

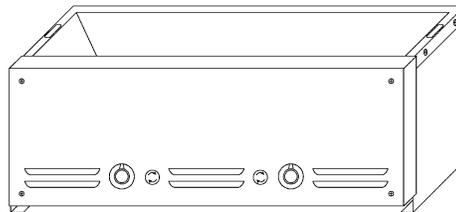
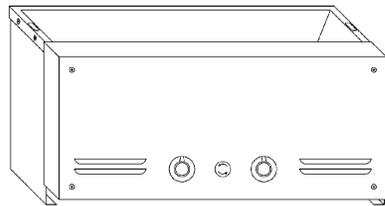


BARBECUE EQUIPMENT

Manufactured by
K & W Mfg. Co. Inc., Corona, California

Installation & Operation Instructions

For Gas Barbecues Models 5453 and 5457



A Note to You

Thank you for buying a Flame-Broil barbecue grill. To ensure that you enjoy your barbecue equipment for many years, we developed these instructions. They contain valuable information about how to install, operate and maintain your barbecue equipment. Please read them carefully.

Keep this booklet and your sales receipt together in a safe place for future reference. It is important for you to save your sales receipt showing the date of purchase. Proof of purchase will assure you of warranty service.

If you need assistance or service, you can reach us at:

K & W Mfg. Co., Inc.
23107 Temescal Canyon Road
Corona CA 92883-5045
Phone: 909-277-3300
FAX: 909-277-2070
www.k-and-w-mfg.com

Happy Barbecuing!

Limited Warranty

K & W Mfg. Co., Inc. warrants Flame-Broil Barbecue Equipment to be free from defects in design, materials, and workmanship at the time of manufacture.

For a period of five (5) years following purchase, K & W Mfg. Co., Inc. will repair or replace, at the discretion of K & W Mfg. Co., Inc., any Flame-Broil Barbecue unit found to be defective by K & W Mfg. Co., Inc. or their authorized representative. This warranty does not cover the normal wear and tear that occurs from operation of the unit, nor does it including neglect or abuse. The Flame-Broil Barbecue unit must be installed and operated in accordance with the installation and operating instructions of K & W Mfg. Co., Inc., and any local area building and fire codes. K & W Mfg. Co., Inc. shall not be responsible for any indirect, incidental, or other damage.

In order claim remedy under the five-year warranty, the unit must be returned to the factory, at the owner's expense, with a copy of the purchase receipt. If the unit is found to be defective, K & W Mfg. Co., Inc. will repair or replace the unit at their discretion, and return the unit to the owner at the company's expense.

At any time, K & W Mfg. Co., Inc. will repair or replace any Flame-Broil Barbecue unit, returned to the factory at the owner's cost, for a cost of no more that half of the current suggested retail price of the most similar current model.

Unpacking your Barbecue

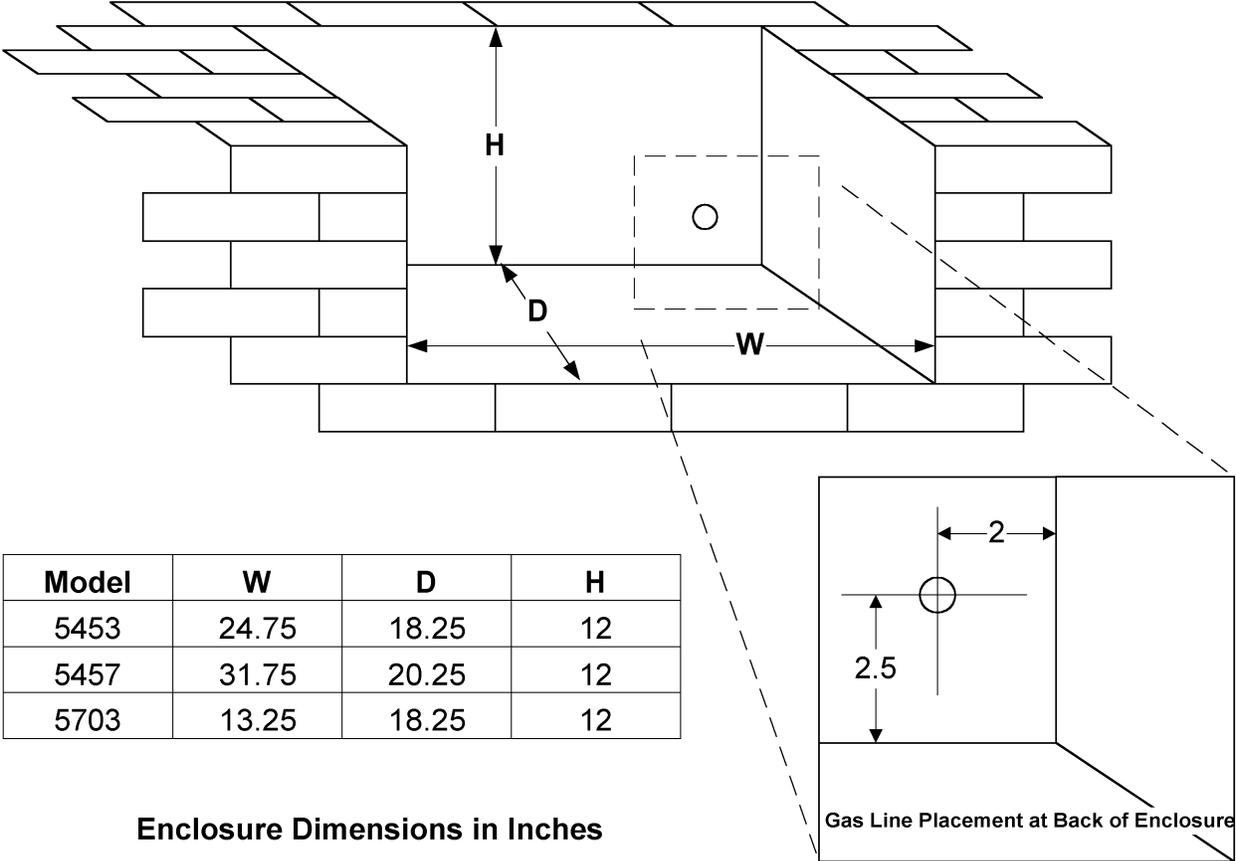
When you unpack your barbecue unit, you should find:

