

Thermador

SERVICE MANUAL

**THERMATRONIC
II
COMBINATION**

MODELS

CMT-18 CMT-20

CMT-19 CMT-21

CAUTION

TO AVOID ELECTRICAL SHOCK:

DISCONNECT THE POWER TO THE APPLIANCE BEFORE SERVICING.

FOR THOSE CHECKS REQUIRING THE USE OF ELECTRICAL POWER, EXTREME CARE SHOULD BE EXERCISED.

RESPECT HIGH VOLTAGE

**PRECAUTIONS TO AVOID
EXPOSURE TO POSSIBLE
EXCESSIVE MICROWAVE
ENERGY**

a) Do not attempt to operate this oven with the door open since open-door operation can result in harmful exposure to microwave energy. It is important not to defeat or tamper with the safety interlocks.

b) Do not place any object between the oven front face and the door or allow soil or cleaner residue to accumulate on sealing surfaces.

c) Do not operate the oven if it is damaged. It is particularly important that the oven door close properly and that there is no damage to the: (1) Door (bent), (2) hinges and latches (broken or loosened), (3) door seals and sealing surfaces.

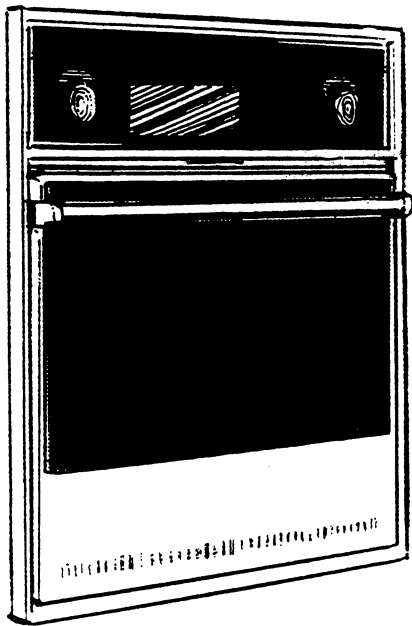
d) The oven should not be adjusted or repaired by anyone except properly qualified service personnel.

NOTE: The Browner and the Stay Hot Control can be operated when the door is opened.

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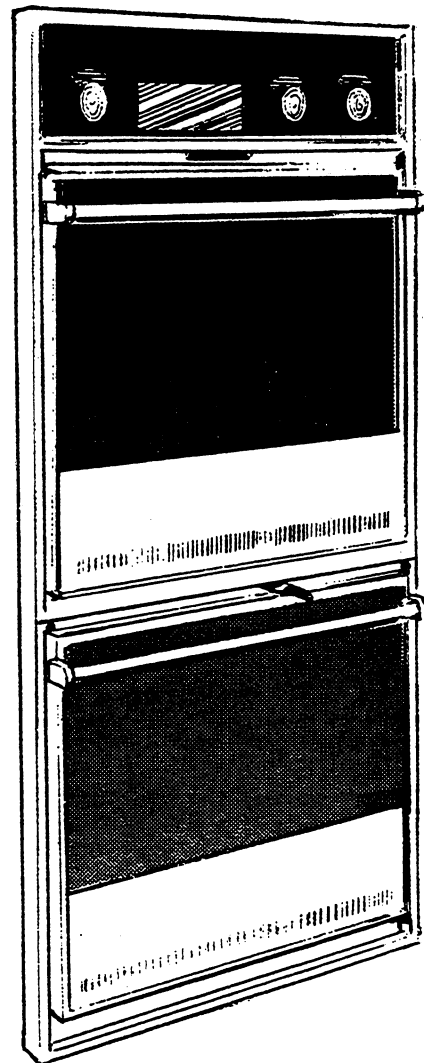
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**CMT-18 &
CMT-19**



**SINGLE CELL MODEL
WITH MICROWAVE
UNIT**

**CMT-20 &
CMT-21**



**DOUBLE CELL MODEL
WITH MICROWAVE
UNIT IN TOP CELL**

NOTE: Models CMT-19 and CMT-21 differ in that they have the Tempmatic Meat Probe.

Important Safety Information

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO MICROWAVE ENERGY.

1. Do not operate, or allow the oven to be operated with the door open.
2. Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
 - a. Interlock operation
 - b. Proper door closing
 - c. Seal and sealing surfaces (arcing, wear and other damage).
 - d. Damage to, or loosening of hinges and latches.
 - e. Evidence of dropping or abuse
3. Before turning on the microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.
4. Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
5. A Microwave Leakage Check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

OTHER PRECAUTIONS:

1. Be sure that the oven is grounded. Do not operate any oven on a two wire extension cord.
2. When making "live" tests, never reach into the power compartment while the unit is energized, or hold test equipment in your hands.
3. Always ground the capacitor at the diode connection with an insulated instrument before working in the high voltage area.
4. When it is necessary to check for microwave leakage, be sure to use a suitable leakage detector.

It is suggested that you make yourself familiar with the contents of this manual before attempting any repair of a thermatronic oven. If technical assistance or training is required, please contact National Service Headquarters at:

Thermador/Waste King
Customer Services
4731 E. 52nd Drive
Los Angeles, California 90040
Phone: (213) 562-1133

Leakage inspection should be made under the following conditions:

1. When a customer makes a request because of suspected leakage.
2. When the following repairs are made:
 - a. Food Cavity or Door repair or replacement
 - b. Primary or Secondary Interlock Switch repair or replacement
 - c. Replacement of the magnetron tube.

Following is the procedure for leak check with the approved instrument:

1. The test load is as follows; the glass shelf in place with one cup of water in the center of the shelf.
2. For Line Voltage, the power source must be within $\pm 10\%$ of rated line voltage.
3. Start by closing the door and energizing the microwave.
4. For Scanning Speed, use slow scan at one inch per second and dwell on any reading above 1 mw/cm^2 , slowly rotating the probe to locate the maximum leakage.
5. Remember to hold the probe perpendicular to and in contact with the surfaces being checked.
 - a. Check the left and right sides, dwelling on vent areas.
 - b. Check the back of the unit, dwelling on welded areas.
 - c. Check the top of the unit
 - d. Scan the entire door periphery.
 - e. Scan the entire front of the door.

If maximum radiation is found to be 1 mv/cm^2 or more, it is considered too high. Record your maximum readings on the Service Invoice.

LEAK CHECK PROCEDURE

The basic design of microwave ovens makes them inherently safe to use as well as to service. To insure that a unit does not emit excessive radiation and to meet with the Department of Health and Human Services guidelines, always perform a leakage test when the integrity of a unit is serviced (i.e. removal of unit from wall, removal of door, or replacement of any monitoring switch, changing wires, etc.).

A standard procedure is in effect for measuring radiation from microwave ovens. This procedure is used by both industry and government. Radiation leakage is measured in Milliwatts per Square Centimeters (MW/CM^2). The government standard limits leakage to $5 \text{ MW}/\text{CM}^2$; Thermador/Waste Kings standard is $2 \text{ MW}/\text{CM}^2$.

If maximum radiation is found to be above $2 \text{ MW}/\text{CM}^2$, it is considered too high. Record your maximum readings on the Service Invoice and notify the Thermador/Waste King Customer Service Department.

Following is the procedure for leak check:

1. Place one cup of water in the center of the shelf.
2. For line voltage, the power source must be within $\pm 10\%$ of rated line voltage.
3. Start by closing the door and energizing the microwave.
4. Scan at one inch per second and dwell on the maximum reading while slowly rotating the probe to determine the maximum leakage.
5. Always hold the probe perpendicular to and in contact with the surfaces being checked.
6. In any leakage test, be sure to do the following:
 - a. Scan the entire door periphery.
 - b. Scan the entire front of the door.
 - c. Make the open door test. With the probe positioned at the corners of the food cavity door, unlatch the door slowly and check leakage.
 - d. Check all accessible seams and vents.
7. Record your maximum leakage on the Warranty Service Order (WSO) form.

120/240, 120/208 Volt, 3-Wire, Single Phase, 60 Hz., A.C. Requires 40 Ampere Circuit.

PLEASE READ ENTIRE INSTRUCTIONS BEFORE PROCEEDING

CONDUCTOR PIPE CONNECTION PREPARATION - Figures 1 or 2

The Thermador CMT oven must be vented outdoors through a 4" diameter conductor pipe. This conductor pipe can be connected to either top or back of oven. A 4" collar is installed on top of oven at factory for connecting conductor pipe to top of oven with a slip joint (furnished). For connecting conductor pipe directly to back remove collar from top and cover plate from back. Then, install collar on back and cover plate on top. Tighten all screws firmly. The slip joint is not required for connecting conductor pipe to back.

When planning installation, provide for easy access to conductor pipe connection for both installation and future service. If conductor pipe is connected to top of oven, it will be accessible through cabinet doors above oven. Construct top of oven opening as shown in Figures 1 and 3. If conductor pipe is connected to back of oven, it will usually be accessible from other side of wall.

APPLICABLE TO ALL THERMADOR SELF-CLEANING OVENS

Maximum length of 4" diameter conductor pipe that can be used with Thermador Self-Cleaning Ovens is listed below.

This data is based on the installer using a wall or roof cap with not more than .07 inches static pressure. In general, a cap with an opening at least equal to the area of the 4" pipe (approximately 13 square inches) will meet this requirement.

With a wall or roof cap, as specified above, a maximum of 47 feet of 4" conductor pipe can be used.

For each 90° elbow in the run, subtract 3 feet of pipe from the 47 foot maximum.

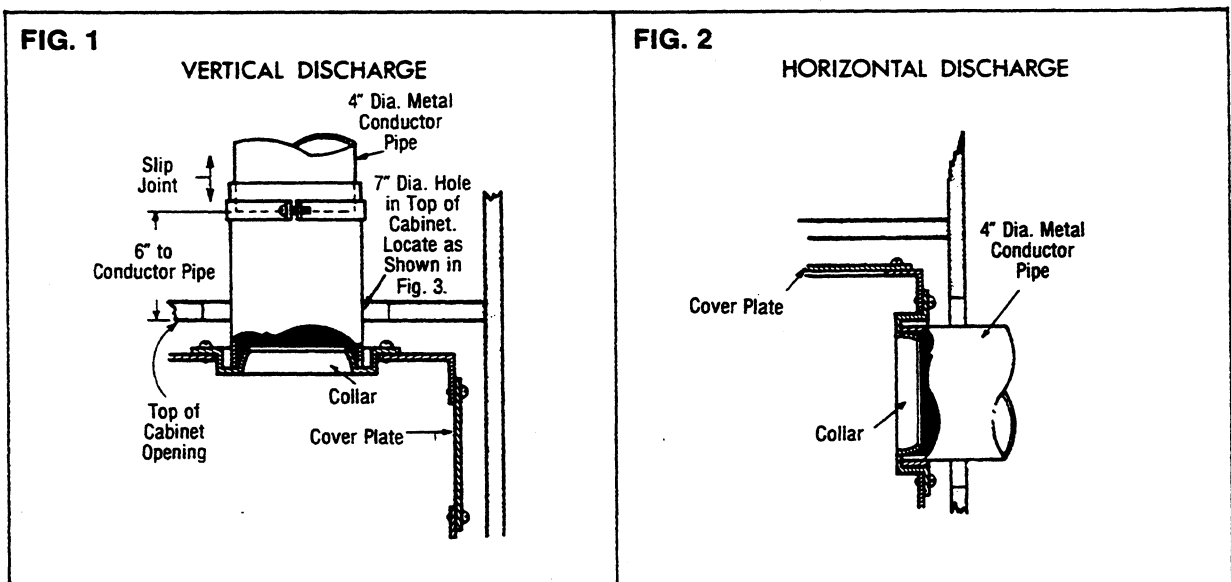
Like all "rules of thumb", this one should be used with judgement.

For unusual installations, a competent ventilating man should calculate the static pressure from friction charts.

The maximum static pressure is .27" H₂O.

MAXIMUM LENGTH	ELBOWS
47'	None
44'	1
41'	2
38'	3

NOTE: REQUIRES ITS OWN SEPARATE METAL CONDUCTOR PIPE TO THE OUTDOORS. DO NOT CONNECT INTO ANY OTHER EXHAUST SYSTEM. PIPE MAY BE SINGLE WALL METAL PIPE INSTALLED WITH "0" CLEARANCE. EXHAUST AIR TEMPERATURE — 194° F (90° C) MAXIMUM.

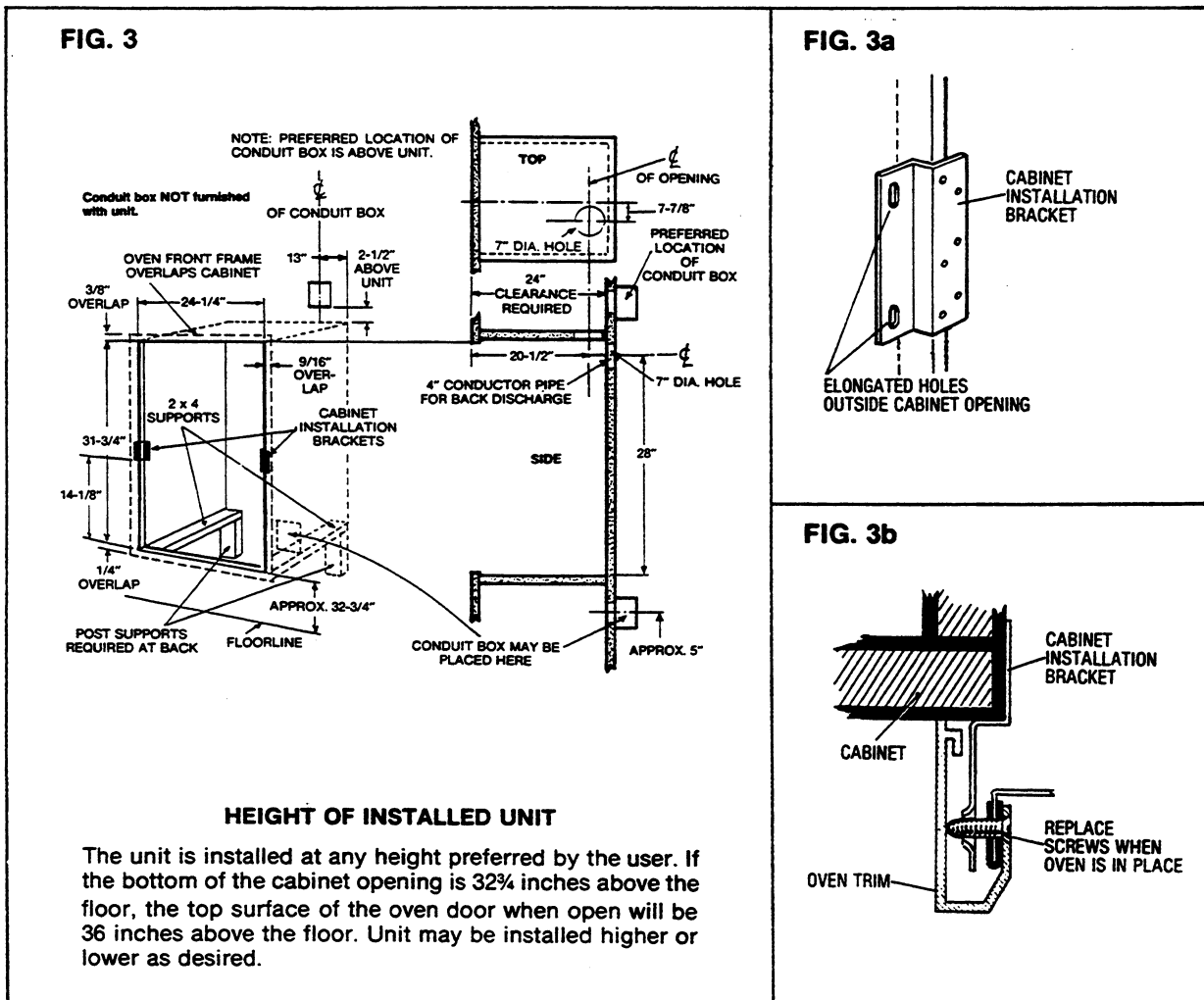


CABINET PREPARATION — Figures 1, 2, and 3

1. The opening in the cabinet should be as shown in Figure 3. The bottom of this opening should be approximately 32 3/4 inches from the floor, depending on the user's preference. **NOTE:** On cabinets faced with a laminate such as formica, trim the laminate back 1/8 inch from opening. Install two 2 x 4's extending from front to back flush with the bottom and sides of the opening. These are for supporting the oven so they should be level and well blocked at the rear wall.
2. Cut 7" diameter hole in top of cabinet for top connected conductor pipe installation as shown in Figures 1 and 3, or in back of cabinet for back connected conductor pipe installation, as shown in Figures 2 and 3. This hole is for easy connection of the conductor pipe for installation and service.
3. Attach cabinet installation brackets at front of cabinet opening as shown in Figures 3 and 3a. Note: Attach upper brackets so that bottom edge of bracket is 14 1/8" above bottom edge of opening. Position brackets with elongated holes outside the cabinet opening and the offset portion of the bracket against face of opening (see Figure 3a).

ELECTRICAL PREPARATION - Figure 3

1. A 48" metallic conduit is supplied with the oven.
2. The electric supply should be 3-Wire, Single Phase, A.C., with a grounded neutral. For voltage, see data plate. **IMPORTANT:** Local codes vary. Installation, electrical connections and grounding must comply with all applicable codes.
3. Install a suitable conduit box (not furnished) in the back wall of the cabinet. See Figure 3. It is the installer's responsibility to locate the conduit box within reach of the supplied oven conduit.





**INSTALLATION
INSTRUCTIONS**

**CMT SERIES DOUBLE
MICROWAVE-THERMAL, SELF-CLEANING
COMBINATION OVEN**

120/240, 120/208 Volt, 3-Wire, Single Phase, 60 Hz., A.C. Requires 50 Ampere Circuit.

PLEASE READ ENTIRE INSTRUCTIONS BEFORE PROCEEDING

CONDUCTOR PIPE CONNECTION PREPARATION - Figures 1 or 2

The Thermador CMT oven must be vented outdoors through a 4" diameter conductor pipe. This conductor pipe can be connected to either top or back of oven. A 4" collar is installed on top of oven at factory for connecting conductor pipe to top of oven with a slip joint (furnished). For connecting conductor pipe directly to back remove collar from top and cover plate from back. Then, install collar on back and cover plate on top. Tighten all screws firmly. The slip joint is not required for connecting conductor pipe to back.

When planning installation, provide for easy access to conductor pipe connection for both installation and future service. If conductor pipe is connected to top of oven, it will be accessible through cabinet doors above oven. Construct top of oven opening as shown in Figures 1 and 3. If conductor pipe is connected to back of oven, it will usually be accessible from other side of wall.

APPLICABLE TO ALL THERMADOR SELF-CLEANING OVENS

Maximum length of 4" diameter conductor pipe that can be used with Thermador Self-Cleaning Ovens is listed below.

This data is based on the installer using a wall or roof cap with not more than .07 inches static pressure. In general, a cap with an opening at least equal to the area of the 4" pipe (approximately 13 square inches) will meet this requirement.

With a wall or roof cap, as specified above, a maximum of 47 feet of 4" conductor pipe can be used.

For each 90° elbow in the run, subtract 3 feet of pipe from the 47 foot maximum.

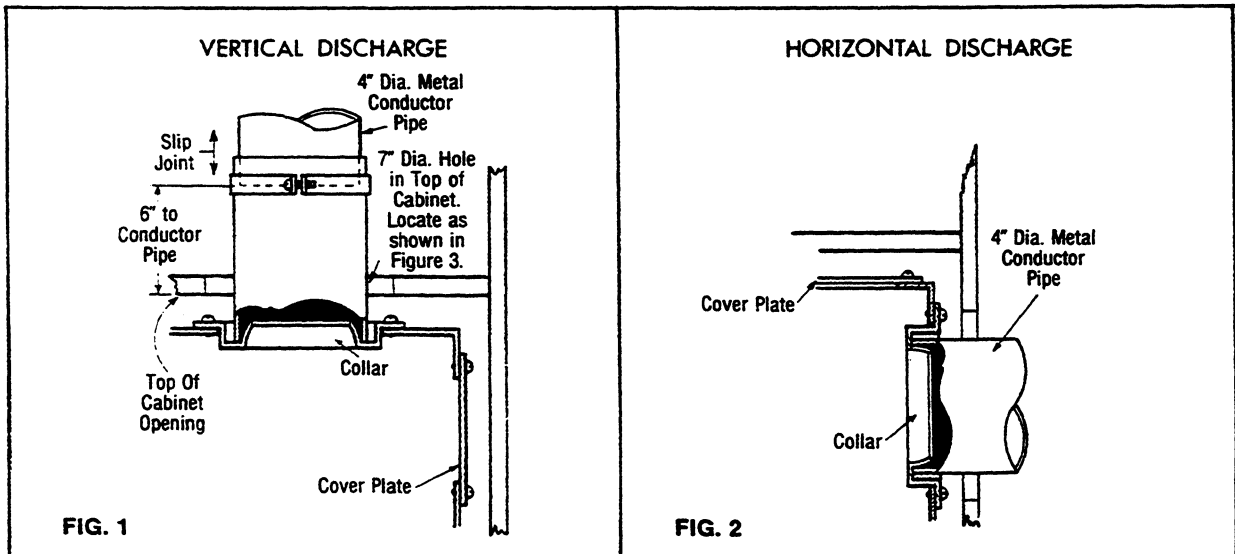
Like all "rules of thumb", this one should be used with judgement.

For unusual installations, a competent ventilating man should calculate the static pressure from friction charts.

The maximum static pressure is .27" H₂O.

MAXIMUM LENGTH	ELBOWS
47'	None
44'	1
41'	2
38'	3

NOTE: REQUIRES ITS OWN SEPARATE METAL CONDUCTOR PIPE TO THE OUTDOORS. DO NOT CONNECT INTO ANY OTHER EXHAUST SYSTEM. PIPE MAY BE SINGLE WALL METAL PIPE INSTALLED WITH "0" CLEARANCE. EXHAUST AIR TEMPERATURE — 194°F (90°C) MAXIMUM.

