

VULCAN

SERVICE MANUAL

GAS RESTAURANT RANGE MG 12, 24, 36, 48 AND 60

MODEL

| | |
|-------------|-----------------|
| <i>MG12</i> | <i>ML-52549</i> |
| <i>MG24</i> | <i>ML-52514</i> |
| <i>MG36</i> | <i>ML-52522</i> |
| <i>MG48</i> | <i>ML-52523</i> |
| <i>MG60</i> | <i>ML-52524</i> |



IMPORTANT FOR YOUR SAFETY

THIS MANUAL HAS BEEN PREPARED FOR PERSONNEL QUALIFIED TO INSTALL GAS EQUIPMENT, WHO SHOULD PERFORM THE INITIAL FIELD START-UP AND ADJUSTMENTS OF THE EQUIPMENT COVERED BY THIS MANUAL.

POST IN A PROMINENT LOCATION THE INSTRUCTIONS TO BE FOLLOWED IN THE EVENT THE SMELL OF GAS IS DETECTED. THIS INFORMATION CAN BE OBTAINED FROM THE LOCAL GAS SUPPLIER.

IMPORTANT

IN THE EVENT A GAS ODOR IS DETECTED, SHUT DOWN UNITS AT MAIN SHUTOFF VALVE AND CONTACT THE LOCAL GAS COMPANY OR GAS SUPPLIER FOR SERVICE.

FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

WARNING

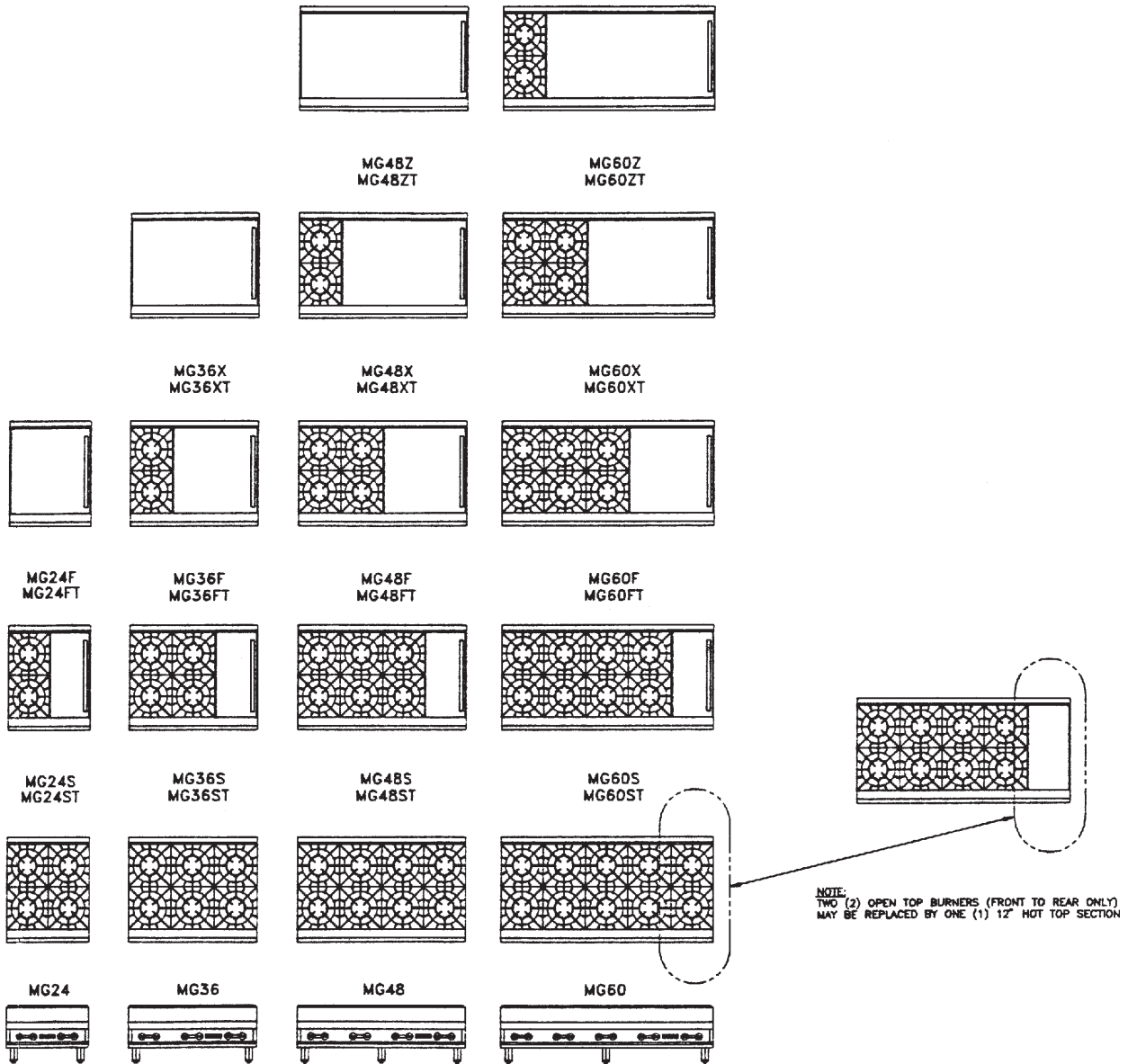
IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION OR MODIFICATION, SERVICE OR MAINTENANCE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH. READ THE INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.

