



# TOWN

Town Food Service Equipment Co., Inc.

FOOD SERVICE EQUIPMENT CO., INC.

72 Beadel Street Brooklyn, NY 11222

phone 718/ 388-5650 Outside New York State 800/ 221-5032 facsimile 718/ 388-5860



## MBR SERIES MONGOLIAN BARBECUE RANGES

MBR 36 36" diameter cook top | MBR 42 42" diameter cook top



### SECTION 1 INSTALLATION INSTRUCTIONS

#### FOR COMMERCIAL USE ONLY

##### Warning

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death.

Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

##### For Your Safety

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

##### Important

Contact your local gas supplier if you smell gas near this equipment.

**DO NOT DISCARD INSTRUCTIONS. THIS MANUAL MUST REMAIN WITH THE UNIT FOR FUTURE REFERENCE.  
THIS EMERGENCY INFORMATION MUST BE PROMINENTLY DISPLAYED.**

***Congratulations on your purchase of a MBR-36 or MBR-42 Mongolian Barbecue Range.***

*It will give you many years of trouble free use if it is properly used and maintained. Please call our customer service department at (718) 388-5650 if you have questions regarding equipment operation or care.*

Your new MBR-36 or MBR-42 Mongolian Barbecue has been carefully engineered and constructed with the best possible workmanship and materials to provide many years of satisfactory service. Proper installation is vital if best appearance and performance is to be achieved.

For your records please record the following information of your Mongolian Barbecue Range (MBR)

MODEL NUMBER \_\_\_\_\_ SERIAL NUMBER \_\_\_\_\_

SUPPLIER/VENDOR TELEPHONE NUMBER \_\_\_\_\_ DATE OF PURCHASE \_\_\_\_\_

**FOLLOW THESE INSTRUCTIONS CAREFULLY**

**MBR-36 AND MBR-42 MONGOLIAN BARBECUE INSTALLATION INSTRUCTIONS**

**PLANNING AND SITE PREPARATION**

- 1) Mongolian barbecue range installations are generally in the center of a cooking area with clear access on all sides. Suggested clearance around the entire unit is at least 3 feet.
- 2) Materials such as wood, compressed paper and plant fibers that will ignite and burn, must not be exposed near range. Local safety codes should be complied with in respect to fire hazard avoidance.
- 3) The area surrounding the unit must be kept clear to avoid combustion issues due to restricted air supply.
- 4) The unit must be installed in an area or room with sufficient fresh air supply to ensure proper combustion. Given enough fresh air this unit produces exhaust gases within ANSI limits.
- 5) The gas supply line must be of adequate size to ensure maximum efficiency of the unit. Minimum manifold piping should be 1 1/4" sch. 40 Gas pipe (2" Sch. 40 Gas pipe is recommended). Static pressure pressure is 6" W.C. for natural gas and 10" W.C. for propane. Minimum operational pressure is 5.5" W.C. for natural gas and 9.5" W.C. for propane gas.

Inlet supply pipe should be a minimum of 1 1/4" diameter and a minimum operating gas pressure of 6" W.C. for natural gas or 10" W.C. for propane gas should be used.

**LIMITED WARRANTY**

Town warrants all ranges and smokehouses free from defects of workmanship or material for one (1) year from invoice date with the exception of safety pilot systems which are covered by a 90 day warranty. Safety pilot systems installed without drip legs are not covered by this warranty. Defective parts returned prepaid will be repaired or replaced subject to our inspection and returned freight collect. Mishandling or abuse of equipment or components is not covered by this warranty and repairs or replacement will be made at a nominal charge. Labor costs to return or replace parts in this equipment are the responsibility of the purchaser, as are proper installation and adjustments.



## PLANNING AND SITE PREPARATION, CONTINUED

6) Use of the supplied regulator is mandatory. The regulator must be installed in a location where it remains cool and is accessible for pressure adjustment (ANSI z83.11-1996 Sect. 1.15.5).

- a) If installed in a facility with a high pressure gas system a 1<sup>st</sup> stage regulator must be supplied by others. The supply appliance regulator must be installed downstream from the 1<sup>st</sup> stage regulator.

**NEVER INSTALL THE APPLIANCE REGULATOR UNDERNEATH OR IN THE CENTER OF THE UNIT**

7) Equipment should be under hood with adequate ventilation.

## UNCRATING AND PLACING THE UNIT

CLEARANCES FROM NONCOMBUSTIBLE CONSTRUCTION ARE THE SAME AS COMBUSTIBLE CLEARANCES. THIS APPLIANCE IS SUITABLE FOR INSTALLATION ONLY ON NONCOMBUSTIBLE FLOORS.

1) The top is shipped in a separate crate. Position crate next to the location that the unit will occupy.

Uncrate the range, place it in position and take note of the position of gas feed line.

2) Carefully place the range into desired position to avoid damage to adjustable legs. Be sure unit is located with the clearances away from combustible construction as indicated on the rating plate of the unit. Turn all three gas valve lever handles to **off** position (figure 1). Check that three valves face in the position desired by customer.

figure 1



3/8" FEMALE GAS VALVE  
number **226102F**

SAFETY PILOT, OUT ONLY  
number **249011**

3) Place cast iron top on the support tubes. **CAUTION: the custom cast iron top is over 1" thick and is extremely heavy.** Make sure the "ribs" on the bottom of the cook top do not sit on the support tubes. We recommend using a licensed rigger for installation.

4) Level the unit using the adjustable bullet feet at the end of each leg.

## GAS INSTALLATION

1) The installation must conform with the National Fuel Gas Code, ANSI Z223.1, Natural Gas Installation Code, CAN/CGA-B149.1 or the Propane Installation Code, CAN/CGA-B149.2, as applicable, including:

- a) The appliance and it's individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psi (3.45 kPa).
- b) The appliance must be isolated from the gas supply piping system by closing it's individual manual valve during any pressure testing of the gas supply piping system at test pressures equal or less than 0.5 PSIG (3.45 kPa).

2) The installation must conform with all local authority regulations governing gas appliance installations.

