



## Installation Instructions for ....

# **Billet Mopar Performance style Ignition Kits**

### **Summit Part #'s - SUM-851003 (LA) / SUM-851004 (B) / SUM 851005 (RB)**

**Notes:** This kit is a High Performance direct replacement for the Mopar Performance Electronic conversion kit. This kit is designed for use with the included; ECM, Wiring Harness, Ballast Resistor and coil. **Use only the included Ballast Resistor and Coil in combination. Do not use this kit with other Ballast Resistors or other Coils.** This kit will not work with fuel injection systems that require a distributor signal.

#### **Please read these ENTIRE instructions before installing...**

You should always disconnect the battery, negative lead first, before working on the ignition system. When you are done reconnect the battery, installing the positive lead first.

#### **Included with the kit...**

- 1 – Billet forged CNC machined Mopar Performance style V8 Distributor with mechanical & vacuum advance
- 1 – Chrysler 4-pin Electronic Control Module
- 1 – Wiring Harness with hardware kit
- 1 – Ballast Resistor
- 1 – Oil filled Ignition Coil
- 1 – Mechanical advance key set

#### **Distributor Installation Instructions...**

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 slowly until cylinder #1 (front cylinder on driver's side of engine) is at TDC. Note where the rotor blade is aimed at a fixed point on the engine (should be aimed at the front of the passenger side valve cover). **Note this point for future reference.**
3. Put the existing cap back on the distributor. Note and mark which spark plug wire the rotor (blade) is pointing at. Make sure that the wire is going to #1 cylinder. Now number all the spark plug wires according to the firing order 1-8-4-3-6-5-7-2 and remove the spark plug wires. If in doubt you can leave the wires connected to the old cap and then transfer them to the new distributor cap later in the process (see point # 8).
4. Unplug all external connectors coming from the distributor.
5. Loosen and remove the distributor hold-down bolt and clamp. Lift the old distributor out.
6. Remove the cap from the new distributor. Apply a thin coating of engine oil to the O-ring and surrounding housing on the new distributor. Lower the new distributor into position. Make sure the rotor blade is 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 firmly seated with the rotor pointing at the marked spot. This indicates that the lower end of the distributor shaft is not properly aligned with the oil pump drive shaft. You may have to use a screw driver to turn the oil pump drive shaft slightly so that the distributor seats firmly and the rotor lines up to with the mark. **Do not attempt to force the distributor into position.**
7. With the distributor properly seated, reinstall the hold-down clamp and tighten the hold-down bolt just enough so that the distributor is held in place, but can still be rotated with a little effort. Re-install the distributor cap.
8. One at a time, remove the plug wires from the old cap and install them in the corresponding positions of the new cap. After all the spark plug wires have been transferred, verify that the wire on the terminal post that is aligned with the rotor leads to #1 one cylinder. If you are unsure of cylinder number position or firing order, this information can be found in the servicemanual that covers your particular engine.
9. Double check the air gap between the reluctor wheel and magnetic pickup assembly with a non magnetic or brass feeler gauge. The air gap should be 0.007 - 0.010" on all eight points of the reluctor wheel. If not, loosen magnetic pickup assembly hold down screw, adjust the air gap accordingly and retighten the screw.
10. Install the cap on the new distributor and connect the wiring leads from the distributor to the Mopar wiring harness.

### Adjusting the Distributor Mechanical Advance...

**NOTE :** The advance mechanism used in these high performance distributors is the exact same as the Mopar Performance advance system. This is a different advance mechanism than what originally came in the OEM distributor.

**NOTE :** Please keep in mind that how quickly the mechanical advance comes in, is controlled by the stiffness of the advance springs. Softer springs allow the advance to come in more quickly (low compression street engine) while stiffer springs delay the advance curve until higher RPM's are reached (purpose built race engine).

**NOTE :** The factory installed medium blue springs in this distributor, generate a performance ignition advance curve that typically begins at 1200 RPM and generates 22-24° crankshaft advance; that is fully in by 3200-3300 RPM. This mechanical advance curve will work in most street performance engines.

**NOTE :** The mechanical advance curve in your new distributor is adjustable and can be custom tailored to meet most needs.  
**Refer to charts on page 3 to decide which spring set up is correct for your engine.**

**NOTE :** To gain full access to the mechanical advance **to change springs**, you must have the distributor out of the engine.

