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# Section 1

## Safety Information

Throughout this manual and on machine decals, you will find precautionary statements (“CAUTION”, “WARNING”, and “DANGER”) followed by specific instructions. These precautions are intended for the personal safety of the operator, user, servicer, and those maintaining the machine.

	<b>DANGER</b>
<b>DANGER</b> indicates the presence of a hazard that will cause severe personal injury, death, or substantial property damage if the danger is ignored.	

	<b>WARNING</b>
<b>WARNING</b> indicates the presence of a hazard that can cause severe personal injury, death, or substantial property damage if the warning is ignored.	


	<b>CAUTION</b>
<b>CAUTION</b> indicates the presence of a hazard that will or can cause minor personal injury or property damage if the caution is ignored.	

Additional precautionary statements (“IMPORTANT” and “NOTE”) are followed by specific instructions.

**IMPORTANT:** The word “IMPORTANT” is used to inform the reader of specific procedures where minor machine damage will occur if the procedure is not followed.


**NOTE:** The word “NOTE” is used to communicate installation, operation, maintenance or servicing information that is important but not hazard related.


In the interest of safety, some general precautions relating to the operation of this machine follow.


	<b>WARNING</b>
<ul style="list-style-type: none"><li>• Failure to install, maintain and/or operate this product according to the manufacturer’s instructions may result in conditions which can produce serious injury, death and/or property damage.</li><li>• Do not repair or replace any part of the product or attempt any servicing unless specifically recommended or published in this Service Manual and unless you understand and have the skills to carry out the servicing.</li><li>• Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the product is properly grounded and to reduce the risk of fire, electric shock, serious injury or death.</li></ul>	
W006R2	

Section 1 Safety Information

**IMPORTANT INFORMATION:** During the lifetime of a tumbler, it may require service. The information contained in this manual was written and is intended for use by qualified service technicians who are familiar with the safety procedures required in the repair of a tumbler, and who are equipped with the proper tools and testing equipment.

	<b>WARNING</b>
<p>To reduce the risk of electric shock, fire, explosion, serious injury or death:</p> <ul style="list-style-type: none"><li>• Disconnect electric power to the tumbler before servicing.</li><li>• Never start the tumbler with any guards/panels removed.</li><li>• Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.</li></ul>	
W240	

	<b>WARNING</b>
<p>Repairs that are made to your products by unqualified persons can result in hazards due to improper assembly or adjustments subjecting you or the inexperienced person making such repairs to the risk of serious injury, electrical shock or death.</p>	
W007	

	<b>CAUTION</b>
<p>If you or an unqualified person perform service on your product, you must assume the responsibility for any personal injury or property damage which may result. The manufacturer will not be responsible for any injury or property damage arising from improper service and/or service procedures.</p>	
W008	

**NOTE:** The **WARNING** and **IMPORTANT** instructions appearing in this manual are not meant to cover all possible conditions and situations that may occur. It must be understood that common sense, caution and carefulness are factors which **CANNOT** be built into this tumbler. These factors **MUST BE** supplied by the person(s) installing, maintaining or operating the tumbler.

Always contact your dealer, distributor, service agent or the manufacturer on any problems or conditions you do not understand.

## Locating An Authorized Service Person

Alliance Laundry Systems is not responsible for personal injury or property damage resulting from improper service. Review all service information before beginning repairs.

Warranty service must be performed by an authorized technician, using authorized factory parts. If service is required after the warranty expires, Alliance Laundry Systems also recommends contacting an authorized technician and using authorized factory parts.

# Section 2 Introduction

## Model Identification

Information in this manual is applicable to these models:

Gas		Steam	
AT120L	SA120N	AT120S	ST120T
AT120N	ST120L	HT120S	SU120S
HA120L	ST120N	HU120S	UT120S
HA120N	SU120L	PT120S	UU120S
HT120L	SU120N	PU120S	WT120S
HT120N	UA120L	ST120S	XT120S
HU120L	UA120N		XU120S
HU120N	UT120L		
PA120L	UT120N		
PA120N	UU120L		
PT120L	UU120N		
PT120N	WT120L		
PU120L	WT120N		
PU120N	XT120L		
SA120L	XT120N		
	XU120N		

Includes models with the following control suffixes (7<sup>th</sup> and 8<sup>th</sup> characters):

- RM – reversing OPL micro
- RT – reversing manual timer

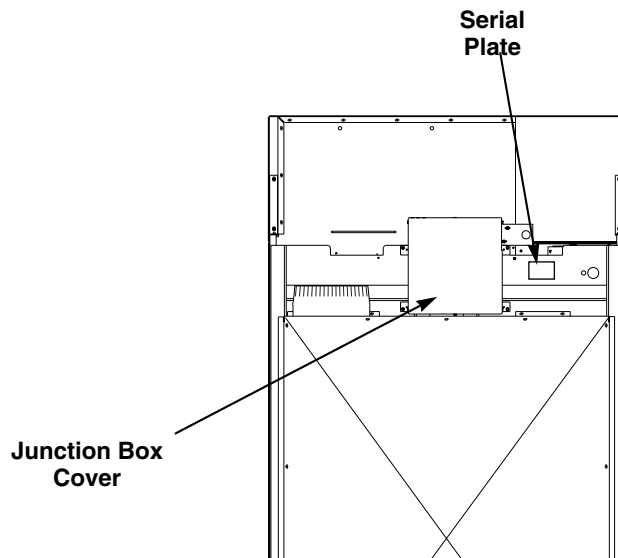
## Customer Service

If literature or replacement parts are required, contact the source from whom the machine was purchased or contact Alliance Laundry Systems at (920) 748-3950 for the name and address of the nearest authorized parts distributor.

For technical assistance, call (920) 748-3121.

## Serial Plate Location

When calling or writing about your product, be sure to mention model and serial numbers. Model and serial numbers are located on serial plate as shown.



TMB1764S

## Safety Warnings and Decals

SAFETY WARNINGS and decals have been provided in key locations to remind you of important precautions for the safe operation and maintenance of your tumbler. Please take the time to review these warnings before proceeding with service work.

All decals have been designed and applied to withstand washing and cleaning. Decals should be checked periodically to be sure they have not been damaged, removed, or painted. Refer to the *Parts Manual* for ordering replacement decals.

## Safety Precautions for Servicing Tumblers

- **Disconnect electrical service.**
- **Shut off supply gas valve before servicing gas components.**
- **Access panel MUST be reinstalled after inspection or servicing of tumbler is completed.**
- **Use a non-corrosive leak detecting compound to check all pipe connections for gas leaks. DO NOT USE AN OPEN FLAME TO CHECK FOR GAS LEAKS!**
- **Belt guard MUST be reinstalled after inspection or servicing of tumbler is completed.**
- **Contact box cover MUST be reinstalled after inspection or servicing of electric and/or reversing tumbler is completed.**
- **Loading door switch MUST be operational before putting tumbler into service.**
- **Junction box cover MUST be reinstalled after inspection or servicing of tumbler is completed.**



# Section 3

## Troubleshooting



### WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

**IMPORTANT:** Refer to appropriate wiring diagram for aid in testing tumbler components.

#### 1. MOTOR DOES NOT START

POSSIBLE CAUSE	TO CORRECT
Electrical power off, circuit breaker tripped or blown control fuse.	<ul style="list-style-type: none"> <li>• Check service to tumbler.</li> <li>• Check primary and secondary fuses.</li> </ul>
Inoperative transformer.	<ul style="list-style-type: none"> <li>• Replace transformer.</li> </ul>
Loading door not closed or inoperative door switch.	<ul style="list-style-type: none"> <li>• Close door or test switch and replace if inoperative.</li> </ul>
Lint panel switch not closing.	<ul style="list-style-type: none"> <li>• Test lint panel switch, replace if inoperative.</li> </ul>
Trunnion bearings binding.	<ul style="list-style-type: none"> <li>• Replace trunnion bearings.</li> </ul>
Start circuit not completed.	<ul style="list-style-type: none"> <li>• Press start switch or test switch and replace if inoperative.</li> </ul>
Idler bearings binding.	<ul style="list-style-type: none"> <li>• Replace bearings.</li> </ul>
Inoperative motor.	<ul style="list-style-type: none"> <li>• Have motor tested and replace if inoperative.</li> </ul>
Inoperative relay.	<ul style="list-style-type: none"> <li>• Replace relay.</li> </ul>
Timer improperly set.	<ul style="list-style-type: none"> <li>• Turn drying timer clockwise to desired setting.</li> </ul>
Inoperative timer.	<ul style="list-style-type: none"> <li>• Test timer and replace if inoperative.</li> </ul>
Broken, loose or incorrect wiring.	<ul style="list-style-type: none"> <li>• Refer to wiring diagram located on back of tumbler or in literature packet.</li> </ul>



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 2. MOTOR OVERLOAD PROTECTOR CYCLES REPEATEDLY

POSSIBLE CAUSE	TO CORRECT
Incorrect voltage.	• Refer to <i>Installation Manual</i> for electrical requirements.
Clothes load too large.	• Remove part of load.
Cylinder binding.	• Check cylinder for binding. Refer to <i>Adjustment</i> Section in this manual for cylinder adjustment.
Inadequate wiring.	• Electrician should verify that wiring and voltage is adequate.
Inadequate make-up air.	• Refer to <i>Installation Manual</i> for make-up air requirements.
Poor maintenance.	• Clean lint accumulation on and around the motor.
Broken, loose or incorrect wiring.	• Refer to wiring diagram located on back of tumbler or in literature packet.

### 3. MOTOR RUNS BUT CYLINDER DOES NOT TURN.

POSSIBLE CAUSE	TO CORRECT
Motor drive pulley loose.	• Tighten drive pulley bushing screws.
Broken or loose cylinder belts.	• Replace or adjust belts.
Broken or loose drive belt.	• Replace or adjust belt.
Cylinder binding.	• Check cylinder for binding. Refer to <i>Adjustment</i> Section in this manual for proper cylinder adjustment.

### 4. MOTOR DOES NOT STOP

POSSIBLE CAUSE	TO CORRECT
Inoperative door switch or lint panel switch.	• Test switches and replace if inoperative.
Inoperative timer.	• Test timer and replace if inoperative.
Incorrect wiring.	• Refer to wiring diagram located on back of tumbler or in literature packet.
Inoperative motor contactor.	• Test motor contactor and replace if inoperative.



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W002

POSSIBLE CAUSE	TO CORRECT
Improper or inadequate exhaust system.	<ul style="list-style-type: none"> <li>• Refer to the <i>Installation Manual</i> for exhaust system requirements.</li> </ul>
Drying timer not selected or inoperative.	<ul style="list-style-type: none"> <li>• Set drying timer or replace if inoperative.</li> </ul>
Inoperative thermostat. Insufficient gas supply.	<ul style="list-style-type: none"> <li>• Test thermostat and replace if inoperative.</li> <li>• Open partially closed gas shut-off valve, or correct low gas pressure. Check manifold pressure and adjust to pressure specified on serial plate. If pressure cannot be obtained, have gas supplier check main pressure.</li> </ul>
Incorrect orifices.	<ul style="list-style-type: none"> <li>• Tumbler is equipped for type of gas specified on serial plate. If orifices are different from that specified on serial plate, obtain and install proper orifices.</li> </ul>
Inoperative igniter.	<ul style="list-style-type: none"> <li>• Test igniter and replace if inoperative.</li> </ul>
Inoperative igniter control.	<ul style="list-style-type: none"> <li>• Test igniter control and replace if inoperative.</li> </ul>
Inoperative gas valve coils. Lint buildup.	<ul style="list-style-type: none"> <li>• Test coils and replace if inoperative.</li> <li>• Clean lint compartment after every eight-hour shift. Check back draft damper for lint accumulation. Check ductwork for lint build-up.</li> </ul>
Inadequate ductwork and make-up air.	<ul style="list-style-type: none"> <li>• Refer to <i>Installation Manual</i> to ensure that ductwork and make-up air openings are sized properly.</li> </ul>
Inoperative airflow switch. Lint door panel not closed properly.	<ul style="list-style-type: none"> <li>• Test switch and replace if inoperative.</li> <li>• Open lint door panel, place lint door and panel back on tumbler (ensuring a tight fit).</li> </ul>
Broken, loose or incorrect wiring.	<ul style="list-style-type: none"> <li>• Refer to wiring diagram located on back of tumbler or in literature packet.</li> </ul>
Improper fan rotation.	<ul style="list-style-type: none"> <li>• May be due to improper wiring resulting in low airflow. Refer to <i>Installation Manual</i>.</li> </ul>



## WARNING

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- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 6. BURNER IGNITES AND GOES OUT REPEATEDLY

POSSIBLE CAUSE	TO CORRECT
Insufficient gas pressure.	<ul style="list-style-type: none"> <li>• Check gas supply and pressure. Low flame will not maintain sensor conductivity.</li> </ul>
Burner ports plugged.	<ul style="list-style-type: none"> <li>• Check burner tubes for build-up.</li> </ul>
Improper or inadequate exhaust system or make-up air	<ul style="list-style-type: none"> <li>• Refer to <i>Installation Manual</i> for exhaust and make-up air requirements.</li> </ul>
Inoperative high limit or cabinet limit thermostat.	<ul style="list-style-type: none"> <li>• Test thermostat and replace if inoperative.</li> </ul>
Improper orifices.	<ul style="list-style-type: none"> <li>• Tumbler is equipped for type of gas specified on serial plate. If orifices are different from that specified on serial plate, obtain and install proper orifices.</li> </ul>
Improper flame recognition circuit.	<ul style="list-style-type: none"> <li>• Replace high voltage lead.</li> <li>• Replace ignitor</li> <li>• Replace ignition control module.</li> </ul>

### 7. BURNER SHUTS OFF PREMATURELY

POSSIBLE CAUSE	TO CORRECT
Improper or inadequate exhaust and/or make-up air system.	<ul style="list-style-type: none"> <li>• Refer to <i>Installation Manual</i> for exhaust and make-up air requirements.</li> </ul>
Insufficient gas supply.	<ul style="list-style-type: none"> <li>• Open partially closed gas shut-off valve or correct low pressure.</li> </ul>
Tumbler not properly equipped for type of gas used or altitude.	<ul style="list-style-type: none"> <li>• Tumbler is equipped for type of gas specified on serial plate. If not properly equipped for gas type and altitude, obtain and install correct components.</li> </ul>
Improperly adjusted burner flame.	<ul style="list-style-type: none"> <li>• Refer to <i>Adjustment</i> Section in this manual for burner flame adjustment.</li> </ul>
Cycling off on high limit thermostat.	<ul style="list-style-type: none"> <li>• Refer to <i>Paragraph 8</i>.</li> </ul>
Broken, loose or incorrect wiring.	<ul style="list-style-type: none"> <li>• Refer to wiring diagram located on back of tumbler or in literature packet.</li> </ul>
Improper fan rotation.	<ul style="list-style-type: none"> <li>• May be due to improper wiring resulting in low airflow. Refer to <i>Installation Manual</i>.</li> </ul>
Inoperative gas valve coils.	<ul style="list-style-type: none"> <li>• Test coils and replace if inoperative.</li> </ul>



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- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 8. BURNER REPEATEDLY CYCLES OFF ON HIGH LIMIT THERMOSTAT

POSSIBLE CAUSE	TO CORRECT
External exhaust system is longer than recommended or inadequate make-up air.	<ul style="list-style-type: none"> <li>• Refer to <i>Installation Manual</i> for exhaust and make-up air requirements.</li> </ul>
Clogged lint screen.	<ul style="list-style-type: none"> <li>• Remove screen and clean. Lint screen and compartment should be cleaned after every eight hour shift.</li> </ul>
Lint in internal tumbler ductwork.	<ul style="list-style-type: none"> <li>• Disassemble tumbler ductwork and clean.</li> </ul>
Lint in external exhaust system.	<ul style="list-style-type: none"> <li>• Disassemble exhaust system and clean.</li> </ul>
High limit thermostat cycling at too low a temperature.	<ul style="list-style-type: none"> <li>• Replace thermostat.</li> </ul>
Lint door panel not closed properly.	<ul style="list-style-type: none"> <li>• Remove lint door panel - place lint door panel back on tumbler (ensuring a tight fit).</li> </ul>
Improper fan rotation.	<ul style="list-style-type: none"> <li>• May be due to improper wiring resulting in low airflow. Refer to <i>Installation Manual</i>.</li> </ul>

### 9. STEAM VALVE OR BURNER DOES NOT SHUT-OFF

POSSIBLE CAUSE	TO CORRECT
Impurities on gas or steam valve seat, preventing valve from closing.	<ul style="list-style-type: none"> <li>• Replace gas valve or disassemble and clean steam valve.</li> </ul>
Inoperative drying timer or control relay.	<ul style="list-style-type: none"> <li>• Replace timer or control relay.</li> </ul>
Incorrect wiring.	<ul style="list-style-type: none"> <li>• Refer to wiring diagram located on back of tumbler or in literature packet.</li> </ul>



## WARNING

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W002

### 10. CLOTHES DO NOT DRY

POSSIBLE CAUSE	TO CORRECT
Heat source inoperative.	<ul style="list-style-type: none"> <li>• Refer to <i>Paragraph 17</i>.</li> </ul>
Too much water in articles being dried.	<ul style="list-style-type: none"> <li>• Remove excess water.</li> </ul>
Clothes load too large.	<ul style="list-style-type: none"> <li>• Remove part of load. 120 pounds dry weight (AHAM cotton load) is maximum load.</li> </ul>
Improper or inadequate exhaust system.	<ul style="list-style-type: none"> <li>• Refer to <i>Installation Manual</i> for exhaust requirements.</li> </ul>
Heat source shuts off prematurely.	<ul style="list-style-type: none"> <li>• Refer to <i>Paragraph 18</i>.</li> </ul>
Drying timer improperly set.	<ul style="list-style-type: none"> <li>• Set selector for higher setting.</li> </ul>
Incorrect voltage.	<ul style="list-style-type: none"> <li>• Refer to <i>Installation Manual</i> for electrical requirements.</li> </ul>
Inadequate make-up air.	<ul style="list-style-type: none"> <li>• Refer to <i>Installation Manual</i> for make-up air requirements.</li> </ul>
Improper fan rotation.	<ul style="list-style-type: none"> <li>• May be due to improper wiring resulting in low airflow. Refer to <i>Installation Manual</i>.</li> </ul>

### 11. TUMBLER OVERHEATING

POSSIBLE CAUSE	TO CORRECT
Gas Models: Incorrect main burner orifices.	<ul style="list-style-type: none"> <li>• Replace orifices.</li> </ul>
Gas Models: Gas pressure too high.	<ul style="list-style-type: none"> <li>• Adjust gas pressure as specified on serial plate.</li> </ul>
Steam Models: Steam solenoid valve stuck open.	<ul style="list-style-type: none"> <li>• Clean solenoid valve and replace if necessary.</li> </ul>
Inadequate make-up air.	<ul style="list-style-type: none"> <li>• Refer to <i>Installation Manual</i> for make-up air requirements.</li> </ul>
Lint accumulation.	<ul style="list-style-type: none"> <li>• Remove lint.</li> </ul>
Restricted or inadequate exhaust system.	<ul style="list-style-type: none"> <li>• Remove obstruction or lint build-up from exhaust ductwork. Refer to the <i>Installation Manual</i> for exhaust system requirements.</li> </ul>
Inoperative thermostat.	<ul style="list-style-type: none"> <li>• Replace thermostat.</li> </ul>



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 12. BURNERS NOT BURNING PROPERLY - GAS MODELS


POSSIBLE CAUSE	TO CORRECT
Burner air shutters incorrectly adjusted.	<ul style="list-style-type: none"> <li>• Refer to <i>Adjustment</i> Section in this manual for proper flame adjustment.</li> </ul>
Foreign material in burners.	<ul style="list-style-type: none"> <li>• Disassemble burners and remove obstruction.</li> </ul>
Gas pressure too high.	<ul style="list-style-type: none"> <li>• Check serial plate on back of tumbler for correct gas pressure.</li> </ul>
Incorrect orifices.	<ul style="list-style-type: none"> <li>• Tumbler is equipped for type of gas specified on serial plate. If orifices are different from that specified on serial plate, obtain and install proper orifices.</li> </ul>
Restricted or blocked exhaust duct.	<ul style="list-style-type: none"> <li>• Disassemble and clean exhaust system.</li> </ul>
Airflow switch not functioning properly.	<ul style="list-style-type: none"> <li>• Check adjustment and replace airflow switch if necessary.</li> </ul>
Improper fan rotation.	<ul style="list-style-type: none"> <li>• May be due to improper wiring resulting in low airflow. Refer to <i>Installation Manual</i>.</li> </ul>

### 13. LOADING DOOR OPENS DURING OPERATION

POSSIBLE CAUSE	TO CORRECT
Door strike improperly adjusted.	<ul style="list-style-type: none"> <li>• Refer to <i>Adjustment</i> Section in this manual for door strike adjustment.</li> </ul>
Tumbler improperly leveled.	<ul style="list-style-type: none"> <li>• Refer to <i>Adjustment</i> Section in this manual for leveling adjustment.</li> </ul>

### 14. TUMBLER RUNS BUT NO STEAM TO COILS - STEAM MODELS

POSSIBLE CAUSE	TO CORRECT
Shut-off valve closed.	<ul style="list-style-type: none"> <li>• Check all valves in supply and return lines make sure they are open.</li> </ul>
Blocked steam trap.	<ul style="list-style-type: none"> <li>• Remove trap and clean. Replace if inoperative.</li> </ul>
Inoperative solenoid valve.	<ul style="list-style-type: none"> <li>• Check operation of solenoid valve.</li> </ul>
Incorrect installation of check valve.	<ul style="list-style-type: none"> <li>• Check for inlet and outlet markings on check valve and invert if necessary.</li> </ul>
Clogged strainer.	<ul style="list-style-type: none"> <li>• Remove strainer and clean.</li> </ul>
Clogged steam valve.	<ul style="list-style-type: none"> <li>• Remove steam valve and clean or replace. Clean strainer before returning unit to service.</li> </ul>

	<b>WARNING</b>
<p>To reduce the risk of electric shock, fire, explosion, serious injury or death:</p> <ul style="list-style-type: none"> <li>• Disconnect electric power to the tumbler before servicing.</li> <li>• Close gas shut-off valve to gas tumbler before servicing.</li> <li>• Close steam valve to steam tumbler before servicing.</li> <li>• Never start the tumbler with any guards/panels removed.</li> <li>• Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.</li> </ul>	
W002	

**15. WATER IN STEAM LINE - STEAM MODELS**

POSSIBLE CAUSE	TO CORRECT
Incorrect installation of steam piping.	<ul style="list-style-type: none"> <li>• Refer to <i>Installation Manual</i> for steam requirements.</li> </ul>
Trap functioning improperly.	<ul style="list-style-type: none"> <li>• Check trap for size and capacity. If trap is dirty or sluggish, clean thoroughly or replace. Check return line for high back pressure. Check trap for proper installation. Refer to <i>Installation Manual</i> for requirements.</li> </ul>



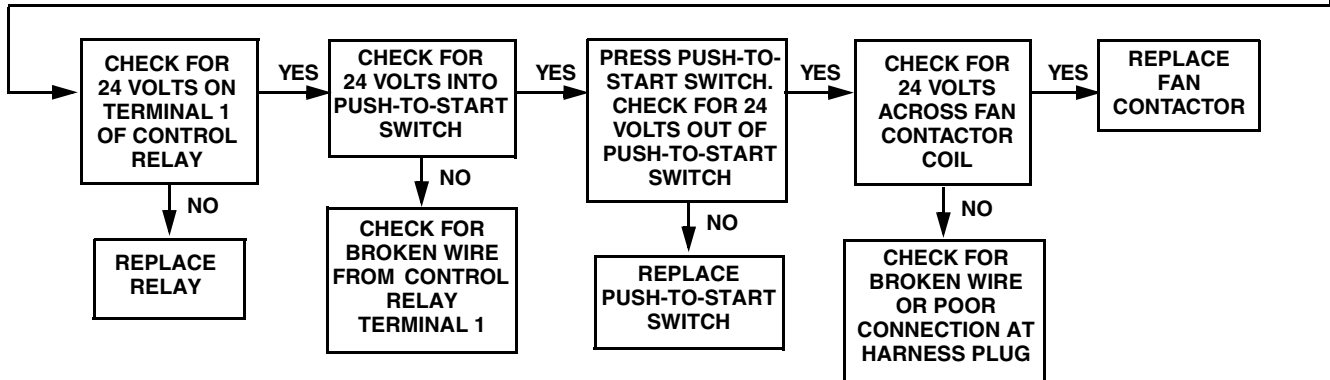
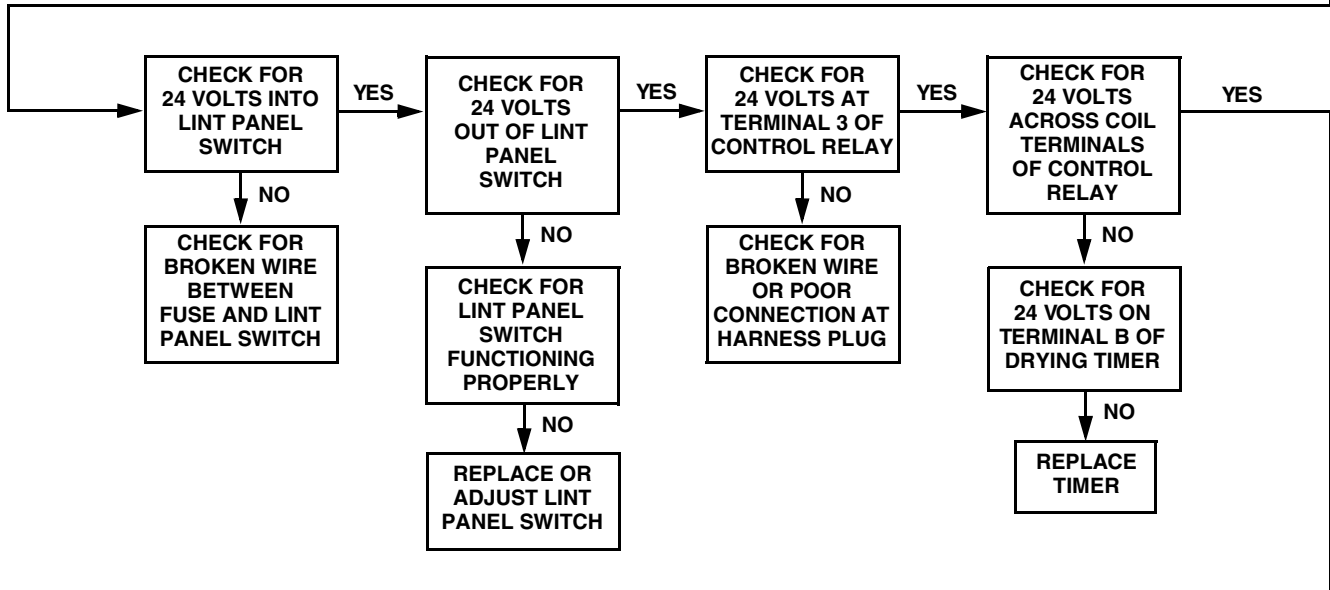
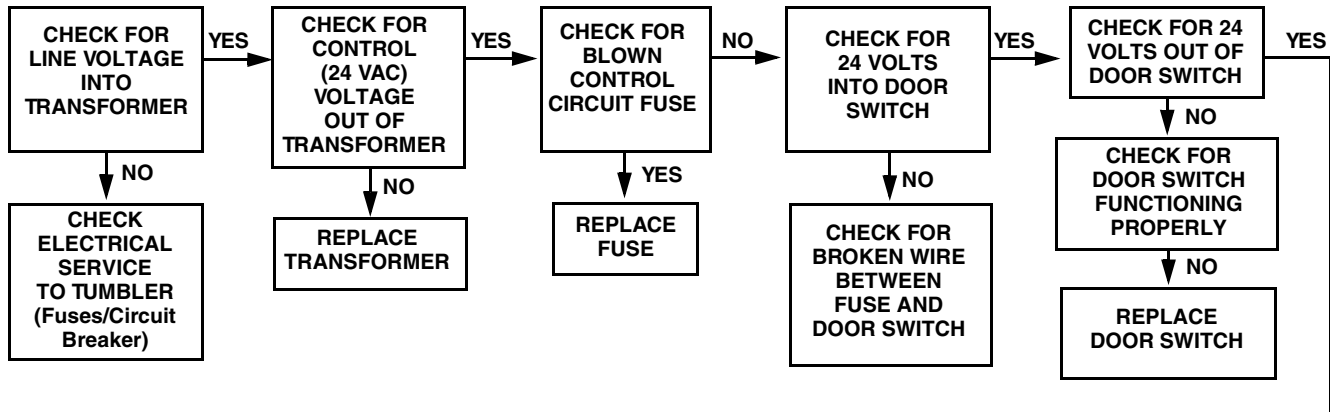
## WARNING