**CONTINUED ON PAGE 4**

## GAS INSTALLATION, CONTINUED

- 3) If your unit is supplied with casters, the installation should be made with a gas connector that complies with the standard for connectors for movable gas appliances, ANSI Z21.69 or connectors for moveable gas appliances, CAN/CGA-6.16, and a quick disconnect device that complies with the standard for quick disconnect devices for use with gas fuel ANSI Z21.41, or quick disconnect devices for use with gas fuel, CAN1-6.9. Adequate means must be provided to limit the movement of the appliance without depending on connector and the quick disconnect device or it's associated piping to limit movement.
- 4) If your unit is provided with casters on legs, the legs with locking casters must be installed opposite the gas supply line. An approved restraining device must be secured to unit near gas supply.
- 5) Connect the gas line and check for leaks. Air will be trapped in the gas supply lines. Trapped air can be bled out by pushing the red button in on the pilot safety valve (figure 1) for a few minutes during initial lighting.
- 6) With the main valve on and the 3 burner valves **off** (figure A), check for leaks using soapy water or an electronic leak detector. **Do not use open flame for testing.**



**figure A**  
BURNER VALVES IN **OFF** POSITION—  
ROTATE COUNTER CLOCKWISE TO TURN **ON**

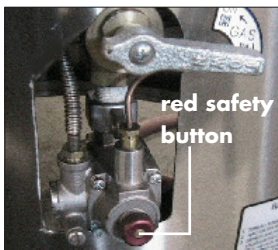


**figure B**  
BURNER VALVE IN **ON** POSITION—  
ROTATE COUNTER CLOCKWISE TO TURN **OFF**

## INITIAL LIGHTING AND SHUT DOWN INSTRUCTIONS

Always follow lighting and shutdown instructions below when operating unit. A 5 minute complete shut-off period is required before lighting or relighting.

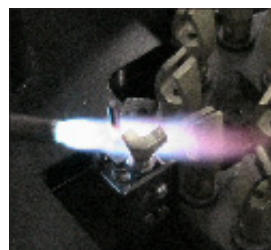
- 1) With burner valves **off** light a match and place in a lighter rod, or use a LP torch (figure 2 and 3). Position the flame at one pilot burner in the combustion chamber (figure 3). Push the red safety button to turn on gas flow (figure 1). Place match or torch beneath burner to be ignited (figure2). It may take up to 10 minutes to bleed air trapped in the gas line before the pilot will light. For detailed instructions on use and repair of the safety pilot system by the manufacturer, Inveysis/*Robertshaw* refer to pages 17-19.



**figure 1**



**figure 2**



**figure 3**

**CONTINUED ON PAGE 5**

- 2) After the pilot lights, remove the match or torch and continue to hold the red safety button in for 1 minute (figure 1, page 4). After releasing the button the pilot should stay lit. If pilot does not stay lit, repeat step 1, pressing the button for approximately 90 seconds.

**REFER TO PAGES 17-19 FOR COMPLETE INSTRUCTIONS ON THE USE AND REPAIR OF SAFETY PILOT SYSTEM.**

- 3) The remaining 2 pilots should light with only a 2 or 3 minute bleed time.
- 4) Turn all 3 burner valves counterclockwise to **on** position. Be sure that each burner has ignited with a clear, blue flame about 2" long. Fanning or blowing on the burner to get all the tips to light may be necessary. The burners are designed to fully light when the cast iron top is in position on the unit.
- 5) With burners lit, use a suitable gas leak detector to check for leaks in the entire gas train.
- 6) To shut down, turn burner valves clockwise to **off** position.

## **TROUBLE SHOOTING**

### **POOR PERFORMANCE**

Most Mongolian barbecue range performance problems can be traced to gas supply pressure or volume issues. If your unit is not getting hot quickly, it is necessary to determine if your unit has sufficient gas pressure to operate normally.

The Mongolian barbecue range is supplied with a gas test tap located on the internal gas manifold to check for proper pressure. It is sealed with a 1/8" NPT plug. A suitable manometer may be attached to this test tap by a qualified gas service mechanic to verify operating gas pressure. The unit should be restarted following the initial lighting instructions on page 4 of this manual. With all 3 burners operating, the manometer should indicate 6" W.C. for natural gas or 10" W.C. for propane gas. If the measured pressure differs from the above requirements, the problem causing low pressure must be corrected. If pressure is too high, an additional pressure regulator to the standard pressure regulator may be required (especially with propane gas). If the pressure is too low contact your installer and/or supply company. Undersized gas supply lines are often a cause of insufficient operating pressure. Undersized pipe may not allow adequate gas volume, which will cause the unit to perform poorly.

### **PILOT FAILURE**

If one of the safety pilot fails (assuming the unit has worked for a while), a faulty thermocouple could be the problem. Replacement thermocouples and pilots may be purchased from Town Food or a commercial gas supply parts company.

<b>item number</b>	<b>description</b>
252239	universal "L" pilot/bracket supplied with orifices for natural or propane gas
252238	heavy duty 36" thermocouple

**NOTE: The thermocouple is a consumable part. It's life expectancy varies depending on use**







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## MBR SERIES MONGOLIAN BARBECUE RANGES

MBR 36 36" diameter cook top | MBR 42 42" diameter cook top



### SECTION 2 OPERATING INSTRUCTIONS



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#### For Your Safety

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#### Important

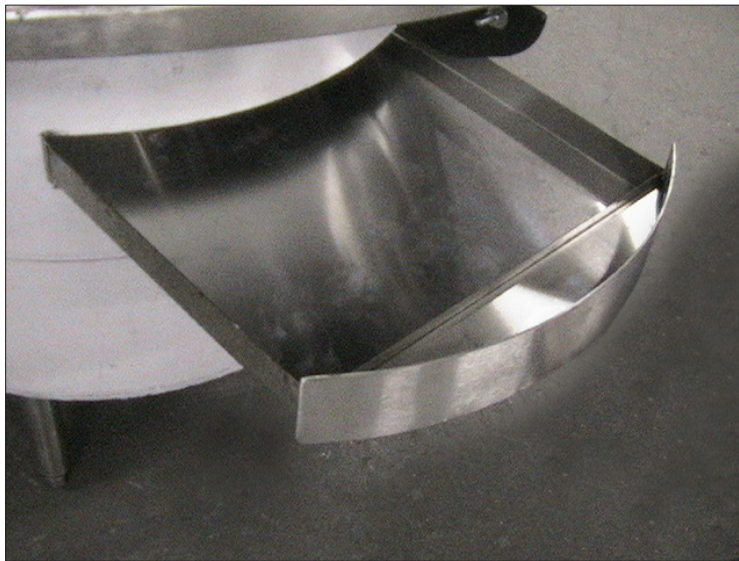
Contact your local gas supplier if you smell gas near this equipment.

