

Chapter 10 – Igniters and Electrodes

"What seest thou else in the dark backward and abysm of time?" The Tempest, Act I

Igniter-electrode systems are the worst performing feature of gas grills. While there is little danger in working on them, you will probably have to take the burners out to adjust and clean the electrodes. The burners need to be clean to get the best performance from the igniters. <u>FAILURE</u> to reinstall the burners correctly will cause a backup flame between the burner opening and the valve orifice. So <u>BEWARE!</u>

When you begin your task of fixing a grill problem you should accept the idea that it is more than likely to be a tedious inquiry. You may have to make several trips to the tool shed or the hardware store just to get the old parts off. Many "normal" people will throw the grill out after a few hours of looking at a problem. Getting the old rusty screws and bolts loose, and avoiding flame ups (in your face), is the most difficult part of the work. My results with this part of the grill are not perfect. I've spent time on many grills getting marginal results that end up having to manually light the grill with a long stemmed lighter.

Push Button & Rotary Igniters

Push Button type ignition systems for gas grills have the old push button type (piezoigniter) where you would push the button once and get one "click". Rotary type igniters are where you turn and get one, two or even three "clicks" with each turn of the knob. Both of these type igniters can have just one outlet or as many as 3 outlets. With all of them you need to have all the outlets hooked up to the electrodes or grounded by wire to the grill.

The simplest way to check the electrode is to pull out the cooking grids and the heat plates (or rock grates) and see if the spark jumps at the electrode end when you push the red button or turn the knob. You may have to bend into the grill to see the spark and can sometimes see it through the hole that is used for lighting the grill manually.

If the electrode is badly corroded, it will not likely allow the spark to occur. Check the wire to be sure the plastic insulation has not burned off which may allow a "short" to the grill body. If the igniter "clicks" I usually assume that it is still working. If the electrode-collector box is badly corroded, it is possible for the rotary and push button type igniters to "click" but not be generating a spark. You may have to replace both the igniter and the electrode collector box to get any ignition of the burner.

To check a one outlet push button igniter, it's often easier to have the igniter hooked up to the electrode-box and give it a push. Look for the spark. You might need to have the electrode lying against the grill body to get a ground. If you have a simple voltmeter you could connect the end of the electrode to the grill then push the button to see if the spark occurs on the electrode. Finding a way to connect all and then push or turn the knob with two hands will be the hardest part of this.

Correcting an ignition problem with manual push button or rotary igniters requires:

- 1. Exposing the burner with the electrode-collector box for inspection.
- 2. Testing the igniter to see if the collector shows a spark.
- 3. If the electrode sparks you have to pull the burner and clean the gas ports, as well as the venturi inside the burner. Then reinstall and check again for ignition <u>BE VERY</u> <u>CAREFUL AS YOU CAN GET IGNITION AND A FLAME UP IN YOUR FACE.</u>

- 4. You may have to pull the igniter and the electrode collector boxes for more testing or cleaning.
- 5. And, you may have to replace the igniter-electrode system and possibly the burner if it is badly corroded.

Battery Igniters

Maintaining and servicing the ignition system of your grill requires being able to: check the igniter, the wires to the electrode, the electrode and the burner gas portals. There are 3 basic types of ignition systems for grills:

- 1. Mechanical types which require you to turn or push the igniter button or knob.
- 2. Electrical-battery types that you push a button and usually get multiple sparks.
- 3. A "flamethrower" type that gives you one click and a pilot to the burner that ignites the burner.

Many of the grills today have a battery powered igniter with wires going to each electrode. They sometimes have an extra ground wire as well. I usually start with the igniter to see if it's "clicking". If it doesn't spark or click, I check the battery to see if it's in the proper position or to see if it is dead. The battery must be installed with the positive side in the proper place. If you have tried a new battery in all possible positions and it still doesn't "click", you probably have a bad unit. You can sometimes remove the battery and clean the terminals that are at the top and bottom with a pencil eraser. Then use a dry cloth to see if that might be the problem.

If the igniter is sparking but the burner is not lighting, you need to determine if you're getting a spark to the electrode. You can remove the grids and the heat plates to try and view the electrode. If you see a spark there but still get no ignition, then the burner gas portals (where the gas comes from) that are close to the electrode may need cleaning. You may want to check the whole burner to see if it's clean and if the gas portals are clogged or rusted. Use a wire brush, ice pick and air hose to clean the burner well. You need a good flow of gas over the electrode collector box to get good ignition over the burner and you need "cross over" to the other burners in order to light all of the main burners.

Checking the ignition system of a battery powered igniter-electrode grill requires these steps:

1. Check the igniter by replacing the battery and be sure the polarity is correct. Do that by reversing the battery. If you get no "clicks", the igniter is probably not operational and needs replacement. Some of the more persistent individuals may be able to extend the life on the igniter by cleaning the terminals really well.

If the igniter needs replacement, the first choice is to find a factory part. You will need to know the factory customer service website or the factory service phone number. You will also need the model number and sometimes the serial number when you reach the factory. The model number and serial number can be found on the grill "spec plate" which is usually a decal somewhere out of the way on the grill. You may need a flashlight and reading glasses for that. It may also be helpful to remove one of the electrodes to compare with what you see in your search. Don't be surprised if removing the electrode requires twisting off, breaking apart, drilling or grinding off rusted parts that won't unscrew.

If you're unable to find the factory, or they don't have the part, you'll have to check "aftermarket" sources. Try an Internet search for "gas grill parts" or check our website

<u>www.clagrills.com</u>. Try looking on the brand and model number page. If that doesn't work, see if the aftermarket site has a page with the different igniter parts. CLA's igniter page shows all igniters as well as electrode parts. Go to: <u>www.clagrills.com</u>, click on any model listed on the home page and check the small links on the left side under "everything we have".

