



INSTRUCTION MANUAL

OVENS

CW41 CW61 CW100 C131
CW51 2324 2348

NEW STANDARD LIMITED PARTS & LABOR WARRANTY

Peerless products are guaranteed against manufacturing defects for a period of one year from date of installation. The warranty period begins after professional installation and covers both parts and labor. Excluded from this warranty are any claims related to items that should have been performed at the time of installation such as: improper utility connections, poor methods of venting, checking of gas pressure and calibration of controls. Also excluded are normal maintenance items such as adjustments to pilots, burners and cleaning related issues.

When making a claim for warranty service, during a claim inspection by Peerless or its service representative, it is determined that the equipment has not been installed properly, used in an inappropriate manner, has been modified, has not been properly maintained, or has been subject to misuse, abuse or misapplication, neglect, accident, damage during transit, fire, flood, riot or act of God, then this warranty shall be void. Pizza Stone decks are not covered by this warranty.

IF REPLACEMENTS PARTS ARE NEEDED,
be sure to give the model number when ordering,
including prefix and suffix letters.



Intertek



Intertek

CONGRATULATIONS on your selection of this piece of cooking equipment. Over the years we have developed what we consider the finest equipment on the market today.

Please read these instructions before attempting installation. Set up and start up should be performed by a qualified service man (a person experienced concerning the installation of commercial gas cooking equipment), or all the terms and conditions in our Limited Warranty will be rendered void. If in doubt call the factory for the nearest Service Agency.

CAUTION

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

KEEP THE APPLIANCE AREA FREE AND CLEAR FROM COMBUSTIBLES.

Retain this manual for future reference.

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, 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 PRESSURE TESTING

1. The oven and its individual shut off 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" psig (3.45KPA).
2. The oven must be isolated from the gas supply piping system by closing its individual manual shut off valve during any pressure testing at the gas supply piping system at test pressures equal to or less than 1/2" psig (3.45KPA).

WARNING!!!

For an appliance equipped with casters, instructions that (1) shall be made with a connector that complies with the Standard for *Connectors for Movable Gas Appliances, ANSI Z21.69 – CSA 6.16*, and a quick disconnect device that complies with the Standard for *Quick Disconnect Devices for use with Gas Fuel, ANSI Z31.41 – CSA 6.9*, (2) adequate means must be provided to limit the movement of the appliance without depending on the connector and the quick disconnect device or its associated piping to limit the appliance movement and (3) the location(s) where the restraining means may be attached to the appliance shall be specified.

INSTALLATION INSTRUCTIONS MODELS – CW SERIES

The installation must conform with local codes, or in the absence of local codes, with the National Fuel Code, *ANSI Z223.1/NFPA 54*, Or the *National Gas and Propane Installation Code, CSA B149.1-LATEST EDITION*.
(ALL MODELS)

These models are designed certified for use on Natural or Propane gases.

The appliance should be connected ONLY to the type of gas for which it is equipped. All equipment is adjusted at the factory. Check type of gas on the serial plated in the compartment below the oven door.

1. Place oven in desired location and level, using adjustable legs. Then properly tighten lock nuts. Refer to “Set up” Instructions.
2. Install draft hood or flue deflector whichever is supplied with the unit. If a flue deflector is supplied, unit must be placed under a ventilation hood.

NOTE: On all threaded connections the pipe joint compound must be approved for using on Natural and Propane gases.

3. Canopies are set over ovens for ventilation purposes. A strong exhaust Fan may create a vacuum in the room and may interfere with the burner performance or may extinguish the pilot flames. In case of unsatisfactory performance, check with the fan “OFF”.

All units must be installed in such a manner that the flow of combustion and ventilation air are not obstructed. Provisions for an adequate air supply must also be provided. Do not obstruct the front of the unit just below the oven door, as air for combustion enters here.

Minimum clearance for combustible & non combustible construction.

6” from sides

6” from rear

No additional clearance from the side and back is required for service, as the units are serviceable from the front.

4. Legs and Handles have been packed inside the oven. The handle has Two $\frac{1}{4}$ - 20x2" bolts which mount thru two holes in the oven door. Legs screw into the pads under the unit.
5. Install pressure regulator supplied with ovens. An adequate gas supply is imperative, so that a manifold pressure of 4" WC for Natural gas and 10" WC for Propane units can be maintained with all units operating.
6. Check all connections for leaks using soapy water. Do Not use a flame of any kind.
7. To light pilot; open front access door, depress red button on the pilot safety valve and light pilot burner. Maintain pressure on red button for 30 to 45 seconds, then release. If pilot goes out, repeat above procedure.
8. Pilot flame must impinge on pilot safety valve sensing element in order for the unit to operate.
9. Necessary adjustments have been made at the factory; however, units should be checked at the place of installation to allow for local conditions.
10. Turn burner valve "ON" set thermostat to desired temperature, make sure burner ignites before leaving the room.
11. Set main burner air adjustment to obtain a clear blue flame.
12. During normal operation; if the pilot goes out, wait 5 minutes before attempting to re-light the oven. This allows any accumulated gas to dissipate.
13. To shut oven down, turn thermostat and oven burner valve to the "OFF" position. Disconnect gas supply after pilot has gone out. Repeat steps 6 through 10 to relight.

SET UP INSTRUCTIONS
ALL FLOOR MODEL OVENS

1. Uncrate Oven - Check to be sure owners manual, pressure regulator, handles and flue parts are packed inside.
2. Leg Installation - Mount legs on one side of the unit while blocked, (Refer to Figure 1.)
NOTE: Ovens can be lightened by removing shelves and baffles, if desired. Each leg has four mounting bolts, packed inside oven. After completing Step 1, proceed to the other two legs, (Refer to Figure 2.)

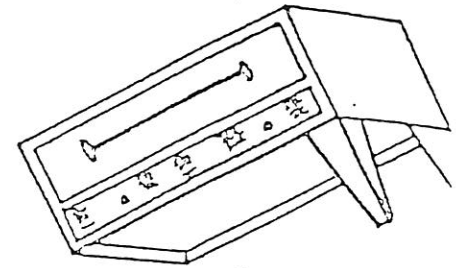


FIG. 1

3. Direct Vent - Install flue box, flue adapter and flue divertor on rear of oven, (Refer to Figure 3.) Hook 5" pipe to flue divertor which must vent outside. **WARNING:** Flue pipe must be higher than nearest roof peak, (Refer to Figure 4.)

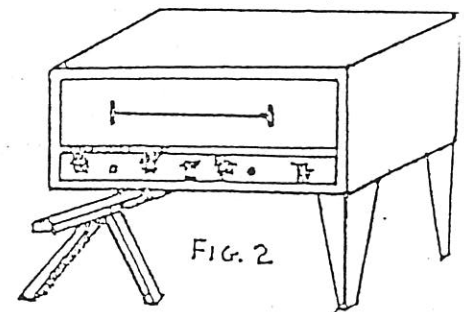


FIG. 2

Canopy vent - Install flue box and canopy shield on rear of oven, (Refer to Figure 5.)

