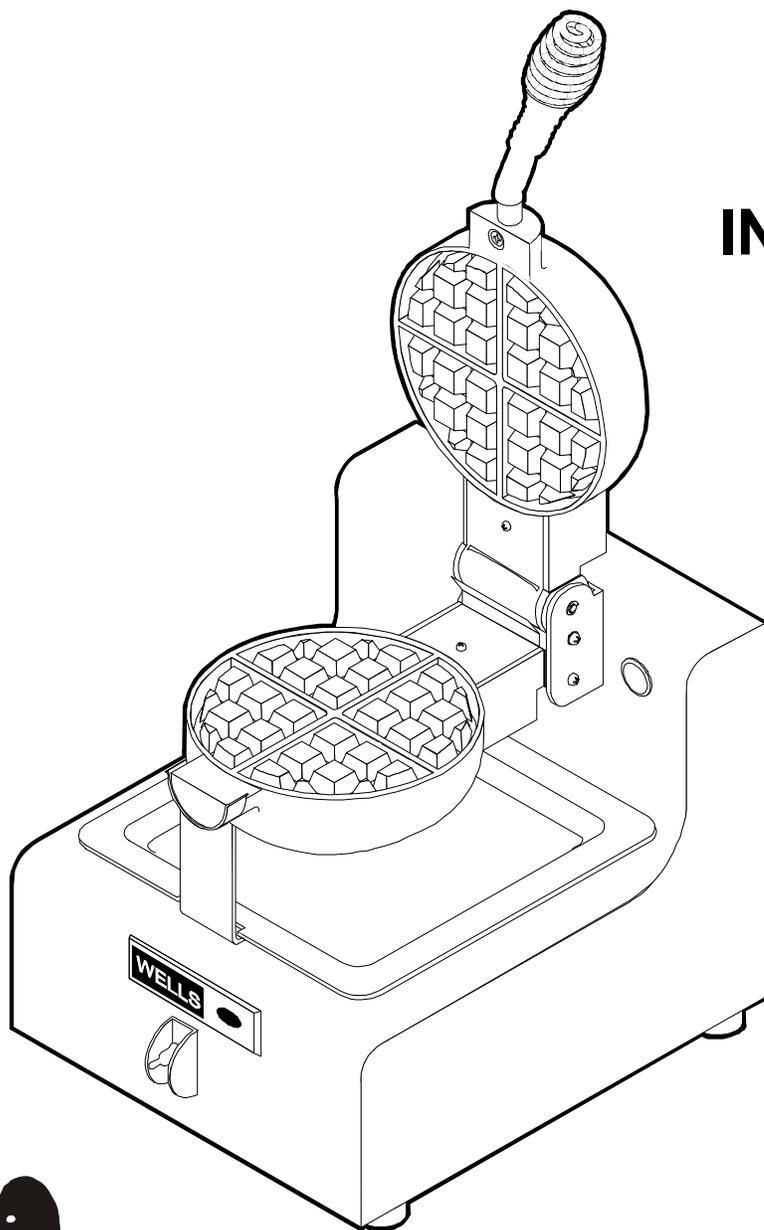


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# SERVICE INSTRUCTIONS for BELGIAN WAFFLE BAKERS

## Model BWB-1S



**IMPORTANT:** WELLS MFG. PROPRIETARY INFORMATION  
TECHNICAL CONTENT OF THIS MANUAL IS DESIGNED FOR  
USE BY QUALIFIED PROFESSIONAL TECHNICIANS ONLY

# GENERAL SAFETY PROCEDURES

Knowledge of proper procedures is essential to the safe operation of electrically energized equipment. In accordance with generally accepted product safety labeling guidelines for potential hazards, the following signal words and symbols are used throughout this manual.



**DANGER** - Danger is used to indicate the presence of a hazard which will cause severe personal injury, death, or substantial property damage in the event the statement is ignored.



**WARNING** - Warning is used to indicate the presence of a hazard which can cause personal injury and possibly death, or major property damage, in the event the statement is ignored.



**CAUTION** - Caution is used to indicate the presence of a hazard which will or can cause minor personal injury, or property damage in the event the statement is ignored.



**CAUTION** - Used to indicate the presence of an electrical hazard which will or can cause personal injury, or property damage in the event the statement is ignored.

**NOTE** - Note is used to notify personnel of installation, operation or maintenance information which is important, but not hazard related.

## WAFFLE BAKER PRECAUTIONS AND GENERAL INFORMATION

1. This waffle baker is intended for use to bake food products for human consumption. No other use is recommended or authorized by the manufacturer or its agents.
2. Service technicians must be familiar with the appliance use, limitations and associated hazards. Operating instructions and warnings must be read and understood by all service personnel.
3. This piece of equipment is made in the USA and has American sizes on hardware.
4. This manual supplements the Installation, Operation and Maintenance (IOM) manual p/n 45257 for this equipment. Refer to the IOM for normal operational procedures. Any trouble shooting guides, component views, wiring diagrams or parts lists included in this manual are intended for use by qualified technical personnel only.

