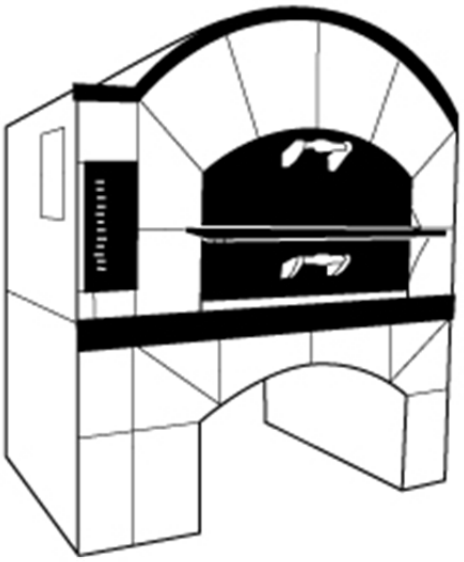
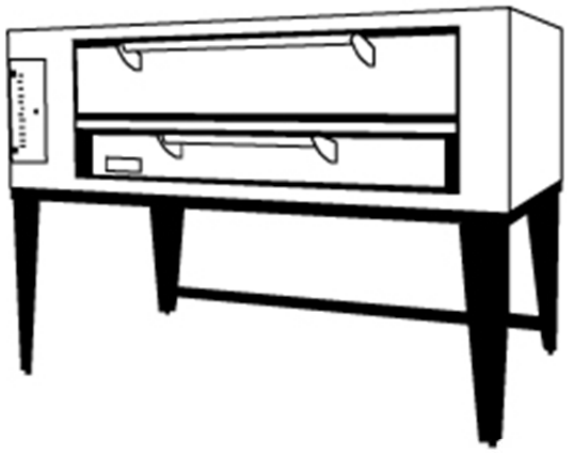
MARSAL
PIZZA OVENS

OVEN SERVICE MANUAL

Marsal Deck Ovens: **MB42, MB60, MB236, MB866, SD236, SD248, SD260, SD448, SD660, SD1048, SD1060, SD866, SD10866, WF42, WF60**







RETAIN THIS MANUAL FOR FUTURE REFERENCE

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TESTING OF COMPONENTS

AUTOMATIC SAFETY PILOT VALVE (TSII) #55127

Pilot gas is supplied from the main valve inlet through a drilled passageway to the pilot burner. Pushing the red reset button temporarily allows gas to flow to the pilot burner for ignition of the pilot burner flame. When the bulb heats up, the main valve opens to allow gas to flow to the main burner. The red reset button is then released.

If the pilot burner flame fails and cannot be reactivated the following test can be performed:

- Pilot burner adjustment: Refer to section on Page 3
- Clean Pilot burner's limiting orifice as follows:
    1. Disconnect gas tubing at the pilot burner body
    2. Remove cup shaped orifice from pilot burner body
    3. Clean orifice by blowing any foreign matter out the orifice hole. Take care not to enlarge orifice hole.
    4. Replace components in reverse order. If the pilot burner still does not operate or the main burner comes with a low flame, or will not come at all, replace the Automatic Safety Pilot Valve (TSII)

