

Chrysler Electronic Ignitions

Installing or up grading from a breaker point ignition to an electronic ignition is definitely a reliability and performance gain all around. The Chrysler Electronic Ignition System is very simple to install in your Mopar. There are a couple of things to keep in mind if your going to install the Electronic System: is you will need to maintain a constant voltage in your system, this can be achieved two ways one is to upgrade to an electronic voltage regulator (which requires some extra wiring and parts to be installed along with a newer solid state electronic alternator & regulator) or you can replace your stock point type regulator with a new solid state direct replacement for your older 1969 & earlier charging system.

I have used this new regulator and it works real well and helps simplify (no wiring or new alternator) the installation.

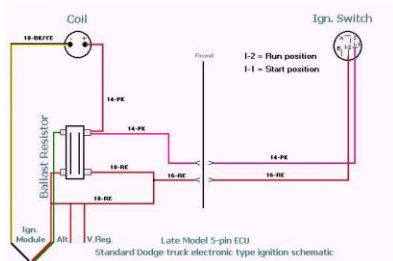
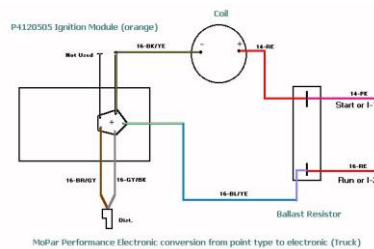
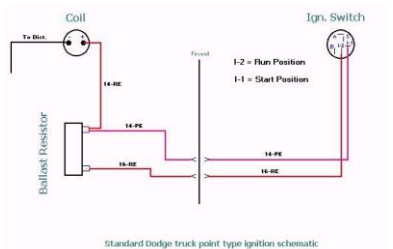
You will or should run good 8mm ignition wires, I like and use Taylor Wires, and they work real well on an electronic system.

You will also want to change the plug gap and bring it out to .040 with the Electronic Ignition, no special plugs or fancy gadget plugs, just take your stock application Champions and gap them at .040, along with a new coil. Accel makes coils specifically designed for your Mopar Electronic System; I would recommend the Accel 140305, which is a 1958-1978 Mopar application.

Now there are two ways to successfully install an Electronic Ignition: One is you can go to the local bone yard and find a good used distributor, wiring harness, ECU (Electronic Control Unit), rebuild the distributor and install; Two you can go to your local speed shop and buy a Mopar Performance conversion kit with all the same parts, brand new you need to complete the install. Either way depending on your budget it will add a few ponies to your Mopar.

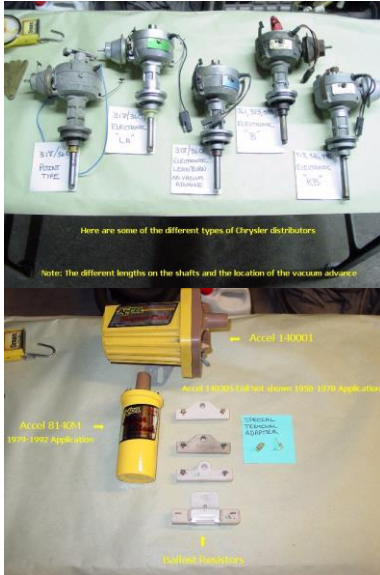
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Here are your basic wiring diagrams to show the wiring of a Chrysler Electronic System.



Here are some pictures showing components and tools needed to successfully install a Chrysler Electronic System.

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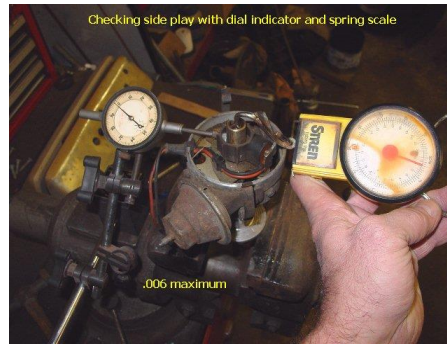
First I will take you through all of the steps necessary to successfully “**rebuild**” a Chrysler Electronic distributor.

First thing to check on any distributor is if there is any wear on the shaft or if it's just the bushing in the housing. There are two simple ways to check it. One with the distributor in your vehicle you can check it right in the vehicle with a dwell meter, with your dwell meter hooked up and the vehicle running as you increase the rpms of the vehicle your dwell reading should be steady, if it starts bouncing around it's a good indication that the shaft or bushings are worn. Two with the cap off try to move the rotor from side to side and if there is any movement you will have to replace the shaft or the bushing one of the two. The best way to check it is the first.

