



**AD-15 thru AD-75**  
**OPL Service Manual**  
Microprocessor Controls (Phase 4)  
and  
Dual Timers/Single Timers  
*for models mfd. as of February 1992*

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## Retain This Manual In A Safe Place For Future Reference

American Dryer Corporation products embody advanced concepts in engineering, design, and safety. If this product is properly maintained, it will provide many years of safe, efficient, and trouble-free operation.

*ONLY properly licensed technicians should service this equipment.*

**OBSERVE ALL SAFETY PRECAUTIONS** displayed on the equipment or specified in the installation/operator's manual included with the dryer.

**WARNING: UNDER NO CIRCUMSTANCES should the door switch or the heat circuit devices ever be disabled.**

**WARNING: The dryer *must never* be operated with any of the back guards, outer tops, or service panels removed. PERSONAL INJURY or FIRE COULD RESULT.**

We have tried to make this manual as complete as possible and hope you will find it useful. ADC reserves the right to make changes from time to time, without notice or obligation, in prices, specifications, colors, and material, and to change or discontinue models.

### Important

For your convenience, log the following information:

DATE OF PURCHASE \_\_\_\_\_ MODEL NO. \_\_\_\_\_

DISTRIBUTORS NAME \_\_\_\_\_

Serial Number(s) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Replacement parts can be obtained from your distributor or the ADC factory. When ordering replacement parts from the factory, you can FAX your order to ADC at (508) 678-9447 or telephone your orders directly to the ADC Parts Department at (508) 678-9000. Please specify the dryer **model number** and **serial number** in addition to the **description** and **part number**, so that your order is processed accurately and promptly.

The illustrations on the following pages may not depict your particular dryer exactly. The illustrations are a composite of the various dryer models. Be sure to check the descriptions of the parts thoroughly before ordering.

#### **“IMPORTANT NOTE TO PURCHASER”**

Information must be obtained from your local gas supplier on the instructions to be followed if the user smells gas. These instructions must be posted in a prominent location near the dryer.

## **IMPORTANT**

**YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY or THE STEAM SUPPLY BEFORE ANY COVERS or GUARDS ARE REMOVED FROM THE MACHINE TO ALLOW ACCESS FOR CLEANING, ADJUSTING, INSTALLATION, or TESTING OF ANY EQUIPMENT per OSHA (Occupational Safety and Health Administration) STANDARDS.**

## **FOR YOUR SAFETY**

**DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPOR AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.**

**DO NOT DRY MOP HEADS IN THE DRYER.**

**DO NOT USE DRYER IN THE PRESENCE OF DRY CLEANING FUMES.**

## **WARNING**

**CHILDREN SHOULD NOT BE ALLOWED TO PLAY ON OR IN THE DRYER(S).**

**CHILDREN SHOULD BE SUPERVISED IF NEAR DRYER(S) IN OPERATION.**

## **CAUTION**

**DRYER(S) SHOULD NEVER BE LEFT UNATTENDED WHILE IN OPERATION.**

## **IMPORTANT**

**PLEASE OBSERVE ALL SAFETY PRECAUTIONS displayed on the equipment and/or specified in the installation/operator's manual included with the dryer.**

**Dryer(s) must not be installed or stored in an area where it will be exposed to water and/or weather.**

**The wiring diagram for the dryer is located in the front electrical control box area.**

# Table Of Contents

## SECTION I

|                                    |          |
|------------------------------------|----------|
| <b>IMPORTANT INFORMATION</b> ..... | <b>4</b> |
| A. Safety Precautions .....        | 4        |

## SECTION II

|                          |          |
|--------------------------|----------|
| <b>MAINTENANCE</b> ..... | <b>6</b> |
| A. Cleaning .....        | 6        |
| B. Adjustments .....     | 7        |
| C. Lubrication .....     | 7        |

## SECTION III

|  |          |
|--|----------|
| <b>INSTALLATION REQUIREMENTS</b> .....                   | <b>8</b> |
| A. Enclosure, Air Supply, and Exhaust Requirements ..... | 8        |
| B. Electrical and Gas Requirements .....                 | 9        |
| C. Operational Service Check Procedure .....             | 9        |

## SECTION IV

|   |           |
|---|-----------|
| <b>DESCRIPTION OF PARTS</b> .....                           | <b>11</b> |
| A. Control Panel (Microprocessor) .....                     | 11        |
| B. Control Panel (Non-Microprocessor) .....                 | 11        |
| C. Control Box (Computer Controls) .....                    | 11        |
| D. Control Box (Non-Computer Controls) .....                | 12        |
| E. Main Door Switch .....                                   | 12        |
| F. Lint Coop .....  | 12        |
| G. Basket (Tumbler) .....                                   | 13        |
| H. Tumbler Bearing and Pulley Arrangement .....             | 13        |
| I. Idler Bearing .....                                      | 13        |
| J. Drive Motor and Blower Motor .....                       | 14        |
| K. Temperature Sensor (Computer Controls) .....             | 14        |
| L. Temperature Sensor (Non-Computer Controls) .....         | 15        |
| M. Gas Burner .....   | 15        |
| N. Air Operated Steam Damper System .....                   | 16        |
| O. Electro-Mechanical Steam Damper .....                    | 16        |
| P. Electric Oven .....                                      | 16        |
| Q. Sail Switch (Gas and Electric Models) .....              | 17        |
| R. Non-Reversing Contactor (3 $\phi$ Motor) .....           | 17        |
| S. Reversing Contactor (Microprocessor) .....               | 17        |
| T. Reversing Contactor (Dual Timer) .....                   | 18        |
| U. Hi-Limit Thermostat (Gas and Electric Models ONLY) ..... | 18        |

The American Dryer embodies advanced concepts in engineering, design and safety. If this product is properly maintained it will provide many years of safe, efficient, and trouble-free operation. **American Dryer Corporation** is concerned about the future use of this high-quality dryer and the safety of the user. Read this manual to familiarize yourself with the proper installation, operation, and service of your dryer. Note that safety, mechanical, and some general information in this manual is emphasized.

| **CAUTION or WARNING:** Identifies safety information.

| **IMPORTANT:** Identifies special mechanical information.

| **NOTE:** Identifies general information worthy of special attention.

For a more detailed installation procedure and for necessary installation specifications refer to the Coin Installation Manual. For a detailed introduction to the computer control system refer to the Coin User's Manual.

### **Retain this manual in a safe place for future reference.**

Specifications and installation requirements are included in this manual as a guide to assist in performance complaint diagnosis. As on other dryer models the importance of proper installation cannot be overemphasized as it relates to adequate make-up air and minimum exhaust duct restrictions. Pay particular attention to gas supply pipe sizing, as many of the drying performance complaints can be directly linked to gas supply pressure drops when more than one dryer is operating on an undersized supply line.

We have tried to make this manual as complete as possible and hope you will find it useful. However, since the time of printing some of the information contained here may have been updated. **ADC** reserves the right to make changes from time to time, without notice or obligation, in prices and specifications and to change or discontinue models.

# SECTION I

## IMPORTANT INFORMATION

### A. SAFETY PRECAUTIONS

**WARNING:** For your safety, the information in this manual **must be** followed to minimize the risk of fire or explosion or to prevent property damage, personal injury or loss of life.

**WARNING:** The dryer must never be operated with any of the back guards, outer tops, or service panels removed. **PERSONAL INJURY or FIRE COULD RESULT.**

1. **DO NOT** store or use gasoline or other flammable vapors and liquids in the vicinity of this or any appliance.
2. Purchaser/user should consult the local gas supplier for proper instructions to be followed in the event the user smells gas. The instructions **should be** posted in a prominent location.
3. Dryer(s) **must be** exhausted to the outdoors.
4. Although the American Dryer is a very versatile machine there are some articles that, due to fabric composition or cleaning method, **should not** be dried in it.

