

# INSTRUCTION AND SERVICE MANUAL



Type "C" Wilcolator  
Gas oven Heat Control

THE WILCOLATOR COMPANY • 1001 Newark Avenue, Elizabeth, N. J.  
WILCOLATOR (CANADA) LTD., 24 Buckingham St., Mimico, Toronto, Canada

## *The Wilcolator Oven Heat Control*



The best results in oven cooking depend on accuracy in measurement of the oven temperature, the ingredients and the time. The purpose of the Wilcolator is to automatically regulate the oven flame and so maintain any selected oven temperature. Before attempting to use the oven, read these instructions and any instructions supplied by the range manufacturer. Be sure that all specified adjustments have been made.

## *Wilcolator GIVES YOU WORRY FREE COOKING*

- 1—Insures correct baking results by measuring just the right amount of gas, the same as you measure a teaspoonful of sugar. Automatically maintains the correct oven temperature.
- 2—Saves gas. The Wilcolator prevents waste of gas and soon pays for its cost. Eliminates loss of foods.
- 3—Takes all the guess work out of baking.
- 4—Lets you use new recipes with confidence that the results will be satisfactory.
- 5—Allows you to roast meats to your individual taste—rare, medium or well-done, just as you like them.
- 6—Lets you play all afternoon. Complete oven meals may be cooked at the same time. Dinner is ready and piping hot right on the dot.
- 7—Permits the use of low oven temperatures for roasting, and for warming, drying and sterilizing dishes.
- 8—Helps you do your canning. Any method you wish may be used.





## RECIPES

As there are many excellent recipe books, it is not the intention of this booklet to list detailed recipes, but to provide general instructions for the use of the oven thermostat. On the following pages will be found an approved time and temperature cooking chart. By following this chart, you can cook foods to your taste.

## DIRECTIONS FOR USING YOUR *Wilcolator* OVEN THERMOSTAT

Read carefully before using the oven.

- 1—Push dial in and turn to desired temperature.
- 2—Light burner. On stoves equipped with automatic ignition, it is not necessary to light burner. Follow the range manufacturer's instructions for oven equipped with automatic ignition.
- 3—Prepare food while the oven is heating.

## "SOME DON'TS"

- 1—Don't place food in oven until the large flame has automatically reduced to a small flame. (Unless the recipe specifically directs to the contrary.)
- 2—Don't turn the Wilcolator to a higher temperature than required. This wastes both time and gas and will probably spoil your baking product.
- 3—Don't worry because the flame remains low after the selected dial temperature is reached. It doesn't take much gas to keep the oven hot once it is heated.



## EXAMPLES OF USING THE *Wilcolator*

### I BAKING BISCUITS

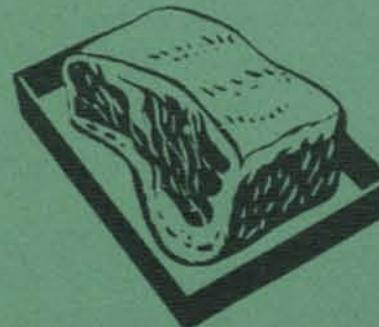
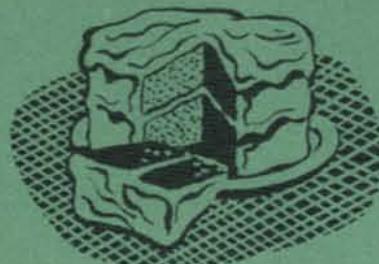
- 1—Push dial in and turn to  $450^{\circ}$  dial setting.
- 2—Light oven.
- 3—Mix biscuits.
- 4—Wait until flame is reduced to a small one.
- 5—Place biscuits in oven.
- 6—Bake according to recipe directions.