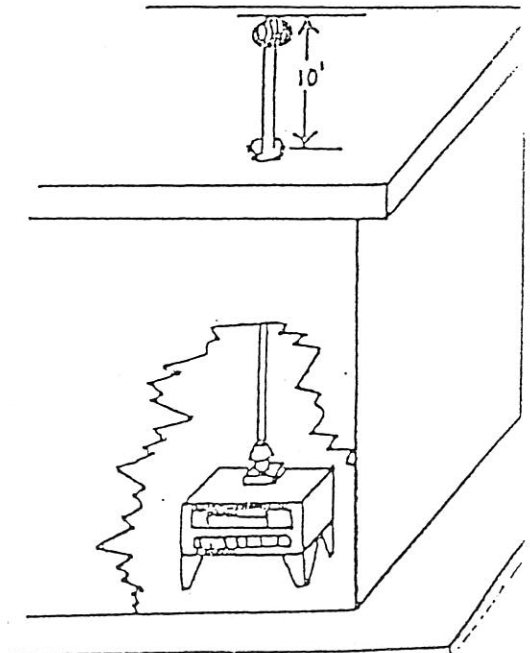
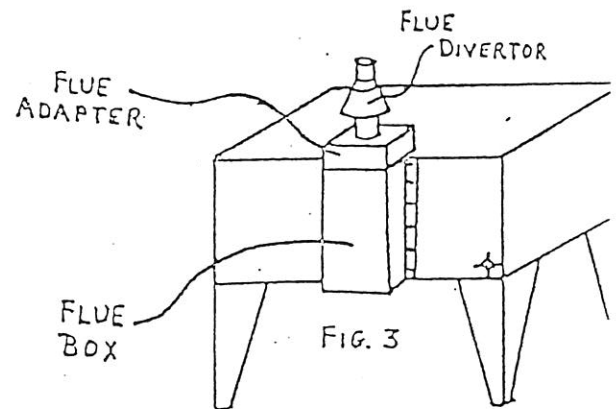
4. Gas connection - Install pressure regulator to lead in pipe, rear of oven.

CAUTION: The oven is piped with $\frac{1}{2}$ " IPS therefore supply line cannot be smaller. If using flexible hose be sure the inside diameter is $\frac{1}{2}$ " or larger.

5. Purge Air out of Gas Lines - Depress red button on Safety pilot and hold until pilot lights. Once lite, hold for 30 to 60 seconds for it to remain lit. If pilot goes out during this procedure, repeat. Once pilot is set, turn valve "ON"; turn thermostat dial to 350 and burner will ignite.

This oven is equipped with fixed orifices for the type of gas shown on name plate. If this does not agree orifice hoods will have to be changed.

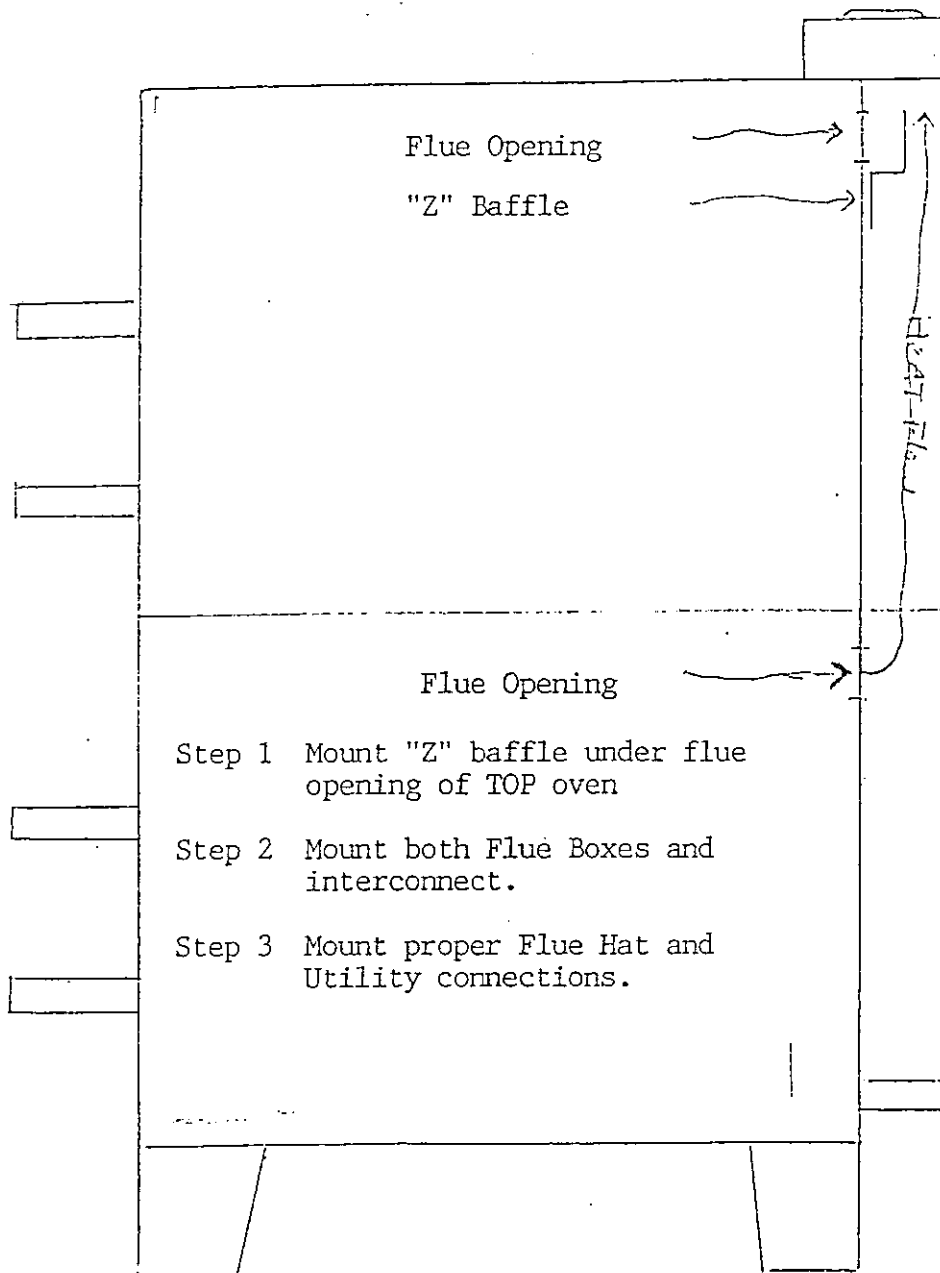
For proper flame manifold pressure must be checked. There is a $\frac{1}{8}$ " test plug in manifold pipe inside front panel. Tell the service man you want 4" water column for natural gas and 10" for propane. This should be done by an experienced gas man or licensed plumber.



ANSI Z 223.1 - 1984 REQUIREMENTS FOR PRESSURE TESTING

1. The oven and its individual shut off 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. (3.45KPA).
2. The oven must be isolated from the gas supply piping system by closing its individual manual shut off valve during any pressure testing at the gas supply piping system at test pressures equal to or less than $\frac{1}{2}$ " psig (3.45KPA).

Proper Flue Box connection for stacking units

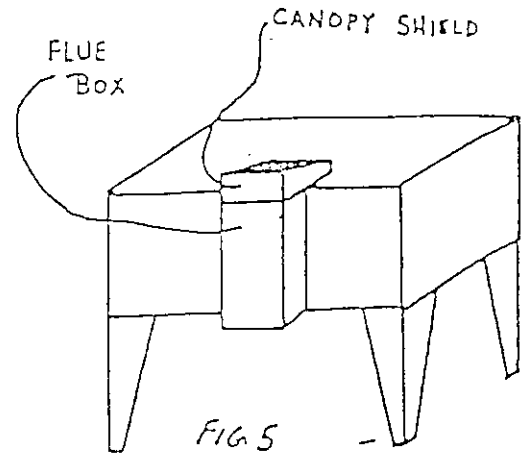


He can raise or lower pressure by adjusting the regulator.

LP OR PROPANE GAS

It is recommended you operate the oven at 550° at all times.

STACKING UNITS



Venting - Refer to Figures 3 and 5. Mount flue boxes on both ovens and connect. Flue boxes have been premounted at the factory for easy installation. Flue caps mount the same as single units, mount on top of oven.

Piping - Each oven has a $\frac{1}{2}$ IPS outlet located at the lower right corner, in the back, (Refer to Figure 3.) Each oven must be piped separately. Be sure to have a supply line large enough to handle both ovens.

NOTE: Screws holding burners down are for shipping purposes only.

Be sure to locate the "Z" Baffle and install it on the back of the top unit, before mounting flue box. This prevents the flue from the bottom oven from going into the top oven.

TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
Oven does not heat evenly, burns food on bottom, side or back.	Gas regulator not installed and manifold pressure not checked.	Recheck flow on diverter. install regulator and have gas man check pressure at front of oven at manifold. Check nameplate to see if oven is equipped for type of gas being used.
	Improper venting.	
Burner and pilot lite goes Out.	Too much gas pressure blows pilot out.	Check to make sure regulator has been installed and manifold pressure checked.
	Weak pilot flame.	Increase pilot flame to strong pilot.
	Clogged supply line to pilot.	Remove and clean line.
	Loose minipilot connection	Tighten.
	Inoperative minipilot.	Replace.
	Too much air, flame Lifting off burner.	Adjust air mixers.
Thermostat turns hard.	Dirty gas line has allowed scale and rust to enter thermostat.	Have qualified service man clean and lubricate with high temperature grease.
	High heat exposure.	Regrease-check venting system and gas pressure.
Main burner will not Come on.	Pilot out.	Relight.
	Improper adjustment.	Reset air adjustment.
	Safety pilot defective.	Replace.
Slow baking.	Recalibrate thermostat.	
	Oven not pre-heated.	See instructions.
Oven thermostat will Not cut down when <u>Desired</u> temperature reached.	Loss of fluid from thermostat capillary.	Replace thermostat.

TROUBLE SHOOTING GUIDE

Continued

<u>PROBLEM</u>	<u>CAUSE</u>	<u>REMEDY</u>
Burner gives orange flame.	Dirt in gas line and burner.	Clean line and/or clean out Burner.
Yellow flame.	Improper adjustment.	Reset air mixture.
Pizza is burnt.	Incorrect temperature Setting.	Lower thermostat setting.
	Left in too long.	Adjust timer setting.
	Thermostat out of Calibration	Re-calibrate thermostat. For instructions see Robert Shaw Field Service Bulletin. Section III
Uneven baked pizza	Insufficient heat impact.	Adjust thermostat to a Higher setting.
	Faulty pans- warped or Buckled.	Use even surface pans Only.
	Door has been opened to often.	Maintain proper operation Of oven.
	Uneven thickness of dough.	Improve stretching of Dough to an even Thickness.
	Overproofed dough.	Check instructions For making dough.

OPERATION INSTRUCTIONS

Before turning gas supply on, make sure all control valves are in the "OFF" position.

WARNING:

All adjusting and service should be performed by a person knowledgeable in making such adjustments. If in doubt, call the factory, the factory representative, or the local service company to perform maintenance and repairs.

LIGHTING AND SHUT DOWN PROCEDURES

1. Open access door, depress red button an safety valve and light pilot.
2. Hold button in for 30 to 45 seconds, then release. If pilot goes out wait 5 minutes and repeat procedure.
3. To adjust pilot flame, turn adjusting screw next to the rest button until desired flame is obtained. (Approximately $\frac{1}{2}$ " long).

NOTE: The lighting procedure is also inside lower access panel.

4. For daily shut down turn burner valve to the "OFF" position. For complete shut down turn burner valve "OFF" and extinguish pilots.

NOTE: Keep area surrounding oven free and clear of combustables. All units must be installed in such a manner that the flow of combustion and ventilation air are not obstructed. Provisions for an adequate air supply must also be provided. Do not obstruct the front of the unit just below the oven door, as air for combustion enters here.

NOTE: For the first half hour - the "BURN - OFF" will occur. This means the oven will smoke considerably. It is nothing but the oil coating on the steel parts. Allow good ventilation during this period.

For other important information concerning the operation of your oven, refer to the Robertshaw bulletins in this booklet.

(By-Pass, Calibration, etc.)

NOTE: Calibration is not covered by warranty.

SUGGESTED MAINTENANCE

DAILY

Wash all exposed cleanable areas.

MONTHLY

Clean around burner air mixer and pilot checking for accumulation of lint, dirt, or grease.

VENT SYSTEM

At least twice a year the unit venting system should be examined and cleaned.

OVEN INTERIOR

Clean by using a mild detergent and a brillo type pad. Clean spill over as soon as possible to avoid carbonizing.

OVEN EXTERIOR

Wipe with a dampened cloth and a mild detergent. Do not use abrasives on oven finish or it will scratch.

STAINLESS STEEL

To remove normal dirt, grease, detergent applied with a sponge or cloth. Dry thoroughly.

NOTE: Depending on the amount of use, the pilot and burner adjustments and the thermostat calibration should be checked periodically by a competent service man.

BAFFLES: Once or Twice a year, flip and/or rotate baffles for extended life.

PARTS REPLACEMENT INSTRUCTIONS

THERMOSTAT	Easily removed by, first, removing stainless steel lower door, which is fastened by two small screws to mounting flange. (See pg. 6) Use caution in removing capillary tube and wire. To replace, reverse procedure.
SAFETY PILOT	Has compression tube fittings on each end. Back out brass fittings, disconnect mini-pilot and lift out.
BURNER	Remove transite shelves and oven bottom. Unbolt pilot from cross arm. Lift burners up at rear of oven. Burner will slide back and off orifices at front.
REPLACE DOOR HINGE PINS	Plates are fastened to door frame. Remove screws and move door forward enough to slide hinge pin clear of frame. Insert new pin and put back into position. Drill new holes for screws to refasten.
COUNTER-BALANCED WEIGHTS	With door in closed position, open S/S lower door. Weights are visible, including cap screws that hold them in place. Remove screws releasing weights from door arms. Remove hinge pins as described above and door can be removed from oven.
TO CHANGE GAS TYPES	Contact Factory.

INSTALLATION INSTRUCTIONS MODELS - 2324 & 2348

The installation must conform with local codes, or in the absence of local codes, with the National Fuel Code, ANSI (LATEST ADDITION). These models are design certified for use on Natural or Propane gases.

The appliance should be connected ONLY to the type of gas for which it is equipped. All equipment is adjusted at the factory. Check type of gas on the serial plate on the bottom front of the oven.

1. Place the oven in desired location and level.
2. Venting: During installation, be sure the method of venting is correct, as explained below.

Direct - The oven is equipped with a 5" stamped hole in the top. A 5" vertical down draft diverter must be placed in the flue pipe, preferably on the oven and run the vent pipe from there. Once installed, a correct situation is a positive draft. Incorrect drafting is either excessive up draft or down draft. You can check for these conditions by disconnecting the flue for a short period of time to see if the condition goes away. If questions arise from there, call your local heating and ventilation specialist.

Canopy - A canopy vent is simply the oven installed under a hood. If a fan is being used in the hood, we recommend the use of our special "canopy vent cap". This piece is made to assure that the fan will not suck all of the heat out of the oven.

NOTE: On all threaded connections the pipe joint compound must be approved for using on natural and propane gases.

3. All units must be installed in such a manner that the flow of combustion and ventilation air are not obstructed. Provisions for an adequate air supply must also be provided. Do not obstruct the front of the unit just below the oven door, as air for combustion enters here.

MINIMUM CLEARANCE FROM COMBUSTIBLE & NON COMBUSTIBLE CONSTRUCTION.

6" from sides
6" from rear

No additional clearance from the sides and back is required for service, as the units are serviceable from the front.

4. Gas Connection: The oven connection is $\frac{1}{2}$ ". Never use a line smaller than $\frac{1}{2}$ " for your gas line. Check with your local utility company if questions arise. It is recommended you install a gas pressure regulator to assure constant pressure.
5. Check all connections for leaks using soapy water only. Do NOT use a flame of any kind.

6. Pilot flame must impinge on pilot safety valve sensing element in order for unit to operate.
7. Necessary adjustments have been made at the factory; however, units should be checked at the place of installation to allow for local conditions.
8. Turn burner valve "ON" and set thermostat to desired temperature. Make sure burner ignites before leaving the room.
9. Set main burner air adjustment to obtain a clear blue flame.
10. During normal operation: If pilot goes out, wait 5 minutes before attempting to relight oven. This allows any accumulated gas to dissipate.
11. To shut oven down: Turn thermostat and oven burner valve to the "OFF" position. Disconnect gas supply after pilot has gone out. Repeat steps 6 through 10 to relight.