IN THE EVENT OF A POWER FAILURE, DO NOT ATTEMPT TO OPERATE THIS DEVICE.

TABLE OF CONTENTS

| | |
|--|----|
| MG SERIES GAS RESTAURANT MODULAR RANGE MODELS | 4 |
| SERVICE NOTATIONS | 5 |
| SERVICE | 5 |
| CHECKS AND ADJUSTMENTS | 5 |
| ORIFICE SIZE REQUIREMENTS FOR DIFFERENT ELEVATIONS | 7 |
| PILOT LIGHTING AND ADJUSTMENTS | 8 |
| Hot Top and Griddle Top Burners | 8 |
| Open Top Burners | 8 |
| GRIDDLE THERMOSTAT ADJUSTMENTS | 10 |
| Bypass Adjustments | 10 |
| Temperature Calibration | 11 |
| REGULATOR CHECK | 12 |
| REGULATOR ADJUSTMENT | 14 |
| REGULATOR INSTALLATION | 15 |
| GRIDDLE THERMOSTAT CHECKS AND CALIBRATION | 16 |
| GRIDDLE THERMOSTAT REPLACEMENT | 16 |
| TOP SECTION PILOT CHECK | 18 |
| TOP SECTION PILOT REPLACEMENT | 18 |
| PILOT ADJUSTMENT VALVE REPLACEMENT | 18 |
| TOP SECTION BURNER VALVE AND NOZZLE CHECK | 19 |
| TOP SECTION BURNER VALVE AND NOZZLE REPLACEMENT | 19 |
| SERVICE AND PARTS INFORMATION | 19 |

MG SERIES GAS RESTAURANT MODULAR RANGE MODELS



FRONT VIEWS

PL-40044-1

MODEL SUFFIX DESIGNATIONS

S - 12" Griddle
F - 24" Griddle
X - 36" Griddle

Z - 48" Griddle
T - Thermostatic Control

SERVICE NOTATIONS

1. The procedures outlined in this manual are to be performed **only by Vulcan-Hart authorized service representatives.**
2. **An authorized Vulcan-Hart service representative** is one who is familiar with Vulcan equipment and who has been endorsed by Vulcan-Hart Company to service the equipment. All authorized service personnel are required to stock a minimum amount of parts and should be equipped with a complete set of wiring diagrams, service and parts manuals covering all Vulcan-Hart equipment.
3. For all field conversion service installation procedures, refer to the Installation and Operation manual (supplied with the equipment).
4. The rating plate, stating model no., serial no., gas type, and voltage, is located on the inside of the lower kick panel.
5. Use caution when servicing this equipment. Some service testing is required while the range is in operation. During these test procedures, **DO NOT** leave the range unattended, and exercise caution during all testing operations.

WARNING: THE RANGE AND ITS PARTS ARE HOT. BE VERY CAREFUL WHEN OPERATING, SERVICING OR CLEANING THE RANGE.

SERVICE

CHECKS AND ADJUSTMENTS

The following is a list of simple checks and adjustments. Perform these checks and adjustments for relevant symptoms before the removal of any major parts or controls. Any service related questions for these ranges can be answered by contacting Vulcan-Hart Company at the phone number shown on the front of this manual.

Checks

1. Check the rating plate and verify that the gas type and pressure rating are correct.
2. Ensure that all ranges and main gas supply lines are properly connected.

Adjustments

1. Legs

Tools Required: Carpenter's level, channel locks.

If the cooked product seems to be lopsided, check the leveling of the modular range. Place a carpenter's level across the range top and level the range from front to back and from side to side.

To adjust the leveling of the range, tilt the range to one side, and using channel locks, unscrew the adjustable leg insert as required. Repeat this procedure as necessary for each leg.

2. Pilot Flame Height

Tools Required: Standard flat blade screwdriver.