### II BROILING A STEAK OR CHOPS

- 1—Select a tender cut of steak—do not salt.
- 2—Lay on greased broiler rack.
- 3—Set dial at "Broil" and heat broiler for 5 minutes.
- 4—Place broiler pan with meat 2" to 3" below flame.
- 5—Turn food only once during broiling.
- 6—Serve meat on hot platter.





## CAKES AND COOKIES

A few general mixing rules:

- 1—If butter is used as basis of cake, be sure to cream well.
- 2—Egg yolks are lightest if beaten with a twirling egg beater.
- 3—Egg whites should be whipped with a wire egg beater as the result is lighter and fluffier.

## METHODS FOR ROASTING MEATS

There are two methods for roasting meats. It is a matter of personal choice which of the following you prefer.

### 1—Preheat—Hot Start—Searing Method:

Gives roast an attractive outside appearance. Cooks outside fat to a crispness. Improves quality of drippings from which gravy is made.

Meat should be seared at 500° for 20 minutes in an uncovered pan, then proceed according to particular meat to be roasted.

### 2—Modern—Cold Start—Non-Searing Method:

Gives uniformity of doneness. Less shrinkage in fat and less loss in juices than by searing method.

Meat is roasted at a constant low temperature. See cooking chart for time and temperature.

4—if egg whites are to be used in any cooked dish, such as, cakes, souffles, meringues, etc. whip until egg whites are stiff but stop before that wet stiffness changes to a dry glazed appearance.

5—Never stir stiffly beaten egg whites into any mixture. This will break walls of egg whites and much of the carefully caught air will be lost.

Always use a spoon or a spatula, cut down and fold over the beaten egg whites, working from outside toward the center. With a little practice, you can acquire a skillful manipulation that does the work as quickly as beating would do.

6—Nuts or fruits added to any mixture should always be floured with a small amount of flour to prevent their settling.



## BAKING HINTS

- 1—There are two classes of cakes, sponge and butter cakes.
- 2—Layer cakes require higher temperatures.
- 3—Do not jar or move a cake until baking is complete.
- 4—If the cake is bready or solid, too much flour has been used.
- 5—Deeper baking pans require longer baking times.
- 6—Do not grease pans for angel and sponge cakes.
- 7—Heavy cakes are caused by too much sugar or butter.
- 8—If a browner cake is desired, raise the temperature 25 degrees the last few minutes of cooking.

# Cooking Charts . . .



## ROASTING

MEAT	Set Temperature	Time in Minutes Per Pound	Time in Minutes Per Pound Started Cooking From Frozen State
<b>BEEF</b>			
Standing Rib 6-8 Pounds	300	Rare 18-20 Medium 22-25 Well Done 27-30	43 47 55
Less than 6 Pounds	300	Rare 33 Medium 45 Well Done 50	55 60 65
Rolled Ribs	300	Rare 32 Medium 38 Well Done 48	53 57 65
Rump (High Quality)			
Standing	300	25-30	50
Rolled	300	30-35	55
<b>LAMB</b>			
Leg	300	30-35	40-45
Rolled Shoulder	300	40-45	40-45
Shoulder (bone-in or cushion style)	300	30-35	40-45
<b>VEAL</b>			
Leg	300	25-35	40-45
Shoulder	300	25	40-45
Boned and Rolled	300	40-45	40-45
<b>PORK</b>			
Loin	350	35-40	50-55
Fresh Ham	350	30-35	50-60
<b>SMOKED PORK</b>			
Ham (New style, tendered)			
Whole 10-12 pounds	300	15	
Half 5-8 pounds	300	18-20	
Ham Butt 3-4 pounds	300	35-40	

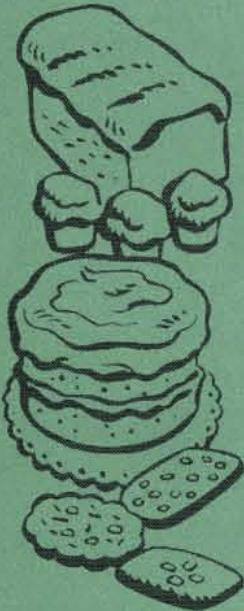
## POULTRY (In computing time use shorter time for larger birds.)