- The main body of the barbecue unit with the burner(s) installed
- A drip tray at the bottom of the unit
- A box inserted into the inner liner of the barbecue unit. This box should contain:
 - ✓ These instructions
 - ✓ Two small hex-head orifices for converting from natural gas to propane (LP).
 - ✓ Two smaller cooking grills
 - ✓ One larger briquet grate
 - ✓ Three or four bags of stainless steel Broilettes

1 Installation

1.1 Setting up your stand or enclosure

Flame-Broil barbecue equipment may be installed in many different types of enclosures or stands. If you are planning to build a permanent enclosure and/or change your gas plumbing, it is highly recommended that you check with your local building department concerning building codes and permits. The following diagram will provide you with the dimensions your equipment needs to fit its enclosure or stand.



1.1.1 Combustible Materials

Our barbecue units are intended for use in masonry or other fireproof locations. **They are not insulated.** They should **never** be in contact with any combustible materials.

While operating your barbecue equipment, you should be at least **2 feet** from any combustible house sidings. In addition, you should **never** operate your barbecue equipment under a roof overhang or patio cover made from combustible materials.

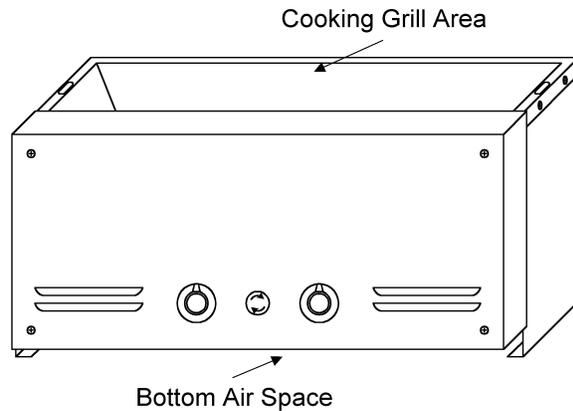
1.1.2 Drainage

Allowing water to pool in and around your barbecue equipment will increase the normal wear and tear to the components, and lower their life expectancy. We recommend that you provide for drainage when building your enclosure so that water will not pool underneath the barbecue, or inside the enclosure.

1.1.3 Ventilation

Blockage of fresh airflow into and around your barbecue equipment will cause overheating, poor combustion and possible damage to components. There is an air space at the bottom of the barbecue units, below the face. This air space must remain open for your barbecue equipment to operate properly.

Our barbecues are also designed to vent through the cooking grill area. Therefore, air must be allowed to flow through the top of the unit. Only use a Flame-Broil barbecue accessory to cover the cooking grill area.



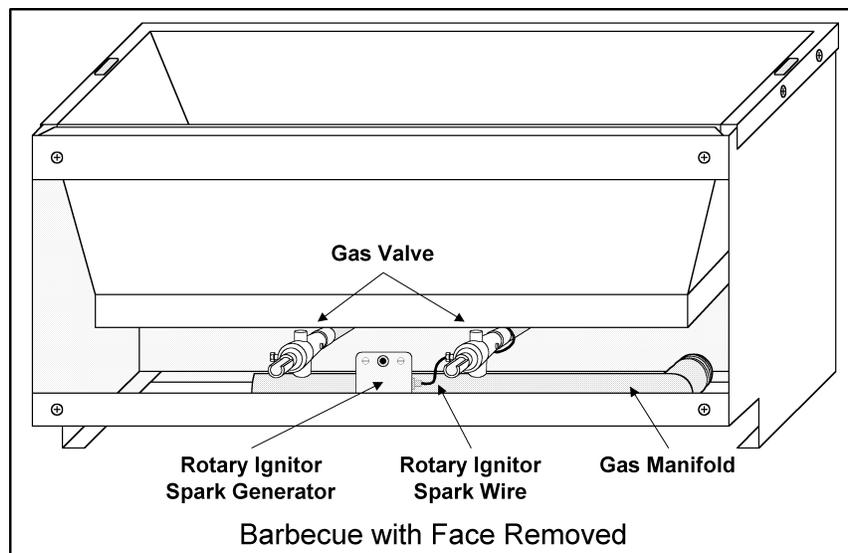
CAUTION: Propane, also known as LP, is a gas that is heavier than the surrounding air. You should not store your propane bottle in an area that can trap any escaping gas. This means that your storage area must be vented at the level of the base of your tank.

1.2 Gas Connections

Please study this connection information carefully. If you do not feel confident about making these connections yourself, please get help from a professional plumber or gas appliance installer before proceeding.

