



Southbend

A MIDDLEBY COMPANY

IMPORTANT	
FOR FUTURE REFERENCE	
Please complete this information and retain this manual for the life of the equipment.	
MODEL #	_____
SERIAL #	_____
DATE PURCHASED	_____

OWNER'S MANUAL

INSTALLATION
USER'S GUIDE
SERVICE
PARTS

INFRA-RED BROILERS

**MODELS: 170A; 171A; 270A
170D; 171D; 270D
(Free Standing Units)**

These instructions should be read thoroughly before attempting installation. Installation and Start Up should be performed by a qualified service technician. The Manufacturer, Southbend (Head Office: 1100 Old Honeycutt Rd., Fuquay-Varina, North Carolina 27526), informs you that unless the installation instructions for the above described Southbend product are followed and performed by a qualified service technician, (a person experienced in and knowledgeable concerning the installation of commercial gas and/or electrical cooking equipment) then the terms and conditions of the Manufacturer's Limited Warranty will be rendered void and no warranty of any kind shall apply.

If the equipment has been changed, altered, modified or repaired by other than a qualified service technician during or after the 12-month limited warranty period, then the manufacturer shall not be liable for any incidental or consequential damages to any person or to any property which may result from the use of the equipment thereafter. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion thereto may not apply to you.

In the event you have any questions concerning the installation, use, care, or service of the product, write Customer Service Department, Southbend, 1100 Old Honeycutt Rd., Fuquay-Varina, North Carolina 27526.

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.

Congratulations! You have just purchased one of the finest pieces of heavy-duty, commercial cooking equipment on the market today.

You will find that your new equipment, like all Southbend equipment, has been designed and manufactured to some of the toughest standards in the industry — those of Southbend. Each piece of Southbend equipment has been carefully engineered and designs have been verified through laboratory tests and field installations in some of the more strenuous commercial cooking applications. With proper care and field maintenance, you will experience years of reliable, trouble-free operation from your Southbend equipment. To get the best results, it's important that you read this manual carefully.

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Southbend Infra-Red Broilers are unique in design. They incorporate our exclusive Schwank ceramic tile burners, which generate infra-red rays that provide better quality products in about one half the broiling time, with less gas input than ordinary broilers. Very little energy is wasted in heating secondary surfaces, as is necessary in conventional-type broilers.

Since the surface of these tiles becomes red hot in less than one-half minute, the unit is ready to start broiling with a very short preheat time, thereby saving time, labor and energy.

These glowing surfaces emit intense infra-red rays which are transmitted directly onto the product, thereby yielding better tasting broiled food in less time.

Use of 100% clean primary air, which is constantly conveyed to these burners, insures efficient combustion and maintains full production capacity and maximum recovery, even in the severest conditions of grease vapors and smoke atmospheres, which are created during any broiling process.

The Southbend Infra-Red Broilers provide such speed and recovery that broiling techniques may require some modification in order to take full advantage of its productive capabilities.

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

RETAIN THIS MANUAL FOR FUTURE REFERENCE.

INTENDED FOR COMMERCIAL USE ONLY. NOT FOR HOUSEHOLD USE.

FOR YOUR SAFETY

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

KEEP AREA AROUND APPLIANCES FREE AND CLEAR FROM COMBUSTIBLES.

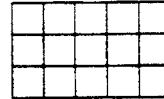
IN THE EVENT A GAS ODOR IS DETECTED, SHUT DOWN EQUIPMENT AT THE MAIN SHUTOFF VALVE AND CONTACT THE LOCAL GAS COMPANY OR GAS SUPPLIER FOR SERVICE.



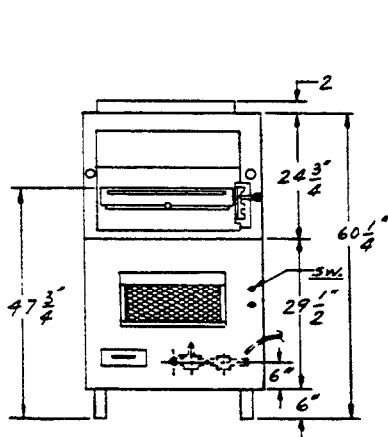
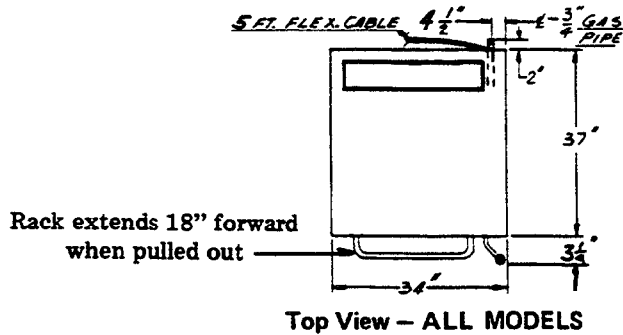
A MIDDLEBY COMPANY

1100 Old Honeycutt Road
Fuquay-Varina, NC 27526
(919) 552-9161
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(800) 348-2558

INFRA-RED BROILERS INSTALLATION

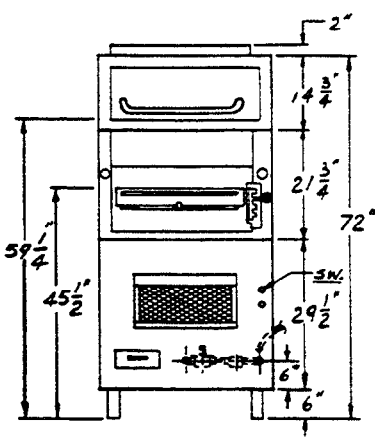


MODEL	GAS TYPE	MANIFOLD PRESSURE	BURNER			PILOT		
			RATE BTUs/HR.	NO.	ORIFICE SIZE	RATE BTUs/HR.	NO.	ORIFICE SIZE
170A 171A 270A (Per Deck)	Natural	4" W.C.	13,250	6	#51 (.067)	Approx. 800	3	Adjustable
	Propane	10" W.C.	13,250	6	#59 (.041)	Approx. 800	3	Adjustable
170D 171D 270D (Per Deck)	Natural	4" W.C.	26,000	3	#41 (.0960)	Approx. 800	3	
	Propane	10" W.C.	26,000	3	#53 (.0595)	Approx. 800	3	

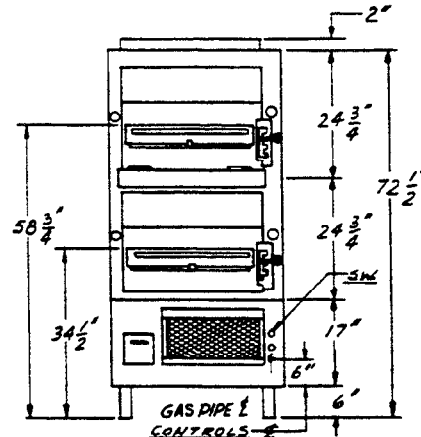


ELECTRIC: Each Model has:
One cord with 3-prong grounded plug for a supply of 115 VAC—60Hz—15 Amp.

For blower:
Motor rated at 1.0 Amp.



RACK: All Models
26 3/4" deep by 24" wide.
First 3" of rack is food holding area.