**NOTE :** You can adjust the amount of **mechanical advance** with the distributor in the engine.

### Steps to change springs and adjust the mechanical advance...

1. Remove the cap and rotor from the distributor. Carefully drive the roll pin out of the stop collar and remove the stop collar and thrust washer from the distributor shaft.
2. Disconnect the two wire leads to the magnetic pickup. Note that the terminals on these leads are such that you can't get them crossed.
3. Remove the two large screws and lock washers from either side of the bowl. These hold the breaker plates in place.
4. Push the shaft assembly upward until the lower advance plates are clear of the bowl – **be careful as the shaft assembly is now free and can be completely removed from the bowl and lower housing**. You can now see and work on the mechanical advance plates and springs. If you need the mechanical advance curve to come in more quickly, swap one or both of the blue springs for the silver springs. If you need the mechanical advance curve to come in more slowly, then swap one or both of the blue springs for the black springs. For a more precise advance curve please refer to page 3 for various spring combinations.  
**DO NOT BEND THE SPRING PERCHES.**
5. The amount of mechanical advance is controlled by the two lower advance plates. There are two adjustment screws, one on either side of the advance plates. To adjust the total amount of mechanical advance, loosen the two screws and rotate the two advance plates. If the advance plates do not move, loosen the screws a bit more. **DO NOT BEND THE ADVANCE TABS.** Using the included SUM-850535-1 advance curve key kit, choose the total amount of mechanical advance that is needed. The amount of crank shaft degrees is marked on each key. Insert the flat side of the key toward the advance tab and rotate the adjustment plate tightly against the key. Tighten the adjustment screws to 30 in-lb.
6. Reinstall in the reverse order.

### Adjusting the Distributor Vacuum Advance...

**NOTE :** The vacuum advance operates independently from the mechanical advance. The vacuum advance canister is factory set to produce 5-7° of crankshaft advance at 15" of vacuum.

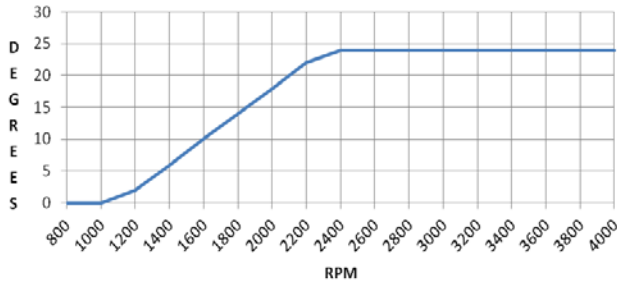
1. The amount of vacuum advance required, can be made by inserting a 3mm hex head allen wrench into the hose nipple on the vacuum advance canister. **The canister is factory set in the middle of the adjustment range. There are about 5-6 turns of adjustment in either direction.**
2. Turn the wrench **clockwise** to **increase** the amount of vacuum advance.
3. Turn the wrench **counter-clockwise** to **decrease** the amount of vacuum advance.

**NOTE :** Depending on your tuning strategy, you can connect the vacuum advance hose from the distributor to a vacuum source from.....

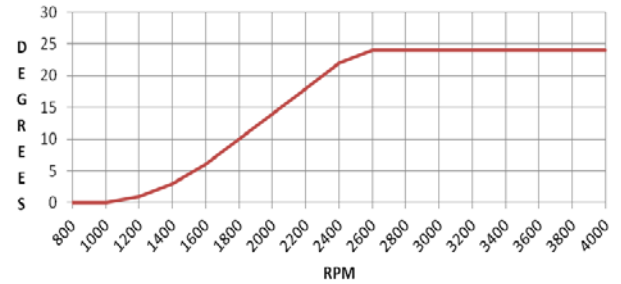
- >> **intake manifold source** - This will allow for vacuum advance at both idle as well as a light load highway cruise.
- >> **ported vacuum source** - This will only allow for vacuum advance at light load highway cruise.