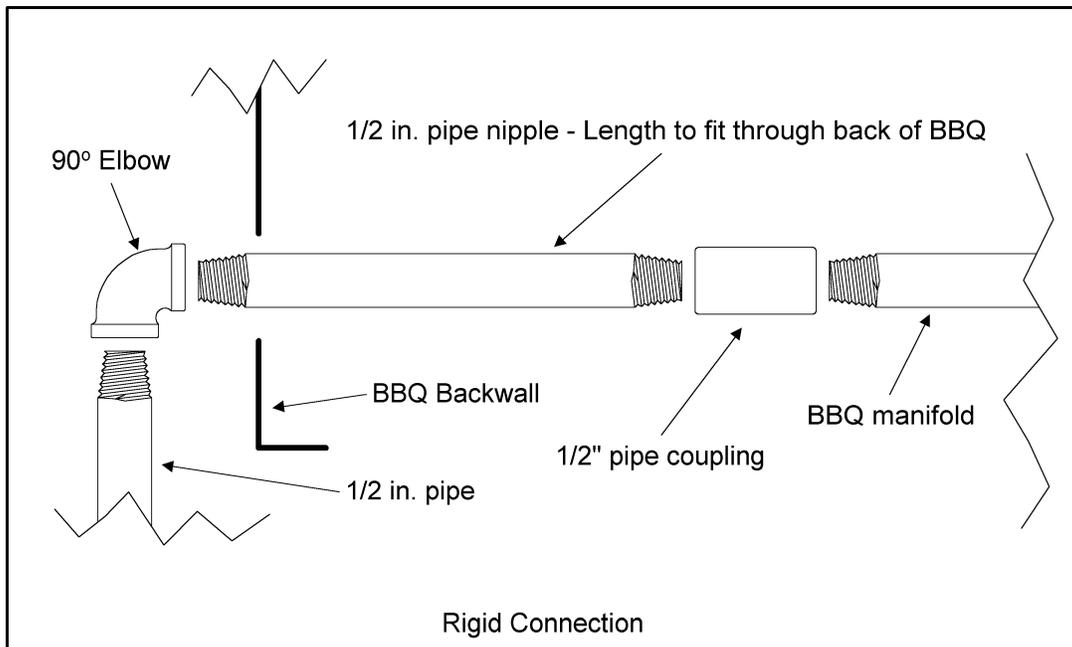
Be sure to use pipe tape or pipe joint compound approved for gas when making your connections. Check all connections for leaks with a soapy solution (50% water / 50% detergent) before lighting the barbecue unit for the first time. Bubbles indicate a leak that must be repaired before proceeding.

We recommend that you remove the face of the unit for easier access. Be sure to remove all of the loose components and accessories from the unit. Next, you remove the knobs by pulling them straight out from the face. Then, remove the four screws retaining the face to the frame. Carefully lift the face away from the frame. (Occasionally, we need to add spacers between the face and the frame to ensure that the cooking grills will fit correctly. Be sure to save any spacers you may find there.)

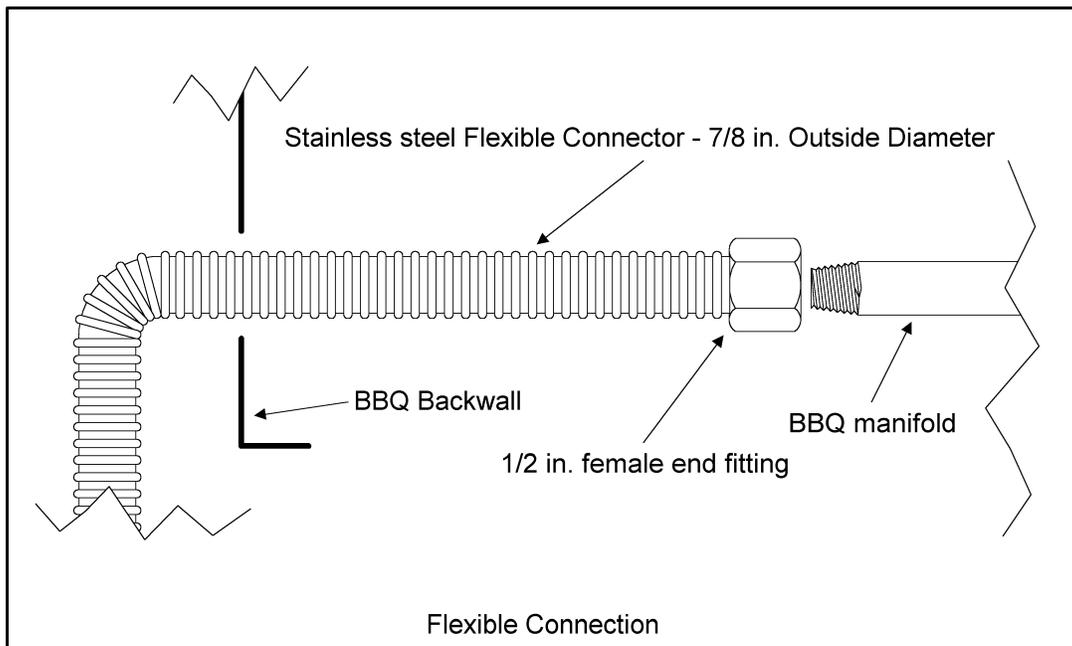


1.2.1 Permanent Gas Connection

Standard 1/2 in. iron gas pipe is recommended to make the connection from your household gas supply to your barbecue equipment. A shut-off valve in the gas line is recommended for safety and convenience. If the barbecue unit is accessible to children, a shut-off valve with a removable key is highly recommended.