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## GENERAL SPECIFICATIONS

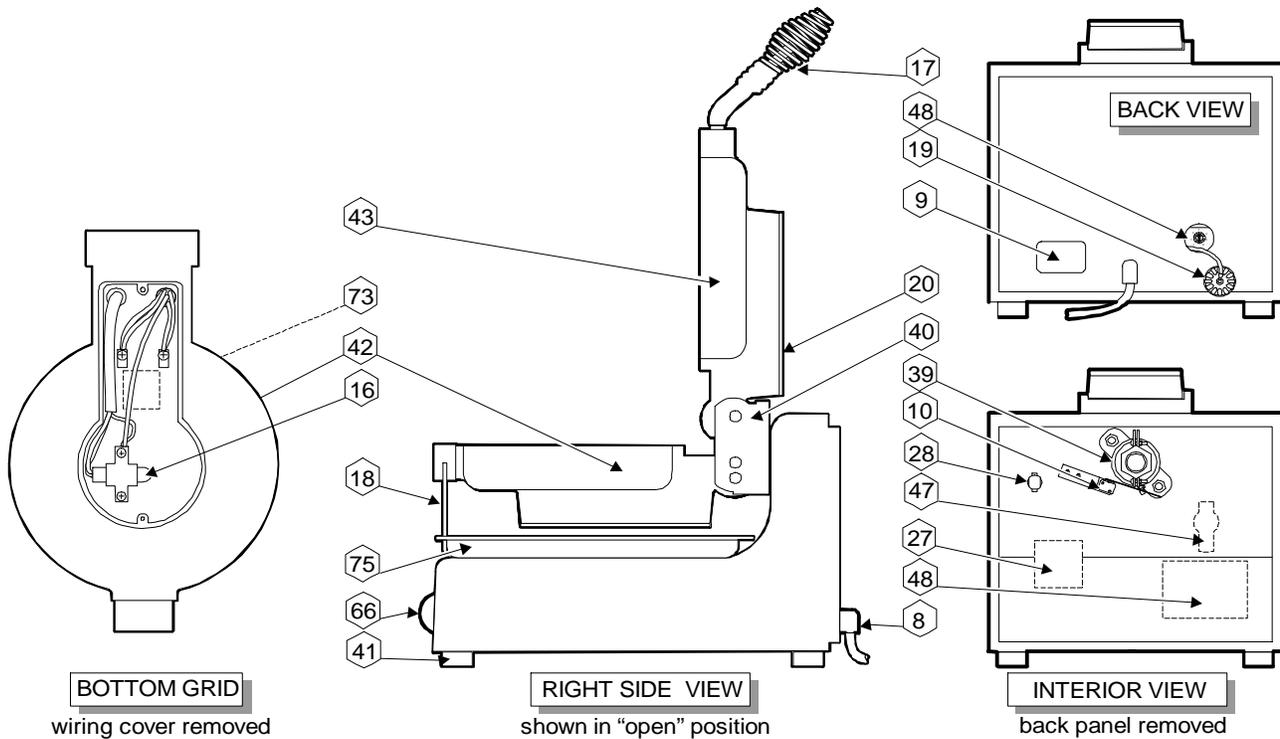
### DIMENSIONS

Wide	10-1/8"
Deep	14"
High	10-9/16"

### ELECTRICAL

Voltage	120 VAC 1Ø
Amperage	7.5 Amp
Wattage	900 W
Cord	NEMA 5-15P

# FEATURES AND OPERATING CONTROLS



- |       |                       |   |
|-------|-----------------------|---|
| 8.    | POWER CORD            | 115VAC NEMA 5-15P   |
| 9.    | DATA PLATE            | Specifies power requirements                              |
| 10.   | MICRO SWITCH          | Initiates timer   |
| 16.   | TEMPERATURE PROBE     | Thermistor temperature sensor                             |
| 17.   | HANDLE ASSY           | Used to raise / lower / rotate grids                      |
| 18.   | SUPPORT BRACKET       | Supports front of grids                                   |
| 19.   | HOLE PLUG             | Allows access to timer adjustment                         |
| 20.   | WIRING COVER          | Protect wiring in grids                                   |
| 27.   | TEMP. CONTROLLER      | In concert with thermistor, controls temperature of grids |
| 28.   | INDICATOR LIGHT       | Lit during timed cook cycle                               |
| 39.   | BEARING ASSY          | Supports back of grids; allows grids to rotate            |
| 40.   | PIVOT ASSY            | Holds grids in alignment; allows grids to rotate          |
| 41.   | RUBBER FEET           | Provide necessary non-slip support for waffle baker       |
| 42.   | BOTTOM GRID           | Cooking element; holds temperature probe                  |
| 43.   | TOP GRID              | Cooking element   |
| 47.   | BUZZER                | Sounds momentarily at end of cook cycle                   |
| 48.   | TIMER                 | Audio alarm - warns operator of end of cook cycle         |
| 66.   | POWER SWITCH          | Energizes the Waffle Baker                                |
| (73.) | (HI-LIMIT THERMOSTAT) | Eliminated on later models. See page 11.                  |
| 75.   | DRIP TRAY             | Catches excess waffle batter for easier clean-up          |

# PRECAUTIONS FOR SERVICING THIS EQUIPMENT



Disconnect electrical power to equipment prior to performing cleaning or other service. In order to avoid electrical shock, injury and/or equipment damage, use appropriate precautions whenever electrical power must be restored for adjusting, calibrating or taking voltage measurements.



Ensure that input power matches the nameplate data for voltage and phase. Input power circuit must meet or exceed the nameplate power requirements. Equipment is equipped with the proper electrical plug for the specific power requirements of the unit. **DO NOT** alter the power cord or plug. Never cut off a ground prong, or twist a prong, to allow the plug to fit an existing receptacle.



**CAUTION:** This Wells Waffle Baker is equipped with a three-prong electrical plug. The three-prong plug is part of a system that will protect you in the event of an electrical wiring failure. Be sure the three-prong plug is plugged into a matching and properly grounded three-prong receptacle. **DO NOT** cut or break off the ground prong of this plug.

***OPERATING AN APPLIANCE WITHOUT PROPER GROUNDING  
CAN RESULT IN SERIOUS PERSONAL INJURY***



**CAUTION:** Test electrical receptacle for proper polarity. For the safety of personnel, it is important that electrical ground and electrical neutral are maintained as designed by the factory.



**CAUTION:** **DO NOT** plug in or energize this appliance until Installation Instructions are read and followed. Injury to the operator and damage to the Waffle Baker may occur if these instructions are not followed.



**CAUTION:** Never submerge electrical equipment in water. Avoid contaminating electrical components with water when cleaning cooking surfaces or cabinet.

**IMPORTANT:** Never use a wire brush or metal scraper on aluminum components. Use a soft bristle, fiber brush to clean grids.

Data sheets and text in this manual are representative of current production models as of November, 2000. Specifications, Model Numbers, Product Numbers and data are subject to change at any time without notice.

Whenever servicing is required to correct electrical or temperature complaints, always refer service to a Wells Factory Authorized Service Agency.

Refer to Wells Form #37000 for a complete listing of factory authorized service agency locations.

