REPAIR-MASTER® *for*

SPEED QUEEN

GAS & ELECTRIC DRYERS

- DIAGNOSIS CHARTS
- CHECKING PROCEDURE
- SERVICE PROCEDURE
- COMPONENT DATA

No. 8057

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REPAIR-MASTER for..

SPEED QUEEN AUTOMATIC GAS & ELECTRIC DRYERS

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FOREWORD

This Repair Master contains information and service procedures to assist the service technician in correcting conditions that are not always obvious.

A thorough knowledge of the functional operation of the many component parts used on appliances is important to the serviceman, if he is to make a proper diagnosis when a malfunction of any part occurs.

We have used many representative illustrations, diagrams and photographs to portray more clearly these various components for a better over-all understanding of their use and operation.

IMPORTANT SAFETY NOTICE

You should be aware that all major appliances are complex electromechanical devices. Master Publication's REPAIR MASTER® Service Publications are intended for use by individuals possessing adequate backgrounds of electronic, electrical and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. Master Publications cannot be responsible for the interpretation of its service publications, nor can it assume any libility in connection with their use.

SAFE SERVICING PRACTICES

To preclude the possibility of resultant personal injury in the form of electrical shock, cuts, abrasions or burns, etc., that can occur spontaneously to the individual while attempting to repair or service the appliance; or may occur at a later time to any individual in the household who may come in contact with the appliance, Safe Servicing Practices must be observed. Also property damage, resulting from fire, flood, etc., can occur immediately or at a later time as a result of attempting to repair or service — unless safe service practices are observed.

The following are examples, but without limitation, of such safe practices:

1. Before servicing, always disconnect the source of electrical power to the appliance by removing the product's electrical plug from the wall receptacle, or by removing the fuse or tripping the circuit breaker to OFF in the branch circuit servicing the product.

NOTE: If a specific diagnostic check requires electrical power to be applied such as for a voltage or amperage measurements, reconnect electrical power only for time required for specific check, and disconnect power immediately thereafter. During any such check, ensure no other conductive parts, panels or yourself come into contact with any exposed current carrying metal parts.

2. Never bypass or interfere with the proper operation of any feature, part, or device engineered into the appliance.

3. If a replacement part is required, use the specified manufacturers part, or an equivalent which will provide comparable performance.

4. Before reconnecting the electrical power service to the appliance — be sure that:

   a. All electrical connections within the appliance are correctly and securely connected.
   b. All electrical harness leads are properly dressed and secured away from sharp edges, high-temperature components such as resistors, heaters, etc., and moving parts.
   c. Any uninsulated current-carrying metal parts are secured and spaced adequately from all non-current carrying metal parts.
   d. All electrical ground, both external and internal to the product are correctly and securely connected.
   e. All water connections are properly tightened.
   f. All panels and covers are properly and securely reassembled.

5. Do not attempt an appliance repair if you have any doubts as to your ability to complete it in a safe and satisfactory manner.

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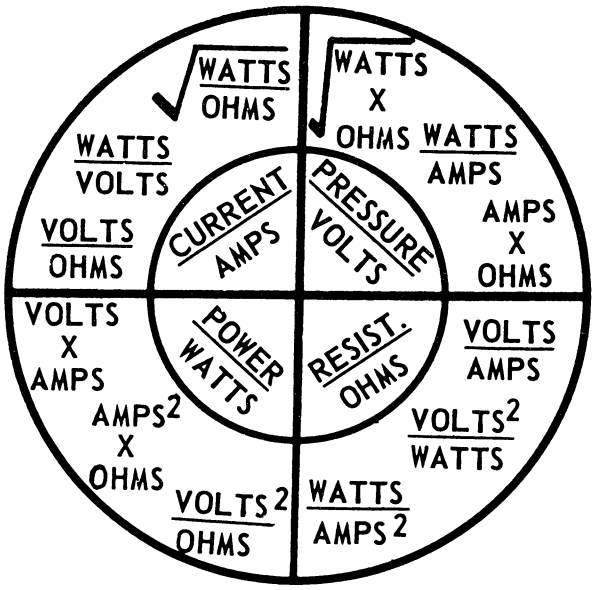
HERE'S A HANDY CHART FOR FIGURING ELECTRICAL VALUES

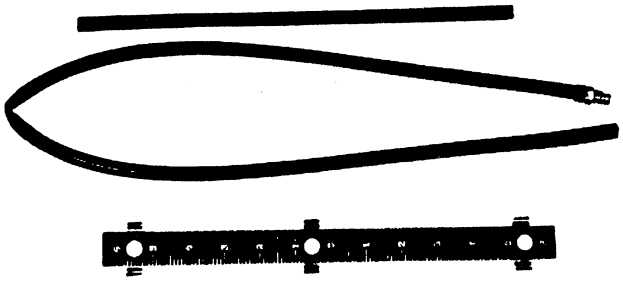
This chart can be used as a quick reminder of electrical formulas. It shows 3 ways to figure each value, AMPS, VOLTS, OHMS or WATTS and can be easily copied and carried in the shirt pocket or cemented to the inside of the tool box.



Memorandum

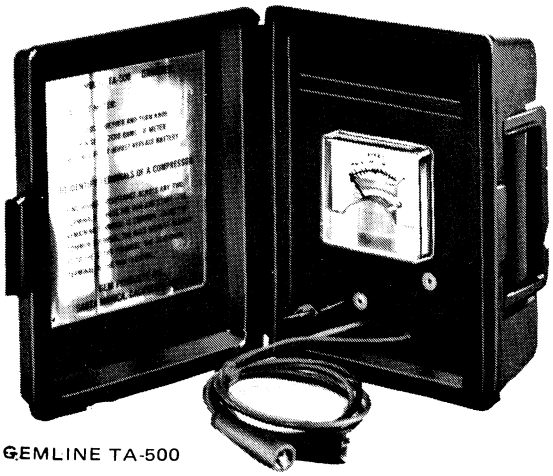
MANOMETER

Use for checking gas pressure.



OHMMETER

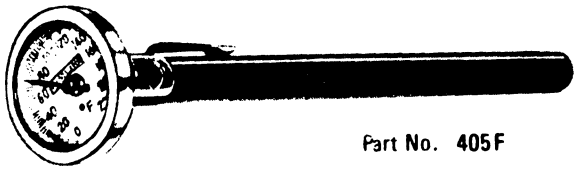
Use for checking continuity or resistance.



GEMLINE TA-500

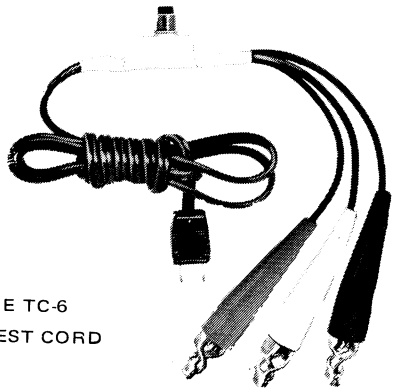
THERMOMETER (0° to +220° F.)

Use for checking thermostat temperatures.



Part No. 405F

TEST CORD



GEMLINE TC-6
MOTOR TEST CORD

MILLIVOLTMETER

Use for checking thermocouples.

GEMLINE TA-1510 MILLIVOLT METER

SERVICE TOOLS

TOOLS AND EQUIPMENT REQUIRED

Besides the usual hand tools needed to service and repair a dryer, a continuity or volt-ohm meter is necessary to check electrical components. On page 3 is illustrated some of the specialized tools that are available from your appliance parts dealers. Other special tools such as a true-arc pliers are also available from the same source. A continuity tester can be constructed as illustrated in Figure 6.

SECTION 1

SERVICE CHECK LIST

The following diagnosis chart is intended to be only a starting point in proceeding with the servicing of automatic dryers. The diagnosis chart can only deal in generalities; to effectively service any appliance, the serviceman must thoroughly understand the mechanical functions and electrical circuitry of the appliance.

A considerable amount of time and money can be saved if a serviceman will take time to analyze the probable cause of a malfunction of a machine before proceeding to remove any parts. Always be sure, first, that the machine is properly installed and its power cord is plugged into a live receptacle that is properly fused. When checking electric dryers connected to 220 volts, be sure BOTH fuses are good. Be sure the gas is turned on and air is bled from the line when checking gas dryers. Check for proper air flow and make sure the operator has properly set the controls.

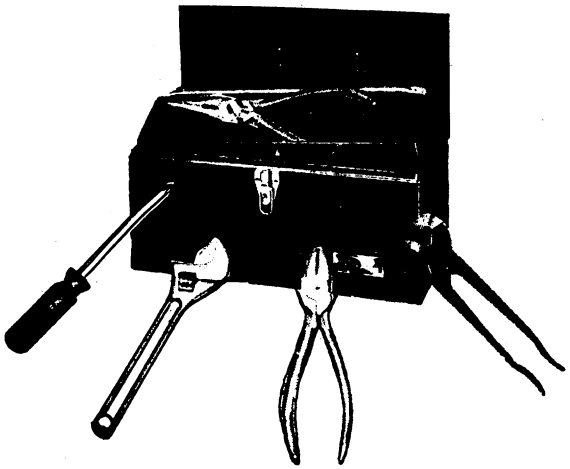
Always make a visual check first before using any testing equipment such as test lamps, voltmeters or ohmmeters. Before attempting to remove any electrical part from the machine, disconnect the power cord from the live receptacle. However, if a voltmeter or test lamp is being used for testing, the power cord must be plugged into a live recepticle.

SYMPTOMS	CAUSE	REFERENCE AIDS
MOTOR DOES NOT RUN	Electric power shut off, house fuse blown or power cord not plugged in.	Press PUSH TO START button, or test switch.
	Start circuit not completed.	Close loading door, or test switch.
	Loading door not closed or inoperative door switch.	Set timer, or test timer.
	Timer improperly set or inoperative.	Wait 2 or 3 minutes for overload protector to reset itself. If overload protector cycles repeatedly, see paragraph 2.
	Motor overload protector has cycled.	Test motor.
	Inoperative motor.	Check wiring continuity. See appropriate wiring diagram.
	Broken, loose or incorrect wiring.	Adjust belt.
	Excessively tight exhaust fan belt.	See ELECTRICAL WIRING, page 12.
MOTOR OVERLOAD PROTECTOR CYCLES REPEATEDLY	Low voltage.	Inspect drum rollers for binding, and inspect area between rear of drum and rear support frame for binding.
	Clothes drum binding.	
	Clothes load too large.	See OPERATING INSTRUCTIONS supplied with dryer.
	Inoperative overload protector.	Send motor to motor manufacturer's nearest authorized small motor repair station for repair.
MOTOR RUNS BUT DRUM DOES NOT TURN	Loose motor idler pulley.	Tighten setscrew.
	Loose drum pulley.	Check key and tighten setscrew.
	Broken idler belt or drum belt.	Replace belt.
	Broken drum shaft.	Replace shaft.
MOTOR WILL NOT SHUT OFF	Inoperative timer.	Test timer.
	Inoperative door switch.	Test door switch.
	Incorrect wiring.	See appropriate wiring diagram.
	Timer improperly set or inoperative.	Set timer, or test timer.
HEATING ELEMENT DOES NOT HEAT	HEAT switch set for AIR ONLY or switch is inoperative.	Change HEAT switch selection or test switch.
	Inoperative heating element.	Test heating element.
	Blown house fuse.	Check fuses.
	Inoperative safety thermostat.	Test thermostat.
	Inoperative motor.	Test motor.
	Broken, loose or incorrect wiring.	Check continuity of wiring. See appropriate wiring diagram.

SYMPTOMS	CAUSE	REFERENCE AIDS
HEATING ELEMENT OR BURNER REPEATEDLY CYCLES OFF ON SAFETY THERMOSTAT	Clogged lint screen.	Remove and clean lint screen.
	Lint in internal duct work.	Disassemble and clean.
	Lint in external exhaust system.	Remove exhaust duct work and clean.
	External exhaust system longer than recommended.	See DRYER EXHAUST text.
	Hinged damper on weather hood not free to open.	Free hinged damper or replace weather hood.
	Loose or broken exhaust fan belt.	Adjust belt, or replace belt.
	Loose exhaust fan pulley.	Tighten setscrew.
	Loose motor exhaust fan pulley.	Tighten setscrew.
	Air leak around loading door.	Outer door seal not sealing properly against loading door due to sprung door hinge(s) or loading door, or inoperative door catches.
	Air leak at front or rear drum seal.	Check seals. To replace seals, see text.
	Safety thermostat cycling at too low a temperature.	Replace thermostat.
HEATING ELEMENT DOES NOT SHUT OFF WHEN LOADING DOOR IS OPENED	Motor does not shut off.	Test switches and controls and timer.
	Incorrect wiring.	See appropriate wiring diagram.
BURNER DOES NOT SHUT OFF WHEN LOADING DOOR IS OPENED	Motor does not shut off.	Test switches and controls-timer.
	Impurities on gas valve seat.	Disassemble and clean valve.
	Incorrect wiring.	See appropriate wiring diagram.
CLOTHES DO NOT DRY	Clothes load too small.	See OPERATING INSTRUCTIONS supplied with dryer.
	Clothes load too large.	See OPERATING INSTRUCTIONS supplied with dryer.
	Too much water in clothes being dried.	Remove excess water.
	Dryer does not heat.	Check element or gas solenoid.
	Heat goes off prematurely.	Check thermostats.

SYMPTOMS	CAUSE	REFERENCE AIDS
BURNER WILL NOT IGNITE	Timer improperly set or inoperative.	Set timer, or test timer.
	HEAT switch set for AIR ONLY or switch is inoperative.	Change HEAT switch selection or test switch.
	Insufficient gas supply.	Partially closed gas shut-off valve or low gas pressure.
	Inoperative gas valve solenoid.	Test solenoid.
	Inoperative high heat or low heat thermostat.	Test thermostat.
	Inoperative safety thermostat.	Test thermostat.
	Inoperative power pack.	Test power pack.
	Inoperative igniter switch.	Test igniter switch.
	Inoperative igniter.	Test igniter.
	Inoperative drive motor.	Test motor.
	Broken, loose or incorrect wiring.	Check continuity of wiring. See appropriate wiring diagram.
HEATING ELEMENT GOES OFF PREMATURELY	Broken, loose or incorrect wiring.	Check continuity of wiring. See appropriate wiring diagram.
	Inoperative high heat or low heat thermostat.	Test thermostat.
	Cycling on safety thermostat.	Momentarily connect a jumper wire across thermostat terminals. If element heats with jumper wire in place, check air circulation.
BURNER GOES OFF PREMATURELY	Insufficient gas pressure.	Partially closed gas shut-off valve or inoperative pressure regulator.
	Incorrect burner orifice.	Replace with proper orifice for type of gas being used.
	Improperly adjusted burner flame.	Adjust burner flame.
	Burner flame not heating stainless steel sensor bar on igniter assembly properly.	Check for carbon accumulation on sensor bar and clean sensor bar.
IGNITER DOES NOT SHUT OFF AFTER IGNITION	Inoperative igniter switch.	Test igniter switch.
	Broken or loose wiring.	Check continuity of wiring. See appropriate wiring diagram.
	Inoperative high heat or low heat thermostat.	Test thermostat.
	Cycling on safety thermostat.	Momentarily connect a jumper wire across thermostat terminals. If burner re-ignites with jumper wire in place, check air circulation.
	Burner flame not heating stainless steel sensor bar on igniter assembly properly.	Check for carbon accumulation on sensor bar and clean sensor bar. Check for proper burner orifice.
	Inoperative igniter switch.	Test igniter switch.
	Incorrect wiring.	See appropriate wiring diagram.

SERVICE PROCEDURE



COMPONENT DESCRIPTION

Before attempting to service an automatic dryer of any make, the serviceman should be equipped with the proper tools. Many of these tools are designed to test the electrical system and components quickly and accurately. Special tools of this type include a test lamp or voltmeter, a continuity tester or ohmmeter and a wattmeter. Proper use of these tools will help make fast, efficient diagnosis and service much easier.

Always use caution when checking any part of the electrical system. Never use an ohmmeter with the machine plugged in. Also, as a safety precaution, always disconnect the electrical power from the dryer before attempting to remove any parts from the machine. For testing purposes, the power cord can again be plugged into a live receptacle after the necessary parts are removed.

All dryers have a wiring diagram attached usually to the back of the cabinet. Study this diagram carefully before proceeding with any electrical checks.

POWER SUPPLY

Electric dryers require a three-wire, single phase, nominal 120/ 240 volt 60 cycle circuit. This circuit should be fused equal to, or to the next larger size than the ampere rating specified on the nomenclature plate (located on the back or in the door well of the dryer). Wire sizes must also correspond to these ratings. Normally, the wire size for this circuit is No. 10 AWG and is fused at 30 amperes. Other appliances should not be connected to this circuit.

The 240 volt circuit is necessary to supply enough power to energize the heating element so that it will furnish sufficient heat for *normal* or *hot* temperature settings. One leg of the power supply, which is nominally rated at 120 volts, is used to operate the control circuits.

If the local code permits the use of an approved flexible cordset (pigtail), run a three-wire line from the fuse disconnect box to a polarized 30 ampere receptacle within three feet of the dryer.

Where local codes permit, it is also possible to connect directly to the fuse disconnect box using either rigid conduit, flexible conduit, or non-metallic sheathe cable. Two or three feet of slack in the line should be allowed behind the dryer so that it can be moved for servicing.

On some models it is possible to connect to a 120 volt, 60 cycle circuit capable of carrying 1600 watts and separately fused at not more than 20 amperes. For this type of installation, a receptacle must be provided to accommodate a parallel-blade plug within five feet from the terminal block on the dryer. This method of installation requires some changes on the dryer terminal block which are explained in later paragraphs.

Gas dryers do not have an electric heat element as a heat source and, therefore, they do not use a 240 volt circuit. All gas dryers are equipped with a power cord incorporating a common parallel-blade plug which will fit into a standard household receptacle. This receptacle must supply a nominal 120 volt, 60 cycle current, and should be located within five feet of the rear of the machine. A separately fused (15 ampere) circuit to this receptacle is preferred. The use of an extension cord or an existing heavily loaded circuit is not recommended.

IMPORTANT: All electrical connections must conform to local codes or ordinances. Check the local electrical code for the approved size and type of wire required for the particular dryer installation.

THREE-WIRE HOOK-UP (120/240 VOLTS)

To connect the electric dryer to a 120/240 volt, 60 cycle, three-wire circuit, remove the plate covering the terminal block and attach the three wire cable or pigtail as shown in *Figure 1.* The white or neutral wire is always connected to the silver (N) terminal of the terminal block. The other two wires can be interchanged on the remaining two terminals. Be sure all electrical connections are secure, and that they conform to local electrical codes or ordinances. These codes or ordinances will also govern how the dryer is to be grounded. In many instances, neutral terminal grounding is recommended. In some areas, however, it will be necessary to use a separate ground wire. These two methods of grounding are described in this section under "Grounding".

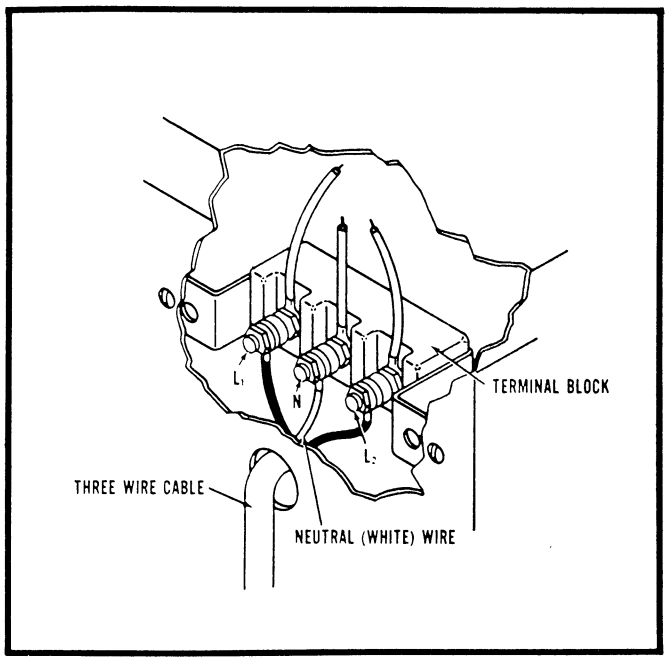


Figure 1

"Two-wire" is general terminology for a 120 volt system. However, in some areas, it will be necessary to use a three-wire power cord even for the 120 volt installation. (All current production of gas dryers, washers, etc., are equipped with this three-wire power cord.) This cord has a green wire which is used as an *equipment ground* and a plug with a ground prong. Use of the two or three-wire power cord for 120 volt installation depends on the local electrical codes which govern the installation.

Regardless of which type cord is to be used, it is necessary to move wiring harness lead "L2" from terminal "L2" to "N" on the terminal block, *Figure 2.*

For the two-wire system, connect one of the wires (white) to terminal "N" and the other (Black) to terminal "L1".

IMPORTANT: Do not use neutral ground strap with a 120 volt hook-up; use separate ground wire only. See Separate Wire Grounding under "Grounding" section.

For the three-wire system, connect the wires in the same manner described in the preceding paragraph, but leave the green wire free for ground purposes. This green wire should be taken through the terminal block opening and attached to the cabinet itself at the nearest blank hole below the terminal block with a star lock washer and self-tapping screw, *Figure 2.*

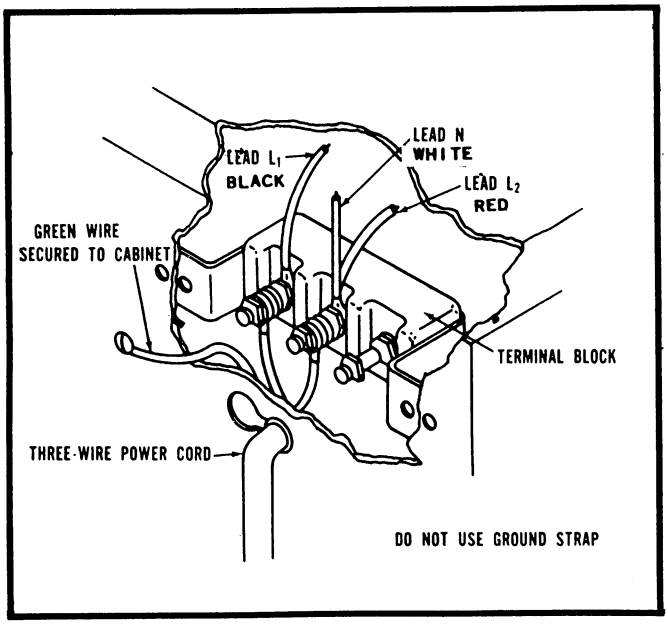


Figure 2

If the wall receptacle does not have provision for the three wire plug, it may be necessary to replace the receptacle. If changing and properly grounding the wall receptacle is impossible, a temporary adapter may be plugged into the wall receptacle to mate with the three-pronged electric supply cord, *Figure 3.* If this is done, the green wire on the adapter must be connected to the wall receptacle cover plate screw. Also where the adapter is used, a separate ground wire must be connected to the dryer, back panel screw and a *cold* water pipe. (See Separate Wire Grounding.) Use of these adapters is not recommended.

NOTE: Do not under any circumstances remove the ground prong from the power supply cord plug.

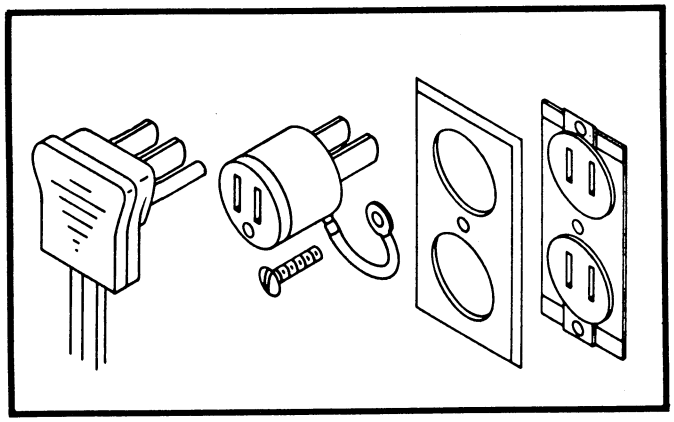


Figure 3

GROUNDING

The dryer must be grounded as a precaution against an electrical shock to the user. These shocks can occur whenever electrical current can travel to the frame or cabinet of the machine from such causes as the motor insulation leaking, insulation rubbing off a wire against any part of the cabinet or the heat element sagging to the point it touches any metal part. When these conditions occur, the user can get a severe shock when touching the machine, particularly when standing on a damp cement floor.

Two methods of grounding an appliance are used: Neutral Terminal Grounding and Separate Wire Grounding.

Neutral Terminal Grounding

A neutral terminal ground is an *electrical* or *system* ground. The *system* ground normally carries current at ground potential. This type ground is only used on electric dryers connected to a 230 volt system. Do not use it on any 120 volt installation. Neutral termina! grounding is accomplished by fastening one end of

the ground strap (furnished with electric dryers only) to the silver colored (N) terminal on the terminal block. The opposite end of this ground strap is attached to the cabinet by using the screw immediately above the terminal block opening, *Figure 4.*

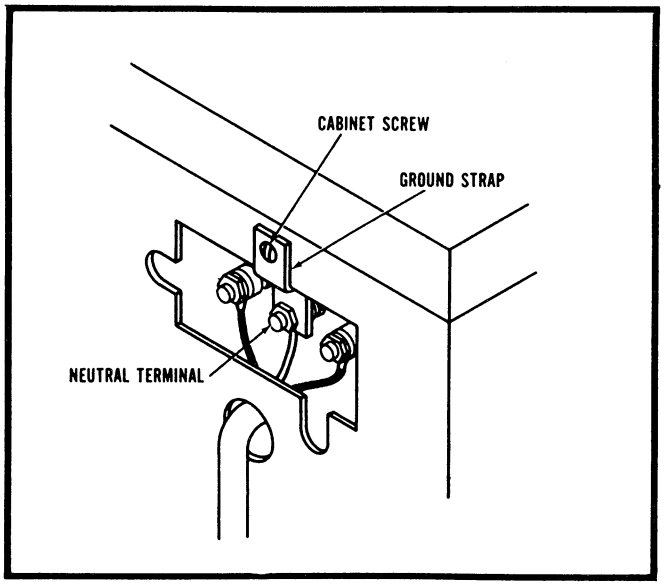


Figure 4

Separate Wire Grounding

A separate wire ground is a *mechanical* or *equipment* ground and carries current only during a short circuit condition. This type of ground may be used on either a 120 volt or a 230 volt installation.

Separate wire grounding is accomplished by attaching a separate ground wire to the ground lug on the rear of the machine, *Figure 5.* Connect the opposite end of this wire to a special ground clamp and fasten the ground clamp securely to a COLD WATER PIPE. Never fasten this wire to a gas pipe.

The green wire used in the three wire 120 volt cord described under Two Wire Hook-Up is another type of *equipment* or *separate wire* ground.

Figure 5

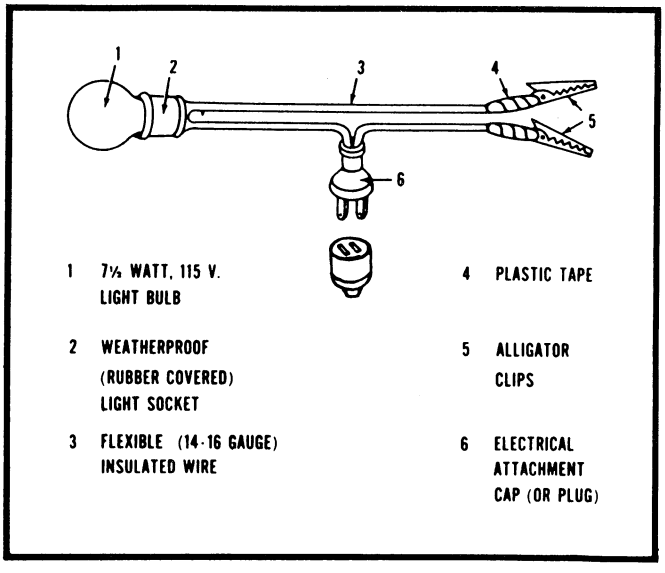


Figure 6

ELECTRICAL TESTING

To check the continuity of a circuit in a wiring harness or any component part, it is best to use an externally powered continuity tester, such as the one shown in *Figure 6.*

The continuity test cord can be a homemade arrangement that is used to test electrical current carrying components. It may also be modified to serve as a live test cord or as a test lamp. As a live test cord, the lamp, Item 1, is replaced with a low amp fuse. This

permits energizing the motors or solenoids with direct power, bypassing the machine wiring. As a test lamp, the male plug, Item 6, is shorted across its prongs. A female connector that has been shorted works well as an adaptor. With the continuity tester shunted to convert it to a test lamp, the power supplied to the dryer is used to check and see if a circuit exists at a component that should be energized. When testing a 240 volt circuit, the lamp, Item 1, should be replaced with a 240 volt lamp.

CAUTION: Always remove the service cord from the power supply or disconnect the circuit in some manner before using an externally powered continuity tester.

Before any tests are made, it will be to your advantage to study the wiring diagram to determine which harness leads to check for continuity. Both ends of the wire or the component part being checked should be disconnected to insure against any possibility of current feed-back through the machine circuit. For example, let's say we are checking the heating element on an electric dryer. First, disconnect the wires supplying current to the heating element. Next, plug in the continuity tester and apply the test clips of the tester to the heating element terminals. If the test lamp lights, a good element is indicated. Now, let's say the current supply to the element is NOT disconnected and we apply the test clips to the element terminals. Again, the test lamp will light, but we haven't determined whether or not the element is good, because of the possible existence of current feed-back through the machine wiring.

NOTE: Unless otherwise stated, all electrical tests are made with the timer turned to "ON" past the ten minute position or cool down period. Be sure the power is disconnected before disassembling the machine.

TIME CYCLE *Figure 7*

To use the TIME CYCLE, set the knob on the desired number of minutes. If the setting is less than five minutes, the dryer will not heat, as that would be in the cool down period when the heater shuts off and the motor continues to operate. With the door of the dryer closed, press the PUSH TO START button.

About five minutes before the elapsed time of drying, the cam in the timer drops the heat contact and the remaining time the dryer tumbles with the residual heat until the time has completely elapsed. This allows the operator to remove the clothes while they are fairly cooled down. The dryer will continue until it shuts itself off. The cool off period also helps in reducing the wrinkles in the clothes.

DURABLE PRESS CYCLE

The DURABLE PRESS CYCLE is actually the final 30 minutes of the TIME CYCLE.