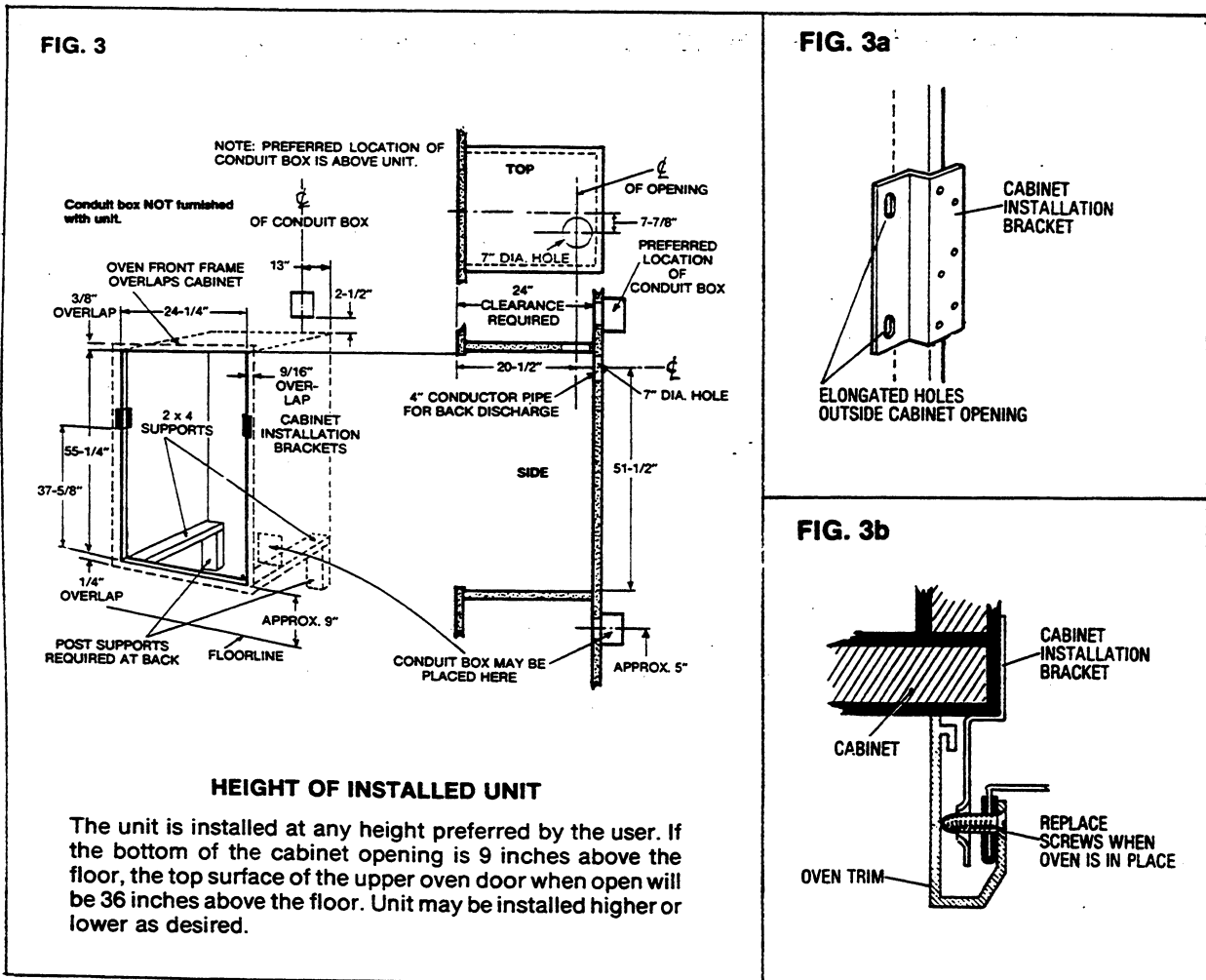


CABINET PREPARATION — Figures 1, 2, and 3

1. The opening in the cabinet should be as shown in Figure 3. The bottom of this opening should be approximately 9 inches from the floor, depending on user's preference. **NOTE:** On cabinets faced with a laminate such as formica, trim the laminate back 1/8" from opening. Install two 2 x 4's extending from front to back flush with the bottom and sides of the opening. These are for supporting the oven so they should be level and well blocked at the rear wall.
2. Cut 7" diameter hole in top of cabinet for top connected conductor pipe installation as shown in Figures 1 and 3, or in back of cabinet for back connected conductor pipe installation, as shown in Figures 2 and 3. This hole is for easy connection of the conductor pipe for installation and service.
3. Attach cabinet installation brackets at front of cabinet opening as shown in Figures 3 and 3a. Note: Attach upper brackets so that bottom edge of bracket is 37 5/8" above bottom edge of opening. Position brackets with elongated holes outside the cabinet opening and the offset portion of the bracket against face of opening (see Figure 3a).

ELECTRICAL PREPARATION - Figure 3

1. A 60" metallic conduit is supplied with the oven.
2. The electric supply should be 3-Wire, Single Phase, A.C., with a grounded neutral. For voltage, see data plate. **IMPORTANT:** Local codes vary. Installation, electrical connections and grounding must comply with all applicable codes.
3. Install a suitable conduit box (not furnished) in the back wall of the cabinet. See Figure 3. It is the installer's responsibility to locate the conduit box within reach of the supplied oven conduit.

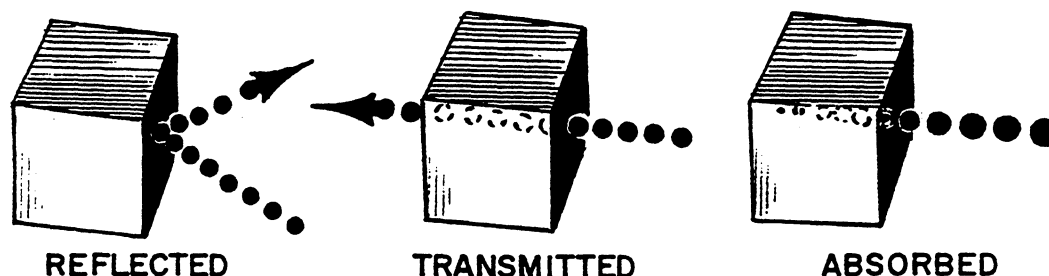


Introduction to Microwave Energy

Microwaves are electromagnetic waves of energy produced by a magnetron tube. The theory of this generation is discussed in another section of this manual under the title of "Magnetron Basics".

There is a direct relationship between Wave Length and Frequency. Wave Length is the speed of light divided by the Frequency. The speed of light is three million meters per second. The frequency of electromagnetic waves in the Thermatronic Oven is 2,450 million cycles per second. So, by applying the preceding formula, the wave length is approx. .122 meters or 4.8 inches. Almost all microwave cooking appliances in use today operate at 2450 megahertz.

Microwaves have many of the same characteristics as light waves. First, they travel in a straight line. They can be generated, and they can be reflected, transmitted and absorbed. The basic difference lies in what materials will reflect, transmit and absorb and how the energy is generated.



The simplest and most common generator for producing light is the light bulb. In a microwave oven the generator for producing energy is the magnetron tube. The magnetron is a vacuum tube which oscillates to generate the microwave energy. In radio and T.V. sets the oscillator circuits consist of a number of vacuum tubes, resistors, capacitors and conductors. In a microwave oven all of these oscillator components are built into the magnetron tube.

The selective characteristics of microwaves make it possible to construct an oven where the walls, ceiling, floor and the cooking container with the door remain comparatively cool. These items will get warm only by the transfer of heat from the food being prepared.

The molecules in food react to the oscillating microwave field. That is, the molecules tend to align themselves with the field. The molecules which make up the food are undergoing positive-negative polarity change (reversal) 2450 million times per second which cause the molecules to change and recharge shape this rapidly. This constant and rapid reversal causes friction between the molecules which produces heat.

As the waves penetrate the food, energy is absorbed by successive layers of molecules. The center molecules are therefore not as active and generate less heat than do the outermost molecules.

Food prepared in a Thermatronic Oven is cooked from the outside "in" as it is in conventional cooking, but at a much faster rate. Time selection is then the only criteria to be concerned with in order to prepare a rare, medium or well done meal in the Thermatronic Oven.

MAGNETRON BASICS

The inner cylinder of Fig.1 represents the heater and cathode. The outer cylinder represents the anode block and "vanes". Heating the cathode loosens the electron bonds, imposing high voltage between the cathode and anode causing electrons to migrate toward the anode.

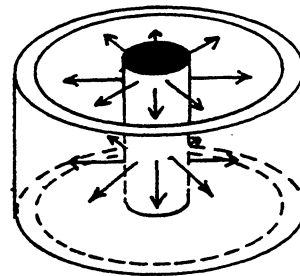


FIG. 1

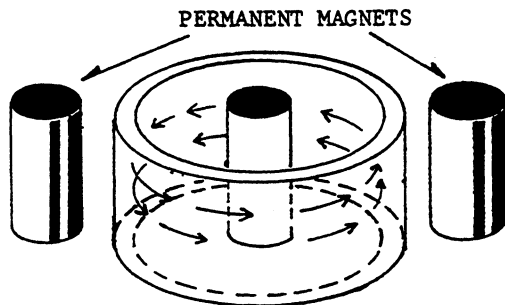


FIG. 2

A magnetic field is imposed parallel to the cylinder (Fig.2). This magnetic field causes the electrons to rapidly spin about the cathode.

Fig.3 is a top view of the cathode, anode and antennae. The spinning electrons between the anode and cathode generate the microwave power which is, in turn, collected by the vanes and transmitted from the magnetron by the antennae.

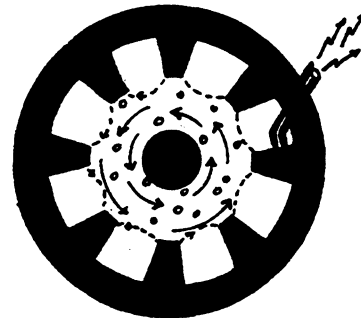


FIG. 3

INTRODUCTION TO THERMATRONIC II

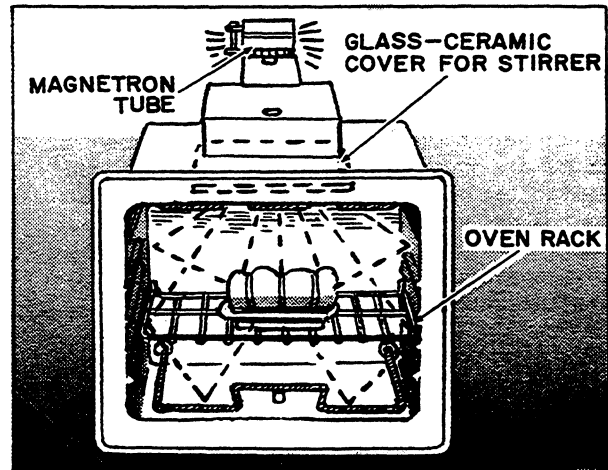
Microwave cooking is a relatively new and efficient means of cooking and is truly a time saver. This Micro-Thermal Oven has been designed to combine the speed of microwaves with the heat of the thermal oven to offer more versatility than is available from each type of oven separately.

The Thermatronic II Oven uses both heat and microwaves for cooking. It contains conventional elements for heating and a magnetron tube for generating microwave energy at a frequency of 2450 megahertz.

The microwaves, generated by the magnetron, pass through a waveguide to a distribution box. The distribution box, which is above the glass-ceramic plate at the top of the oven, contains a slowly rotating fan called a Stirrer. The stirrer distributes the microwaves for uniform cooking results.

PERFORMANCE FEATURES

This oven has all the features of a Thermador self Cleaning Oven - plus fast microwave cooking with three power levels. Each cooking function can be used separately, or they can be used together in a variety of useful combinations



Using Microwaves Only

The oven can be used for cooking or defrosting using only microwave energy, on Low, Medium or High power.

Using Heat Only

The oven can be used for baking, timed baking or broiling using conventional cooking.

Using Combination Cooking

Microwave energy and conventional heat can be used together to obtain the combined benefits of both methods.

Light Bulb Replacement

CAUTION: Before replacing any light bulb, be certain the Oven Light Switch is in the OFF POSITION. Let bulb and cover cool completely.

Replace only with a 40 watt, 120 volt appliance light bulb. DO NOT USE standard household light bulbs in the oven.



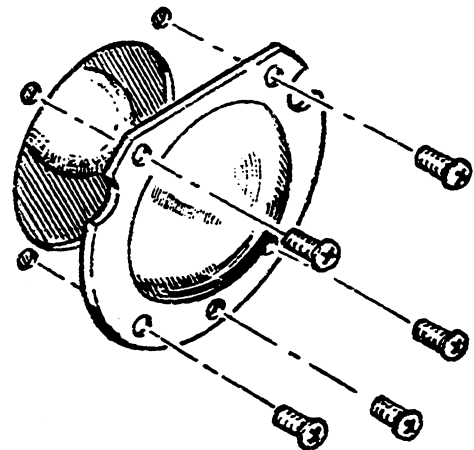
UPPER OVEN

FOLLOW THESE INSTRUCTIONS PRECISELY:

DO NOT operate the oven unless the light cover assembly is securely in place. This cover is a microwave seal; do not, under any circumstances, fail to replace this cover. Be certain that all five screws are tightened securely. If cover, or screws are damaged or broken, do not use the oven until a new assembly is in place.

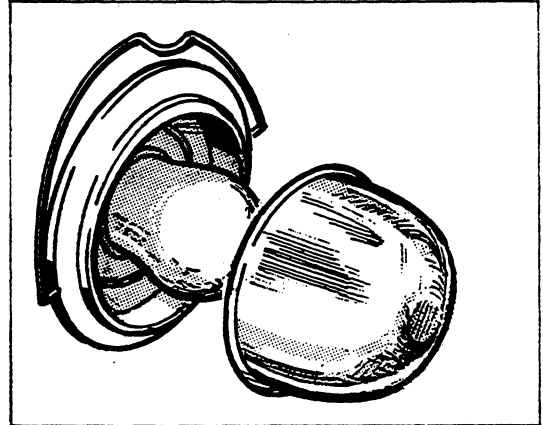
TO CHANGE UPPER OVEN BULB

1. Remove the five screws holding the light cover assembly. Remove cover and replace bulb with appliance light bulb only.
2. Replace cover with straight edge towards top. Replace all FIVE screws securely.



LOWER OVEN

1. Push wire holder up, cupping hand over glass. Cover will fall into hand. Replace bulb with appliance light bulb only.
2. Replace cover and push wire holder down until it pops into place across cover.



Removing the Upper Oven Door

The door used on the CMT-18 and the upper oven of the CMT-20 is a CMT-2BG door. This door is not to be removed by the customer. However, it may be removed by the Service Technician for servicing. Loosen the hex head screw in the side frame, (see Fig. 1) then remove anti removal plates, (see Fig. 2). Now the door is closed to the broil position and it may now be lifted off. **CAUTION:** Do not allow door hinges to spring back against oven liner.

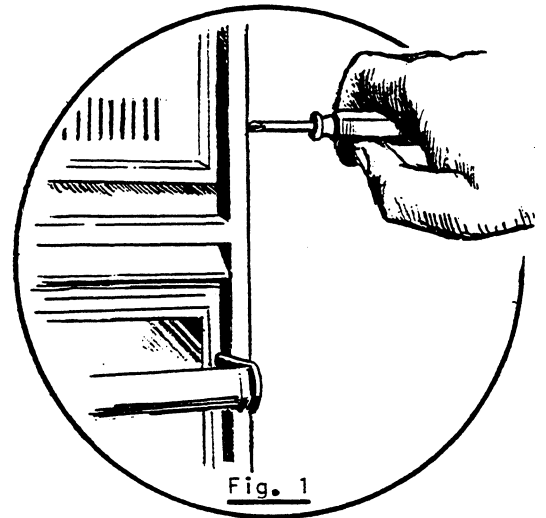
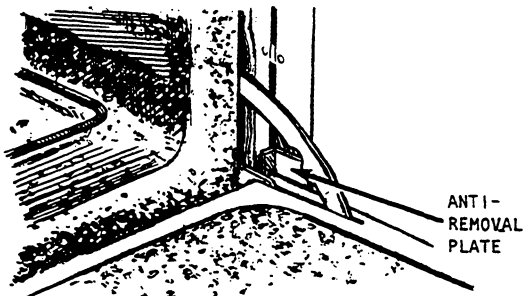


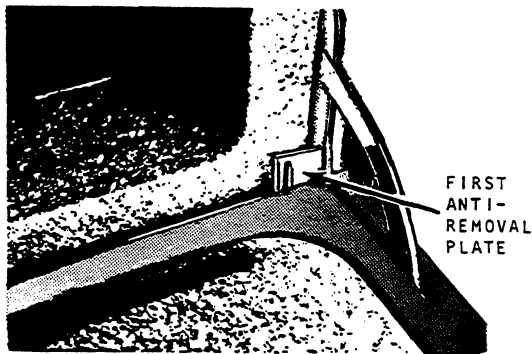
Fig. 1



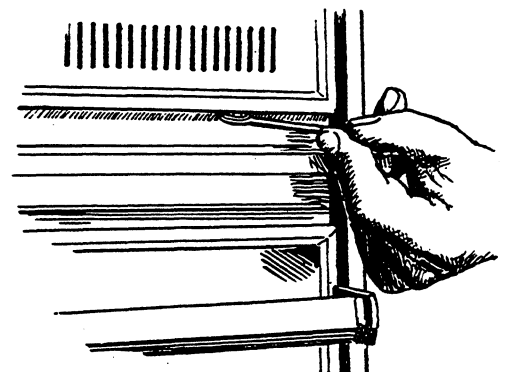
ANTI-REMOVAL PLATE

Fig. 2

LOCATION OF HEX. SCREW ON EARLY MODELS



FIRST ANTI-REMOVAL PLATE



Self-Cleaning Section Oven Calibration

Bake calibration means adjusting so that the oven temperature agrees with the dial. Oven temperature swings between cutout (element off) and cutin (element on). The difference is called the differential. The differential is about 15 degrees F. in an empty oven. It is not adjustable and varies with the oven load. A signal light goes out at cutout and comes on at cutin. Average oven temperature is about halfway between cutout and cutin.

Clean calibration means adjusting to maintain oven temperature at 900 degrees F. Ovens will clean at 850 degrees F. but superior results are obtained with 900 degrees F. minimum. A signal light indicates cutin and cutout points. Average oven temperature is about half-way between cutout and cutin.

For accurate calibration some means of measuring the internal oven temperature must be at hand.

Baking temperatures within 20 degrees F. of the dial setting are best left alone. this amount of variation cannot normally be noticed in cooking results. Most users seem to prefer calibration with the dial setting in agreement with the cutin point. Average temperature is then slightly higher than dial setting and the user has a "faster" oven.

When calibrating always allow oven temperature to stabilize through several cutout, cutin cycles before making adjustment.

CALIBRATION

This oven has a line voltage thermostat. Bake and clean temperatures are calibrated at the thermostat. Thermostat includes a latch locking switch calibrated to open at 550 degrees F. This calibration is sealed. See screw "C" on illustration.

BAKE CALIBRATION- CALIBRATE AT 350 DEGREES F.

Turn screw "A" clockwise to decrease oven temperature, counter clockwise to increase. One mark equals about 16 degrees F.

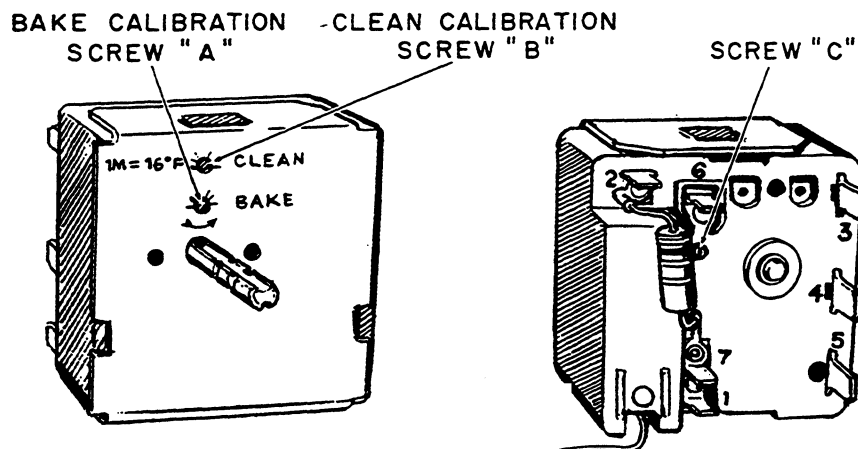
NOTE 1 - Calibration screws are accessible by pulling off knob.

NOTE 2 - If baking temperature is off more than 50 degrees F. change thermostat.

NOTE 3 - Bake calibration does not affect clean calibration.

CLEAN CALIBRATION

Turn screw "B" clockwise to decrease temperature, counter clockwise to increase. One mark equals about 16 degrees F. NOTE: Clean calibration does not affect Bake calibration.



In this thermostat there are three switches. We will refer to these switches as K1, K2, and K3.

K - 1 is closed between terminals 4 and 5 in bake and broil. It is open in clean and off.

K - 2 is between terminals 1 and 3, and cycles Open and Closed.

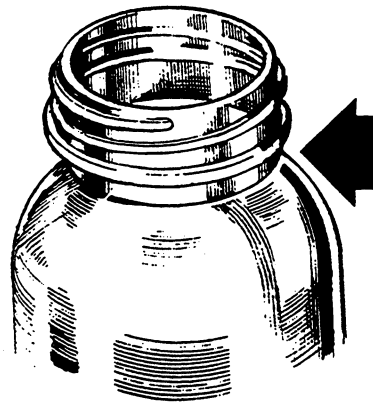
K - 3 is closed between terminals 6 and 7 below 550 degrees F. Above this temperature, this switch opens the circuit to unlock the oven door. Therefore above 550 degrees F. the oven door is locked closed.

Microwave Oven Performance Check of CMT Ovens

Following is the procedure you must follow to check the performance of these ovens:

- A. Materials needed-
 1. Farenheit thermometer
 2. One Mason or Ball quart jar
- B. Fill the jar exactly to the point shown on the illustration with cold tap water. Use fresh water for each test.
- C. Measure the temperature of the water in the jar and write down the reading.
- D. Place the jar of water in the center of the microwave oven shelf.
- E. Operate the unit on HIGH for exactly two-minutes, using a second hand of a watch rather than the unit timer, for exact timing is essential in this check.
- F. After the two-minute operation, remove the water and stir for ten seconds with the thermometer. Read the temperature.
- G. Subtract the first temperature recorded from the present reading. This will be the temperature rise in degrees fahrenheit.
- H. You should read 27 degrees rise in water temperature.

This test should be performed at least three times in order to narrow the margin of error. If your reading should fall below the 27 degrees fahrenheit minimum, check the unit capacitor, transformer and magnetron tube for proper operation



Lower Oven Door Removal and Installation

- Refer to Fig.1 and identify parts of the oven door hinges.
- At each hinge, push the latch "B" down until it contacts the hinge bracket "C" below notch "D".
- Grasp the door in both hands and raise it slightly. Note that latch "B" will automatically enter notch "D". Slide the door off hinge arms "A" by pulling outward at a slight upward angle.

