



Preferred Service®

Service Manual

This manual is to be used by qualified appliance technicians only. Viking does not assume any responsibility for property damage or personal injury for improper service procedures done by an unqualified person.

Professional Gas Cooktops

This Base Manual covers general information
Refer to individual Technical Sheet
for information on specific models

This manual includes, but is
not limited to the following:

VGSU103

VGSU163



Important Information

Important Notices for Service Technicians

Viking Range Corporation will not be responsible for personal injury or property damage arising from service performed by anyone other than Viking Factory Authorized Service Agencies. Pride and workmanship go into every product to provide our customers with quality products. It is possible, however, that during its lifetime a product may require service. Products should be serviced only by a qualified service technician who is familiar with the safety procedures required in the repair and who is equipped with the proper tools, parts, testing instruments and the appropriate service information.

IT IS THE TECHNICIANS RESPONSIBILITY TO REVIEW ALL APPROPRIATE SERVICE INFORMATION BEFORE BEGINNING REPAIRS.

CAUTION

All safety information must be followed as provided in this document

WARNING

To avoid risk of electrical shock that can cause death or severe personal injury, disconnect unit from power before servicing unless testing requires power.

IMPORTANT: Wires removed during disassembly must be replaced on correct terminals to ensure proper grounding and polarization.

Contact Information:

For authorized technical assistance:

Viking Technical Service

1-800-914-4799



Safety Symbols

Recognize these Safety Symbols, Words, and Labels:

DANGER

DANGER-Immediate hazards which **WILL** result in **severe** personal injury or death.

WARNING

WARNING-Hazards or unsafe practices which **COULD** result in **severe** personal injury or death.

CAUTION

CAUTION-Hazards or unsafe practices which **COULD** result in minor personal injury, product or property damage.

Table of Contents

Important Information	2	General Information	9
Important Notices for Service Technicians	2	Overview	9
Safety Information	4	Ordering Replacement Parts	9
Overview	4	Model Specifications	9
WHAT TO DO IF YOU SMELL GAS	4	Receiving the Appliance	10
Safety Practices for Servicer	4	Spark System	10
Servicing	4	Re-Ignition System	10
All Appliances	5	Troubleshooting Procedures	11
Surface Burners	5	Component Testing Procedures	13
Ventilation Hoods	5	Disassembly	14
Delayed Ignition	5	Removing and Replacing Unit	14
Precautions	5	Knobs and Insert	14
Gas Supply Pressure	6	Spark Module	14
Pressure Regulator Connection	6	Burners	14
Gas Supply Location	6	Igniters	15
Gas Connection	6	Orifices	15
Testing for Gas Leaks	7	Burner Valve	15
Electrical Requirements	7	Wiring Diagrams and Schematics	16
Wiring	7		
Grounding	7		
Servicing of Grounded Products	7		
Product Safety Devices	8		

Safety Information

Overview

As with all appliances, there are certain rules to follow for safe operation. Verify everyone who operates the appliance is familiar with the operations and with these precautions.

Use appliance only for its intended purpose as described. Pay close attention to the safety section by looking for the symbol or the word “safety”.

Recognize this symbol as a safety precaution.



WARNING

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

1. Extinguish any open flame.
2. Do not try to light any appliance.
3. Do not touch any electrical switch; do not use any phone in your building.
4. Immediately call your gas supplier from a neighbor's phone. Follow your gas supplier's instructions.
5. If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by an authorized installer, service agency or gas supplier.



WARNING

To avoid risk of electrical shock, personal injury, or death, make sure the unit has been properly grounded and always disconnect it from main power supply before any servicing.



WARNING

To avoid risk of electrical shock, property damage, personal injury or death; verify wiring is correct if components were replaced. Verify proper and complete operation of unit after servicing.



WARNING

This gas appliance contains or produces a chemical or chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

To reduce the risk from substances in the fuel or from fuel combustion make sure this appliance is installed, operated, and maintained according to the instructions in this manual

NOTE: The maximum gas supply pressure for this appliances must not exceed 1/2 psig (3.5kPa) (14 WCP)

Safety Practices for Servicer

Safe and satisfactory operation of a gas cooktop depends upon its design and proper installation. However, there is one more area of safety to be considered:

Servicing

Listed below are some general precautions and safety practices which should be followed in order to protect the service technician and consumer during service and after service has been completed.

1. **Gas smell** — Extinguish any and all open flames and open windows.
2. **Turn gas off** — Service appliance with gas turned off unless testing requires it.
3. **Checking for gas leaks** — Never check for gas leaks with any kind of open flame. Soap and water solution should be used for this purpose. Apply solution to suspected area and watch for air bubbles which indicates a leak. Correct leaks by tightening fittings, screws, connections, applying approved compound, or installing new parts.
4. **Using lights** — Use a hand flashlight when servicing appliances or checking for gas leaks. Electric switches should not be operated where leaks are suspected. This will avoid creating arcing or sparks which could ignite the gas. If electric lights are already turned on, they should not be turned off.
5. **Do not smoke** — Never smoke while servicing gas appliances, especially when working on piping that contains or has contained gas.
6. **Check appliance when service is completed** — After servicing, make visual checks on electrical connection and check for gas leaks. Inform consumer of the condition of the appliance before leaving.
7. **Adhere to all local regulations and codes when performing service.**

Safety Information

All Appliances

1. **Proper Installation** — The appliance must be properly installed and grounded by a qualified technician.
2. **Proper Use** — Never use appliance for warming or heating the room.
3. **Unattended Children** — Children should not be alone or unattended in the area where the appliance is in use. They should never be allowed to sit or stand on any part of the appliance.
4. **Wear Proper Apparel** — Loose fitting or hanging garments should never be worn while operating or servicing appliance.
5. **User Servicing** — Do not repair or replace any part of the appliance unless specifically recommended in the manual. All other servicing should be referred to a qualified technician.
6. **Storage in or on Appliance** — Flammable materials should not be stored on or around cooktop. Do not use water on grease fires — Smother fire or flame, or use dry chemical or foam-type extinguisher.
7. **Use only dry potholders** — Moist or damp potholders on hot surfaces may result in burns from steam. Do not let potholder touch burners. Do not use a towel or other bulky cloth.

