

# GIVE A CHECKUP TO A FAIRMONT 6 VOLT VIBRATING POINT IGNITION COIL (FAIRMONT F7966)

BY TOM SCHMIEDER

A friend of mine in the motorcar hobby is very mechanically inclined and offered to tutor me on how to give a checkup to a Fairmont (Pontiac or other) vibrating point coil. He was very helpful and instructed me on the process he uses which worked fantastic on my coils. When I mentioned that I may write and publish a summary of the steps, he declined any limelight. So for convenience sake, let's just call him Sparky. Although Sparky's process seems complicated, it's actually pretty easy once you get the hang of it.

There is a coil point cushion adjusting tool that comes in very handy to adjust the vibrating point bar: <http://www.modeltford.com/item/5008CST.aspx>

All of the coil adjustments can easily be made on your workbench. You'll need an analog multi-meter, a 6 volt lantern battery, a screwdriver, a 3/8" wrench, three jumper wires with clips on the ends, an ignition point filing tool and an old spark plug.

1. Remove the contact points from the top of the coil. Remove the back cover of the coil and make sure that there aren't any broken connections inside. Repair if necessary.

2. Next, check to make sure that all the connection points are tight on the outside of the coil - tighten if necessary, but don't strip them out!

3. With the multi-meter, check for resistance between the high side (plug) terminal and the common (COM) terminal. There should be about 3000 ohms of resistance. No resistance shows a shorted out coil, higher resistance could show a break. In either of these cases, you can send the coil to Bruce Pierce in Tennessee ([bruce.4501@hotmail.com](mailto:bruce.4501@hotmail.com)) to be repaired. If you would rather try replacing the capacitor in the coil, the size and capacity of the condenser/capacitor inside the coil really determine if the coil can be used on 6 or 12 volts. The windings don't care what the voltage is but the condenser does as it's in parallel with the points and the voltage at the points can reach 300-400 volts easily due to residual power during the operation of the coil. There is a dV/dT that really counts on capacitors and the coil needs the correctly rated one. Just because one is of higher capacity doesn't mean it will work in the coil as it may be too big. The capacitors sold by Lang's Model T Parts work great in the Pontiac coil.

<http://www.modeltford.com/item/5009B.aspx>

4. Check over the vibrating points from the coil. Check the contacts to see if they have any pitting or carbon buildup. Dress as necessary with an ignition point file (should be available at any local auto parts store). Just make sure that as you file the points, you maintain that they are flat, not rounded off and that you haven't filed past the contact material. If you are using new contact points, dress them with a file as well, just to make sure that they are clean and ready for use. On the upper contact, make sure the rivets are tight where the movable point plate is mounted to the upper contact mounting bar.

5. Install the lower contact on the coil, making sure it's centered over the coil. It should be adjusted so that there's 1/16 inch between the bottom of the contact plate and the top of the coil. You can use a screwdriver (or a punch) and place it in front of or behind the two rivets on the lower point that are between the mounting nuts. Gently tap the screwdriver with a block of wood or a light hammer to adjust the height of the lower point over the coil until you get the 1/16 inch needed (.062" if you want to use a feeler gauge).

6. Now for the upper contact point. Install the contact and tighten the two nuts on the one end of the part, taking care to align the upper contact point with the lower contact. The holes in the points may need to be enlarged or washers may need to be added under the points to account for shrunken wood cases. The other end with the single mounting hole should have a lock nut to hold that end down and there should be a spring under the contact holding the contact up. While you hold the LOWER contact point down against the coil, tighten down on the lock nut for the UPPER contact until you are left with 1/32 inch (.031") between the contact points.

7. On the bottom of the top contact, you may have noticed that the contact point is actually bonded to a second piece of metal (brass) with a small rivet part way back. When adjusted properly, the contact and this piece of brass are "cushioned" from the top contact mounting plate, allowing the contact to move more freely. If necessary, use your adjusting tool to adjust the top contact mounting bar so that the lower piece of brass sits about half way down on that small rivet when the upper bar is adjusted as I stated in the previous step (6).