POULTRY	Set Temperature	Time in Minutes Per Pound	Total Cooking Time
<b>CHICKEN</b>			
Stuffed weight ready for oven			
3½-4 pounds	350	45-40	2-2½ hours
4-5 pounds	350	40-35	2½-3 hours
Over 5 pounds	325	35-30	3-3½ hours
<b>TURKEY</b>			
8-10 pounds	325	25-20	3-3½ hours
10-14 pounds	325	20-18	3½-4 hours
14-18 pounds	300	18-15	4-5 hours
18-20 pounds	300	15-13	5-7 hours
<b>GOOSE</b>			
10-12 pounds	325	30-25	4-4½ hours
<b>DUCK</b>			
5-6 pounds	350	35-30	2-3 hours
<b>FISH</b>			
	400	15-25	

## BROILING

FOOD	Time in Minutes For Medium Done
Porterhouse, 1½ inches thick.	30
Lamb Chops, 1 inch thick.	15
Chicken (Split)	30
Fish, 1 inch thick	25
Allow 5 inches between flame and food for following:	
Bacon	5
Smoked Ham, 1 inch thick	25
Food may be placed clear to heat if a more seared or charred effect is desired.	

# Cooking Charts . . .



## BAKING

FOOD	Set Temperature	Time in Minutes	Temperature Reset To	Time in Minutes
<b>BREADS, (Yeast)</b>				
Bread, Yeast .....	375-400	45-60		
or				
Bread, Yeast .....	400-425	15	350-375	30-40
Rolls, Yeast .....	400-425	15-25		
Coffee, Cake, Yeast.....	375-400	25-30		
<b>BREADS, (Quick)</b>				
Baking Powder Biscuits.....	450-475	12-15		
Corn Bread .....	400-425	20-30		
Gingerbread .....	350-375	35-45		
Loaf, Nut Bread, etc.....	325-350	60-75		
Muffins .....	400-425	20-25		
Popovers .....	450	20	350	20
<b>CAKES</b>				
Angel Food .....	325	60-75		
Sponge Cake .....	325	40-60		
Layer Cake .....	375	25-35		
Chocolate Layer .....	350	30-35		
Loaf Cake .....	350	45-60		
Cup Cakes .....	350-375	20-30		
Pound Cake .....	325	60-75		
Fruit Cake (large).....	250-275	3-4 hours		
Fruit Cake (small).....	275-300	1½-2½ hours		
<b>COOKIES</b>				
Brownies .....	350	30-35		
Drop Cookies .....	375-400	12-15		
Rolled Cookies .....	375-400	8-12		
Refrigerator Cookies .....	400-425	8-12		
Molasses Cookies .....	350-375	10-15		