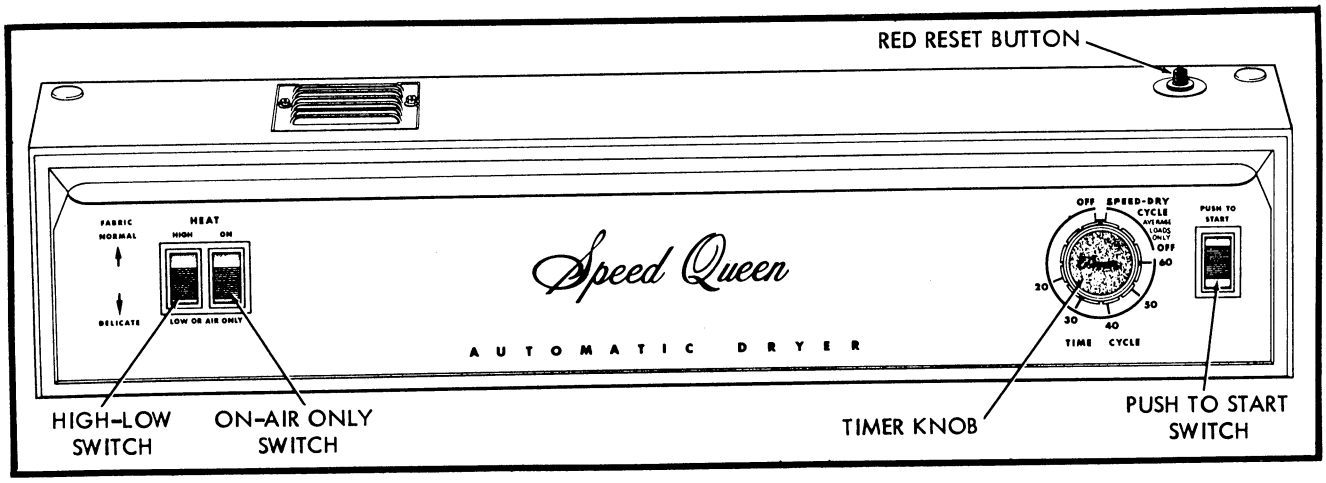


Figure 7

AUTOMATIC CYCLE

To operate the dryer in the AUTOMATIC CYCLE, turn the timer knob indicator to fabric selection desired. With loading door closed, press the PRESS TO START button. The timer will not advance until the heat cycles, and will not advance the timer until the thermostat cycles the heater. When the heater goes on once again the timer motor will shut off. When the thermostat reaches its high limit, the circuit to the heater is broken and at the same time a circuit to the timer motor is completed. This shift of current between the timer motor and the heater will continue until the total time has gone, on the last five minutes the heater will not go on, but the drum will rotate until the dial reaches the off position.

TIMER CONTACT POINTS, Testing, disconnect power source. Drive Motor Contacts: *Figure 8*

1. Remove the two screws holding control panel assembly to control hood, and lift assembly off panel support.
2. Disconnect wires from the timer.
3. Place probes of continuity tester on terminals L1 and M on the timer.
4. From the "Off" position rotate timer knob through a complete cycle. Continuity should exist throughout the complete rotation of the timer knob, until the "Off" is again reached.

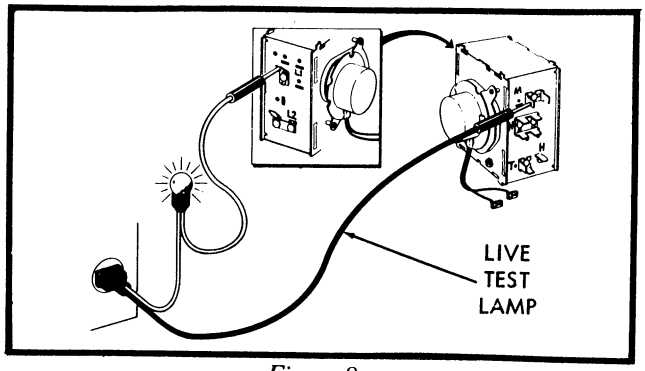


Figure 8

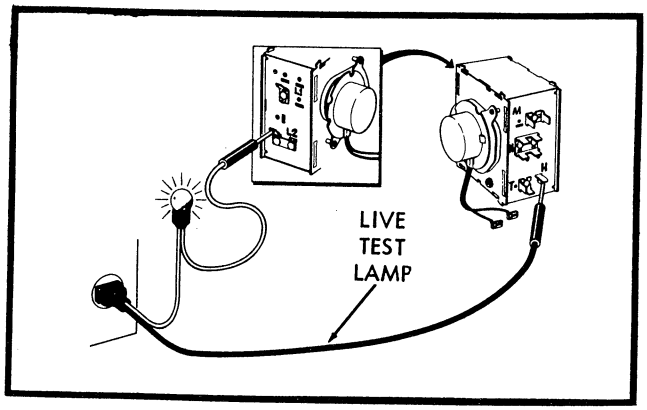


Figure 9

HEAT CONTACT POINTS, Testing, disconnect power source. *Figure 9*

1. Remove two screws holding control panel assembly to control hood. Lift assembly off panel support.
2. Disconnect wires from timer.
3. Apply probes to terminals L2 and H on the timer.
4. Starting at "Off' turn indicator knob slowly clockwise, continuity should exist during the whole rotation except for a few minutes as marked prior to the "Off".

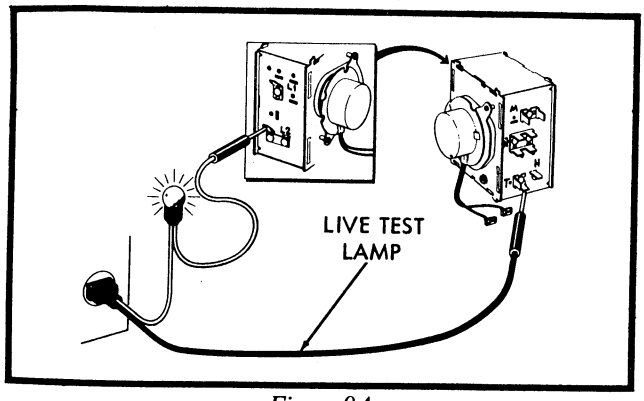


Figure 9A

TIMER MOTOR POINTS, Testing, disconnect power source. *Figure 9A*

1. Remove the two screws holding the control panel assembly to control hood, and lift assembly off panel support.
2. Disconnect wires from timer.
3. Place test probes on terminals L2 and T on timer.
4. Slowly turn timer knob, timer motor point contacts should show continuity in the DURABLE PRESS CYCLE only.

TIMER MOTOR REMOVAL

a. Disconnect the service cord.

b. Remove control housing, follow *Procedure*

c. Remove the two motor mounting nuts from timer base.

d. Disconnect the motor leads from terminal board.

e. Remove motor from timer.

f. Check teeth on pinion gear for excessive wear. Check shaft for pinion bearing wear, try to move shaft sideways, if side play is excessive motor must be replaced.

g. Connect test cord from 115 volt circuit directly to timer motor. Place tweezers over shaft as in *Figure 10* A, allow to turn freely for a few revolutions.

h. Exert slight pressure on top side of tweezers, if gear continues to turn, motor is not faulty If gear slips or waves back and forth, motor should be replaced.

i. If motor passes all the above tests, look for trouble elsewhere; shaft binding against control panel, dial not properly spaced and dragging against control panel, gear spinning freely on cam and gear assembly, pawl or blade spring broken or fatigued, mounting hole in spring rack worn or elongated.

Figure 10

ESCAPEMENT (Testing)

NOTE: Older models had a separate escapement, Figure 10A, *this type of unit would "wind up" and at a predetermined time, the slide retainer would allow the gear to "unwind" each of these wind and unwind periods are "Increments".*

a. Remove cover from escapement by turning until groves line up with the indents on the cover, then lift off.

Figure 10A

b. Place tweezers over pinion as previously outlined, *Figure 10A*

c. Wait for at least one minute for timer to act.

d. If pinion gear fails to move, escapement must be replaced.

e. The old style motor, as described above can be replaced with the new type motor. All old style motors were 8 RPM.

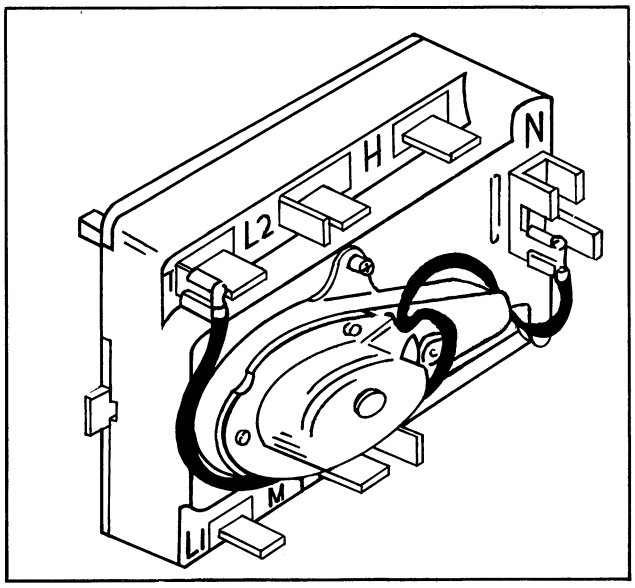


Figure 10 B

CONTACT POINT TO DRIVE MOTOR *Figure 10B*

1. Remove the two screws that mount the control assembly to the control hood.

2. Remove the wires from the timers.

3. If you are testing with a series light, plug tester into 115 volt outlet. Place probes on L1 and M. **Figure 10B**

4. From the "Off" position at the top of the timer, turn knob slowly through one revolution. Turn clockwise only. Continuity should exist throughout the complete revolution until "Off" is reached.

TIMER TESTING, Heat Contact Points.

1. Remove the control assembly as previously stated.

2. Disconnect wires from the timer.

3. Apply test lamp as before. Place the probes on L2 and H.

4. Turn knob as previously outlined. This time continuity should break about 6 degrees before a complete revolution is made. Turn the knob CLOCKWISE only.

TIMER TESTING, Timer motor contacts.

1. Remove control assembly.

2. Disconnect the wires from the timer.

3. Apply the test light probes to terminals L2 and T.

4. Continuity should exist throughout a complete revolution of the timer knob. Turn in CLOCKWISE direction only.

TIMER TESTING, Timer Motor.

1. Remove the wire leads of the timer motor from the timer terminals T and N. Connect the test cord to the timer motor leads.

2. Using a direct line from a 115 volt outlet, and placing the hinged part of a tweezers (see **Figure 10**) over the pinion, plug test cord into outlet. The timer shaft should move approximately 3 degrees in one minute. Check for at least five minutes. If motor hesitates or rocks back and forth, it should be replaced.

CAUTION: Before the following tests are made the gas supply line MUST BE SHUT OFF, and the electric source must be DISCONNECTED.

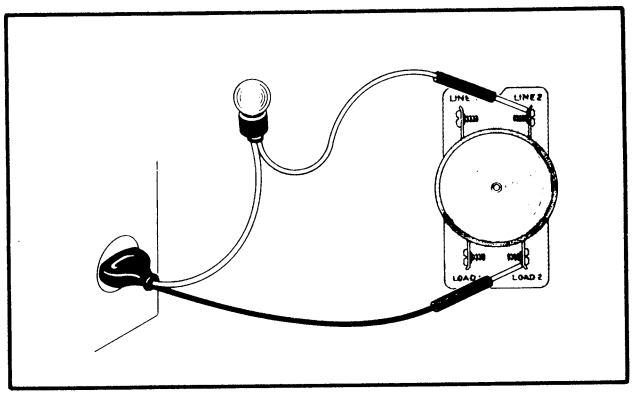


Figure 10C

TIMER, Mechanical Type, *Figure 10C*

1. Remove timer from control panel.
2. Replace knob on timer shaft and turn timer 1/4 turn from the OFF position. If timer is mechanically operative a ticking sound, such as a clock escapement, will be heard.
3. If you are using a series test light, plug test cord into 115 volt outlet.
4. Place probes on terminals Line 2 and Load 2. Lamp should light. Continuity should show if you are using an ohmmeter, *Figure 10C.*
5. Place probes on Line 1 and Load 1, *Figure 10* D. Again there should be continuity, and lamp should light.
6. Turn timer knob counter-clockwise until a distinct "click" is audible.
7. Place probes on Line 2 and Load 2, *Figure 10C.* This time lamp will NOT light, and continuity will NOT exist using an ohmmeter.
8. Place probes on terminals Line 1 and Load 1. Test lamp should light or with ohmmeter, continuity should exist and remain so until timer bell rings.

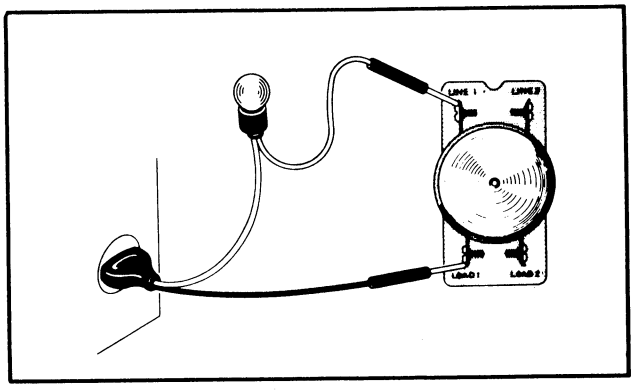


Figure 10D

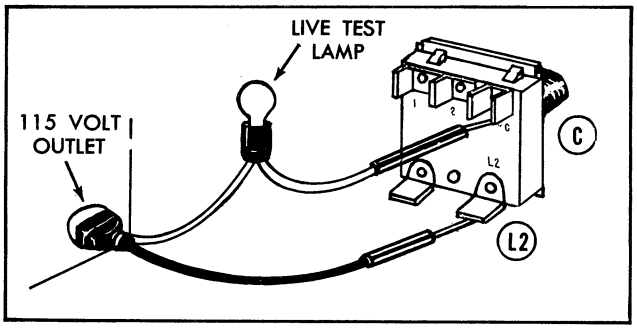


Figure 11

HEATER AND CONTROL SYSTEM
TEMPERATURE SELECTOR SWITCH

Control of the temperature is determined by the temperature selector switch. When the switch is in the NORMAL setting, the circuit encompasses the high heat thermostat, *Figure 11.* At the DELICATE position, the low temperature thermostat is in the circuit. In placing the control at AIR FLUFF, the dryer operates without heat. The temperature selector switch should not be serviced in the field.

TESTING THE TEMPERATURE SELECTOR SWITCH, Disconnect power source.

1. Remove the two mounting screws that secure the control panel assembly to the control hood, then lift assembly off of panel support.
2. Disconnect wires from switch.
3. With continuity tester, check continuity between L2 and C, there should be continuity only when the switch is in DELICATE position. *Figure 11*
4. Test across L2 and 2. Continuity should exist when switch is set at NORMAL. *Figure 12*

HIGH HEAT THERMOSTAT

This component maintains the high heat temperature (NORMAL). It is connected in series with the heat circuit. It makes or breaks the circuit according to the temperature of the air circulating through the dryer. The thermostat is located on the shroud of the front support frame. It is exposed to air exhausted from the clothes cylinder. Changes in temperature cause the thermostat to cycle or turn on and off as necessary to maintain an even temperature. When the temperature of the thermostat reaches its highest limit, the heat contact points will open and break the circuit to the heating element or the gas solenoid coil. When the thermostat cools it will again close the contacts and the heater will be on. Another pair of contacts in the thermostat controls the timer motor. As the points separate, because the temperature has been reached, the other set of points close completing the circuit to the timer motor. This circuit opens again when the thermostat points are again closed. The high and low temperature limits are preset and cannot be adjusted.

High heat thermostat operating limits are:

High Limit (Open) .....135°F ..... 5°Variation
Low Limit (Close) .....125°F ..... 5°Variation

The thermostat is coded with two grey dots.

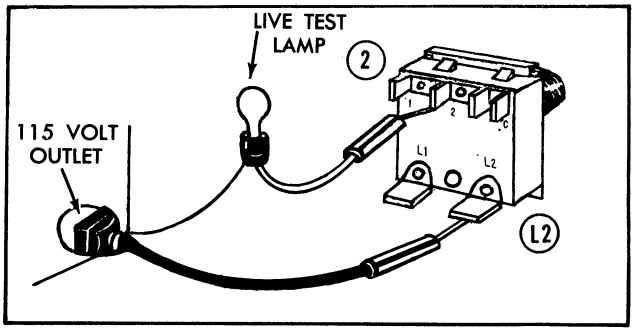


Figure 12

SELECTOR SWITCHES

Throughout the many model years, Speed Queen has used various types of switches. Included among these are pushbutton, rocker-type, turn and toggle switches. We will include in this repair-master a simple test for these switches. Disconnect dryer from power source.

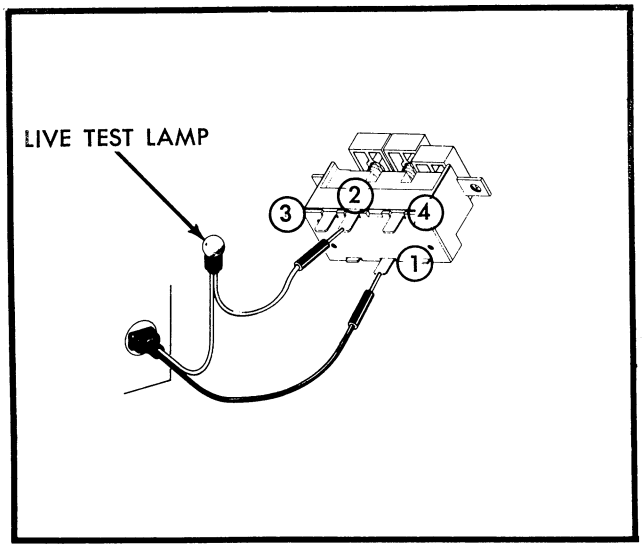


Figure 12 A

1. Remove control hood back cover.
2. Disconnect wires from the selector switch terminals, note position for reinstallation.
3. With the *NORMAL FABRIC* button depressed, apply a live test cord probe to terminals Nos. 1 and 2, the test lamp should light, *Figure 12A.*
4. Depress *DELICATE FABRIC* button and place test probes on terminals Nos. 1 and 3, *Figure 12B,* test lamp should light.
5. Depress button *AIR ONLY* and place probes on terminals Nos. 1 and 2, then Nos. 1 and 3, test lamp should not light, *Figure 12C.*

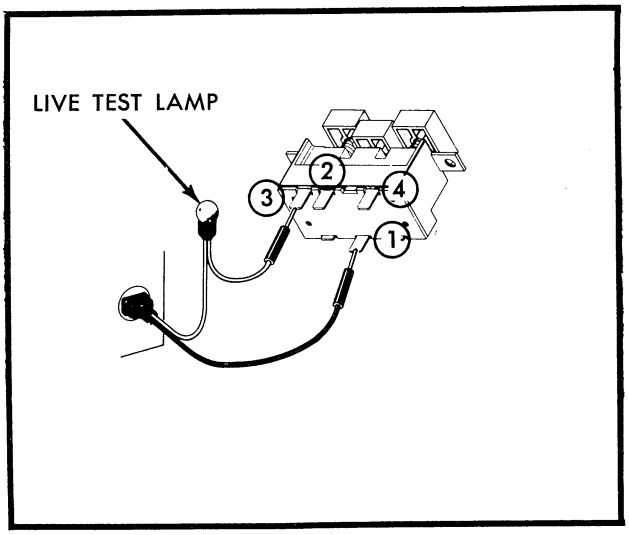


Figure 12 B

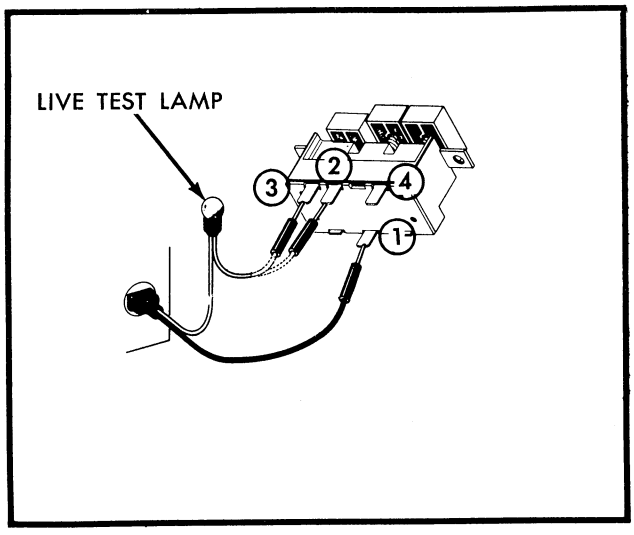


Figure 12C

SELECTOR SWITCH, FIVE BUTTON, Testing.
Figure 12D

1. Remove wires from selector switch.

2. If you are using a series test light, plug test cord into 115 volt outlet.

3. Press AIR ONLY button. Place probes on terminals 1 and 2. An ohmmeter will NOT show continuity, or the series lamp will NOT light.

4. Place probes on terminals 1 and 3. These terminals will show continuity.

5. Press DELICATE FABRIC button. Place test probes on 1 and 3 terminals. An ohmmeter should show continuity, or the test lamp will light. Place the probes on terminals I and 2. Ohmmeter should NOT show continuity. Test lamp should not light.

6. Press NORMAL FABRIC button. Place probes on terminals 1 and 2. Ohmmeter should show continuity. Test lamp should light. Place the probes on terminals 1 and 3. Ohmmeter should show NO continuity. Test lamp should NOT light.

7. The test for HEAVY FABRIC and EXTRA HEAVY FABRIC, with these buttons depressed, will be the same procedure as in line 6.

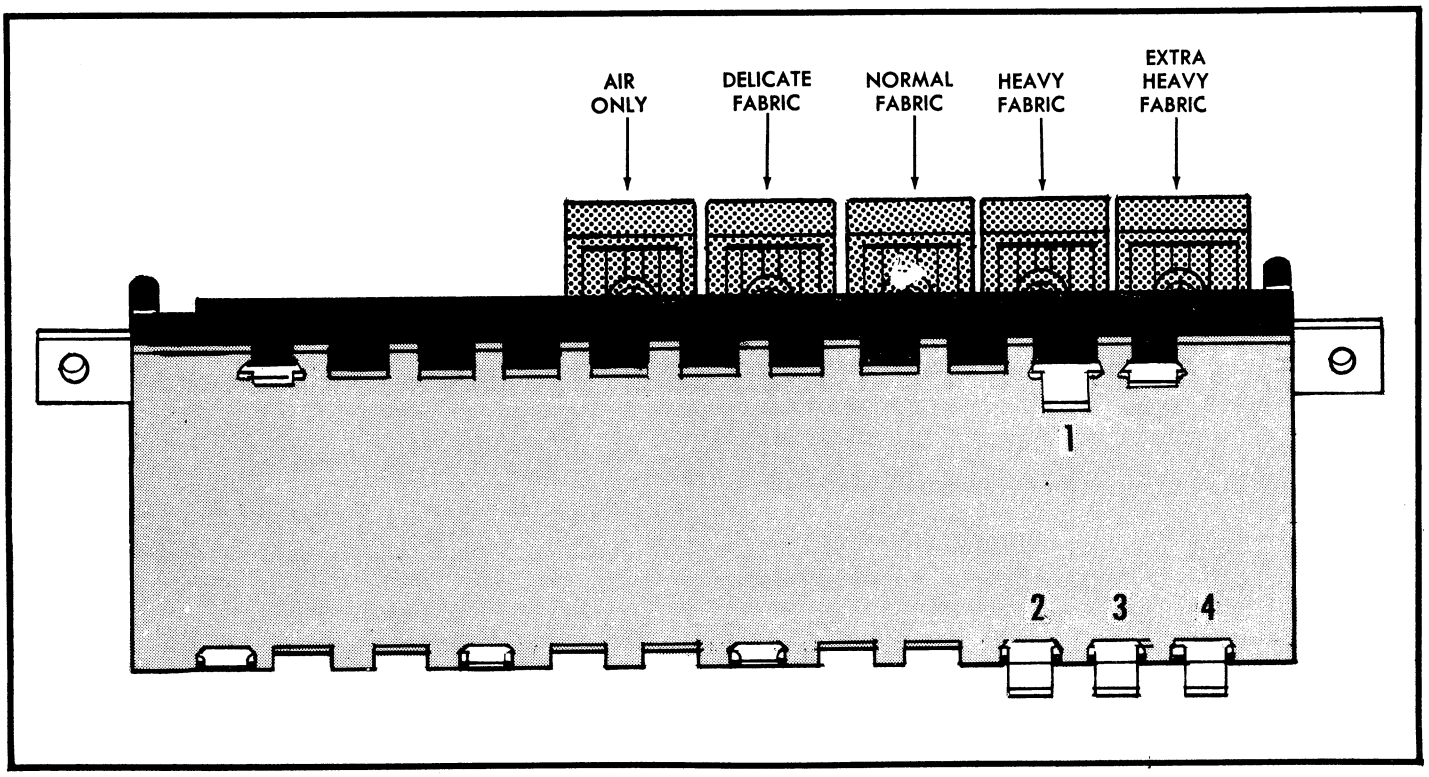


Figure 12D

HEAT SWITCH, Turn Type , Figure 12E.

1. Remove the control hood back cover.

2. Remove wires from heat selector switch.

3. If you are using a series test light, plug test cord into 115 volt outlet.

4. Switch should be set at the OFF position. Place probes of test cord to terminals L and 1, Figure 12E. Ohmmeter should NOT show continuity, or test lamp should NOT light.

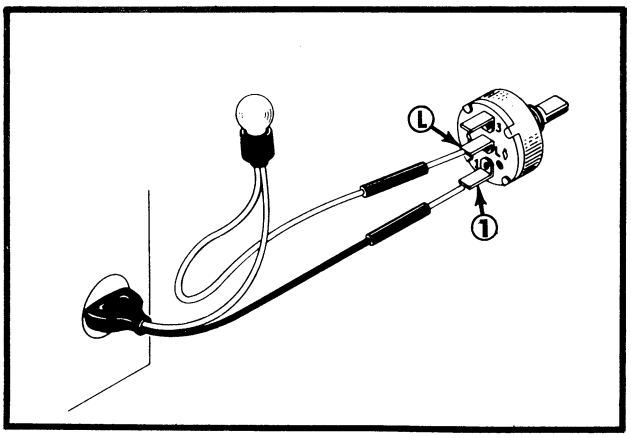


Figure 12E

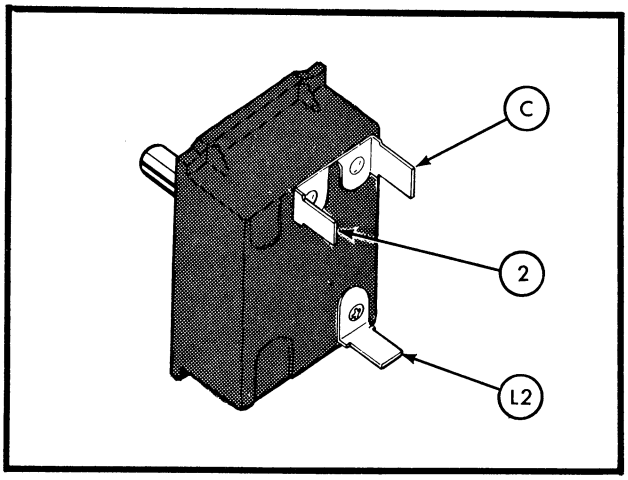


Figure 12F

Place switch in LOW. Continuity should not exist. Place switch in HI position. Continuity should exist.

5. With switch in HI position, apply the test probes to terminals L and 3. The ohmmeter should show continuity, or the test lamp should light.
Turn switch to LOW. Test lamp should light, or ohmmeter should show continuity.

6. Turn switch to OFF. All continuity should be broken.

TEMPERATURE SELECTOR SWITCH (HEAT SWITCH) Figure 12E. 12F.

1. Remove the two screws that mount the control panel assembly to the control hood. Lift the assembly off panel support.

2. Disconnect the wires from the heat switch.

3. If you are using a test cord, plug into 114 volt outlet.

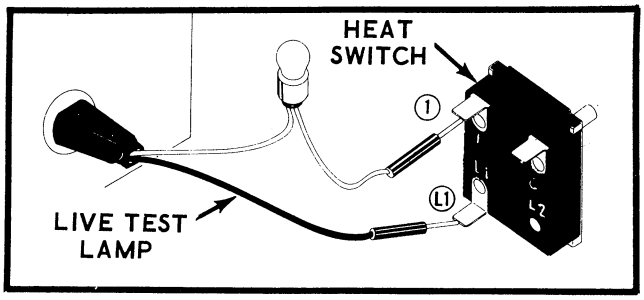


Figure 12 G

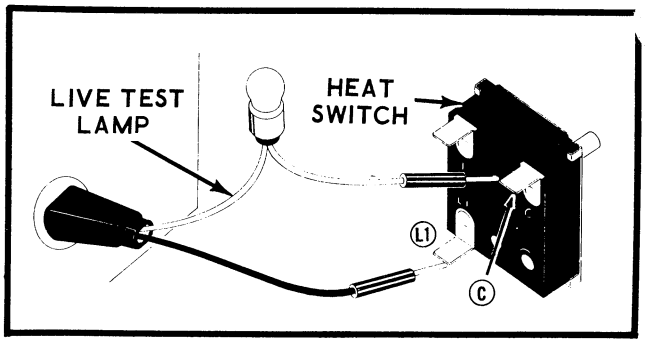


Figure 12 H

4. Place probes to terminals L2 and C, with switch set on DELICATE, ohmmeter should show continuity, or test lamp should light.

5. Place probes on L2 and 2. Continuity should show on ohmmeter or lamp should light on the " NORMAL" position of the switch ONLY.

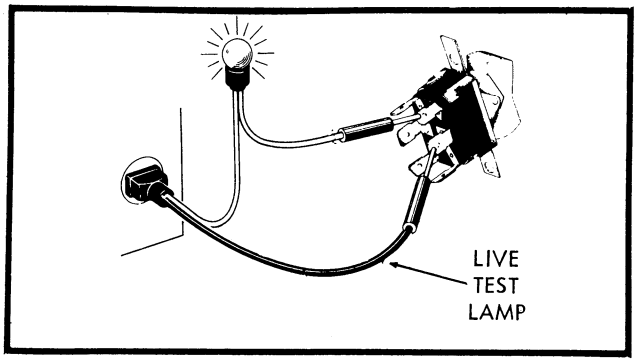


Figure 12 J

HEAT SWITCH, Turn Type, Figure 12G.