Follow step 6 again if you had to bend the upper contact mounting bar.

8. Here's where it gets exciting – live testing of the coil! And remember, these were most commonly used on POSITIVE ground electrical systems.

a. Set your multi-meter to read amperage. We're only going to be reading about 1 amp.

b. Using a jumper wire, connect the NEGATIVE side of the battery to the "BAT" terminal on the coil.

c. Using a jumper wire, connect the "PLUG" terminal to the top of the spark plug. Use another jumper to connect the base of the spark plug to the "COM" terminal on the coil. Be careful not to short out the electrode on the plug with the clamp.

d. NOTE: it is important to always have the spark plug connected when the coil is energized. Without it, there is no outside path to ground for the high output of the coil and the energy will find a path inside – meaning it will burn out and short the coil. That means you will have to find a new coil because you ruined that one!

e. FINAL CONNECTION – CAUTION!! A LOT OF ELECTRICITY WILL BE COMING OUT OF THE PLUG TERMINAL – DO NOT TOUCH IT!!!

f. Connect the positive probe of the multimeter (red or with a "+" symbol) to the POSITIVE side of the battery. Touch the negative probe of the multimeter (black or with a "-" symbol) to the "COM" terminal on the coil.

g. CHECK the multi-meter and see how many amps the coil is drawing – it should draw between .85 and .95 amps when tuned properly. You can remove the negative multimeter probe from the "COM" terminal, or you can adjust the coil live while the coil is buzzing. BE CAREFUL to neither touch the terminals with your hands nor short the terminals with the tools.

h. TO ADJUST for the proper amperage, you are going to follow the same procedure as you did in Step 5, but this time only use the screwdriver, not the coil adjustment tool. Place the screwdriver or punch in front of or behind the two rivets on the lower points that are between the mounting nuts. If you're adjusting the points while energized, pressing down in front of or behind the rivets of the lower point will give you some idea of the direction you want to go. Gently tap the screwdriver

with your palm, a block of wood or a light hammer to adjust the height of the lower point over the coil until you get the proper amperage. A little adjustment goes a long way here. You will hear the buzzing change and you will see the spark change in intensity.



i. Adjusting the coil so that it draws between .85-.95 amps will make your coil and car happy. Lower amperages will give you a weak spark. Higher amperages will give you a huge spark, but will eventually burn out your coil.

j. The current reading of 0.85 to 0.95 amps is at 6 volts, nothing higher or much lower. Amperage

draw changes relative to the input voltage of most every electrical device but it's not really linear. Usually, higher voltage means lower amperage. But you must use electrical formulae to calculate what it will be at the various voltages, as it's not a direct proportion. If you set your coil on a 12 volt battery to 0.85 amps you'd probably burn the points badly and the insulation inside the coil wouldn't hold up much at all. Ideally, the coil likes around 8 volts. Sparky uses a resistor on his 12 volt cars to reduce the voltage to the desired level.

If this writing has been totally confusing, I take full responsibility as I drafted this article from some cryptic notes that I scribbled over a year ago as I attempted to learn this process from Sparky. I am neither a mechanic nor an engineer and take no responsibility for the accuracy or reliability of these instructions. Any references to actual voltage, amperage, or resistance are on reliance of hearsay from, you guessed it, Sparky. Only attempt this process if you understand the process and are comfortable with it. If you have any hesitation, please consult a professional. If this writing has been helpful and your coil works great, let me know and I'll pass on to Sparky how helpful he has been. If you got zapped – I'm sorry, but I do feel your pain! Been there, done that – OUCH!!!

If you like to pursue further reading on this subject, please cut and paste the below link into your browser. It's about tuning up Model T coils. <http://members.iinet.net.au/~cool386/fordcoils/fordcoils.html>