NOTE: All adjusting and service should be performed by a person knowledgeable in making such adjustments. If in doubt, call the factory, the factory representative, or your local qualified Service Agency.

OPERATING INSTRUCTIONS

Before turning gas supply on, make sure all control valves are in "OFF" position.

WARNING: All adjusting and service should be performed by a person knowledgeable in making such adjustments. If in doubt, call the factory, the factory representative, or the local service company to perform maintenance and repairs.

LIGHTING AND SHUT DOWN PROCEDURES

1. Open access door, depress red button on safety valve and light pilot.
2. Hold button in for 30 to 45 seconds, then release. If pilot goes out, wait 5 minutes and repeat procedure.
3. To adjust pilot flame, turn adjusting screw next to the reset button until desired flame is obtained (approximately $\frac{1}{2}$ " long).

NOTE: The lighting procedure is also inside lower access panel.

4. Check entire system for leaks.
5. For daily shut down, turn burner valve to the "OFF" position. For complete shut down, turn burner valve "OFF" and extinguish pilots.

BURN OFF

NOTE: For the first half hour the "burn off" will occur. This means the oven will smoke considerably. It is nothing but the oil coating on the steel parts. Allow good ventilation during this period.

For other important information concerning the operation of your oven, refer to the Robertshaw Bulletins in this booklet (By-Pass, Calibration, etc.).

CALIBRATION

Is not covered by warranty.

TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
Oven does not heat evenly burns food on bottom, sides or back.	Gas regulator not installed and manifold pressure not checked.	Recheck flow on diverter. Install regulator and have gas man check pressure at front of oven at manifold. Check nameplate to see if oven is equipped for type of gas being used.
Burner and pilot light goes out.	Too much gas pressure blows pilot out.	Check to make sure regulator has been installed and manifold pressure checked.
	Weak pilot flame.	Increase pilot flame to strong pilot.
	Clogged supply line to pilot.	Remove and clean line.
	Loose mini-pilot connection.	Tighten.
	Inoperative mini-pilot.	Replace.
	Too much air, flame lifting off burner.	Adjust air mixers.
Thermostat turns hard.	Dirty gas line has allowed scale and rust to enter thermostat.	Have qualified service man clean and lubricate with high temperature grease.
	High heat exposure.	Regrease check venting system and gas pressure.
Main burner will not come on.	Pilot out.	Relight.
	Improper adjustment	Reset air adjustment.
	Safety pilot defective.	Replace.
Slow baking.	Recalibrate thermostat.	
	Oven not pre-heated.	See instructions.

TROUBLE SHOOTING GUIDE

continued

<u>PROBLEM</u>	<u>CAUSE</u>	<u>REMEDY</u>
Oven thermostat will not cut down when desired temperature is reached.	Loss of fluid from thermostat capillary.	Replace thermostat.

SUGGESTED MAINTENANCE

DAILY

Wash all exposed cleanable area.

MONTHLY

Clean around burner air mixer and pilot checking for accumulation of lint, dirt, or grease.

VENT SYSTEM

At least twice a year the unit venting system should be examined and cleaned.

OVEN INTERIOR

Clean by using a mild detergent and a brillo type pad. Clean spill over as soon as possible to avoid carbonizing.

OVEN EXTERIOR

Wipe with a dampened cloth and a mild detergent. Do not use abrasives on oven finish or it will scratch.

STAINLESS STEEL

To remove normal dirt, grease, detergent applied with a sponge or cloth. Dry thoroughly.

NOTE: Depending on the amount of use, the pilot and burner adjustments and the thermostat calibration should be checked periodically by a competent service man.

HEAT BAFFLE SUGGESTED SETTINGS

The theory behind being able to use one burner system and four decks is one the Peerless has successfully been using for decades. Heat rises and we are going to trap this heat and redirect it to achieve the proper results. To do this the below recommended setting should be used and you can go from there. Please keep in mind that the top one should always be kept closed.

Top Door	Fully Closed
2nd Door	½" Open
3rd Door	50% Open
Bottom Door	Fully Open

CAUTIONS

Peerless gas units are manufactured for use with type of gas specified on the unit Rating Plate. For proper installation procedures in the United States of America refer to: (ANSI-Z223.1-1980 National Fuel Gas Code). Copies may be obtained from: The American Gas Association, Inc., 1515 Wilson Blvd., Arlington, Virginia 22209.

Information on the construction and installation of ventilating hoods may be obtained from the "Standard for the Installation of Equipment for the Removal of Smoke and Grease Laden Vapors from Commercial Cooking Equipment, NFPA NO. 96-1987 or latest edition from the National Fire Protection Association, Attention Publication Services, Batterymarch Park, Quincy, Mass. 02269.

In the event a gas odor is detected, shut down units at main shut off valve and contact the local gas company or gas supplier for service.

The areas surrounding the front, rear and sides of the unit should be kept clear so as not to obstruct the flow of air necessary for good combustion and unit operation. Unit should also be positioned for easy accessibility for servicing.

This appliance is to be installed in an area with adequate air supply and adequate clearance for air openings into the combustion chamber of the unit.

The model FDTO is a heavy duty, high-capacity throttling type gas thermostat carefully set at the factory to accurately control oven temperatures.

