

## *ALL THE THINGS YOU NEED TO KNOW ABOUT GRILLS*

### *AND HOW TO FIX THEM*

#### How to find your model number.

Your grill should have an **ALUMINIZED TAG** glued somewhere on the frame of your grill. Usually it is hidden on the back or side of the cart and on some models can even be located on the support rod under the tank. This tag should look something like the one pictured above and contains manufacturer information and the specific model number of your grill.



#### Tip Of the Day

To minimize "flare-ups" change your lava rock once a season or when saturated with barbecue drippings. You can also switch to using ceramic or porcelain briquettes which are less porous and can be baked clean by turning them over and heating....

# how-to:

## Grill Body

A majority of grills have grill bodies made of cast aluminum which has traditionally been used because of its resistance to rust and its ability to hold and distribute heat evenly. Aluminum castings are very durable and often come with 10 year to lifetime guarantees. The quality of the casting varies by thickness and grade of aluminum. Also available are porcelain coated steel and stainless steel grill bodies which offer a high level of rust resistance while sacrificing some grill efficiency.

- **Inside the grill** - Food grease is extremely corrosive and should be periodically cleaned from the grill. Use a putty knife to scrape and remove accumulated grease and vacuum the inside of the grill. Left unattended over a period of time, these food acids will actually corrode away the bottom of the grill. Do not use a putty knife on porcelain coated surfaces as this will damage the porcelain and expose the steel to the corrosive food greases.
- **White spots** - Aluminum is resistant to rust but extreme temperatures and weathering may cause oxidation to form white spots. It has been our experience that the use of a grill cover will minimize but not eliminate this problem. Oil or polish will help the situation (see below).
- **General cleaning** - Use a mild soap and water and wash the grill as you would your car.
- **Vegetable oil** - A light coating of oil applied with a soft rag will add luster and offer protection to the outside of the castings. Heavier coatings of vegetable oil will have a tendency to build up and appear sticky. Coat the inside of the grill when it is new or when it is clean to give it extra protection from food acids.
- **Stove polish** - Is available as a liquid or paste and can be applied with a soft cloth. The polish contains black pigments which will revitalize the finish by adding color and the wax offers protection from the weather.
- **To refinish castings** -
  1. Clean the exterior to remove burned on grease and oils.
  2. Lightly sand with steel wool, medium emery paper or fine sandpaper.
  3. Clean off residue with a vinegar and water solution. This neutralizes the finish. Rinse with clear water.
  4. Once dry, paint with a high temperature paint. These paints can withstand very high temperatures and are commonly available where other paints are sold.
  5. High temperature paints are cured by heat. After the paint has thoroughly dried, bake it on by operating grill for 15 minutes on a medium heat.
- **Glass windows** - The glass can be cleaned using a water and ammonia mixture. Windex or other glass cleaners will also work. Abrasive cleaners and pads will scratch the glass surface. Never attempt to clean the glass when it's hot and do not use cleaners containing lye or oven cleaner. If the glass is removed to clean, be sure to allow a loose fit in the frame which gives the glass room for expansion when heated.



### Tip Of the Day

**Your cooking grids can be easily cleaned by covering them with a layer of aluminum foil and heating the grill on high for 10 to 15 minutes. The baked on food will turn to a fine white powder which can be easily brushed away...**

# how-to:

## Cook Grids

Cooking grids come in a variety of styles and materials. The most common are chrome plated and porcelain coated rod. Also available are cast iron, porcelain coated cast iron, stainless steel and porcelain coated steel. Many grills are also equipped with a warming rack that rests above the primary cooking surface, which can be used for both keeping foods warm and as a cooking area when using an indirect method of cooking.