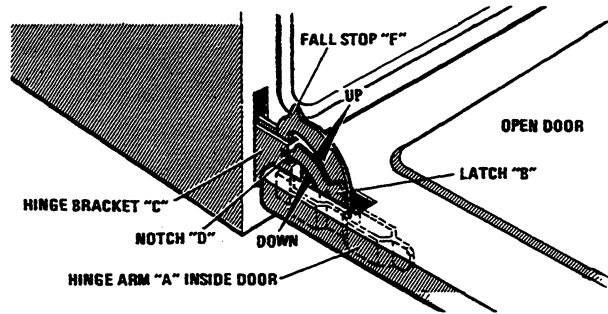


FIG. 1

CAUTION

SPRING LOADED HINGES

- Note that hinges are now locked open by latches "B". To close hinges, hold hinge arm down and lift latch "B", then carefully raise hinge arm. Without the weight of the door, the powerful door return springs will forcefully snap the hinges closed.
- To reopen hinges force hinge arm down and engage latch "B" in notch "D". To install the oven door, simply slide it on hinge arms "A" and lift latches "B".

HINGE ARMS, ROLLERS, CABLES & SPRINGS

- Remove oven door.
- Pull oven about half-way out of the cabinet.
- Attach length of wire to door spring. Pull to extend spring and unhook cable. Note to which of the three hooks spring was attached and attach spring to the same hook when reassembling.

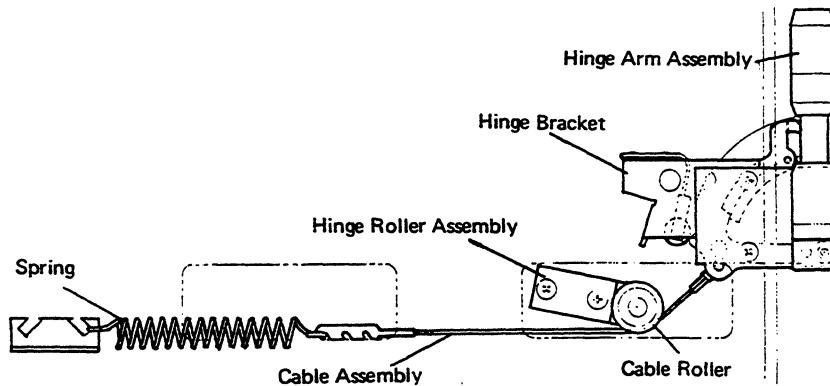


FIG. 2 DOOR HINGE ASSEMBLY,

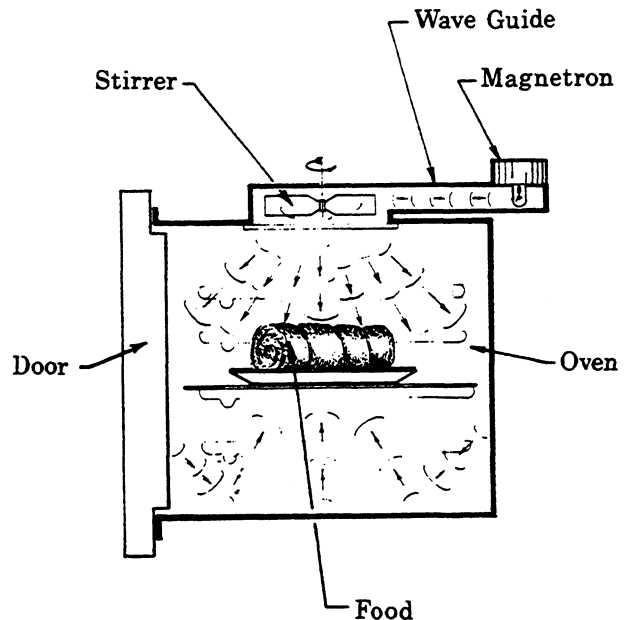
Microwave Energy Transmission

From the Magnetron Tube, the microwave energy must be transmitted to the food within what is referred to as the "Food Cavity". It is important that when the energy reaches the food it will be heating evenly. This is easy to do since microwaves obey the same laws as light waves.

The Microwave Antennae protrudes into a "Wave Guide" which channels the power into the "Food Cavity". Immediately below the opening is a four bladed "Stirrer". The microwave energy transmitted through the opening strikes the rotating stirrer and, in turn, scatters the energy in such directions as to reflect off of all sides of the oven enclosure. Thus, the power enters the food in every direction which permits an even heating pattern.

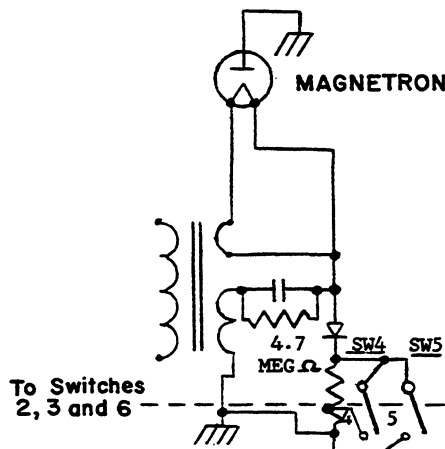
Food which is being prepared is placed on a glass shelf. This is made of a special quality of glass that is "transparent" to microwave energy, allowing the microwaves to also enter the food from the bottom level.

On the 240 Volt models, both microwave and thermal features may be utilized at the same time. Once generated, the microwaves must be contained so that only the food is heated. The food cavity components are constructed of materials which reflect, transmit or absorb power depending on their intended function.



The wave guide is a rectangular piece of sheet metal (stainless steel) approximately two by four inches. This channel sends the power from the magnetron into the oven cavity.

The opening below the stirrer serves as a window to transmit the power into the food cavity.



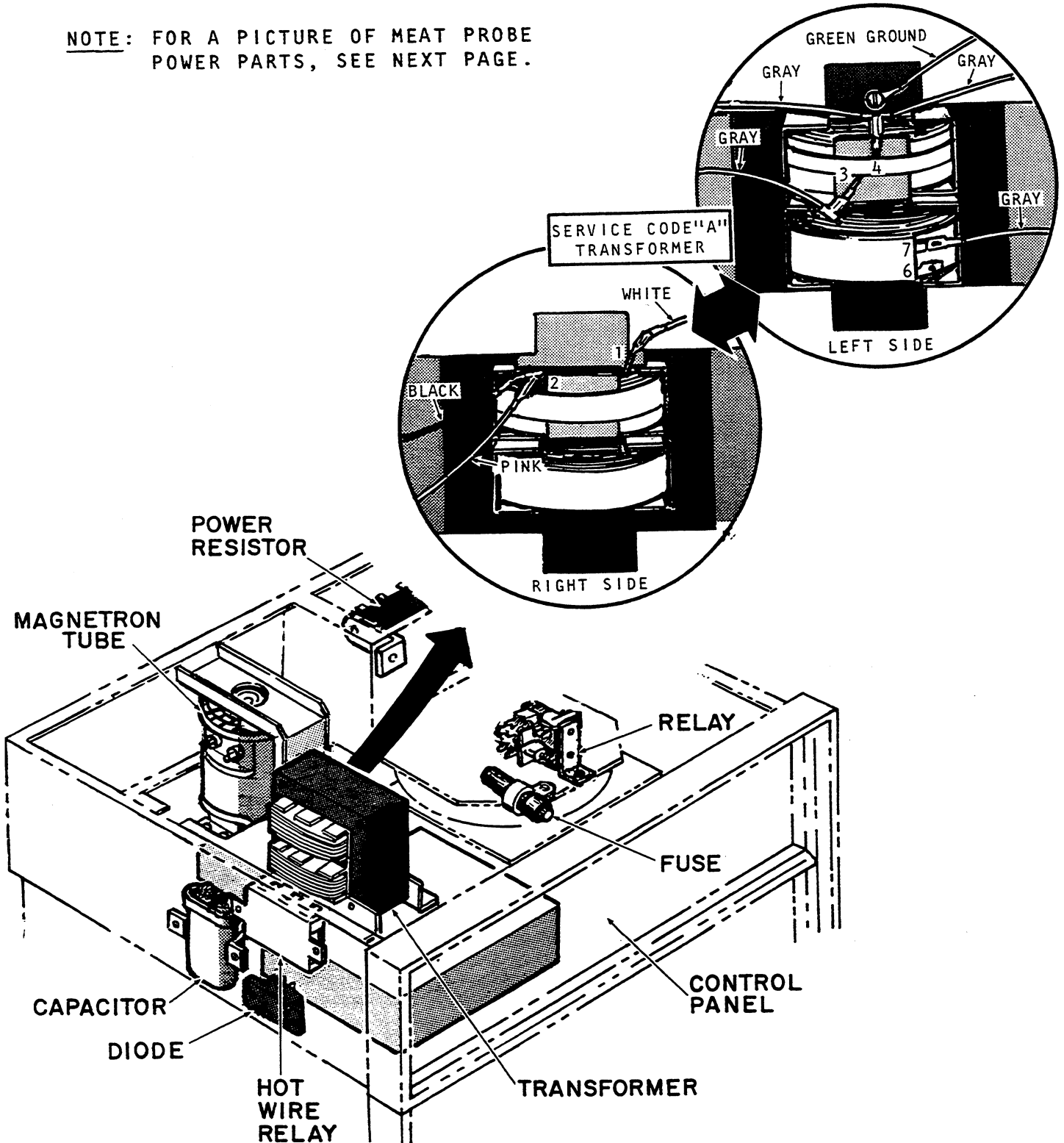
Variable Power

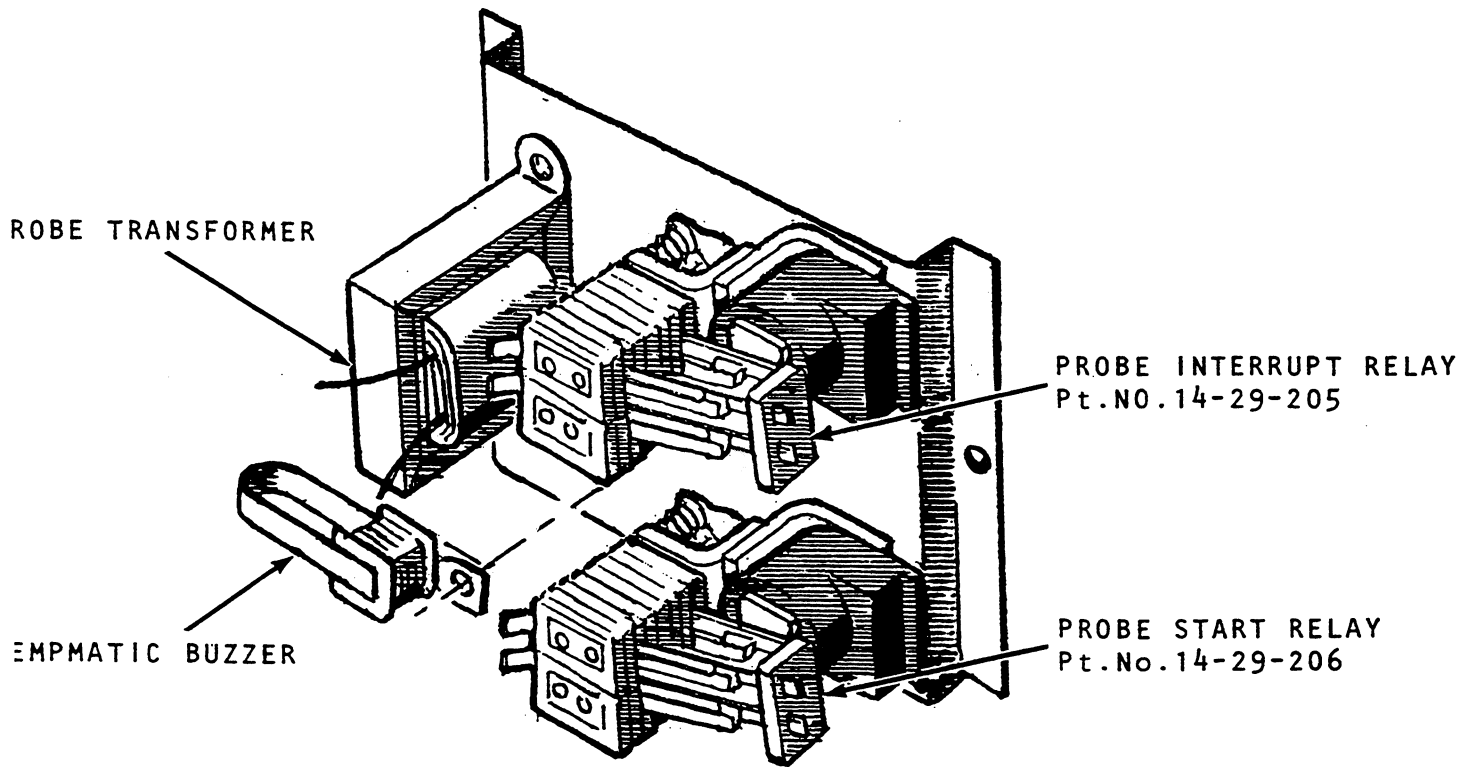
This feature facilitates defrosting and cooking of more delicate recipes. It is operated by a pushbutton with low, medium and high settings. This is accomplished with a power resistor which varies the current to the magnetron tube. The approximate power outputs are:

- LOW - 270 watts
- MEDIUM - 380 watts
- HIGH - 525 watts

LOCATION OF MAIN POWER COMPONENTS

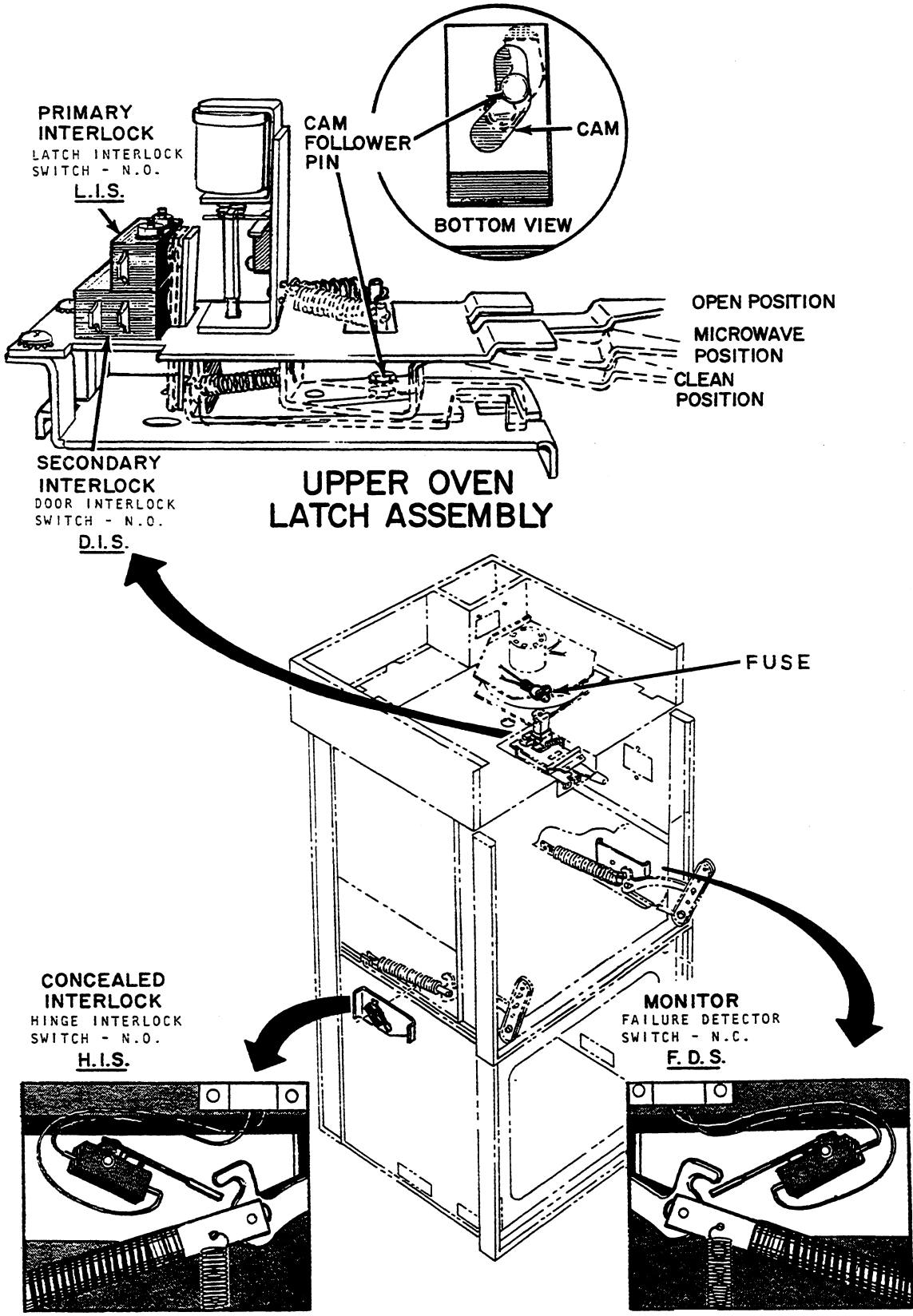
NOTE: FOR A PICTURE OF MEAT PROBE POWER PARTS, SEE NEXT PAGE.





MEAT PROBE POWER PARTS
Located Behind Control Panel
on Models CMT-19 & CMT-21 Only

SAFETY SWITCHES

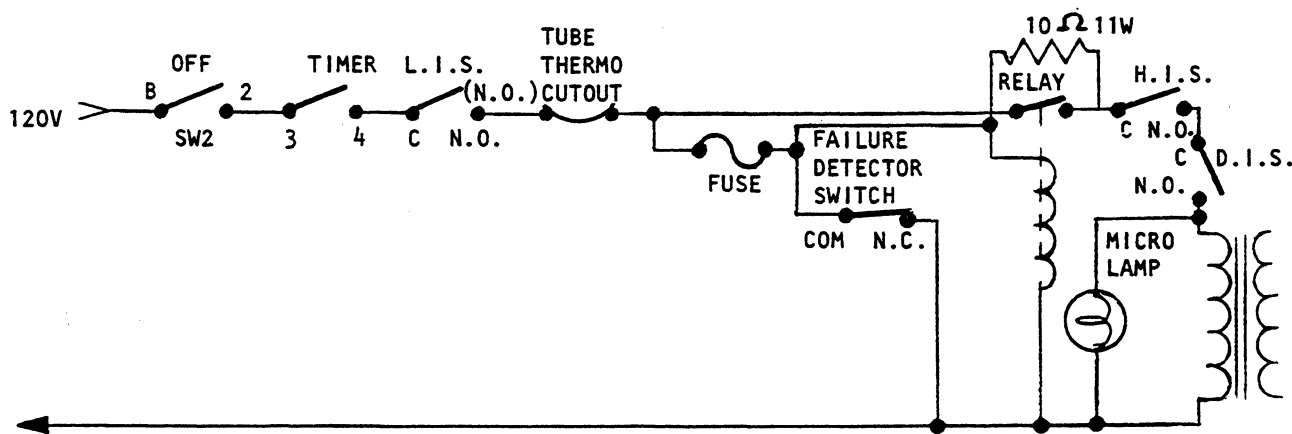


Microwave Fuse Failure

The purpose of the fuse system is to prevent operation of the unit in the event of an interlock switch failure. This leaves no possibility of the unit emitting microwave energy with the door open. Following is a description of the switches and the explanation of that system.

The Latch Interlock Switch (L.I.S.) and the Door Interlock Switch (D.I.S.) are both mounted on the back end of the latch assembly (see "Safety Switches" illustration). They are operated by the movement of the door latch lever.

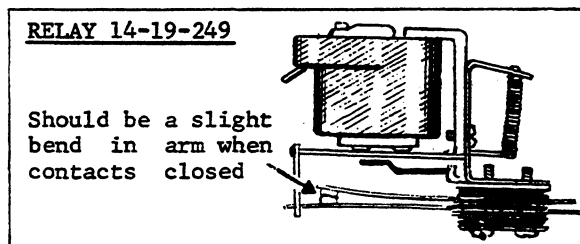
The Failure Detector Switch (F.D.S.) and the Hinge Interlock Switch (H.I.S.) are mounted behind both door hinge mounts and are operated by the door movement as shown.



Normally, with the oven door closed and the unit energized, current travels through the series of switches to the timer switch, from the timer switch through the 2 amp fuse and the 10 ohm surge resistor for 15 milliseconds. After the 15 milliseconds, the relay will close, shunting out the resistor. The current will then flow directly through the D.I.S. and relay. The only current now flowing through the fuse is 80 milliamps to the relay coil. If the L.I.S. fails in a closed position, the D.I.S. and H.I.S. are open. The F.D.S. is closed with the door open. Therefore, current will then flow from the timer switch through the two amp fuse, then through the F.D.S. directly to ground, creating a dead short which will rupture the fuse and open the circuit.

FUSE FAILURE MODES

- A. Latch Interlock Switch (L.I.S.) tacks closed - fuse blows in about 1/10 of a second. See point "B" on fuse illustration.
- B. Door Interlock Switch (D.I.S.) fails to close - fuse blows in about 8 seconds (up to 25 seconds with the 14-19-770 fuse) and the 10 ohm resistor will be hot.
- C. Failure Detector Switch (F.D.S.) fails to open - will not microwave. Fuse blows in about 1/10 of a second.



- D. Relay fails to close - fuse will blow in about 8 seconds (up to 25 seconds with the 14-19-770 fuse) and the 10 ohm resistor will get hot.

When the contacts close but do not wipe as they close, arcing can occur and no electrical current will pass through the contacts, therefore blowing the fuse at point "A" on the illustration. Generally the unit will work for a period of about a week before it stops because of the fuse. A visual inspection of the relay and its contacts will determine if the part is good.

The Micro Lamp Light is an indicator of the condition of the fuse. When this light is on, the fuse is good. This light also indicates that the transformer is energized. This light **MUST ALWAYS GO OUT** when the door opens. If this light is on with the door open, there should be a short circuit between the infra-red and microwave circuits.