# TROUBLE SHOOTING



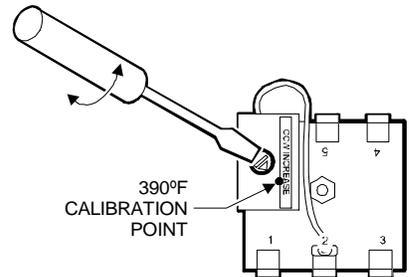
**CAUTION: ELECTRIC SHOCK HAZARD**  
Live electrical circuits are exposed during troubleshooting procedures



**CAUTION: BURN HAZARD**  
Equipment surfaces will be hot during troubleshooting procedures

## B. TEMPERATURE CHECKS

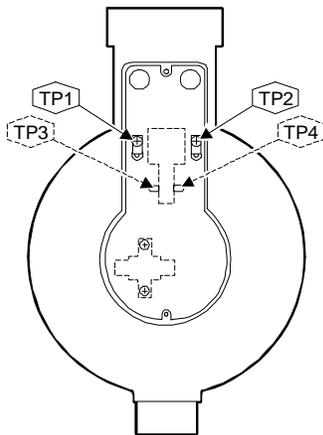
- Desired baking temperature is 390°F ±5°F (200°C ±3°C).
- Turn the power switch *on* and allow the Waffle Baker to heat for a minimum of 30 minutes. Insert a pyrometer of known accuracy between the grids and allow the readings to stabilize.
- Temperature may be adjusted by removing the back panel, and turning the dial on the temp controller:



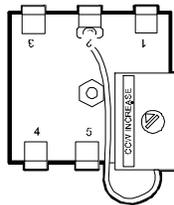
*CW* to decrease temperature; *CCW* to increase temperature.

NOTE: Manufacturer's calibration point (390°F) is indicated by a black dot on the face of the dial.

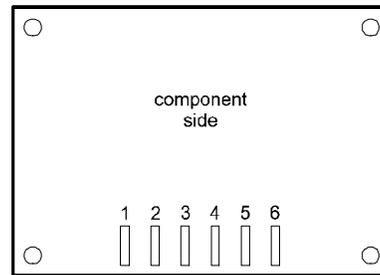
## A. ELECTRICAL TEST POINTS



ELEMENT / GRID  
bottom shown - top similar



TEMPERATURE CONTROLLER  
test points are terminals



TIMER MODULE  
test points are terminals

## B. AMPERAGE AND RESISTANCE CHECKS

- Amperage may be checked with an inductive amperage tester (Amprobe™ or similar) by encircling wire #4 at **temperature controller terminal 2**. Total amperage is 7.5 Amps with the waffle baker in the pre-heat mode.
- The heating element is integral with the Grid casting.**  
Disconnect wire #7 to #8 from temperature controller to check resistance of both grids at once. Resistance from #7 to #8 is 16Ω (cold) ± 1Ω. A reading of 32.0Ω indicates one defective element or a broken element jumper wire.

**Data for one element:** 450 Watts, 3.8 Amps

Resistance of one element **TP1** to **TP2**, (wires disconnected) is 32.0Ω (cold) ± 1Ω.

## D. VOLTAGE CHECKS

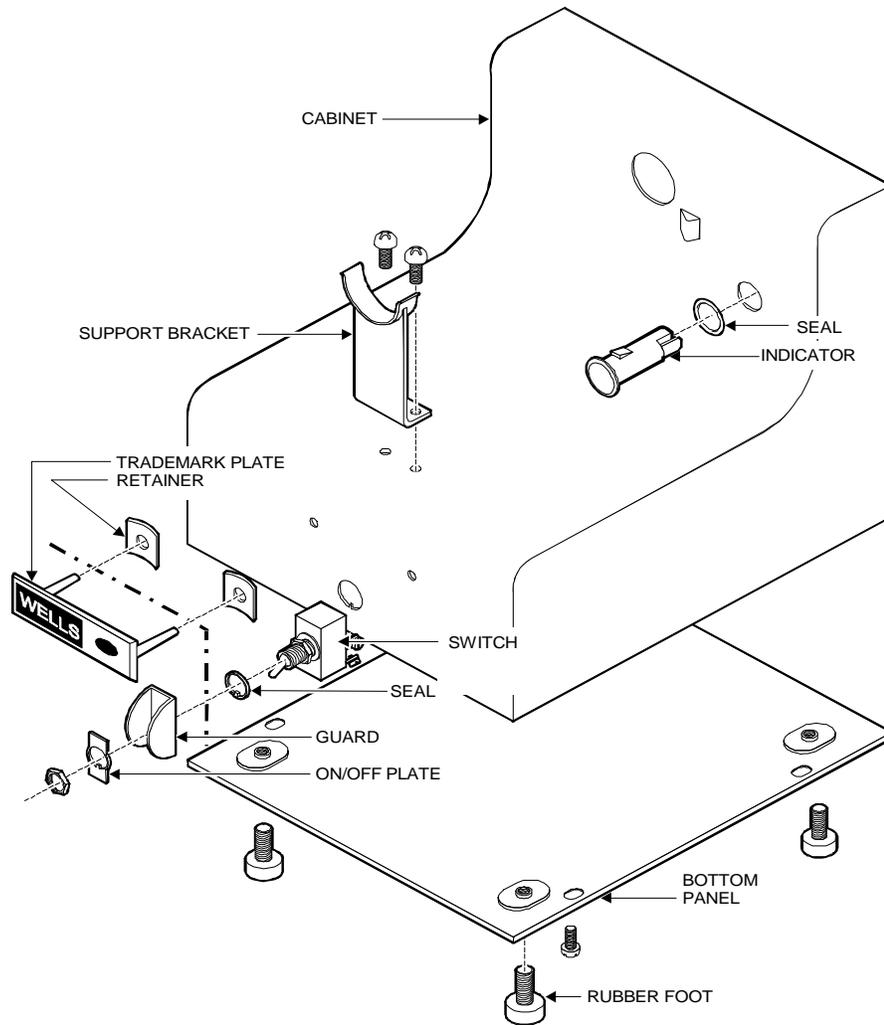
**NOTE:** Resistance of the temperature probe is typically 5 megohm at room temperature, with resistance decreasing as temperature rises. A shorted temperature probe will cause a runaway condition, and an open probe will cause a continuous *OFF* condition.

1. Voltage between **temperature controller** terminals **2 & 3** will be 120V any time the power switch (item 66) is turned *ON*. Absence of 120V indicates power switch *OFF* or defective, or a wiring or connector problem.
2. Voltage between **TP1** and **TP2** will be 120V when the unit is calling for heat. Absence of 120V, when heating is required, indicates:
  - a.) Power switch defective or *OFF*; or,
  - b.) Temperature controller defective or open temperature probe; or,
  - c.) Wiring or connector problem
3. Voltage between **TP1** and **TP2** will be 120V when the unit is calling for heat. Failure to heat when 120V is present indicates that the element being tested is defective.
4. Voltage between **temperature controller** terminals **1 & 3** will be 120V when the thermostat is calling for heat. Absence of 120V, when heating is required, indicates:
  - a.) Power switch defective or *OFF*; or,
  - b.) Temperature controller defective, or
  - c.) Shorted temperature probe or probe wiring shorted (check between terminals **4 & 5**); or,
  - d.) Wiring or connector problem
5. **TP3** and **TP4** are found only on waffle bakers equipped with a hi-limit thermostat. The hi-limit thermostat should be removed and bypassed to increase the reliability of the waffle baker.