To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

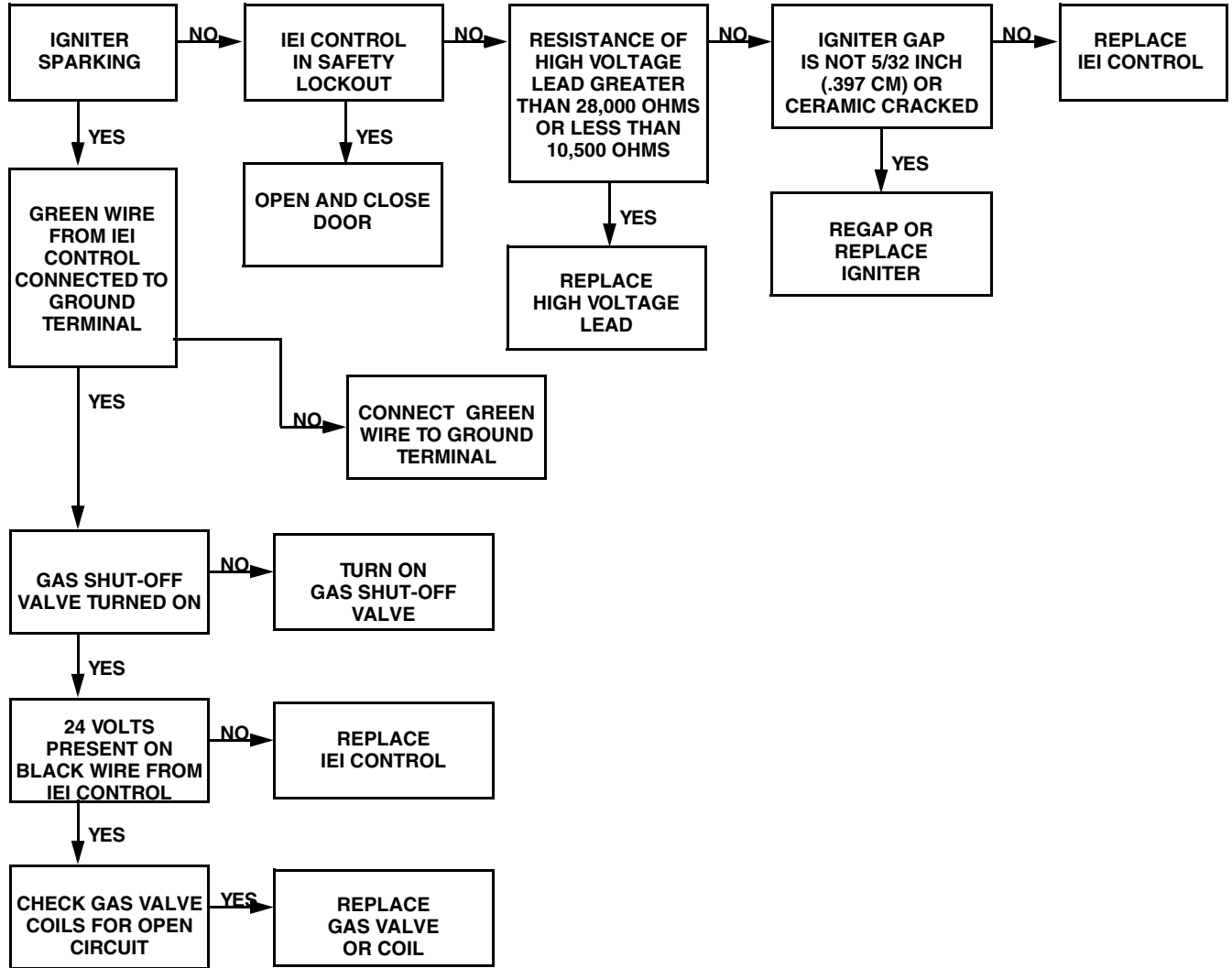
W002

### 16. TUMBLER WILL NOT START, TIME ON DRYING TIMER, DOOR CLOSED



	WARNING
<p>To reduce the risk of electric shock, fire, explosion, serious injury or death:</p> <ul style="list-style-type: none"> <li>• Disconnect electric power to the tumbler before servicing.</li> <li>• Close gas shut-off valve to gas tumbler before servicing.</li> <li>• Close steam valve to steam tumbler before servicing.</li> <li>• Never start the tumbler with any guards/panels removed.</li> <li>• Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.</li> </ul>	
W002	

**17. MOTOR RUNS BUT WILL NOT HEAT**





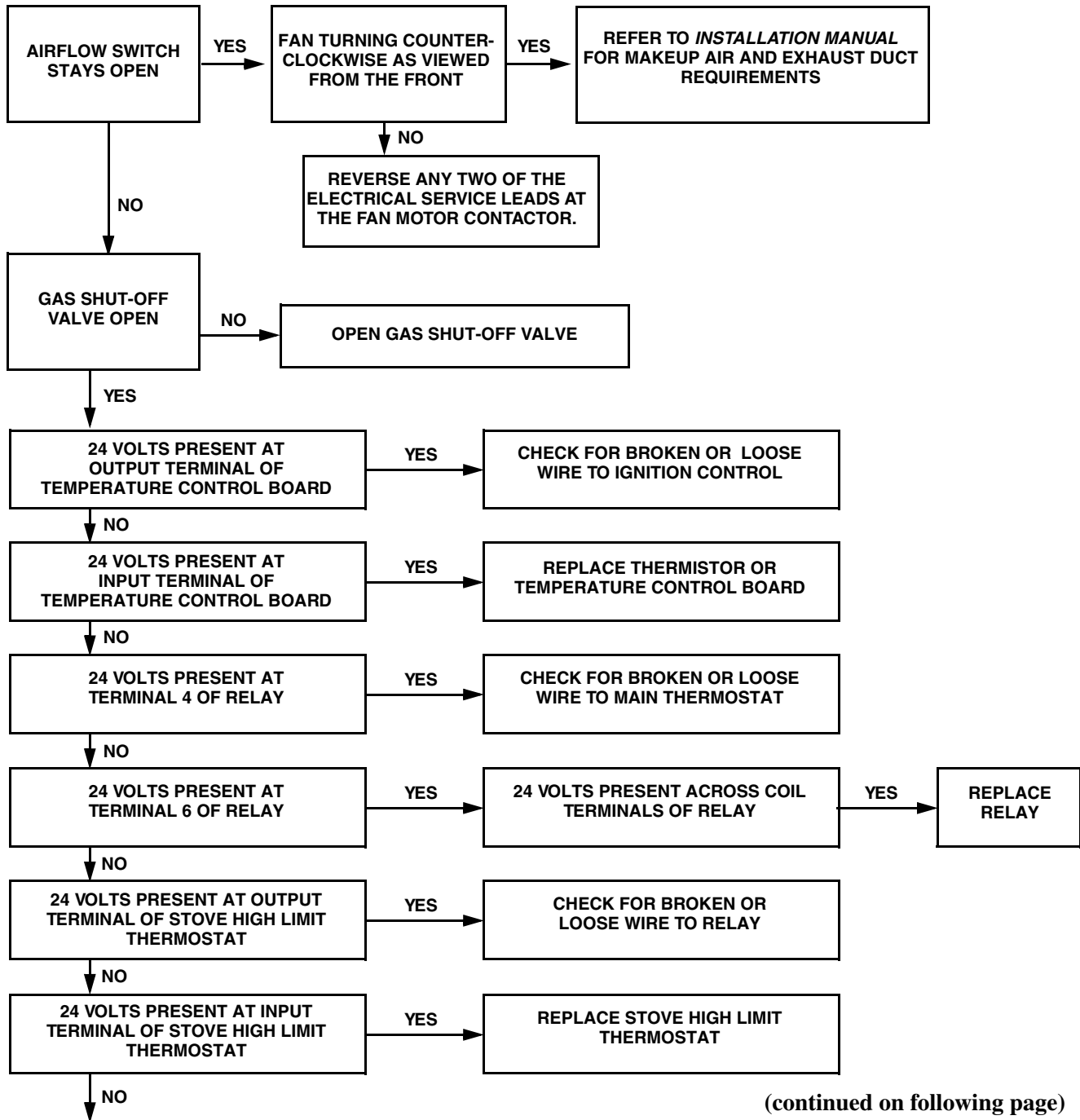
## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

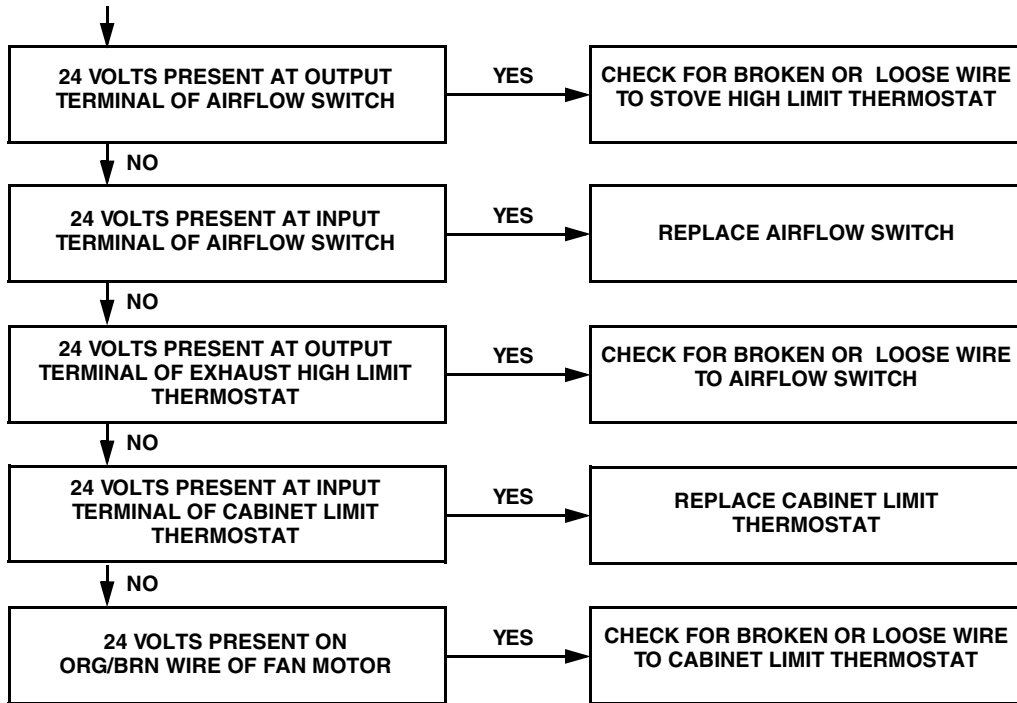
### 18. CYLINDER TURNS, BUT WILL NOT HEAT



(continued on following page)

Section 3 Troubleshooting

18. CYLINDER TURNS, BUT WILL NOT HEAT (continued)



# Section 4 Grounding



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002



## WARNING

To reduce the risk of fire and electric shock, check with a qualified serviceperson for proper grounding procedures. Improper connection of the equipment grounding conductor may result in a risk of electric shock.

W068R1



## WARNING

To reduce the risk of fire and electric shock if electrical supply is coming from a three phase service:

- If there is a “High Leg” or “Stinger Leg” it should be connected to L3.

W446

### 19. GROUNDING INSTRUCTIONS

This tumbler must be grounded. In the event of malfunction or breakdown, grounding will reduce the risk of electric shock by providing the path of least resistance for electric current. This tumbler must be connected to a grounded metal, permanent wiring system or an equipment grounding conductor must be run with the circuit conductors and connected to the appropriate ground location.

**NOTE:** To ensure protection against shock, this tumbler **MUST** be electrically grounded in accordance with local codes, or, in the absence of local codes, with the latest edition of the National Electrical Code ANSI/NFPA No. 70. In Canada the electrical connections are to be made in accordance with CSA C22.1 or the latest edition of the Canadian Electrical Code, Part I and/or local codes. Electrical work should be done by a qualified electrician.



## WARNING

All electrical connections should be made by a qualified electrician.

To reduce the risk of electrical shock, de-energize the electrical circuit being connected to the tumbler before making any electrical connections. Never attempt to connect a live circuit.

W070



# Section 5

## Service Procedures



### WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

#### 20. ACCESS PANEL/INTERIOR CONTROL BOX

- a. Remove four screws holding access panel to cabinet. Refer to *Figure 1*.
- b. Lift access panel off top edge of front panel and pull panel forward. Refer to *Figure 1*.
- c. Remove interior control box cover. Refer to *Figure 2*.

- b. Lift access panel off top edge of front panel and pull panel forward. Refer to *Figure 1*.
- c. Remove interior control box cover. Refer to *Figure 2*.
- d. Locate fuse holder on center wall of interior control box and disconnect wires to fuse holder terminals.
- e. Release locking nut on fuse holder at rear surface of interior control box center wall and remove fuse holder.

#### 21. CONTROL FUSE HOLDER

- a. Remove four screws holding access panel to cabinet. Refer to *Figure 1*.

**NOTE:** Refer to wiring diagram when rewiring fuse holder.

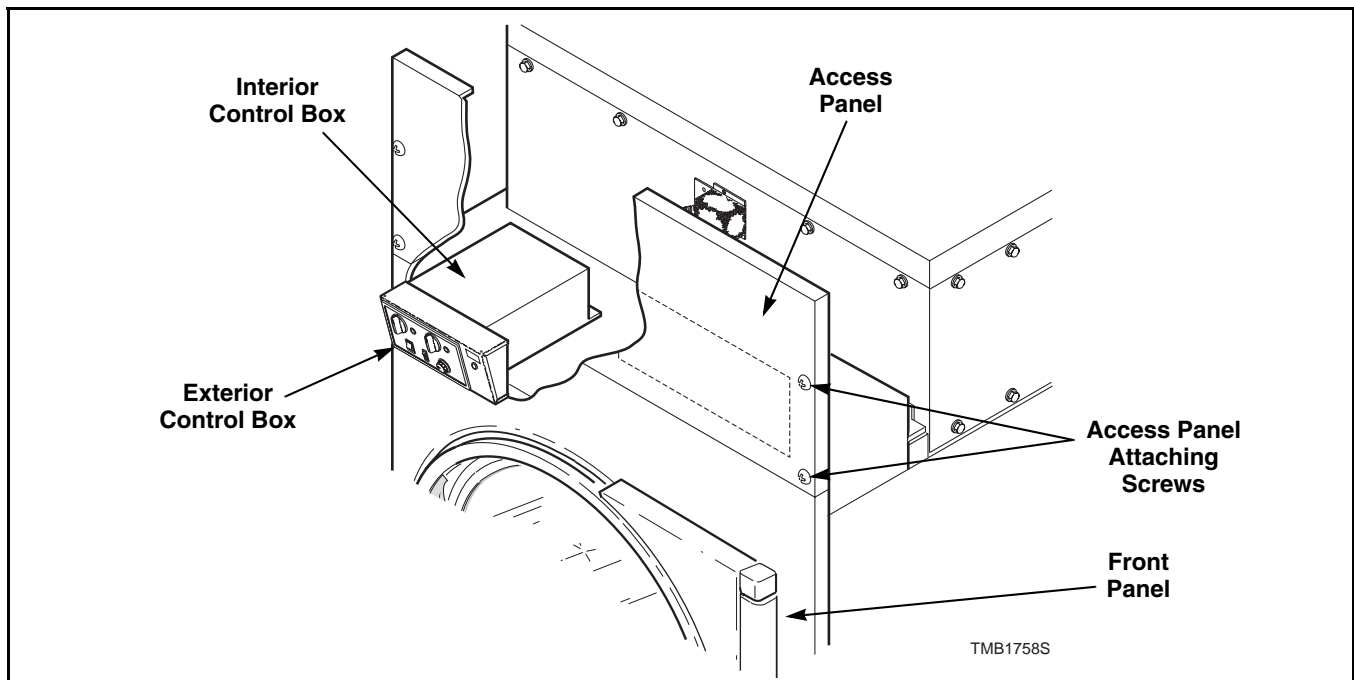


Figure 1



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 22. CONTROL FUSE

Refer to *Figure 2*.

- a. Remove four screws from top and bottom surfaces of exterior control box cover and remove cover, disconnecting control box cover harness or load ready light wires.
- b. Remove screw from left and right sides of control bracket securing control plate. Refer to *Figure 4*.
- c. Pivot plate forward to horizontal.
- d. Grasp fuse cover and rotate left until cover releases.
- e. Replace fuse.

### 23. SIGNAL BUZZER

- a. Remove four screws holding access panel to cabinet. Refer to *Figure 1*.
- b. Lift access panel off top edge of front panel and pull panel forward. Refer to *Figure 1*.
- c. Remove interior control box cover. Refer to *Figure 2*.
- d. Locate buzzer on center wall of interior control box and disconnect wires to signal terminals.
- e. Rotate buzzer to remove from control box wall.

**NOTE: Buzzer signal intensifies when turned clockwise.**

**NOTE: Refer to wiring diagram when rewiring signal.**

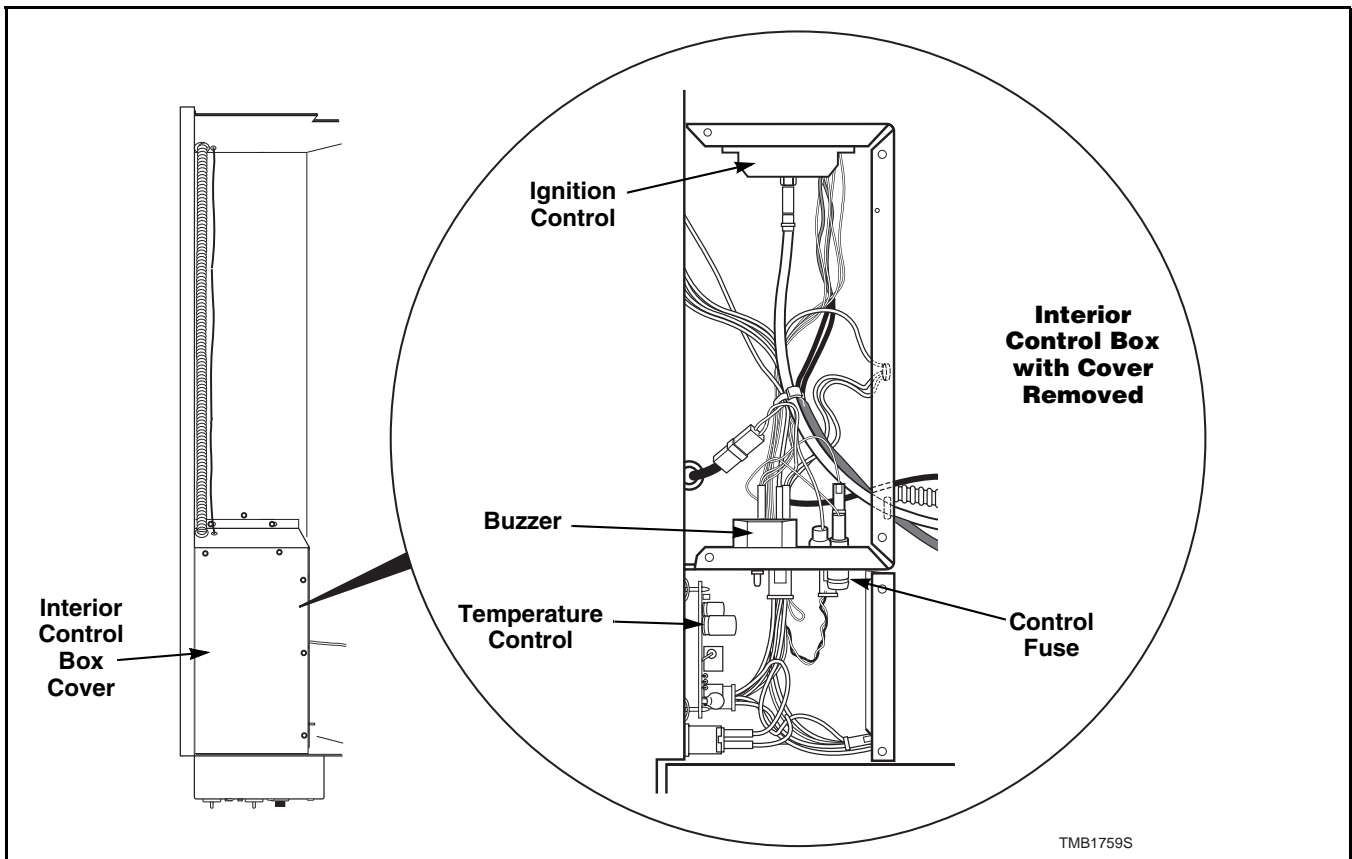


Figure 2

TMB1759S



## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**

- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

### 24. LOAD READY LIGHT

(Manual Timer Models)

Refer to *Figure 3*.

- a. Remove four screws from top and bottom surfaces of exterior control box cover.
- b. Pull cover forward. Disconnect wires from light terminals and remove light by depressing locking tabs.

**NOTE: Refer to wiring diagram when rewiring light.**

### 25. IGNITION RESET SWITCH

(European Gas Models Only)

Refer to *Figure 3*.

- a. Remove four screws from top and bottom surfaces of exterior control box cover.
- b. Pull cover forward. Disconnect control box cover harness and remove cover assembly.
- c. Remove wires from ignition switch terminals and remove switch by depressing locking tabs.

**NOTE: Refer to wiring diagram when rewiring reset switch.**

### 26. EMERGENCY STOP SWITCH

(European Gas Models Only)

Refer to *Figure 3*.

- a. Remove four screws from top and bottom surfaces of exterior control box cover.
- b. Pull cover forward. Disconnect control box cover harness and remove cover assembly.
- c. Remove wires from emergency stop switch screw terminals.
- d. Remove switch from control cover by loosening long screw at bottom of switch followed by grasping a pulling down black L-shaped lever on top of switch.

**NOTE: Refer to wiring diagram when rewiring emergency stop switch.**

### 27. PUSH-TO-START SWITCH

(Manual Timer Models)

- a. Remove four screws from top and bottom surfaces of exterior control box cover and remove cover, disconnecting control box cover harness or load ready light wires.
- b. Remove screw from left and right sides of control bracket securing control plate. Refer to *Figure 3*.
- c. Pivot plate forward to horizontal.
- d. Disconnect wires from switch terminals and remove switch by depressing locking tabs.

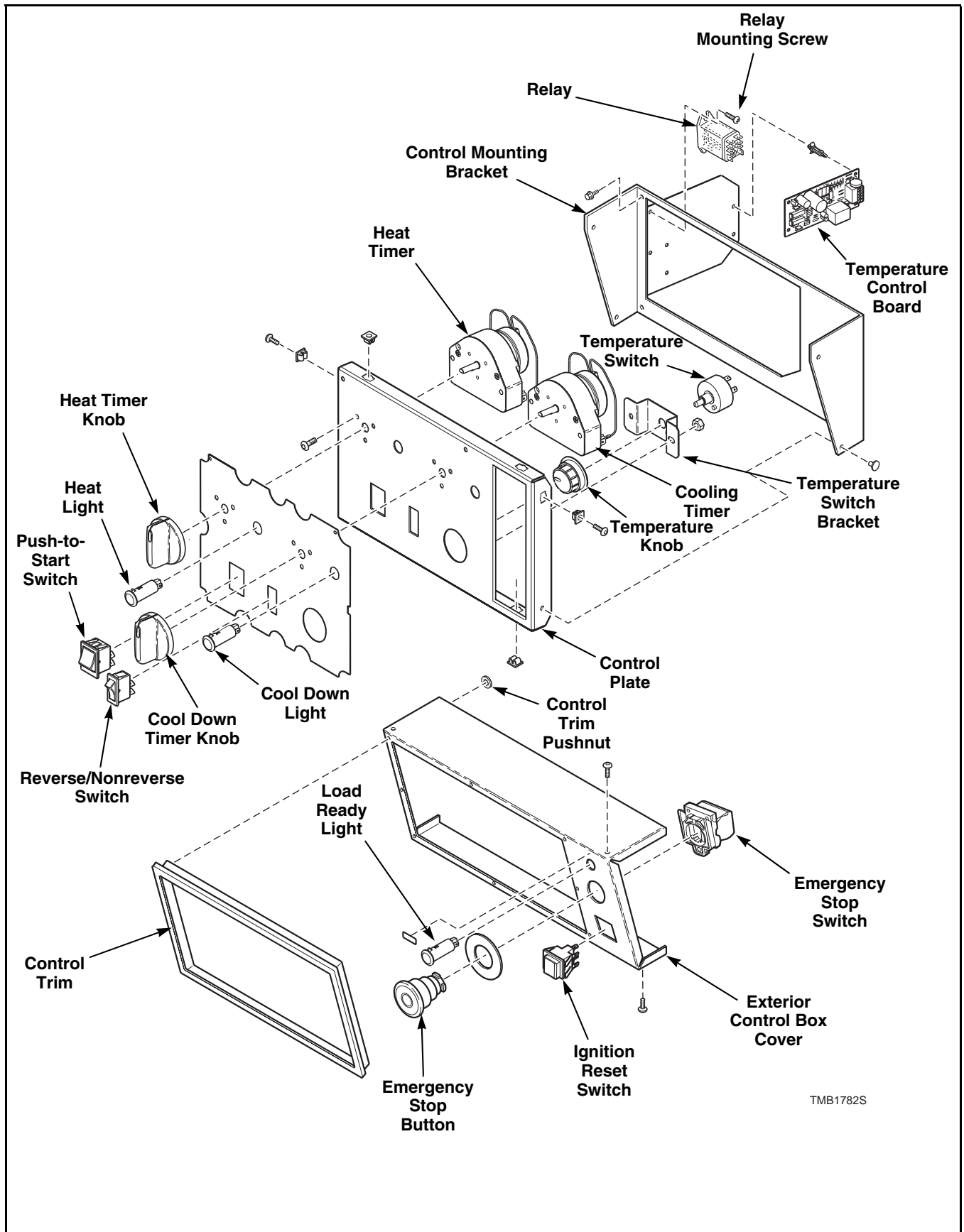
**NOTE: Refer to wiring diagram when rewiring switch.**

### 28. COOL DOWN AND HEAT LIGHTS

(Manual Timer Models)

- a. Remove four screws from top and bottom surfaces of exterior control box cover and remove cover, disconnecting control box cover harness or load ready light wires.
- b. Remove screw from left and right sides of control bracket securing control plate. Refer to *Figure 3*.
- c. Pivot plate forward to horizontal.
- d. Disconnect wires from light terminals and remove switch by depressing locking tabs.

**NOTE: Refer to wiring diagram when rewiring light.**



TMB1782S

Figure 3



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 29. COOL DOWN AND HEAT TIMERS

(Manual Timer Models)

- a. Pull timer knob off timer shaft. Refer to *Figure 3*.
- b. Remove four screws from top and bottom surfaces of exterior control box cover and remove cover, disconnecting control box cover harness or load ready light wires.
- c. Remove screw from left and right sides of control bracket securing control plate. Refer to *Figure 3*.
- d. Pivot plate forward to horizontal.
- e. Remove wires from timer terminals.
- f. Remove three screws holding timer to control plate.

**NOTE: Refer to wiring diagram when rewiring timer.**

### 30. RELAY

- a. Remove four screws from top and bottom surfaces of exterior control box cover and remove cover, disconnecting control box cover harness or load ready light wires.
- b. Remove screw from left and right sides of control bracket securing control plate. Refer to *Figure 3*.
- c. Pivot plate forward to horizontal.
- d. Disconnect wires from relay terminals and remove screws securing relay to control mounting bracket.

**NOTE: Refer to wiring diagram when rewiring relay.**

### 31. REVERSING/NONREVERSING SWITCH

(Manual Timer Models)

- a. Remove four screws from top and bottom surfaces of exterior control box cover and remove cover, disconnecting control box cover harness or load ready light wires.
- b. Remove screw from left and right sides of control bracket securing control plate. Refer to *Figure 3*.
- c. Pivot plate forward to horizontal.
- d. Remove wires from switch terminals and remove switch by depressing locking tabs.

**NOTE: Refer to wiring diagram when rewiring switch.**

### 32. TEMPERATURE SWITCH

(Manual Timer Models)

- a. Remove four screws from top and bottom surfaces of exterior control box cover and remove cover, disconnecting control box cover harness or load ready light wires.
- b. Remove screw from left and right sides of control bracket securing control plate. Refer to *Figure 3*.
- c. Pivot plate forward to horizontal.
- d. Remove wires from temperature switch terminals and two nuts securing temperature switch bracket to control plate.
- e. Remove temperature switch knob from temperature switch shaft.
- f. Remove nut securing temperature switch to temperature switch bracket and pull switch out.