- **Chrome plated** - Generally the least expensive cooking grids. They are subject to rusting and food sticking, however should provide several years of satisfactory service. Warming racks are generally chrome plated.
- **Porcelain coated rod** - Their shiny black or gray porcelain coating makes these cooking grids easier to clean and helps prevent the food from sticking. Care must be taken not to chip the porcelain coating which will expose the steel rod and allow rusting. A soft brass bristled brush should be used to clean the grids. Scraping will damage the coating. Porcelain coated grids vary in quality by the thickness of the rod and the thickness of the porcelain coating.
- **Stainless steel** - Offering excellent rust resistance, these grids generally have a wide configuration allowing easy food handling and providing wide sear marks. They cool easily and meats may have a tendency to stick.
- **Cast iron** - Offering the most mass, these grids have excellent searing capabilities as they retain their heat the longest. They are available with or without a porcelain coating and because they are so heavy, should last for many years. Non-porcelain coated cast iron grids require curing with vegetable oil in a manner similar to curing a cast iron frying pan.

### Maintenance Hints.....

- **Cleaning** - Cooking grids can be cleaned by heating them in the grill with the lid closed much like using a self cleaning oven. A layer of aluminum foil over the grids will help concentrate the heat. Do not overheat your grill, and do not leave your grill unattended. A maximum of 5 to 10 minutes on HIGH is recommended by most grill manufactures. After baking, brush the loose residue from the grids with a brass bristled brush. If desired they can then be cleaned with a mild soap and water.
- **Vegetable oil** - Coat the cooking grids with vegetable oil before cooking. This helps prevent the food from sticking and makes cleaning easier.
- **Rusting** - There is no fix for chipped away porcelain and rusting food grids. Clean away rust and coat with vegetable oil. Do not paint cooking grids or any cooking surface.



### Tip Of the Day

To minimize "flare-ups" change your lava rock once a season or when saturated with barbecue drippings. You can also switch to using ceramic or porcelain briquettes which are less porous and can be baked clean by turning them over and heating.....

## how-to: Radiants

Directly above the burner the gas grill will generally have a rock grate which is designed to hold a layer of lava rock or ceramic briquettes. This has the dual purpose of spreading the heat from the burner uniformly over the cooking surface of the grill and vaporizing food drippings to give food it's barbecue flavoring. Also available are a variety of styles of heat distribution plates which come in a wide variety of materials and designs.

- **Lava Rock** - The most common and least expensive alternative. The light density of the rock offers quick heating with good distribution. It is very porous which allows grease and char to build up and should be changed yearly or when saturated. When not changed or burnt-off regularly, "rock" catches fire causing extreme flare-ups and out of control cooking situations.
- **Pumice Stone** - Similar to lava rock, offering the same quality heat distribution, pumice stone has a less porous surface at a slightly higher cost. The less porous surface allows the stone to be baked off more thoroughly for fewer flare-ups.
- **Ceramic Briquettes** - Baked ceramic briquettes come in a wide variety of shapes and sizes. They are self cleaning by allowing the heat from the burner flame to bake them clean. Cone or pyramid shapes are designs to allow the grease to roll off without buildup. Replacement is necessary after eventual weakening and crumbling of briquettes. They carry the highest initial cost and vary in cost and quality by the degree of hardness. Through their uniform shape and size they offer superior heat distribution.
- **Heat distribution plates** - Designed to reduce flare-ups, these plates can be made of aluminized steel, stainless steel, porcelain coated steel, or cast iron. They concentrate the heat more than lava rock or briquettes, therefore requiring lower control settings. The plates have holes or slots that are configured to allow heat to rise evenly through the plate as the plate radiates heat to the cooking surface above. Food drippings are burnt and vaporized as they contact the hot plate.



### Tip Of the Day

You can help protect your grill body from the weather and minimize white spots and oxidation by coating the outside of the grill with a light coating of vegetable oil applied with a paper towel while cool....

## how-to: Burners

The burner is the heart of the barbecue and is subject to great abuse from corrosive food acids, high temperatures and moisture. Although it is common that burner replacement becomes necessary during the life of the grill, burner life can be greatly extended by periodic maintenance and cleaning. In addition, frequent use will actually extend burner longevity by burning away moisture and food acids.