**NOTE:** Newer waffle bakers do not use a hi-limit thermostat. Existing hi-limit thermostats may be safely removed and bypassed without affecting the UL approval. See page 11.

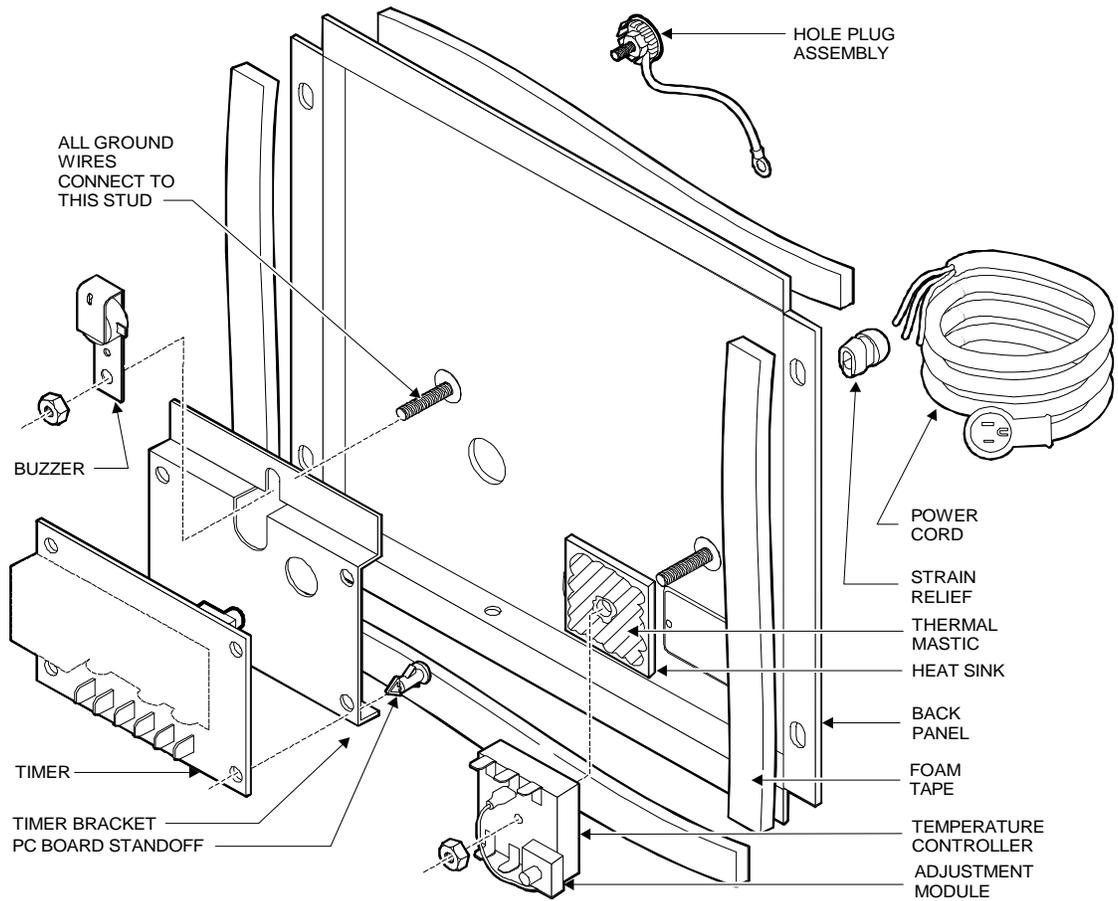
6. Voltage between **timer** terminals **2 & 3** is 120V any time the power switch is *ON*. Absence of 120V indicates:
  - a.) power switch defective or *OFF*; or,
  - b.) a wiring or connector problem
7. Voltage between **timer** terminals **5 & 6** is 0V when the microswitch (item 10) is activated. Any voltage other than 0V indicates a defective microswitch, or a wiring or connector problem.
8. Voltage between **timer** terminals **1 & 2** is 120V during the cook cycle. Absence of 120V indicates a defective timer module.
9. An indicator light NOT lit when reading a voltage between **timer** terminals **1 & 2** is 120V indicates:
  - a.) loose or defective wiring to the indicator light; or,
  - b.) defective indicator light
10. Voltage between **timer** terminals **2 & 4** is momentarily 120V at the end of the cook cycle. Absence of 120V indicates a defective timer module.

# SERVICING INSTRUCTIONS



## A. CABINET ASSEMBLY

1. Insert the trademark plate from the front. From the rear of the cabinet, slide retainers over the trademark plate pins. Using a deep socket, tap the retainers down until they are flush with the cabinet surface.
2. Attach wires 1, 2, 3 & 4 to the switch. Thread one nut onto the switch shaft approximately 1/2", then slide the switch seal over the switch shaft. Insert the switch from the rear of the cabinet. Slide the guard, then the on/off plate over the switch shaft. Thread on and tighten the second nut.
3. Work the seal over the body of the indicator light, then press the indicator into the cabinet until it pops securely into place.
4. Install the support bracket.
5. Screw four rubber feet into the bottom panel, then install the bottom panel onto the cabinet.