1. Remove control hood cover.
2. Disconnect wires from heat switch terminals.
3. If you are using a series light, plug cord into 115 volt outlet.
4. With switch set on OFF position, place test probes on terminals L1 and 1, Figure 12G. Continuity should NOT esist. Set switch on HI position. Continuity should exist.
5. Set switch on HI position. Place probes on L1 and C, Figure 12H. Test lamp should NOT light. Place switch at LOW position. Test lamp should light, or continuity should show on ohmmeter. Turning the switch to OFF should break continuity, or lamp should go out.

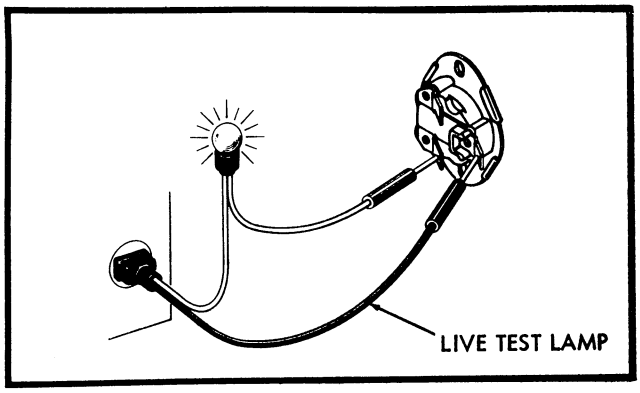


Figure 13

HIGH-LOW HEAT SELECTOR SWITCH, Rocker Type, Figure 12J.

1. Remove control hood back cover.
2. Disconnect wires from switch terminals.
3. With switch on LOW position, place probes to center and upper brass terminals, Figure 12J. Test lamp should light, or ohmmeter should show continuity. Lamp should not light, or continuity should NOT exist when switch is moved to HIGH position,

TESTING THE HIGH HEAT THERMOSTAT, Disconnect power source. *Figure 13, Figure 14.*

1. Remove the two retaining screws and remove the thermostat.
2. With the thermostat in a cool position, continuity should exist between terminals 1 and 3, continuity should not exist between terminals 1 and 2.
3. Hold a small flame under the thermostat until a definite "click" is heard, then test across terminals 1 and 3, continuity should not exist, but while the thermostat is still hot, continuity should show between terminals 1 and 2.
4. When thermostat clicks again as it cools, the continuity between terminals 1 and 2 should break.
5. By removing the wires from the thermostat and connecting the wires removed from terminals 1 and 3 together, then turning on the power source, the thermostat can be bypassed. If the complaint is NO HEAT and the heat comes on with the thermostat bypassed, the thermostat must be changed.

TESTING THE CYCLING TEMPERATURE

1. Place a normal load of laundry in the dryer, as it comes out of the washing machine.
2. Turn the temperature selector switch to NORMAL, adjust timer knob to "60" and depress PUSH TO START button.
3. Check the temperature with a reliable thermometer, preferably a thermo couple type, in the air duct as close as possible to the exhaust fan.
4. When the high heat thermostat opens, the exhaust air temperature should read between 130°F and 140°F.
5. The high heat thermostat should close between 120°F and 130°F.

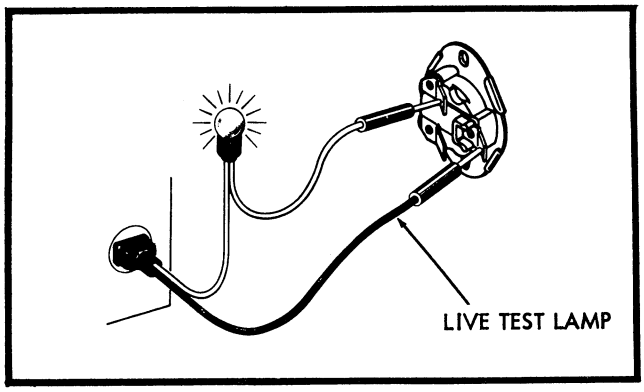


Figure 14

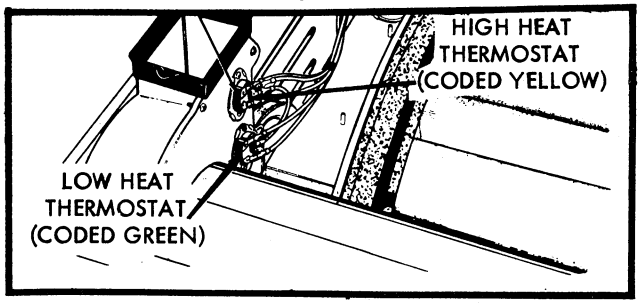


Figure 15

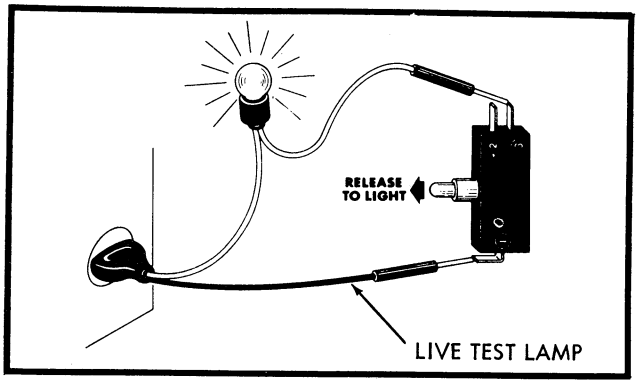


Figure 16

LOW HEAT THERMOSTAT *Figure 15*

The low heat thermostat maintains the low heat or DELICATE temperatures. Its function is the same as the high heat thermostat with the exception that it functions at a lower temperature range. These temperatures, like the high heat thermostat,are preset and cannot be adjusted in the field.

The operating limits of the low heat thermostat are as follows:

High Limit (Open) .... 115°F ..... 5° Variation
Low Limit (Closed) ... 105°F ..... 5° Variation

The color coding is one orange dot.

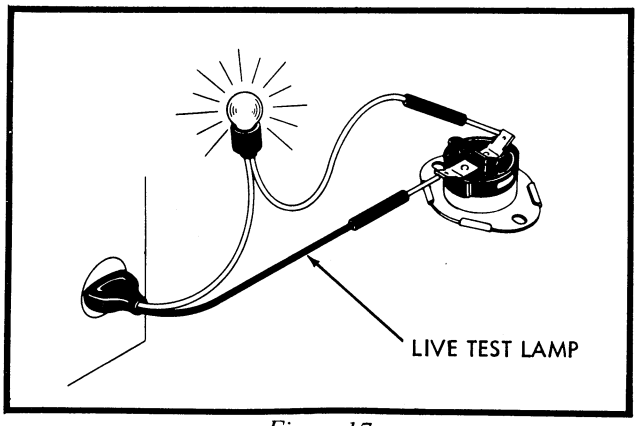


Figure 17

TESTING THE LOW HEAT THERMOSTAT

1. Remove the two securing screws and remove the thermostat.
2. With a continuity tester, check across terminals 1 and 3, continuity should exist.
3. Test across terminals 1 and 2, there should be NO continuity.
4. Hold the thermostat over a small flame and await a "click". Immediately check continuity between 1 and 2, there should be continuity. At the same time continuity should not exist between terminals 1 and 3.

TESTING THE CYCLING TEMPERATURE OF THE LOW HEAT THERMOSTAT

1. Place a normal load of laundry in the dryer, as it comes from the washing machine.
2. The selector should be set at DELICATE, turn the dial to "60" and press the PUSH TO START button.
3. Place a thermometer in the exhaust air (preferably a thermocouple type) as close to the exhaust fan as possible.
4. At the time the low heat thermostat opens, the temperature should read between 110°F and 120°F.
5. The low heat thermostat should reset between 100°F and 110°F.
6. By removing the wires from the thermostat terminals and connecting the 1 and 3 wires together, the thermostat can be bypassed. If the complaint is NO HEAT in the DELICATE cycle, and the heat comes on with the bypass, the thermostat must be replaced.

DOOR SWITCH *Figure 16*

The door switch is a safety device which stops the dryer when the dryer door is opened. It is wired in series with the motor. If the door switch is broken or defective it must be replaced.

TESTING THE DOOR SWITCH

1. Disconnect power source.
2. Remove front panel.
3. Remove wires from door switch.
4. Connect the two wires removed, together, reconnect power.
5. If dryer operates, and complaint is DRYER DOES NOT OPERATE, then the door switch must be changed.

SAFETY THERMOSTAT (High limit switch) *Figure 17*

The safety thermostat mounts on the heater box and shuts off the heater, should a condition of overheating occur. The thermostat is normally closed and opens the circuit to the heater when it reaches the high temperature limit. It will reset itself when it cools down. Reasons for its cycling are as follows:

a. Lint, remove the lint not only from the lint screen, but in the ducts and in and around the exhaust fan. If air does not circulate, the dryer will continually cycle on the high limit switch, until corrective measures are taken.
b. Loose belt that drive the blower.
c. Bearings in the blower are binding or worn, and blower does not move enough air.
d. Check all components that have to do with moving the air.

The operating limits of the Safety Thermostat are as follows.

High limit (open) ..... 325°F ..... 8° Variation
Low limit (closed) .... 275°F ..... 12° Variation

Thermostat is coded red.

TESTING THE SAFETY THERMOSTAT *Figure 18*

1. For electric dryers, remove the rear panel. For gas dryers, remove the front panel.

2. For electric dryers, disconnect wires from the thermostats and bypass thermostat by connecting the two wires removed. If the condition is that no heat or only intermittent heat exists then it indicates that the safety thermostat cycled, or is open. Check for the reason under Reasons for Cycling the Safety Thermostat. If everything checks out and the thermostat still cuts out, check the air duct temperature at time of cycling. Replace thermostat if necessary.
3. Gas dryers, remove the two screws holding the cabinet top to front hold down brackets.
4. Pull forward as you raise top slightly to disengage from hold down brackets, position top toward left side of top of dryer.
5. Disconnect wires from safety thermostat.
6. Refer to line 2 for testing.

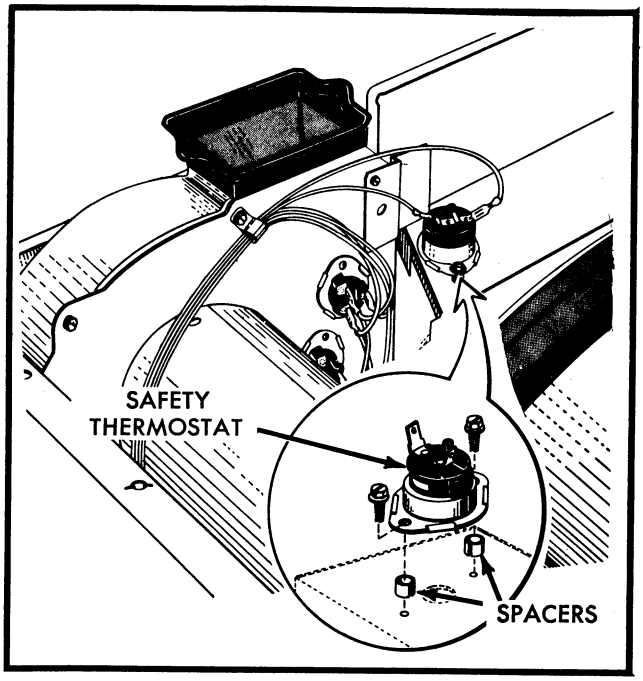


Figure 18

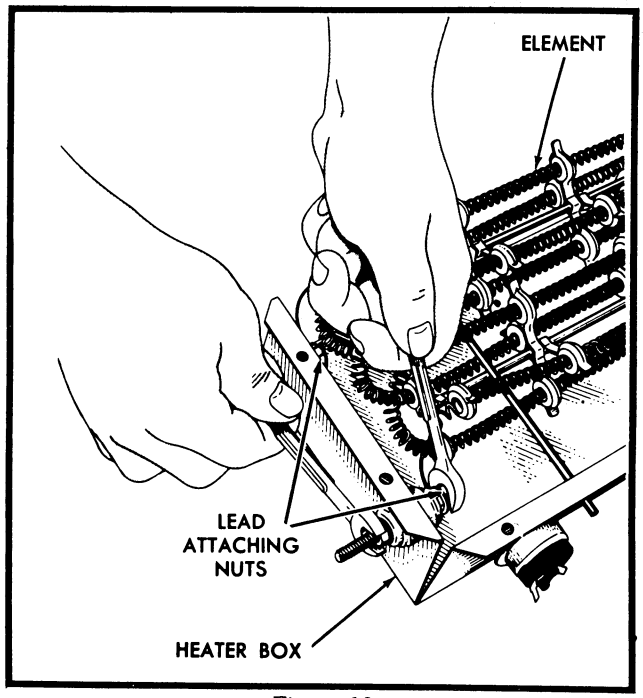


Figure 19

HEATING ELEMENT *Figure 19*

The heating element is a length of resistance coiled wire, through which electric current is passed to give off heat. It becomes hot because of the resistance it offers to the current.

Most elements on Speed Queen electric dryers are the coiled nichrome wire type, *Figure 19* A 5200 watt element is used.

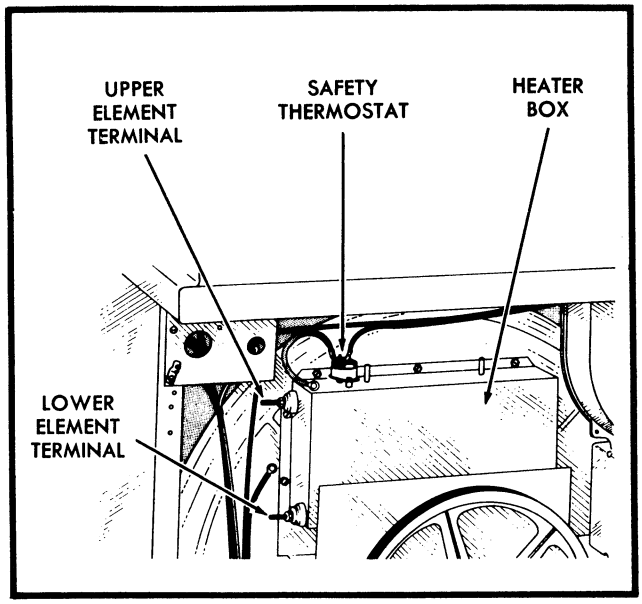


Figure 20

The element is mounted horizontally in the heater box on the rear bulkhead of the dryer. All of the air used in clothes drying is heated by flowing over the heat element before entering the tumbler.

The heat element is supported by a heavy wire bracket, which is designed to prevent the element from warping out of shape when it expands and contracts due to heat changes. Ceramic rings are used to insulate the heat element from the supporting bracket. *Figure 20*

Before removing or condemning the heater element, test to see if there is a 230 volt power supply to the dryer. A fuse or circuit breaker opening one leg of the 230 volt power supply to the dryer will permit the motor to run, but will not allow the heater element to heat. If full power is present at the dryer, check with a 230 volt test lamp at the heater terminal. If continuity is present, disconnect the power supply and remove the heater assembly. The lack of current at the heater terminal will require checking other components. If there is current to the heater element, remove the wires from the element terminals and check with continuity tester.

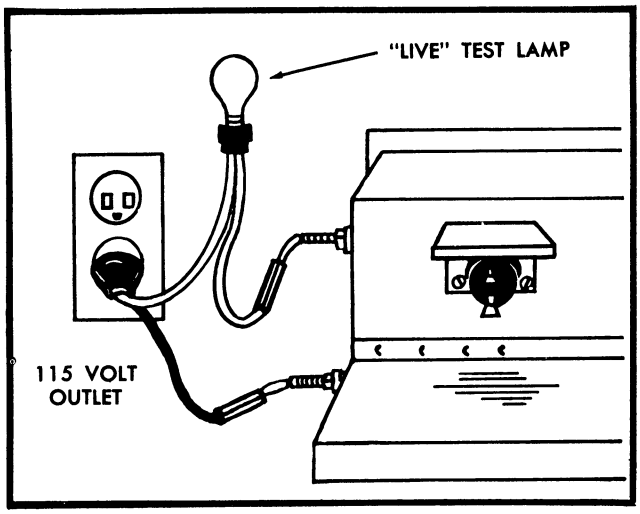


Figure 21

TESTING THE HEATING ELEMENT — Electric Dryers, disconnect power. *Figure 21*

1. Remove rear panel.
2. Remove wires from safety thermostat, connect these two wires together, temporarily.
3. Remove wires from element terminals.
4. Check continuity between the element terminals.
5. If continuity does not exist, element must be replaced.
6. If there is continuity, the element is good.
7. Check continuity between the terminals of the safety switch.
8. If switch is open, and switch is in a cool state, then the switch will have to be replaced.

TIMERS *Figure 22*

A typical Speed Queen timer is shown in *Figure 22* .

In dryers, electric timers have three specific jobs to complete.

1. Permit the user to control the drying time.
2. To control flow of electric current to the timer motor and the main motor that drives the drum.
3. Control flow of current to the heating element (or to the pilot solenoid valve and the main burner solenoid valve on gas dryers).

Timers for dryer control may not be as complex as the ones used for washers but they do perform the same function; that of complete cycle control. A timer is driven by a synchronous motor that is very much like a clock motor. The synchronous action being the "brain" of the timed action that the dryer must perform. Although the outside appearance may be different,depending on model, the same action will be observed. They may differ in time periods programmed, but these increments as they are called, are simply the result of what the user chooses.

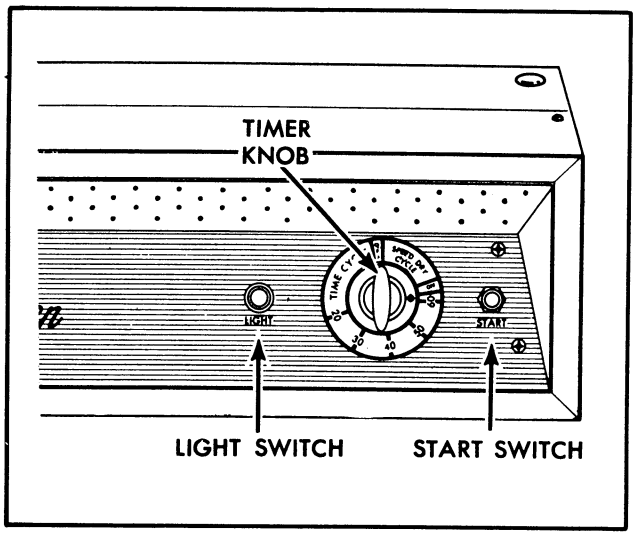


Figure 22

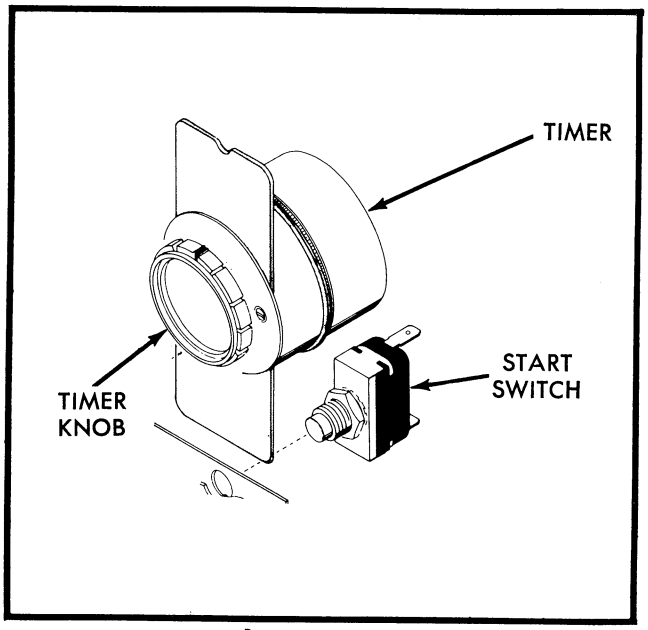


Figure 23

Any degree of interval is built into the unit and awaits only the choice of the operator. The more deluxe models will have the ultimate of program arrangements while even the economy models may have several choices of drying action, from short special treatment cycles to long fluffy dry cycles that will condition the clothes. The timer may also be responsible for the degree of heat and assure the operation of the drive motor as well.

The body or contact part of the timer may be cleaned, adjusted and replaced, if necessary, because it is separate from the timer motor.

The timer used on dryers may have one or two cams depending on the complexity of the dryer. A cam follower (or followers) rides the outer contours of the cam (or cams), making and breaking the contacts as the cam action moves along.

TIME CYCLE *Figure 23*

To use the TIME CYCLE, set the knob on the desired number of minutes. If the setting is less than five minutes, the dryer will not heat as that would be in the cool down period when the heater shuts off and the motor continues to operate. With the door of the dryer closed, press the PUSH TO START button.

About five minutes before the elapsed time of drying, the cam in the timer drops the heat contact,and the remaining time the dryer tumbles with the residual heat until the time has completely elapsed. This allows the operator to remove the clothes while they are fairly cooled down. The dryer will continue until it shuts itself off. The cool off period also helps in reducing the wrinkles in the clothes.

DURABLE PRESS CYCLE

The DURABLE PRESS CYCLE is actually the final 30 minutes of the TIME CYCLE.

AUTOMATIC CYCLE *Figure 24*

To operate the dryer in the AUTOMATIC CYCLE, turn the timer knob indicator to fabric selection desired. With loading door closed, press the PRESS TO START button. The timer will not advance until the heat cycles, and will not advance the timer until the thermostat cycles the heater. When the heater goes on once again the timer motor will shut off. When the thermostat reaches its high limit, the circuit to the heater is broken and at the same time a circuit to the timer motor is completed. This shift of current between the timer motor and the heater will continue until the total time has gone, on the last five minutes the heater will not go on, but the drum will rotate until the dial reaches the off position.

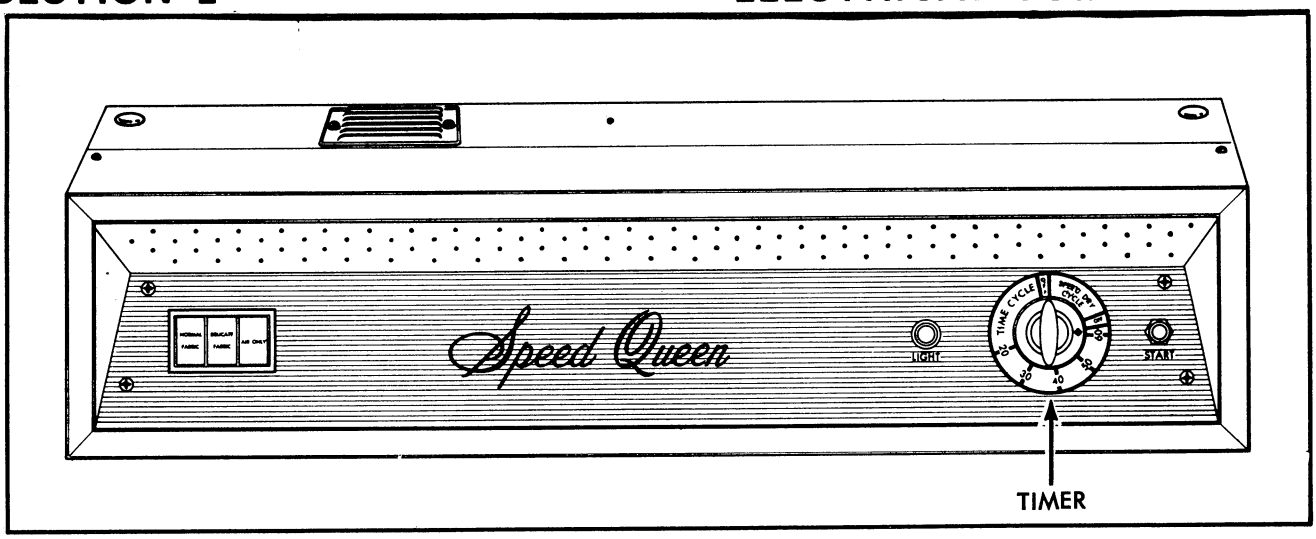


Figure 24

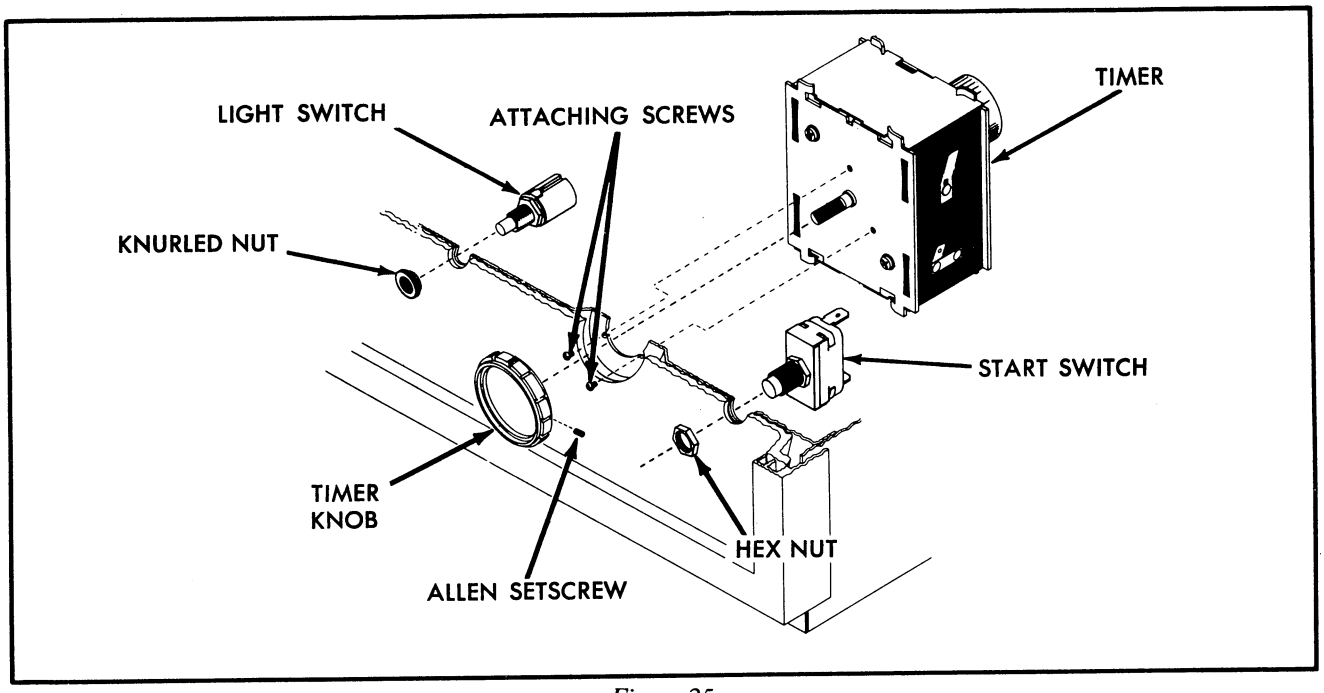


Figure 25

PRESS TO START Switch *Figure 25*

To operate the dryer, the PRESS TO START switch must be depressed after the proper selections have been made. The PRESS TO START switch is wired in parallel to a pair of contact points in the centrifugal motor switch. The points in the motor are separated while the machine is idle. When the motor starts, the centrifugal mechanism in the motor is forced away from the rear of the motor, allowing a pair of contact points to close, overriding the PRESS TO START switch.

TESTING THE PRESS TO START SWITCH, disconnect power source.

1. Remove the two screws holding the control panel assembly to the control hood, and lift assembly off panel support.
2. Remove wires from switch.
3. Place test probes across terminals, continuity should show only when button is depressed, otherwise, switch is faulty and should be replaced.

DRIVE MOTOR *Figure 26*

The drive motor on the Speed Queen dryer is a 1/6 H.P., 115 volt 60 HTZ. (cycle) split phase. It is rated at 5.4 amperes and rotates at 1725 R.P.M.

It is not a reversible motor. The centrifugal switch is made up of three different switches (electric dryers only). When the PUSH TO START switch is pressed it completes the motor circuit. The contacts in the centrifugal switch lift away from the starting phase cir-

cuit, which is one switch, and closes another pair of contacts that are wired parallel to the PUSH TO START switch this is the second switch in the centrifugal switch make up. Simultaneously, when the motor reaches the running phase it closes another set of contacts, called the isolated switch. As it is not connected with the motor, rather isolated from it, it does close the circuit to the heater element or the gas burner solenoid, whichever the case may be. This then, is the third switch in the centrifugal switch make up. If in pressing the PUSH TO START switch and releasing it, the motor does not continue to run after it starts, look for the trouble in the centrifugal switch. If the heat does not go on after all other controls have been tested and found okay, the isolated switch in the centrifugal switch can be tested by removing the wires from the #1 and #2 terminals at the motor and crossing or connecting these wires together (electric dryers only). If the isolated switch is faulty, the heater should go on with the switch bypassed. If the motor fails to start and just hums, remove the belts and spin the motor shaft manually, the power must be on. If the motor starts and runs, it would indicate a POSSIBILITY of the starting switch in the CENTRIFUGAL SWITCH to be faulty, this does not rule out the possibility of the starting winding being burnt out in the motor.

TESTING THE DRIVE MOTOR, Motor hums, doesn't run. Disconnect the power source.

1. Remove the wires from the motor terminal board.

2. Remove the two screws holding the centrifugal switch to the motor.

3. Pull switch forward, remove the three wires from the internal part of the switch.

NOTE: Older models have the centrifugal switch inside the motor. It will be necessary to disassemble the motor and reassemble it with the centrifugal switch removed and the three leads of the motor winding exposed at the window of the motor.

4. With an ohmmeter, test across the leads until you find the pair that reads approximately 1.5 to 2 ohms. This pair of wires would be the running winding.

5. Using one side of the running winding test to find the pair that will read from 4.5 ohms to 5.5 ohms, this pair will be the starting winding. The common wire that makes up both windings, mark C for common. The wire that is the lower ohms, mark R for run, and the wire that makes up the higher ohms, mark S for start.