To adjust pilot flame height of the top burners, locate the pilot adjustment screws found on the front manifold pipe. It is not necessary to remove the manifold cover, as adjustment access holes have been provided in the panel. With screwdriver, turn the adjustment screw of the pilot valve experiencing the pilot flame height problems (Fig. 1). Rotate the screw clockwise to decrease and counterclockwise to increase the flame height.

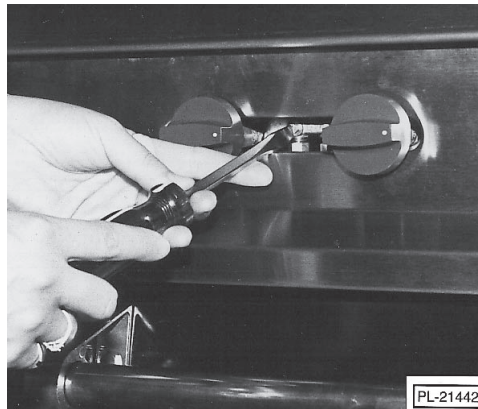


Fig. 1

3. Air Shutter Adjustment

Tools Required: Standard flat blade screwdriver.

The efficiency of the top burners depends upon a delicate balance between the air supply and the volume of gas. Whenever this balance is disturbed, poor operating characteristics and excessive gas consumption will occur.

The gas/air balance is controlled by an air shutter on the front of the top burner. A yellow streaming flame on the burner is an indication of insufficient air. To correct this condition, loosen the screw locking the shutter into position. Rotate the air shutter open until the burner flame begins to lift from the burner, then close the shutter slightly down again and lock it into place (Fig's. 2 & 3).

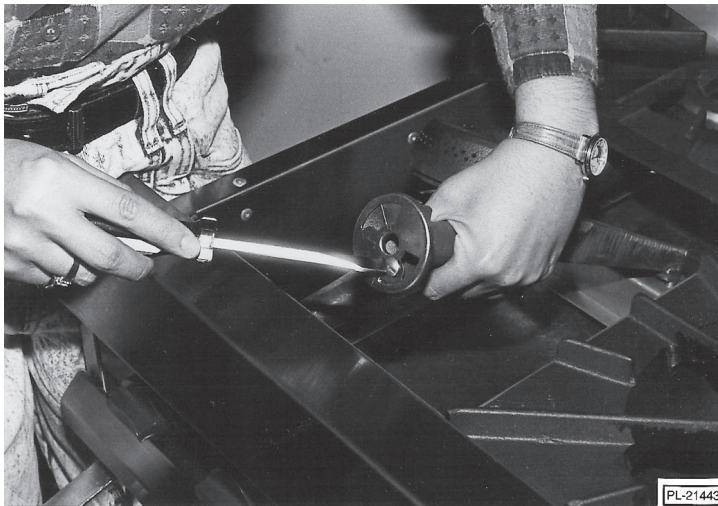


Fig. 2



Fig. 3

ORIFICE SIZE REQUIREMENTS FOR DIFFERENT ELEVATIONS OF MODULAR AND STEP-UP RANGES

| | OPEN TOP | SAUTE' STEP-UP | HOT TOP | GRIDDLE |
|---------------------------|----------|-------------------|---------|---------|
| INPUT AT SEA LEVEL | 20,000 | 26,000 | 20,000 | 15,000 |
| ORIFICE SIZE | NAT/LP | NAT/LP | NAT/LP | NAT/LP |
| SEA LEVEL TO 2,000 FT. | 44/55 | 41/53 | 44/55 | 48/55 |
| 2,000 FT. TO 4,000FT. | 45/55 | 42/54 | 45/55 | 49/58 |
| 4,000 FT. TO 6,000 FT. | 46/56 | 43/54 | 46/56 | 50/60 |
| 6,000 FT. TO 8,000 FT. | 47/57 | 44/55 | 47/57 | 51/63 |

PILOT LIGHTING AND ADJUSTMENTS

Although pilot lighting procedures are to be performed by both installation and operation personnel, only installation/service personnel should attempt to make any pilot or burner adjustments to this range. Operation personnel are authorized only to perform procedures for pilot lighting. All adjustment procedures associated with pilot lighting must be performed **by an authorized Vulcan-Hart installation or service person**. While performing these procedures, do not turn burner valves ON with burner heads removed.

Hot Top and Griddle Top Burners

1. Turn main gas supply ON.
2. Wait 30 seconds, and using a taper, light the hot top or griddle top pilot.
3. If pilot fails to light, turn main gas supply OFF. Wait 5 minutes and repeat the above procedures.
4. Turn one hot top or griddle top burner valve ON to remove air from the gas line. Turn burner valve OFF when gas begins to flow.

