Repair manual - Free standing cooker

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Concerning this document

1.1 Important information

Read and observe chapter 2 "Safety" before performing any work!

1.1.1 Purpose

These repair instructions form the basis for a systematic and safety conscious procedure for the repair of domestic appliances.

These repair instructions include information about troubleshooting and repair.

1.1.2 Target group

These repair instructions are intended for persons who are familiar with equipment technology and were instructed by BSH or an authorised body:

- Service technicians for the repair of domestic appliances
- Pre-assemblers in the spare part stockroom when determining required spare parts
- Call centre employees during order acceptance

1.1.3 Other applicable documents

The following documents include additional relevant repair information:

- General repair instructions
- Error codes and service programs
- Circuit diagrams
- Exploded drawings
- Parts lists
- Repair videos

1.2 Explanation of symbols

1.2.1 Danger levels

The warning levels consist of a symbol and a signal word. The signal word indicates the severity of the danger.

Warning level	Meaning
Danger	Non-observance of the warning message will result in death or serious injuries.
Warning	Non-observance of the warning message could result in death or serious injuries.
Caution	Non-observance of the warning message could result in minor injuries.
Notice	Non-observance of the warning message could result in damage to property.

Table 1: Danger levels

1.2.2 Hazard symbols

Hazard symbols are symbolic representations which give an indication of the kind of danger.

The following hazard symbols are used in this document:

Hazard symbol	Meaning
	General warning message
	Danger from electrical voltage
	Risk of explosion
	Danger of cuts
	Danger of crushing

Hazard symbol	Meaning
	Danger from hot surfaces
	Danger from strong magnetic field
	Danger from non-ionizing radiation

Table 2: Hazard symbols

1.2.3 Structure of the warnings

Warnings in this document have a standardised appearance and a standardised structure.

⚠ Danger

Type and source of danger!
Possible consequences of ignoring the danger / warning.
- ▶ Measures and prohibitions for preventing the danger.

The following example shows a warning that warns against electric shock due to live parts. The measure for avoiding the danger is mentioned.

⚠ Danger

Risk of electric shock due to live parts!
Death by electrocution
- ▶ Disconnect appliances from electrical supply at least 60 seconds before starting repairs.

1.2.4 General symbols

The following general symbols are used in this document:

Gen. symbol	Meaning
	Identification of a special tip (text and/or graphic)
	Identification of a simple tip (only text)
	Identification of a link to a video tutorial

Gen. symbol	Meaning
	Identification of required tools
	Identification of required preconditions
	Identification of a condition (if ..., then ...)
	Identification of a result
Start	Identification of a key or button
[00123456]	Identification of a material number
Status	Identification of displayed text / window (in the appliance's display)

Table 3: General symbols

2.1 Qualification

In Germany, only qualified electricians trained by BSH or an authorised body may perform any repair work.

In other countries, only similarly trained qualified personnel is permitted to perform the repair work.

Appliances must only be repaired by persons that are qualified, **approved** and trained by BSH or an authorised body as instructed.

2.2 General safety instructions

2.2.1 All domestic appliances

Risk of electric shock due to live parts!

- Disconnect the appliance from the mains for at least 60 seconds before starting work.
- Do not touch the housing, components and cables.
- For tests on an energised system, use a residual current circuit breaker.
- Discharge high-voltage capacitors.

Risk of injury from sharp edges!

- Wear protective gloves.

Risk of crushing during repair, maintenance, troubleshooting and service due to heavy and moving components

- Wear protective shoes.
- Secure heavy components from falling down.
- Do not stick body parts into moving components.

Risk of injury when dealing with harmful substances!

- Observe the associated safety data sheet!

Risk to the appliance's safety / function!

- Only use original spare parts.

Risk of damage to electrostatically sensitive components (ESDs)!

- Before touching ESDs, use an electrostatic protection system (wristband with earth safe plug).
- Do not touch connections and conductor paths of the modules.
- Only transport ESDs in conductive materials or original packaging.
- Keep ESDs clear of electrostatically chargeable materials (i.e. plastic).

2.3 Measures after each repair

If the appliance is functional:

- Check according to VDE 0701 or country-specific regulations.
- Check external appearance, function and tightness.
- Document repair work, measured values and functional reliability.

If the appliance is **not** functional:

- Identify the appliance as “not functionally reliable”.
- Warn customers of commissioning and notify them in writing .

3.1 Burners, gas valves and igniters

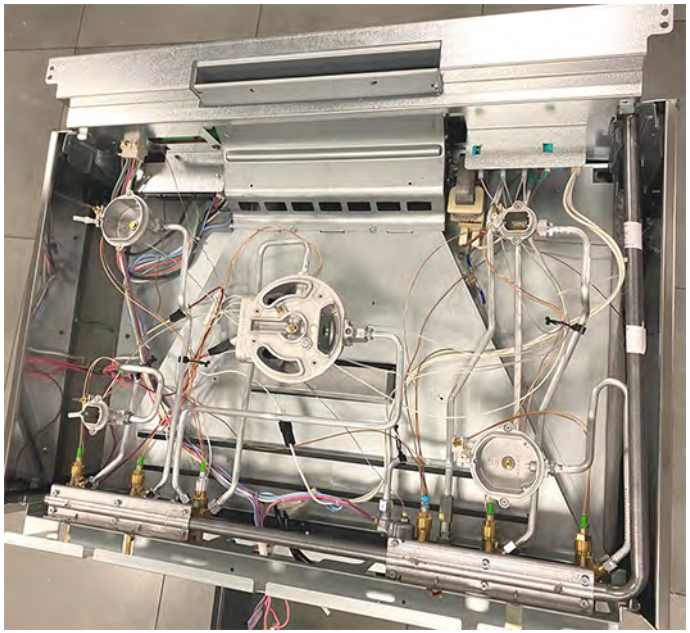


Fig. 1: 30 inch rangetop 5-burner arrangement

3.1.1 Burner ratings / features

Free-standing ranges have either 5 (30") or 6 (36") burners.

- All burners have a thermoelectric safety feature, using thermocouples - if a flame goes out, the gas supply is stopped.
- All rangetops have one 18K dual ring burner.
- The outer ring on dual ring burners can be turned off, allowing a low 1K simmer.
- 30" rangetop burners: 10K (LR/LF), 18K dual ring (C) and 5K (RR).
- 36" rangetop burners: 10K (CF/CR/RF/RR), 18K dual ring (LF) and 5K (LR).
- All ranges have cast iron burner housings.

Fig. 2: 30 inch burner ratings

Fig. 3: 36 inch burner ratings

3.1.2 Burner assemblies

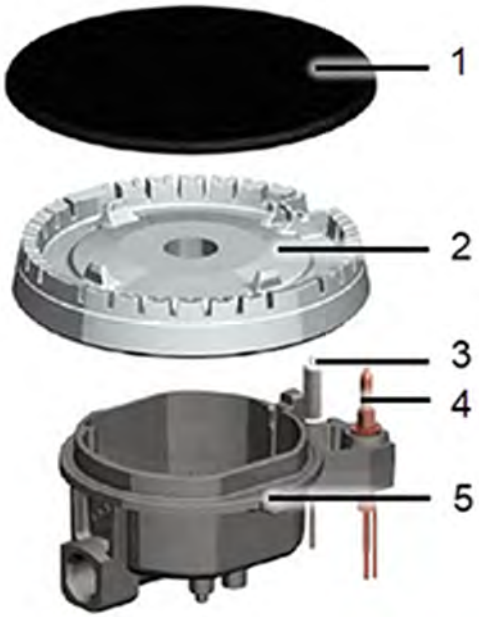


Fig. 4: Burner parts

1 Burner cap
2 Burner base (flame spreader)
3 Spark igniter
4 Thermocouple
5 Burner housing

- Thermocouples and spark igniters are inserted into burner housings, held in place by springs - their positions cannot be adjusted.
- Burner housings are attached to support rails by screws underneath the rails.

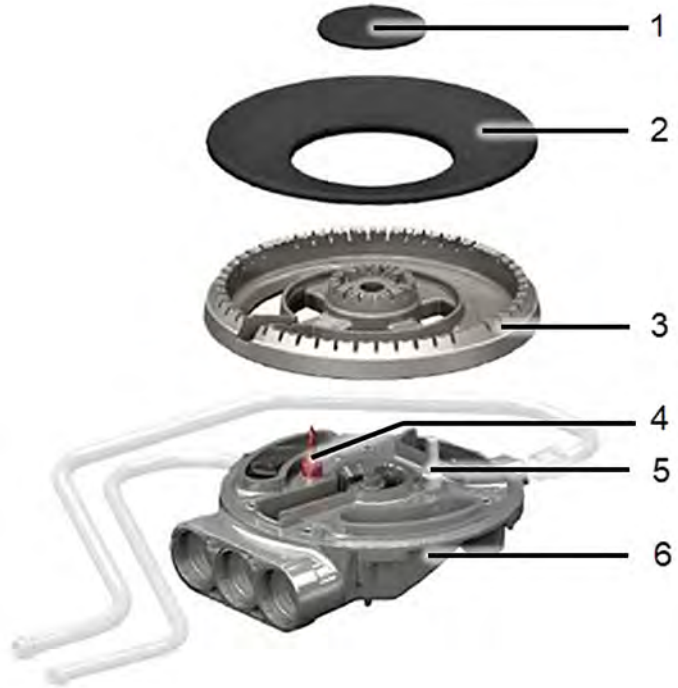


Fig. 5: Dual ring burner parts

1 Inner burner cap
2 Outer burner cap
3 Shared burner base (flame spreader)
4 Inner (shared) thermocouple
5 Inner (shared) spark igniter
6 Burner housing

Dual ring burner housings include separate gas orifices (jets), distribution channels and supply tubes for each (inner / outer) burner.

- Since inner burners are always used, they have spark igniters and thermocouples controlling them - which aren't needed for outer burners.
- Gas valves have separate outlets as well.
- Using only inner burners allows a low 1K BTU simmer.

3.1.3 Gas valves

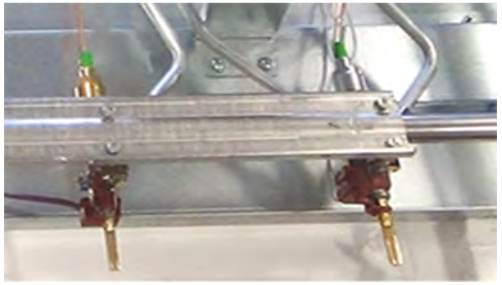


Fig. 6: Gas valve mounting

- Gas valves are inserted from the bottom of rangetops into the gas manifold (main pipe).
- Gas valves are mounted to a mounting rail (above them) with two (2) screws, accessed from the top.
- Small, large and dual ring gas valves have adjusting screws in the front to adjust minimum (bypass) gas flow.

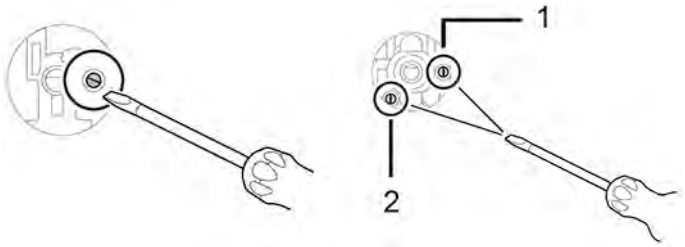


Fig. 7: Adjusting bypass small / large and dual ring (1 - inner, 2 - outer) gas valves

3.1.4 Spark igniter switches

Fig. 8: Gas valve with spark igniter switch

Each burner has a spark igniter switch mounted onto it's corresponding gas valve.

- Spark igniters are activated by pushing in the corresponding knob.
- Spark igniter switches are connected in parallel (to 120 VAC) to the spark module - all igniters will operate when one knob is pushed in.

Fig. 9: Spark igniter harnesses connected to spark module

3.2 Cooking (convection) and cooling (vent) fans

There are two fans with different ways of being activated - the cooking (convection) / bake (oven) fan in the rear of the oven cavity and the cooling / vent / exhaust fan above the oven cavity / under the maintop.

- The cooking (convection) / bake (oven) fan operates only in bake (oven) mode, while the cooling (vent) fan operates in both bake (oven) and broil (grill) modes.
- There are two thermostats on the rear of the range - the left one keeps the cooling fan on when burners have shut off and the right one operates the buzzer when the oven has finished preheating while in bake mode.

3.2.1 Cooking (convection) fan

The bake (oven) cooking fan functions only during bake (oven) mode and is only controlled manually by customers with the timer.

3.2.1.1 Bake / broil knob microswitches

There are two microswitches on the bake / broil knob controlling fans - one prevents the bake (convection) cooking fan from running during broil (grill) mode and the other initiates the cooling (vent) fan.

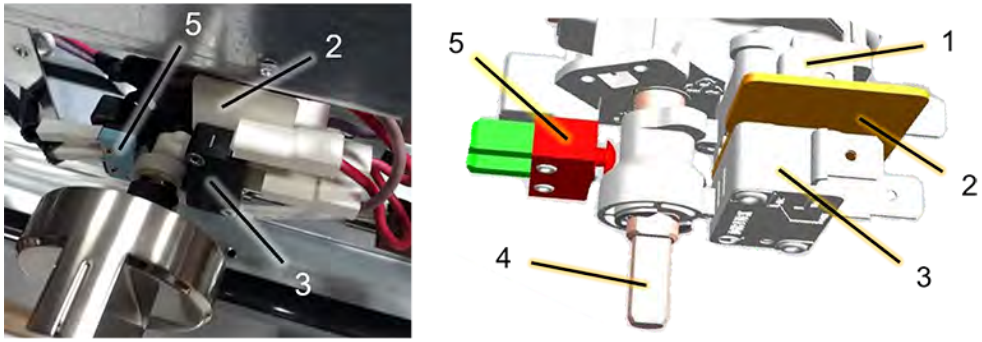


Fig. 10: Bake / broil knob microswitches

1 Microswitch disabling cooking (convection) fan in broil mode
2 Insulating barrier between microswitches
3 Microswitch initiating cooling (vent) fan
4 Gas valve
5 Igniter microswitch connected to T-Zero module

The left microswitch (5) operating the T-Zero module is switched by pushing the knob in (fully), while the two right microswitches (1, 3) are switched by rotating the knob.

3.2.1.2 Timer convection fan control

The bake (oven) convection (cooking) fan can be turned on and off by the timer on the fascia panel - when the oven is in bake (oven) mode.

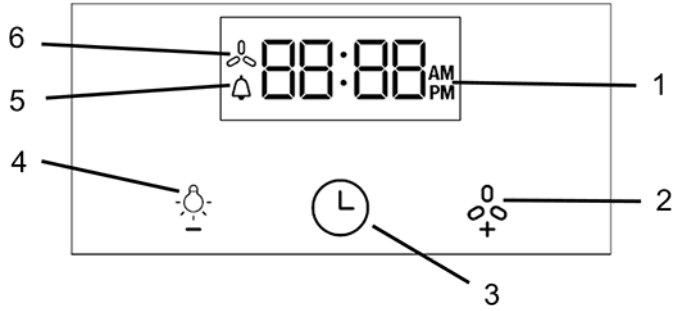


Fig. 11: Bake (oven) cooling (vent) fan control on timer

1 Clock display
2 Bake convection fan on/off button / increase clock or timer time
3 Set, change, store & clear timer / set & store clock time
4 Oven lamp on/off button / decrease clock or timer time
5 Shows oven lamp is on
6 Shows bake convection fan is running

3.2.2 Cooling (vent) fan

The cooling (vent) fan operates in both bake (oven) and broil (grill) modes - staying on when burners have shut off.

3.2.2.1 Cooling fan

The cooling (vent) fan is accessed from the rear of the range.

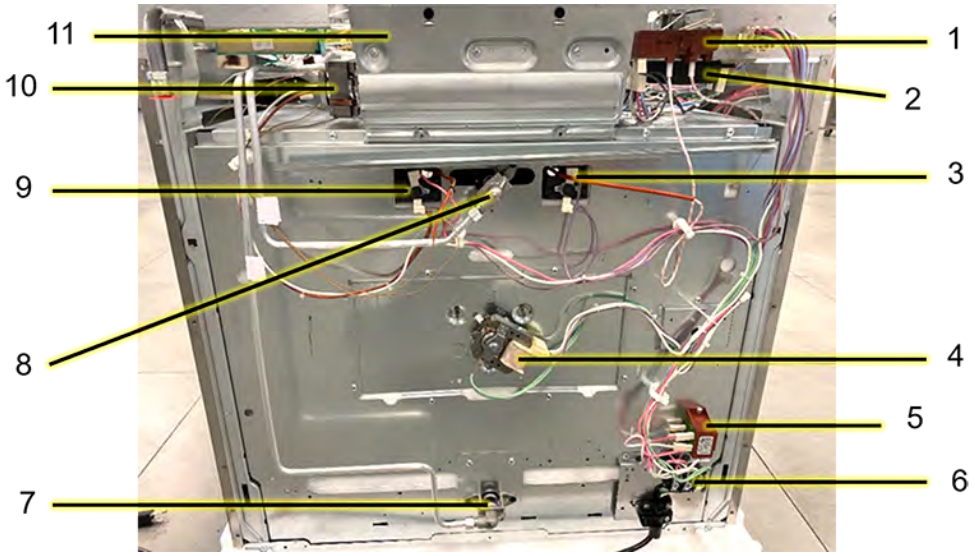


Fig. 12: Parts accessible after removing rear panel

1 Oven (bake / broil) spark module
2 T-Zero module
3 Thermostat for buzzer showing oven has been preheated (during bake)
4 Bake convection fan motor
5 Timer transformer
6 Terminal block / power cord
7 Bake burner gas connection
8 Broil burner gas connection
9 Thermostat keeping cooling (vent) fan on after burners have shut off
10 Cooling (vent) fan motor
11 Cooling air channel (vent duct)

3.2.2.2 Cooling air channel

The cooling air channel (vent) is located over the cavity and under the maintop (hob top).

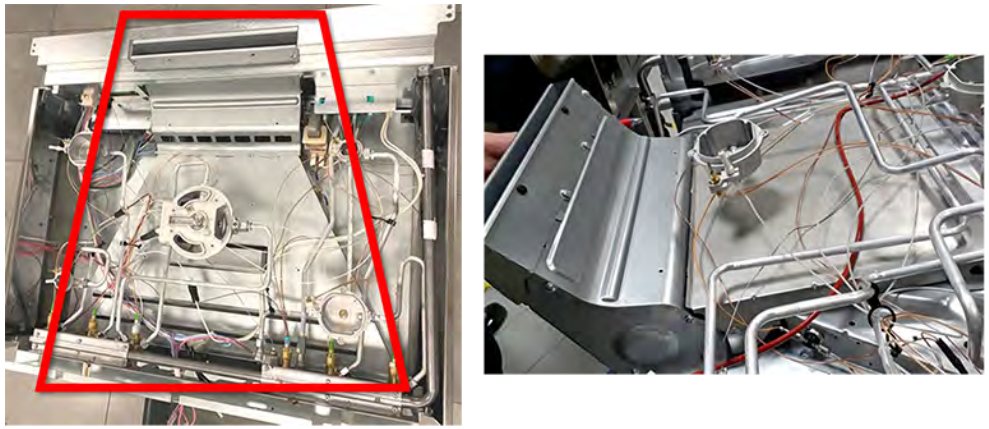


Fig. 13: Location of bake (oven) cooling air channel

The cooling air channel mixes fresh air (from the front of the range) with hot air from the oven cavity, exhausting the heated air from the rear of the range.

3.2.2.3 Thermal protector

The cooling air channel has a thermal protector, which trips when the internal temperature gets too hot.

- The protector is in the circuit of the broil and bake thermocouples, interrupting the thermocouple circuit - causing gas valve electromagnetic valves to shut off burners.
- The protector is included in the oven thermocouple harness assembly and isn't available separately.
- If protector has failed, has turned off or has some resistance (i.e. > 0 Ω), the bake or broil flame will hold for a short time, but will be turned off and will go out before 11 seconds.
- Before checking the protector, allow the air channel to cool down 1st.
- When checking the protector resistance, the resistance must = 0 Ω due to the low mV voltage.
- Along with wrong settings, this can be caused by a blocked or faulty vent fan / harness, so the fan and harness should also be checked (and replaced if necessary).