MODEL 171A or 171D ONLY
Warming oven may be equipped with a 3000 watt element.

This circuit has a separate
208/240V — Ø supply
20 Amp.



INSTALLATION

WARNING: THESE PROCEDURES MUST BE FOLLOWED BY QUALIFIED PERSONNEL OR WARRANTY WILL BE VOIDED.

GENERAL:

The unit, when installed, must conform with local codes, or in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1-Latest Edition.

The unit, when installed, must be electrically grounded and comply with local codes, or in the absence of local codes, with the National Electrical Code ANSI/NFPA 70-Latest Edition.

Canadian installation must comply with CAN/CGA-B149.1 Natural Gas Installation Code, Code CAN/CGA-B149.2 Propane Installation Code, and CSA C22.1 Canadian Electrical Code Parts I and II.

These models are design certified for operation on Natural or Propane gases.

The appliance should be connected **ONLY** to the type of gas for which it is equipped. All Southbend equipment is adjusted at the factory, however, blower air shutters and pilot heights should be checked at installation and adjusted if necessary. Check type of gas on serial plate on the left front edge of the top.

For orifice sizes and pressure regulator settings refer to the chart under "SPECIFICATIONS."

If applicable, the vent line from the gas appliance pressure regulator shall be installed to the outdoors in accordance with local codes or, in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1-1988. Canadian installation must comply with CAN/CGA-B149.1 Natural Gas Installation Code, Code CAN/CGA-B149.2 Propane Installation Code.

An adequate gas supply is imperative. Undersized or low-pressure lines will restrict the volume of gas required for satisfactory performance. A pressure regulator, which is provided with each unit, is set to maintain a 4" W.C. manifold pressure for natural gas and 10" W.C. manifold pressure for propane gas. However, to maintain these conditions the pressure on the supply line, when all units are operating simultaneously, should not drop below 7" W.C. for natural gas or 11" W.C. for propane gas.

All pipe joints should be tested for leaks with a soap and water solution before operating the unit. The test pressure should not exceed 14" W.C.

CAUTION: THIS APPLIANCE AND ITS INDIVIDUAL SHUTOFF VALVE MUST BE DISCONNECTED FROM THE GAS SUPPLY PIPING SYSTEM DURING ANY PRESSURE TESTING OF THAT SYSTEM AT TEST PRESSURES IN EXCESS OF 1/2 PSIG (3.45 kPa).

THIS APPLIANCE MUST BE ISOLATED FROM THE GAS SUPPLY PIPING SYSTEM BY CLOSING ITS INDIVIDUAL MANUAL SHUTOFF VALVE DURING ANY PRESSURE TESTING OF THE GAS SUPPLY PIPING SYSTEM AT TEST PRESSURES EQUAL TO OR LESS THAN 1/2 PSIG (3.45 kPa).

A 1/8" pressure tap is located on each manifold of the "A" suffix units, just behind the panel above the broiling section(s). On "D" suffix units the 1/8" pressure tap is in the blower compartment, just after the pressure regulator.

EXHAUST FANS AND CANOPIES:

Canopies are set over ranges, ovens, etc., for ventilation purposes. It is recommended that a canopy extend 6" past appliance and be located 6'6" from the floor. Filters should be installed at an angle of 45° or more with the horizontal. This prevents dripping grease and facilitates collecting the run-off grease in a drip pan, usually installed with a filter. A strong exhaust fan tends to create a vacuum in the room and may interfere with burner performance or may extinguish pilot flames. Fresh air openings approximately equal to the fan area will relieve such vacuum. In case of unsatisfactory performance on any appliance, check with the exhaust fan in the "OFF" position.

WALL EXHAUST FAN: Should be installed at least two feet above the vent opening at the top of the shelf or backsplash.

NOTE: Due to the variety of problems encountered by outside weather conditions, venting by canopies or wall fans is preferred over any type of direct venting.

WARNING: 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 at the bottom where the filter is located, as combustion air enters these areas.



MINIMUM CLEARANCES FROM COMBUSTIBLE CONSTRUCTION:

SIDE - 6 INCHES

BACK - 6 INCHES

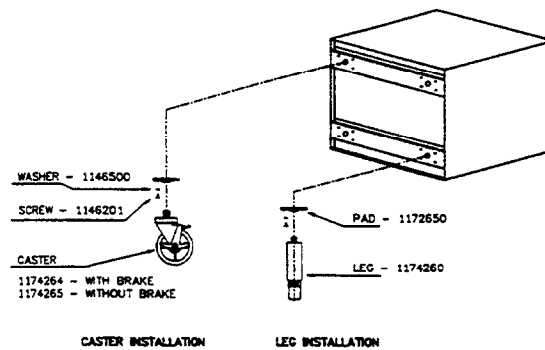
FLOOR - 6 INCHES

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

WARNING: THESE PROCEDURES MUST BE FOLLOWED BY QUALIFIED PERSONNEL OR WARRANTY WILL BE VOIDED.

LEGS OR OPTIONAL CASTERS:

1. A set of legs or casters are packed in the unit. A threaded receptacle is fastened to the base frame at each corner. Each leg or caster has a similar mating thread.
2. Raise unit sufficiently to allow legs or casters to be screwed into the receptacles. For safety, "shore up" and support the unit with an adequate blocking arrangement strong enough to support the load.
3. Lower unit gently. Never drop or allow the unit to fall.
4. The legs or casters can be adjusted to overcome an uneven floor.



WARNING:

FOR AN APPLIANCE EQUIPPED WITH CASTERS, THE INSTALLATION SHALL BE MADE WITH A CONNECTOR THAT COMPLIES WITH THE STANDARD FOR CONNECTORS FOR MOVABLE GAS APPLIANCES, ANSI Z21.69-1987, CAN/CGA-6.16-M87 AND A QUICK-DISCONNECT DEVICE THAT COMPLIES WITH THE STANDARD FOR QUICK-DISCONNECT DEVICES FOR USE WITH GAS FUEL, ANSI Z21.41-1978, AND ADDENDA, Z21.41a-1981, Z21.41b-1983 AND CAN1 6.9 M79. 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.

WARNING: IF DISCONNECTION OF THIS RESTRAINT IS NECESSARY TO MOVE THE APPLIANCE FOR CLEANING, ETC., RECONNECT IT WHEN THE APPLIANCE IS MOVED TO ITS ORIGINALLY INSTALLED POSITION.

GAS CONNECTION:

1. Locate the 3/4" NPT threaded pipe nipple protruding from the lower rear of the unit.
2. Connect gas supply to this nipple. Use pipe joint compound which is suitable for LP gas on all threaded connections.*
3. Check for gas leaks with a soapy water solution. NEVER use an open flame.

**It is recommended that a main shutoff valve be provided outside the unit at the time of installation.*

ELECTRICAL CONNECTION:

The standard electrical equipment is for a 115 VAC, 60 cycle, 15 AMP single-phase system and is supplied by a cord set with a third wire ground and a three-prong plug which fits any standard 115V, three-prong, grounded receptacle. The blower is powered by a 1/40 H.P. motor using 1 AMP on "A" suffix models (see Diagram 3), and a 1/80 H.P. motor using less than 1 AMP on "D" suffix models (see Diagram 2). Location of diagram will be attached near the blower motor.