**WARNING:** Dry only water washed fabrics. **DO NOT** dry articles spotted or washed in dry cleaning solvents, a combustible detergent or "all purpose cleaners." **FIRE OR EXPLOSION COULD RESULT.**

**WARNING:** **DO NOT** dry rags or articles coated with gasoline, kerosene, paint, wax, oil, or grease. **FIRE OR EXPLOSION COULD RESULT.**

**WARNING:** **DO NOT** dry mopheads. Contamination by wax or flammable solvents will create a fire hazard.

**WARNING:** **DO NOT** use heat for drying articles that contain plastic, foam or sponge rubber, or similarly textured rubber like materials. Drying in a heated tumbler may damage plastics or rubber and also may be a fire hazard.

5. A program should be established for the inspection and cleaning of the lint in the burner area and exhaust duct work. The frequency of inspection and cleaning can best be determined from experience at each location.

**WARNING:** The collection of lint in the burner/oven area and exhaust duct work can create a potential fire hazard.

6. For personal safety, the dryer must be electrically grounded in accordance with local codes and or the National Electric Code ANSI/NFPA NO. 70-LATEST EDITION.

**NOTE:** Failure to do so will VOID THE WARRANTY.

7. UNDER NO CIRCUMSTANCES should the dryer door switch or heat safety circuit devices ever be disabled.

**WARNING: PERSONAL INJURY or FIRE COULD RESULT.**

8. THIS DRYER **IS NOT** TO BE USED IN THE PRESENCE OF DRY CLEANING SOLVENTS or FUMES.

9. Remove articles from the dryer as soon as the drying cycle has been completed.

**WARNING:** Articles left in the dryer after the drying and cooling cycles have been completed can create a fire hazard.

10. **DO NOT** operate steam dryers with more than 125 PSI steam pressure. Excessive steam pressure can damage the steam coil and/or harm personnel.

11. Replace leaking flexible steam hoses or other steam fixtures immediately. **DO NOT** operate the dryer with leaking flexible hoses. **PERSONAL INJURY MAY RESULT.**

12. **READ and FOLLOW ALL CAUTION and DIRECTION LABELS ATTACHED TO THE DRYER.**

**IMPORTANT: YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and the GAS SUPPLY or THE STEAM SUPPLY BEFORE ANY COVERS or GUARDS ARE REMOVED FROM THE MACHINE TO ALLOW ACCESS FOR CLEANING, ADJUSTING, INSTALLATION, or TESTING OF ANY EQUIPMENT per OSHA (Occupational Safety and Health Administration) STANDARDS.**

# SECTION II

## MAINTENANCE

### A. CLEANING

A program or schedule should be established for periodic inspection, cleaning and removal of lint from various areas of the dryer, as well as, throughout the duct work system. The frequency of cleaning can best be determined from experience at each location. Maximum operating efficiency is dependent upon proper air circulation. The accumulation of lint can restrict this air flow. If the guidelines in this section are met, an American Dryer will provide many years of efficient, trouble free, and most importantly, safe operation.

**WARNING:** Lint from most fabrics is highly combustible. The accumulation of lint can create a potential fire hazard.

#### *DAILY (beginning of each work shift)*

Clean lint from the lint screen. Inspect lint screen and replace if torn.

#### *90 DAYS*

Remove lint accumulation from lint chamber thermostats and sensors.

**WARNING:** To avoid the hazard of electrical shock, discontinue electrical supply to dryer.

Remove lint from the motor air vents and surrounding area.

**IMPORTANT:** Lint accumulation will restrict internal motor air flow, causing overheating and irreparable motor damage. Motor failure due to lint accumulation will VOID THE WARRANTY.

#### *120 DAYS*

##### *GAS and ELECTRIC DRYERS*

Remove lint from the burner area with a dusting brush or vacuum cleaner attachment.

##### *STEAM DRYERS*

Clean steam coil fins. Proper cleaning of the steam coils is necessary to prevent lint build-up between the fins. When cleaning the coil, be extremely careful not to bend the aluminum fins, which will also reduce airflow. If the fins are bent, straighten them by using a comb. Fin combs are available from local air conditioning supply houses. Regular cleaning will prevent lint build-up and blockage of the coil.



## **6 MONTHS**

Inspect and remove lint accumulation in the customer furnished exhaust duct work system. Inspect exhaust back draft dampers to insure they are not binding. Inspect and remove **ALL** lint accumulation in and around the control box area including coin acceptors. Clean lint accumulation from around basket (tumbler) wrapper area.

## **AS REQUIRED**

In the cleaning and care of dryer cabinet(s), avoid using harsh abrasives. A product intended for the cleaning of appliances is recommended.

## **B. ADJUSTMENTS**

### **6 MONTHS**

Motor and drive belts should be examined. Cracked or seriously frayed belts **should be** replaced. Tighten loose belts when necessary, and check belt alignment.

**| NOTE: V-Belts should be replaced in matched pairs.**

Complete operational check of controls and valves.

Complete operational check of **ALL** safety devices (door switches, sail switch, burner, and lint chamber thermostats).

### **12 MONTHS**

Inspect bolts, nuts, screws, non permanent gas connections, (unions, orifices, etc.) electrical terminals, and grounding connections.

## **C. LUBRICATION**

The motor bearings, idler bearings and tumbler bearings are permanently lubricated. **NO LUBRICATION IS NECESSARY.**

# SECTION III

## INSTALLATION REQUIREMENTS

Installation **should be** performed by competent technicians in accordance with local and state codes. In the absence of these codes, the installation **must conform** to applicable American and National Standards.

NATIONAL FUEL GAS CODE ANSI Z223.1-LATEST EDITION  
or  
NATIONAL ELECTRIC CODE ANSI/NFPA NO. 70-LATEST EDITION

### A. ENCLOSURE, AIR SUPPLY, and EXHAUST REQUIREMENTS

**NOTE:** The following information is very brief and general. For a detailed description refer to the Installation Booklet for OPL machines.

Bulkheads and partitions around the dryer **should be** made of non-combustible materials. Allowances **should be** made for the opening and closing of the control door and lint door. Also, allowances **should be** made in the rear for ease of maintenance. (Refer to the Installation Manual for recommended distances and minimum allowances required.)

When the dryer is operating, it draws in room air, heats it, passes this air through the tumbler, and exhausts it out the building. Therefore, the room air **must be** continually replenished from the outdoors. If the make up air is inadequate, drying time and drying efficiency will be adversely affected. Ignition problems and sail switch "fluttering" problems on gas dryers may result, and you also could have premature motor failure from overheating. On electric dryers, premature electric element failure may result. Air supply **must be** given careful consideration to insure proper performance of each dryer.

**IMPORTANT:** Make up air **must be** provided from a source free of dry cleaning fumes. Make up air that is contaminated by dry cleaning fumes will result in irreparable damage to motors and other dryer components.

Exhaust duct work **should be** designed and installed by a competent technician. Improperly sized duct work will create excessive back pressure, which will result in slow drying, increased use of energy, and shut down of the burner by the air flow (sail) switch. (Refer to the Installation Manual for more detail.)