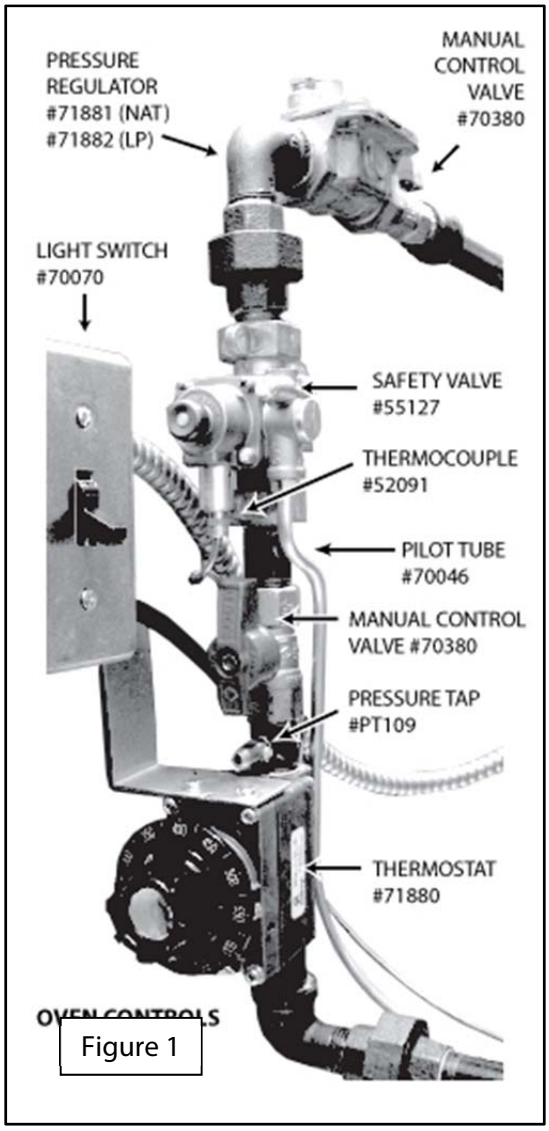


Figure 1

MAIN MANUAL CONTROL VALVE #70380

The main manual control valve is a simple ball valve. Due to its simplicity, failures of this type of valve are practically non-existent. For difficulties associated with this control, it would be best to replace the valve.

THERMOSTAT FDTH #71880

For any suspected thermostat problems the following procedures should be reviewed in this manual:

- Thermostat adjustment
- Bypass (Minimum Burner Flame) adjustment.
- Thermostat calibration. Most thermostat failures will generally fall into one of the following three categories:

1. If thermostat is in a runaway condition and will not shut off at set temperature, replace the thermostat.

2. If thermostat will not maintain calibration after adjustment, replace thermostat.

3. If thermostat bulb or capillary are cut, bent, or unnecessarily flattened, replace thermostat.
   (This is NOT covered under the warranty!)

MAINTENANCE INSTRUCTIONS

ADJUSTMENTS

Many malfunctions attributed to defective material or faulty workmanship may be rectified by the adjustment of pilot burners, main burners, or thermostats. It is therefore wise to attempt to correct operational difficulties *through adjustment rather than the immediate replacement of parts*.

PILOT BURNER ADJUSTMENT #70101

A commonly diagnosed malfunction of the safety pilot valve is the pilot burner/flame sensing bulb relationship resulting from:

- **Improper draft**
- Low gas pressure. **(Natural Gas 4.5"WC – Propane Gas 11"WC)**
- Clogged pilot burner orifice from dirt and debris from unpurged gas lines.
- Incorrect adjustment of pilot burner flame.

When working correctly, the flame must engulf the safety pilot probe tip

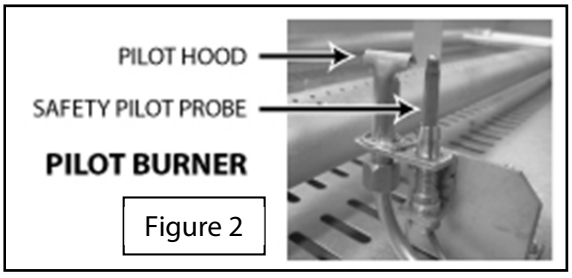


Figure 2

MAIN BURNER ADJUSTMENTS

Satisfactory oven performance and burner life are dependent on correct burner adjustment. Before shipment, burners have been adjusted for proper operation with the type specified on the rating plate located inside the control compartment above the light switch. If further adjustment is necessary proceed as follows:

- Adjust primary air shutter at the front of the burner compartment to obtain a stable and quiet flame.
- If too much primary air is present, flames will lift from the burner parts. A reduction in primary air will correct this condition.
- Too little primary air will cause yellow tipping or an entire yellow flame to appear. This condition indicates incomplete combustion and may cause carbon sooting to appear on metal parts near the flame.
- When a flame raises off the burner it is important to determine if it is a “lifting flame” or a “floating flame”:
    - “Lifting flames” rise from the ports to burn some distance above the ports. In some cases these flames will drop back to the port and lift again intermittently. They are caused by too much primary air. Decreasing the shutter opening will stop lifting flames.
    - “Floating flames” are long and lazy in appearance, poorly defined, quiet flames which roll around the combustion chamber sometimes completely off the ports. Floating flames result from too little secondary air. Lack of secondary air is caused by incorrect venting, clogged flueways, blocked secondary air inlet openings, or lack of natural room makeup air to the oven.