## BAKING (Cont'd)

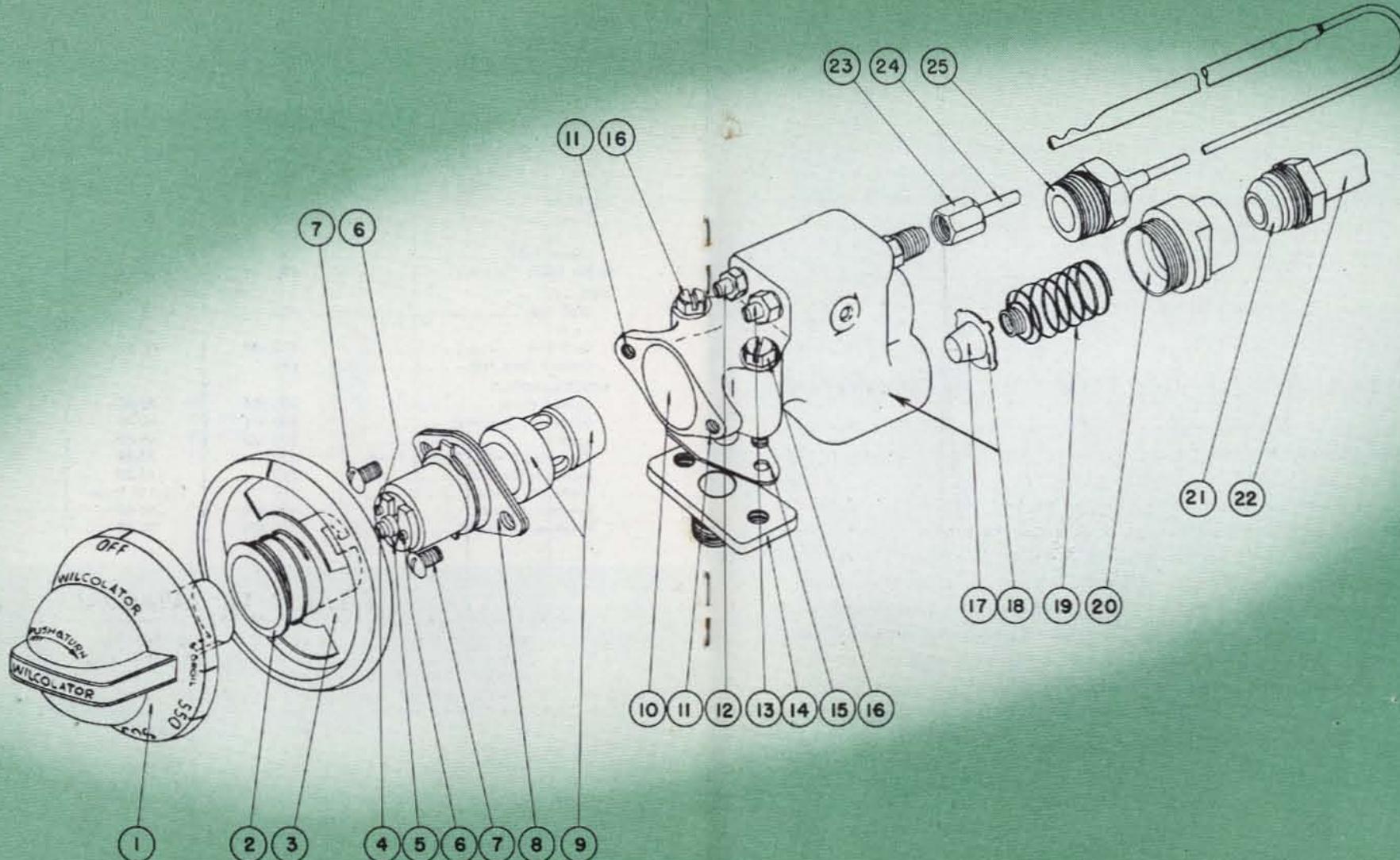
FOOD	Set Temperature	Time in Minutes	Temperature Reset To	Time in Minutes
<b>PASTRIES</b>				
Cream Puffs .....	400	40-50		
or				
Cream Puffs .....	450	15	375	25
Pie Shells .....	450	12-15		
<b>PIES</b>				
Fruit Pies .....	450	15	350	35-45
or				
Fruit Pies .....	400-425	40-50		
Custard Type Pies.....	450	10	325	25-30
<b>MISCELLANEOUS</b>				
Custard (Cup) .....	300-325	30-40		
Custards (Casserole) .....	300-325	60-75		
Souffles .....	300-325	45-60		
Scalloped Dishes (Cooked Food).....	400	25-35		
Meringue (Topping) .....	325	15-20		
Meringue Shells .....	275	1¼-1½ hours		
Potatoes, Baked .....	400-450	50-60		
Potatoes, Scalloped .....	375-400	50-60		