**NOTE: Refer to wiring diagram when rewiring switch.**



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 33. TEMPERATURE CONTROL BOARD

(Manual Timer Models)

Refer to *Figure 3*.

- a. Remove four screws from top and bottom surfaces of exterior control box cover and remove cover, disconnecting control box cover harness or load ready light wires.
- b. Remove screw from left and right sides of control bracket securing control plate.
- c. Pivot plate forward to horizontal.
- d. Disconnect two plugs from wall of interior control box and disconnect control box cover harness (European models only).
- e. Remove four screws securing control mounting bracket to front panel, careful to support control plate assembly.
- f. Pull entire control assembly away from unit.
- g. Disconnect wires from temperature control board.
- h. Depress four locking tabs securing control board to printed circuit board supports. Remove control.

**NOTE:** Refer to wiring diagram when rewiring temperature control.

**IMPORTANT:** Due to sensitivity of electronic control, careful handling is required. As a precautionary measure, we recommend using a grounded wrist strap when handling control. Wrist strap, cord and alligator clip are designed to carry away any electrostatic charge from your body and to direct charge to an available ground.

Handle control circuit board by the sides only. Do not contact circuit boards with hands or metal objects. Place control in a clean, dry area away from work area to avoid damage. Do not attempt field repair of the control. Attempted repair or tampering with the control will void its warranty.

### 34. ELECTRONIC CONTROL

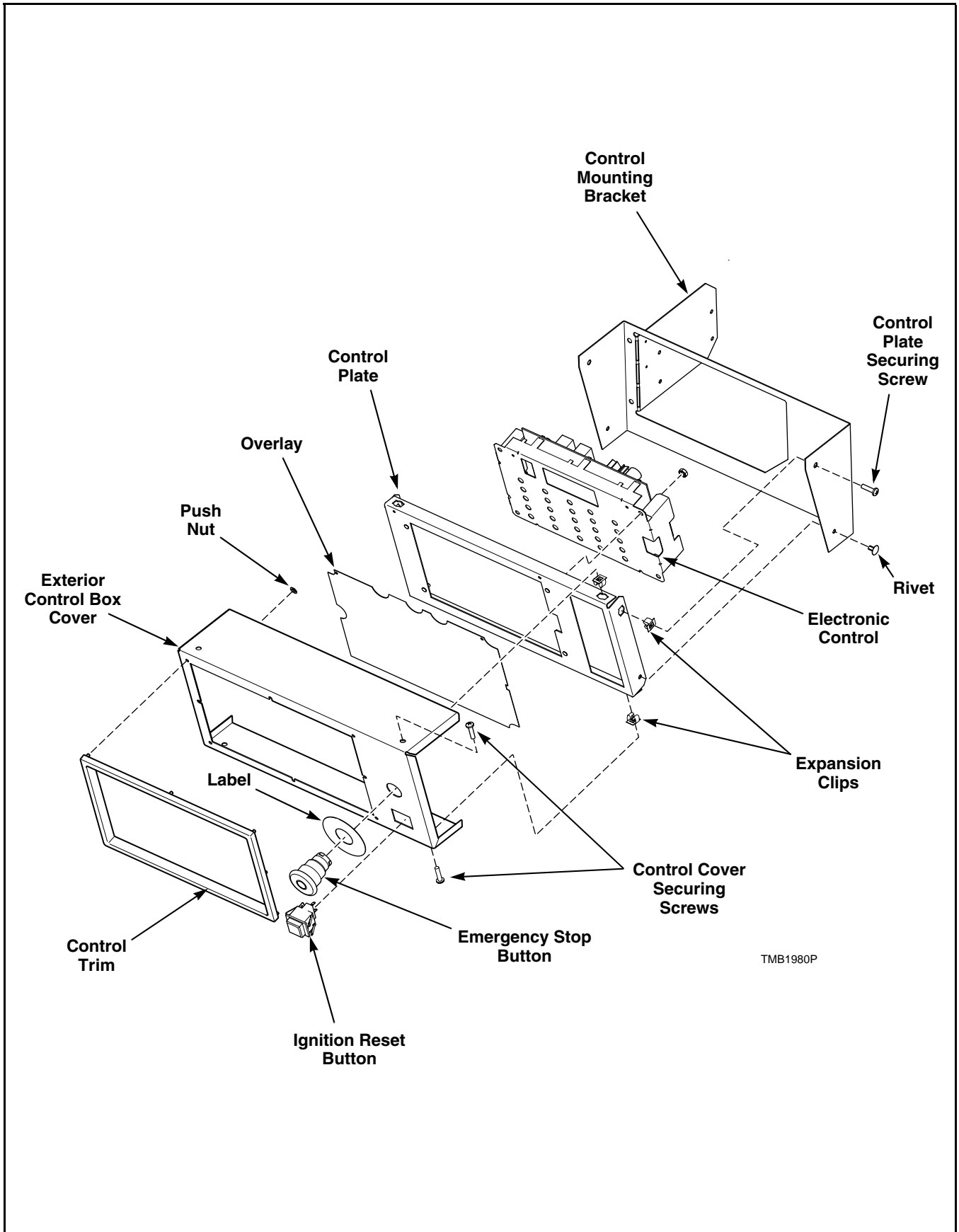
Refer to *Figure 4*.

- a. Remove four screws from top and bottom surfaces of exterior control box cover.
- b. Pull cover forward. Disconnect control box cover harness (European models only).
- c. Remove screw from left and right sides of control bracket securing control plate.
- d. Pivot plate forward to horizontal.
- e. Disconnect wires from control.
- f. Remove four nuts securing control to control plate.

**NOTE:** Refer to wiring diagram when rewiring control.

**IMPORTANT:** Due to sensitivity of electronic control, careful handling is required. As a precautionary measure, we recommend using a grounded wrist strap when handling control. Wrist strap, cord and alligator clip are designed to carry away any electrostatic charge from your body and to direct charge to an available ground.

Handle control circuit board by the sides only. Do not contact circuit boards with hands or metal objects. Place control in a clean, dry area away from work area to avoid damage. Do not attempt field repair of the control. Attempted repair or tampering with the control will void its warranty.



TMB1980P

Figure 4



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 35. LOADING DOOR ASSEMBLY

Refer to *Figure 5*.

- a. Open loading door until door is perpendicular to machine front.
- b. Remove bottom hex head screw from hinge cam at bottom of door.
- c. Remove lower cam assembly by sliding downward while disengaging setscrew from door hinge.
- d. Lift door assembly off top of door hinge lug.

### 36. LOADING DOOR HANDLE

Refer to *Figure 5*.

- a. Open loading door.
- b. Remove hardware holding door handle to door.

### 37. LOADING DOOR SWITCH

Refer to *Figure 6*.

- a. Open loading door.

- b. Remove two screws holding switch cover to front panel.
- c. Disconnect wires from door switch.
- d. Remove switch from cover by removing two nuts and screws.

**NOTE: Switch must be flush to underside of cover at button protrusion and flats of hex nuts must be parallel to cover underside when reassembling.**

**NOTE: Refer to wiring diagram when rewiring switch.**



## WARNING

To reduce the risk of serious injury or death, loading door switch **MUST** be reinstalled after service is completed.

W328

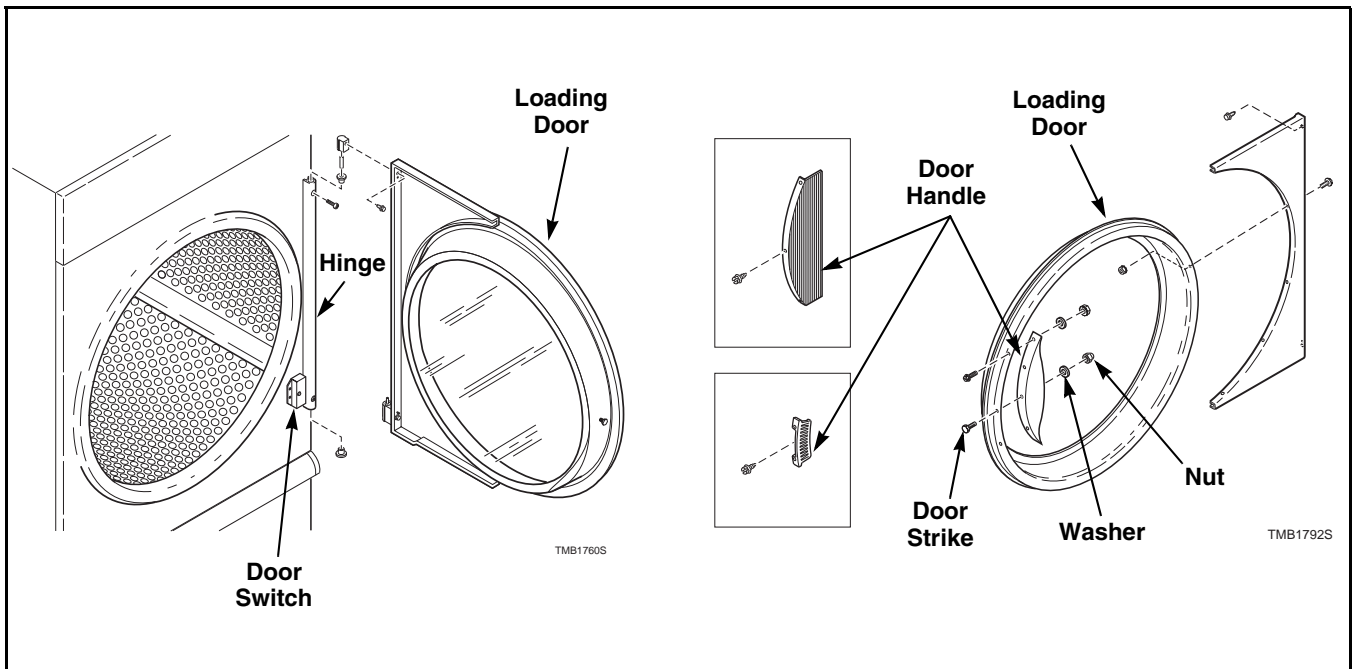


Figure 5



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 38. FRONT PANEL

- a. Open loading door until door is perpendicular to machine front.
- b. Remove bottom hex head screw from hinge cam at bottom of door.
- c. Remove lower cam assembly by sliding downward while disengaging setscrew from door hinge.
- d. Lift door assembly off top of door hinge lug.
- e. Remove four screws from top and bottom surfaces of exterior control box cover and remove cover, disconnecting control box cover harness or load ready light wire. Refer to *Figure 3*.
- f. Remove screw from left and right sides of control bracket securing control plate. Refer to *Figure 3*.
- g. Pivot plate forward to horizontal.
- h. Disconnect two plugs from wall of interior control box and disconnect control box cover harness (European models only).
- i. Remove four screws securing control mounting bracket to front panel, careful to support control plate assembly.
- j. Pull entire control assembly away from unit.
- k. Remove four screws securing front panel to cabinet frame. Pull front panel forward, disconnecting door switch harness plug at upper right corner of front panel to frame. Refer to *Figure 6*.
- l. Remove two screws holding switch cover to front panel.
- m. Disconnect wires front door switch.
- n. Remove two large screws and nuts top and bottom securing hinge lug to front panel.
- o. Remove four small screws securing hinge lug and door switch wire channel to rear of front panel.
- p. Remove door latch and door latch securing screws. **Do not discard these components.**
- q. Replace front panel and replace components removed in steps (l) through (o), but not (p).
- r. Place front panel on unit and reattach control and door assemblies.
- s. Remove door strike, door strike nut and door strike washer. Refer to *Figure 5*.
- t. Close door fully, using a pencil or other sharp object, mark the axis of the door strike on the front panel loading door entrance wall.
- u. Locate door latch vertically centered on mark. Rear edge of latch should be .062 overlapped over mark.
- v. Mark, using a pencil or sharp object, the center axis of both latch holes. Drill .094-.100 inch diameter. Tap hole 6-32 Class 2A right hand.
- w. Reinstall door latch screws.
- x. Reinstall door strike hardware, adjusting until opening force is 8 to 15 pounds applied at center of door handle.

**NOTE: Refer to wiring diagram when rewiring lights and switch.**

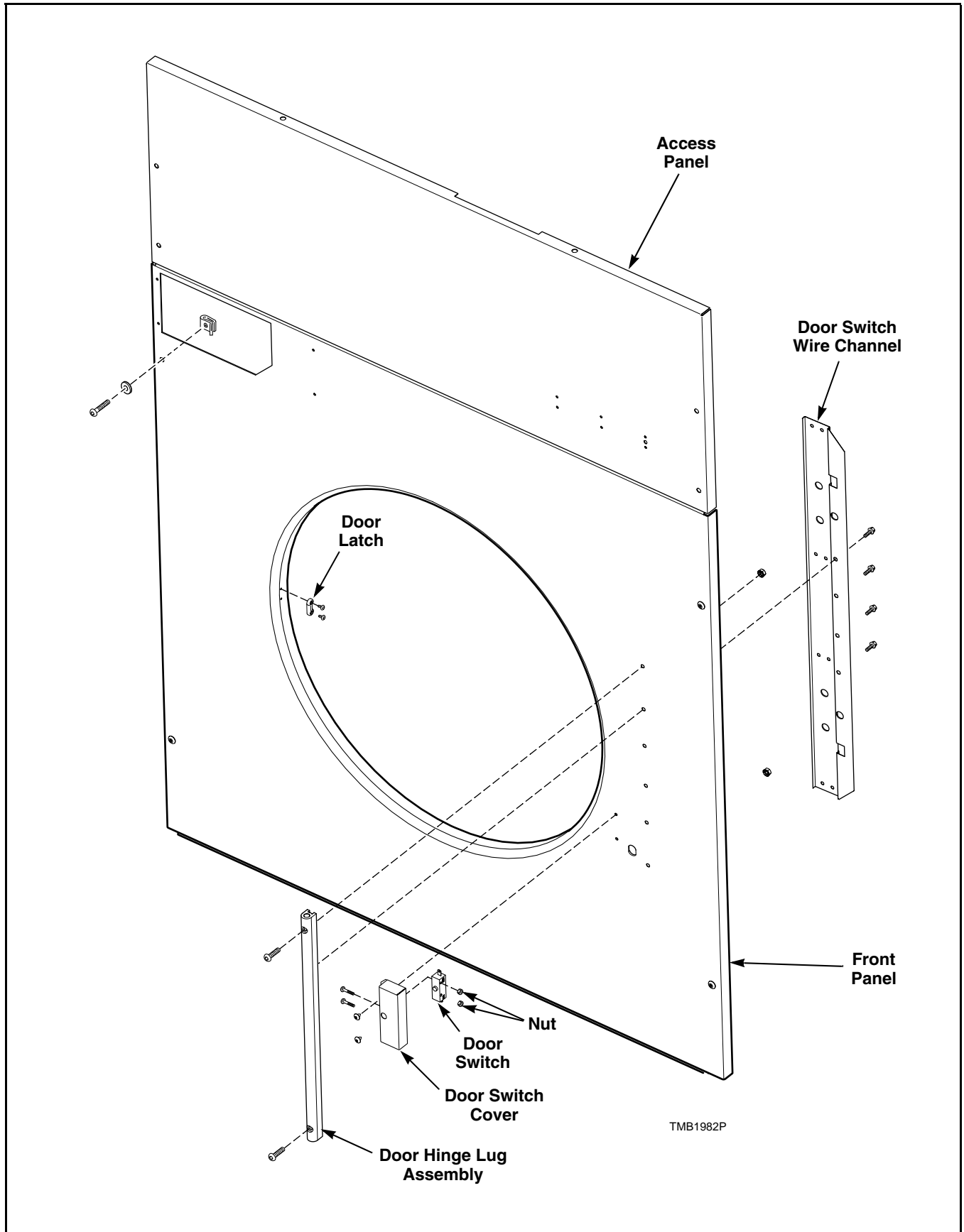


Figure 6



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 39. LOADING DOOR HINGE LUG

Refer to *Figure 5*.

- a. Open loading door until door is perpendicular to machine front.
- b. Remove bottom hex head screw from hinge cam at bottom of door.
- c. Remove lower cam assembly by sliding downward while disengaging setscrew from door hinge.
- d. Lift door assembly off top of door hinge lug.
- e. Remove four screws from top and bottom surfaces of exterior control box cover and remove cover, disconnecting control box cover harness or load ready light wire. Refer to *Figure 3*.
- f. Remove screw from left and right sides of control bracket securing control plate. Refer to *Figure 3*.
- g. Pivot plate forward to horizontal.
- h. Disconnect two plugs from wall of interior control box and disconnect control box cover harness (European models only).
- i. Remove four screws securing control mounting bracket to front panel, careful to support control plate assembly.

- j. Pull entire control assembly away from unit.
- k. Remove four screws securing front panel to cabinet frame. Pull front panel forward, disconnecting door switch harness plug at upper right corner of front panel to frame. Refer to *Figure 6*.
- l. Remove two screws holding switch cover to front panel.
- m. Disconnect wires from door switch.
- n. Remove two large screws and nuts top and bottom securing hinge lug to front panel.
- o. Remove four small screws securing hinge lug and door switch wire channel to rear of front panel.

### 40. THERMISTOR

Refer to *Figure 7*.

- a. Remove lint panel.
- b. Locate thermistor assembly on top of lint hood.
- c. Remove thermistor bracket mounting screws.
- d. Disconnect wiring from thermistor terminals.
- e. Unscrew thermistor from thermistor nut.

**NOTE: Refer to wiring diagram when rewiring thermistor.**

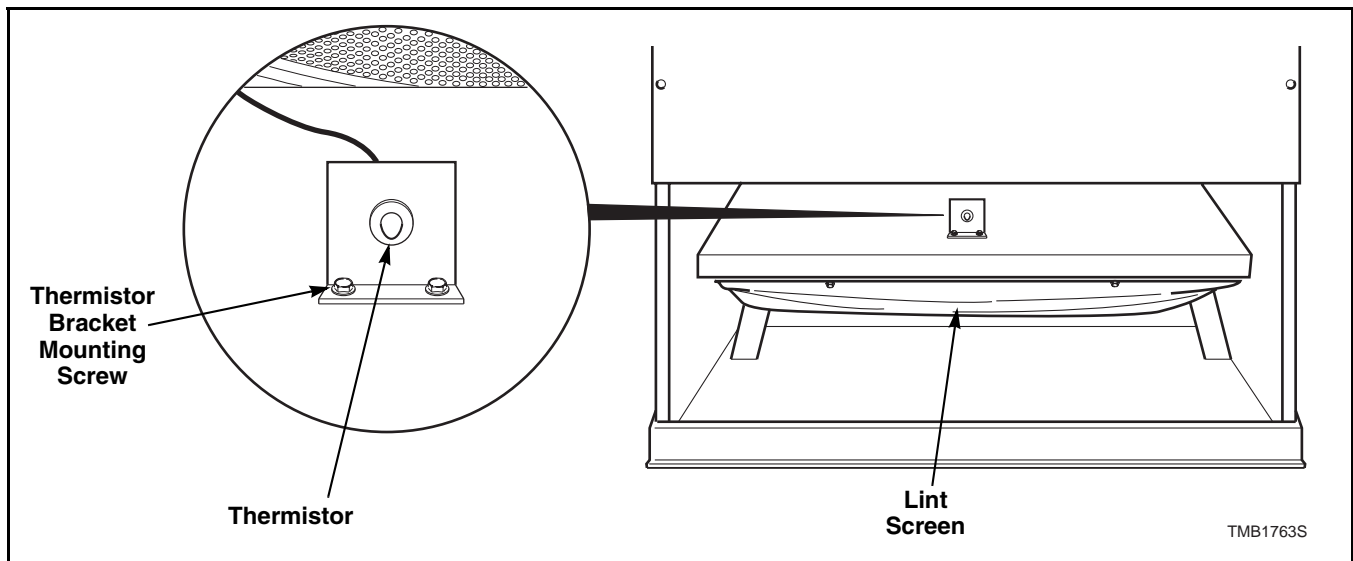


Figure 7



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

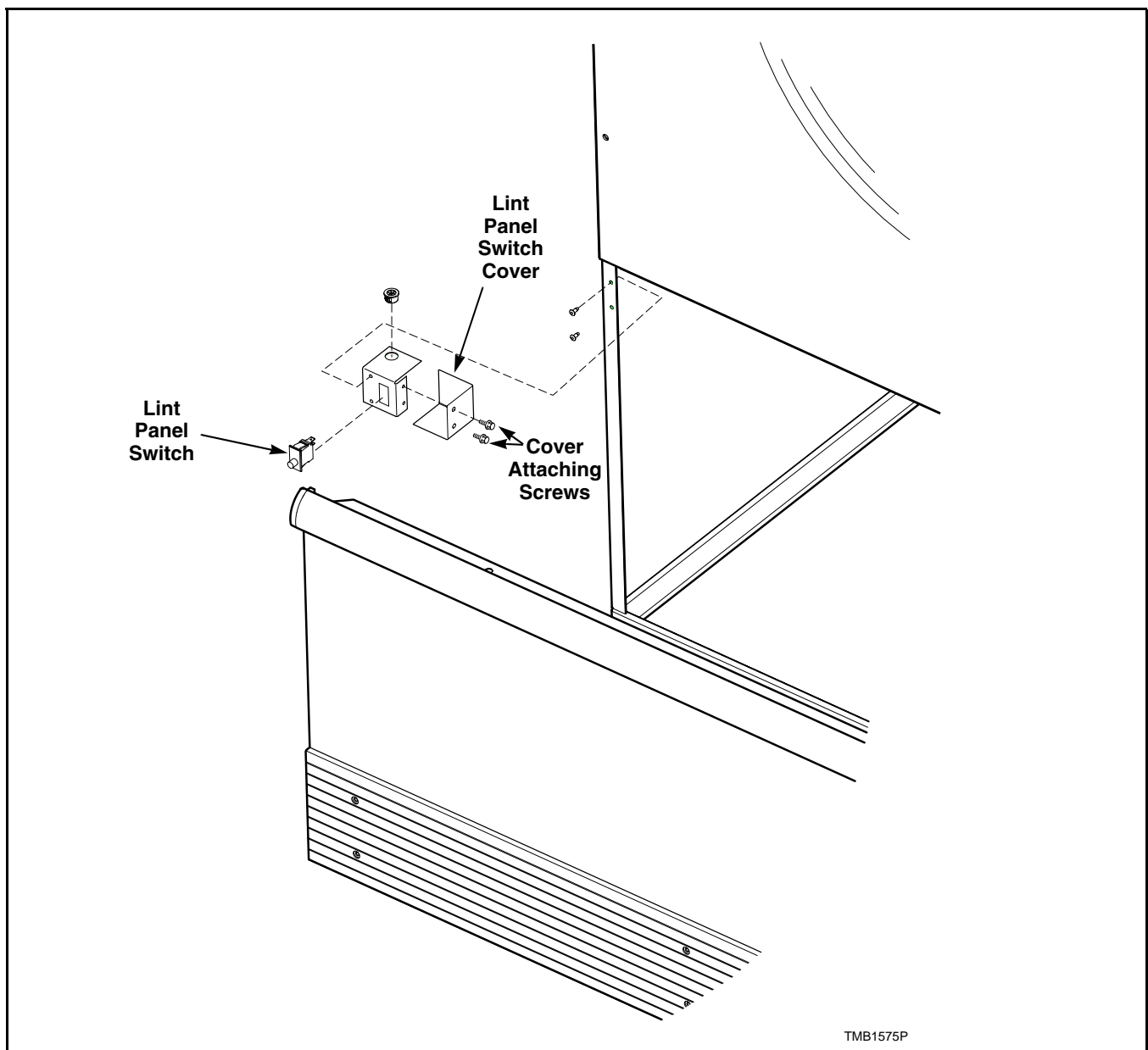
### 41. LINT PANEL SWITCH

Refer to *Figure 8*.

a. Remove lint panel.

b. Remove screws from switch cover and remove cover. Refer to *Figure 8*.

c. Disconnect wires from switch and remove switch by depressing locking tabs on switch.



TMB1575P

Figure 8

**WARNING**

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

**42. GAS VALVE**

- a. Remove four screws holding access panel to cabinet.
- b. Lift access panel off top edge of front panel and pull panel forward.
- c. Close gas shut-off valve. Refer to *Figure 9*.
- d. Disconnect all wires from gas valve terminals and disconnect gas valve pipe unions.
- e. Remove screws holding gas valve and bracket to stove assembly.
- f. Remove gas valve from mounting bracket.

**IMPORTANT:** When reinstalling gas valve, purge air and sediment from the gas service line before connecting it loosely to the tumbler. Purge remaining air until odor of gas is detected, then tighten connection. Use pipe compound resistant to action of Liquid Petroleum Gas (L.P.) gas on all pipe threads.

**WARNING**

To reduce risk of fire or explosion, check pipe connections for gas leaks with a non-corrosive leak detection fluid. Do not use an open flame to check for gas leaks!

W310

**NOTE:** Refer to wiring diagram when rewiring gas valve.

**43. IGNITER**

Refer to *Figure 9*.

- a. Remove four screws holding access panel to cabinet.
- b. Lift access panel off top edge of front panel and pull panel forward.
- c. Disconnect high voltage lead from igniter.
- d. Remove two screws attaching igniter bracket to burner tube.

**44. IGNITION CONTROL**

- a. Remove four screws holding access panel to cabinet. Refer to *Figure 1*.
- b. Lift access panel off top edge of front panel and pull panel forward. Refer to *Figure 1*.
- c. Remove interior control box cover. Refer to *Figure 2*.
- d. Locate ignition control on rear wall of interior control box and disconnect wiring to ignition control.
- e. Remove two screws securing ignition control to interior control box.

**NOTE:** Refer to wiring diagram when rewiring ignition control.

**45. BURNER TUBE**

- a. Remove four screws holding access panel to cabinet.
- b. Lift access panel off top edge of front panel and pull panel forward.
- c. Close gas shut-off valve. Refer to *Figure 9*.
- d. Disconnect union nut attaching nipple to spudholder and remove spudholder. Refer to *Figure 9*.
- e. Remove screws holding burner tubes to stove front and remove burner tubes.

**WARNING**

When reinstalling spudholder, use non-corrosive leak detection fluid to check all pipe connections for gas leaks. **DO NOT USE AN OPEN FLAME TO CHECK FOR GAS LEAKS!** Make sure that spudholder and orifices are positioned such that gas will be injected directly down the center of the burner.