- **Burner shape** - Burners come in a variety of shapes, styles and materials and are described and referred to generally by their shape as viewed from the top. For example the most common, being the H-Burner which is shaped like the letter H, the oval burner which is oval shaped and the bar burner in the shape of a long thin bar. Burner shape or configuration effects the distribution of the flame and uniformity of the heat across the cooking surface. Because combustion air holes molded into the bottom of the castings follow the actual contour of the burner, replacement burners must be of the same shape and configuration as the original.
- **Materials** - Different materials are used in burner construction with some materials being more resistant to corrosion than others. All warranty periods below are as generally given by the grill manufacturers for the types of material listed. Individual warranties vary greatly among manufacturers and burner life is greatly dependent on

usage, maintenance and environment.

- **Aluminized Steel** - A galvanized type steel which is commonly used in lower end grills. Will sometimes carry a 3 year warranty.
- **Porcelain Coated Steel** - A baked on porcelain enamel finished steel. Generally carry a 3 year warranty.
- **Stainless Steel** - The most common material used and can be found in low end through upper end grills. There are different grades of stainless steel in addition to different gauges or thickness. Warranties range from 3 to 5 years.
- **Cast Iron** - Solid molded cast iron. Usually carry longer warranties with some to 10 years. Cast iron is subject to drying and flaking and should be oiled and maintained to enjoy full life expectancy.
- **Cast Brass** - Solid molded cast brass. The least common burner, only available on several distinct models of upper end grills. They carry the longest warranty with some to 15 years.
- **Cleaning** - Wire brush the burner exterior to remove loose corrosion and excessive residue. Clean clogged gas holes with an opened paper clip. Check burner assembly for corrosion damage or any opening that would emit excess air. Replace corroded or damaged burners.
- **Burner Flame** -
  - **New Burner** - A new burner may give excessive yellow flame while burning off oils used in manufacturing. After breaking in a new burner and once the oil has burnt away, check the burner flame.
  - **Inspection** -

**Caution: Grill hood must always be open when lighting.** With the grill lid closed and the cooking surfaces in place, observe the burner's flame from below the grill bottom and looking through the air supply holes. A good flame would be blue with some yellow tip coming from the burner holes. There should not be an excessive gap between the flame and the burner. Some yellow tips on flames up to 1" in length are acceptable as long as no carbon or soot deposits appear.

- **Adjusting Flame** - If flames are excessively yellow and irregular, the oil residue may not be completely burnt off, the [venturi tubes](#) may not be properly positioned over the orifice, or the venturi tube shutters may not be properly adjusted.

To Adjust Shutters:

1. Loosen screw to air shutter and close shutter.
2. Open slowly until flame is free of yellow. Do not open any farther than required.
3. Shut off gas and tighten adjustment screw.
4. Allow grill to cool before proceeding.



**To help discourage squirrels and other critters from chewing and damaging the gas supply hose from your tank in their search for barbecue drippings, occasionally wipe the hose down with an ammonia and water cleaner.**

# how-to:

## Ignitors

Igniter systems most commonly consist of a gas collector box, ceramic electrode, wire and igniter push button. Contrary to popular belief, these igniter systems are highly dependable and should provide several years of dependable performance. Most igniter problems that we have encountered are actually burner related problems or a result of excessive grease and char buildup.

- **How they work.** When the gas is turned on at the control knob it begins to flow to the burner and escapes through the burner ports. As the gas escapes it accumulates in the collector box and is ignited by an electric spark generated when the igniter push-button is activated.
- **Testing.** With the gas shut off watch the electrode tip inside the gas collector while activating the igniter. It may be necessary to use a small hand mirror to see inside the collector box. A spark should jump from the electrode tip to the collector box or from the electrode tip to the burner for burner mounted electrodes. **If you are getting spark and the grill still will not light, check the [venturi tubes](#) for blockage. Gas escaping at the venturis may catch fire at the control valves.**

### No spark.....

- Check the wire connections for corrosion or looseness. Operate the pushbutton while watching the connections from the underside of the grill to assure the spark isn't jumping from a connection to the grill body.
- There should be a 2" clearance between the wire and the grill body.
- Check that the electrode isn't cracked or broken. It is normal for the wire to fit loosely in the porcelain.
- Greasy electrode? The spark will track through the grease to the grill body. If this happens, replacement is required.
- Dirt and rust on the electrode wire tip, or the metal surface that accepts the spark, can prevent the electrode from sparking. Remove rust by lightly sanding with emery cloth or fine sandpaper.
- Check that the burner ports are not clogged and possibly preventing gas to enter the collector box.
- The locking nut on the push-button serves as an electrical ground. Loosen it first and retighten to assure a good connection.