Now make up a test cord as shown in *Figure 27* or purchase a Gemline Test cord, part number TC 6, from your local appliance parts distributor and connect as follows:

Test Cord Leads	Connect to Motor Lead
White	marked S
Black	marked C
Red	marked R

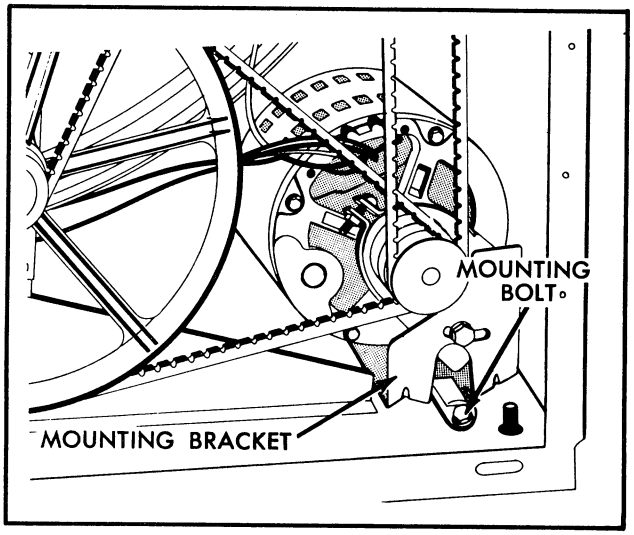


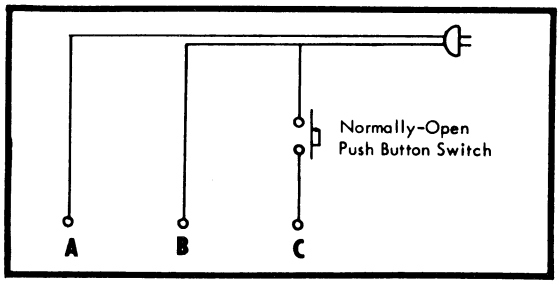
Figure 26

TESTING THE MOTOR (Running direct with a test cord)

1. Construct a test cord as follows. *Figure 27*

NOTE: A test cord such as Gemline TC-6 is available through your appliance parts dealer.

Parts required:
Cord and plug
Short length of No. 16 stranded wire.
Three alligator clips.
One momentary contact switch, pushbutton-type.



MOTOR TEST HARNESS *Figure 27*

Plug test cord into live receptacle, and momentarily press the button switch. If motor starts, release button, motor should continue to run; if motor fails to start, the starting winding is burnt; if it hums, the motor bearings could be worn. Check the bearings by grasping the shaft and moving it laterally. Bearing wear could cause the motor to "hang up" intermittently.

If motor starts, and continues to run after button is released, and sounds normal, then the trouble is in the centrifugal switch; replace the switch. If the centrifugal switch is the internal type, check and clean all the contact points, the starting switch portion of the centrifugal switch is normally open, the mechanism of the centrifugal switch closes the switch when it is reassembled.

DRIVE MOTOR TEST

Before disassembling a motor that has the centrifugal switch built into the motor, tests can be made with a direct line cord and a test light.

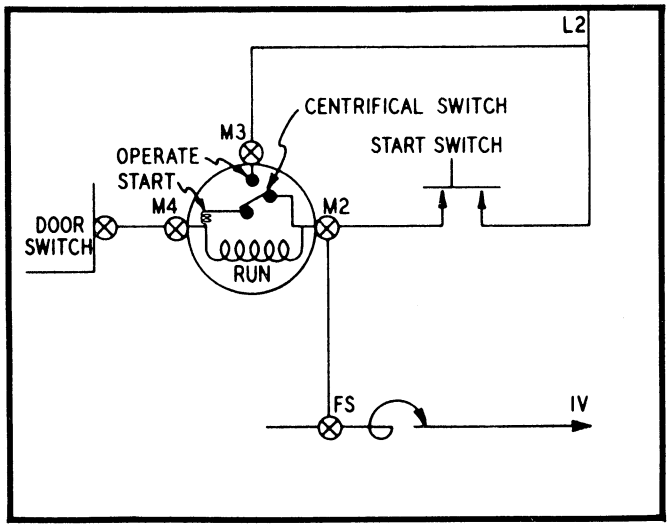


Figure 28

To make this test proceed as follows:

1. Remove the rear panel of the dryer.
2. Run the belts off of the motor pulley.
3. Remove the wires from the motor terminal board, note the position for replacement.
4. Connect a live test cord to the motor terminals Nos. 4 and 5, *Figure 28A*, motor should run.
5. With the motor running, apply the probes of a test light to terminals Nos. 4 and 6, the test lamp should light, *Figure 28B*.
6. With the motor running, remove the test probes of the test light from terminals Nos. 4 and 6, and apply them to terminals Nos. 1 and 2, *Figure 28C*.

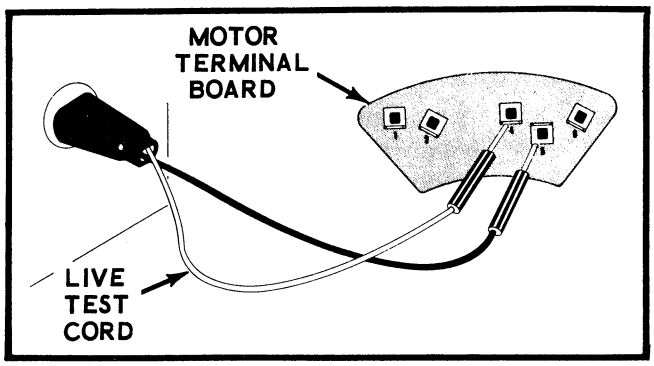


Figure 28 A

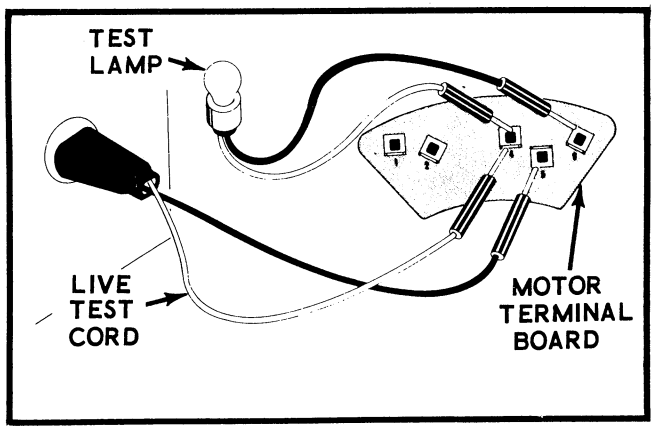
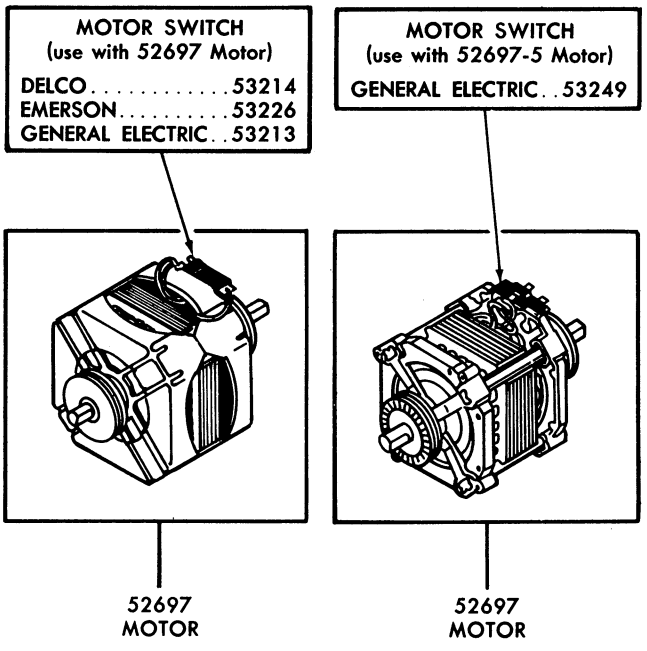


Figure 28 B



If the motor fails any of these tests, the motor should e tested with the centrifugal switch removed as previously described. If it fails the latter test, the motor should be replaced. Take heed that worn bearings can cause a motor to *"hang up"* and the bearings in many cases can be replaced.

EXTERNAL CENTRIFUGAL SWITCH:

Checking the Motor

1. Remove lower rear panel and remove harness wires from motor.

2. Operate motor by connecting a properly fused service cord to terminals 4 and 5. The motor should Start and Run.

3. If motor will not run, check terminal block, fastened to motor.

NOTE: *The stationary portion of centrifugal switch is a part of the terminal block.*

4. Make a continuity check between the wires which connect to terminals 4 and 7.

No continuity shows an open start winding.

5. With continuity on the above check, remove wires from switch. Check from terminal 5 to 7 with the switch lever pressed in (start position). No continuity shows the switch is inoperative.

There must be continuity from terminal 5 to 4 with switch lever out (run position).

6. When the motor runs and the failure is NO HEAT, heck terminals 1 and 2. The switch lever must be out (run position). No continuity, shows the switch is inoperative.

CAUTION: The motor must be removed from dryer base, to check for a ground.

OVERLOAD PROTECTOR

THE MOTOR OVERLOAD PROTECTOR IS NOT AVAILABLE AS A REPLACEMENT PART.

Should the protector fail, the motor must be replaced.

The specific purpose of the overload protector is to prevent a motor burn-out, in case an electrical or mechanical overload occurs.

CENTRIFUGAL SWITCH-LEVER ADJUSTMENT

Motor Idle (Start Position)

The switch lever must clear the switch housing by .020" to .040" with measurement taken 7/16" from face of switch housing. The switch lever is depressing the switch button when in this position. *Figure 28E*.

To attain .020" to .040" dimension, bend switch lever at Line A, see *Figure 28D*

Motor (Run Position)

The switch button must clear the switch lever by .010". The internal end of lever must not drag on the rotor actuator sleeve. The outer end of lever must rest on the hub. See *Figure 28F*

To attain .010" dimension, bend switch lever at Line B, ee *Figure 28D*.

CONTROL PANEL LIGHT BULB *Figure 29*

1. Remove two screws holding control panel assembly to control hood and lift assembly off panel support.

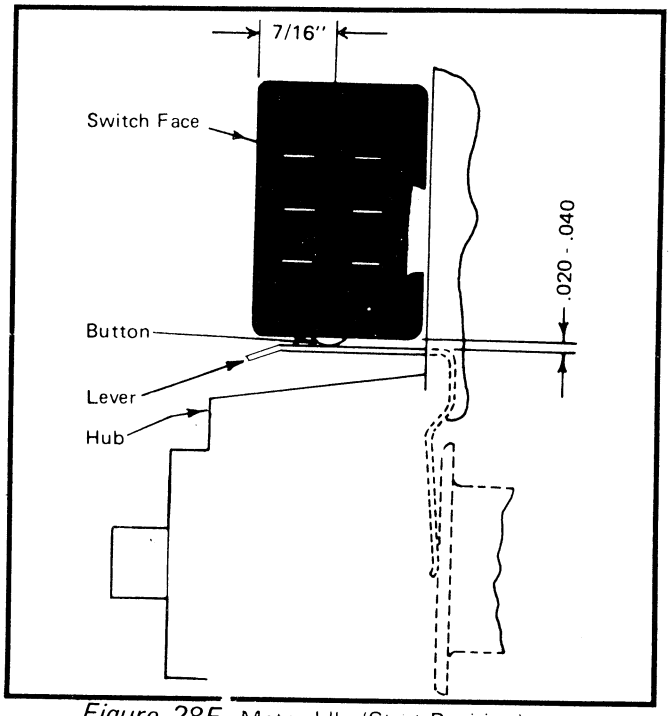


Figure 28E Motor Idle (Start Position)

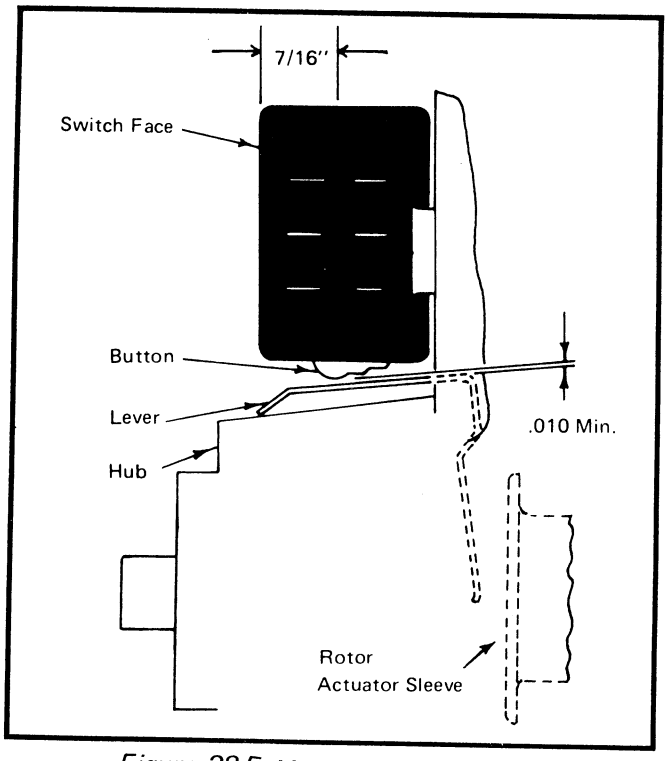


Figure 28F. Motor, Run Position

2. Remove bulb from bayonet socket by pushing in and turning until bulb feels loose.

3. Remove bulb and replace.

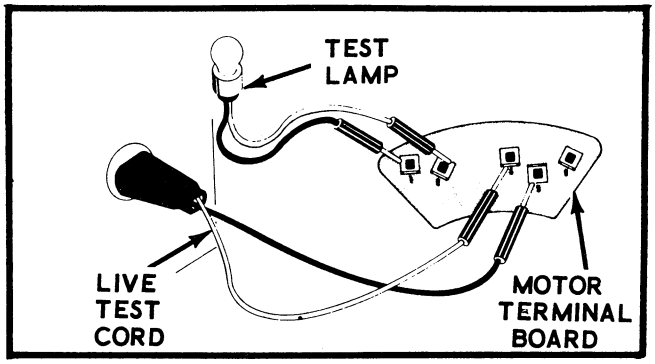


Figure 28C

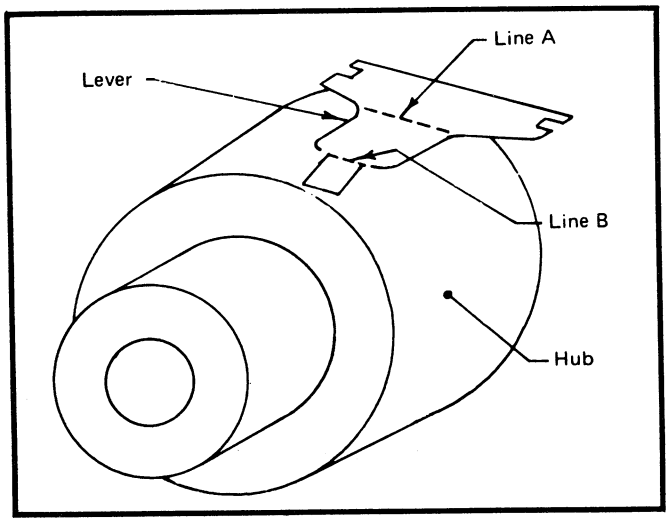


Figure 28D

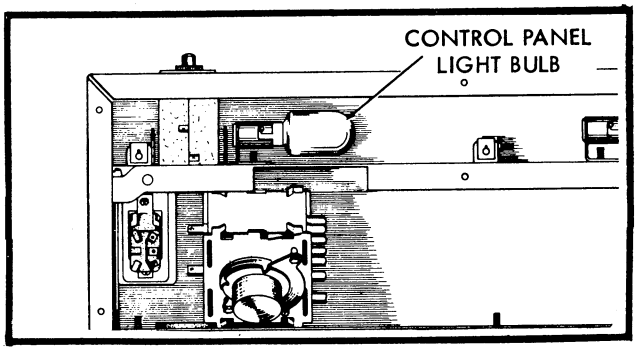


Figure 29

CONTROL PANEL

1. Remove control hood as previously stated.
2. Loosen Allen set screw in timer knob and remove knob.
3. Remove temperature selector knob by pulling straight off, also remove start switch collar.
4. Remove the four screws holding the control panel trim to support plate. Remove trim from panel assembly, *Figure 30.*

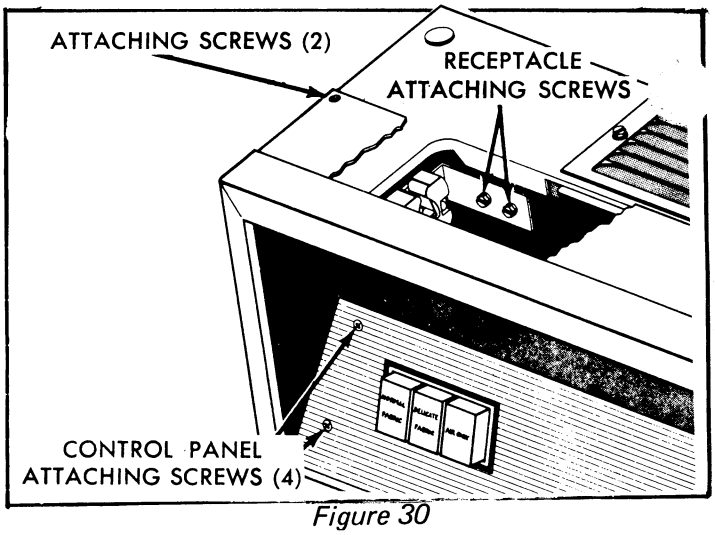


Figure 30

FRONT PANEL, *Figure 31*

1. With the loading door open remove the six Phillips head screws under the door seal. Remove seal and duct ring.
2. Remove four screws at the bottom edge of the front panel.
3. Pull the panel forward at the bottom, and lower panel to remove.

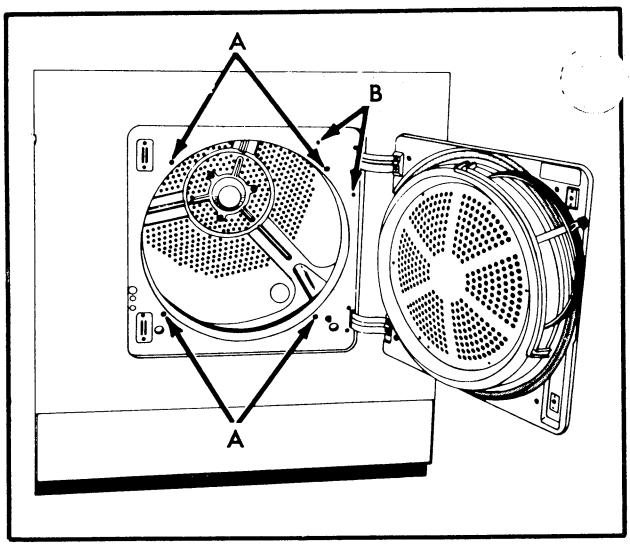


Figure 31

CONTROL HOOD, *Figure 32*

1. Remove front panel as previously outlined.
2. Remove two screws holding cabinet top to the front hold down brackets.
3. Raise front of cabinet top slightly, pull forward to release top from rear hold down brackets, and position top toward rear of top of dryer.
4. On electric dryers, block up rear of cabin high enough to permit removal of seven screw and fiber washers that secure the control hood to the cabinet top.
5. On gas models, the two screws that hold the baffl

must first be removed to gain access to the seven screws that secure the hood to the top.

Remove two screws holding control panel assembly to control hood and lift assembly off panel support.

7. Remove the screw, nut and washer holding ground wire to control hood.

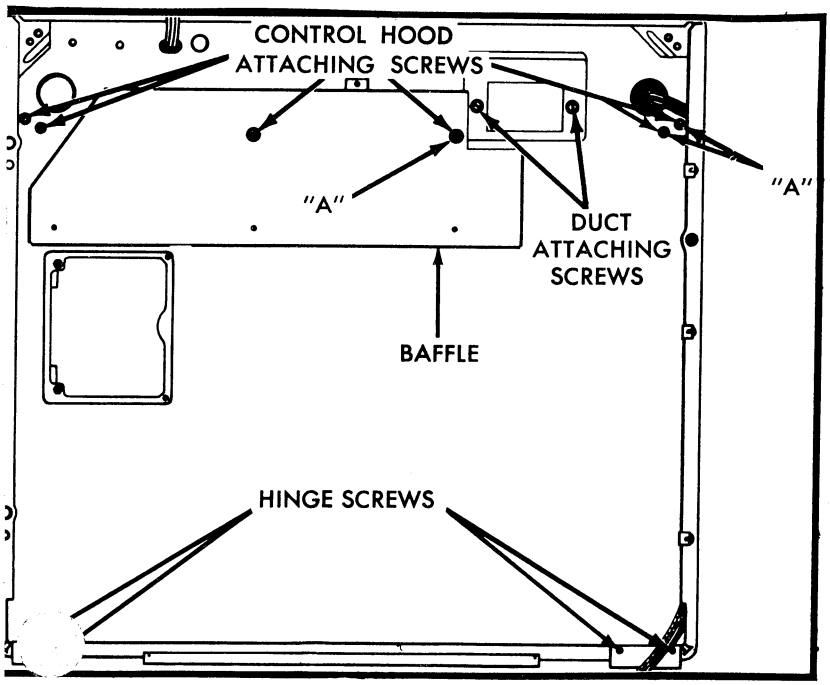


Figure 32

CONTROL HOOD END CASTING

1. Remove control panel as previously stated.

2. Remove three self threading nuts that secure control hood end casting to support plate and control hood top panel. Disengage end casting from control panel assembly.

CONTROL PANEL LIGHT SOCKET

1. Remove panel, remove light bulb.

2. Disconnect wires from socket.

3. Remove screw holding socket to control panel support plate and remove socket.

CABINET TOP *Figure 32 A*

1. Remove two screws securing control panel assembly to control head and lift assembly off panel support.
2. Disconnect all wires from controls and remove control panel assembly from top.
3. Remove front panel as previously outlined.
4. Remove two screws securing cabinet top to front hold down brackets.
5. Raise front of cabinet slightly, pull forward to disengage rear of top from hold down brackets, and position top toward the rear of top of dryer.
6. On electric models, block up rear of cabinet top to gain access to the seven screws and fiber washers that hold the hood to the top.
7. On gas dryers, the two screws and the baffle will have to be removed first, then the seven screws holding the hood to the top.
8. Remove screw holding ground wire to cabinet top, disengage wire harness strain relief from cabinet top and pull wire harness down through hole in top, lift cabinet top off of dryer.

REAR PANEL

1. Remove screws holding the rear panel to the cabinet.
2. Pull top of panel away from dryer slightly and raise panel to disengage tabs from base.

LEFT SIDE PANEL *Figure 33*

1. Remove front panel.
2. Remove rear panel.
3. Remove two screws holding cabinet top to front hold down brackets.
4. Raise front of cabinet top slightly, pull forward to disengage rear of top from hold down brackets, position top toward right side of top of dryer.
5. Remove four screws holding side panel to front support frame and remove front cabinet top hold down bracket.
6. Remove screw holding side panel to top of rear support frame.
7. On gas models it will be necessary to disengage wire harness clips from top flange of side panels.
8. Remove two screws holding cabinet top hold down bracket to side panel.
9. Remove the four screws at the bottom edge of the side panel and remove the panel.

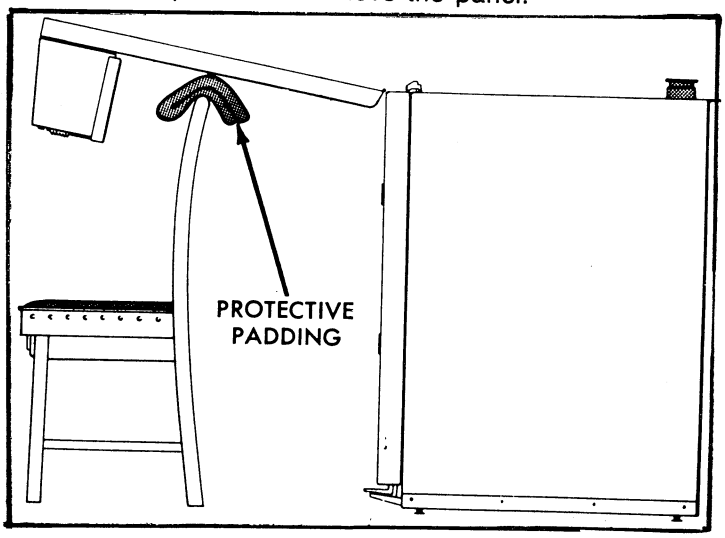


Figure 32 A

FRONT DRUM SEAL *Figure 34*

1. Remove drum.
2. Disengage spring from seal retainer strap and remove strap and seal.
3. On reinstalling, the forward edge of the seal must be properly positioned under the clips at the rear of the drum. Secure the seal with the retainer strap and spring supplied with the replacement seal.

OUTER DOOR SEAL

1. Open loading door.
2. Remove the six Phillips head screws around the duct ring under the lip of the outer door seal and remove the duct ring and seal.
3. Remove the seal from the duct.

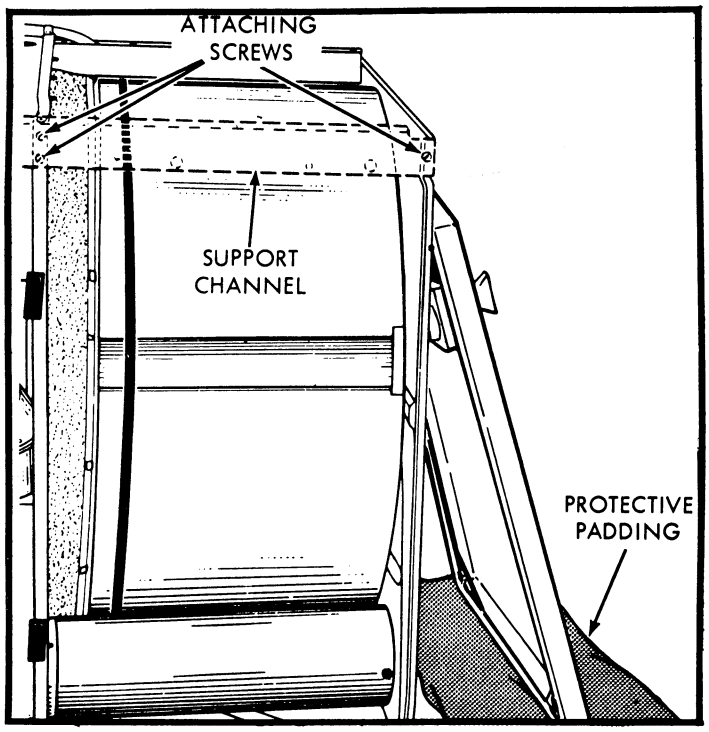


Figure 33

INNER DOOR SEAL

1. Remove outer door seal as previously outlined.
2. Remove inner door seal from front support frame.

DRIVE MOTOR *Figure 35*

Before removing the drive motor see text TESTING THE DRIVE MOTOR.

1. Remove rear panel.
2. Remove exhaust fan belt.
3. Disengage idle lever spring from the base of dryer and slip belt off motor drum pulley.
4. Disconnect wires from motor.
5. Remove cap screw and lockwasher holding motor bracket to dryer base. Pull motor and bracket out rear of dryer.
6. Remove mounting clamps from motor bracket, and remove motor from the bracket.
7. Loosen Allen set screws and remove pulleys from motor.

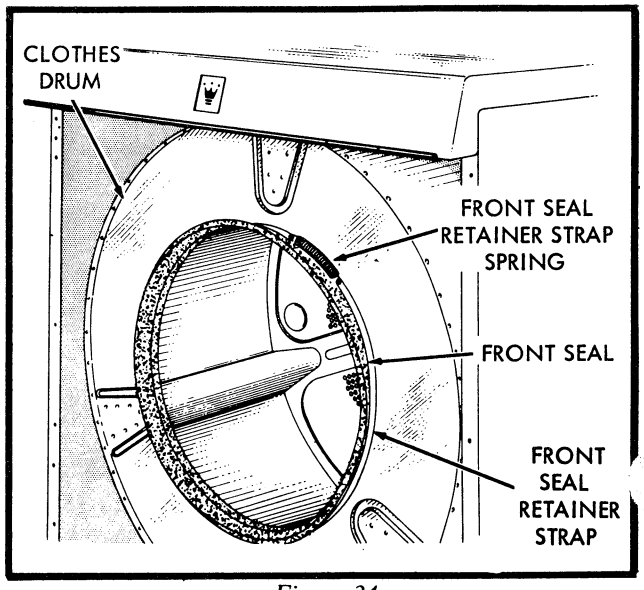


Figure 34

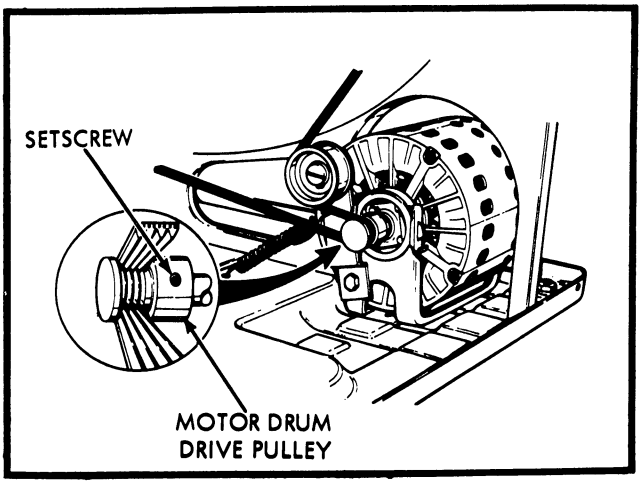


Figure 35

LOADING DOOR ASSEMBLY *Figure 36*

1. Open loading door, remove four Phillips screws from door hinges.
2. Remove the door.

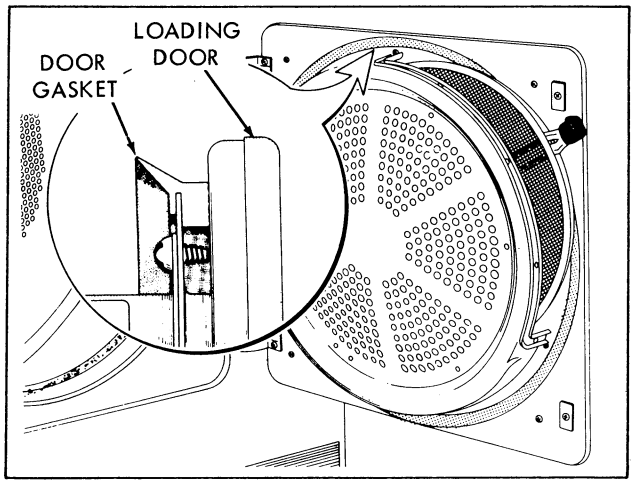


Figure 36

DOOR STRIKER

1. Open loading door and remove six Phillips screws from upper and lower and outer edge of loading door.
2. Separate outer and inner door panels enough to give access to the nut that holds striker.