**CAUTION: IMPROPERLY SIZED, INSTALLED, or MAINTAINED (cleaned) EXHAUST DUCT WORK CAN CREATE A POTENTIAL FIRE HAZARD.**

## B. ELECTRICAL and GAS REQUIREMENTS

It is your responsibility to have **ALL** electrical connections made by a properly licensed and competent electrician to assure that the electrical installation is adequate and conforms with local and state regulations or codes. In the absence of such codes, **ALL** electrical connections, material, and workmanship **must conform** to the applicable requirements of the National Electric Code ANSI/NFPA NO. 79-LATEST EDITION.

**IMPORTANT:** Failure to comply with these codes or ordinances, and or the requirements stipulated in this manual, can result in personal injury or component failure.

The gas dryer installation **must meet** the American National Standard and National Fuel Gas Code ANSI Z223.1-LATEST EDITION, as well as, local codes and ordinances and **must be done** by a qualified technician.

**NOTE:** Undersized gas piping will result in ignition problems and slow drying and can create a safety hazard.

The dryer **must be** connected to the type of gas (natural or L.P.) indicated on the dryer data label. If this information does not agree with the type of gas available, contact the distributor who sold the dryer or contact the factory.

The gas input ratings shown on the dryer data label are for elevations up to 2,000 feet, unless elevation requirements of over 2,000 feet were specified at the time the dryer order was placed with the factory. The adjustment for dryers in the field for elevations over 2,000 feet are made by changing the burner orifices. If this adjustment is necessary, contact the distributor who sold the dryer or contact the factory.

**NOTE:** Any burner changes **must be** made by a qualified technician.

## C. OPERATIONAL SERVICE CHECK PROCEDURE

After performing any service or maintenance function, an operational check **should be** performed to insure that **ALL** components are performing properly.

1. Make a complete operational check of **ALL** the operating controls to assure that the timing is correct and temperature selection switches are functioning, etc.
2. Make a complete operational check of **ALL** safety related circuits, door switch (s), hi-limit thermostat, sail switch, cycling thermostats, etc.
3. On gas models, gas pressure test **should be** taken at the gas valve pressure tap of each dryer to assure that the water column pressure is correct and consistent.

**NOTE:** Water column pressure requirements: (measured at the pressure tap on the gas valve body.)

Natural Gas --- 3.5 to 4 inches W.C.

L.P. Gas ----- 10.5 to 11 inches W.C.

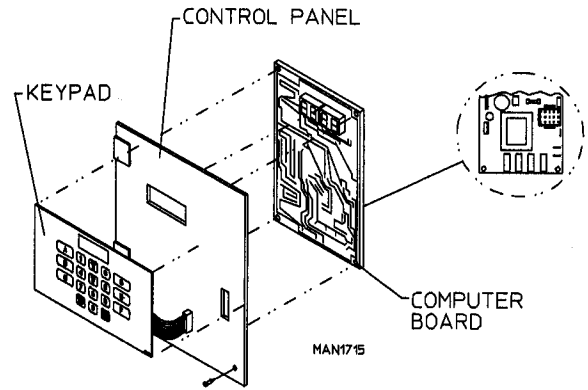
4. The dryer should be operated through one (1) complete cycle to assure that no future adjustments are necessary and that **ALL** components are functioning properly.
5. For 3-phase (3 $\emptyset$ ) motor models; check the electric service phase sequence while the dryer is operating. Check to see if the blower wheel (impellor/fan) is rotating in the proper direction. Looking from the front of the dryer, the blower wheel (impellor/fan) should rotate in the clockwise (CW) direction. If so, the phasing is correct. If the phasing is incorrect, reverse two (2) leads at connections L1, L2, or L3 of power supply to the dryer.

# SECTION IV

## DESCRIPTION OF PARTS

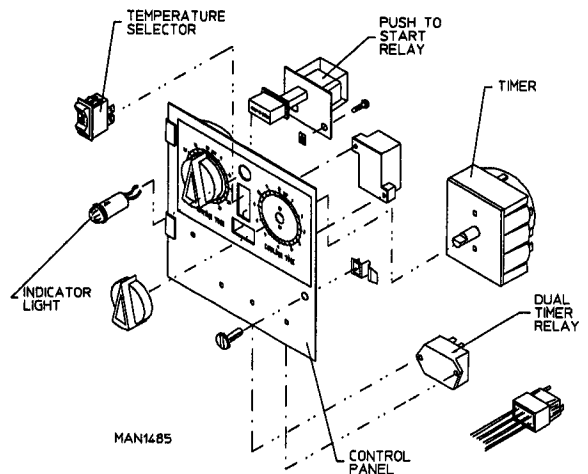
### A. Control Panel (Microprocessor)

Lifting the control door will reveal the control panel assembly. Opening the control panel will allow access to the major components which include the micro-processor (computer) board, and keypad (touchpad). The keypad (touchpad) inputs to the computer what temperature and program has been selected. The micro-processor (computer) controls the entire operation of the machine. It accepts inputs and gives outputs to various parts throughout the machine.



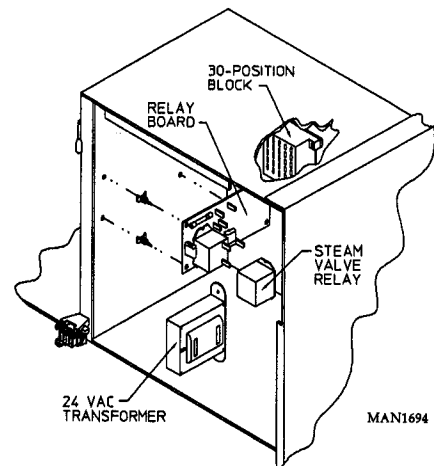
### B. Control Panel (Non-Microprocessor)

On models without microprocessors (computers), a timer is used to set a specific time. Most non-micro-processor machines are built with dual timers; a 60-minute dry timer and a 15-minute cool down timer. The temperature selector switch selects the "Hi," "Perm Press", or "Lo Temp." The "Push to Start" relay activates the machine which starts the drying cycle.



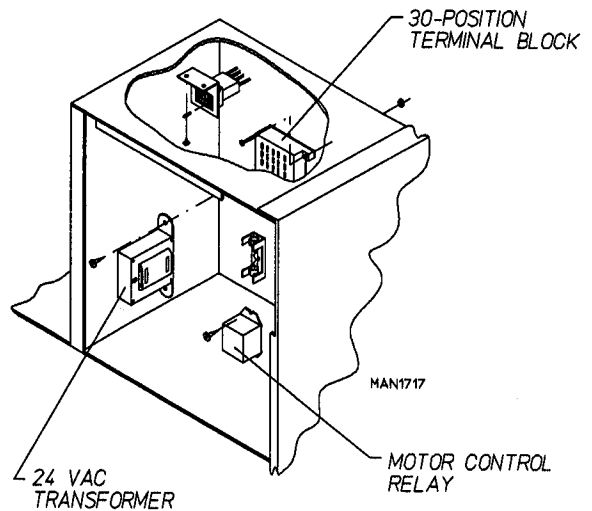
### C. Control Box (Computer Controls)

The computer (microprocessor) control box is made up of a relay board, 24 VAC transformer, and a 30-position terminal block. The fuse(s) on the relay board protect the incoming voltage from shorting. The transformer is used to break down the incoming voltage to 24 VAC for the Direct Spark Ignition (DSI) controls of the machine. The 30-position terminal block is used to combine the various common wires throughout the machine for simplicity and ease of service.



