

TECHNICAL MANUAL
FOR
[*SGML VERSION; SEE RECORD OF
REVISIONS*]
DESCRIPTION, OPERATION &
MAINTENANCE
**OVEN, CONVECTION
ELECTRIC, MARK V SERIES**

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1	01 JUNE 2008	REVISION IS TO DOCUMENT CONVERSION TO AN IETM AND TMDER N57012-07-0001, CORRECTING VARIOUS PART NUMBER AND NOMENCLATURE DISCREPANCIES. CHANGE AUTHORIZED BY NSWCCD-SSES CODES 946 AND 9783. THE FOLLOWING WAS CHANGED: PARAGRAPH(S) TABLE(S) 7-5. AND 7-8.

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FOREWORD

This technical manual provides description, operation, maintenance, troubleshooting, repair and parts list, and installation information for the Mark V Series, Convection Electric Oven. This technical manual is intended for guidance of and use by personnel operating and maintaining the equipment described herein.

This manual consists of eight chapters as follows:

- Chapter 1 - General Information
- Chapter 2 - Operation
- Chapter 3 - Scheduled Maintenance
- Chapter 4 - Troubleshooting
- Chapter 5 - Corrective Maintenance
- Chapter 6 - Repair Procedures
- Chapter 7 - Parts List
- Chapter 8 - Installation

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SAFETY SUMMARY

GENERAL SAFETY NOTICES

The following general safety notices supplement the specific warnings and cautions appearing elsewhere in this manual. They are recommended precautions that must be understood and applied during operation and maintenance of the equipment covered herein. Should situations arise that are not covered in the general or specific safety precautions, the commanding officer or other authority will issue orders as deemed necessary to cover the situation. No work shall be undertaken on energized equipment or circuits until approval of the commanding officer is obtained, and then only in accordance with Naval Ships Technical Manual (NSTM) S9086-KC-STM-010, Chapter 300.

DO NOT REPAIR OR ADJUST ALONE

Under no circumstances shall repair or adjustment of energized equipment be attempted alone. The immediate presence of someone capable of rendering first aid is required. Before making adjustments, be sure to protect against grounding. If possible, adjustments should be made with one hand, with the other hand free and clear of equipment. Even when power has been removed from equipment circuits, dangerous potentials may still exist due to retention of charges by capacitors. Circuits must be grounded and all capacitors discharged prior to attempting repairs.

TEST EQUIPMENT

Make certain test equipment is in good condition. If a metal-cased test meter must be held, ground the case of the meter before starting measurement. Do not touch live equipment or personnel working on live equipment while holding a test meter. Some types of measuring devices should not be grounded; these devices should not be held when taking measurements.

INTERLOCKS

Interlocks are provided for safety of personnel and equipment and should be used only for the purpose intended. They should not be battle shorted or otherwise modified except by authorized maintenance personnel. Do not depend solely upon interlocks for protection. Whenever possible, disconnect power at the power distribution source.

MOVING EQUIPMENT

Personnel shall remain clear of moving equipment. If equipment requires adjustment while in motion, a safety watch shall be posted. The safety watch shall have a full view of the operations being performed, and immediate access to controls capable of stopping equipment motion.

FIRST AID

An injury, no matter how slight, shall never go unattended. Always obtain first aid or medical attention immediately, and file an injury report in accordance with OPNAVINST 5102.1 series, subj: Mishap Investigation and Reporting.

SAFETY SUMMARY - Continued

RESUSCITATION

Personnel working with or near high voltage shall be familiar with approved methods of resuscitation. Should someone be injured and stop breathing, begin resuscitation immediately. A delay could cost the victim's life. Resuscitation procedures shall be posted in all electrically hazardous areas.

GENERAL PRECAUTIONS

The following general precautions are to be observed at all times.

1. Install and ground all electrical components associated with this system/equipment in accordance with applicable Navy regulations and approved shipboard practices.
2. Ensure that all maintenance operations comply with Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat, OPNAVINST 5100.19 series.
3. Observe precautions set forth in NSTM S9086-KC-STM-010, Chapter 300 with respect to electrical equipment and circuits.
4. Ensure that protective guards and shutdown devices are properly installed and maintained around rotating parts of machinery and high voltage sources.
5. Do not wear loose clothing while working around rotating parts of machinery.
6. Ensure that special precautionary measures are employed to prevent applying power to the system/equipment any time maintenance work is in progress.
7. Do not make any unauthorized alterations to equipment or components.
8. Before working on electrical system/equipment, check with voltmeter to ensure that system is not energized.
9. Consider all circuits not known to be "dead," "live" and dangerous at all times.
10. When working near electricity, do not use metal rules, flashlights, metallic pencils, or any other objects having exposed conducting material.
11. Deenergize all equipment before connecting or disconnecting meters or test leads.
12. When connecting a meter to terminals for measurement, use range higher than expected voltage.
13. Before operating equipment or performing any tests or measurements, ensure that frames of all motors and starter panels are securely grounded.
14. Ensure that area is well-ventilated when using cleaning compound or solvent. Avoid prolonged breathing of fumes and compound or solvent contact with skin or eyes.

WARNINGS AND CAUTIONS Specific warnings and cautions applying to the system/equipment covered by this manual are summarized below. These warnings and cautions appear elsewhere in the manual following paragraph headings and immediately preceding the text to which they apply. They are repeated here for emphasis.

SAFETY SUMMARY - Continued

WARNING

Always disconnect the power supply before cleaning or servicing the appliance! (Page 3-1)

WARNING

Before performing any maintenance or replacing any component on this unit, disconnect oven from electrical source.

If it is necessary to replace a defective component use only genuine Blodgett replacement parts. (Page 6-1)

WARNING

Failure to install exhaust vent properly will result in high ambient temperatures at back of oven and subsequent motor failure. When stacking two single ovens, it is necessary to remove single oven flue boxes prior to attaching two-piece connector. (Page 8-8)

CHAPTER 1

GENERAL INFORMATION

1-1. CHARACTERISTICS.

NOTE

The information contained in this manual is important for the proper installation, use, and maintenance of this oven. Adherence to the prescribed procedures and instructions will result in satisfactory baking results and long, trouble-free service. Please read this manual carefully and retain it for future reference.

NOTE

This manual is written specifically for a MARK V/II-H. The information contained herein applies to ALL models unless specifically noted.

BLODGETT MODEL NO.	OVEN CHARACTERISTICS		VOLTAGE	SPECIFIC NSN
	TYPE	SIZE		
MARK V III-H	I	1	440 or 480	7310-01-104-2431
MARK V II2-H	II	1	440 or 480	7310-01-385-9738
MARK V III-HD	I	2	440 or 480	7310-01-424-4548
MARK V II2-HD	II	2	440 or 480	7310-01-361-6025

111 SERIES ELECTRICAL SPECIFICATIONS*						
KW/SECTION	VOLTS (60 HZ)	PHASE	AMPERES			ELECTRICAL CONNECTION AWG**
			L1	L2	L3	
11.0	208	1	51	0	51	4
11.0	208	3	31	29	29	10
11.0	220-240	1	44	0	44	8
11.0	220-240	3	26	24	24	10
11.0	440	3	15	14	14	14
11.0	480	3	14	13	13	14

*112 Series ovens consist of two 111 series ovens stacked and wired separately. Series 111 and 112 are electrically identical.

**Electrical Connection Wiring is sized for 90° C copper wire at 125% of rated input.

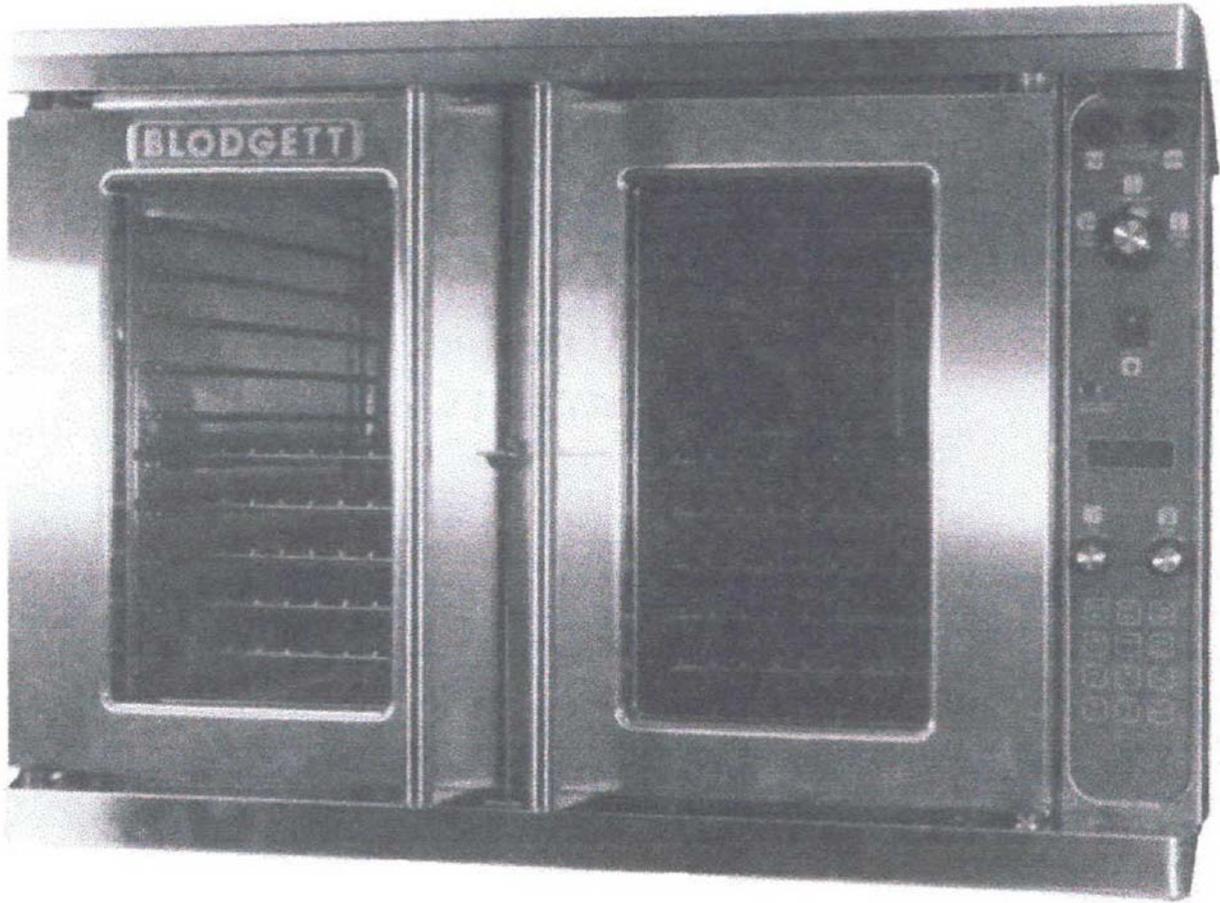


Figure 1-1. Mark V Convection Electric Oven

CHAPTER 2

OPERATION

2-1. INTRODUCTION.

The information contained in this section is provided for the use of qualified operating personnel. Qualified operating personnel are those who have carefully read the information contained in this manual, are familiar with the function of the oven and/or have had previous experience with the operation of the equipment described. Adherence to the procedures recommended herein will assure the achievement of optimum performance and long, trouble-free service.

2-2. MARK V SERIES CONVECTION OVEN.

The Mark V convection oven represents the latest advancements in energy, efficiency, reliability and ease of operation.

Cooking in a convection oven differs from cooking in a conventional deck or range oven in that heated air is constantly circulated over the product by means of a fan in an enclosed chamber. The moving air continually strips away the layer of cool air surrounding the product, thereby allowing heat to penetrate more quickly. The result is a product of comparable quality to that prepared in a conventional oven, cooked at a lower temperature in a shorter period of time.

Please take the time read the following operating instructions carefully. They are the key to successful use of the Blodgett Mark V Series convection oven.

2-3. GENERAL GUIDELINES FOR OPERATING PERSONNEL.

1. Always preheat the oven before baking or roasting by setting the thermostat at the desired temperature. The oven has reached operating temperature when the "LIGHT OFF OVEN READY" light goes out. It is often advantageous to preheat the oven 50° F (30° C) above the desired temperature to offset the drop in temperature when the doors are opened and cold product is loaded into the oven. Reset the thermostat after product is loaded.

2-3.2

2. For almost all products, lower temperatures must be used than those called for in deck or range oven recipes. Follow the Suggested Time and Temperature Guide or subtract 75° F (40° C) from the deck oven temperature recipe. If the edges of the product are done but the center is raw, or if there is much color variation, reduce the thermostat setting 15°-25° F (10°-15° C) for the second load. Keep reducing temperature on successive loads until the desired results are achieved, 75° F (40° C) is a rule of thumb; some recipes and types of pans may require more than a 75° F (40° C) reduction in temperature.

NOTE

Cooking at excessive temperatures will not reduce cooking time, it will produce unsatisfactory baking and roasting results.

2-3.3

3. Check the product in about half the time recommended for deck or range oven recipes or follow the Suggested Time and Temperature Guide. Remember, time will vary with the amount of product loaded, the type of pan and the temperature. Record times and temperatures which provide best results for future reference.

2-3.4

4. The oven will hold up to ten 18" x 26" (457 x 660 mm) bun pans. Five racks are normally used. Product or pan height determine how many racks can be used.

2-3.5

5. Never place a pan or aluminum foil on the bottom of the oven. This will obstruct the flow of air and result in uneven baking and roasting.

2-3.6

6. To reduce shrinkage when roasting, place meat directly on racks and place a sheet pan one-half full of water in bottom rack position. Water in the pan will evaporate to increase humidity in the oven chamber. The pan will also catch grease from the meat, making oven cleaning easier.

2-3.7

7. When baking, weigh the product to assure equal amounts in each pan. Different amounts of product in different pans will cause uneven baking results.

2-3.8

8. Keeping the fan off for 7-10 minutes after preheating and loading will allow light products such as muffins, thin cake batter or custard to "set" in the pan. This will avoid the product being rippled or pulled toward the fan.

2-3.9

9. For frozen products, preheat the oven 100° F (55° C) above the suggested cooking temperature, load product and reset thermostat to proper temperature.

2-3.10

10. Turn oven lights off when not viewing product. Leaving lights on for extended periods of time shortens bulb life considerably.

2-4. HOW COOK AND HOLD WORKS.

The optional COOK & HOLD feature offers convenience, higher yields, and lower energy consumption. Meats are roasted at lower temperatures over longer periods of time, preserving flavor and tenderness while eliminating the drying effects experienced at higher temperatures.

There are three phases in COOK & HOLD roasting:

1. Primary Cooking - The length of the "COOK" cycle is controlled by the COOK & HOLD TIMER. Meat is cooked at a low temperature until approximately two-thirds done.
2. Cooking From Stored Heat - When the primary cooking time selected on the COOK & HOLD TIMER has expired the oven automatically switches to "HOLD" for the next one to two hours the product will continue to cook from stored heat present in the oven. It is therefore essential that meat be left in the "HOLD" cycle for a minimum of 1-1/2 to 2 hours after completing the "COOK" cycle before being served.
3. HOLD - Meat may be held for up to 16 hours prior to serving without loss of moisture or tenderness. The burners and blower wheel will cycle on and off intermittently to maintain the preset "HOLD" temperature.

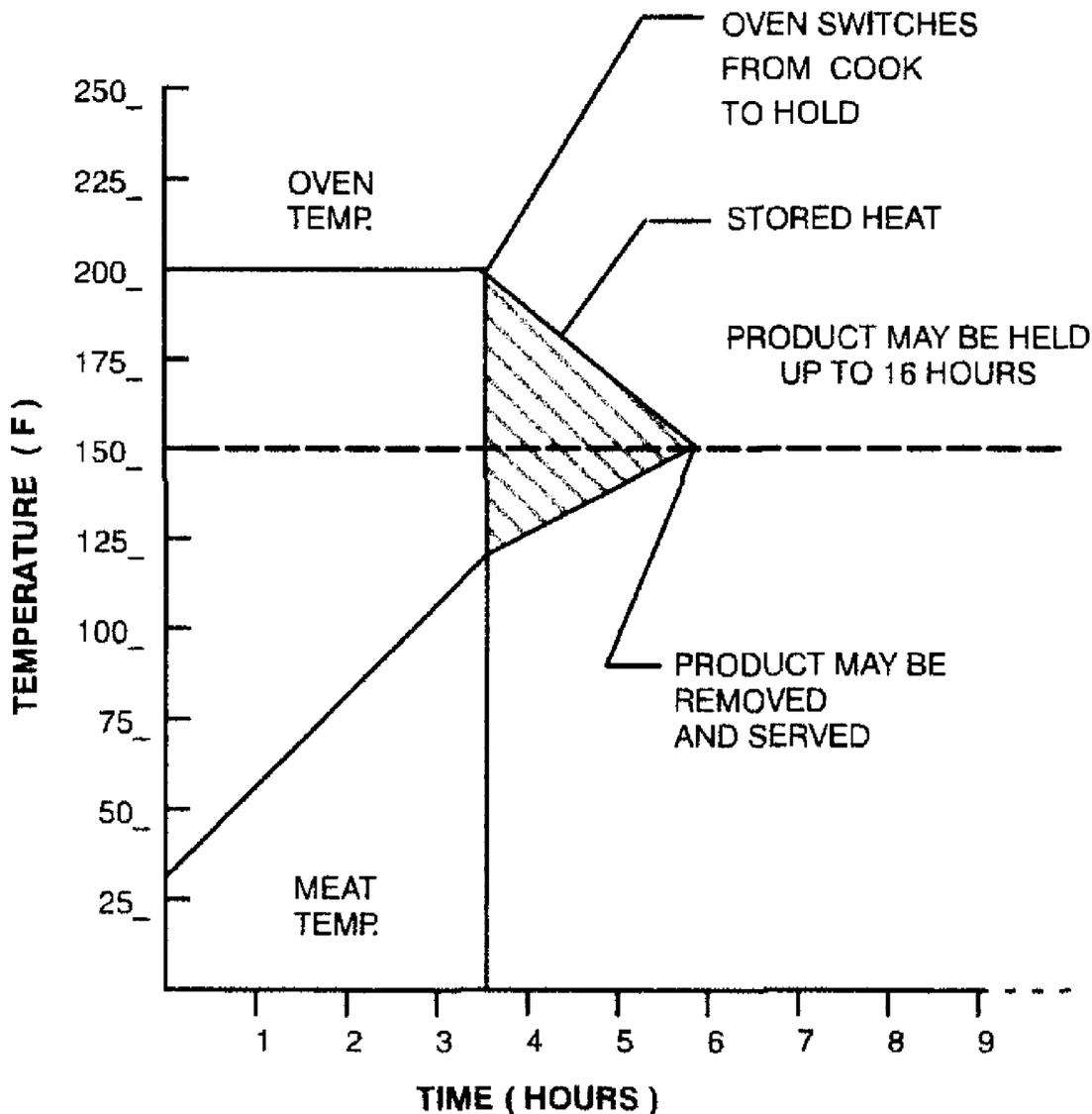


Figure 2-1. Cook And Hold Roasting

2-5. GENERAL GUIDELINES FOR COOKING AND HOLDING.

1. Allow at least one and one-half to two hours in "HOLD" after completion of the Cook cycle. This "HOLD" time is essential if optimum results are to be achieved. The "HOLD" time allows the stored heat present in the oven to bring the meat to the desired degree of doneness.
2. All meat should be thawed thoroughly by refrigeration. Allow to temper at room temperature for 30 to 45 minutes prior to placing in oven. Cooking frozen food is not recommended. Placing frozen product in the oven will increase the cooking time substantially and greater shrinkage will occur.
3. Cooking time will be affected by the degree of aging of the meat. Aged meat will cook more rapidly than that which is unaged.

Table 2-1. General Guidelines For Cooking And Holding

PRODUCT	QTY	COOK TEMP	HOLD TEMP	COOK TIME (HRS)	MIN. HOLD TIME (HRS)	TOTAL TIME (HRS)
Prime Rib	1	200° F 93° C	150° F 66° C	3	1	4
Bone Cap Off	3			3-1/4	1-1/2	4-3/4
14-18 lbs. (6.4-8.1 kg)	6			3-1/2	2	5-1/2
Prime Rib	1	200° F 93° C	150° F 66° C	3-1/2	1	4-1/2
Bone Cap On	3			4	1-1/2	5-1/2
14-18 lbs. (8.1-10.0 kg)	6			4-1/2	2	6-1/2
Top or Bottom Rounds	1	200° F 93° C	150° F 66° C	3-1/2	1	4-1/2
	1			4	1-1/2	5-1/2
20-22 lbs. (9.1-10.0 kg)	6			4-1/2	2	6-1/2
Pork Roast or Ham	2	250° F 121° C	170° F 76° C	4	1	5
	4			4-1/4	1-1/2	5-3/4
10-12 lbs. (4.5-5.4 kg)	6			4-1/2	2	6-1/2
Turkey	1	250° F 121° C	170° F 76° C	3-1/4	1	4-3/4
20-22 lbs. (9.1-10.0 kg)	6			4	1-1/2	5-1/2
Leg of Lamb	2	225° F 107° C	160° F 71° C	2-1/2	1	3-1/2
Bone in	4			2-3/4	1-1/2	4-1/4
8-10 lbs. (43.6-4.5 kg)	6			3	2	5

2-6. SOLID STATE DIGITAL CONTROL.

2-6.1 Control Description. (See [Figure 2-2.](#))

1. SELECTOR SWITCH - turns power to the oven on or off. Allows selection of Cook or Cool Down Modes and fan speed (if applicable).
2. DISPLAY - displays time or temperature and other information related to oven function.
3. HEAT LAMP - lights when heater is on.
4. PULSE LAMP - lights when Pulsed Fan Mode is turned on.
5. HOLD LAMP - lights when Hold Mode is turned on.
6. DIAL - used to enter set points in display.
7. START/STOP KEY - starts or stops the timer.
8. TIME KEY - used to show time in the display.
9. TEMP KEY - used to show set temperature in the display.

NOTE

Actual temperature is shown while the TEMP KEY is held down.