BYPASS (MINIMUM BURNER FLAME) ADJUSTMENTS

A Robertshaw FDTH 300° - 650° F (149° - 343° C) type thermostat is used. This is a throttling type gas thermostat with bypass flame adjustment control. For bypass adjustment proceed as follows:

1. Preheat oven to 500° F (260° C). When thermostat has throttled to bypass the glame on the main burner should have decreased to a flame no larger than 1/8” (6mm)
2. If flame is too high, remove dial, insert screwdriver in screw marked “B” on the thermostat and turn screw clockwise to lower flame.
3. If flame is too low, remove dial, insert screwdriver in screw marked “B” on the thermostat and turn screw counterclockwise to increase flame.

THERMOSTAT CALIBRATION

1. Attach pyrometer lead to thermostat bulb in the baking compartment. If a pyrometer is not available, place a reliable mercury type oven thermometer in the center of the baking deck (Approximately 1" above the surface).
2. Preheat the oven to at least 400° F (204° C).
3. When the burner reaches bypass or minimum flame, take the temperature reading.
4. If the temperature is within 10° F (6° C) of the thermostat setting, do not change the thermostat settings.
5. If the temperature differs more than 10° F (6° C) from the thermostat setting, adjust the thermostat as follows:
    A. Pull thermostat dial straight off without turning.
    B. Hold calibration plate on thermostat and loosen the two calibration lock screws until the plate can be moved without moving the control.
    C. Turn calibration plate so that pyrometer reading is set in line with the indicator mark at the 12 o'clock temperature variation will be 50° F (28° C) between letters. Adjust the calibration plate as follows:
        1. Turn calibration plate counterclockwise if pyrometer or thermometer reading is higher than the dial reading OR clockwise if the pyrometer or thermometer reading is lower than the dial reading.
        2. Hold calibration plate and tighten two screws firmly.
        3. Replace dial.