# VARIOUS SPRING COMBINATIONS FOR VARIOUS ADVANCE REQUIREMENTS

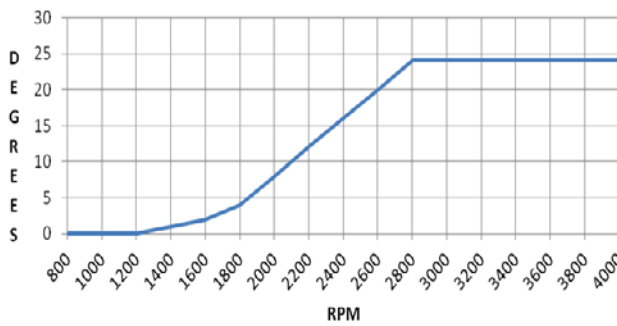
**Chrysler Timing Curve - 2 Silver Springs**



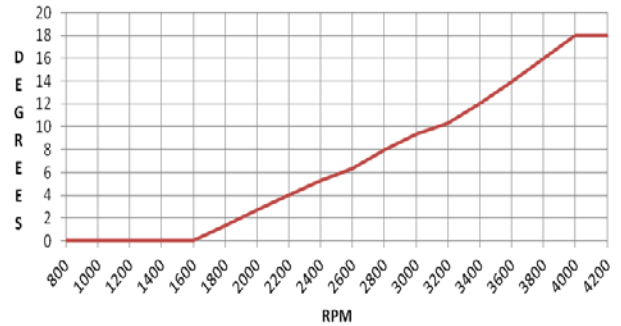
**Chrysler Timing Curve - 1 Blue & 1 Silver Spring**



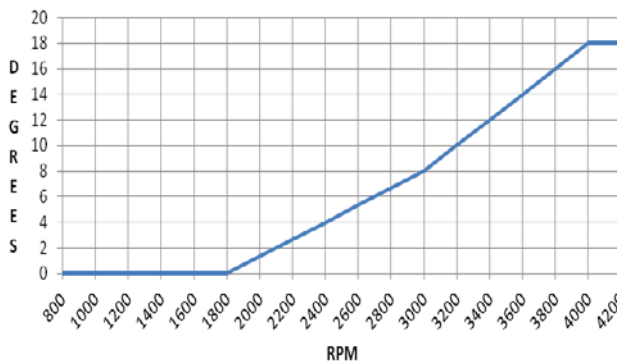
**Chrysler Timing Curve - 2 Blue Springs**



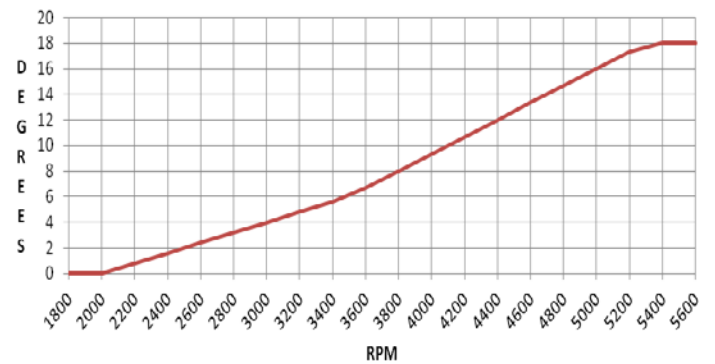
**Chrysler Timing Curve - 1 Black & 1 Silver Spring**



**Chrysler Timing Curve - 1 Black & 1 Blue Spring**



**Chrysler Timing Curve - 2 Black Springs**



## Typical Wiring for Muscle Car or Street Rod Installation..

### Trouble Shooting Tips...

- >>> The ECU must be Grounded to the vehicle  
Sand or wire brush the mounting points & use external tooth lock washers & rust free mounting fasteners.
- >>> The ballast resistor and coil included in this kit are matched for optimum performance. A maximum total of primary resistance of the coil and ballast resistor should not be more than 2.3ohms.  
**Use only the included ballast resistor which is matched to the included coil.**
- >>> Operation without the ballast resistor will damage the ECU & Coil.
- >>> Use only the included (oil filled) Coil & included ballast resistor. **Do not use a CD style coil.**  
**This will permanently damage the ECU.**
- >>> Make sure all connections are tight and free of corrosion.
- >>> If vehicle has a history of ECU problems – Check voltage between Coil (+) and a good ground. Turn key to “Run” position and voltmeter should read between 7.0 and 9.0 Volts.
- >>> **Quick Wiring Check:** Disconnect either wire to the ballast resistor when engine is at idle. Engine should stall immediately.