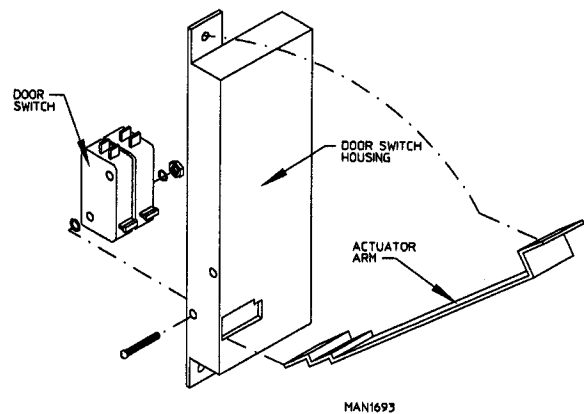
## D. Control Box (Non-Computer Control)

The non-computer (non-microprocessor) control box is made up of a 30-position terminal block, fuse(s), a 24 VAC transformer, motor control relay, and if a steam model a steam valve relay. Depending on which model, the transformer may be mounted in a different place. The fuse(s) are to protect certain circuits throughout the machine. The 30-position terminal block is used to combine the various common wires throughout the machine for simplicity and ease of service. The motor relay transfers the voltage to the motor.



## E. Main Door Switch

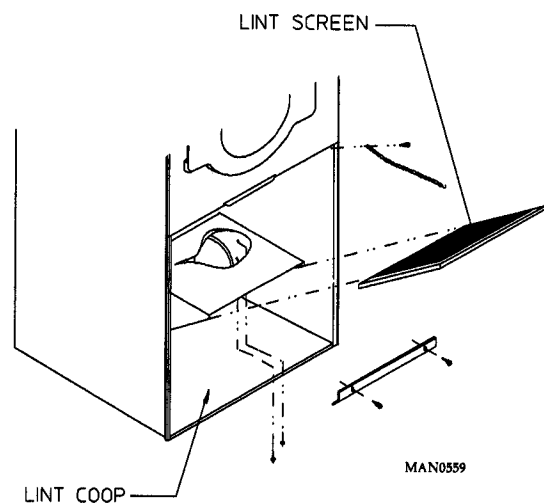
The main door switch is located behind the main door on the right hand side. When the main door is opened, the switch will also open preventing the dryer from operating. **THE MAIN DOOR SWITCH IS A SAFETY DEVICE AND SHOULD NEVER BE DISABLED.**



## F. Lint Coop

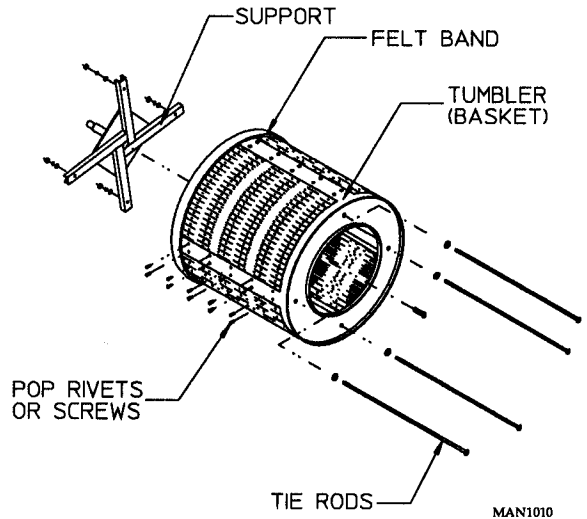
The lint coop is located in the bottom portion of the dryer behind the lint door. Inside the lint coop is the lint screen which prevents lint from entering the exhaust system. The lint screen **should be kept clean at ALL times**. The lint screens **should be cleaned on a daily basis**. Lint screens with tears or holes **should be replaced immediately**.

**AD-15 and AD-25 models have two (2) lint screens.**



## G. Basket (Tumbler)

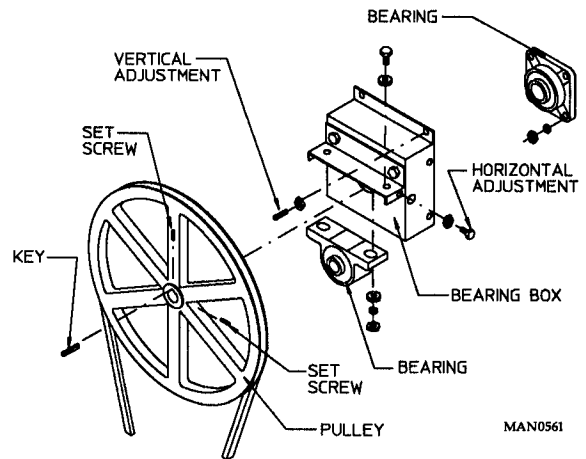
The basket (tumbler) consists of three or four ribs and a perforated basket along with a front and back which are riveted or screwed together as an assembly. The basket (tumbler) also consists of tie rods which support the basket from front to back. The basket (tumbler) support is used to mate the basket (tumbler) to the drive system in the rear. Some models also have a felt band which helps to keep lint from accumulating behind the basket (tumbler).



## H. Tumbler Bearing and Pulley Arrangement

The tumbler bearing and the pulley arrangement is located (viewing from the rear of the dryer) approximately at the upper center of the dryer. The arrangement consists of a pulley, bearing box, and bearings which serve to adjust, drive, and support the tumbler (basket). The AD-15 and AD-25 models have a different bearing than illustrated but serve the same purpose. The bearing box has various nuts and bolts that are made to adjust the basket (tumbler) vertically and horizontally.

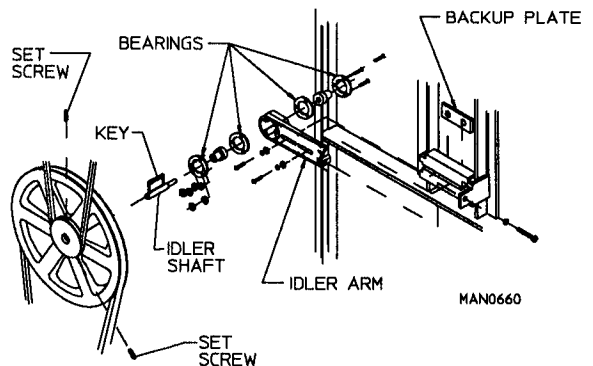
**Reversing models use an 18 -3/4" pulley with a taperlock hub.**



## I. Idler Bearing

The idler assembly (viewing from the rear of the dryer) is located approximately on the lower left hand side of the dryer. The idler assembly consists of one (1) compound pulley. The idler's main purpose is to reduce the speed and increase torque provided to the tumbler bearing. Also, the idler assembly belt tension can be adjusted.