INSTALLATION

WARNING:

THE THREE-PRONG (GROUNDING) PLUG IS SUPPLIED FOR YOUR PROTECTION AGAINST SHOCK HAZARD AND MUST BE ELECTRICALLY GROUNDED IN ACCORDANCE WITH LOCAL CODES, OR IN THE ABSENCE OF LOCAL CODES, WITH THE NATIONAL ELECTRICAL CODE ANSI/NFPA 70-LATEST EDITION. CANADIAN INSTALLATION MUST COMPLY WITH CSA C22.1 CANADIAN ELECTRICAL CODE PARTS I AND II. DO NOT CUT OR REMOVE THE GROUNDING PRONG FROM THIS PLUG.

An optional electric element rated at 3000 watts, 208/236 volts, is available in the warming oven.** This is indicated on the serial plate by the prefix EW. A separate electric supply, 208/236V, single phase, 20 AMP must be connected to the leads in a terminal box at the rear, near the top of the broiler (see Diagram 1). Diagram will be on rear of unit near the top of the broiler. This installation must conform with local codes, or in their absence, with the NATIONAL ELECTRICAL CODE ANSI/NFPA 70-Latest Edition. Canadian installation must comply with CSA C22.1 Canadian Electrical Code Parts I and II.

***Models EW171A and EW171D Only.*

INFRA-RED BROILERS USER'S GUIDE

LIMITED WARRANTY

Southbend warrants that the equipment, as supplied by the factory to the original purchasers, is free from defects in materials and workmanship. Should any part thereof become defective as a result of normal use within the period and limits defined below, then at the option of Southbend such parts will be repaired or replaced by Southbend or its Authorized Service Agency. This warranty is subject to the following conditions:

If upon inspection by Southbend or its Authorized Service Agency it is determined that this equipment has not been used in an appropriate manner, has been modified, has not been properly maintained, or has been subject to misuse or misapplication, neglect, abuse, accident, damage during transit or delivery, fire, flood, riot or Act of God, then this warranty shall be void.

Specifically excluded under this warranty are claims relating to installation; examples are improper utility connections and improper utilities supply. Claims relating to normal care and maintenance are also excluded; examples are calibration of controls, and adjustments to pilots and burners.

Equipment failure caused by inadequate water quality is not covered under warranty. WATER QUALITY must not exceed the following limits: Total Dissolved Solids (TDS) - 60 PPM (Parts Per Million). Hardness - 2 Grains or 35 PPM, PH Factor - 7.0 to 7.5. Water pressure 30 PSI minimum, 60 PSI maximum. Boiler maintenance is the responsibility of the owner and is not covered by warranty.

This equipment is intended for commercial use only. Warranty is void if equipment is installed in other than commercial application.

Repairs under this warranty are to be performed only by a Southbend Authorized Service Agency. Southbend can not be responsible for charges incurred from other than Authorized Southbend Agencies.

THIS WARRANTY MUST BE SHOWN TO AN AUTHORIZED SERVICE AGENCY WHEN REQUESTING IN-WARRANTY SERVICE WORK. THE AUTHORIZED SERVICE AGENCY MAY AT HIS OPTION REQUIRE PROOF OF PURCHASE.

This warranty does not cover services performed at overtime or premium labor rates nor does Southbend assume any liability for extended delays in replacing or repairing any items in the equipment beyond the control of Southbend. "Southbend shall not be liable for consequential or special damages of any nature that may arise in connection with such product or part." Should service be required at times which normally involve overtime or premium labor rates, the owner shall be charged for the difference between normal service rates and such premium rates.

In all circumstances, a maximum of one hundred miles in travel and two and one half hours (2.5) travel time shall be allowable. In all cases the closest Southbend Authorized Agency must be used.

The actual warranty time periods and exceptions are as follows:

This warranty only covers product shipped into the 48 contiguous United States and Hawaii, one year labor, one year parts effective from the date of original purchase. There will be no labor coverage for equipment located on any island not connected by roadway to the mainland.

Exceptions to standard warranty, effective within above limitations:

Glass Windows, Door Gaskets, Rubber Seals, Light Bulbs, Ceramic Bricks, Sight Glasses, Cathodic Descalers or Anodes	90 days material and labor
Stainless Steel Fry Pot	4 years extended material warranty on fry pot only — no labor
Stainless Steel Open Top Burners	4 years extended material warranty on burners only — no labor
Pressure Steam Boiler Shell	Prorated 4 years extended warranty on boiler shell only — no labor

Boiler shells which have not been properly maintained will not be covered by warranty.

In all cases parts covered by a five year warranty will be shipped FOB the factory after the first year.

Our warranty on all replacement parts which are replaced in the field by our Authorized Service Agencies will be limited to three months on labor, six months on materials (parts) effective from the date of installation. See LIMITED WARRANTY – REPLACEMENT PARTS for conditions and limitations.

If the equipment has been changed, altered, modified or repaired by other than a qualified service technician during or after the one year limited warranty period, then the manufacturer shall not be liable for any damages to any person or to any property which may result from the use of the equipment thereafter.

"THE FOREGOING WARRANTY IS IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS, AND CONSTITUTES THE ENTIRE LIABILITY OF SOUTHBEND. IN NO EVENT DOES THE LIMITED WARRANTY EXTEND BEYOND THE DURATION OF ONE YEAR FROM THE EFFECTIVE DATE OF SAID WARRANTY."



OPERATION

WARNING:

APPLIANCES EQUIPPED WITH CASTERS HAVE BEEN INSTALLED WITH A RESTRAINT TO LIMIT THEIR MOVEMENT TO PREVENT DAMAGE TO THE GAS SUPPLY CONNECTING SYSTEM. IF DISCONNECTION OF THIS RESTRAINT IS NECESSARY TO MOVE THE APPLIANCE FOR CLEANING, ETC., RECONNECT IT WHEN THE APPLIANCE IS MOVED TO ITS ORIGINALLY INSTALLED POSITION.

CAUTION: IF YOU SMELL GAS DURING THE LIGHTING PROCEDURE, IMMEDIATELY SHUT OFF THE GAS SUPPLY UNTIL THE LEAK HAS BEEN CORRECTED.

INITIAL OPERATION CHECK:

Models 170A, 171A, 270A, 170D, 171D, 270D

The suffix "A" indicates that a centrifugal switch within the motor controls a gas solenoid. The unit can not be operated without power to the unit.

The suffix "D" indicates that there is no centrifugal switch or gas solenoid valve. These units employ the Southbend exclusive burners which can operate with or without the blower. For optimum performance, however, the blower should be on.

- I. When all gas and electrical connections have been checked out, proceed as follows to put the unit into operation:
 - A. Turn broiler burner valve to "OFF."
 - B. Turn blower switch to "OFF."
 - C. Turn on the main gas supply.
 - D. Turn on manual service valve located on inlet supply line in the blower compartment.
 - E. Suffix "A" models have a pair of burners and each have a pilot at its front. Light these 3 pilots. These pilots are controlled by a small valve located behind the plug button, just below the left burner valve. The pilot flame should be 3/4" high; adjust if necessary.
 - F. For suffix "D" models, each burner has a pilot at its front. Light these 3 pilots. These pilots are controlled by a small valve located behind the plug button. This button will be located in the very center at the top of the unit. The pilot flame should be 3/4" high; adjust if necessary.