The only special tools you should have to rebuild a distributor will be a 74 and up Factory Service Manual, tach and dwell meter, brass feeler gauges, dial indicator, spring scale, volt/ohm meter, vacuum pump and a bushing driver/burnisher. The bushing driver is the same tool needed to replace your intermediate shaft bushing in your engine.

First as mentioned you want to check the shaft in the distributor to make sure the shaft or bushings are not worn. Place the distributor in a vise in order to perform the side wear test. Attach a dial indicator so that the plunger rests against the reluctor. Using the spring scale attached to the shaft pull the scale applying one pound of pull toward the plunger on the dial indicator and then one pound of pull away from the plunger. If the total plunger movement reading exceeds .006 you will either have to replace the shaft or the bushings? I would completely disassemble the distributor one-way or the other. A factory Service Manual will be very helpful here, to give a complete breakdown of the distributor and its parts.

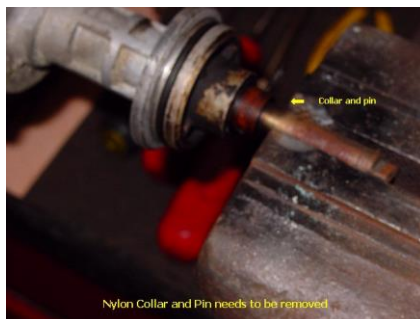
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Over time things wear out and with distributors they are assembled with grease and grease can turn into a very hard substance over time and decrease the performance. It is a very good idea to completely disassemble the distributor and clean and wash all the parts with a good cleaner or solvent. Once you have everything cleaned you can check the condition of the parts to either replace them or reuse them.



Pry the reluctor up to remove it from the shaft with two screwdrivers, next remove the magnetic pickup and the lower plate from the distributor, remove the Vacuum advance canister, then inside the distributor shaft where the rotor goes you will see a piece of felt, under the felt is a small snap ring that needs to be removed. This will remove the mechanical advancing shaft from the main shaft. There is a small roll pin on the lower side of the housing, which goes through a nylon collar, this will have to be pressed or driven out very carefully in order not to damage the collar. This will allow the shaft to be removed from the housing. Be sure not to loose the washer above the nylon collar and the seal inside the housing. Note: before trying to remove the shaft from the housing deburr and polish the shaft as not to score or damage the bushings in the housing while removing it.



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Now that you have completely disassembled your distributor, clean all the parts thoroughly, once everything is cleaned you can reassemble. There are two bushings in the housing, they are pressed into the housing, they can be removed with punch and hammer or a press, once the new ones are installed they will have to be burnished or reamed to fit the shaft, once this is done you can install the shaft into the housing and pre-lubricate the shaft with a light axle type grease. Install the mechanical advance weights on the main shaft, do not apply grease to the mechanical advance weights, a little oil on the slides is fine no grease. Apply a small amount of grease to the slide buttons on the vacuum advance plate; install the vacuum plate and pickup plate in the housing. Install the nylon collar, washer and roll pin on the shaft. Check the vacuum advance canister with a vacuum pump to make sure it holds a vacuum of 15 in. otherwise you will have to replace it.



To test the pickup in your distributor, you will need your ohmmeter. Place the leads of your ohmmeter on each wire of the distributor, you should have a reading between 350 and 550

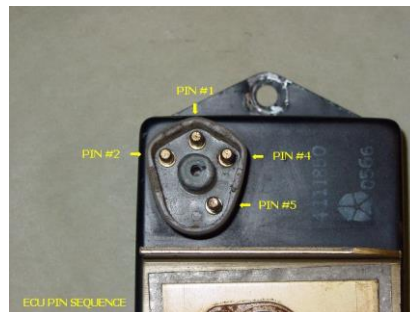
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ohms, if not you will have to replace it. You should also check for a ground on the pickup by placing one lead of the ohmmeter to one of the distributor wires and the other lead to the body of the distributor, it should read as an open circuit, if not you will have to replace it.

Install the vacuum advance canister and then slide the reluctor back on the shaft. Note: Install the reluctor so that the arrow is on top. Lubricate the felt pad in the reluctor sleeve with one drop of light engine oil and install the rotor. Last, but not least you can now set the air gap for the pickup. Using an .008 brass non-conductive feeler gauge set the air gap to .008, no force should be needed to remove the feeler gauge and you should not be able to fit a .010 feeler gauge into the gap if it's set properly. Now you're ready to install your rebuilt distributor in your engine.