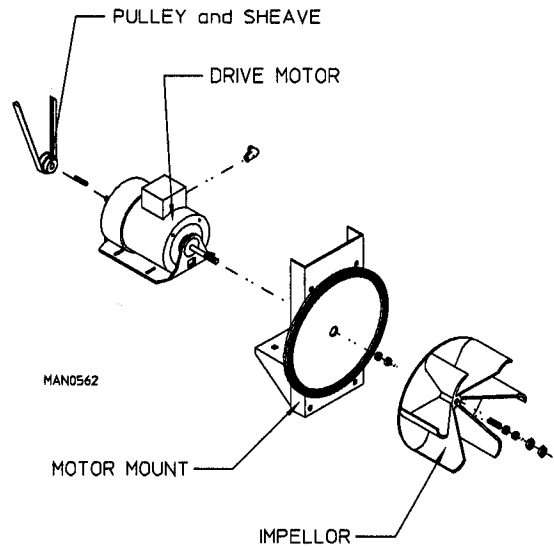
**AD-15 thru AD-30 models require a 9" x 2-1/2" pulley.  
AD-50 thru AD-75 models require a 14" x 3" pulley.**



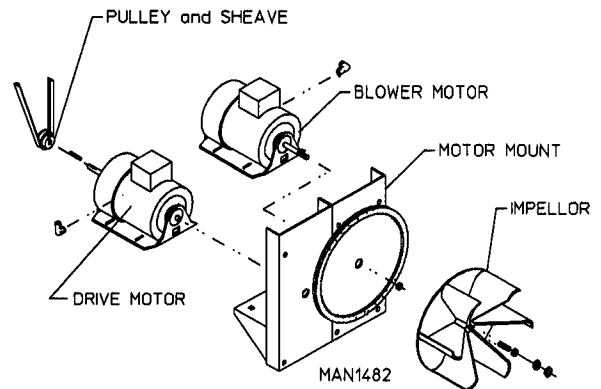
## I. Drive Motor and Blower Motor

The drive motor is located on the back, approximately lower center of the dryer. It sits on an adjustable base so that the motor can be easily adjusted to the left or right, up or down. On non-reversing dryers the blower end of the motor is connected to the impellor, a backward curved paddlewheel. The impellor provides air flow in the dryer. It creates a vacuum which pulls the hot air from the burner into the basket (tumbler) through the lint screen and out the exhaust. On reversing dryers there are two motors, one for the drive and one for the blower.

### Non-Reversing Models



### Reversing Models

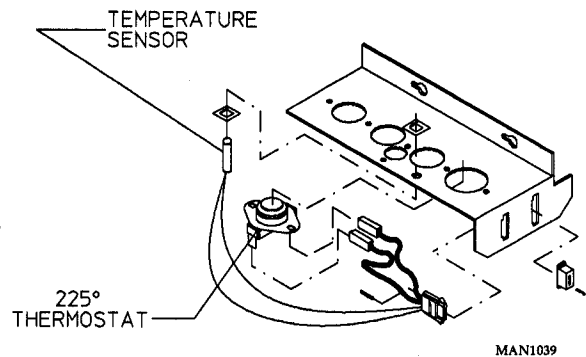


## K. Temperature Sensor (Computer Controls)

The temperature sensor used is a transducer that converts heat into microamps that the computer board then uses to calculate the temperature.

The 225° thermostat is a safety device that is designed to shut off the gas supply if the temperature in the basket (tumbler) reaches 225° or more.

### Microprocessor Sensor Bracket Assembly



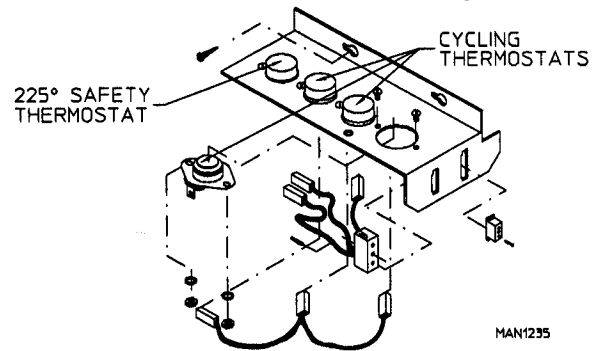


## L. Temperature Sensors (Non-Computer Controls)

The non-computer (non-microprocessor) machines use thermostats located on the bracket under the basket (tumbler). These thermostats shut the heat off at their rated temperature.

The 225° safety thermostat is designed to shut off the gas supply if the temperature in the basket (tumbler) reaches 225° or more.

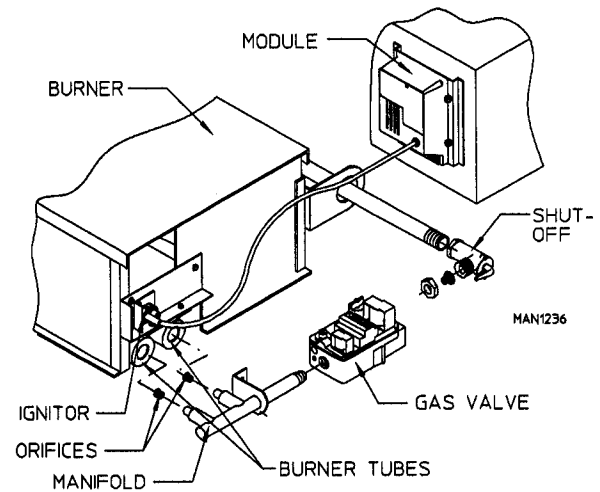
### Non-Microprocessor Sensor Bracket Assembly



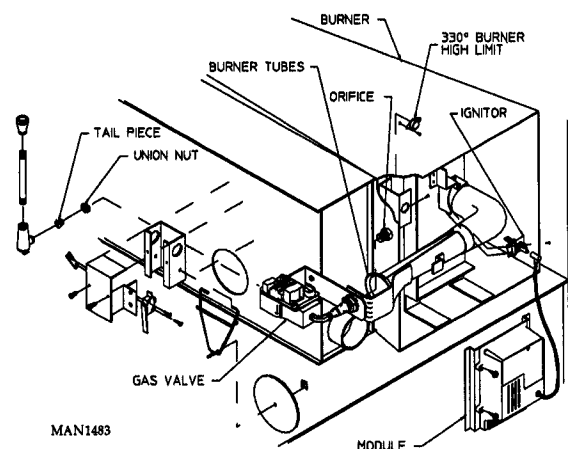
For Dryer Models  
ADG-15, ADG-25, ADG-30, ADG/UDG-50

## M. Gas Burner

Gas heated dryers are equipped with a gas burner located behind the control door. The gas burner assembly consists of the burner tubes, orifices (the orifices have a hole in them to allow gas to flow through...the hole size varies with different elevations, and different BTU's), gas valve (which can be set up for natural gas or L.P. [liquid propane] gas), a spark ignitor/flame probe assembly, sail switch, and a hi-limit thermostat. Gas burners will vary from model to model in size, shape and relative location. Some models are equipped with heat reclaimer systems in which some of the exhaust air is recovered and introduced back into the drying process.

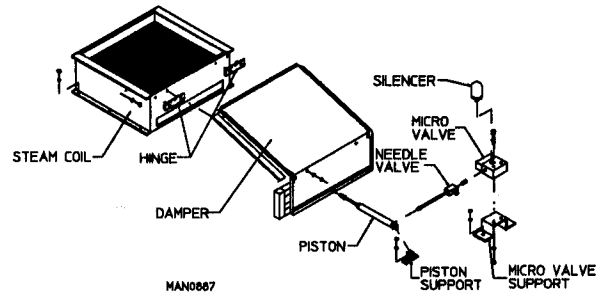


For Dryer Model ADG-75 ONLY



## N. Air Operated Steam Damper System

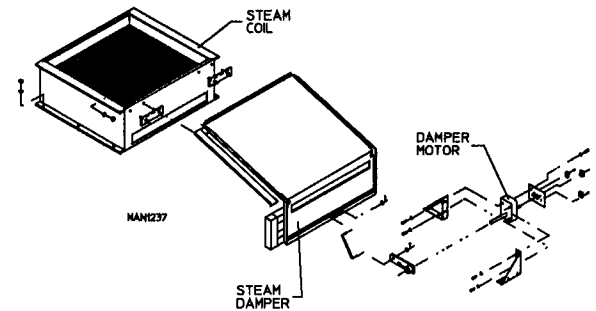
The newest type system is called the air operated steam damper system. It uses compressed air to open and close the steam damper. This system requires a clean, dry, regulated 80 PSI (+/-10 PSI) air supply.