These pilots should burn continuously unless the broiler is to be completely shut down. When extinguished the pilot gas supply is NOT INTERRUPTED automatically. For complete shut down the large manual service valve on the inlet gas supply line, referred to in I.(D) above, must be turned to "OFF."

- II. Press the blower switch to "ON."
 - A. For "A" suffix units:
 1. The motor (blower) will start.
 2. As it accelerates, its centrifugal switch will close.
 3. This allows current to flow to the gas solenoid and the indicator light.
 4. When the gas solenoid is energized, it opens, allowing gas to flow to the main burner valves.
 5. When the red light glows it indicates that the gas solenoid is "OPEN."
 - B. For "D" suffix units:
 1. The motor (blower) and red indicator light will be energized immediately. The electrical circuitry does not control the gas.
 2. Gas is always available to the main burner valves, even with the motor off.
- NOTE: Should an odor of gas be detected, check for leaks on all fittings within the blower compartment, using the soapy water method. NEVER USE A FLAME.

- III. Turn the broiler valve to HIGH. As each valve is opened, immediately check ignition of burners. When the burners ignite, a blue flame will cover the surface of the ceramics for 10-15 seconds. This haze will disappear and within 30 seconds the ceramics will glow red. The flame on the surface of the ceramics should be barely visible, with practically no blue haze. Should this condition not be obtained, it may be necessary to regulate the air supply to the manifold compartment. This air is supplied by a blower, with a shutter for regulation. There is NO primary air adjustment on the burner itself. (See ADJUSTMENTS)



IV. After the burners have operated properly on HIGH for several minutes, turn the valve to LO. The surface of the ceramics on the burner should become a very dull red with a slight blue haze. The burners should NOT flutter or "POP" under these conditions. For regulation of the LO setting, refer to this item under ADJUSTMENT.

**V. UNIT WITH WARMING OVEN ABOVE THE BROILING SECTION:
(Models EW171A & EW171D)**

As an option, an electric element can be installed in this oven at the factory.

To check element, turn switch above warming oven door to ON. Element should become dull red in a few minutes.

DAILY OPERATION:

Put the broiler into operation by the following procedure:

1. The pilots should have remained ignited from the installation initial checkout, however, it is good practice to always check if they are burning before proceeding.
2. Press the blower switch to ON.
3. Turn the broiler burner valve on the section desired for use to HIGH.

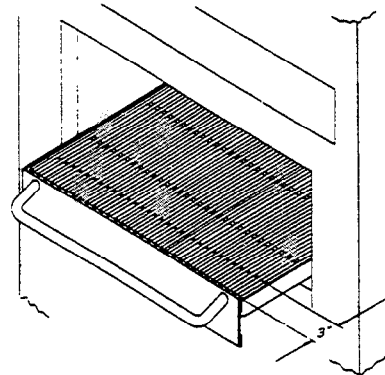
CAUTION: FOR SAFETY REASONS, THE BROILER BURNERS SHOULD BE VISUALLY OBSERVED FOR PROPER IGNITION EACH TIME THE UNIT IS PLACED IN OPERATION. THIS SAFETY CONSIDERATION SHOULD BE OBSERVED FOR ALL OVER-FIRED BROILERS. SHOULD IGNITION FAIL AFTER 5 SECONDS, TURN BROILER VALVE OFF AND WAIT 5 MINUTES BEFORE TRYING AGAIN.

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

4. When the burners ignite, a blue flame will cover the surface of the ceramics for 10-15 seconds. This haze will disappear and within 30 seconds the ceramics will glow red. The flame on the surface of the ceramics should be barely visible, with practically no blue haze.
5. Put the broiler rack at its highest position and allow the burners to operate for five minutes.
6. The broiler is now ready for use. For best results follow the techniques under COOKING HINTS.

The front 3" of the broiler rack may be used as a holding area. This holding area is marked by a 1/8" dia. rod as shown.

TO CONSERVE GAS ENERGY: The "LO" setting can be used to advantage during periods between broiling operations. When turned back to "HI," the ceramics will change to a bright red within seconds and be ready for fast broiling. During this down period, bring the broiling rack to its highest position. This method will keep it hot and the rack will be "ready" to sear and "mark" the steaks without additional preheating.



Each broiler section is controlled by two valves.

- A. On "A" suffix units, the right valve controls the three burners on the right and the left valve the three on the left.
- B. On "D" suffix units, the right valve controls the two burners on the right and the left valve the extreme left burner only.

Use only as many burners as required to conserve energy.

WARMING OVEN ON MODEL EW171A OR EW171D:

The oven is heated by the flue products from the broiler. To operate the broiler burners just to heat the oven, when the broiler is not in operation, is inefficient and not recommended. When the optional electric element is installed in this oven, it can be used when the broiler is not operating or to increase the temperature of this oven when the broiler burners are operating. There is no thermostat to regulate this oven temperature. The only control is the ON and OFF switch.

POWER FAILURE: In the event of an electric power failure, no attempt should be made to operate those units with an "A" suffix. Turn off all gas and the blower switch until power is restored. Units with a "D" suffix will operate during power failures.



COOKING HINTS

Due to the speed of this infra-red broiler, broiling times will be reduced and techniques may require some modification.

For most broiling of steaks, chops, etc., the burners should be operated on "HI" and the degree of internal rareness and surface condition can be controlled by raising or lowering the rack mechanism. For products such as fish or fowl, where the product must be broiled thoroughly, the flame may be reduced and rack position lowered to prevent charring the skin surface.

INFRA-RED BROILING GUIDE

BROILING TIME - MINUTES

Namp No.	Type of Product	Thickness	Weight	Meat Temp.	Valve Setting	*Rack Pos.	Rare	Med. Rare	Med.	Med. Well	Well
180	Strip Loin Steak (Ctr. Cut)	1½"	16 oz.	40°	High	2 (d)	4	6½	9	10½	11½
180	Strip Loin Steak (Ctr. Cut)	1½"	16 oz.	40°	High	3 (d)	4½	7	9½	11	12
180	Strip Loin Steak (Ctr. Cut)	¾"	12 oz.	40°	High	3 (d)	3	5	6½	7	—
190	Beef Tenderloin (Ctr. Cut)	2"	8 oz.	40°	High	3 (d)	5½	8	10	12	14
412	Pork Chop	1"	8 oz.	70°	High	3 (d)	—	—	—	—	9
232	Lamb Chop	1¼"	7 oz.	70°	High	3 (d)	—	5½	—	8	—
184	Butt Steak (End Cut)	1"	10 oz.	70°	High	3 (d)	2½	4½	6	7	7¾
	Lobster Tail (Preboiled)	—	10 oz.	70°	High	3 (d)	—	—	—	—	2½
	Ground Chuck Steak Patty (Approx. ½")		4 oz.	70°	High	2 (d)	—	5	7	8	—
	Ground Chuck Steak Patty (Approx. 1")		8 oz.	70°	High	2 (d)	—	6	8	10	—

*2 (d) = 2nd down 3 (d) = 3rd down

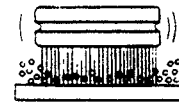
DONENESS OF STEAK WAS BASED AS FOLLOWS:

RARE — *Deep Red Center* MEDIUM RARE — *Red Center* MEDIUM — *Deep Pink Center*
MEDIUM WELL — *Light Pink Center* WELL — *Brown Center*

FISH — Burners on low setting, grid in low position, place fish on a pan approximately 5 or more minutes, according to kind and thickness of fish.