Surface Burners

1. **Use proper pan size** — This appliance is equipped with one or more surface burners of different sizes. Select utensils having flat bottoms large enough to cover the surface burner. The use of undersized utensils will expose a portion of the burner to direct contact and may result in ignition of clothing. Use of oversized utensils can cause damage to appliance. Proper relationship of utensil to burner improves efficiency.
2. **Never leave surface burners unattended** — Boil-over causes smoking and greasy spillovers that may ignite.
3. **Make sure reflector pans or drip bowls are in place** — Absence of these pans or bowls during cooking may subject wiring or components underneath to damage.
4. **Glazed cooking utensils** — Only certain types of glass, ceramic, earthenware or other glazed utensils are suitable for appliance service without breaking due to sudden change in temperature.
5. **Utensil handles should be turned inward and not extend over adjacent surface burners** — To reduce the risk of burns, ignition of flammable materials and spillage due to unintentional contact with utensil; the handle of a utensil should be positioned so that it is turned inward and does not extend over adjacent surface burners.

Ventilation Hoods

1. **Clean ventilating hoods frequently** — Grease should not be allowed to accumulate on hood filter.
2. **Open Flame** — When flaming foods occur under the hood turn the fan on.

To avoid the risk of property damage or personal injury do not obstruct the flow of combustion or ventilation air to the cooktop.

Delayed Ignition

Burner should ignite within 2 seconds. If burner does not ignite within 2 seconds, see Troubleshooting Procedures.

CAUTION

Do not store items of interest to children in cabinets above a unit or behind the backguard of cooktop. Children climbing on the unit to reach items could be seriously injured.

Precautions

- Do not cook food directly on cooktop grates, always use cookware.
- Do not mix household cleaning products. Chemical mixtures may interact with objectionable or even hazardous results.
- Do not put plastic items on warm cooking areas. They may melt and stick.
- Do not slide rough metal objects across cooktop grates. Scratching or metal marking can result.
- Do not leave fat heating on an unattended appliance. Fat can ignite if overheated by spilling onto hot surfaces.
- Do not allow pots to boil dry as this can cause damage to cooking surface and pan.
- Do not use cooktop surface as a cutting board.
- Do not use cooktop for storage or as a display counter.

CAUTION

DO NOT TOUCH SURFACE BURNERS OR AREAS NEAR BURNERS — Areas near surface burners may become hot enough to cause burns. During and after use, do not touch cooking surface. Do not let clothing or other flammable materials touch or contact surface burners or areas near surface burners until they have had enough time to cool. These areas include the cooktop and backguard.

Safety Information

Gas Supply Pressure



To avoid property damage, maximum gas supply pressure must not exceed ½ psi (3.5kPa)(14" WCP).

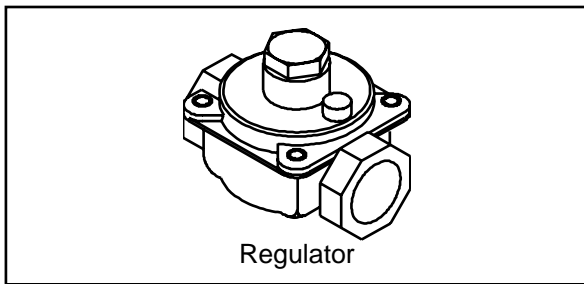
Appliance and individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of ½ psig (3.5kPa)(14" WCP).

- Appliance must be isolated from gas supply piping system by closing manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than ½ psig (3.5kPa) (14" WCP).
- Gas supply pressure for checking regulator setting must be at least 1" WCP above manifold pressure shown on rating label.
- Must use pressure regulator supplied with cooktop.

Pressure Regulator Connection

The pressure regulator connects directly to the 90 degree fitting that exits the upper right hand corner of cooktop.

- Support regulator when installing gas supply.
- Do not overtighten regulator when attaching to gas manifold pipe. Overtightening may crack regulator.
- Do not overtighten fitting or hard pipe when attaching to gas regulator. Overtightening may crack regulator.



Gas Supply Location

Locate gas supply so manual shutoff valve is accessible after installation. Gas supply can be installed in adjacent cabinet or behind access panel. Avoid interference with electrical connection.