Robertshaw
Heavy Duty

FLAME MASTER Oven Control

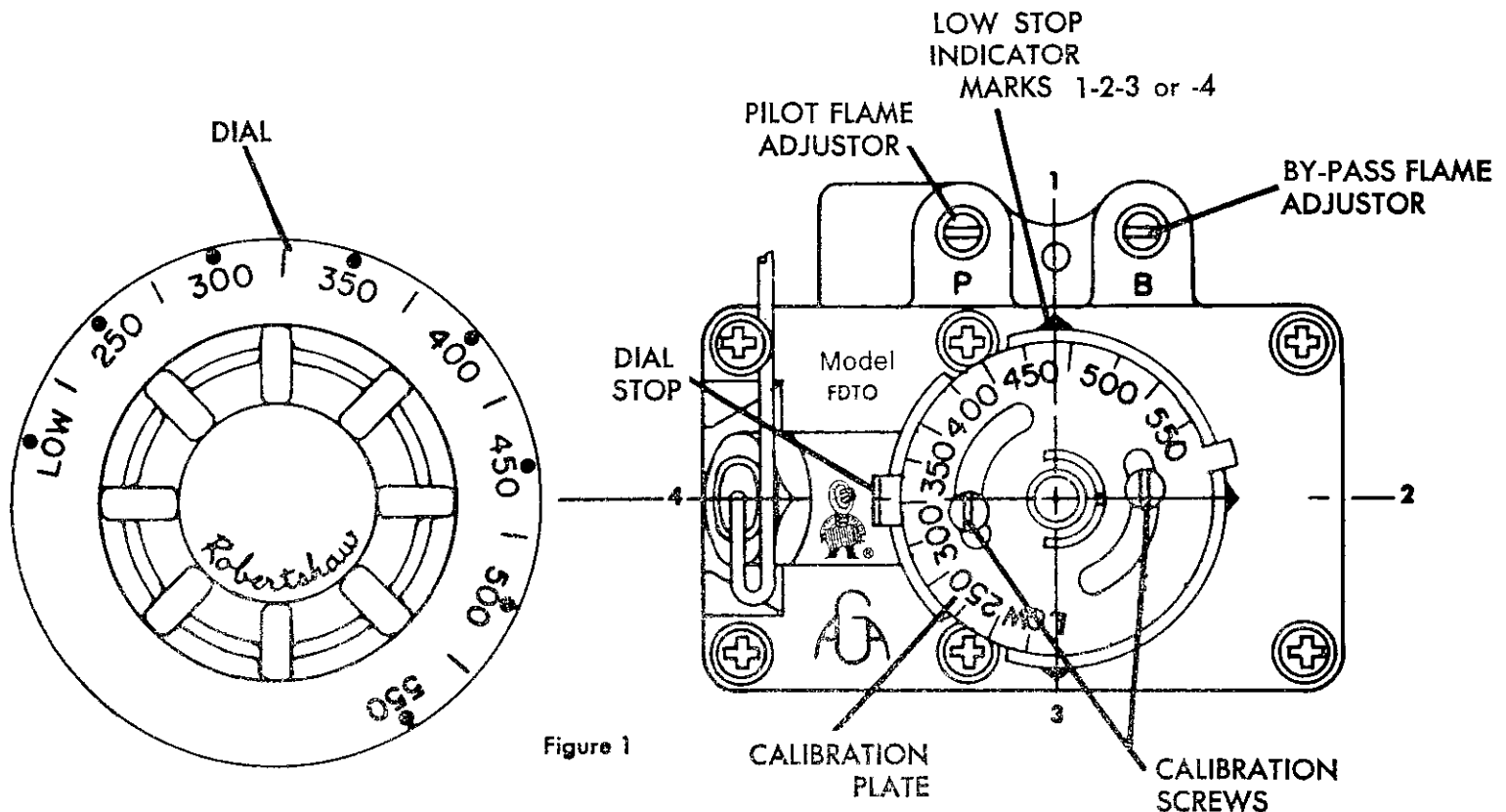


Figure 1

OVEN BURNER PILOT FLAME (If appliance is equipped with automatic ignition—disregard.)

This pilot is only on ovens not equipped with an automatic lighting device. It is a small flame located near the main oven burner. It lights with the oven burner and is extinguished when the main burner gas cock is turned off. To adjust this flame:

1. Turn "on" gas to appliance and light pilot or main burner.
2. Remove dial.
3. With a screwdriver turn "pilot flame adjustor screw" counterclockwise to increase the flame, clockwise to decrease it until the flame is approximately 3/4" high. Replace dial.

BY-PASS FLAME (MINIMUM BURNER FLAME)

This adjustment must be made at the time the appliance is installed. To adjust this flame: (Be sure oven burner pilot flame is ignited).

1. Turn dial to 300 degrees F.
2. Light main burner.
3. After oven temperature rises and remains constant turn dial back to low. This closes main valve and permits only by-pass gas to burner.
4. Remove dial.
5. With a screwdriver turn by-pass flame adjustor screw counterclockwise to increase the by-pass flame or clockwise to decrease it until flame over the entire burner is a minimum stable flame. Replace dial.

RECALIBRATION

Field recalibration is seldom necessary, and should not be resorted to unless experience with cooking results, definitely proves that the control is not maintaining the temperature to which the dial is set. To check oven temperatures when recalibrating use a Robertshaw Test Instrument or a reliable mercury oven thermometer.

1. Place the thermocouple of test instrument or thermometer in the middle of the oven, or medium to be tested.
2. Light the main burner. Observe which indicator mark aligns with the low stop position of the dial. Use this indicator mark for all dial settings.
3. Turn dial so 400 lines up with the "low stop" indicator mark. If control is not for a standard oven use the chart below to determine the temperature to set the dial.
4. Allow the oven, or appliance, to heat until flame cuts down to by-pass. After sufficient time, check temperature. If the temperature does not read within 15 degrees of the dial setting, recalibrate as follows:
5. Pull dial straight off without turning.

RECALIBRATION CHART		
Dial Range	°F Between Letters	Calibration Mark
100 to 200	18°	160
200 to 400	25°	375
300 to 400	28°	375
300 to 700	50°	500
200 to 550	50°	400

6. Hold calibration plate and loosen the two calibration lock screws until the plate can be moved independently of the control.

7. Turn calibration plate so that the instrument or thermometer reading is in line with the indicator mark. Hold plate and tighten screws firmly. On controls where the plate has no temperature markings use the chart to determine the temperature degrees between letters. Turn the calibration plate counterclockwise if the test reading is higher than the dial setting, or clockwise if the reading is lower than the dial setting.

8. Replace dial.

9. **NOTE:**—If the above adjustment is prevented by the two loosened calibration lock screws being in contact with the ends of the screw clearance slots in the calibration plate, remove the screws and after turning the calibration plate to the proper location, reassemble screws in the other tapped holes designed for them.

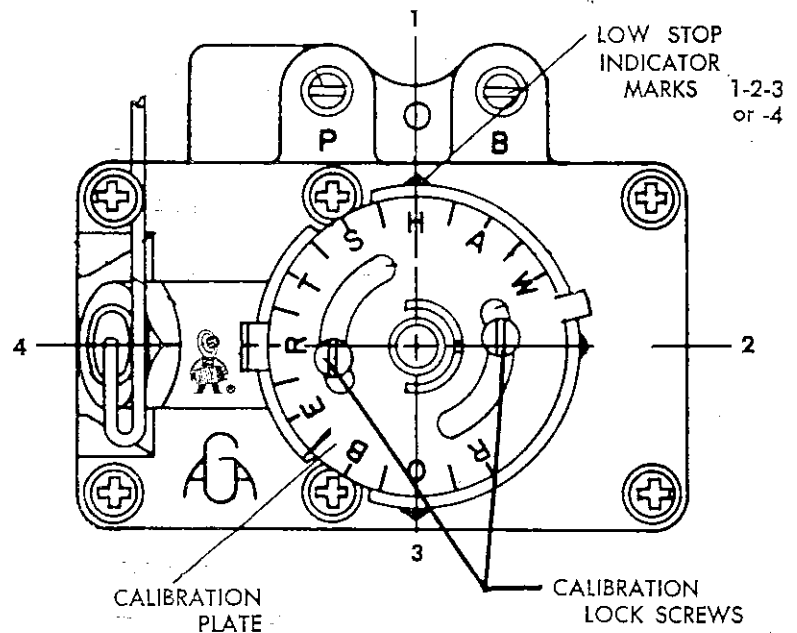


Figure 2



ROBERTSHAW CONTROLS COMPANY
YOUNGWOOD, PENNSYLVANIA

Auto-Calibrator[®]

OVEN HEAT CONTROL

THIS INSTRUCTION IS INTENDED TO ACQUAINT THE SERVICE MAN WITH
SERVICING AND RECALIBRATING THE NEWEST COMBINATION
THERMOSTAT AND OVEN GAS COCK.

