

# **OPERATIONS MAINTENANCE MANUAL**

**COOK & HOLD OVEN SYSTEMS**

**COMMERCIAL & INSTITUTIONAL SERIES**

**WITTCO MODEL NUMBERS**

750-AD-SS	750-AD-SS-IS
1000-AD-SS	1000-AD-SS-IS
1200-AD-SS	1200-AD-SS-IS
1400-AD-SS	1400-AD-SS-IS



## LIMITED WARRANTY

Wittco warrants the Products that it manufactures to be free from defects in materials and workmanship, under normal use and service, for the periods indicated below from the date of purchase when installed and maintained in accordance with Wittco's written instructions. Buyer must establish the "Products" purchase date by returning Wittco's Warranty registration Card or by other means satisfactory to Wittco in its sole discretion.

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- a) Ninety (90) days Labor Warranty
- b) One (1) Year Parts Warranty

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## **WITTCO TECHNICAL & PRODUCT SUPPORT**

TECHNICAL SUPPORT & SERVICE INQUIRES MAY BE DIRECTED TO WITTCO BY:

1. **CALLING DIRECTLY TO:**

WITTCO FOODSERVICE EQUIPMENT TECHNICAL & SERVICE DEPARTMENT - (800)  
367-8413  
8:00 AM - 4:30 PM (CENTRAL TIME)

2. **FAXING DIRECTLY TO:**

WITTCO FOODSERVICE EQUIPMENT TECHNICAL & SERVICE DEPARTMENT - (414)  
354-2821  
DAILY 24 HOURS

3. **MAILING DIRECTLY TO:**

WITTCO FOODSERVICE EQUIPMENT INC.  
7737 NORTH 81 ST. STREET  
MILWAUKEE, WISCONSIN 53223  
USA

WHEN DIRECTING INQUIRIES TO WITTCO PLEASE HAVE THE FOLLOWING INFORMATION AVAILABLE TO AVOID DELAYS

1. Wittco **model number** indicated on the equipment serial data plate located at the electrical connection.
2. Wittco serial number indicated on the equipment serial data plate, The equipment serial number will also have two (2) alpha characters immediately following the serial number. These alpha characters are part of the serial number.



## **INTRODUCTION**

Wittco Foodservice Equipment's Cook and Hold Oven System is a basic unit of food preparation equipment. It has found wide acceptance in both institutional and commercial food service operations.

This manual has been produced to provide persons responsible for the operation and maintenance of the oven with a simple but comprehensive understanding of its proper use. We recommend that this manual be read and understood prior to placing the oven into operation.

As with any piece of food service equipment, this oven system will require a minimum of care and maintenance. Suggestions for this procedure are contained in this manual and should become a regular part of the operation of the unit.

**NOTE: BEFORE USING THE OVEN IT SHOULD BE THOROUGHLY CLEANED IN ACCORDANCE WITH THE INSTRUCTIONS CONTAINED IN THIS MANUAL.**

It is recommended that prior to placing the oven system into operation that it be operated on the cook cycle for approximately two (2) hours at 350° F. to prep it for operation.

Should repair or adjustment of the unit become necessary, we suggest that procedures described in this manual be followed. The operator may also contact the authorized Wittco dealer who sold the product or an authorized Wittco service agency. If the needed repair occurs during the warranty period, prior authorization is required from Wittco by the service company before the work is done.

It is our sincere desire that you obtain the maximum benefit from your Cook and Hold Oven System. If at any time questions arise or additional information is required, contact Wittco at 800 367-8413.

## **DESCRIPTION**

Operators have found that cooking foods utilizing low temperature methods reduces the amount of product shrinkage and increases the amount of product yield. This is because less moisture is cooked out of the food when it is prepared at 225° F. that when it is prepared at 350° F. Because of this fact, the operator will serve a product that has greater customer satisfaction because of the increased flavor and moisture this meat possesses.

## **UNCRATING**

Each Wittco Foodservice Equipment oven is packed in a cardboard carton which, in turn, is banded to a wooden pallet. When the cabinet is received by the operator, the carton should immediately be inspected for any sign of visible exterior damage. If carton is

punctured or dented, it may be an indication that the cabinet has sustained concealed freight damage.

**It is very important that any evidence of damage be noted on the Bill of Lading at the time of receipt.**

### **UNPACKING THE CABINET**

1. Remove the banding material holding the carton to the pallet.
2. Remove the cardboard carton and the plastic bag covering the cabinet.
3. Carefully lift the cabinet off the carton bottom and pallet and place it on the floor.
4. Open the door and remove any packing materials which may have been used to hold the tray slides in place.  
NOTE: The casters for the 1200 AD SS and the 1200 AD SS IS ovens are packed in a separate carton. Remove them from the carton and install them on the oven.
5. Heat the oven for approximately 2 hours before using.

### **CABINET LOCATION**

**PLACING THE OVEN IN THE PROPER LOCATION IS IMPORTANT FOR EFFICIENT OPERATION. CHOOSE A LOCATION FOR THE OVEN IN AN AREA WHICH WILL PROVIDE EASY LOADING AND UNLOADING WITHOUT INTERFERING WITH THE FINAL ASSEMBLY OF FOOD ORDERS. PROVIDE AT LEAST SIX INCHES OF SPACE ON EACH SIDE TO ALLOW FOR PROPER Air CIRCULATION AROUND THE OVEN.**

### **OPERATING CONTROLS**

A complete explanation of the operating controls will be found in the Cook Guide which is supplied with the oven.

All operating controls are located on the front control panel. This panel contains the on/off switch, the electronic cooking and holding thermostats, the electronic timer and the start button to engage the roast cycle.

**NOTE: IT IS RECOMMENDED THAT THE OVEN CONNECTION TO THE POWER SOURCE BE DONE BY A LICENSED ELECTRICIAN.**

**NOTE: UPON CONNECTING THE CONTROL MODULE TOP TO THE POWER SOURCE, THE COOLING FANS MAY NOT OPERATE. THESE FANS WILL ONLY OPERATE WHEN THE THERMOSTAT TO WHICH THEY ARE CONNECTED REQUIRES IT.**

### **ELECTRICAL REQUIREMENTS**

Wittco Cook and Hold Ovens can be factory wired for 120, 208,220, or 240 volts AC, single or three phase, 60 or 50 cycle service.

**VERIFY THAT THE VOLTAGE AND PHASE OF THE POWER SOURCE IS IDENTICAL TO THE OVEN SYSTEM DATA PLATE BEFORE CONNECTING.**

The oven must be adequately and safely grounded before operation. A separate disconnect switch or circuit breaker is recommended at a convenient location between the oven and power source.

**TESTING THE OVEN**

Each oven is completely checked and tested prior to shipment. However, it is a good practice to completely check the unit again after unpacking and installation.

1. Connect oven to power source.
2. Turn the oven on and check that the low velocity interior circulating fans are running. At the same time check that the indicator lights under the on/off switch and the hold thermostat are illuminated.
3. Set the timer dials to 01.5 (this equals one hour and 30 minutes of cooking time), set the hold thermostat to 140° F, and set the roast thermostat to 225° F.
4. Push the start button which will start the roasting cycle. Verify that the power and the roasting indicator lights are illuminated.
5. In approximately 15-20 minutes the oven compartment will be at the temperature indicated on the roast thermostat.
6. The LED digital display will count down in six minute intervals during the roasting cycle until no time remains on the timer. At that time the oven system will automatically switch to the hold cycle.

If all of the functions perform satisfactorily, the oven is ready for operation.

**CLEANING**

The interior of the oven should be cleaned whenever a food spill occurs. Use a mild soap and water to clean. **Never use harsh chemicals or abrasive pads to clean the cabinet.**

The simple cleaning process follows.

