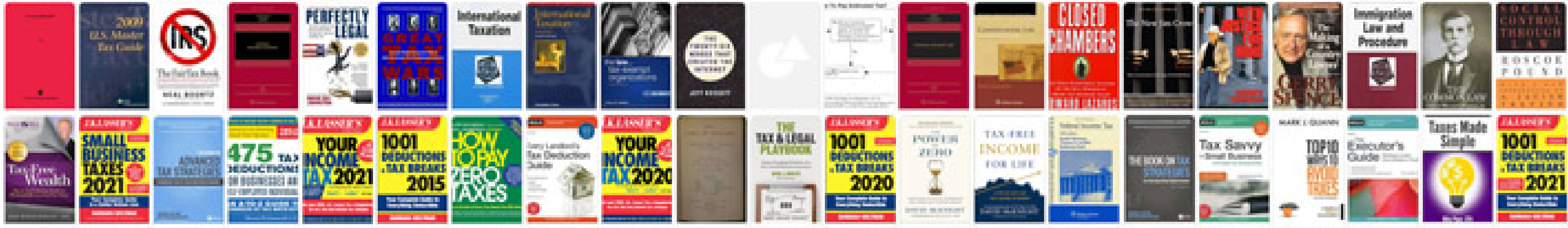

# Duraspark

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The Duraspark II is a Ford electronic ignition system. Ford Motor Company began using electronic ignitions in with the Duraspark electronic ignition system and introduced the Duraspark II system in The biggest change, apart from the control box redesign, was the large distributor cap to handle the increased spark energy. Ford used several models over the years. They were coded by the color of the plastic wire strain relief, or "grommet" as it is most often called, in order to make them easy to identify. In addition to the color-coding, the modules may have a keyway molded into the electrical connectors to prevent accidental use in the wrong vehicle. The system consists of a magnetic reluctor and pickup in the distributor, with a separate fender mounted ignition module to trigger the coil. Typically, Duraspark II distributors have both mechanical and vacuum advance mechanisms. A resistance wire is used in the primary circuit. All timing is controlled by the engine computer, which is capable of firing the spark plug at any point within a degree range depending on calibration. This increased spark capability requires greater separation of adjacent distributor cap electrodes to prevent cross-fire, another reason for its large-diameter distributor cap. The Duraspark II ignition system is a common upgrade [1] for older Ford cars equipped with a points-type ignition. In most cases, the distributor will interchange with the older-style points distributor. The system is similar to some aftermarket systems [2] and the control module may be easily swapped. Duraspark swaps are easy and can be run by a Duraspark box or an aftermarket box. MSD makes a harness that adapts the Duraspark mag pick up right to an aftermarket box such as the 6AL2. Re-curving a Duraspark is a way to build additional power and economy. The Motorcraft Duraspark system replaced the older Prestolite system in AMC used the "blue grommet" module from and it continued on the carbureted AMC engines through the Chrysler buyout until for V8 engines and for inline 6 engines. In AMC briefly used the "yellow double grommet" module with three connectors in some passenger cars and Jeeps. From Wikipedia, the free encyclopedia. Retrieved January 21, Hidden categories: All articles with unsourced statements Articles with unsourced statements from January Namespaces Article Talk. Views Read Edit View history. Help Learn to edit Community portal Recent changes Upload file. Download as PDF Printable version. Add links. Duraspark II electronic ignition was used on to Ford V-8 passenger car and light truck engines. This article refers to the Duraspark II control module with a BLUE strain relief bushing, one 4-pin connector, and one 2-pin connector. Discussion of that "dual mode" system will be added later. Duraspark II uses a variable reluctance magnetic pickup in place of traditional breaker points. The signal from this pickup is amplified by the control module to drive the ignition coil. The module hold a fixed dwell time, and features automatic retard while cranking to reduce the load on the starter motor. The high voltage ignition coil, wider spaced terminals of the distributor cap, and 8mm silicone insulated high tension wires permit the use of wider spark plug gaps. This results in a more powerful spark which is more likely to ignite the air-fuel mixture. Due to the higher voltage operation of the system, silicone dielectric compound should be applied to the insides of the spark plug wire boots, at both the cap and plug ends. This compound should also be applied to the tip of the distributor rotor. The larger diamter cap and better wires are not required, however, if the older tighter spark plug gaps are maintained. Under some circumstances you may need to retain the old style smaller cap. For example, you might not be able to fit the larger cap under a Monte Carlo bar in an early Mustang, for example. This ignition system offers the benefits of reduced maintenance, smoother engine operation with improved idle, better fuel economy, and reduced emissions. Shown here on the firewall of my '72 Bronco. The Duraspark II distributor uses a magnetic pickup in place of traditional breaker points. The Duraspark II ignition coil is capable of generating a higher voltage than the regular coil. The wiring is attached via a special snap-on connector. Power is supplied to the coil in the same fashion as the older breaker point ignition. The Duraspark II distributor cap is larger in