**Models with side burners** - check the spark gap on the side burner along with the main electrode. Both electrodes are in series which means that if the side burner electrode spark gap is too large, neither electrode will spark. To adjust side burner electrode, first try positioning the electrode closer to the burner. Use caution if trying to bend the electrode wire closer. The porcelain electrode is fragile and will break if bent near the tip.



### Tip Of the Day

**To minimize "flare-ups" change your lava rock once a season or when saturated with barbecue drippings. You can also switch to using ceramic or porcelain briquettes which are less porous and can be baked clean by turning them over and heating.....**

# how-to:

## Valves

The control valves supply and regulate the gas flow to the burner. These valves have a spring loaded locking feature and are designed to lock into place when the valve is in the OFF position. The valve must be depressed by pushing in the control knob while turning to the ON position. If a problem occurs with the valve lock not releasing, check that the valve stem extends sufficiently from the control panel and is allowing full depression of the control knob which releases the locking device.

- **Repair parts** - Individual repair parts for control valves are not available. Replacement is necessary if a control valve becomes broken or frozen and replacements for some models are available individually or may occasionally require replacement as a set. Valve configuration varies widely between makes and models of gas grills and must be ordered specifically for your make and model of grill.
- **Orifice cleaning** - The valve orifice is an integral part of the control valve. Orifices on the valves will sometimes plug from either insects invading through the venturi or from debris inside the supply line. Orifices can be removed for cleaning. Use an orifice cleaning tool or small wire to clear orifice hole. Use caution not to scratch or damage the orifice hole. **Do not operate grill without orifice in place. This poses an extremely dangerous fire hazard.**
- **Orifice size** - The orifice, in conjunction with the control valve, acts to regulate and restrict the amount of gas delivered to the burner. The hole size in the orifice varies by the gas supply pressure and by the BTU rating of the burner. Grills equipped for LP gas operate at a much higher gas pressure and therefore have a smaller size orifice.
- **Conversion kits** - Conversion kits are available for changing the grill gas supply from propane to natural gas for some brands of grills. Generally included in the kit are proper sized orifices and a flexible hose and quick connect assembly.
- **Knobs** - Control knobs vary greatly between grill brands. The variances are the knob shaft length, clockwise and counter clockwise bezel, and the OFF position. Original equipment knobs guarantee a proper fit and indication. In addition, universal replacement knobs are available that can be set up for most brand grills.



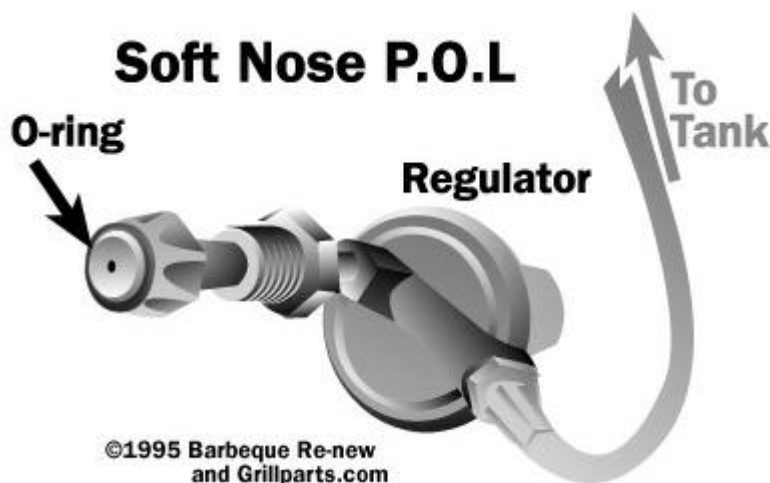
### Tip Of the Day

**Spritzing ribs, chicken or other slow cooking  
barbecue with apple juice will keep the barbecue moist without changing the flavor....**