## O. Electro-Mechanical Steam Damper

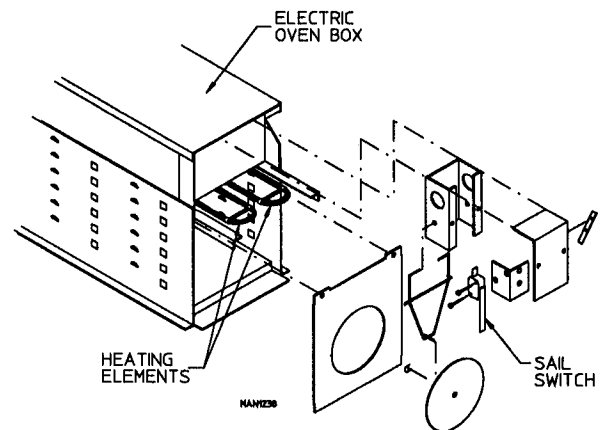
(Available on Dryer Models ADS-15, ADS-25, ADS-30, ADS-50, and UDS-50 ONLY)

The electro-mechanical steam damper system is available for the customer who cannot supply 80 PSI of air to the machine. The damper is driven by a mechanical motor instead of air. The motor opens and closes the damper upon the signal from the computer (microprocessor) or the timers.



## P. Electric Oven

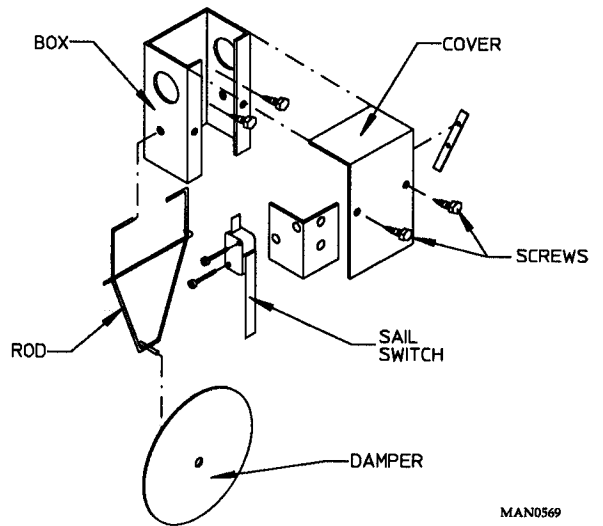
Electric dryers are equipped with an electric oven located behind the control door. The electric oven assembly consists of the electric oven box, contactor, and heating elements. In an electric oven the elements heat the passing air flow entering the basket (tumbler). **ALL** ovens have Kw (kilowatt) ratings. This is the rating of how much heat the oven can produce. The higher the rating the more heat.



ELECTRIC OVEN (FRONT VIEW)

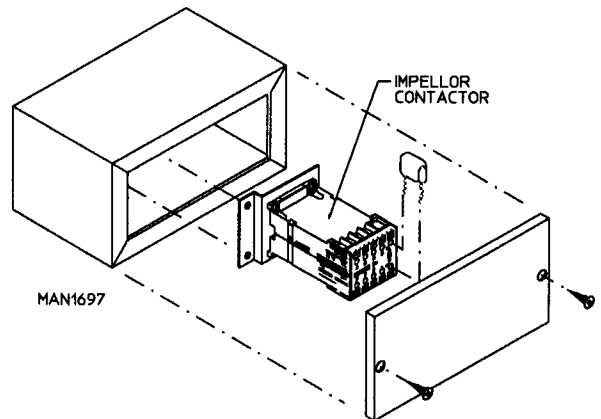
## Q. Sail Switch (Electric and Gas Models)

The sail switch consists of a round damper plate on a lever arm which acts like an actuator for a micro-switch. When the air blower comes on, it draws air through the burner. This creates a negative pressure inside the burner box, and this negative pressure pulls in the round damper which activates the sail switch. If there is improper air flow, the damper will not pull in, preventing the burner from coming on. Improper air flow can be caused by improperly designed exhaust ducting, where the duct run is too long or has too many sharp bends in it. It can also be caused by a lack of make up air. The sail switch is located in front of the oven on electric machines and in the back of the burner on gas models.



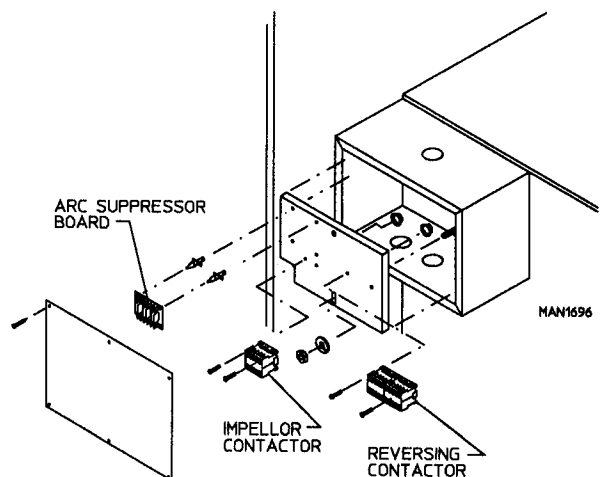
## R. Non-Reversing Contactor (3Ø Motor)

The non-reversing contactor is used on 3-phase (3Ø) non-reversing dryers and is located on the upper left hand side of the dryer (when viewed from the rear). Its purpose is to transfer the higher voltage to the motor when the contactor coil voltage has been achieved.



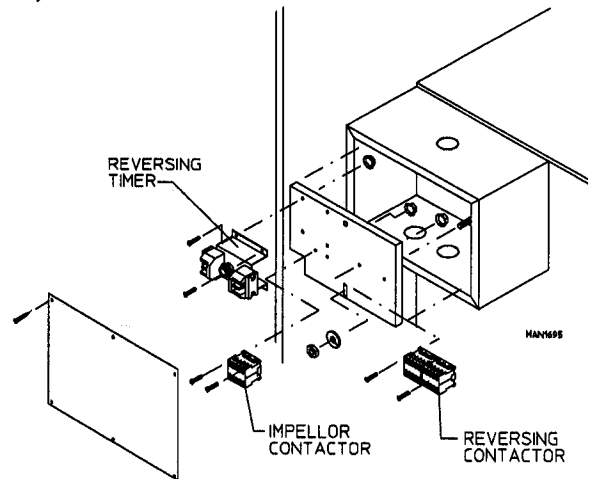
## S. Reversing Contactor Panel (Microprocessor)

This panel is located in the rear of the dryer. Its main function is to react on the control voltage that is being supplied from the microprocessor (computer), then transfer the higher voltage down to the motors.



## T. Reversing Contactor Panel (Dual Timer)

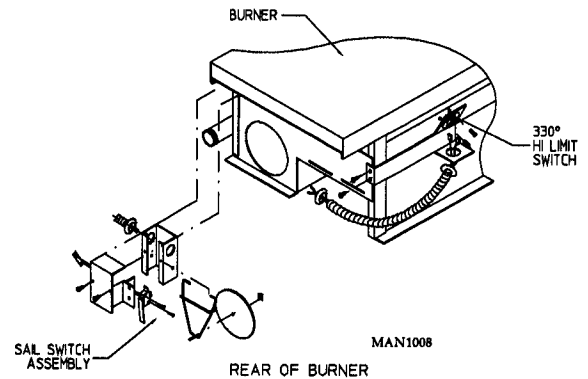
The timer reversing panel is basically the same as the microprocessor (computer) version. This panel will have a reversing timer on it. This timer can be adjusted to control the spin and stop time of the basket (tumbler).