10. HOLD KEY - turns Hold Mode on or off.
11. PULSE KEY - turns Pulse Mode on or off.

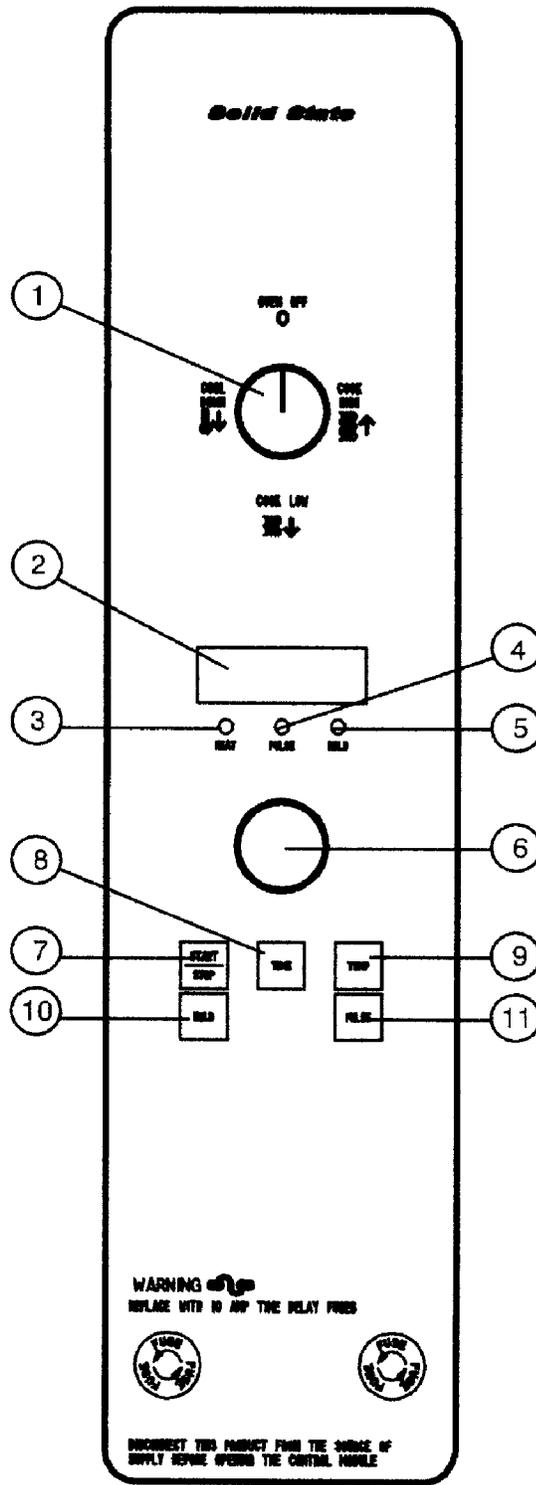


Figure 2-2. Solid State Digital Control

2-6.2 Programming

2-6.2.1 To set the cook temperature.

1. Press TEMP (9) key.
2. Rotate dial (6) to enter temperature.

2-6.2.2 To set the cook time.

1. Press TIME (8) key.
2. Rotate the dial (6) to enter time.
- 3.

NOTE

Time is entered in hours : minutes or minutes : seconds.

2-6.2.3 To set the hold time.

1. Press HOLD key (10) to turn hold mode on.

NOTE

HOLD light is on.

2. Rotate dial (6) to enter the hold temperature.
3. Press START/STOP key (7).

2-6.2.4 To set the pulse time.

1. Press PULSE KEY (11) to turn pulse mode on.

NOTE

Pulse light is on.

2. Rotate DIAL (6) to enter the pulse time. Pulse time is a portion of the preset cook time.

2-6.3 Operation.

2-6.3.1 Cook Only.

1. Turn SELECTOR switch (1) to the desired position.
2. Enter the cook time and temperature.
3. Load product into oven.

NOTE

The display reads **LOAD** when the oven is near the set temperature.

4. Press the **START/STOP** key (7). The timer begins to count down.
5. When the cook timer reaches 00:00 the buzzer sounds and the display reads **DONE**.
6. Press the **START/STOP** key (7) to silence the buzzer.
7. Remove the product.

2-6.3.2 Cook with Hold.

NOTE

HOLD light is on when hold mode is on and off when hold mode is off.

1. Turn **SELECTOR** switch (1) to the desired position.
2. Enter the cook time and temperature.
3. Press the **HOLD** key (10). Enter the hold temperature.
4. Load product into oven.

NOTE

The display reads **LOAD** when the oven is near the set temperature.

5. Push the **START/STOP** (7) key. Timer begins to count down.
6. When the cook timer reaches 00:00 the buzzer sounds and the display reads **DONE**. The buzzer turns off after a few seconds. The display reads **HOLD** until the oven reaches the hold temperature. Then the timer begins to count up.
7. Push the **START/STOP** key (7) to stop timer.
8. Remove the product.
9. Push **HOLD** (10) key to turn off hold mode.

2-6.3.3 Cook with Pulse

NOTE

PULSE light is on when pulse mode is on and off when pulse mode is off.

1. Turn the **SELECTOR SWITCH** (1) to the desired position.
2. Enter cook time and cook temperature.
3. Press **PULSE KEY** (11). Enter the pulse time.

NOTE

Pulse time is a portion of the cook time and does not increase the previously entered cook time.

4. Load product into oven.

NOTE

The display reads **LOAD** with the oven is near the set temperature.

5. Push **START/STOP KEY (7)**. The timer begins to count down the cook time. The oven will be in pulse mode for the set pulse time. Once the set time has expired, the unit will automatically switch to cook mode and continue counting down.
6. When the cook timer reaches 00:00 the buzzer sounds and the display reads **DONE**.
7. Push the **START/STOP KEY (7)** to turn the buzzer off.
8. Remove the product.

2-7. INTELLIHOLD WITH 2 SPEED FAN.

2-7.1 Controls. Identified by circled item numbers in [Figure 2-3](#).

1. **SELECTOR SWITCH** - Controls the power and cooking mode of the oven. When in **OVEN ON**, the oven is operating in the normal convection mode. When in **COOL DOWN**, only the blower wheel is operating. **OVEN OFF** turns the oven off.
2. **OVEN READY LIGHT** - Illuminates when the oven is preheating. When the red light goes out, the oven has reached operating temperature.
3. **DIGITAL DISPLAY** - Displays the time, temperature and controller related information.
4. **TIME** - A dial to set the cook and/or hold time of the selected program.
5. **TEMPERATURE** - A dial to set the cook and/or hold temperature of the selected program.

2-7.2 Keypad Controls. Identified by blocked item numbers in [Figure 2-3](#).

1. **START TIMER** - Starts the program that is shown in the display.
2. **ACTUAL TEMP** - Press to display the actual temperature of the oven.
3. **COOK** - Press to set the oven in the cook mode, (High Speed Fan).
4. **PGM1 thru PGM6** - Press to program time and temperature settings for up to six products.
5. **ROAST** - Press to set the oven in the roast mode, (Low Speed Fan).
6. **HOLD** - Press to set the oven in the hold mode.
7. **CANCEL** - Press to cancel entries in the programming mode and clear the display.

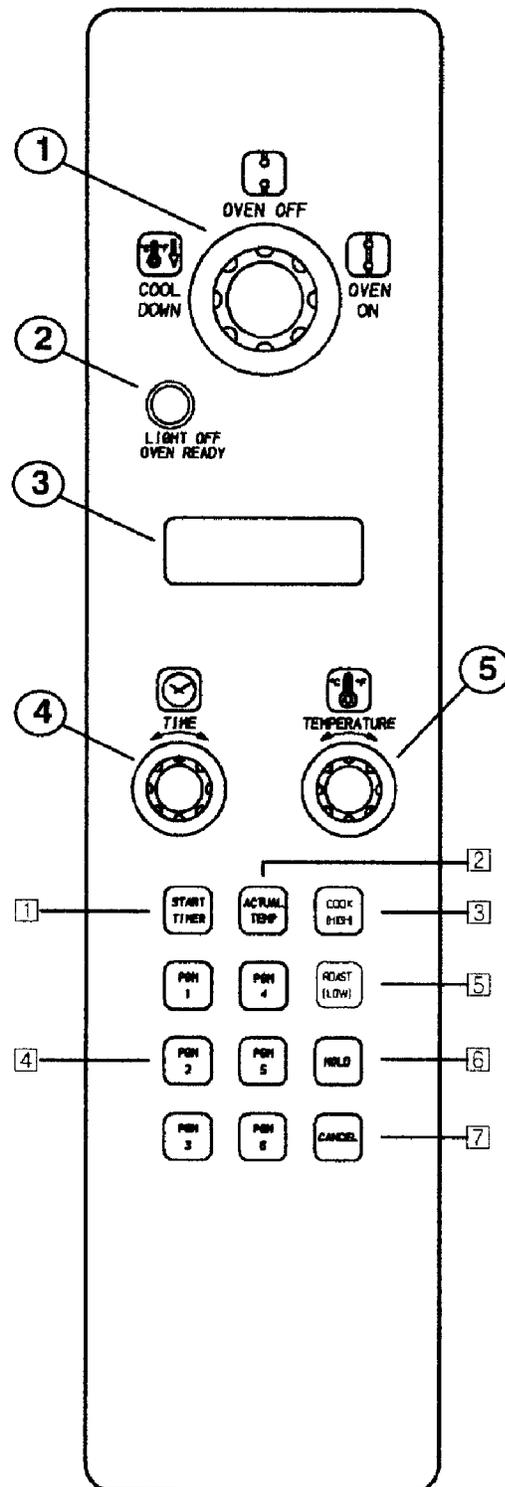


Figure 2-3. Intellihold With 2 Speed Fan

2-7.3 Programming. The following sequence must be used to program Intellihold with the required time and temperatures. “Quoted” text indicates what will be seen in the digital display. CAPS indicates a function key or control switch that is to be used.

1. Turn the SELECTOR SWITCH to ON.
2. Press CANCEL then COOK or ROAST. Press and hold PGM1 for the time and temperature steps.
3. Rotate the TEMPERATURE dial in either direction to set the desired cooking temperature.
4. Rotate the TIME dial in either direction to set the desired cooking time.
5. Release PGM1. The time and temperature displays will be “flashing”.
6. Press HOLD and then press and hold PGM1. Rotate the TEMPERATURE dial in either direction to set the desired holding temperature. If HOLD is not wanted, rotate the TEMPERATURE dial to “000° F”.
7. Press CANCEL. At this point the desired time and temperatures are programmed for cook and hold modes.
8. Repeat [steps 2](#) through [7](#) for PGM2 thru PGM6.
9. A product can be cooked without using any PGM. Select COOK or ROAST. Rotate the TIME and TEMPERATURE dials to the desired settings. Press START TIMER to actuate the timer.

2-7.4 Operation.

1. Turn the SELECTOR SWITCH to the OVEN ON position. The blower will start. The blower is controlled automatically by opening and closing the doors.
2. Turn the TEMPERATURE dial to select the desired preheat temperature.
3. When the oven ready light goes off, the oven has reached operating temperature. Load the oven and press the desired PGM key. If no PGM is to be used select COOK or ROAST and set the time and temperature manually with the appropriate dials.
4. Press START TIMER. The timer will count down the set time. Upon completion of the set time, the buzzer will sound. Press CANCEL and remove the product.
5. If the program selected uses the hold feature, the buzzer will not sound. However at the completion of the set time, the oven will automatically start the HOLD cycle. The hold timer will not start counting until the oven has reached the hold temperature. At this point the hold timer will start counting up the time in the hold cycle.
6. When the desired hold time has been reached, press CANCEL and remove the product.
7. To shut the oven off, turn the SELECTOR SWITCH to OVEN OFF.
8. To cool down the oven cooking compartment, turn the SELECTOR SWITCH to COOL DOWN. The blower will operate and remain on with the door open. The burners will not come on.

Table 2-2. Time And Temperatures

PRODUCT	FAHRN.	CELSIUS	TIME	NO. SHELVES
MEATS				
Beef				
Hamburger Patties (5 per lb)	400° F	205° C	8-10 mins.	10
Steamship Round (80 lb. quartered)	275° F	135° C	2 hrs. 45 mins.	2
Standing Rib Choice (20 lbs, trimmed, rare)	235° F	115° C	2 hrs. 45 mins.	2
Banquet Shell Steaks (10 oz. meat)	450° F	235° C	7-8 mins.	5
Stuffed Peppers	350° F	175° C	15-20 mins.	3
Swiss Steak after Braising	275° F	135° C	1 hr.	5
Hot Dogs, 1-lb (18" x 26" pans)	325° F	165° C	10-15 mins.	5
Pork, Veal & Lamb				
Baked Stuffed Pork Chop	375° F	190° C	25-30 mins.	5
Boned Veal Roast (15 lbs.)	300° F	150° C	3 hrs. 10 mins.	2

Table 2-2. Time And Temperatures - Continued

PRODUCT	FAHRN.	CELSIUS	TIME	NO. SHELVES
Lamb Chops (small loin)	400° F	205° C	7-8 mins.	5
Bacon (on racks in 18" x 26" pans)	400° F	205° C	5-7 mins.	10
POULTRY				
Chicken Breast & Thigh	350° F	175° C	40 mins.	5
Chicken Back & Wing	350° F	175° C	35 mins.	5
Chicken (2 1/2 lbs. quartered)	350° F	175° C	30 mins.	5
Turkey Rolled (18 lb. rolls)	310° F	155° C	3 hrs 45 mins	3
FISH & SEAFOOD				
Fish Sticks	335° F	170° C	16-18 mins.	10
Halibut Steaks, Cod Fish (frozen 5 oz)	350° F	175° C	20 mins.	5
Baked Stuffed Lobster (2 1/2 lb.)	400° F	205° C	10 mins.	3
Lobster Tails (frozen)	425° F	220° C	9 mins.	5
CHEESE				
Macaroni & Cheese Casserole	350° F	175° C	30 mins.	5
Melted Cheese Sandwiches	400° F	205° C	8 mins.	10
POTATOES				
Idaho Potatoes (120 Ct.)	400° F	205° C	50 mins.	5
Frozen French Fries (Cooking times and temperatures will vary according to vendor).				
Oven Roasted Potatoes (sliced or diced)	325° F	165° C	10 mins.	5
BAKED GOODS				
Fruit Pies & Turnovers				
Frozen Berry Pies (22 oz)	325° F	150° C	35 mins.	5 (30 pies)
Frozen Fruit Pies (46 oz.)	325° F	150° C	45-50 mins.	5 (20 pies)
Fresh Apple Pie (20 oz.)	350° F	175° C	25-30 mins	5 (30 pies)
Pumpkin Pies	300° F	150° C	30-50 mins.	5
Fruit Crisp	300° F	150° C	25 mins.	5
Bread & Rolls				
Bread (24 - 1 lb. loaves)	325° F	155° C	30 mins.	3
Southern Corn Bread	375° F	190° C	15-20 mins.	5
Hamburger Rolls Baking	275° F	125° C	15 mins.	5
Soda Biscuits	400° F	205° C	6 mins.	5
Brown & Serve Rolls	350° F	175° C	15 mins.	5
Cakes & Cookies				
Sheet Cakes (5 lb. mixed batter per pan)	325° F	160° C	16-18 mins.	5
Chocolate Cake	325° F	160° C	20 mins.	5
Brownies	325° F	150° C	15 mins.	5
Danish	350° F	175° C	15 mins.	5
Cream Puffs	350° F	175° C	20-25 mins.	5
NOTE				
Actual times and temperatures may vary considerably from those shown above. They are affected by weight of load, temperature of the product, recipe, type of pan and calibration of thermostat. Should your recipe vary, write in your proven time and temper-ature for ready reference.				

CHAPTER 3

SCHEDULED MAINTENANCE

3-1. INTRODUCTION.

3-1.1 PLANNED MAINTENANCE SYSTEM. Required preventive maintenance procedures to be performed on a scheduled basis are provided in Planned Maintenance System (PMS) documentation. OPNAVINST 4790.4 describes this system which also covers departmental and work center recordkeeping, as well as the Maintenance Index Page (MIP) and Maintenance Requirement Cards (MRCs). MRCs cover scheduled inspection, testing, and lubricating procedures for the (NOUN NAME OF EQUIPMENT) covered by this manual.

3-1.2 EXTENT OF COVERAGE. The extensive and comprehensive scheduled maintenance provided by MRCs eliminates the need for any coverage within this chapter. Specific corrective maintenance is covered in [Chapter 5](#) of this manual.

3-2. CLEANING AND PREVENTATIVE MAINTENANCE.

WARNING

Always disconnect the power supply before cleaning or servicing the appliance!

3-2.1 Cleaning Of Ovens. Painted and stainless steel ovens may be cleaned and kept in good condition with a light oil such as SHEILASHINE. Saturate a cloth and wipe oven when cold; wipe dry with a clean cloth. On the stainless front or interior, deposits of baked on splatter, oil, grease, or light discoloration may be removed with any of the following elements:

Grade FFF Italian Pumice

Liquid Nu Steel

Permapass

Samea or Cameo paste

Nu Steel

DuBois Temp.

Heat tint or heavy discolorations may be removed with any of the following:

Penny-Brite

Copper-Brite

DuBois Temp.

Past Nu Steel

5 to 15% nitric acid

5 to 15% phosphoric acid

Apply cleaners when the oven is cold and always rub with the grain of the metal.

Porcelain interiors can be cleaned with oven cleaners such as JiFoam, Easy-Off or Dow Oven Cleaner. The racks and rack supports may be cleaned by removing them from the oven and soaking them in a mild solution of ammonia and water.

Care should be taken to keep liquids away from light sockets, temperature probes, heating elements etc. and avoid spraying the oven pilot, electrical connections, thermostat and light bulb receptacles.

Aluminized interiors should be cleaned with a non-caustic and nonabrasive oven cleaner such as Easy-Off. Apply cleaners when the oven is cold and always rub with the grain of the metal. Avoid the use of oven cleaners that will harm aluminum and do not allow caustic compounds to come in contact with the aluminized steel panel directly behind the blower wheel.

3-2.2 Preventative Maintenance. The best preventative maintenance measures are the proper installation of the equipment and a program for routinely cleaning the oven. This oven requires no lubrication. However, the venting system should be checked annually for possible deterioration resulting from moisture and corrosive flue products.

Should maintenance or repairs be required, they should be performed only by qualified personnel

CHAPTER 4

TROUBLESHOOTING

4-1. TROUBLESHOOTING CHARTS.

The following flow charts are provided to assist service technicians to identify and correct operational problems quickly and correctly. By utilizing these charts in conjunction with the Testing ([paragraph 4-2](#)) and the Removal and Replacement of Components sections immediately following. It will be possible to determine the malfunction, its cause, and the necessary procedure to correct it.

The flow charts represent a visual explanation of what is occurring or what should be occurring in the oven under any given set of circumstances. The following four flow chart symbols will be encountered ([Figure 4-1](#)). Refer to [Figures 4-2](#) and [4-3](#).