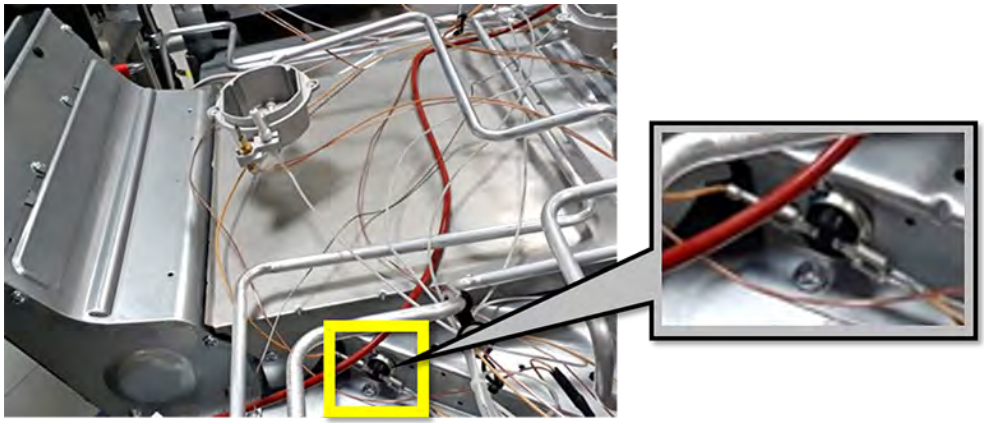


Fig. 14: Location of thermal protector in cooling (air) channel

3.2.3 Fan and switch operation

This explains how convection and cooling fans are operated, including which switches and thermostats are used.

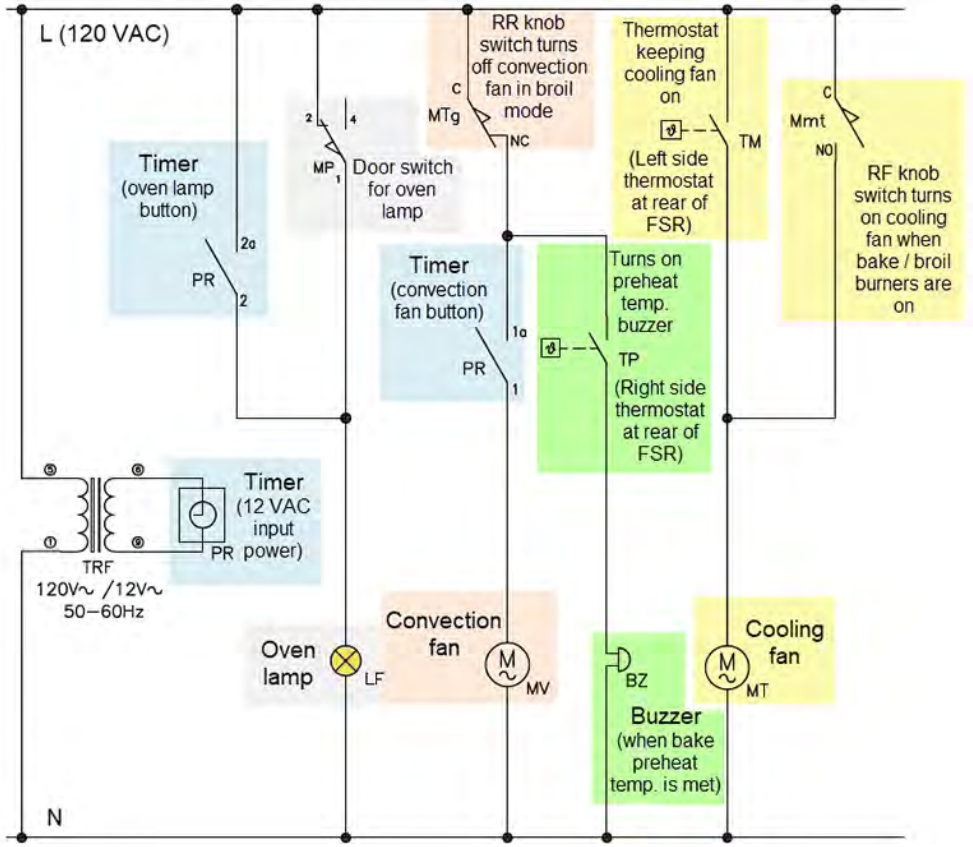


Fig. 15: Excerpt from circuit diagram explaining fan operation

- The bake (convection / cooking) fan is operated only by the timer on the fascia panel and cannot operated in broil (grill) mode.
- The cooling (vent) fan operates in both bake (oven) and broil (grill) mode - operating when the oven knob is rotated and kept on by a thermostat on the left side of the rear of the range, depending on the temperature.
- The oven lamp operated when the timer button is pushed and when the door is opened.
- The buzzer only operates in bake (oven) mode, alerting customers the range has finished preheating.
- Buttons on the timer can be used to operate the convection (cooking) fan in bake mode and the oven lamp when the door is closed.

Design and function

- There are two microswitches on the right side of the bake / broil knob - the front one operates the cooling (vent) fan in both bake / broil modes and the rear one cuts off the convection (cooking) while in broil (grill) mode.
- There are two thermostats on the rear of the range - the left one keeps the cooling fan on when burners have shut off and the right one operates the buzzer when the oven has finished preheating while in bake mode.

3.3 FSR gas valve operation

Gas valves not only control gas flow to each burner, but provide a safety function by stopping gas flow when flames goes out.

3.3.1 Burner parts

Gas valves work with burner thermocouples to keep flames lit and to stop gas flow when they're extinguished.

- Gas valves have an electromagnetic valve inside them allowing them to stay open while flames are present - thermocouples next to each burner generate a small voltage (~ 5 - 30 mV) holding electromagnetic valves open.
- This safety feature means flames **must** be established and thermocouples heated up whenever burners are turned on.

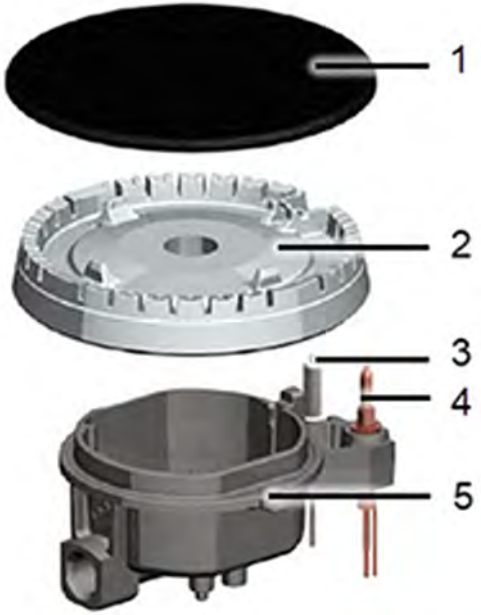


Fig. 16: Burner parts

1 Burner cap
2 Burner base (flame spreader)
3 Spark igniter
4 Thermocouple
5 Burner housing

3.3.2 Basic operation

Gas valves are opened in a several step process:

- 1st, push in a burner knob and hold it in to open the gas valve electromagnetic valve - springs keep gas valves and electromagnetic valves closed, so knobs must be pushed and held in to open valves.
  Gas flows into gas valves, but not to burners, and all spark igniters start sparking.
- 2nd, **while** still holding the knob in, rotate it to allow gas to flow to the burner.
- 3rd, **after** rotating the knob, still **hold** it in for ~ 3 - 5 seconds until the flame is established and the thermocouple heats up - once the thermocouple generates enough voltage to hold the electromagnetic valve open, the flame will stay lit. If the flame goes out, repeat the process, holding the knob in longer and making sure it's pushed in fully.

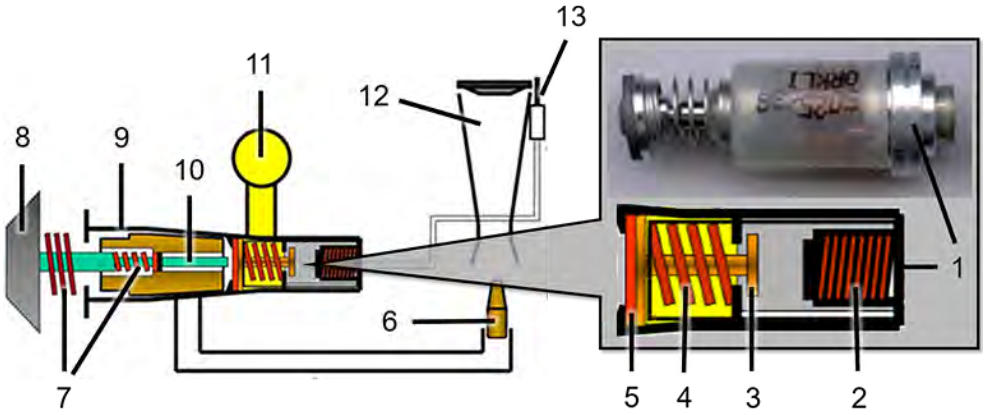


Fig. 17: Gas valve closed - no gas flow

1 Electromagnetic valve
2 Coil, em-valve
3 Plunger, em-valve
4 Spring, em-valve
5 Disk face, plunger, em-valve
6 Orifice (jet / nozzle)
7 Springs, gas valve
8 Knob
9 Gas valve
10 Plunger, gas valve
11 Gas manifold
12 Burner

13 Thermocouple

- Before knobs are pushed in, gas and electromagnetic valve springs hold valves open so no gas flows - electromagnetic valves and spark igniters are off.
- Electromagnetic valves are assembled inside of gas valves and aren't available separately.

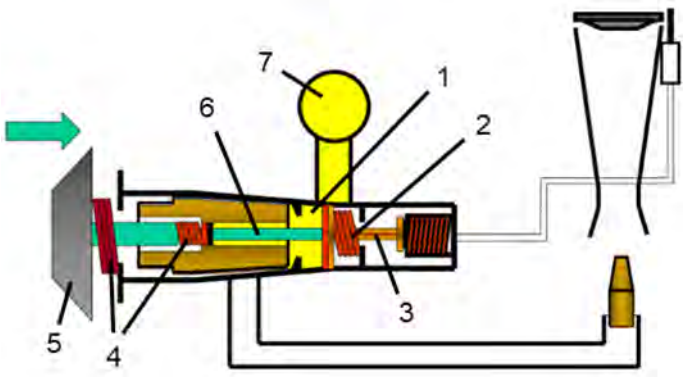


Fig. 18: Gas valve on - no gas to burner

1 Gas flowing into gas valve, but not to burner
2 Spring, e-valve
3 Plunger, e-valve
4 Springs, gas valve
5 Knob
6 Plunger, gas valve
7 Gas manifold

Pushing in knobs pushes gas valve plungers into electromagnetic gas valve plungers (faces), turning valves on, allowing gas to flow from the manifold into gas valves.

- All springs are compressed, but there's no gas to burners.
- All spark igniters are turned on and begin sparking.
- If knobs are rotated without pushing and holding them in 1st, gas valves won't turn on and no gas will flow to burners.

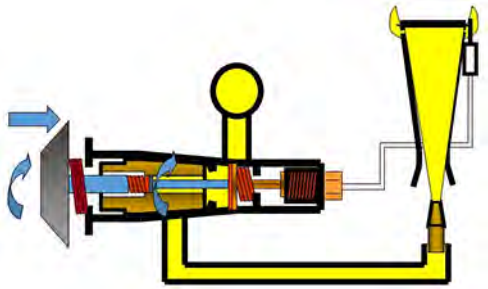


Fig. 19: Gas valve open - thermocouple heated and valves kept open

Rotating knobs (while holding them in) allows gas to flow to burners.

- Knobs must be held in for ~ 3 - 5 seconds (after rotating them) to allow thermocouples to heat up so electromagnetic valves can keep flames lit. Valve coils are energized by thermocouples, holding plungers in and keeping valves open.
- Knobs must always be pushed in until flames stay lit.
- Holes inside gas valves line up when knobs are rotated, allowing gas to flow to burners.

	If a customer says they've rotated a knob, but no gas flows and there's no flame, ask them to push the knob in 1st, hold it in, rotate it (while holding it in) and wait for ~ 3 - 5 seconds until the flame stays lit.

If a flame goes out, gas flow is stopped in less than 90 seconds by the gas valve electromagnet (as the thermocouple cools down).

3.3.3 Bypass (minimum gas flow) operation

Gas valves have a bypass path, allowing a low simmer when the minimum amount of gas flows.

- When valves are rotated to their lowest settings, a bypass path is opened before the main gas flow is interrupted and flames are extinguished.
- Whenever gas conversions have occurred (natural to LP gas or LP to natural gas), low simmer (bypass / minimum gas flow) must be adjusted.
- Gas burners are sealed - there are no parts under the maintop to clean, disassemble or adjust. So, gas valve adjusting screws only affect low simmer (bypass / minimum gas flow) settings.

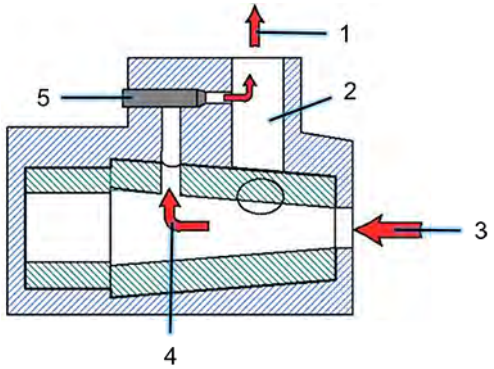


Fig. 20: Gas valve bypass path (for illustration only)

1	Gas outlet to burner
2	Main gas flow
3	Gas inlet to valve
4	Bypass gas flow
5	Bypass gas nozzle (jet) with adjusting screw

3.3.4 Bake and broil operation

The bake and broil are operating with one common knob – rotating it counter-clockwise (ccw) operates the bake mode, while rotating the knob clockwise (cw) operates the broil mode.

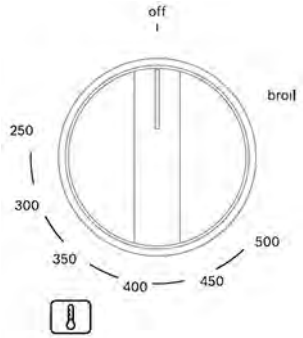


Fig. 21: Bake / broil knob

The bake burner temperature is regulated by a standard sealed capillary and bulb thermostat. The fluid inside of it expands when heated until it reaches the preset temperature (with a small overshoot of about 5º - 10ºF).

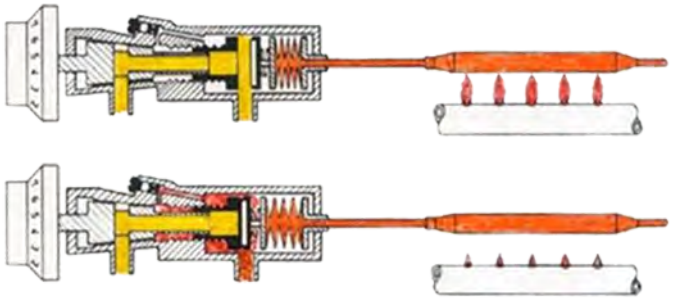


Fig. 22: Bake burner sealed bulb thermostat

Both burners use thermocouples for starting and safety, similar to cooktop burners. Unlike maintop burners, they use a T-Zero module to enhance starting.

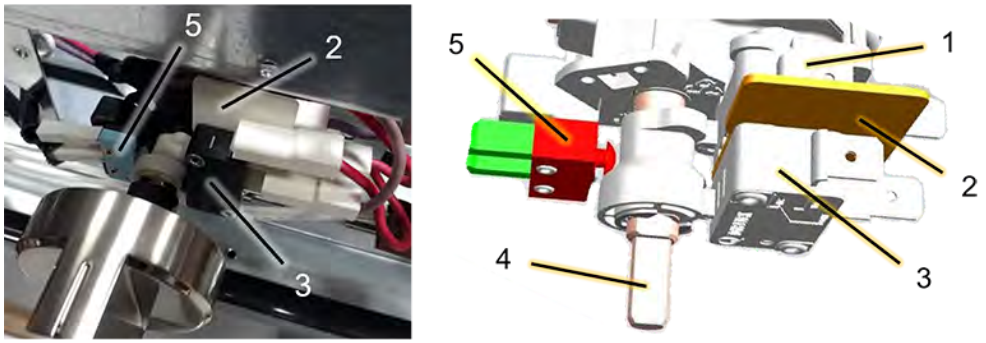


Fig. 23: Bake / broil knob microswitches

1	Microswitch disabling cooking (convection) fan in broil mode
2	Insulating barrier between microswitches
3	Microswitch controlling cooling (vent) fan
4	Gas valve
5	Igniter microswitch connected to T-Zero module

3.3.5 T-Zero module

Bake and broil burners use a T-Zero electronic module to provide quicker starting without holding knobs in for several seconds.

- After the knob is pushed in, engaging spark igniter switches, the spark igniters run for 9 seconds and gas is kept flowing for 11 seconds by the T-Zero module.
- Even though the knob only needs to be held in for ½ second, it does need to be pushed in fully.

Design and function

The T Zero module supplements a standard gas valve and thermocouple (i.e. doesn't replace either one).

Fig. 24: T-Zero module

The T-Zero module detects when the knob is pushed in (closing a low voltage microswitch):

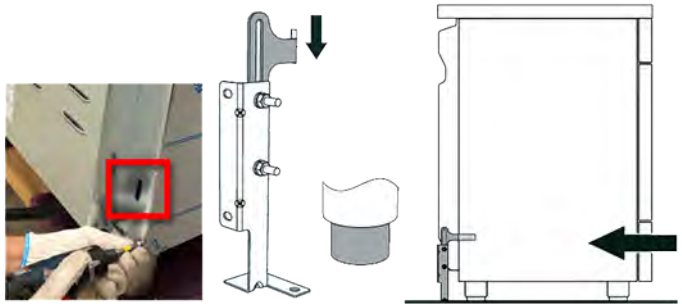
- A small voltage is fed into the thermocouple and keeps the gas valve electromagnetic valve open without waiting for the thermocouple to heat up. This voltage is provided for ~ 11 seconds (gradually dropping to zero), during which time the thermocouple has to heat up and deliver sufficient voltage to keep the electromagnetic valve open by itself.
- It connects the bake or broil spark igniter to 120VAC for ~ 9 seconds to start sparking.
- It also supervises the spark igniter switch, stopping sparking if it (the switch) is kept closed for more than about 5 seconds.

3.4 Anti-tip bracket

Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries

- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.



An anti-tip bracket is provided with all ranges, which prevents ranges from tipping.

A tab on the anti-tip bracket slides into a slot on the bottom left / right rear corners of ranges, allowing ranges to be slid out from the front. When installed correctly, the range shouldn't move more than 1" (2.54 cm) if tipped.

The Anti-tip bracket is required for safe operation of this range. If one is not installed, the range should be unplugged and the customer notified in writing not to use the range until the Anti-tip safety device has been installed.

3.5 Parts accessible from gas FSR rear panel

Many serviceable parts are accessed from the rear of the range after removing the rear panel.