CHICKEN HALVES OR QUARTERS — Burners on low setting, grid in low position, approximately 12 to 14 minutes bone side up, approximately 5 minutes skin side up according to size.

THIS IS INTENDED AS A GUIDE. TEMPERATUTRE OF MEAT, SIZE OF PORTION, LOAD IN BROILER, DEGREE OF DONENESS, OR OTHER VARIABLES WILL DETERMINE THE BROILING PROCEDURE.



WARNING: FOR YOUR SAFETY, DISCONNECT THE POWER SUPPLY TO THE APPLIANCE BEFORE CLEANING.

WARNING:

ADJUSTMENTS AND SERVICE WORK MAY BE PERFORMED ONLY BY A QUALIFIED TECHNICIAN WHO IS EXPERIENCED IN, AND KNOWLEDGEABLE WITH, THE OPERATION OF COMMERCIAL GAS COOKING EQUIPMENT. HOWEVER, TO ASSURE YOUR CONFIDENCE, CONTACT YOUR AUTHORIZED SERVICE AGENCY FOR RELIABLE SERVICE, DEPENDABLE ADVICE OR OTHER ASSISTANCES, AND FOR GENUINE FACTORY PARTS.

Southbend equipment is sturdily constructed of the best quality materials and is designed to provide durable service when treated with ordinary care. To expect the best performance, your equipment must be maintained in good condition and cleaned daily. Naturally, the periods for this care and cleaning depend on the amount and degree of usage.

MAINTENANCE:

1. Keep exposed, cleanable areas of unit clean at all times.

Daily:

- A. Remove, empty and clean grease drawer(s).
- B. Thoroughly wash grease hopper below rack.
- C. Thoroughly wash rack.
- D. Clean warming oven.

Monthly:

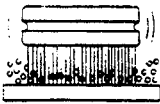
- A. Clean burner air intake filter at lower front of unit.
- B. Visually assure proper pilot operation.
- C. Lubricate valves.

Vent System:

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

STAINLESS STEEL:

1. To remove normal dirt, grease, and product residue from stainless steel that operates at LOW temperature, use ordinary soap and water (with or without detergent) applied with a sponge or cloth. Dry thoroughly with a clean cloth.
2. To remove grease and food splatter or condensed vapors that have baked on the equipment, apply cleanser to a damp cloth or sponge and rub cleanser on the metal in the direction of the polishing lines on the metal. Rubbing cleanser as gently as possible in the direction of the polished lines will not mar the finish of the stainless steel. NEVER RUB WITH A CIRCULAR MOTION. Soil and burnt deposits which do not respond to the above procedure can usually be removed by rubbing the surface with SCOTCH-BRITE scouring pads or STAINLESS scouring pads. DO NOT USE ORDINARY STEEL WOOL, as any particles left on the surface will rust and further spoil the appearance of the finish. NEVER USE A WIRE BRUSH, STEEL SCOURING PADS (EXCEPT STAINLESS), SCRAPER, FILE OR OTHER STEEL TOOLS. Surfaces which are marred collect dirt more rapidly and become more difficult to clean. Marring also increases the possibility of corrosive attack. Refinishing may then be required.
3. **To remove heat tint:** Darkened areas sometimes appear on stainless steel surfaces where the area has been subjected to excessive heat. These darkened areas are caused by a thickening of the protective surface of the stainless steel and are not harmful. Heat tint can normally be removed by the foregoing, but tint which does not respond to this procedure calls for a vigorous scouring in the direction of the polish lines using SCOTCH-BRITE scouring pads, or a STAINLESS scouring pad in combination with a powdered cleanser. Heat tint action may be lessened by not applying or by reducing heat to equipment during slack periods.



MAINTENANCE

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BLACK BAKED ENAMEL:

1. Allow unit to cool somewhat after use and wash exterior with a hot, mild detergent or soap solution; particularly clean off all grease deposits. Dry thoroughly with a dry cloth.

BROILING SECTION:

To prevent excess smoking, the grids, rack drip pan and the other members must be kept clean of food remnants. Use wire brush or similar scrapping utensil. **DO NOT** use steel wool or similar scrub pad that will leave small particles which can get into food.

TO CLEAN:

1. Put rack in lower position; pull out rolling rack.
2. Lift out broiler grid and clean with wire brush or non-toxic solvent.
3. Remove rack pan and clean.
4. With rolling rack pulled out to its "stop," raise front with handle so its rollers will come thru the notches in the raising and lower frame. Clean all parts where residue collects.
5. Clean all parts of the raising and lowering frame.
6. Clean entire hopper section of all caked grease and residue.
7. Lubricate bearings with cooking oil.
8. Reverse procedure to reassemble broiling rack mechanism.

MODEL 171A and 171D WARMING OVEN:

Any accumulation of grease allowed to remain in this area eventually becomes a fire hazard. As a preventative measure, it must be cleaned **DAILY**.

TO CLEAN:

1. Remove the perforated bottom and wash with a solution of hot water and a strong detergent, or any other non-toxic grease-cutting solvent.
2. Wipe the side, rear and top linings with the same solution.
3. Rinse with clear hot water.
4. Take care that any grease which may have collected in the flue vent collar is also removed.
5. Put oven bottom back in position.

INFRA-RED BROILERS SERVICE

ADJUSTMENTS



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WARNING:

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In case of problems in operation at initial installation, check type of gas and manifold pressure and compare with information listed on the serial plate, located at the left front corner of the body top.

PILOT VALVE LOCATIONS:

There is a single adjustment behind the plug button under the LEFT main burner valve knob.

Adjustment to pilots is made by turning the small slotted screw on the pilot valve. The flame on each pilot should be approximately 3/4" high.

LOW SETTING:

The LO adjustment of the broiler burner valves is by a set screw in the hollow stem of this valve. Turn "IN" or clockwise to reduce, and "OUT" or counterclockwise to increase. Burner flame on low setting should not flutter or "POP," but should burn with a dull red and a blue haze.

AIR ADJUSTMENT:

Remove filter screen located on the lower front panel. Check burner performance before and after removing filter screen. If a major change is noted, replace or clean filter. Air to the burner is regulated by opening or closing the shutter at the broiler intake; more opening more air – less opening less air.

If the flame is blowing away from the burner, there is an excess of air. Close the air shutter on the blower until the flame stabilizes. Adjust for brightest glow without blue haze or blowing.

The screen on the blower intake may be clogged with lint. Use vacuum cleaner attachment to clean.

NOTE: When performing service work, the appropriate wiring diagram for your unit can be found at the rear of this manual and also on the unit.