Gas Connection

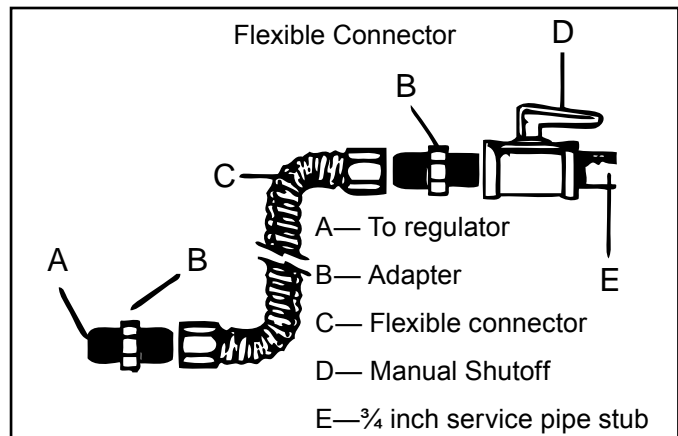
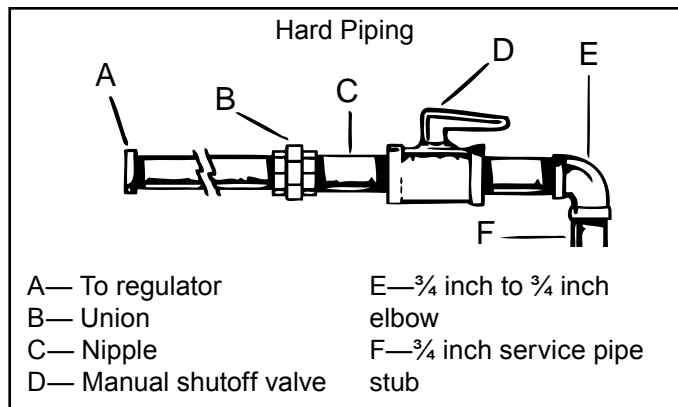


To avoid property damage or personal injury, only use a new flexible connector that is AGA/CGA design certified.

- Do not use an old connector.
- Do not reuse a connector after moving appliance.

Connect gas supply to regulator using hard pipe or a flexible connector. Pressure regulator supplied with this appliance has a 1/2 inch NPT female connection.

- A manual shutoff, not supplied with cooktop, must be installed in an accessible location outside of cooktop.
- Use joint compound that is resistant to action of propane gas on all male pipe threads.
- Use supplied pressure regulator only.
- Do not over tighten gas fitting when attaching to pressure regulator. Over tightening may crack regulator.
- Support pressure regulator with wrench when installing gas fitting.



Testing for Gas Leaks

WARNING

To avoid property damage or serious personal injury, never use a lighted match to test for gas leaks.

After final gas connection is made, test all connections in gas supply piping and cooktop for gas leaks.

1. **Place soap suds on connection** — Bubbles appear if leak is present.
2. **Tighten joint if leak is at factory fitting** — If leak is not at factory fitting, unscrew, apply more joint compound and tighten to correct leak.
3. **Retest connection for leak after tightening** — Retest any connections that were disturbed.

Electrical Requirements

120-volt, 60 Hertz, 15 amp, individual circuit which is properly grounded, polarized, and protected by a circuit breaker or fuse.

Wiring

It is good service practice to never route wiring over terminals and/or sharp edges. This applies to any wiring without regard to the circuit voltage. Wire installation material and thickness is designed and regulated for electrical spacing purpose only, but can not always be relied upon because of possible cuts and/or abrasions which can occur during servicing.

Extension Cord

Do not use an extension cord on this product. Extension cords will adversely affect the performance of spark system. If the product power cord is too short, have a qualified electrician install a three slot receptacle.

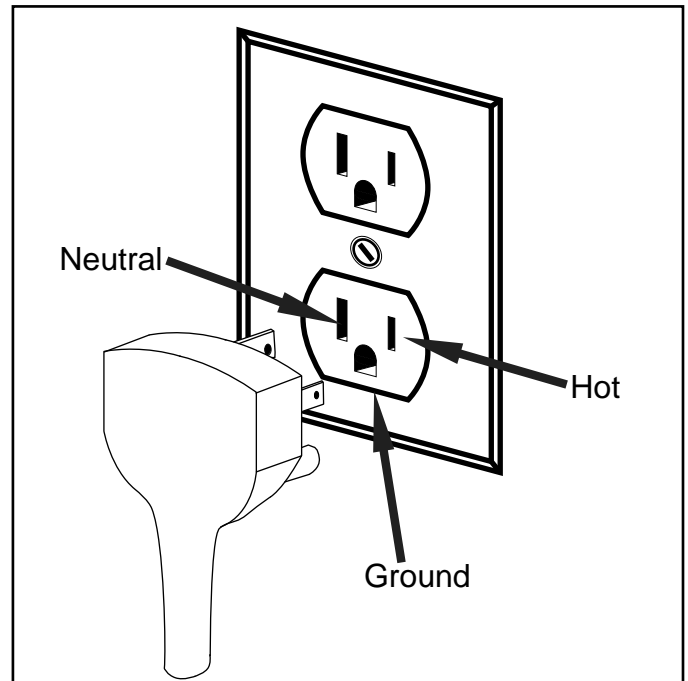
Grounding

The power cord on this appliance is equipped with a three-prong grounding plug. This matches standard three-prong grounding wall receptacle to prevent possibility of electric shock from this appliance.

WARNING

To avoid risk of electrical shock, personal injury, or death, make sure your cooktop has been properly grounded and polarized. Always disconnect it from main power supply before any servicing.

Consult a qualified electrician if grounding instructions are not completely understood, or if doubt exists as to whether the equipment is properly grounded.



WARNING

Do not remove grounding prong when installing grounded appliance in a home or business that does not have a three wire grounding receptacle.

Under no condition is the grounding prong to be cut off, removed or altered.

It is the personal responsibility of the consumer to contact a qualified electrician and have a properly grounded three prong wall receptacle installed in accordance with appropriate electrical codes.

Servicing of Grounded Products

The standard accepted color coding for grounding wires is GREEN or GREEN WITH YELLOW STRIPE. These ground leads are NOT to be used as current carrying conductors. It is extremely important that the technician replace any and all grounds prior to completion of the service call. Under no condition should ground wire be left off causing a potential hazard to technicians and consumer.