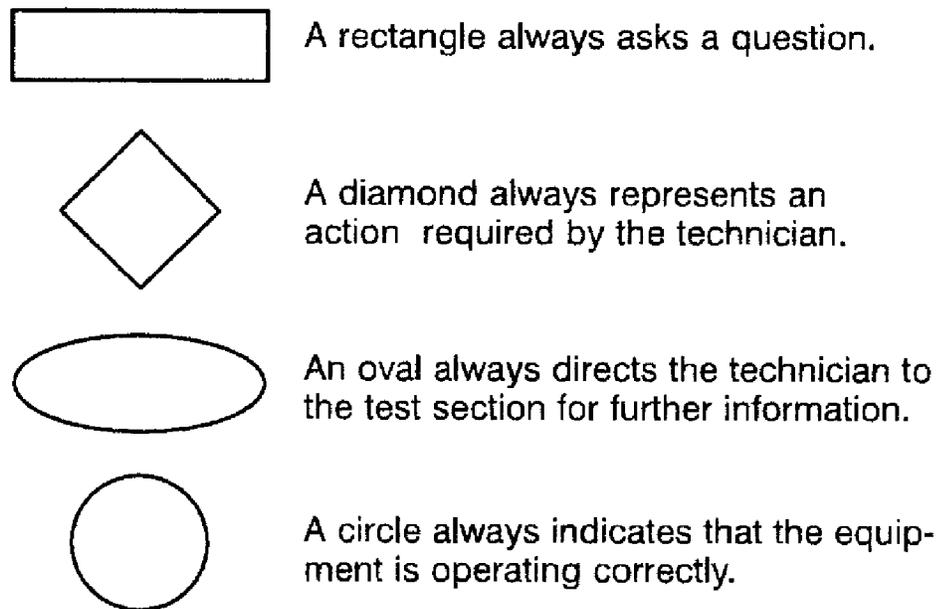


Figure 4-1. Flow Chart Symbols

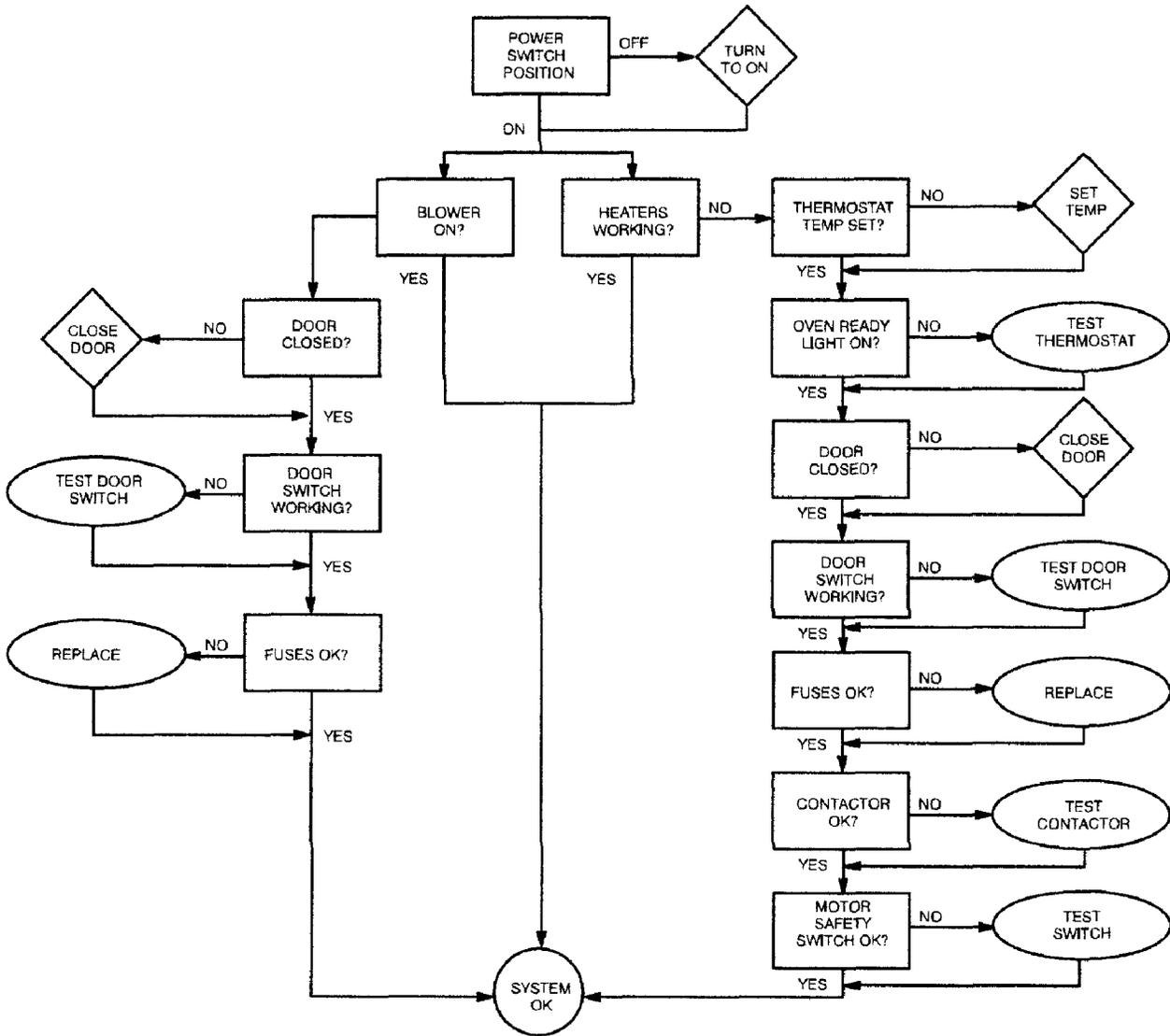


Figure 4-2. Cook Only Logic

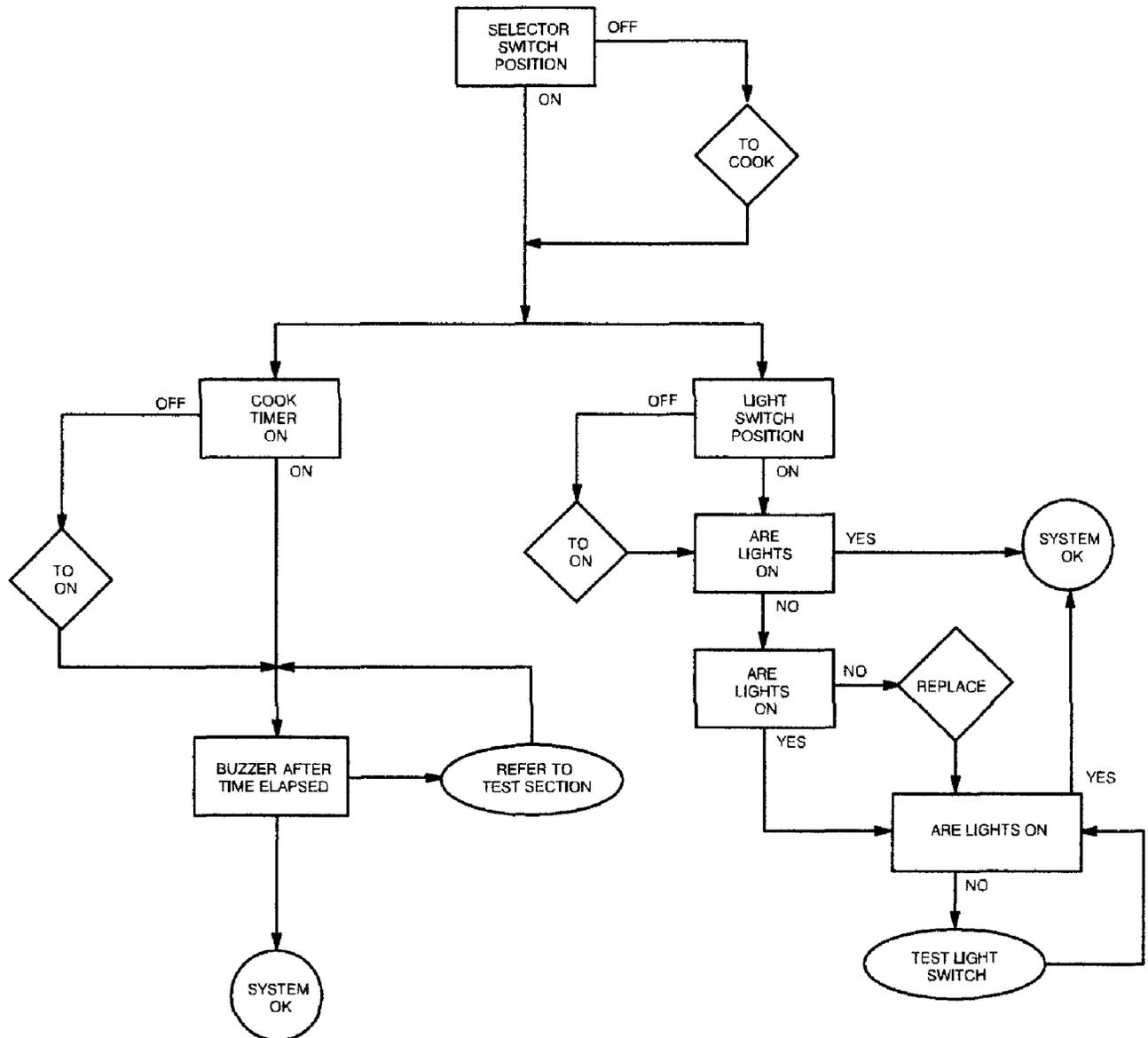


Figure 4-3. Light And Timer Logic

4-2. TESTING OF COMPONENTS

Disconnect the oven from the main power supply, then slide the control module out for access to the electrical components.

Throughout these testing instructions, continuity refers to a continuous path for the flow of electricity through a circuit or component. Before checking for continuity, make certain the circuit is disconnected from the power source.

4-2.1 Selector Switch. When the Selector switch is turned to the COOL DOWN or OVEN ON positions, the blower motor is activated and operates until the switch is turned to OVEN OFF. In the OVEN ON position the blower motor is controlled automatically by the action of the doors. In the COOL DOWN position the blower

operates continuously with the doors open or closed. The elements will come on in the OVEN ON position. The elements will not come on in the COOL DOWN position.

•TEST: Remove wires connected to points on the switch marked 1, 2, 3, and 4. Turn switch to the OVEN OFF position. No continuity should exist between switch terminals N & 2, N&3,L1 and 1, and L1 and 4.

When the switch is in the OVEN ON position continuity should exist between N & 2 and L1 and 1. No continuity should exist between N & 3 and L1 & 4.

When the switch is in the COOL DOWN position continuity should exist between N & 3 and L1 and 4. No continuity should exist between N and 2 and L1 and 1

4-2.2 Quick Disconnect. This multiple blade and socket connector, located on the back center of the control tray, provides both hot and neutral line power disconnect to the control area when the control tray is pulled out more than one inch. Physical damage to the blades, sockets, or unshielded wires to both would account for failures associated with this device. Incoming power is through Poles #7 and #8 of the Quick Disconnect.

4-2.3 Contactor (Heater Relay). The contactor is the three-pole relay that controls the heater elements in the oven. To operate, the following conditions must be satisfied:

1. The selector switch must be placed in the OVEN ON position.
2. The Cook Thermostat must be calling for heat.
3. The oven door must be closed.

TEST: With the wires removed from the contactor coil terminals a resistance of approximately 420 Ohms should be observed.

4-2.4 Electric Heaters. The electric heaters are supplied power through the contactor. If the contactor is working and the heaters are not coming on, they could be burned out.

•TEST: Disconnect the wires from the end of the heater element terminals. Continuity should exist in a good heater.

Resistance values should read approximately 14.5 Ohms for 220-Volt heaters, 17 Ohms for 240-Volt heaters, 58 Ohms for 440-Volt heaters, and 69 Ohms for 480-Volt heaters.

4-2.5 Fuses. Unscrew cap from the panel mount fuseholder and remove the fuse. The fuse must have continuity to be good.

4-2.6 Switches. Lights and Blower switch (SPST switch) - With wires in place, check for continuity between the poles with the switch ON. Switch OFF should have no continuity.

Door switch (SPST switch) - Operated by the door position. With the doors closed, the switch should be closed and continuity should exist between the wire connections at normally open and normally common poles of the switch

4-2.7 Blower Wheel Noisy. •Blower wheel is rubbing on compartment baffle. To correct: Move motor back in motor mount.

•Blower wheel is rubbing on motor mount panel. To correct: Move motor forward in motor mount.

- Blower wheel loose on motor shaft. To correct: Tighten set screws in blower wheel.
- Blower wheel loose on motor shaft and motor shaft is badly worn. To correct: Replace motor and blower wheel.

4-3. PROBE RESISTANCE VS. TEMPERATURE.

Table 4-1. Solid State Manual and Digital Controllers (Probe P/N 18588)

°F	°C	Ohms	°F	°C	Ohms
100	38	53029	125	52	30785
150	66	18591	175	80	11633
200	93	7528	210	99	6391
220	105	5471	230	110	4705
240	116	4030	250	121	3441
260	127	2967	270	132	2583
280	138	2255	290	143	1970
300	149	1728	310	155	1519
320	160	1340	330	166	1186
340	171	1052	350	177	936
360	182	835	370	188	747
380	193	669	390	199	601
400	205	542	425	219	421
450	232	333	475	246	265
500	260	216			

Table 4-2. Intellihold Controllers (Probe P/N 23392)

°F	Ohms										
70	1,080	71	1,082	72	1,084	73	1,086	74	1,089	75	1,091
76	1,093	77	1,095	78	1,097	79	1,099	80	1,101	81	1,103
82	1,105	83	1,108	84	1,110	85	1,112	86	1,114	87	1,116
88	1,120	90	1,122	91	1,124	92	1,126	93	1,128	94	1,131
95	1,133	96	1,135	97	1,137	98	1,139	99	1,141	100	1,143
101	1,145	102	1,147	103	1,149	104	1,151	105	1,153	106	1,156
107	1,158	108	1,160	109	1,162	110	1,164	111	1,166	112	1,168
113	1,170	114	1,172	115	1,174	116	1,176	117	1,178	118	1,181
119	1,183	120	1,185	121	1,187	122	1,189	123	1,191	124	1,193
125	1,195	126	1,197	127	1,199	128	1,201	129	1,203	130	1,206
131	1,208	132	1,210	133	1,212	134	1,214	135	1,216	136	1,218
137	1,220	138	1,222	139	1,224	140	1,226	141	1,229	142	1,231
143	1,233	144	1,235	145	1,237	146	1,239	147	1,241	148	1,243
149	1,245	150	1,247	151	1,249	152	1,251	153	1,253	154	1,255
155	1,258	156	1,260	157	1,262	158	1,264	159	1,266	160	1,268
161	1,270	162	1,272	163	1,274	164	1,276	165	1,278	166	1,280
167	1,282	168	1,284	169	1,287	170	1,289	171	1,291	172	1,293
173	1,295	174	1,297	175	1,299	176	1,301	177	1,303	178	1,305
179	1,307	180	1,309	181	1,311	182	1,313	183	1,315	184	1,318
185	1,320	186	1,322	187	1,324	188	1,326	189	1,328	190	1,330
191	1,332	192	1,334	193	1,336	194	1,338	195	1,340	196	1,342

Table 4-2. Intellihold Controllers (Probe P/N 23392) - Continued

°F	Ohms										
197	1,344	198	1,346	199	1,348	200	1,350	201	1,352	202	1,354
203	1,357	204	1,359	205	1,361	206	1,363	207	1,365	208	1,367
209	1,369	210	1,371	211	1,373	212	1,375	213	1,377	214	1,379
215	1,381	216	1,383	217	1,385	218	1,387	219	1,389	220	1,391
221	1,393	222	1,395	223	1,398	224	1,400	225	1,402	226	1,404
227	1,406	228	1,408	229	1,410	230	1,412	231	1,414	232	1,416
233	1,418	234	1,420	235	1,422	236	1,424	237	1,426	238	1,428
239	1,430	240	1,432	241	1,434	242	1,436	243	1,438	244	1,440
245	1,442	246	1,444	247	1,447	248	1,449	249	1,451	250	1,453
251	1,455	252	1,457	253	1,459	254	1,461	255	1,463	256	1,465
257	1,467	258	1,469	259	1,471	260	1,473	261	1,475	262	1,477
263	1,479	264	1,481	265	1,483	266	1,485	267	1,487	268	1,489
269	1,491	270	1,493	271	1,495	272	1,497	273	1,499	274	1,501
275	1,503	276	1,505	277	1,507	278	1,509	279	1,512	280	1,514
281	1,516	282	1,518	283	1,520	284	1,522	285	1,524	286	1,526
287	1,528	288	1,530	289	1,532	290	1,534	291	1,536	292	1,538
293	1,540	294	1,542	295	1,544	296	1,546	297	1,548	298	1,550
299	1,552	300	1,554	301	1,556	302	1,558	303	1,56	304	1,562
305	1,564	306	1,566	307	1,568	308	1,570	309	1,572	310	1,574
311	1,576	312	1,578	313	1,580	314	1,582	315	1,584	316	1,586
317	1,588	318	1,590	319	1,592	320	1,594	321	1,596	322	1,598
323	1,600	324	1,602	325	1,604	326	1,606	327	1,608	328	1,610
329	1,612	330	1,614	331	1,616	332	1,618	333	1,620	334	1,622
335	1,624	336	1,626	337	1,628	338	1,630	339	1,632	340	1,634
341	1,636	342	1,638	343	1,640	344	1,642	345	1,644	346	1,646
347	1,648	348	1,650	349	1,652	350	1,654	351	1,656	352	1,658
353	1,660	354	1,662	355	1,664	356	1,666	357	1,668	358	1,670
359	1,672	360	1,674	361	1,676	362	1,678	363	1,680	364	1,682
365	1,684	366	1,685	367	1,688	368	1,690	369	1,692	370	1,694
371	1,696	372	1,698	373	1,700	374	1,702	375	1,704	376	1,706
377	1,708	378	1,710	379	1,712	380	1,714	381	1,716	382	1,718
383	1,720	384	1,722	385	1,724	386	1,726	387	1,728	388	1,730
389	1,732	390	1,734	391	1,736	392	1,738	393	1,740	394	1,742
395	1,744	396	1,746	397	1,748	398	1,750	399	1,752	400	1,754
401	1,756	402	1,758	403	1,760	404	1,762	405	1,764	406	1,766
407	1,769	408	1,770	409	1,772	410	1,774	411	1,776	412	1,778
413	1,780	414	1,782	415	1,783	416	1,785	417	1,787	418	1,789
419	1,791	420	1,793	421	1,795	422	1,797	423	1,799	424	1,801
425	1,803	426	1,805	427	1,807	428	1,809	429	1,811	430	1,813
431	1,815	432	1,817	433	1,819	434	1,821	435	1,823	436	1,825
437	1,827	438	1,829	439	1,831	440	1,833	441	1,835	442	1,837
443	1,839	444	1,841	445	1,843	446	1,845	447	1,846	448	1,848
449	1,850	450	1,852	451	1,854	452	1,856	453	1,858	454	1,860
455	1,862	456	1,864	457	1,866	458	1,868	459	1,870	460	1,872
461	1,874	462	1,876	463	1,878	464	1,880	465	1,882	466	1,884
467	1,886	468	1,888	469	1,890	470	1,892	471	1,893	472	1,895
473	1,897	474	1,899	475	1,901	476	1,903	477	1,905	478	1,907

Table 4-2. Intellihold Controllers (Probe P/N 23392) - Continued

°F	Ohms										
479	1,909	480	1,911	481	1,913	482	1,915	483	1,917	484	1,919
485	1,921	486	1,923	487	1,925	488	1,927	489	1,929	490	1,931
491	1,932	492	1,934	493	1,936	494	1,938	495	1,940	496	1,942
497	1,944	498	1,946	499	1,948	500	1,950	501	1,952	502	1,954
503	1,956	504	1,958	505	1,960	506	1,962	507	1,964	508	1,966
509	1,967										

CHAPTER 5

CORRECTIVE MAINTENANCE

5-1. DOOR ADJUSTMENTS.

5-1.1 Door Operation And Adjustment. These ovens are provided with independently operated doors which are not adjustable.

5-1.2 Door Switch Adjustment. The door switch may be moved forward or backward in the mounting bracket as necessary for alignment. See [Figure 5-1](#).

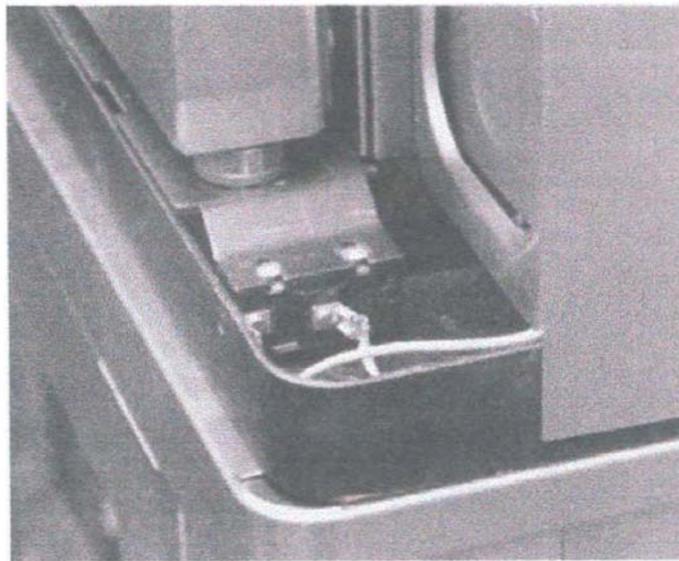


Figure 5-1. Door Switch

5-2. THERMOSTAT CALIBRATION.

Thermostat malfunctions are the cause for more oven operating problems than any other oven component. Thermostats do fail, and if such a failure occurs, only replacement of the defective control will correct the problem. If the temperature of the oven fluctuates greatly during operation and there is a worsening of this condition over time, replacement of the thermostat is indicated. However, if the temperature in the oven is too high or too low, or if the operator complains of uneven baking results, re-calibration of the thermostat rather than replacement is indicated. If the thermostat is found to be in proper adjustment, but uneven baking is apparent, the operator should reduce the temperature or consult the Time and Temperature Table ([Table 2-2](#)) for recommendations.

5-2.1 To Check Calibration.

1. Apply power to the unit by turning the Selector switch to "COOK".
2. Place a pyrometer thermocouple or reliable mercury thermometer on the middle shelf 6 inches from the front edge and in the center of the shelf. See [Figure 5-2](#).
3. Turn thermostat dial to 350° F (177° C).

4. When the red indicator light on the control panel goes out, check the thermometer or pyrometer to determine oven temperature.
5. If this reading is within 10° F (6° C) of the thermostat setting, do not change the thermostat.
6. If this reading differs more than 10° F (6° C) from the thermostat setting, refer to [paragraphs 5-2.2](#) and [5-2.3](#).

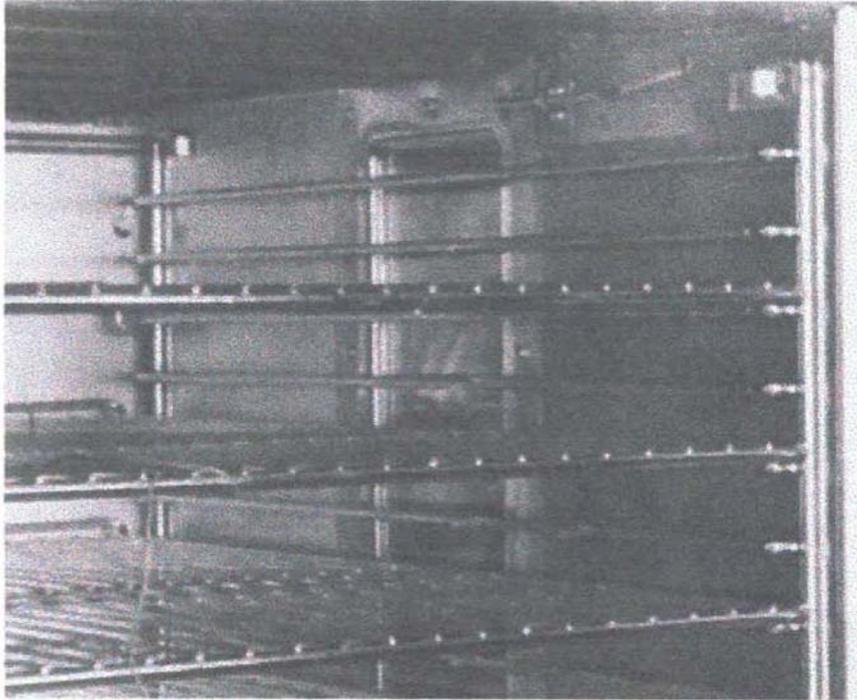


Figure 5-2. Pyrometer Thermocouple Placement

5-2.2 Solid State Digital Control Calibration.

5-2.2.1 To Initiate Programming.

1. Set the time to 1 minute.
2. Set the temperature to 151° F (66° C).

5-2.2.2 To Access Second Level Programming.

1. Press and hold the temperature key and the start/stop key simultaneously.
2. The control beeps and displays the software version for a few seconds.
3. The control then displays “2NdL”. The control has entered the second level program.

5-2.2.3 To Change the Temperature Offset.

1. Press the temperature key.

2. The control displays “OFFS” or offset for a few seconds. It then displays the current offset which should be 0° F.
3. Rotate the dial to enter a $\pm 50^{\circ}$ F (28° C) offset. Use this to calibrate the oven if necessary

5-2.2.4 To Set the Display Scales.

1. Press the temperature key.
2. The control displays the current setting from the following menu. See [Figure 5-3](#). This menu controls 3 separate parameters:
 - a. First Digit - the desired time display (ie. hrs/min or min/sec).
 - b. Second Digit - Electric or Gas oven.
 - c. Third and Fourth Digit - the desired temperature scale (ie °F or °C).
3. To adjust the setting turn the dial 1 click at a time.

NOTE

If the control is set for minutes and seconds the first digit will be blank. If the control is set for a gas oven the second digit will be blank.

5-2.2.5 To Return to Normal Operating Mode.

1. Press the temperature key.
2. The control goes through self check then displays the set temperature 151° F (66° C).
3. The oven can now be controlled as normal.

DISPLAY SCALE EXAMPLES

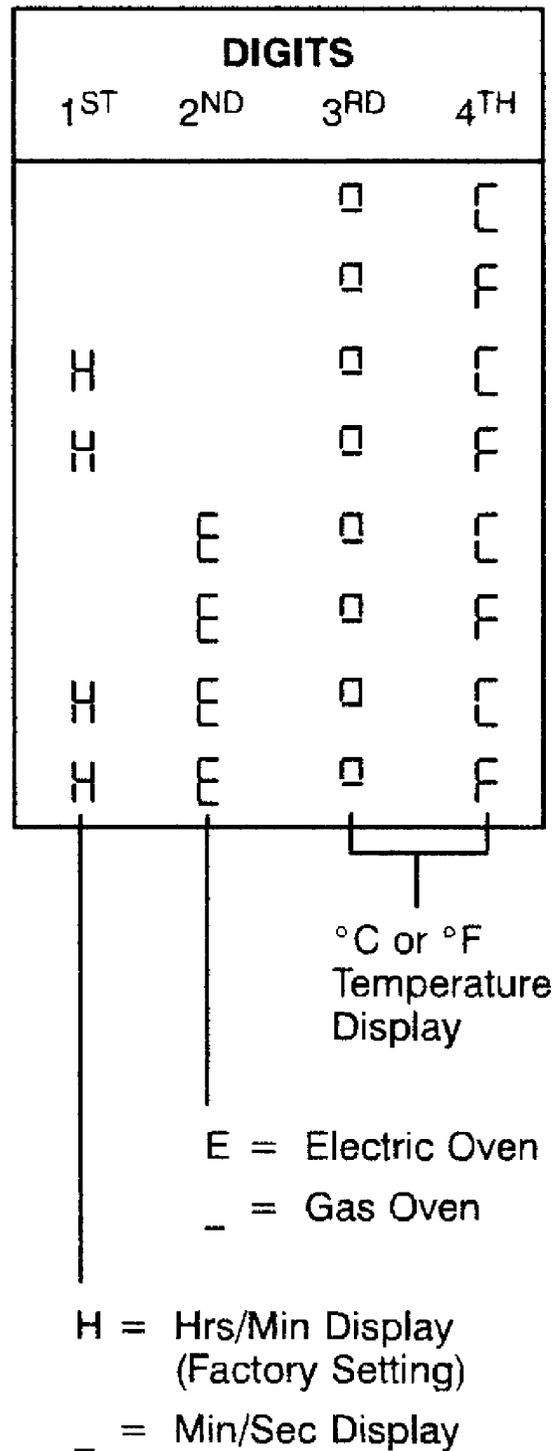


Figure 5-3. Display Scale Examples

5-2.3 Intellihold Calibration.