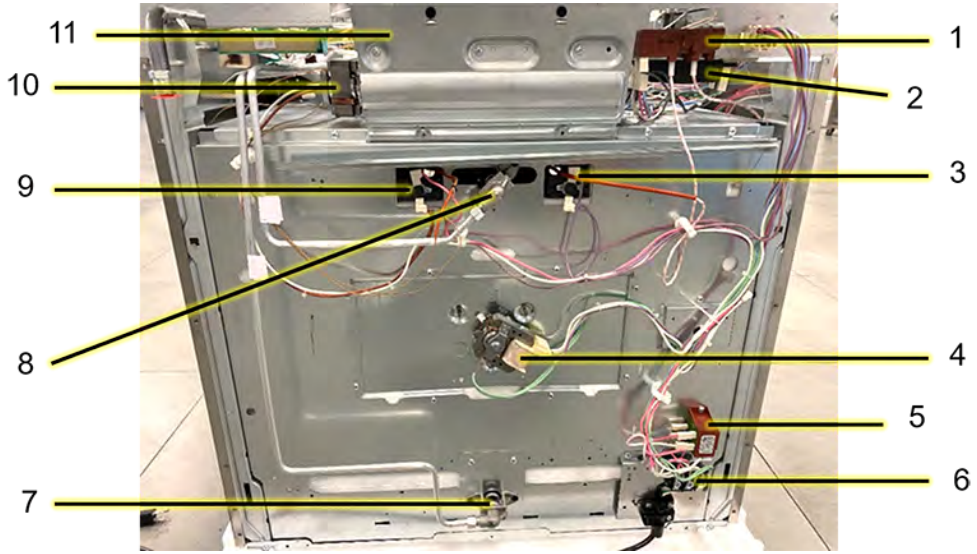


Fig. 25: Parts accessible after removing rear panel

1 Oven (bake / broil) spark module
2 T-Zero module
3 Thermostat for buzzer showing oven has been preheated (during bake)
4 Bake convection fan motor
5 Timer transformer
6 Terminal block / power cord
7 Bake burner gas connection
8 Broil burner gas connection
9 Thermostat keeping cooling (vent) fan on after burners shut off
10 Cooling (vent) fan motor
11 Cooling air channel (vent duct)

3.6 Massachusetts installations

- Installation must be performed by a qualified or licensed contractor, plumber or gas fitter qualified or licensed by the state, province or region where this appliance is being installed.
- Shut-off valve must be a "T" handle gas valve.
- Flexible gas connector must be new and not longer than 36 inches.

3.7 Serial label location and information

The serial label, located underneath the bullnose on the right side of the fascia panel, contains the range model, KI (index) and FD #'s used for repairs.

The FD #, located to the right of the model / KI #'s, is the serial # commonly used for repairs and in service documentation - in the format of xxxx xxxxxx, where the 1st 4-digits denote when the range was made and the last 6-digits correspond to the unit made.

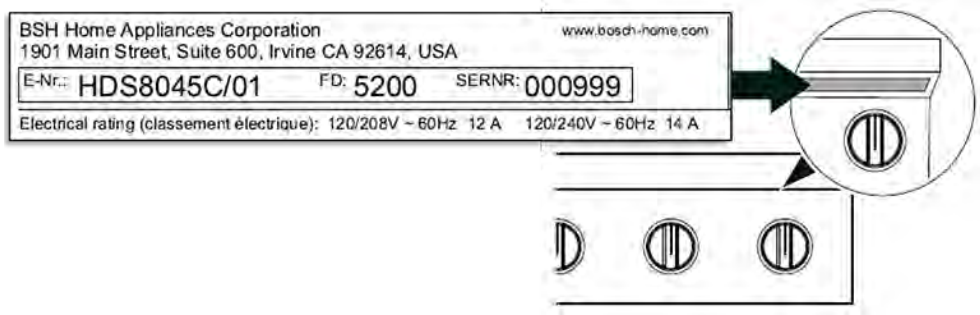
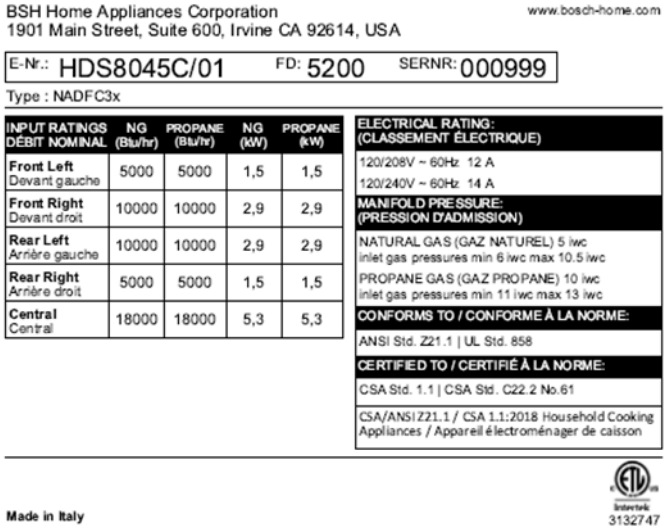


Fig. 26: Serial label location (underneath fascia panel bullnose) and detail (dual fuel shown)

There's a 2nd label located on the back of the range with more detailed information.


BSH Home Appliances Corporation
1901 Main Street, Suite 600, Irvine CA 92614, USA
www.bosch-home.com

E-Nr.: HDS8045C/01 FD: 5200 SERNR: 000999

Type : NADFC3x

INPUT RATINGS DÉBIT NOMINAL	NG (Btu/hr)	PROPANE (Btu/hr)	NG (kW)	PROPANE (kW)
Front Left Devant gauche	5000	5000	1,5	1,5
Front Right Devant droit	10000	10000	2,9	2,9
Rear Left Arrière gauche	10000	10000	2,9	2,9
Rear Right Arrière droit	5000	5000	1,5	1,5
Central Central	18000	18000	5,3	5,3

ELECTRICAL RATING: (CLASSEMENT ÉLECTRIQUE)
120/208V ~ 60Hz 12 A
120/240V ~ 60Hz 14 A
MANIFOLD PRESSURE: (PRESSION D'ADMISSION)
NATURAL GAS (GAZ NATUREL) 5 iwc inlet gas pressures min 6 iwc max 10.5 iwc
PROPANE GAS (GAZ PROPANE) 10 iwc inlet gas pressures min 11 iwc max 13 iwc
CONFORMS TO / CONFORME À LA NORME:
ANSI Std. Z21.1 | UL Std. 858
CERTIFIED TO / CERTIFIÉ À LA NORME:
CSA Std. 1.1 | CSA Std. C22.2 No.61
CSA/ANSI Z21.1 / CSA 1.1:2018 Household Cooking Appliances / Appareil électroménager de caisson

Made in Italy

3132747

Fig. 27: 2nd serial label located on back of range (dual fuel shown)

Fault Diagnosis

Malfunction

Fault	Possible cause	Troubleshooting
Burner won't ignite *Customer use issues*	Customer rotated knob without pushing it in No gas flow or sparking	1. Push in fully, rotate and hold knob in for ~ 3 - 5 seconds and let go of knob - check if flame stays lit or goes out. 2. *Advise customer:* *(If flame stays lit) To **push knob in 1st**, rotate knob while holding it in and hold knob in for ~ 3 - 5 seconds until flame stays lit.* Knobs can be rotated without pushing them in, but flames won't ignite.
	Customer pushed in knob, but didn't rotate it Sparking, but no flame	1. Push in fully, rotate and hold knob in for ~ 3 - 5 seconds and let go of knob - check if flame stays lit or goes out. 2. *Advise customer:* *(If flame stays lit) To **rotate** knob (after pushing it in) and hold it in for ~ 3 - 5 seconds or to push harder.* Pushing in knob turns gas valve and spark igniters on, but doesn't let gas flow into burners.
	Gas supply turned off	▸ Turn on gas supply and check for leaks.
Maintop flame doesn't hold *Customer use issues*	Customer doesn't hold knob in long enough	1. Push in fully, rotate and hold knob in for ~ 3 - 5 seconds and let go of knob - check if flame stays lit or goes out. 2. *Advise customer:* *(If flame stays lit) To push in, rotate and **hold knob for ~ 3 - 5 seconds** or to push harder.*
Dirty or damaged knob	Dirty or damaged knob Blocked knob preventing operating gas valve	1. Check if flame ignites and stays lit without using the knob. 2. If flame stays lit, clean or replace knob.
Dirty, damaged or faulty thermocouple	Insufficient flame	1. Make sure burner base channels / igniter are clean and work properly. Clean dirty parts and reassemble burner base / cap properly. 2. Check flame height, form, color and quality.
	Bent or damaged thermocouple	▸ Straighten out bent thermocouple & insert it fully into burner housing.
	Dirty thermocouple	▸ Clean dirty thermocouple.
	Faulty thermocouple	▸ Replace faulty thermocouple. Due to coaxial thermocouple connections, voltages cannot be measured.

Fault Diagnosis

Fault	Possible cause	Troubleshooting
Faulty or damaged gas valve	Faulty or damaged gas valve	▸ Replace faulty gas valve.
	Bent manifold or fascia panel ■ Knob bottoms out without fully engaging gas valve electromagnetic valve ■ Manifold bent or out of alignment	1. Check if flame ignites and stays lit without using the knob. 2. Adjust manifold and fascia panel (mechanically) to make sure valve fully closes when knob is pushed in.
Oven flame doesn't hold *Customer use issues*	Customer doesn't push knob hard enough	1. Push knob in fully and let go of knob - check if flame stays lit or goes out. 2. *Advise customer:* *If flame stays lit, advise customer to push harder.*
Dirty or damaged knob	Dirty or damaged knob Blocked knob preventing operating gas valve	1. Check if flame ignites and stays lit without using the knob. 2. If flame stays lit, clean or replace knob.
Dirty, damaged or faulty thermocouple	Insufficient flame	1. Remove bake burner cover and check bake / broil burner flame heights, color and quality. 2. Check if broil and bake burners and igniters are clean and are working properly. Clean dirty parts and reassemble burners properly.
	Bent or damaged thermocouple	▸ Straighten out bent thermocouple and insert it fully into burner clip.
	Dirty thermocouple	▸ Clean dirty thermocouple.
	Faulty thermocouple	▸ Replace faulty thermocouple. Due to coaxial thermocouple connections, voltages cannot be measured.
Faulty or damaged gas valve	Faulty or damaged gas valve	▸ Replace faulty gas valve.
	Bent manifold or fascia panel ■ Knob bottoms out without fully engaging gas valve electromagnetic valve ■ Manifold bent or out of alignment	1. Check if flame ignites and stays lit without using the knob. 2. Adjust manifold and fascia panel (mechanically) to make sure valve fully closes when knob is pushed in.

Fault Diagnosis

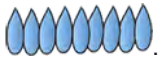
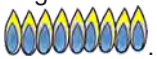
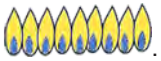
Fault	Possible cause	Troubleshooting
Tripped air channel thermal protector ■ Turns off both bake and broil burners ■ Typically due to cooling fan malfunction	Faulty or damaged thermal protector	1. Let air channel cool down and measure resistance with a multimeter. 2. If resistance is high or infinite, replace oven thermocouple harness assembly. – If protector has failed, has turned off or has some resistance (i.e. > 0 Ω), the bake or broil flame will hold for a short time, but will be turned off and will go out before 11 seconds. – When checking the protector resistance, the resistance must = 0 Ω due to the low mV voltage.
	No power to cooling fan	▸ Check and correct power supply to cooling fan (should be 120 VAC).
	Faulty cooling fan	▸ Replace faulty cooling fan.
	Blocked or slow-running cooling fan	1. Clear out blockage and make sure fan spins freely. 2. Check fan winding resistance - replace fan if faulty.
	Blocked air flow in air channel	▸ Clear out clogged air channel.
	Overheated burner	1. Check bake (oven) and broil (grill) flames. 2. Make sure regulator is set up correctly and correct bake / broil orifices (jets) are used for type of gas.
	Faulty left side thermostat (viewing rear of range) Thermostat turns off cooling fan too early	▸ Replace faulty thermostat.
Faulty T-Zero module ■ Flame doesn't stay lit when knob is pushed and held in for 1 - 2 seconds ■ Applies to both bake and broil burners	Faulty T-Zero module	1. Check connections from T-Zero module to thermocouples. Replace faulty harnesses. 2. Check power supply to T-Zero module. 1. Replace harnesses, if faulty. 2. Correct power supply to T-Zero module. 3. Check mV output from T-Zero module to thermocouples. Replace T-Zero module if faulty.
Bake (oven) minimum (bypass) setting too low Typically flame shuts off after 10 - 20 minutes	Minimum bake (oven) flame too low	▸ Check minimum bake (oven) flame - adjust as needed.
No sparks generated *Occurs on all knobs*	No power to appliance	▸ Plug in power cord or turn on customer circuit to appliance.
	Power cord or igniter switch harness disconnected	1. Tighten loose or reconnect disconnected terminal connections. 2. Reconnect disconnected spark module connections.

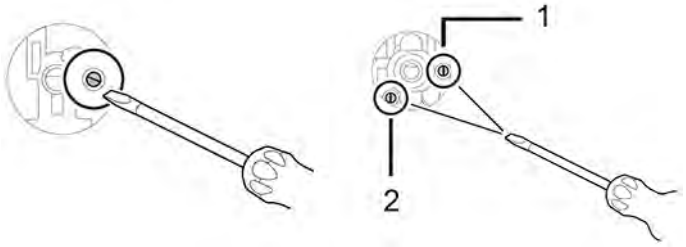
Fault Diagnosis

Fault	Possible cause	Troubleshooting
	Faulty spark module	1. Check for 120 VAC incoming voltage to spark module. 2. If voltage to spark module is 120 VAC, replace faulty spark module.
Occurs on one or some knobs	Damaged spark igniter	▸ Check if spark igniter sparks to burner base / housing. Replace faulty spark igniter.
	Faulty spark igniter harness	1. Check if spark igniter harness sparks to housing. Replace faulty spark switch assembly. 2. Check spark igniter harness for broken wire or damaged insulation. Replace faulty spark switch assembly.
	Spark switch issues	1. Check spark switch function. Replace faulty spark switch assembly. 2. Check spark switch mounting to gas valve - remount switch to gas valve if needed.
	Faulty spark module	▸ Replace faulty spark module.

5.1 Checking gas valves and thermocouples

1. Ask customer if igniters spark, but burners don't ignite (and there's no gas smell).
   Pushing knobs in open gas valve electromagnetic valves and turn on spark igniters, but don't allow gas to flow - rotating knobs allow gas to flow and burners to ignite.
   - Instruct customer to rotate knob and hold it in for 3 - 5 seconds (after pushing it in initially) so gas will flow and burner will ignite.
2. Push in, rotate and hold knob in for 3 - 5 seconds and let go of knob - check if flame stays lit or goes out.
   - If flame stays lit, advise customer to push and hold in knob in for 3 - 5 seconds (after rotating it) or to push knob harder.
3. Check if flame ignites and stays lit without using the knob.
   - If flame stays lit, clean or replace knob.
4. Check if flame is sufficient to heat up thermocouple.
   1. Check if burner base channels and igniter are clean and are working properly. Clean dirty parts and reassemble burner base / cap properly.
   2. Check flame height, form, color and quality. Adjust flame as needed (see next steps below).
5. Check burner operation.
   If burner parts aren't properly installed, the follow problems may occur:
   - Burner flames are too high.
   - Flames shoot out of burners.
   - Burners don't ignite.
   - Burner flames light unevenly.
   - Burners emit gas odor.

   Proper flame characteristics:
   - Natural gas - normally soft blue flames:  .
   - LP gas - normally blue flames with yellow tips on outer flame cones:  .
   - Yellow flames - further adjusting is required:  .
6. Corrective actions to adjust flames:
   1. Check regulator is set up for the correct fuel, whether natural or LP gas.
   2. Check burner bases and caps are properly seated - burner cap grooves (flanges) should fit onto burner base prongs, there should be no gaps between burner bases / caps and all parts should be level.
   3. Retest after adjustments have been made.
      Gas burners are sealed - there are no parts under the maintop to clean, disassemble or adjust.
7. Adjust small / large and dual ring burners (1 - inner, 2 - outer) for minimum (by-pass) gas settings.
   1. Rotate all knobs to lowest gas setting.
   2. Remove all knobs and knob bezels (rings) - adjust one burner at a time.
   3. For LP gas, using a flat blade screwdriver, rotate small / large burner adjusting screw / dual ring inner adjusting screw gently clockwise (cw) until screw bottoms out (can't rotate any further) - for natural gas, rotate each screw gently counterclockwise (ccw) ½ turn after it had bottomed out.
   4. Replace knob and check flames on lowest setting - if flames aren't stable, remove knob and adjust screw as needed (ccw to increase gas flow / cw to reduce gas flow).
   5. Replace knob and make sure flames don't go out when quickly rotating between maximum / minimum gas settings. Optimal flame height for small simmer (minimum gas flow) is 1/8" (3 - 4 mm).
   6. Repeat until all burners have been adjusted for lowest gas settings.
   7. When completed, install all knobs / bezels (rings) and grates.



8. Check if thermocouple is bent or dirty. Straighten and clean as needed.
9. Check for bent manifold or fascia panel.
   1. Check if flame ignites and stays lit without using the knob.
   2. Adjust manifold and fascia panel (mechanically) to make sure valve fully closes when knob is pushed in.
      - Knob bottoms out without fully engaging gas valve electromagnetic valve.
      - Manifold is bent or out of alignment.

5.2 Checking spark modules, switches and igniters

Prerequisite:

- Carefully pull out range.
- Remove maintop (hob top).→ *Page 39*

1. Check for power to range - plug in power cord or turn on customer circuit to range.
2. Check if power cord connection to terminal block or igniter switch harness is loose or disconnected. Reconnect and tighten loose connections.
3. Check for 120 VAC incoming voltage to spark module - if 120 VAC, replace faulty spark module.
4. Check if spark igniter sparks to burner base / housing. Replace faulty spark igniter.
5. Check if spark igniter harness sparks to housing. Replace faulty spark switch assembly.
   Also check spark igniter harness for broken wire or damaged insulation.
6. Check spark switch mounting to gas valve - remount switch to gas valve if needed.

6.1 Replacing knobs

Fig. 28: 30 inch model shown

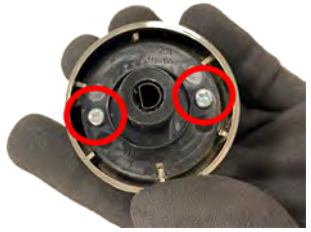
Prerequisite:

- Rotate all knobs to the "off" position if not done previously

1. Carefully unscrew knobs counterclockwise (ccw) while pulling them out from the fascia panel.

   – Knobs are press-fit onto gas valve stems.
   – Knob hubs have a "D" shape to fit onto gas valve stems.

2. Using a #1 Phillips screwdriver, remove knob hubs from knobs (to be replaced).



3. Install in reverse order.

6.2 Replacing fascia panels and timers

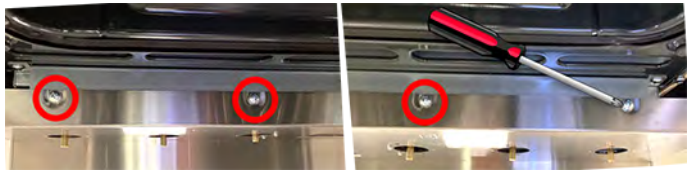
Primarily, the fascia panel is removed to replace the timer. Most other parts are accessed from the top.

Prerequisite:

- Disconnect electric power.
- Open door.
- Remove knobs.→ *Page 28*

1. Using a #2 Phillips screwdriver, unscrew two (2) knob ring screws for each knob.

2. Using a #2 Phillips screwdriver, unscrew the screws underneath the fascia panel.



3. After noting connections, disconnect the timer harness.

4. Remove timer from fascia panel.
   1. To remove timer holder, use a flathead screwdriver to remove four (4) timer screws.

   2. Lift timer out from rear of fascia panel.
      The timer holder is included with the fascia panel and isn't available separately.
5. Install in reverse order.

6.3 Replacing front panels

Prerequisite:

- Shut off gas and electric supplies.
- Remove knobs.→ *Page 28*
- Remove fascia panel.→ *Page 29*

1. Remove spark igniter switch harness.→ *Page 45*
2. Using a #2 Phillips screwdriver, remove six (6) front panel screws and carefully remove front panel.