REASONS FOR A BLOWN FUSE

- A. L.I.S. momentarily tacks closed. **DO NOT ATTEMPT REPAIR.**
- B. Relay is not closing rapidly enough

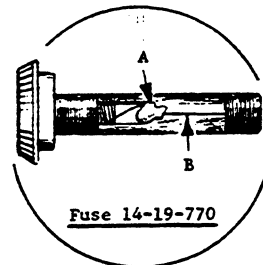
In order to prevent repeat service calls on a fuse failure, the following is suggested:

- A. Place an ohmmeter on the terminals of the door interlock switch (D.I.S.) and open and close the door latch to see if the switch is operating properly.
- B. While closing the latch, also observe the operation of the L.I.S. switch above the D.I.S. Also open and close the oven door and check the Failure Detector Switch (F.D.S.)
- C. After these steps, replace the fuse with Part No. 14-19-770;

By observing the condition of this fuse when and if it fails, the repairman will have a clue as to the cause of the failure

The fuse will fail at point "A" on illustration if:

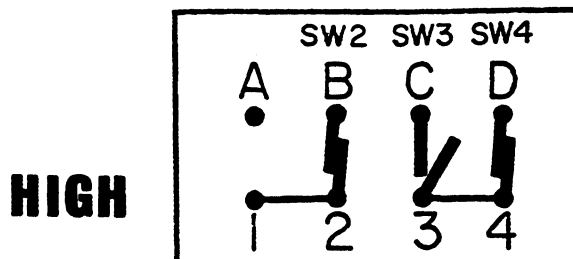
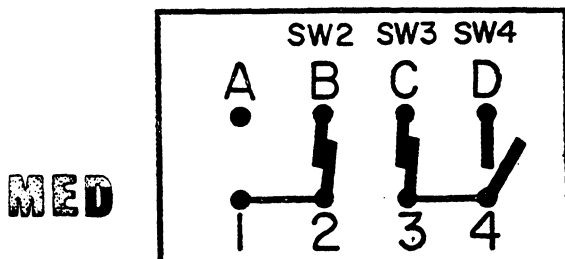
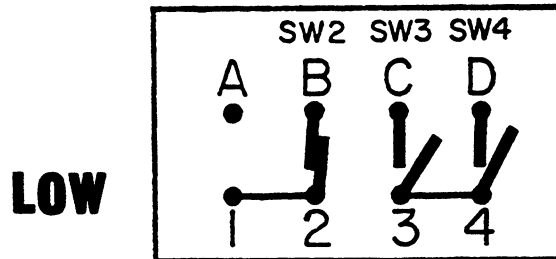
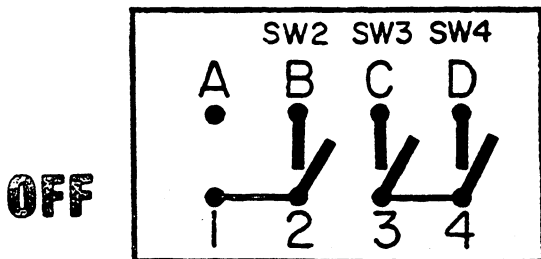
- 1. The relay does not close every time.
- 2. The D.I.S. does not close.



This failure may take up to 25 seconds from the time the unit is turned on.

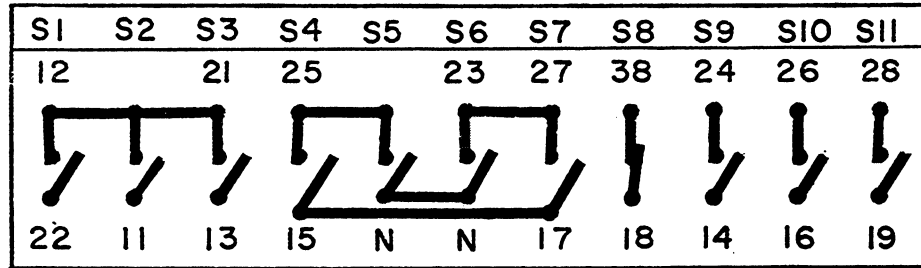
The fuse will fail at point "B" if the L.I.S. fails to open. This failure takes about 1/10 of a second.

MICROWAVE SELECTOR SWITCH 14-19-876

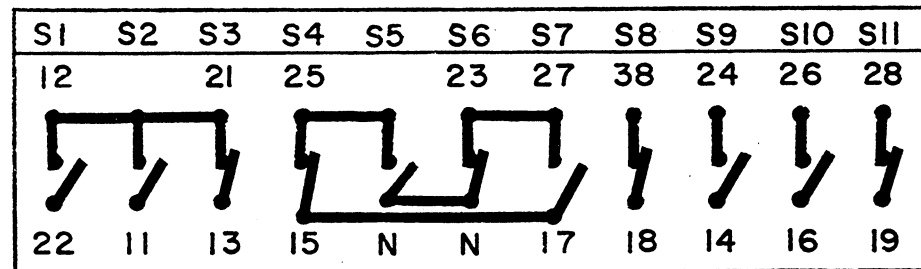


SELECTOR SWITCH-THERMAL-14-19-694

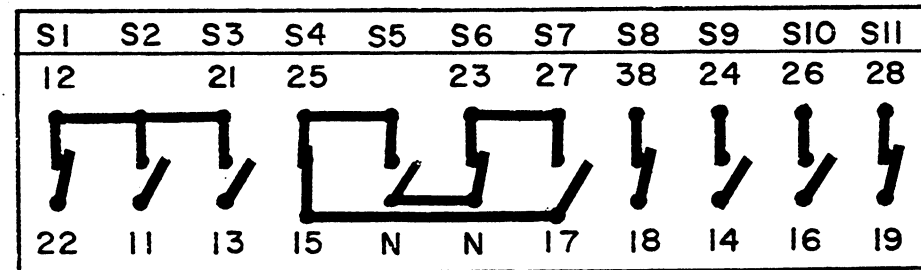
OFF



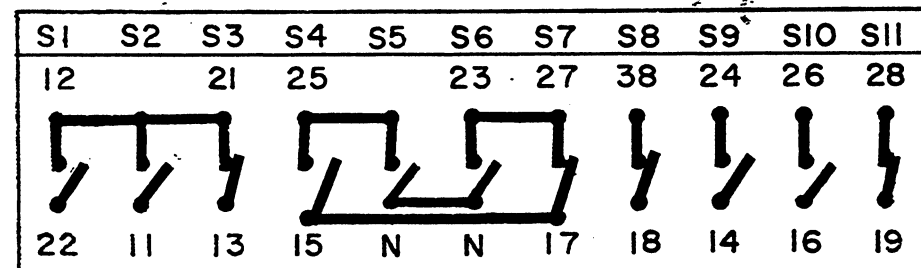
BAKE



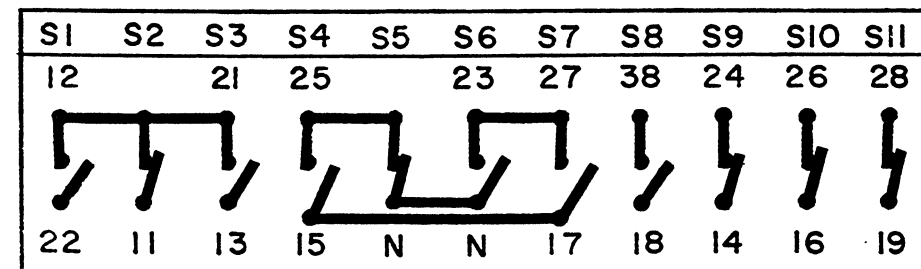
**TIMED
BAKE**



BROIL



CLEAN



FOR ONE CELL OR UPPER OVENS

240 V

	L_1	N	L_2
BAKE	$11.25A + 7.5 = 18.75A$	7.5A	11.25A
BROIL	15A	0	15A
CLEAN	$5.63 + 7.5 = 13.13A$	5.63A	7.5A
MICRO.	0	14.7A	14.7A

NOT INCLUDING LIGHTS AND MOTORS(.8A)
 30 AMPS BROIL + 14.7 MICROWAVE = 44.7 FOR L2

208V

	L_1	N	L_2
BAKE	$13A + 8.65A = 21.65A$	8.65A	13A
BROIL	17.3A	0	17.3A
CLEAN	$6.5A + 8.65A = 15.15A$	6.5A	8.65A
MICRO.	0	14.7A	14.7A

NOT INCLUDING LIGHTS AND MOTORS (.8A)
 34.6 AMPS BROIL + 14.7 MICROWAVE = 49.3 A FOR L2

Forced Air Cooling and Ventilating

The self-cleaning oven has a forced air cooling and ventilating system comprising...

1. A 150 CFM centrifugal blower driven by a ball-bearing motor. The blower is mounted behind the control panel.
2. An air jacket between the oven insulation and the sub-body sides, a sub-body top and back wire cover. The air jacket contains the insulation and forms an air passage along both sides, up the back and across the top of the sub-body.
3. Grease filters in the oven front frame just below the deflector above the oven door.
4. Oven vent openings in the front flange of the oven at the top.
5. Air intakes between the front frame and the cabinet along both sides and across the bottom. The front frame is spaced away from the cabinet by plastic spacers to form the air intake.
6. Air discharge opening with a 4" diameter collar for connecting to an outside vent with a four inch conductor pipe.

When the blower is operating, air is drawn in between the cabinet front and the oven front frame along the sides and across the bottom. This air passes between the sub-body sides, the back wire cover, and the air jacket cooling both the front frame and the sub-body.

At the same time both fresh room air and hot air from inside the oven is drawn through the grease filters. The amount of room air is large compared to the amount of hot air from the oven. In this way, the filters are kept relatively cool so that the grease in the oven air will condense properly.

The air flow from all the intakes is so proportioned that temperatures on all adjoining cabinet surfaces are held well below the U.L. limit of 194 degrees F. At the same time, excessive cooling of the air jacket is avoided to minimize heat losses through the oven insulation.

As a result, the temperature of the air being discharged into the conductor pipe is held to about 160 degrees F. with the oven at 900 degrees F. This permits the use of plain conductor pipe which can be installed without special heat insulation.

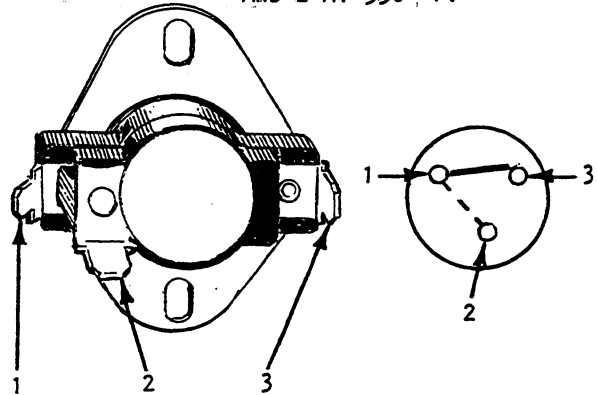
Blower Operation

BLOWER THERMOSTAT(14-19-366)

The blower is operated as follows:

1. Whenever the switch and the timer are set on "Clean", the blower runs.
2. As the oven temperature rises, a thermostat closes and furnishes a parallel source of power to the blower.
3. When the switch and timer turns the 900 degree F. oven "Off" at the end of the cleaning operation, the thermostat will keep the blower running until the oven cools. See illustration.
4. A switch on the control panel can be used to turn the blower on for baking or broiling.

N.C. 1 AND 3 OPENS
BETWEEN 1 AND 3 AND
CLOSES BETWEEN 1
AND 2 AT 550 °F.



As explained above under Forced Air Cooling and Ventilating, the self-cleaning oven is air-cooled so that safe temperatures are not exceeded on adjoining cabinets when the oven is at 900 degrees F. But if the blower stopped when the oven was turned off at the end of the cleaning cycle, the residual heat in the oven would quickly soak through and the oven front frame and sub-body would become very hot. The blower thermostat prevents this by taking over control of the blower until the oven cools down.

If the oven is used for baking at a high temperature for a relatively long time, or is used on high broil used on high broil for a long time, the blower thermostat will start the blower. Since the thermostat detects only heat, it cannot differentiate between "cooking" heat and "cleaning" heat and will turn the blower on regardless of what is going on in the oven.

The switch on the control panel is marked "Fan". It has two positions marked "Auto" and "On". When the switch is "On", the blower will run continuously.

When the switch is in the "Auto" position, the blower will operate as described in 1, 2, and 3 above.

SWITCH CONTINUITY TESTS

Caution: To avoid electrical shock, always unplug the unit or turn off proper switch at the circuit breaker before performing any continuity tests.

All CMT microwave ovens use normally open (N.O.) interlock switches and normally closed (N.C.) monitor switches. These facts simplify interlock and monitor switch testing.

EITHER LATCH OPERATED INTERLOCK SWITCH

1. Zero ohmmeter on lowest scale.
2. Attach ohmmeter between COM and N.O. terminals.
3. With door latch open, ohmmeter shall indicate an open switch.
4. With door latch in microwave position, ohmmeter shall indicate a closed switch.

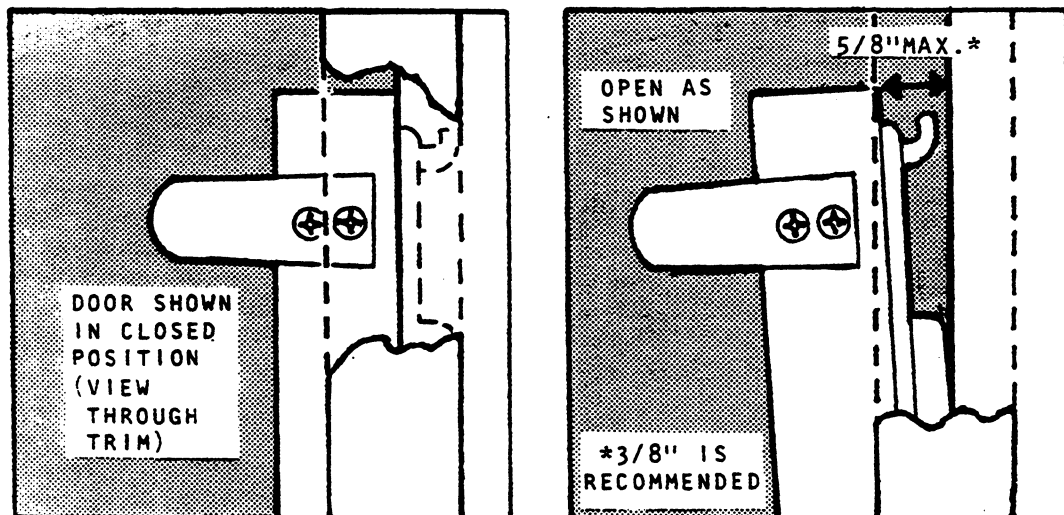
HINGE OPERATED INTERLOCK SWITCH

1. Zero ohmmeter on lowest scale.
2. Attach ohmmeter between COM and N.O. terminals.
3. With door closed, ohmmeter shall indicate a closed switch.
4. Slowly pull door open; by the time the door has moved $5/8$ " , the ohmmeter shall indicate an open switch. Refer to the illustration below.

HINGE OPERATED MONITOR SWITCH

1. Zero ohmmeter on lowest scale.
2. Attach ohmmeter between COM and N.C. terminals.
3. With door closed, ohmmeter shall indicate a open switch.
4. Slowly pull door open; by the time the door has moved $5/8$ inches, the ohmmeter shall indicate a closed switch. Refer to the illustration below.

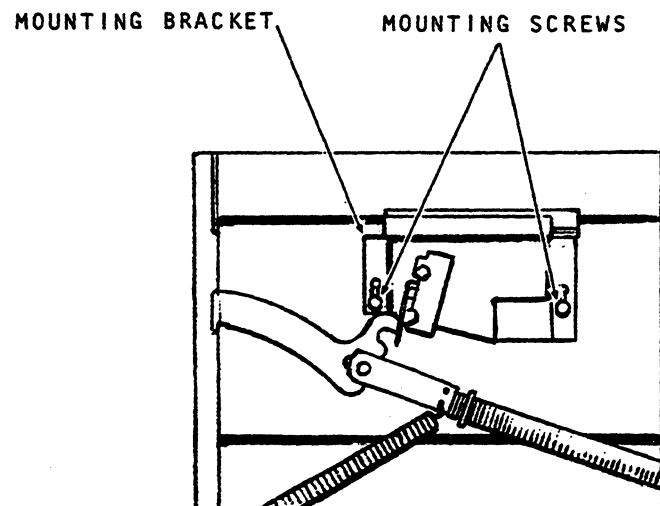
Noted on the illustration is the maximum condition. We recommend that the operating point of these switches be set at $3/8$ of an inch instead of the $5/8$ maximum.



BRACKET ADJUSTMENT AND ALIGNMENT

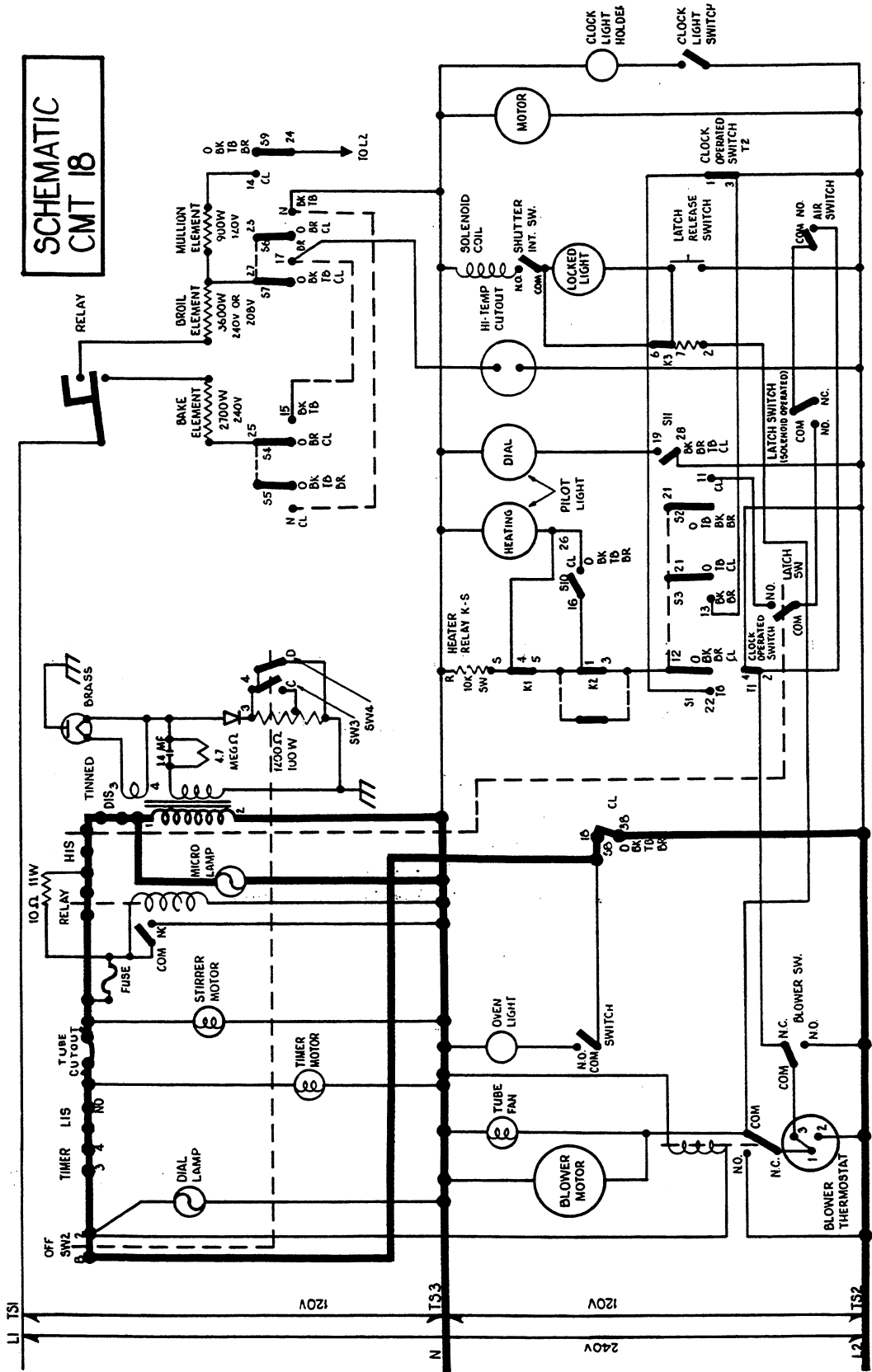
ADJUSTMENT OF THE HINGE INTERLOCK SWITCH AND MONITOR SWITCHES ARE MADE AS FOLLOWS:

1. Loosen mounting bracket screws.
2. Adjust mounting bracket vertically to achieve correct operation point of switch.
3. Retighten mounting bracket screws.
4. Verify correct adjustment by using appropriate test outlined on previous page.

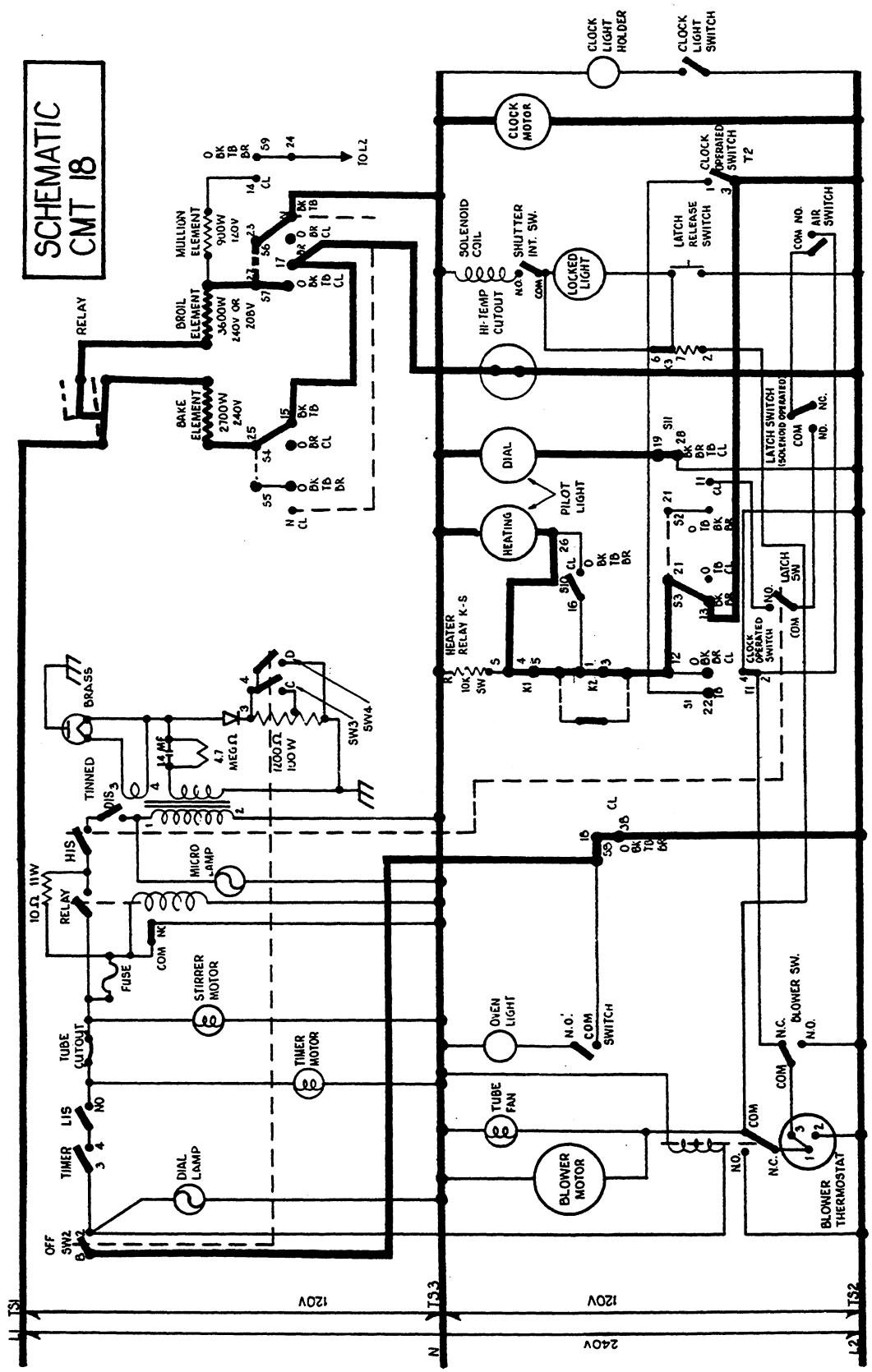


NOTE: Refer to page 17 of this book for location picture of the Hinge Interlock and Monitor Switches.