## B. BACK PANEL ASSEMBLY

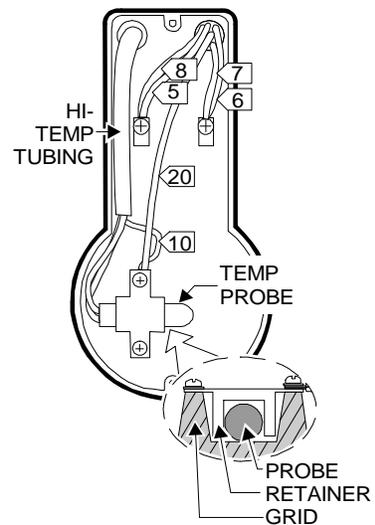
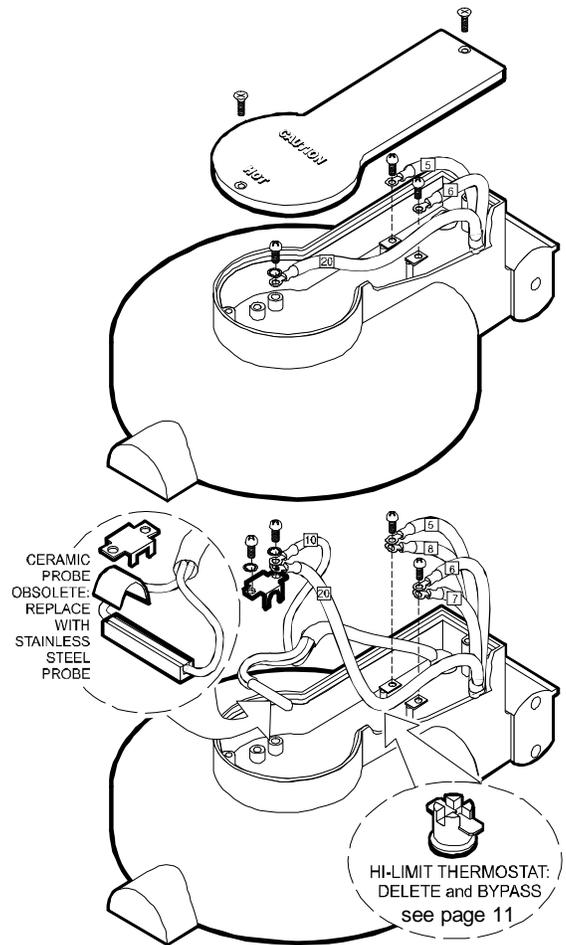
1. Apply foam tape to the back panel flange - inside surfaces for the right, left and bottom; outside surface for the top.
2. Insert the power cord into the strain relief, then install the strain relief from the outside of the back panel.
3. From the outside, thread the ground wire of the hole plug assembly thru the large hole in the back panel. Tap the hole plug into place.
4. Press the adjustment module onto pin 6 of the temperature controller and secure it with a dab of silicone sealant. Press the wire lead of the adjustment module onto pin 2. Coat both faces of the heat sink with thermal mastic (heat transfer compound). Slide the heat sink, then the temperature controller over the stud closest to the data plate embossing. The adjustment module should be oriented down and toward the outside.
5. Insert four printed circuit board standoffs into the timer bracket. Push them until the button head is flush against the inside surface. Slide the bracket over the stud closest to the large hole, then secure with two screws from the bottom.
6. Slide the buzzer over the same stud as the timer bracket.
7. Lightly thread the nut onto the stud to retain the buzzer. Upon wiring the unit, after all ground wires have been attached to this stud, tighten the nut securely to ensure a positive chassis ground connection.

## C. TOP GRID

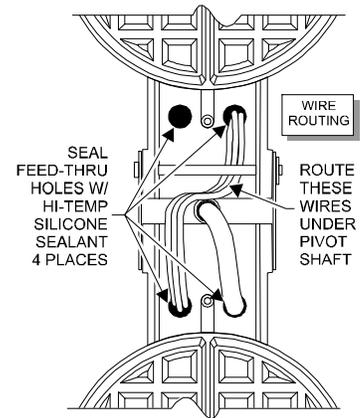
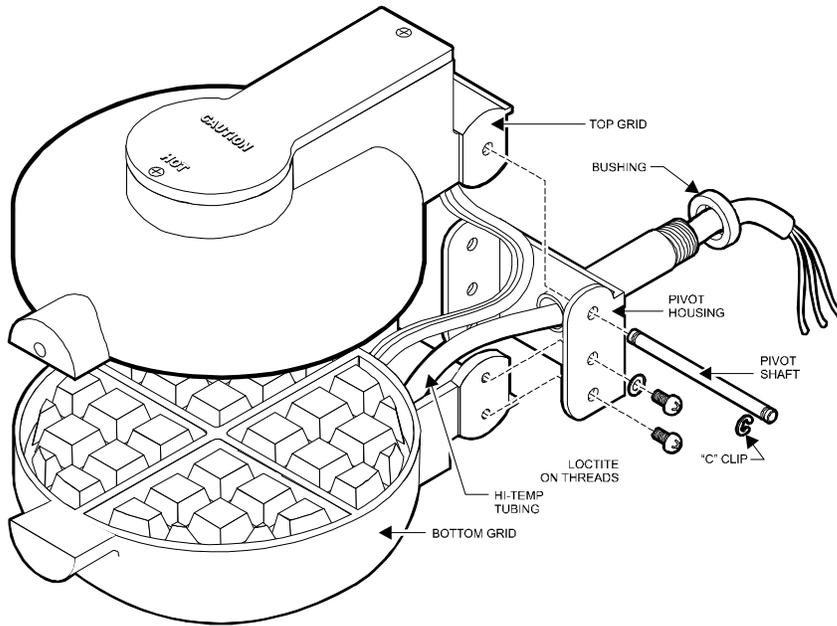
1. Prepare grid casting by applying a small amount of anti-sieze paste to all threaded holes.
2. Feed wires 5, 6 & 20 thru the right feed-thru hole. Attach wires 5 & 6 to the element terminals. Attach wire 20 to the center-most boss at the front of the casting.
3. Pull the wires back until they have only a small amount of slack. Seal both sides of both feed-thru holes with hi-temperature silicone sealant.
4. Install the grid cover.