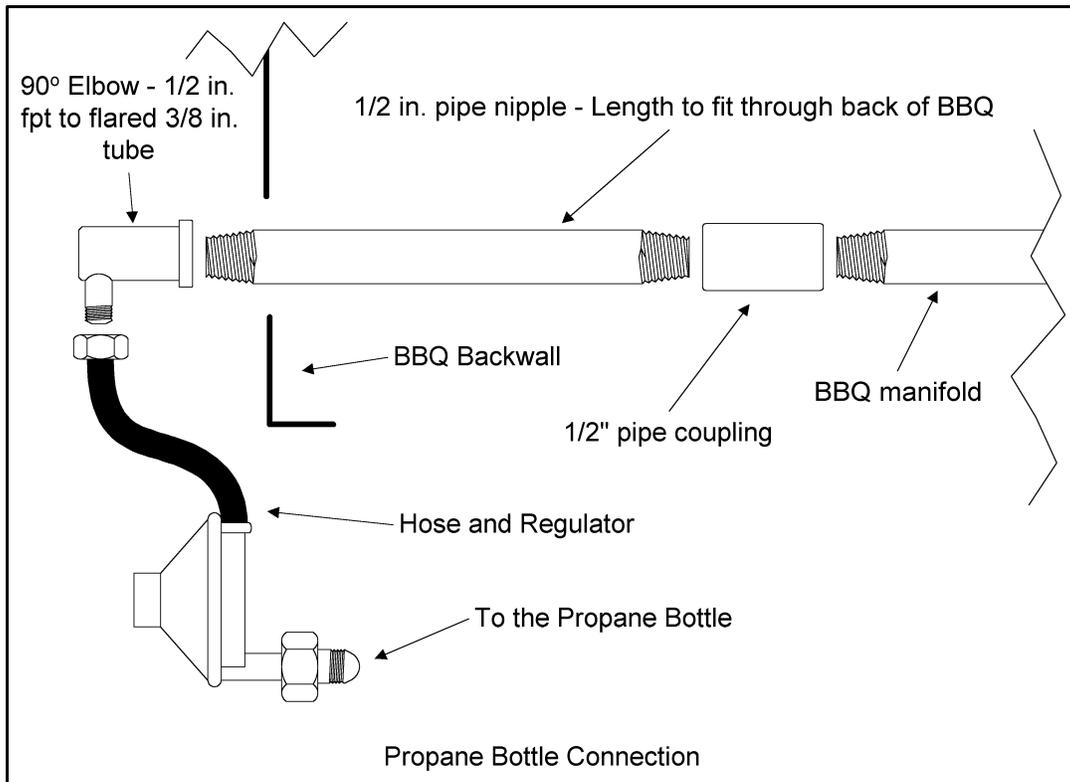


Stainless steel flexible connectors may be used for difficult locations. A 7/8 in. outside diameter connector is the recommended size. Smaller sizes may cause a gas flow restriction. This problem is usually indicated by a whistling sound in the gas line, and not enough heat available for cooking. The barbecue manifold will require a 1/2 in. female end fitting.



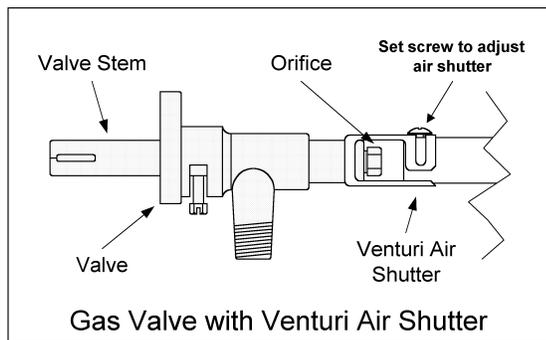
1.2.2 Propane (LP) Bottle Connection

You must use a fuel pressure regulator with your propane bottle because the gas is stored under pressure. We recommend using iron gas pipe to extend outside of the body of your unit before connecting to the hose and regulator.



CAUTION: Propane, also known as LP, is a gas that is heavier than the surrounding air. You should not store your propane bottle in an area that can trap any escaping gas. This means that your storage area must be vented at the level of the base of your tank.

1.3 Natural Gas to Propane (LP) Conversion



Your barbecue equipment normally comes from the factory ready to use natural gas.

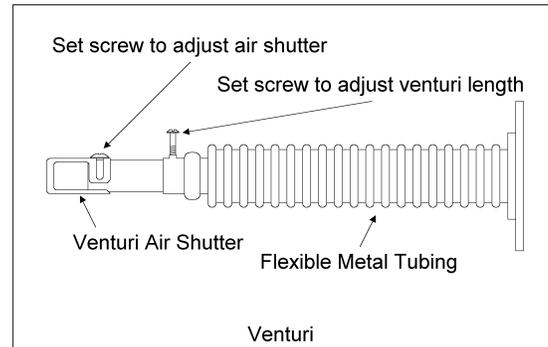
To use propane, you need to change the orifice on your gas valve(s). The orifice is on the end of the valve opposite from the stem where the control knob mounts.

You will need to slide the venturi air shutter from over the orifice, and move it out of the way. Using a 1/4 inch wrench, remove the natural gas orifice and replace it with the LP orifice that came with your equipment. Replace the venturi by sliding the air shutter back over the orifice end of the valve.

1.4 Adjusting the Fuel Mixture

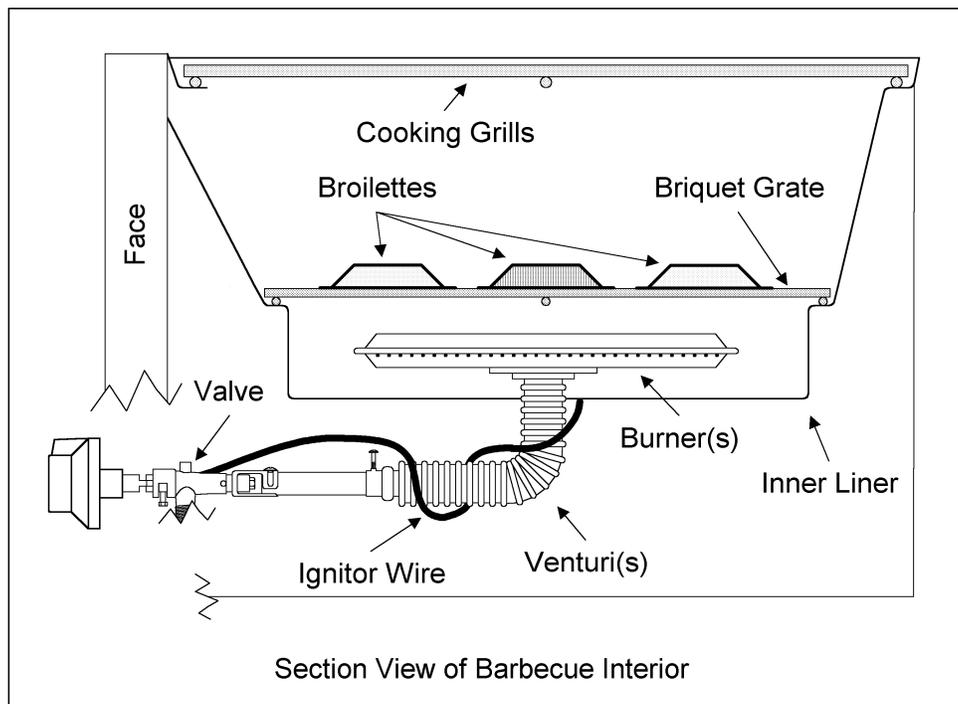
After you have completed your gas connections, you should check for the proper fuel and air mixture. (Please remember to check all of the gas connections for leaks with a 50/50 soap bubble solution.) With the face removed, temporarily replace the control knobs. Turn the gas on and light the BBQ. (See the lighting instructions in the Operation section.) If the flames burn with a slightly yellow tip, and do not lift from the burner ports, no further adjustment is necessary.