**DO NOT DISCARD INSTRUCTIONS. THIS MANUAL MUST REMAIN WITH THE UNIT FOR FUTURE REFERENCE.  
THIS EMERGENCY INFORMATION MUST BE PROMINENTLY DISPLAYED.**

## IMPORTANT OPERATION SAFEGUARDS

**DO NOT THROW AWAY INSTRUCTIONS—THIS MANUAL MUST REMAIN WITH THE UNIT FOR FUTURE REFERENCE**

- Materials such as wood, compressed paper, and plant fibers that will ignite and burn must not be exposed near this unit. Local safety codes should be complied with in respect to fire avoidance.
- The area around the unit must be kept clear to avoid restriction of air supply for combustion or ventilation for exhaust.
- If your unit is supplied with casters, there should be a restraint on the appliance to limit it's movement. If disconnection of the restraint becomes necessary, it is important to reconnect the restraint after the appliance is returned to its originally installed position.
- Provisions must be made to ensure adequate supply of fresh air to this unit. This unit cannot operate safely without sufficient air supply.
- Mongolian barbecue ranges should be used under a properly designed ventilation hood, which should be clean and in operation when the range is in use.
- This unit should be operated only with drip tray in place (figure 1).



**figure 1**



## LIGHTING AND SHUT DOWN INSTRUCTIONS

Always follow lighting and shutdown instructions below when operating appliance. A 5 minute complete shut-off period is required before lighting or relighting.

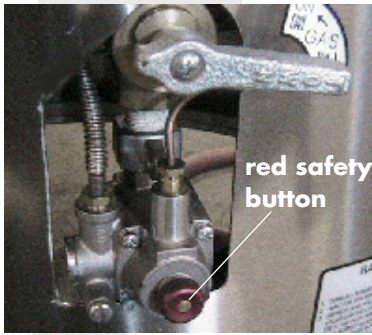


**figure A**  
BURNER VALVES IN **OFF** POSITION—  
ROTATE COUNTER CLOCKWISE TO TURN **ON**



**figure B**  
BURNER VALVE IN **ON** POSITION—  
ROTATE CLOCKWISE TO TURN **OFF**

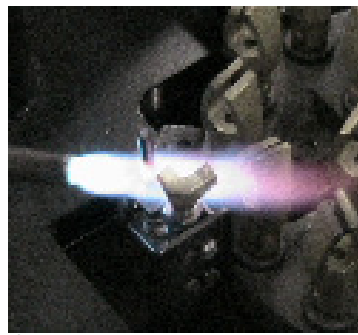
- 1) With burner valves **off** light a match and place in a lighter rod, or use a LP torch (figure 2 and 3). Position the flame at one pilot burner in the combustion chamber (figure 3). Push the red safety button to turn on gas flow (figure 1). Place match or torch beneath burner to be ignited (figure 2). It may take up to 10 minutes to bleed air trapped in the gas line before the pilot will light. For detailed instructions on use and repair of the safety pilot system by the manufacturer, Inveysis/*Robertshaw* refer to pages 17-19.



**figure 1**



**figure 2**



**figure 3**

- 2) After the pilot lights, remove the match or torch and continue to hold the red safety button for one minute. After releasing the button the pilot should stay lit. If it does not stay lit, repeat step 1, holding button in for approximately 90 seconds.

**REFER TO PAGES 17-19 FOR COMPLETE INSTRUCTIONS ON THE USE AND REPAIR OF SAFETY PILOT SYSTEM.**

- 3) The remaining 2 pilots should light with only a 2 or 3 minute bleed time.
- 4) Turn all 3 burner valves counterclockwise to **on** position. Each burner ignited should have a clear, blue flame approximately 2" long.
- 5) With burners lit, use a suitable gas leak detector and check for leaks.
- 6) To shut down, turn burner valves clockwise to **off** position.



## OPERATIONAL OVERVIEW

The Town Mongolian barbecue is a high temperature round top griddle best used by a skilled chef. The cast iron top is 1" thick. We encourage training to prevent abuse to the equipment and unhappy guests. This unit should be used like any griddle top appliance, sudden heating or cooling of the top can cause it to warp and crack. Questions regarding use of the unit should be directed to our technical support department at (718) 388-5650, Monday through Friday, from 9am to 5pm. Technical support can also be reached by email at [customerservice@townfood.com](mailto:customerservice@townfood.com).

Model MBR-36 and MBR-42 Mongolian Barbecue Ranges are griddle style units that contain 3 high output burners. These 3 burners have individual valves and safety controls that are centered for easy access during operation. Up to 3 chefs can work at a unit as they sauté vegetables, fish, meat and poultry as guests watch. Mongolian barbecues are similar to a tepanyaki griddle in use.

## SEASONING

The first time this unit is used, the top must be seasoned. Seasoning must be done while the ventilation system is in operation. Wash the top with soapy water to remove all grease and oil from the manufacturing process. Rinse the top immediately and dry it off; it is cast iron and will rust if not dried immediately. Using the procedure described earlier, fire up the unit and get the top hot. Turn down the heat and wipe the surface with a towel coated with cooking oil. With repeated heating and wiping, the top will attain a nonstick finish. Do not use soap again to clean the top. Clean the top with griddle scraper taking care not to remove the seasoning. Fine grit scrubbies or a mild grill cleaning liquid can also be used to remove carbon build up.

## COOKING

Cooking on this unit is like cooking on a high-speed griddle. The intense heat generated by the burners is designed to achieve the searing quality of wok-style cooking. Similar techniques including stir-fry, applications of sauces and seasonings are generally used. As in tepanyaki style cooking, chefs must understand the differences of the food being cooked and should adjust the method to their individual dishes.



## COOKING TOOLS

Mongolian barbecue Range Swords are 100% stainless steel. Their air insulated handles reduces the likelihood of chefs burning their hands when handling a sword whose blade has been on the cook top for an extended period of time. The length of the cooking swords (24") give chefs more control serving while increasing the reach over the cooking surface. Mongolian barbecue range swords add showmanship as chefs perform like Ninja warriors wielding these weapon-looking devices while cooking.

### **DO NOT LEAVE MONGOLIAN BARBECUE RANGE SWORDS ON COOK TOP FOR MORE THAN 15 MINUTES**

Mongolian barbecue Veggie Sticks are hollow stainless steel square tubing with heat proof handles. Veggie Sticks isolate a portion of the cook top during the cooking of a meal. This is often required by diners with allergies to certain foods. For those customers, the top is scrubbed and Veggie Sticks provide a surface barrier to prevent ingredients and sauces from other dishes from mixing together.