Safety Information

Product Safety Devices

Safety devices and features have been engineered into the product to protect the consumer and servicer. Safety devices must never be removed, bypassed or altered in such a manner as to defeat the purpose for which they were intended .

Listed below are various devices together with the reason each device is incorporated in the gas cooktop.

Pressure Regulator — Maintains proper and steady gas pressure for operation of oven controls. This appliance is available in Natural and LP models in which the regulator has been pre-set. After servicing the regulator, make certain it is set appropriately.

Gas Burner Orifices — This appliance has both fixed and adjustable orifices. After servicing a valve or orifice, verify the burner is operating properly before completing service.

Grounded Frame — Ground prong on power cord is connected to the frame, usually a green lead fastened by a screw. In addition, any part or component capable of conducting an electric current is grounded by its mounting.

- If any ground wire , screw, strap, nut, etc. is removed for service, or any reason, it must be reconnected to its original position with original fastener before the appliance is put into operation again.
- Failure to do so can create a possible shock hazard.

General Information

Overview

This manual provides basic instructions and suggestion for handling, installing, and servicing gas cooktops.

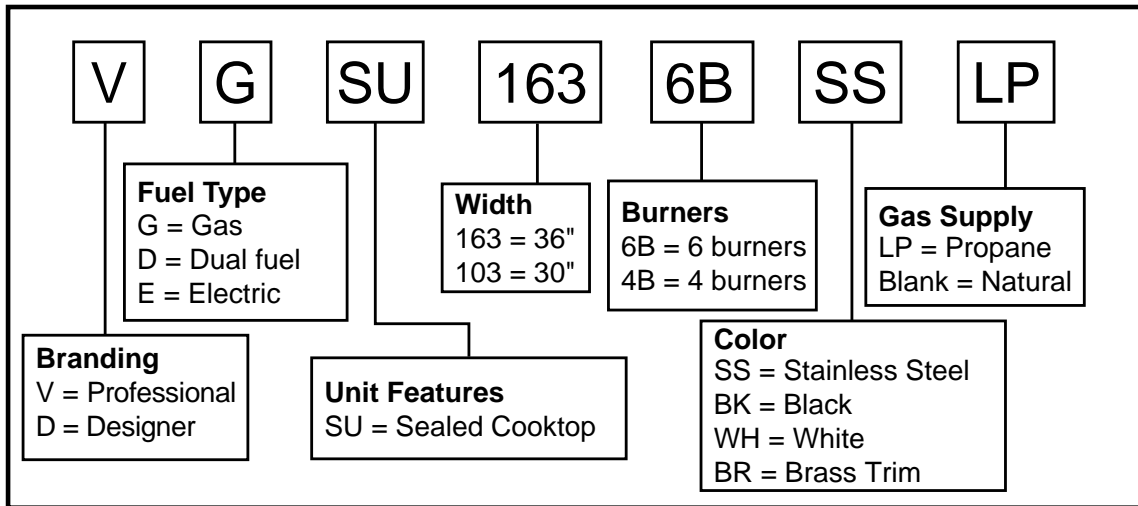
The directions, information, and warnings in this manual are developed from experience with, and careful testing of the product. If the unit is installed according to the installation instructions, it will operate properly and will require minimal servicing. A unit in proper operating order ensures the consumer all the benefits provided by efficient gas cooking.

Ordering Replacement Parts

Model numbers are recorded on the rating label. Rating label is located inside the burner box area. Before ordering parts, write down the correct model and serial number from rating label. This avoids incorrect shipments and delays.

Refer to parts reference material when ordering replacement parts.

Model Identification



Model Specifications

Pro Gas Cooktop Specifications	30 Inch Width	36 Inch Width
Model Number	VGSU103	VGSU163
Number of Burners	4	6
Electrical Supply Requirements	Single Phase, 120VAC, 60Hz, 15 Amp, 3 prong grounded outlet	
Electrical Supply Cord	3 Wire/ 3 prong 18 AWG grounded SPT-2 cord attached to product by manufacturer	
Max Amperage	2.0 Amp	
Surface Burner Ratings (Natural Gas/Liquid Propane)		
Left Front	16,000/15,500 BTU 4.80/4.65 kW	
Left Rear	12,000/11,500 BTU 3.60/3.45 kW	
Center Front	N/A	12,000/11,500 BTU 3.60/3.45 kW
Center Rear	N/A	12,000/11,500 BTU 3.60/3.45 kW
Right Rear	8,000/7,500 BTU 2.40/2.25 kW	
Right Front	6,000/5,500 BTU 1.80/1.65 kW	

General Information

Receiving the Appliance

- Installer needs to show consumer location of the gas shut-off valve and how to shut it off.
- Authorized servicer must install the unit in accordance with the Installation Instructions. Adjustments and service should be performed only by an authorized servicer.
- Connect unit into a 120V grounded outlet only. If in doubt about grounding of the home electrical system, it is consumer's responsibility and obligation to have an ungrounded outlet replaced with a properly grounded three-prong outlet in accordance with the National Electrical Code.
Do not use an extension cord with this appliance.
- Insure all packing materials are removed from the unit before operating it to prevent fire or smoke damage should the packing material ignite.
- Ensure unit is correctly adjusted by a qualified service technician or installer for the type of gas (Natural or LP).