**1 DISCONNECT THE OVEN FROM THE POWER SOURCE.**

2. Remove the control module top and place it away from the oven cabinet. **CLEANING (CON'T)**

3. Lift and tip the side tray racks toward the center of the cabinet. Remove them from the cabinet. These racks should be taken to a sink or dish washer for a thorough cleaning.
4. Remove the interior rear mounted air distribution tunnel and take it to a sink or dish washer for cleaning.
5. Clean the interior oven cavity with soap and water.
6. Reassemble the oven.

#### **REPLACEMENT OF ELECTRICAL COMPONENTS**

It is highly recommended that only Wittco Foodservice Equipment replacement parts be used to insure compatibility of component parts in the operation of cook and hold oven systems. All of the electrical components which may require servicing are in the control module top.

**WARNING: DISCONNECT THE OVEN FROM THE POWER SOURCE BEFORE REMOVING THE CONTROL MODULE TOP FROM THE OVEN CABINET.**

#### **ON/OFF SWITCH REPLACEMENT**

1. **DISCONNECT THE OVEN FROM THE POWER SOURCE.**
2. Remove the protective cover from the control module top.
3. Notice the arrangement of all electrical leads and refer to the wiring diagram for reference. Remove the defective switch from the control panel.
4. Install the replacement switch and secure it to the control panel. Reconnect the electrical leads to the new switch.
5. Reinstall the control module cover.
6. Test the oven as described in the TESTING THE OVEN section.

#### **COOK OR HOLD TEMPERATURE CONTROL REPLACEMENT**

1. **DISCONNECT THE OVEN FROM THE POWER SOURCE.**
2. Remove the top cover by removing the retaining screws and lifting it off the control module top to expose the thermostat.

### **COOK OR HOLD TEMPERATURE CONTROL REPLACEMENT (CON'T)**

3. Notice the arrangement of all electrical leads and refer to the wiring diagram for reference.
4. Disconnect the electrical leads of the temperature control needing replacement from the circuit board.
5. Remove the black knob by loosening the "L-end" screws that holds it to the temperature controller stem.

**NOTE: PRIOR TO LOOSENING THE "L-END" SCREWS, TURN THE BLACK TEMPERATURE CONTROL KNOB COUNTER CLOCK-WISE UNTIL THE KNOB STOPS.**

7. Remove the two screws on the front of the control panel that hold the temperature control in place and remove it.
8. Install the replacement temperature control following the reverse of the above procedure.

**NOTE: ONCE THE BLACK KNOB HAS BEEN REINSTALLED TURN IT COUNTER CLOCK-WISE UNTIL THE TEMPERATURE CONTROL SHAFT STOPS. LOOSEN THE "L-END" SCREWS AND REPOSITION THE WHITE ARROW ON THE KNOB TO POINT TO THE SMALL SILVER DASH UNDER THE LOWEST TEMPERATURE SETTING.**

9. Reinstall the control module cover and screws.
10. Test the oven as described in the TESTING THE OVEN section.

### **INDICATOR LIGHT REPLACEMENT**

1. **DISCONNECT THE CABINET FROM ITS POWER SOURCE.**
2. Remove the top cover by removing the screws and lifting the cover off the control module top to expose the indicator light.
3. Notice the arrangement and connection of all electrical leads and refer to the wiring diagrams for reference.
4. Disconnect the electrical leads to the indicator light and remove it.
5. Install the replacement indicator light by pushing it into the control panel until the retaining clips snap into place.

## INDICATOR LIGHT REPLACEMENT (CON'T)

6. Reconnect the electrical leads to the indicator light.
7. Reinstall the module control top cover and screws.
8. Test the oven as described in the TESTING THE OVEN section.

## COOK CYCLE TIMER REPLACEMENT

### **1 DISCONNECT THE OVEN FROM THE POWER SOURCE.**

2. Loosen the two screws on the timer face plate holding the timer in its housing.
3. Carefully pull the timer straight out from the timer housing. (The rubber gasket remains attached to the housing surface.)
4. Insert the replacement timer into the timer housing.
5. Tighten the two screws holding the timer to the housing.
6. Test the oven as described in the TESTING THE OVEN section.

## COOLING FAN REPLACEMENT

### **1. DISCONNECT THE OVEN FROM THE POWER SOURCE.**

2. Remove the top cover by removing the screws and lifting the cover off the control module top to expose the cooling fans.
3. Notice the arrangement and connection of all electrical leads and refer to the wiring diagrams for reference.
4. Disconnect the electrical leads to the cooling fan and remove it.
5. Install the replacement cooling fan.  
**NOTE: THE AIR FLOW DIRECTION ARROW MUST POINT TO THE LEFT OR AWAY FROM THE CONTROL MODULE TOP.**
6. Reconnect the electrical leads to the cooling fan.
7. Reinstall the module control top cover and screws.
8. Turn the oven on for approximately 30 minutes at 225° F to see if the cooling fan operates.

### **COOLING FAN THERMOSTAT REPLACEMENT**

- 1. DISCONNECT THE OVEN FROM THE POWER SOURCE.**
2. Remove the top cover by removing the screws and lifting the cover off the control module top to expose the cooling fan thermostat.
3. Notice the arrangement and connection of all electrical leads and refer to the wiring diagrams for reference.
4. Disconnect the electrical leads to the cooling fan thermostat and remove it.
5. Install the replacement cooling fan thermostat.
6. Reconnect the electrical leads to the cooling fan thermostat.
7. Reinstall the module control top cover and screws.
8. Turn the oven on for approximately 30 minutes at 225° F to see if the cooling fan operates.

### **BLOWER ASSEMBLY REPLACEMENT**

- 1. DISCONNECT THE OVEN FROM THE POWER SOURCE.**
2. Remove the top cover by removing the screws and lifting the cover off the control module top to expose the blower assembly.
3. Notice the arrangement and connection of all electrical leads and refer to the wiring diagrams for reference.
4. Disconnect the electrical leads to the blower assembly at the terminal strip.
5. Remove the protective fan grill located on the bottom of the control module top exposing the blower cage.
6. Insert an "L-end" wrench into the set screw holding the blower to the motor shaft. Remove the cage from the blower motor.
7. Remove the three (3) hex nuts holding the blower motor housing to the oven and remove it.
8. Install the replacement blower motor by following the reverse of the directions above.
9. Reconnect the electrical leads to the blower assembly.

## **BLOWER MOTOR REPLACEMENT (CON'T)**

10. Reinstall the module control top cover and screws.
11. Test the oven as described in the TESTING THE OVEN section.

## **HEATING ELEMENT REPLACEMENT**

- 1 DISCONNECT THE CABINET FROM THE POWER SOURCE.**
2. Remove the top cover by removing the screws and lifting the cover off the control module top.
3. Remove all the insulation surrounding the heating element compartment and save it for reuse.
4. Remove the screws from the heating element cover to expose the elements.
5. Notice the arrangement and connection of all electrical leads and refer to the wiring diagrams for reference.
6. Disconnect the electrical leads from the heating elements
7. Remove the nuts securing the heating element to the heating element compartment and remove it.
8. Install the replacement heating element by following the reverse of the above directions.
9. Reinstall the module control top cover and screws.
10. Test the oven as described in the TESTING THE OVEN section.

## **ELECTRICAL RELAY REPLACEMENT**

- 1 DISCONNECT THE CABINET FROM THE POWER SOURCE.**
2. Remove the top cover by removing the screws and lifting the cover off the control module top exposing the electrical relay.
3. Remove the defective relay but leave the wires attached. Notice the arrangement and connection of all electrical leads and refer to the wiring diagrams for reference.
4. Install the new relay and move the wires from the defective relay to the terminal screws on the replacement relay.