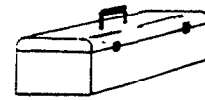
The diagram on the unit is located on the base bottom. It can be accessed by removing the blower air filter at the front of the base.



ADJUSTMENTS

PRESSURE REGULATOR:

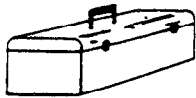
1. Locate 1/8" pressure tap.
 - A. For units with the "A" suffix, a 1/8" pressure tap is located on each of the two burner manifolds. These manifolds are located behind the stainless steel panel above each broiling section. Remove the two screws securing it. A second panel will be found behind the first. Remove the five screws securing it and remove the second panel. The manifolds should now be visible.
 - B. On "D" suffix units, the 1/8" pressure tap is located in the blower compartment on the right side of the unit, just after the pressure regulator. Remove the filter at the lower front of the unit.
2. Turn "OFF" main gas supply to unit and all valves.
3. Remove the 1/8" pipe plug and install a fitting appropriate for the connection of a manometer.
4. Connect the manometer.
5. Turn main gas "ON."
6. Light all pilots.
7. Turn all burners to full on.
8. Read manometer.
 - A. For units with "A" suffix, the manometer should read 4" W.C. for natural gas and 10" W.C. for propane gas.
 - B. For units with "D" suffix, the manometer should read 5" W.C. for natural gas and 11" W.C. for propane gas.
9. If manometer reads correctly, go to Step 13.
10. If manometer shows incorrect reading, remove cap from top of regulator.
11. With a screwdriver, rotate regulator adjustment screw "clockwise" to increase, or "counter-clockwise" to decrease pressure, until manometer shows correct reading.
12. Put cap on regulator.
13. Turn all burner valves "OFF."
14. Turn main gas "OFF."
15. Remove manometer fitting.
16. Replace plug in manifold.
17. Replace panels ("A" suffix units) or filter ("D" suffix units).
18. Turn main gas "ON."
19. Light all pilots.



TROUBLE SHOOTING:

Problem	Look for –
Not enough heat	<ul style="list-style-type: none"> – Restriction in valve. – Restriction in gas supply. – Misalignment of orifice tube. – Clogged orifice. – Incorrect orifice. – Low pressure on gas supply. – Incorrect gas.
Burner with blue haze	<ul style="list-style-type: none"> – Misalignment of orifice tube. – Low gas pressure. – Blocked primary air, exhaust gases blocked by object setting on top of broiler. – Blower not functioning properly.
Burner fluttering	<ul style="list-style-type: none"> – Adjust valve on low setting.
Burner popping	<ul style="list-style-type: none"> – Cracked or loose ceramic.
Too much heat	<ul style="list-style-type: none"> – Incorrect orifices. – Defective or incorrectly set pressure regulator. – Incorrect gas.
Slow burner ignition	<ul style="list-style-type: none"> – Check for proper pilot flame length. – Check for proper pilot alignment. – Clean pilot orifice.
Pilot outage	<ul style="list-style-type: none"> – Clogged orifice. – Draft condition. – Incorrect orifice. – Adjustment. – Air in gas line.
No gas to burner	<ul style="list-style-type: none"> – Gas supply is turned off. – Defective solenoid valve (“A” suffix units). – Loose connection within wire nuts (“A” suffix units). – Defective switch (“A” suffix units).

SERVICE

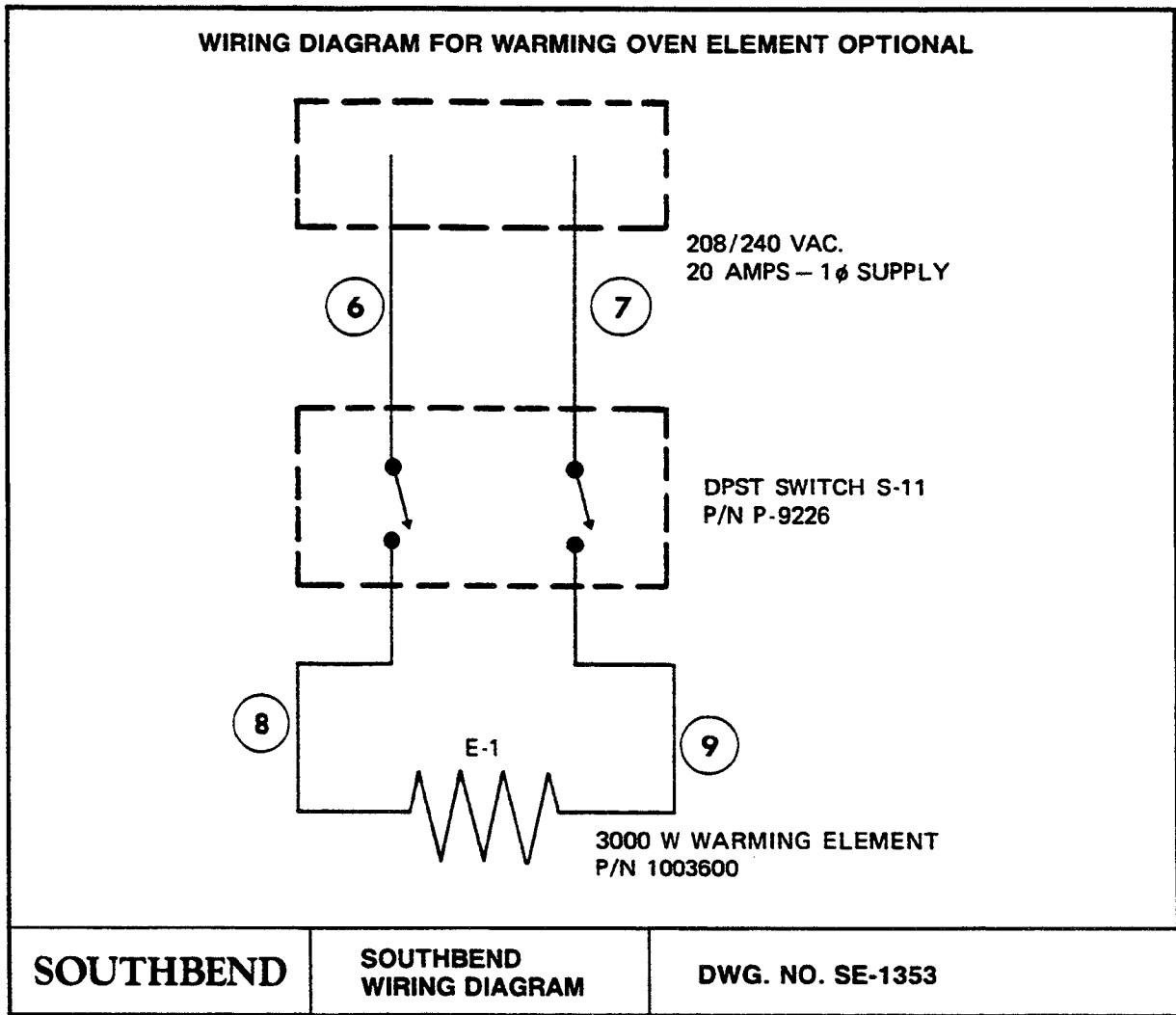


SERVICE

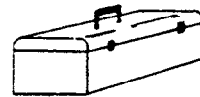
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The appropriate unit wiring diagrams which follow can also be found on the unit. They are attached to the base section bottom and can be accessed by removing the filter at the front of the base.