1. Set the digits to 00:00.

2. Set The temperature to 210°.
3. Press and hold the START TIMER key for 5 seconds.
4. Rotate either dial until the desired temperature offset is displayed ($\pm 49^\circ$).
5. Press the ACTUAL TEMP key to exit.

CHAPTER 6

REPAIR PROCEDURES

6-1. REMOVAL AND REPLACEMENT OF PARTS.

WARNING

Before performing any maintenance or replacing any component on this unit, disconnect oven from electrical source.

If it is necessary to replace a defective component use only genuine Blodgett replacement parts.

6-1.1 Access Panels And Doors.

6-1.1.1 Bottom Trim Cover Removal And Replacement.

1. Open doors.
2. Remove two screws in top edge of panel.
3. Lift panel up and outward. See [Figure 6-1](#).
4. Replace by reversing above procedure.

6-1.1.2 Control Cover Removal & Replacement.

1. Remove combustion compartment cover.
2. Remove screw in top of control cover.
3. Pull control cover forward from bottom and rotate upward. See [Figure 6-2](#).
4. Replace by reversing above procedures.

6-1.1.3 Door Removal And Replacement For Mark V-III-H. See [Figure 7-1](#).

1. Open doors.
2. Drive 1/4-inch pin (item 7) out of the door with a punch tool.
3. Remove 3 screws (items 10, 11 and 13) from the door hold open plate.
4. Remove screws (items 4 and 5) from the door pin and cover plate.
5. Loosen bolt (item 3) until the cover plate is loose (Do not remove the plate).
6. Slide the upper door pin down to clear the upper door support. This may be done by pulling down on the bolt (item 3).

7. Tilt the top of the door outward until it fully clears the oven.
8. Lift the door up and out.

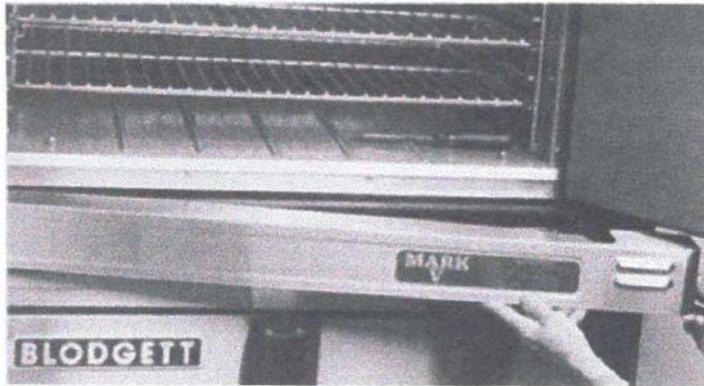


Figure 6-1. Bottom Trim Cover

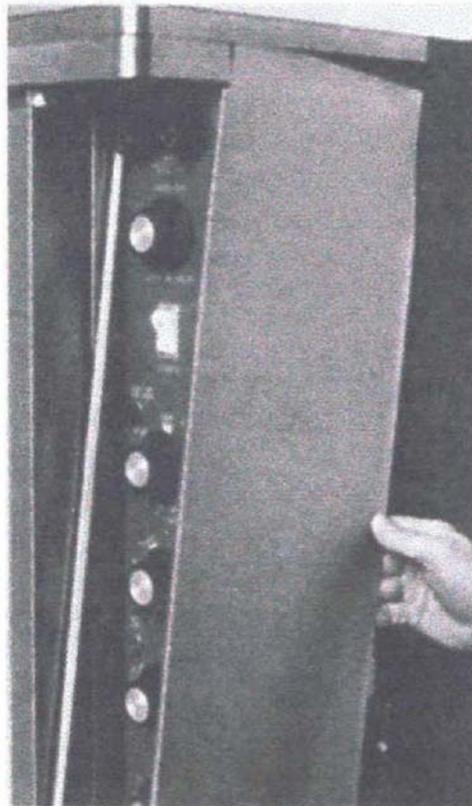


Figure 6-2. Control Cover

6-1.2 Perimeter Door Gasket.

6-1.2.1 Removal And Replacement.

1. Remove gasket screws, [Figure 6-3](#).
2. Top and bottom trim ([Figure 6-4](#)) pieces are removed with gaskets.
3. Side trim pieces remain in place.
4. Position top gasket over upper trim piece and replace screws.
5. Position side gaskets 1/8 inch from end of top gasket and replace screws.
6. Position bottom gasket over trim piece.

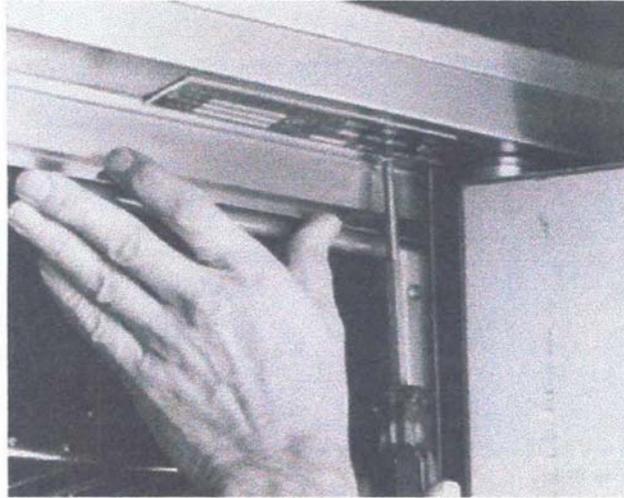


Figure 6-3. Perimeter Door Gasket

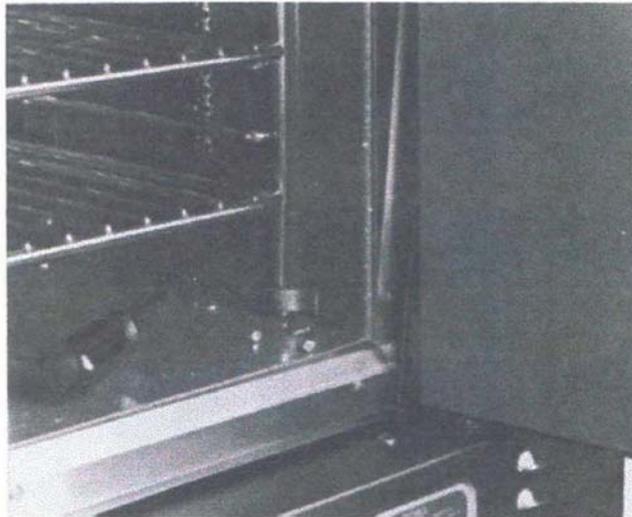


Figure 6-4. Perimeter Door Gasket Bottom Trim

6-1.3 Motor And Blower Assembly.

6-1.3.1 Blower Wheel Removal And Replacement.

1. Remove racks and rack supports.
2. Remove blower wheel cover by loosening four screws located at each corner and pulling cover forward. See [Figures 6-5](#) and [6-6](#).
3. Loosen set screws in blower wheel hub. See [Figure 6-7](#).
4. Screw a 3/8"-16 bolt into threaded hole of blower wheel and draw wheel forward from shaft.
5. Replace blower wheel by lubricating motor shaft with graphite and positioning wheel to provide adequate clearance between motor mounting panel and blower wheel cover. Tighten set screws securely.

6-1.3.2 Motor Removal And Replacement

1. Remove blower wheel from motor shaft. Refer to [paragraph 6-1.3.1](#).
2. If access to rear of oven is available, loosen motor attachment bolts, remove motor conduit and lift motor from mounting bracket.
3. If access to rear of oven is not available, motor may be removed from front of oven as follows:
 - a. Remove heater elements.
 - b. Remove two nuts from studs on motor panel.
 - c. Remove four sheet metal screws from each corner of motor panel.
 - d. Pull motor panel forward into oven and disconnect motor wiring conduit.
 - e. Replace by reversing above procedures.

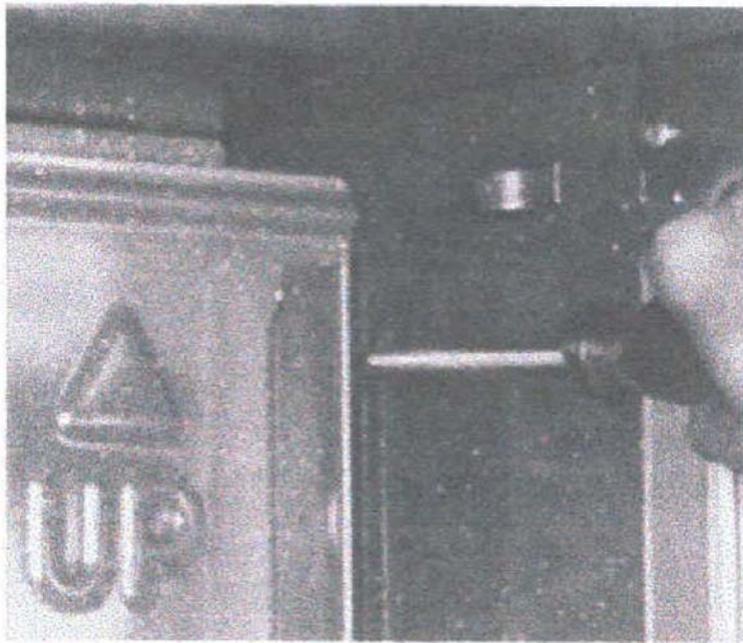


Figure 6-5. Blower Wheel Cover Removal

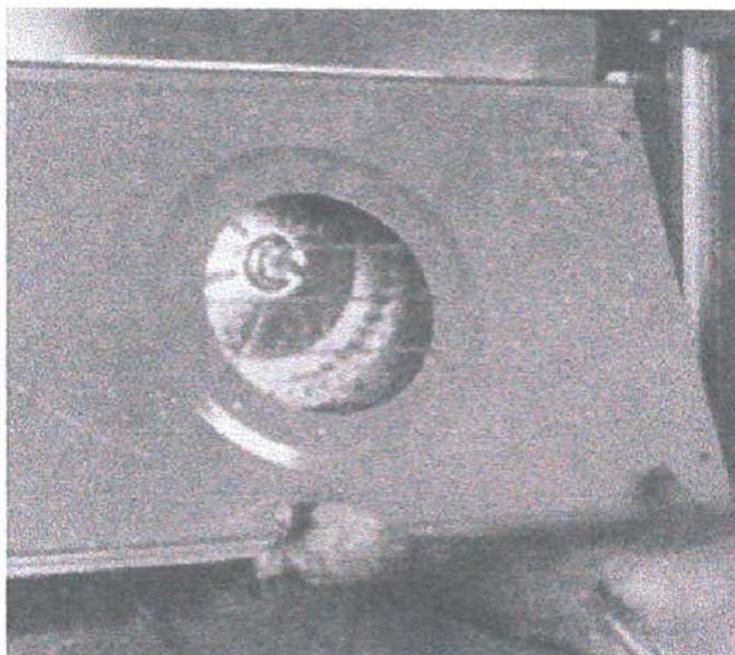


Figure 6-6. Blower Wheel Cover

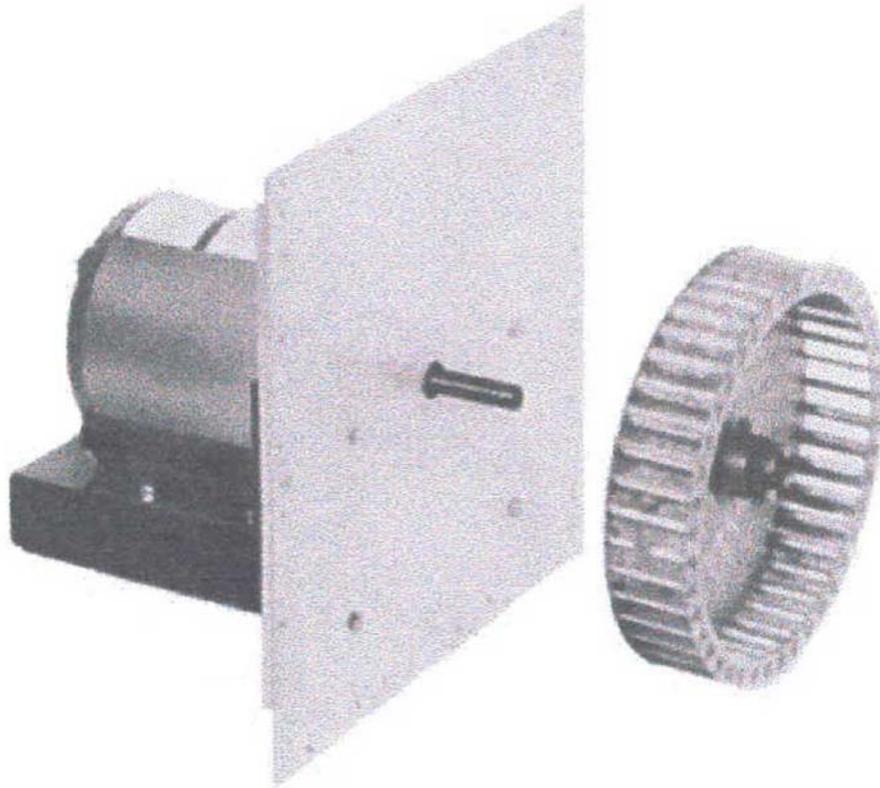


Figure 6-7. Blower Wheel Removal

6-1.4 Heater Element.

6-1.4.1 Removal And Replacement See [Figures 6-8](#) and [7-2](#).

1. Remove racks and rack supports.
2. Remove blower wheel cover by loosening four screws located at each corner and pulling cover forward.
3. Remove two screws in heater element assembly, top and bottom support brackets.
4. Remove four screws from element assembly mounting plate.
5. Carefully pull element assembly forward into oven compartment. Extra long wire is attached to the element assembly to permit removal.
6. Remove wires from ends of element assembly.
7. Replace by reversing above procedure.

6-1.5 Heater Contactor.

6-1.5.1 Removal And Replacement

1. Remove bottom trim cover.
2. Remove control compartment cover.

3. With doors closed, pull control module forward for easier access to contactor.
4. Remove contactor from back wall of control compartment.
5. Transfer wires from defective contactor to replacement unit.
6. Replace by reversing above procedure.

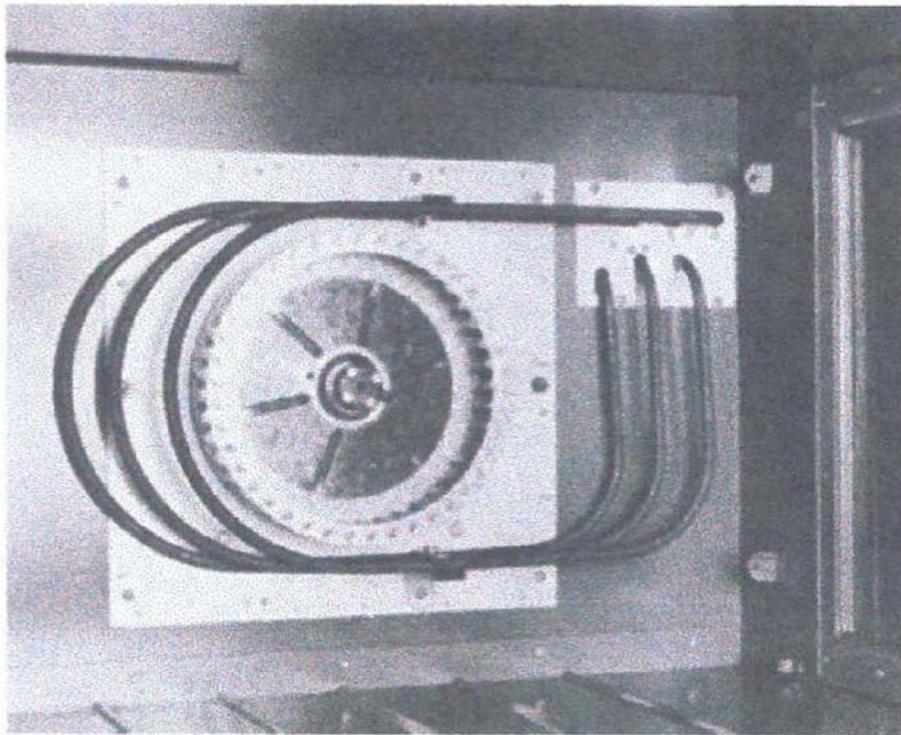


Figure 6-8. Heater Element

6-1.6 Electrical Components Located In Control Module.

6-1.6.1 Removal And Replacement. See [Figures 7-3](#) and [7-4](#).

1. Remove bottom trim cover.
2. Remove control compartment cover.
3. Close doors and pull control module forward.
4. Remove wires from defective component.
5. Loosen screws attaching component to control module.
6. Replace by reversing above procedure, see wiring diagrams ([Figures 8-14](#) through [18](#)) at rear of oven to assure correct reconnection of wires.

6-1.7 Door Switch.

6-1.7.1 Removal And Replacement. See [Figure 6-9](#).

1. Remove bottom trim cover.

2. Remove wires from door switch.
3. Loosen locknut securing door switch to bracket and remove.
4. Replace by reversing above procedures.
5. Refer to door switch adjustment procedures ([paragraph 5-1.2](#) in this manual to assure proper operation prior to replacement of the bottom trim cover.

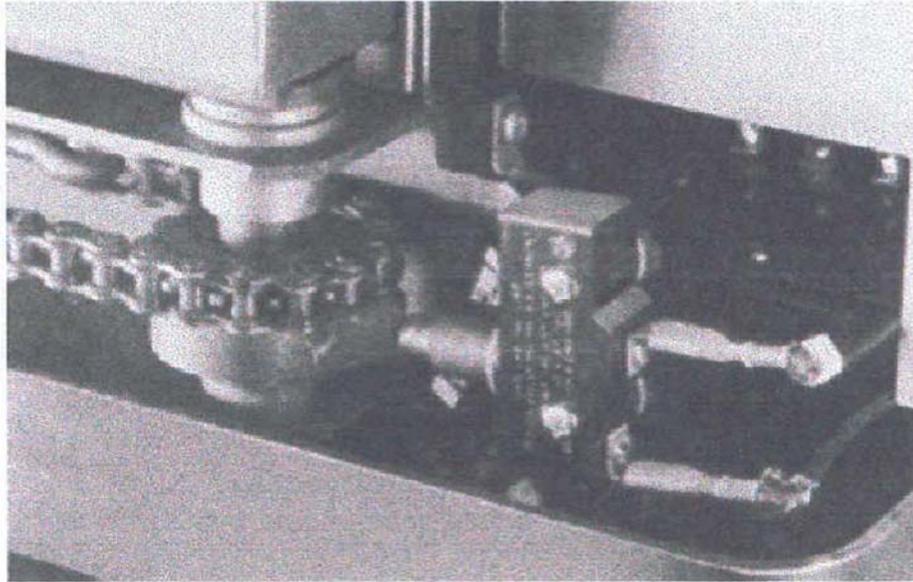


Figure 6-9. Door Switch

6-1.8 Oven Compartment Light.

6-1.8.1 Removal And Replacement. See [Figure 6-10](#).

1. Remove racks and rack support.
2. Remove 10 screws.
3. Remove stainless steel window trim and glass window unit together.
4. Replace defective lamps with 50 watt bake oven lamps.
5. Replace by reversing above procedure.

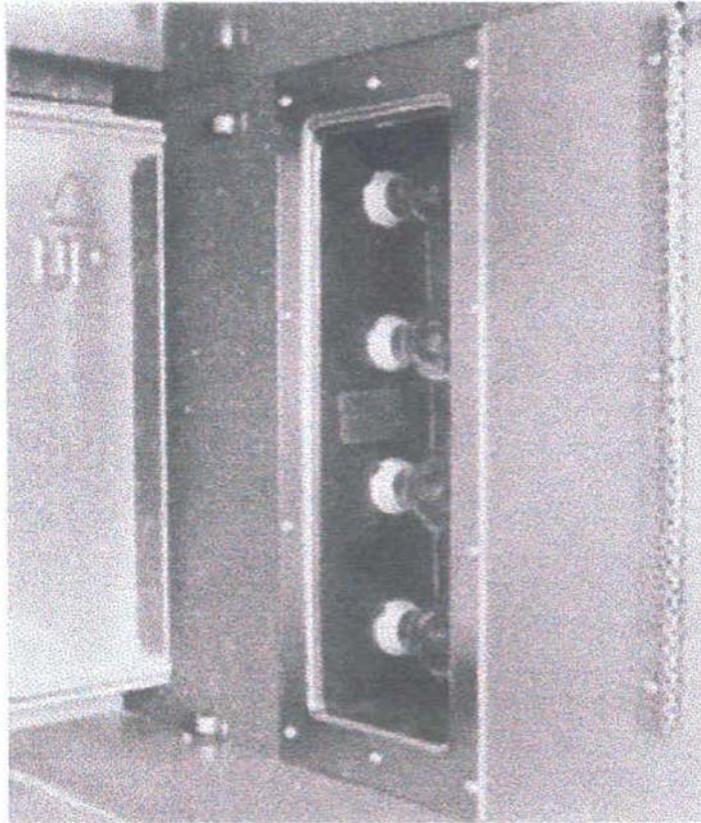


Figure 6-10. Oven Compartment Light

6-1.9 Panelmount Fuse.

6-1.9.1 Removal And Replacement. See [Figure 6-11](#).

1. Screw type knob - rotate counterclockwise and pull forward.
2. Bayonet type knob - push in, rotate counterclockwise 90 degrees and pull forward.
3. Replace defective fuse with a Class CC, 10-amp time delay fuse.
4. Replace by reversing above procedure.

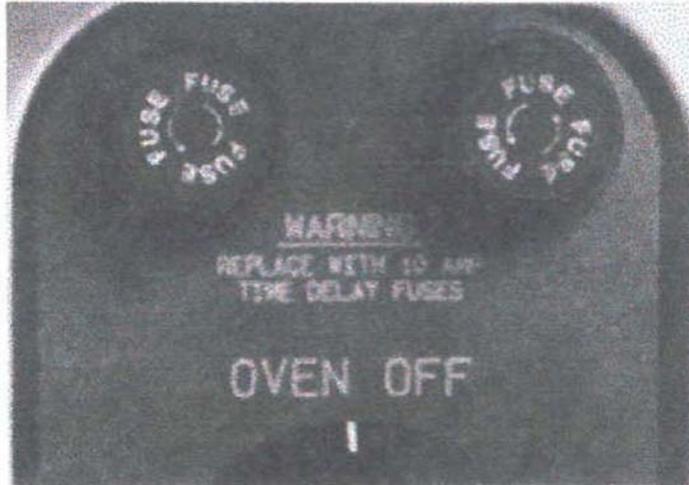


Figure 6-11. Panelmount Fuse

CHAPTER 7

PARTS LIST

7-1. PARTS LIST.