STRIKER CATCH

1. Remove front panel.
2. Bend tabs of striker catch together and remove catch.

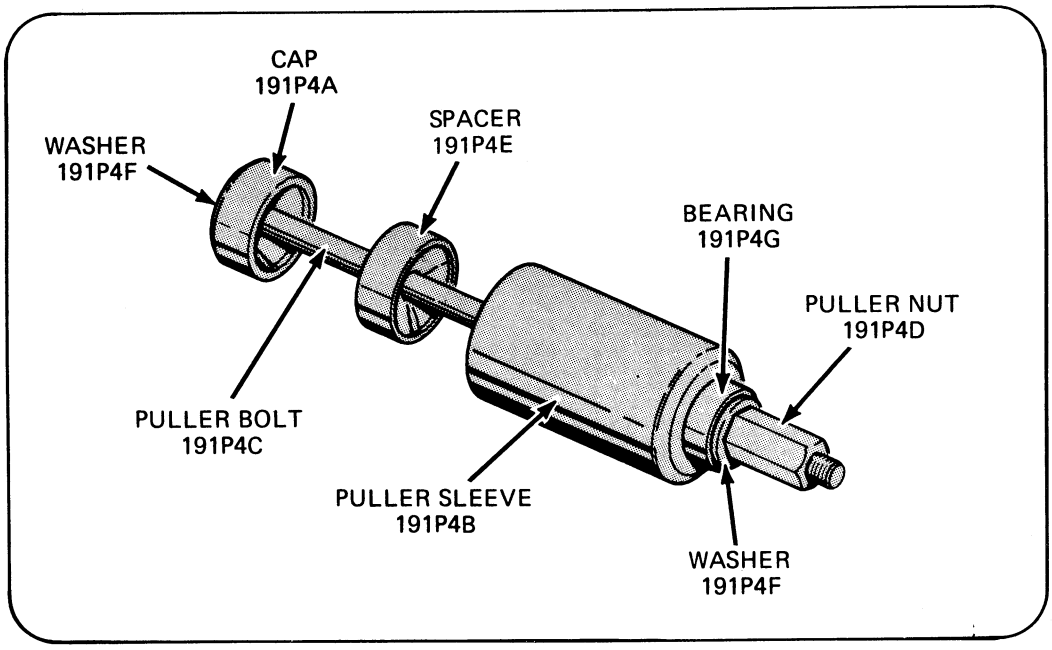
DOOR HINGE

1. Remove loading door.
2. Remove front panel.
3. Remove screws and nuts securing hinges to front panel.

USE TO PULL AND INSTALL No. 51991 DRYER EXHAUST FAN HOUSING BEARING

Parts are as follows:

191P4	Bearing Puller	191P4D	Puller Nut
191P4A	Cap	191P4E	Spacer
191P4B	Puller Sleeve	191P4F	Washer
191P4C	Puller Bolt	191P4G	Bearing



191P4 BEARING PULLER

RIGHT SIDE PANEL *Figure 37*

Procedure to remove the right side panel is the same as the left side panel, except in electric models the wire harness clips will have to be removed from the top flange of the side panel. *Figure 37 A*

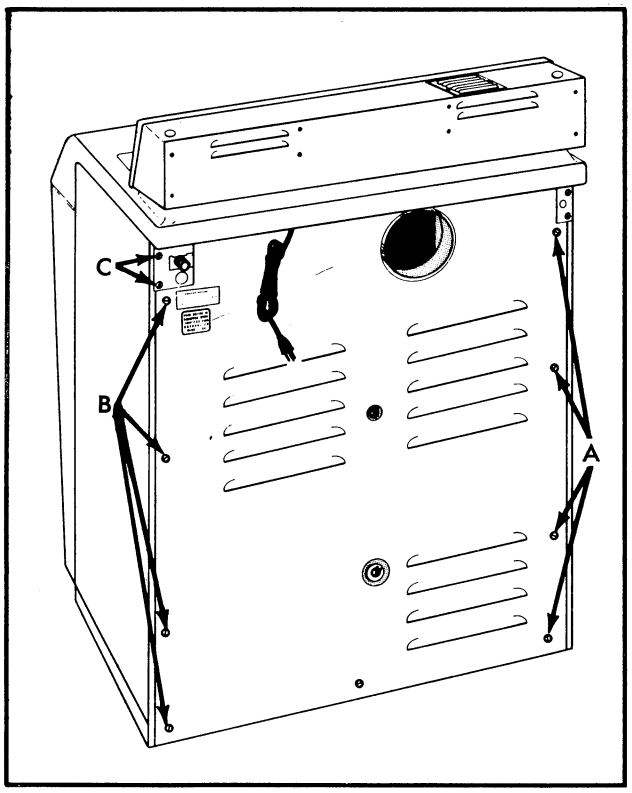


Figure 37

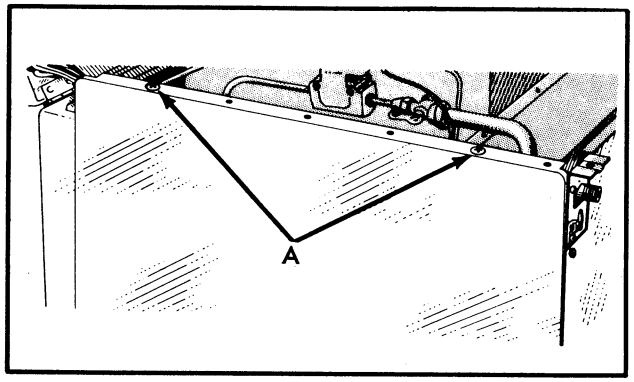


Figure 37 A

EXHAUST FAN BELT *Figure 38*

If the dryer cycles on the safety switch, it is generally caused by faulty air circulation. The first thing would be to clean the lint from the lint screen, and all the exhaust ducting and lint will sometimes wad up in the exhaust fan housing. However, the exhaust fan belt can be worn or stretched enough to impair the performance of the exhaust fan. If the belt feels loose on the pulleys or shows excessive wear, it is best that it be replaced. To remove the belt for replacement, follow procedures below; if belt needs adjusting, loosen housing and adjust.

1. Remove the rear panel.
2. Slowly turn pulley while forcing the belt of the pulley.
3. Examine belt carefully, replace if necessary.

EXHAUST FAN PULLEY *Figure 38*

The pulley often wears down and allows the belt to settle deeper into the "V" groove, giving the appearance of the belt being stretched.

1. Remove the rear panel.
2. Remove belt as previously outlined.
3. Remove Allen set screw from pulley.
4. Examine the sides of the "V" groove on the pully, if there is a "step" worn in the sides of the groove, the pulley should be replaced.
5. Upon reinstallation of the pulley, allow three to five thousandths of an inch between the pulley and the bearing in the exhaust fan.

MOTOR EXHAUST FAN PULLEY *Figure 38*

Can be removed following the procedures as outlined under EXHAUST FAN PULLEY

EXHAUST FAN ASSEMBLY *Figure 39*

Proceed as above disassemble procedures.

1. Remove two screws holding exhaust elbow to exhaust fan housing, and remove elbow from exhaust fan housing.
2. Remove the six screws holding exhaust fan assembly to rear support frame and remove fan assembly.
3. Holding pulley in vice or with channel locks, turn impeller counterclockwise and remove impeller.
4. Remove shaft from exhaust housing, examine shaft and bearings for worn or burnished spots.

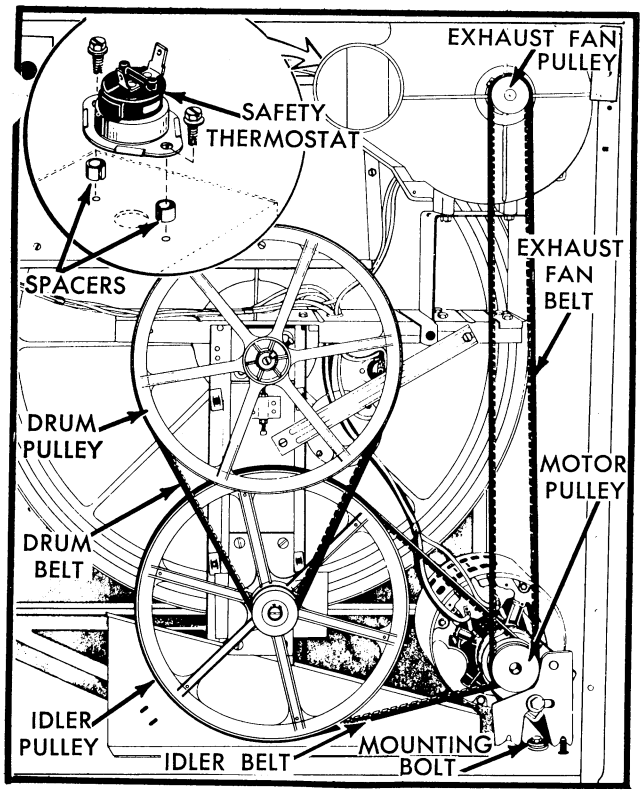


Figure 38

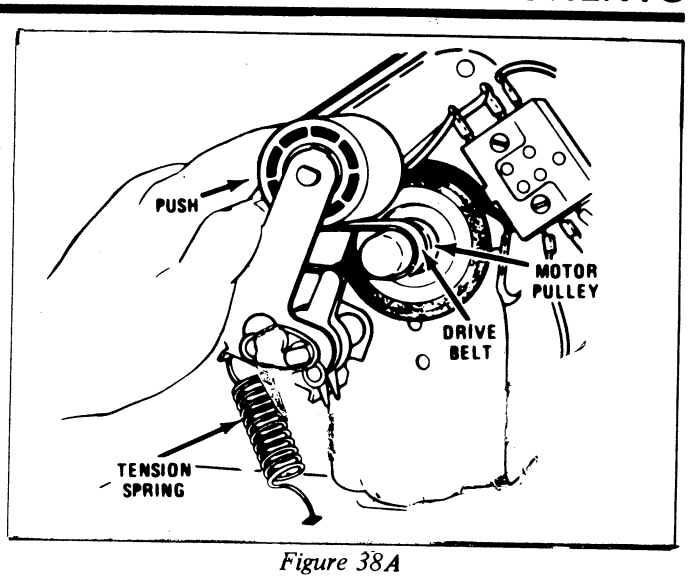


Figure 38A

5. If bearings are worn a replacement kit is available through your local parts distributor.
6. In replacing exhaust housing lube the shaft and bearings with a good grade of turbine oil.

Idler Arm Assembly

On the later model dryers, a double shaft motor with two drive pulleys directly drives the drum and the blower pulley. There is no pulley to drive

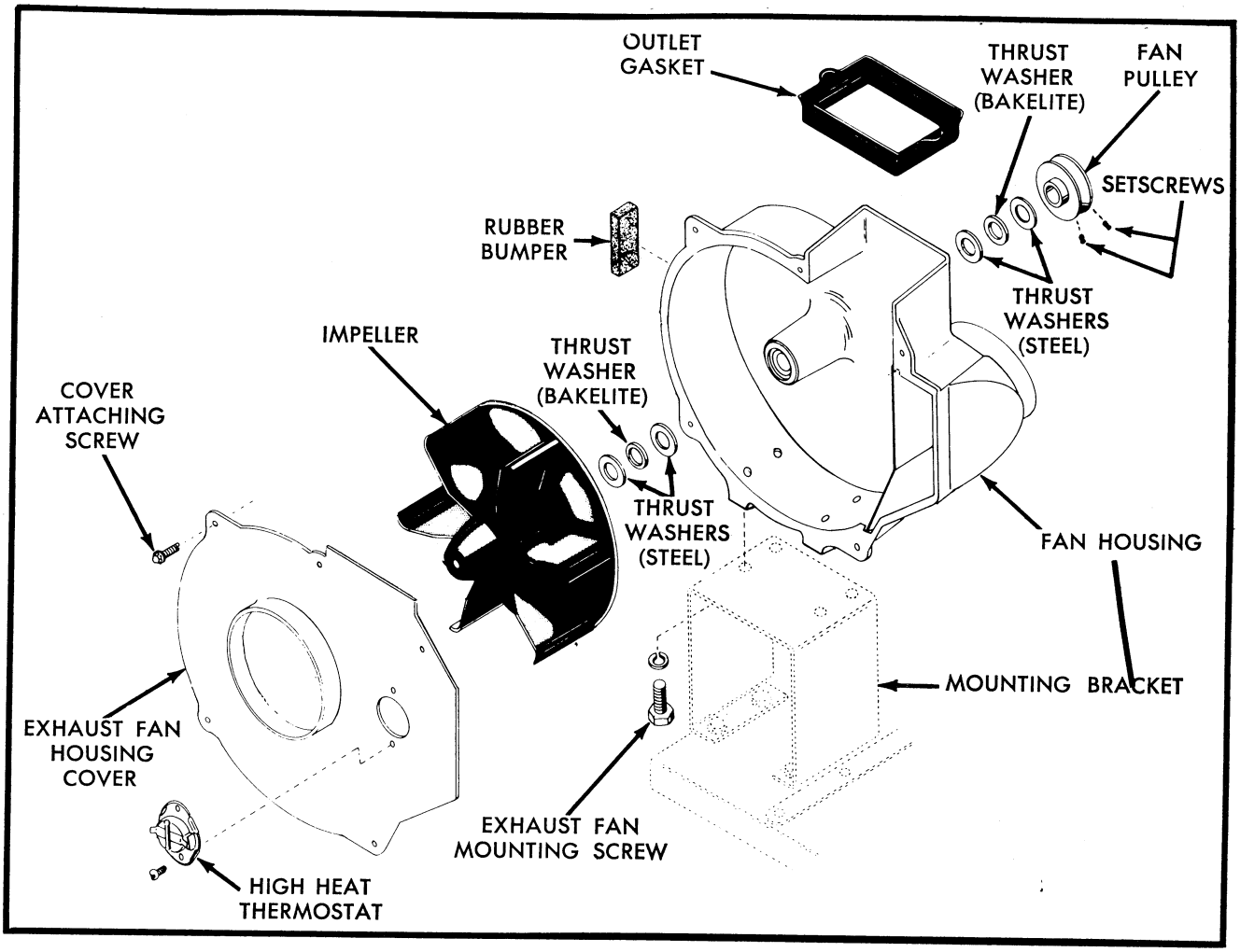


Figure 39

the drum since the drum shell itself serves as a pulley, *Figure 38A.* An idler pulley mounted on a spring loaded arm provides automatic belt tension. A flat poly-V type belt is used to drive the drum,

DRUM SHAFT BEARING *Figure 40A (LATE STYLE)*

1. **Remove rear panel.**
2. **Disengage idler lever spring from dryer base.**
3. **Remove retainer ring (tru arc) and washer from drum shaft.**
4. **Remove the three cap screws and lockwashers that hold the bearing retainer to rear support frame and remove retainer and bearing from shaft.**
5. **In replacing the bearing, position so that the small hole in the bearing is at the top and toward the rear of dryer.**

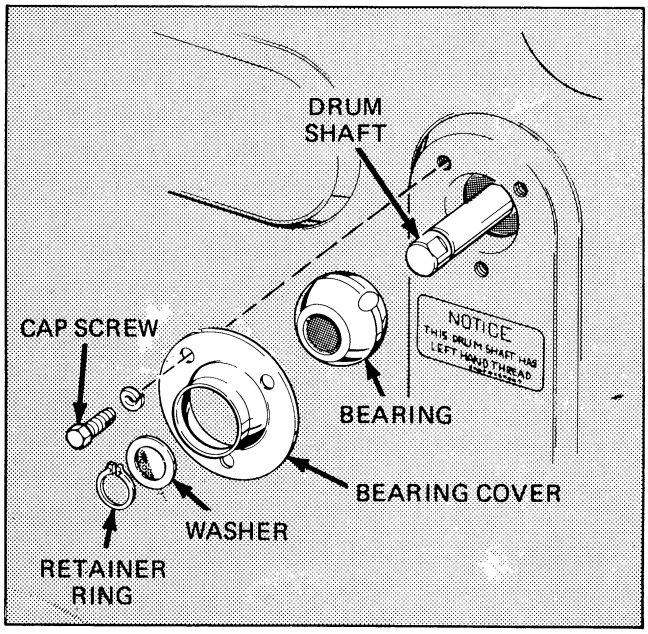


Figure 40A

DRUM ADJUSTMENT *Figure 40 (EARLY STYLE)*

UP AND DOWN ADJUSTMENT

1. Loosen two bearing bracket attaching screws.
2. To LOWER drum front, loosen lock nut on adjusting screw and, while holding adjusting screw with screw driver, turn upper lock nut clockwise. Adjust as required to match drum opening with front panel opening.
3. To RAISE drum front, loosen upper lock nut on adjusting screw and, while holding adjusting screw with screw driver, turn lower lock nut counterclockwise. Adjust as required to match drum opening with front panel opening.
4. Tighten lock nuts on adjusting screw and bearing bracket attaching screws securely.

SIDE ADJUSTMENT

1. Loosen two bearing bracket attaching screws.
2. To move drum front to the LEFT, shift bearing bracket to the RIGHT. Adjust as required to match drum opening with front panel opening.
3. To move drum front to the RIGHT, shift bearing bracket to the LEFT. Adjust as required to match drum opening with front panel opening.
4. Tighten bearing bracket attaching screws securely.

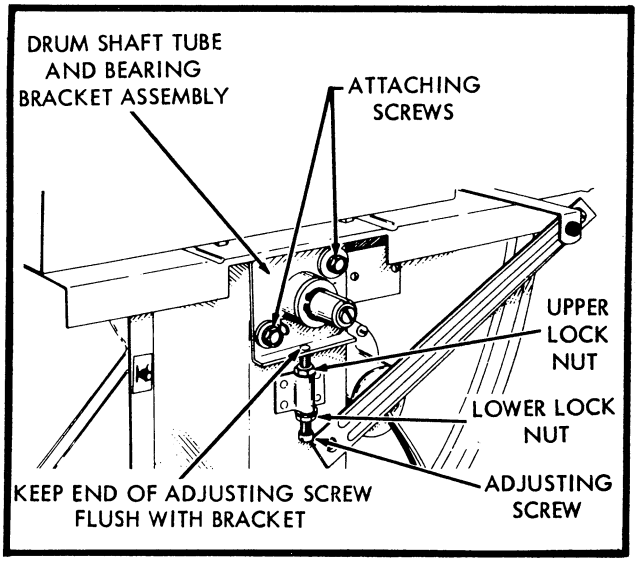


Figure 40

DRUM SUPPORT ROLLERS *Figure 41*

If the drum support roller bearings are worn, or if the rubber becomes hard and brittle, the drum will have a tendency to skip and chatter, especially with a light load. If this is the complaint, it indicates a condition as outlined above and the support rollers should be changed.

1. **Remove drum.**
2. **Remove the retainer rings from the support rollers (tru arcs) and remove the rollers.**

Note: If the roller shafts appears worn or burnished they should be replaced. They are secured by a nut and washer.

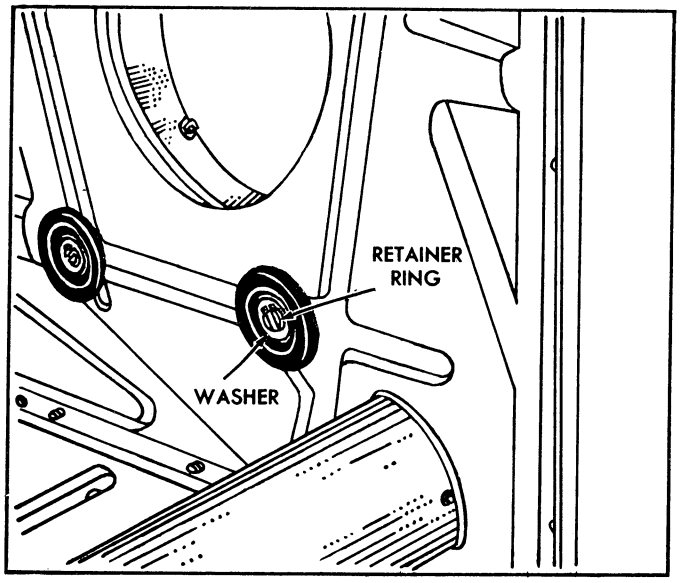


Figure 41

DRUM *Figure 42*

Follow the above procedures as in DRUM SHAFT.

1. Remove front panel.
2. Remove two screws holding front of cabinet top to front hold down brackets.
3. Lift front of cabinet top slightly, pull forward to disengage rear of top from hold down brackets. Lift top off dryer and stand on left edge on prepared padding at the rear of the dryer.
4. Disengage wire harness from the wire harness clips at top flange of right side panel.
5. Tilt drum forward and lift out of dryer.

Note: On gas models it will be necessary to remove the left side panels and the left support channel to remove the drum.

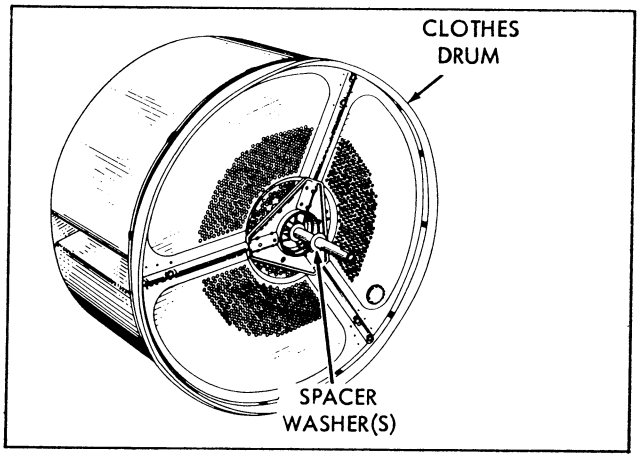


Figure 42

DRUM SHAFT *Figure 42*

Follow the above procedures on DRUM SHAFT BEARING.

1. **Using a 5/8" open end wrench, the shaft can be removed by placing the wrench on the flat sides of the shaft and turning the shaft counterclockwise, it will thread out of the drum. Do not allow the drum to turn when removing the shaft.**

DRUM BELT

1. Remove rear panel and roll exhaust fan belt off motor pulley.
2. Remove broken drum belt, or cut and remove frayed or worn belt.
3. Remove retaining ring (TRU ARC®) and washer from drum shaft. *Figure 40A)*
4. Remove three cap screws and lock washers holding bearing retainer to rear frame, and remove bearing retainer and bearing from drum shaft. *(Figure 40A)*
5. Straighten out replacement belt so there are no twists in it, and work belt through drum shaft opening in rear frame until only a small loop of belt is remaining outside. *(Figure 42A)*
6. Lift up on drum shaft and push remaining loop of belt through rear frame under shaft.
7. Reach through lower opening in rear frame and up past drum seal to pull belt down through rear frame opening. *(Figure 42B)*

   IMPORTANT: Straighten belt and pull down on one side. Belt should slide around top of drum shaft in same direction. Slide complete length of belt over drum shaft to eliminate any possible twists.

8. Re-install bearing and bearing retainer.
9. Holding right side of belt, *(Figure 42B)* Reach in through lower opening in rear frame and hold belt (grooves up) against bottom of drum approximately two inches past drum seal.
10. Using a 5/8 inch open-end or adjustable wrench on flats of drum shaft, turn shaft in counter clockwise direction while holding belt firmly against drum.
    NOTE: It will be necessary to stop turning drum two or three times during first revolution and pull down on left side of belt to get entire length of belt past drum seal.

11. When belt is completely around drum, hold it against dryer base and give drum a turn in counter clockwise direction. Belt should slide freely around drum.
12. Install belt around motor and idler pulleys *Figure 35.*
13. Turn drum slowly in counter clockwise direction to give belt a chance to position itself properly around drum.

    IMPORTANT: While turning drum, reach in through opening in rear frame and check drum seal to be sure it is positioned properly all the way around the drum.
14. Re-install shaft bearing, exhaust fan belt, and rear panel.

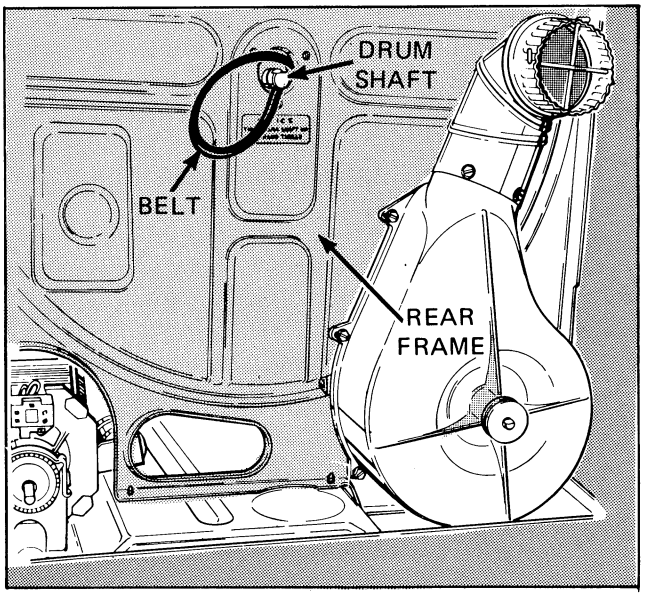


Figure 42A

MOTOR AND EXHAUST, Current Models

The current type motors in use on Speed Queen Dryers have two shafts. The rear shaft drives the drum belt and uses the outside of the drum as a pulley, a typical illustration is shown in *Figure 42C.* The other end of the motor shaft drive the exhaust fan. Unlike earlier models that use a separate exhaust fan assembly as illustrated in *Figure 42B,* current models have the exhaust fan mounted to the motor and the exhaust fan is driven directly from the motor shaft. A typical illustration is shown in *Figure 42D.*

MOTOR AND EXHAUST ASSEMBLY, Removal

When it becomes necessary to remove the motor and exhaust assembly for repairs, follow these procedures:

1. Remove two screws from bottom edge of front panel that mounts the panel to the frame.

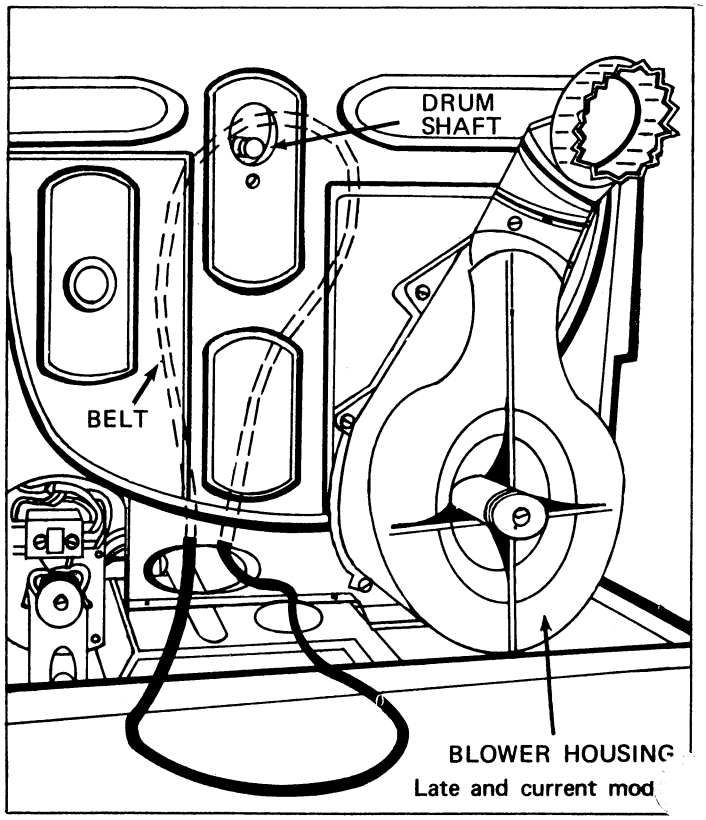


Figure 42B

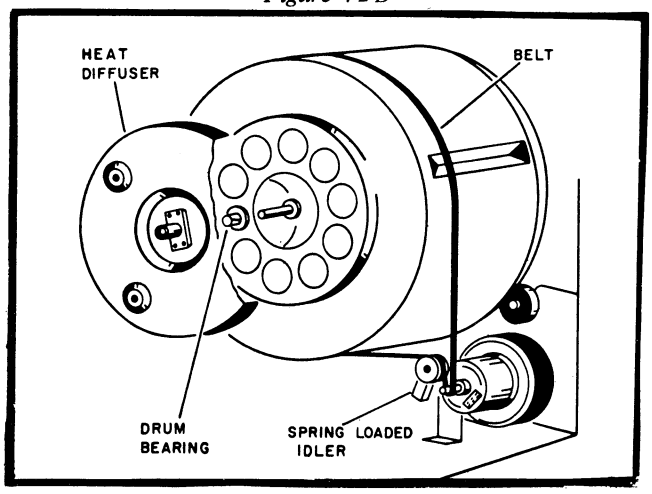


Figure 42C

2. To disengage hold down clips and guides, move panel out and away from bottom of frame.
3. Disconnect door switch wires, make note for replacement.
4. This will allow access to motor and exhaust assembly.
5. Remove lint screen. Remove four screws securing front air duct to bulkhead, two Phillips head screws and two hex head screws.
6. Disconnect thermostat wiring, make note for replacement.

7. Remove drum belt from idler pulley and motor pulley.
8. Remove two motor mount screws that secure bracket to base and slide complete assembly out at the front of dryer, see *Figure 42E.*
9. Remove wires from motor relay switch, make note for replacement.
10. Replace in reverse order. Be sure all wires are clipped to base and routed in such a manner as to be away from all moving parts. The opposite end of the motor bracket slips into a clip at the rear of the dryer base.

IMPELLER AND HOUSING, Removal

1. Remove the nine hex screws around the periphery of the exhaust fan cover, *Figure 42E.*
2. Secure motor pulley and turn impeller off of motor shaft. The impeller is threaded to the shaft, it is a right hand thread.
3. Remove three hex screws securing the exhaust housing to the bracket, see *Figure 42F.*

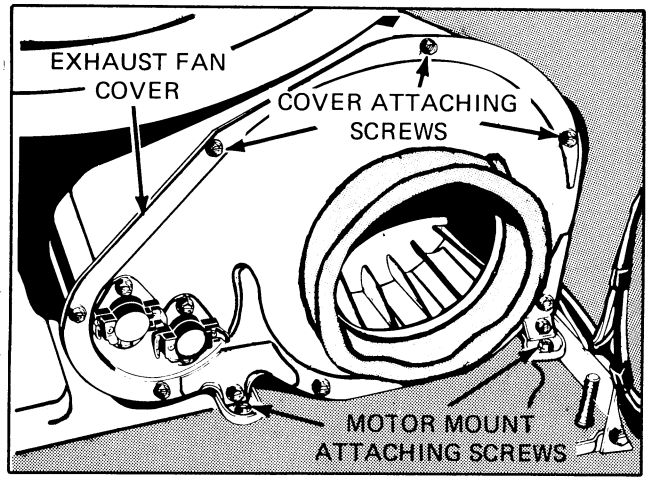


Figure 42E

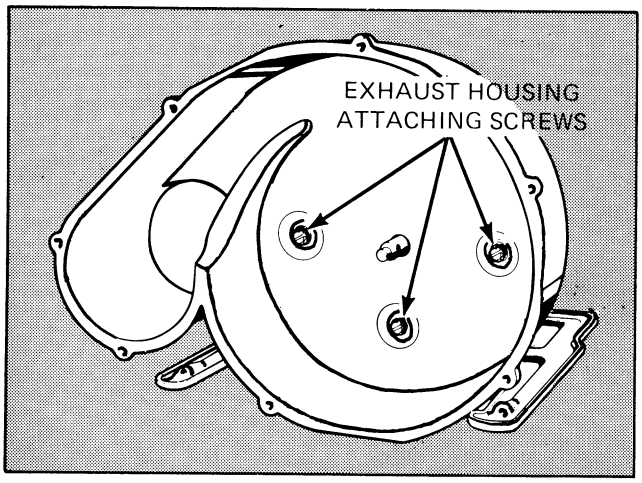


Figure 42F

DRUM BELT REPLACEMENT, Current Models

Current models of the Speed Queen dryer use a drum belt called a multi-V belt as featured in illustration, *Figure 42G.* To replace belt follow these procedures.

