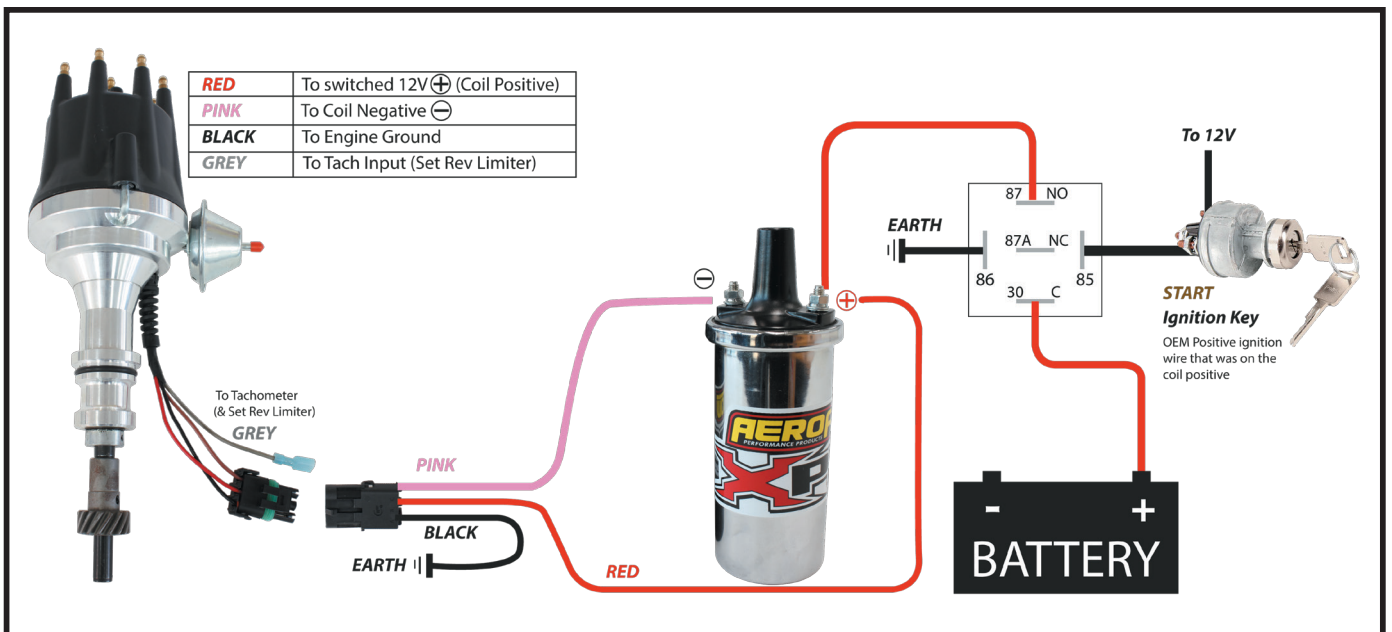


Figure 13 Wiring the Ready to Run Distributor

Tachometer Information

The Aeroflow Ready-To-Run distributor has a Gray wire that provides a 12v square wave, 20° duty cycle tachometer signal that will trigger most tachometers. It is recommended to connect this lead to your tach's trigger input wire and check its operation. Note that the rpm limiter is extremely accurate and due to the variety of tachometers available, there may be slight differences in the displayed rpm signal.

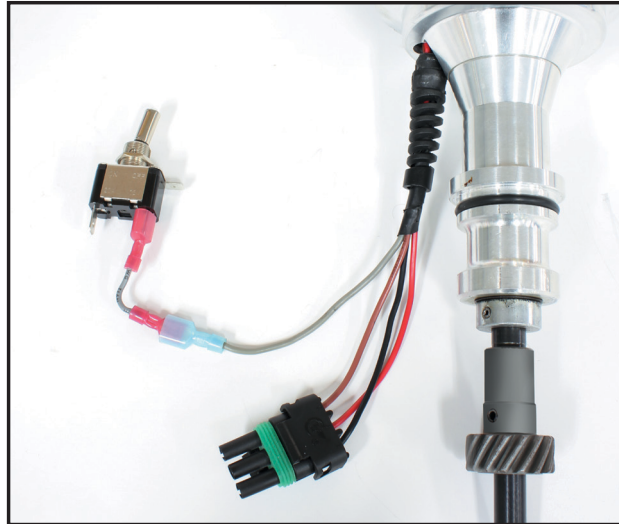


Figure 14 Setting the Rev Limiter

Programming the Rev Limit

A tachometer is required in order to set the rev limit. This limit is programmed by running the engine at half the desired rpm, then momentarily grounding the gray tach output wire from the Aeroflow distributor. A gray jumper wire is supplied to connect to the tach with another tee-splice coming off to use for programming. A switch may also be installed to ease adjustments of the limiter. The default rpm limit is 10,000rpm and the limit is adjustable from 2000 to over 10000rpm.

- Initially, start the engine and bring the rpm to half the desired rev limit. (For example, if the desired limit is 8000rpm, raise and hold the rpm to 4000rpm)
- Whilst holding the rpm steady, short the gray tach wire to ground for approximately 1 second. Note that the tach should go to zero whilst grounded.
- The tach will not display the programmed rev limit amount for 2 seconds. If this value does not register on the tach, repeat the procedure and try an alternative grounding source.
- To confirm the rev limit value, turn the ignition key to the ON position without cranking the engine. The limit value will be displayed for two seconds on the tachometer. The rpm confirmation only displays when the gray wire is being used to trigger the tachometer.

All Aeroflow Performance XPRO ready to run distributors have a built-in rev limiter verification feature. When the key is switched to the "ON" position (accessories only), an rpm signal is sent to the tachometer to verify the rev limit setting. With this function you can be sure the rev limit is set before each drive.

EFI Systems

If you are using an electronic fuel injection carburettor system and wanting to pair with our ready to run distributors you may experience issues with this feature. If the EFI carburettor ECU detects high rpm shortly after the ignition is switched to "On" it may prompt the fuel injectors to supply fuel for the given RPM.

Not all EFI carburettor systems will experience this flooding problem. If your EFI system has issues because of the rev limiter verification feature, the feature can be turned off with this simple process.

1. Ground the grey tach output wire.
2. Turn on power to the ignition without cranking the engine.
3. Hold the grey tach output wire to ground for seven seconds.
4. Release the wire from ground before ten seconds have passed.
5. To confirm the process has worked, cycle the ignition power off and back on.
6. To activate this feature again, repeat these steps.

NOTE: Turning off the tachometer sweep function does not disable the rev-limit.