7-1.1 REPAIR PARTS IDENTIFICATION AND PROCUREMENT. The information contained in this chapter, combined with the Coordinated Shipboard Allowance List (COSAL) and related Allowance Parts Lists (APLs) for the equipment, will assist in identifying and procuring repair parts needed for maintenance and repair.

Table 7-1. Door Components

Figure 7-1, Item	Part Number	Part Description
1	31119	Door Assy, Glass LH
2	31120	Door Assy, Glass RH
3	9036	Glass Assv. Door (10-1/8" x 17-1/8")
4	21099	Bracket, Door Handle Bottom LH & RH
	21100	Striker Plate
5	24669	Roller Catch Assy
	24671	Roller Catch Assy, Secondary
6	24667	Door Pin, Upper & Lower LH, & RH Upper
7	24677	Door Pin, RH Lower Only
	24674	Security Catch RH Door
8	24672	Security Latch on Oven
9	24670	Handle, Door
	24676	Center Door Gasket
10	24675	Stop Plate Assy, RH
11	24666	Stop Plate Assy, LH
	24668	Gasket Assy. Door Perimeter
12	16657	Bushing Sleeve, Upper Door (Each)
	35919	Microswitch Assy. Door Replaces 19978
13	90004	Door Hinge Bushings (Set of 2)

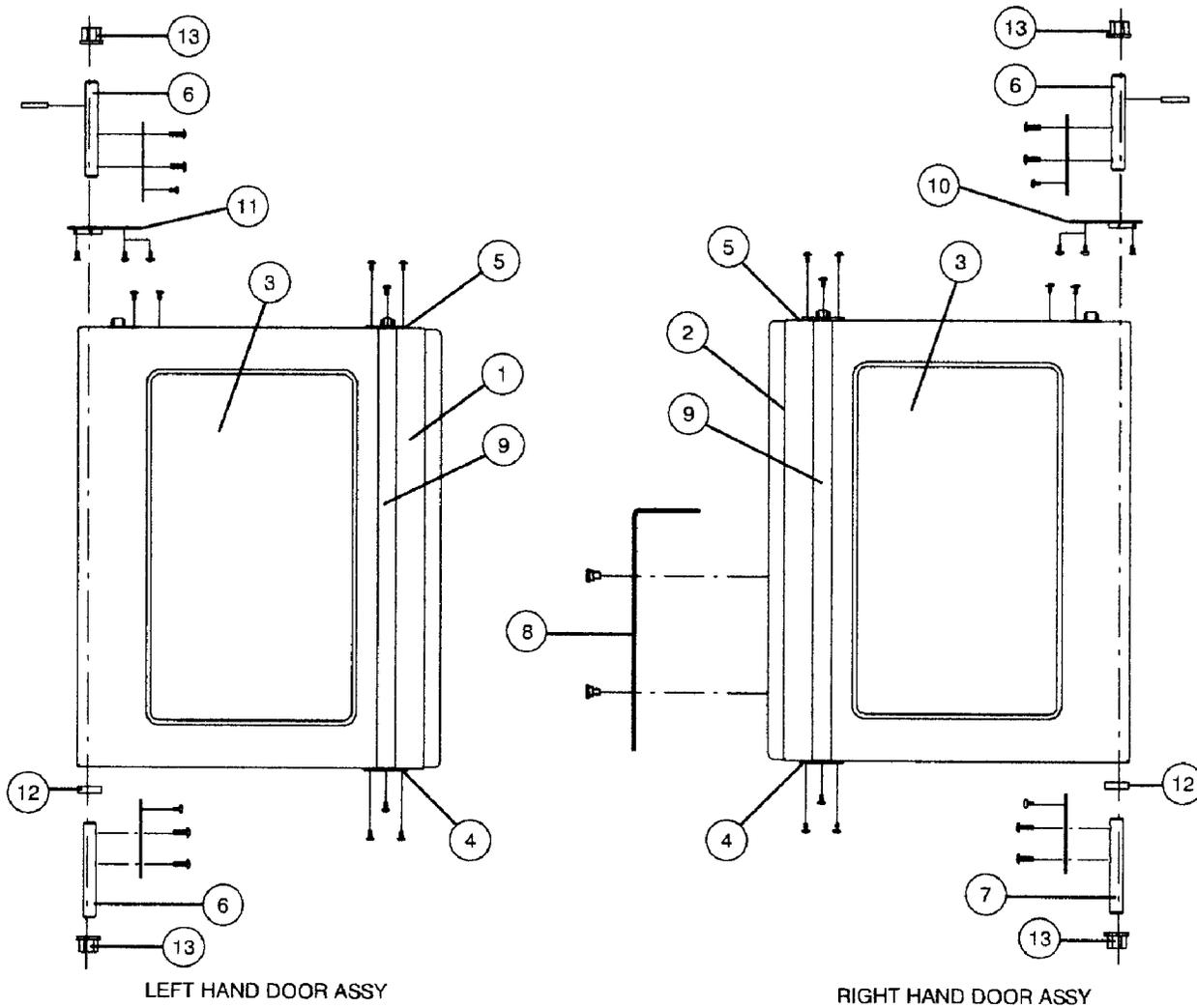


Figure 7-1. Door Components

Table 7-2. Baking Compartment Components

Figure 7-2, Item	Part Number	Part Description
	20246	Rack, Wire H
1	21422	Support, Rack (Set of 2) H
	18768	Rack, Wire HD
1	19081	Support, Rack (Set of 2) HD
2	4342	Lamp, Interior, 115-VAC
3	4922	Socket, Lamp
4	20807	Window, Interior Lights w/ Retainer
5	17978	Retainer, Interior Window
	8321	Guard, Thermostat Bulb
6	5001	Wheel Assy, Blower
7	16813	Interior Baffle, Porc. (Blower Wheel Cover)

Table 7-2. Baking Compartment Components - Continued

Figure 7-2, Item	Part Number	Part Description
7	16814	Interior Baffle, Stainless (Blower Wheel Cover)
	8648	Screws, Baffle Mounting (Set of 4)
	90046	Brackets, Baffle Supports (Set of 4)
	19639	Screen Assy, Baffle S/S
	17752	Compartment Liner Bottom, Porcelain
	17753	Compartment Liner Bottom, Stainless
	24695	Liner, Bottom S/S
	24689	Liner Assy, S/S
8	19171	Stop, Rack (Set 012)

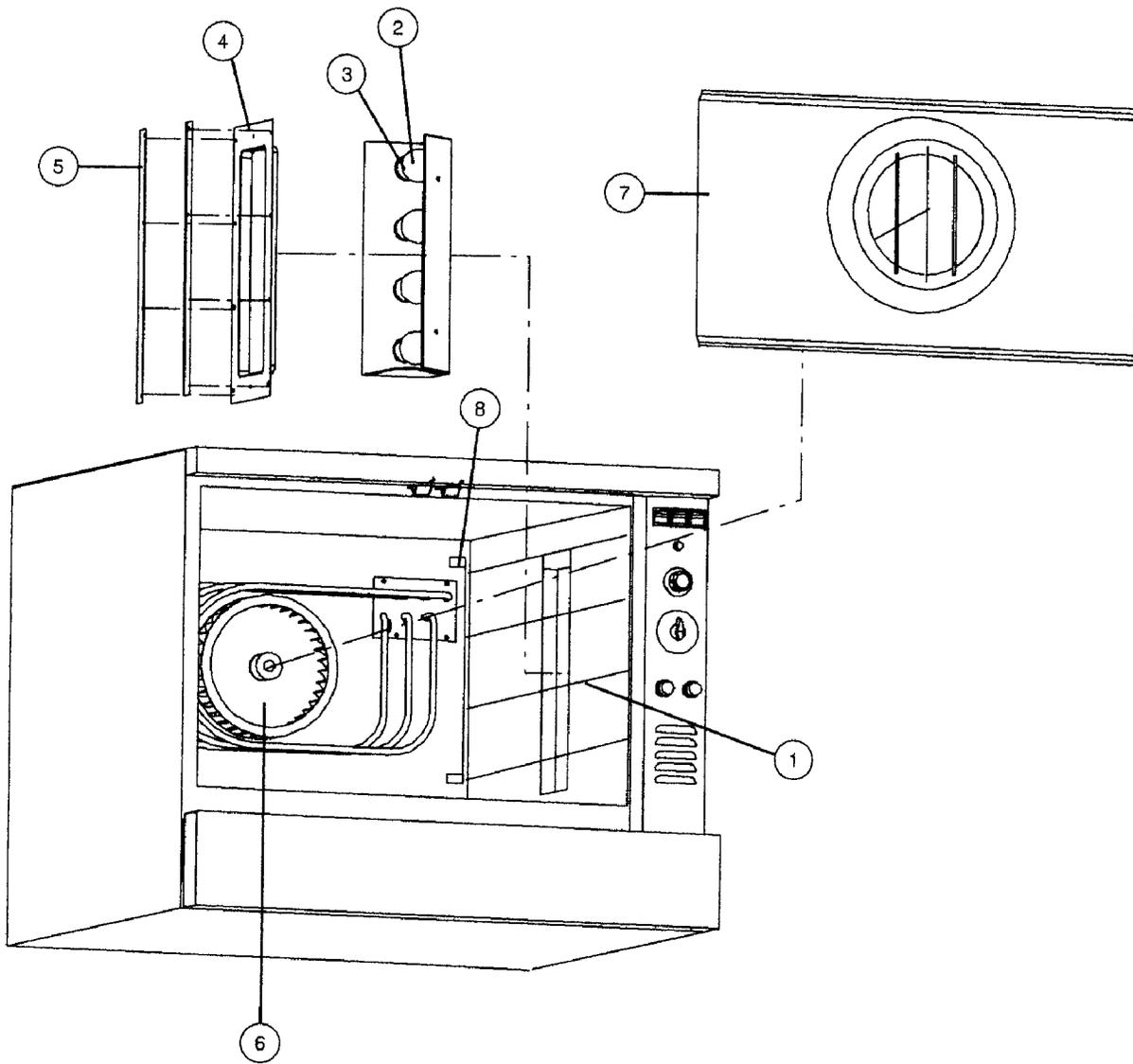


Figure 7-2. Baking Compartment Components

Table 7-3. Solid State Digital Controls

Figure 7-3, Item	Part Number	Part Description
1	24684	Knob, Mode
2	24685	Knob, Adjust
3	30662	Switch, Pushbutton Mom Kit
4	20442	Fuseholder, 30-Amp, Class CC
	16605	Fuse, 10-Amp, 600-Volt, Class CC
5	90034	Grounding Lug Kit
6	4812	Screw, Tap #10-16 X 0.375

Table 7-3. Solid State Digital Controls - Continued

Figure 7-3, Item	Part Number	Part Description
7	20662	Plug Assy, Quick Disconnect
8	21068	Switch, Rotary 4 Position
9	30658	Control, Solid State Digital Assy
10	30667	Control Panel and Decal Assy
	24920	Harness, Wiring (not shown)
11	11034	Screw, Mach #8-32 X 3/16
12	15847	Grommet, Rubber 11/16
13	M7970	Label Supply Connect
14	36584	Conversion Kit to SSD from Intellihold
NOTE		
For units before 07/12/02 you must convert unit to SSD. Intellihold controller is no longer available.		

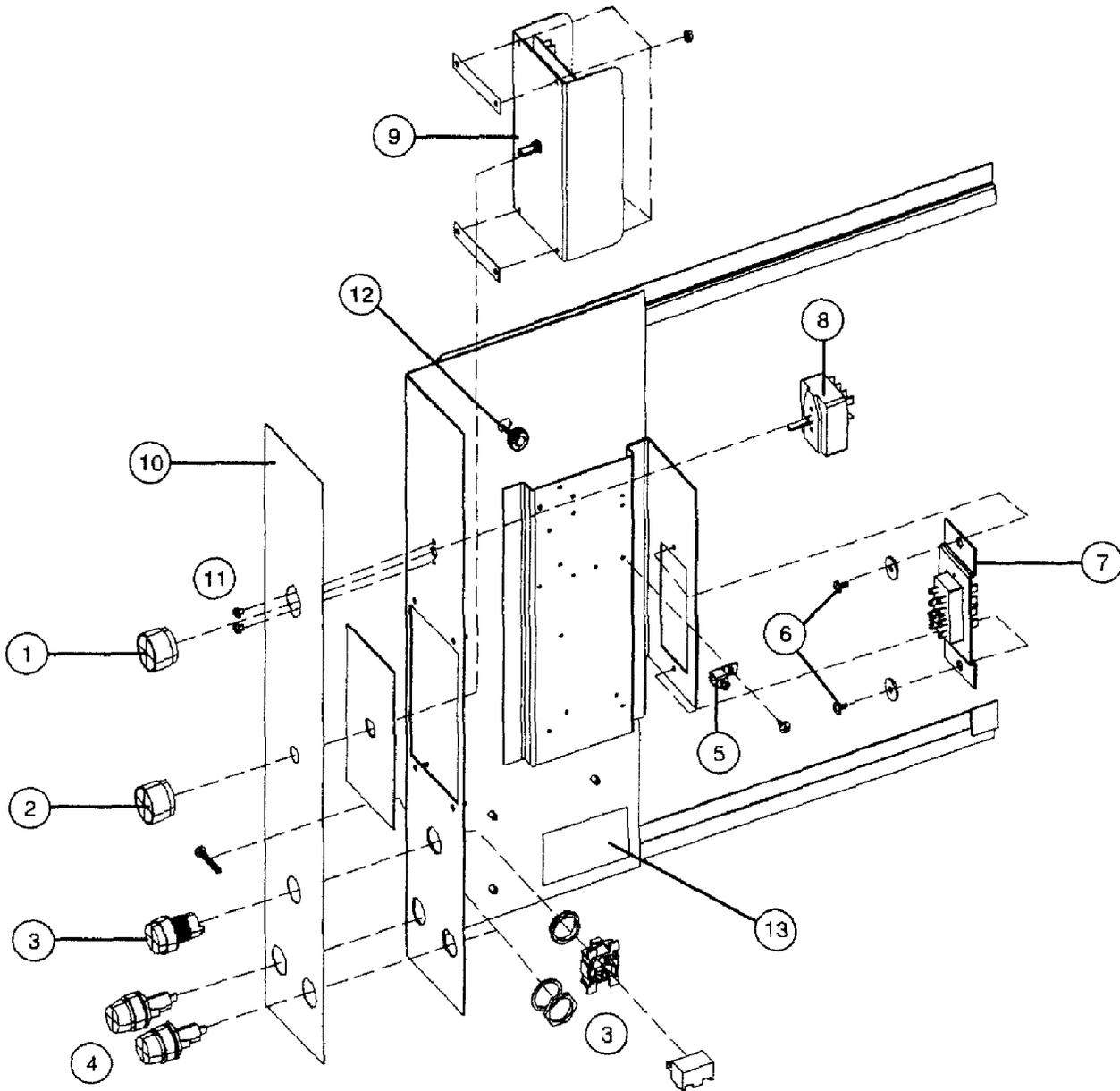


Figure 7-3. Solid State Digital Controls

Table 7-4. Intellihold Controls (Requires 2 Speed Motor, Capacitor And Blower Switch)

Figure 7-4, Item	Part Number	Part Description
1	23390	Controller, Intellihold (12 Key)
<p>NOTE</p> <p>Control is no longer available. For units manufactured before 07/12/02, Refer to item 14, Table 7-3, for conversion kit. Other service parts listed still available</p>		

Table 7-4. Intellihold Controls (Requires 2 Speed Motor, Capacitor And Blower Switch) - Continued

Figure 7-4, Item	Part Number	Part Description
	23392	Probe, Temperature RTD
2	21443	Knob, Temperature Control (2 Per Oven)
	19634	Contactora, Mercury, 208-240/440-VAC, 3-Pole, 30-Amp, 3-PH
3	19620	Switch, Rocker, DPST, Black
4	20163	Fuseholder, 15-Amp, Class G
5	20162	Fuse, 10-Amp, 300-VAC, Class G
6	16037	Light, Indicator, Red, 250-VAC, Round
7	18868	Switch, Rotary, 3 Position
8	15934	Knob, Control, Selector Switch
9	20662	Plug Assy, Quick Disconnect
10	15847	Grommet, Rubber 11/16
11	90034	Lug, Grounding
	18651	Contactora, Mercury, 208-VAC, 2-Pole, 60-Amp, 1-PH
	22043	Harness, Wiring (Intellihold)
12	34289	Control Panel and Decal Assy
	23401	Access Panel

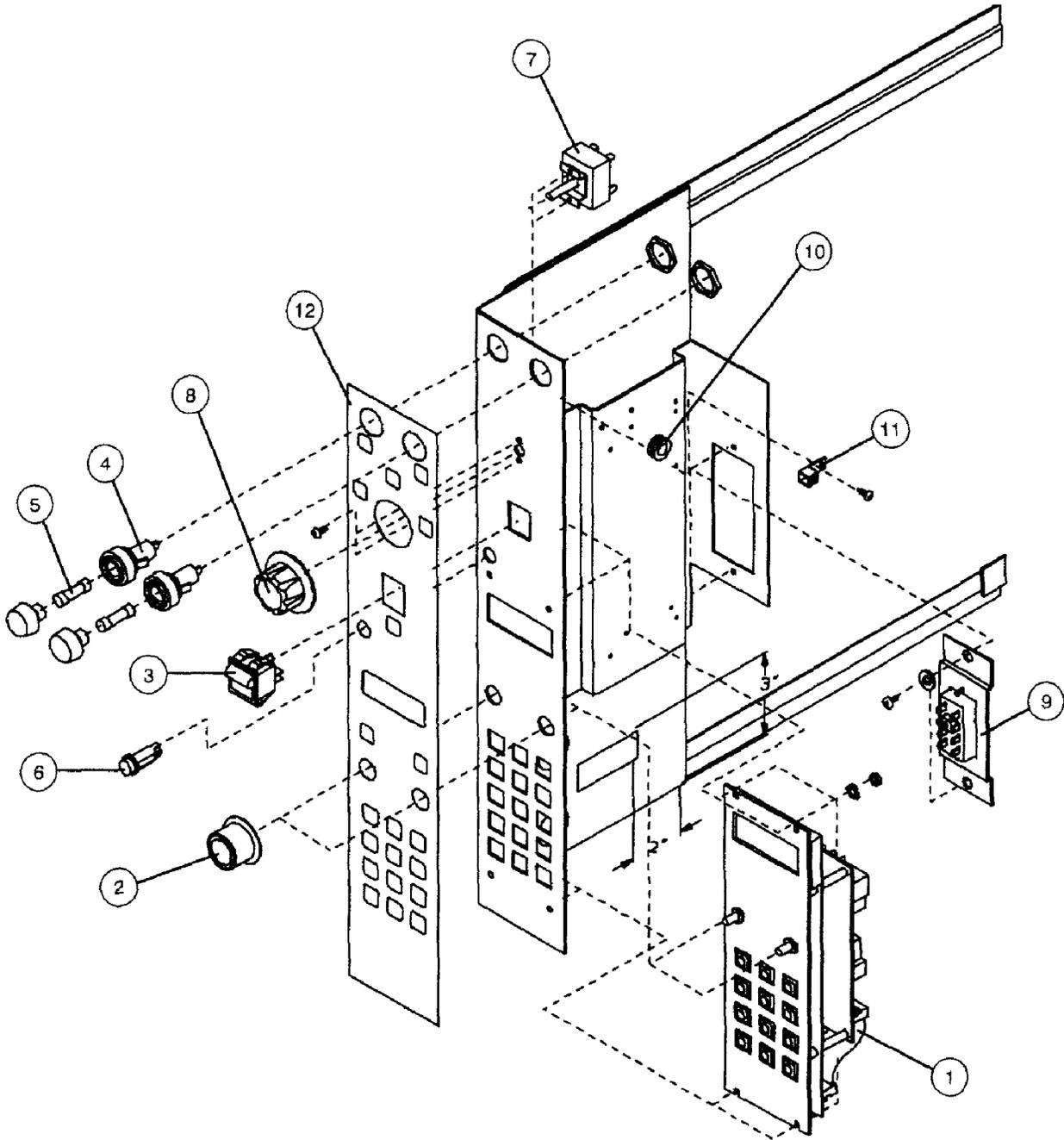


Figure 7-4. Intellihold Controls

NOTE

Control is no longer available. For units manufactured before 07/12/02, Refer to item 14, Table 7-3, for conversion kit. Other service parts listed still available

Table 7-5. Electrical Components

Item	Part Description	Part Number
	Base Assy, Transformer Mount	17218
	Contactora, Mercury, 208-VAC, 2-Pole 60-Amp, 1-PH	18651
	Contactora, Mercury, 208-240/440-VAC, 3-Pole, 30-Amp, 3-PH	19634
	Element Assy, 208-VAC	33245
	Element Assy, 240-VAC	33244
	Element Assy. 440-VAC	20322
	Element Assy, 480-VAC	20319
	Fan, Axial 230-VAC (Replaces P/N 18804)	21430
	Fuse	20162
	Fuse Holder	20163
	Grounding Lug	90034
	Harness, Element	16727
	Harness, Transformer	17248
	Indicator Light, Red, Cook Only	16037
	Knob, Selector Switch	16686
	Lamp, 50-Watt, 125-VAC	4342
	Microswitch Assy, (Replaces 19978)	35919
	Motor. 230-VAC, 2-SP. 1/3-HP	32244
	Probe, Temperature	18588
	Rocker Switch DPST Black	19620
	Rocker Switch SPST White (Lights)	6497
	Socket And Screw, Disconnect	90047
	Socket And Reflector, Lamp	17474
	Switch Rotary, 3 Position	18868
	Terminal Block, 90-Amp	17556
	Transformer w/Screws	17754

Table 7-6. Exterior Components

Item	Part Description	Part Number
	Back Panel, Solid S/S	
	NOTE Part Numbers, D17826, 15247, 17755 and 22581 must be ordered together to get the complete back panel assembly	
	Backsheet Support, Qty 2	17755 ¹
	Bolts, Leg (Set of 8)	7847
	Caster Kit, Low Profile (Set of 4)	19528
	Caster Kit, Heavy Duty Low Profile (Set of 4)	31013
	Caster Kit, Single Oven (Set of 4)	16002
	Caster Kit w/Plate, Double Oven (Set of 4)	5779
	Clips, Double Stacking (Set of 2)	31803
	Control Access Panel, S/S	23401
	Drawing, Qty 1	D17826 ¹
	Flue Connector Kit	34874
	Foot, Leg Black (Each)	15488
	Foot, Leg Stainless (Each)	15489
	Legs, 6" w/Bolts, Stainless (Set of 4)	8600

Table 7-6. Exterior Components - Continued

Item	Part Description	Part Number
	Legs, 25" w/Bolts, S/S (Set of 4)	8598
	Legs, Seismic 25" S/S	33194
	Louvered Backsheet S/S, Qty 1	22581 ¹
	Namplate, Blodgett, S/S	16470
	Screws, Qty 12	15247 ¹
	Studs, Leg (Set of 4)	92000
	Torx Bit, Security T25	30412
	Torx Bit, Security T30	33484
	Trim, Bottom S/S	22403