1. Remove front panel by removing two screws at bottom edge of panel and pull forward to release the clips and guides. Disconnect door switch and cylinder light wires if featured.
2. Remove four hex screws securing bulkhead to cabinet and lift assembly out of the slots in cabinet. Remove cylinder guide, *Figure 42 H.*
3. Dsiengage belt from motor and idler pulleys and remove.
4. Replace belt, make sure of correct alignment, reassemble in reverse order.

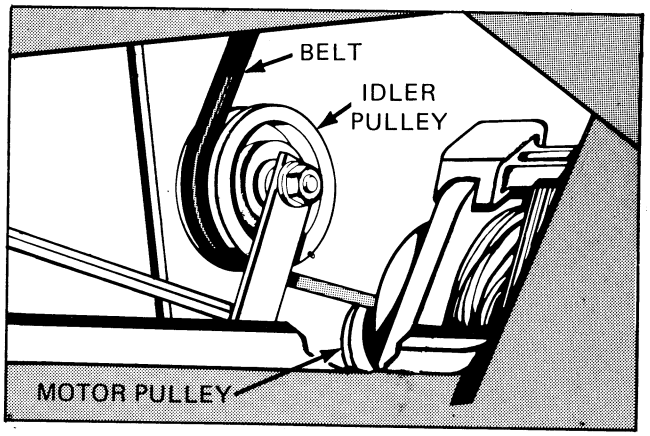


Figure 42D

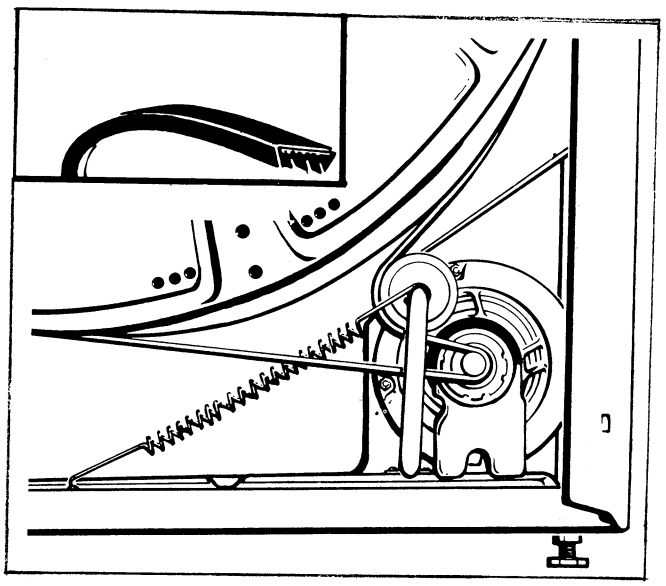


Figure 42G

SECTION 4

SERVICE PROCEDURE GAS COMPONENTS

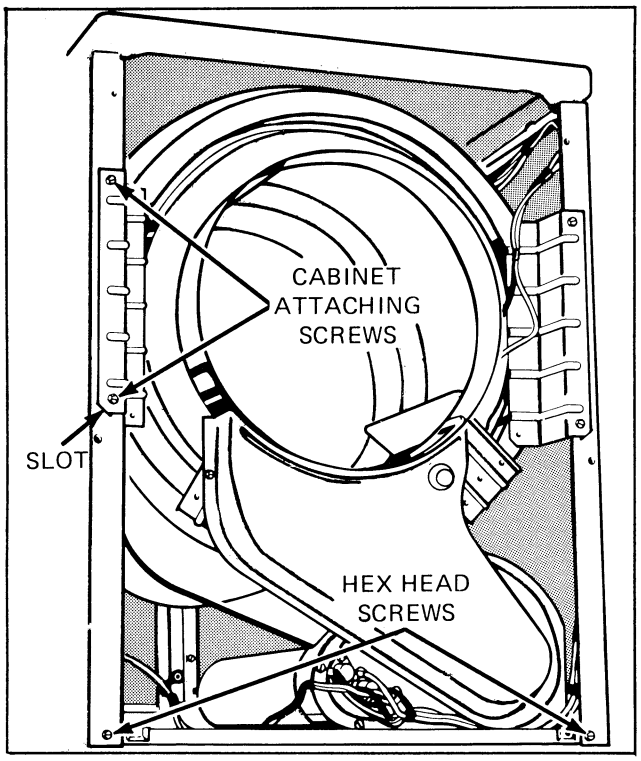


Figure 42H

GAS BURNER ADJUSTMENTS, REPAIRS AND REPLACEMENT

BURNER FLAME, Testing and adjusting.

1. Close loading door, set TEMPERATURE SELECTOR switch to NORMAL and timer knob indicator at "60" and depress PUSH TO START button to start dryer operation.
2. Allow the dryer to operate approximately five minutes or longer, then open access door.
3. Loosen the screws that hold the air shutter on the burner.
4. Adjust air shutter as necessary to produce a blue flame. A bright yellow flame indicates lack of air, and a noisy or roaring flame is too much air.
5. Tighten screw after adjustment.

POWER PACK, Removal *Figure 43*

1. Open access door.
2. Close gas shut off valve.
3. Remove the screw that secures power pack to burner shield and disengage the power pack from the shield.
4. Disconnect all wires.

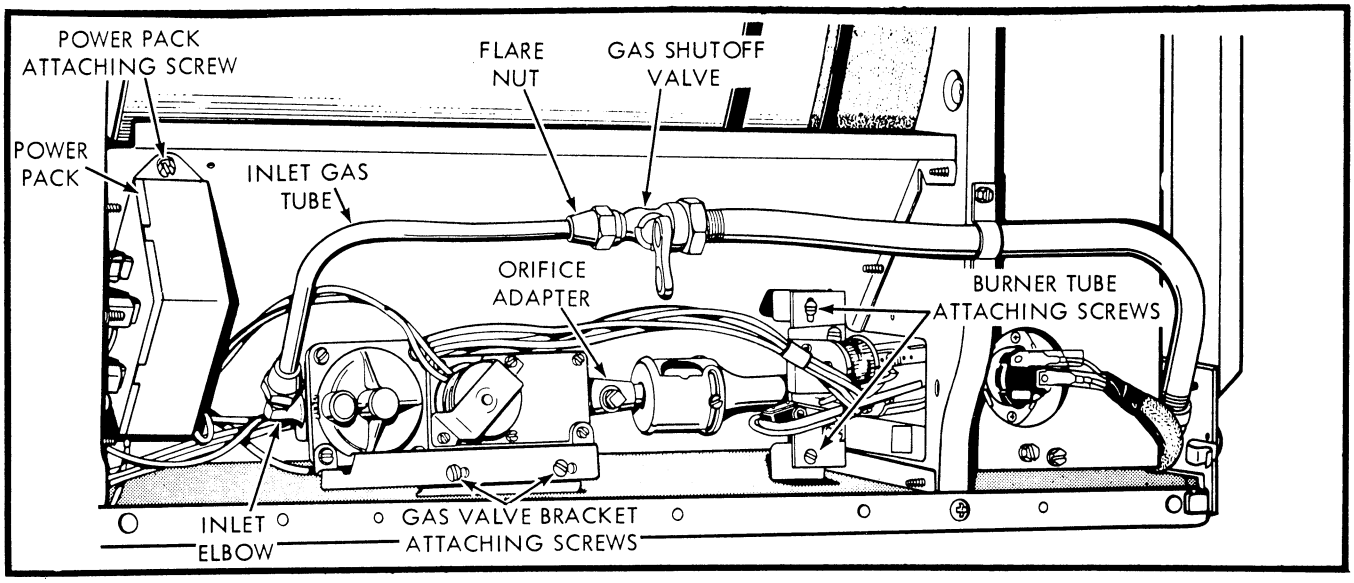


Figure 43

TESTING THE POWER PACK

1. Remove power pack to suitable work area.
2. Connect a live test cord to power pack terminals 1 and 2 from a 115 volt power outlet.
3. Apply test lamp probes to terminals 3 and 5, test lamp should not light.
4. Remove test lamp and momentarily jump across terminals 1 and 4 with an insulated jumper wire. The safety relay in the power pack should close with an audible click and remain closed.
5. Disconnect the test cord from terminals 1 and 2, relay should open with an audible click.
6. Connect a jumper wire between terminals 1 and 4, reconnect the live test cord to terminals 1 and 2 and immediately apply test lamp probes to terminals 3 and 5. Test lamp should light and remain lit from 20 to 70 seconds until warp switch cycles.

BURNER ASSEMBLY REMOVAL *Figure 43*

1. Open access door and close shut off valve.
2. Remove power pack from shield by removing screw.
3. Disconnect white wire from power pack terminal 2 and tan wire from power pack terminal 1.
4. Disconnect flare nut from gas shut off valve.
5. Remove two screws holding gas valve bracket to burner shield and two screws holding burner tube to shield.
6. Remove burner assembly to work area.

GAS VALVE REMOVAL *Figure 43*

1. Open access door and close gas shut off valve.
2. Remove power pack from shield.
3. Disconnect white wire from terminal 3, and blue wire from terminal 5.
4. Disconnect flare nut from gas shut off valve.
5. Remove two screws holding gas valve bracket to burner shield and lift gas valve and bracket assembly from dryer.
6. Remove two screws holding the gas valve to the bracket.
7. Turn inlet elbow and burner orifice adapter out of valve.

IGNITOR SWITCH *Figure 44*

1. Remove ignitor from assembly.
2. Connect live test lamp cord probes to terminals on red and white wires of the ignitor switch, test lamp should light.
3. Heat sensor bar with a small flame, test lamp should go out, and come back on after heat has been removed.
4. Connect test lamp cord probes to terminals on black and white wires of ignitor switch, lamp should not light.
5. Heat sensor bar with a small flame, lamp should light and then go out after flame is removed.

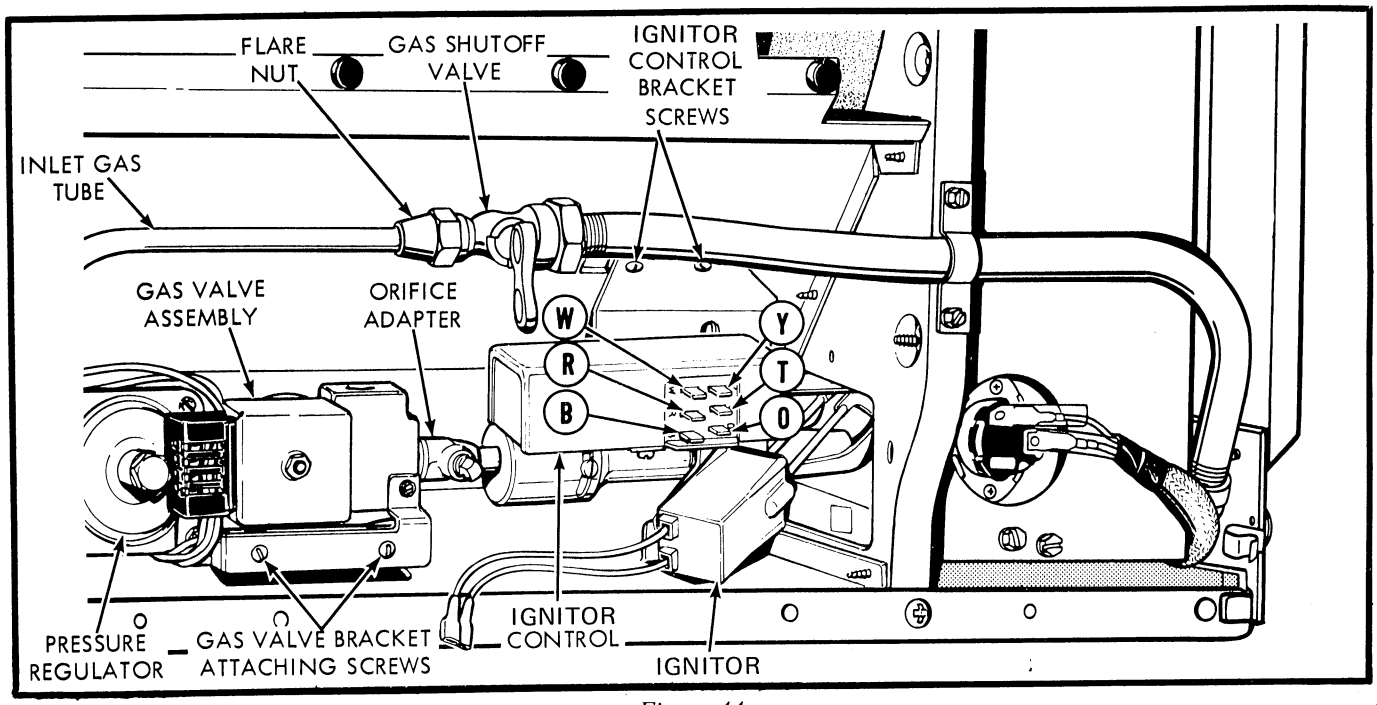


Figure 44

GAS VALVE SOLENOID, Testing *Figure 45*

1. Apply live test cord to solenoid wire terminals, removed from 3 and 5 from the power pack.
2. Solenoid should open valve with an audible click.

IGNITOR *Figure 46*, *Figure 47*, *Figure 48*

1. Disconnect yellow ignitor assembly wires from power pack terminals 3 and 4.
2. Connect a live test cord to terminals on yellow wires.
3. Points of ignitor should vibrate and produce an arc, as points open and close.

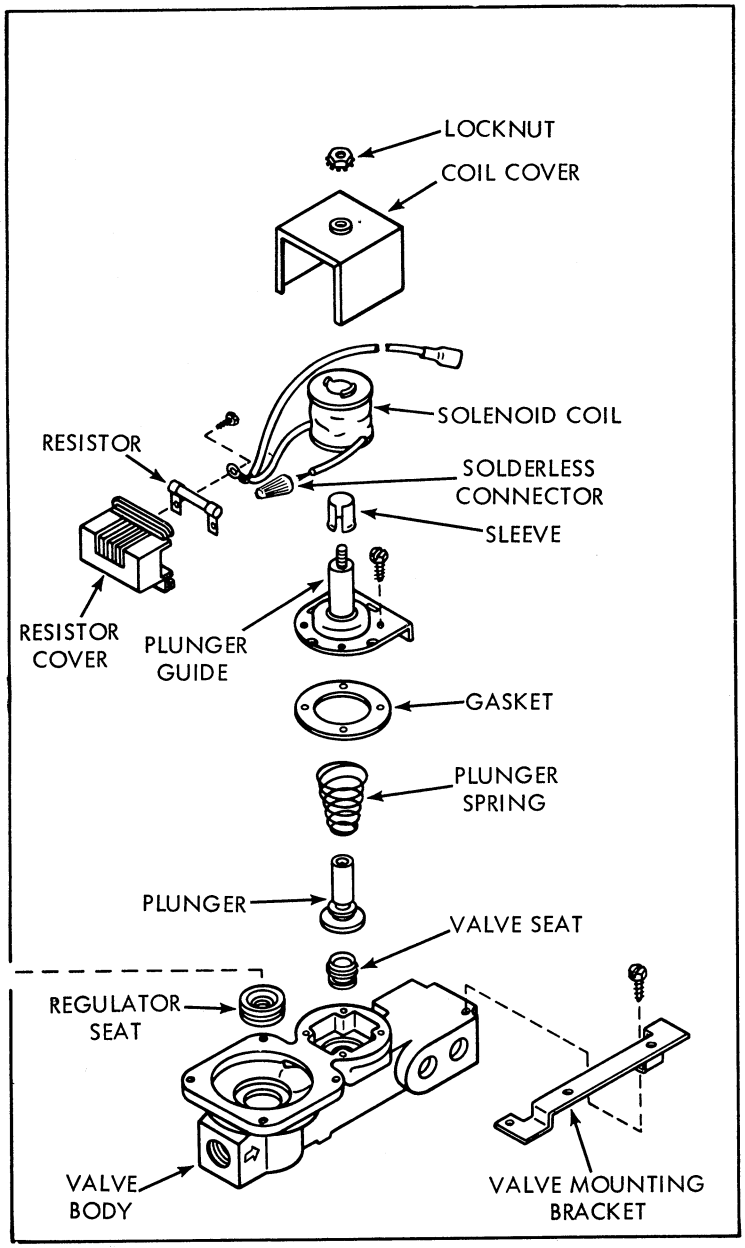


Figure 45

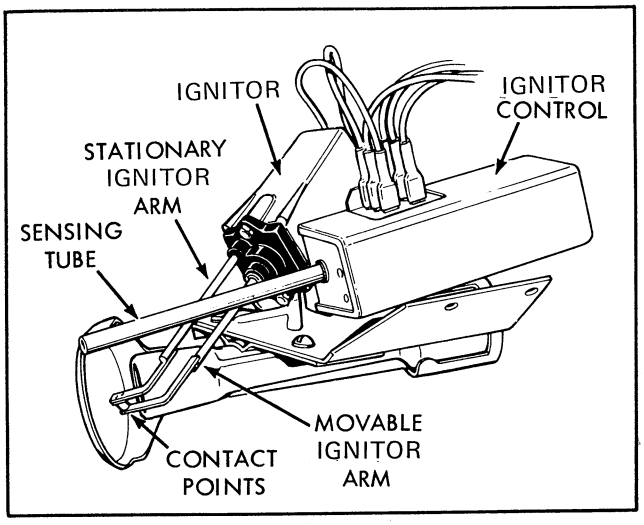


Figure 46

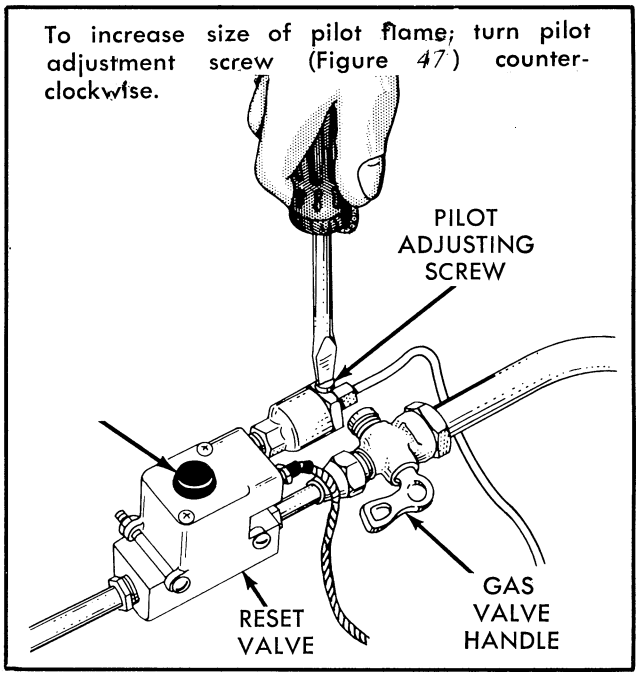


Figure 47

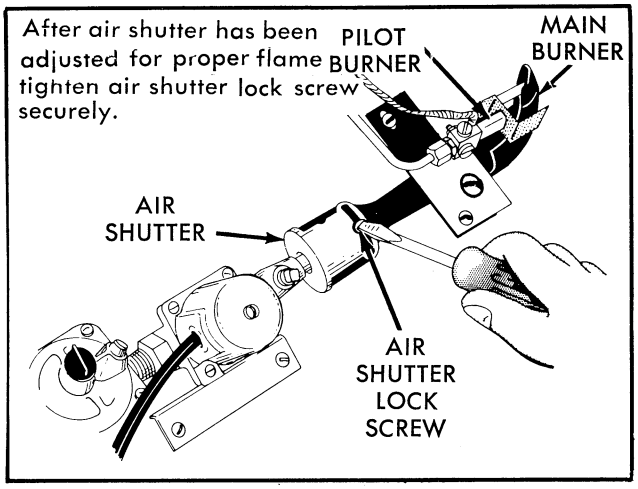


Figure 48

Pilot outage problem in domestic dryers having the Eaton standing pilot burner may be caused by the factory assembly method of the pilot burner to the burner tube, *Figure 49*. This assembly method has been revised as shown in *Figure 49A*

To alleviate this problem in the field, remove the two screws holding the pilot burner to the burner tube, position pilot burner as shown in *Figure 49A* and reinstall to burner tube.

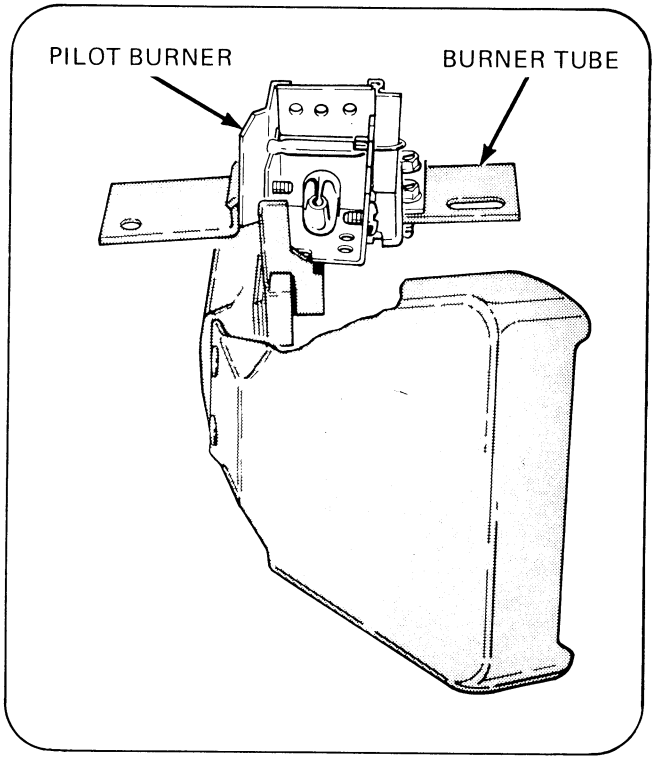


Figure 49

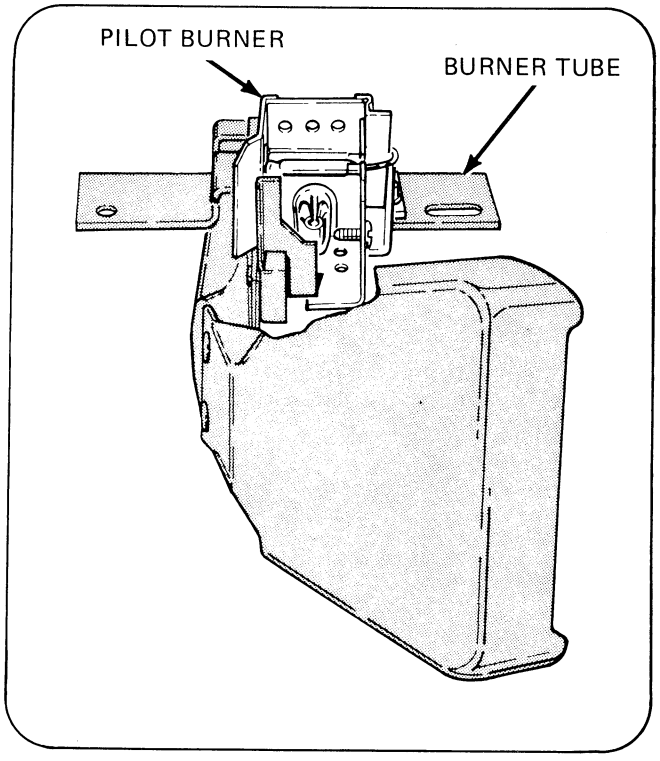
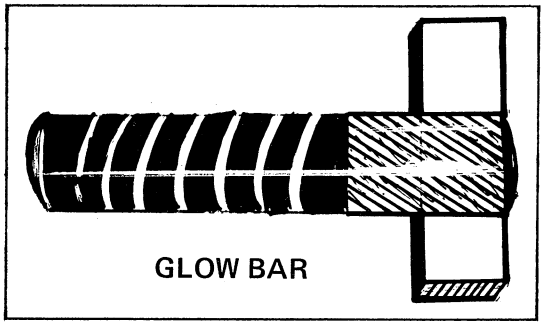


Figure 49A

GLOW BAR IGNITION SYSTEM

A silicon carbide ignitor (glow bar), burner tube, flame sensor and a two-stage gas valve make up the four main components of the system. The two-stage gas valve contains a split-coil valve and secondary coil valve.

When the dryer thermostat calls for heat the split-coil valve opens. The secondary coil valve is closed until the glow coil ignitor has reached ignition temperature.



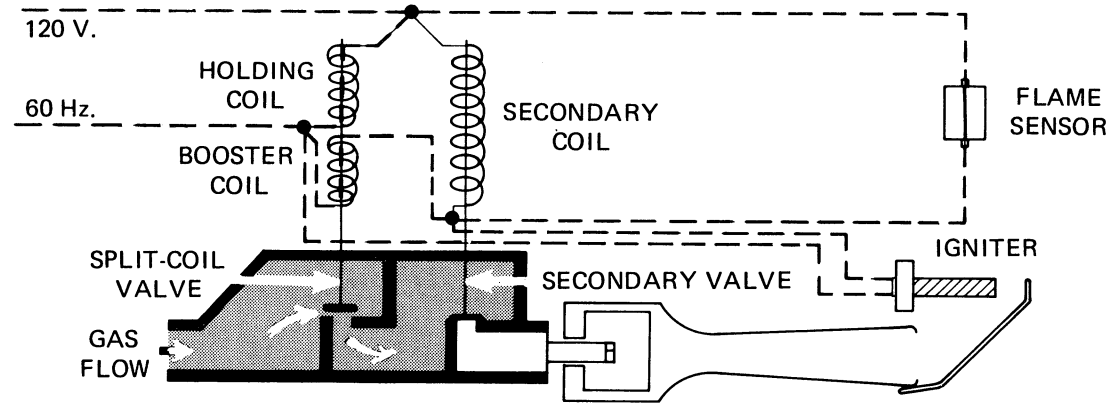
PRE-IGNITION CIRCUIT *Figures 50-51*

With a demand for heat from the dryer thermostat the circuits are completed through the holding coil, booster coil, flame sensor and ignitor. To open the split-coil valve, both coils (holding and booster) must be energized. However, once opened the holding coil can hold the valve open without help from the booster coil. The current shunted around the secondary coil by the flame sensor completes circuit to ignitor causing it to heat.

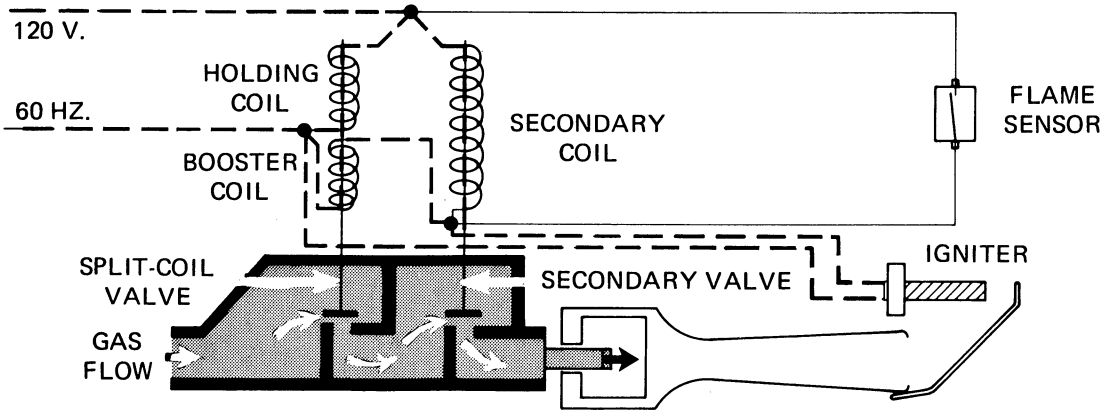
BURNER HEAT CIRCUIT *Figures 50-51*

When the ignitor attains ignition temperature in

EATON BURNER SYSTEM



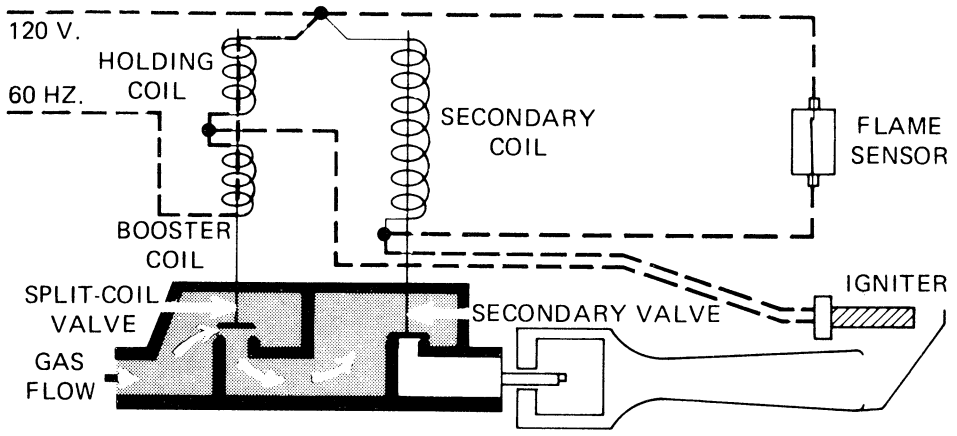
PRE-IGNITION CIRCUIT



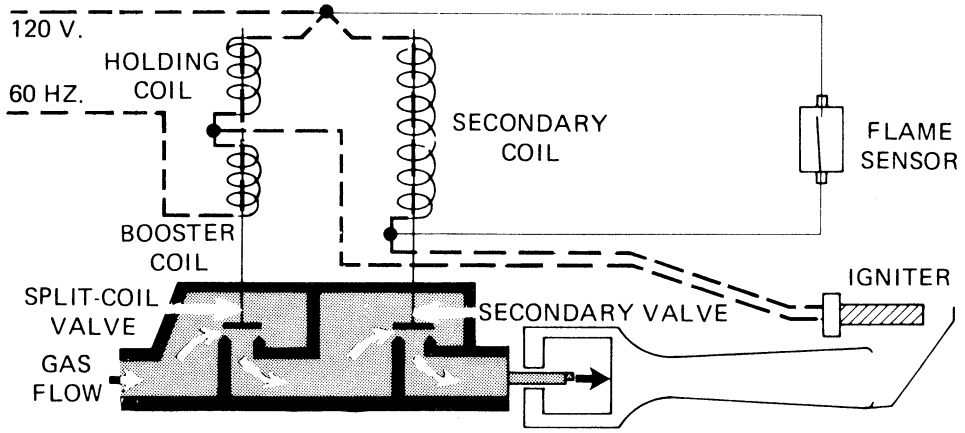
BURN CIRCUIT

Figure 50

WHITE-RODGERS BURNER SYSTEM



PRE-IGNITION CIRCUIT



BURN CIRCUIT

Figure 51

approximately 30-40 seconds, the contacts in flame sensor located directly above ignitor open. The circuit previously shunted around the secondary coil is now completed through booster coil and ignitor to secondary valve coil opening the valve and allowing gas to flow. Ignition is accomplished and the heat from the burner flame keeps the flame sensor circuits open.