## D. BOTTOM GRID

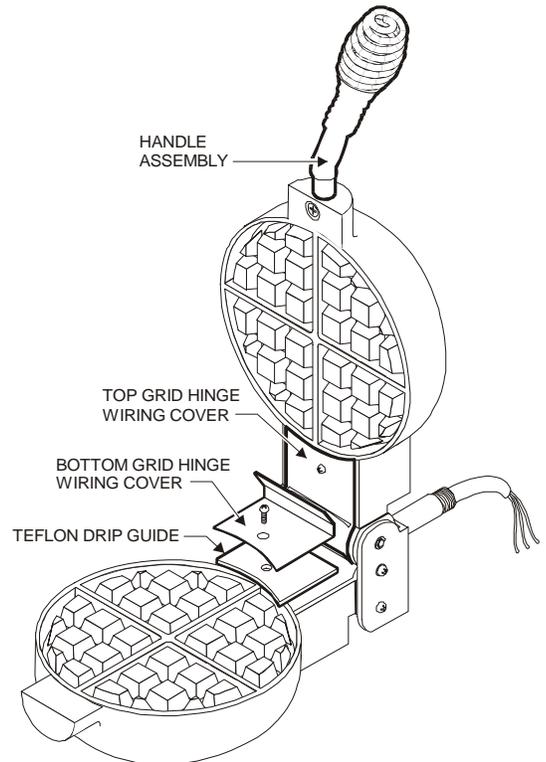
1. Prepare grid casting by applying a small amount of anti-sieze paste to all threaded holes.
2. Set the grids waffle-side down, and with the rear portions touching. This positions the grids properly for later assembly.
3. Feed the temperature probe leads and wire 10 thru the hi-temp tubing, then thru the left feed-thru hole.
4. Feed wires 5, 6, & 20 (from top grid) and wires 7 & 8 thru the right feed-thru hole. Attach wires 5 & 8 to one element terminal, and wires 6 & 7 to the other element terminal.
5. Set the temperature probe between the two screw bosses with its round nose pointing to the right. Slide the retainer over the probe. Install the screws with wires 10 & 20 attached to the center-most screw boss.
6. Route wires as shown. Pull the wires and hi-temp tubing back until they have only a small amount of slack. Seal both sides of both feed-thru holes with hi-temperature silicone sealant.
7. Install the grid cover.



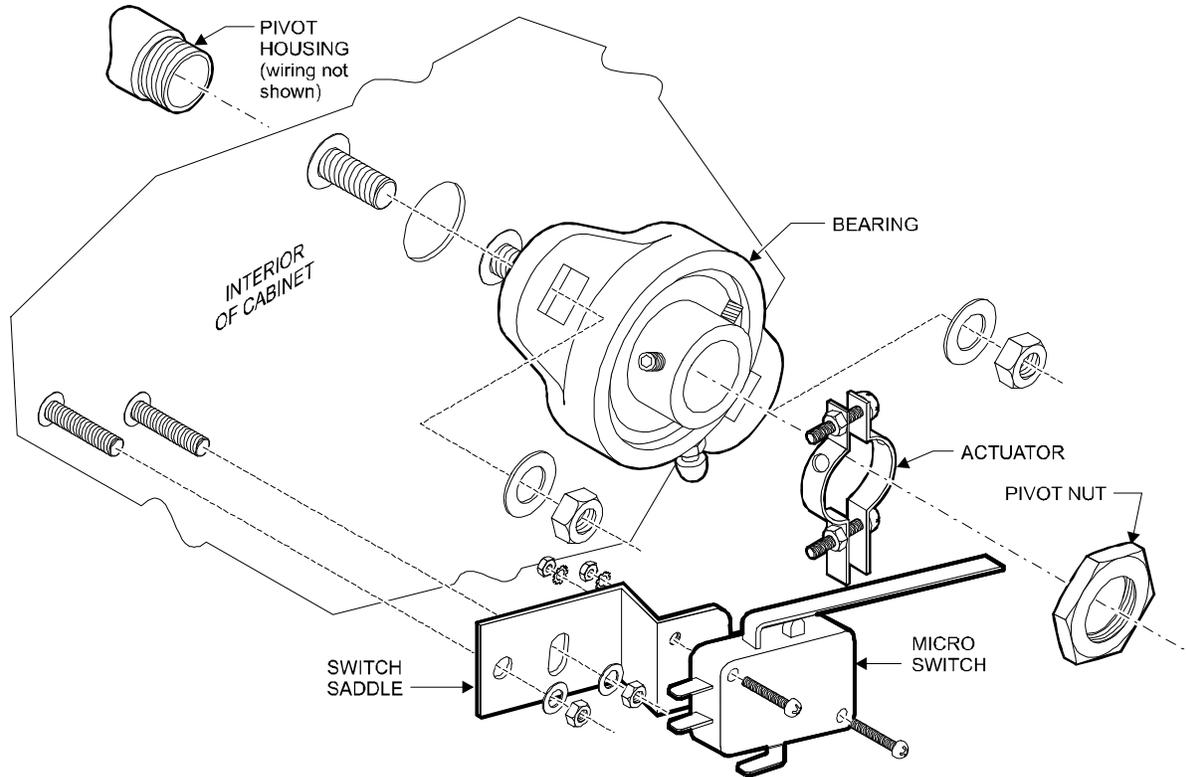
## E. GRID ASSEMBLY



1. Turn and position the grids so that the waffle-sides are facing each other. Thread the hi-temp tubing thru the shaft of the pivot housing. Attach the pivot housing to the bottom grid with screws (bottom hole) and screws with washers (middle hole). Use anti-sieze paste on the screw threads, but do not tighten the screws yet.
2. Insert the pivot shaft thru the pivot housing and top grid, making sure wires 5, 6 & 20 are routed between the pivot shaft and the body of the top grid casting. Secure the pivot shaft with "C" clips on each end.
3. Verify that the top and bottom grids match at the mating surfaces, then tighten the screws securing the pivot housing to the bottom grid.
4. Thread the brass bushing over hi-temp tubing and the shaft of the pivot housing. Press the bushing all the way against the face of the pivot housing.
5. Install the handle assembly in the top grid. Use Loctite on the screw threads
6. Install the top grid wiring cover, then the teflon drip guide and bottom grid wiring cover. Use anti-sieze paste on the screw threads.
7. The top grid should pivot smoothly. Gently bend the upper lip of the bottom grid wiring cover until the gap between wiring covers is maintained thru the entire swing of the top grid, and the top grid closes completely on the bottom grid.



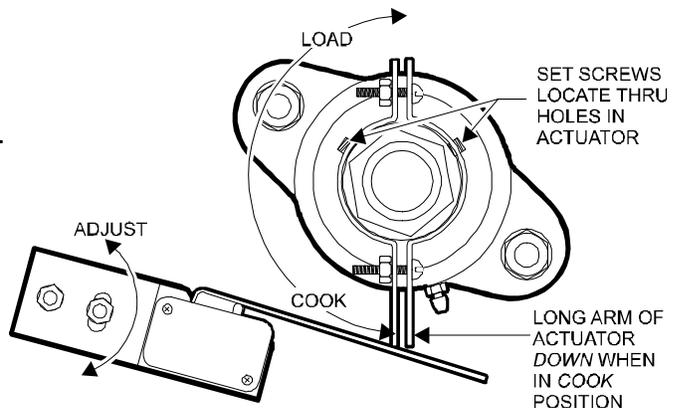
## F. PIVOT BEARING ASSEMBLY



1. The pivot bearing may be out of alignment as it comes from the box. Tap the collar of the bearing with a plastic hammer until the axis of the bearing is perpendicular to the base. Attach the pivot bearing to the inside of the cabinet. The zerk fitting points downward. Use Loctite on the threads.
2. Looking into the back panel, turn the bearing until the set screws are at the 10:00 and 2:00 position. Assemble the actuator to the pivot bearing. The set screws will protrude thru the holes on the actuator halves. The long arm of the actuator should point down, with the screws pointing left.
3. Thread the wires of the grid assembly thru the pivot bearing from the outside, then insert the pivot housing shaft into the pivot bearing. Thread the actuator nut on the pivot housing shaft using Loctite on the threads. Tighten the pivot nut until the grid assembly rotates freely, but latches securely into the detent.