At that point you will have to compare the old part with drawings/descriptions found on websites. You should try to match the wire connections and, if you can't match the exact number of outlets, you can either eliminate one of the electrodes or grind off extras to a grill part close to one of the burners (or even the grill body). Igniter outlets in multiples usually have pairs with one positive and one negative. When you have just one electrode, it's best to hook up one of the ground or negative outlets. If you have several electrodes they will provide a spark to all electrodes if all the outlets are connected, with any extra's being grounded (connected by wire) to the grill body. In the case of a Bakers and Chef Grill, I happen to have an aftermarket igniter that was a match. That doesn't usually happen with "aftermarket" parts.

- 2. Examine the wires to be sure that they are all connected and that the plastic insulation is not burned off nor is it cut (which might cause a "short").
- 3. Examine the electrode-collector box. Be sure there's enough metal for the "arc" of electricity to pass in front of the burner gas port. The electrode/collector box may need replacement.
- 4. If the electrode is rusted badly, or the igniter is working but the electrode is not producing a "spark" next to the burner, then the electrode probably needs to be replaced. It is rare that anything but a factory part or a duplicate "aftermarket" part will work as a replacement. Do a search for grill part sites and check under your brand and model number.
- 5. Check and clean the burners to be certain the gas portals are clean. This may require a wire brush, ice pick and air pressure hose. If the burners have burned through holes, or the portals are rusted beyond cleaning, the burner may need replacement. Canned air can be used but it is not as effective.
- 6. The "cross-over" tubes may also be burned out and in need of replacement. Examine them to be sure they are complete. I always like to try lighting the burners with the flame tamers-heat plates and the grids out of the grill. It's much easier to see how the flame ignites. <u>ALWAYS BE CERTAIN YOU KEEP YOUR FACE WELL AWAY FROM THE IGNITION</u>, as they can sometimes ignite when some gas has accumulated. This could cause a small flame that could burn you.
- 7. If you've managed to repair or replace the igniter-electrode system reinstall the burners and try lighting them with the igniter. Look for the spark and <u>BE CAREFUL</u> trying to light the grill as the gas can build up if the igniter is not working and you could have a flare up. The spark needs to be 3/8 to 1/2 inch from the gas portals. There may be a way to adjust the electrode or the burner to move them away or closer to get the best ignition.

Flame Thrower Igniters

The third type of igniters; "Flame Throwers" are found in many brand name grills like the Home Depot Ducane grills and many Nexgrill made gas grills. "Flame Thrower" igniters consist of the valve, igniter and electrode all in one assembly. You will, more than likely, have to replace the whole valve-igniter which is attached to a valve manifold. See the Glossary of Terms for a definition of manifold.

Sometimes the factory will sell the valves and sometimes they will sell only the entire valve assembly with all the valves.

After removing the grids and flame tamers, you will see the burner and either the electrode attached to the burner (not a Flame Thrower type) or the end of the tube from the valve coming through the front grill wall next to the burner. That is the tip of the "Flame Thrower" igniter-part of the valve assembly. If you're not getting consistent ignition off that burner you should check the burner to see if it's clean. You may want to remove it to check the gas ports and its general condition. Use a wire brush to clean the outside and either turn the burner up with the open end down or blow out with compressed air to clean any rust that might have accumulated inside the burner. If the burner has rusted through with holes in the burner (not the gas ports) it is time to replace the burner.

Inspect the igniter assembly attached to the burner. You may have to remove the valve assembly to see the valve-igniter well enough to clean and inspect. If the tube is rusted or comes off you will likely have to replace the valve assembly-igniter. Otherwise make sure the tube is clean and try turning on the valve to see if the electrode clicks. <u>BE CAREFUL!!</u> If the gas is on you can get a flame from the electrode tube as well as the valve orifice. If the valve is intact with the igniter tube and the unit sparks when the valve is opened to the light or high position, the igniter-valve is probably working.

Replace the valve assembly back into the grill and then replace the burner(s) back into the proper position. Be certain that the burner openings are over the valve orifice (jet). Without replacing the flame tamers or grids, try each burner to see if the ignition is improved. You should hear the click of the igniter as you turn the valve. Then the flame will come through the tube beside the burner and finally ignite the burner.

Igniters and Electrodes Images



This is an old "clamp on" electrode-collector box from a Ducane 5004SHNE



Replace the electrode-collector on the old burner (which is still useable).



This is an electrode-collector box from a Great Outdoors 1000 grill. This box bolts onto the grill bottom.



This is a GO 1000 electrode-collector which is bolted to the grill bottom. By the time this needs to be replaced you will probably have to grind it off.



Bakers and Chef Y0656



Here are various manual igniters



This shows various battery igniters.



These are various electrode-collector boxes.



Check igniter. New battery should "click" if it is good.



To remove igniter, unscrew the nut on the control. <u>HANG ON TO THE NUT!!!</u>





It's easier to hook up the wires before you put the igniter back in.

Remove the grids, heat plates and burners to get to the electrode.



Here is a new electrode along with the old one. See Chapter 4 - Basic Grill Maintenance, Diagnostics and Trouble Shooting.



This is an old electrode. It isn't rusted so bad that it needs grinding to get it off. It can be unscrewed.



Here is an electrode seen from under the front of the grill, below the valve.



Unscrew the nut from the electrode shaft. Be sure to set the new one like the old one. Always keep one of the old ones in to be sure. Or, take a picture to remind yourself of how it is connected.



These are "Flame Thrower" type assemblies. You can try cleaning but will more than likely have to replace it if you want to use the igniter.