diameter to allow the high tension terminals to be spaced farther apart. This prevents crossfiring with the higher coil voltage. The cap is made in two parts; the lower section is an adapter to fit the standard Ford V-8 distributor body. The rotor is longer and taller fit this cap. This ignition system is a popular swap into earlier cars and trucks. Wiring it up is quite straightforward. This is most easily accomplished by making a trip to your favorite junkyard and rounding up all the parts. Be sure to get the wiring harnesses connecting the module, distributor, and coil, as well as the male end of the 2-pin connector and some length of its wires. Note that the colors of the wires shown in the diagram below are at the module itself. The wires in the harness tend to be different colors on different cars and years. Under normal "run" conditions, power comes from the key switch through a length of resistance wire 0. This wire is normally pink and is found under the dash. During cranking, this resistance is bypassed by a wire from the "I" terminal on the starter relay. In most applications, the wire that used to power the coil can power the new coil. The system is grounded through the black wire in the harness to a point inside the distributor. Only one new connection is required. The module receives its power through the red wire in the 2-pin connector. This must come from the key switch terminal that is "hot in start or run". If your car has an idle positioner solenoid, the wire powering that may be used to power the module. Optionally, but a good idea, the white wire in the 2-pin connector is connected to the "S" terminal on the starter relay. This is used as a cranking indicator to the module, to retard the timing slightly to ease the load on the starter motor. Use the factory harness for the rest of the wires. The green wire runs from the module to the TACH or minus coil terminal. This is where you can connect a normal tachometer. The orange and purple wires from the module run to the pickup inside the distributor. Retrofitting the Duraspark II system to earlier small block V-8 cars is a popular swap. A few things should be considered when selecting the parts. Distributors do not physically interchange between a and W. The end of the distributor shaft is also larger to accomodate this difference. At the junkyard, small blocks tend to all look alike. On cars loaded with power steering and air conditioning it can be quite a challenge to remove the distributor hold-down bolt without the proper tools. Also be sure to use the correct distributor drive gear. The material must be compatible with the camshaft. Most normal cast iron camshafts require a cast iron distributor gear. Hydraulic roller camshafts are generally steel, and require a steel gear. Some aftermarket camshaft manufacturers specify the use of a bronze gear. Gears in all combinations of size and material are available from Ford Motorsport. When installing the new distributor, it is always a good idea to use a new O-ring. The control module doesn't like to get overheated. Be sure to mount it somewhere away from heat sources. The Duraspark II ignition system debuted in with the intent to make substantial increases in secondary voltage and extend system maintenance intervals. Spark plug gaps were widened to take advantage of the heightened current and to prolong spark plug life. Special testers were devised at the time, but the troubleshooting capabilities of such analyzers are easily duplicated with an accurate volt-ohmmeter. Knowing what values to look for in certain circuits is often the only specific information needed for effective system diagnosis. Test the car battery state of charge and clean the cable terminals if necessary. Charge the battery if stored voltage is below Replace the battery if voltage drops below 9 volts while cranking the engine. Ensure battery and cable conditions are good before evaluating any subsequent voltage readings. Measure the voltage to the ignition coil positive terminal while cranking the engine. Repair the circuit from the ignition switch, or replace the switch if the reading is not the same as battery cranking voltage. Turn off the power to the ignition system and measure the resistance of the ignition coil primary terminals. Replace the coil if this reading exceeds 3 ohms. Test the resistance of the distributor pickup coil with the ignition switch remaining in the "Off" position. Unplug the distributor wire harness from the black plastic connector. Measure the resistance between the two parallel prongs of the distributor