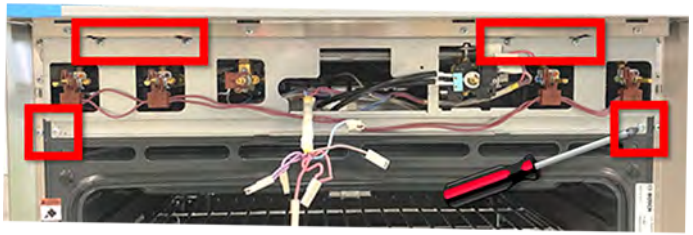


Fig. 29: 30 inch model shown

3. Install in reverse order.

6.4 Replacing rear panels

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

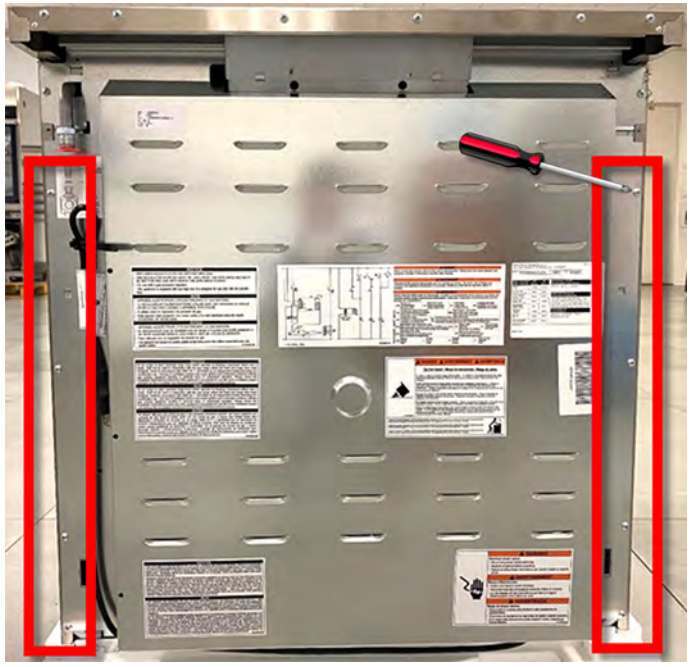
Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.

1. Using a #2 Phillips screwdriver, remove eight (8) screws, four (4) on each side.



2. Remove rear panel.

Parts accessible after rear panel is removed.→ *Page 19*

3. Install in reverse order.
4. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.5 Replacing side panels

Removing the left or right side panel (depending on the model) is needed to replace the door switch. All screws are located in the front and rear of ranges.

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove rear panel.→ *Page 31*
- Remove fascia panel.→ *Page 29*
- Remove door.→ *Page 59*

1. Using a #1 Phillips screwdriver, remove the four (4) front side screws for the panel you're removing.

Fig. 30: Right side panel screws shown

2. Using a #1 Phillips screwdriver, remove the five (5) rear screws for the panel you're removing.

Fig. 31: Right side panel screws shown

3. Remove side panel.
4. Install in reverse order.
5. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

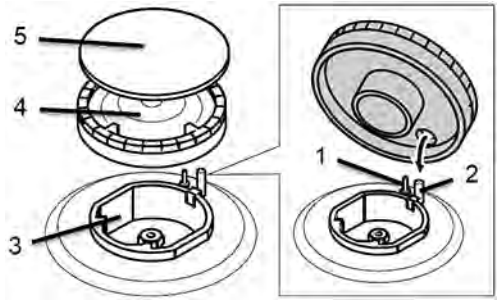
6.6 Replacing maintop burner caps and bases

Prerequisite:

Remove grates.

6.6.1 Removing maintop burner caps and bases

1. Gently set burner bases (flame spreaders - 4, below) and burner caps (5, below) in place over burner housings (3, below).
   1. When setting burner bases down, make sure notches / holes clear spark igniters (2, below) - take care to not damage spark igniters (2, below) or thermocouples (1, below).
   2. Make sure one of the three (3) bars on burner bases lines up with burner housing notches.



2.

Notice

Not installing burner bases carefully!

Damaging spark igniters

- Porcelain on spark igniters can be easily damaged - make sure burner bases are placed gently onto burner housings so holes / notches clear spark igniters.

Gently place burner caps (5, below) onto burner bases (4, below) so burner base prongs fit snugly into burner cap grooves and burner caps are properly seated and level.

1. To check if caps are correctly installed, rotate caps until they nestle in place - caps will "click" from side to side as burner base prongs contact cap groove edges.

2. Visually check that all caps are level.

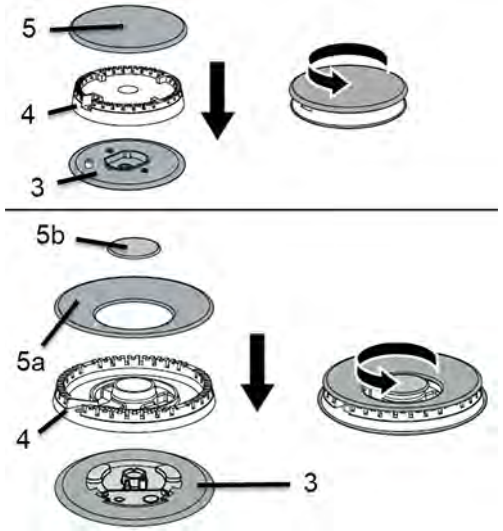
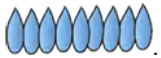
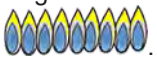
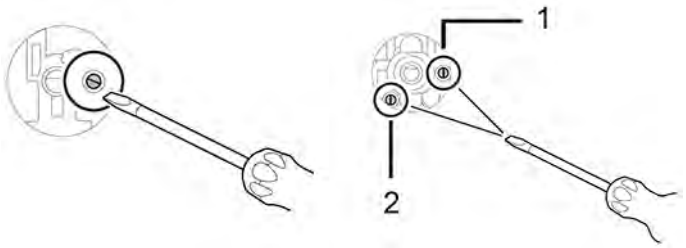


Fig. 32: Installing burner bases and caps

Fig. 33: Checking burner caps are level

Dual ring (flame) burners have two (2) burner caps - an outer ring cap (5a, above) and an inner ring cap (5b, above).

3. Check burner operation.
   If burner parts aren't properly installed, the follow problems may occur:
   – Burner flames are too high.
   – Flames shoot out of burners.
   – Burners don't ignite.
   – Burner flames light unevenly.
   – Burners emit gas odor.
   Proper flame characteristics:
   – Natural gas - normally soft blue flames:  .
   – LP gas - normally blue flames with yellow tips on outer flame cones:  .
   – Yellow flames - further adjusting is required:  .
4. Corrective actions to adjust flames:
   1. Check regulator is set up for the correct fuel, whether natural or LP gas.
   2. Check burner bases and caps are properly seated - burner cap grooves (flanges) should fit onto burner base prongs, there should be no gaps between burner bases / caps and all parts should be level.
   3. Retest after adjustments have been made.
      Gas burners are sealed - there are no parts under the maintop to clean, disassemble or adjust.
5. Adjust small / large and dual ring burners (1 - inner, 2 - outer) for minimum (by-pass) gas settings.
   1. Rotate all knobs to lowest gas setting.
   2. Remove all knobs and knob bezels (rings) - adjust one burner at a time.
   3. For LP gas, using a flat blade screwdriver, rotate small / large burner adjusting screw / dual ring inner adjusting screw gently clockwise (cw) until screw bottoms out (can't rotate any further) - for natural gas, rotate each screw gently counterclockwise (ccw) ½ turn after it had bottomed out.
   4. Replace knob and check flames on lowest setting - if flames aren't stable, remove knob and adjust screw as needed (ccw to increase gas flow / cw to reduce gas flow).
   5. Replace knob and make sure flames don't go out when quickly rotating between maximum / minimum gas settings. Optimal flame height for small simmer (minimum gas flow) is 1/8" (3 - 4 mm).
   6. Repeat until all burners have been adjusted for lowest gas settings.
7. When completed, install all knobs / bezels (rings) and grates.



6.6.2 Installing maintop burner caps and bases

1. Lift burner parts up from small / large burner housing (1, below).
   1. Remove burner caps (3, below).
   2. Remove burner bases (flame spreaders - 2, below).

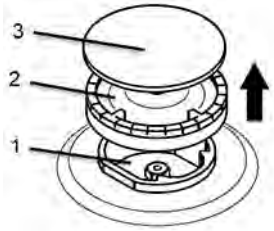


Fig. 34: Small / large burner parts

2. Lift burner parts up from dual ring (flame) burner housing.
   1. Remove inner / outer burner caps.
   2. Remove burner bases (flame spreaders).

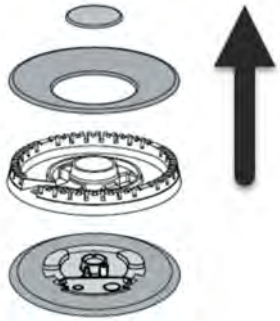


Fig. 35: Removing dual ring (flame) burner parts

6.7 Replacing maintop gas valves and thermocouples

Danger

Explosion hazard due to escaped gas. Smell of gas!
- Do not press any electrical switches.
- Extinguish and keep clear of naked flames.
- Ensure the room is well ventilated.
- Shut off gas supply.

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

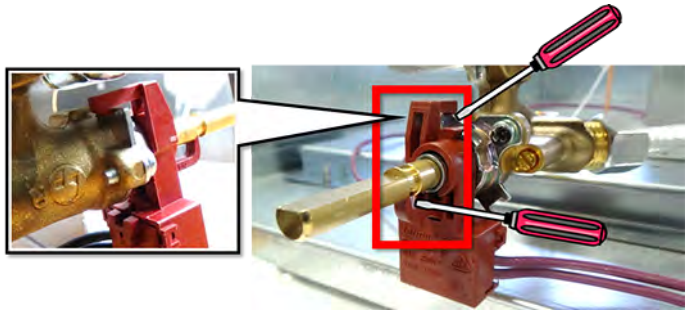
Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

6.7.1 Replacing gas valves

Prerequisite:
- Shut off gas and electric supplies.
- Remove grates.
- Remove maintop burner caps and bases.→ *Page 34*
- Remove knobs.→ *Page 28*
- Remove fascia panel.→ *Page 29*
- Remove front panel.→ *Page 30*
- Remove maintop (hob top).→ *Page 39*

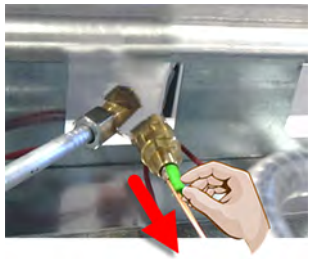
1. Gently pry top and bottom latches (hooks) holding spark igniter switch to the gas valve.



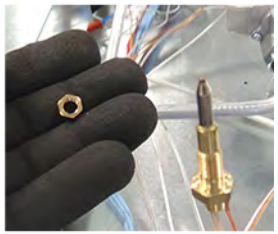
Spark igniter switch latches fit into gas valve grooves.

2. Using a 13mm open-ended wrench, disconnect gas tubing compression nut.

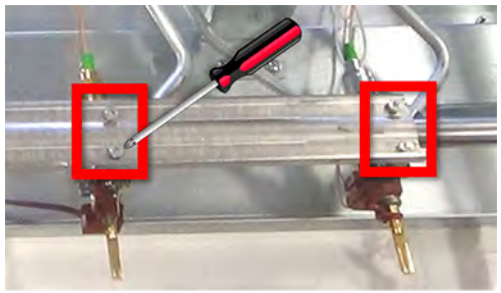
3. Disconnect (pull out) thermocouple wire from gas valve.



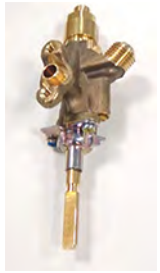
4. Using an 8 mm wrench, remove thermocouple from burner housing.

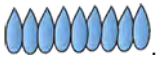
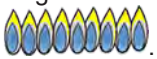
5. Using a #2 Phillips screwdriver, remove two (2) mounting screws from mounting rail above gas valve.



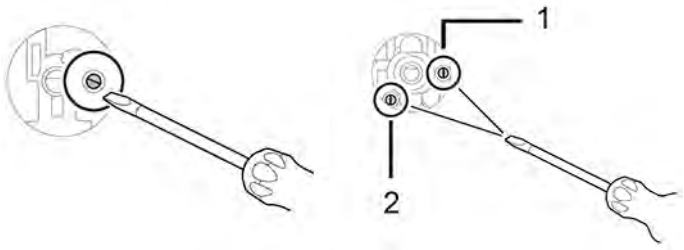
6. Disconnect gas valve from gas manifold (main pipe) and remove it.



7. Install in reverse order.
8. Once repairs are completed, carry out a gas leak test.
   Use a gas leak detector or soap bubble test, **never** an open flame.
9. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).
10. Check burner operation.
    If burner parts aren't properly installed, the follow problems may occur:
    - Burner flames are too high.
    - Flames shoot out of burners.
    - Burners don't ignite.
    - Burner flames light unevenly.
    - Burners emit gas odor.

    Proper flame characteristics:
    - Natural gas - normally soft blue flames:  .
    - LP gas - normally blue flames with yellow tips on outer flame cones:  .
    - Yellow flames - further adjusting is required:  .
11. Corrective actions to adjust flames:
    1. Check regulator is set up for the correct fuel, whether natural or LP gas.
    2. Check burner bases and caps are properly seated - burner cap grooves (flanges) should fit onto burner base prongs, there should be no gaps between burner bases / caps and all parts should be level.
    3. Retest after adjustments have been made.
       Gas burners are sealed - there are no parts under the maintop to clean, disassemble or adjust.
12. Adjust small / large and dual ring burners (1 - inner, 2 - outer) for minimum (bypass) gas settings.
    1. Rotate all knobs to lowest gas setting.
    2. Remove all knobs and knob bezels (rings) - adjust one burner at a time.
    3. For LP gas, using a flat blade screwdriver, rotate small / large burner adjusting screw / dual ring inner adjusting screw gently clockwise (cw) until screw bottoms out (can't rotate any further) - for natural gas, rotate each screw gently counterclockwise (ccw) ½ turn after it had bottomed out.
    4. Replace knob and check flames on lowest setting - if flames aren't stable, remove knob and adjust screw as needed (ccw to increase gas flow / cw to reduce gas flow).
    5. Replace knob and make sure flames don't go out when quickly rotating between maximum / minimum gas settings. Optimal flame height for small simmer (minimum gas flow) is 1/8" (3 - 4 mm).
    6. Repeat until all burners have been adjusted for lowest gas settings.

7. When completed, install all knobs / bezels (rings) and grates.

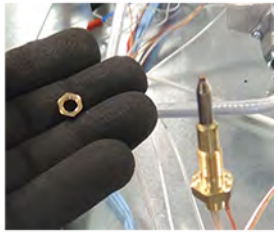


6.7.2 Replacing thermocouples

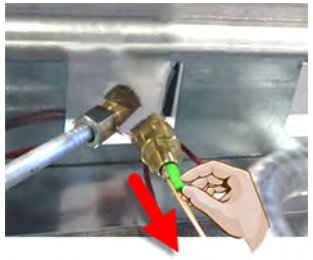
Prerequisite:

Remove maintop (hob top).→ *Page 39*

1. Using an 8 mm wrench, remove thermocouple from burner housing.



2. Disconnect (pull out) thermocouple wire from gas valve.



3. Install in reverse order.
4. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.8 Replacing maintops (hob tops)

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove grates.
- Remove knobs.→ *Page 28*
- Remove maintop burner caps and bases.→ *Page 34*
- Remove fascia panel.→ *Page 29*

1. Using a T15 Torx screwdriver, unscrew screws attaching maintop (hob top) to burner bases.

2. Using a #2 Phillips screwdriver, remove four (4) top front panel support screws (holding support to maintop).

Fig. 36: 30 inch model shown

3. Using a #2 Phillips screwdriver, remove six (6) maintop support screws at the rear of the range.

Fig. 37: 30 inch model shown

4. Carefully lift up maintop to avoid disturbing gas burner housings, gas tubing and spark igniters.
5. Install in reverse order.
6. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.9 Replacing maintop (hob top) burner orifices (jets)

Danger

Explosion hazard due to escaped gas. Smell of gas!

- Do not press any electrical switches.
- Extinguish and keep clear of naked flames.
- Ensure the room is well ventilated.
- Shut off gas supply.

Prerequisite:

- Shut off gas and electric supplies.
- Remove grates.

6.9.1 Removing maintop burner orifices (jets)

1. Lift burner parts up from burner housing (1, below).
   1. Remove burner cap (3, below).
   2. Remove burner base (flame spreader - 2, below).

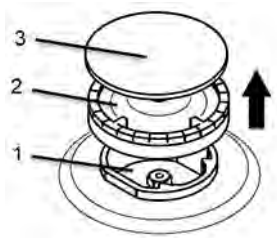


Fig. 38: Burner parts

2. Using a 7 mm nutdriver or socket wrench, unscrew orifice (jet) from small / large burner housing.

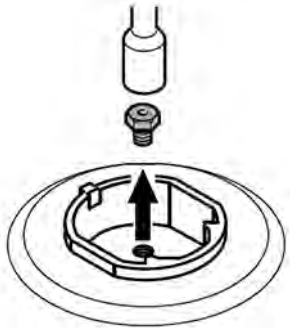


Fig. 39: Unscrewing small / large burner orifices (jets)

3. For dual ring burners, remove orifices (jets) as follows:
   1. 1. Remove outer ring orifice (jet) cover by removing two (2) screws.
   2. 2. Using a 7 mm wrench, unscrew outer ring orifice (jet).
   3. 3. Reinstall outer ring orifice (jet) cover.
   4. 4. Using a 7 mm wrench, unscrew inner ring orifice (jet).

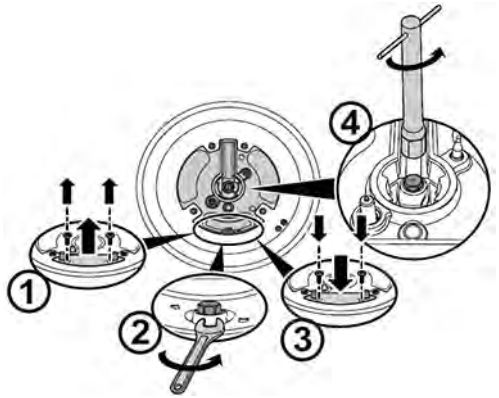


Fig. 40: Unscrewing dual ring burner orifices (jets)

Dual ring burners have separate orifices (jets) for each ring.

– The outer ring orifice (jet) has a cover which must be removed for access.
– The cover must be reinstalled before the inner ring orifice (jet) is removed.

6.9.2 Installing maintop burner orifices (jets)

1. If not done already, using a 7 mm nutdriver or socket wrench, screw orifices (jets) into small, large or dual ring burner housings.

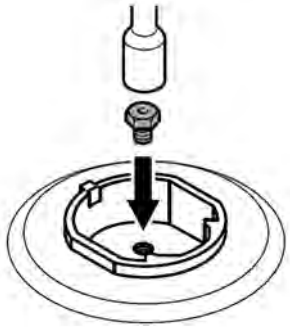


Fig. 41: Installing burner orifices (jets)

2. Gently set burner bases (flame spreaders - 4, below) and burner caps (5, below) in place over burner housings (3, below).

1. When setting burner bases down, make sure notches / holes clear spark igniters (2, below) - take care to not damage spark igniters (2, below) or thermocouples (1, below).
2. Make sure one of the three (3) bars on burner bases lines up with burner housing notches.

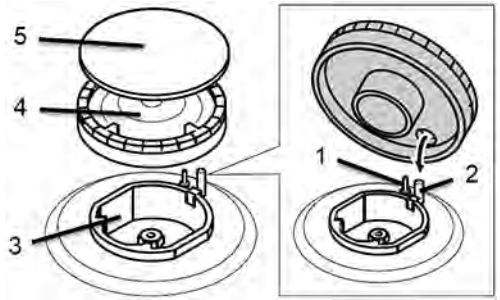


Fig. 42: Installing burner bases and caps

3.

Notice

Not installing burner bases carefully!
Damaging spark igniters
- Porcelain on spark igniters can be easily damaged - make sure burner bases are placed gently onto burner housings so holes / notches clear spark igniters.

Gently place burner caps (5, below) onto burner bases (4, below) so burner base prongs fit snugly into burner cap grooves and burner caps are properly seated and level.

1. To check if caps are correctly installed, rotate caps until they nestle in place - caps will "click" from side to side as burner base prongs contact cap groove edges.
2. Visually check that all caps are level.