Hot Top and Griddle Top Pilot Burner Adjustments

Tools Required: Standard flat blade screwdriver.

After pilot is lit, adjust pilot burner flame, if necessary, by rotating the adjustment screw of the pilot valve located on the manifold pipe (see Fig. 1).

1. Turn burner ON. Burner flame should appear on burner head within a second.
2. Rotate the screw clockwise to decrease and counterclockwise to increase the flame.

Nightly Shutdown: Turn burner valve OFF; pilot will remain lit.

Complete Shutdown: Turn burner valve OFF; pilot will remain lit. Turn main gas supply OFF; pilot goes out.

Open Top Burners

1. Turn main gas supply ON.
2. Wait 30 seconds, and using a taper, light the open top pilot (Fig. 4).



Fig. 4

3. If pilot fails to light, turn main gas supply OFF. Wait 5 minutes and repeat the above procedures.
4. Turn one open top burner valve ON to remove air from the gas line. Turn burner OFF when gas begins to flow.

Open Top Burner Adjustments

Tools Required: Standard flat blade screwdriver.

1. After pilot is lit, turn open top burners ON.
2. Adjust burner flame, if necessary, by rotating the adjustment screw of the pilot valve located on the manifold pipe (see Fig. 1). Rotate the screw clockwise to decrease and counterclockwise to increase the flame.

Nightly Shutdown: Turn burner valve OFF; pilot will remain lit.

Complete Shutdown: Turn burner valve OFF; pilot will remain lit. Turn main gas supply OFF; pilot goes out.

GRIDDLE THERMOSTAT ADJUSTMENTS

These procedures should be performed **only by a qualified Vulcan-Hart service representative.**

Bypass Adjustment

Tools Required: Thermometer test instrument (not of bi-metal or mercury type), standard flat blade screwdriver.

WARNING: DO NOT USE BI-METAL OR MERCURY THERMOMETERS WHEN TESTING FOOD EQUIPMENT OR PRODUCTS. CHEMICALS WITHIN THESE INSTRUMENTS MAY BE TOXIC IF EXPOSED TO FOOD.

1. Check the griddle temperature against the thermostat dial setting.

Place the thermocouple of the test instrument on the center of each individual griddle section. Each griddle section must be tested. Light the main burner by turning the thermostat to 500°F.

Allow at least 10 minutes for temperature to stabilize. Check reading against dial setting.

2. If out of calibration, turn the dial to the highest set temperature.
3. After 10 minutes, turn dial clockwise to the point slightly beyond first mark on dial (shown by an "X").
4. Remove the dial and sleeve (Fig. 5).
5. With a screwdriver, turn left-hand bypass adjuster screw counterclockwise to increase flame, clockwise to decrease flame, until the flame appears to be $\frac{1}{8}$ " over the entire burner area (Fig. 6).
6. Reinstall the sleeve and dial. Turn the dial clockwise until it locks into the OFF position.



Fig. 5



Fig. 6

Temperature Calibration

Tools Required: Thermometer test instrument (not of bi-metal or mercury type), standard flat blade screwdriver.

WARNING: DO NOT USE BI-METAL OR MERCURY THERMOMETERS WHEN TESTING FOOD EQUIPMENT OR PRODUCTS. CHEMICALS WITHIN THESE INSTRUMENTS MAY BE TOXIC IF EXPOSED TO FOOD.

1. Check the griddle temperature against the thermostat dial setting. Place thermocouple in center of each individual griddle section. Each griddle section must be tested.
2. Light the main burner by turning the thermostat to 500°F.
3. Allow griddle to heat until the burner flame is heard cutting OFF. Wait about 10 minutes until the burner flame has cycled ON and OFF several times. Then compare the test instrument reading with the dial setting. If the reading is within $\pm 15^\circ\text{F}$ of the dial setting, its calibration is correct. If reading is not within $\pm 15^\circ\text{F}$, then recalibrate by performing Steps 4 through 13.
4. Pull the dial straight off the dial shaft (see Fig. 5).
5. Using a screwdriver placed through the dial shaft, push the metal dial insert out of the dial (Fig. 7).