To adjust combustion, loosen the air shutter set screw. For excessive yellow flame, you turn the air shutter to increase the air shutter opening. For flame that lifts off the burner ports, you turn air shutter to decrease the air shutter opening. After adjusting the fuel mixture, tighten the air shutter screw.



1.5 Finishing the Installation

Now you can replace the face. (Do not forget any spacers you may have found between face and frame.)



The briquet grate goes on the first shelf above the burner(s). The briquet grate is the single grill piece.

Then, the Broilettes are laid down. Flame-Broil barbecue units are equipped with stainless steel Broilettes. No rock is used with Broilettes. Your barbecue grill comes with sufficient Broilettes for efficient usage. It is not necessary for the Broilettes to cover the entire briquet grate. It is only important that the areas above the flames from the burners be covered.

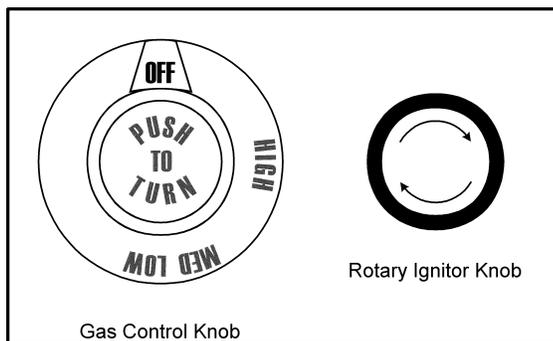
Now, place the two cooking grills on the top shelf. If you purchased the oven accessory, place the oven in the top shelf, and the two cooking grills inside the oven.

You are ready to barbecue.

2 Operation

CAUTION: Do not leave your barbecue equipment unattended after the burner has been lit. Most fires and accidents occur when the unit has been left unattended while the flame is burning.

2.1 Lighting the Burner



Your barbecue equipment will have several knobs on the face for controlling the gas and lighting the gas. The gas control knobs are labeled "PUSH TO TURN" in the center, "OFF" at the twelve o'clock position, "HIGH" at the three o'clock position and "MED LOW" at the six o'clock position. The rotary ignitor knobs are the smaller knobs with the directional arrows.

The gas control knob has a "click" stop at "OFF" position. To start the gas, the knob is depressed and turned counterclockwise to the "HIGH" position. There is another "click" stop at the "HIGH" position. To shut the gas off, depress the knob and turn clockwise to the "OFF" position.

The rotary ignitor generates a spark as you turn the knob, and this spark lights the gas. It is very important to only turn the rotary ignitor knob **clockwise**, in the direction of the arrows. You will damage the ignitor by turning the knob in the opposite direction.

2.1.1 To light the burner with the rotary ignitor

Turn the gas on and immediately begin turning the rotary ignitor knob. If the burner does not light after a few turns of the ignitor knob, turn off the gas. Allow any gas to dissipate for a few minutes. Repeat this lighting procedure.

If the unit still does not light, use the trouble-shooting section on lighting. If you have determined that the ignitor is not functioning, you may use a match for lighting until you have a chance to clean or replace the ignitor.

2.1.2 To light the burner with a match,

Strike the match first. Drop the lit match into the unit, close to the burner's edge. Make sure the match stays lit, and turn on the gas. The burner should light within 5 seconds of turning on the gas. If the burner does not light, turn off the gas. Use the trouble-shooting section to check for an obstruction in your gas supply.

If you still cannot light the burner, please contact us for help.

2.2 Adjusting the Flame

The highest flame setting is with the gas control knob set at the "HIGH" position. To adjust to a lower flame, depress the gas control knob and turn counterclockwise. The lowest flame setting is at the "MED LOW" position. The flame will adjust between these two settings.

To turn off the flame, depress the gas control knob and turn clockwise to the "OFF" position.

2.3 Trouble-shooting

Here are some of the common problems that sometimes occur with gas barbecue equipment. If these solutions do not solve your problem, please contact us for help.

2.3.1 It won't light.

There are two possible reasons for the unit not to light.

- a) The rotary ignitor isn't sparking.

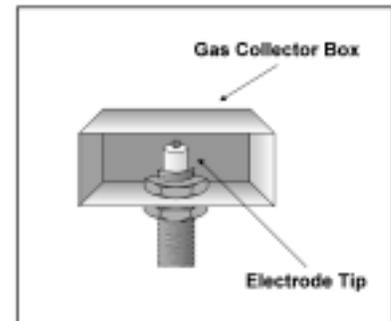
With the gas shut off, watch the electrode tip inside the gas collector box while turning the ignitor knob. It may be necessary to use a small hand mirror to see inside the collector box. A spark should jump from the electrode tip to the inner roof of the collector box.

If there is no spark, follow the maintenance procedure for the rotary ignitor.

- b) The gas is not reaching the ignitor collection box or the burner(s).

There is an obstruction somewhere in the gas supply.

- Check that the source of your gas supply is turned on at your shut-off valve or your propane bottle.
- Check for any blockage of the gas control valve, or the venturi and burner. Follow the maintenance procedure on cleaning the valve(s), burner(s) and venturi(s).
- Check for any restriction in your gas supply lines. A common problem is to use a pipe or flexible connector with a smaller diameter than recommended when installing the gas connections. Review the gas connection instructions in the Installation section.



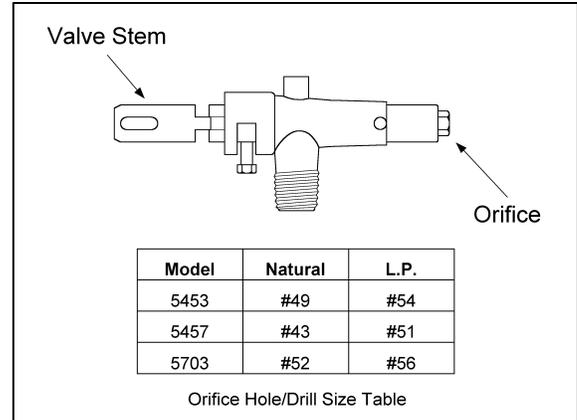
2.3.2 It won't get hot.