W269R1

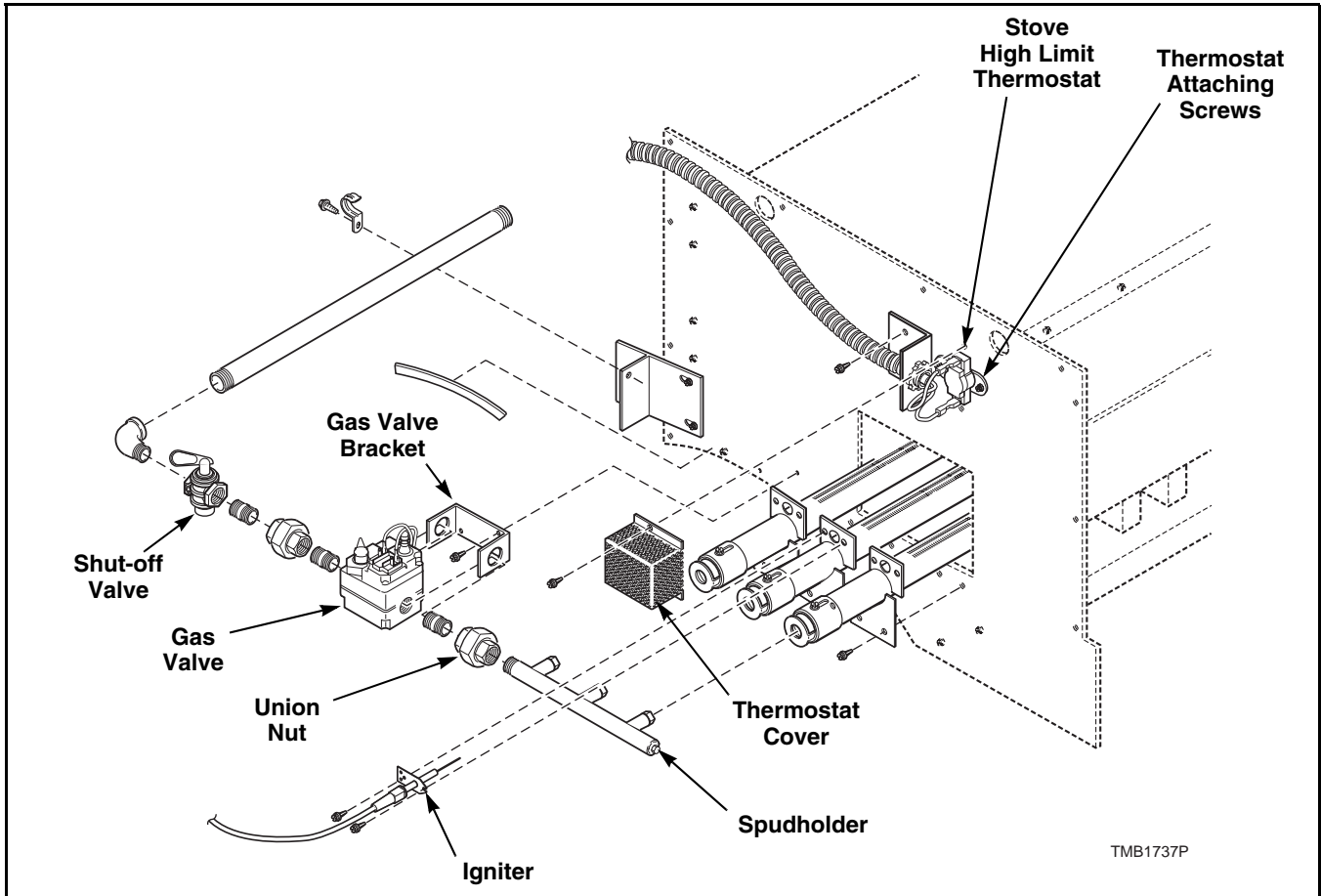


## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002



TMB1737P

Figure 9

### 46. STOVE HIGH LIMIT THERMOSTAT

(Gas Models)

- a. Remove four screws holding access panel to cabinet.
- b. Lift access panel off top edge of front panel and pull panel forward.
- c. Remove two screws holding thermostat cover to stove. Refer to *Figure 9*.
- d. Remove thermostat cover. Refer to *Figure 9*.
- e. Disconnect wires to thermostat.
- f. Remove the two thermostat attaching screws. Refer to *Figure 9*.
- g. Remove thermostat.

### 47. CABINET HIGH LIMIT THERMOSTAT/ LOAD READY THERMOSTAT

(Located on rear of tumbler near fan.)

- a. Support drive guard cover and remove screws holding guard to rear of tumbler. Refer to *Figure 11*.
- b. Disconnect wires from thermostat.
- c. Remove two screws holding thermostat to rear of tumbler. Refer to *Figure 9*.



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

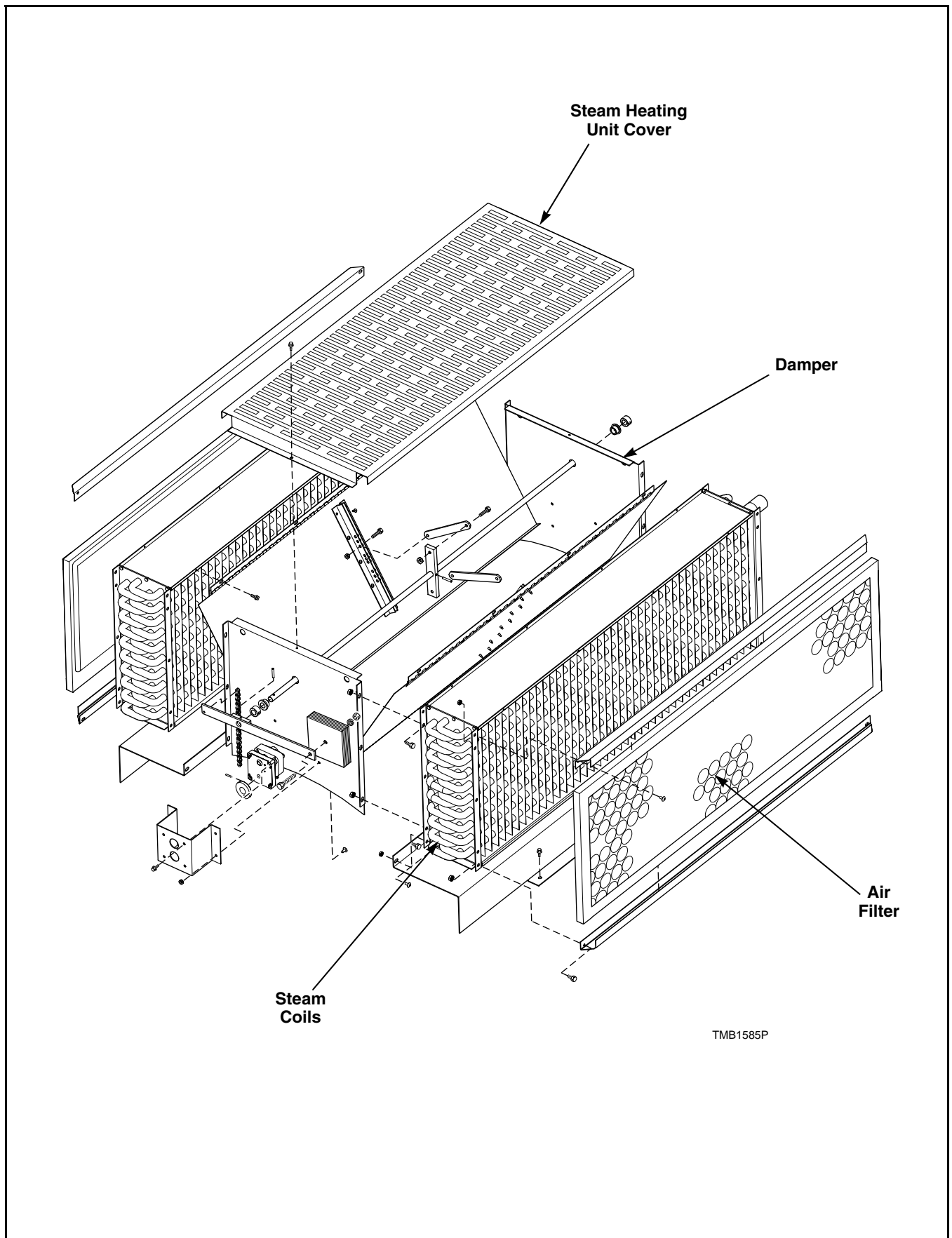
W002

### 48. STEAM COILS

Refer to *Figure 10*.

- a. Shut off inlet and outlet valves and disconnect flex hoses from steam coils
- b. Remove screws holding cover to top of steam heating unit and remove cover.
- c. Remove air filters.
- d. Remove screws holding steam coils to coil frame.
- e. Remove screws from damper.
- f. Remove steam coils by lifting straight up and out of tumbler.

**NOTE: When removing or replacing steam coils, be careful not to damage fins on steam coils.**



TMB1585P

Figure 10



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 49. DRIVE GUARD COVER

- a. Support drive guard cover and remove screws that hold guard to rear of tumbler. Refer to *Figure 11*.

- b. Reinstall drive guard.

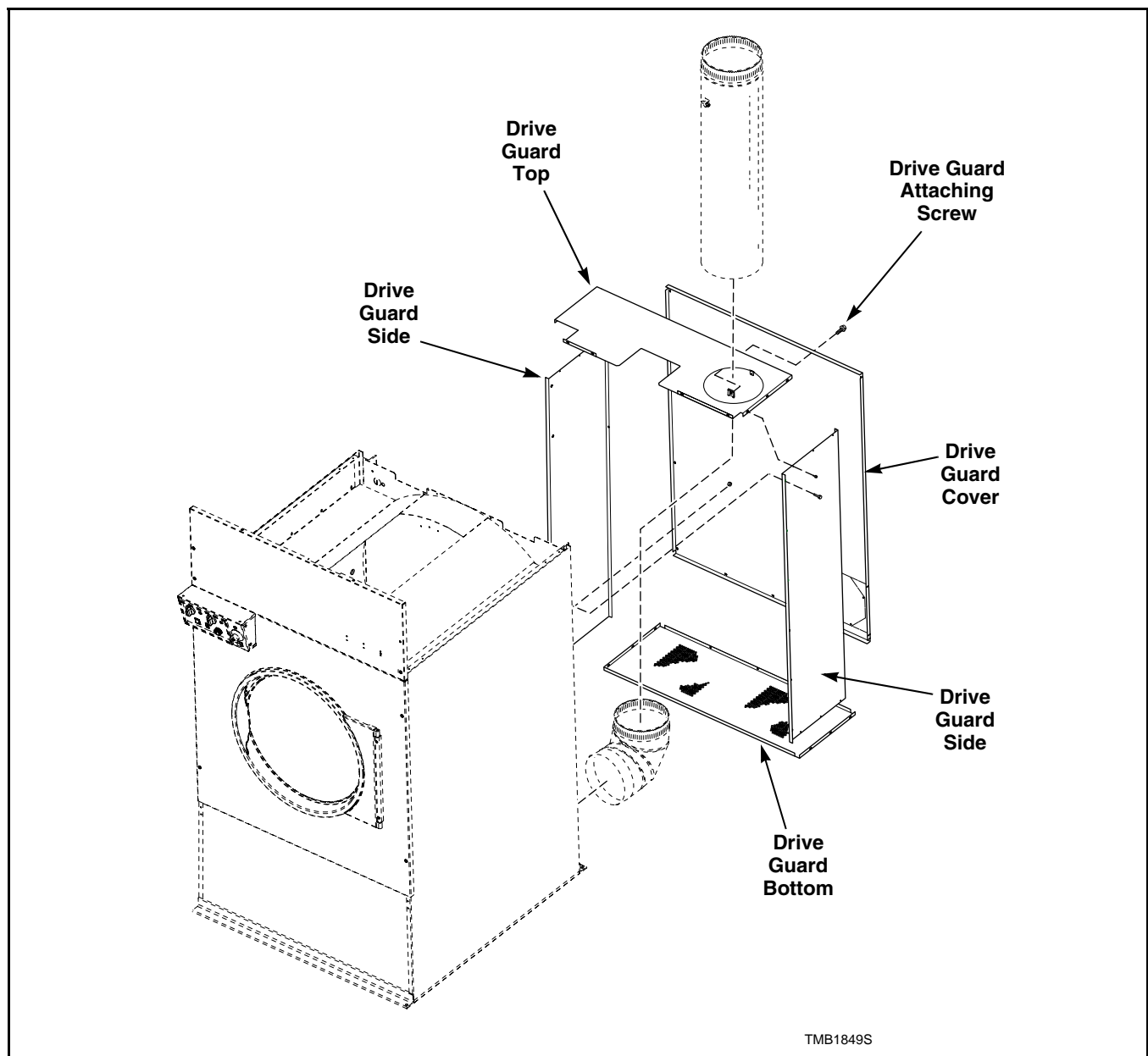


Figure 11



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 50. AIRFLOW SWITCH

(Located on upper rear center of tumbler.)

Refer to *Figure 12*.

- a. Support drive guard cover and remove screws that hold guard to rear of tumbler. Refer to *Figure 11*.
- b. Remove screws holding airflow switch cover to back of tumbler.
- c. Disconnect wires from switch.

**NOTE: Refer to wiring diagram when rewiring airflow switch.**

- d. Remove screw(s) that hold switch and mounting bracket to tumbler.
- e. Remove two screws and nut that hold switch to mounting bracket.

**NOTE: After reinstalling airflow switch and mounting bracket into switch box, adjust switch.**

### 51. CYLINDER BELT

Refer to *Figure 14*.

- a. Support drive guard cover and remove screws that hold guard to rear of tumbler. Refer to *Figure 11*.
- b. Loosen the four jackshaft assembly attaching nuts. Refer to *Figure 13*.
- c. Rotate the adjusting nuts counterclockwise (approximately three turns). Refer to *Figure 13*.
- d. Slide jackshaft assembly upwards to loosen the cylinder belt.
- e. Remove cylinder belts.

**NOTE: After reinstalling belt, adjust drive belt and cylinder belt. Install new belts as a set of 3.**

**NOTE: Proper tensions for new belts are 45-55 pounds for the motor belt, 55-65 pounds for the final drive, 60-65 pounds for 120 pound blower, and 75-80 pounds for 170 pound blower measured with a Borroughs Belt Tension Gauge. Using a Browning Belt Tension Gauge, the motor belt deflection should be 5/16 inch at five pounds pressure, and final drive belt deflection should be 1/4 inch at five pounds pressure.**

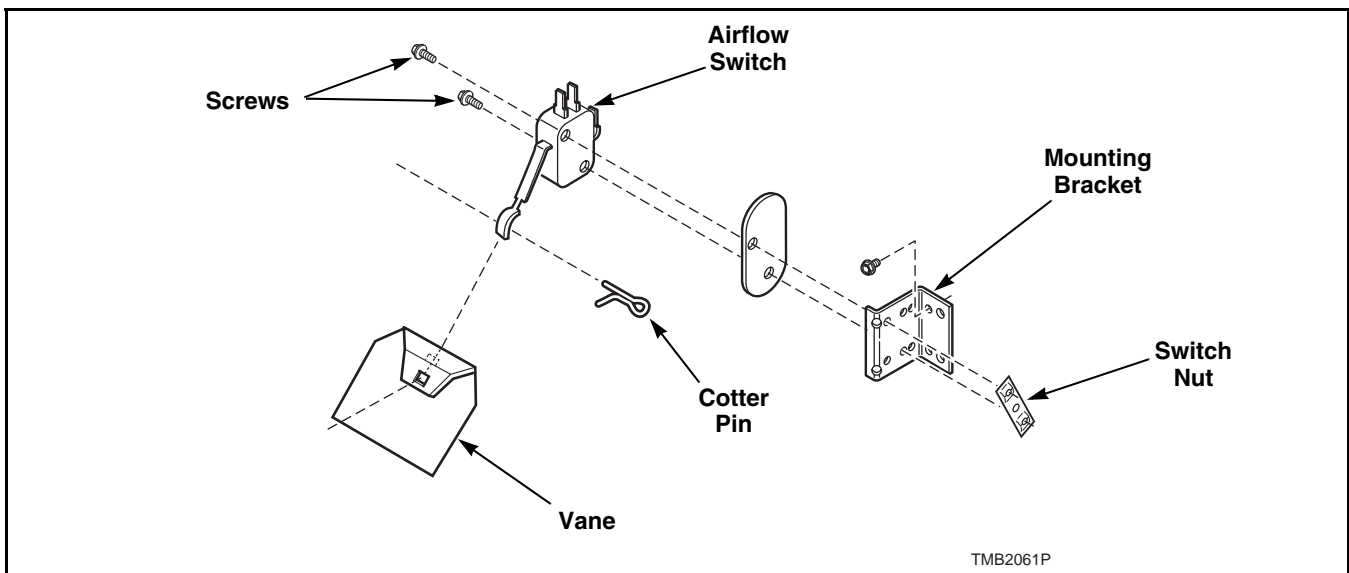


Figure 12



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

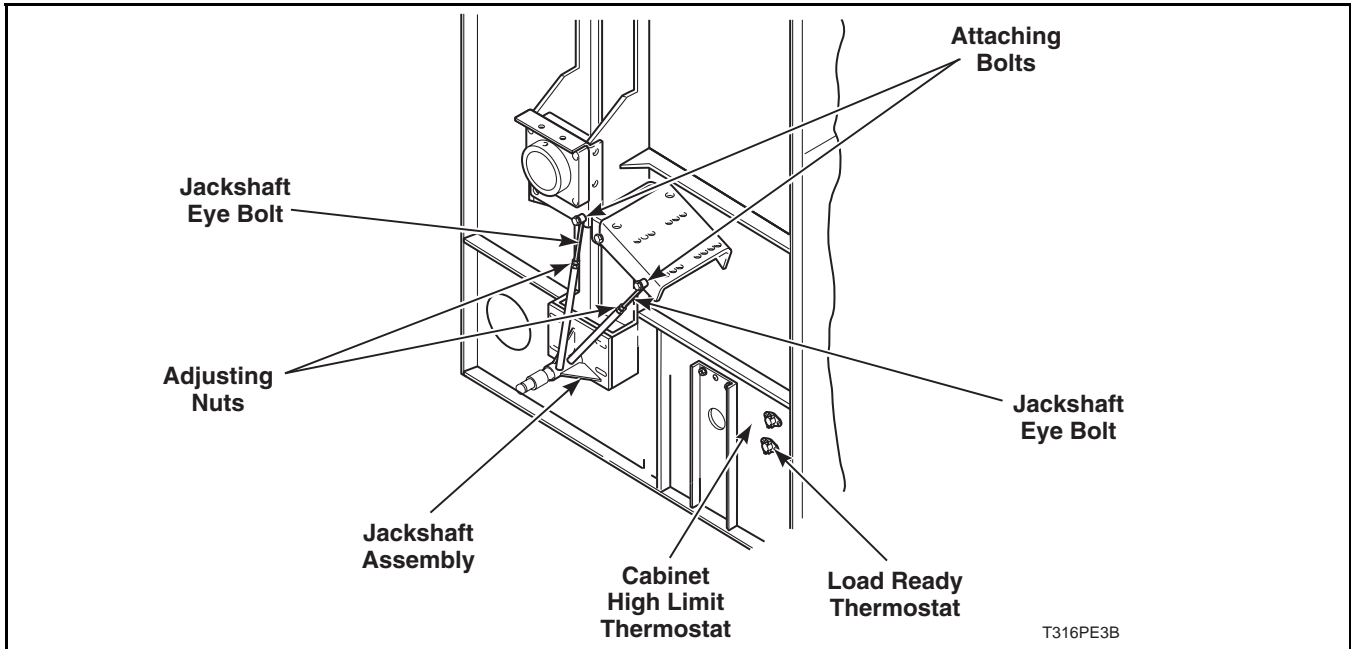


Figure 13

### 52. DRIVE BELT

Refer to *Figure 14*.

- a. Support drive guard cover and remove screws holding guard to rear of tumbler. Refer to *Figure 11*.
- b. Loosen the four jackshaft assembly attaching nuts. Refer to *Figure 13*.
- c. Rotate the adjusting nuts counterclockwise (approximately three turns).
- d. Slide jackshaft assembly upwards to loosen the cylinder belts.
- e. Remove cylinder belts.
- f. Remove drive belt.

**NOTE:** After reinstalling drive belt, adjust cylinder belts then drive belt.

### 53. STEP PULLEY ASSEMBLY

Refer to *Figure 14*.

- a. Support drive guard cover and remove screws holding guard to rear of tumbler. Refer to *Figure 11*.
- b. Remove cylinder belts and drive belts.
- c. Remove snap ring and pull step pulley off of jackshaft.

Refer to *Table 1* on page 42 for critical torques.

**NOTE:** Belt tension from step pulley to cylinder shaft pulley can be measured to ensure proper installation in one of the following ways:

- Burroughs Belt Tension Gauge initial reading 70-80 pounds.
- Force to deflect belt .38 inch at midspan with initial tensioning 6.5 pounds.
- Burroughs Belt Tension Gauge reading after run 55-65 pounds.



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### Critical Torques

Location (With nut threading)	Measurement in Inch Pounds	Measurement in Foot Pounds
Front cylinder shaft bearing to frame nut (1/2 – 13)	600 ± 60	50 ± 5
Rear cylinder shaft bearing to bearing plate nut (1/2 – 13)	600 ± 60	50 ± 5
Cylinder drive motor pulley bushing cap screw to cylinder drive motor pulley (10-24)	46 ± 5	
Cylinder drive motor pulley bushing set screw to cylinder drive motor shaft (10-24)	28 ± 3	
Cylinder shaft pulley (25.00 O.D.) QD bushing cap screw to cylinder pulley (3/8-16)	400 ± 40	33 ± 3
Cylinder shaft pulley (25.00 O.D.) QD bushing set screw to cylinder shaft (1/4-20)	68 ± 7	
Fan bushing cap screw to fan (10-24)	46 ± 5	
Fan bushing set screw to motor shaft (10-24)	28 ± 3	
50 Hz fan motor pulley bushing cap screw to 50 Hz fan (10-24)	46 ± 5	
50 Hz fan motor pulley bushing set screw to 50 Hz fan motor shaft (10-24)	28 ± 3	
50 Hz fan pulley bushing cap screw to 50 Hz fan (10-24)	46 ± 5	
50 Hz fan pulley bushing set screw to 50 Hz fan shaft (10-24)	28 ± 3	

Table 1



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

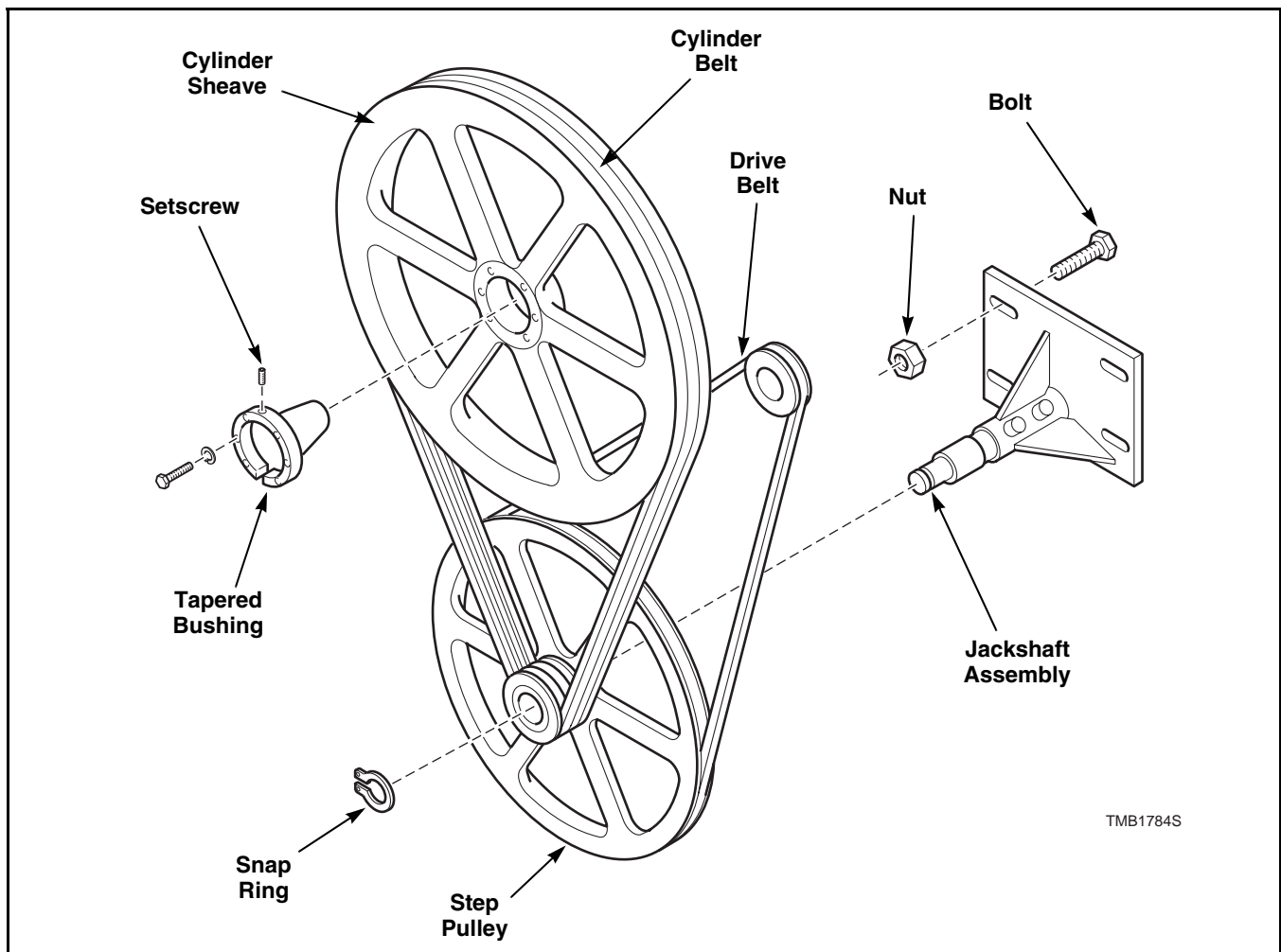
- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 54. CYLINDER SHEAVE

Refer to *Figure 14*.

- a. Support drive guard cover and remove screws holding guard to rear of tumbler. Refer to *Figure 11*.
- b. Loosen the four jackshaft assembly attaching nuts. Refer to *Figure 13*.
- c. Rotate the adjusting nuts counterclockwise (approximately three turns).
- d. Slide jackshaft assembly upwards to loosen the cylinder belts.
- e. Remove cylinder belts.
- f. Remove bushing setscrew. Refer to *Figure 14*.
- g. Remove screws from tapered bushing.
- h. Remove tapered bushing by putting the screws removed in step “g” into the threaded holes in the bushing. Turning the screws inward will force the bushing out of the cylinder sheave.
- i. Remove cylinder sheave.



TMB1784S

Figure 14



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 55. MOTOR PULLEY

Refer to *Figure 15*.

- a. Remove drive guard cover.
- b. Remove drive belt. Refer to *Figure 14*.
- c. Loosen setscrews and remove screws from tapered bushing.
- d. Remove tapered bushing by putting the screws removed in step “b” into the threaded holes in the bushing. Turn the screws inward to force the bushing out of the motor pulley.
- e. Remove motor pulley.

Refer to *Table 1* on page 42 for critical torques.

**NOTE:** Belt tension from cylinder drive motor pulley to step pulley can be measured to ensure proper installation in one of the following ways:

- Burroughs Belt Tension Gauge initial reading 60-70 pounds.
- Force to deflect belt .38 inch at midspan with initial tensioning 6.0 pounds
- Burroughs Belt Tension Gauge reading after run 45-55 pounds.

**NOTE:** Realign motor pulley directly over sheave by loosening the tapered bushing and repositioning the motor pulley on the cylinder motor shaft.

### 56. JACKSHAFT ASSEMBLY

Refer to *Figure 13*.

- a. Support drive guard cover and remove screws that hold guard to rear of tumbler. Refer to *Figure 11*.
- b. Remove cylinder and drive belts.
- c. Remove snap ring and pull step pulley off of jackshaft.
- d. Remove four bolts that attach jackshaft to rear of tumbler.

**NOTE:** After installing sheave, adjust belts.

### 57. CYLINDER ASSEMBLY

- a. Remove front panel assembly.
- b. Support drive guard cover and remove screws holding guard to rear of tumbler. Refer to *Figure 11*.

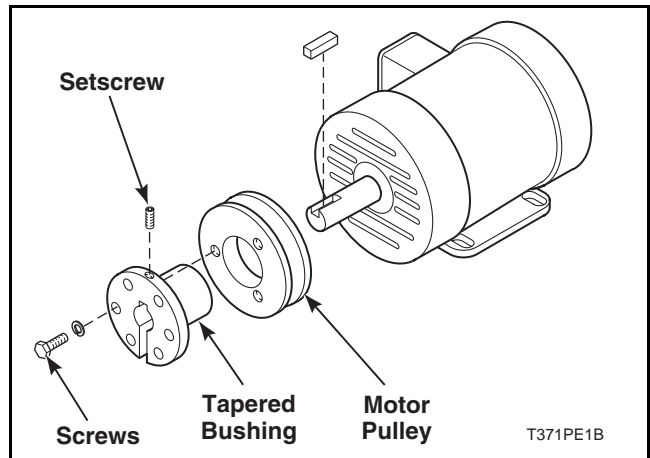


Figure 15

- c. Loosen the four jackshaft assembly attaching nuts. Refer to *Figure 13*.
- d. Rotate the adjusting nuts counterclockwise (approximately three turns).
- e. Slide jackshaft assembly upwards to loosen the cylinder belts.
- f. Remove cylinder belts.
- g. Remove drive belt. Refer to *Figure 14*.
- h. Remove screws from tapered bushing. Refer to *Figure 15*.
- i. Remove tapered bushing by putting the screws removed in step “h” into the threaded holes in the bushing. Turning the screws inward will force the bushing out of the cylinder sheave.
- j. Remove cylinder sheave.
- k. Loosen setscrews on trunnion bearings. Refer to *Figure 16*.
- l. Pull cylinder through front of cabinet.

**NOTE:** After reinstalling drive and cylinder belts, adjust belts.

**NOTE:** Do not allow cylinder to rest on cabinet frame. Support cylinder vertically as it is removed from cabinet frame.



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 58. TRUNNION BEARINGS

Refer to *Figure 16*.