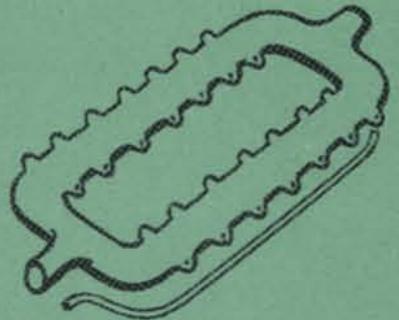
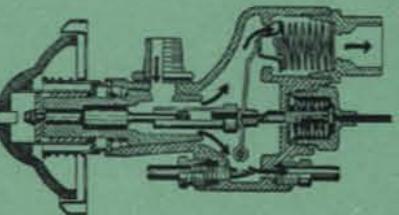
## TABLE OF MEASURES AND WEIGHTS

2	cups butter (packed).....	1 pound	4	cups flour (white).....	1 pound	A few grains or a pinch is less than one-eighth teaspoon.
2	cups granulated sugar .....	1 pound	4½	cups Graham flour .....	1 pound	
2½	cups powdered sugar.....	1 pound	3¾	cups entire wheat flour.....	1 pound	
3½	cups confectioners' sugar .....	1 pound	4½	cups coffee .....	1 pound	
2½	cups brown sugar .....	1 pound	2	cups chopped meat (packed) .....	1 pound	
2½	cups oatmeal .....	1 pound	1	square section of cooking chocolate .....	1 ounce	
4¾	cups rolled oats.....	1 pound	1/3	cup almonds blanched and chopped .....	1 ounce	
2½	cups granulated corn meal .....	1 pound				Powdered sugar, confectioners' sugar and flour should be sifted before measuring.
4½	cups rye meal .....	1 pound				
1 ½	cups rice .....	1 pound				

- 1 Dial
- 2 Center Ring
- 3 Bezel
- 4 Center Screw
- 5 Calibration Indicator
- 6 Lock Screws
- 7 Screws
- 8 Valve Plug Assembly
- 9 Plug
- 10 Inside Bore
- 11 Die Casting
- 12 By-pass Valve



- 13 Pilot Valve
- 14 Flange Assembly
- 15 Gasket
- 16 Cap Screws
- 17 Valve
- 18 Valve Face and Valve Seat
- 19 Valve Spring
- 20 Valve Cap
- 21 Nut
- 22 Oven Burner Gas Line
- 23 Compression Nut
- 24 Pilot Tube
- 25 Bellows and Bulb Assembly



## SERVICE INSTRUCTIONS TYPE "C" *Wilcolator*

To secure the best results from the Wilcolator, the *minimum flame* and *pilot light* must be adjusted to your local gas pressure at the time your range is installed. Variation in gas pressures in different localities prevent these adjustments being made except in your home. The dealer or gas company from whom you purchased your range will make the proper burner adjustment for you.

All Wilcolators are properly adjusted for temperature at the factory and it is not necessary to test them with a thermometer when the range is installed.

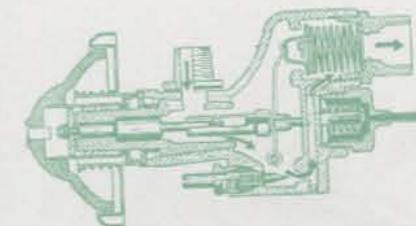
## OPERATION OF THE TYPE "C" *Wilcolator*

The type "C" Wilcolator depends for operation on the expansion and contraction of a stable liquid contained in the bulb and bellows of the thermostat.

When the dial of the control is turned beyond the GAS ON position, gas is permitted to flow through the control to the oven burner. When the oven burner is lighted and the oven temperature increases, the liquid contained in the bulb expands. This expansion transmits motion to the bellows, which in turn is transmitted to the thermostatic valve causing it to move toward the valve seat. The valve continues to move toward the valve seat until the opening between them is just large enough to admit the required amount of gas to maintain in the oven the temperature for which the dial is set. More gas is required to maintain high oven temperatures than low oven temperatures, so the

opening between the valve and the valve seat varies with the oven temperature.