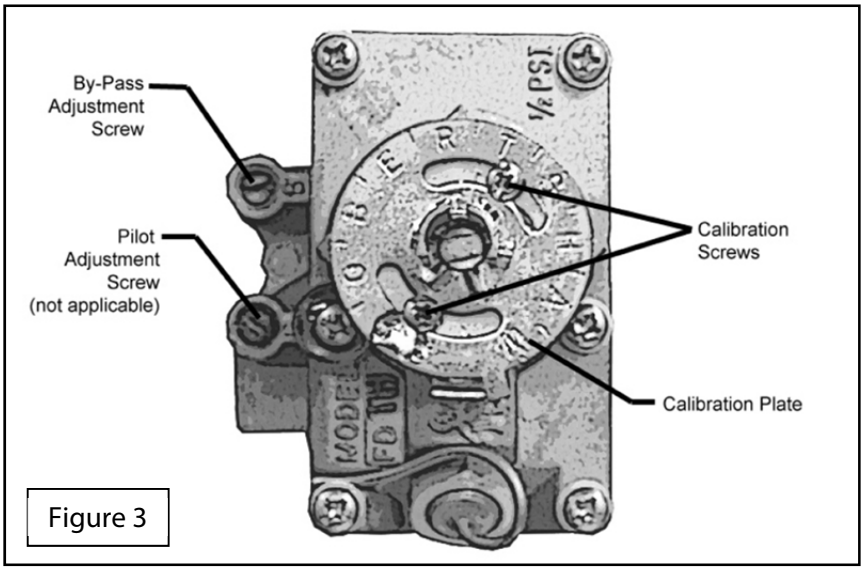


Figure 3

MAINTENANCE INSTRUCTIONS

MAIN BURNER REMOVAL

1. Open combustion compartment door.
2. Remove the burner door by removing its hinges.
3. Remove the heat shields by removing the three screws that hold it together.
4. Remove the two screws that hold the pilot burner to the bracket.
5. Move the entire pilot burner assembly with capillary and pilot gas tubing forward out of work area.
6. Disconnect union at manifold.
7. Remove three (3) bolts which hold the burner assembly to the floor of the burner compartment and remove the tee support for the flame deflectors.
8. Replace burners in replace order from removal.

PILOT BURNER REMOVAL: #70101

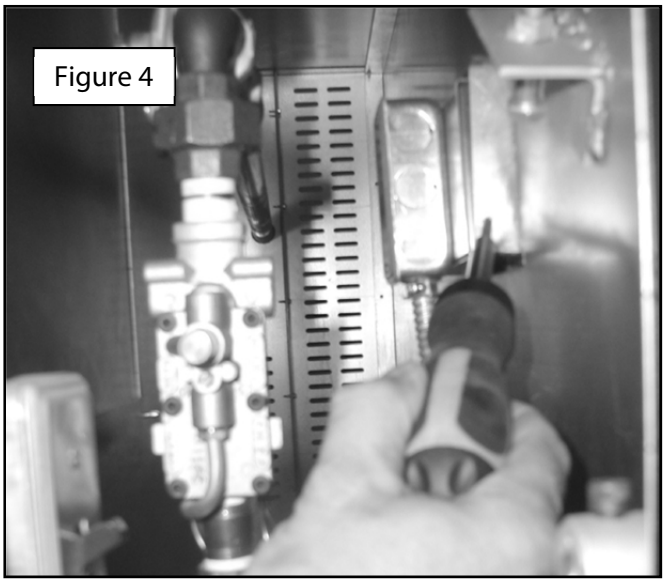
1. Open combustion compartment door.
2. Remove the burner door by removing its hinges.
3. Remove the heat shields by removing the three screws that hold it together.
4. Remove the screw that holds the pilot burner to the bracket.
5. Remove the capillary bulb.
6. Disconnect gas supply tubing from pilot burner.
7. Replace pilot burner in reverse order from removal.

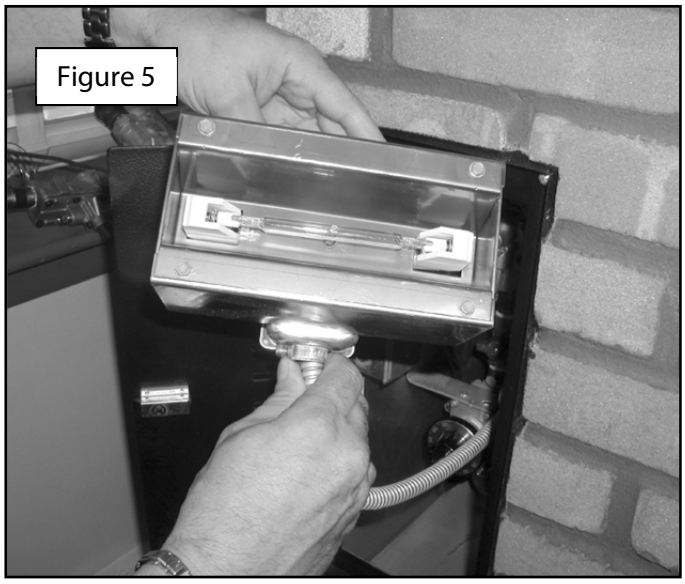
OVEN LIGHT BULB REMOVAL (MB SERIES ONLY) CAUTION!! Parts will be hot!