# how-to: Regulators

All LP grills are equipped with a pressure regulator which attaches between the grill control valves and the LP cylinder. The pressure output of the tank is much greater than the pressure required to operate the grill and the regulator reduces this pressure to a workable level. A regulator must be used in conjunction with an LP tank or the risk of explosion will occur. The P.O.L. valve is the connector that goes between the regulator and the tank. New model grills are equipped with a [new style](#) P.O.L. valve that is connected to the LP tank with a large Acme type nut.



- **Adjustment** - The regulator is factory set at a specified outlet pressure of 11 inches of water column and is generally factory sealed and not adjustable. Do not try to adjust. The regulator can be checked by measuring the pressure with a manometer.
- **Inspection**
  - **Vent hole** - There is a vent hole on top of the regulator. Check that it is clear of dirt and debris. If the hole is plugged, erratic and dangerous burning may result.
  - **O-ring seal** - Before attaching the regulator to the cylinder, inspect the rubber O-ring on the P.O.L. fitting. Do not operate the grill if the O-ring is damaged or missing. Seal damage is common and we recommend replacement of the seal when the burner is replaced or when the seal is damaged. Cracks, splits or distortion will allow gas to escape. Additionally, the seal should be soft, pliable, and protrude slightly from the brass P.O.L. valve.
  - **Chew marks** - Critters like good barbecue too! The hose should be kept clean of grease and food drippings which attract squirrels and other animals. The animals will often eat the drippings on the hose and chew into the hose lining trying to get the last taste. Try cleaning the hose with an ammonia cleaner solution to minimize the attraction.
- **Test for leaks -**
  1. Mix a 50/50 solution of liquid dish soap and water.
  2. Connect the LP cylinder.
  3. Make sure the control valves are OFF.
  4. Brush the soap solution over the P.O.L. valve and all piping and hose connections.
  5. Turn on the cylinder valve and listen for leaks, and look carefully for soap bubbles being formed at the connections which indicates leaks.







## Tip Of the Day

To cook chicken and pork or or for other slow cooking, turn one side of the grill on low and cook the barbecue on opposite side of warm rack for an indirect method of cooking.

# how-to: LP Tanks

LP Gas is short for Liquefied Petroleum Gas. Also called propane or bottled gas, LP gas is highly flammable. It becomes liquid when stored under high pressure inside a cylinder and vaporizes when released.

- **Tank level-** The best way to tell cylinder level is by the weight of the cylinder. Standard cylinder capacity is 20 lb. of propane. Full cylinder weight should be approximately 38 pounds. A full tank is heavy! Accessory options are available which will measure gas flow and give a tank level indication.
- **Connecting the tank-** The standard style valve outlet is a left-hand thread and tightens in a counter-clockwise rotation. Likewise, turning the hexnut clockwise disconnects the P.O.L. valve or regulator assembly.
- **Filling the cylinder-** Not a self service operation! The LP dealer will have a qualified person available to run the equipment that fills the LP Tank.

NOTE: A cylinder POL Plug should always be used in the cylinder valve outlet when the cylinder is being transported and when the cylinder is not connected to the grill. The cylinder should not be stored in a building, garage or any other enclosed area. Store outdoors in a well ventilated area.

- **Tank age-** The date manufactured is stamped into the guard surrounding the cylinder valve. (This guard also acts as the carrying handle.) Cylinders should be re-certified after 12 years from this date. Re-certification can generally be done by a local propane distributor. The charge is \$5 to \$10 and the tanks are tagged and certified for another 5 year period.
- **Rusty tank-** Cylinders can be repainted with a rust preventative type paint. Remove loose rust with sandpaper or steel wool and clean away any grease or oils. Do not paint valve assembly and do not paint over warning labels. Mask off valve assembly and warning labels if using spray paint. Use white, or off-white paint with the color specified for propane tanks. Light colored paints will help reflect heat when exposed to the sun.
- **New style tanks-** These tanks have an internal thread to accommodate standard POL fittings and also have an external thread to accommodate new grills with the *Marshall Type* large Acme nut. New style tanks have an internal check valve which prevents gas flow until a leak tight connection is made. Compare local pricing of a new tank as the cost of the adapter may be nearly as much as the cost of a new tank!
- **New style tank with older model grill-** You can use a new style tank with an older model standard POL fitting. The new style tank valves have internal threads which allow you to connect the standard POL fitting in a counter-clockwise rotation.