IGNITION FAILURE

If burner flame is not accomplished as the flame sensor contact opens, the secondary valve will remain open until flame sensor contacts reclose. The flame sensor will continue to recycle the ignitor and secondary valve about once per minute until ignition is accomplished or dryer is turned off.

FLAME FAILURE

If burner flame fails, the flame sensor contacts will reclose in approximately 45 seconds. The secondary valve will then close and the system will be in the normal pre-ignition circuit.

WARNING: For safety reasons, close valve in gas supply line and disconnect electrical power source before servicing.

GAS VALVE ASSEMBLY REMOVAL *Figure 88*

1. Open access door and close gas shutoff valve.
2. Disconnect flare nut from shutoff valve.
3. Disconnect wires from ignitor and gas valve wire harness at connector.

4. Remove two screws holding gas valve bracket to burner shield and carefully lift assembly out of dryer.
   NOTE: The split-coil, secondary coil and wire harness are replaced as a kit.

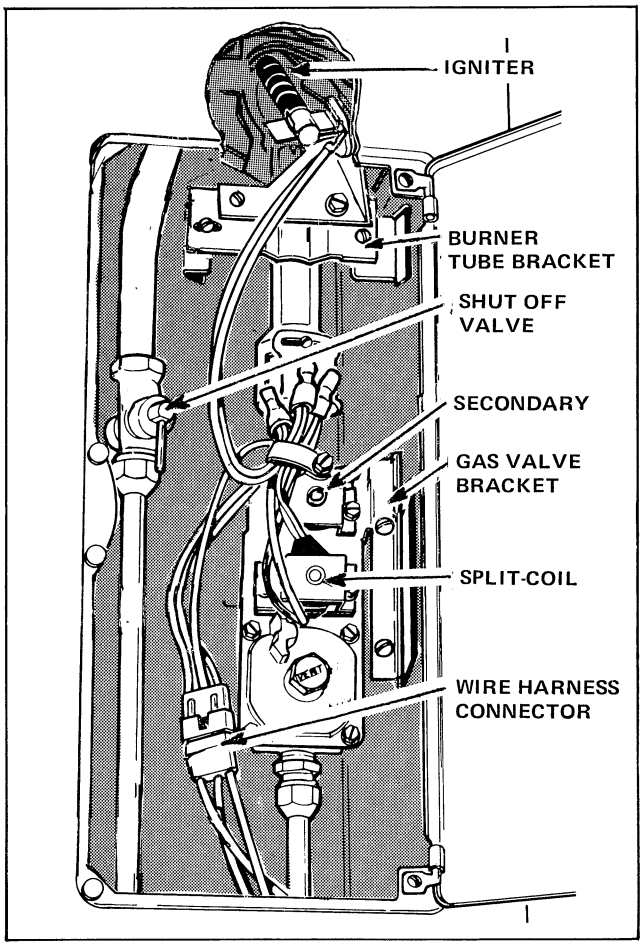


Figure 52

BURNER TUBE AND IGNITOR REMOVAL *Figure 52*

CAUTION: Use extreme care when handling ignitor as it is quite fragile. Always handle ignitor by ceramic end keeping fingers out of the silicone carbide portion.

1. Open access door and disconnect wires from ignitor.
2. Remove two screws holding burner tube bracket to burner shield.
3. Move burner tube assembly toward rear of dryer to disengage the tube from orifice adapter, and carefully remove assembly from dryer.
4. Remove ignitor by carefully spreading mounting clip.

FLAME SENSOR REMOVAL *Figure 53*

1. Remove cabinet top.
2. Disconnect wires from sensor, and remove screw holding sensor to heater box.

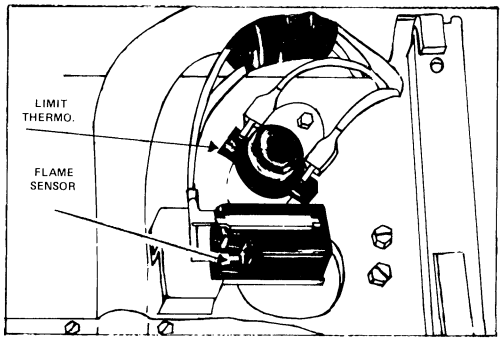


Figure 53

LIMIT THERMOSTAT REMOVAL *Figure 53*

1. Remove cabinet top.
2. Disconnect wires from thermostat and remove two (2) screws holding thermostat to heater box.

MAINTENANCE TIPS

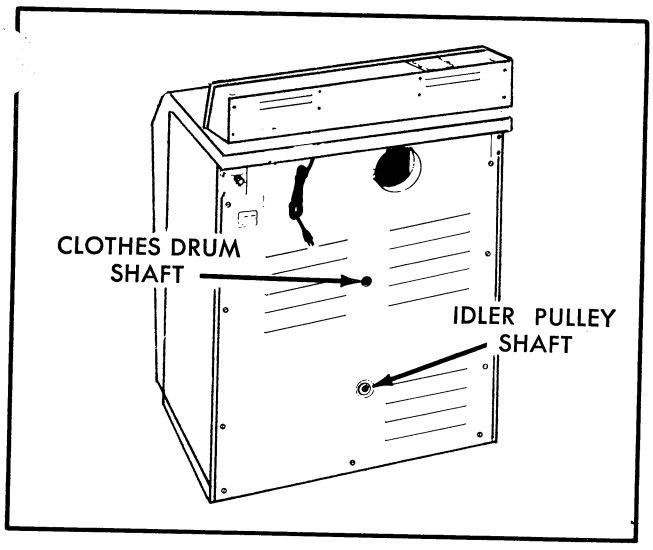
Remove pipe plug at end of shaft. Install grease gun fitting. Lub with Lubriplate.

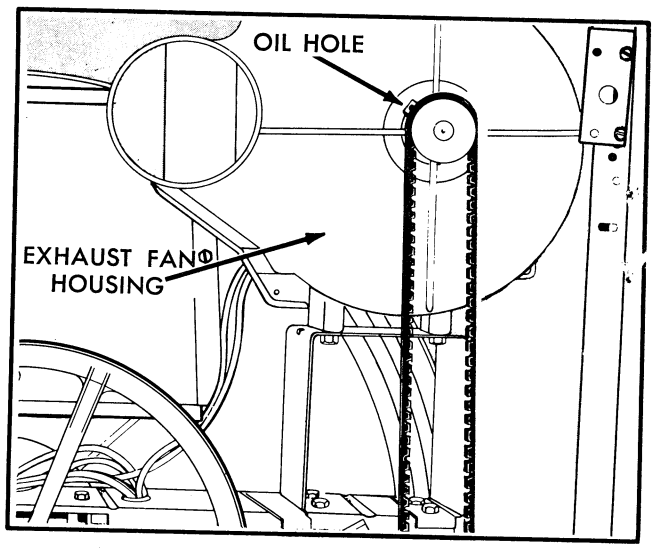
Remove screw from end of shaft. Install grease gun fitting. Lube with Lubriplate.

Remove rear panel. Use a light grade of heat resistance oil. Oil hole will be found in fan housing.

Motor

No lubrication necessary. Lifetime lubricated.





CAUTION: Do not use an excessive amount of oil or grease. Wipe away all surplus lubricant before using the dryer.

Service Helps

SYMPTOM	POSSIBLE CAUSE	REMEDY
BURNER DOES NOT IGNITE	Insufficient gas supply.	Open partially closed gas shutoff valve or correct low gas pressure.
	Inoperative gas valve solenoid.	Test gas valve solenoid, and replace coil if inoperative.
	Inoperative igniter control.	Test igniter control, paragraph 14, and replace if inoperative.
	Inoperative igniter.	Test igniter, and replace if inoperative.
	Broken, loose or incorrect wiring.	Refer to wiring diagram to check continuityoof wiring.
BURNER GOES OFF PREMATURELY	Insufficient gas pressure.	Open partially closed gas shutoff valve, replace gas valve assembly, or correct low pressure.
	Incorrect burner orifice.	Replace with proper orifice for type of gas being used.
	Improperly adjusted burner flame	Adjust burner flame.
	Burner flame not heating sensor tube of igniter control properly.	Check for carbon accumulation on sensor tube and clean tube, or replace igniter control,
	Inoperative igniter control	Test igniter control, and replace if inoperative.
	Inoperative gas valve solenoid resistor.	Test resistor, and replace if inoperative.
	Broken, loose or incorrect wiring.	Refer to wiring diagram to check continuity of wiring.
IGNITER DOES NOT SHUT OFF AFTER GAS IGNITION	Burner flame not heating sensor tube of igniter control properly.	Check for bent igniter control bracket, and replace bracket if bent.
	Inoperative igniter control.	Test igniter control, and replace if inoperative.
	Improperly adjusted burner flame.	Adjust burner flame.
	Incorrect wiring.	Refer to wiring diagram to check origin.
BURNER DOES NOT SHUT OFF	Impurities on valve seat.	Disassemble and clean valve, or replace valve seat.
	Incorrect wiring.	Refer to wiring diagram to check wiring.

GLOW BAR IGNITION BURNER SYSTEM

NOTE: These service hints deal with the burner system components only.

SYMPTOM	POSSIBLE CAUSE	REMEDY
IGNITOR DOES NOT GLOW AND GAS SUPPLY SUFFICIENT–120 VOLTS TO VALVE POWER	Flame sensor failed with contacts open.	Replace flame sensor.
	Igniter broken or open.	Replace ignitor.
	White Rogers: open booster coil.	Replace coils. Kit #55433A.
BURNER IGNITES AND GOES OUT REPEATEDLY	Burner not holding flame sensor contacts open.	Replace flame sensor.
IGNITOR GLOWS BUT BURNERS DOES NOT IGNITE	Flame sensor failed in closed position.	Replace flame sensor.
	Open secondary coil or holding coils.	Replace coils. White Rogers: Kit #55433A. Eaton: Kit #55439A.

GLOSSARY OF TERMS

AERATED–Having a primary air port through which air is drawn to form a combustible air and gas mixture.

A.G.A.–American Gas Association

A VALVE–A shut off valve installed in the gas supply line upstream from all other controls.

BACKFIRING–Flashback of flame through the venturi causing gas to burn at the orifice.

B VALVE–Small valve downstream from the A valve supplying gas to the pilot burner.

CLOSED CIRCUIT–Millivoltage measured with the thermocouple attached to the electromagnet.

COLD JUNCTION–The junction of the thermocouple elements and the current carrying conductors.

DROP OUT–The point, defined by a millivolt or milliampere reading, at which the electromagnet releases the armature and closes the valve.

ELECTROMAGNET–The magnet which, when energized by the current from the thermocouple, holds the armature which in turn holds the valve open.

FLASHBACK–See Backfiring

HOT JUNCTION–The junction of the two thermocouple elements heated by the pilot flame.

LEAK LIMITING DEVICE–A device, containing one large and one small fixed orifice, which is installed in the bleed opening of a gas pressure regulator. The small orifice, is used as a leak limiting orifice. The large orifice permits rapid opening of the regulator when the main burner comes on.

MAGNETIC HEAD–See electromagnet.

MANOMETER–An instrument used to measure gas pressure in inches of water column.

MERCURY VAPOR SWITCH–A mercury filled bulb and capillary tube which flexes a diaphragm according to temperature changes. The flexing of the diaphragm is used to actuate a switch. Also called a pilot switch.

MILLIVOLT–One thousandth of a volt. Used to check thermocouple output. Abbreviation mv.

OPEN CIRCUIT–Millivoltage measured without thermocouple attached to the electromagnet.

ORIFICE–The drilled opening in a cap, spud or other device which limits the flow of gas to the burner.

PORT–The hole in a burner where the gas and air mixture burns.

POWER UNIT–See electromagnet.

PRIMARY AIR–The air drawn into the burner verturi which mixes with the gas to form a combustible air and gas mixture.

RATE–The BTU input burned by an appliance during one hour of operation.

RESET BUTTON–On manual ignition burners––the button which is depressed manually to open the pilot valve.

SECONDARY AIR–The air surrounding the flame.

SENSING ELEMENT–The fluid or gas filled capillary and bulb on a thermostat or other device used to sense temperature.

THERMOCOUPLE–Two dissimilar metal elements so joined as to produce an electrical current when the junctions are at different temperatures.

TRANSFORMER–An electrical device having two windings––a primary and a secondary. Used to increase or decrease voltage as required.

VENT–A conduit or passageway used for conveying combustion products, lint and moisture to the outer air.

VOLT–Standard unit used to measure electrical pressure.

WATT–Standard unit used to measure electrical power.

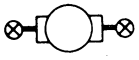
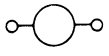
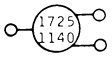
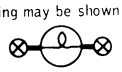
PRODUCT: ALL LAUNDRY PRODUCTS

SUBJECT: WIRING DIAGRAM SYMBOLS

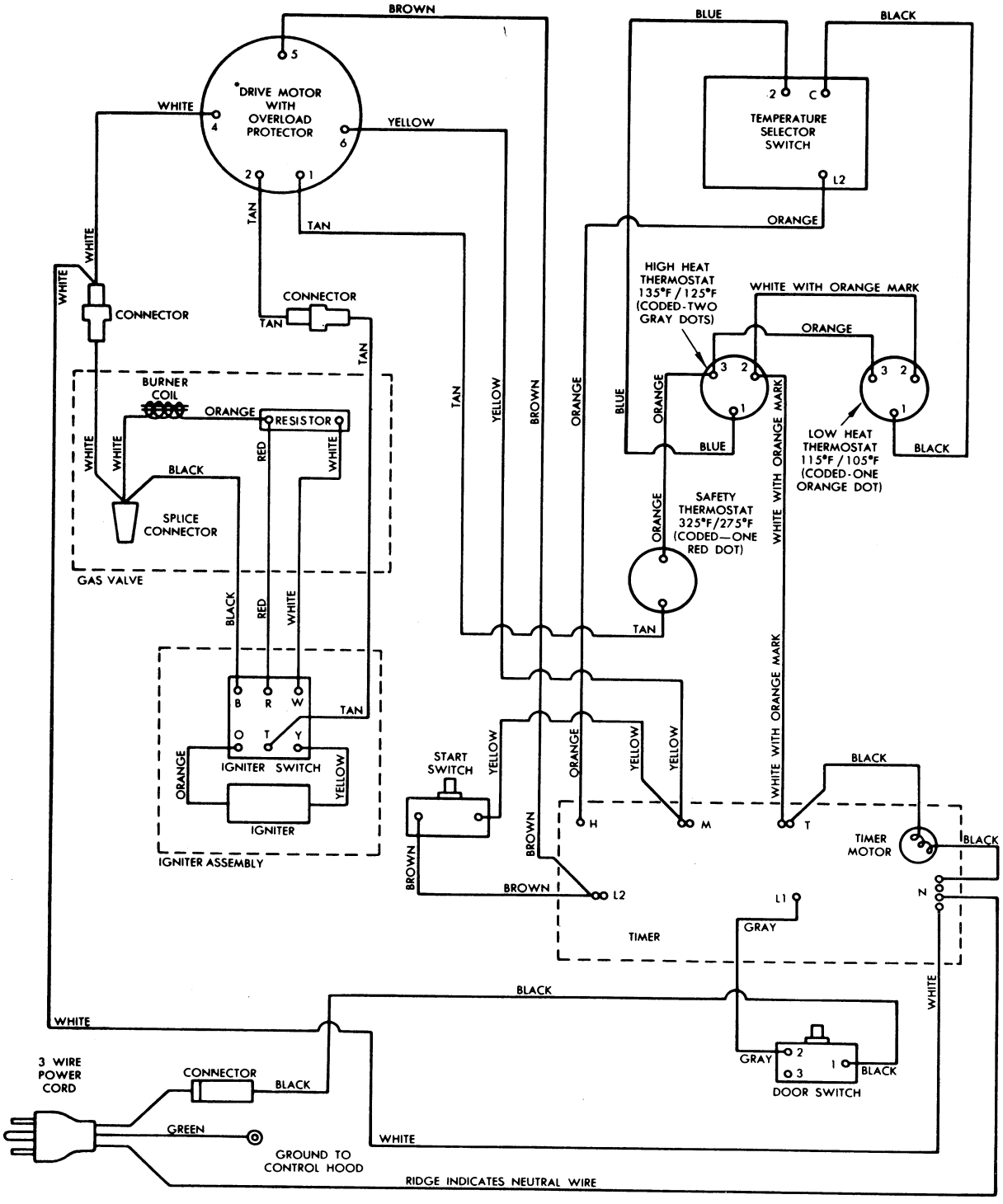
In order to standardize on wiring diagram symbols, all manufacturing divisions will use symbols as established by the American Standards Association. This standardization will result in a reduction of the total number of symbols which a service technician must learn to recognize. This change becomes effective in the laundry division with the 1966 models.

The first column below indicates the wiring diagram item; the second column contains symbols currently in use; the third column contains the wiring diagram symbols to be used in future production.

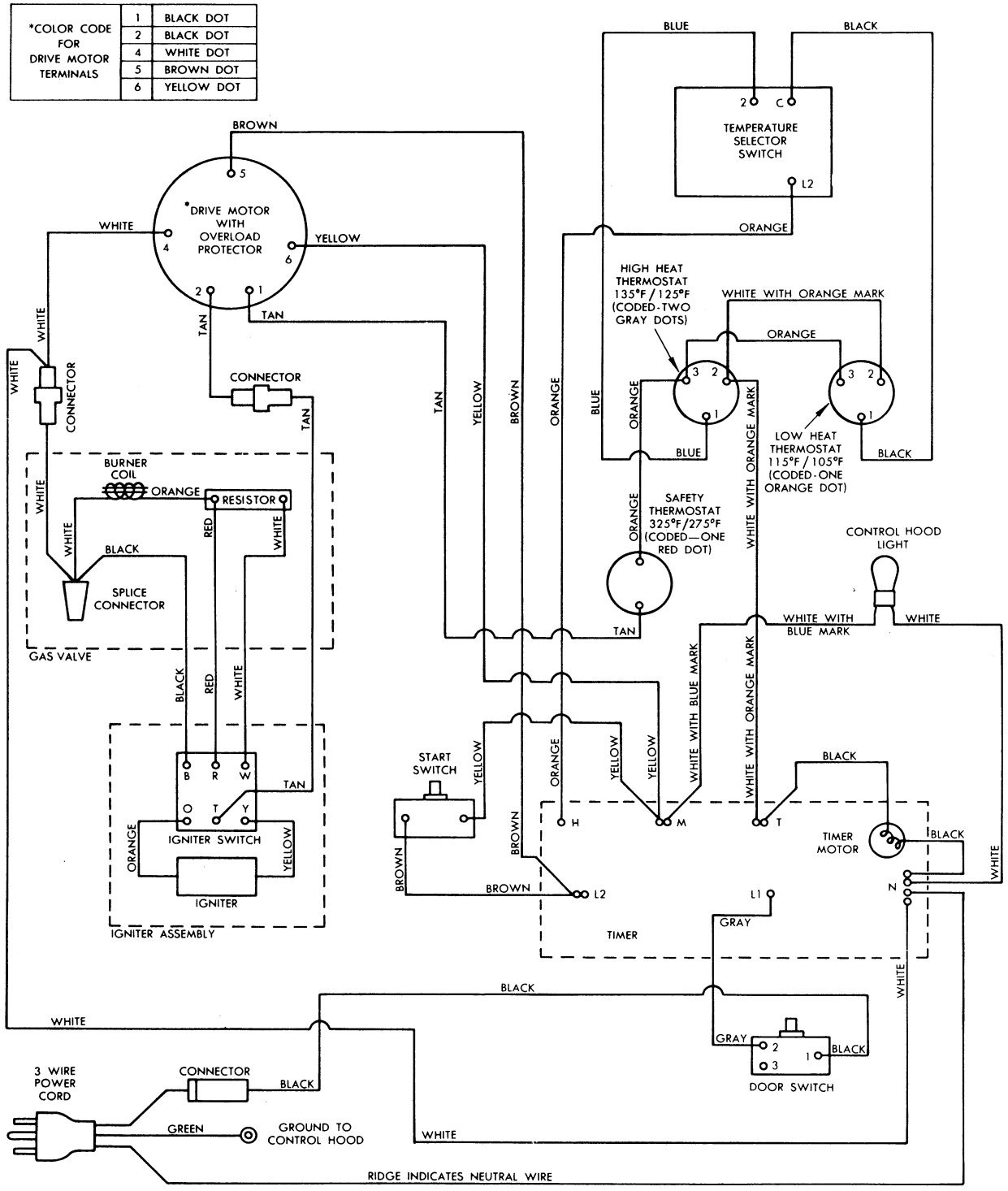
ITEM	CURRENT LDRY. STD.	REVISED LDRY. STD.
Internal Conductor		
Harness Wire		
Permanent Connection		
Cross Over		
Ground		
Timer Switch		
Automatic Switch		
Manual Switch		
Double Throw		
3 Prong Plug		
Heater (Wattage Shown)	 2800	 2800W
Fuse		
Circuit Breaker		
Terminal		
Timer Motor		
Thermister	NONE	
Transistor	NONE	
Diode (Rectifier)	NONE	

Motor Single Speed		
Motor Multi Speed	 1725 1140	 1725 1140
NOTE: Internal motor wiring may be shown		
Light (Incandescent)		
Germ Lamp		
Pressure Switch		
Fluorescent		
Starter (Automatic)		
Coil -		
Capacitor		
Resistor (Show Value)	500	500Ω
Plug Connector		
Centrifugal Switch		
Thermostat Show N.O. or N.C.		
Double Throw Stat		
Ballast		B
Adj. Stat		
Thermocouple		
Warp Switch		
Neon Light	NONE	
Transformer	NONE	
Rectifier (Controlled)	NONE	
Relay	Coil & Switches separate in circuit.	