Veggie Sticks and Mongolian Barbecue Range Swords are available from Town Food through your dealer.

Chefs may also use spatulas or long square wooden sticks as implements on the surface. Like a wok or cast iron fry pan, the top must be reseasoned as needed. Food should not be allowed to remain on the top as this will cause the top to pit or otherwise deteriorate.



**Mongolian Barbecue Range Sword**  
no. MBRS-2



**Mongolian Barbecue Range Veggie Stick**  
no. MBR-VS2

### **CAUTION: DO NOT WARP OR OVERHEAT THE TOP**

Mongolian barbecue ranges manual valves are not thermostatically controlled. Continual overheating of the top will cause it to warp. Do not allow the burners to operate at full power after the top has reached desired temperature.

## CAST IRON MONGOLIAN COOK TOP CARE AND MAINTENANCE

These are suggested standard operating procedures to prepare Mongolian barbecue tops for use and to maintain it in the future. The cast iron top of a Mongolian range should be viewed as a large cast iron skillet. It must be washed and seasoned when new. The seasoning must be maintained in order to keep it black and shiny, behaving as a non-stick surface.

- If your Mongolian barbecue range requires service, contact a professional gas service company to perform necessary repairs or contact Town Food Service (800) 221-5032, Monday through Friday, 9am to 5pm EST, for a service provider recommendation. For all warranty service calls, Town Food Service must be notified first and approve the repair.
- Burners should be checked and cleaned annually by a qualified gas service company. Valves should be greased annually.
- Getting the controls wet will cause the Mongolian barbecue range to fail.
- If unit is supplied with casters, there should be a restraint on the appliance to limit movement. If disconnection of the restraint becomes necessary, the restraint must be reconnected after the appliance is returned to its originally installed position.

## INITIAL SEASONING

When new, wash the top very thoroughly with warm soapy water. The top is coated with rust inhibiting protective oil at time of manufacture. All traces of manufacturing oil must be removed prior to seasoning. Follow these steps for initial seasoning:

- 1) Remove all traces of manufacturing oil using warm soapy water and brushes, cloths, and/or mildly abrasive scrubbers such as stainless steel.
- 2) After all traces of manufacturing oil have been removed, thoroughly dry the top using clean wipes.
- 3) After the pilots are lit, turn the gas valves to full on position. Refer to figure A on page 4.
- 4) The top will slowly become hot. When a drop of water boils on the surface of the top, wipe the top with a thin coat of oil. Immediately wipe the top with a dry cloth to remove any excess oil to avoid oil build ups.
- 5) Wait an additional 5 to 10 minutes to allow the top to continue to heat. The surface of the top will become darker. Apply another coat of oil and wipe dry as in step 4.
- 6) Continue to apply oil and wipe dry in approximately 5 minute cycles. The top should gradually darken and become black. When a black shiny surface has been achieved, the top is seasoned and ready for use. Reduce heat or turn valves to off when finished.

## CLEANING

Your Mongolian barbecue range should be cleaned each evening after use. Wash the stainless steel scrap gutter and body with a brush and solution of mild grease dissolver and water. Rinse with water. Remove and clean the drip tray; dry and return into the unit. The safety controls and valves below the unit should be kept dry during the washing process.

Do not use soaps on the cast iron cooking surface. The surface must remain oil seasoned to prevent rust and maintain the nonstick nature of the top.

## DAILY USE

We recommend the top be kept clean at all times. Visible food residue should be scraped off using a long handled griddle scraper. Apply cooking oil after scraping food residue and wipe with oil to make an even coating. Sauces containing sugar will caramelize and stick to the top requiring more work to clean. Try to apply sauces to the meal after it is plated, or within the final 30 seconds of the cooking cycle. If saucing on the grill, try to use oil based sauces without sugar. The following are several basic guidelines for the daily use of the range:

- Scrape the grill as soon as food residue is visible.
- Oil the grill after scraping or before the next meal is cooked.
- Try to use water from a squeeze bottle on the meal as it cooks so the food is steamed and fried at the same time.
- Allow the grill to cool at the end of the day, then scrape the top clean and apply a light coat of oil.



## ANNUAL TOP MAINTENANCE

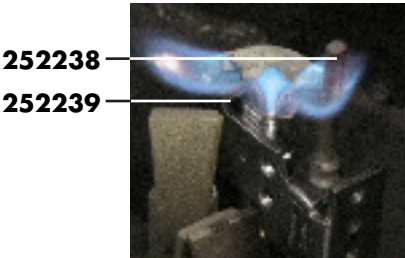
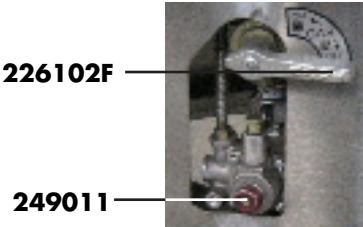
If the top has visible excessive burned on food, it may be necessary to re-season the top almost as new. Heat the top and clean with abrasives as described above. Then polish the top using griddle screens and bricks. Successive seasonings as outlined above may be done in order to regain the shiny black surface.

We recommend peanut or grape seed oil. While many have severe allergies to peanuts, the reaction seems to be to the protein, and not the oil of the peanut. However, if you are concerned about allergic reaction to peanut oil, do not use it.

## SPARE PARTS

Mongolian barbecue ranges are heavy duty ranges requiring little service. Burners should always produce a clean, blue flame. The cast iron burners will last the lifetime of the unit. Parts that may be subject to replacement are:

item no.	description
226911N	__natural gas 18 tip vertical shield burner
226911P	__propane gas 18 tip vertical shield burner
226912	__natural gas replacement tip
226914	__propane gas replacement tip
249011	__safety control
252239	__universal "L" pilot/bracket supplied with orifices for natural or propane gas
226102F	__ 3/8" female burner valve
252238	__heavy duty 36" thermocouple



18 TIP VERTICAL SHIELD BURNER

## TROUBLE SHOOTING

### PILOT BURNER WILL NOT STAY LIT

This could be caused by one (or more) of three problems:

- Loose connection of the thermocouple lead to the safety control.
- Burned out thermocouple.
- Broken safety control.

To remedy the problem, first check to see that the thermocouple lead is properly tightened in to the safety control head.