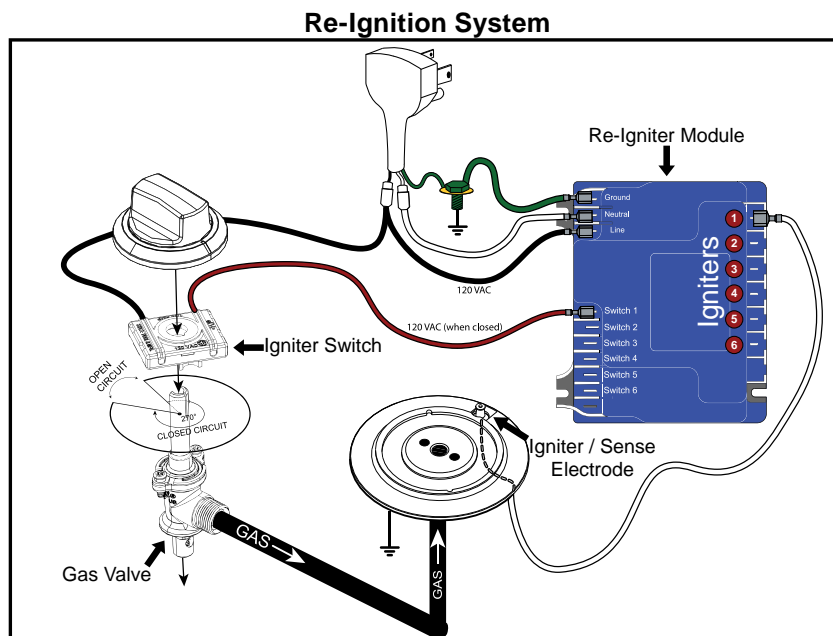
Spark System

The spark ignition system consists of a 4+0 / 6+0 re-igniter module, spark igniters, and an igniter micro switch harness. Switches are located on the stem of each gas valve. Turning a surface burner knob past the OFF position, closes the igniter micro switch. The closed circuit signals the re-igniter module to begin sparking on all burners until flame is detected on the burner presently engaged.

The spark module sends approximately 1 spark per second to the spark igniters.

Flame Recognition

The re-igniter module features flame sensing circuitry for each burner. Any active igniter switch applies 120VAC to the flame sense circuitry and the sense electrode for the appropriate burner. With a flame present, the module reads the direct current to ground that passes through the flame. If a gas valve is engaged, and the re-igniter does not read enough current (0.2 μ A) on the selected burner; the module will begin sparking on all burners until flame is established. There is a built in sparking delay of approximately 1 second to allow for low or wavering flame conditions.



Troubleshooting Procedures



WARNING

To avoid risk of electrical shock, personal injury, or death; disconnect power and shut off gas to unit before servicing, unless testing requires power.

Problem	Possible Cause	Correction
No spark when any knob is engaged	120 VAC not supplied to unit Loose wiring harness connection Bad connection to ground..... Burner base not grounded..... Damaged spark leads sparking onto nearby metal..... Grease or dirt build up around igniter..... Weak or failed spark module	<ul style="list-style-type: none"> • Verify 120 VAC at wall outlet • Check all connections for loose connection, corrosion, and contamination • Check all ground connections for continuity • Check continuity to ground through burner base • Visually check in low-light for sparking and voltage leaks due to corona effect • Clean and dry • Replace spark module
No spark when one knob is engaged	Open micro switch/harness connection 120 VAC not supplied to micro switch..... Switch is not properly seated on valve stem Damaged spark lead/igniter.....	<ul style="list-style-type: none"> • Check for continuity through switch and to module - replace harness if faulty • Verify 120 VAC at switch according to wiring diagram • Carefully reposition switch on valve and verify the switch is functional (see Component Testing Procedures) • Inspect spark lead/igniter - replace if faulty
Random sparking after ignition	Bad connection to ground..... Polarity reversed at line voltage Current to ground through flame too low	<ul style="list-style-type: none"> • Verify a clear path to ground. Clean and dry all metal contact points along ground path to ensure continuity • Verify proper polarity at power receptacle. • The unit will spark if the current sensed by the module drops below 0.2µA. If sparking is most prominent in low flame settings, adjust low flame setting on valve stem.

Troubleshooting Procedures

⚠ WARNING

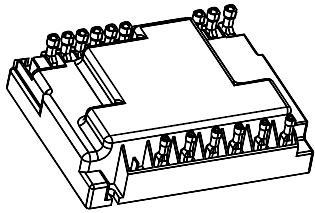
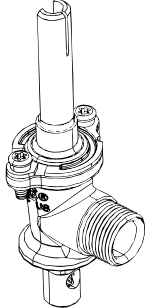
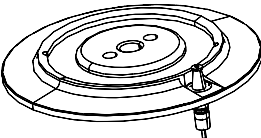
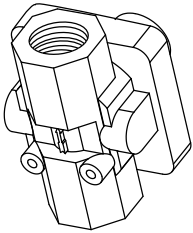
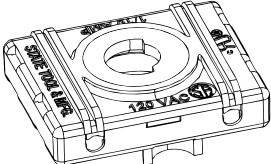
To avoid risk of electrical shock, personal injury, or death; disconnect power and shut off gas to unit before servicing, unless testing requires power.

Problem	Possible Cause	Correction
Burner will not ignite; spark present at igniter.	Low gas pressure..... Burner cap not seated correctly or ports blocked..... Weak or failed spark module.....	<ul style="list-style-type: none"> • Verify pressure of 5" WCP for natural gas; 10" WCP for liquid propane • Verify proper seating and clean ports • Replace spark module
Continual sparking after ignition	Improper wiring - spark lead does not correspond to igniter switch..... Burner cap not seated correctly or ports blocked..... Shorted micro switch/harness..... Switch is not properly seated on valve stem..... Bad connection to ground..... Faulty spark lead.....	<ul style="list-style-type: none"> • Check all connections against wiring diagram • Verify proper seating and clean ports • Replace igniter harness. • Carefully reposition switch on valve and verify the switch is functional (see Component Testing Procedures) • Verify a clear path to ground. Clean and dry all metal contact points along ground path to ensure continuity • Test/replace - presence of spark alone does not indicate a functional lead

Component Testing Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death; disconnect power and shut off gas to unit before servicing, unless testing requires power.