If in the operation of the control the valve were to close completely, the oven burner would go out. To supply enough gas to keep the oven burner lighted under this condition, there is incorporated a bypass valve, which when properly adjusted for the local gas pressure, will supply only enough gas to keep the burner lighted. The size of this flame should be such that it will not maintain a temperature above the lowest called for on the dial. To relight the oven burner, in the event it is accidentally extinguished, the control is equipped with a pilot light.



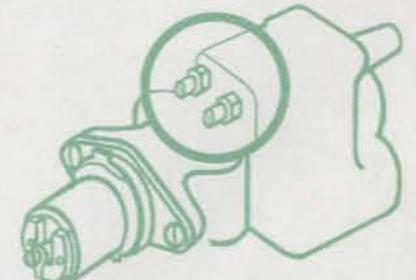
## SERVICE ADJUSTMENTS ON THE TYPE "C" *Wilcolator*

- 1—Flame adjustments (by-pass, or minimum flame, and pilot light.)
- 2—Temperature adjustment.
- 3—Regreasing oven valve.
- 4—Cleaning thermostat valve.

## FLAME ADJUSTMENTS

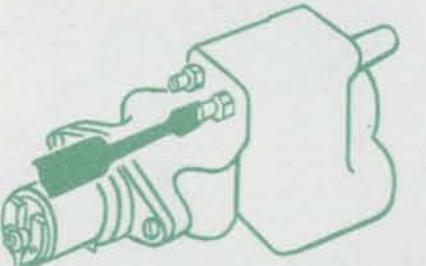
Every type "C" oven heat control is thoroughly tested and calibrated before leaving the factory, but as gas conditions vary in different localities, it is necessary that two adjustments be made when the range is installed in the home to insure proper operation under local conditions. These adjustments are:

- 1—Pilot light.
- 2—By-pass or minimum flame.



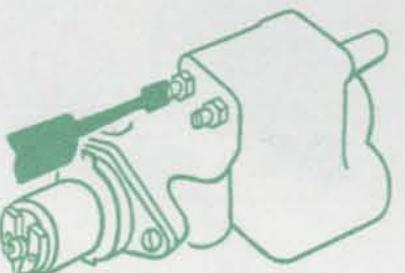
## PILOT FLAME

For proper oven operation this adjustment must be made when the stove is installed:



- 1—Turn the gas on full and quickly light the burner. (To turn the gas on, press in on dial (1) and turn to the right, clockwise.)
- 2—Set the dial at  $350^{\circ}$ .
- 3—Remove the dial (1) by pulling forward.
- 4—While the oven is heating, adjust the length of the pilot flame by turning pilot valve (13) with a screw driver until a pilot flame  $\frac{3}{4}$ " to 1" long is secured. This flame not to be over one inch in length and is to be in very close proximity to the oven burner ports.
- 5—Make the air shutter adjustment. (See stove manufacturer's burner adjustment instructions.)

## TO ADJUST THE BY-PASS FLAME PROCEED AS FOLLOWS:



- 1—Allow oven to continue heating until oven burner flame has reduced.
- 2—Install the dial (1) by pushing on and turn to  $250^{\circ}$  to insure that the thermostat control valve is completely closed.
- 3—Remove dial (1) by pulling forward.
- 4—With a screw driver, turn bypass valve (12) until the burner flame is about  $\frac{1}{8}$ " long and appears as a small bead flame at each burner port. (If proper minimum flame cannot be secured, see instructions for cleaning thermostat valve.)
- 5—Replace dial (1) on control at  $250^{\circ}$  setting by pushing on.

## OVEN TEMPERATURE ADJUSTMENT

1—This adjustment is not necessary, as in the case of the minimum flame or pilot light, but may be made at this time if desired.

2—Place a 6" tested oven thermometer as near the center of the oven as can be quickly and accurately read.