DIAGRAM NO. 1



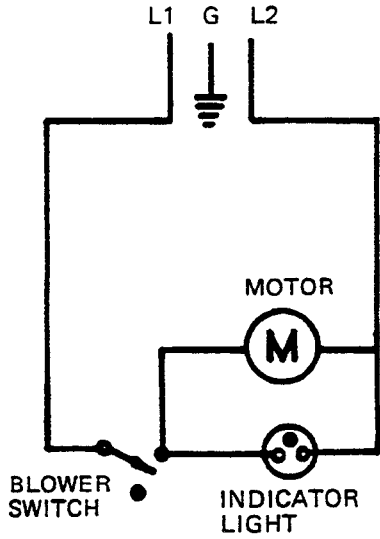
SERVICE



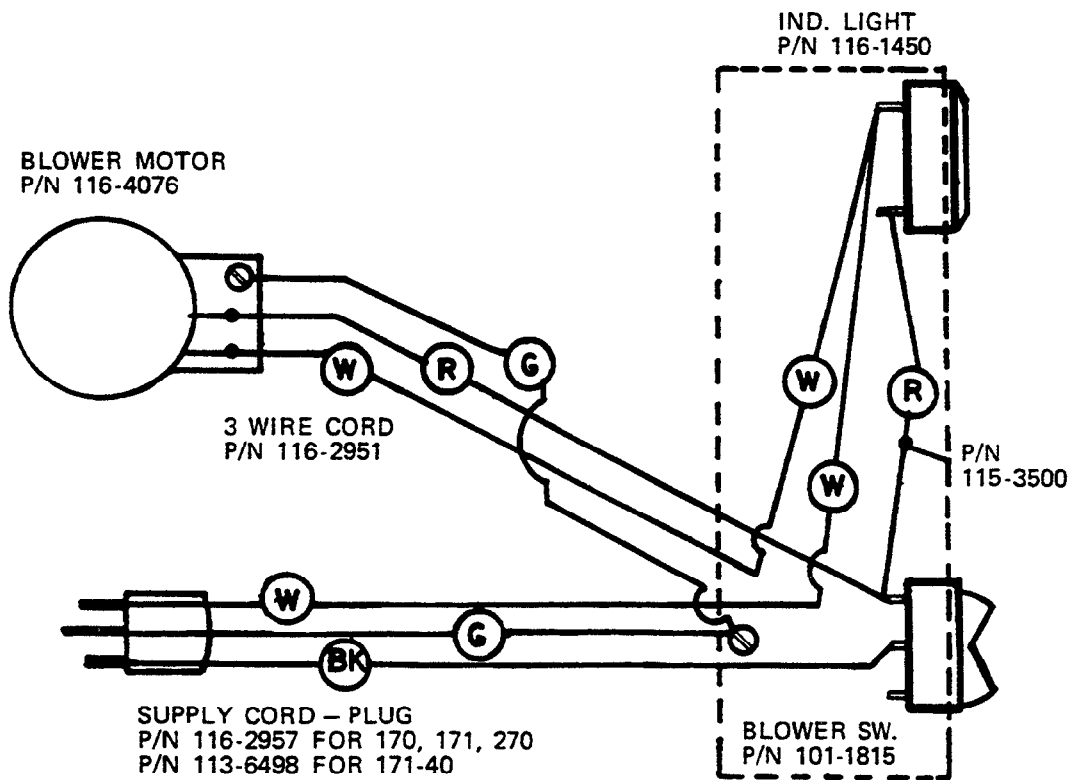
120 V. 1 ϕ 60 Hz.

DIAGRAM NO. 2

P/N 1164089



LADDER TYPE DIAGRAM



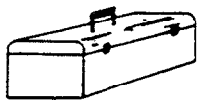
CONNECTION DIAGRAM

SOUTHBEND

**SOUTHBEND
WIRING DIAGRAM**

**MODELS: 170D, 171D, 270D, 171-40D
120V 1 ϕ 60 Hz**

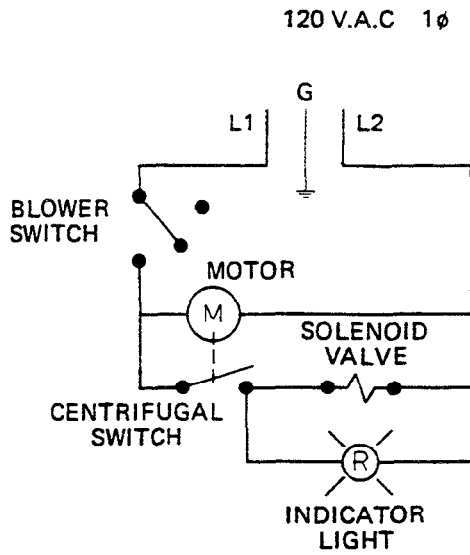
SERVICE



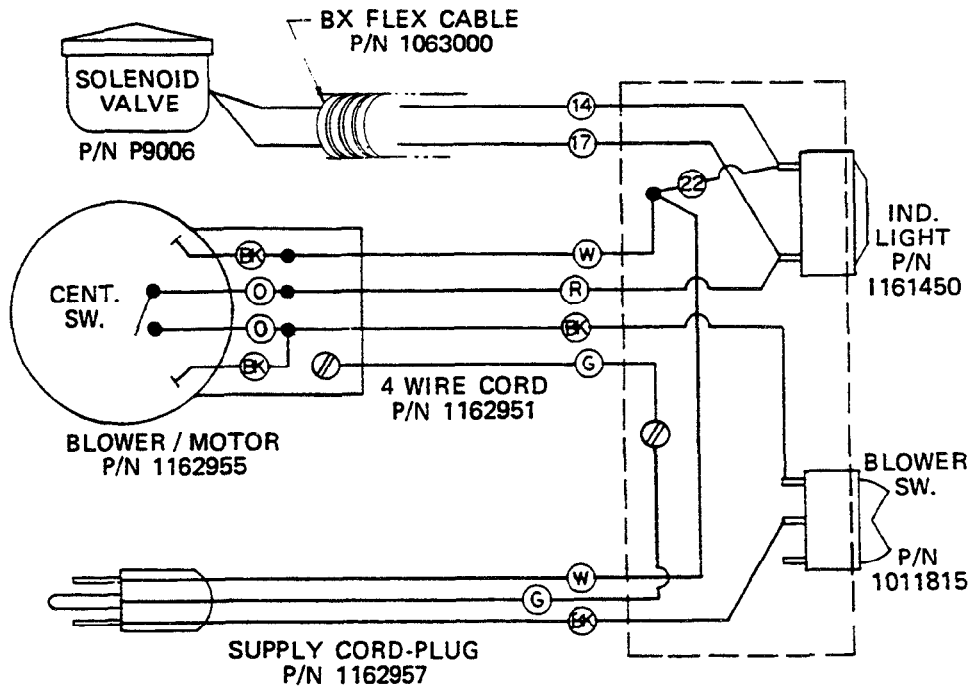
SERVICE

DIAGRAM NO. 3

P/N 1163199



LADDER TYPE DIAGRAM



CONNECTION DIAGRAM

SOUTHBEND

**SOUTHBEND
WIRING DIAGRAM**

**MODELS: 170A, 171A, 270A
FOR MOTOR W/CENTRIFUGAL SWITCH**

SERVICE

INFRA-RED BROILERS PARTS



REPLACEMENT PARTS LIST

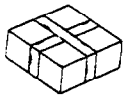
The serial plate is located on the LEFT front edge of the top. When ordering parts, please supply the Model Number, Serial Number, Part Number and Description, plus Finish and/or Type of Gas and Electrical characteristics, as applicable.