harness. Replace the pickup coil if the resistance is more than ohms or less than this value by 60 ohms or more. Measure the resistance between both parallel prongs and the single perpendicular prong, one at a time. Replace the pickup coil if any value below 70, ohms is displayed. Restore the connection at the distributor harness. Measure the cranking voltage to the ignition module, or "brain-box". Probe the white wire leading into the module while cranking the engine. Inspect the circuit from the starter solenoid "S" terminal, if the voltage is weak or missing entirely. Replace the solenoid if no faults are found in the circuit. Probe the red wire leading to the ignition module with the ignition switch in the "Run" position to ensure a proper voltage signal. Repair the circuit if readings are less than battery voltage. Test the resistance of the ground circuit by probing the black wire at the module and distributor. Replace the module if symptoms persist without any other ignition system causes. Chris Weis is a freelance writer with hands-on experience in accident investigation, emergency vehicle operation and maintenance. He began his writing career writing curriculum and lectures in automotive mechanics at New York Technical Institute. Weis has contributed to "Florida" magazine and written procedure and safety guidelines for transportation concerns. Step 1 Test the car battery state of charge and clean the cable terminals if necessary. Step 2 Measure the voltage to the ignition coil positive terminal while cranking the engine. Step 3 Test the resistance of the distributor pickup coil with the ignition switch remaining in the "Off" position. Step 4 Restore the connection at the distributor harness. Perform the pickup coil tests at operating temperatures, or after an engine stall occurs, as temperature sensitivity from this component is a common cause of stalling. Dismount the ignition module to inspect the underside. Replace the module if the rubbery insulation is loose, droopy or missing. Keep well clear of moving parts, such as cooling fans, while working on a running engine. Avoid contact with spark plug wires of running vehicles. The high voltage in these circuits can interrupt heart functions. Foreward There exists a special kind of satisfaction in upgrading any system on your project car using stock Ford parts. Whether you acquire parts from the wrecking yard or from your favorite parts store, once your upgrade is complete, you are left with a "warm and fuzzy" feeling that you just got away with something special. The greatest sense of satisfaction comes from knowing that you avoided yet another donation to your favorite charity, the performance aftermarket. There are few opportunities for this anymore, so when they come along, we take them. Hobbyist sites all over the web show you the steps involved along with the parts required. Many of you have made the switch. Here are just a few quick examples:. So, rather than reinventing what already exists elsewhere on the web, in this article we are going to show you a few options for upgrading your existing DURASPARK Ignition with aftermarket parts in the usual, easy-to-follow FordMuscle method. The options covered in this article will apply to all of those currently running a DURASPARK Ignition whether you made a conversion or whether your vehicle was originally equipped with the system. This will also be the first tech article performed on FordMuscle's newly acquired Project RedNeck , our F 4x4. IDI vs. For a complete overview of performance ignition system alternatives, Todd's book is a great buy. Now on to IDI vs. IDI ignitions depend on the coil to receive a volt supply from the battery, convert that voltage to over 10, volts, and then release that voltage each time it is triggered by the distributor. Increase your RPM and this all has to happen quickly, very quickly. Herein lies the compromise of an IDI ignition. While IDI ignitions provide a long and strong low RPM spark, there is a potential for weak spark at high RPM because the coil does not have enough time to saturate between firing each cylinder. CDI ignition boxes draw voltage continually from the battery and store up to volts. The volts is always ready to be sent to the coil where it is then converted to the ultra-high voltage required to cross the spark plug gap. This is why the units have been designed to fire multiple sparks within the same cycle. To quote directly from Todd Ryden's book However, by introducing an inductive "add-on" or by converting to a Capacitive Discharge Ignition you will see the most