- 1) Check all safeties (figure 1).
- 2) Using a  $\frac{3}{8}$ " wrench, ensure the thermocouple lead is properly tightened in to the body of the safety control, a  $\frac{1}{4}$  turn after finger tight will ensure a proper connection (figure 1). **Overtightening will damage the control.** Check that the lead tip is not corroded, clean it if necessary with emory cloth.
- 3) Light the pilot burner. If the pilot burner stays lit, then the problem was a loose connection at the thermocouple.



figure 1



figure 2



figure 3



figure 4

### THE THERMOCOUPLE LEAD IS TIGHT BUT THE PILOT BURNER WILL NOT STAY LIT

Thermocouples require replacement as often as three months due to the extremely high temperatures in the combustion chamber of the Mongolian barbecue range. To change a themocouple, wait for the unit to cool. Then:

- 1) Using a  $\frac{3}{8}$ " wrench, remove the thermocouple from the control (figure 2).
- 2) Using a  $\frac{7}{16}$ " wrench, remove the old thermocouple from the pilot assembly. Replace with a new thermocouple by threading the collar into the safety pilot burner assembly. Install the thermocouple in to the pilot burner. When installing a new thermocouple in the pilot be sure to thread the adjusting collar up to the top of it's travel (figure 2).
- 3) After the thremocouple is installed at the pilot burner, thread the brass fitting in to the safety body. It should be snug- a  $\frac{1}{4}$ " turn after fighter tight is reccommended. **Overtightening will damage the control.** Light pilot.



## TRUBLESHOOTING, CONTINUED

**THE THERMOCOUPLE WAS REPLACED AND IS PROPERLY TIGHTENED BUT PILOT BURNER WILL STILL NOT STAY LIT CHANGE THE SAFETY HEAD**

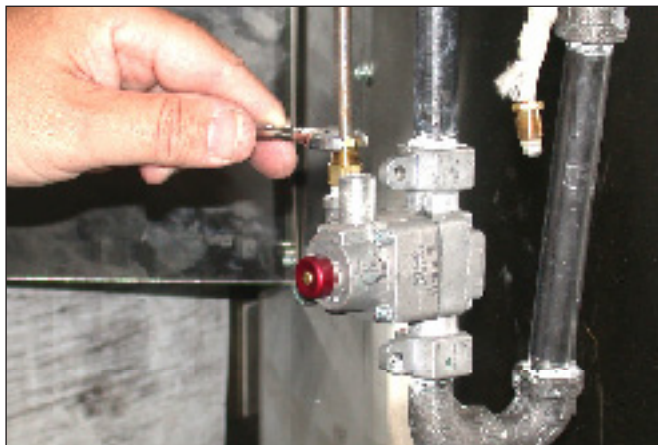
IF ALL ELSE FAILS, CHANGE THE HEAD ON THE SAFETY CONTROL

**This procedure should only be performed by a qualified gas service mechanic.**

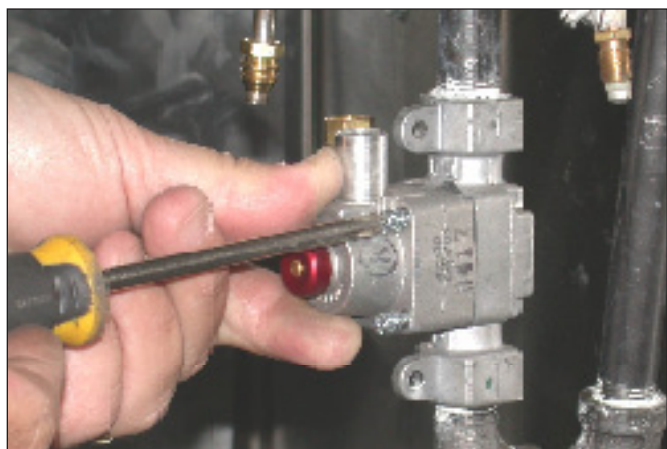
**Gas to the unit must be shut off before implementing this procedure.**



1) Using a 3/8" wrench, remove the brass thermocouple fitting from the safety control



2) Using a 7/16" wrench, remove the brass fitting from the pilot gas line



3) Remove the screws from the safety head



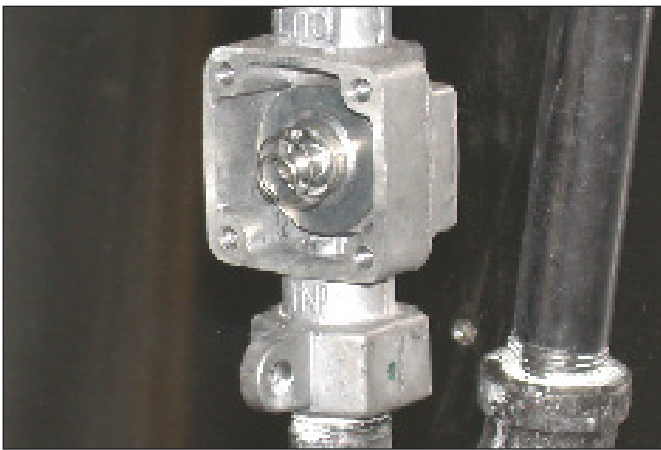
4) Remove the safety head



5) Remove brass adaptor safety head and install on the new head



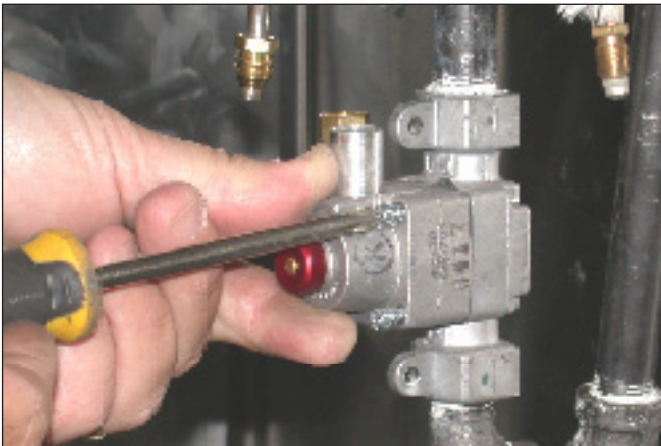
6) Remove and replace the spring/magnet assembly