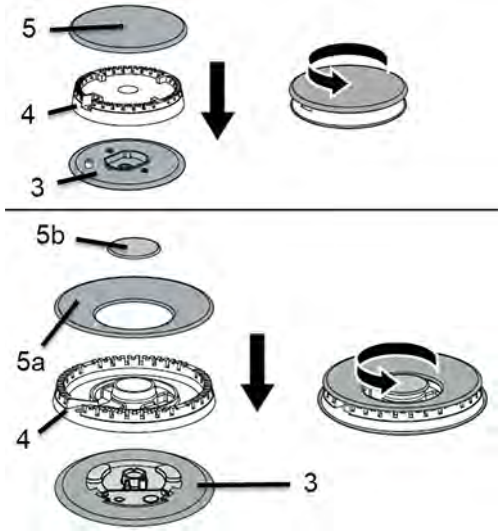
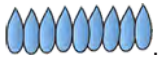
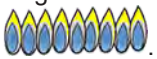


Fig. 43: Installing burner bases and caps

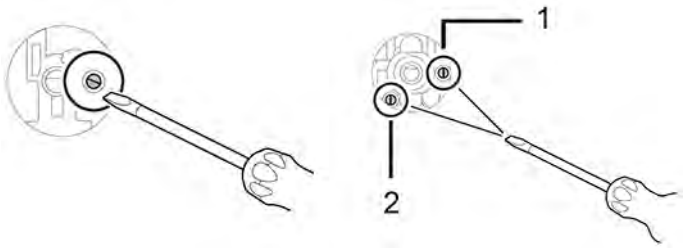
Fig. 44: Checking burner caps are level

Dual ring burners have two (2) burner caps - an outer ring cap (5a, above) and an inner ring cap (5b, above).

4. Once repairs are completed, carry out a gas leak test.
   Use a gas leak detector or soap bubble test, **never** an open flame.

5. Check burner operation.
   If burner parts aren't properly installed, the follow problems may occur:
   – Burner flames are too high.
   – Flames shoot out of burners.
   – Burners don't ignite.
   – Burner flames light unevenly.
   – Burners emit gas odor.
   Proper flame characteristics:
   – Natural gas - normally soft blue flames:  .
   – LP gas - normally blue flames with yellow tips on outer flame cones:  .
   – Yellow flames - further adjusting is required:  .
6. Corrective actions to adjust flames:
   1. Check regulator is set up for the correct fuel, whether natural or LP gas.
   2. Check burner bases and caps are properly seated - burner cap grooves (flanges) should fit onto burner base prongs, there should be no gaps between burner bases / caps and all parts should be level.
   3. Retest after adjustments have been made.
      Gas burners are sealed - there are no parts under the maintop to clean, disassemble or adjust.
7. Adjust small / large and dual ring burners (1 - inner, 2 - outer) for minimum (bypass) gas settings.
   1. Rotate all knobs to lowest gas setting.
   2. Remove all knobs and knob bezels (rings) - adjust one burner at a time.
   3. For LP gas, using a flat blade screwdriver, rotate small / large burner adjusting screw / dual ring inner adjusting screw gently clockwise (cw) until screw bottoms out (can't rotate any further) - for natural gas, rotate each screw gently counterclockwise (ccw) ½ turn after it had bottomed out.
   4. Replace knob and check flames on lowest setting - if flames aren't stable, remove knob and adjust screw as needed (ccw to increase gas flow / cw to reduce gas flow).
   5. Replace knob and make sure flames don't go out when quickly rotating between maximum / minimum gas settings. Optimal flame height for small simmer (minimum gas flow) is 1/8" (3 - 4 mm).
   6. Repeat until all burners have been adjusted for lowest gas settings.

7. When completed, install all knobs / bezels (rings) and grates.



6.10 Replacing spark modules (maintop)

Danger

Explosion hazard due to escaped gas. Smell of gas!

- Do not press any electrical switches.
- Extinguish and keep clear of naked flames.
- Ensure the room is well ventilated.
- Shut off gas supply.

Warning

Heavy, bulky appliances!

Back and muscle injuries

- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!

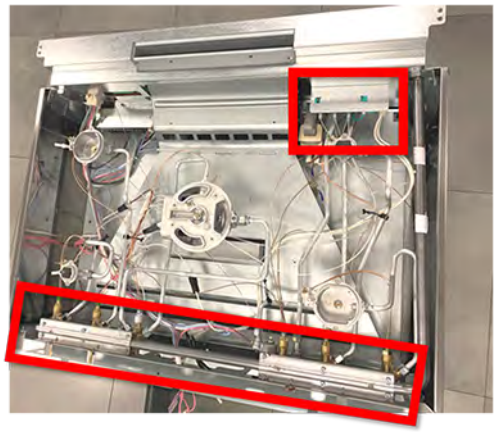
Bone fractures / crush injuries

- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove grates.
- Remove maintop burner caps and bases.→ *Page 34*
- Remove maintop (hob top)→ *Page 39*

1. Locate the spark module in the right rear of the top of the range, just to the left of the gas inlet pipe, attached underneath a horizontal mounting plate.



2. Using a flat blade screwdriver, gently pry the two (2) top latches inward and pull the spark module out from underneath the mounting plate.

3. Disconnect spark igniter harnesses.

When one spark igniter switch is activated, all igniters spark, so it's not critical how spark harnesses are reconnected.

4. Install in reverse order.
5. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.11 Replacing spark igniter switch harnesses

Danger

Explosion hazard due to escaped gas. Smell of gas!

- Do not press any electrical switches.
- Extinguish and keep clear of naked flames.
- Ensure the room is well ventilated.
- Shut off gas supply.

Warning

Heavy, bulky appliances!
Back and muscle injuries

- Have 2 people move appliances.
- Use designated aids.

Warning

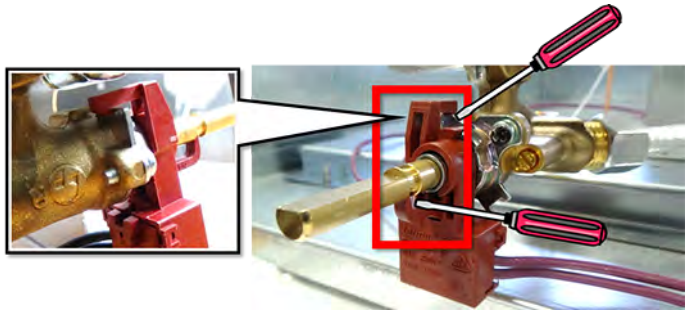
Tipping / falling of top heavy appliances!
Bone fractures / crush injuries

- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

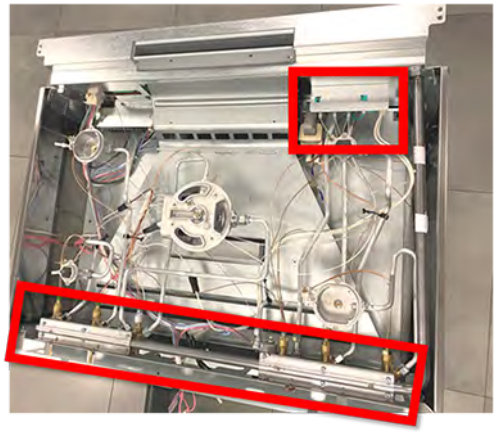
- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove grates.
- Remove maintop burner caps and bases.→ *Page 34*
- Remove maintop (hob top).→ *Page 39*
- Remove knobs.→ *Page 28*
- Remove front panel.→ *Page 30*
- Bring cable ties.

1. Gently pry top and bottom latches (hooks) holding spark igniter switches to all gas valves.



Spark igniter switch latches fit into gas valve grooves.

2. Locate the spark module in the right rear of the top of the range, just to the left of the gas inlet pipe, attached underneath a horizontal mounting plate.



3. Remove cable ties from igniter switch harnesses.

4. Disconnect spark igniter harnesses.

Spark igniters are connected in parallel, so when one spark igniter switch is activated, all igniters spark, so it's not critical how spark harnesses are reconnected.

5. Install in reverse order.
6. Replace cable ties to prevent harnesses from damage.
7. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.12 Installing gas FSR LP conversion kit

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.

6.12.1 General requirements

- Gas conversions shall be installed by a qualified service agency in accordance with manufacturer's instructions and all applicable local and national codes.
- If manufacturer's installations instructions aren't followed exactly, a fire, explosion or production of carbon monoxide may result, causing property damage, personal injury or loss of life.
- The qualified service agency is responsible for the proper installation of any gas conversion kit, including testing for gas leaks.
- The installation is not proper or complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the gas conversion kit.

Danger

Explosion hazard due to escaped gas. Smell of gas!
- Do not press any electrical switches.
- Extinguish and keep clear of naked flames.
- Ensure the room is well ventilated.
- Shut off gas supply.

1. The appliance installation instructions **shall** be followed when making any gas conversions, whether from natural to LP gas or from LP to natural gas.
   These instructions are for general information use only and are **not** to be used instead of appliance / LP conversion kit installation instructions.
2. Make sure there is an adequate gas supply.
   1. Make sure the range is converted for use with the appropriate gas before using it.
   2. Make sure regulator inlet pressure is from 11" to 13" water column for LP gas or from 6" to 10.5" water column for natural gas.
   3. Make sure the pressure regulator in the inlet of the appliance manifold remains in the supply line.
      This appliance is designed to operate at a pressure of 10" water column when used with LP gas and 5" water column when used with natural gas.
3. Make sure a flexible metal appliance connector or rigid pipe has been used to connect the appliance to the gas supply.
   - The connector should have a ½” inner diameter and be no longer than 5 ft (1.5 m) in length.
     Exceptions:
     – Maximum connector length for Massachusetts installations is 3 ft (0.9 m).
     – Connectors for installations in Canada must be single-wall metal and no longer than 6 ft (1.8 m).
4. Gas conversions require all burner orifices (jets) be changed out.
   1. Replacement orifices (jets) are included in conversion kits ("sets of jets") for LP or natural gas.
   2. Refer to diagrams and orifice (jet) tables for each gas in the appliance / conversion kit installation instructions - install the proper numbered orifice in the appropriate burner according to the table.
   3. For detailed instructions, follow the appliance / conversion kit installation instructions.
   4. Save orifices removed from the appliance for future use.
5. Gas conversions require flames to be adjusted for low simmer burner settings.
6. The gas conversion label included with the conversion kit must be filled out and attached to the appliance.
7. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

No gas conversion is complete without gas leak testing, flames being checked, flames being adjusted (for bypass minimum gas settings) and conversion labels being affixed to appliances.

6.12.2 Converting inlet gas regulators

1. Using pliers, carefully unscrew regulator cap (1, below).

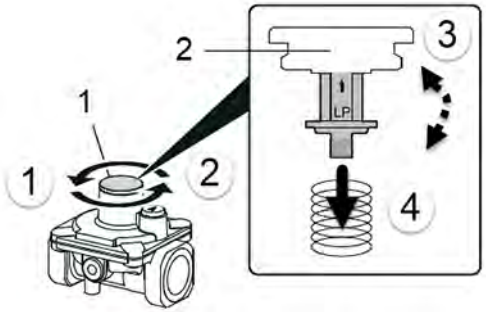


Fig. 45: Converting gas regulator to LP gas

2. Carefully unscrew regulator stem (2, above).
3. Rotate regulator stem upside-down so the word "LP" shows and the arrow is pointing upward (3, above).
4. Insert regulator stem into spring and screw stem into regulator (4, above).
5. Using pliers, carefully screw regulator cap back onto regulator (1, above).

▸ Charts below were copied from 30" - 36" gas FSR installation instructions.
Natural gas (at 5" water column pressure).

Orifice (jet) Location	Orifice (jet) #	Min. / Max. BTU
Dual-ring outer burner	180 (S4)	1K / 18K
Dual-ring inner burner	75	1K / 18K
Large burner	145	2.4K / 10K
Small burner	100	1K / 5K
Bake (oven) burner	180	3.5K / 17K
Broil (grill) burner (30" range)	150	- / 11.5K
Broil (grill) burner (36" range)	165	- / 14K

LP gas (at 10" water column pressure).

Orifice (jet) Location	Orifice (jet) #	Min. / Max. BTU
Dual-ring outer burner	117	1K / 18K
Dual-ring inner burner	48	1K / 18K
Large burner	94	2.4K / 10K
Small burner	65	1K / 5K
Bake (oven) burner	120	3.5K / 17K
Broil (grill) burner (30" range)	98	- / 11.5K
Broil (grill) burner (36" range)	110	- / 14K

6.12.4 Changing maintop (hob top) orifices (jets)

	Save all orifices (jets) for reuse (i.e. converting back to natural gas at a later date).

Prerequisite:

✔ Remove grates.

6.12.4.1 Removing maintop burner orifices (jets)

1. Lift burner parts up from burner housing (1, below).
   1. Remove burner cap (3, below).

2. Remove burner base (flame spreader - 2, below).

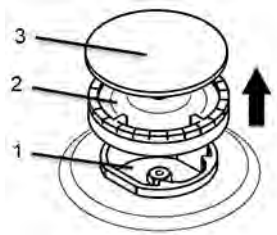


Fig. 46: Burner parts

2. Using a 7 mm nutdriver or socket wrench, unscrew orifice (jet) from small / large burner housing.

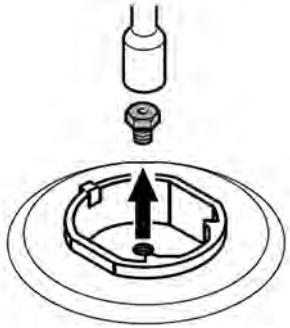


Fig. 47: Unscrewing small / large burner orifices (jets)

3. For dual ring burners, remove orifices (jets) as follows:
   1. 1. Remove outer ring orifice (jet) cover by removing two (2) screws.
   2. 2. Using a 7 mm wrench, unscrew outer ring orifice (jet).
   3. 3. Reinstall outer ring orifice (jet) cover.

4. 4. Using a 7 mm wrench, unscrew inner ring orifice (jet).

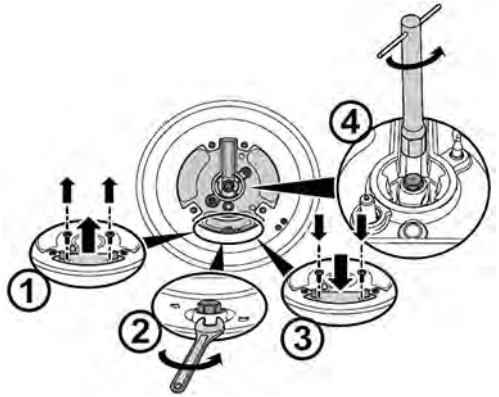
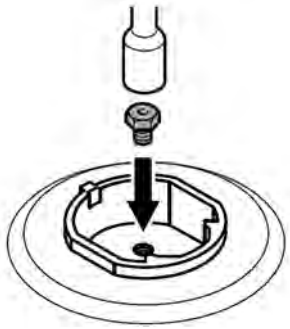


Fig. 48: Unscrewing dual ring burner orifices (jets)

Dual ring burners have separate orifices (jets) for each ring.
- The outer ring orifice (jet) has a cover which must be removed for access.
- The cover must be reinstalled before the inner ring orifice (jet) is removed.

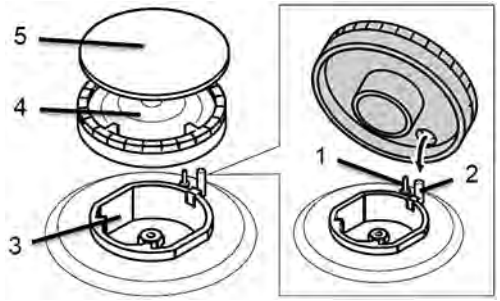
6.12.4.2 Installing LP maintop burner orifices (jets)

1. If not done already, carefully screw correct orifices (jets) into appropriate burners.



2. Gently set burner bases (flame spreaders - 4, below) and burner caps (5, below) in place over burner housings (3, below).
   1. When setting burner bases down, make sure notches / holes clear spark igniters (2, below) - take care to not damage spark igniters (2, below) or thermocouples (1, below).

2. Make sure one of the three (3) bars on burner bases lines up with burner housing notches.



3.

Notice

Not installing burner bases carefully!
Damaging spark igniters

- Porcelain on spark igniters can be easily damaged - make sure burner bases are placed gently onto burner housings so holes / notches clear spark igniters.

Gently place burner caps (5, below) onto burner bases (4, below) so burner base prongs fit snugly into burner cap grooves and burner caps are properly seated and level.

1. To check if caps are correctly installed, rotate caps until they nestle in place - caps will "click" from side to side as burner base prongs contact cap groove edges.
2. Visually check that all caps are level.

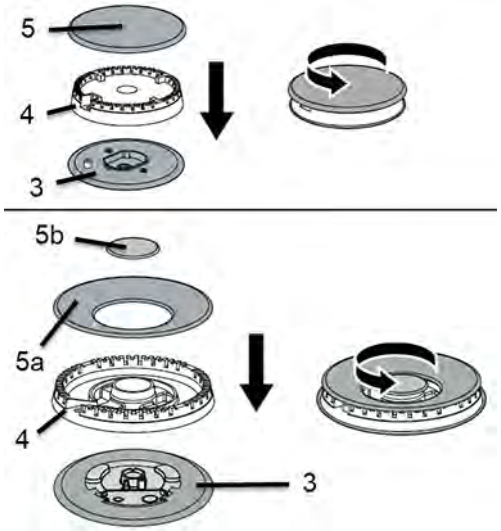


Fig. 49: Installing burner bases and caps

Fig. 50: Checking burner caps are level

Dual ring burners have two (2) burner caps - an outer ring cap (5a, above) and an inner ring cap (5b, above).

6.12.5 Changing broil (grill) burner gas orifices (jets)

Prerequisite:

Remove broil (grill) burner.→ *Page 72*

1. Unscrew and remove broil burner orifice (jet). Save for reuse (i.e. converting back to natural gas at a later date).

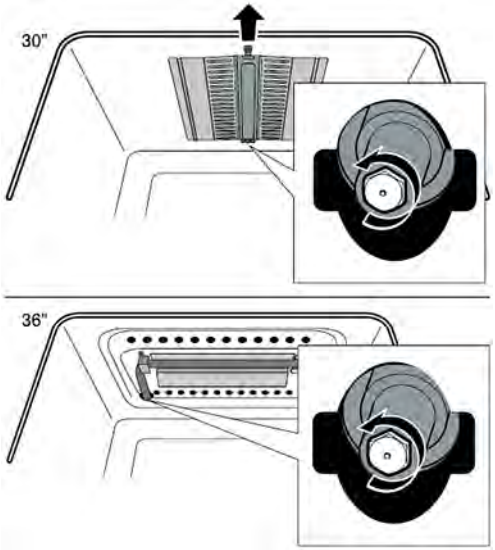


Fig. 51: Removing 30 and 36 inch broil burner orifices

2. Install in reverse order.

6.12.6 Changing bake (oven) burner gas orifices (jets)

Prerequisite:

- Remove bake (oven) burner.→ *Page 75*

1. Unscrew and remove bake burner orifice (jet). Save for reuse (i.e. converting back to natural gas at a later date).

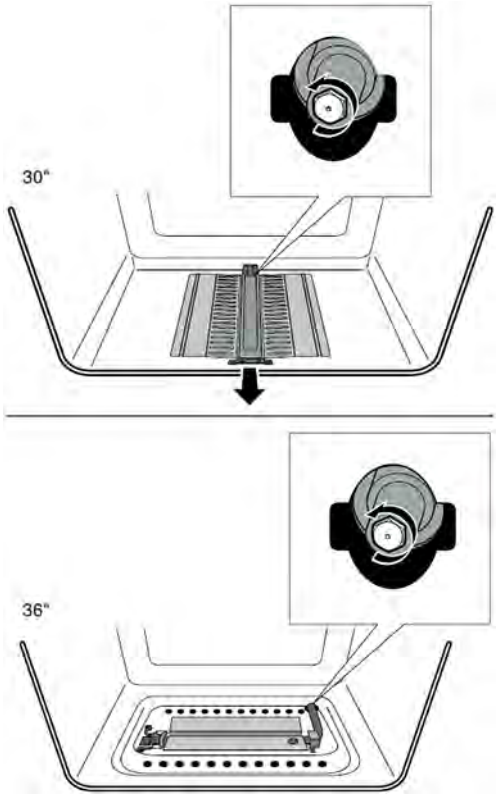
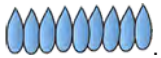
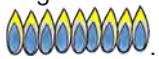


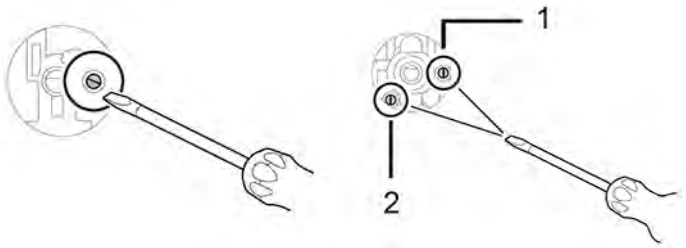
Fig. 52: Difference in removing 30 and 36 inch bake burner orifices

2. Install in reverse order.

6.12.7 Checking maintop burner flames

1. Once repairs are completed, carry out a gas leak test.
   Use a gas leak detector or soap bubble test, **never** an open flame.