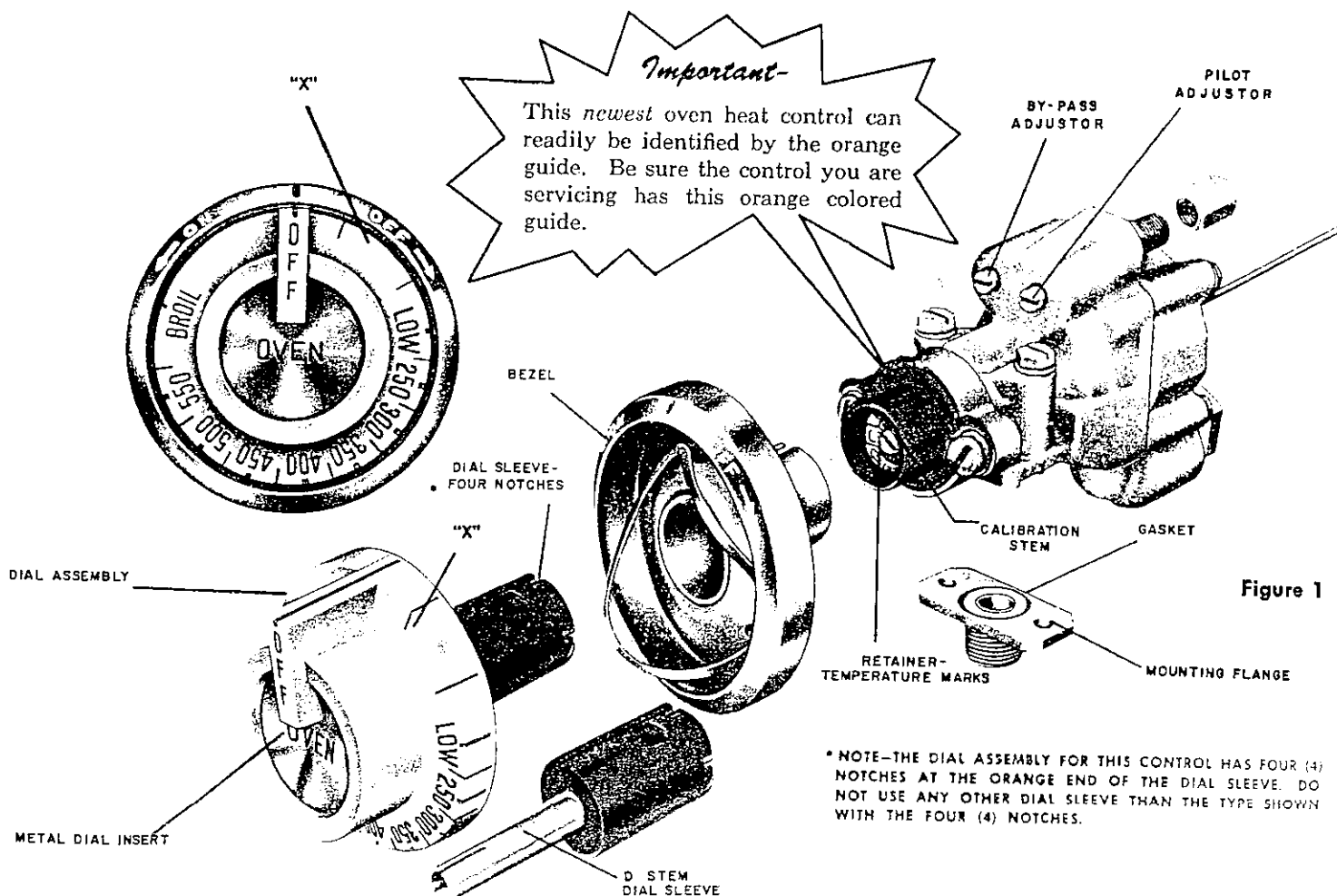


Figure 1

* NOTE—THE DIAL ASSEMBLY FOR THIS CONTROL HAS FOUR (4) NOTCHES AT THE ORANGE END OF THE DIAL SLEEVE. DO NOT USE ANY OTHER DIAL SLEEVE THAN THE TYPE SHOWN WITH THE FOUR (4) NOTCHES.

To Light Burner

Some ranges equipped with this oven heat control will also be equipped with an automatic lighting device. When is the case, follow the instructions given by the manufacturer of the device.

If the range does *not* have automatic lighting, the procedure is as follows:

Push dial inward and turn it counter-clockwise a quarter of a turn or more.

2. Light the oven burner with a match.
3. Turn dial to the desired temperature.
4. To shut off gas, turn dial clockwise to "Off" position.

NOTE:—

Without automatic lighting, this procedure must be followed each time the oven is used. It is necessary to push the dial inward because the dial automatically locks itself in place when in the "Off" position.

SEE OTHER SIDE

SERVICE INSTRUCTIONS

To Adjust Pilot:

This pilot is *only on ranges not equipped with an automatic lighting device*. It is a small yellow flame near the oven burner which burns constantly and relights the oven burner if the flame should go out while the gas is still on. However, this pilot goes out when the oven control is turned to "OFF".

ADJUSTMENTS— (See Figure 1)

1. Push dial inward, turn to 300 mark and light the oven burner.
2. Remove dial and bezel. *Dial is keyed into place—do not twist or turn it*. Grasp the dial or bezel at the outer edge and pull straight out.
3. With a screw driver, turn Pilot Adjustor *counter-clockwise* to increase the flame, *clockwise* to decrease it, until the flame is approximately $\frac{3}{4}$ " long.
4. Replace bezel and dial, turning the dial clockwise until it locks in the "Off" position.

To Recalibrate Oven Control.

This oven control is a precision instrument. It is carefully calibrated at the factory—that is, it is so adjusted that dial settings match actual oven temperatures. Field recalibration is seldom necessary, and should not be resorted to unless considerable experience with cooking results definitely proves that the control is not maintaining the temperatures to which the dial is set.

Recalibration should not be undertaken, however, until the by-pass oven flame has been adjusted.

To check oven temperatures when recalibrating, use a test instrument or a reliable mercury thermometer. Place the thermocouple of test instrument or the thermometer in the middle of the oven.

If the dial has a removable metal insert, proceed as follows:

1. Remove dial and push out metal insert. (See Figure 1)
2. Replace dial, turn to 400 mark, and light oven burner.
3. After burner has been on about 15 minutes check oven temperature. Oven door should be open for as short a time as possible. Use a flashlight, if necessary, to see the thermometer reading clearly.
4. Continue to check temperature, at 5-minute intervals, until two successive readings are within 5 degrees of each other.

The control should be recalibrated if your reading is not within 10 degrees of the dial setting (400 degrees). If recalibration is required, the additional steps to be taken are these:

5. Hold dial firmly, insert screw driver through center of dial, and push calibration stem (See Figure 1) inward. (Do not turn this stem)
6. While holding calibration stem in firmly with screw driver, turn dial until it is set at the actual oven

To Adjust By-Pass Flame:

(Minimum burner flame)

When the oven reaches the temperature at which the dial is set, the oven control cuts down the flow of gas to the amount required to keep the oven at that temperature. Always, however, the control must by-pass enough gas to keep the entire burner lighted. To maintain this minimum flame, *the by-pass must be set carefully and accurately*, as follows—(See Figure 1)

1. Light the oven burner, then turn dial to "Broil."
2. After 5 minutes, turn dial clockwise to point slightly beyond first mark on dial (shown by "X").
3. Remove dial and bezel.
4. With a screw driver, turn by-pass Adjustor—counter-clockwise to increase the flame, clockwise to decrease it, until there is a flame approximately $\frac{1}{8}$ " high over the entire burner.
5. Replace bezel and dial, turning the dial clockwise until it locks in the "Off" position.

temperature as shown by your test instrument or thermometer. Release pressure on calibration stem. Replace dial insert.

7. Set dial at 450 mark. Check oven temperature again, as instructed in (3) and (4). If the oven temperature is not within 20 degrees of the dial setting (450 degrees), it means that the sensing element is inoperative and the control should be replaced.

If the dial does not have a removable insert or if the dial has a "D" type stem, use the following procedure to recalibrate:

1. Set dial to 400 mark and light oven burner.
2. After burner has been on about 15 minutes, check oven temperature. Oven door should be open for as short a time as possible. Use a flashlight, if necessary, to see the thermometer reading clearly.
3. Continue to check temperature, at 5-minute intervals, until two successive readings are within 5 degrees of each other.

The control should be recalibrated if your reading is not within 10 degrees of the dial setting (400 degrees). If recalibration is required, the additional steps to be taken are these:

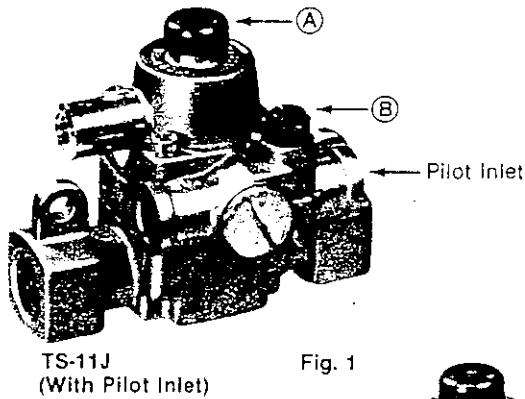
4. Remove dial assembly or dial complete with "D" type stem.
5. Push calibration stem (See Figure 1) inward with screw driver, while holding calibration stem firmly in, turn slot clockwise to obtain a lower temperature or counter-clockwise for a higher temperature. Each mark on retainer represents 25 degrees. Replace dial assembly or "D" type stem with dial.
6. Set dial at 450 mark. Check oven temperature again, as instructed in (2) and (3). If the oven temperature is not within 20 degrees of the dial setting (450 degrees), it means that the sensing element is inoperative and the control should be replaced.