### **ELECTRICAL RELAY REPLACEMENT (CON'T)**

5. Reinstall the module control top cover and screws.
6. Test the oven as described in the TESTING THE OVEN section.

### **TEMPERATURE CONTROL PROBE REPLACEMENT**

1. **DISCONNECT THE OVEN FROM THE POWER SOURCE.**
2. Remove the top cover by removing the screws and lifting the cover off the control module top exposing the temperature probe.
3. Notice the arrangement and connection of all electrical leads between the temperature probe and the circuit board and refer to the wiring diagrams for reference.
4. Disconnect the probe lead wires from the solid state circuit board. These wires are not polarity sensitive.
5. Remove the wire ties that hold the probe wires to the other wires.
6. Remove the wire ties that hold the temperature probe to the fan grill on the inside of the oven.
7. Remove the insulating grommet from the probe wires so that the defective probe can be removed.
8. Install the replacement temperature probe by following the reverse of the above directions.
9. Reinstall the module control top cover and screws.
10. Test the oven as described in the TESTING THE OVEN section.

**TROUBLE SHOOTING PROCEDURE WARNING: EXTREME CAUTION MUST BE EXERCISED WHEN WORKING AROUND ELECTRICAL EQUIPMENT TO PREVENT THE POSSIBILITY OF ELECTRICAL SHOCK RESULTING IN INJURY OR DEATH. THESE TEST PROCEDURES SHOULD ONLY BE DONE BY A LICENSED ELECTRICIAN OR AN AUTHORIZED SERVICE AGENCY. THEY SHOULD NOT BE ATTEMPTED BY ANY PERSON WHO IS NOT TRAINED IN THE SAFE AND PROPER USE OF TEST EQUIPMENT.**

Always work in a safe manner. Be sure the power supply is turned off before touching any wires or terminals to prevent the possibility of electrical shock or damage as a result of electrical short by the meter probes.

No wires should be disconnected from the terminals without first disconnecting the power source to the oven.

This procedure supplies a list of symptoms that may be observed and a reference section that may be referred to locate and correct the problem.

### TEST EQUIPMENT REQUIRED

The preferred piece of equipment required is a DVM (Digital Voltmeter) and a clamp-on ammeter. If one of these is not available, an ohmmeter is necessary to determine if a short circuit or a ground exists. The meter should be capable of reading 0 to 100 k ohms full scale.

### NORMAL OPERATION

It is preferred that the technician has had the opportunity to observe the normal operation of the oven so that when there is a malfunction, it may be easily recognized with a minimum of testing.

In normal operation, as soon as power is applied to the oven and the power switch is turned on, the POWER and the HOLD CYCLE indicator lights should be illuminated. In addition, the blower motors inside the oven should start.

If the HOLD TEMPERATURE knob is set to a temperature higher than the present oven temperature, the heating contactor should energize and supply power to the heating elements. When the oven temperature reaches approximately 105° F, the cooling fans will begin to operate. These fans will run as long as necessary to provide cooling for the electrical controls in the control module top.

If the OVEN TIMER is set to a value greater than 00.0 and the START button is depressed, the control will switch from the HOLDING CYCLE to the ROASTING CYCLE and maintain it for the length of time entered on the OVEN TIMER. When the set time expires, the oven will automatically switch from the ROASTING CYCLE to the HOLDING CYCLE and hold the food for up to 24 hours.

### SYMPTOMS AND PROCEDURES

#### I. NO HEAT IN THE HOLD CYCLE

1. Check that the oven is connected to the power source and the circuit breaker or fuse is not tripped.
2. Check that the oven power switch is on.

3. If the power switch is in the on position and the power indicator light is not illuminated, remove the fuses and verify continuity with the ohmmeter. If the fuses are defective, there is probably a shorted component or wire. Refer to Section A for additional testing.

Replace fuses with the same type that were supplied with the oven. Use only #SLC-3 current limiting fuse. Type G, 250 volt.

4. If the power indicator light is illuminated and the holding indicator light is not, there is a problem with the light, the timer or the wiring. (The timer should be set to 00.0 hours.) Refer to Section B for additional testing.
5. Position the HOLDING TEMPERATURE knob at 200° F. If the heating contactor does not energize, a problem exists with the temperature probe, temperature control, the set point relay, the timer, or the heater contactor. Refer to the following sections for additional testing:  
Section B for timer  
Section C for temperature control and set point relay  
Section F for contactor  
Section G for temperature probe.

## II. NO HEAT IN THE ROASTING CYCLE

1. Set the ROASTING TIMER to 1.5 on the digital timer display, set the ROASTING TEMPERATURE knob to 250° F, and depress the START button.
2. If the ROASTING indicator light is not illuminated, there is a problem with either the TIMER or the indicator light. Refer to section B for additional testing.
3. If the ROASTING indicator light is illuminated and the oven is not heating, there is a problem with the set point relay, the electronic circuit board, the contactor, the heating element(s), the temperature probe, or the wiring. Refer to the following sections in succession for additional testing:  
Section D for temperature control and set point relay, Section F for heater contactor, Section G for temperature probe.

## III. CHATTERING OF THE CONTACTOR

This may be observed at either the energizing or de-energizing of the contactor.

Test the contactor with a voltmeter or test light from wire #25 on the top of the electronic circuit board to wire #47 on the AC contactor coil. The reading must be very steady except for the 5 volts line drop that may occur when the heating elements are connected to the line. If the voltage is not steady, there is a problem with the AC power, the POWER SWITCH, the FUSES, or the wiring.

If the voltage is steady, there may be a problem with the set point relay, the electronic circuit board, or the wiring. Refer to the following sections for additional testing:

Section E if the voltage is not steady, Section C for the Holding Cycle Section D for the Roasting Cycle.

#### IV. OVEN IS SLOW TO HEAT

1. Check the line voltage. If it is below nominal, there will be a significant reduction in available heating. For example, a 10% lower line voltage will result in a 19% lower heat supply.

#### V. OVEN DROPS OUT OF ROASTING CYCLE

1. A loss of power may have occurred. Refer to section E for additional testing.
2. A problem may exist with the TIMER. Refer to section B for additional testing.

### SECTION A. TESTING FOR GROUNDS AND/OR SHORTED COMPONENTS

**DISCONNECT THE OVEN FROM THE POWER SOURCE BEFORE PERFORMING ANY TESTING WITH AN OHMMETER**

#### TESTING FOR GROUNDS

1. Power switch in the *off* position.
2. Connect one lead of the ohmmeter to the metal oven top.
3. Touch the other lead to the following and observe that there should be an open circuit in each case:
  - T1 on element contactor
  - T2 of element contactor
  - Wire 7 on vent fan switch
  - Wire 29 on power switch
  - Wire 50 on power switch
  - Wire 10 on power switch
  - Wire 29 on power switchAny reading at all, indicates a component partially or completely shorted to ground.

#### TESTING FOR SHORTED COMPONENTS

Test the following to determine which component is shorted. If any component has a significantly lower reading than is listed, it is suspect and should be replaced.

## TESTING HEATING ELEMENTS

Test between T1 and T2 on the contactor with the ohmmeter and compare the value to the table below:

The basic element has a resistance of 23 ohms regardless of the voltage rating on the oven. Because the number of elements in the oven effects the reading, compare the number of elements in the oven to the following chart to determine if any elements are open or shorted.

1 element	2 elements	3 elements	3 elements 3 PH
23 ohms	11.5 ohms	7.7 ohms	L1-L2 15.3 ohms L1-L3 15.3 ohms L2-L3 15.3 ohms

## TESTING COOLING FAN MOTORS

Test wire 7 to wire 50 on the cooling fan motors. A typical reading on a 120 volt oven is 47 ohms. A 208/240 volt oven will have 183 ohms. NOTE: These readings are for two fans connected in parallel. A new replacement fan will read double.

## TESTING BLOWER MOTORS

1. Disconnect the blower motor wires from the terminal strip and test with an ohmmeter to determine whether they are shorted or not. The reading should be approximately as shown in the table below. If a discrepancy exists, check each motor individually.

Voltage	1 Blower	2 Blowers	3 Blowers
120 Volt	19 ohms	9.5 ohms	6.3 ohms
208/240 Volt	70 ohms	35 ohms	23.3 ohms

Reconnect the wires to the terminal strip.