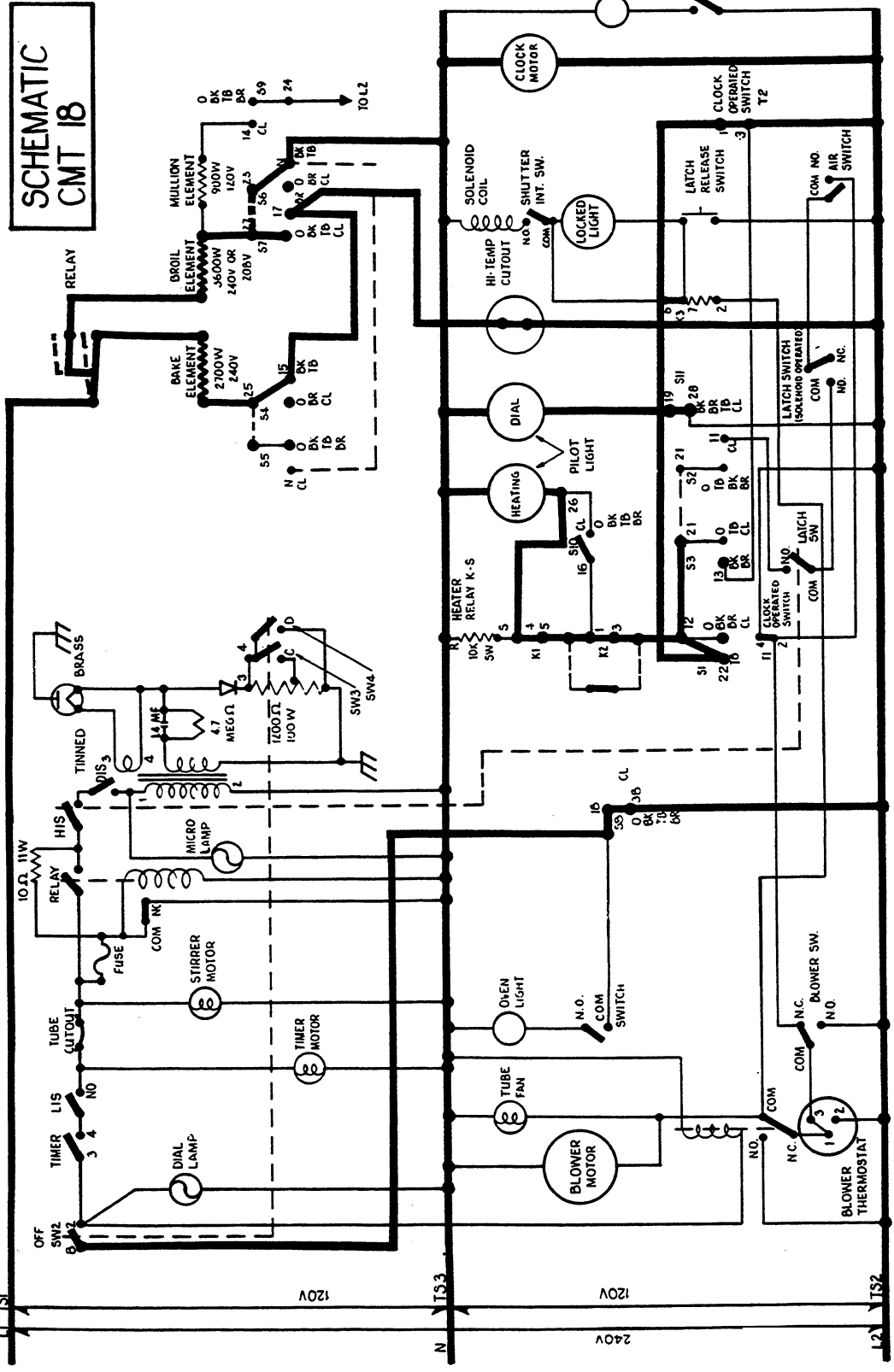
CURRENT FLOW SCHEMATICS



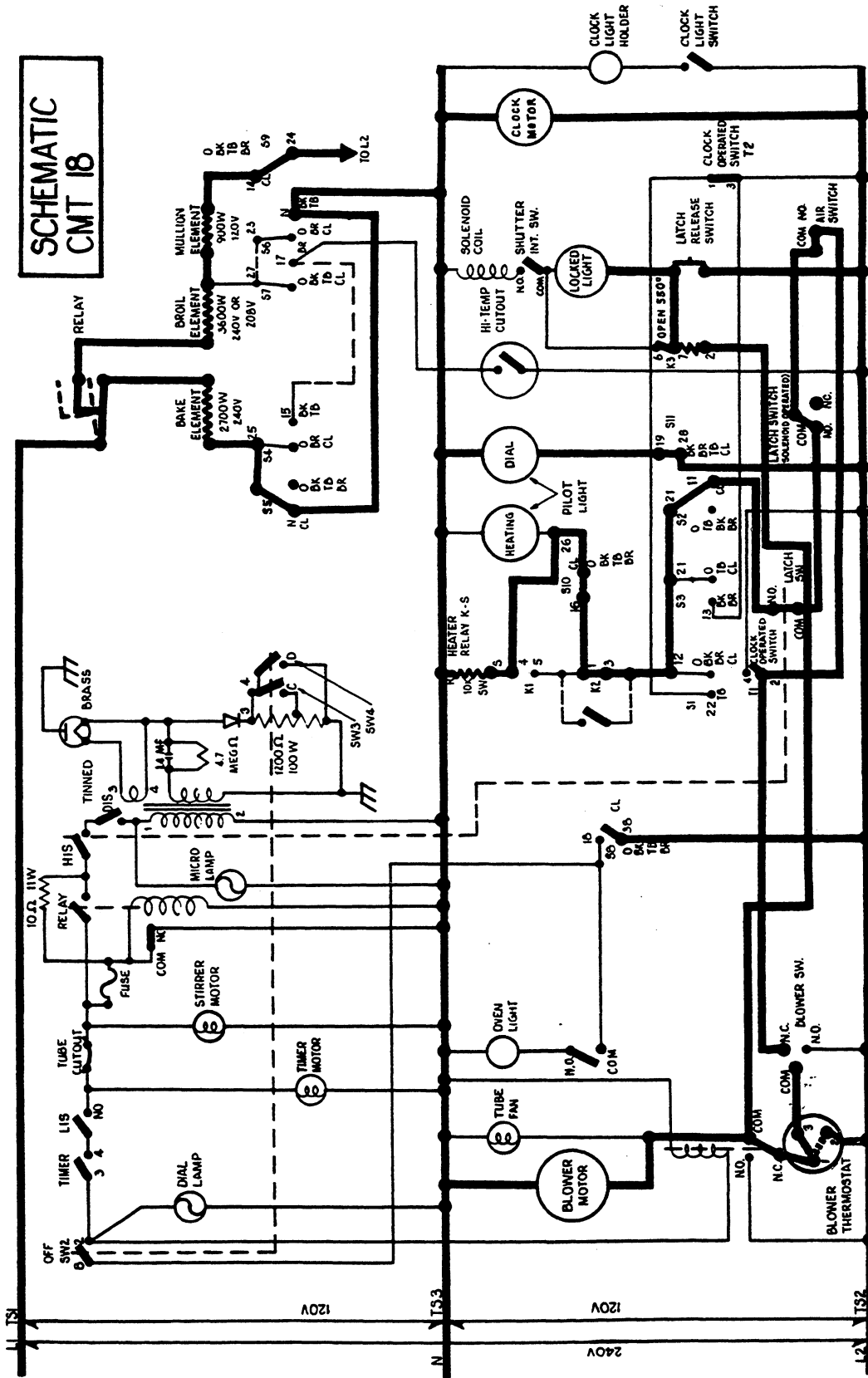
MICROWAVE HIGH



BAKE

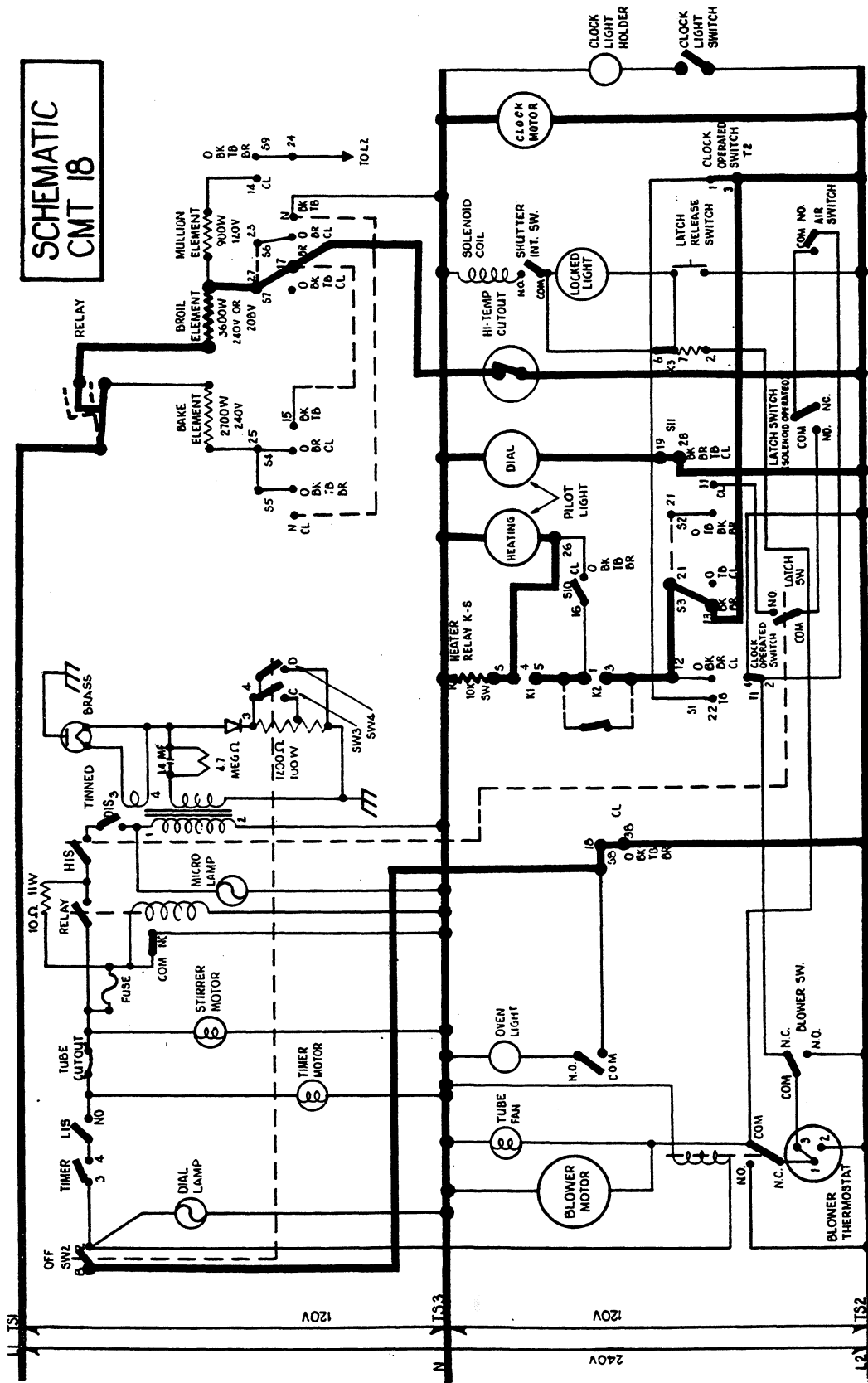


TIME BAKE



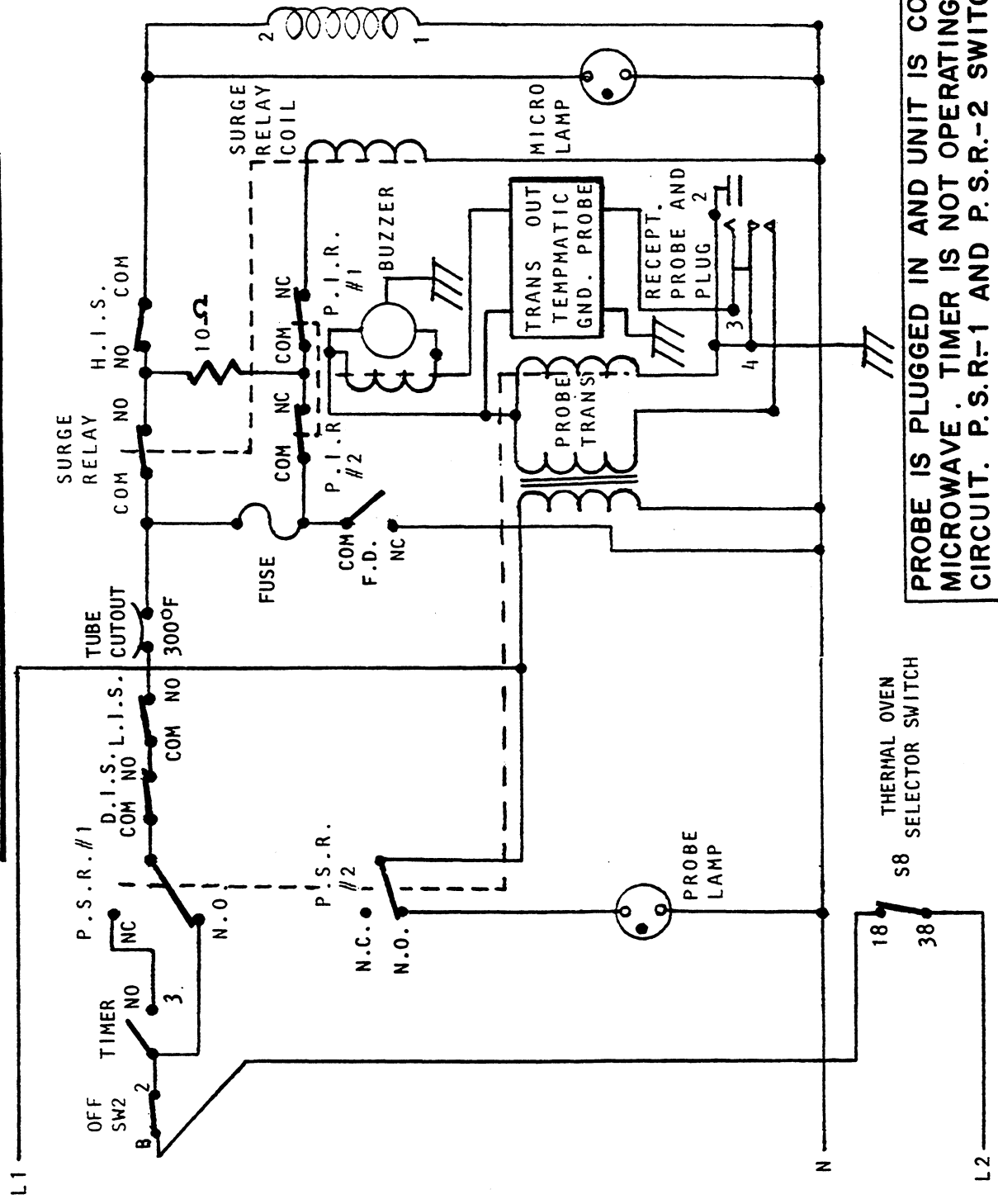
CLEAN

**SCHEMATIC
CMT 1B**



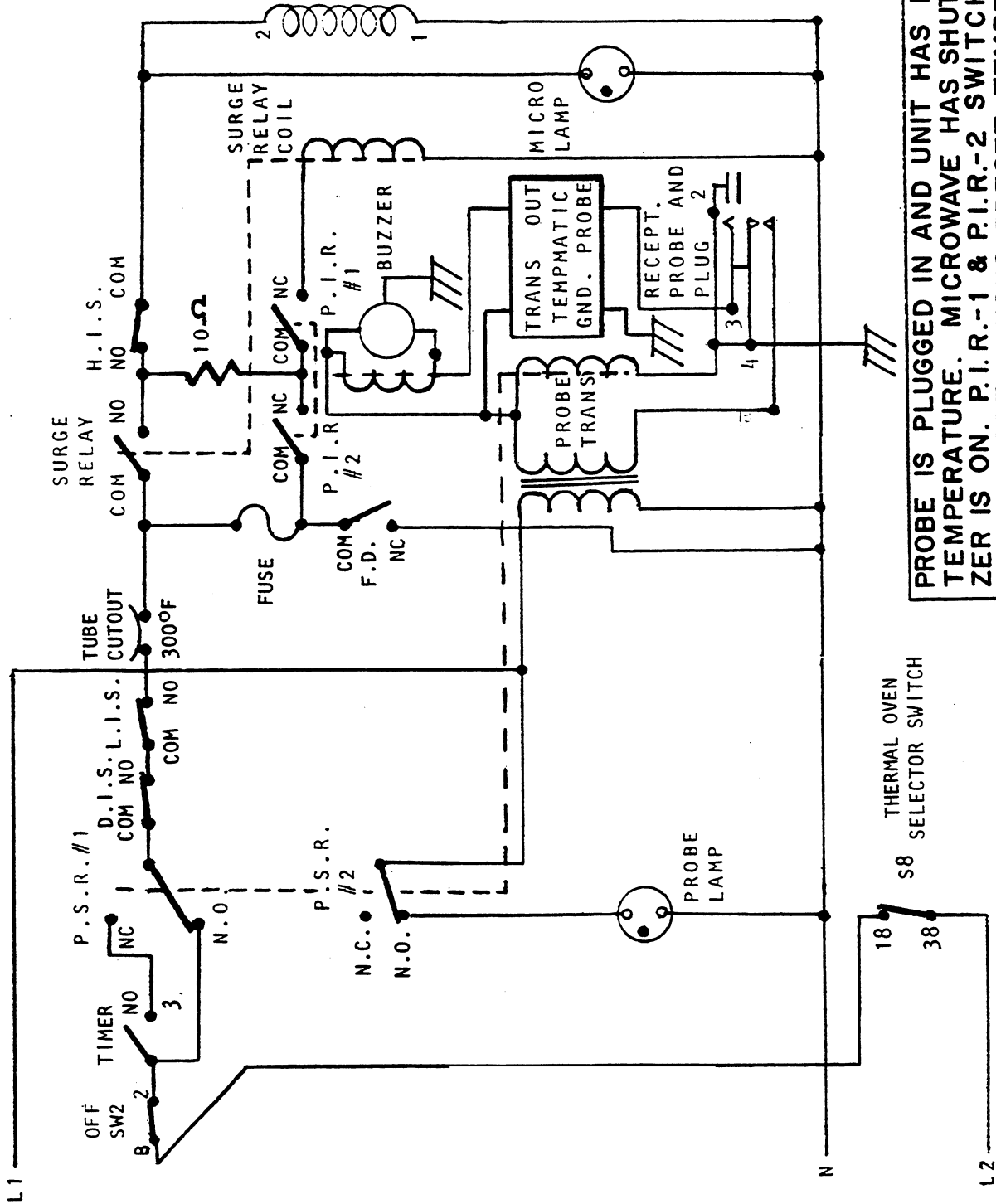
BROIL

SCHEMATIC FOR OPERATION OF TEMPOMATIC OVEN COOKING WITH PROBE IN OPERATION

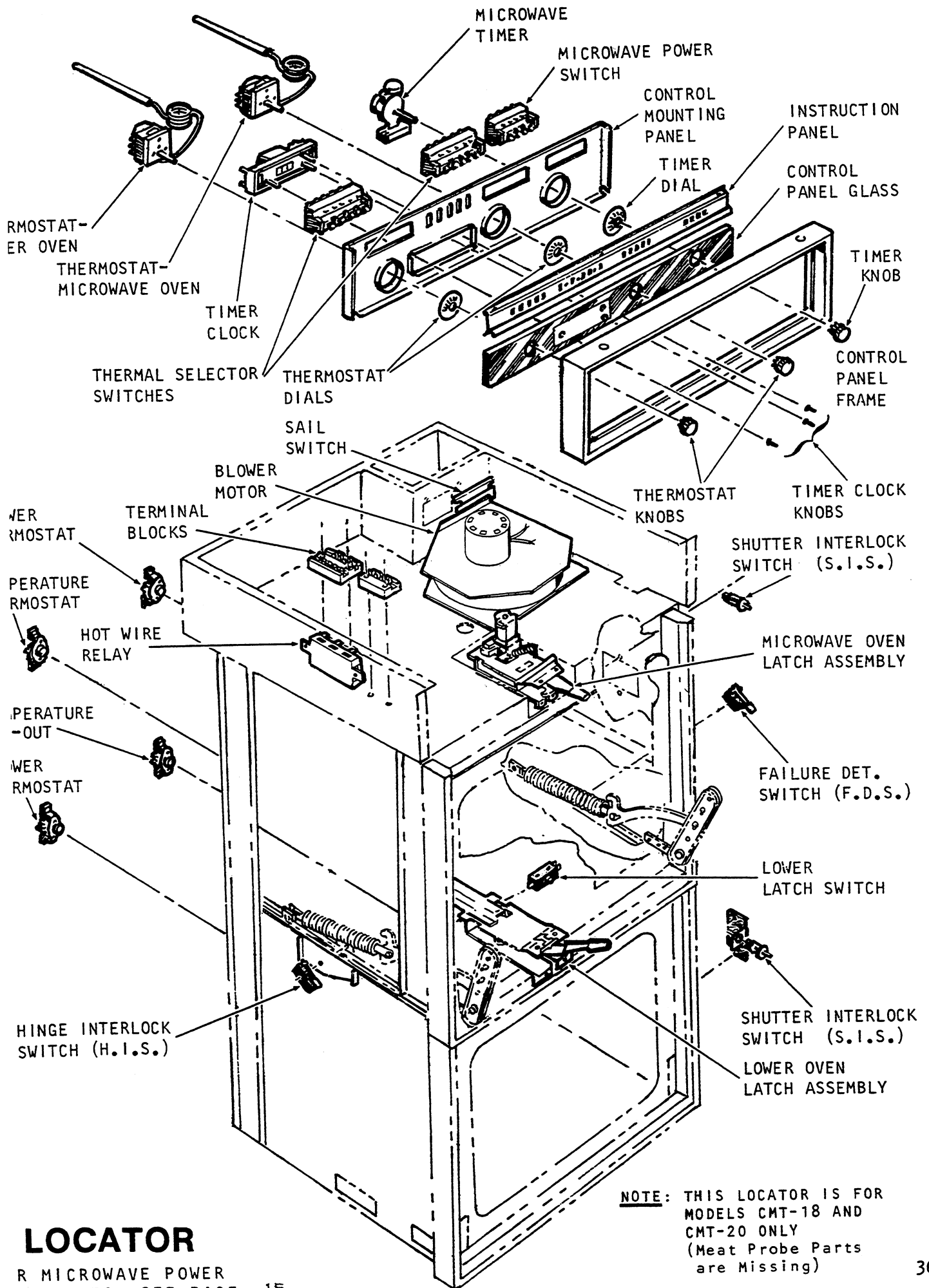


PROBE IS PLUGGED IN AND UNIT IS COOKING ON MICROWAVE. TIMER IS NOT OPERATING IN PROBE CIRCUIT. P.S.R.-1 AND P.S.R.-2 SWITCHES CLOSE FROM COM. TO N.O. WHEN PROBE IS PLUGGED IN.