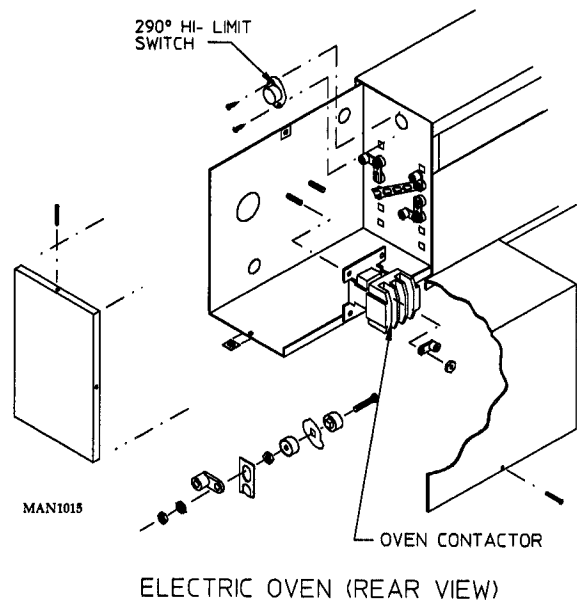
## U. Hi-Limit Thermostat (Gas and Electric Models ONLY)

The hi-limit thermostat is another safety device that is used on gas and electric models. The hi-limit is located in the burner or oven area. The hi-limit switch cuts off the heat if the temperature exceeds 330° for gas models or 290° for electric models. The only way this device would shut off the heat is when the air flow changes to the extent of making the flame brush up against it.

### Gas Models



### Electric Models



# SECTION V

## SERVICING

**ALL** electrical/ mechanical service or repairs should be made with the electrical power to the dryer disconnected (power off).

**WARNING: PERSONAL INJURY COULD RESULT.**

The information provided in this section **should not** be misconstrued as a device for use by untrained persons making repairs. Service work **should be** performed by competent technicians in accordance with local state and federal codes. When contacting the factory for assistance, always have the **dryer model** and **serial numbers** available.

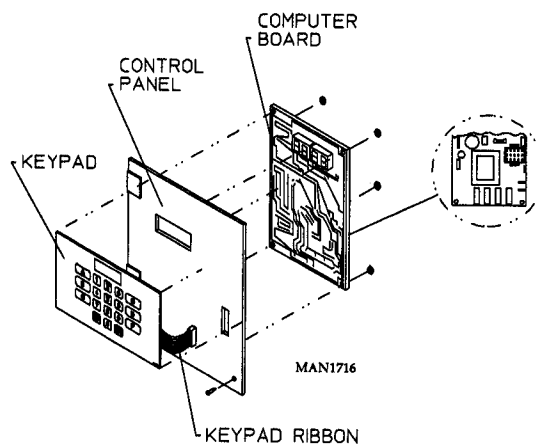
**CAUTION:** Observe **ALL** safety precautions displayed on the dryer or specified in this manual before and while making repairs.

Before considering replacement, make sure that **ALL** connectors are in place and making proper contact. Check input voltages and temperature sensor. After replacing any parts, or performing adjustments or service, run through one (1) complete cycle.

### A. CONTROLS (MICROPROCESSOR / COMPUTER)

#### TO REPLACE CONTROL PANEL ASSEMBLY

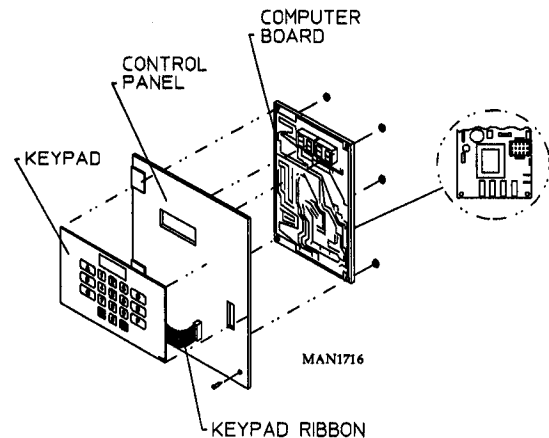
1. Disconnect power to the dryer.
2. Disconnect main power harness from rear of the microprocessor (computer) by squeezing the top locking tabs and pulling the connector straight back.
3. Disconnect the green ground wire from the microprocessor (computer).
4. Disconnect the wires going to the "HI" and the "HO" terminals on the microprocessor (computer).
5. To remove control panel assembly from the control box, gently tap the bottom of the control panel upward and lift off the hinges.
6. Install new control panel assembly by reversing this procedure.
7. Be sure to check or reset programs.



**NOTE:** Use caution when handling the Microprocessor Controller (computer). It is easily damaged by static electricity.

## **TO REPLACE COMPUTER**

1. Discontinue power to the dryer.
2. Disconnect main power harness from the rear of the microprocessor (computer) by squeezing the top locking tabs and pulling connector straight back.
3. Disconnect the green ground wire from the microprocessor (computer).
4. Disconnect the wires going to the "HI" and the "HO" terminals on the microprocessor (computer).
5. Disconnect the keypad ribbon from the microprocessor (computer).
6. Remove the four (4) nuts securing the microprocessor (computer) to the control panel and remove the microprocessor (computer) from the panel.
7. Install new microprocessor (computer) by reversing this procedure.
8. Be sure to check or reset programs.



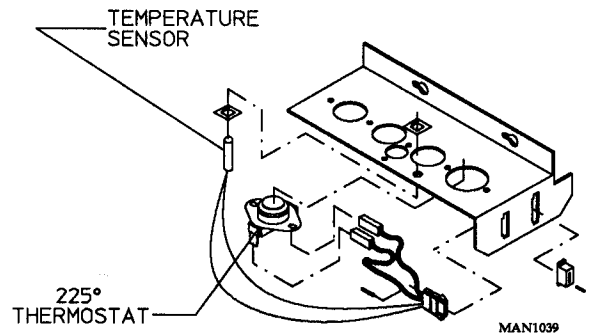
**NOTE:** Use caution when handling the Microprocessor Controller (computer). It is easily damaged by static electricity.

## **TO REPLACE KEYPAD/TOUCHPAD (refer to the illustration above)**

1. Discontinue power to the dryer.
2. Swing control panel open and unplug keypad (touchpad) ribbon from microprocessor (computer) board.
3. Peel the keypad (touchpad) from the front of the control panel taking care to avoid scratching the panel.
4. Clean any adhesive residue from the panel.
5. Peel off paper backing from new keypad (touchpad).
6. Align the display window on the keypad with the cutout in the control panel and press firmly into place.
7. Connect keypad ribbon to the (microprocessor (computer) board and reconnect power to the dryer.
8. Test for operation by pressing each selection on the keypad (A thru F).

## TO REPLACE MICROPROCESSOR (Computer) TEMPERATURE SENSOR PROBE

1. Discontinue power to the dryer.
2. Remove microprocessor (computer) temperature sensor bracket assembly from the dryer.
  - a. Disconnect sensor bracket harness connector.
  - b. Loosen the two (2) Phillips head screws securing the sensor bracket assembly to the dryer and remove the bracket from the dryer.



**NOTE:** DO NOT remove the screws

3. Dissassemble sensor probe from bracket assembly by removing the top push-on fastener securing the probe to the sensor bracket. Use a small screwdriver to slowly pry the fastener off.
4. Disconnect the two (2) orange wires from the high heat (225°) temperature thermostat. Remove modular bracket connector, wires, and probe from the sensor bracket assembly.
5. Install new temperature sensor probe assembly (ADC Part No. 880251) by reversing this procedure.
6. Reestablish power to the dryer.