Illustration	Component	Test Procedure	Results
	Spark module	Test for voltage at Line and Neutral..... Polarity.....	<ul style="list-style-type: none"> • 120 VAC • If the Line and Neutral connections to the igniter are reversed, the sensitivity is reduced; and the unit may not sense a flame. As a result, sparking may occur when a flame is present.
	Gas Valve	Verify gas is supplied Adjust set screw for low flame	
	Sealed Burner Base	Verify gas is supplied..... Verify igniter function..... Verify burner cap is positioned correctly	<ul style="list-style-type: none"> • Check for obstructions in burner ports • Test continuity across spark lead and igniter. Ensure infinite resistance from igniter to burner base.
	Pressure Regulator	Verify gas pressure..... If on LP service, verify proper gas supply conversion Verify proper conversion (if on LP)	<ul style="list-style-type: none"> • 5" WCP for natural 10" WCP for LP
	Micro Switch Harness	Test for continuity in all positions.....	<ul style="list-style-type: none"> • Switch should read continuity in all positions except for OFF (infinite resistance)

Disassembly

WARNING

To avoid risk of electrical shock, personal injury, or death; disconnect power and shut off gas to unit before servicing, unless testing requires power.

Removing and Replacing Unit

1. Shut off gas and electrical supply to unit.

NOTE: To avoid property damage, place a protective covering on counter top.

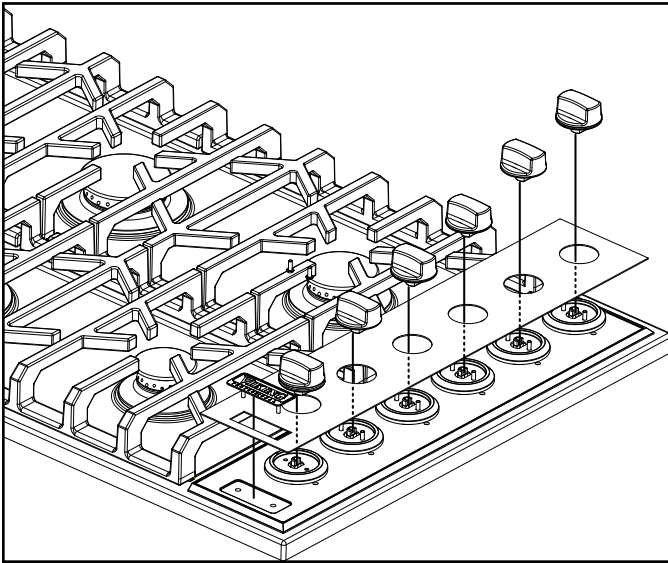
2. Lift unit out of installed position.
3. Disconnect power cord at receptacle.
4. Disconnect gas supply line.
5. Reinstall cooktop using installation instructions supplied by manufacturer.

NOTE: Make certain the gas supply line has not been damaged.

Knobs and Insert

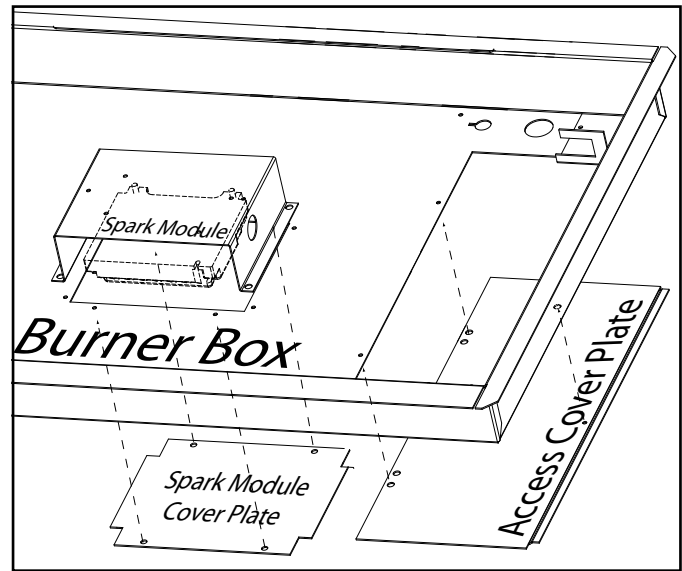
1. Remove control panel knobs by lifting upward.
2. Remove access cover plate on underside of unit.
3. Remove 5/16" nuts holding insert to control panel.
4. Replace component and reverse procedure to reassemble.

NOTE: Insert may require adjustments for proper alignment.



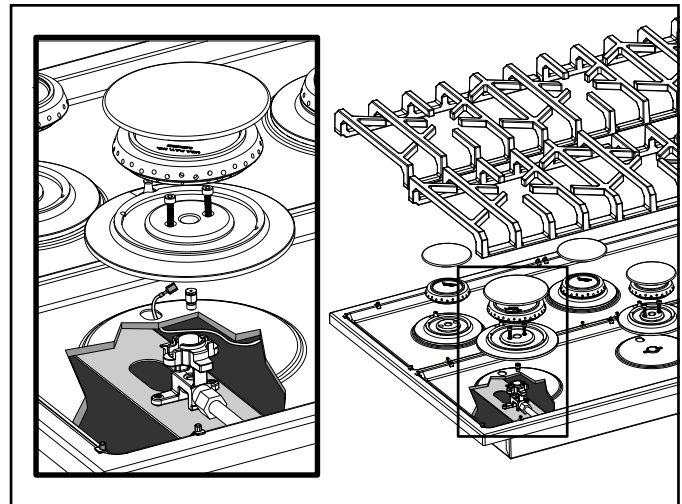
Spark Module

1. Shut off gas and electrical supply to unit.
2. Remove spark module cover on underside of unit.
3. Remove screws securing spark module to spark module box.
4. Disconnect wiring from spark module.
5. Replace component and reverse procedure to reassemble.