SCHEMATIC FOR OPERATION OF TEMPOMATIC PROBE REACHES SET TEMPERATURE



PROBE IS PLUGGED IN AND UNIT HAS REACHED TEMPERATURE. MICROWAVE HAS SHUT OFF, BUZZER IS ON. P.I.R.-1 & P.I.R.-2 SWITCHES OPEN WHEN PROBE SENSES PRESET TEMPERATURE.



LOCATOR

FOR MICROWAVE POWER COMPONENTS, SEE PAGE 15.

NOTE: THIS LOCATOR IS FOR MODELS CMT-18 AND CMT-20 ONLY (Meat Probe Parts are Missing)

WIRING DIAGRAMS

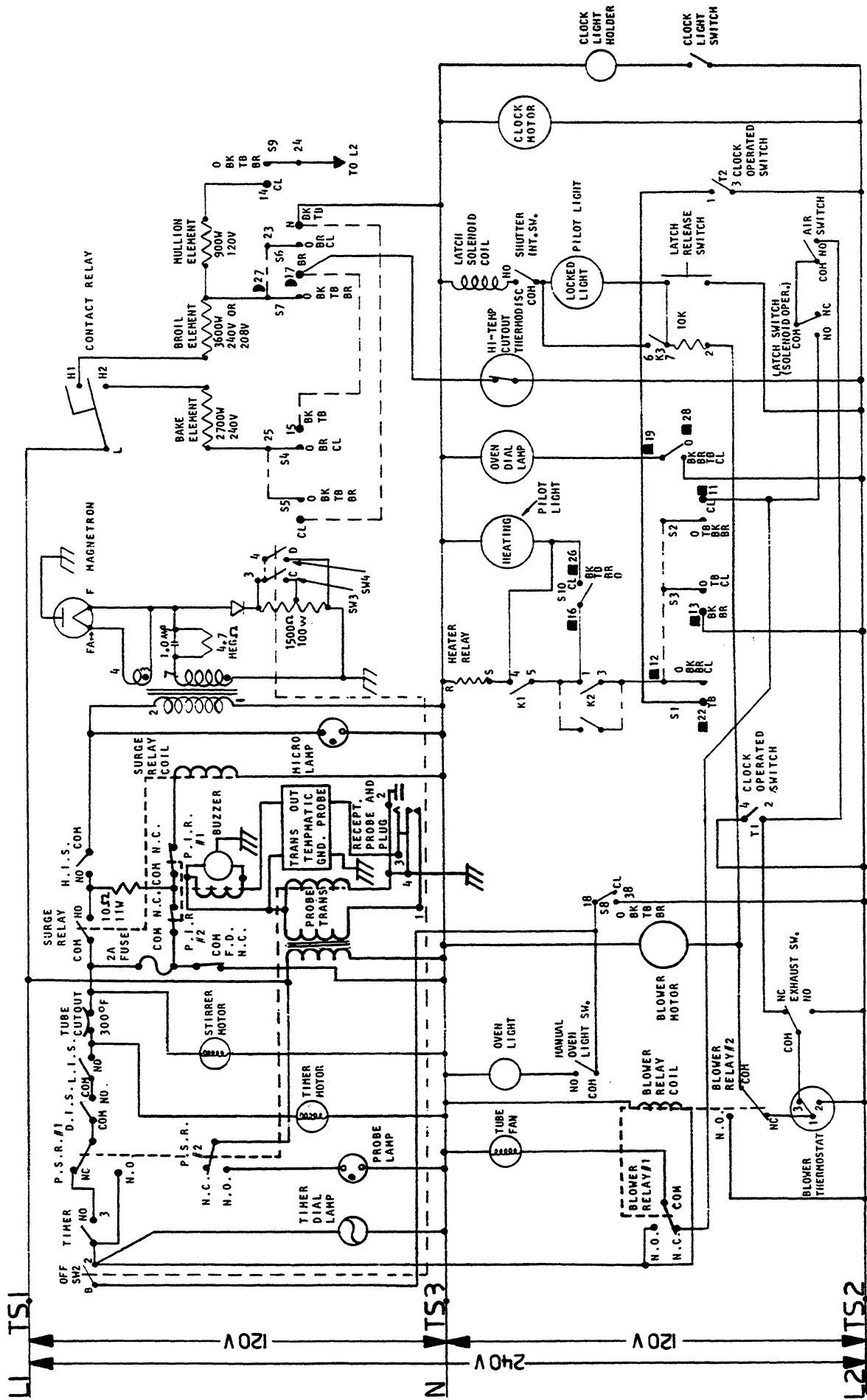
"BRANCHED LINE" DIAGRAM LEGEND

Alphabetical By Abbreviation

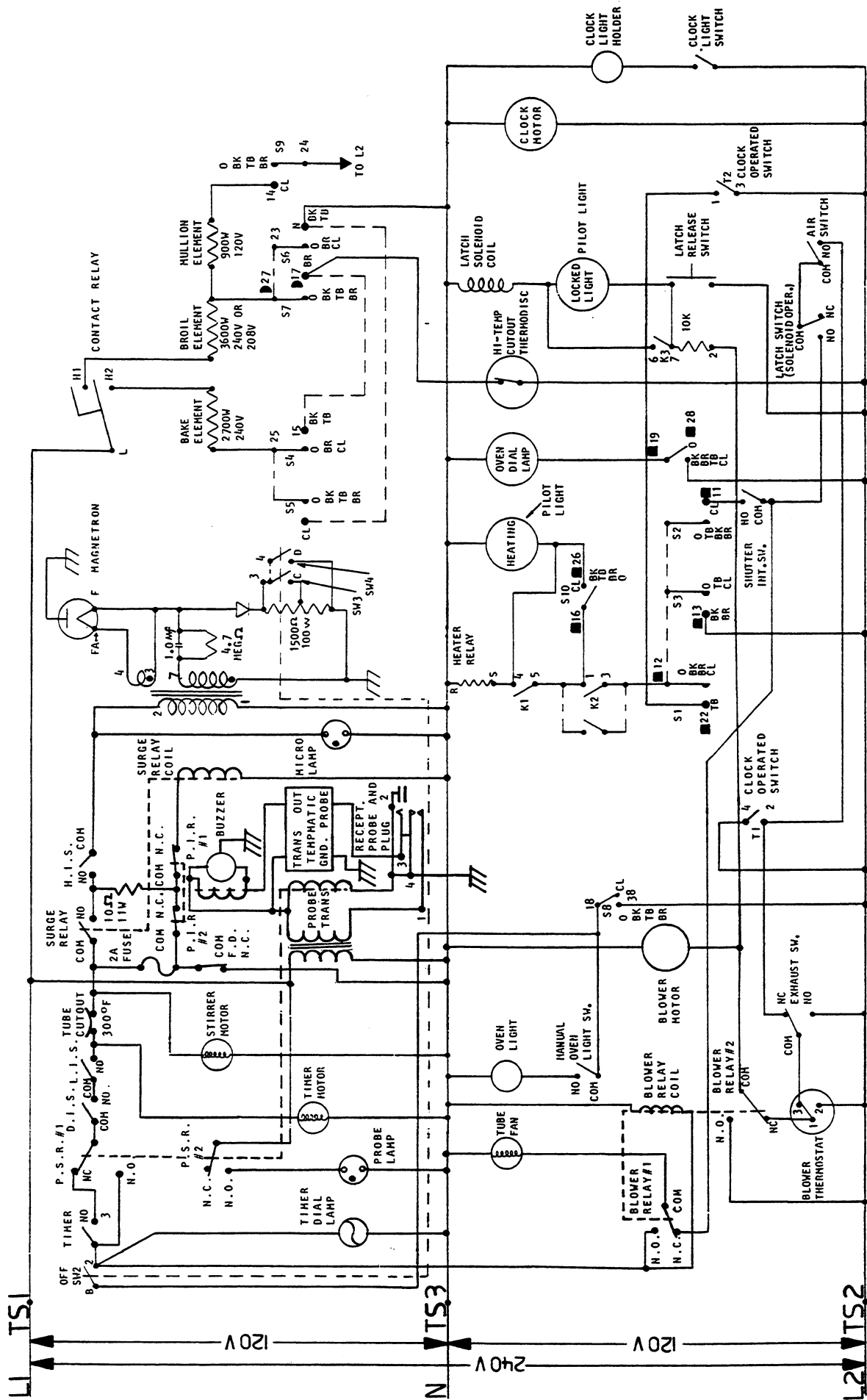
AS.....Air Switch	HIS.....Hinge Interlock Switch	M.....Molex	S.....Selector
B.....Buzzer	HL.....Heat Lamp	MDL.....Microwave Dial Lamp	SAS...Solenoid Act. Switch
BA.....Bake Element	HTC.....High Temp Cutout	ME.....Mullion Element	SHL...Stay Hot Lamp
BE.....Browner Element	HWR.....Hot Wire Relay	ML.....Microwave Lamp	SHS...Stay Hot Switch
BLR...Blower Relay	ILS....In Line Connector	MR.....Male Receptacle	SHT...Stay Hot Thermostat
BL.....Browner Lamp	IR.....Interrupt Relay	MS....Microwave Selector	SIS...Shutter Interlock Switch
BLT...Blower Thermostat	J.....Phone Jack	MT....Microwave Timer	SM....Stirrer Motor
RM.....Blower Motor	LAS....Latch Switch	MTM...Microwave Timer Motor	SMO...Small Molex
RR.....Broil Element	LBA....L/O Bake Element	M8P...Male 8 Pin Connector	SO....Solenoid
BT.....Browner Thermostat	LBR...L/O Broil Element	M20P...Male 20 Pin Connector	SS....Start Switch
C.....Capacitor	LBT...L/O Blower Thermostat	OL....Oven Lamp	SR....Surge Relay
CB.....Circuit Breaker	LDL...L/O Dial Lamp	OLS...Oven Lamp Switch	T.....Transformer
CG.....Chassis Ground	LFHE...Left Front Heating Element	OOS...On/Off Switch	TM....Temp-Matic
CL.....Clock Lamp	LFIS...Left Front Infinite Switch	OOL...Oven On Lamp	TS1...Terminal Strip One
CLS...Clock Lamp Switch	LFL...Left Front Lamp	OS....Oven Solenoid	TS2...Terminal Strip Two
CH.....Clock Motor	LHC...L/O High Temp Cutout	OT....Oven Thermostat	TS3...Terminal Strip Three
CR.....Diode	LHL...L/O Heat Lamp	PC....Power Supply Cord	TS4...Terminal Strip Four
CS.....Clock Switch	LHR...L/O Hot Wire Relay	PD....Power Door	UBA...U/O Bake Element
DIS...Door Interlock Switch	LIS....Latch Interlock Switch	PG....Plenum Ground	UBR...U/O Broil Element
DL.....Dial Lamp	LL....Locked Lamp	PIR...Probe Interrupt Relay	UBT...U/O Blower Thermostat
ELS...Element Switch	LIA...L/O Latch Switch	PL....Probe Lamp	UDL...U/O Dial Lamp
ES.....Exhaust Switch	LLS...L/O Lamp Switch	PR....Probe Relay	UHC...U/O High Temp Cutout
FCL...Food Cavity Lamps	LM.....Large Molex	PS....Power Supply	UHL...U/O Heat Lamp
FD.....Failure Detector Switch	LME...L/O Mullion Element	PSR...Probe Start Relay	UHR...U/O Hot Wire Relay
FM.....Fan Motor	LOL...L/O Lamp	PSI...Probe Start One	ULA...U/O Latch Switch
FR.....Female Receptacle	LOS...L/O Solenoid	PS2...Probe Start Two	ULS...U/O Lamp Switch
FT.....Filament Transformer	LR.....Line Resistor	PU....Power Unit	UME...U/O Mullion Element
F8P...Female 8 Pin Connector	LRHE...Left Rear Heating Element	R.....Resistor	UOL...U/O Lamp
F20P...Female 20 Pin Connector	LRIS...Left Rear Infinite Switch	RB....Receptacle Block	UOS...U/O Solenoid
GIS...Griddle Infinite Switch	LRL...Latch Release Switch	RFHE...Right Front Heating Element	US...U/O Selector
GL.....Griddle Lamp	LS....L/O Selector	RFIS...Right Front Infinite Switch	UISIS...U/O Shutter Interlock Switch
GRB...Griddle Receptacle Block	LSIS...L/O Shutter Interlock Switch	RFL...Right Front Lamp	UT...U/O Thermostat
GRS...Griddle Receptacle Block	LT....L/O Thermostat	RRHE...Right Rear Heating Element	V.....Tube - Magnetron
	LVT...Low Voltage Transformer	RRIS...Right Rear Infinite Switch	VT...Tube Thermostat
		RRL...Right Rear Lamp	
			WN...Wire Nut
			X.....Fuse
			17P...17 Pin Connector
			20P...20 Pin Connector

Alphabetical By Name

Air Switch.....AS	In Line Connector.....ILC	On/Off Switch.....OOS	Temp-Matic.....TM
Bake Element.....BA	Interrupt Relay.....IR	Oven Lamp.....OL	Terminal Strip Four.....TS
Blower Motor.....BM	Large Molex.....LM	Oven Lamp Switch.....OLS	Terminal Strip One.....TS
Blower Relay.....BLR	Latch Interlock Switch.....LIS	Oven On Lamp.....OOL	Terminal Strip Three.....TS
Blower Thermostat.....BLT	Latch Release Switch.....LRS	Oven Solenoid.....OS	Terminal Strip Two.....TS
Broil Element.....BR	Latch Switch.....LAS	Oven Thermostat.....OT	Transformer.....T
Browner Element.....BE			Tube - Magnetron.....V
Browner Lamp.....BL	Left Front Heating Element...LFHE	Phone Jack.....J	Tube Thermostat.....VT
Browner Thermostat.....BT	Left Front Infinite Switch...LFIS	Plenum Ground.....PG	U/O Bake Element.....UB
Buzzer.....B	Left Front Lamp.....LFL	Power Door.....PD	U/O Blower Thermostat.....UB
Capacitor.....C	Left Rear Heating Element...LRHE	Power Supply.....PS	U/O Broil Element.....UB
Chassis Ground.....CG	Left Rear Infinite Switch...LRIS	Power Supply Cord.....PC	U/O Dial Lamp.....UDL
Circuit Breaker.....CB	Left Rear Lamp.....LRL	Power Unit.....PU	U/O Heat Lamp.....UHL
Clock Lamp.....CL	Line Resistor.....LR	Probe Interrupt Relay...PIR	U/O High Temp Cutout.....UHC
Clock Lamp Switch.....CLS	Locked Lamp.....LL	Probe Lamp.....PL	U/O Hot Wire Relay.....UHR
Clock Motor.....CM	Low Voltage Transformer...LVT	Probe Relay.....PR	U/O Lamp.....UOL
Clock Switch.....CS	L/O Bake Element.....LBA	Probe Start One.....PS1	U/O Lamp Switch.....UL
Dial Lamp.....DL	L/O Blower Thermostat.....LBT	Probe Start Two.....PS2	U/O Latch Switch.....UL
Diode.....CP	L/O Broil Element.....LBR	Receptacle Block.....RB	U/O Mullion Element.....UM
Door Interlock Switch.....DIS	L/O Dial Lamp.....LDL	Resistor.....R	U/O Selector.....US
Element Switch.....ELS	L/O Heat Lamp.....LHL	Right Front Heating Element..RFHE	U/O Shutter Interlock Switch..UIS
Exhaust Switch.....ES	L/O High Temp Cutout.....LHC	Right Front Infinite Switch..RFIS	U/O Solenoid.....UO
Failure Detector Switch.....FD	L/O Hot Wire Relay.....LHR	Right Rear Heating Element...RRHE	U/O Thermostat.....UT
Fan Motor.....FM	L/O Lamp.....LOL	Right Rear Infinite Switch...RRIS	Wire Nut.....WN
Female Receptacle.....FR	L/O Lamp Switch.....LLS	Right Rear Infinite Switch...RRIS	17 Pin Connector.....17P
Female 8 Pin Connector.....F8P	L/O Latch Switch.....LLA	Right Rear Lamp.....RRL	20 Pin Connector.....20P
Female 20 Pin Connector.....F20P	L/O Mullion Element.....LME		
Filament Transformer.....FT	L/O Selector.....LS	Selector.....S	
Food Cavity Lamps.....FCL	L/O Shutter Interlock Switch.LSIS	Shutter Interlock Switch.....SIS	
Fuse.....X	L/O Solenoid.....LOS	Small Molex.....SMO	
Griddle Infinite Switch.....GIS	L/O Thermostat.....LT	Solenoid.....SO	
Griddle Receptacle Block.....GRB	Male Receptacle.....MR	Solenoid Act. Switch.....SAS	
Griddle Lamp.....GL	Male 8 Pin Connector.....M8P	Stay Hot Lamp.....SHL	
Heat Lamp.....HL	Male 20 Pin Connector.....M20P	Stay Hot Switch.....SHS	
High Temp Cutout.....HTC	Microwave Dial Lamp.....MDL	Stay Hot Thermostat.....SHT	
Hinge Interlock Switch.....HIS	Microwave Lamp.....ML	Start Switch.....SS	
Hot Wire Relay.....HWR	Microwave Selector.....MS	Stirrer Motor.....SM	
	Microwave Timer.....MT	Surge Relay.....SR	
	Microwave Timer Motor.....MTM		
	Molex.....M		
	Mullion Element.....ME		

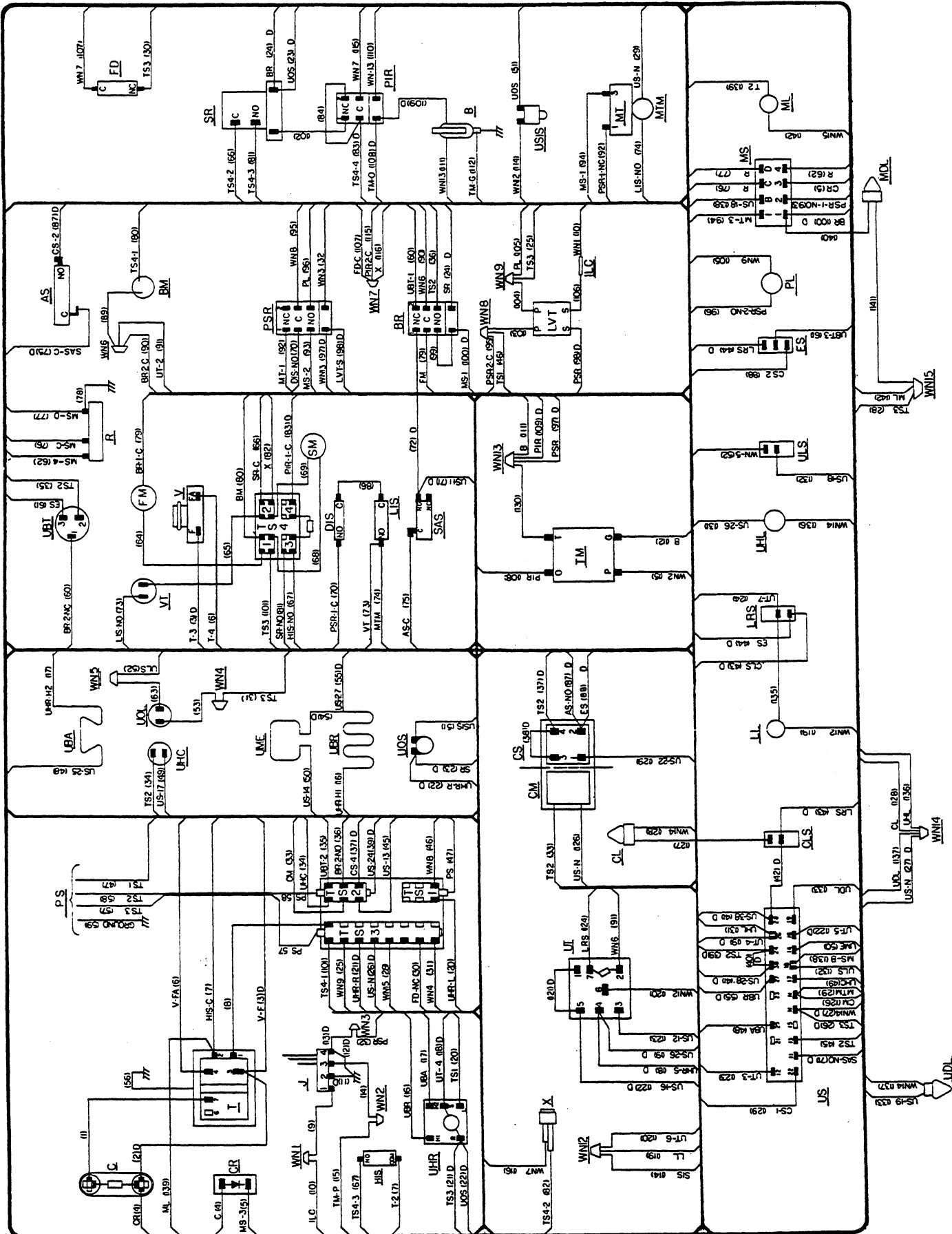


CMT-19 SCHEMATIC (PRIOR TO SERV.CODE "D")