- a. Remove belt guard.
- b. Remove front panel assembly.
- c. Place blocks under cylinder left and right of center so that cylinder will stay level while trunnion bearings are being replaced.
- d. Remove cylinder sheave.
- e. Loosen the front and rear adjusting screws.
- f. Loosen setscrews holding bearings to shaft.
- g. Remove bearing mounting screws.
- h. Remove rear bearing.
- i. Remove screws that hold mounting bracket to tumbler.
- j. Remove mounting bracket.
- k. Remove front bearing mounting nuts.
- l. Loosen setscrews holding bearing to shaft.
- m. Remove front bearing.

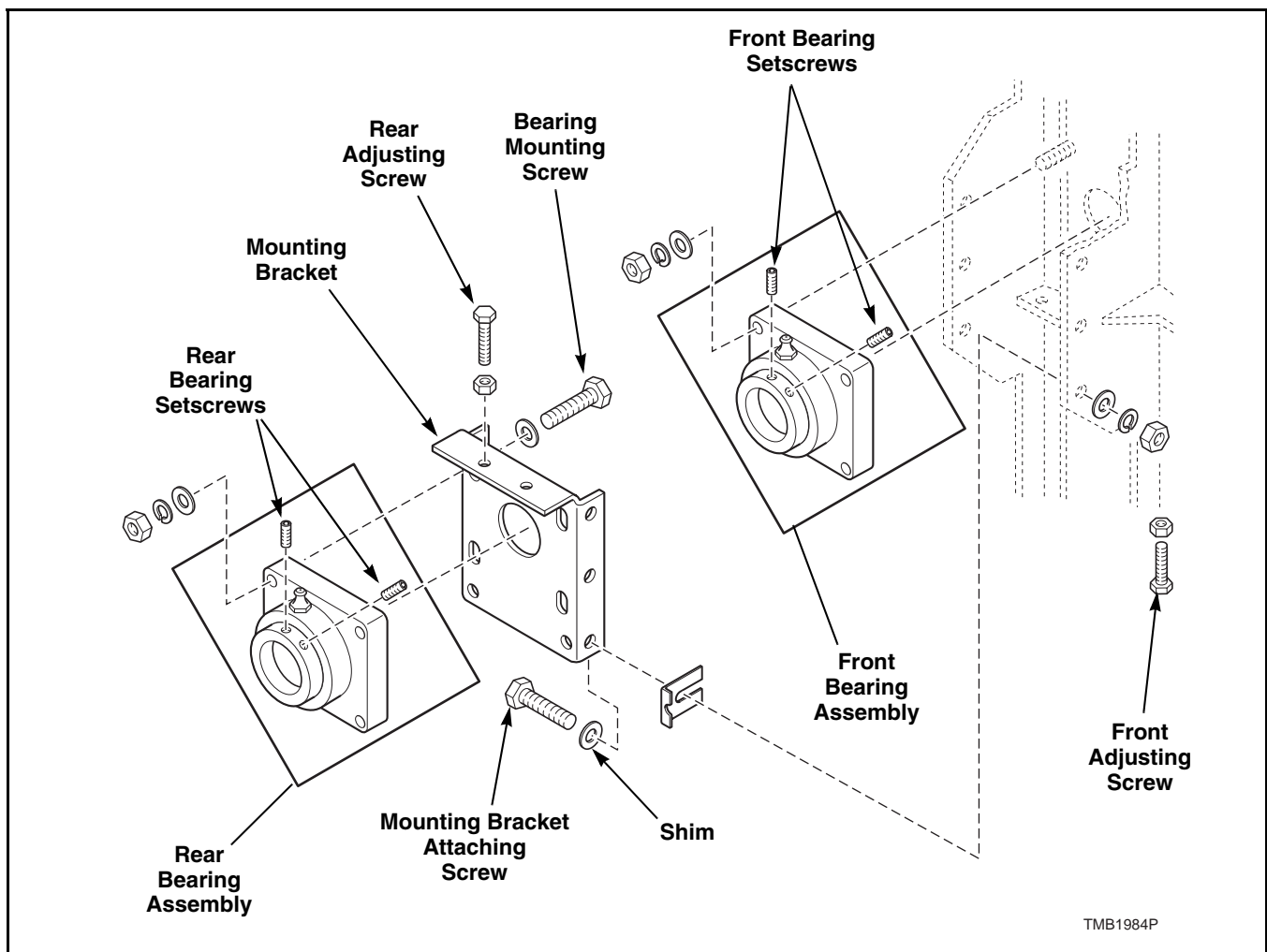


Figure 16



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 59. FAN MOTOR DRIVE AND FAN ASSEMBLY

- a. Remove drive guard cover.
- b. Disconnect wires from fan motor.
- c. Remove attaching nuts and screws. Refer to *Figure 17*.
- d. Pull fan motor and fan assembly out of tumbler.

**NOTE: Refer to wiring diagram when rewiring motor.**

### 60. FAN (60 Hertz Models)

- a. Disconnect wires from fan motor.
- b. Remove attaching nuts and screws. Refer to *Figure 17*.
- c. Pull motor and fan assembly out of tumbler.
- d. Remove screws that hold tapered bushing to fan and remove tapered bushing.
- e. Remove tapered bushing by putting the screws removed in step “d” into the threaded holes in the bushing. Turning the screws inward will force the bushing off of the fan.
- f. Remove bushing setscrew. Remove bushing from motor shaft.
- g. Remove fan from motor shaft.

Refer to *Table 1* on page 42 for critical torques.

**NOTE: Refer to wiring diagram when rewiring motor.**

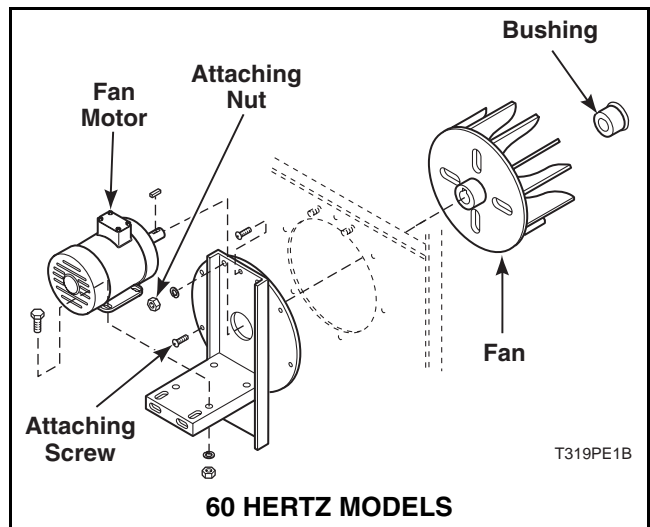


Figure 17

### 61. FAN (50 HERTZ MODELS)

Refer to *Figure 18*.

- a. Remove drive guard cover.
- b. Loosen fan motor eyebolt nuts.
- c. Remove fan belt.
- d. Remove four nuts securing fan bearing assembly to rear panel of frame and remove fan bearing assembly and fan.
- e. Remove screws that hold tapered bushing to fan and remove tapered bushing.
- f. Remove tapered bushing by putting the screws removed in step “d” into the threaded holes in the bushing. Turning the screws inward will force the bushing off of the fan.
- g. Remove bushing setscrew. Remove bushing from motor shaft.
- h. Remove fan from motor shaft.

Refer to *Table 1* on page 42 for critical torques.

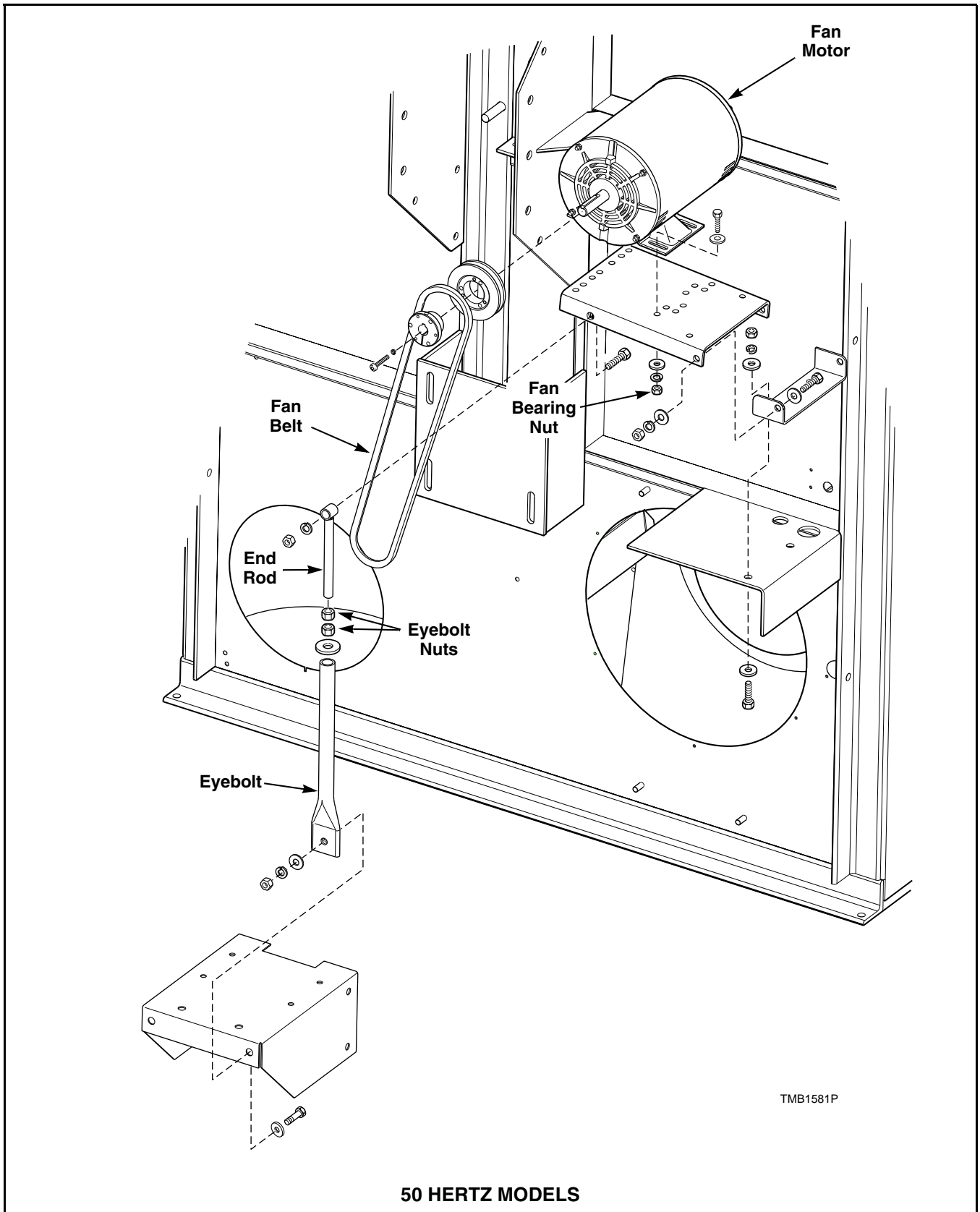


Figure 18



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 62. TRUNNION SHAFT ASSEMBLY

Refer to *Figure 19*.

- a. Remove cylinder assembly.
- b. Remove the four washers and eight nuts holding trunnion shaft assembly to rear of cylinder.

**IMPORTANT:** When installing trunnion assembly on cylinder, the cylinder and shaft must be aligned. Refer to *Figure 19*. Measure the distance between the center of the trunnion shaft and the outer rim of the cylinder at the four points shown. If any measurement is less than the largest, place spacer(s) between trunnion arm and cylinder back until all measurements are equal.

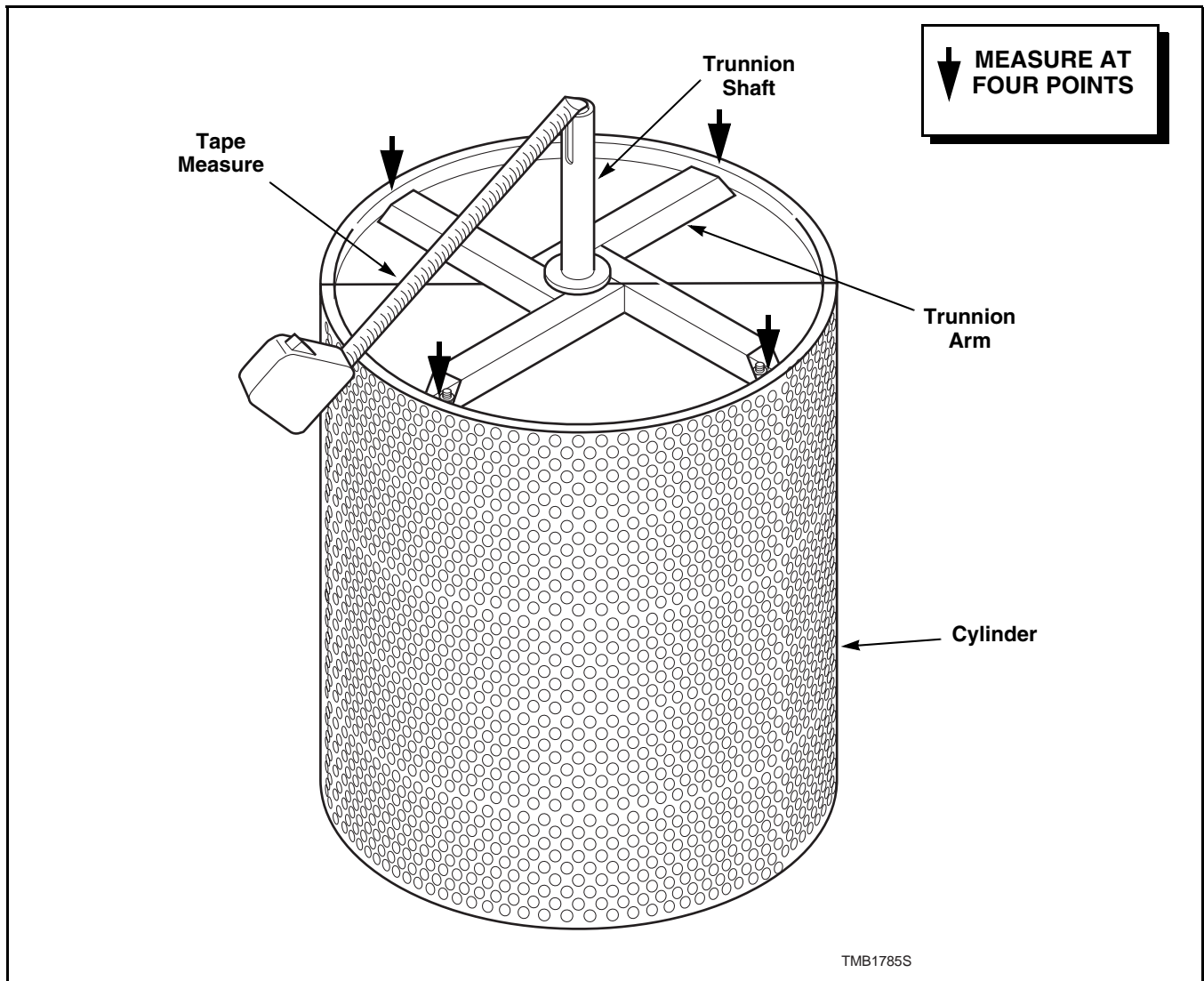


Figure 19



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 63. CYLINDER DRIVE MOTOR

Refer to *Figure 20*.

- a. Support drive guard cover and remove screws that hold guard to rear of tumbler. Refer to *Figure 11*.
- b. Remove drive belt. Refer to *Figure 14*.
- c. Mark location of motor on the motor mounting bracket and remove screws and nuts holding motor to mounting bracket. Refer to *Figure 20*.

d. Disconnect wire harness from motor.

e. Remove motor pulley.

f. After installing motor, adjust drive belt tension.

Refer to *Table 1* on page 42 for critical torques.

**NOTE: Refer to wiring diagram when rewiring the motor.**

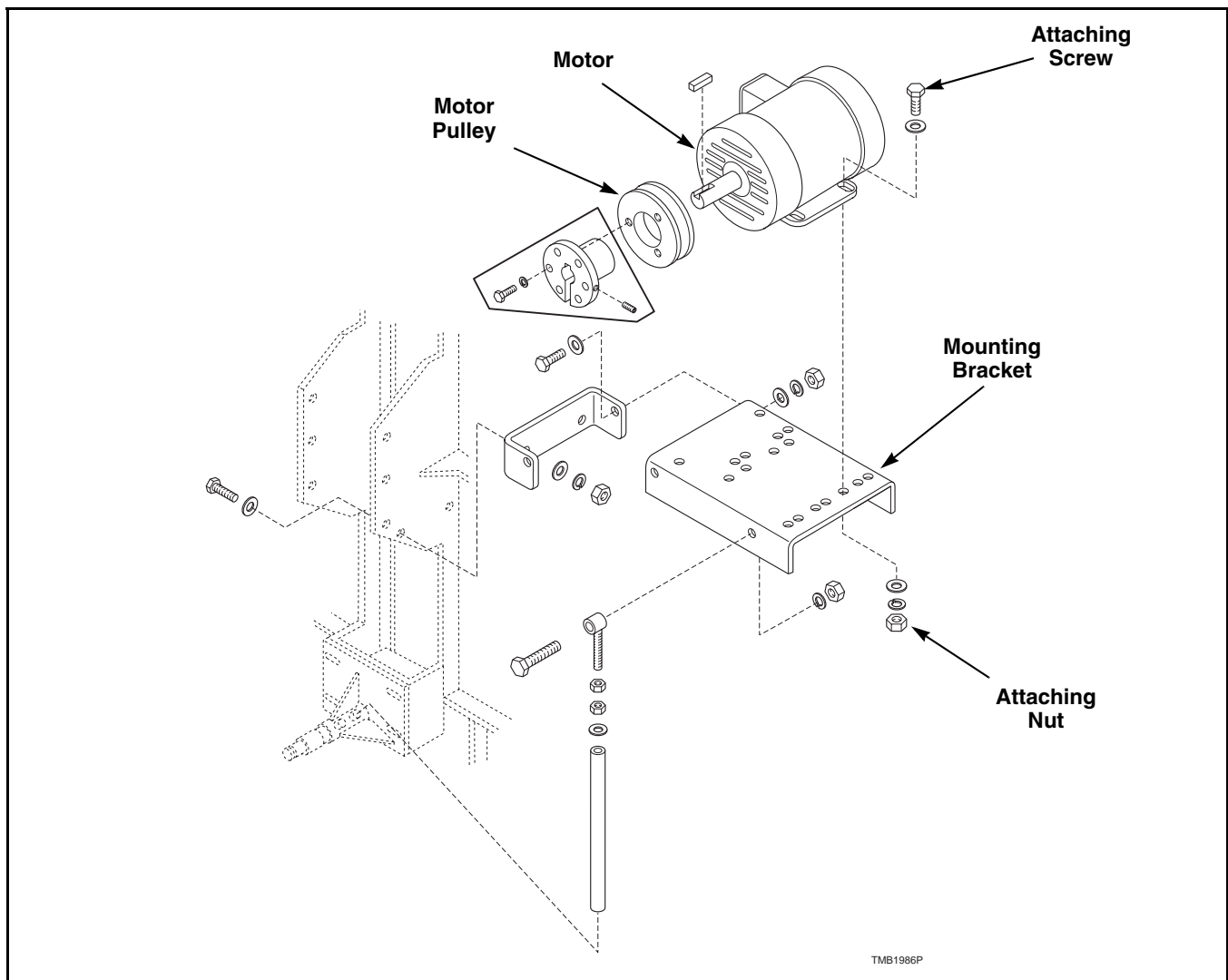


Figure 20



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 64. REVERSING TIMER

(Manual Timer Models)  
Refer to *Figure 21*.

**NOTE: All reversing electrical components except the reversing/nonreversing switch are located in the contactor box on the rear of the tumbler. The reversing/nonreversing switch is mounted on the exterior control box for manual timer models.**

- a. Remove two attaching screws and cover from contactor box.
- b. Disconnect wires from reversing timer.

**NOTE: Refer to wiring diagram when rewiring timer motor and switches.**

- c. Remove two screws holding reversing timer to back wall of contactor box.
- d. Remove reversing timer.

### 65. REVERSING CONTACTOR

Refer to *Figure 21*.

- a. Remove two attaching screws and cover from contactor box.
- b. Disconnect wires from contactor coil terminals.

**NOTE: Refer to wiring diagram when rewiring reversing contactor.**

- c. Remove screws holding reversing contactor to back wall of contactor box.
- d. Remove reversing contactor.

### 66. FAN MOTOR CONTACTOR

Refer to *Figure 21*.

- a. Remove two attaching screws and cover from contactor box.
- b. Disconnect wires from contactor terminals.

**NOTE: Refer to wiring diagram when rewiring fan motor contactor.**

- c. Remove two screws holding din rail to back wall of junction box.
- d. Slide contactor off of din rail.

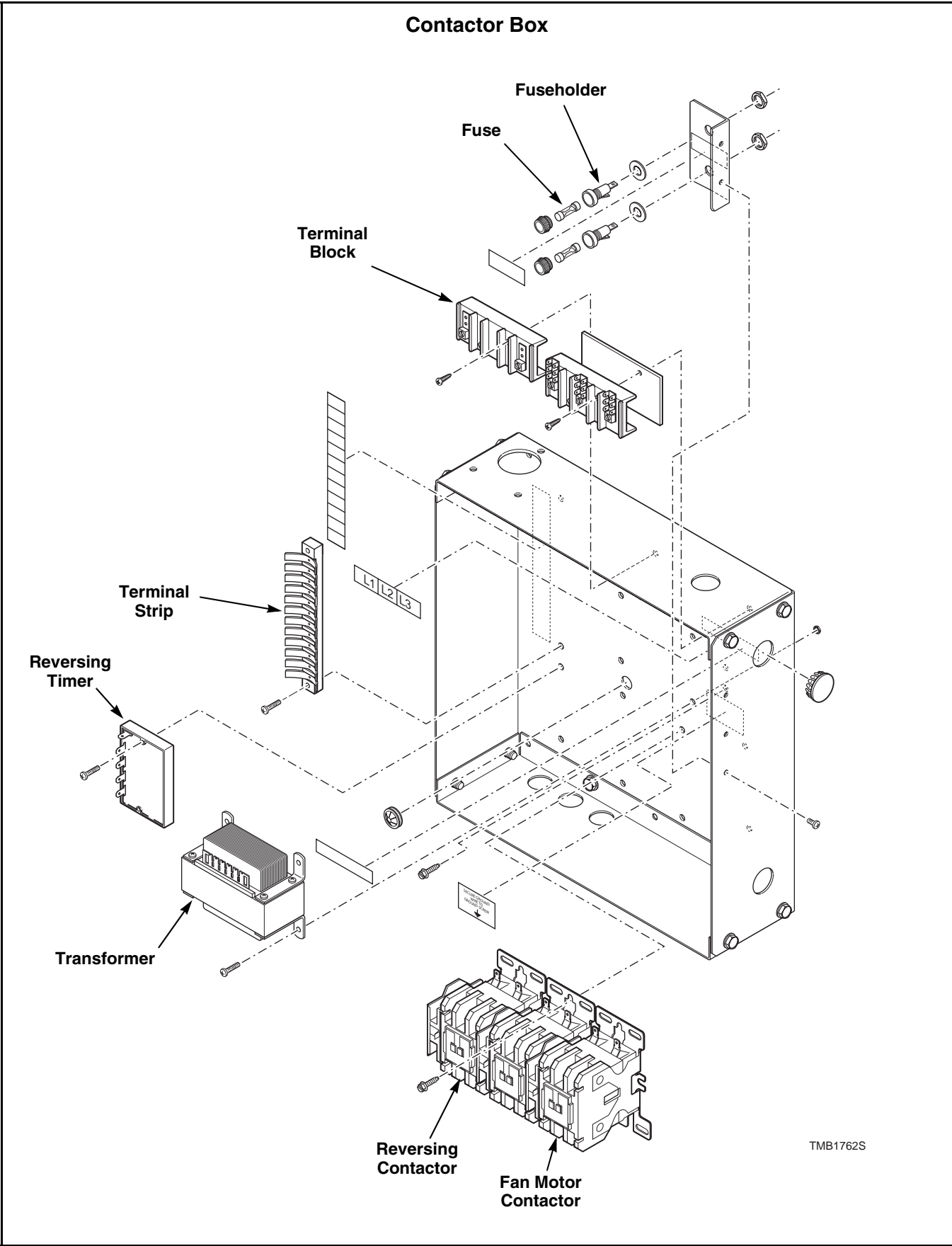
### 67. TRANSFORMER

Refer to *Figure 21*.

- a. Remove attaching screws and cover from contactor box.
- b. Disconnect leads from transformer terminals.

**NOTE: Refer to wiring diagram when rewiring transformer.**

- c. Remove back guard.
- d. Remove four screws and nuts holding transformer to back wall of contactor box.
- e. Remove transformer.



TMB1762S

Figure 21



# Section 6

## Adjustments



### WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:


- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 68. LEVELING


**NOTE:** It is recommended that the front of the tumbler be kept slightly higher than the rear (approximately 1/8 inch, 3.0 mm). This will prevent the clothes, while tumbling, from wearing on the door glass gasket.

- a. Check the front to rear level by rotating the clothes cylinder until one of the cylinder ribs is at the bottom. Place a level on the rib.
- b. Check the side to side level by placing a level on access panel top and rear frame top angle.

	WARNING
<p><b>To reduce the risk of electric shock, fire, explosion, serious injury or death:</b></p> <ul style="list-style-type: none"> <li>• <b>Disconnect electric power to the tumbler before servicing.</b></li> <li>• <b>Close gas shut-off valve to gas tumbler before servicing.</b></li> <li>• <b>Close steam valve to steam tumbler before servicing.</b></li> <li>• <b>Never start the tumbler with any guards/panels removed.</b></li> <li>• <b>Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.</b></li> </ul>	
W002	

**69. MAIN GAS BURNER AIR INLET SHUTTERS**

(All Gas Models)  
Refer to *Figure 22*.

	CAUTION
<p><b>The air inlet shutters on the burner must be adjusted so sufficient primary air is metered into the system for proper combustion and maximum efficiency. Before adjusting the inlet shutter be sure that all lint is removed from lint compartment and lint screen.</b></p>	
W281	

- a. Remove access panel.
- b. Start tumbler and check the flame pattern. Correct air and gas mixture is indicated if the flame pattern is primarily blue, with small yellow tips, and bends to the left of the heater section. Too little air is indicated if the flame is yellow, lazy and smokey.
- c. To adjust the air inlet shutter, loosen locking screw.
- d. Slide shutter in or out as necessary to obtain desired flame intensity.
- e. After shutter is adjusted, tighten locking screw securely.
- f. If the flame pattern is straight up, insufficient air is flowing through the tumbler. A flame pattern that flares to the right and left indicates that no air is flowing through the tumbler.