¹Part Numbers, D17826, 15247, 17755 and 22581 must be ordered together to get the complete back panel assembly

Table 7-7. Required Accessories

QTY	Part Description
1	Set Of Ship Deck Legs
5	Oven Racks, Each Section

Table 7-8. Parts Furnished But Not Manufactured By The G.S. Blodgett Co., Inc. Solid State Digital Control

Part Number	Part Description	Mfg Part No.	Manufacturer
32244	Blower Motor 230-VAC, 2-Speed with Switch	8-187738-01	Smith Corporation 11270 W. Park Place Milwaukee WI 53224
35702	Door Interlock	HBS2KHB65R541Y	C&K Components, Inc Santa Ana, CA
21068	Mode Switch	ASR-4167-26	General Electric
30662	Push Button Switch and Contact Block	RT0200/F50	Alcoswitch, Division of Tyco Electronics
30658	Temperature Controller	Y9005	Athena Controls 5145 Campus Drive Plymouth Meeting, PA

Table 7-9. Parts Furnished But Not Manufactured By The G.S. Blodgett Co.,
Inc. 12 Key Intellihold Control

Part Number	Part Description	Mfg Part No.	Manufacturer
3574	Block Terminal	1104-113	Marathon Special Products Corp. 13297 Van Camp Road Bowling Green, OH 43402
20350	Buzzer, 240-VAC, 0.05A	CAT. 1064-R5	Edwards Co. Norwalk, CT 06856
15931	Connector Socket, 15-Amp	SIG-5409-SB	Beau Products Vernitron Electrical Co. 117 Union Aye Laconia, NH 03246
19634	Contactora, Mercury 20-AMP	303VAPS208AC0V	Durakool Inc. 101 North Main Street P.O. Box 280 Elkhart, Indiana 46515
23390	Controller Tempera- ture, 12-Key	100-00293-07	Robertshaw Controls 942 Brooks Avenue Holland, MI 49423
9036	Door Window	1001426	Mills Product 33106 West Eight Mile Road, P.O. Box 554 Farmington, MI 48024
21431	Fan, Axial 230-VAC	51760-22B	General Industries P.O. Box 4002, Olive & Taylor Streets Elyria, OH 44036
16606	Fuse, 10-Amp	KTK-R-10	McGraw-Edision Co., Bussman Division 298 Manchester St. Manchester, NH 03103
4342	Lamp, Oven	W-HSE50A19/32	Westinghouse Bloomfield, NJ 07003
16037	Light, Indicator	5TF2LRN2	Solico Sorenson Lighted Controls, Inc. 75 Locust St., P.O. Box 14756 Hartford, Connecticut 06114
15400	Motor, 113-HP 200- 230-VAC. 50/60-Hz, 2 Speed	8-158174-XX	Century Electric Inc. 465 Boulevard Elmwood, NJ 07407
23392	Probe, Temperature	223-11188-1	Quantum Corp. 1457 Lower Ferry Rd. Trenton, NJ 08628
15930	Quick Disconnect, 15-Amp	P2G-5409-SB	Beau Products Vernitron Electrical Co. 117 Union Aye Laconia, NH 03246
4701	Rack	4701	Marlboro Wire Co. 406 Lincoln Street Marlboro, MA 01752
4700	Rack Support	4700	Marlboro Wire Co. 406 Lincoln Street Marlboro, MA 01752
17857	Switch, Blower, SPOT.	C-TILB51-1S- BLXY01	Carlingswitch Inc. 505 New Part Ave. W. Hartford, CT 06110
35919	Switch, Door	YA-2RW1243-06	Microswitch II West Spring Street Freeport, ILL 61032
6498	Switch, Light	C-TIGA51-1S- WHXY04	Carlingswitch Inc. 505 New Part Ave. W. Hartford, CT 06110
17754			

Table 7-9. Parts Furnished But Not Manufactured By The G.S. Blodgett Co.,
Inc. 12 Key Intellihold Control - Continued

Transformer	50-1000-134	Dongan Electric Manufacturing Co. 3987 Franklin St. Detroit, MI 48207
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CHAPTER 8

INSTALLATION

8-1. INTRODUCTION.

NOTE

The installation instructions contained herein are for use by qualified installation personnel only. Installation or service by other than qualified personnel may result in damage to the oven and/or injury to the operator

Qualified installation personnel are individuals, a firm, a corporation, or a company which either in person or through a representative are engaged in and responsible for: The installation of electrical wiring from the electric meter, main control box or service outlet to the appliance. Qualified installation personnel must be experienced in such work, familiar with all precautions required and have complied with all requirements of state or local authorities having jurisdiction. Reference: National Electrical Code, ANSI/NFPA 70 - Latest Edition and/or Canadian Electrical Code CSA C22.1 as applicable.

Ventilation of this oven should be made in accordance with the recommendations of: The National Fire Protection Association's Standard No. 96: "Ventilation of Restaurant Cooking Equipment" or the state and/or local authorities having jurisdiction.

All Blodgett Ovens are strapped on heavy wooden skids, and surrounded by try-wall cartons to prevent shipping damage. When tendered to the carrier, each unit has been carefully inspected and packaged.

8-1.1 Delivery And Inspection. Upon delivery of your Blodgett oven: Inspect the shipping container for external damage. Any evidence of damage should be noted on the delivery receipt, which must be signed by the driver. Un-crate the oven and check for any concealed damages. Carriers will accept claims for damages if notified within 15 days of delivery and the carton is retained for inspection.

The Blodgett Oven Co. cannot accept responsibility for loss or damages suffered in transit. The carrier assumed full responsibility for delivery in good order when the shipment was accepted. However, we are prepared to assist you in your claim.

8-1.2 Location of the oven. Place the oven in an area which is free of drafts and accessible for proper operation and servicing. A minimum of 1/2 inch (13 mm) must be maintained between any combustible or noncombustible material, and any surface of the oven.

Do not place the oven on a curb base, or seal the oven to a wall. Either condition will restrict the proper flow of ventilation air resulting in damage to the oven.

Before making any connections to this oven, check the rating plate attached to the underside of the front top trim, to be sure the oven specifications are compatible with the electrical services supplied for the oven.

8-2. INSTALLATION.

8-2.1 Installation Of Backsheet.

1. Remove any vinyl coating from stainless parts prior to installation.

2. Attach the lower bracket to the oven back in the orientation shown. Screws are provided in the kit and holes are pre-drilled in the oven frame.
3. Hook the backsheet onto the four bolts through the keyhole cutouts in the backsheet.
4. Tighten the four 5/16 bolts.
5. Attach the upper bracket to the backsheet in the orientation shown with the screw provided. This upper bracket is a spacer and does not screw to the oven frame or flue box.
6. Attach the lower bracket to the backsheet with the screw provided in the kit.

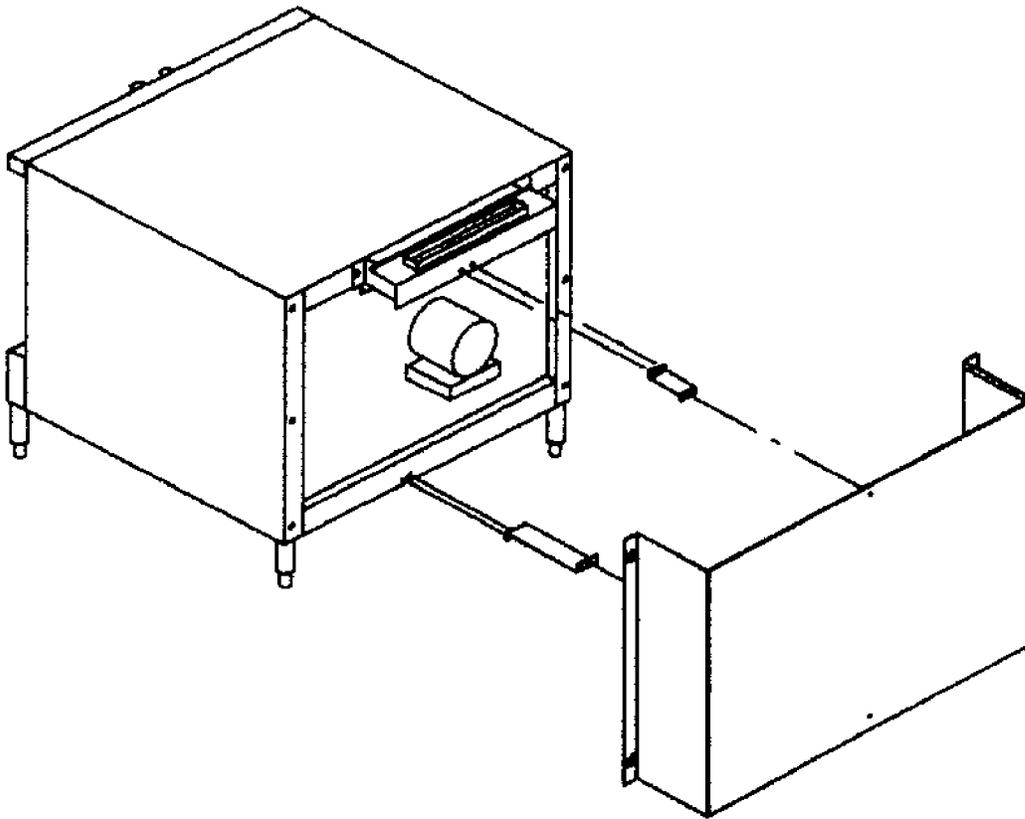


Figure 8-1. Backsheet

8-2.2 Electrical Connections. Ovens are supplied for operation on 208-220, 230-240, 440, or 460-480 Volt, single or three phase grounded circuits. The electric motor (single or two speed), heating elements, oven lights, indicator lights and related switches are connected by one power supply to the oven. Before making any electrical connections to this unit check the oven rating plate located on the underside of the upper ledge above the right hand door. Be sure the proper electrical supply is connected to the oven.

The supply conduit is connected to wire duct located in the lower left hand corner as viewed from the rear of the oven. [Figure 8-2](#). The supply wires are then run through the wire duct to the front of the oven and connected to the terminal block located at the lower right front corner as in [Figure 8-3](#).

The terminal block is reached by removing the bottom trim cover and the control compartment cover. Easy access for connections may be made by sliding the control module forward.

NOTE

There is no power to the heating elements without the blower operating. This is to prevent damage to the heating elements.

All ovens, when installed, must be electrically grounded in accordance with the local codes or in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70 - (Latest Edition). In Canada use Canadian Electrical Code, C22.1 - (Latest Edition).

Wiring diagrams are located on the control compartment cover and at the back of the oven. Additionally, wiring schematics for the oven are included at the back of this manual ([Figures 8-14 through 18](#)).

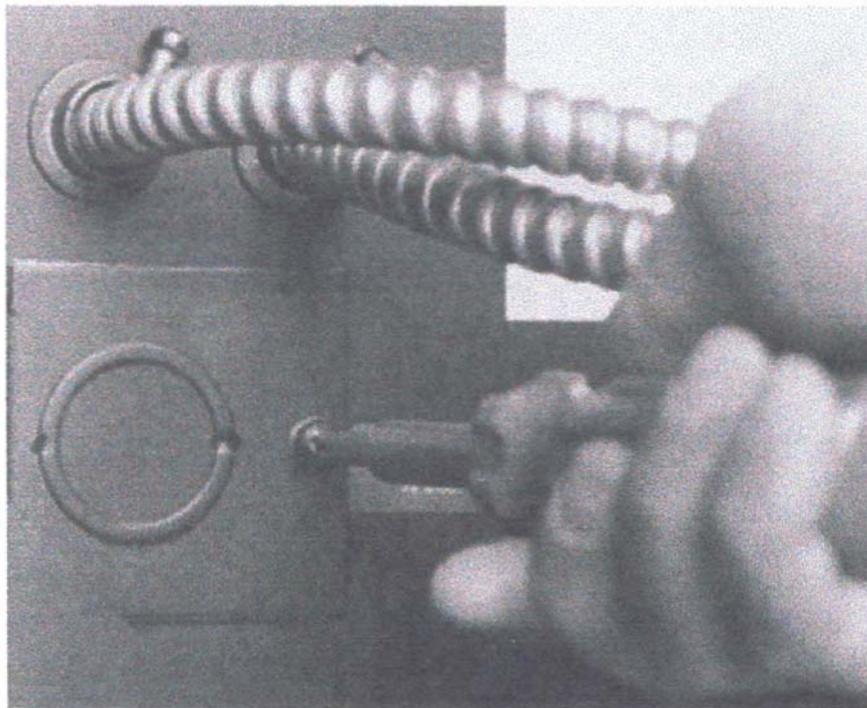


Figure 8-2. Supply Conduit

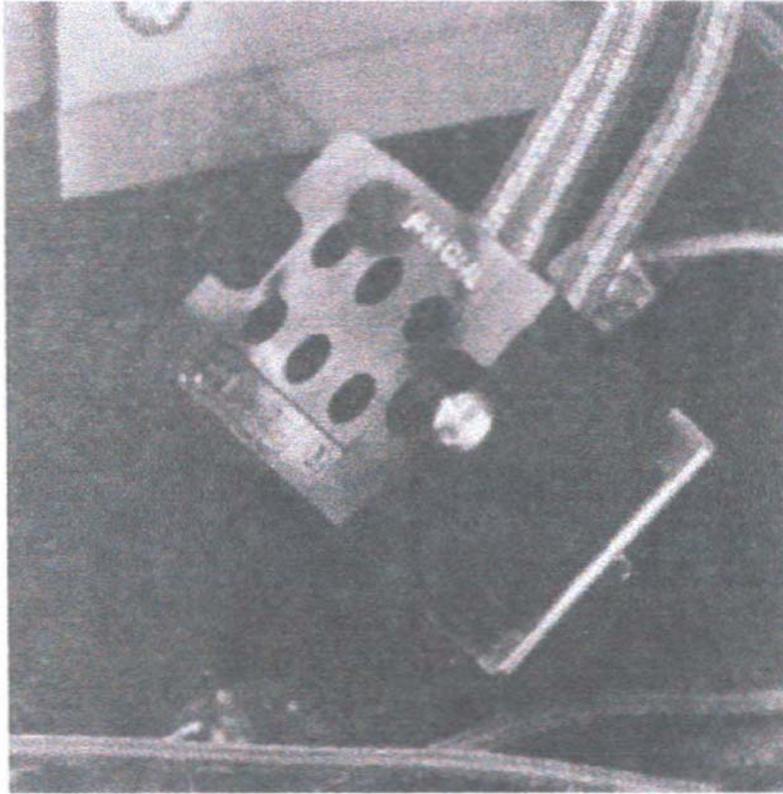


Figure 8-3. Terminal Block

8-2.3 Oven Assembly. Before beginning assembly and installation of the oven, check thoroughly to assure that all necessary components are at hand. In addition to the oven itself, legs or other accessories may be required.

MARK V series ovens are packaged as follows:

1. For Single Sections - The 25" legs are packed in the oven.
2. For Double Sections - The ship's deck legs are packed in the lower section and the two-piece flue connector is packed in the upper section.

8-2.3.1 Leg Attachment - Single Section.

1. With the oven lying on its back hold the front leg with both hands and align the threaded stud in the leg with the nut located inside each bottom front corner of the oven frame as indicated in [Figure 8-4](#). Turn the leg clockwise and tighten the leg to the nearest full turn.
2. Align the two leg plate holes in each leg with those in the oven bottom and secure the leg using two 1/2-inch bolts. Repeat this procedure for the other front leg.
3. Now tip the oven up on the newly installed front legs and install and secure both rear legs in the same manner.
4. Level oven by screwing adjustable leg feet in or out as necessary.

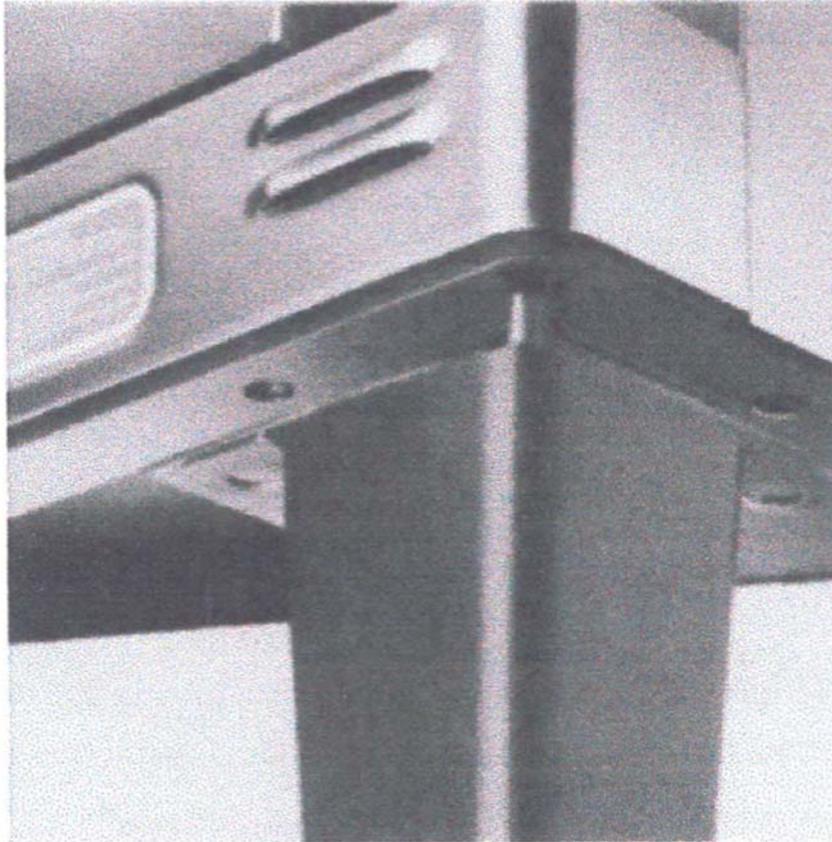


Figure 8-4. Leg Attachment - Single Section

8-2.3.2 Oven Attachment To Ship'S Deck - Single Section.

1. [Figure 8-5](#) shows the bolt hole pattern for attachment to the deck. The holes should be prepared prior to oven installation.
2. Screw the four studs into the center holes of each hole group. See [Figure 8-5](#).
3. After the oven is assembled with legs, move into position and lift oven onto locating studs.
4. Screw adjustable leg foot to align holes in foot with the tapped holes in the deck.
5. Eight 5/16-18 bolts are required and should be of a material type appropriate for shipboard use.

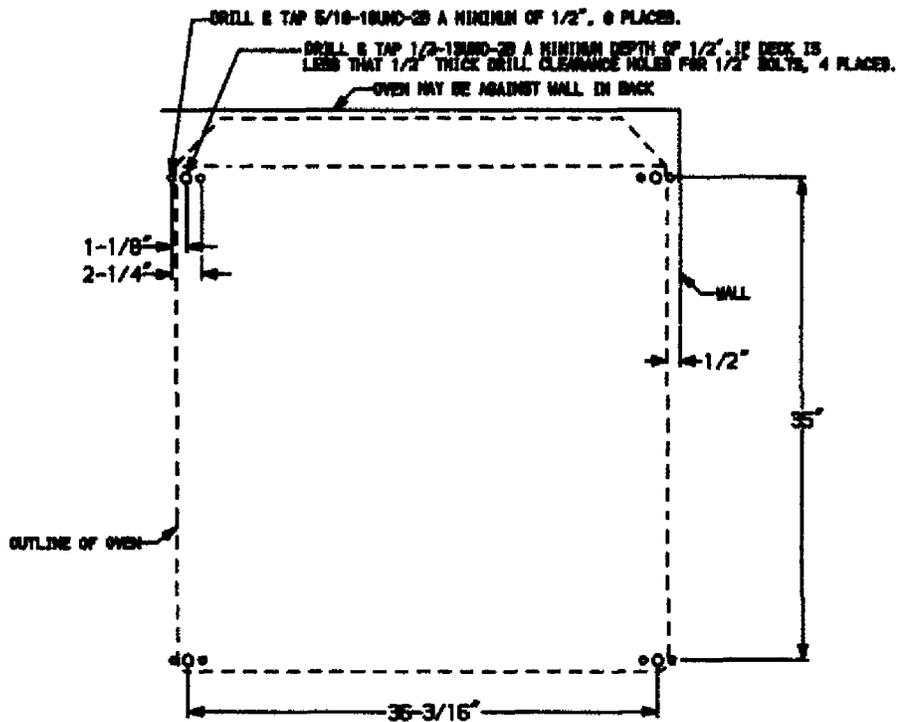


Figure 8-5. Single Section Bolt Hole Pattern

8-2.3.3 Ship'S Deck Leg Attachment Deck Leg - Double Section.

1. Begin by laying the oven on it's back and installing the front Ship's Deck Legs. See [Figure 8-6](#). Attach the legs as follows: Align the two leg plate holes in each leg with those in the oven's bottom and secure the leg using two 1/2-inch bolts similar to the leg shown in [Figure 8-4](#).
2. Tip the oven up on the newly installed front legs and install and secure both rear legs in the same manner.

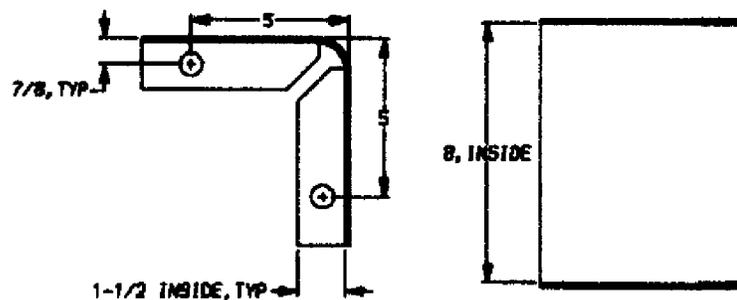
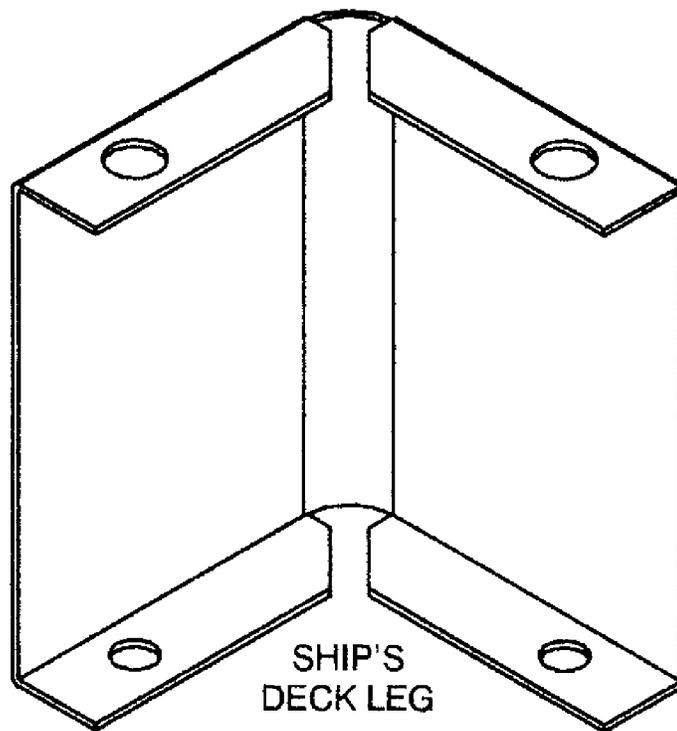


Figure 8-6. Ship's Deck Legs - Double Section

8-2.3.4 Oven Attachment To Ship'S Deck - Double Section.