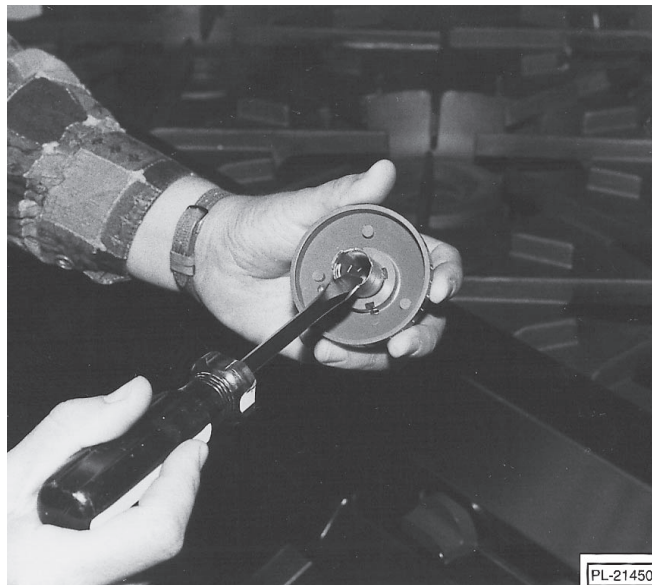


Fig. 7

6. Replace the dial back onto the range. Turn the dial to 400°F.
7. After the griddle has stabilized (at least 15 minutes), check the griddle temperature.

8. To recalibrate, hold the thermostat dial in place. Insert screwdriver into dial shaft to engage the calibration stem adjustment screw (Fig. 8). Push inward (do not turn stem).
9. While holding stem calibration screw in place, turn thermostat dial until it is set on the actual temperature shown by the testing device.
10. Release the calibration screw and reinstall the dial insert.
11. Set the dial to 450°F and recheck temperature reading every 5 minutes over a 15-minute period. If calibration is not within $\pm 15^{\circ}\text{F}$ of the dial setting, the thermostat must be replaced.



Fig. 8

REGULATOR CHECK

A regulator is installed on each range. When servicing this equipment for possible gas pressure problems, make the following visual checks first.

Make sure the regulator has been installed at the rear of the range with arrow pointing in the horizontal position in the direction of gas flow. The only exception to this rule is if the outlet pressure of the range has been reset prior to this service call.

Then turn on the top burners. Observe the burner flames. If you notice the flames fluctuating, perform the following procedures.

Gas supply pressure must not be greater than $\frac{1}{2}$ psig (14" Water Column). All ranges should be installed utilizing an individual gas line shutoff valve. The range and its 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 $\frac{1}{2}$ psig (3.45 kPa). In addition, the range must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than $\frac{1}{2}$ psig (3.45 kPa), as stated by the American National Standard Z83.11 (latest edition). Copies of this standard are available from The American Gas Association, 1515 Wilson Blvd., Arlington, Virginia 22209.

A leak limiter is supplied with every regulator to limit gas leakage if regulator rupture occurs. Do not obstruct leak limiter on gas pressure regulator as obstruction may cause regulator to malfunction.

Tools Required: Manometer, flat blade screwdriver, 6" adjustable wrench, slip joint plier or pipe wrench.

1. Connect the manometer to the pressure tap provided on the manifold pipe near the regulator (Fig. 9).

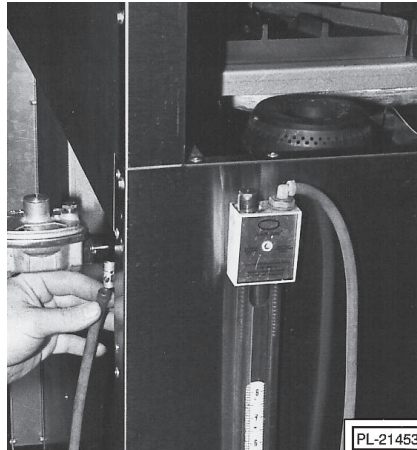


Fig. 9

2. With only two open top burners ON, note the manometer reading. The reading should be 3.7" Water Column for natural gas ranges and 10.0" Water Column for propane gas ranges. If readings taken are lower, check the incoming line pressure. The line pressure should never drop below 5.0" Water Column for natural gas or 11.0" Water Column for propane gas.

If line pressure is incorrect, it must be adjusted in order to properly operate the range. If the line pressure is good, then the regulator requires adjustment (refer to procedures for regulator adjustment).

If, after the regulator adjustment has been made, the 3.7" Water Column (natural gas) or 10.0" Water Column (propane gas) still is not being maintained, replace the regulator.

3. With the regulator now reading 3.7" Water Column (natural gas) or 10.0" Water Column (propane gas), turn two open top burners ON.
4. Recheck the pressure reading. The reading should not fluctuate more than $\pm .10$ ". If reading is not within tolerance, replace the regulator.

When the burners are OFF, if the pressure reading climbs to an outlet regulator pressure stated in Step 2, check the regulator vent for obstruction (Fig's. 10 & 11).