Air inlet shutter adjustments will vary from location to location and will depend on the vent system, number of units installed, make-up air and line gas pressure. Opening the shutter increases the amount of primary air supplied to the burner while closing the shutter decreases the air supply. Adjust the air shutter as follows:

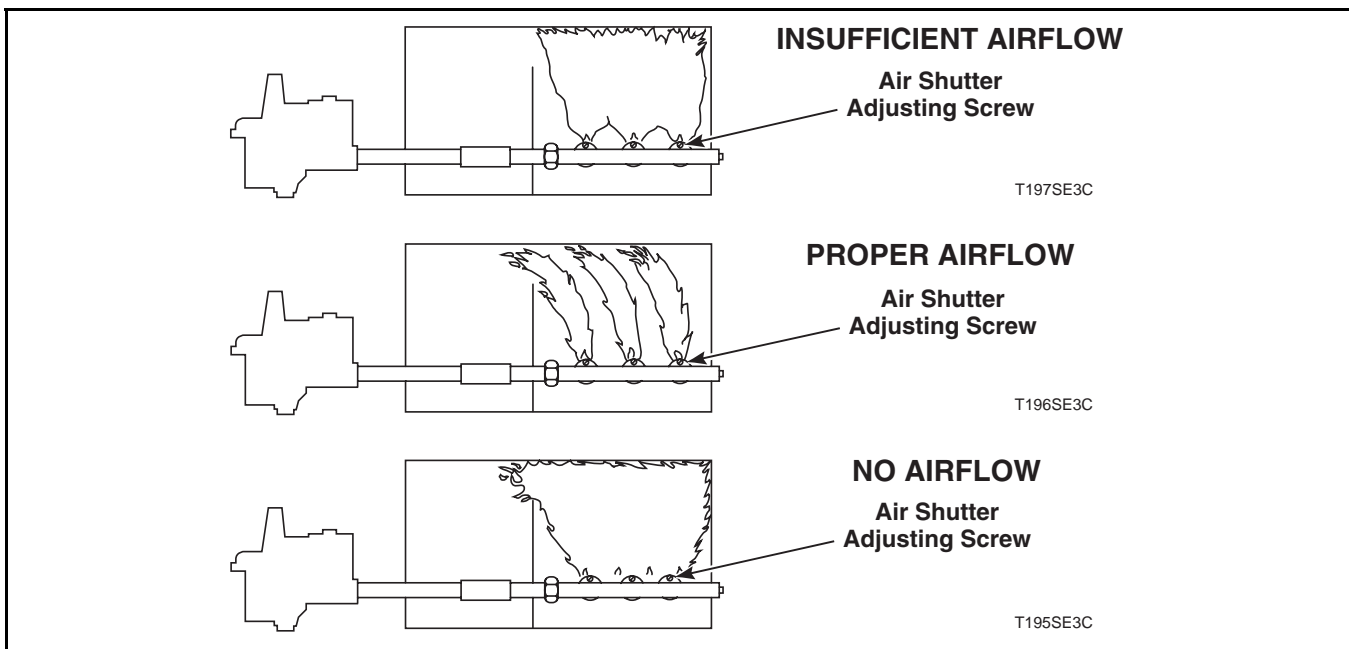


Figure 22



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 70. AIRFLOW SWITCH

The airflow switch is set at the factory for proper operation. No adjustment necessary. Refer to *Figure 23*.

**IMPORTANT: Airflow switch vane must remain closed during operation. If it opens and closes during the drying cycle, this indicates insufficient airflow through the tumbler. If switch remains open, or pops open and closed during the cycle, the heating system will shut off. The cylinder and fan will continue to operate even though the airflow switch is indicating insufficient airflow.**

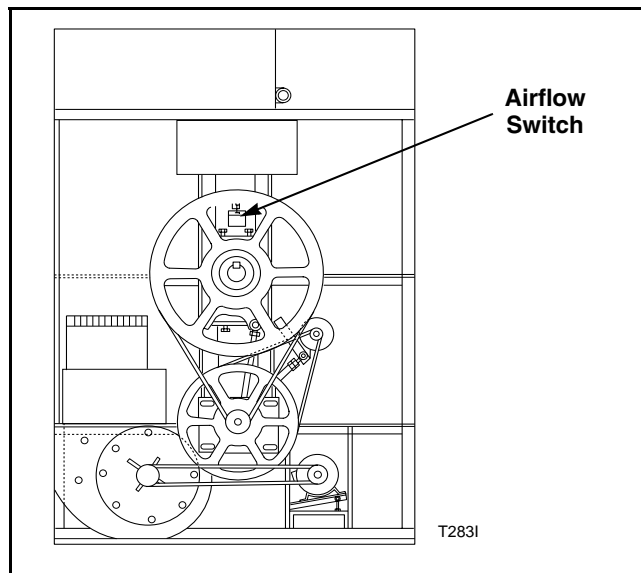


Figure 23

### 71. LOADING DOOR STRIKE

Refer to *Figure 24*.

The door strike must be adjusted so it has sufficient tension to hold loading door closed against the force of a tumbling load. The door strike is properly adjusted when 8-15 lbs. (17.6-33 kg) of pull is required to open door.

To adjust, open door, loosen nut and turn door strike screw in for less tension or out for more tension. Tighten nut. Refer to *Figure 24*.

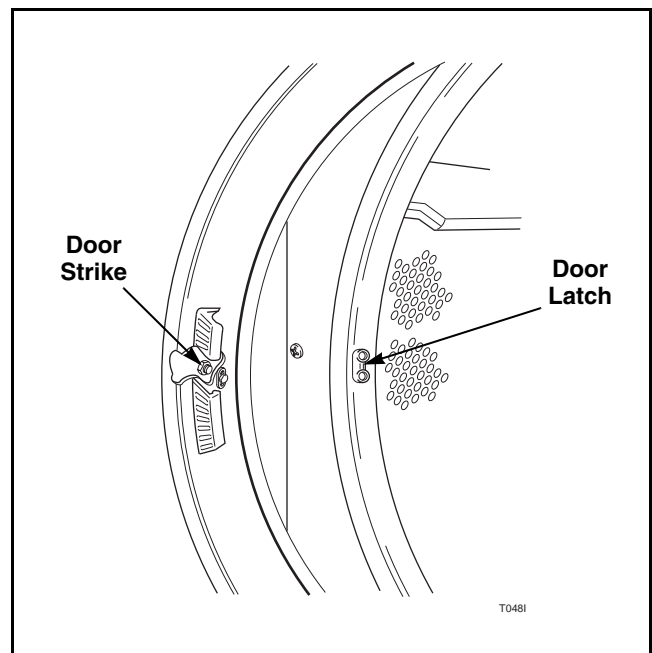


Figure 24



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

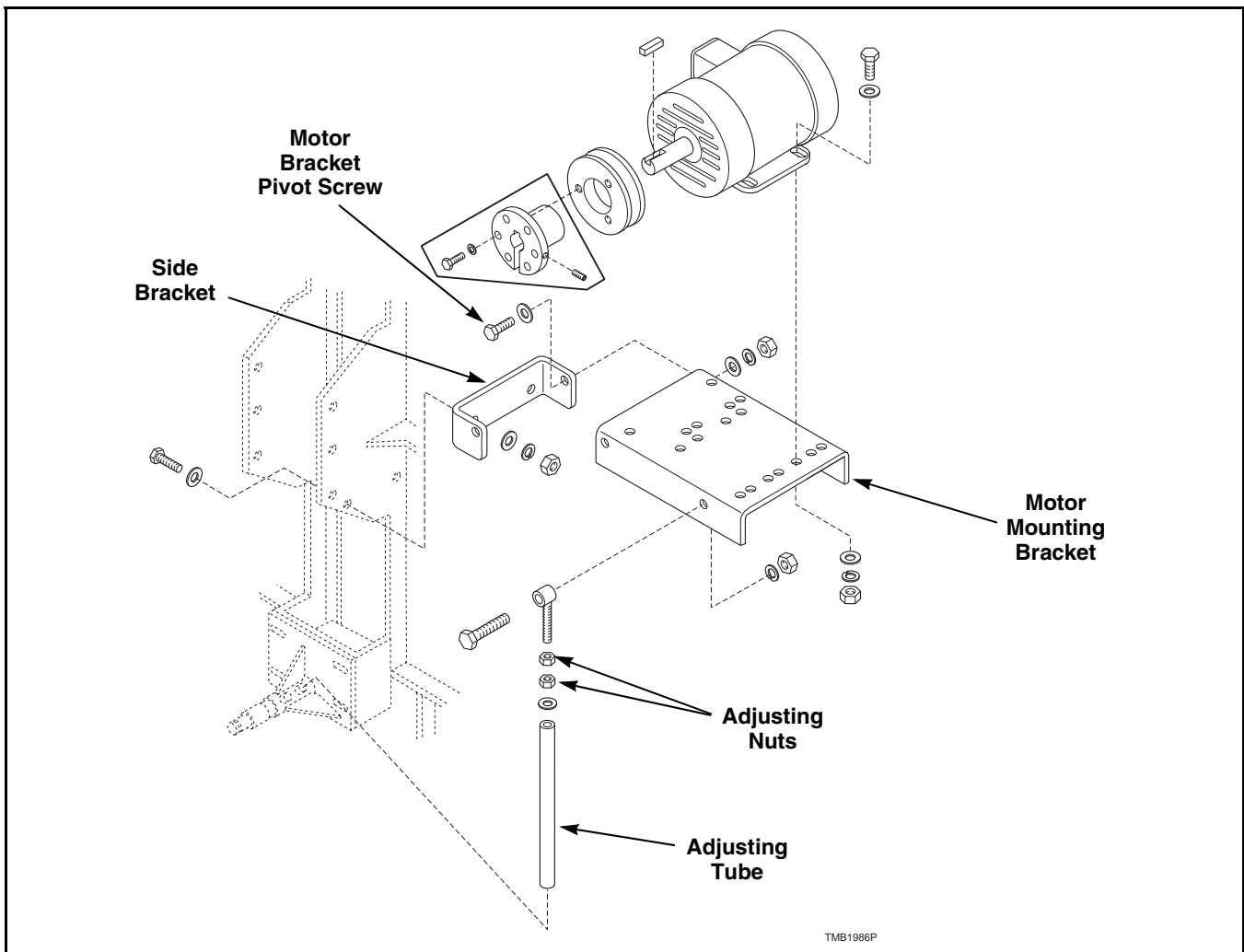


Figure 25

## 72. CYLINDER BELT

**NOTE:** Belt tension from step pulley to cylinder shaft pulley can be measured to ensure proper installation in one of the following ways:

- Burroughs Belt Tension Gauge initial reading 70-80 pounds.
  - Force to deflect belt .38 inch at midspan with initial tensioning 6.5 pounds.
  - Burroughs Belt Tension Gauge reading after run 55-65 pounds.
- a. Support drive guard cover and remove screws that hold guard to rear of tumbler. Refer to *Figure 11*.
  - b. Loosen the four jackshaft assembly attaching screws. Refer to *Figure 26*.
  - c. Loosen adjusting nuts on outer eyebolt and rotate bottom nut clockwise until proper tension is reached. Refer to *Figure 13*.
  - d. Retighten all nuts and screws.
  - e. Readjust drive belt.



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

**IMPORTANT: Adjusting the cylinder belt tension WILL AFFECT the drive belt tension. You MUST check and readjust the drive belt tension after adjusting the cylinder belt tension.**

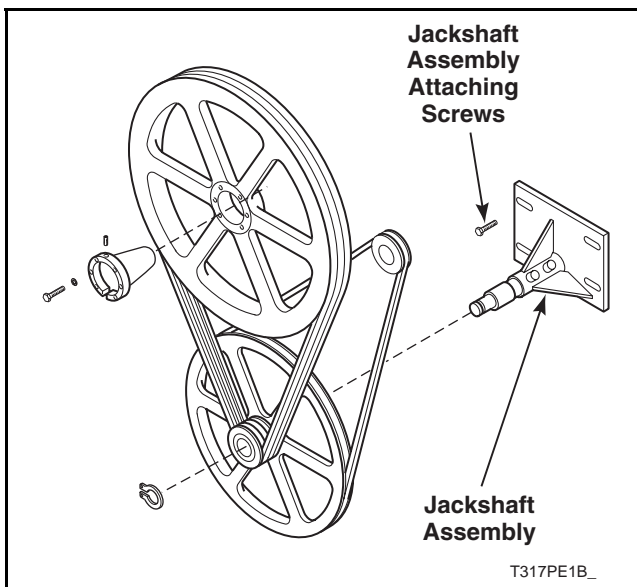


Figure 26

### CYLINDER CLEARANCE

The clearance between the cylinder rim and front panel must be adjusted so the cylinder is centered within the front panel opening when the cylinder is fully loaded and is turning. However, the adjustment should be made when the cylinder is empty.

**NOTE: If the cylinder is not properly adjusted, the cylinder rim will rub against the front panel.**

- a. Open loading door.
- b. Check the gap between the center of the front panel top flange and the cylinder rim. Proper adjustment is when the gap is  $8/32$  inch  $\pm$   $3/32$  inch. Refer to *Figure 27*. Perform steps d through i to adjust the cylinder rim/front panel flange clearance.

- c. Check the cylinder fore/aft clearance between the inside front of the cylinder and the edge of the front panel flange. Proper adjustment is when the gap is  $9/32$  inch  $\pm$   $1/32$  inch. Refer to *Figure 27*. Perform steps j through n to adjust the cylinder fore/aft clearance.

### CYLINDER RIM/FRONT PANEL FLANGE CLEARANCE ADJUSTMENT

- a. Support corner drive guard and remove screws holding corner guard to rear of tumbler.
- b. Support drive guard cover and remove screws holding guard to rear of tumbler.
- c. Loosen rear bearing mounting screws. Refer to *Figure 28*
- d. Loosen the locknuts on rear adjustment screws. Refer to *Figure 28*.
- e. Turn the adjusting screws in or out as necessary to obtain proper clearance between cylinder rim and front panel.

**NOTE: Turning the adjusting screws clockwise will raise the cylinder and turning them counter-clockwise will lower the cylinder. Turn both screws evenly to adjust top and bottom clearance. Turn one or the other adjusting screw in or out to adjust side clearance.**

- f. After the cylinder is properly adjusted, tighten the adjusting screw locknuts and the rear bearing mounting screws.
- g. Install drive guard cover. Refer to *Paragraph 49*.

**NOTE: If adjusting the trunnion housing fails to correct the clearance, the problem is probably due to a worn trunnion shaft or defective bearings.**



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### CYLINDER FORE/AFT CLEARANCE ADJUSTMENT

- h. Support corner drive guard and remove screws holding corner guard to rear of tumbler.
- i. Support drive guard cover and remove screws holding guard to rear of tumbler.
- j. Loosen setscrews in the front bearing assembly collar and rear bearing assembly collar. Refer to *Figure 28*.

- k. Move cylinder assembly in or out as necessary to obtain proper clearance between the cylinder and the front panel.
- l. After the cylinder is properly adjusted, tighten setscrews in the front and rear bearing assembly collars.
- m. Install drive guard cover. Refer to *Paragraph 49*.

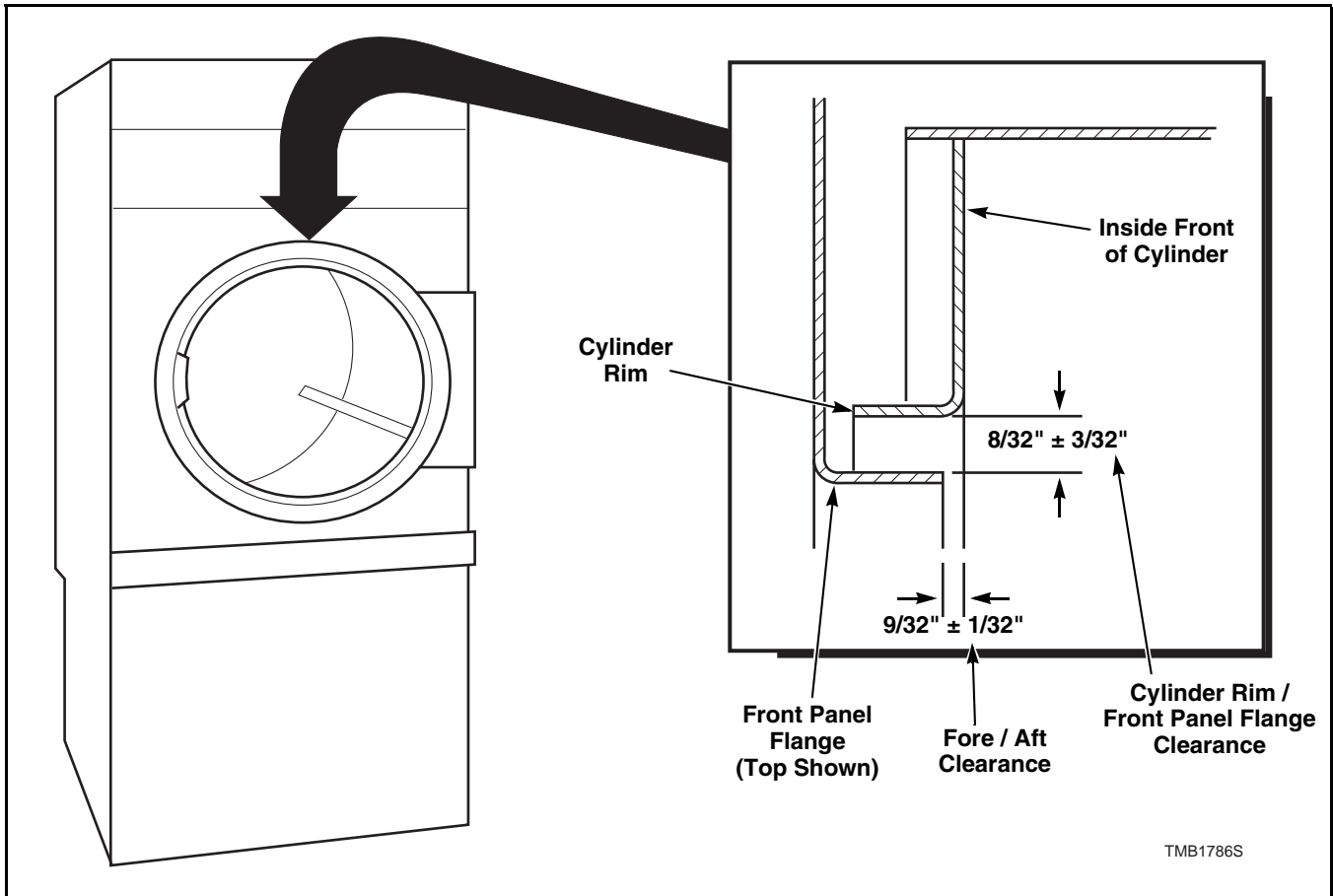


Figure 27



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

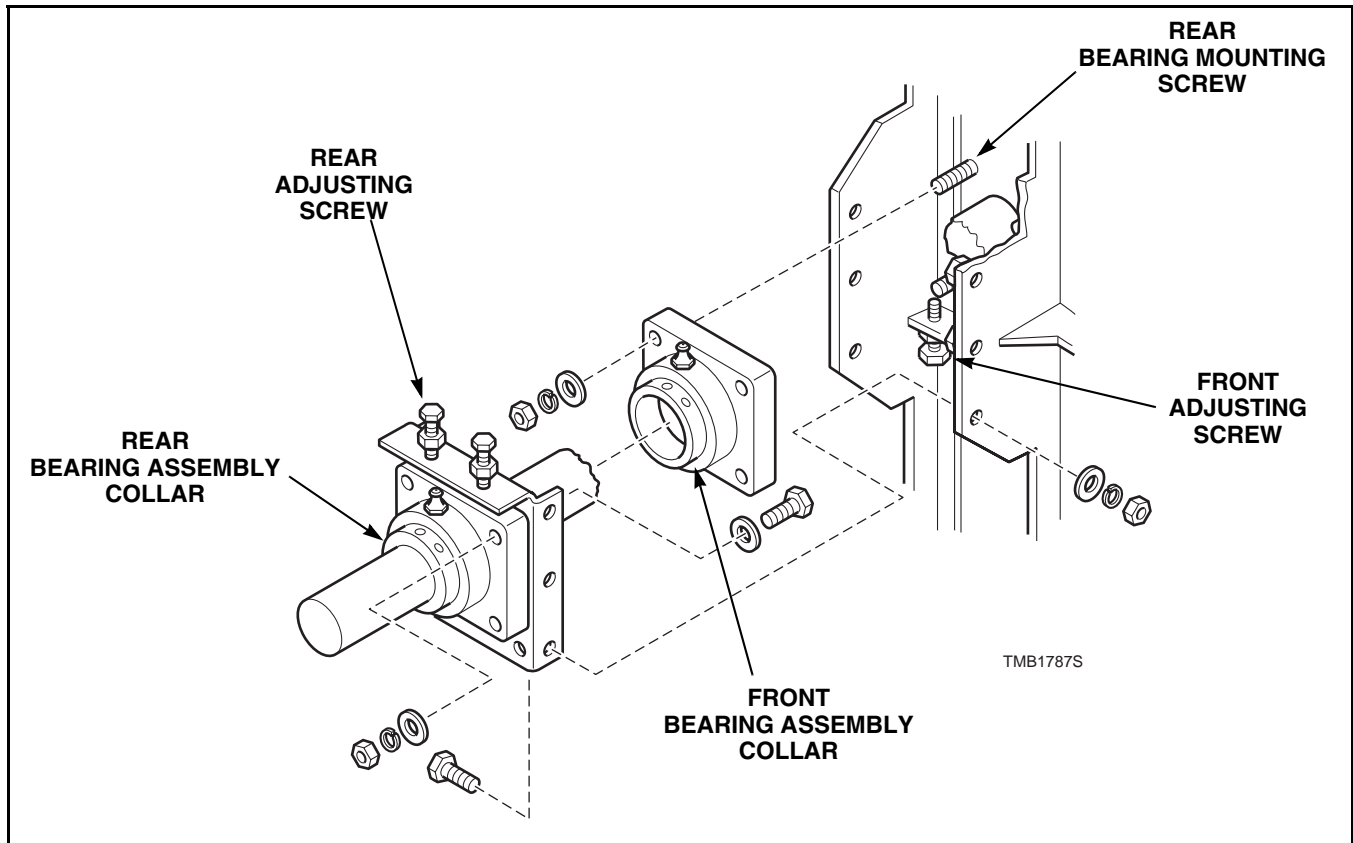


Figure 28

### 73. DRIVE BELT TENSION

**NOTE:** Belt tension from cylinder drive motor pulley to step pulley can be measured to ensure proper installation in one of the following ways:

- Burroughs Belt Tension Gauge initial reading 60-70 pounds.
  - Force to deflect belt .38 inch at midspan with initial tensioning 6.0 pounds
  - Burroughs Belt Tension Gauge reading after run 45-55 pounds.
- a. Support drive guard cover and remove screws holding guard to rear of tumbler. Refer to *Figure 11*.
  - b. Loosen the two motor bracket pivot screws. Refer to *Figure 25*.
  - c. Turn the adjusting nuts clockwise until proper tension is reached. Refer to *Figure 25*.
  - d. Retighten all nuts and screws.



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumbler before servicing.
- Close gas shut-off valve to gas tumbler before servicing.
- Close steam valve to steam tumbler before servicing.
- Never start the tumbler with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.

W002

### 74. FAN BELT TENSION

- a. Support corner drive guard and remove screws holding corner guard to rear of tumbler.
- b. Support drive guard cover and remove screws holding guard to rear of tumbler.
- c. Loosen the two mounting bracket attaching screws.
- d. Raise or lower eye bolt until proper tension is reached.
- e. Retighten all nuts and screws.

**NOTE: Belt tension from fan motor pulley to fan shaft pulley can be measured to ensure proper installation in one of the following ways:**

- Burroughs Belt Tension Gauge initial reading 60-70 pounds.
- Force to deflect belt .38 inch at midspan with initial tensioning 7.0 pounds
- Burroughs Belt Tension Gauge reading after run 50-55 pounds.

# Section 7

## Wiring Schematics



### WARNING

Failure to install, maintain, and/or operate this machine according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

W030

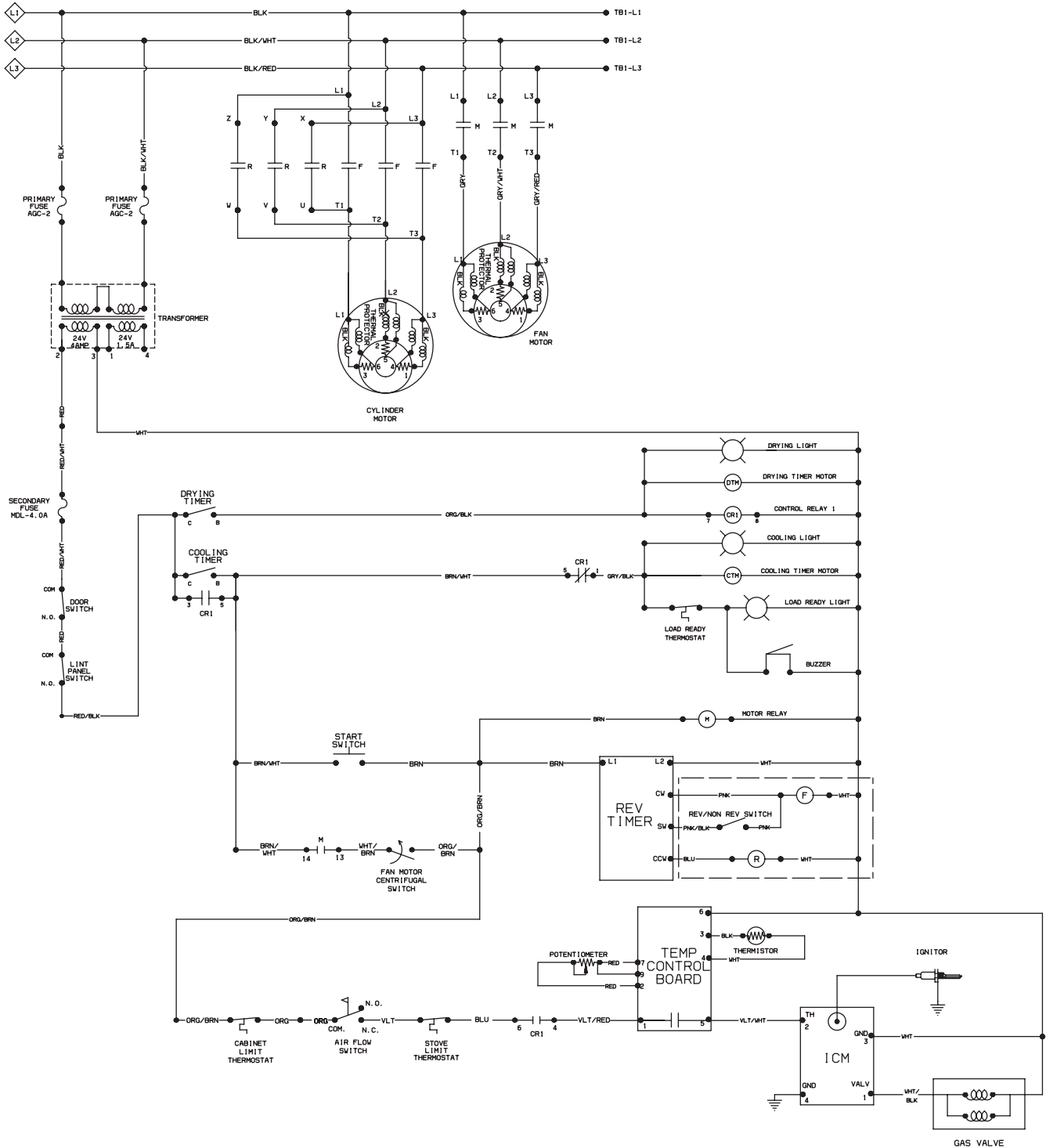
WIRING DIAGRAMS AND SCHEMATICS  
FOUND ON THE FOLLOWING PAGES  
ARE FOR MODELS COVERED IN THIS MANUAL.