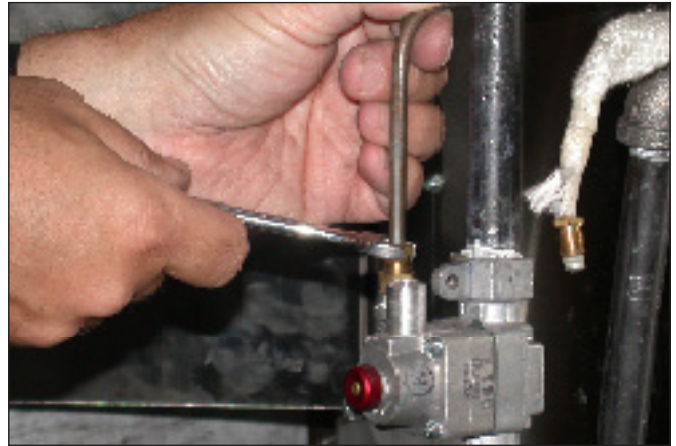
7) New spring/magnet assembly installed



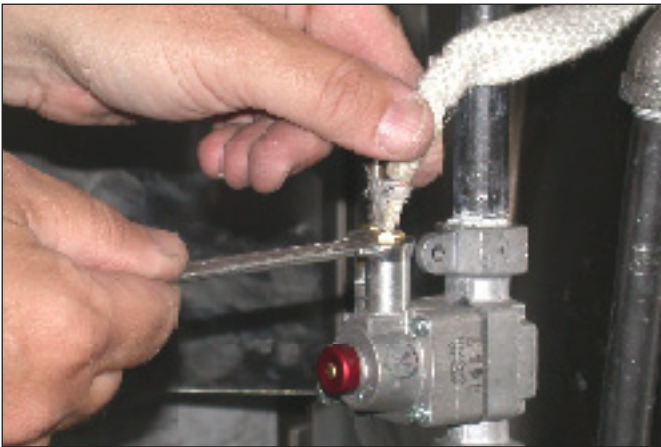
8) Install the new safety head with the new gasket provided. Clean old gasket material first.



9) Mount the safety head and replace the screws



10) Carefully thread the brass fitting from the pilot gas line into the body and tighten using a 1/4" wrench.



11) Thread the thermocouple fitting into the body by hand. When you can no longer tighten by hand, use a 3/8" wrench to make snug. A 1/4" turn after finger tightening is recommended. Do not overtighten as it will damage the control. Turn on gas, check for leaks, and relight pilot.



## INSTALLING A NEW THERMOCOUPLE

- 1) Check that the proper gas orifice is installed in the pilot. The pilot ships with a natural gas orifice installed, a propane orifice is also supplied. Be sure the orifice is tight before installing the thermocouple. The "L" pilot, orifice and thermocouple are pictured in figure 1.
- 2) Hand tighten nut so thermocouple is snug to top stop. The top stop and threaded lock nut are pictured in figure 2.
- 3) After the thermocouple is installed, insert the pilot tubing into the orifice compression fitting. Push the tube end up as far as possible. Tighten the compression fitting with a wrench. The pilot tubing and 1/4" compression fitting are pictured in figure 3.
- 4) Tighten compression fitting until top crimp snaps off; then tighten an additional 1/4 turn (figure 4) If everything has been installed correctly, pilot flame should resemble figure 5.

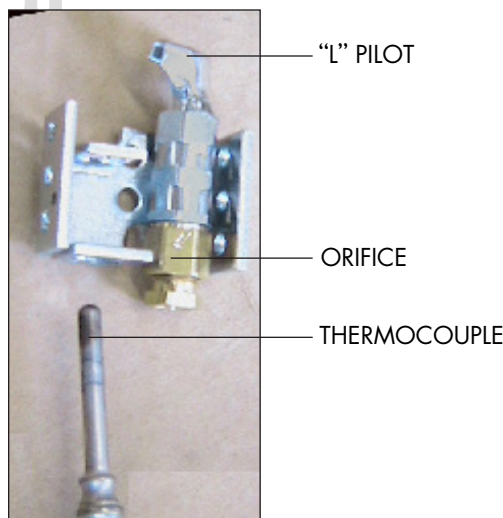


figure 1

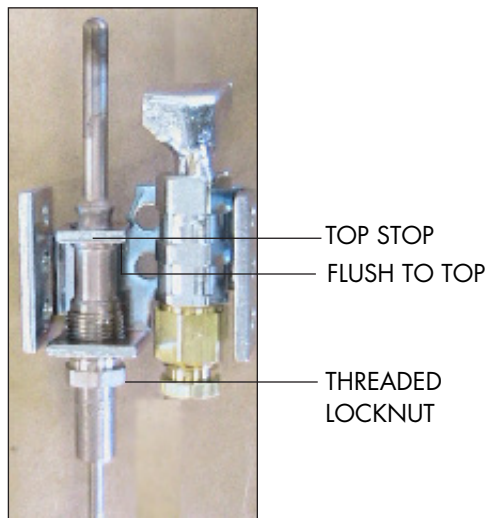


figure 2

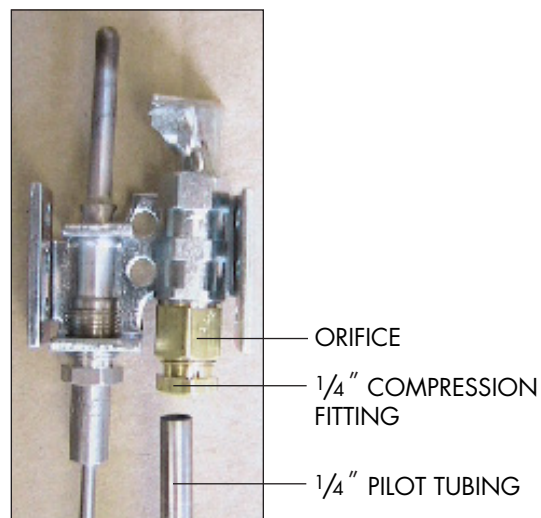


figure 3

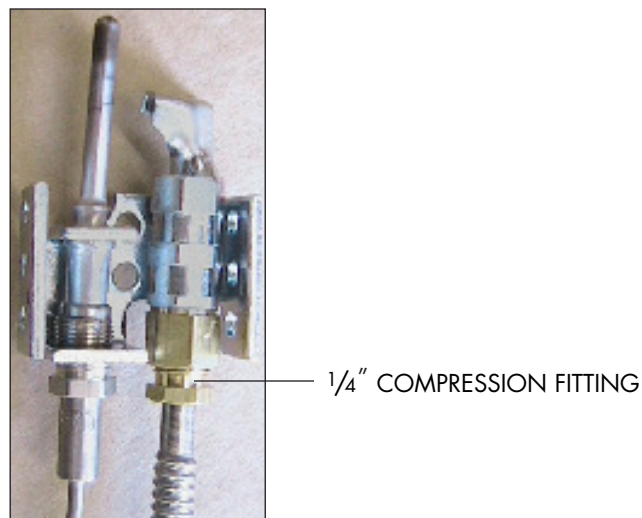


figure 4



figure 5



1720 (TS)