2. Check burner operation.
   If burner parts aren't properly installed, the follow problems may occur:
   – Burner flames are too high.
   – Flames shoot out of burners.
   – Burners don't ignite.
   – Burner flames light unevenly.
   – Burners emit gas odor.
   Proper flame characteristics:
   – Natural gas - normally soft blue flames:  .
   – LP gas - normally blue flames with yellow tips on outer flame cones:  .
   – Yellow flames - further adjusting is required:  .
3. Corrective actions to adjust flames:
   1. Check regulator is set up for the correct fuel, whether natural or LP gas.
   2. Check burner bases and caps are properly seated - burner cap grooves (flanges) should fit onto burner base prongs, there should be no gaps between burner bases / caps and all parts should be level.
   3. Retest after adjustments have been made.
      Gas burners are sealed - there are no parts under the maintop to clean, disassemble or adjust.
4. Adjust small / large and dual ring burners (1 - inner, 2 - outer) for minimum (bypass) gas settings.
   1. Rotate all knobs to lowest gas setting.
   2. Remove all knobs and knob bezels (rings) - adjust one burner at a time.
   3. For LP gas, using a flat blade screwdriver, rotate small / large burner adjusting screw / dual ring inner adjusting screw gently clockwise (cw) until screw bottoms out (can't rotate any further) - for natural gas, rotate each screw gently counterclockwise (ccw) ½ turn after it had bottomed out.
   4. Replace knob and check flames on lowest setting - if flames aren't stable, remove knob and adjust screw as needed (ccw to increase gas flow / cw to reduce gas flow).
   5. Replace knob and make sure flames don't go out when quickly rotating between maximum / minimum gas settings. Optimal flame height for small simmer (minimum gas flow) is 1/8" (3 - 4 mm).
   6. Repeat until all burners have been adjusted for lowest gas settings.
7. When completed, install all knobs / bezels (rings) and grates.



6.12.8 Checking bake (oven) burner flames

1. Once repairs are completed, carry out a gas leak test.
   Use a gas leak detector or soap bubble test, **never** an open flame.
2. Adjust bake (oven) burner for minimum (bypass) gas (flow) setting.
   1. Close door, rotate knob to lowest bake setting (250ºF) and wait ~ 10 minutes for the thermostat bulb to heat up fully.
   2. Remove knob and knob bezel (ring).
   3. For LP gas, using a flat blade screwdriver, rotate adjusting screw gently clockwise (cw) until screw bottoms out (can't rotate any further) - for natural gas, rotate screw gently counterclockwise (ccw) ½ turn after it had bottomed out.
   4. Check bake (oven) burner flames - they can be hard to see through door glass and holes in bottom of oven cavity, but heat can be felt. Flames should be stable and as small as possible.

5. When completed, install knob / bezel (ring).

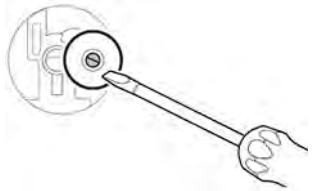


Fig. 53: Adjusting bake (oven) burner minimum gas flow

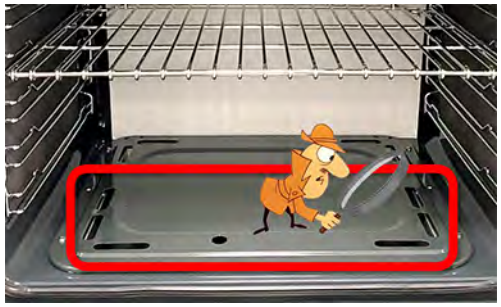


Fig. 54: Checking bake (oven) burner flames

- On a cold bake (oven) burner, flames will be at maximum until the thermostat bulb warms up to the preset temperature, so minimum settings cannot be checked until then - the oven has to be heated up for about 10 minutes with the door closed.
- Generally for LP gas, minimum (bypass) screws should be kept at the fully clockwise (cw) position.
- Generally for natural gas, minimum (bypass) screws should be adjusted and flames checked - flames should be stable and as small as possible.
- For broil burners, flames are always at maximum and there's no minimum (bypass) gas flow setting / adjustment screw.

6.12.9 Finishing gas conversions

1. If not done already, make sure appliance has been tested / adjusted:
   1. Perform gas leak tests in all areas disturbed during the gas conversion.
   2. Adjust maintop (hob top) burners.
   3. Adjust maintop (hob top) low simmer burners, including 5K and inner dual ring burners.
   4. Adjust bake (oven) burner.
2. Make sure label included in gas conversion kit has been filled out and affixed to the appliance.
3. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.13 Replacing gas tubing

Danger

Explosion hazard due to escaped gas. Smell of gas!

- Do not press any electrical switches.
- Extinguish and keep clear of naked flames.
- Ensure the room is well ventilated.
- Shut off gas supply.

Warning

Heavy, bulky appliances!
Back and muscle injuries

- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries

- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove grates.
- Remove maintop burner caps and bases.→ *Page 34*
- Remove maintop (hob top).→ *Page 39*

1. Using a 13 mm wrench, unscrew compression nut holding tubing to the burner.

2. Using a 13 mm wrench, unscrew compression nut holding tubing to the gas valve.

3. Carefully remove tubing.
4. Install in reverse order.
5. Once repairs are completed, carry out a gas leak test.
   Use a gas leak detector or soap bubble test, **never** an open flame.
6. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.14 Replacing power cords and terminal blocks

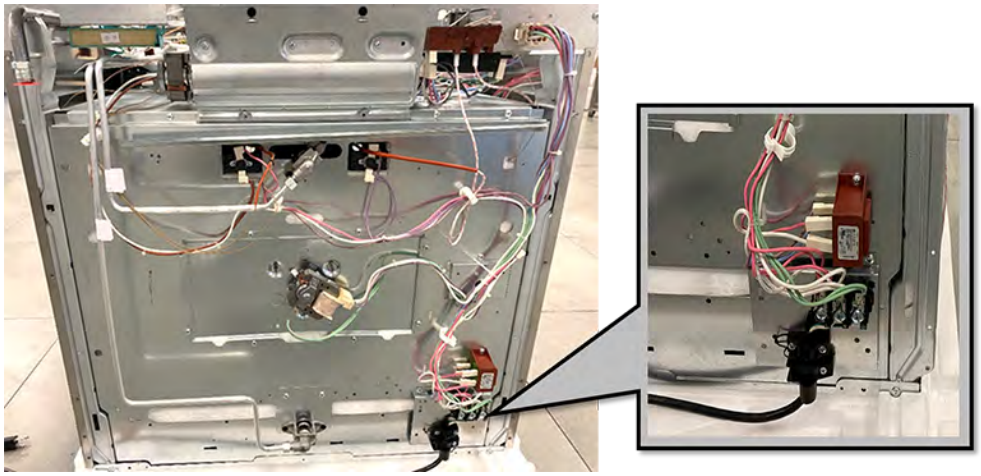


Fig. 55: Terminal block location

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

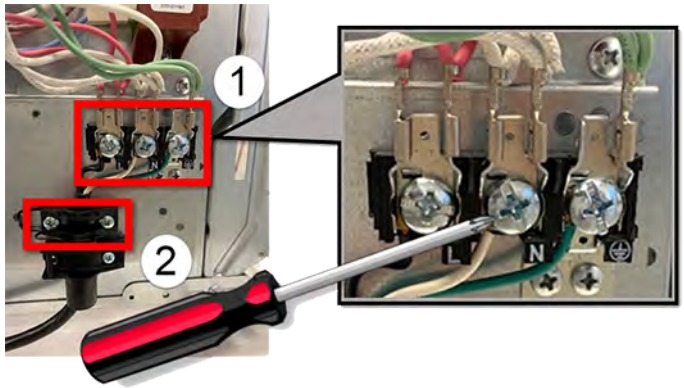
Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

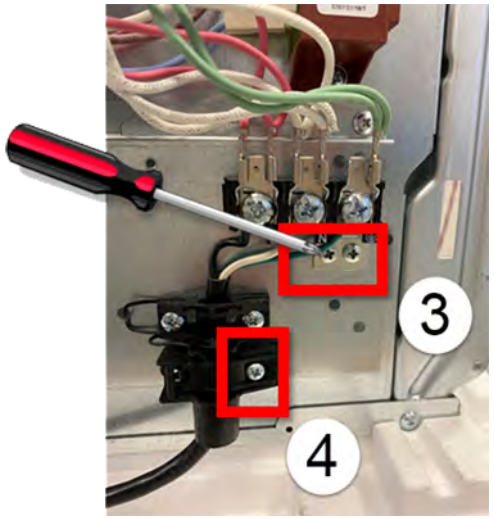
Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove rear panel.→ *Page 31*

1. Using a #2 Phillips screwdriver, loosen terminal block screws and disconnect power cord wires.



2. To remove the power cord, using a #1 Phillips screwdriver, unscrew the two (2) strain relief screws (see above).
3. To remove the terminal block, using a #1 Phillips screwdriver, unscrew the two (2) terminal block screws.



4. To remove the strain relief, using a #1 Phillips screwdriver, unscrew the single strain relief screw (see above).
5. Install in reverse order.

6. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.15 Replacing door seals

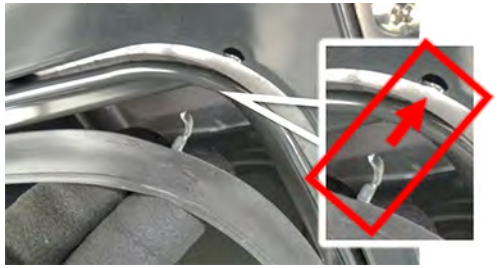
Door seals are held in place by hooks and are easily removed / installed from the front of ranges.

Prerequisite:

- Open door.

1. Carefully work around the door seal, unhooking seal hooks as you go.

2. Install replacement door seal by inserting hooks into holes at corners and middle of cavities, working around the cavity.



6.16 Replacing lamp bulbs

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

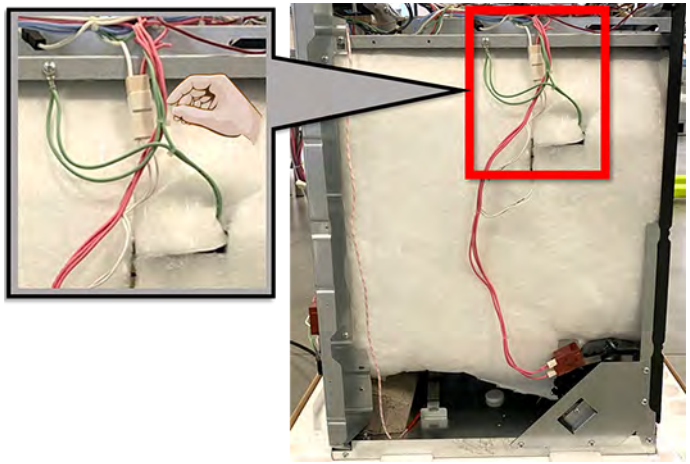
- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove left side panel.→ *Page 32*

1. **Notice**

   Not protecting oven cavity or using excessive force to remove parts!
   Scratching or denting oven cavity
   - Affix tape around part to be removed to protect oven cavity and carefully pry out part.

   Tape area inside cavity around bulb holder.
   The bulb holder is press-fit into the cavity and needs to be carefully pried out.

2. Disconnect wire harness and ground wire.



3. **Carefully** pry bulb assembly from cavity.

4. Remove burned out bulb by pulling it straight out from its holder.
5. Use a clean cloth or clean gloves to install replacement bulb.
   Bulb is halogen and gets hot - getting skin oils on bulb can cause bulb to fail early.
   Lamp bulb ratings:
   – 120 VAC, 40W, G9 base.
   – 575ºF (300ºC) maximum temperature rating.
6. Install in reverse order.
7. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.17 Replacing door assemblies

Doors can be removed for easier cleaning or to replace door glass and handles.

- Follow these instructions to replace door assemblies, clean / replace door glass or replace door handles.
- If replacing door hinges, click onto this link - replacing door hinges→ *Page 63*.
- Must bring hinge kit if replacing door hinges.

Prerequisite:

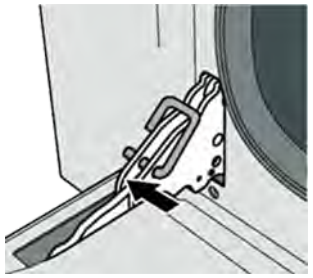
- Disconnect electric supply.
- Make sure customer has hinge (door locking) pins. If not, order large G-shaped [**00634525**] or L-shaped [**00627282**] hinge pins.
- Bring towel or soft pad to place door onto (to protect door and flooring).

6.17.1 Replacing door assemblies

1. Open door fully.

Fig. 56: Gas FSR shown

2. Lock left and right side hinges using customer hinge locking pins - pins **must** be fully inserted into hinge holes.



3. 

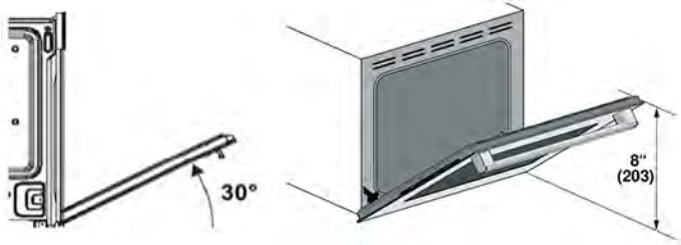
⚠ Caution

Risk of pinching!

Hand being pinched or cut from door slamming shut

- ► Close door until it engages hinge stops (~ 30º above horizontal) before removing it.

Close the oven door until it engages hinge stops, which is ~ 30º (~ 8" / 203 mm) up from being fully opened (horizontal).



This releases spring tension so the door can be safely and easily removed.

4. **Firmly** grip both sides of door and lift it **straight out** from the hinges.
   1. Don't grab the door by the handle.
   2. To unhook door hinge slots, lift the door straight up ~ 3/4" (19 mm) - at the same angle as the previous step (~ 30º up from horizontal).
   3. Once door hinge slots are unhooked, pull door straight out toward you until the hinges clear the oven housing.
5. Place door on a soft surface for replacing or cleaning glass.
6. If you don't have short hinge pins, remove door hinges from door frame as follows:
   1. Using a #2 Phillips screwdriver, remove four (4) bottom frame screws from each side (underneath the door frame).
   2. Using a #2 Phillips screwdriver, remove two (2) door hinge screws from inner door frame on each side.

3. Remove door hinges from each side.

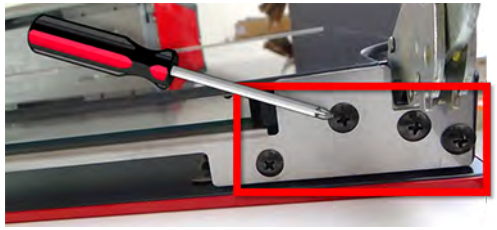


Fig. 57: Removing bottom door hinge screws from underneath door frame

Fig. 58: Removing door hinge screws from inner door frame

Use this procedure to remove door hinges if you don't have short hinge pins and only have G or L-shaped hinge pins.

7. Install in reverse order.
8. To remove hinge locking pins, 1st push the door down slightly to remove tension. Keep the pins for reuse.

6.17.2 Replacing door glass panels and handles

Follow this procedure when removing outer door glass panels or removing door handles.

Prerequisite:

✔ Remove door assembly from range.→ *Page 59*

1. Carefully remove outer glass panel by unhooking it from corner clips (rubber grommets) and pulling it up from the door.

2. Carefully and slowly lift inner glass panel up from door.

Fig. 59: Inner glass rubber grommet

- Move the glass panel slowly to avoid damaging the glass
- Inner glass corners are protected by rubber grommets which fit snugly along the door front. These grommets also hold outer glass panels in place.
- During reassembly, the word **"low-e"** must appear in the lower right or upper left corner of the inner door glass - to ensure the heat-reflecting side of the glass faces the inside of the cavity.

3. Using a #1 Phillips screwdriver, remove the glass seal strip (at the top of the door), by unscrewing screws at both ends.

Make sure seal strips are properly seated during reassembly.

4. To remove door handle, use a #1 Phillips screwdriver to remove handle screws from both ends.

5. Install in reverse order.
6. When reassembling the inner door glass, make sure the word "**low-e**" appears in the lower right or upper left corner of the inner door glass so the heat-reflecting side of the glass faces the inside of the cavity.

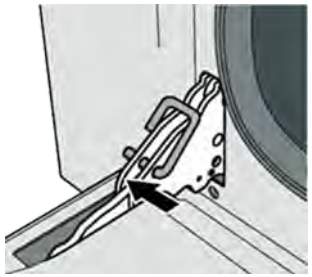
6.17.3 Replacing inner and intermediate glass panels w/o removing doors

Use this procedure when replacing or cleaning inner and / or intermediate (internal) door glass panels.

1. Open door fully.

Fig. 60: Gas FSR shown

2. Lock left and right side hinges using customer hinge locking pins - pins **must** be fully inserted into hinge holes.



3. Carefully and slowly lift inner glass panel up from door.
   1. Gently pull the bottom of the inner glass panel upwards until the first two (2) pins attached to the glass disconnect from the inner door frame (1, below).
   2. Then, gently push the inner glass panel toward the top of the door frame and pull it up and away from the door frame (2, below).

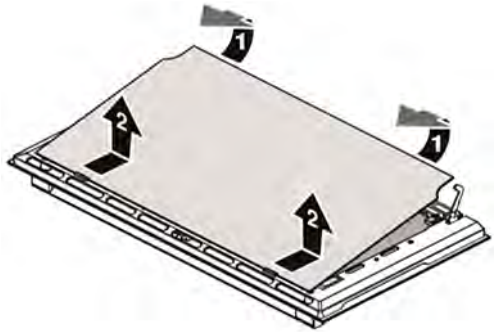
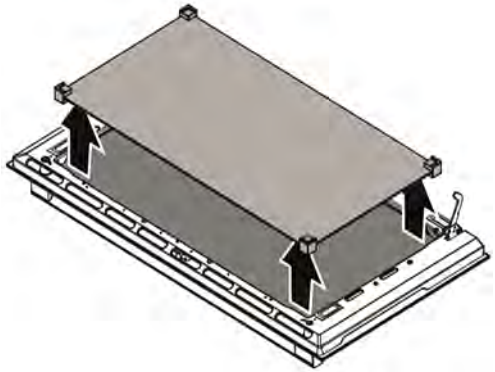


Fig. 61: Removing inner door glass panel

Move the glass panel slowly to avoid damaging the glass, door frame and oven cavity.

4. Carefully lift up intermediate (internal) glass panel from door.



5. Install in reverse order.

6.18 Replacing door hinges

Using large L-shaped [**00627282**] or G-shaped [**00634525**] hinge pins **prevents** hinges from being removed from doors, so short pins (provided with hinge kits) must be used when replacing door hinges.

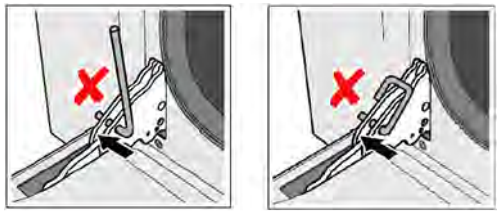


Fig. 62: Don't use large L or G-shaped hinge pins when replacing hinges

Fig. 63: Short pins for use when replacing hinges

Prerequisite:

- Disconnect electric supply.
- Bring hinge kit (containing short pins).
- Bring towel or soft pad to place door onto (to protect door and flooring).

1. Open door fully.

2. Lock existing left / right side hinges with short locking pins (from replacement hinge kits) - pins **must** be fully inserted into hinge holes.