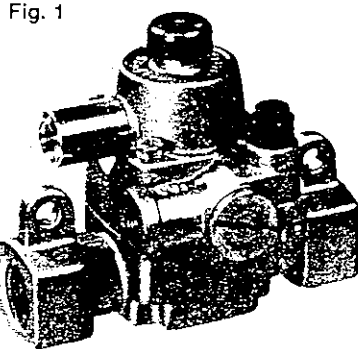
Robertshaw
CONTROLS COMPANY

Temperature Controls Marketing Group
100 W. Victoria Street, Long Beach, CA 90805

"TS" - Series Thermomagnetic Safety Valves



TS-11J
(With Pilot Inlet)



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

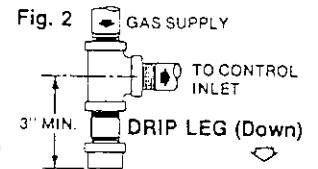
The thermocouple nut should be started and turned all the way in by hand. An additional quarter turn with a small wrench will then be sufficient to seat the lock washer. **CAUTION: DO NOT OVERTIGHTEN.**



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

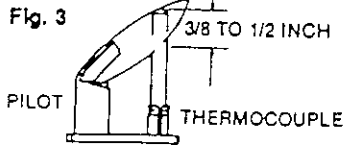
1. Wait five minutes to allow gas which may have accumulated in the burner compartment to escape.
2. Depress red button and light pilot (Fig. 1, A).
3. Hold red button approximately one-half minute then release. If pilot does not remain lit, repeat operation allowing longer period before releasing reset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

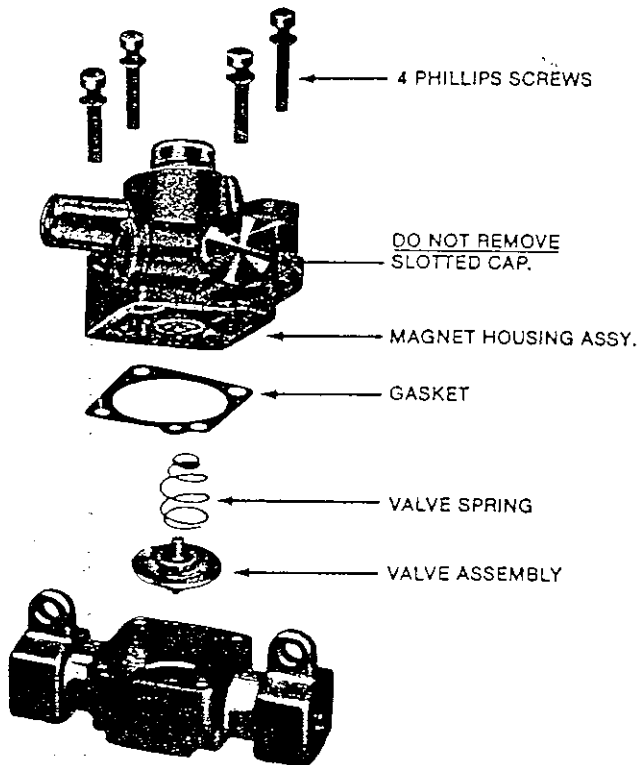
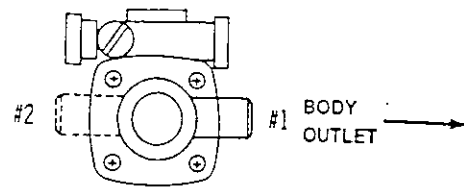


Fig. 4

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.



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.

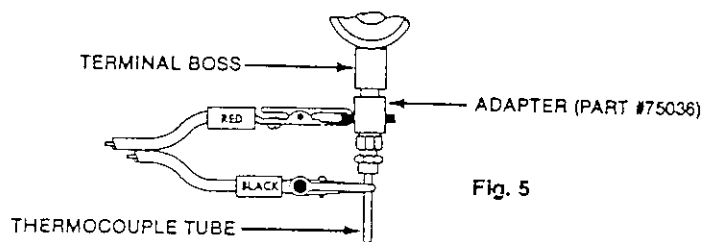


Fig. 5

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.

CW NS SERIES OVENS

PART #	DESCRIPTION	CW-100	CW-200	CW-41	CW-42	C-131	C-231	CW-61	CW-62	List Price
CW601	FDTH Thermostat	1	2	1	2			1	2	210.00
CW602	Dial only for FDTH Thermostat	1	2	1	2			1	2	15.00
CW603	BJ650 Thermostat					1	2			210.00
CW604	Dial only for BJ650 Thermostat					1	2			15.00
CW605-A	TS11K Safety Valve					1	2			195.00
CW605-B	TS11J Safety Valve	1	2	1	2			1	2	195.00
CW606	T-46 Thermocouple	1	2	1	2	1	2	1	2	26.00
CW607	Pilot Burner/Holder 2 CHRL	1	2	1	2	1	2	1	2	65.00
CW608	Pilot Supply Tube	1	2	1	2	1	2	1	2	15.00
CW609	Oven Burner Valve	1	2	1	2	1	2	1	2	48.00
CW610	Valve Knob Assembly	1	2	1	2	1	2	1	2	15.00
CW611	Pressure Regulator	1	2	1	2	1	2	1	2	48.00
CW612	5 Cell Oven Burner	1	2							175.00
CW613	4 Cell Oven Burner(Replacement Kit)			1	2			1	2	375.00
CW614	3 Cell Oven Burner					1	2			96.00
CW615	Orifice Complete - Natural	5	10	4	8	3	6	4	8	32.00
CW616	Orifice Complete - LP	5	10	4	8	3	6	4	8	32.00
CW617	Orifice Hood Only Natural	5	10	4	8	3	6	4	8	8.00
CW618	Orifice Hood Only LP	5	10	4	8	3	6	4	8	8.00
CW619	Oven Door Assembly SS (w/handle)	1	2							340.00
CW620	Oven Door Assembly SS (w/handle)			1	2			2	4	310.00
CW622	Oven Door Assembly SS (w/handle)					1	2			195.00
CW623	Oven Door Handle Kit (P-1438)	1	2	1	2	1	2	1	2	26.00
CW624	Peerless Name Plate	1	2	1	2	1	2	1	2	15.00
CW625	Door Weights	2	4							25.00
CW626	Door Weights			2	4			2	4	25.00
CW627	Door Weights					2	4			25.00
CW628	Door Gasket	1	2							75.00
CW629	Door Gasket			1	2			1	2	75.00
CW630	Door Gasket					1	2			34.50
CW631	Hinge Plate & Pin Assembly Left	1	2	1	2	1	2	1	2	35.00
CW632	Hinge Plate & Pin Assembly Right	1	2	1	2	1	2	1	2	35.00
CW633	Oven Burner Rest	1	2							35.00
CW634	Oven Burner Rest			1	2			1	2	32.00
CW635	Oven Burner Rest					1	2			25.00
CW636	Baffle Plate Assembly (Set of 3)	3	6							395.00
CW637	Baffle Plate Assembly (Set of 3)			3	6			3	6	375.00
CW638	Baffle Plate Assembly					1	2			125.00
CW639	1" Transite Deck (2 pcs. Deck)	2	4							675.00
CW640	1" Cordierite Deck (2 pcs. Deck)			2	4			4	8	625.00