**ELECTROMAGNET  
REPLACEMENT KIT  
TS AUTOMATIC SAFETY VALVES  
FOR MODEL 1710 BODY TYPES  
#9, 10, 11 AND 12 ONLY**

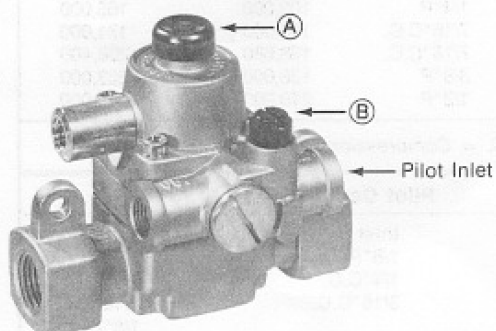
1. Turn off all gas supply to equipment being serviced.
2. Disconnect thermocouple. Note location and direction of thermocouple connection.
3. Disconnect pilot gas tubing on models with a pilot inlet and/or outlet.
4. Remove the four Phillips head screws that attach magnet head to valve body. Discard these screws.
5. Remove and discard the following:
  - A. Magnet head assembly
  - B. Diaphragm (Note: Not all models have this thin metal piece.)
  - C. All gaskets
  - D. Main valve — Also discard valve spring on flow interruption models.
6. Install new kit parts as follows:
  - A. Valve and spring assembly, with large end of spring against top of valve.
  - B. Gasket — position gasket to align with mounting surface on valve body.
  - C. Replacement Magnet Head, with thermocouple connection matching location on old head. **NOTE:** Be certain valve spring contacts bottom of magnet stem.
7. Start four new Phillips head screws and tighten them evenly.
8. If model has pilot inlet and/or outlets, select correct fittings and connect pilot line(s).
9. Reconnect thermocouple.
10. Turn on gas supply and leak test.
11. Extinguish pilot flame and check for proper valve closing and gas shutoff.

**CAUTION**

THIS DEVICE SHOULD BE INSTALLED BY A QUALIFIED SERVICE TECHNICIAN WITH DUE REGARD FOR SAFETY, AS IMPROPER INSTALLATION COULD RESULT IN A HAZARDOUS CONDITION.

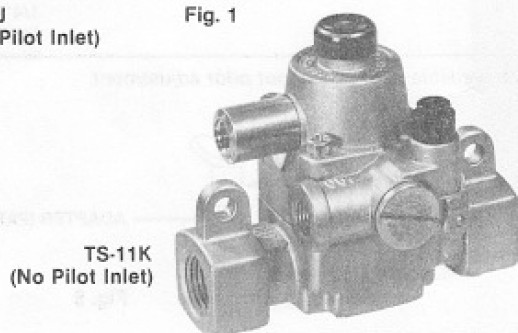


# "TS" - Series Thermomagnetic Safety Valves



TS-11J  
(With Pilot Inlet)

Fig. 1



TS-11K  
(No Pilot Inlet)

THE ROBERTSHAW "TS" SERIES THERMOMAGNETIC SAFETY VALVE is a control used to cut off the flow of gas to the burner in the event of pilot outage. The magnet assembly is energized by voltage generated by a thermocouple, that is heated by the pilot flame. When this flame is extinguished, the thermocouple voltage decreases until a spring overcomes the magnetic force and closes off both the pilot and main gas.

This control can be used for commercial and residential ovens, infra-red heaters, chicken and pig brooders, recreational vehicle gas appliances, and many more applications requiring automatic safety.

## Installation Instructions

### Piping

Make sure piping is clean and free from scale and burrs. Apply a small amount of good quality pipe thread compound suitable for the type gas being used. Thread compound should be used sparingly and on male threads only, leaving the first two threads clean.

Thread compound should never be used on female threads as it may be pushed into the valve body.

### Thermocouple

The thermocouple nut should be started and turned all the way in by hand. An additional quarter turn with a small wrench will then be sufficient to seat the lock washer. CAUTION: DO NOT OVERTIGHTEN.



To avoid possible injury, fire and explosion, please read and follow these precautions and all instructions on appliance. This bulletin is intended as a guide to qualified servicemen installing or servicing Robertshaw Controls.

As the manufacturer of the control, we recommend repair and adjustments be limited to the operations listed, which our experience shows are practical service operations.

1. Installation or servicing of gas appliances or controls must be performed by qualified personnel.
2. Shut off gas ahead of control at line valve or meter before starting installation or servicing.
3. When using L.P. gas, caution must be taken to ensure that no raw gas is present in the surrounding area before attempting to put appliances into operation. L.P. gas is heavier than air. Sniff *at floor level* for presence of gas. If present, do not attempt to light pilot. In changing from natural to L.P. gas, or vice versa, burner and pilot orifices must also be changed.
4. DO NOT connect appliance before pressure testing gas piping. Damage to the gas valve may result, causing a hazardous condition.
5. DO NOT use this control if it has been exposed to water through immersion, dripping, etc. It may be damaged and must be replaced.
6. DO NOT insert any object other than suitable pipe or tubing in the inlet or outlet of this control. Internal damage may occur and result in a hazardous condition.
7. DO NOT grip control body with a pipe wrench or vice. Damage may result, causing gas leakage. Use inlet or outlet bosses, or special body wrench.
8. A drip leg must be provided in the supply line to the control (see Fig. 2). All piping must comply with applicable codes and ordinances and with the National Fuel Gas Code (ANSI Z223.1/NFPA, No.54).
9. After installation or servicing, check valve operation and automatic pilot valve shut off.
10. Leak test with soap solution after installation or servicing with main burner "on" and "off". Coat pipe and tubing joints, gaskets etc. with soap solution. Bubbles indicate leaks that must be corrected.
11. DO NOT allow lint or dust to collect in burner area. Keep all combustible materials away from gas appliances.
12. If control fails to turn off, shut off gas at line valve or meter.