# WARNING

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W030



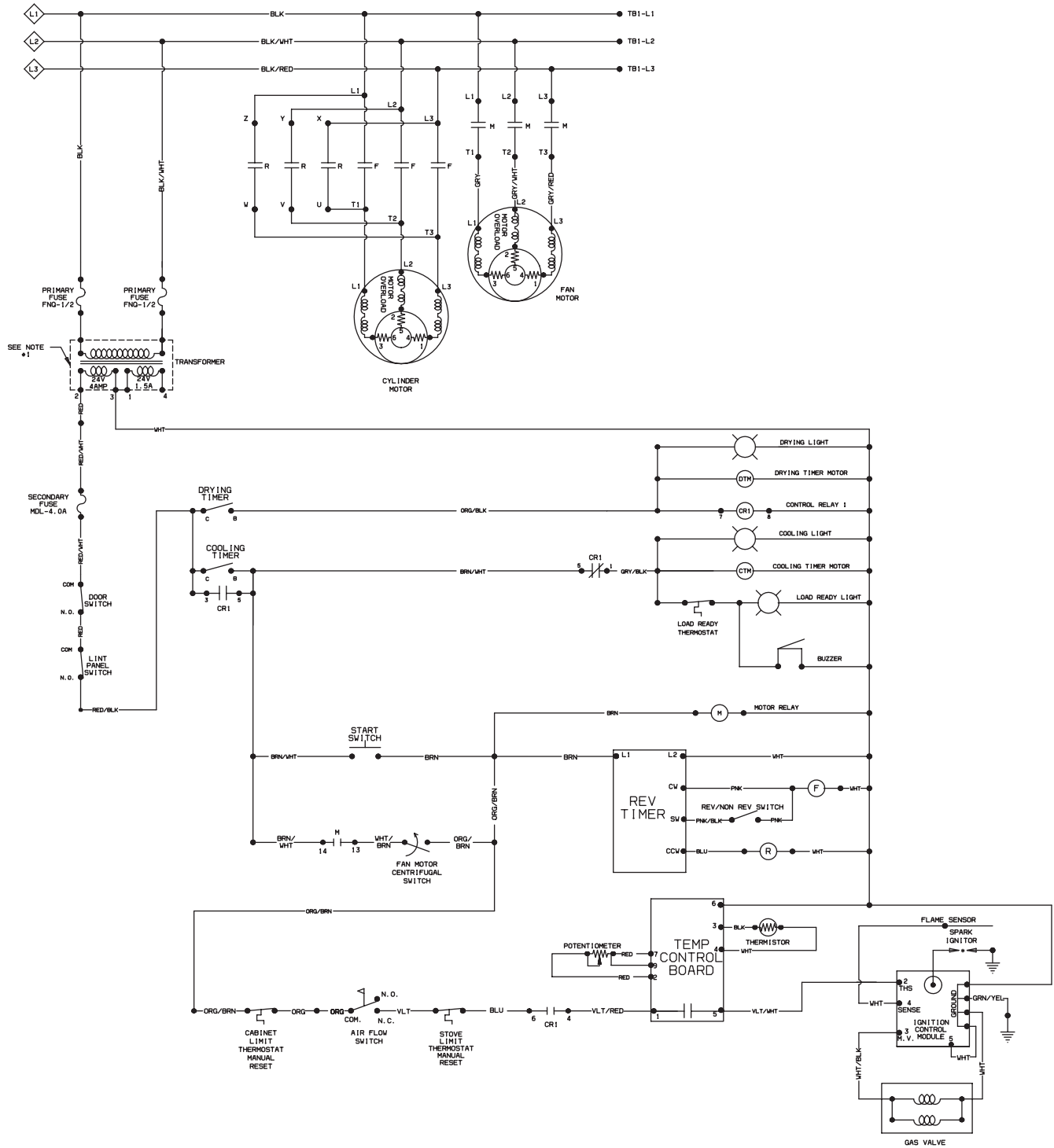
**AT, HT, PT, ST, UT, WT AND XT MANUAL TIMER MODELS  
208-230 VAC, 60 HERTZ, 3 PHASE GAS TUMBLER**



# WARNING

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W030



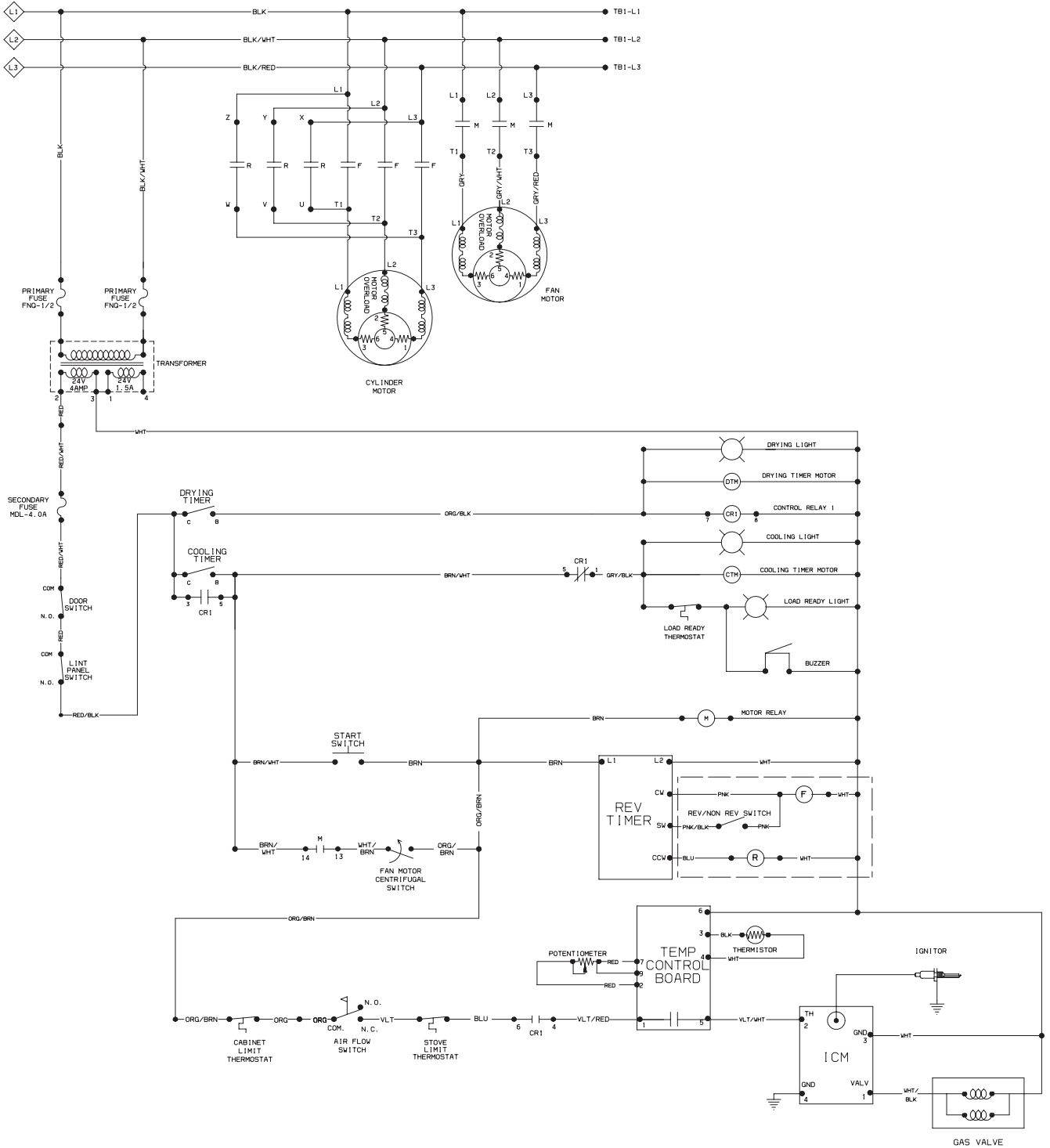
**AT, HT, PT, ST, UT, WT AND XT MANUAL TIMER MODELS  
380-415 VAC, 50 HERTZ, 3 PHASE GAS TUMBLER**



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W030



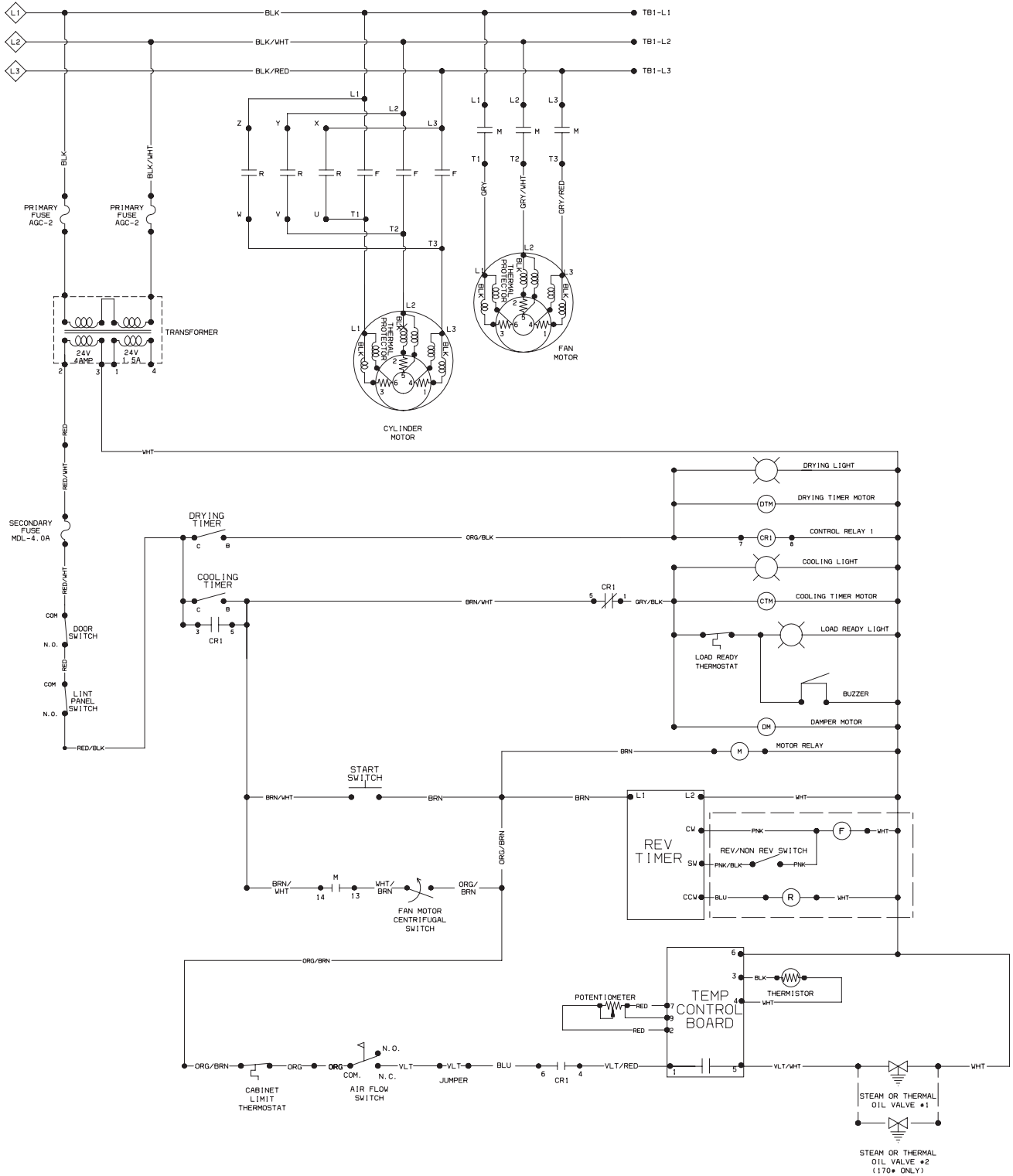
**AT, HT, PT, ST, UT, WT AND XT MANUAL TIMER MODELS  
460 VAC, 60 HERTZ, 3 PHASE GAS TUMBLER**



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W030



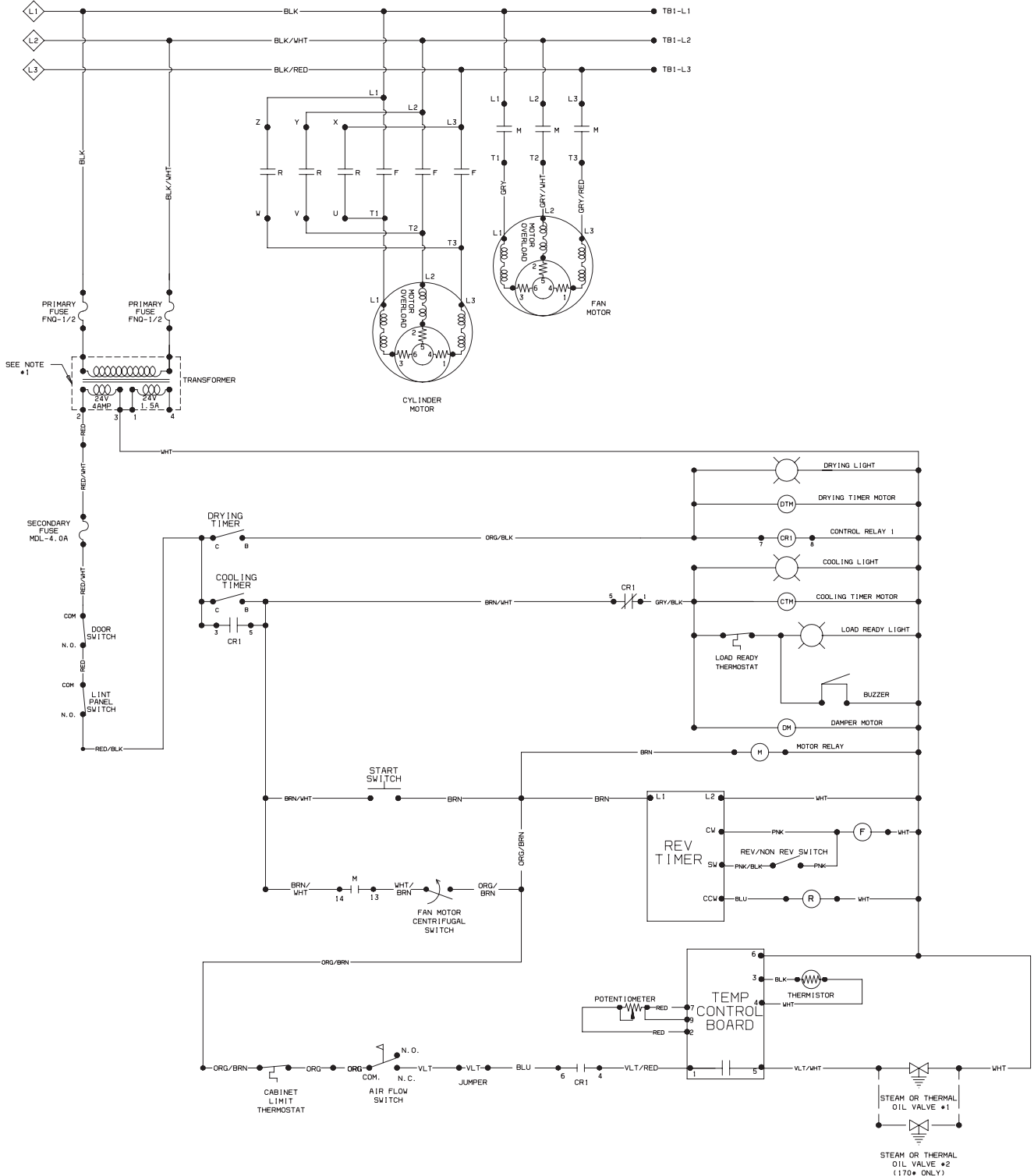
**AT, HT, PT, ST, UT, WT AND XT MANUAL TIMER MODELS  
208-230 VAC, 60 HERTZ, 3 PHASE STEAM TUMBLER**



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W030



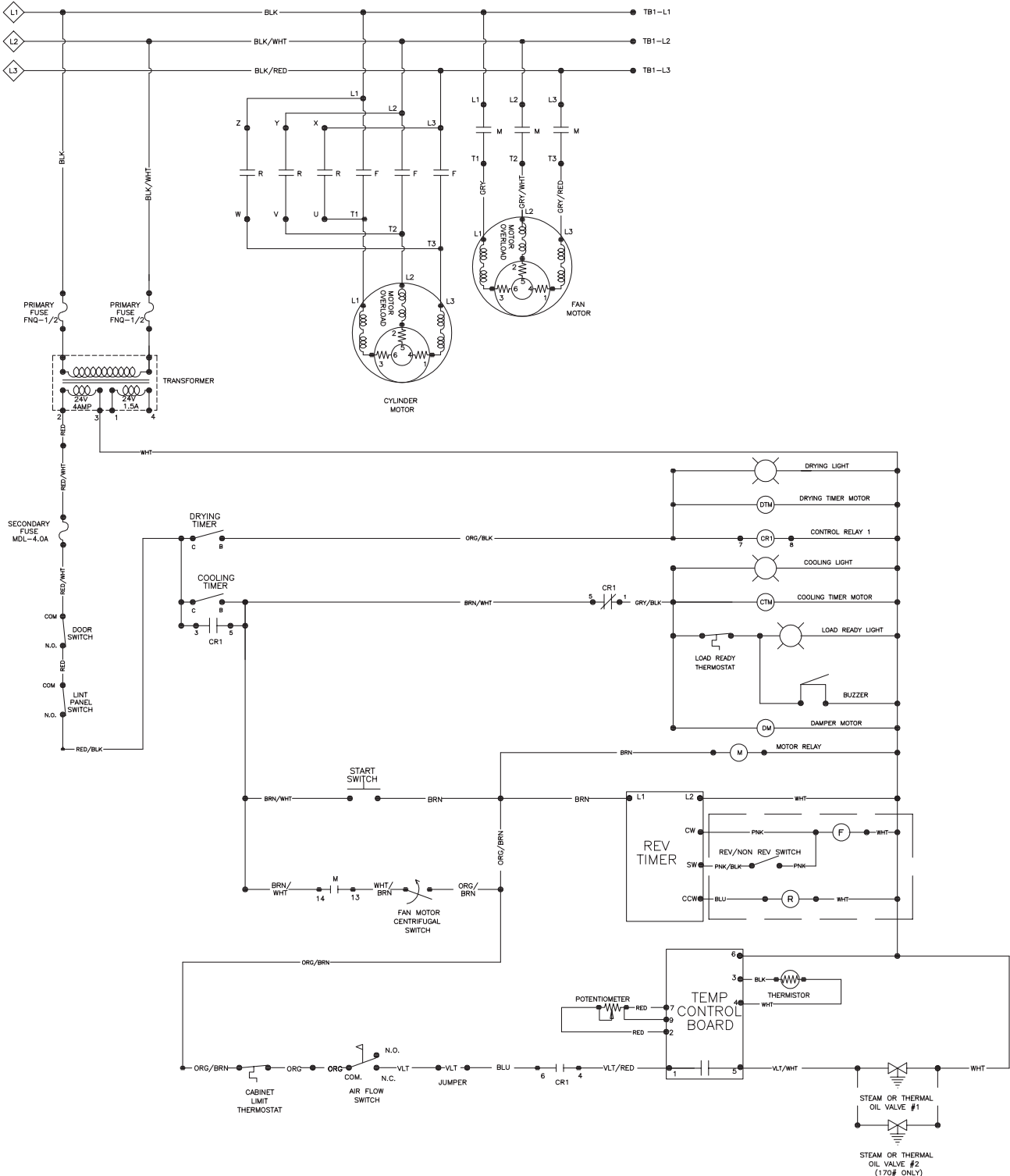
**AT, HT, PT, ST, UT, WT AND XT MANUAL TIMER MODELS  
380-415 VAC, 50 HERTZ, 3 PHASE STEAM TUMBLER**



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W030



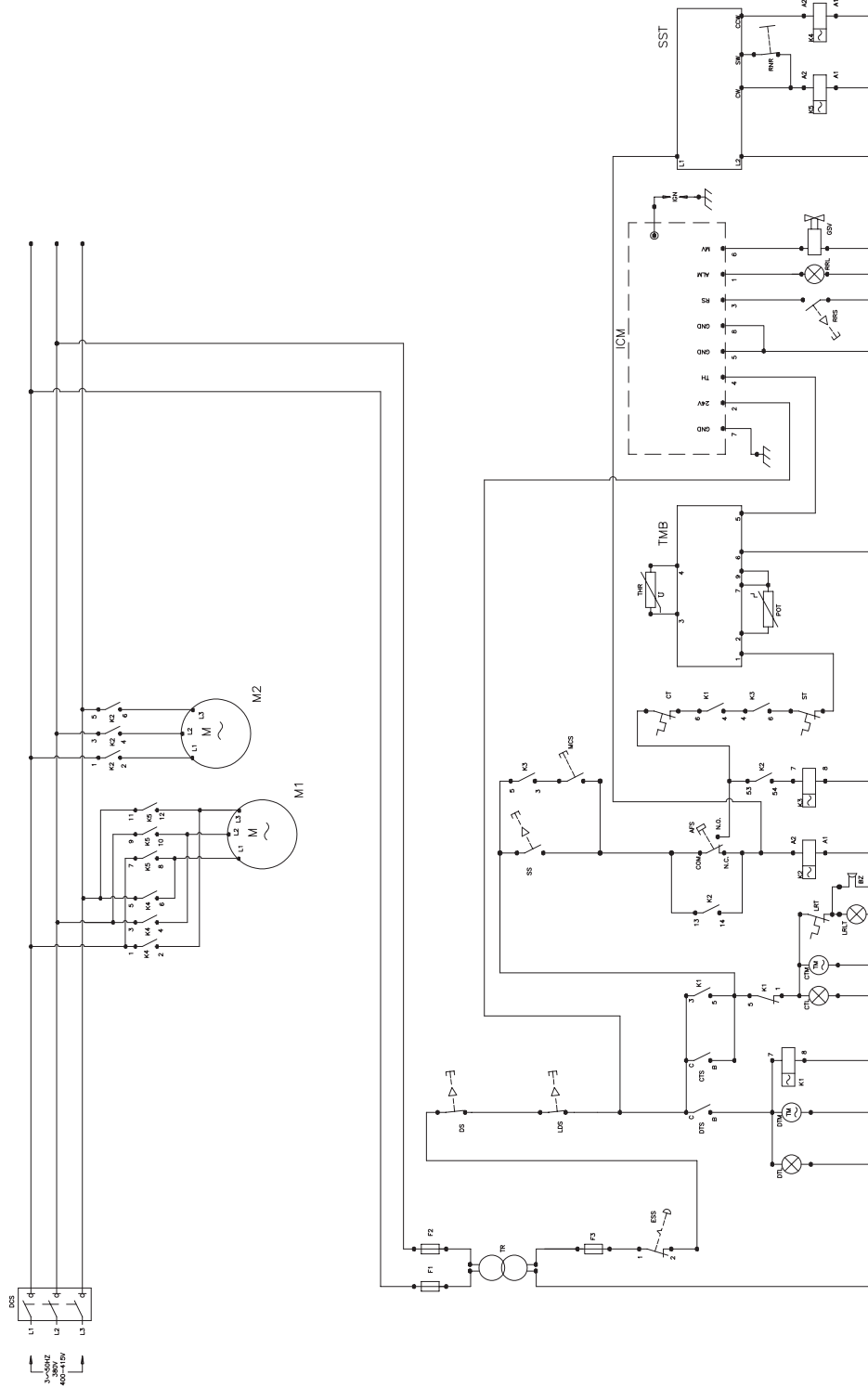
**AT, HT, PT, ST, UT, WT AND XT MANUAL TIMER MODELS  
460 VAC, 60 HERTZ, 3 PHASE STEAM TUMBLER**



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W030



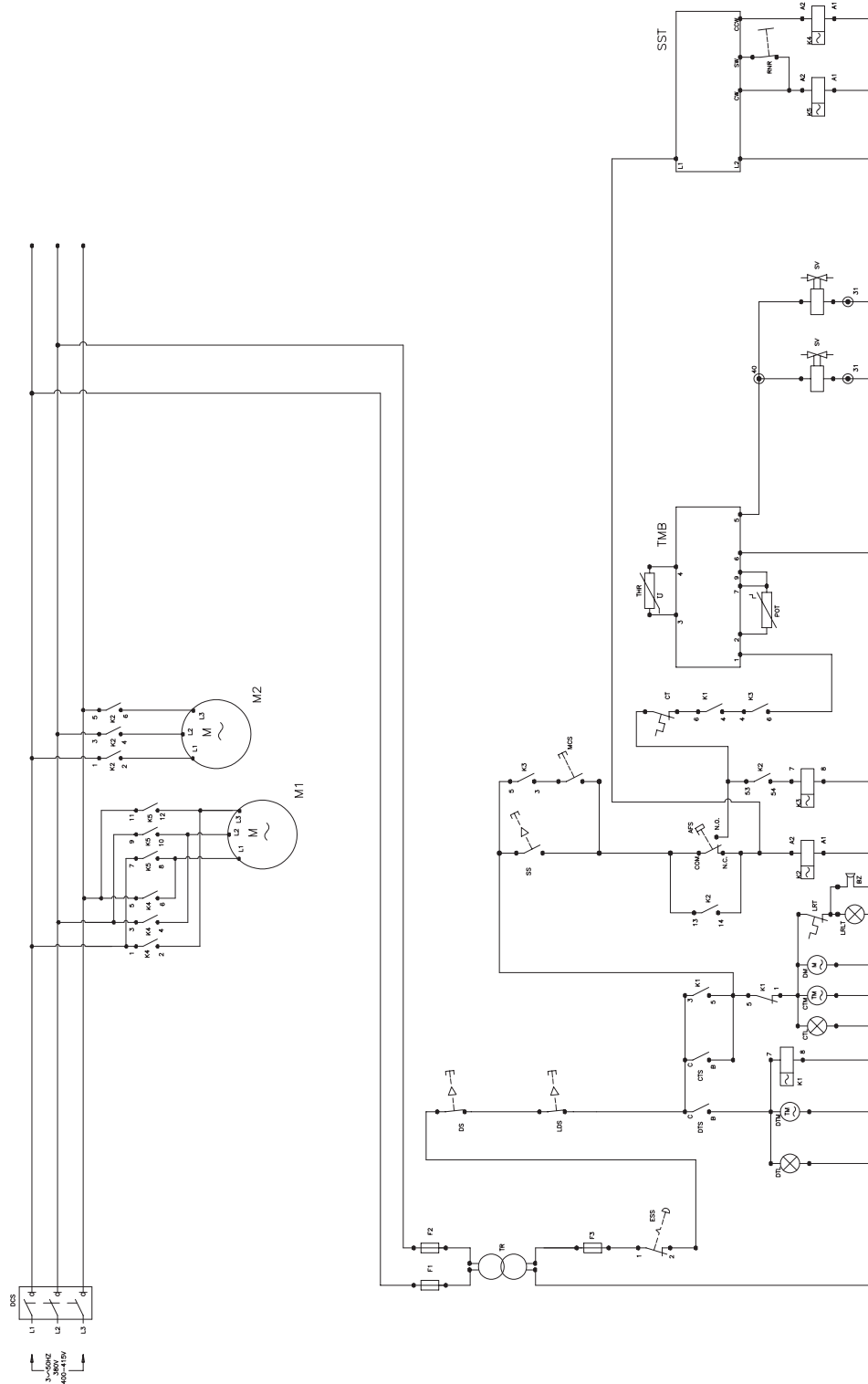
**HU, PU, SU, UU AND XU MANUAL TIMER MODELS  
380-415 VAC, 50 HERTZ, 3 PHASE GAS TUMBLER**



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W030



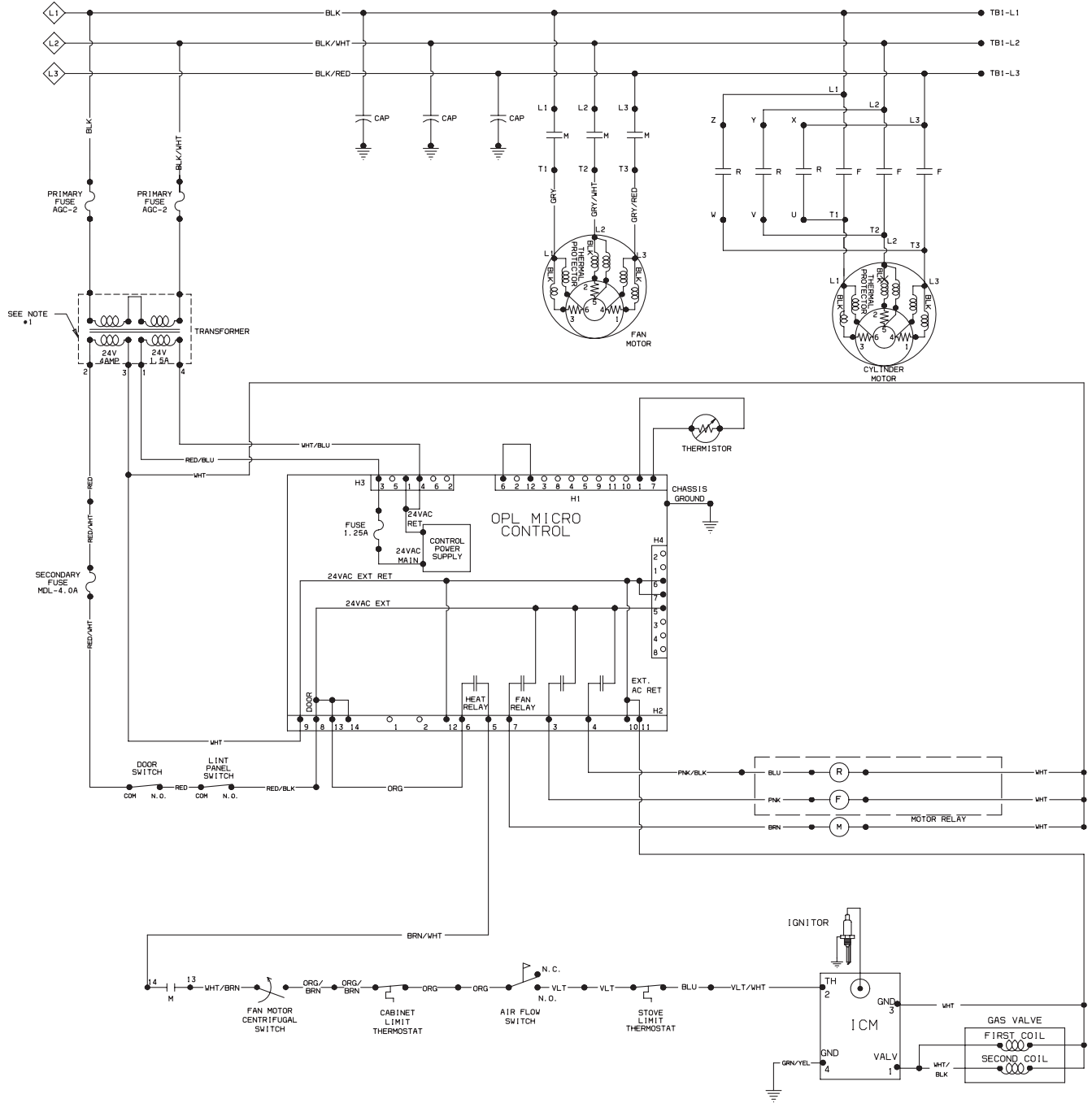
**HU, PU, SU, UU AND XU MANUAL TIMER MODELS  
380-415 VAC, 50 HERTZ, 3 PHASE STEAM TUMBLER**