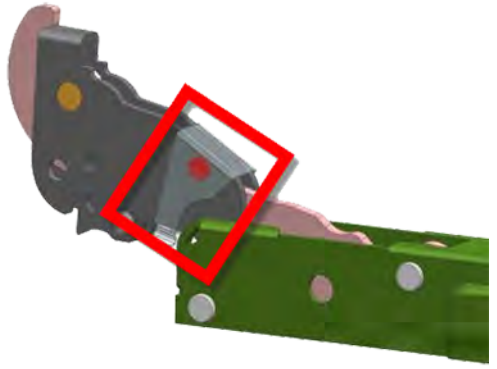


Fig. 64: Replacement hinge with short pin installed (with protective cover over pin)

Replacement hinges come preloaded with short blocking pins assembled in place (covered by a protective cover) and additional pins (one for each hinge) for removing old hinges.

3.

⚠ Caution

Risk of pinching!

Hand being pinched or cut from door slamming shut

- ► Close door until it engages hinge stops (~ 30° above horizontal) before removing it.

Close the oven door until it engages hinge stops, which is ~ 30º (~ 8" / 203 mm) up from being fully opened (horizontal).

This releases spring tension so the door can be safely and easily removed.

4. **Firmly** grip both sides of door and lift it **straight out** from the hinges.
   1. Don't grab the door by the handle.
   2. To unhook door hinge slots, lift the door straight up ~ 3/4" (19 mm) - at the same angle as the previous step (~ 30º up from horizontal).
   3. Once door hinge slots are unhooked, pull door straight out toward you until the hinges clear the oven housing.
5. Remove both (inner / outer) door glass panes.→ *Page 60*
6. Remove door hinges from door frame:
   1. Using a #2 Phillips screwdriver, remove two (2) door hinge screws from inner door frame on each side.
   2. Remove door hinges from each side.

Fig. 65: Removing door hinge screws from inner door frame

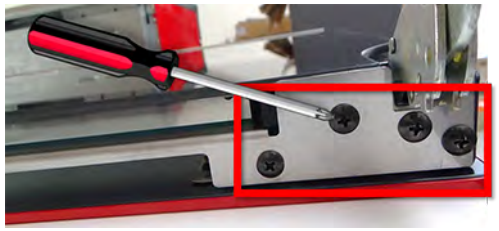


Fig. 66: With short pins, there's no need to remove bottom door hinge screws from underneath door frame

Using short hinge pins instead of long pins (since short pins clear door hinge slots), hinges can be removed without removing the four (4) bottom frame screws from each side (underneath the door frame).

7. Before installing replacement hinges, insert short locking pins into them.
8. Install in reverse order.
9. To remove locking pins, remove protective covers to access them and push the door down slightly to remove tension. Keep the pins for reuse.

6.19 Removing hinge brackets

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove left and right side panels.→ *Page 32*

1. Using a #2 Phillips screwdriver, remove six (6) screws from left and right hinge brackets.

2. Install in reverse order.
3. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.20 Replacing door switches

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

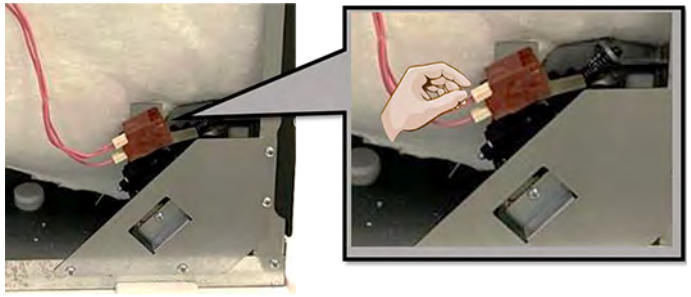
Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove left side panel.→ *Page 32*

1. Note electrical connection, then disconnect wire harness.



2. Carefully pull microswitch from hinge bracket, taking care to not damage microswitch.
   The microswitch is latched to the hinge bracket.
3. Install in reverse order.
4. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.21 Replacing convection deflectors (baffles) and fans

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove rear panel.→ *Page 31*
- Open door.

1. Enter the cavity and use a #1 Phillips screwdriver to remove four (4) deflector screws (one at each corner).

Fig. 67: Gas unit shown

2. Carefully pull out the deflector, taking care to avoid damaging the range cavity.
3. To remove fan blade, use a socket wrench to remove fan blade screw and lift off blade.

4. To remove fan motor at the rear of the range:
   1. Use a flat blade screwdriver to bend the motor clamp away from the motor.
   2. Remove the motor by rotating it clockwise (cw) and pulling it out.

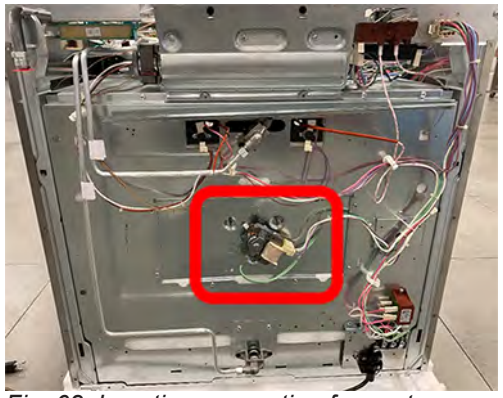
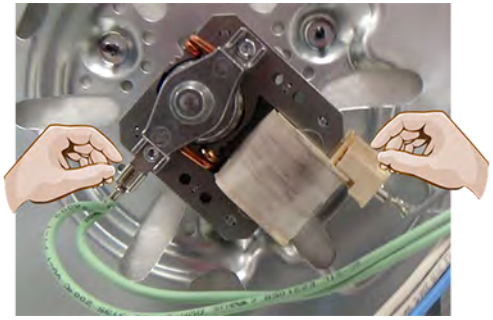


Fig. 68: Locating convection fan motor

Fig. 69: Bending motor clamp away from motor

5. Disconnect wire harness and ground wire.



6. Install in reverse order.
7. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.22 Replacing cooling (vent) fans

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

Warning

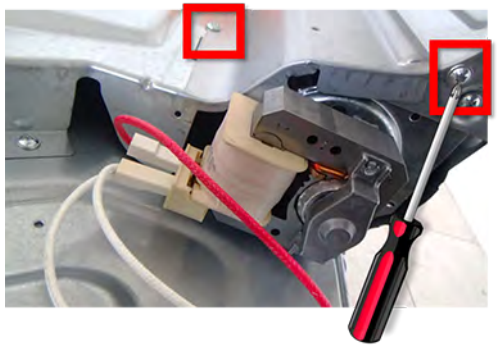
Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

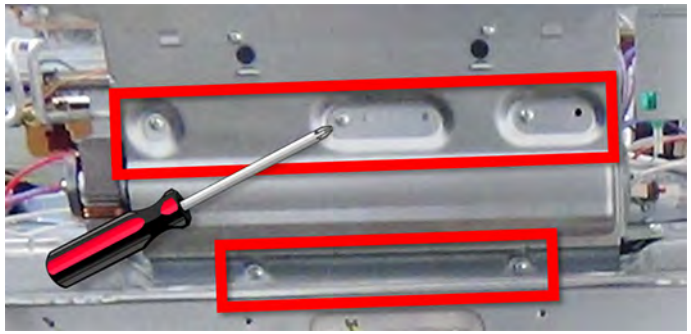
- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove grates.
- Remove maintop burner caps and bases.→ *Page 34*
- Remove rear panel.→ *Page 31*
- Remove maintop (hob top).→ *Page 39*

1. Disconnect both wire harnesses from fan motor.

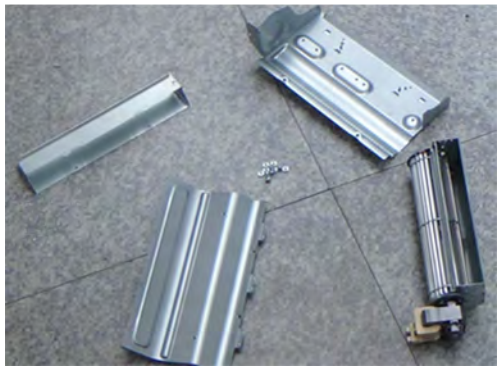
2. Using a #2 Phillips screwdriver, remove the two (2) screws on the left side of the cooling fan channel.

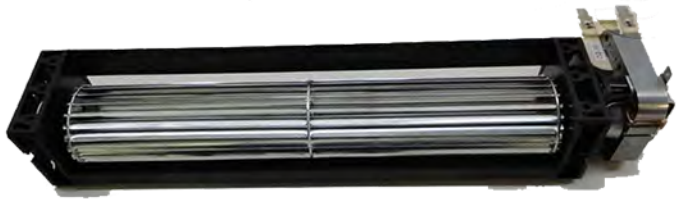


3. Using a #2 Phillips screwdriver, remove the five (5) screws on the back of the cooling fan channel.



4. Remove air channel housing and cooling fan.





Replacement cooling fans come with fan blade assembly, motor and housing (with fan / motor mounts).

5. Install in reverse order.
6. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.23 Replacing side rack supports and self-cleaning panels

Fig. 70: DF FSR shown

Prerequisite:

- Open door.
- Remove racks.
- Bring rack support bushings [**00627298**].

1.

Notice

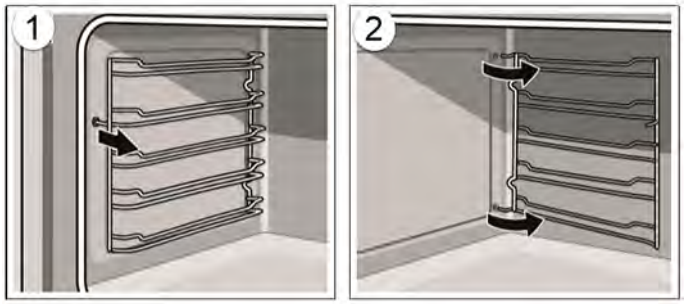
Not protecting oven cavity or using excessive force to remove parts!

Scratching or denting oven cavity

- ▸ Affix tape around part to be removed to protect oven cavity and carefully pry out part.

Carefully pull rack supports out from both sides of oven cavity.

1. Pull the front of the rack support out and rotate it toward the rear of the cavity until it's hook exits the sidewall (1, below) - rotating the rack support allows the hook to clear the hole.
2. Rotate the rack support complete to the back of the cavity and pull it toward the center of the cavity to remove it.



– The rack supports are attached to the side wall at three (3) points - one in the front and two in the back.
– Posts in rack supports are press-fit into rack support bushings **00627298**.

2. If needed, remove the self-cleaning panels from the sides of the cavity.

Fig. 71: Rack support and self-cleaning panel

The rack supports hold the self-cleaning panels in place.

3. Install in reverse order.
4. If necessary, replace rack support bushings with part # **00627298**.

6.24 Replacing broil burners

Danger

Explosion hazard due to escaped gas. Smell of gas!
- Do not press any electrical switches.
- Extinguish and keep clear of naked flames.
- Ensure the room is well ventilated.
- Shut off gas supply.

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

6.24.1 Removing broil burners, igniters and orifices (jets)

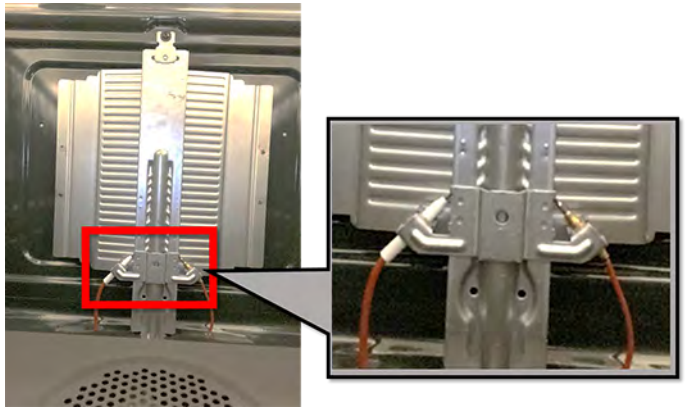
Broil burners, igniters and orifices (jets) are accessible from inside range (oven) cavities - ranges don't need to be pulled out.

Prerequisite:
- ✔ Shut off gas and electric supplies.
- ✔ Pull out oven racks.
- ✔ Open door.

1. **Notice**

   Damaging spark igniters during removal / installation!
   Porcelain on spark igniters can be easily damaged
   - Carefully remove / install spark igniters - avoid excessive force, bending or twisting porcelain.

   Inside the oven cavity (at the top), carefully remove the two (2) spark igniters.



2. Inside the oven cavity (at the top), carefully remove the broil burner.
   1. While holding the broil burner so it doesn't drop, remove broil burner screw(s) using a #2 Phillips screwdriver.

2. Carefully remove the broil burner from the front of the range.

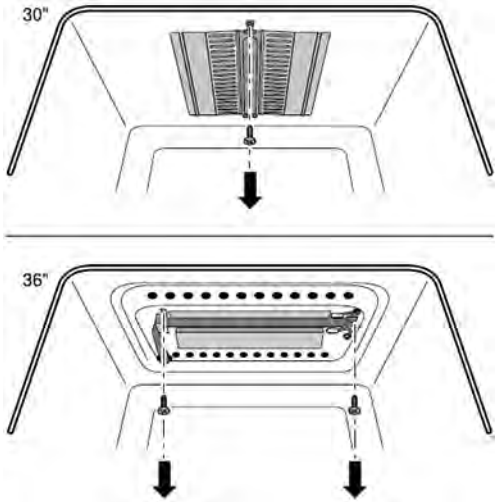


Fig. 72: Difference in removing 30 and 36 inch broil burners

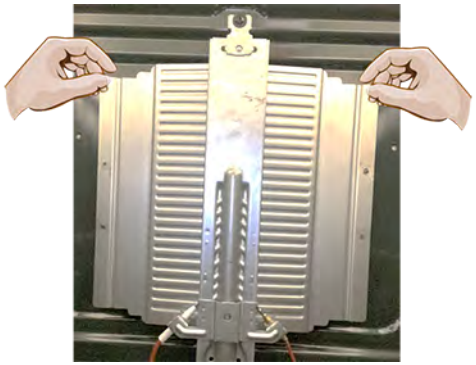


Fig. 73: Removing broil burner (30 inch model shown)

The 30" range has one (1) screw and the 36" range has two (2) screws, one on each side / end..

3. Unscrew and remove broil burner orifice (jet). Save for reuse.

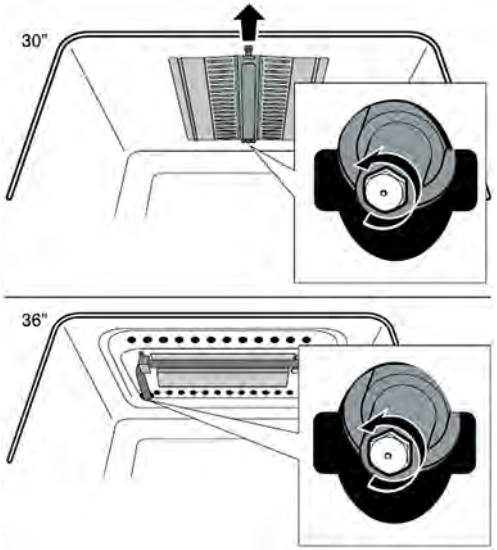


Fig. 74: Removing 30 and 36 inch broil burner orifices

4. Install in reverse order.
5. Once repairs are completed, carry out a gas leak test.
   Use a gas leak detector or soap bubble test, **never** an open flame.

6.24.2 Removing broil nozzle (jet) holders

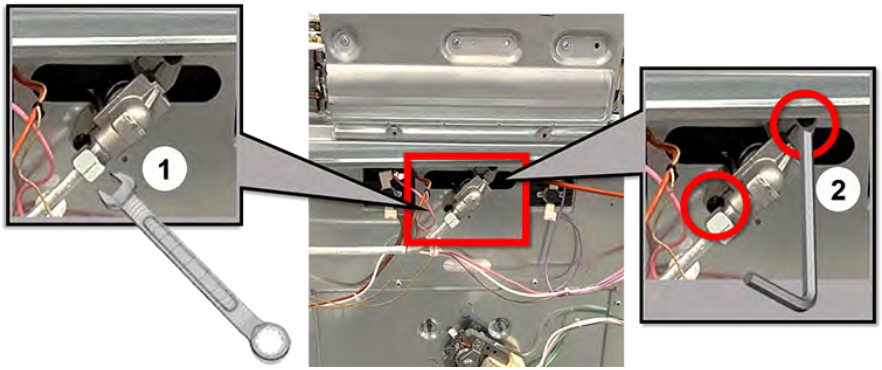
This rarely needs to be done, only in case of damage to gas tubing or nozzle holder.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove rear panel.→ *Page 31*
- Remove broil burners, igniters and orifices (jets).→ *Page 72*

1. At the rear of the range, disconnect the gas line to the broil burner.
   1. Unscrew the compression tube nut to the broil burner using a 13mm open-ended wrench.

2. Disconnect the broil burner gas connection by unscrewing the two (2) screws with an allen wrench.



2. Install in reverse order.
3. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.25 Replacing bake (oven) burners

Danger

Explosion hazard due to escaped gas. Smell of gas!

- Do not press any electrical switches.
- Extinguish and keep clear of naked flames.
- Ensure the room is well ventilated.
- Shut off gas supply.

Warning

Heavy, bulky appliances!

Back and muscle injuries

- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!

Bone fractures / crush injuries

- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

6.25.1 Removing bake burners, igniters and orifices (jets)

Bake burners, igniters and orifices (jets) are accessible from inside range (oven) cavities - ranges don't need to be pulled out.

Prerequisite:

- ✔ Shut off gas and electric supplies.
- ✔ Open door.
- ✔ Pull out or move racks (to the top of the cavity).

1. Inside the oven cavity at the bottom, remove the bake burner cover:
   1. Using a #2 Phillips screwdriver, remove six (6) screws, three (3) on each side (1, below).
2. Remove the cover by lifting the front of it slightly and pulling it out from the cavity.

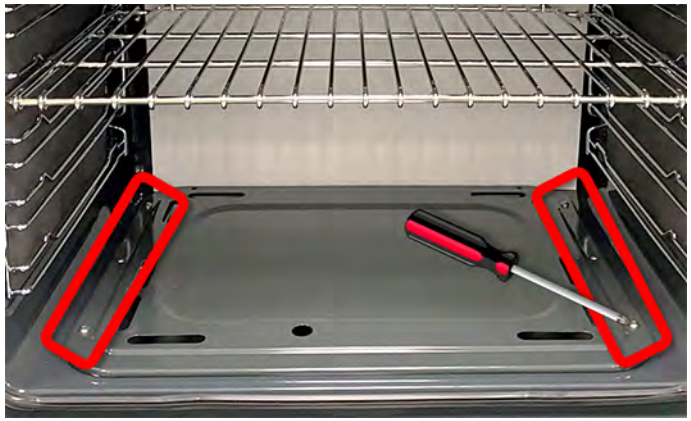


Fig. 75: Removing 6 cover screws (1)

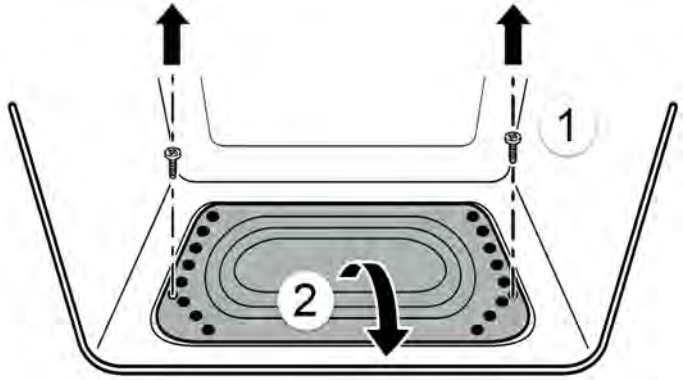


Fig. 76: Removing cover screws (1), then removing cover (2)

2. Unscrew the two bake burner screws with a #1 Phillips screwdriver (1, below).

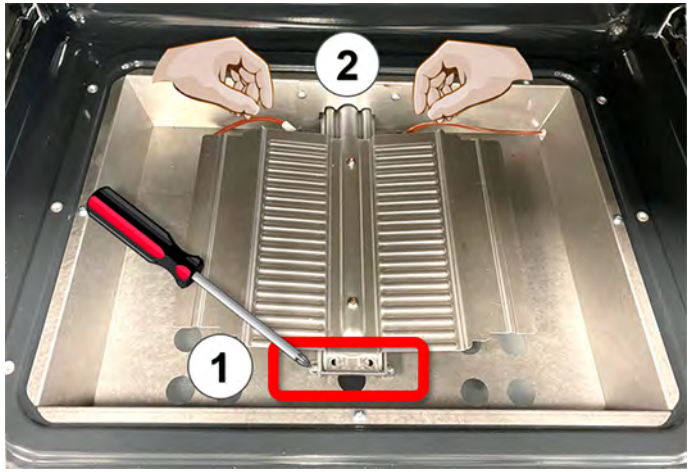


Fig. 77: Removing bake burner screws (1) and spark igniters (2) - 30 inch model shown

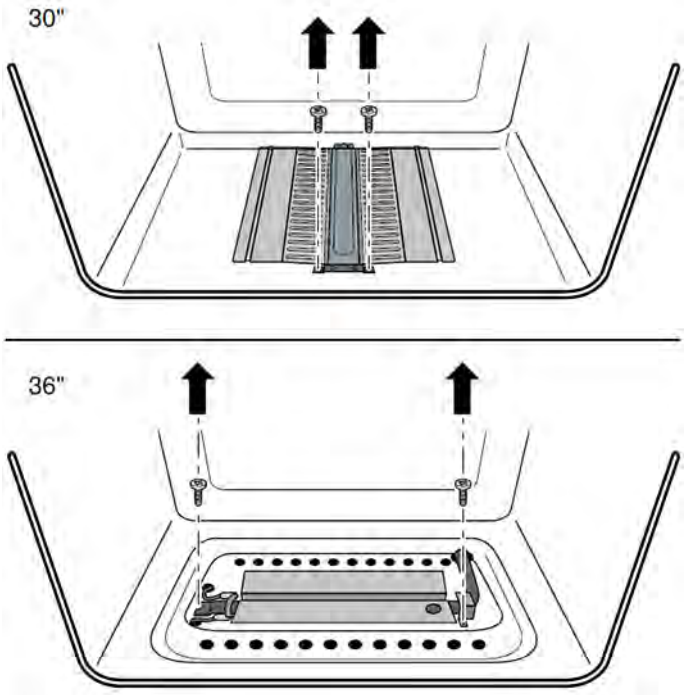


Fig. 78: Difference in removing 30 and 36 inch bake burners

3.