## Procedure for Lighting

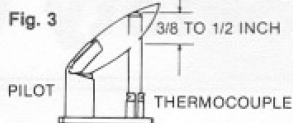
1. Wait five minutes to allow gas which may have accumulated in the burner compartment to escape.
2. Depress red button and light pilot (Fig. 1, A).
3. Hold red button approximately one-half minute then release. If pilot does not remain lit, repeat operation allowing longer period before releasing reset button. (Adjust pilot if necessary as noted under "Pilot Burner Adjustment.")

### Pilot Burner Adjustment

(On models equipped with pilot adjustment key)

NOTE: If cap is sealed adjustment has been made at the factory.

1. Remove Pilot Adjustment Cap (Fig. 1, B).
2. Turn Pilot Key to provide properly sized flame (Fig. 3).
3. Replace Pilot Adjustment Cap.



## Replacing Magnet Housing Assembly

See Fig. 4.

1. Close gas supply at line valve or meter.
2. Disconnect thermocouple.
3. Disconnect pilot tubing.
4. Remove four Phillips screws.
5. Remove: A. Magnet Housing Assembly (note thermocouple position).  
B. Gasket  
C. Valve spring  
D. Valve assembly

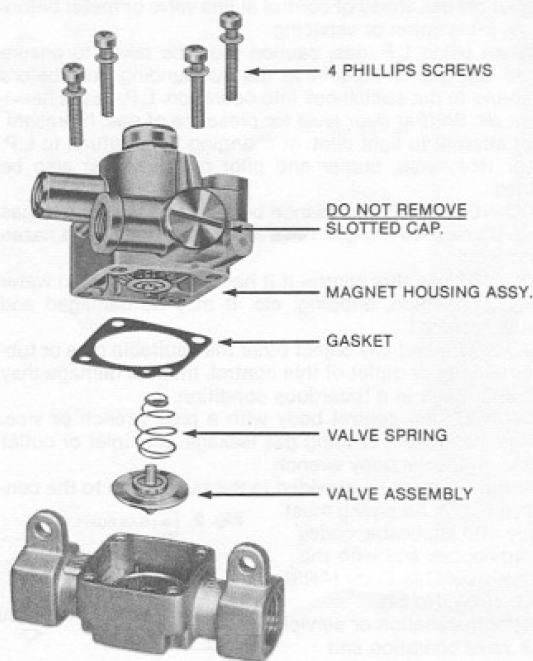
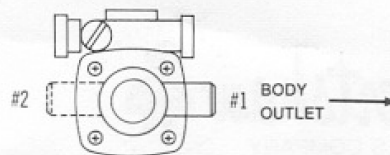


Fig. 4

6. Clean valve seat with soft, lint-free cloth.
7. Install new valve assembly, valve spring, gasket and magnet housing assembly. Make sure valve spring engages magnet stem.
8. Reconnect pilot tubing and thermocouple.
9. Follow Leak Test procedure on page 1, item 10.

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Thermocouple connections available on TS-11J & K in positions shown above.

Body Sizes		Capacities (BTU/HR @ 1" W.C.P.D.)	
Inlet	Outlet	Natural Gas	L.P. Gas
1/4" P	1/4" P	102,000	165,000
7/16" C.C.	7/16" C.C.	106,000	171,000
3/8" P	7/16" C.C.	128,660	208,400
3/8" P	3/8" P	138,000	223,000
1/2" P	1/2" P	210,000	340,000

P = Pipe, C.C. = Compression Coupling

Pilot Connections		
Model	Inlet	Outlet
J	1/8" P	1/8" P
J	1/4" C.C.	1/4" C.C.
J	3/16" C.C.	3/16" C.C.
K		1/8" P
K		1/4" C.C.
K		3/16" C.C.

Above available with or without pilot adjustment.

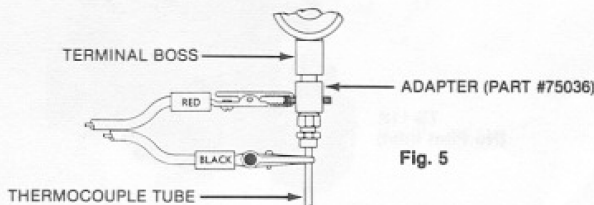


Fig. 5

## Troubleshooting

**Problem: Pilot will not stay lit.**

1. Check for drafts.
2. Check if pilot has sharp blue flame. If not, clean pilot orifice.
3. Pilot flame should heat 3/8" of tip of thermocouple (See Fig. 3). If not, adjust pilot flame (See Pilot Burner Adjustment).
4. Make sure thermocouple is tightened snugly into safety valve. (Finger tight plus 1/4 turn with wrench).
5. Make sure main burner flame is not heating thermocouple.
6. (See Fig. 5). Test magnet and thermocouple as follows:
  - A. Unscrew thermocouple nut from safety valve. Screw adapter (Robertshaw part #75036) into thermocouple opening.
  - B. Screw thermocouple nut into adapter. Connect millivolt meter leads to adapter and thermocouple as shown. Light the pilot. Allow pilot flame to heat thermocouple three minutes. If meter then reads below five millivolts, replace thermocouple. If pilot will not stay lit, hold red button down during this test.
  - C. If pilot remains lit, blow it out and watch millivolt meter. The magnet should continue to hold for a drop of five millivolts or more. A "snap" can be heard when magnet releases. If magnet does not hold for a drop of at least five millivolts, replace entire valve, or magnet housing assembly (Fig. 4). Also, with main burner flame "ON", check to see if millivolt output is affected.

28-050-0067G 6/82

### **LIMITED WARRANTY**

Town warrants all ranges and smokehouses free from defects of workmanship or material for one (1) year from invoice date with the exception of safety pilot systems which are covered by a 90 day warranty. Safety pilot systems installed without drip legs are not covered by this warranty. Defective parts returned prepaid will be repaired or replaced subject to our inspection and returned freight collect. Mishandling or abuse of equipment or components is not covered by this warranty and repairs or replacement will be made at a nominal charge. Labor costs to return or replace parts in this equipment are the responsibility of the purchaser, as are proper installation and adjustments.



# **TOWN**

**FOOD SERVICE EQUIPMENT CO., INC.**



72 Beadel Street Brooklyn, NY 11222  
718/ 388-5650 outside New York State 800/ 221-5032 facsimile 718/ 388-5860  
[www.townfood.com](http://www.townfood.com)