- a) The LP gas valve orifice is being used when the barbecue equipment is burning natural gas.

The table on the left gives the drill size of the holes in the orifice(s). If you do not have a drill set to test your orifice(s), try comparing all of the orifices that came with your equipment. The hole in the natural gas orifice(s) is larger than the hole in the LP orifice(s). If your barbecue equipment is burning natural gas, the orifice(s) with the larger holes should be installed in the gas control valve(s).

- b) An obstruction is partially blocking the gas supply to the burner(s).

- Check that the source of your gas supply is turned on at your shut-off valve or your propane bottle.
- Check for any blockage of the gas control valve, or the venturi and burner. Follow the maintenance procedure on cleaning the valve(s), burner(s) and venturi(s).
- Check for any restriction in your gas supply lines. A common problem is to use a pipe or flexible connector with a smaller diameter than recommended when installing the gas connections. Review the gas connection instructions in the Installation section.



Model	Natural	L.P.
5453	#49	#54
5457	#43	#51
5703	#52	#56

Orifice Hole/Drill Size Table

2.3.3 It gets too hot.

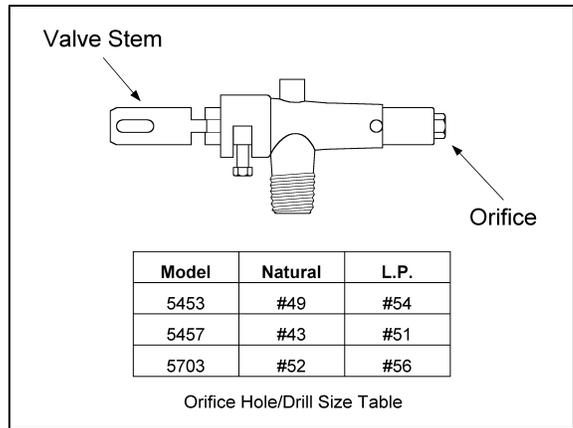
The natural gas valve orifice is being used when the barbecue equipment is burning LP (propane) gas. The table on the left gives the drill size of the holes in the orifice(s). If you do not have a drill set to test your orifice(s), try comparing all of the orifices that came with your equipment. The hole in the natural gas orifice(s) is larger than the hole in the LP orifice(s). If your barbecue equipment is burning LP (propane) gas, the orifice(s) with the smaller holes should be installed in the gas control valve(s).

2.3.4 There is a whistling noise.

There is a restriction in your gas supply lines. A common problem is to use a pipe or flexible connector with a smaller diameter than recommended when installing the gas connections. Review the gas connection instructions in the Installation section.

2.3.5 Flames around the gas control knob.

This is known as a flashback fire. There is an obstruction in the venturi and/or the burner. This obstruction causes gas to back up and escape out the venturi air shutter where it ignites when you light the unit. Follow the maintenance procedure on cleaning the burner(s) and venturis.



3 Maintenance

Periodic inspection and cleaning of your barbecue equipment will ensure its proper operation. The following checklist is recommended.

- Clean the cooking grills, broilettes and briquet grate.
- Clean the burner(s), venturis and valves.
- Clean the grill interior.
- Check the rotary ignitor.
- Reassemble and test.

If you live in an area where inclement weather prevents you from using your barbecue equipment during certain times of the year, it is a good idea to remove and store the unit. This practice will extend the life of your equipment and its components. If you cannot remove the unit, try to cover it completely from the elements.

3.1 Preparation

Always shut off the gas supply at the source before doing any maintenance or repairs.

Many parts will have a greasy film or rusty residue. Wear protective clothing and protect the area around the barbecue equipment.

Before removing any components, have a notebook handy to keep notes on the order and placement of the parts.

You will need:

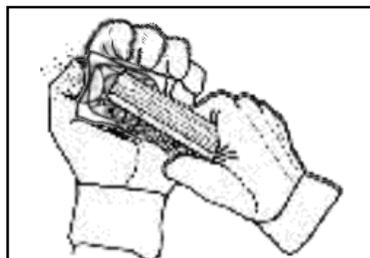
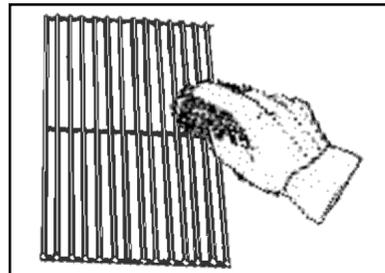
- Bucket or small tub
- Wire brush
- Steel wool or nylon pad
- Fine sandpaper or emery cloth
- Toothpick or small piece of wire
- Philips screwdriver
- 1/4 inch wrench
- Putty knife or scraper
- Strong detergent or degreaser
- Rubbing Alcohol
- Vegetable oil
- WD40 or similar lubricant
- Venturi spider brush (optional)

3.2 Clean the Cooking Grills, Broilettes and Briquet Grate

Cooking grills are most efficiently and easily cleaned on an ongoing basis by simply pre-heating the grill on high for 10 minutes before each use. After heating, scrubbing with a brass bristle brush to remove the loose residue, and then carefully wipe down with a wet paper towel.

Tip - Coating the cooking grills with vegetable oil before cooking helps prevent the food from sticking and makes cleaning easier.

For a thorough cleaning, remove and inspect the cooking grills. If you find broken welds or excessive rust, you may opt to replace the grills. If the cooking grills are not too badly deteriorated, soak in a hot soapy water solution to loosen accumulated grease (a degreaser may also be used), then scrub with a steel wool pad or a stiff nylon pad. Rinse thoroughly and lightly coat with vegetable oil before use.