Burners

1. Lift grate off top assembly.
2. Lift burner cap off burner.
3. Lift burner off burner base.
4. Replace component and reverse procedure to reassemble.

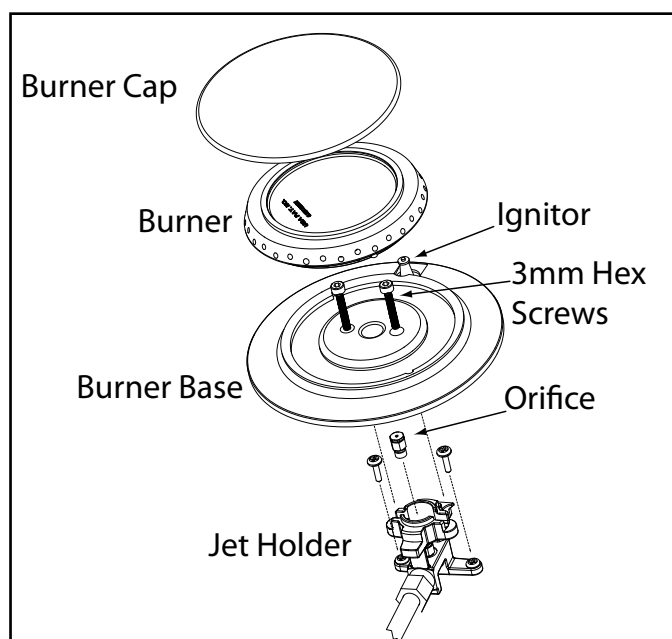


WARNING

To avoid risk of electrical shock, personal injury, or death; disconnect power and shut off gas to unit before servicing, unless testing requires power.

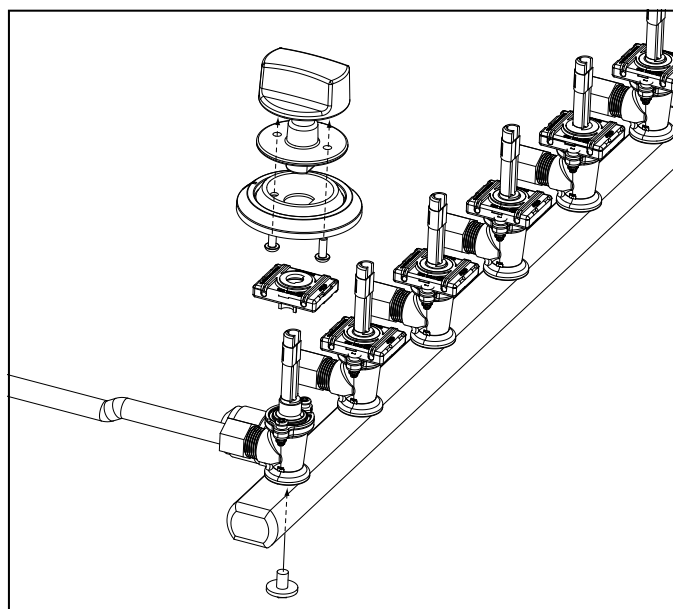
Igniters

1. Shut off gas and electrical supply to unit.
2. Remove grate, burner cap and burner by lifting off of unit.
3. Remove 3mm hex screws securing burner base to main top assembly.
4. Lift burner base from main top assembly and disconnect igniter wire from igniter.
5. Replace component and reverse procedure to reassemble.



Burner Valve

1. Shut off gas and electrical supply to unit.
2. Remove knobs and insert (see Knobs and Insert procedure).
3. Remove screws securing control panel to main top.
4. Remove ignition switch harness.
5. Remove protective film over valve stems.
6. Remove screw securing surface burner valve to manifold.
7. Replace component and reverse procedure to reassemble.