You can perform tests on the ECU to check if it's good as well, but I would recommend installing a new one vs. using a used one, only because you have no idea how old it is. In any event you can test from Pin #5 to ground or the housing of the ECU with an ohmmeter, this will test for a ground, you should have continuity, if not it's bad. The only other test that can be performed after checking the ground is on or in the car by removing the coil secondary (high voltage) wire from the distributor and holding it with a 3/16" gap from the engine then cranking the engine, if it sparks the unit is good, if not it's bad.



I would also recommend the use of a new single ballast resistor over a used one as well. The single ballast resistor can be checked with your ohmmeter, it should read from .5 to 1.8 ohms if good.

Now that you have all your components and distributor ready, you can install the ECU, ballast resistor, wiring harness and new coil.

First, you will notice on your original ballast resistor you will have two red wires on one side and a single red wire on the other for trucks. Passenger cars will have two blue wires on each terminal. To determine (I-1) and (I-2) turn your ignition switch to the "RUN" position and test for voltage at the ballast resistor, this will determine the (I-2) or your "RUN" wire(s). The reason for this is your ignition switch is designed so that while your starting (I-1) your engine, it bypasses the ballast resistor to give the coil a full 12 volts, once you release the ignition to the run position (I-2) it then puts the 12 volts through the resistor, which means you have two wires coming from

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your ignition switch (I-1 & I-2). **See Diagrams** The Blue w/Yellow tracer wire coming from the ECU connector is going to be connected to the (I-2) terminal on the ballast resistor, this is where you will need the special terminal adapter, which will allow you to connect two female spade terminals to the one male spade terminal on the ballast resistor. Using this adapter terminal eliminates cutting your original wiring harness (these adapters can be bought at places like Radio Shack or your local Auto Parts stores).

You should mount your ECU in a place where it not going to see a lot of engine heat. Mounting high in the engine compartment is better than mounting it low and in the flow of air through your engine bay. Once you locate your ECU and mount it, you should run a heavy ground wire from one of attaching screws to a good ground, this eliminates relying on the mounting screw as the ground. Next plan the routing of your ECU wiring harness to the ballast resistor (Blue w/Yellow tracer wire or Pin #1), then to the coil (Black w/Yellow wire or Pin #2), distributor (Brown w/White & Gray w/White wire or Pin #4 & 5) and tape up the Green wire or Pin #3 it is not going to be used. The original wire coming from your ballast resistor to your coil + terminal will remain as is, and the Black w/Yellow from the ECU will go to the – terminal of your new coil. So, all you should have to do is cut open your original wiring harness to the coil and distributor and re-tape it with the new wires coming from the ECU harness and the same will apply for running the new wire from the ECU harness to the new ballast resistor.



Once all you're wiring is done, you can install your plugs and plug wires. 6cyl and Small Block V8's the firing order or distributor rotation is clockwise. Big Block V8's the firing order or distributor rotation is counterclockwise. Your 6cyl. Firing Order is 1-5-3-6-2-4 and all V8's are 1-8-4-3-6-5-7-2.

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Now, the best way I have found to tune a newly installed Electronic Ignition System is by setting your ignition advance to a "Total" of 34 degrees meaning your vacuum and mechanical advance combined. In order to do this you should have a timing light with a degree wheel on it; this will take some fine-tuning of your carb as well. "Total Advance" should be checked with the engine at 2500-2600 rpm's. If you disconnect your vacuum advance and bring the engine up to an rpm where it will stop advancing this will give you your total mechanical advance. Once you know what your total mechanical advance is, then you can adjust your vacuum advance by turning the adjustment of the canister with a 3/32 allen wrench through the port nipple on the vacuum canister in or out to increase or decrease the amount of total vacuum advance at 2500-2600 rpm's. Keep in mind this may require you to retard or advance the distributor timing as well and depending on your engines camshaft, compression ratio's, etc. it may require or be able to handle more or less ignition timing. Once you get a base line established as a general rule with the least amount of "Total Advance" and maintain a good idle, you can then further fine-tune even more based on the performance of a road test.

Now your Mopar should be reliably and electronically firing all your cylinders be it 6 or 8.

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