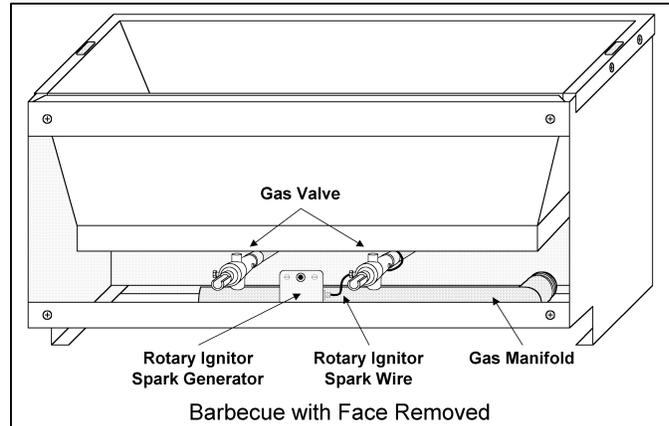
Next, remove and inspect the stainless steel Broilettes. Any badly deteriorated ones should be replaced. A light coating of rust is okay. Knock off any loose rust or deposits with a wire brush. You may wash them if you desire.

Finally, inspect the briquet grate. This component is subject to very high temperatures and will weaken and deteriorate over time. If the grate is very thin, or sags excessively, replace it with a new grate. Otherwise, knock off any loose rust and scale with a wire brush.

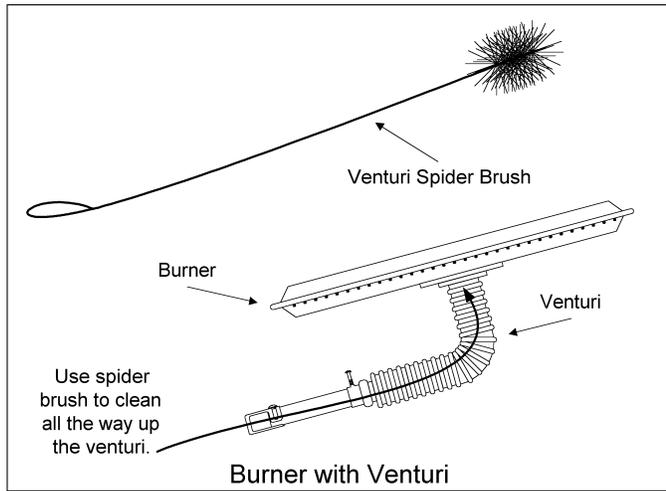
3.3 Clean the Burner(s), Venturi(s) and Valve(s)

At this point, you should remove the face of the unit for easier access. Remove the knobs by pulling them straight out from the face. Next, remove the four screws retaining the face to the frame. Carefully lift the face away from the frame. (Occasionally, we need to add spacers between the face and the frame to ensure that the cooking grills will fit correctly. Be sure to save any spacers you may find there.)

The wire, which connects the rotary ignitor generator to the collector box, is usually loosely wrapped around the venturi tube. This wire must be disconnected from the spark generator, and unwrapped from the venturi tube before the burner is removed.



Carefully remove the burner(s) from the inner lining area. With the model #5457, you may need to pry back the clips that hold the burners to the liner. Lightly brush the burner with a wire brush to remove loose rust and scale. Inspect the burner for holes or split seams, and replace if necessary. If the burner passes inspection, next inspect the venturi.

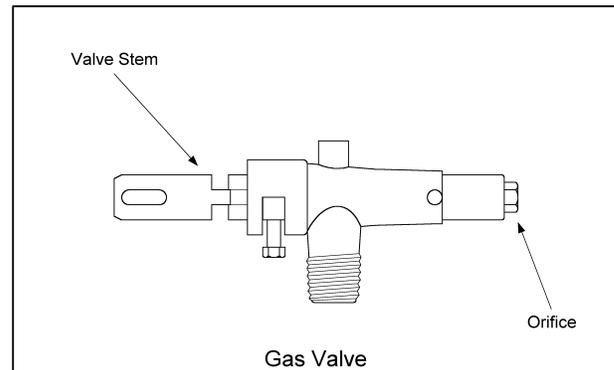


IT IS EXTREMELY IMPORTANT to clean the venturi tubes of any obstructions, such as spider or insect webs, etc. A small web can block the gas flow and cause poor burner performance or a flashback fire. A flexible spider brush is the best tool for cleaning the venturi tubes. Special care should be taken to make sure the brush passes through the entire venturi tube, all the way to the burner.

If a spider brush is not available, you may flush out the venturi with a strong flow of water from a garden hose. Pay special attention to how the water exits the burner port holes, as clogged holes are easily spotted. Clogged holes can be opened with an awl or piece of wire. Clogged holes can cause a grill to have hot and cold spots because of uneven flame characteristics.

The valves can now be checked. Temporarily slide the valve knobs back onto the valve stems. The knobs should depress, turn and release (pop up) freely. If they are sluggish, carefully spray a small amount of WD40 or similar lubricant onto the valve stem area. Work knobs a few times to distribute the lubricant. Valves that bind severely should be replaced.

Small insects can also block the valve orifice, which will restrict gas flow. Debris in the gas supply lines may also clog these tiny holes. So, remove the hex head orifice with a 1/4 inch wrench, and make sure the hole is completely clean. Also, check the inner portion of the valve from where the orifice was removed. Debris can be removed with a small piece of wire or toothpick. Re-install orifices and tighten.

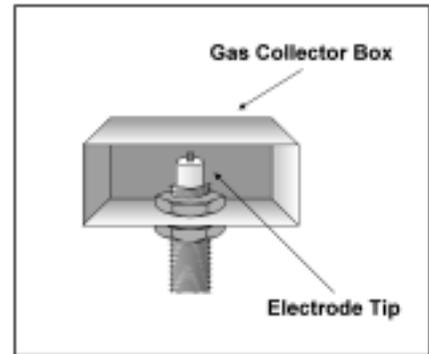


3.4 Clean the Grill Interior

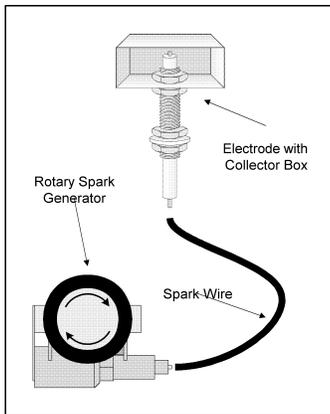
First, protect the ignitor collector box with the electrode by covering it with a protective cloth or plastic, or aluminum foil.