practical improvement during startup and idle. No, that's not an integrated coil. Because the Hyfire 6EZ and 6EZL uses your factory coil to trigger the system, the unit can be installed without tapping-in to your wiring harness. Simply run one of the two included coil wires from your factory coil over to the HyFire ignition box and the system can now "talk" to your factory ignition. The EZ's digital microprocessor operates off volts and provides mJ of spark energy. Here's a feature by feature comparison, and remember the Mallory unit includes a coil. While the Mallory Hyfire improved idle and throttle response, we noticed intermittent behavior. This results a tighter looking set of plug wires that are much easier to manage. Take a look at caption 13 on page 2 of this article to see how clean the crimps come out using this tool. Constructed with a heavy duty hardened steel frame and molded non-slip hand grips. The adjustable ratchet mechanism produces consistent factory style crimps. Where to buy? All rights reserved. MSD 6AL. Page 1. While operational, we knew it could be improved. The advantages of a multiple spark ignition capacitive discharge can be found in "6-series" CDI boxes like this one from Mallory. Popular Mail Order Retail Price as of 1. The HyFire uses an attractive extruded aluminum case. I found a cool space to install the box above the passenger-side fender well of the F The red ring terminal and wire is meant to be connected directly to a 12V battery source. The existing coil to distributor wire is removed. The HyFire is triggered by the factory ignition points or electronic. Here, the HyFfire is connected to the factory coil with an included coil wire. Using some leftovers from the new spark plug wires on Project RedNeck, I made up a custom wire using my new wire crimps. Right size wiring makes for a cleaner install. Tip: Don't let the teenage 5. As with the CDI box, mount the coil in a open area away from direct heat. This included coil will now be responsible for the heavy lifting while the factory coil is demoted to its new position of signaling the HyFire. The HyFire box has an integrated connector for the Mallory coil. I connected the second included coil wire to the Mallory coil. I made the final connection from the CDI box to the negative side of the battery. Startup indicated a noticeable improvement in idle quality and smoother throttle response. This ignition system is a popular swap into earlier cars and trucks. Wiring it up is quite straightforward. This is most easily accomplished by making a trip to your favorite junkyard and rounding up all the parts. Be sure to get the wiring harnesses connecting the module, distributor, and coil, as well as the male end of the 2-pin connector and some length of its wires. Note that the colors of the wires shown in the diagram below are at the module itself. The wires in the harness tend to be different colors on different cars and years. This wire is normally pink and is found under the dash. In most applications, the wire that used to power the coil can power the new coil. Only one new connection is required. The module receives its power through the red wire in the 2-pin connector. 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The vacuum advance is calibrated for maximum fuel economy and light throttle ping is eliminated. The factory center bushing on our Duraspark Distributors is replaced with a full length bronze oil impregnated bushing to provide increased durability and cure top end timing fluctuation,

pontiac g6 brake fluid
etc fuse
ct cabinet wiring diagram

which is a common problem in these distributors due to the weaker stock bushing. Our Duraspark Distributor can be used for a number of applications from everyday street use to all out racing. It will work with other modules and coils, but rpm ability is not guaranteed. Please note that Duraspark Distributors may not be ready for immediate shipping. The attention to quality and detail requires us to build each unit per order, and due to this process orders can take several days to complete before shipping out. During our busy season March-September , build times can take slightly longer. The Ford Duraspark is covered by a one year warranty from date of purchase on street use applications. Racing applications have a 30 day warranty. Description Additional information Description The Ford Duraspark we offer is a high performance unit for those who want a completely stock appearing or factory style electronic distributor. Choose an option 4 Cylinder 2. Choose an option Blue Gray Red Clear.