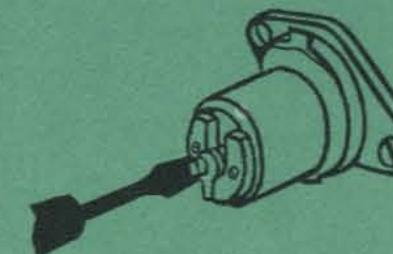
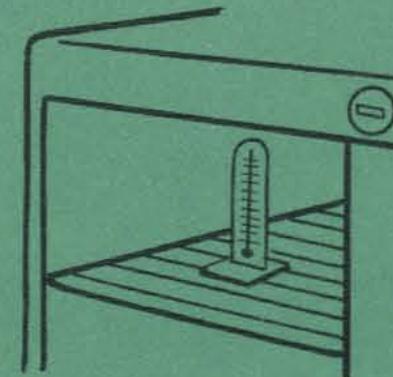
3—Set dial at  $400^{\circ}$  and allow oven to heat until flame has reduced.

4—Wait 15 to 20 minutes to insure thorough heating.

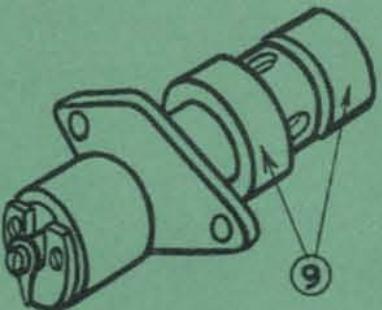
5—Open oven door and quickly read the oven thermometer.

6—If the readings of the thermometer and dial setting differ more than  $20^{\circ}$  the temperature adjustment should be made as follows:

- (a) Remove dial (1) by pulling forward. Do not turn dial while removing.
- (b) Loosen  $\frac{1}{2}$  turn (do not remove) lock screws (6).
- (c) Turn center screw (4) clockwise to increase or counter-clockwise to decrease the oven temperature. The calibration indicator (5) turns with screw (4). (Each graduation on the surrounding collar represents  $25^{\circ}$ .) See illustration.
- (d) Tighten lock screws (6).
- (e) Re-install dial (1) by pushing on.
- (f) The oven temperature will now increase or decrease as required until it agrees with the dial setting  $400^{\circ}$ .



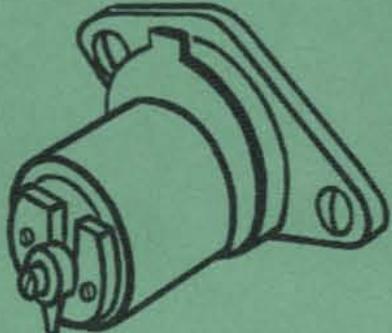
## SERVICING GAS VALVE AND THERMOSTAT VALVE



The type "C" Wilcolator is designed so that the oven valve core may be easily removed from the front without disturbing any of the piping and without removing the thermostat from the stove.

A dirty oven valve is generally indicated by the thermostat dial not turning smoothly. If it turns hard, it may be easily relubricated.