## WIRING INSPECTION

Check for frayed or touching wires on any terminal strip, especially on the set point relay and on the ROASTING TIMER as they are very close to each other. Clean and dress up the wires as needed.

## TESTING THE MOV VARISTOR

Lift one wire of each MOV from the terminal and check with an ohmmeter. If the reading is less than 100K ohms, the unit is defective.

## TESTING THE TEMPERATURE CONTROL

Disconnect the red and black wires from the AC wiring. The ohmmeter should read approximately 1/3K ohms between red and black wires. The ohmmeter should

read approximately 575 ohms between the white and black wires. If the circuit is open or shorted, the electronic circuit board must be replaced.

#### **TESTING THE CONTACTOR COIL**

Disconnect all wires from one side terminal of the contactor coil. The ohmmeter should read approximately 675 ohms for a 208/240 volt unit or 235 ohms for a 120 volt unit. If the circuit is open or shorted, the contactor must be replaced.

#### **TESTING THE ROASTING TIMER COIL**

Disconnect all wires from terminal #1. The ohmmeter should read approximately 520 ohms for a 240 volt unit or 140 ohms for a 120 volt unit. If the circuit is open or shorted, the timer must be replaced.

#### **TESTING THE SET POINT RELAY COIL**

Unplug the set point relay from its socket and measure coil resistance. Ohmmeter should read approximately 17.2K ohms across relay coil contacts.

#### **SECTION B TIMER TEST**

Connect one lead of a voltmeter to wire 33 on the HOLDING indicator light and connect the other lead to timer terminals 10,14,12, and 11 each in succession to test for AC power. They should all indicate line voltage. If line voltage is not indicated, check the wiring or replace the timer.

Set the ROASTING TIMER for 1.0 hour and press the START button. Connect one lead of a voltmeter to wire 33 on the HOLDING indicator light and connect the other lead to timer terminals 9, 1,8, 6, 5, 4 each in succession to test for AC power. They should all indicate line voltage. If line voltage is not indicated, check the wiring or replace the timer.

#### **SECTION C. ELECTRONIC SOLID) STATE CIRCUIT BOARD TEST • HOLDING CYCLE**

1. Test for AC power between red and black wires at the input to the circuit board. (On the 120 volt units the wires are black and white.)
2. Test for AC power between wires 25 on the circuit board and 47 on the contactor coil. The reading must be very steady, except for the 5 volt line drop that may occur when the element is connected to the line.
3. Test for de-energized set point relay. (0 volts between heavy coil wires on relay terminals 4 and 1.)
4. Increase the HOLDING TEMPERATURE slowly just to the point which causes the contactor to be energized.

5. Test for poor relay contact by tapping the set point relay with a pencil. Observe that there should be no chattering or dropping out by the contactor, but rather, it should stay energized.

If tapping the relay with a pencil causes chattering of the contactor, check for frayed or broken wires on the set point relay, especially the 4 wires which come from the set point pots. After that, if tapping the relay either causes a chattering or prevents it temporarily, the relay has a poor contact internally and must be replaced with a new one.

6. Test for a broken temperature probe. Refer to Section G for additional information.
7. If the above test fail to identify the problem, the electronic circuit board is faulty and must be replaced.

#### **SECTION D. ELECTRONIC SOLID) STATE CIRCUIT BOARD TEST -ROASTING CYCLE**

1. Test for AC power between red and black wires at the input to the circuit board. (On the 120 volt units the wires are black and white.)
2. Test for AC power between wires 25 on the circuit board and 47 on the contactor coil. The reading must be very steady, except for the 5 volt line drop that may occur when the element is connected to the line.
3. Test for energized set point relay. (1/2 line volts between heavy coil wires on relay terminals 4 and 1.)
4. Set the ROASTING TEMPERATURE to 350° F which causes the contactor to be energized. (If it does, skip to step 8 below otherwise go to step 5.)
5. If the contactor does not energize, test for line voltage on the coil on the contactor between wires 26 and 47. Refer to Section F for additional testing.
6. If the contactor has no voltage, test for an open thermistor. Refer to Section G for additional details.
7. If the contactor is energized but there is still no heat, refer to Section A for additional test.
8. Rotate the ROASTING TEMPERATURE knob slowly just to the point to cause the contactor to be energized.

9. Test for poor relay contact by tapping the set point relay with a pencil. Observe that there should be no chattering or dropping out by the contactor, but rather, it should stay energized.

If tapping the relay with a pencil causes chattering of the contactor, check for frayed or broken wires on the set point relay, especially the 4 wires which come from the set point pots. After that, if tapping the relay either causes a chattering or prevents it temporarily, the relay has a poor contact internally and must be replaced with a new one.

10. If the above test fail to identify the problem, the electronic circuit board is faulty and must be replaced.

#### **SECTION E GENERAL VOLTAGE TESTING**

Test for line voltage between the following:

LI and L2 on the contactor.

Wires 29 and 50 on the power switch

Terminal 15 and 2 on the timer

Wire 47 on the contactor coil and 25 on the electronic circuit board

Connect one voltmeter probe to wire 47 on the contactor coil and the other to the following wires in succession:

Wire 10 on the power switch,

Terminal 14 on the timer,

Wire 25 on the circuit board.

If an intermittent loss of voltage, or a low voltage condition, the cause must be determined and corrected.

#### **SECTION F. CONTACTOR TESTS**

If the contactor has line voltage on the coil but it is not picked up to close the power contacts, the coil is failed open and the contactor must be replaced.

#### **SECTION G. TEMPERATURE PROBE TESTS**

Disconnect both wires of the probe from the connectors of the electronic circuit board. Connect the ohmmeter to the probe wires. If the ohmmeter reading is greater than 91K ohms at 70° F, the probe is faulty.

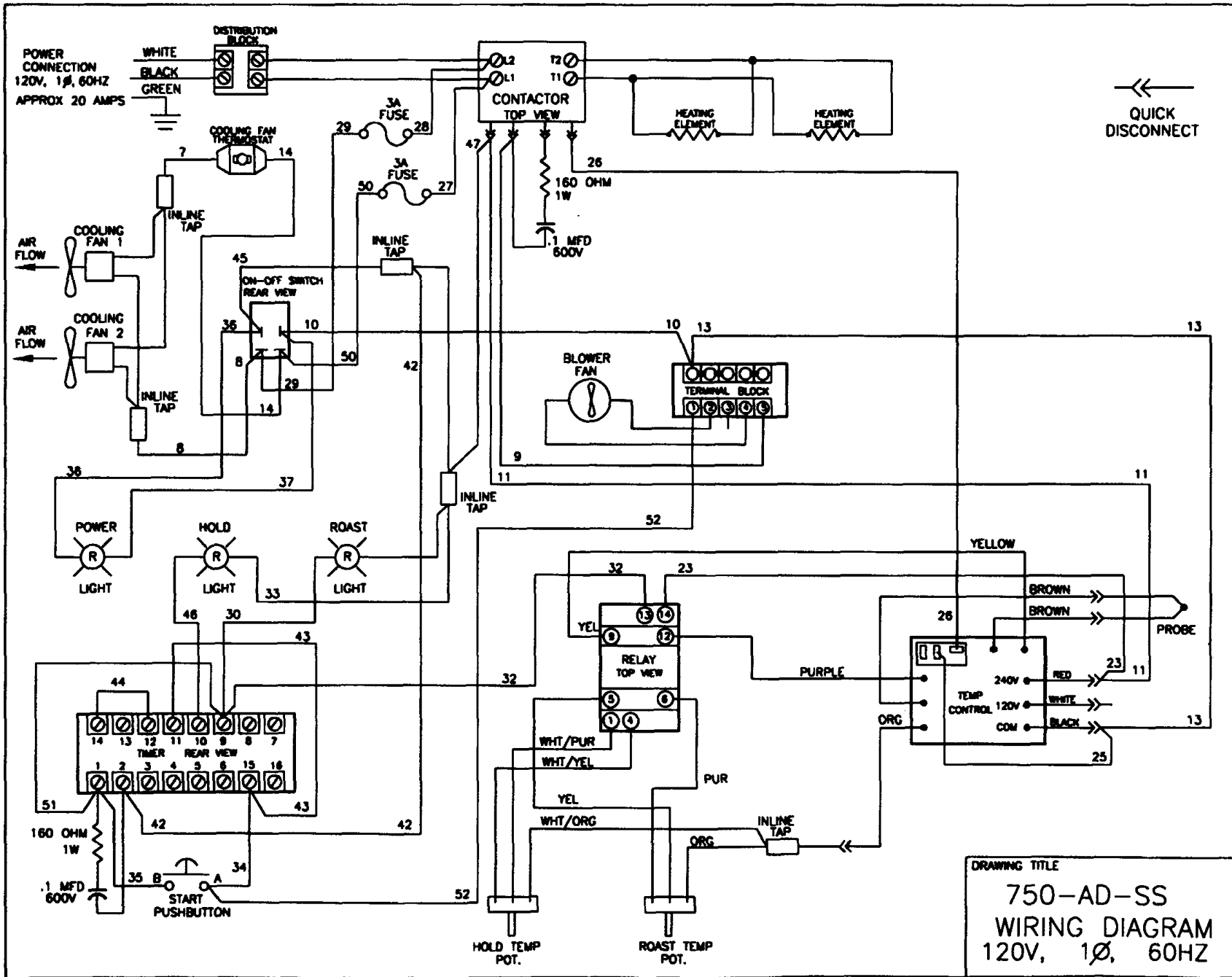
Typical values are:

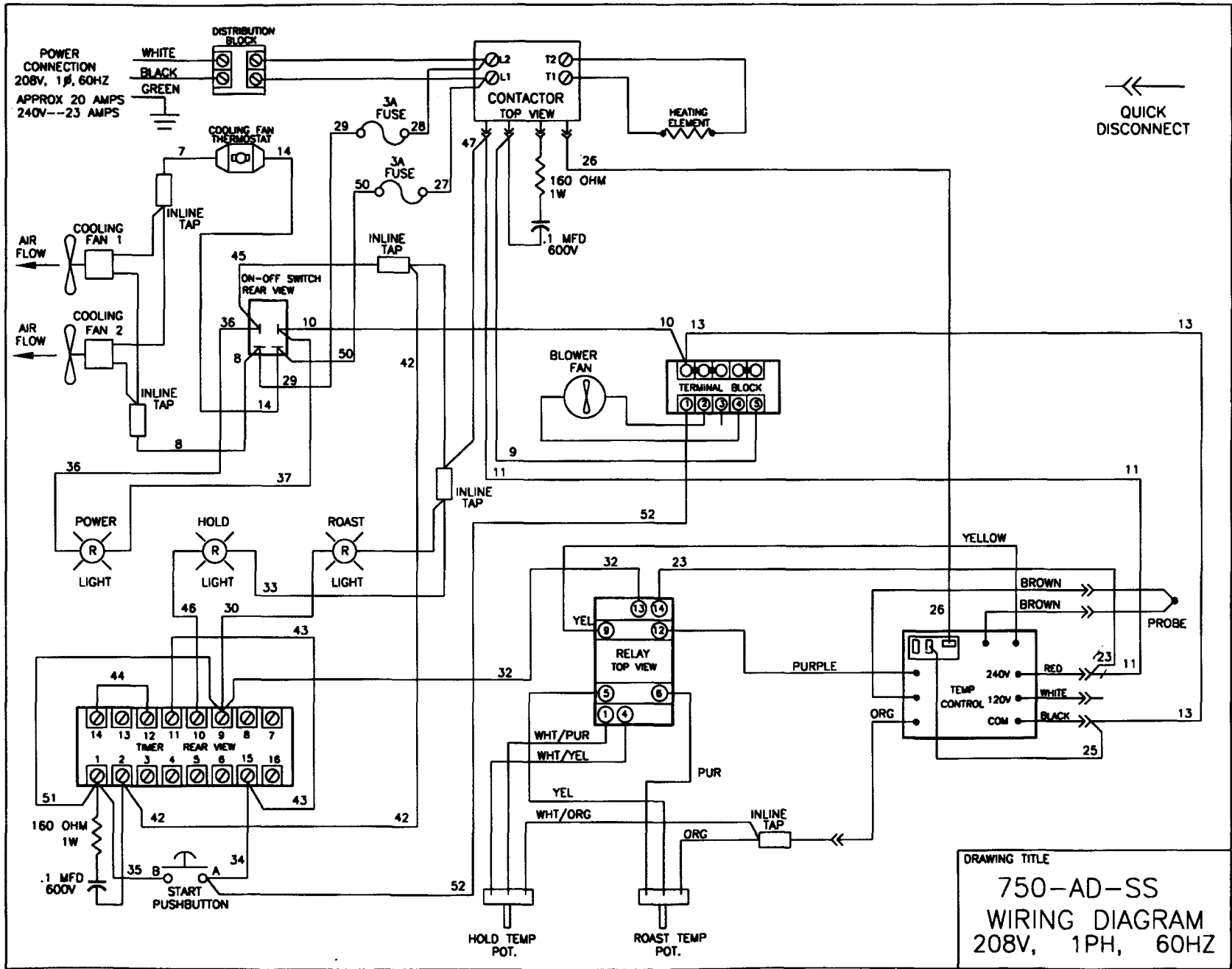
91K ohms at 70°

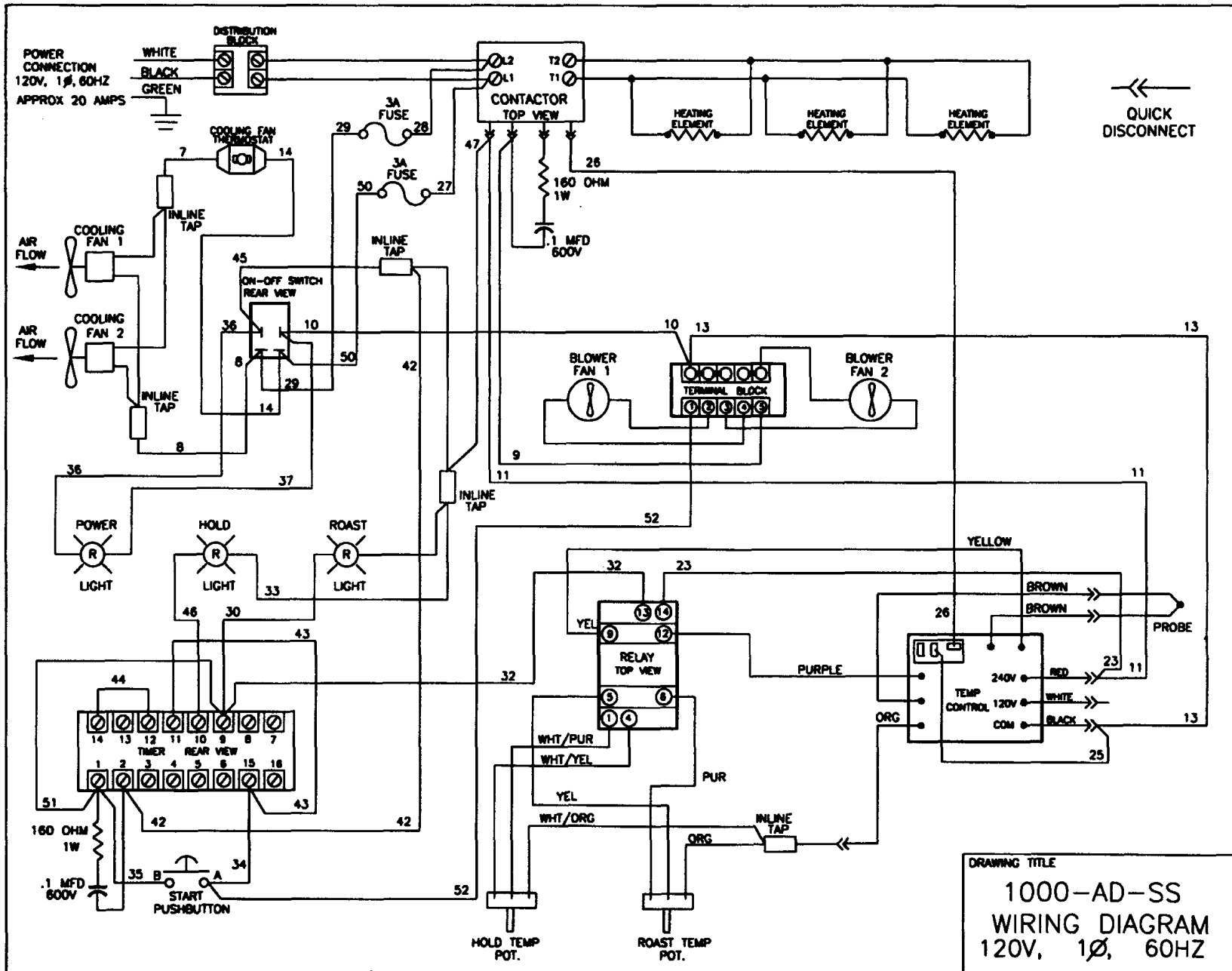
53K ohms at 100°

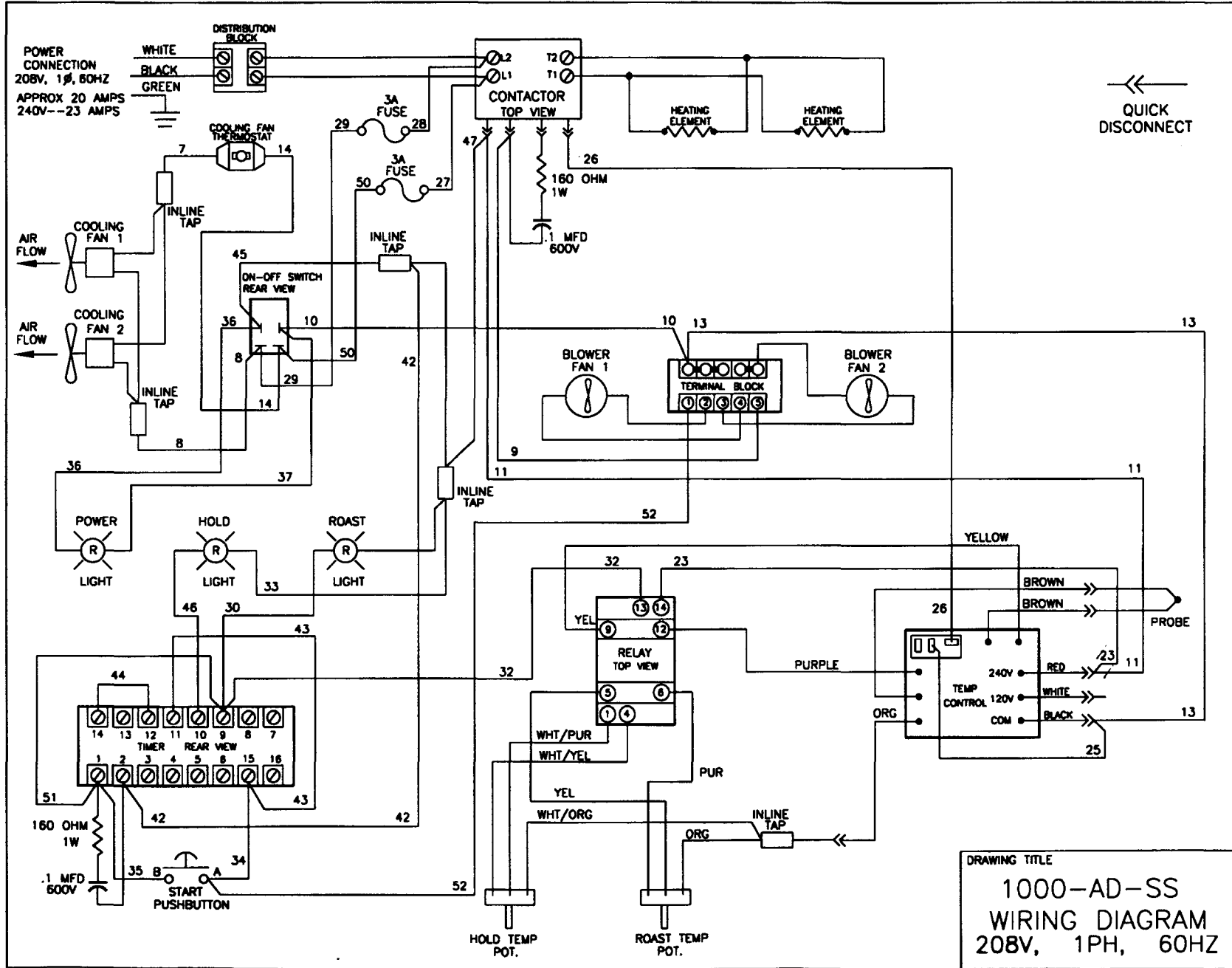
7.5K ohms at 200°

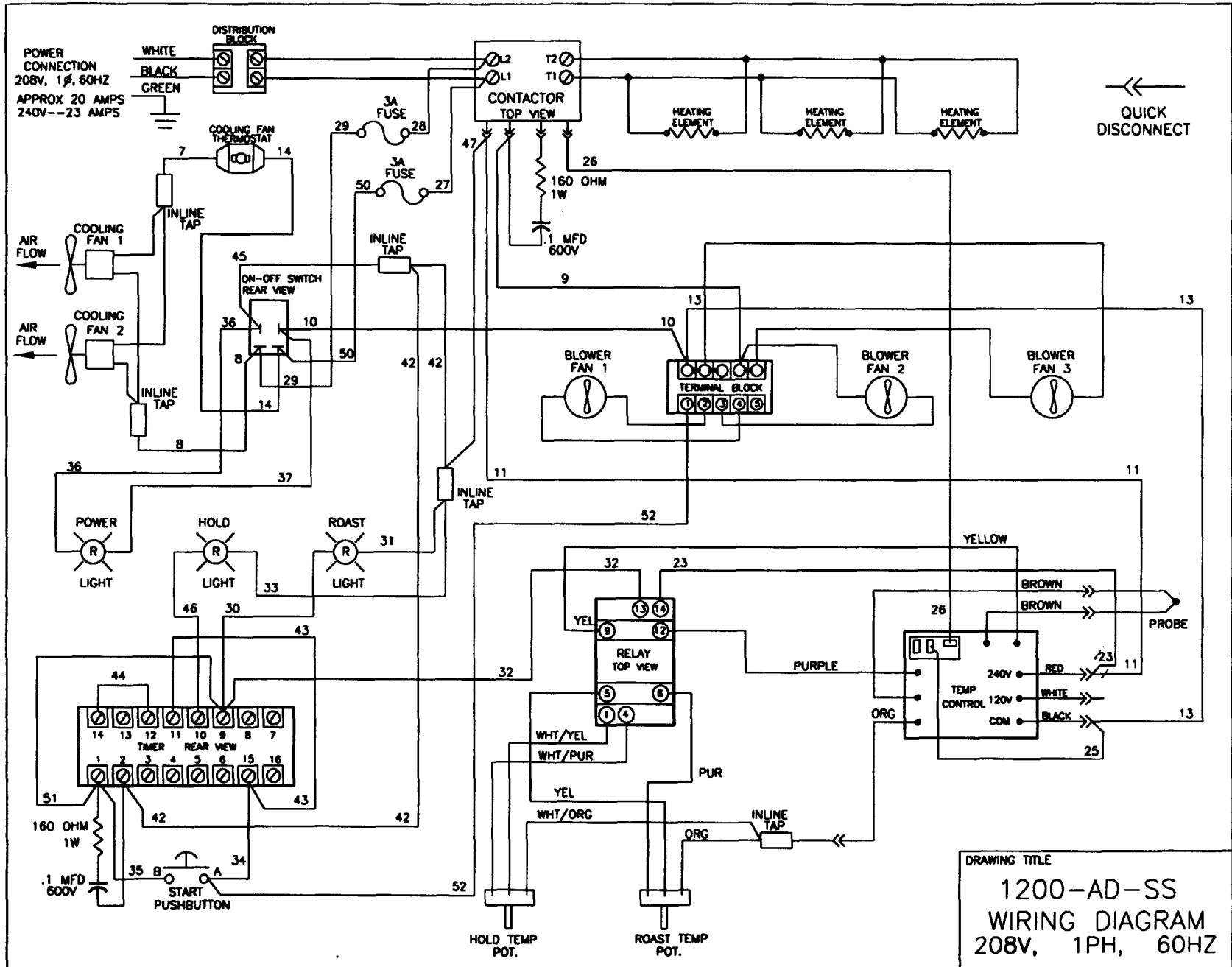
1.79Kohmsat300°











**WITTCO FOODSERVICE EQUIPMENT INC.  
REPLACEMENT PARTS LIST**

**WITTCO SERIES - COMMERCIAL COOK & HOLD OVENS**

WITTCO PART NO.	PART DESCRIPTION	MODEL NUMBER AND QUANTITY REQUIRED			
		750-AD	1000-AD	1200-AD	1400-AD
AD-301-1000-0	BLOWER MOTOR REPLACEMENT KIT 110 VOLT	1	2	3	4
AD-301-2000-0	BLOWER MOTOR REPLACEMENT KIT 208-240 VOLT	1	2	3	4
AD-266-0000-0	BLOWER MOTOR RETURN AIR GRATE	1	1	1	2
WP-114-5R	CASTER, 5" HEAVY DUTY RIGID	2	2	2	2
WP-114-5S	CASTER, 5" HEAVY DUTY SWIVEL W/BRAKE	2	2	2	2
AD-260-4000-0	CONTACTOR - 2 POLE / 110 VOLT	1	1	1	2
AD-260-2000-0	CONTACTOR - 2 POLE / 208-240 VOLT	1	1	1	2
AD-260-3000-0	CONTACTOR - 3 POLE / 208-240 VOLT (3PHASE)	1	1	1	2
AD-264-0000-0	CONTROL TOP MODULE COVER	1	1	1	2
AD-312-0000-0	CONTROL PANEL DECAL (BLUE)	1	1	1	2
AD-417-0000-1	CONTROLLER ONLY 120 VOLT	1	1	1	2
AD-417-0000-2	CONTROLLER ONLY 208-240 VOLT	1	1	1	2