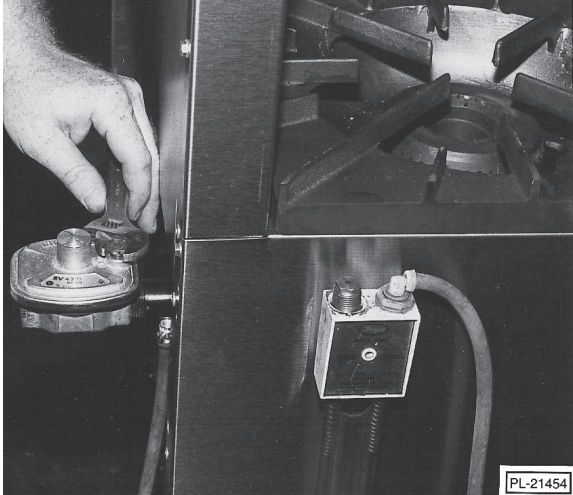


Fig. 10



Fig. 11

Check also for gas leak at vent. If vent is leaking gas, replace the regulator.

REGULATOR ADJUSTMENT

Tools Required: Flat blade screwdriver, manometer, and 6" adjustable wrench.

Before making a regulator adjustment, always verify that the incoming line pressure is correct. The required incoming minimum line pressure for the modular range series is 5.0" Water Column for natural gas and 11.0" Water Column for propane gas. If the line pressure is not correct, it must be corrected or the range will not operate properly or achieve proper regulator adjustment. Also, the regulator must be attached to the range in the horizontal position with the arrow pointing in the direction of the gas flow (Fig. 12).

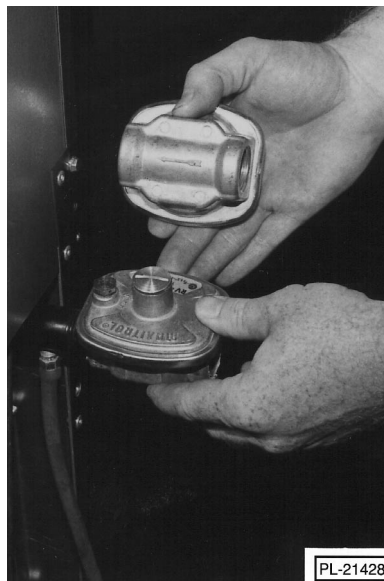


Fig. 12

1. Connect the manometer to the pressure tap provided on the rear manifold pipe (see Fig. 9).
2. Check the reading. The reading should be 3.7" Water Column for natural gas and 10.0" Water Column for propane gas.
3. If reading is incorrect and the proper line pressure has been verified, then adjust the regulator. Using a standard flat blade screwdriver, remove the regulator adjustment cap (Fig's. 13 & 14).

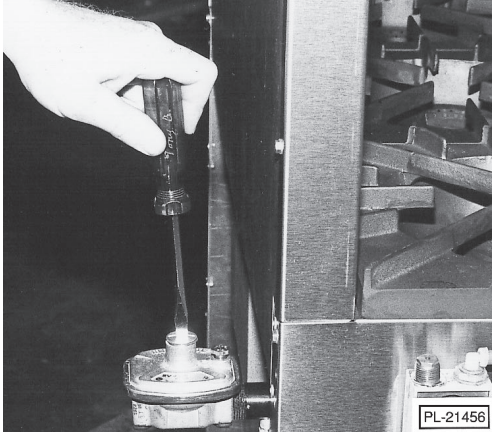


Fig. 13

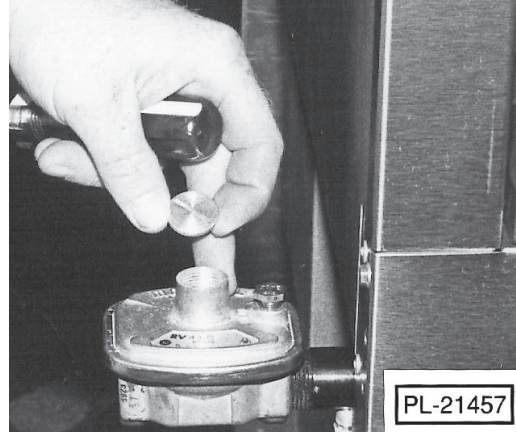


Fig. 14

4. Insert the screwdriver into the adjustment shaft and turn the adjustment stop while watching the manometer until the correct pressure reading is achieved. Clockwise rotation of the stop increases pressure; counterclockwise rotation decreases pressure.
5. After resetting the pressure to the correct setting, reinstall the adjustment cap and remove the testing equipment.