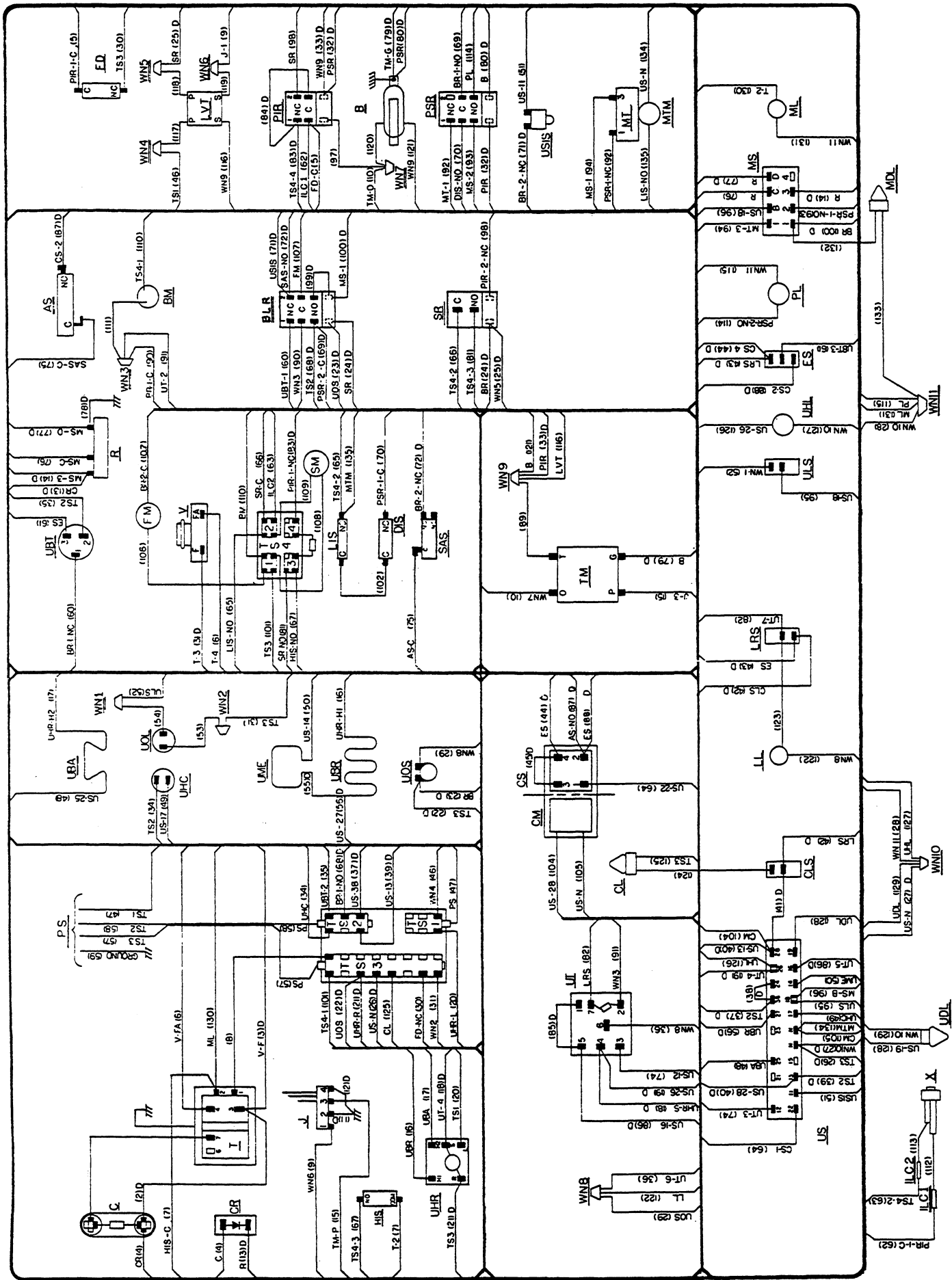


CMT-19 SCHEMATIC (SERV.CODE "D" & AFTER)

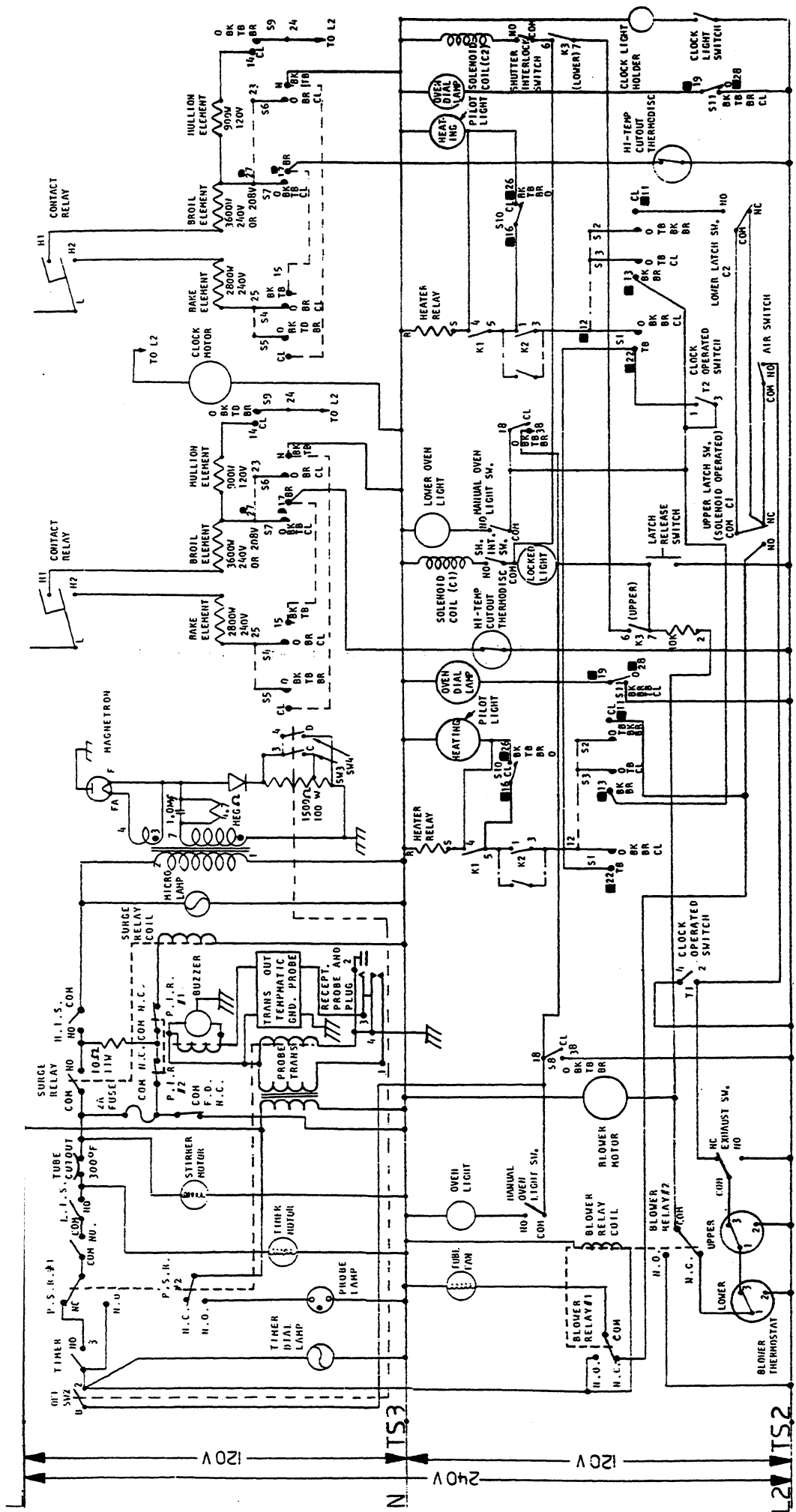
Wire No.	Wire Spec.	Daisy	From	Wire No.	Wire Spec.	Daisy	From	Wire No.	Wire Spec.	Daisy	From	Wire No.	Wire Spec.	Daisy	From	Wire No.	Wire Spec.	Daisy	From
1	T-7	18GY09	C	46	MH8	18BK10	TS1	91	UT-2	MN6	18BL10	91	UT-2	MN6	18BL10	91	UT-2	MN6	18BL10
2	T-3	18GY09	C	47	PS	12BK12	TS1	92	MT-1	PSR-1-NC	16PK10	92	MT-1	PSR-1-NC	16PK10	92	MT-1	PSR-1-NC	16PK10
3	V-F	18GY09	T-3	48	UBA	16BL12	US-25	93	PSR-1-NO	MS-2	16PK10	93	PSR-1-NO	MS-2	16PK10	93	PSR-1-NO	MS-2	16PK10
4	CR	18GY09	C	49	UHC	14BL12	US-17	94	PSR-2-C	MN8	16PK10	94	PSR-2-C	MN8	16PK10	94	PSR-2-C	MN8	16PK10
5	MS-3	18010	CR	50	UME	14BL12	US-14	95	PSR-2-NO	PL	Purchase Part	95	PSR-2-NO	PL	Purchase Part	95	PSR-2-NO	PL	Purchase Part
6	T-4	18GY09	T-4	51	UOS	18BL12	USIS	96	MN3	PSR	18Y10	96	MN3	PSR	18Y10	96	MN3	PSR	18Y10
7	T-2	16PK10	T-2	52	ULS	18BK12	ULS	97	BR-1-NO	BR	18Y10	97	BR-1-NO	BR	18Y10	97	BR-1-NO	BR	18Y10
8	T-1	16M10	T-1	53	UOL	16W20	UME	98	TS3	TS3	18Y10	98	TS3	TS3	18Y10	98	TS3	TS3	18Y10
9	J-1	18BK20M1	J-1	54	UMH	14BL12	UMH	99	BR-1-NO	BR	18Y10	99	BR-1-NO	BR	18Y10	99	BR-1-NO	BR	18Y10
10	MN1	18Y12	MN1	55	UBR	14BL12	UBR	100	TS3	TS3	18Y10	100	TS3	TS3	18Y10	100	TS3	TS3	18Y10
11	J-2	16-Galv.	J-2	56	T	16-Galv.	T	101	PIR-1-NC	SR	16PK10	101	PIR-1-NC	SR	16PK10	101	PIR-1-NC	SR	16PK10
12	Ground	16-Galv.	Ground	57	ILC	16-Galv.	Ground	102	LVT-P	MN8	Purchase Part	102	LVT-P	MN8	Purchase Part	102	LVT-P	MN8	Purchase Part
13	J-4	18W20M1	J-4	58	MN3	18W20M1	TS2	103	LVT-P	MN9	Purchase Part	103	LVT-P	MN9	Purchase Part	103	LVT-P	MN9	Purchase Part
14	J-3	18RZ0M1	J-3	59	MN2	18RZ0M1	Ground	104	PL	MN9	Purchase Part	104	PL	MN9	Purchase Part	104	PL	MN9	Purchase Part
15	TH-P	18RZ0M1	TH-P	60	MN2	18RZ0M1	BR-2-NC	105	PL	MN9	Purchase Part	105	PL	MN9	Purchase Part	105	PL	MN9	Purchase Part
16	MHR-H1	18BL12	MHR-H1	61	UBR	14BL12	UBT-3	106	LVT-S	ILC	Purchase Part	106	LVT-S	ILC	Purchase Part	106	LVT-S	ILC	Purchase Part
17	MHR-H2	16BL12	MHR-H2	62	UBA	16BL12	MS-4	107	FD-C	MN7	18PK12	107	FD-C	MN7	18PK12	107	FD-C	MN7	18PK12
18	MHR-S	18Y10	MHR-S	63	UT-4	18Y10	UOL	108	TM-0	PIR	18010	108	TM-0	PIR	18010	108	TM-0	PIR	18010
19	UT-4	18Y10	UT-4	64	US-26	18Y10	FM	109	PIR	B	Purchase Part	109	PIR	B	Purchase Part	109	PIR	B	Purchase Part
20	TS1	18R10	TS1	65	UHR-L	18R10	VT	110	PIR	MN13	18BR10	110	PIR	MN13	18BR10	110	PIR	MN13	18BR10
21	TS3	18H10	TS3	66	UHR-R	18H10	SR-C	111	MN3	B	Purchase Part	111	MN3	B	Purchase Part	111	MN3	B	Purchase Part
22	UHR-R	18H10	UHR-R	67	UOS	18H10	HIS-NO	112	TH-g	B	Purchase Part	112	TH-g	B	Purchase Part	112	TH-g	B	Purchase Part
23	UOS	18H10	UOS	68	SR	18H10	MS-D	114	USIS	MN12	16012	114	USIS	MN12	16012	114	USIS	MN12	16012
24	SR	18H10	SR	69	BR	18H10	MS-D	115	USIS	MN7	16PK10	115	USIS	MN7	16PK10	115	USIS	MN7	16PK10
25	TS3	18H10	TS3	70	MN9	18H10	R	116	X	MN7	Purchase Part	116	X	MN7	Purchase Part	116	X	MN7	Purchase Part
26	US-N	14H10	US-N	71	US-N	14H10	DIS-NO	119	LL	MN12	Purchase Part	119	LL	MN12	Purchase Part	119	LL	MN12	Purchase Part
27	TS3	18H10	TS3	72	MN14	18H10	US-11	120	UT-6	MN12	18010	120	UT-6	MN12	18010	120	UT-6	MN12	18010
28	US-N	18H10	US-N	73	MN15	18H10	SAS-NO	121	UT-1	MN12	18Y10	121	UT-1	MN12	18Y10	121	UT-1	MN12	18Y10
29	US-N	Purchase Part	US-N	74	MN15	18H10	SAS-NO	122	UT-5	US-16	18Y10	122	UT-5	US-16	18Y10	122	UT-5	US-16	18Y10
30	TS3	18W12	TS3	75	MN15	18H10	VT	123	UT-3	US-12	18BL10	123	UT-3	US-12	18BL10	123	UT-3	US-12	18BL10
31	PSR	18W12	PSR	76	MN15	18H10	MTH	124	UT-7	LRS	18BL10	124	UT-7	LRS	18BL10	124	UT-7	LRS	18BL10
32	TS2	18BR12	TS2	77	MN3	18BR12	SAS-C	126	CM	US-N	Purchase Part	126	CM	US-N	Purchase Part	126	CM	US-N	Purchase Part
33	TS2	14R12	TS2	78	CM	14R12	MS-D	127	CL	US-N	Purchase Part	127	CL	US-N	Purchase Part	127	CL	US-N	Purchase Part
34	TS2	18R12	TS2	79	UHC	18R12	R	128	CL	US-22	Purchase Part	128	CL	US-22	Purchase Part	128	CL	US-22	Purchase Part
35	TS2	18R10	TS2	80	BR-2-NO	18R10	FM	129	CL	MN14	Purchase Part	129	CL	MN14	Purchase Part	129	CL	MN14	Purchase Part
36	CS4	18R10	CS4	81	BR-2-NO	18R10	SR-NO	130	CS-1	US-22	18BL10	130	CS-1	US-22	18BL10	130	CS-1	US-22	18BL10
37	TS2	18R10	TS2	82	CS-4	18R10	Y	131	TM-T	MN13	18BR10	131	TM-T	MN13	18BR10	131	TM-T	MN13	18BR10
38	CS4	18R10	CS4	83	CS-4	18R10	X	132	US-26	UHL	Purchase Part	132	US-26	UHL	Purchase Part	132	US-26	UHL	Purchase Part
39	US-24	18R10	US-24	84	US-24	18R10	TS4-2	133	US-18	ULS	18BL10	133	US-18	ULS	18BL10	133	US-18	ULS	18BL10
40	US-28	18R10	US-28	86	US-28	18R10	TS4-2	135	MS-1	ULS	18BL10	135	MS-1	ULS	18BL10	135	MS-1	ULS	18BL10
41	US-28	18R10	US-28	87	US-28	18R10	TS4-2	136	MS-1	ULS	18BL10	136	MS-1	ULS	18BL10	136	MS-1	ULS	18BL10
42	CLS	18R10	CLS	88	CLS	18R10	TS4-2	137	MS-1	ULS	18BL10	137	MS-1	ULS	18BL10	137	MS-1	ULS	18BL10
43	LRS	18R10	LRS	89	LRS	18R10	TS4-2	138	MS-1	ULS	18BL10	138	MS-1	ULS	18BL10	138	MS-1	ULS	18BL10
44	TS2	18R10	TS2	90	ES	18R10	BR-2-C	139	MS-1	ULS	18BL10	139	MS-1	ULS	18BL10	139	MS-1	ULS	18BL10
45					US-13	18R10		140	MS-1	ULS	18BL10	140	MS-1	ULS	18BL10	140	MS-1	ULS	18BL10
								141	MS-1	ULS	18BL10	141	MS-1	ULS	18BL10	141	MS-1	ULS	18BL10
								142	MS-1	ULS	18BL10	142	MS-1	ULS	18BL10	142	MS-1	ULS	18BL10



CMT-19 WIRE DIAGRAM (PRIOR TO SERV.CODE "D")

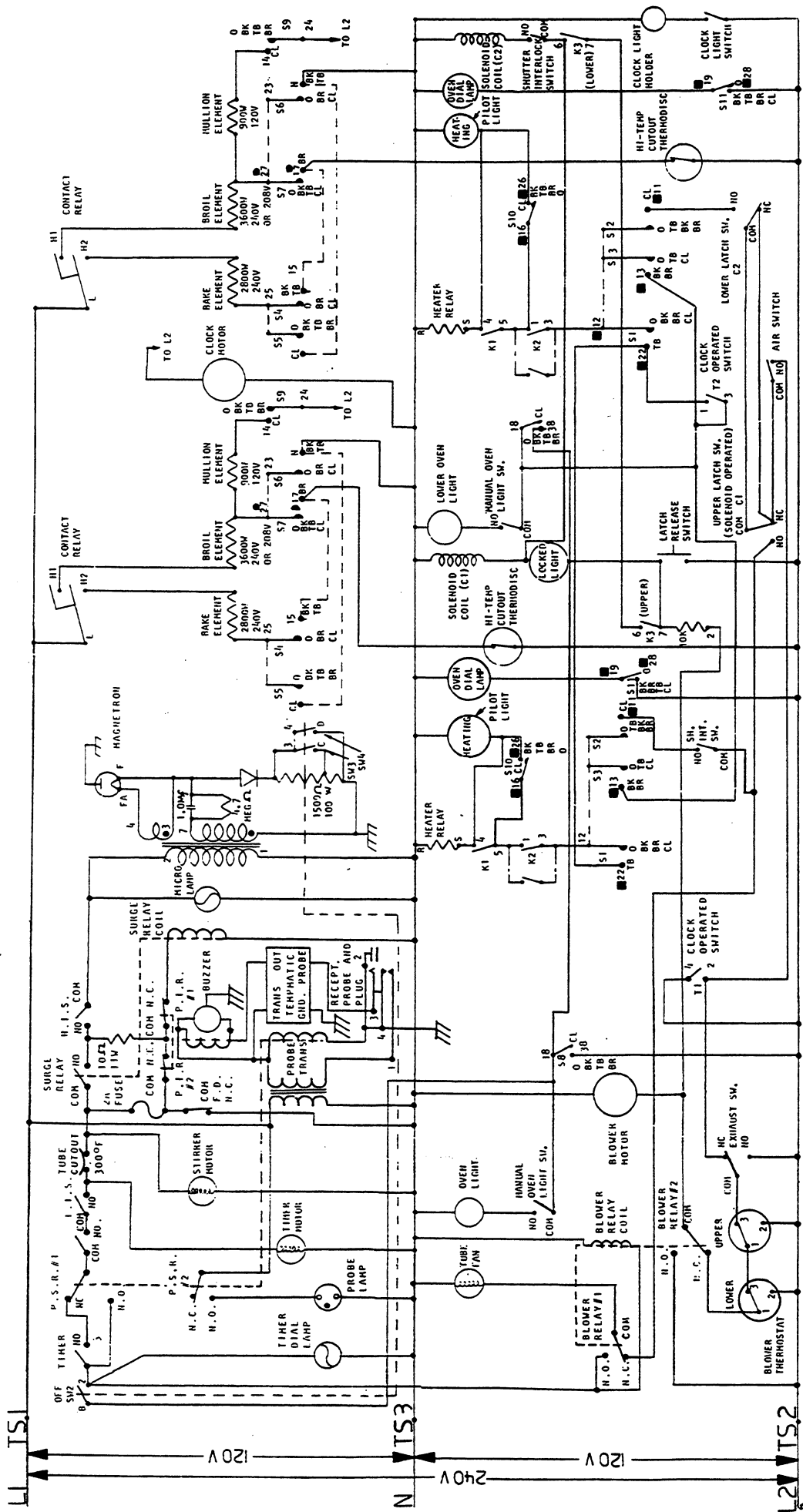


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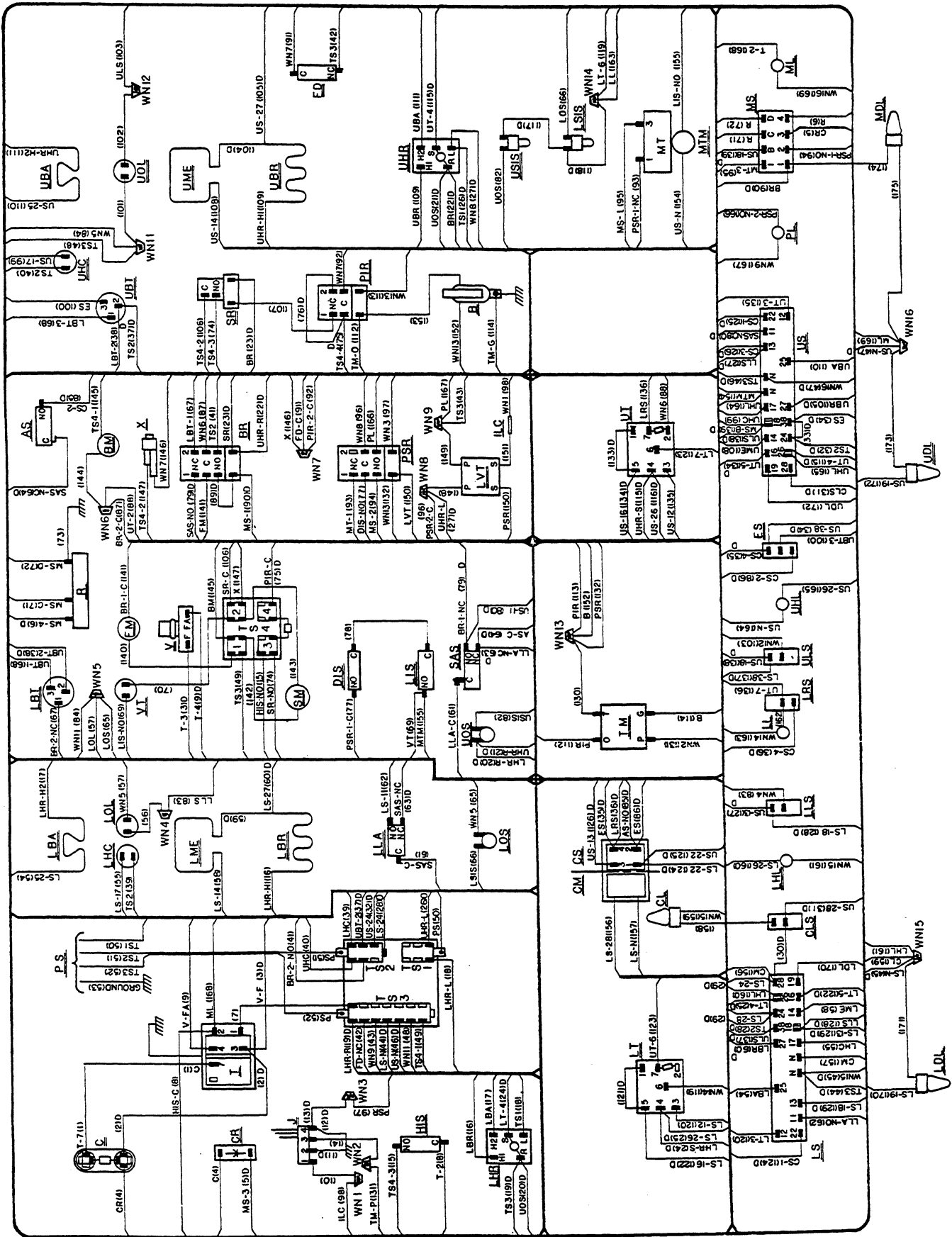