GLASS #70019 – LIGHT BULB #70071 – BULB HOLDER #71893

1. Open the control door and remove the screw located at the back of the light box (Figure 4 on next page).
2. Remove the light box out through the control door (Figure 5 on next page).
3. Remove the light bulb and replace with new bulb. (**ONLY USE 100W 120VAC or 500W 240 VAC BULBS!)**

MARSAL OFFERS A 500W 240 VOLT BULB THAT IS ALMOST THE SAME ILLUMINATION AS A 100W BUT MORE DURABLE.


Figure 4


Figure 5

GAS CONTROL AND PIPING CONTROL STACK ASSEMBLY REMOVAL

1. Open baking compartment door and remove thermostat bulb from the top of the chamber. Slide the capillary tube to the left and into the control door area.
2. Disconnect pilot tubing at safety valve on control stack.
3. Disconnect the thermocouple from the safety valve.
4. Disconnect upper and lower unions on control stack.
5. Pull control stack assembly forward.
6. Replace control stack in reverse order from removal.

AUTOMATIC SAFETY PILOT VALVE, MAIN MANUAL CONTROL VALVE, AND THERMOSTAT REMOVAL

1. Remove Control Stack Assembly (see above).
2. Remove respective control from Control Stack Assembly.
3. Replace new control and other components in Control Stack Assembly in reverse order.

ATTENTION: THE TSII SAFETY VALVE CAN BE REPLACED BY REPLACING THE HEAD ONLY, LEAVING THE BODY STILL ATTACHED TO THE CONTROL STACK ASSEMBLY.

PRESSURE REGULATOR REPLACEMENT #71881 (N) OR #71882 (P)

The pressure regulator is located just above the control stack in the control compartment. Before replacement, gas service to this point must be shut off before disconnecting.

OPERATIONAL DIFFICULTIES & POSSIBLE CAUSES

TROUBLESHOOTING

FIRST THING'S FIRST!

- **<u>Check the diameter of your gas connections. Flex lines or hard plumbing *MUST BE* ¾" or bigger.</u>**
- **<u>A stainless steel flue pipe *MUST BE* installed on all ovens that are venting into a hood.</u>**
- **<u>A draft diverter *MUST BE* installed on all ovens being directly vented into the ceiling.</u>**

PROBLEM	POSSIBLE CAUSES
PILOT BURNER GOES OUT	1. Pilot thermocouple not in center of flame. 2. Poor draft conditions snuff out flame (no flue pipe). 3. Too much draft pulls the flame away from thermocouple. 4. Air from fans or register blowing at front of oven. 5. Pilot flame too low. 6. Pilot orifice is dirty. 7. Thermocouple is defective. 8. Safety pilot valve defective. 9. Gas leak at pilot orifice fitting.
BURNER FAILS TO COME ON WHEN PILOT IS ON	1. Burner valve off located just above the thermostat. 2. Safety valve defective. 3. Thermostat out of calibration. 4. Thermostat is defective. 5. Burner orifice is plugged.

OVEN BURNER WILL NOT THROTTLE DOWN OR GETS TOO HOT	1. Broken capillary tube on thermostat. 2. Oven thermostat out of calibration. 3. Minimum bypass flame too high (lower to 1/8") 4. Dirt under thermostat valve seat. 5. Thermostat defective.
TOO MUCH BOTTOM HEAT	1. Underdrafting or overdrafting (pulling heat out of the oven). 2. Temperature too low. 3. Improper calibration or gas pressure.
NOT ENOUGH TOP HEAT	1. Overdrafting (pulling heat out of the oven). 2. Oven temperature too low.
OVEN WILL NOT KEEP UP AT BUSY TIMES OR THERE IS UNEVEN COOKING	1. Gas pressure too low. 2. Insufficient gas volume due to too small gas supply lines. 3. Additional gas regulators installed. 4. Poor draft conditions. 5. Too much draft pulling heat out of the ovens. 6. Air from fans or register blowing at front of oven.
SOOTING IN BAKING OR BURNER CHAMBER	1. Air shutter space is too small. There must be a 1/8" – 3/16" space. 2. Air shutter is clogged with flour dust. Clean the air shutter opening with a knife or brush.