REGULATOR INSTALLATION

Tools Required: Slip joint plier or pipe wrench.

The pressure regulator must be attached to the range in the horizontal position with the arrow pointing in the direction of gas flow, unless at some point in time the regulator has been recalibrated (see Fig. 12).

1. Turn main gas supply OFF.
2. Remove old regulator.
3. Wrap the manifold pipe threads of the insulating end with pipe thread sealant.
4. Install new regulator as indicated above.
5. Turn main gas supply ON and check regulator connections for gas leakage using a soap and water solution. If no leaks are found, return range to full operation. If leak is detected, turn main gas valve OFF and eliminate leakage.

GRIDDLE THERMOSTAT CHECKS AND CALIBRATION

Refer to GRIDDLE THERMOSTAT ADJUSTMENTS in this manual for the procedures for checking and calibrating the thermostat for the griddle.

GRIDDLE THERMOSTAT REPLACEMENT

Tools Required: Pipe wrench, 6" adjustable wrench, 1/8" flat blade screwdriver, 5/16" socket, and socket wrench.

1. Disconnect range gas supply and allow range to cool.
2. Tilt the front of the griddle up and carefully slide the capillary bulb from the Y-shaped mounting guides on the underside of the griddle assembly (Fig. 15).



Fig. 15

3. Remove griddle assembly.
4. Remove burner valve knobs (Fig. 16).
5. Remove (4) screws holding the control panel in place.
6. Remove burner and pilot tubing (Fig. 17).