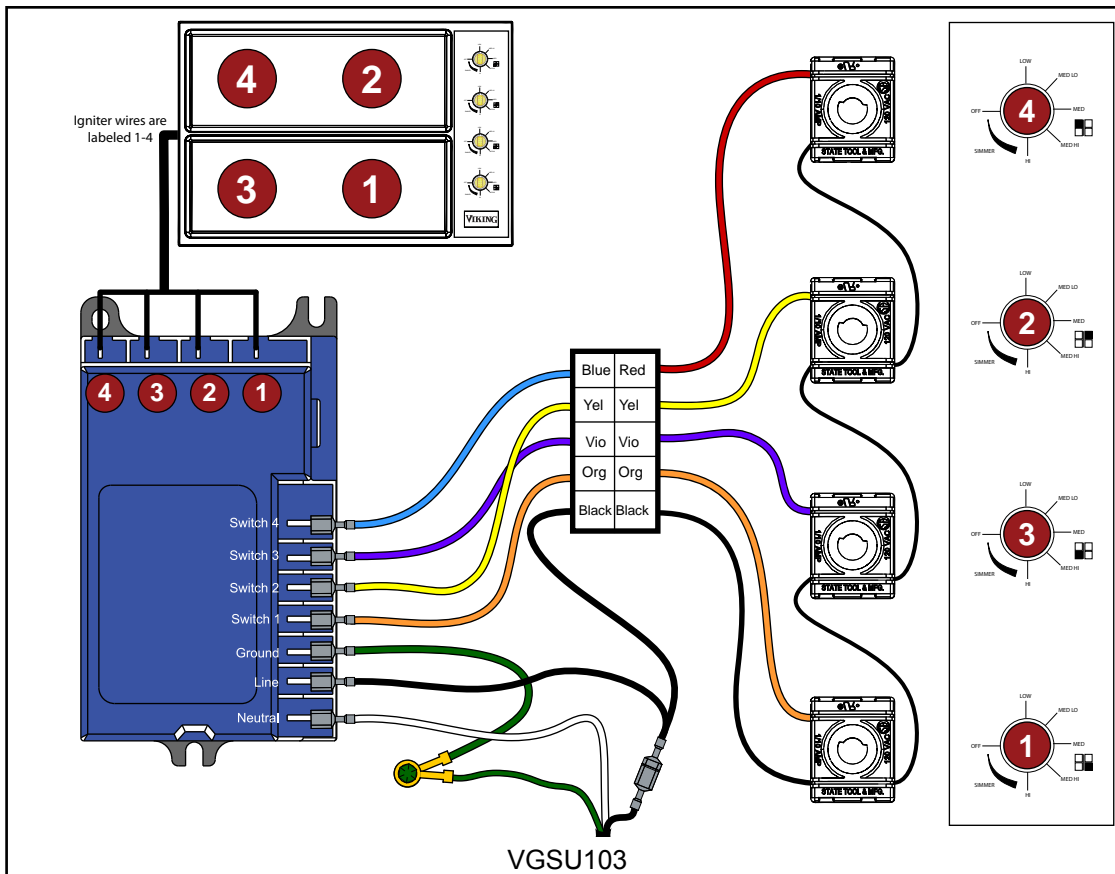
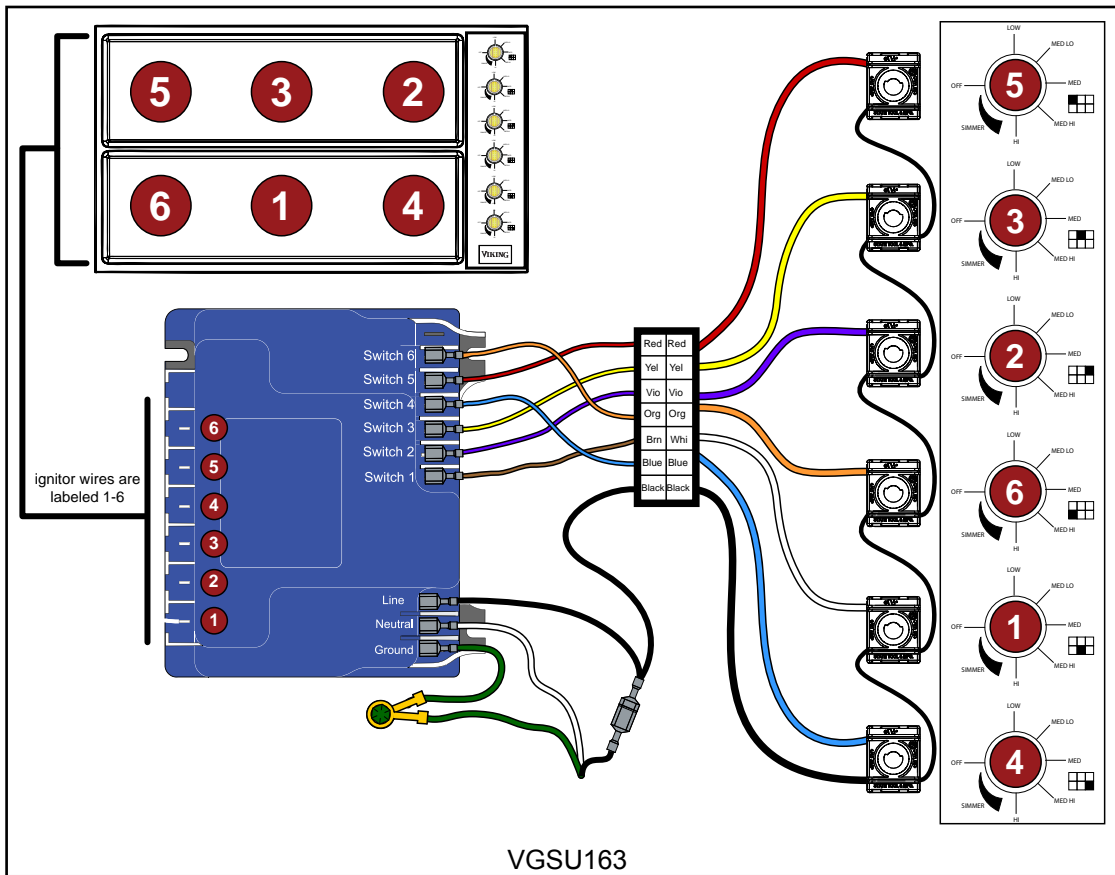


Orifices

1. Shut off gas and electrical supply to unit.
2. Remove grate, burner cap and burner by lifting off of unit.
3. Remove 3mm hex screws securing burner base to main top assembly.
4. Lift burner base from main top assembly.
5. Locate orifice inside venturi tube area.
6. Remove orifice by turning counterclockwise.
7. Replace component and reverse procedure to reassemble.

NOTE: To obtain a better hold on the orifice when removing it from a vertical location, line the inside of the socket with tape.

Wiring Diagrams and Schematics



Wiring Diagrams and Schematics