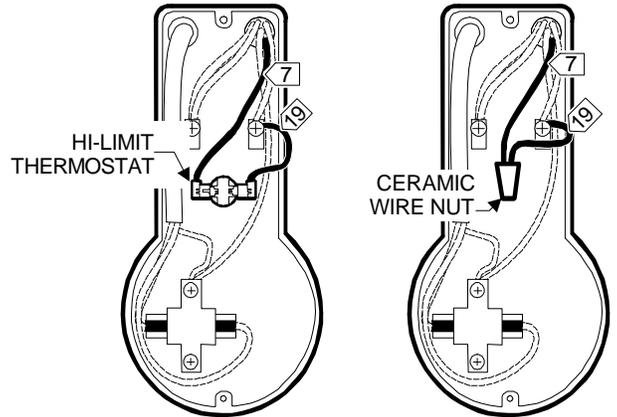
4. If not already present, assemble the support bracket to the cabinet. Make sure the front of the grid assembly rides smoothly in the support.
4. Rotate the grid assembly to the *COOK* position. Make sure the long arm of the actuator points straight down, then tighten the set screws.

5. Using Loctite on the threads, assemble the microswitch to the switch saddle. Install the switch assembly into the cabinet. Adjust the position of the microswitch until a single *CLICK* is heard from the microswitch as the long arm of the actuator contacts the microswitch arm and the grid assembly rotates into the cook position detent.

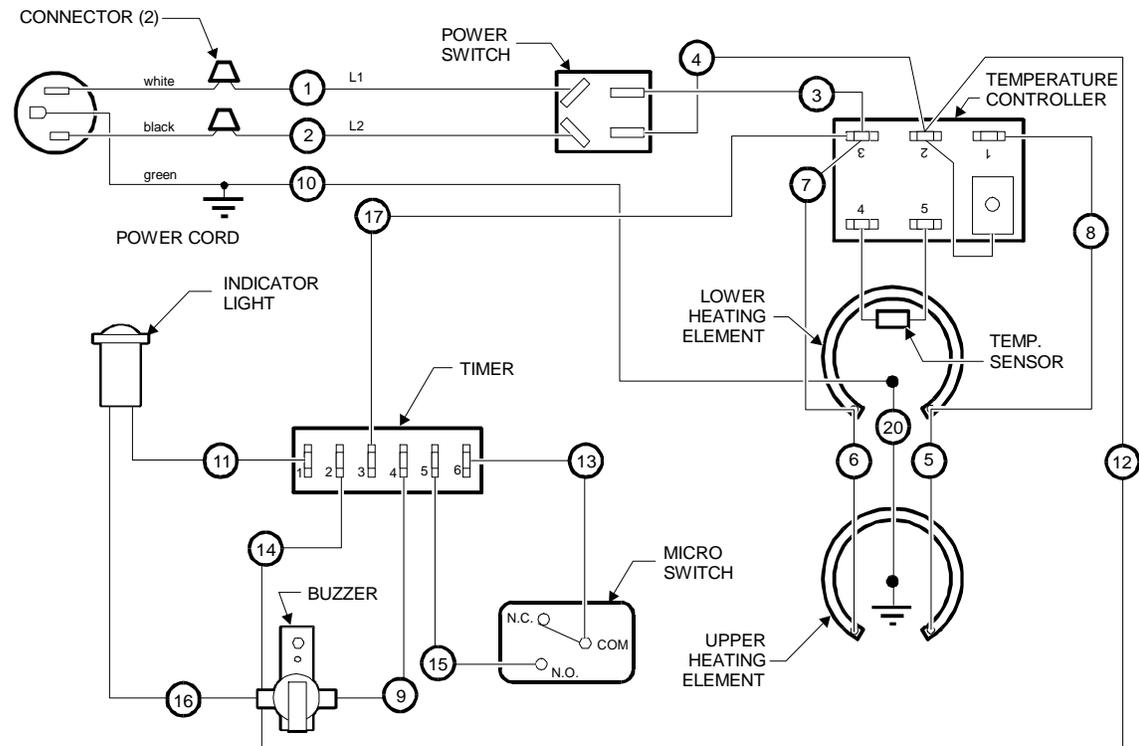


## G. BYPASS HI-LIMIT THERMOSTAT

1. The hi-limit thermostat in this Belgian Waffle Baker has been found to be unnecessary. Wells BWB-1S has been tested and approved by UL for use without the hi-limit thermostat.
2. All units requiring service, whether in or out of warranty, should have the hi-limit thermostat bypassed.
3. With the power cord unplugged, remove wires 7 & 19 from the hi-limit thermostat (located in the bottom grid).
4. Cut the push-on terminals from wires 7 & 19, as close to the terminals as possible.
5. Remove 1/2" of insulation from the ends of wires 7 & 19. Connect the wires together using a ceramic wire nut of the appropriate size.
6. Plug the waffle baker in, and test for proper operation.