# WARNING

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W030



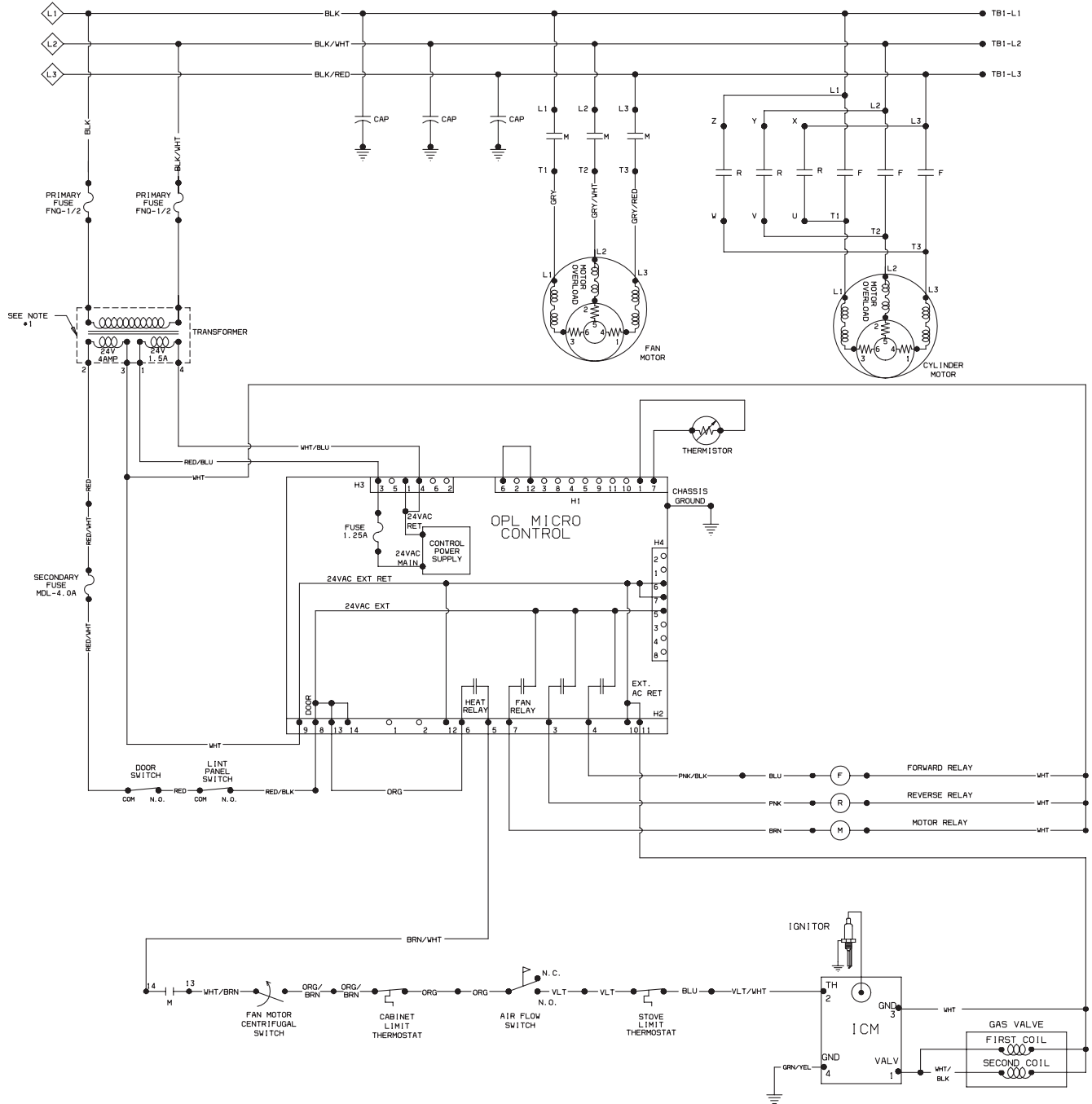
**AT, HT, PT, ST, UT, WT AND XT MICRO CONTROL RM MODELS  
208-230 VAC, 60 HERTZ, 3 PHASE GAS TUMBLER**



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W030



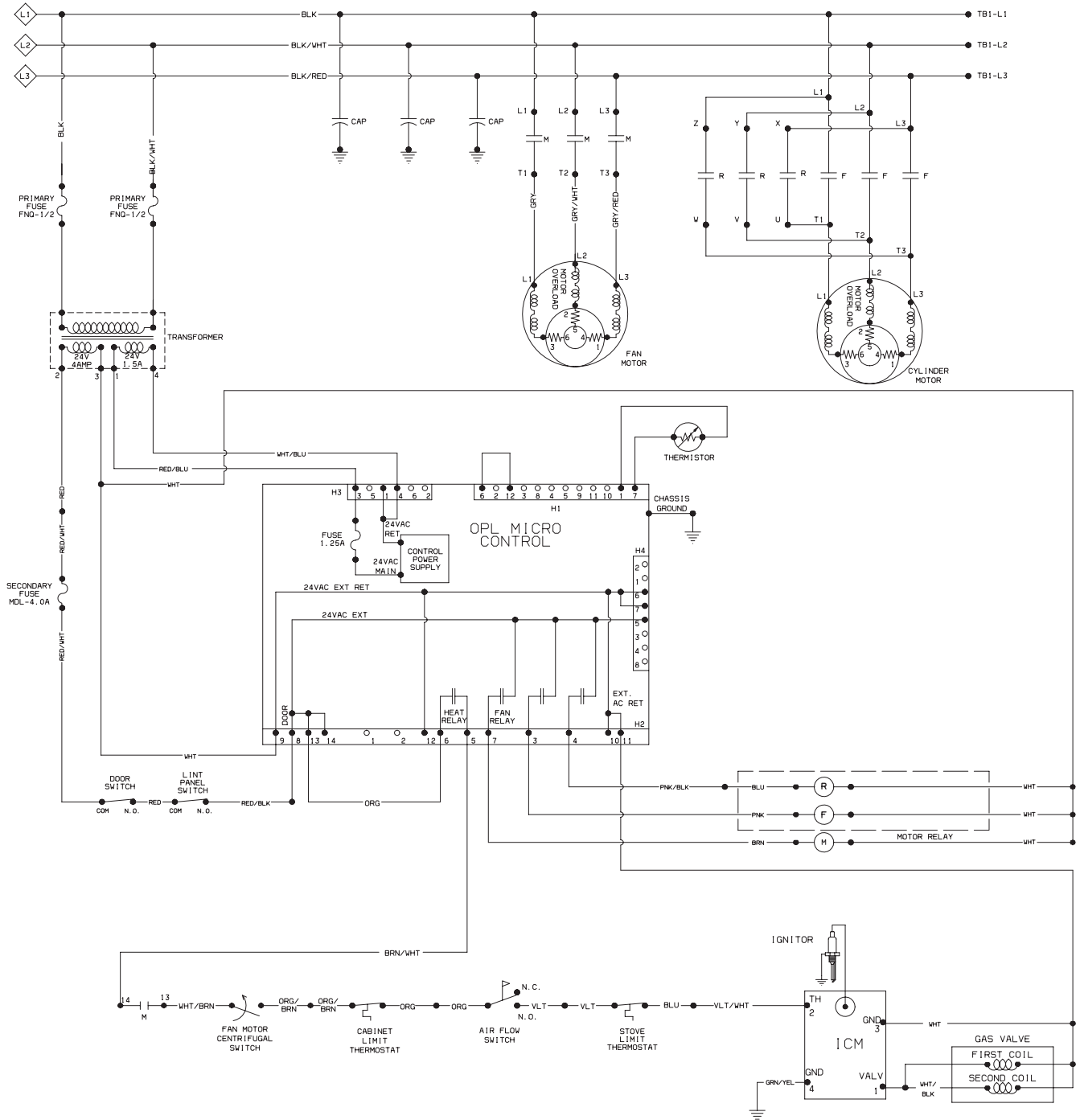
**AT, HT, PT, ST, UT, WT AND XT MICRO CONTROL RM MODELS  
380-415 VAC, 50 HERTZ, 3 PHASE GAS TUMBLER**



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W030



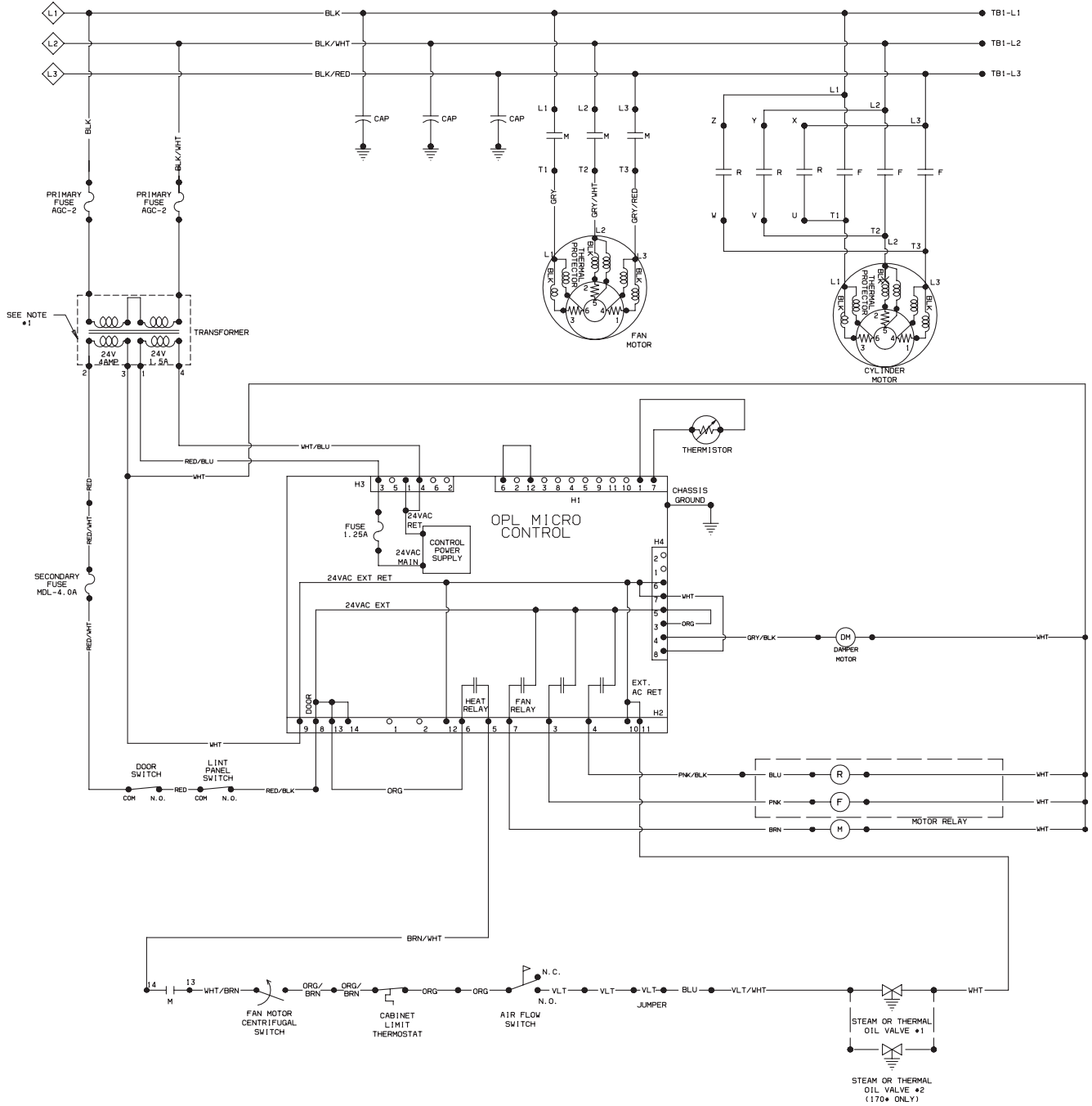
**AT, HT, PT, ST, UT, WT AND XT MICRO CONTROL RM MODELS  
460-480 VAC, 60 HERTZ, 3 PHASE GAS TUMBLER**



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W030



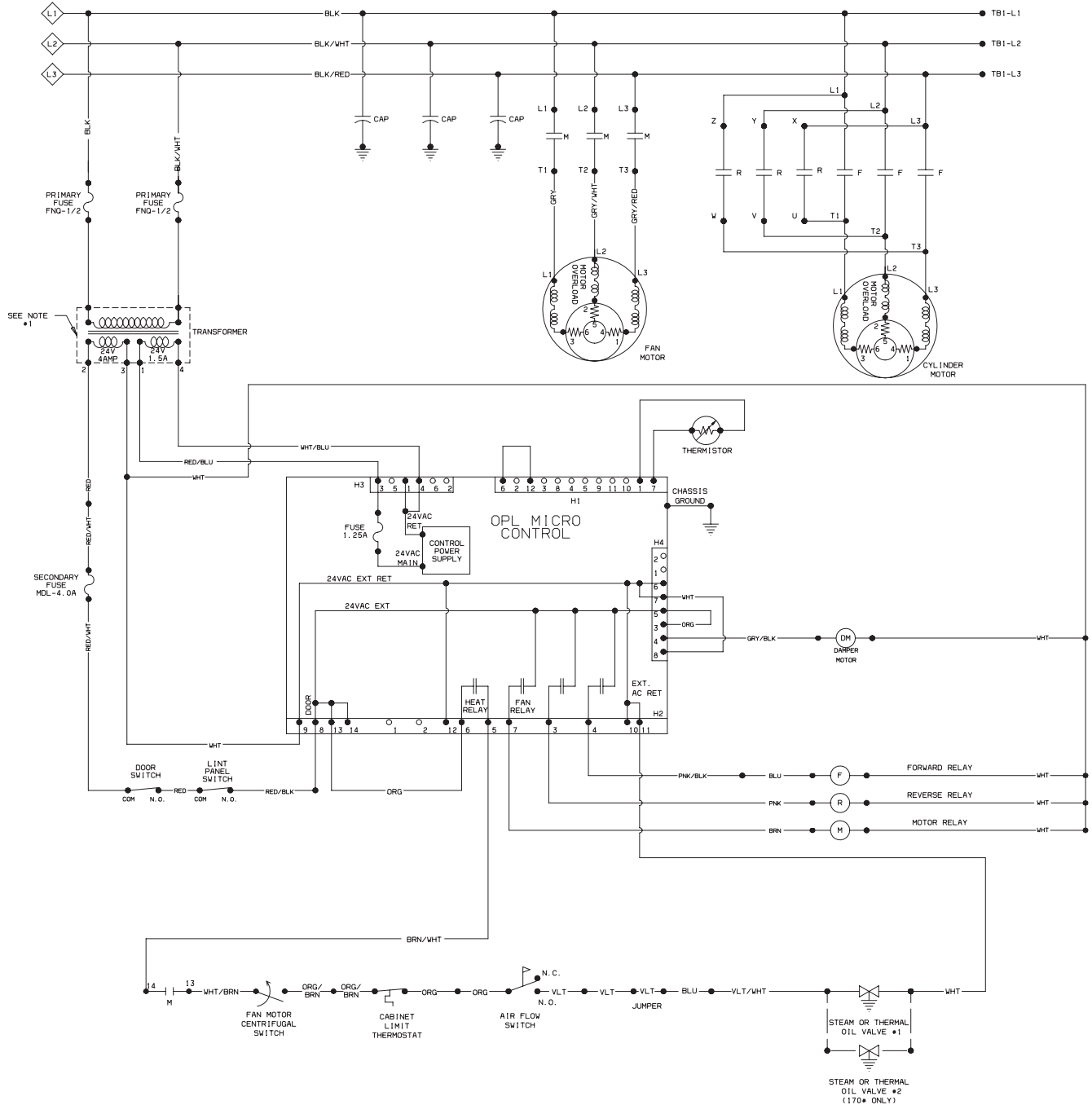
**AT, HT, PT, ST, UT, WT AND XT MICRO CONTROL RM MODELS  
208-230 VAC, 60 HERTZ, 3 PHASE STEAM TUMBLER**



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W030



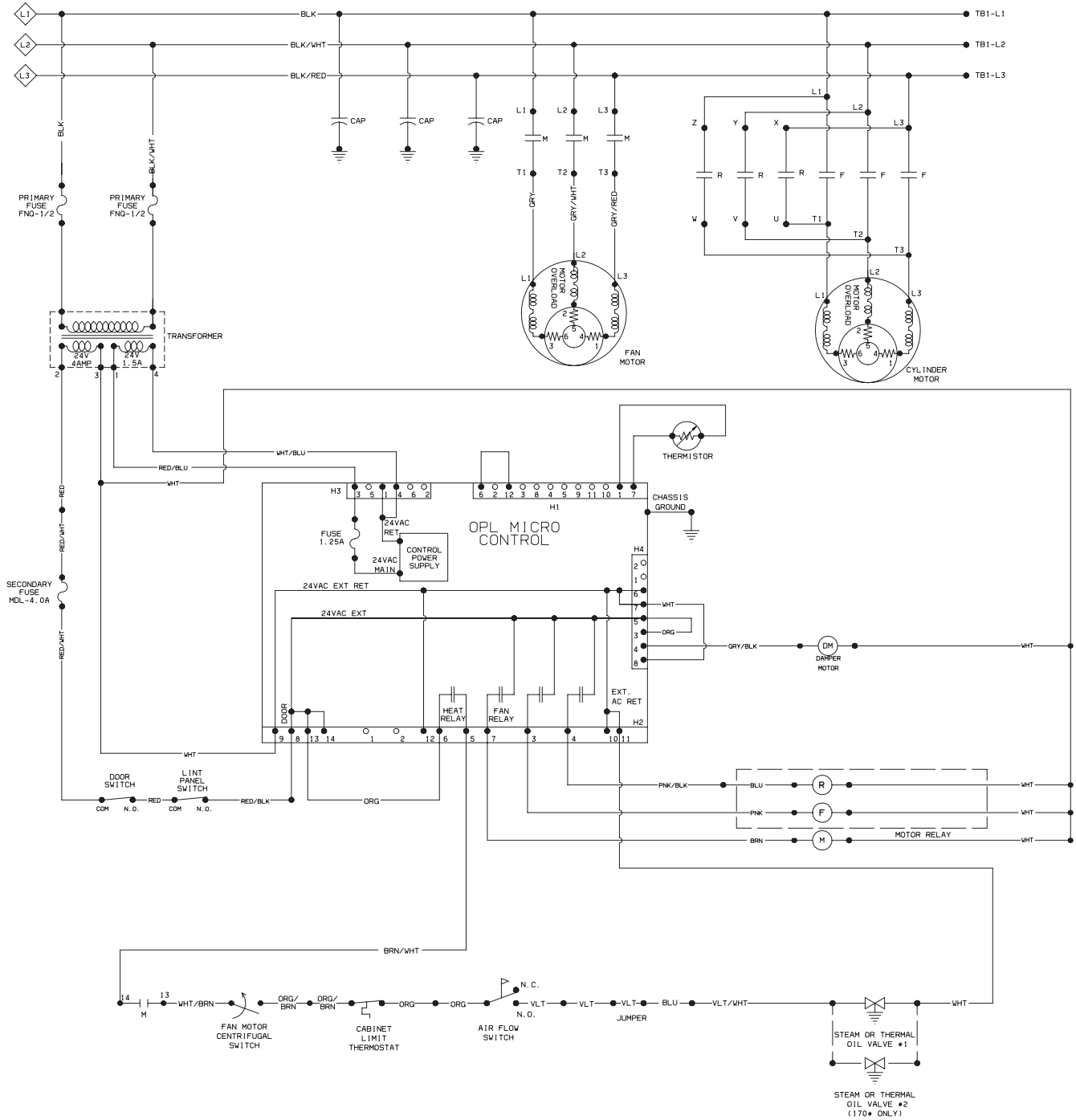
**AT, HT, PT, ST, UT, WT AND XT MICRO CONTROL RM MODELS  
380-415 VAC, 50 HERTZ, 3 PHASE STEAM TUMBLER**



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W030



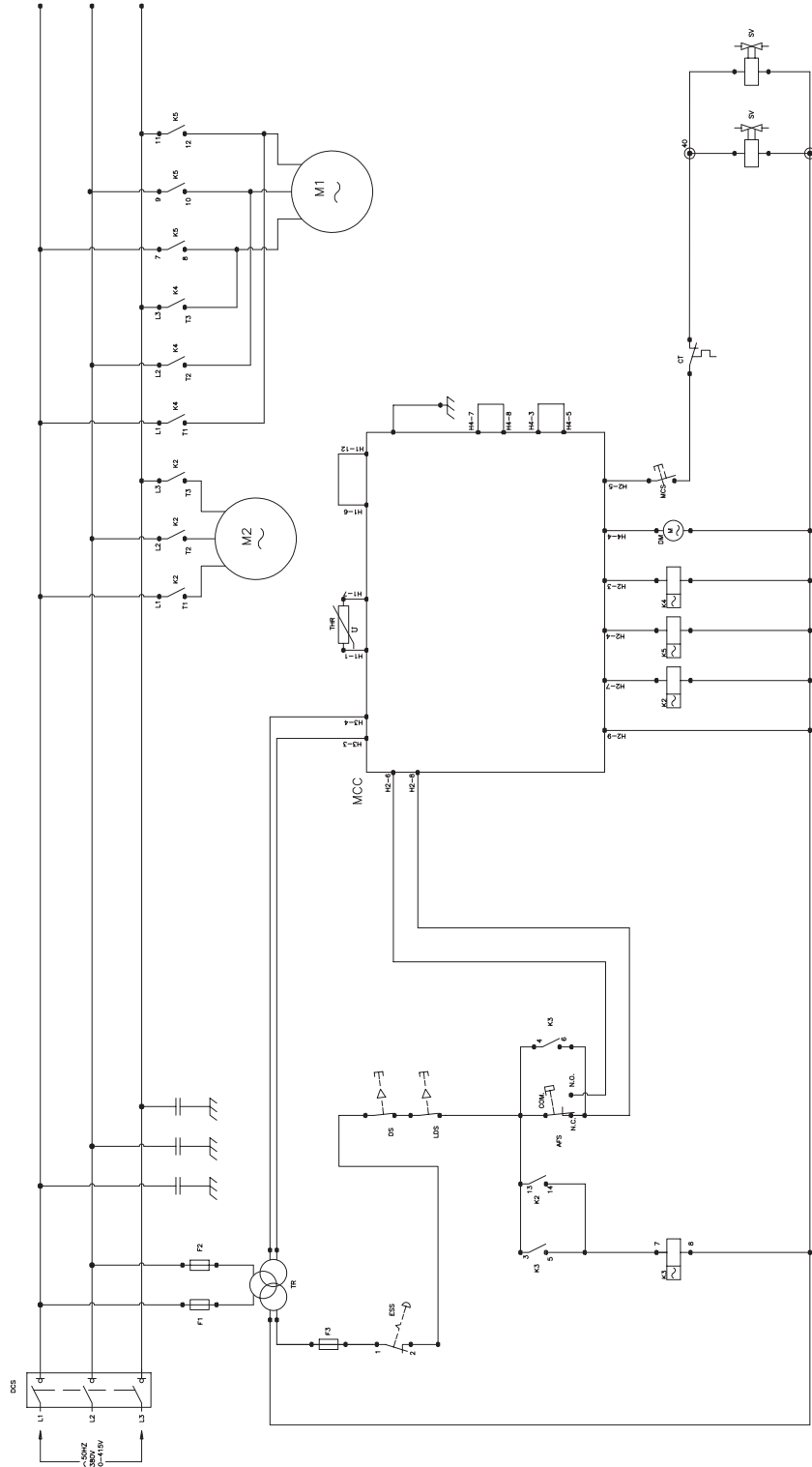
**AT, HT, PT, ST, UT, WT AND XT MICRO CONTROL RM MODELS  
460-480 VAC, 60 HERTZ, 3 PHASE STEAM TUMBLER**



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W030



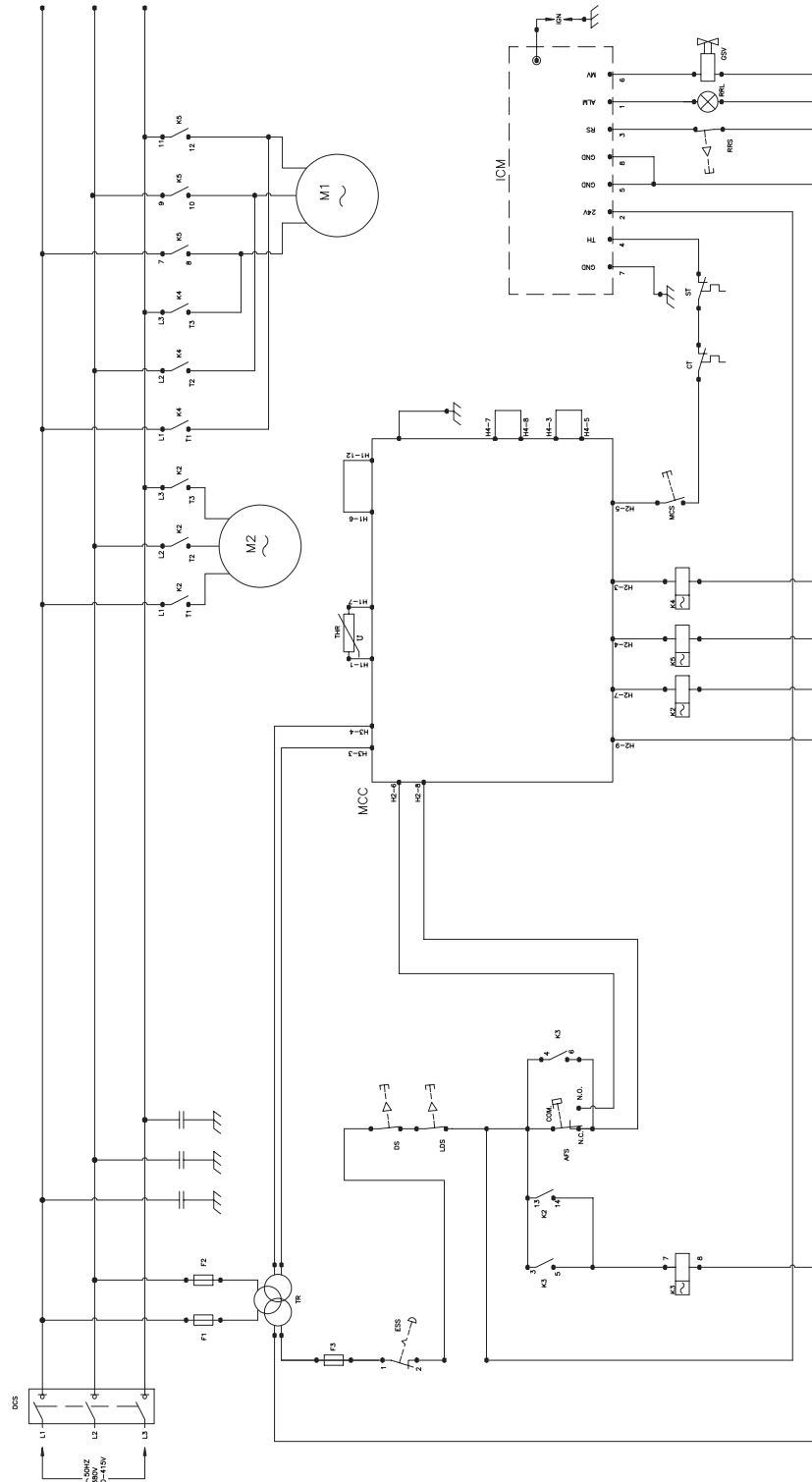
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