For parts not listed, consult a Southbend Authorized Parts Distributor or Southbend Authorized Service Agency. If necessary please consult Southbend Parts Department for assistance.

Suffix	Date	Indicates
No Suffix	1977 & Prior	Unit may have no means of indicating if motor is running.
No Suffix	1977	Unit had Dwyer air switch added to indicate when motor is on.
B	1978	Unit has tubular steel oven burner instead of cast iron.
A	Dec. 1979	Discontinued using Dwyer air switch, started using centrifugal switch on motor instead.
C	April 1982	Unit has TS-11 safety, slotted valve panels, and oven pilot bracket is part of oven burner.
D	March 1982	Unit has three sheet metal burners instead of three clusters of two cast iron burners. Motor has no centrifugal switch.

PART NO.	DESCRIPTION	QUANTITY			
		170-A 171-A	270-A	170-D 171-D	270-D
1076799	Broiler Valve HI-LO			2	4
1073498	Valve Knob HI-LO	2	4	2	4
15962	Mechanism Handle Knob	1	2	1	2
1171715	Mechanism Handle Assy.	1	2	1	2
1163844	Pilot Valve and Filter Assy.	1	2	-	-
12864	Manual Service Valve	1	1	1	1
4440005	Roller Bearing - Rear	2	4	2	4
4440006	Roller Bearing - Front	2	4	2	4
1173382	Outer Rack Frame Assy. - 12-90 & up (inside unit)			1	2
1173383	Inner Rack Frame Assy. - 12-90 & up (pulls out)			1	2
1173387	Rack Pan Assy. - 12-90 & up			1	1*
1173389	Rack Pan Assy. - 12-90 & up	-		-	1
		* Top Deck Only			
427	Inner Rack Frame Assy. (11-90 & before) (pulls out)	1	1	1	1
467	Inner Rack Frame Assy.-Upper (11-90 & before) (pulls out)	-	1	-	1
1106814	Index Plate	1	2	1	2
432	Outer Rack Frame Assy. (inside unit)	1	2	1	2
1119598	Broiler Grid Rack	2	4	2	4
1116699	Rack Pan (11-90 & before)	1	1	1	1
1116698	Rack Pan - Upper (11-90 & before)	-	1	-	1
434	Drain Board - Upper	-	1	-	1
438	Grease Drawer Assy.	1	1	1	1
1013299	Grease Drawer Assy. - Upper - S/S	-	1	-	1
HB270	Grease Drawer Holder	-	1	-	1
1013298	Grease Drawer Assy. - Upper - Black	-	1	-	1
1143099	Grease Hopper Assy.	1	1	1	1
12476	Plug Button	2	4	2	4
1160205	Pressure Regulator - Natural	1	1	1	1
1160206	Pressure Regulator - Propane	1	1	1	1
4440000	Roll. Rack or Oven Door Handle	1	2	1	2
1164083	Natural Pilot Assembly			1	2
1164084	Propane Pilot Assembly				
1106599	Broiler Valve (will need some revision)	2	4		

PARTS



PARTS

PART NO.	DESCRIPTION	QUANTITY			
		170-A 171-A	270-A	170-D 171-D	270-D
1172716	Name Plate	1	1	1	1
P400NP	Leg (Plated)	4	4		
1179081	Broiler Pilot – Natural 94K and after			3	6
1179082	Broiler Pilot – Propane 94K and after			3	6
1160410	Broiler Pilot – Natural (Prior 94K)			3	6
1161308	Broiler Pilot – Propane (Prior 94K)			3	6
1162824	Pilot Shield			3	6
1062599	Filter for Blower Compartment	1	1	1	1
1164095	Blower Motor	-	-	1	1
1163875	Burner Assy.	-	-	3	6
1172601	Burner Orifice Assy. – Natural	-	-	3	6
1163653	Burner Orifice Assy. – Propane	-	-	3	6
P2133	Pilot Valve	-	-	1	2
1172602	Burner Orifice Elbow	-	-	3	6
1060500	Rack Tension Spring	2	4	2	4
4440009	Cabinet Pull Handles	1	2	1	2
1011815	Blower Switch	1	1	1	1
B42-00008	Solenoid Valve Replaces P9006 but requires new pipe fittings	1	1	-	-
1161450	Indicator Light			1	1
1163054	Adhesive "ON" Label	1	1	1	1
1162951	Supply Cord	1	1	1	1
1163438	Blower Motor (1162955)	1	1	-	-
1162956	Blower Air Adjust. Disc.	1	1	1	1
1117199	Ray Head Burner Assy. – Natural	3	6	-	-
1062650	Burner Orifice Spud – Natural – No. 50	6	12	-	-
1117497	Orifice Ext. Fitting – Natural	6	12	-	-
1117198	Ray Head Burner Assy. – Propane	3	6	-	-
1062659	Burner Orifice Spud – Propane – No. 59	6	12	-	-
1117499	Orifice Ext. Fitting – Propane	6	12	-	-
1069600	Radiant Screens	33	66	-	-
P7139	Burner Support Bar – Rear	6	12	-	-
1146210	Burners Front Support Bolt 5/16 x 18 x 1-1/2	6	12	-	-
1111092	Flue Deflector – S/S	1	1	1	1
1164380	MODEL 171-A & 171-D ONLY Warming Oven Door Assy. – S/S	1	-	1	-
600 Lt.	Warming Oven Door Wt. Assy. – Lt.	1	-	1	-
600 Rt.	Warming Oven Door Wt. Assy. – Rt.	1	-	1	-
616 Lt.	Warming Oven Door Support Assy. – Lt.	1	-	1	-
627 Rt.	Warming Oven Door Support Assy. – Rt.	1	-	1	-
624	Warming Oven Bottom	1	-	1	-
9791-11	Broiler Pilot – Propane	3	6		
9791-21	Broiler Pilot – Natural				
1163922	3 Tube Lighter			1	2
1013999	Indicator Light	1	1		
1022998	Blower (Double Cage) 170, 171, 270 no suffix units				

INFRA-RED BROILERS

A product with the Southbend name incorporates the best in durability and low maintenance. We all recognize however, that replacement parts and occasional professional service may be necessary to extend the useful life of this unit. When service is needed, contact a Southbend Authorized Service Agency, or your dealer. To avoid confusion, always refer to the model number, serial number, and type of your unit.



**INFRA-RED BROILERS
FREE STANDING
(Manual Section BR)**



southbend

A MIDDLEBY COMPANY

PART 1163089

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