AD-247-2000-1	CONTROLLER COMPLETE 120 VOLT (INCLUDES POTENTIOMETERS, PROBE & RELAY)	1	1	1	2
AD-247-2000-2	CONTROLLER COMPLETE 208-240 VOLT (INCLUDES POTENTIOMETERS, PROBE & RELAY)	1	1	1	2
AD-161-2000-0	CORD, 6FT 208-240 VOLT (NO PLUG)	1	1		2
AD-161-3000-0	CORD, 6FT 208-240 VOLT (NO PLUG)(1200 ONLY)			1	
AD-161-1000-0	CORD, 6FT 120 VOLT (NO PLUG)	1	1	1	2
AD-265-0000-0	DIVIDER BAR (FOR 1200 ONLY)			1	
AD-263-1000-0	DOOR, (NO HARDWARE)	1			
AD-263-2000-0	DOOR, (NO HARDWARE)		1		2
AD-263-3000-0	DOOR, (NO HARDWARE)			2	
AD-134-1000-0	DOOR CATCH ONLY (NO HANDLE)	1	1	2	2
AD-134-0000-0	DOOR LATCH COMPLETE W/CATCH	1	1	2	2
AD-280-1000-0	ELEMENT, 1900 WATT 120 VOLT	2	3	N/A	6
AD-280-1000-0	ELEMENT, 1900 WATT 208-240 VOLT	1	2	3	4
AD-305-1000-0	FAN COOLING MOTOR 120 VOLT	2	2	2	4
AD-305-2000-0	FAN COOLING MOTOR 208-240 VOLT	2	2	2	4

WITTCO PART NO.	PART DESCRIPTION	MODEL NUMBER AND QUANTITY REQUIRED			
		750-AD	1000-AD	1200-AD	1400-AD
AD-253-0000-0	FAN SCREEN FOR COOLING MOTOR	2	2	2	4
AD-210-0000-0	FUSE HOLDER	2	2	2	4
AD-207-0000-0	FUSE, 3 AMP	2	2	2	4
AD-142-750-E	GASKET, DOOR ALUMINUM EXTRUSION	1			
AD-142-1000-E	GASKET, DOOR ALUMINUM EXTRUSION		1		2