CW NS SERIES OVENS

PART #	DESCRIPTION	CW-100	CW-200	CW-41	CW-42	C-131	C-231	CW-61	CW-62	List Price
CW641	5/8" Cordierite(Oven Stone) Deck					4	8			150.00 ea.
CW642	Cordierite Deck SS Front Channel					4	8			10.00
CW643	Wire Rack Optional					4	8			65.00
CW644	Crumb Tray	1	2							62.50
CW645	Crumb Tray			1	2			1	2	56.00
CW646	Crumb Tray					1				49.50
CW647	Lower Front Panel SS (Access Door)	1	2							150.00
CW648	Lower Front Panel Black (Access Door)			1	2			1	2	115.00
CW649	Lower Front Panel SS (Access Door)			1	2					130.00
CW650	Lower Front Panel Black (Access Door)					1	2			75.00
CW651	Lower Front Panel SS (Access Door)					1	2			90.00
CW652	Access Door Knob - Black			1	2	1	2			5.00
CW653	Access Door Knob - Chrome	1	2	1	2	1	2	1	2	5.50
CW654	SS Top Front Trim Strip	1	2							60.00
CW655	SS Top Front Trim Strip			1	2			1	2	68.00
CW656	SS Top Front Trim Strip					1	2			48.00
CW657	SS Front Side Trim - Left	1	2							25.00
CW658	SS Front Side Trim - Right	1	2							25.00
CW659	SS Front Bottom Trim	1	2							59.00
CW660	SS Front Side Trim - Left			1	2			1	2	25.00
CW661	SS Front Side Trim - Right			1	2			1	2	25.00
CW662	SS Front Bottom Trim			1	2			1	2	59.00
CW663	SS Front Side Trim - Left					1	2			25.00
CW664	SS Front Side Trim - Right					1	2			25.00
CW665	SS Front Bottom Trim					1	2			48.00
CW666	Left Body Side Overlay SS	1	2							225.00
CW667	Right Body Side Overlay SS	1	2							225.00
CW668	Left Body Side Overlay SS			1	2					200.00
CW669	Right Body Side Overlay SS			1	2					200.00
CW670	Left Body Side Overlay SS					1	2			166.00
CW671	Right Body Side Overlay SS					1	2			166.00
CW672	Left Body Side Overlay SS							1	2	200.00
CW673	Right Body Side Overlay SS							1	2	200.00
CW674	Vertical Flue Box	1	2			1	2			45.00
CW675	Bottom for Flue Box	1	1			1	1			16.00
CW676	Inside Flue Baffle (Top Deck Only)		1		1					25.00
CW677	Top Adapter/Flue Box (Canopy Vent)	1	2	1	1	1	1	1	1	45.00
CW678	Top Adapter/Flue Box (Direct Vent)	1	2	1	1	1	1	1	1	45.00
CW679	Flue Diverter/Direct Vent Only	(Option)	1	1	1			1	1	75.00
CW680	Flue Diverter/Direct Vent Only	(Option)				1	1			75.00

CW NS SERIES OVENS

PART #	DESCRIPTION	CW-100	CW-200	CW-41	CW-42	C-131	C-231	CW-61	CW-62	List Price
CW681	Legs 4" High Black - Set of 4					1				108.00
CW682	Legs 4" High SS - Set of 4					1				151.00
CW683	Legs 6" High Black - Set of 4						1		1	130.00
CW684	Legs 6" High SS - Set of 4						1		1	173.00
CW685	Legs 18" High Black - Set of 4		1		1					194.00
CW686	Legs 18" High SS - Set of 4		1		1					280.00
CW687	Legs 28" High Black - Set of 4			1				1		237.00
CW688	Legs 28" High SS - Set of 4			1						345.00
CW693	Legs 32" High Black - Set of 4		1							275.00
CW694	Legs 32" High SS - Set of 4		1							325.00
CW689	Legs 6" High - Set of 4 (For Pcs. - 30 Stand Only)									16.00
CW690	Instruction Manual									4.00
CW691	1" Cordierite Deck (1/2 of 2 pcs Deck)			1				1		350.00
CW692	1" Transite Deck (1/2 of 2 pcs. Deck)		2							375.00

PART #	DESCRIPTION	2324	2348	List Price
DG001	BJ550 Thermostat for GS, HS, JS, KS, LS, NS		1	\$ 210.00
DG002	BJ650 Hi Temperature Thermostat for GS, HS, JS, KS, LS, NS			\$ 210.00
DG003	Dial for BJ550 or BJ650 Thermostats	1	1	\$ 15.00
DG004	FDTO(550) Thermostat for OS, old style B,C,D, DGBS, ES,FS	1	1	\$ 210.00
DG005	Dial for FDTO Thermostat			\$ 15.00
DG002A	FDTH 650 Hi Temp. Thermostat for NSHD & OSHD, replaces old DG700			210.00
DG002AK	Dial for FDTH Thermostat			15.00
DG006	TS11K Safety Valve	1	1	\$ 195.00
DG0037	On/off Valve assembly w/stem new style NSHD, OSHD & OS	1	1	\$ 65.00
DG0038	On/off Valve KNOB			\$ 35.00
DG007	T-46 Thermocouple GS, HS, JS, KS, LS, NS, OS & HD models	1	1	\$ 26.00
DG008	2 CHR 2 Pilot Burner, GS on	1	1	\$ 65.00
DG009	T-46 Conversion Kit (Includes Minipilot)	1	1	\$ 85.00
DG010	Cast Iron Burners (Old Style) BS, CS, DS, DD, ES, FS (P363)	4	6	\$ 105.00
DG011	P-363 Steel Tubular Burners 18" GS, HS, JS, KS, LS, NS (GS can be C.I.)	4		\$ 60.00
DG012	P-366 Steel Tubular Burners 19"		6	\$ 60.00
DG013	886 Shut Off Valve 1/2" X 1/2" DF, EF, FS (Not available - see DG0037)	1	1	
DG014	Steel Shelves for 2324	4		\$ 195.00
DG015	Steel Shelves for 2348		4	\$ 250.00
DG016	Transite Decks for 2324 1 Pcs. Deck 19 7/8 X 32 1/2 X 1/2"	4		\$ 275.00
DG017	Transite Decks for 2348 1-2 Pcs. Deck 20 11/16 X 29 7/8 X 1/2"		4	325.00 ea.
DG018	Flue Divertor (Direct Vent)			\$ 56.00
DG019	Canopy Vent Cap			\$ 45.00
DG020	Oven Door Handles	4	4	26.00 ea.
DG021	Oven Bottom Baffles (Set of 3)	3		\$ 275.00
DG022	Oven Bottom Baffles (Set of 3)		3	\$ 375.00
DG023	Burner Rest	1	1	\$ 40.00
DG024	Over Door Complete with Handle	4		\$ 275.00
DG025	Over Door Complete with Handle		4	\$ 325.00
DG026	Cast Iron Door End P-201 (right)	4	4	\$ 45.00
DG027	Cast Iron Door End P-202 (left)	4	4	\$ 45.00
DG028	Cast Iron Hinge Journal P-205 (right)	4	4	\$ 45.00
DG029	Cast Iron Hinge Journal P-206 (left)	4	4	\$ 45.00
DG030	Right Door End 12" P-221	4	4	30.00 ea.
DG031	Left Door End 12" P-222	4	4	30.00 ea.
DG032	Center Rack for Model 2317			\$ 25.00
DG033	Center Rack for Model 2323, 2325, 2326			\$ 50.00
DG034	Oven Bottoms per set (2 sections Models 2313, 2316, 2317)			\$ 130.00
DG035	Oven Bottoms per set of 2 (Models 2322, 2323)			\$ 195.00
DG036	Oven Bottoms per set of 3 (Models 2324, 2325, 2326)			\$ 225.00
DG037	Oven Bottoms per set of 3 (Model 2348)			275.00