*COLOR CODE FOR DRIVE MOTOR TERMINALS		
	1	BLACK DOT
	2	BLACK DOT
	4	WHITE DOT
	5	BROWN DOT
	6	YELLOW DOT

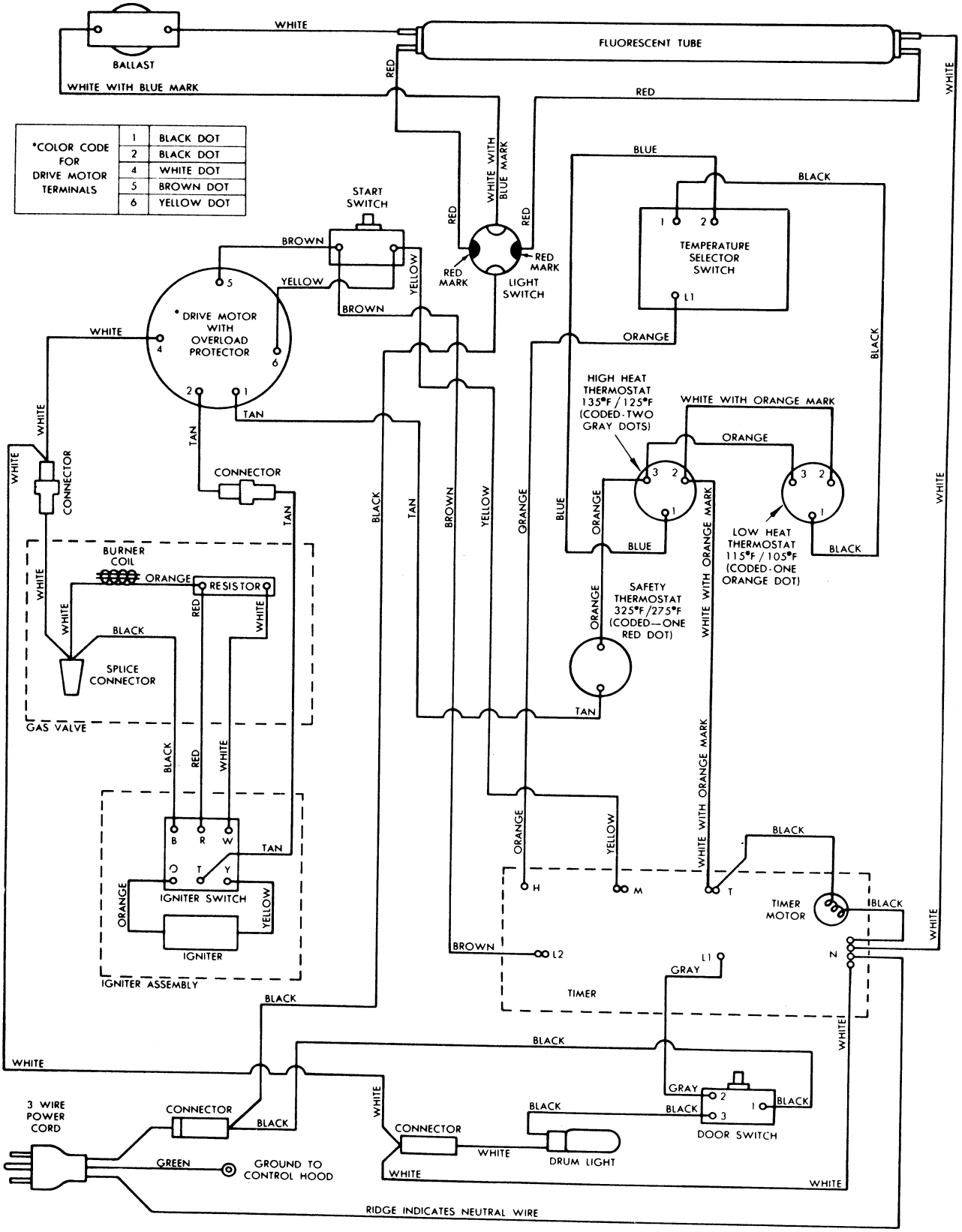


WIRING DIAGRAM
MODEL R184



WIRING DIAGRAM

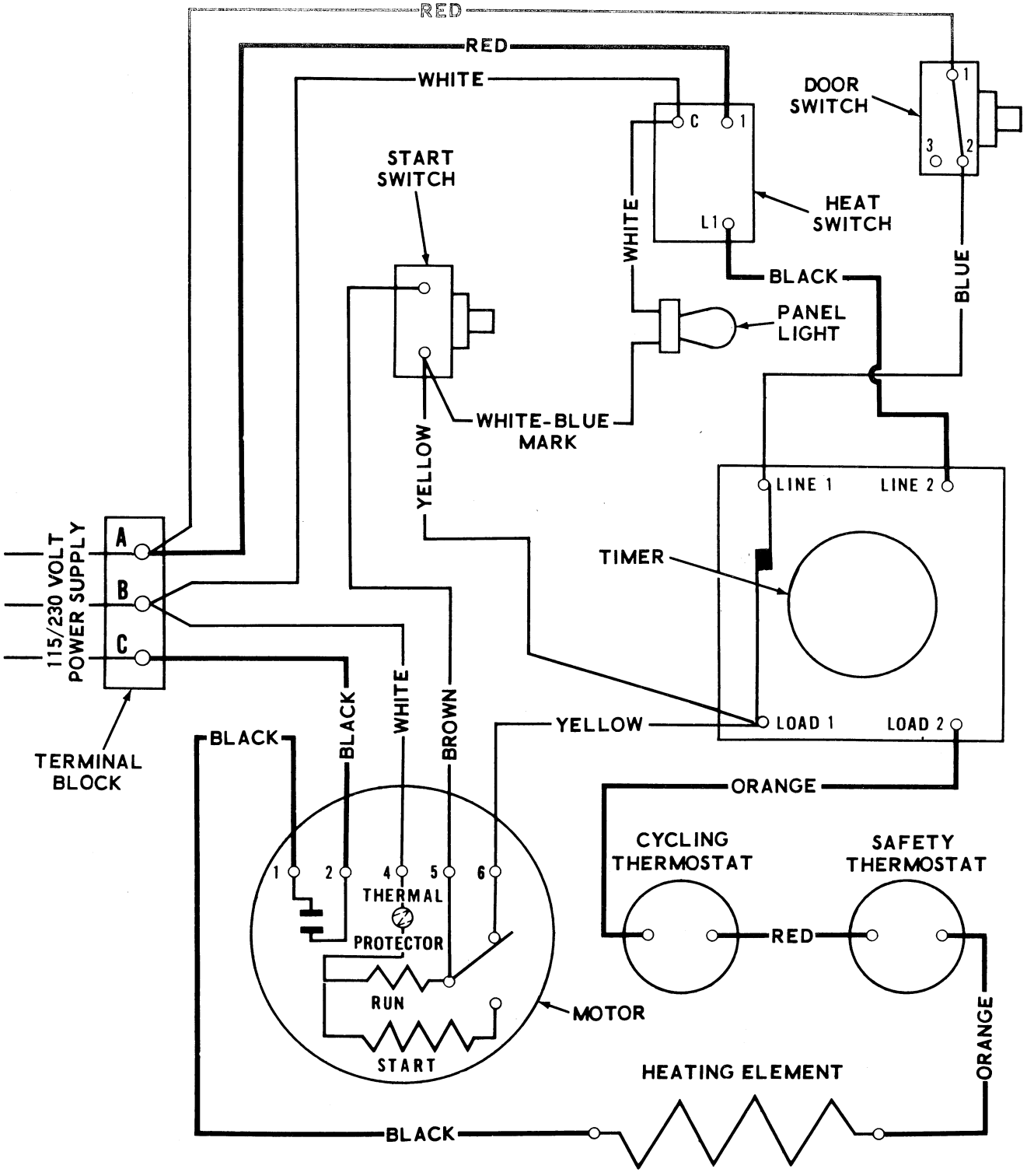
MODEL R185



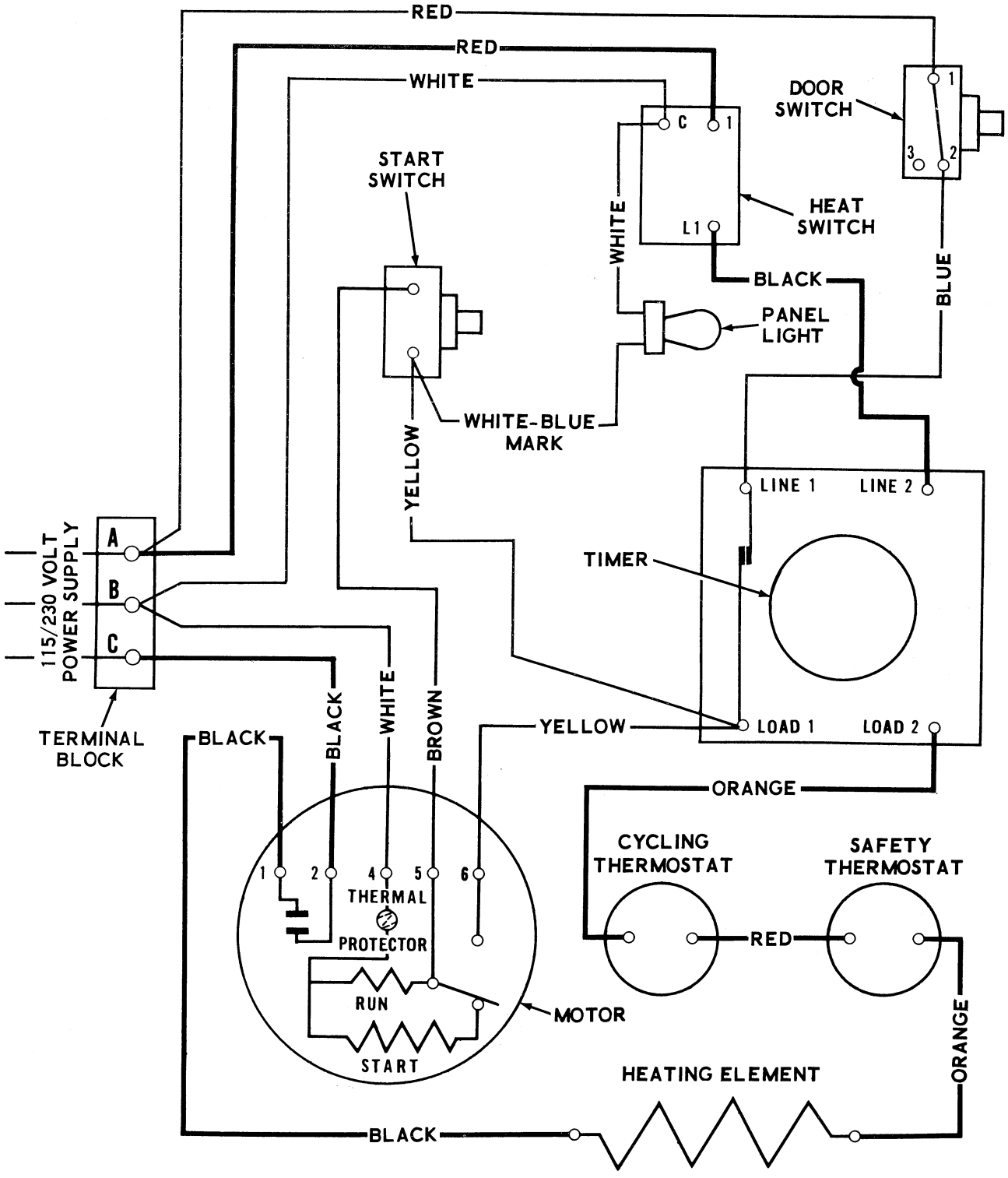
WIRING DIAGRAM

MODEL R186F

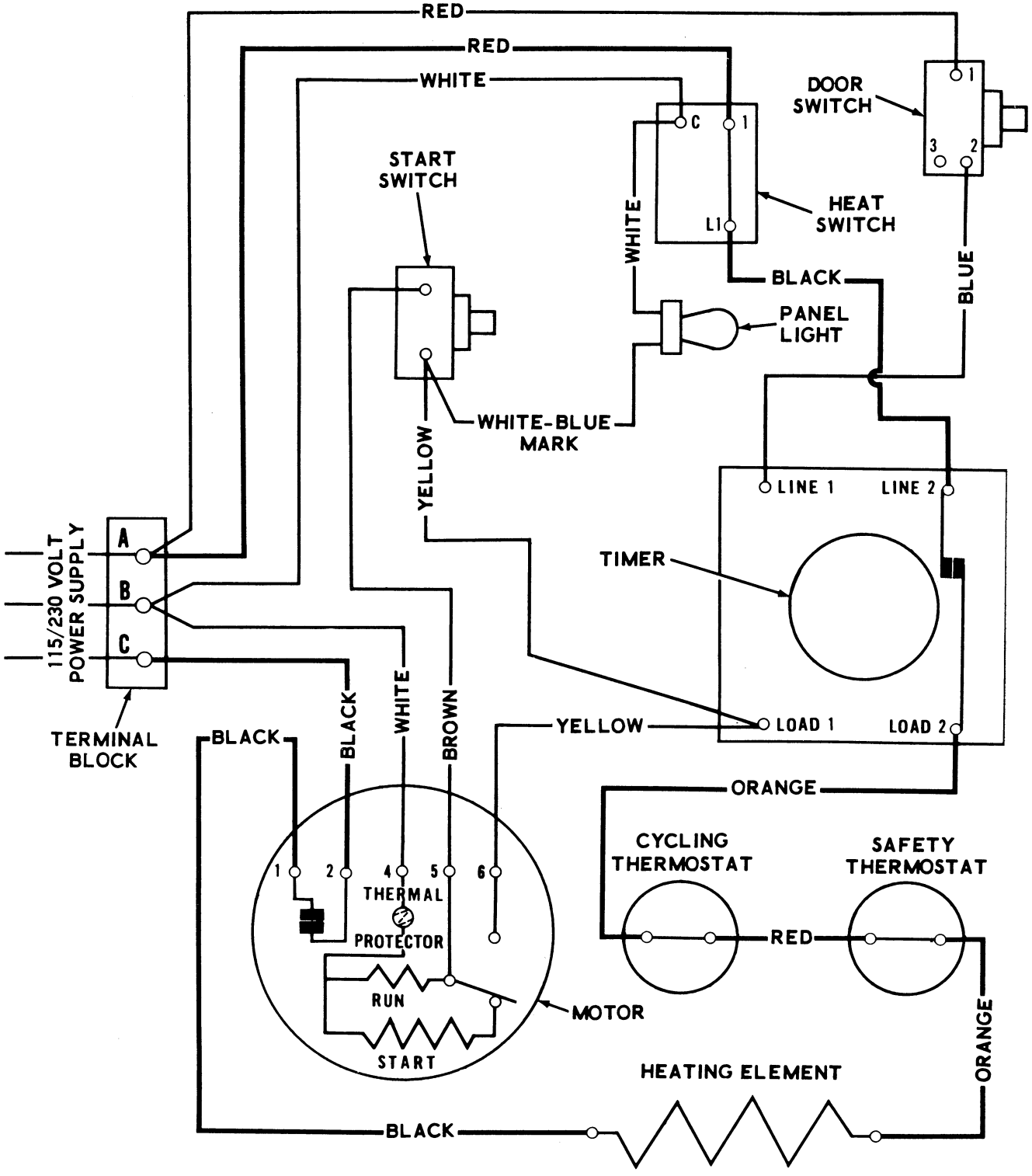
Motor Running Circuit



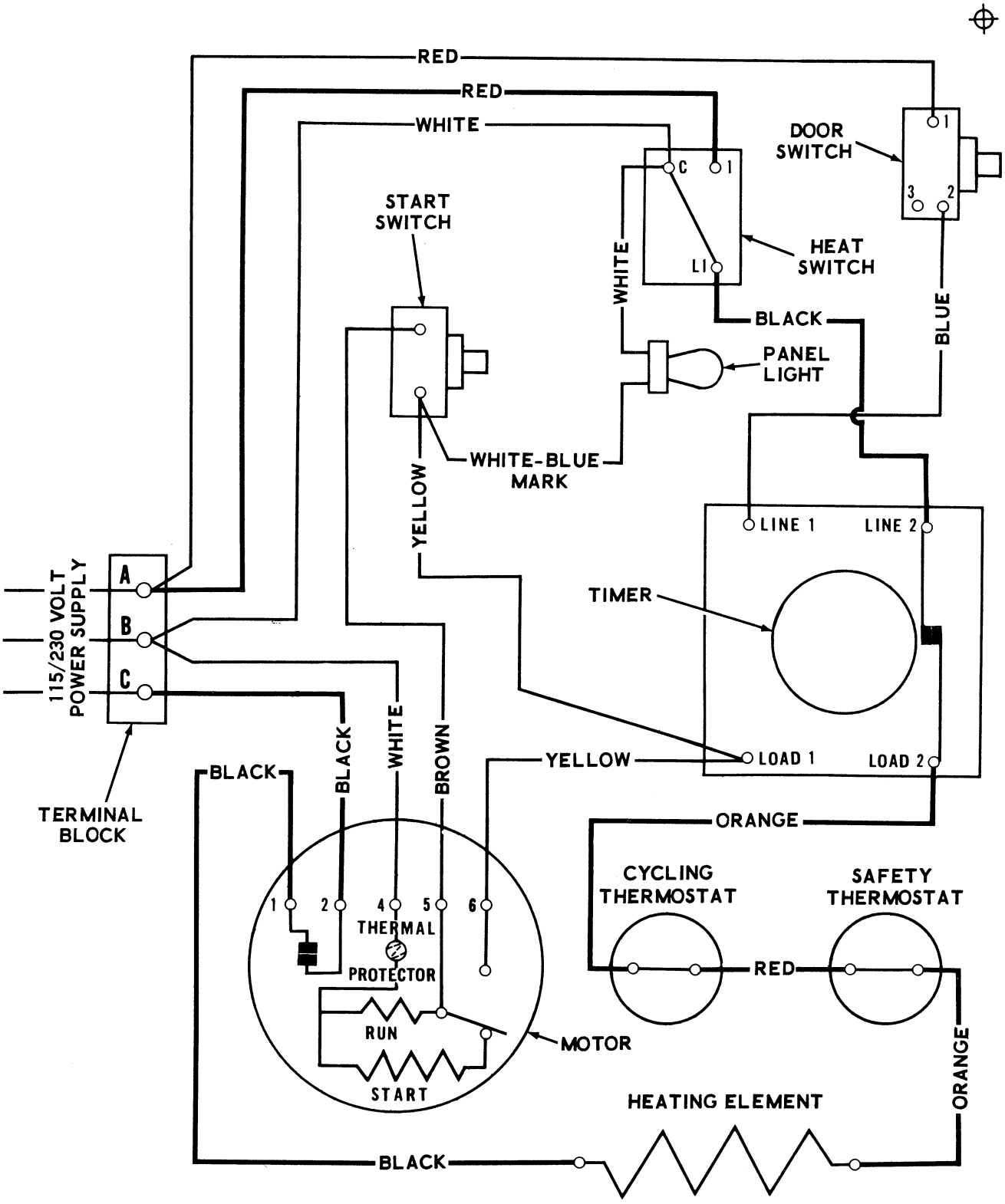
Control Panel Light Circuit

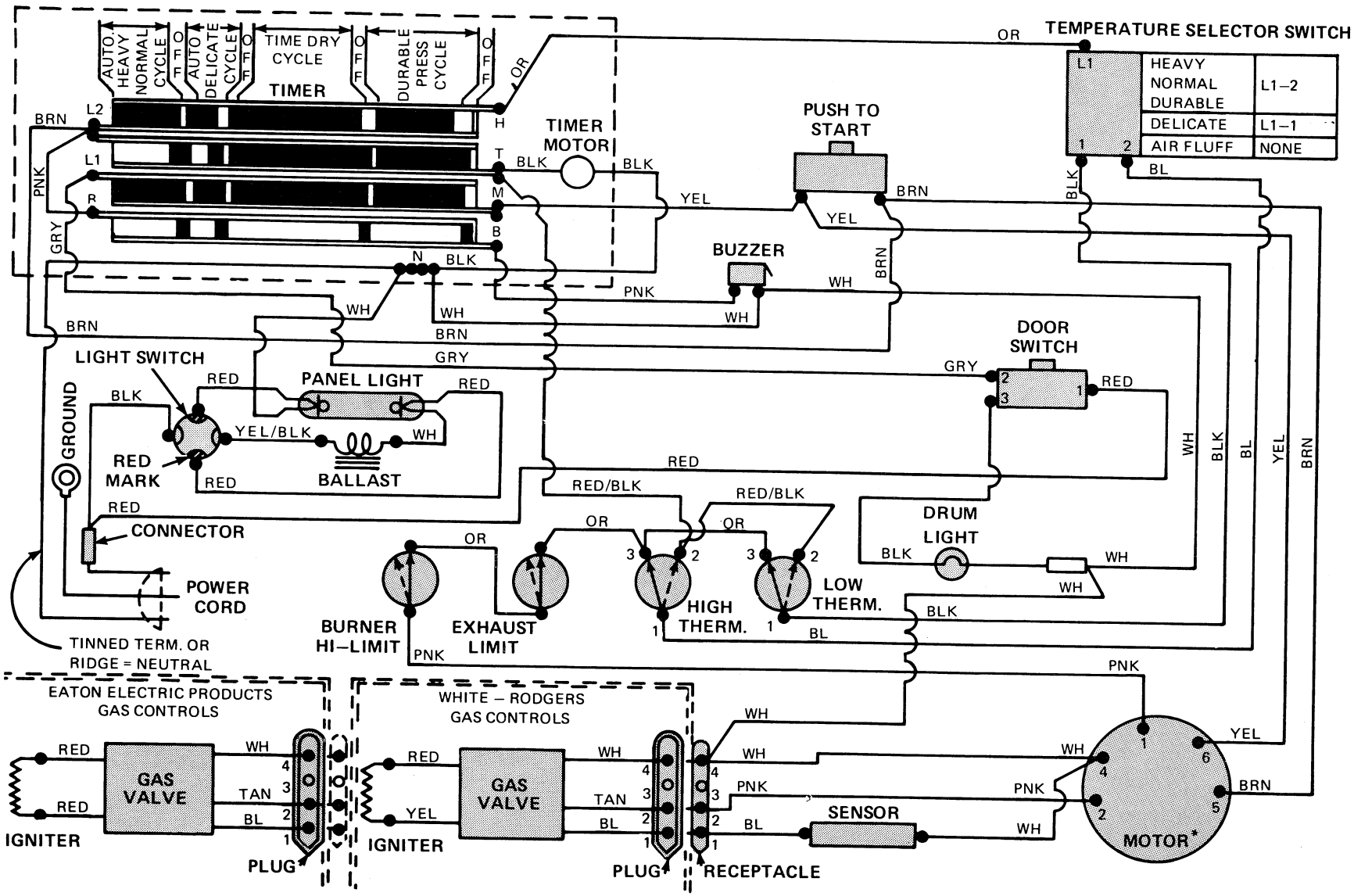


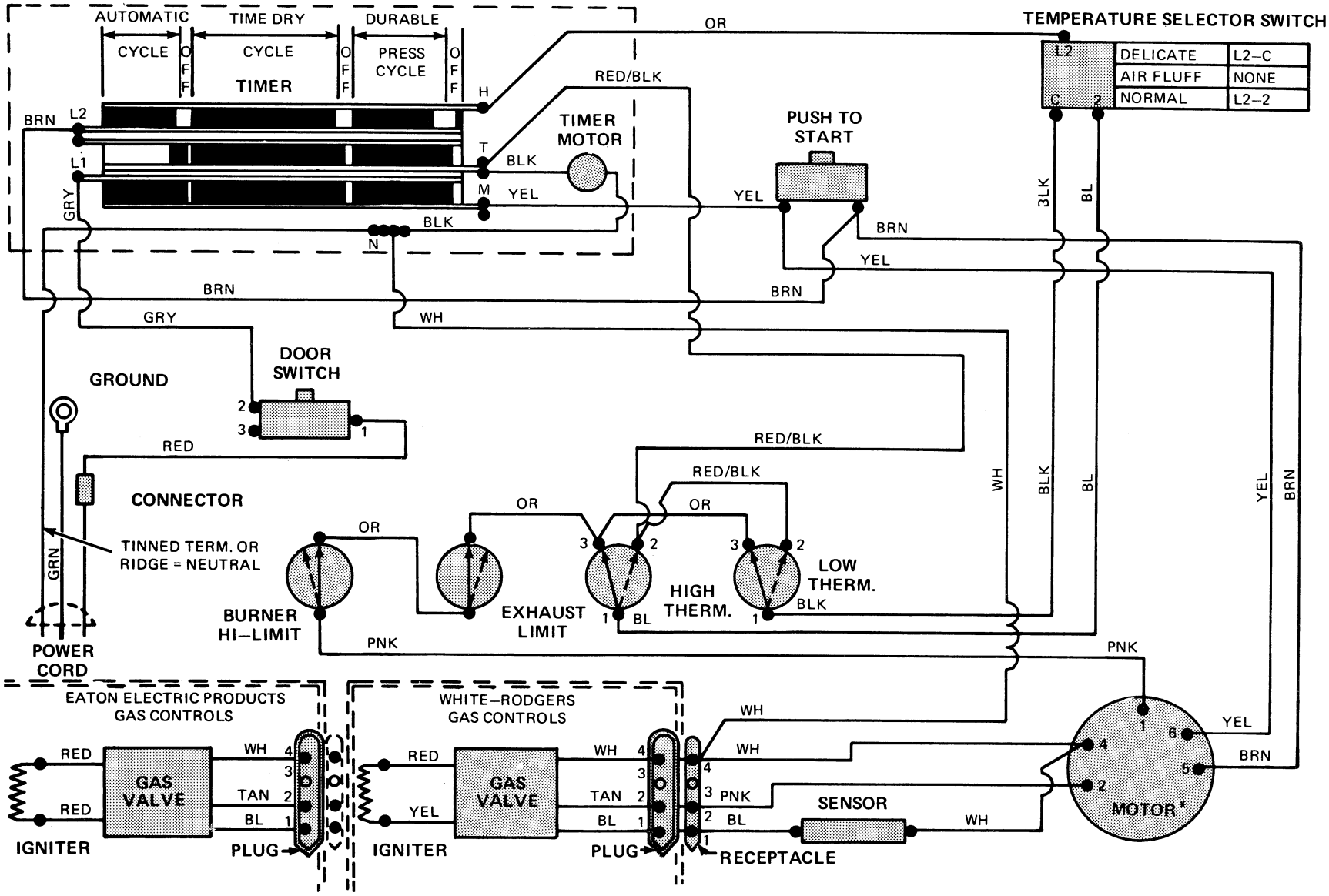
Hi Heat Circuit

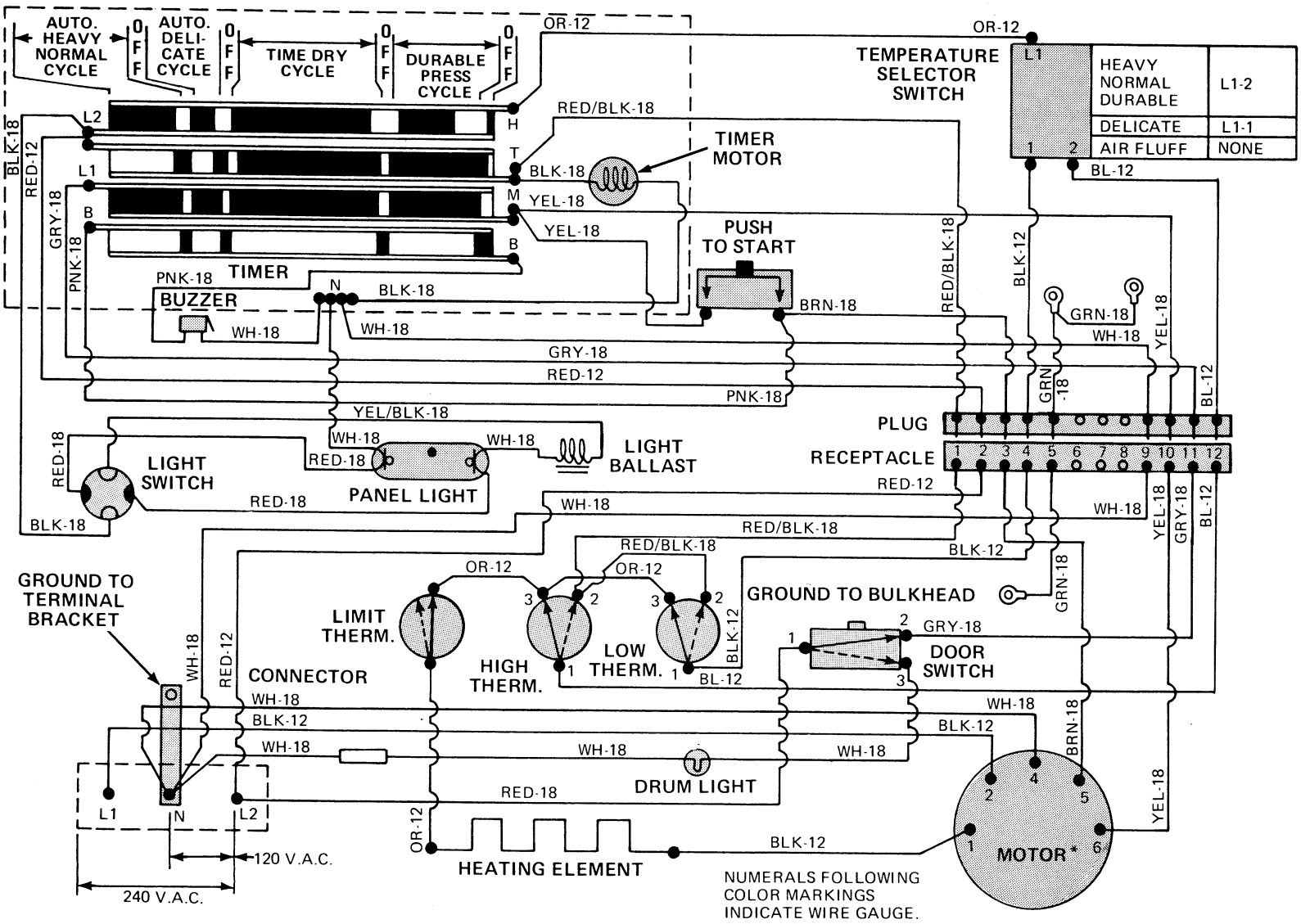


Low Heat Circuit




TEMPERATURE SELECTOR SWITCH
L1
HEAVY
NORMAL
DURABLE
L1–2
DELICATE
L1–1
AIR FLUFF
NONE
1
2
TIMER
AUTO HEAVY NORMAL CYCLE
AUTO DELICATE CYCLE
TIME DRY CYCLE
DURABLE PRESS CYCLE
OFF
TIMER MOTOR
PUSH TO START
BUZZER
DOOR SWITCH
LIGHT SWITCH
PANEL LIGHT
RED MARK
BALLAST
GROUND
CONNECTOR
POWER CORD
TINNED TERM. OR RIDGE = NEUTRAL
DRUM LIGHT
BURNER HI–LIMIT
EXHAUST LIMIT
HIGH THERM.
LOW THERM.
EATON ELECTRIC PRODUCTS GAS CONTROLS
WHITE – RODGERS GAS CONTROLS
GAS VALVE
IGNITER
PLUG
RECEPTACLE
SENSOR
MOTOR*
L2
L1
BRN
PNK
GRY
BLK
WH
RED
YEL
BL
TAN
OR
RED/BLK
YEL/BLK


AUTOMATIC CYCLE
TIME DRY CYCLE
DURABLE PRESS CYCLE
OFF
TIMER
H
T
M
N
L1
L2
BRN
GRY
BLK
YEL
RED/BLK
OR
TIMER MOTOR
PUSH TO START
TEMPERATURE SELECTOR SWITCH
DELICATE L2-C
AIR FLUFF NONE
NORMAL L2-2
GROUND
DOOR SWITCH
RED
WH
BL
CONNECTOR
TINNED TERM. OR RIDGE = NEUTRAL
GRN
POWER CORD
BURNER HI-LIMIT
EXHAUST LIMIT
HIGH THERM.
LOW THERM.
PNK
EATON ELECTRIC PRODUCTS GAS CONTROLS
WHITE-RODGERS GAS CONTROLS
GAS VALVE
IGNITER
PLUG
TAN
SENSOR
RECEPTACLE
MOTOR*


AUTO. HEAVY NORMAL CYCLE
OFF
AUTO. DELI-CATE CYCLE
OFF
TIME DRY CYCLE
OFF
DURABLE PRESS CYCLE
OFF
TIMER
L2
L1
B
H
T
M
B
N
OR-12
RED/BLK-18
BLK-18
YEL-18
YEL-18
TIMER MOTOR
TEMPERATURE SELECTOR SWITCH
L1
HEAVY NORMAL DURABLE
L1-2
DELICATE
L1-1
AIR FLUFF
NONE
1
2
BL-12
PUSH TO START
BRN-18
RED/BLK-18
BLK-12
GRN-18
WH-18
YEL-18
BL-12
GRN-18
PNK-18
BUZZER
WH-18
WH-18
GRY-18
RED-12
PNK-18
YEL/BLK-18
PLUG
RECEPTACLE
1 2 3 4 5 6 7 8 9 10 11 12
RED-18
LIGHT SWITCH
BLK-18
WH-18
RED-18
WH-18
PANEL LIGHT
LIGHT BALLAST
RED-12
WH-18
YEL-18
GRY-18
BL-12
RED-18
RED/BLK-18
BLK-12
GRN-18
GROUND TO TERMINAL BRACKET
OR-12
OR-12
LIMIT THERM.
HIGH THERM.
LOW THERM.
GROUND TO BULKHEAD
DOOR SWITCH
GRY-18
BL-12
WH-18
RED-12
CONNECTOR
WH-18
BLK-12
WH-18
WH-18
WH-18
BLK-12
BRN-18
DRUM LIGHT
RED-18
YEL-18
L1
N
L2
120 V.A.C.
240 V.A.C.
OR-12
HEATING ELEMENT
BLK-12
MOTOR*
NUMERALS FOLLOWING COLOR MARKINGS INDICATE WIRE GAUGE.

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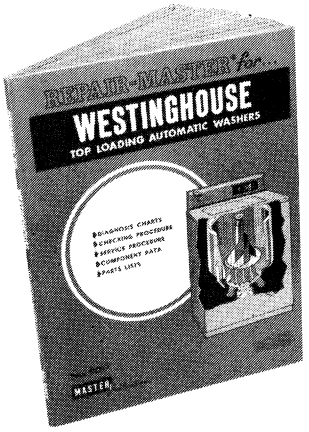
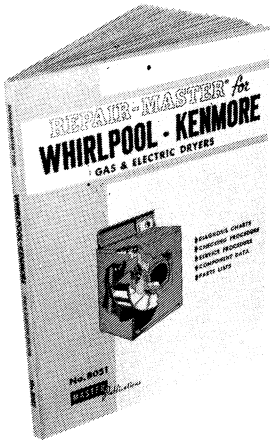
NOTES

NOTES

MASTER Publications

APPLIANCE REPAIR MANUALS





REPAIR-MASTER®
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5555 D & M
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5557 Frigidaire

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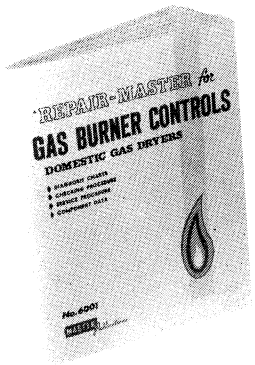

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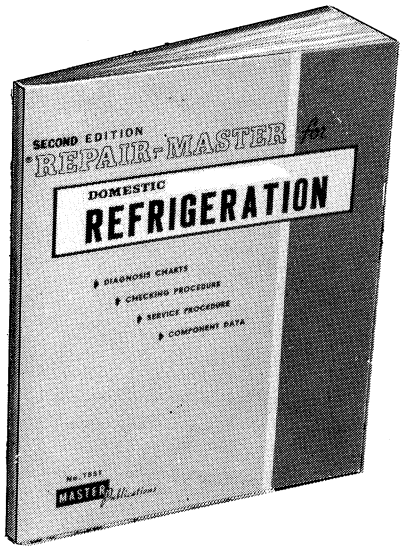

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* REFRIGERATION BY HEAT
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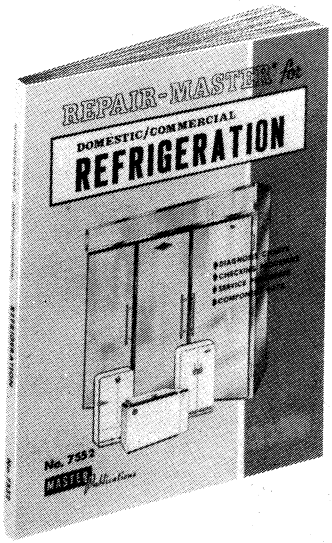
AND MUCH MORE IS INCLUDED IN THIS REPAIR MASTER



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A

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and

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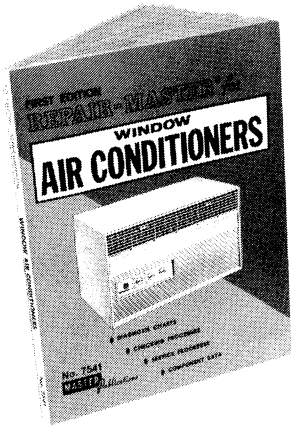

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* TEST CORD TESTING
* PROCEDURES
* STEP-BY-STEP REPAIR
* SHOP PROCEDURES

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* STEP-BY-STEP REPAIRS

7531

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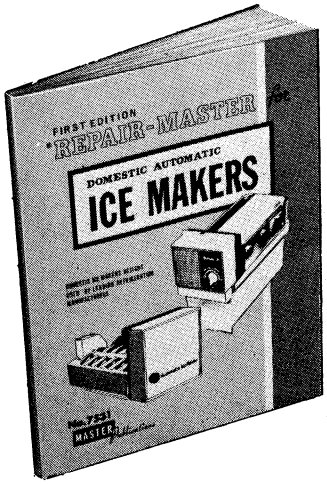

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