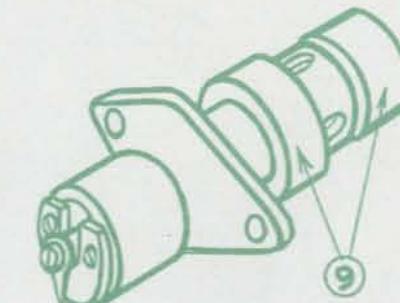
### TO REGREASE OVEN VALVE



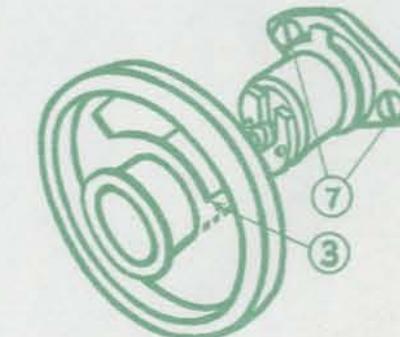
- 1—TURN OFF ALL GAS TO THE STOVE.
- 2—Set dial at "OFF" position.
- 3—Remove dial (1) by pulling forward.
- 4—Remove bezel (3) from manifold panel as follows: Push in on center ring (2), turn left (counter-clockwise) as far as it will go and then pull forward.
- 5—To make servicing easier, we suggest removing the manifold cover panel from the stove.
- 6—Remove screws (7). Note that one screw is larger than the other; this insures that re-assembly of the valve must be correctly made. Place them in the relative position in which they were removed.
- 7—Remove valve plug assembly (8) by pulling it straight out from

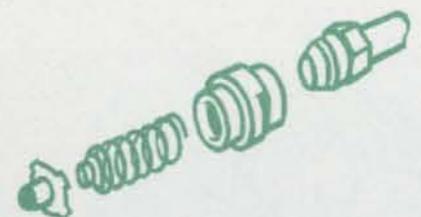
the control. Do not attempt to remove or adjust any of the component parts that make up the valve plug assembly.

NOTE: The holes in the die casting (11), through which the screws pass, correspond to the different sizes of the screws. This will assist in re-assembling the valve plug in the correct position.



- 8—Clean the face of the plug (9) thoroughly, making sure that no lint or grit adheres to the plug. This should be carefully done. Do not attempt to clean the inside bore (10) of the valve body.
- 9—Regrease the plug, using the best grade of high temperature valve grease. Place a small quantity on the plug and work it around with the fingers until the entire surface is thoroughly covered with a thin film of grease.
- 10—Re-install valve plug assembly (8) carefully in the same position in which it was removed with the solid side of plug towards the manifold pipe. (See instructions 7). You will observe inside of valve plug a tongued shaft. The tongue must enter the groove of the mating shaft inside the body without rotating either member.
- 11—Re-install screws (7) in same relative position. Replace manifold panel, bezel (3) and dial (1) in reverse order of the manner in which they were removed.
- 12—Make sure all permanent pilots on range are re-lit after turning on main gas valve.





## TO CLEAN THERMOSTAT VALVE

The construction of the type "C" Wilcolator allows the thermostat valve to be easily and quickly cleaned. A dirty thermostat valve is generally indicated by inability to reduce the bypass or minimum flame low enough, regardless of the adjustment of the bypass (12).

To clean the valve, best results will be obtained by removing the control from the range, following the instructions given.

## TO REMOVE CONTROL FROM RANGE

- 1—TURN OFF ALL GAS TO THE STOVE.
- 2—Remove dial (1) by pulling forward.
- 3—Remove bezel (3), as previously instructed. Remove manifold panel.
- 4—Disconnect oven burner gas line (22) from control by turning nut (21) counter-clockwise.
- 5—Disconnect pilot tube (24) from control by turning compression nut (23) counter-clockwise.
- 6—Remove cap screws (16).
- 7—Remove control from range being careful in removing the bulb from the oven not to break the small tubing.

After removing control from the range:

- 1—Remove valve cap (20).
- 2—Remove valve spring (19).
- 3—Remove valve (17).
- 4—Carefully wipe surfaces of the valve (18) and valve seat (inside thermostat body), using a soft cloth or chamois.
- 5—Re-install valve (17).
- 6—Re-install valve spring (19) and valve cap (20).

To replace the control, follow the above directions in reverse order. Be sure gasket (15) is in place between flange assembly (14) and body when replacing control. Turn on main gas supply and re-light all permanent burning pilot flames.

## TO REPLACE LIQUID-FILLED BULB AND BELLows ASSEMBLY

- 1—Remove control from stove as directed.
- 2—Unscrew bellows and bulb assembly (25) and replace with a new one. Be sure to tighten the hex nut.
- 3—Check oven temperature as directed and re-adjust if necessary.\*