1. Figure 8-7 shows the bolt hole pattern for attachment of the oven to the deck. The holes should be prepared prior to installation of the oven.
2. Eight 1/2-13 bolts are required and should be of a material type appropriate for shipboard use.
3. After the oven is assembled, move it into position over the bolt holes and fasten securely to the deck with 1/2-13 bolts.

NOTE

Ovens should be double stacked prior to securing to deck. Refer to double section for stacking instructions (paragraph 8-2.3.4).

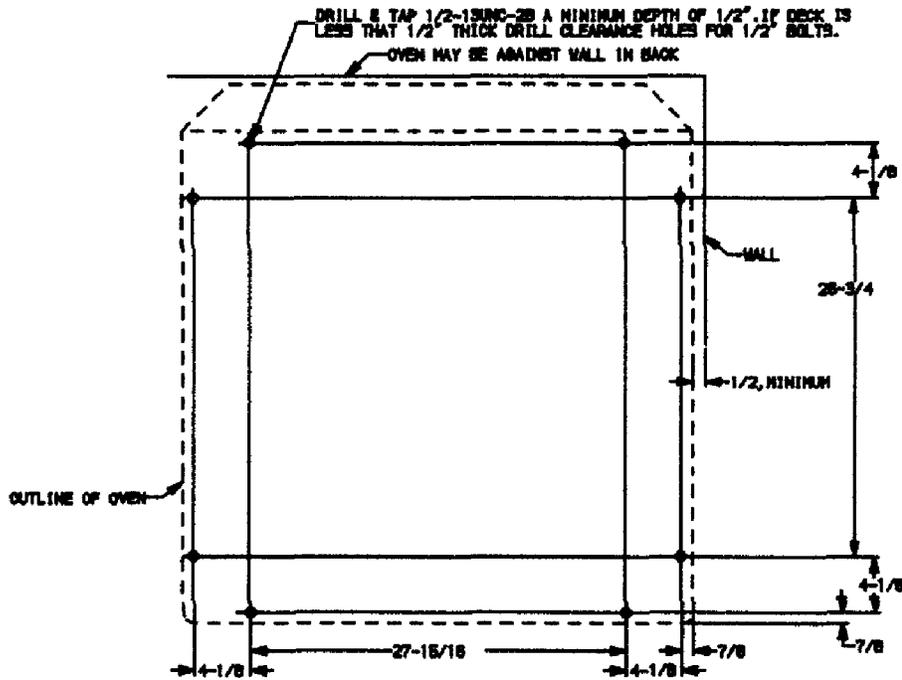


Figure 8-7. Double Section Bolt Hole Pattern

8-2.3.5 Double Sections.

1. Secure the short legs to the bottom section as described.
2. Install the lower section flue box (Figure 8-8). Align the flue box with the existing holes in the oven. Use the self drilling screws provided.
3. Place the upper section in position on top of the lower oven (Figure 8-9).
4. Align holes at upper rear corners of lower section with nuts welded to lower rear corners of upper section.
5. Secure by bolting sections together with two 1/2" bolts. See Figure 8-10.
6. Screw the flue riser into the lower flue box.
7. Slide the upper flue box over the flue riser (Figure 8-11). Secure the upper flue box with sheet metal screws provided

WARNING

Failure to install exhaust vent properly will result in high ambient temperatures at back of oven and subsequent motor failure. When stacking two single ovens, it is necessary to remove single oven flue boxes prior to attaching two-piece connector.

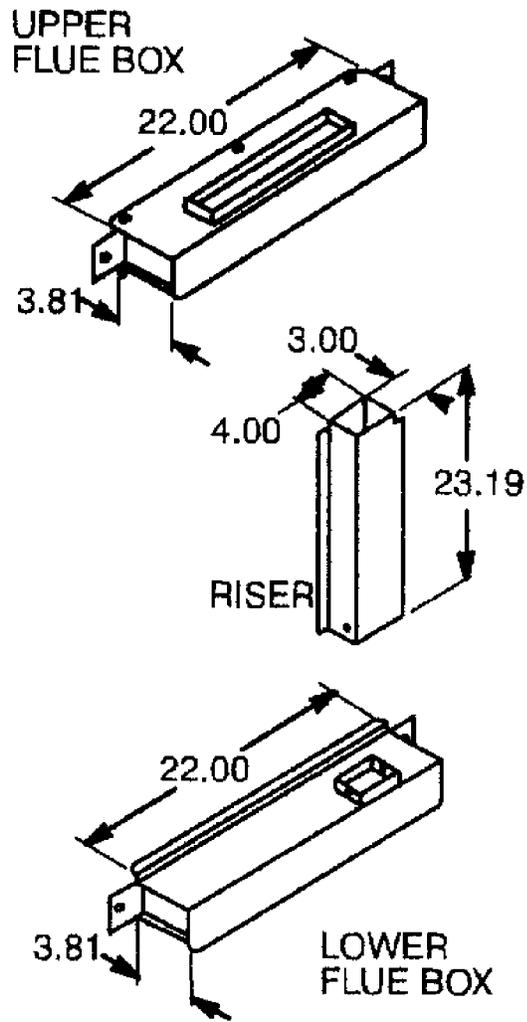


Figure 8-8. Exhaust Vent Assembly

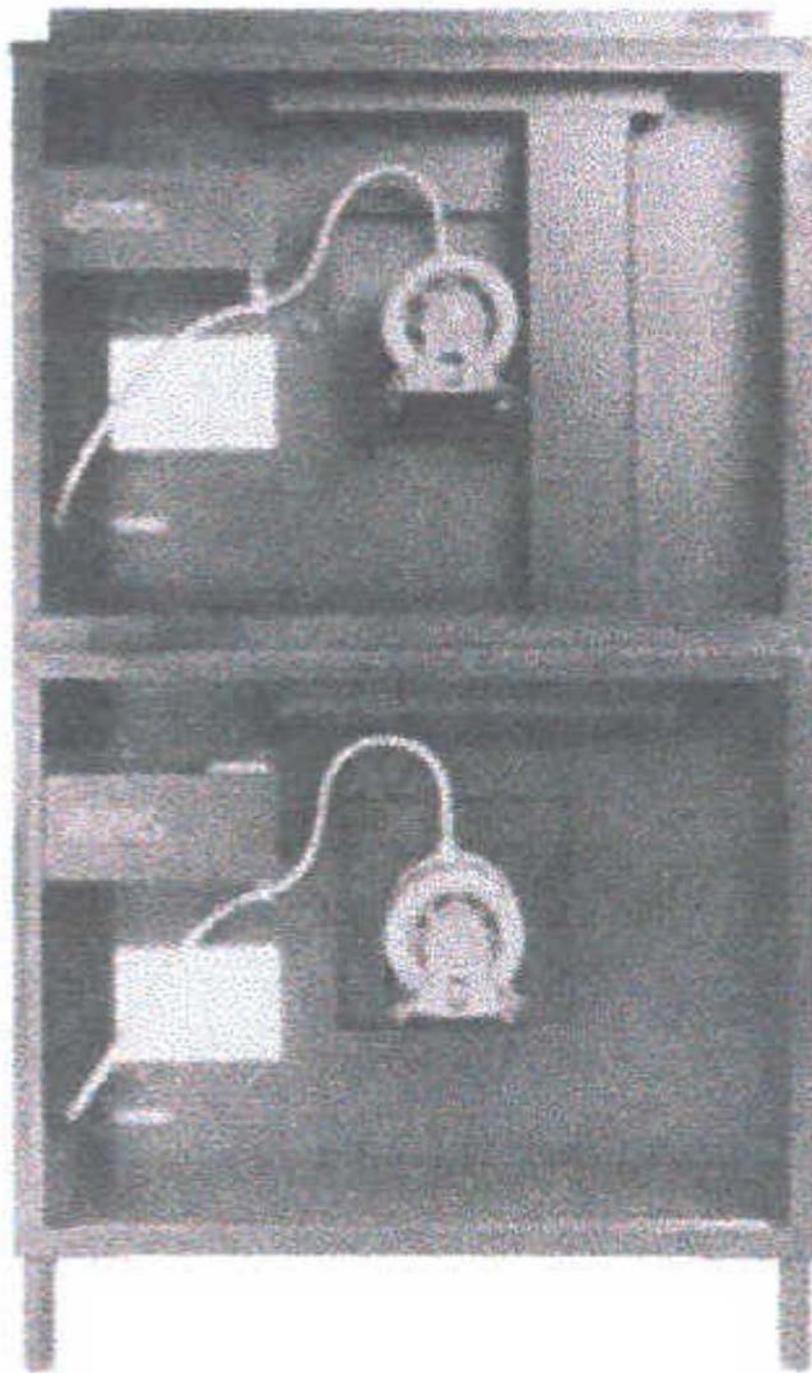


Figure 8-9. Double Sections



Figure 8-10. Securing Double Sections

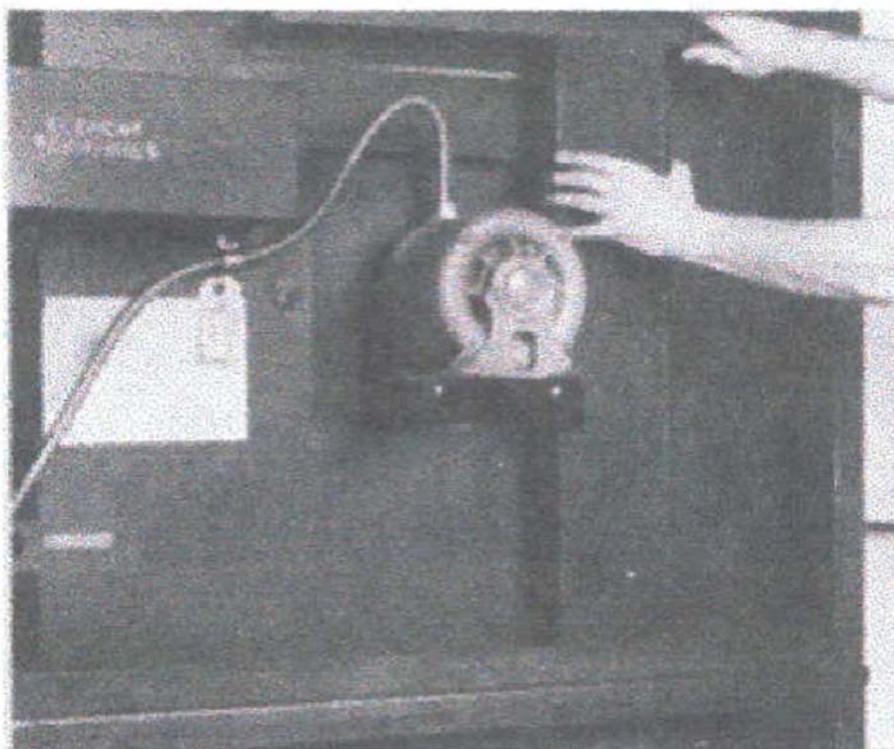


Figure 8-11. Exhaust Vent Installation

8-2.3.6 Installation Of A Trim Collar.

1. Remove trim collar from its shipping position at rear of oven as shown in [Figure 8-12](#).
2. Remove protective coating from stainless steel portion of collar.
3. Install collar in proper position at top of oven as shown in [Figure 8-13](#).

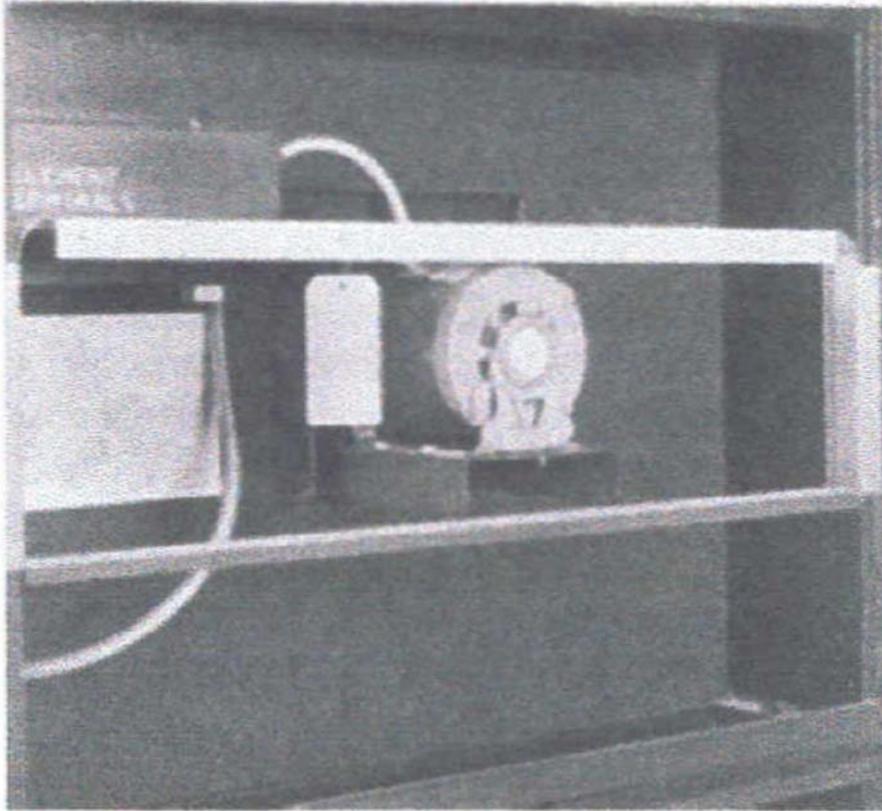


Figure 8-12. Trim Collar

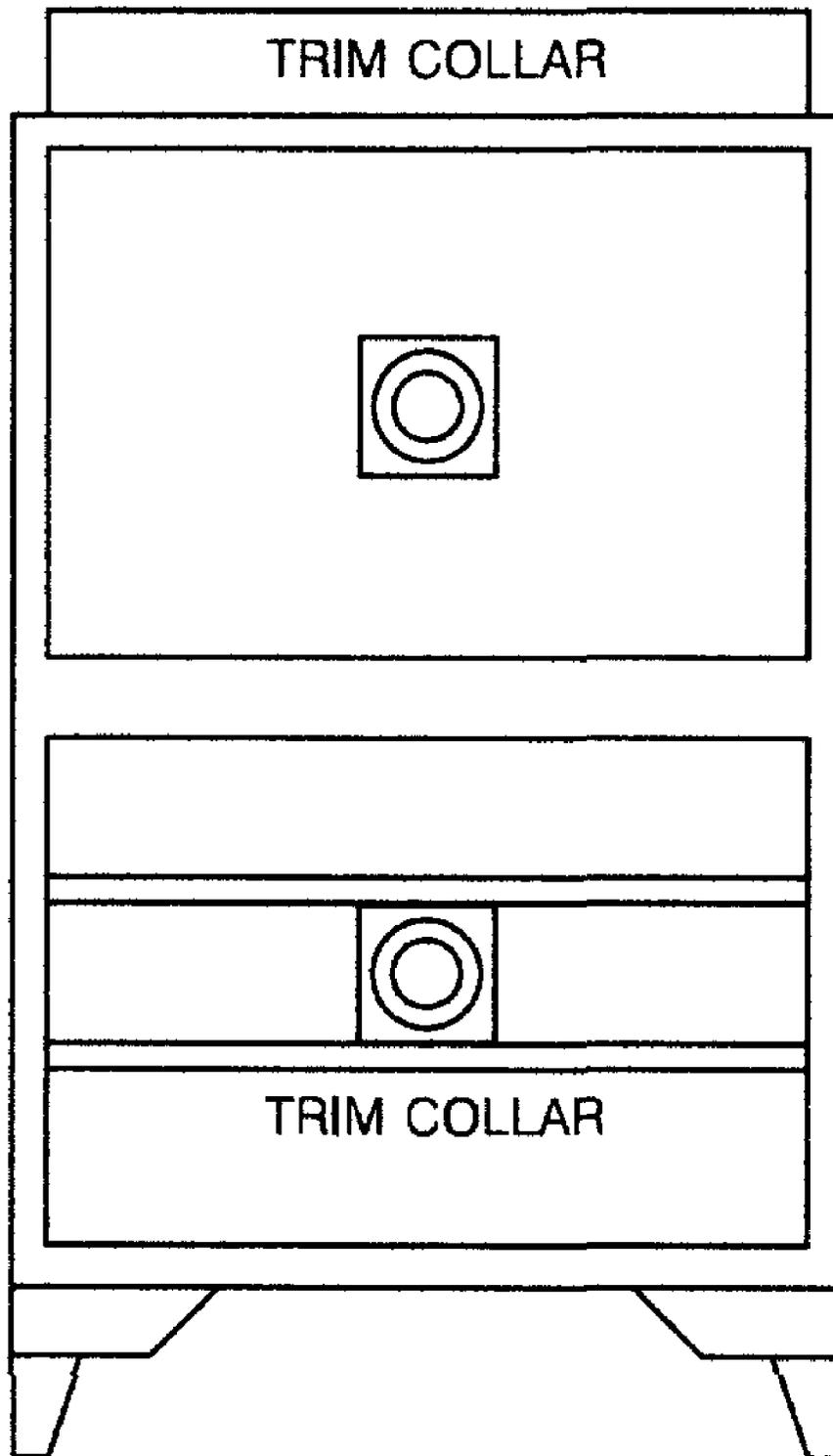


Figure 8-13. Trim Collar Installation

8-2.4 Adjustments Associated With Initial Installation. Each oven and its component parts have been thoroughly tested and inspected prior to shipment. However, it is often necessary to further test or adjust the oven as part of normal and proper installation. Such adjustments associated with initial installation are the responsibility of the dealer or installer. Because these adjustments are not considered defects in material or workmanship, they are not covered under the Original Equipment Warranty. They include, but are not limited to calibration of the thermostat, adjustment of the doors, leveling, and tightening of fasteners. No installation should be considered complete without proper inspection and, if necessary, adjustment by qualified installation or service personnel.

8-3. Schematics And Wiring Diagrams.

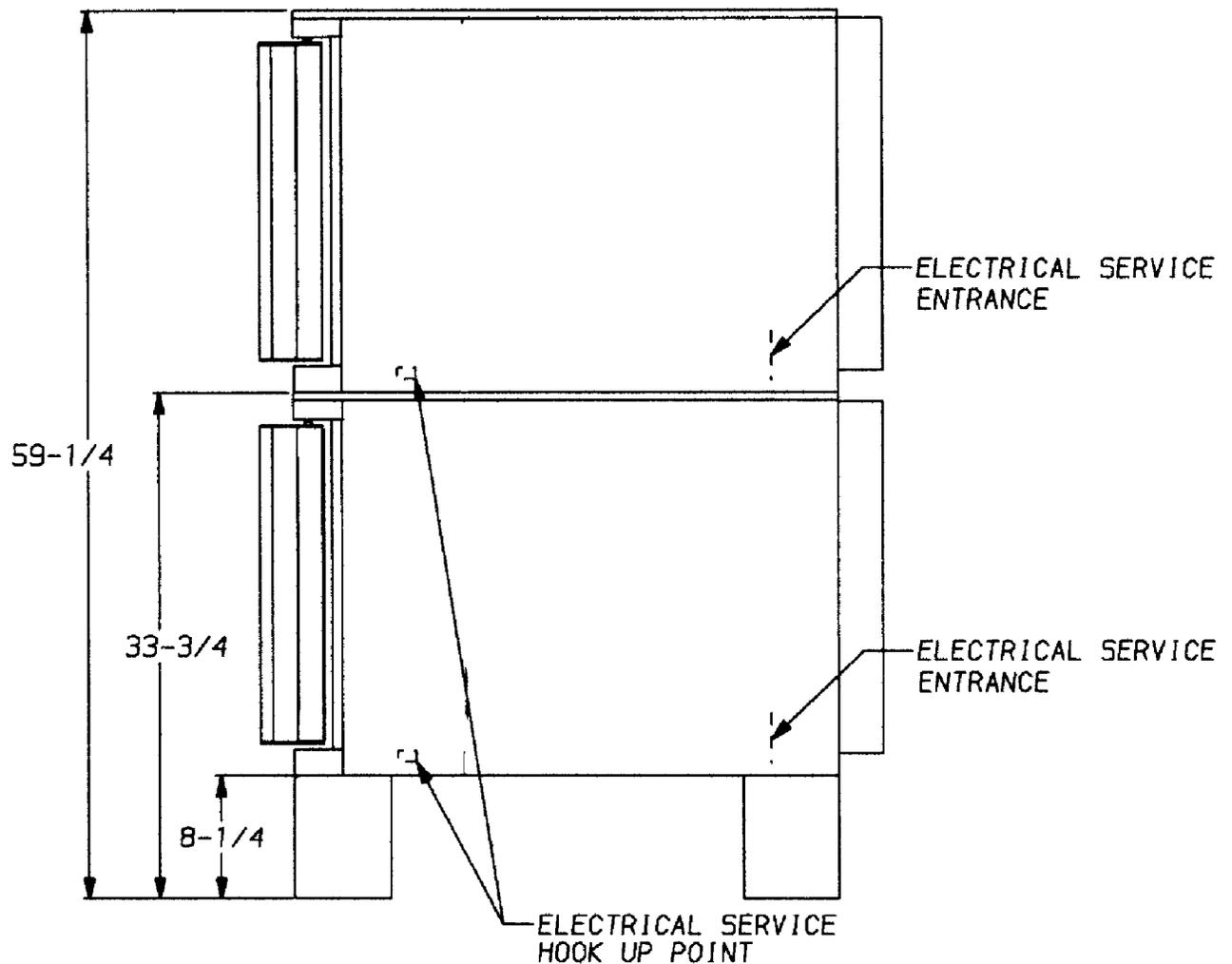
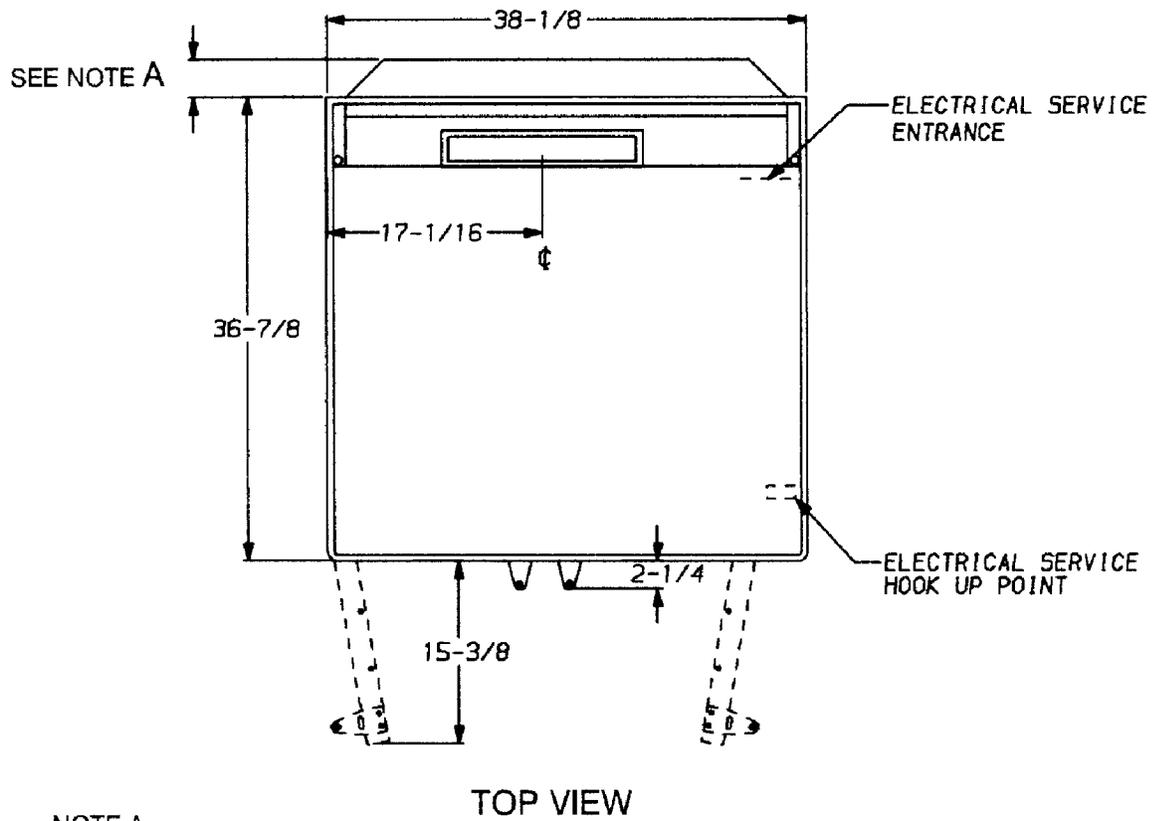
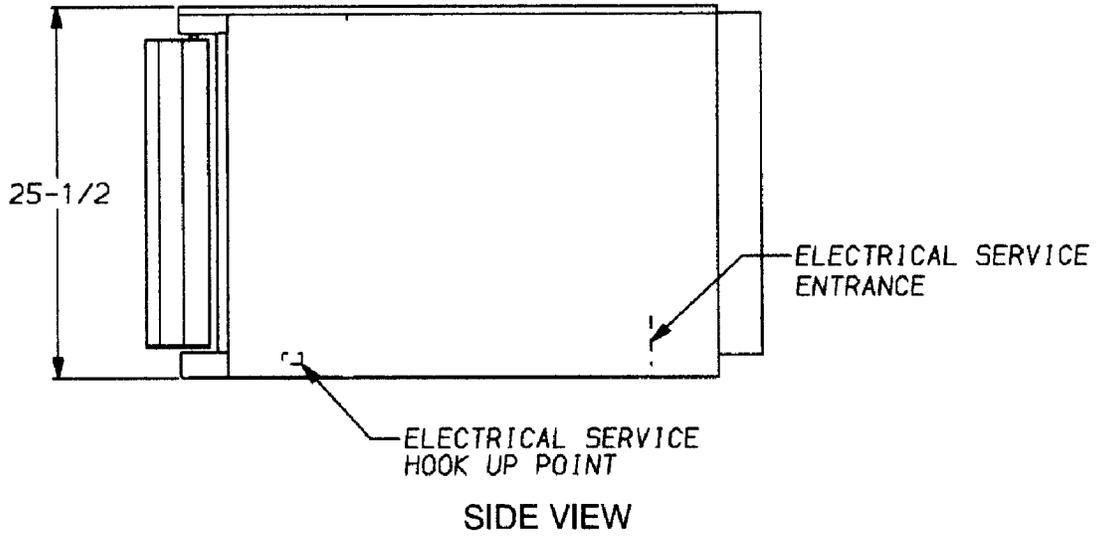