AD-142-1200-E	GASKET, DOOR ALUMINUM EXTRUSION			2	
WP-302	GASKET, DOOR (BLACK) BY THE FT.	8'	11'	21'	21'
AD-142-HT	GASKET, HOT TOP SEAL / ORANGE	1	1	1	2
WP-111	HINGE, DOOR	2	2	4	4
AD-310-0000-0	LATCH SPRING LOADED (INCLUDES BOLTS FOR HOT TOP)	4	4	4	8
WP-040	LIGHT, INDICATOR ROUND 125 VOLT	3	3	3	6
AD-226-0000-0	LIGHT, INDICATOR ROUND 250 VOLT	3	3	3	6
AD-416-0000-0	POTENTIOMETERS (SET/2)	1	1	1	2
AD-242-0000-0	POTENTIOMETER KNOBS	2	2	2	4
AD-246-0000-0	PROBE	1	1	1	2
AD-261-5000-0	RACKS, INT. SIDE	2			
AD-261-2000-0	RACKS, INT. SIDE		2		4
AD-261-3000-0	RACKS, INT. SIDE			2	
WP-305	RACK, SIDE RETAINING BOLTS	8	8	16	16
AD-415-2000-0	RELAY 120 VOLT (SWITCHING CUBE TYPE - CLEAR)	1	1	1	2
AD-415-1000-0	RELAY 208-240 VOLT (SWITCHING CUBE TYPE - SMOKE BLACK)	1	1	1	2
AD-419-0000-0	SECURITY COVER - CLEAR	1	1	1	2
AD-252-0000-0	STRAIN RELIEF AT POWER CORD	1	1	1	2
AD-135-0000-0	SUPPRESSOR (ORANGE)	2	2	2	4
AD-212-0000-0	SWITCH, ON/OFF ROCKER	1	1	1	2
AD-244-0000-0	SWITCH, START PUSH BUTTON (BLUE)	1	1	1	2
AD-206-2000-0	TERMINAL BLOCK, INTERNAL DISTRIBUTION	1	1	1	2
AD-206-1000-0	TERMINAL BLOCK - POWER CONNECT	1	1	1	2
AD-241-1000-0	THERMOSTAT - HI LIMIT	1	1	1	2