## WIRING DIAGRAM



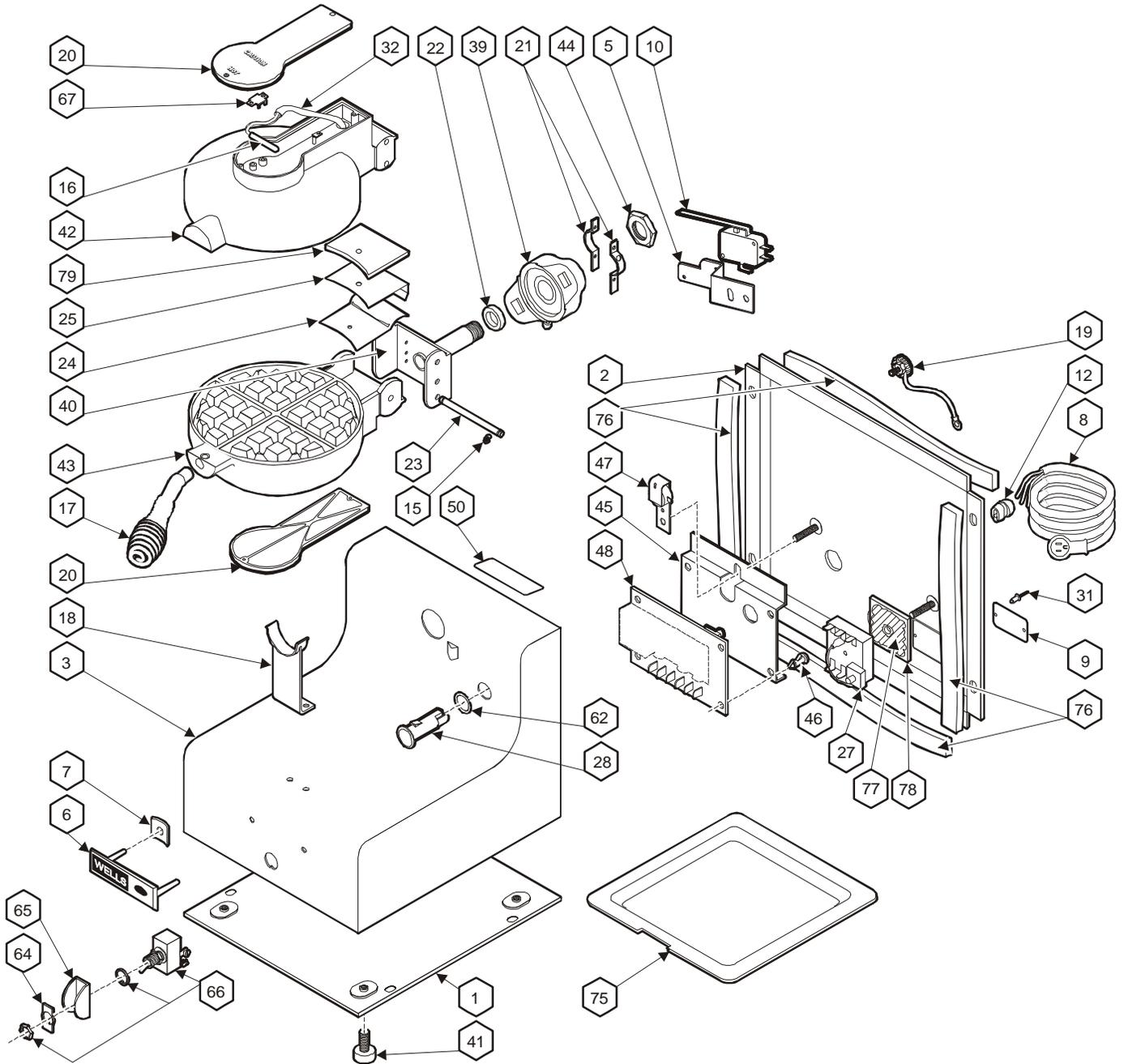
VOLTS	AMPS 1Ø	
120	7.5	50/60 Hz

p/n 44867 Rev.D

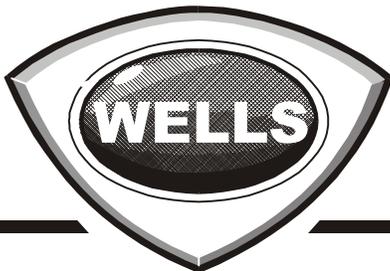
# PARTS BREAKDOWN

REF #	DESCRIPTION	PART #
1	BOTTOM PANEL	
2	BACK PANEL	
3	WRAP, CABINET ASSEMBLY	
5	SWITCH SADDLE	
6	TRADEMARK PLATE	
7	RETAINER, TRADEMARK (pk 10)	51038
8	CORD, 125v 15a NEMA 5-15p	55539
9	DATA PLATE	
10	SWITCH MICRO 120V 15A	64887
12	STRAIN RELIEF	51217
15	RETAINER RING (pk 10)	50222
16	PROBE, THERMISTOR, BWB-1S	64872
17	HANDLE ASSY BWB-1S	62257
18	BRACKET, FRONT SUPPORT BWB-1S	62028
19	HOLE PLUG ASSY	61064
20	COVER, BWB-1S	62029
21	ACTUATOR	
22	SPACER, BWB-1S	62035
23	PIN PIVOT UPPER HINGE, BWB-1S	62018
24	COVER, WIRING, UPPER BWB-1S	62023
25	COVER, WIRING, LOWER BWB-1S	62031
27	CONTROLLER, TEMPERATURE BWB-1S	64276
28	LIGHT, INDICATOR RED	60758
31	POP RIVET, 1/16 1/8	
32	SLEEVING, HI-TEMP (8.5")	64201
39	BEARING, BWB-1S	62232
40	HOUSING ASSY, PIVOT	62006
41	RUBBER FEET, (pk 4)	21657
42	GRID & ELEMENT, LOWER BWB-1S	62007
43	GRID & ELEMENT, UPPER BWB-1S	62008
44	NUT, PIVOT HOUSING	
45	TIMER BRACKET	
46	STANDOFF, PC BOARD BWB-1S	63565
47	BUZZER	60529
48	TIMER, ELECTRONIC, BWB-1S	63179
50	LABEL, DO NOT IMMERSE	
62	SEAL, O-RING, SIGNAL LIGHT	64890
64	ON-OFF PLATE	53192
65	SWITCH GUARD	
66	SWITCH, TOGGLE W/SEAL	64904
67	HOLDER, PROBE BWB-1S	64885
75	DRIP TRAY, BWB-1S	21107
76	FOAM TAPE	
77	HEAT TRANSFER COMPOUND (THERMAL MASTIC)	66160
78	HEAT SINK	502900
79	TEFLON DRIP GUIDE	503523
NOT SHOWN:		
	WIRING DIAGRAM BWB-1S	44876
	WIRESET BWB-1S (OVER HEATED OR RUNAWAY TEMP DAMAGE)	64917
	ELEMENT JUMPER WIRESET ONLY	502863

# BWB-1S BELGIAN WAFFLE BAKER EXPLODED VIEW



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