Fig. 16

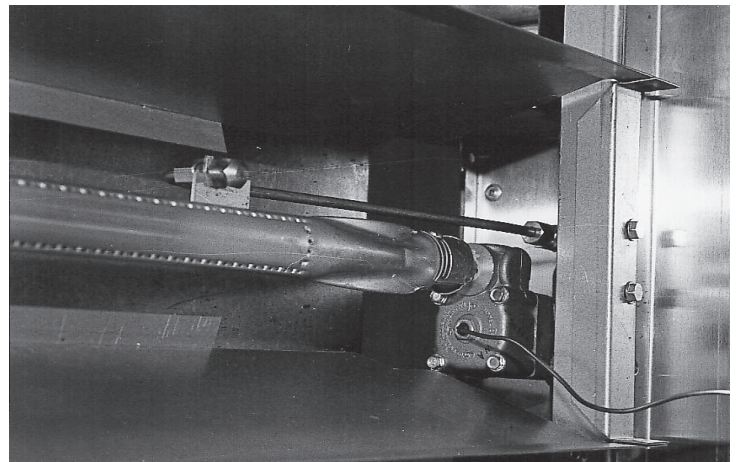


Fig. 17

7. Unscrew the thermostat from the manifold pipe (Fig's. 18, 19, & 20).

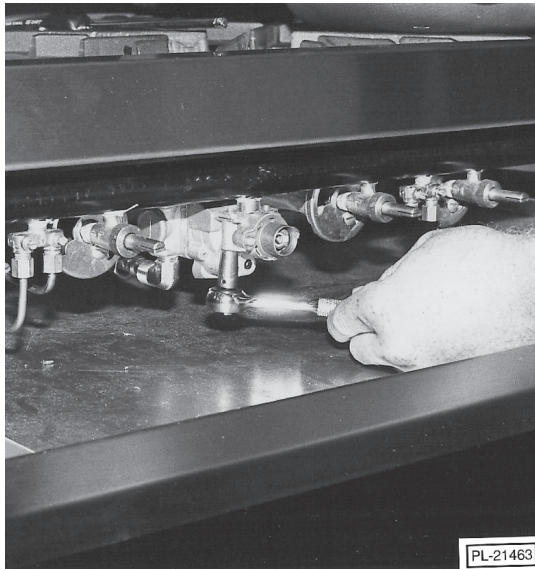


Fig. 18

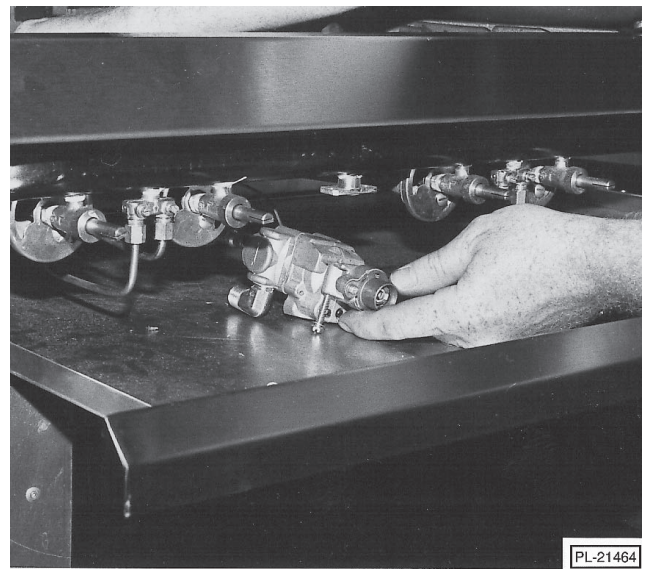


Fig. 19

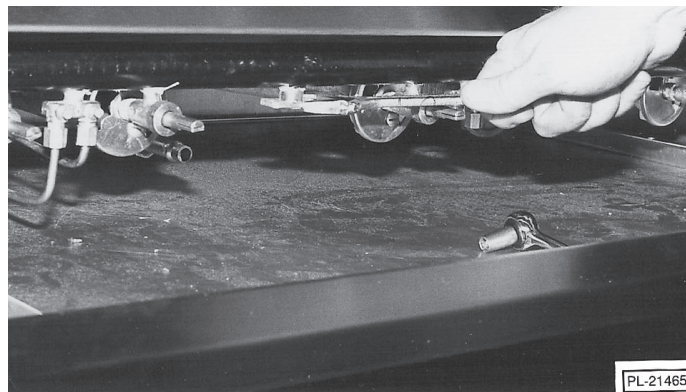


Fig. 20

8. Replace thermostat mounting block. Place pipe joint compound on the threaded end of the new thermostat mounting block to be installed onto the range.
9. Install the new thermostat by reversing Steps 1 through 7 above.

Do not kink the new capillary line when installing new thermostat. Using a soap and water solution, test the thermostat for gas leak after installing.

TOP SECTION PILOT CHECK

If all other systems have been checked and pilot will not stay lit, cleaning or replacement of pilot may be necessary.

TOP SECTION PILOT REPLACEMENT

Tools Required: $\frac{7}{16}$ " open end wrench.

1. Disconnect range from main gas supply and allow range to cool.
2. Remove pilot from pilot tube.
3. Check pilot for blockage.
4. If blockage is found, clean pilot tip and replace or install new pilot tip.
5. If blockage is not found but pilot appears to be malfunctioning, check pilot tube and pilot adjustment valve for obstructions.

PILOT ADJUSTMENT VALVE REPLACEMENT

Tools Required: $\frac{7}{16}$ " open end wrench, pipe wrench or a 6" adjustable wrench.

1. Disconnect range from main gas supply and allow to cool.
2. Disconnect pilot tubing (Fig. 21).

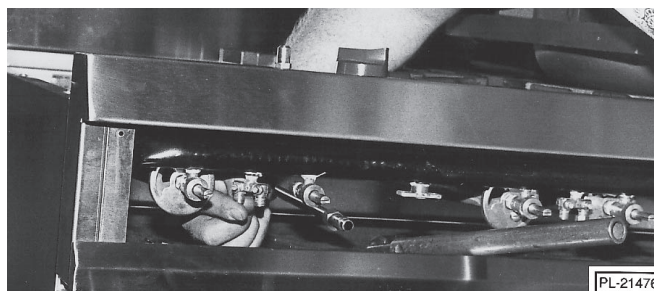


Fig. 21

3. Remove valve from range manifold.
4. With pipe thread sealant covering the threads, install new pilot valve by reversing Steps 1 through 3.

TOP SECTION BURNER VALVE AND NOZZLE CHECK

After a long period of use on the range, the top section burner valve can show signs of wear. Check valve for gas leakage and sloppy valve control. Check also for valve nozzle blockage or damage.

TOP SECTION BURNER VALVE AND NOZZLE REPLACEMENT

Tools Required: ½" open end wrench, 6" adjustable wrench or standard pipe wrench, ¼" socket and socket driver.

1. Disconnect main gas supply and allow to cool.
2. Remove control panel cover and top grates or griddle section.
3. Remove and check valve and valve nozzle for obstructions and damage.
4. Remove obstruction, or if necessary, replace nozzle or entire valve. When reinstalling, or if the installation of a new valve is required, be sure to use pipe thread sealant on the threaded end which engages the manifold pipe.

SERVICE AND PARTS INFORMATION

To obtain additional service and parts information concerning the MG Series Gas Restaurant Modular and Step-up Range, contact the Vulcan-Hart Service Depot in your area (refer to listing supplied with this range), or Vulcan-Hart Company Service Department at the address or phone number shown on the front cover of this manual.