WITTCO PART NO.	PART DESCRIPTION	MODEL NUMBER AND QUANTITY REQUIRED			
		750-AD	1000-AD	1200-AD	1400-AD
AD-251-0000-0	THERMOSTAT FOR COOLING MOTOR	1	1	1	2
AD-232-2000-0	TIMER-ATC 120 VOLT	1	1	1	2
AD-232-1000-0	TIMER - ATC 208- 240 VOLT	1	1	1	2
AD-235-0000-0	TIMER BUTTONS (SET OF 3)	1	1	1	2
AD-267-1000-0	TUNNEL, AIR FLOW	1			
AD-267-2000-0	TUNNEL, AIR FLOW		1		2
AD-267-3000-0	TUNNEL, AIR FLOW			1	
750-T-C	CONTROL MODULE (COMPLETE TOP) 120 VOLT OR 208-240 VOLT 1 PHASE	1			
1000-T-C	CONTROL MODULE (COMPLETE TOP) 120 VOLT OR 208-240 VOLT 1 PHASE		1		2
1200-T-C	CONTROL MODULE (COMPLETE TOP) 208-240 VOLT 1 PHASE			1	

**WITTCO FOODSERVICE EQUIPMENT INC.  
REPLACEMENT PARTS LIST**

**WITTCO SERIES - INSTITUTIONAL COOK & HOLD OVENS**

**6/25/98**

WITTCO PART NO.	PART DESCRIPTION	MODEL NUMBER AND QUANTITY REQUIRED			
		750-IS	1000-IS	1200-IS	1400-IS
AD-301-1000-0	BLOWER MOTOR REPLACEMENT KIT 110 VOLT	1	2	3	4
AD-301-2000-0	BLOWER MOTOR REPLACEMENT KIT 208-240 VOLT	1	2	3	4
AD-266-0000-0	BLOWER MOTOR RETURN AIR GRATE	1	2	3	4
WP-114-5R	CASTER, 5" HEAVY DUTY RIGID	2	2	2	2
WP-114-5S	CASTER, 5" HEAVY DUTY SWIVEL W/BRAKE	2	2	2	2
AD-260-4000-0	CONTACTOR - 2 POLE /110 VOLT	1	1	1	2
AD-260-2000-0	CONTACTOR - 2 POLE / 208-240 VOLT	1	1	1	2
AD-260-3000-0	CONTACTOR - 3 POLE / 208-240 VOLT (3PHASE)	1	1	1	2
AD-264-0000-0	CONTROL TOP MODULE COVER	1	1	1	2
AD-312-0000-0	CONTROL PANEL DECAL (BLUE)	1	1	1	2
AD-417-0000-1	CONTROLLER ONLY 120 VOLT	1	1	1	2
AD-417-0000-2	CONTROLLER ONLY 208-240 VOLT	1	1	1	2
AD-247-2000-1	CONTROLLER COMPLETE 120 VOLT (INCLUDES POTENTIOMETER, PROBE & RELAY)	1	1	1	2
AD-247-2000-2	CONTROLLER COMPLETE 208-240 VOLT (INCLUDES POTENTIOMETER, PROBE & RELAY)	1	1	1	2
AD-161-2000-0	CORD, 6FT 208-240 VOLT (NO PLUG)	1	1		2
AD-161-3000-0	CORD, 6FT 208-240 VOLT (NO PLUG - MODEL 1200)			1	
AD-161-1000-0	CORD, 6FT 120 VOLT (NO PLUG)	1	1	1	2
AD-265-1000-0	DIVIDER BAR (FOR 1200-IS ONLY)			1	
AD-263-1000-1	DOOR, (NO HARDWARE)	1			
AD-263-2000-1	DOOR, (NO HARDWARE)		1		2
AD-263-3000-1	DOOR, (NO HARDWARE)			1	
AD-134-1000-1	DOOR CATCH ONLY (NO HANDLE)	1	1	2	2
AD-134-0000-0	DOOR LATCH COMPLETE W/CATCH	1	1	2	2
AD-280-1000-0	ELEMENT, 1900 WATT 120 VOLT	2	3	N/A	6
AD-280-1000-0	ELEMENT, 1900 WATT 208-240 VOLT	1	2	3	4
AD-305-1000-0	FAN, COOLING MOTOR 120 VOLT	2	2	4	4
AD-305-2000-0	FAN, COOLING MOTOR 208-240 VOLT	2	2	4	4

WITTCO PART NO.	PART DESCRIPTION	MODEL NUMBER AND QUANTITY REQUIRED			
		750-IS	1000-IS	1200-IS	1400-IS
AD-253-0000-0	FAN SCREEN FOR COOLING MOTOR	2	2	4	4
AD-210-0000-0	FUSE HOLDER	2	2	2	4
AD-207-0000-0	FUSE, 3 AMPS	2	2	2	4
AD-142-750-E	GASKET, DOOR ALUMINUM EXTRUSION	1			
AD-142-1000-E	GASKET, DOOR ALUMINUM EXTRUSION				2
AD-142-1200-E	GASKET, DOOR ALUMINUM EXTRUSION			2	
WP-302	GASKET, DOOR (BLACK) BY THE FT.	8'	11'	21'	21'
AD-142-HT	GASKET, HOT TOP / ORANGE	1	1	1	2
WP-111	HINGE, DOOR (1)	2	2	4	4
AD-310-0000-0	LATCH, SPRING LOADED (INCLUDES BOLTS FOR HOT TOP)	4	4	4	8
WP-040	LIGHT, INDICATOR ROUND 125 VOLT	3	3	3	6
AD-226-0000-0	LIGHT, INDICATOR ROUND 250 VOLT	3	3	3	6
AD-416-0000-0	POTENTIOMETERS (SET/2)	1	1	1	2
AD-242-0000-0	POTENTIOMETER KNOBS	2	2	2	4
AD-246-0000-0	PROBE	1	1	1	2
AD-291-5000-0	RACKS, INT. SIDE UPRIGHT	4			
AD-291-2000-0	RACKS, INT. SIDE UPRIGHT		4		8
AD-291-3000-0	RACKS, INT. SIDE UPRIGHT			8	
WP-305	RACK, SIDE RETAINING BOLTS	8	8	16	16
AD-415-2000-0	RELAY-120 VOLT (SWITCHING CUBE TYPE - CLEAR)	1	1	1	2
AD-415-1000-0	RELAY - 208-240 VOLT (SWITCHING CUBE TYPE - SMOKE BLACK)	1	1	1	2
AD-419-0000-0	SECURITY COVER - CLEAR	1	1	1	2
AD-252-0000-0	STRAIN RELIEF AT POWER CORD	1	1	1	2
AD-135-0000-0	SUPPRESSOR (ORANGE)	2	2	2	4
AD-212-0000-0	SWITCH, ON/OFF ROCKER	1	1	1	2
AD-244-0000-0	SWITCH, START PUSH BUTTON	1	1	1	2
AD-206-2000-0	TERMINAL BLOCK, INTERNAL DISTRIBUTION	1	1	1	2
AD-206-1000-0	TERMINAL BLOCK - POWER CONNECT	1	1	1	2
AD-241-1000-0	THERMOSTAT - HI LIMIT	1	1	1	2
AD-251-0000-0	THERMOSTAT FOR COOLING MOTOR	1	1	1	2

WITTCO PART NO.	PART DESCRIPTION	MODEL NUMBER AND QUANTITY REQUIRED			
		750-IS	1000-IS	1200-IS	1400-IS
AD-232-2000-0	TIMER-ATC 120 VOLT	1	1	1	2
AD-232-1000-0	TIMER - ATC 208-240 VOLT	1	1	1	2
AD-235-0000-0	TIMER BUTTONS (SET OF 3)	1	1	1	2
WP-291	TRAY SLIDES(Pr.)	5	8	16	16
AD-267-2000-0	TUNNEL, AIR FLOW		1		2
AD-267-3000-0	TUNNEL, AIR FLOW			1	
AD-267-1000-0	TUNNEL, AIR FLOW	1			
750-T-C-IS	CONTROL MODULE (COMPLETE TOP) 120 VOLT OR 208-240 VOLT 1 PHASE	1			
1000-T-C-IS	CONTROL MODULE (COMPLETE TOP) 120 VOLT OR 208-240 VOLT 1 PHASE		1		2
1200-T-C-IS	CONTROL MODULE (COMPLETE TOP) 208-240 VOLT 1 PHASE			1	