Notice

Damaging spark igniters during removal / installation!
Porcelain on spark igniters can be easily damaged
- ▶ Carefully remove / install spark igniters - avoid excessive force, bending or twisting porcelain.

Carefully remove the two spark igniters from the cavity (2, above).
Spark igniters are attached to the bake burner by clips.

4. Carefully remove the bake burner from the cavity.

Fig. 79: 30 inch model shown

5. Unscrew and remove bake burner orifice (jet). Save for reuse.

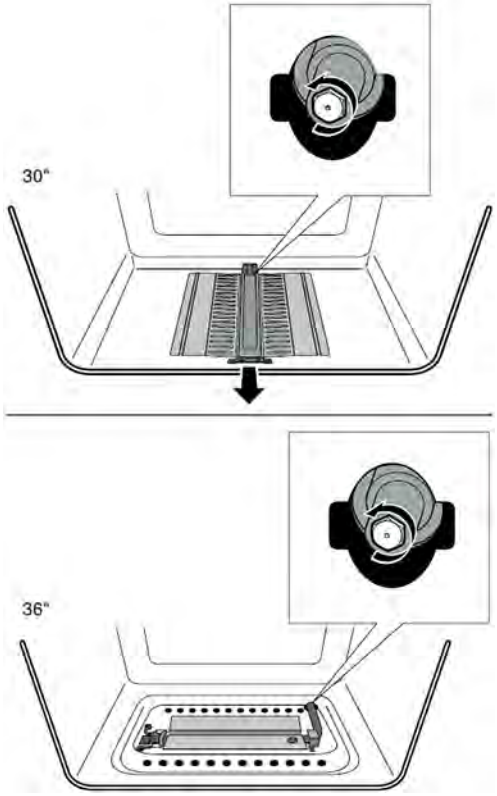


Fig. 80: Difference in removing 30 and 36 inch bake burner orifices

6. Install in reverse order.
7. Once repairs are completed, carry out a gas leak test.
   Use a gas leak detector or soap bubble test, **never** an open flame.
8. Adjust bake (oven) burner for minimum (bypass) gas (flow) setting.
   1. Close door, rotate knob to lowest bake setting (250ºF) and wait ~ 10 minutes for the thermostat bulb to heat up fully.
   2. Remove knob and knob bezel (ring).
   3. For LP gas, using a flat blade screwdriver, rotate adjusting screw gently clockwise (cw) until screw bottoms out (can't rotate any further) - for natural gas, rotate screw gently counterclockwise (ccw) ½ turn after it had bottomed out.
   4. Check bake (oven) burner flames - they can be hard to see through door glass and holes in bottom of oven cavity, but heat can be felt. Flames should be stable and as small as possible.
5. When completed, install knob / bezel (ring).

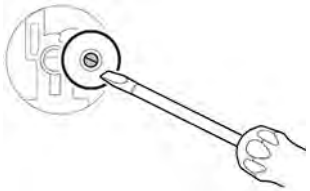


Fig. 81: Adjusting bake (oven) burner minimum gas flow

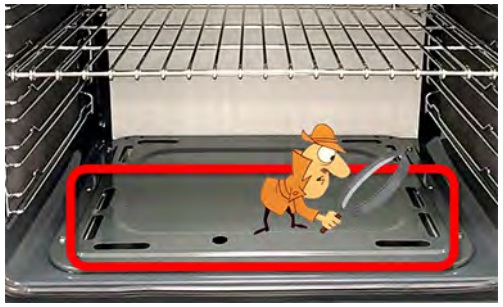


Fig. 82: Checking bake (oven) burner flames

- On a cold bake (oven) burner, flames will be at maximum until the thermostat bulb warms up to the preset temperature, so minimum settings cannot be checked until then - the oven has to be heated up for about 10 minutes with the door closed.
- Generally for LP gas, minimum (bypass) screws should be kept at the fully clockwise (cw) position.
- Generally for natural gas, minimum (bypass) screws should be adjusted and flames checked - flames should be stable and as small as possible.
- For broil burners, flames are always at maximum and there's no minimum (bypass) gas flow setting / adjustment screw.

6.25.2 Removing bake nozzle (jet) holders

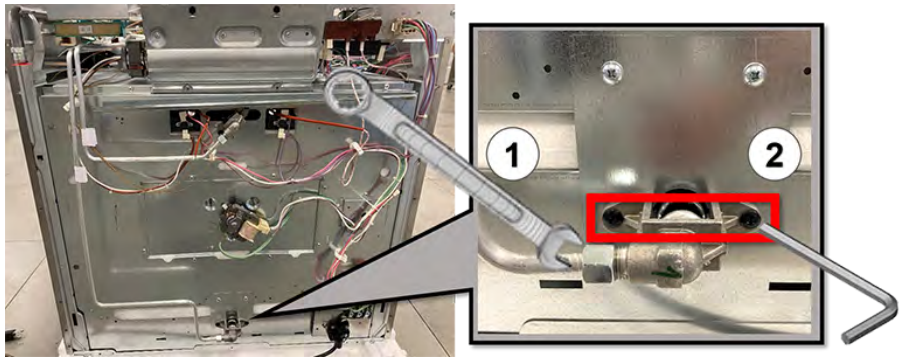
This rarely needs to be done, only in case of damage to gas tubing or nozzle holder.

Prerequisite:

- ✔ Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- ✔ Remove rear panel.→ *Page 31*
- ✔ Remove bake burners, igniters and orifices (jets).→ *Page 75*

1. At the rear of the range, disconnect the bake burner gas line.
   1. Unscrew the compression tube nut to the bake burner using a 13mm open-ended wrench.

2. Disconnect the bake burner gas connection by unscrewing the two (2) screws with an allen wrench.



2. Install in reverse order.
3. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.26 Replacing oven cooling fan / preheat buzzer thermostats

There are two (2) oven thermostats at the rear of ranges - the left one allows the cooling fan to run after burners are turned off and the right one triggers the buzzer that the oven has preheated to the desired temperature.

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

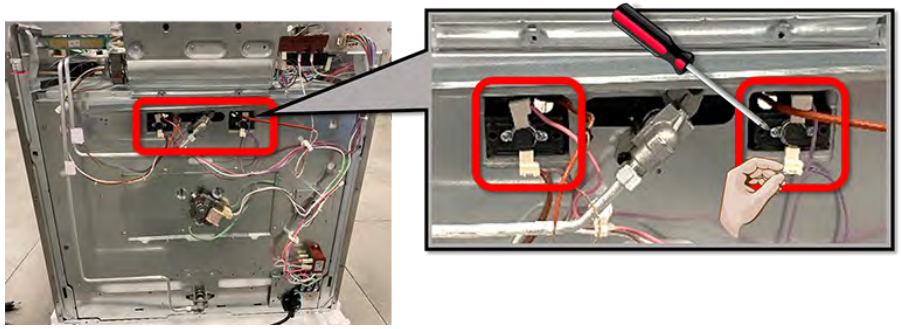
Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove rear panel.→ *Page 31*

1. Using a #1 Phillips screwdriver, remove the two (2) screws for the thermostat to be replaced.



2. Remove thermostat and disconnect wire harness (see above).
3. Install in reverse order.
4. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.27 Replacing spark modules (oven)

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

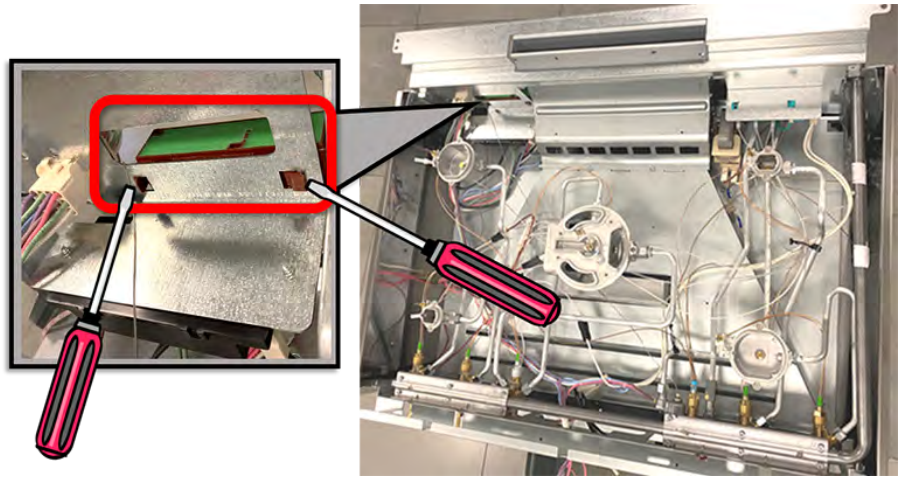
Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

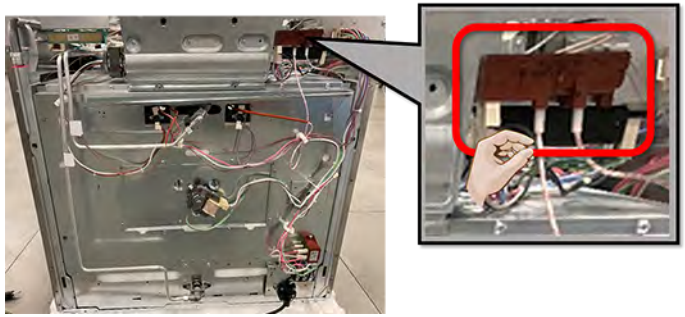
Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove grates.
- Remove maintop burner caps and bases.→ *Page 34*
- Remove rear panel.→ *Page 31*
- Remove maintop (hob top).→ *Page 39*

1. Locate the spark module at the top right corner at the rear of the range.
   Removing the oven spark module requires access from the rear and top of the range.
   – Spark modules are removed from the rear of the range.
   – Wire harnesses are connected at the rear of the range.
   – Latches to remove the spark module are accessed from the inside (top) of the range.
2. Using a flat blade screwdriver, gently pry the two (2) latches inward (from the top of the range) and pull the spark module out (from the rear of the range).



3. After noting connections, disconnect spark igniter harnesses.



4. Install in reverse order.
5. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.28 Replacing T-Zero module

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove rear panel→ *Page 31*
- Remove left side panel.→ *Page 32*

1. Locate the T-Zero module under the oven spark module at the top right corner at the rear of the range.

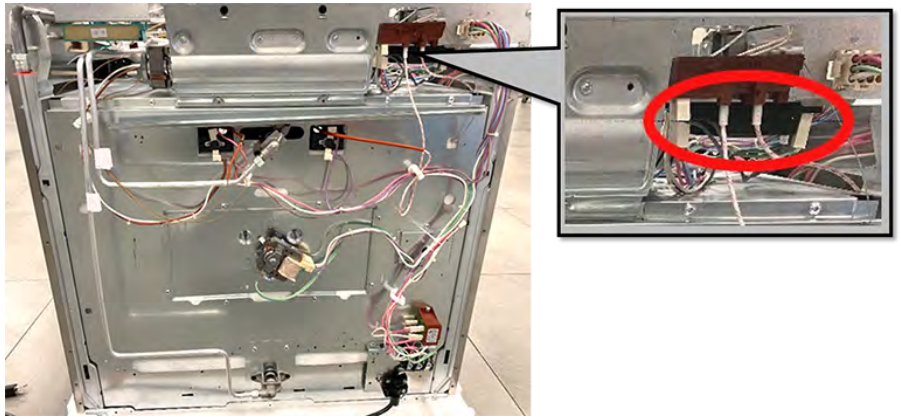


Fig. 83: Locating gas T-Zero module

Removing the T-Zero module requires access from the rear and side of the range - the maintop doesn't need to be removed.

– T-Zero modules are removed from the side of the range.
– Wire harnesses are connected at the side of the range.
– The T-Zero mounting plate is part of the frame and cannot be removed - the T-Zero module is accessed from the side of the range underneath it's mounting plate.

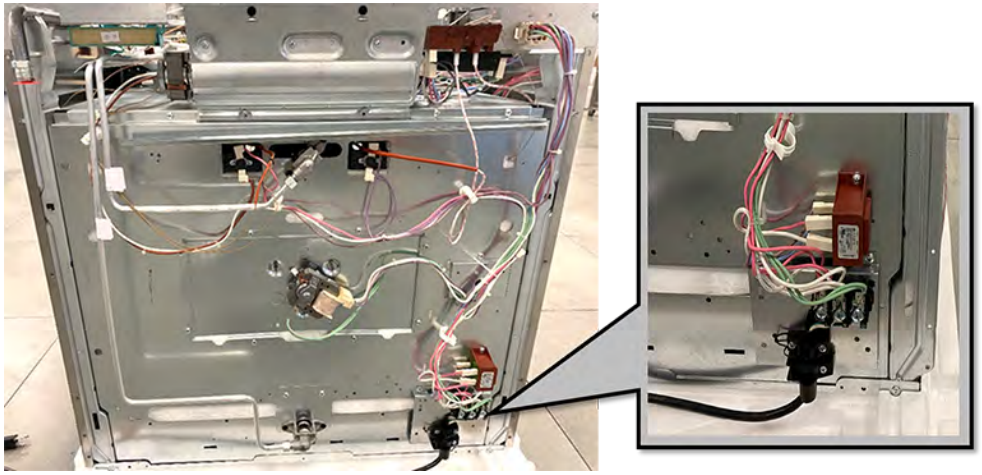
2. Using a #1 Phillips screwdriver, gently unscrew the two (2) module mounting screws and pull the T-Zero module out (from the side of the range).
3. After noting connections, disconnect spark igniter harnesses.

Fig. 84: T-Zero module terminals

4. Install in reverse order.
5. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

6.29 Replacing rear timer transformers

This 120VAC : 12VAC transformer powers the timer (in the fascia panel) and is located immediately above the terminal block.



Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

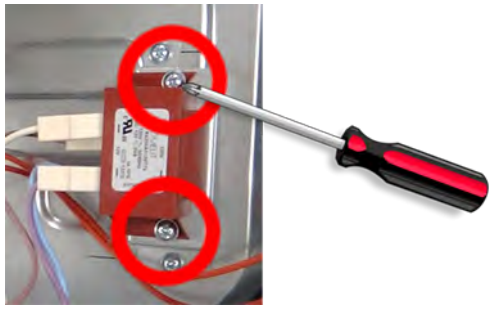
Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

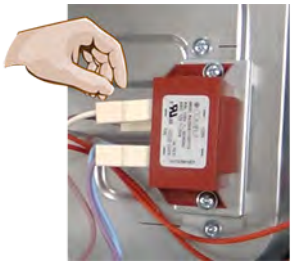
Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove rear panel.→ *Page 31*

1. Using a #1 Phillips screwdriver, remove the two (2) transformer screws and remove the transformer.



2. Disconnect wire harness connectors.



3. Install in reverse order.
4. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).

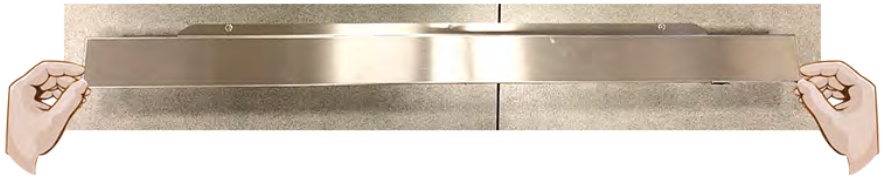
6.30 Replacing toe panels

Prerequisite:

- Remove door.→ *Page 59*

1. Using a #1 Phillips screwdriver, remove two (2) toe panel screws, one at each end.

2. Pull out toe panel.



3. Install in reverse order.

6.31 Adjusting mounting feet

This should rarely need to be done - as it should've been done during installation.

Warning

Heavy, bulky appliances!
Back and muscle injuries
- Have 2 people move appliances.
- Use designated aids.

Warning

Tipping / falling of top heavy appliances!
Bone fractures / crush injuries
- Remove decorative panels before starting repairs.
- Keep doors closed during repairs.
- Before opening doors, secure appliances from tipping.

Prerequisite:

- Disconnect gas and electric supplies, disconnect anti-tip bracket and pull out range.
- Remove all loose parts, including racks, grates and burner caps / bases.→ *Page 40*

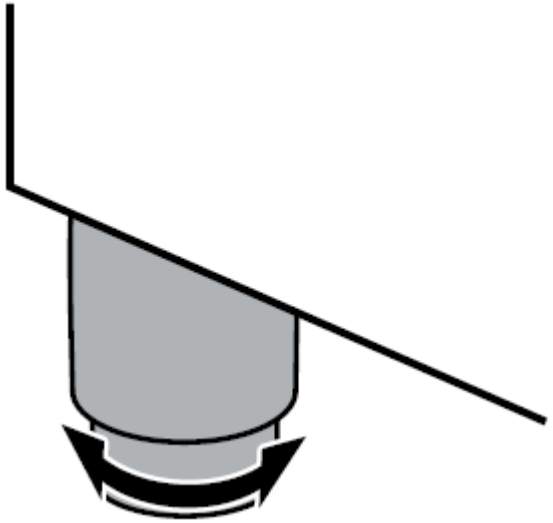
1. Measure cabinet height.
   Due to range weight, feet cannot be adjusted by trial and error.
2. **Notice**

   Damaging floor!
   Scratching or cracking floor
   - Protect floor by laying down a pad before starting work.
   - Carefully lay range onto it's back - do not drop or drag it.

   Notice

   Don't use door handle to move range!
   Damaging door, door handle or fascia panel
   - Don't use door handle to move or lower range.
   - Don't use fascia panel bullnose to move or lower range.

   After laying down a pad to protect the floor, carefully lay range on it's back.
3. Rotate adjustable feet (not entire legs) clockwise (cw) to lower range or counter-clockwise (ccw) to raise range as needed.



4. Install in reverse order.
5. If moving ranges, rotate all feet clockwise (cw) to avoid damaging legs. Remeasure at new location and adjust feet as needed.
6. After sliding range in place, make sure anti-tip bracket is engaged and range won't tip (more than 1" / 2.54 cm).