Secondly, scrape off heavy grease or cooking debris accumulation with a putty knife or scraper. You can vacuum this debris with a shop vacuum cleaner, or brush it through the holes in the burner tray, at the bottom of the liner, onto the drip tray. When you are done, you should remove and dump the contents of the drip tray.

Lastly, scrub the interior with a strong detergent solution (a degreaser may also be used). Rinse, and let dry. Remove protective covers installed earlier.



3.5 Check the Rotary Ignitor



The ignitor sends a high voltage along the wire to the ignitor electrode inside the collector box. The collector box collects a quantity of gas, which a spark lights.

Grease, dirt and/or rust on the electrode or the collector box can prevent the electrode from sparking. Clean any dirt and grease with alcohol. Remove any rust by lightly sanding with emery cloth or fine sandpaper.

Check that the electrode insulation isn't cracked or broken, and replace if it is. Cracks collect moisture that keeps the spark from getting to the electrode. It is normal for the wire to fit loosely in the porcelain.

Check the ignitor wire for abrasions, cuts or burns in the insulation. Also, check that the wire is not broken inside the insulation. Replace if you find any of these problems. Check the wire connections for corrosion or looseness. Clean or tighten as needed.

3.6 Reassemble and Test

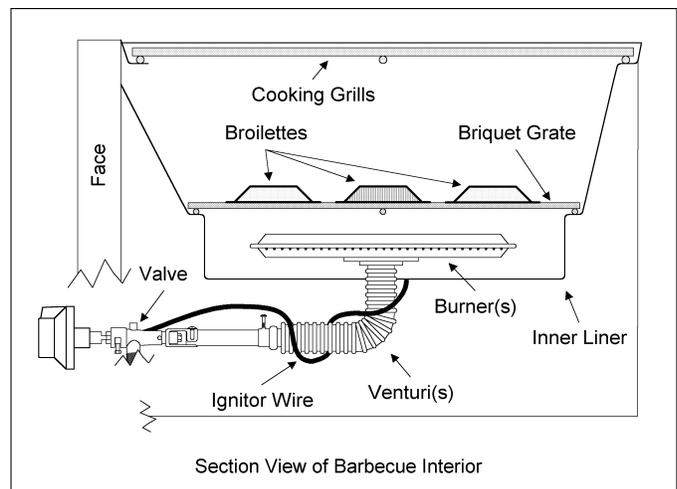
Reinstall the burner(s). Slide the venturi air shutter back over the orifice end of the valves. Re-wrap the ignitor wire around the venturi and restore its connections. Turn the ignitor knob while watching the connections from the underside of the grill to assure the spark isn't jumping from a connection to the grill body. Then, turn the ignitor knob while watching the inside of the collector box to assure that the spark is jumping from the electrode to the inner roof of the collector box. It may be necessary to use a small hand mirror to see inside the collector box.

Turn on the gas supply, and test light the burner(s). Review the section on adjusting the fuel mixture, and check your flame.

Now you can replace the face. (Do not forget any spacers you may have found between face and frame.)

Replace the briquet grate and the broillettes. Distribute the broillettes evenly in the areas on the briquet grate surface above the flames from the burners. This will help the grill cook at an overall even temperature.

Finally, you can replace the cooking grills. If you purchased the oven accessory, place the oven in the top shelf, and the two cooking grills inside the oven.



4 Parts Lists

4.1 Model 5453

Part #	Qty	Description
5450-129	1	Briquette Grate, 22 x 12 ½
5423	3	Broilettes, 12 Pack
5453-123	1	Burner Head
5455-123	2	Venturi, Flex
5520	2	Cooking Grill, Chrome, 11 ½ x 16
5450-007	1	Drip Tray, 23 ½ x 16
5450-127	2	Gas Control Knob
5453-005	1	Gas Manifold
5453-130	2	Gas Valve
5453-132	2	Orifice, LP Gas
5453-131	2	Orifice, Natural Gas
5450-116	1	Ignitor Collector Box
5450-117	1	Ignitor Wire
5450-119	1	Rotary Spark Bracket
5450-118	1	Rotary Spark Generator
5450-800	1	Instructions
5000-850	1	Label, Flame-Broil
5000-855	1	Label, Model & Serial No.
0907-903	3	Screw, SST, ¼-20 x ½
0907-992	11	Screw, SST, #8 x ½
0902-900	7	Nut, SST, ¼-20
0902-710	11	U-Nut, #8 Screw
0903-607	4	Washer, Nylon, #8 screw

4.2 Model 5457

Part #	Qty	Description
5455-129	1	Briquette Grate, 28 ½ x 14 ½
5423	4	Broilettes, 12 Pack
5455-123	2	Burner Head
5455-123	2	Venturi, Flex
5521	2	Cooking Grill, Chrome, 15 x 18
5455-007	1	Drip Tray, 30 ½ x 18
5450-127	2	Gas Control Knob
5455-005	1	Gas Manifold
5455-130	2	Gas Valve
5455-132	2	Orifice, LP Gas
5455-131	2	Orifice, Natural Gas
5450-116	2	Ignitor Collector Box
5450-117	2	Ignitor Wire
5450-119	2	Rotary Spark Bracket
5450-118	2	Rotary Spark Generator
5450-800	1	Instructions
5000-850	1	Label, Flame-Broil
5000-855	1	Label, Model & Serial No.
0907-903	2	Screw, SST, ¼-20 x ½
0907-992	11	Screw, SST, #8 x ½
0902-900	7	Nut, SST, ¼-20
0902-710	11	U-Nut, #8 Screw
0903-607	4	Washer, Nylon, #8 screw