Figure 8-14. Electrical Service Hook-Up (Sheet 1 Of 2)



NOTE A

MARK V-111 H & MARK V-112	3
MARK V-11HD & MARK V-112HD	7½

Figure 8-14. Electrical Service Hook-Up (Sheet 2 Of 2)

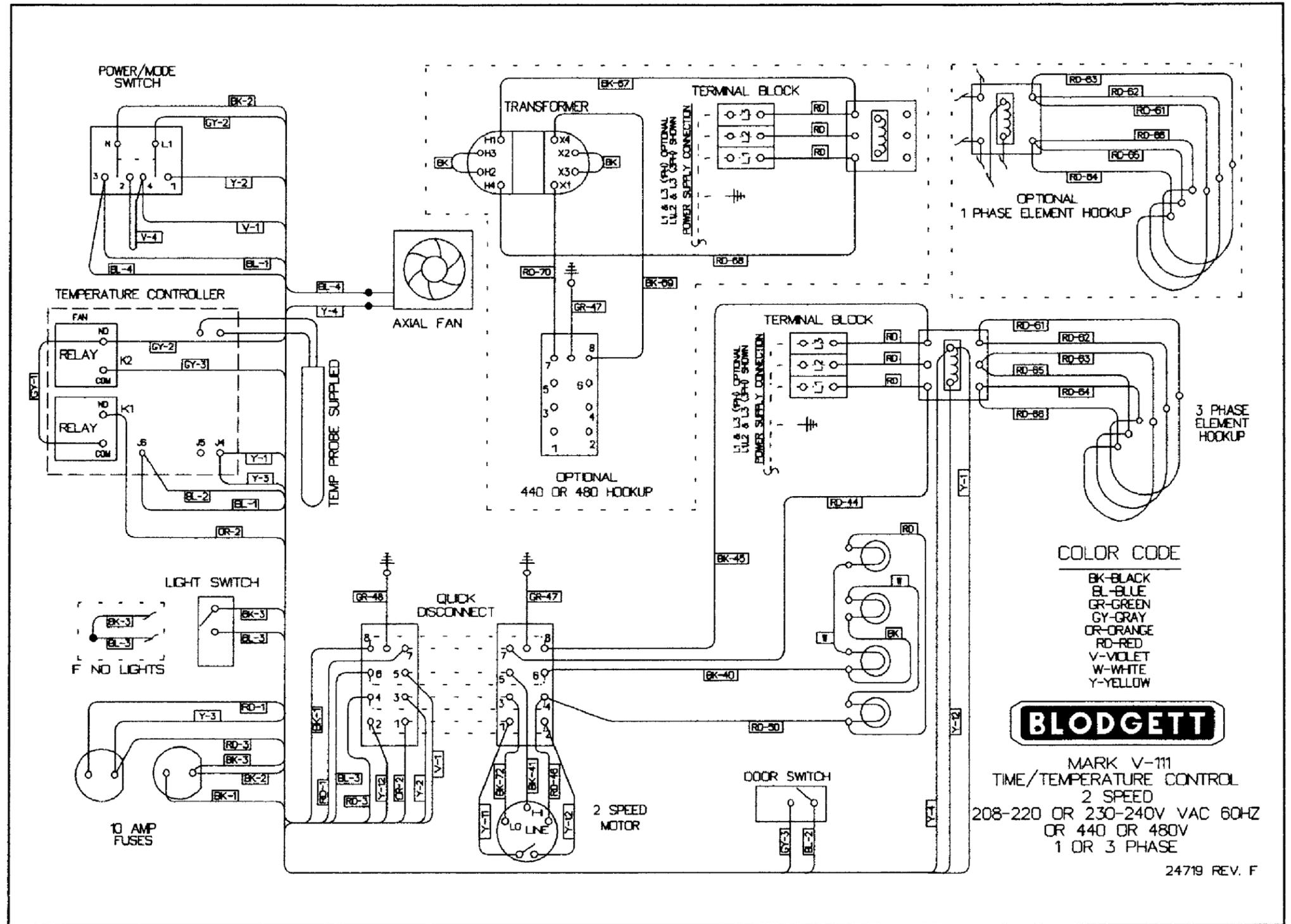
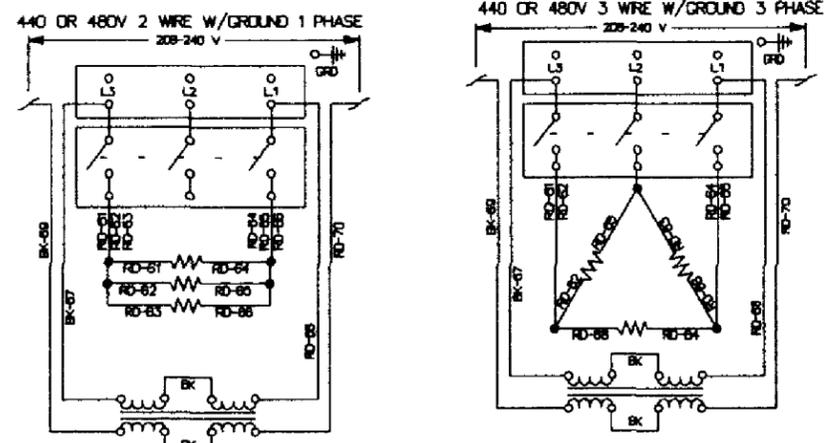
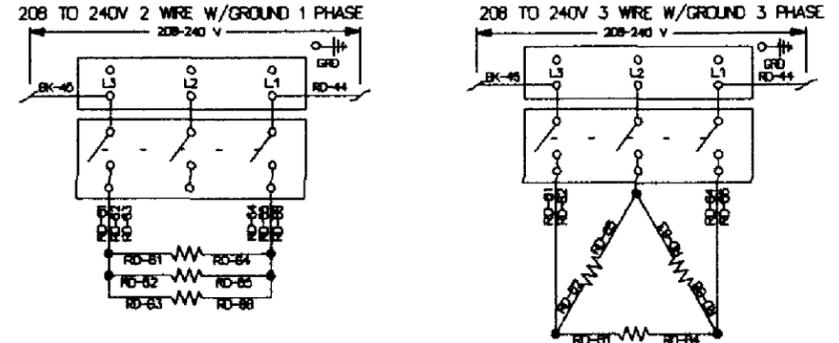
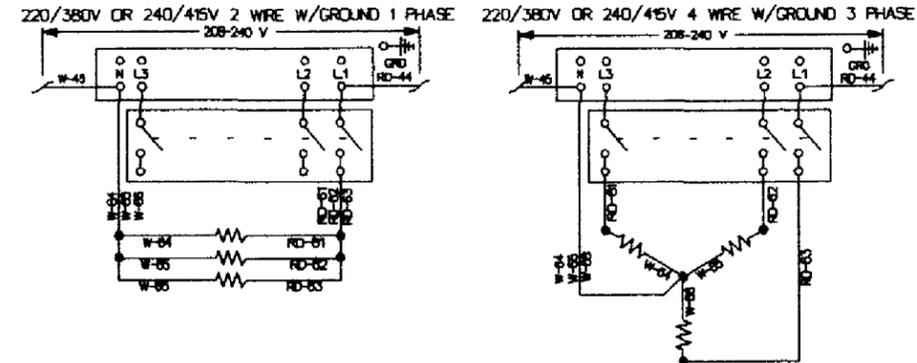
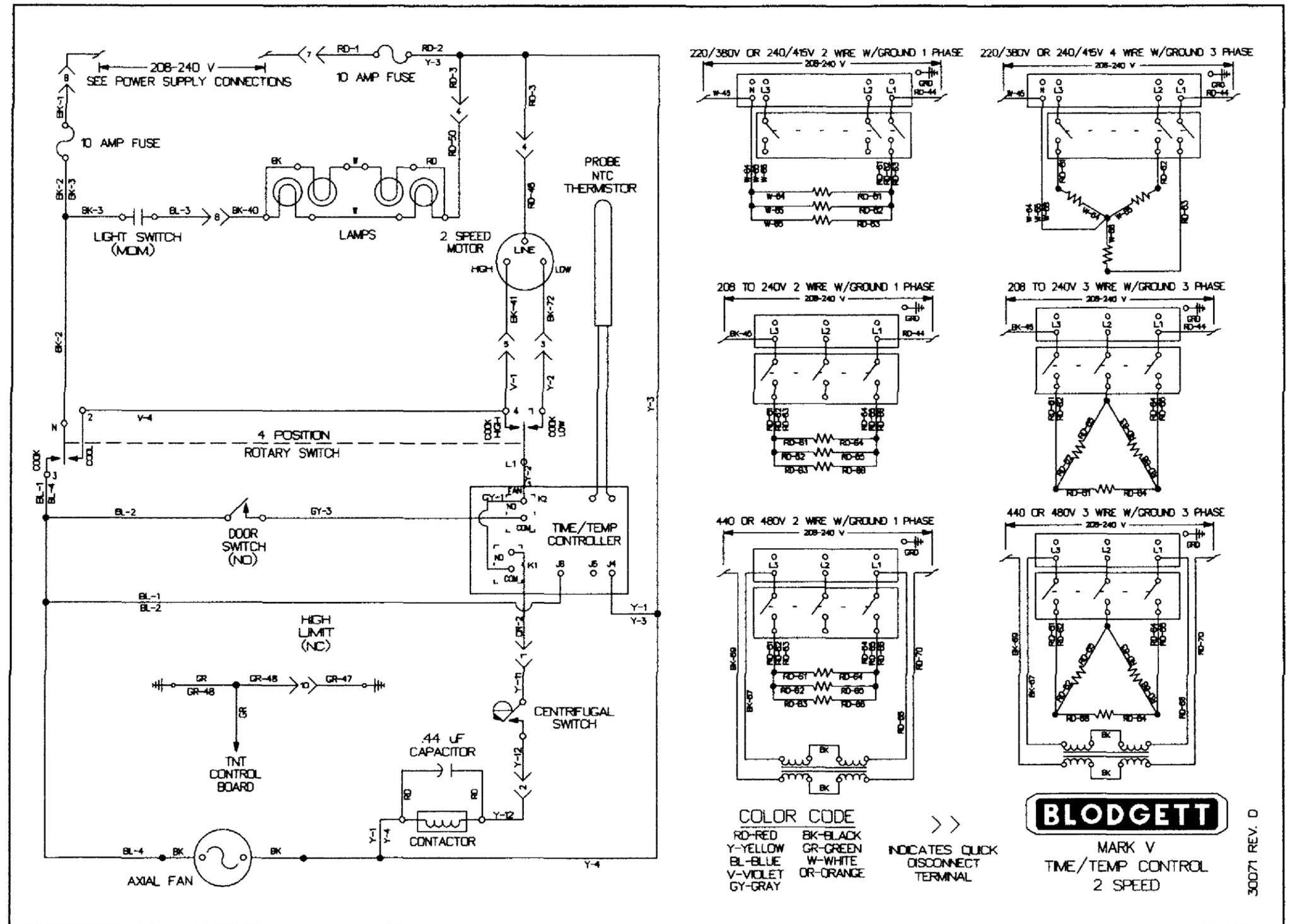


Figure 8-15. Mark V-111, Time/Temperature Control, 2 Speed



COLOR CODE
 RD-RED BK-BLACK
 Y-YELLOW GR-GREEN
 BL-BLUE W-WHITE
 V-VIOLET OR-ORANGE
 GY-GRAY

>> INDICATES QUICK DISCONNECT TERMINAL

BLODGETT
 MARK V
 TIME/TEMP CONTROL
 2 SPEED

30071 REV. D

Figure 8-16. Mark V, Time/Temp Control, 2 Speed

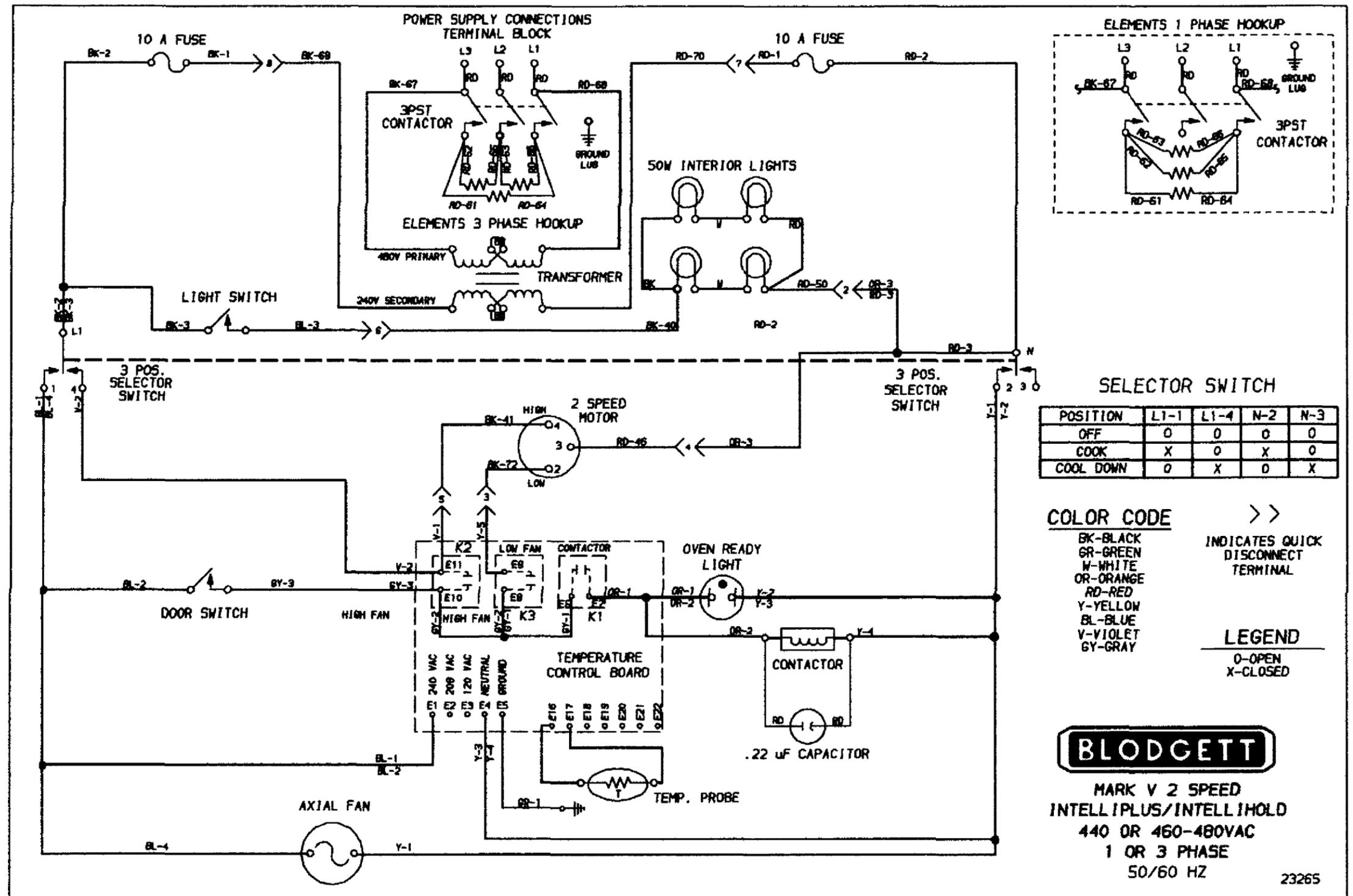


Figure 8-17. Mark V, 2 Speed, Intellipus/Intellihold

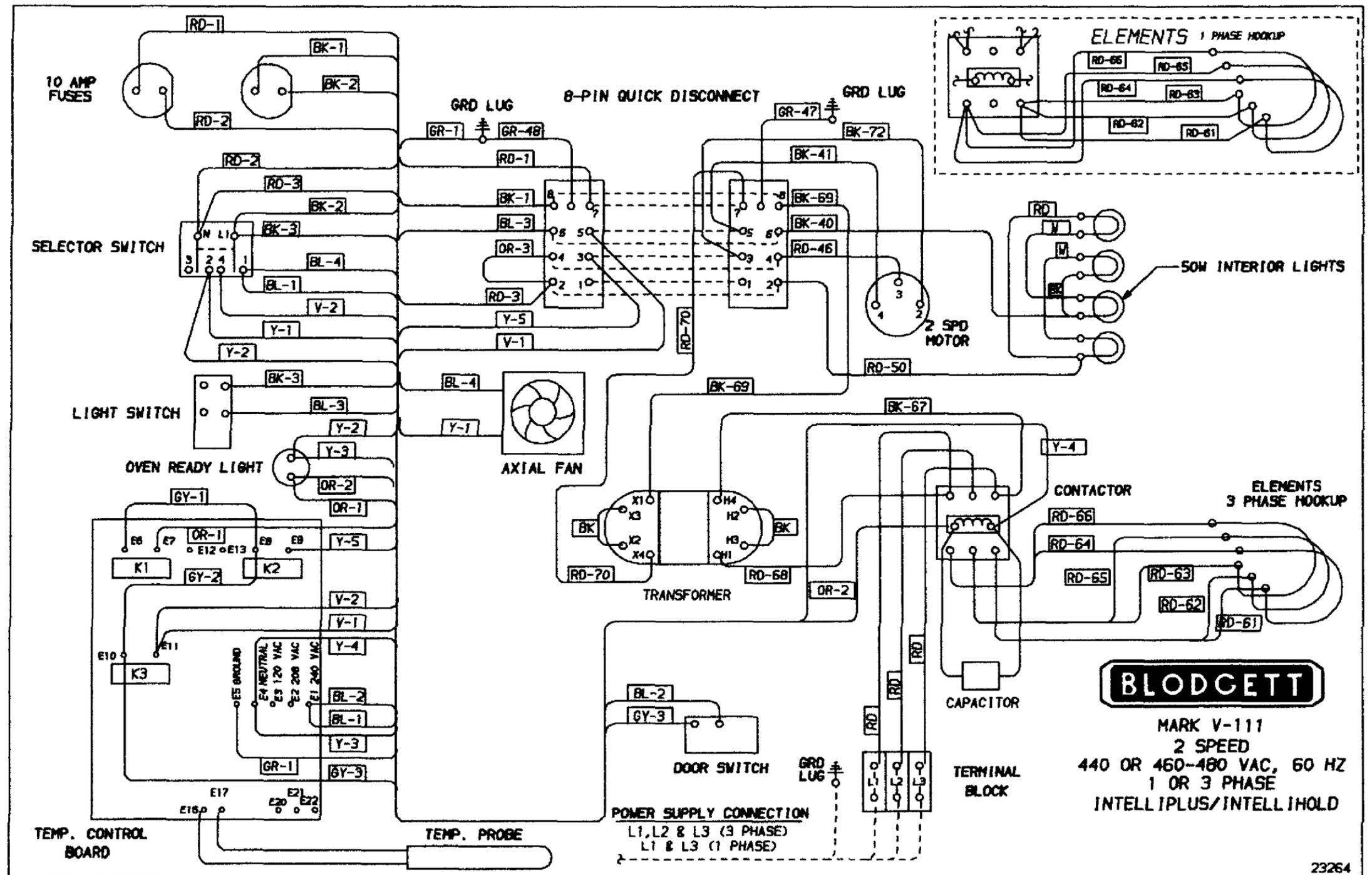


Figure 8-18. Mark V-111, 2 Speed, Intellipus/Intellihold

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