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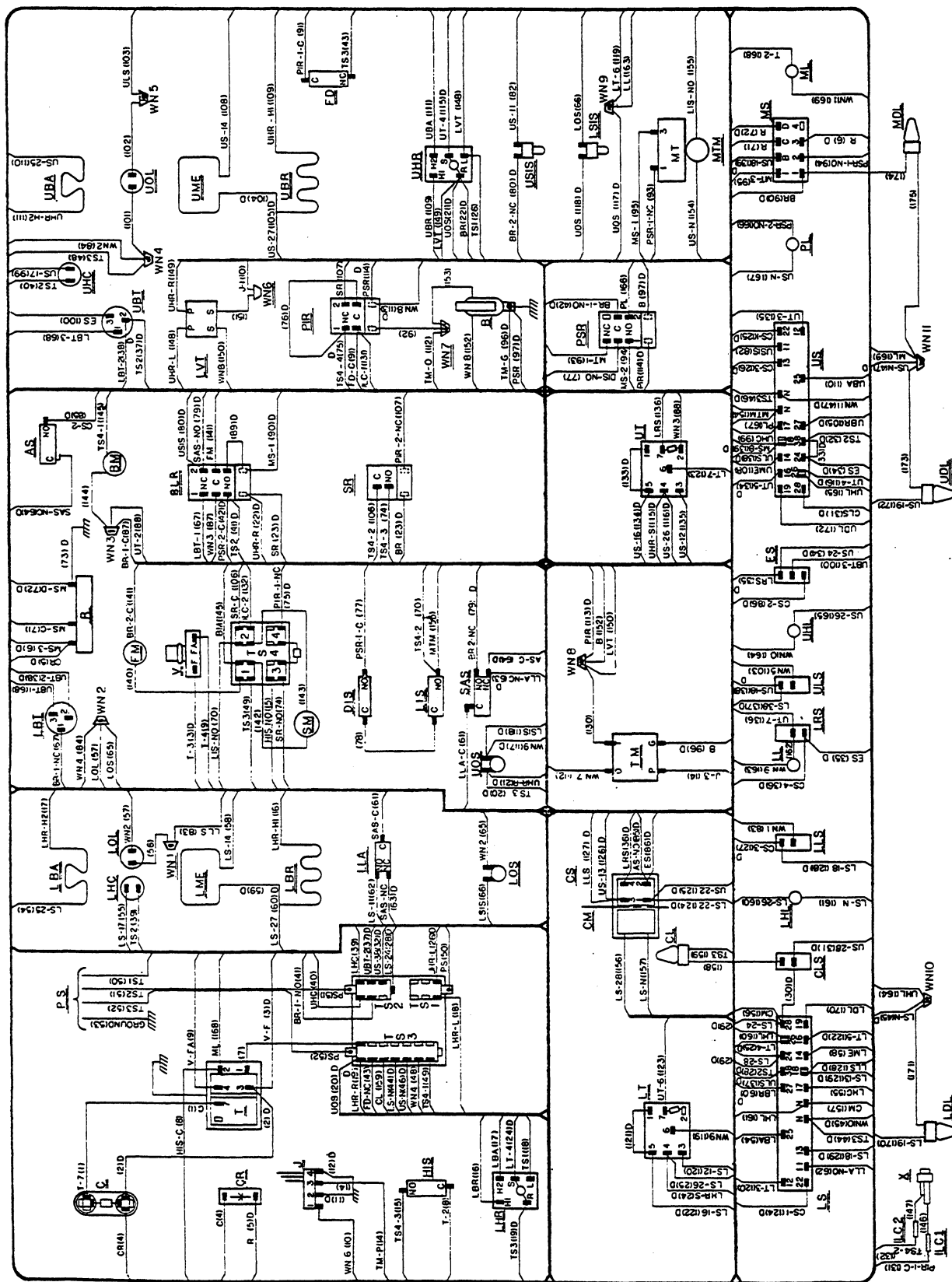
CMT-21 SCHEMATIC



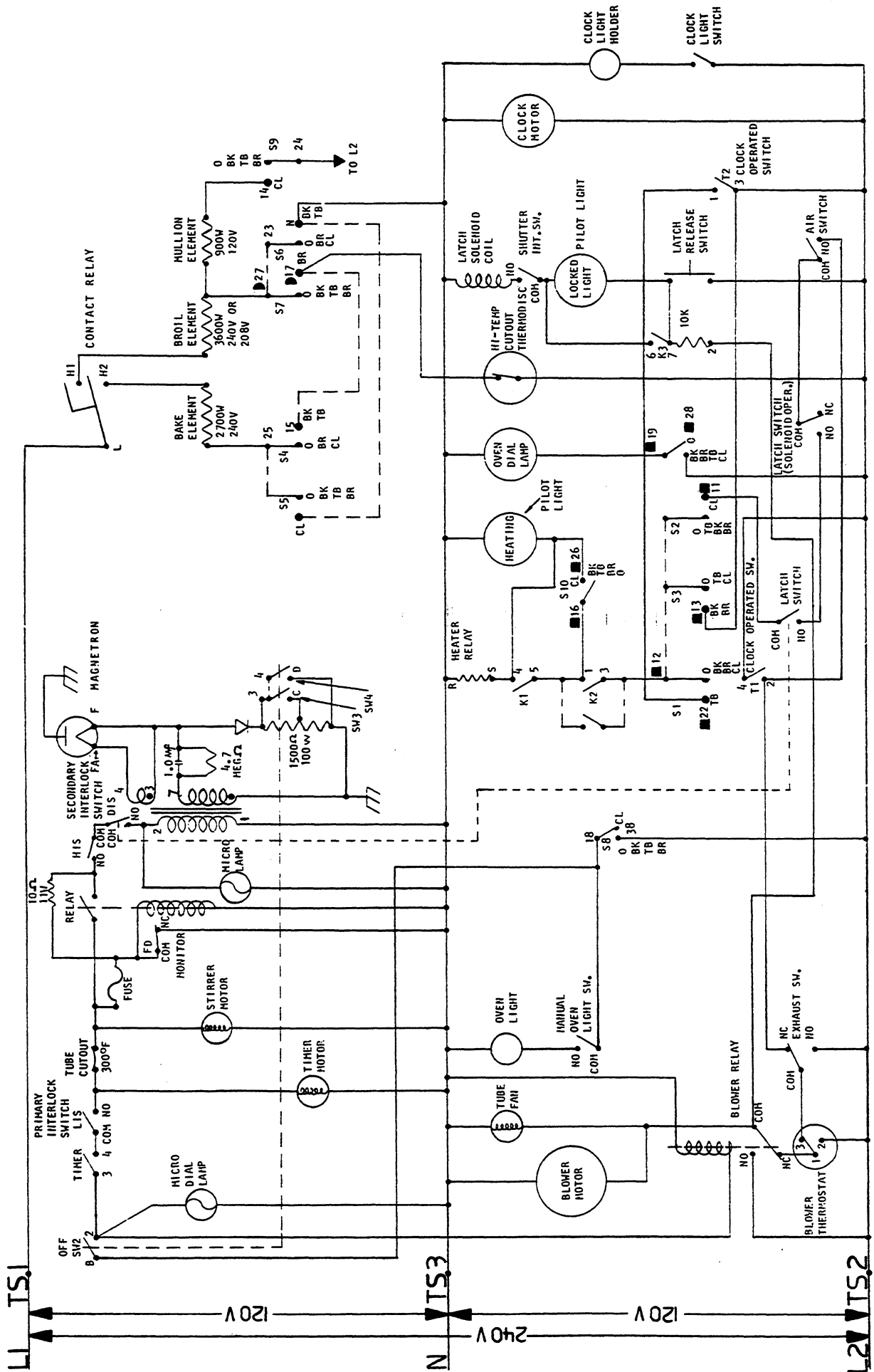
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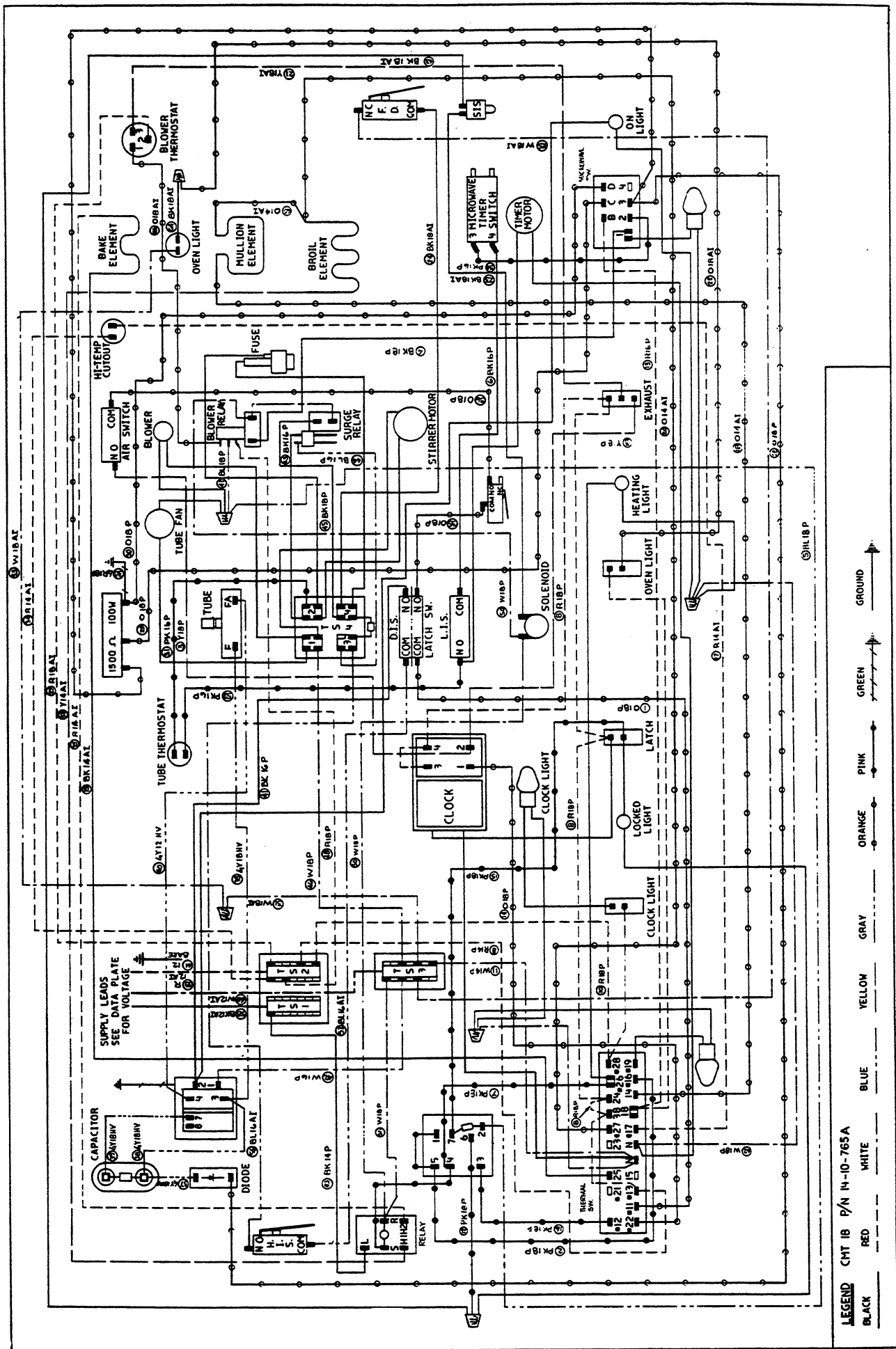
CMT-21 WIRE DIAGRAM (PRIOR TO SERV.CODE "D")



Pr-1-C (23U)
LCL2
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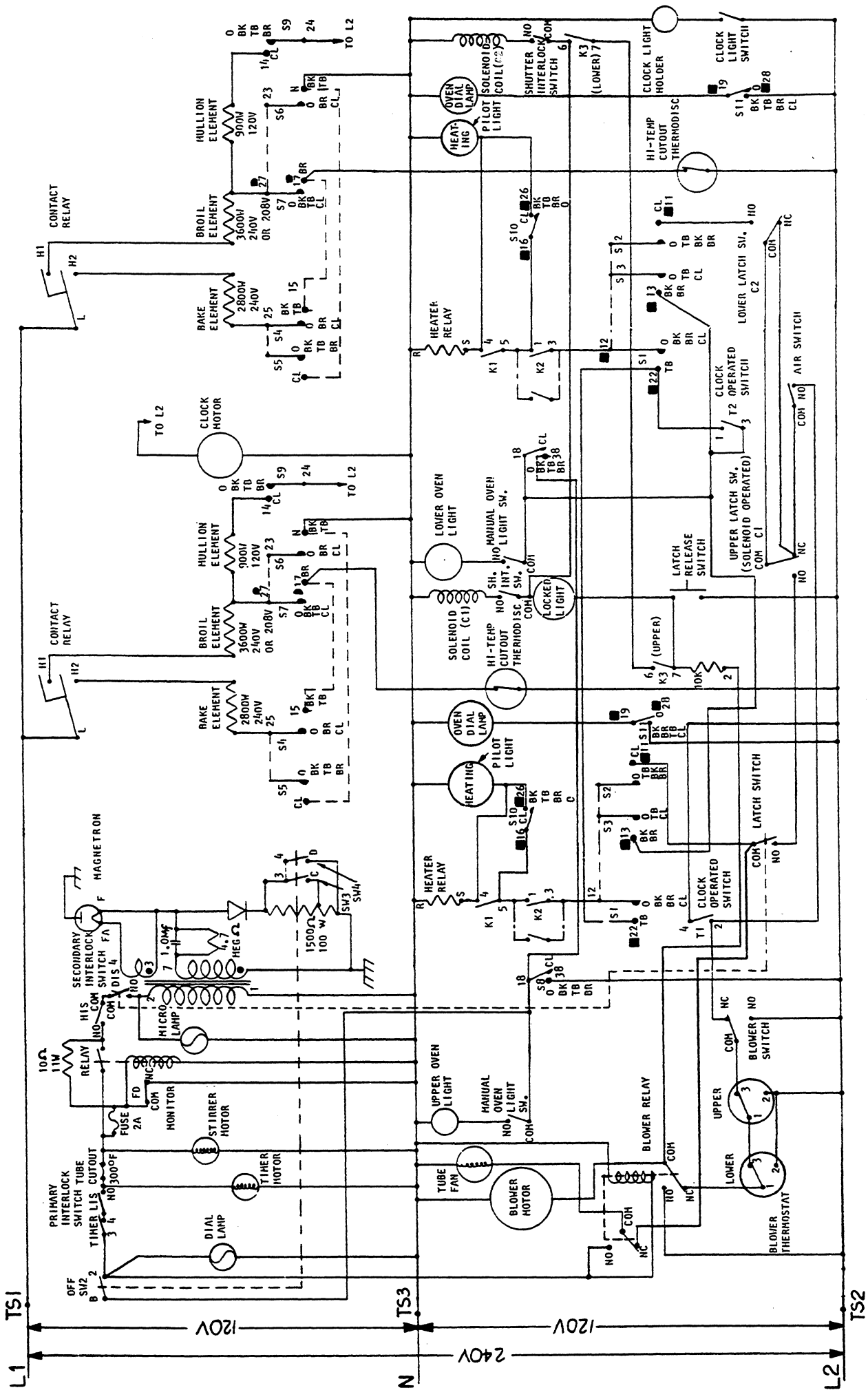


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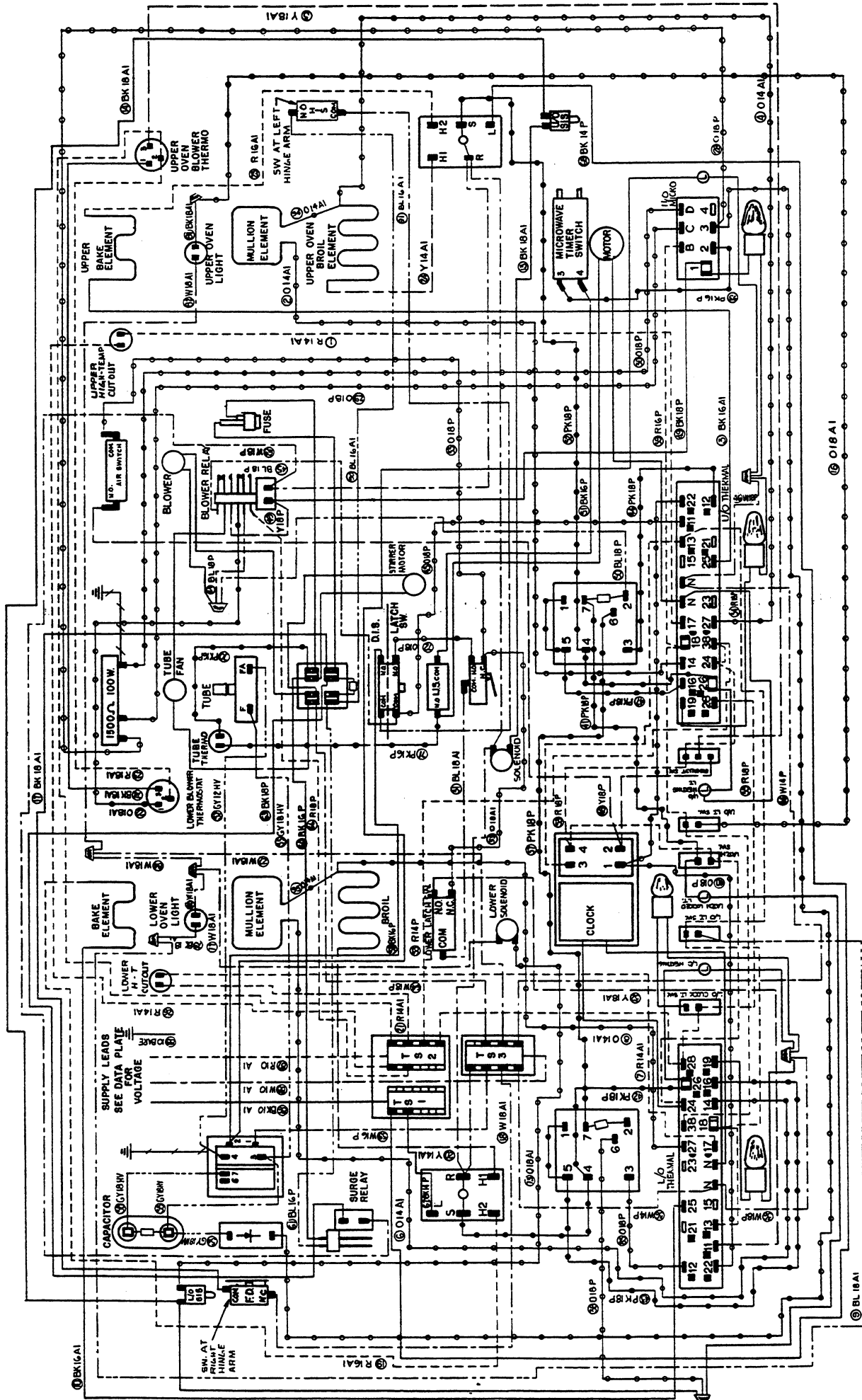


LEGEND CMT 18 P/N 14-10-765A
 BLACK RED WHITE BLUE YELLOW GRAY ORANGE PINK GREEN GROUND

CMT-18 WIRING DIAGRAM



CMT-20 SCHEMATIC



LEGEND

BLACK	WHITE	ORANGE	YELLOW	PINK	GRAY	GREEN	GROUND	BLUE	RED
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CMT 20 P/N 14-10-804B

CMT-20 WIRING DIAGRAM

Thermador

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Lit. No. 94-10-600B

March, 1999