## Tip Of the Day

Your cooking grids can be easily cleaned by covering them with a layer of aluminum foil and heating the grill on high for 10 to 15 minutes. The baked on food will turn to a fine white powder which can be easily brushed away...

# how-to: Venturies

The venturi tubes are the tubes that extend from the burner to the control valves. These have openings at the ends to allow air to mix with the gas as it leaves the control valve. Generally they are fitted with moveable shutters that allow for air mixture adjustment and with spider guards or small screening to discourage spiders and insects from entering.

- **Bugs** - Commonly, spiders and small insects will spin webs or build nests inside the venturi tubes. This especially occurs in late summer and fall before frost, when spiders are most active. These nests can obstruct gas flow and cause a fire in and around the valve at the control panel. Such a fire can cause operator injury and serious damage to your grill. To help prevent a blockage and ensure full heat output, clean and inspect venturi tubes often.
- **Spider Guards** - Screening is often built into the venturi openings to act as a spider guard. Spider guards can be fabricated by wrapping small sections of aluminum screen around the venturi openings and securing with small gauge wire to keep the screens in place. The guards should be cleaned periodically to keep dust from blocking air openings.
  1. Remove burner assembly from grill.
  2. Look inside lower end of venturi tubes for insect nests, cobwebs, or wasp mud.
  3. To remove insect nests, cobwebs or wasp mud, use an accessory flexible venturi brush or bend a small hook on one end of a 20 inch long flexible length of wire.
  4. Use the brush or wire to remove the obstructions from the venture tubes.
  5. Inspect and clean burner if needed.
  6. Replace the burner assembly into the grill.
  7. Make sure valve orifices are inside venturi tubes.

NOTE: These tubes do not mechanically attach to the valve. Be sure that the valve orifice extends at least 1/4 of an inch into the venture tube.

8. Secure burner to grill.
- **Adjustment** - Moveable shutters are a part of most venturi tubes and have a locking screw which when loosened allows the shutter to be rotated, controlling the air and gas mixture and subsequently the burner flame. Some venturi tubes are factory set and have no means of adjustment.

### Replacement and inspecting for rust. What to look for....

Corrosion starts at the top of the burner, and usually at the seams where food acids accumulate. If the burner is left unattended and not replaced at an appropriate time the rust will eventually work its way down under the burner to where the venturis attach requiring venturi replacement.

- Twist-Lock venturis.

Featured on Sunbeam and new model Charmglow grills, the twist-lock venturi is designed for ease of installation and assembly. The venturis are mounted by placing the venturi into the inlet on the burner and twisting the venturi to a perpendicular position. At that point there are two small metal lips on the venturi that lock the venturi into place causing a secure seal. It is common that these lips will corrode which

inhibits the venturi from locking securely into place. Although burners of this type are shipped with the collector plate which gives additional support to the venturis, we recommend replacement if the locking lips on the venturis show signs of rust .

- Flange mount venturis.

The flange mount is the most common type of venturi and has a mounting flange that attaches with two screws or nuts. There is a gasket that goes between the flange and the burner which gives a secure seal. Pitting and rusting of the flange surface may allow gas to escape between the gasket and the flange. If this surface is corroded we recommend replacement of the venturi. As an added note, universal venturis may not fit on original equipment burners because of a difference in the hole pattern on the flange.

**NOTE:** The information provided is not intended to take the place of the owners manual that was supplied with your grill. Specific safety, repair and maintenance information varies between grill models and brands. **Always refer to your owners manual first.**

Copyright 1998 Barbecue Renew/Grillparts.com, all rights reserved.