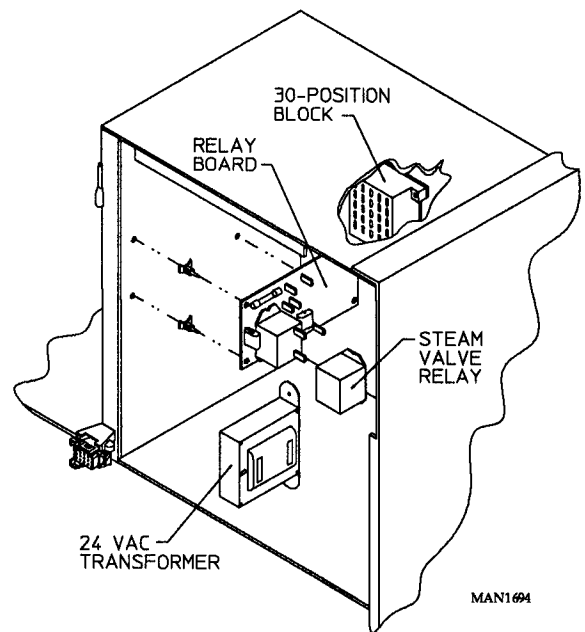
**NOTE:** If, when power is reestablished the microprocessor (computer) L.E.D. display reads "dSFL", check for a loose connection on the wiring.

## TO REPLACE RELAY BOARD

1. Discontinue power to the dryer.
2. Open the control door and the the microprocessor (computer) panel.
3. Remove **ALL** wires from existing relay board.

**NOTE:** Identify location of each wire for correct reinstallation.

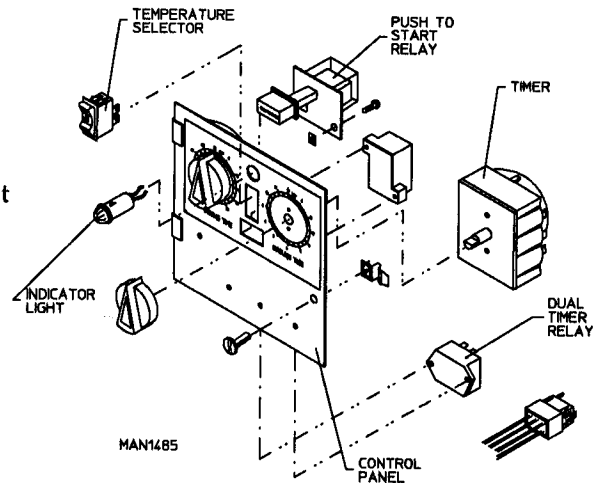
4. Pull each corner off of the nylon standoffs.
5. Install new contactor by reversing this procedure.
6. Reestablish power to the dryer.



## B. CONTROLS (TIMER)

### TO REPLACE INDICATOR LIGHT

1. Discontinue power to the dryer.
2. Disconnect the two (2) wires from the indicator light at the control panel 18-position terminal block.
3. Push and hold in the two (2) locking lances of the indicator light and pull light through face side of the control panel.
4. Install the new indicator light by reversing this procedure.



### TO REPLACE TEMPERATURE SELECTOR SWITCH

1. Discontinue power to the dryer.
2. Disconnect wiring from the temperature selector switch.

**| NOTE:** Identify location of each wire for correct reinstallation.

3. Push and hold in the right top and bottom locking lances of the selector switch and push slightly forward to the right. Push and hold in left top and bottom locking lances and push switch out through the face side of panel.
4. Install the new temperature selector switch by reversing this procedure.

### TO REPLACE PUSH-TO-START RELAY

1. Discontinue power to the dryer.
2. Disconnect wiring from the push-to-start relay.
3. Disassemble push-to-start relay from the control panel by removing the two (2) slotted head screws securing the push-to-start relay to the panel mounting bracket.
4. Install the new push-to-start relay by reversing this procedure.



## TO REPLACE TIMER

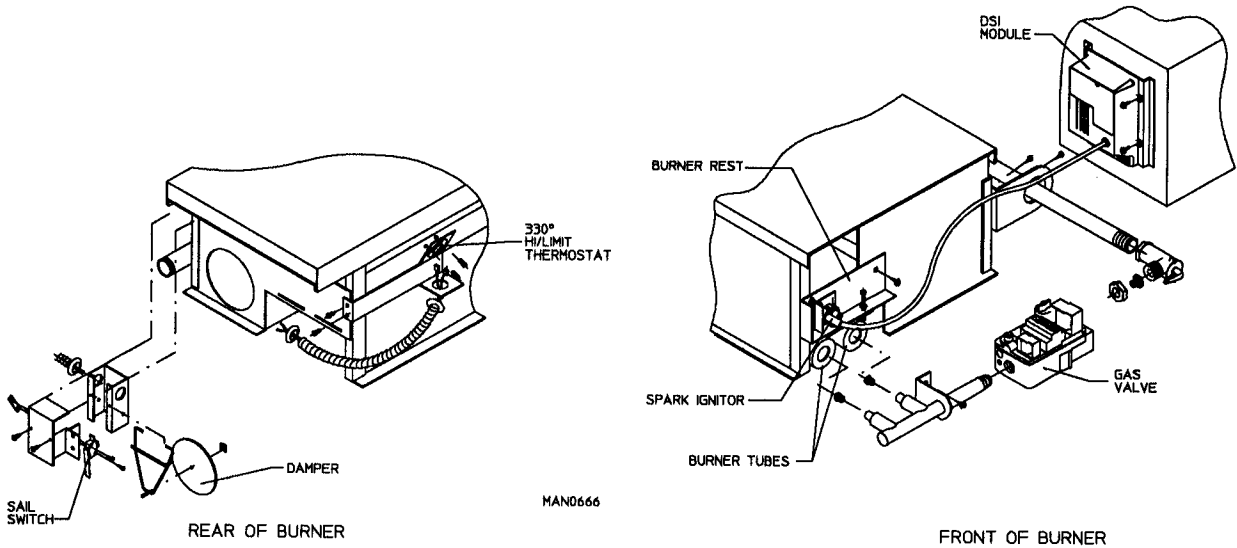
1. Discontinue power to the dryer.
2. Remove wiring from push-to-start relay.

**NOTE:** Identify location of each wire for correct reinstallation.

4. Remove the timer knob by unscrewing small screw that holds the knob to timer shaft.
5. Remove the two (2) screws holding timer to panel.
6. Reverse this procedure for installing new timer.

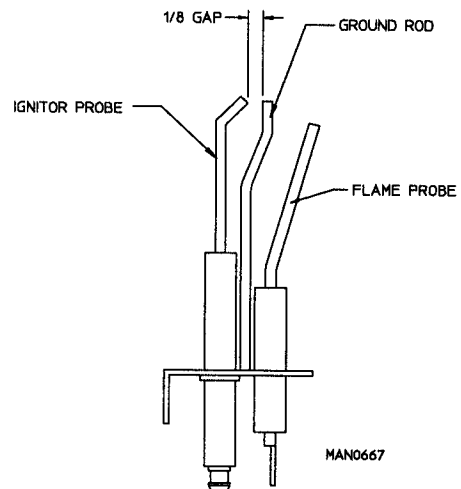
## C. BURNER CONTROLS (Gas)

This illustration is typical of **ALL** gas burners, but they are not **ALL** exactly alike. **Your particular model may have some differences.**



## TO REPLACE SPARK IGNITOR PROBE

1. Discontinue power to the dryer.
2. Disconnect HV (high voltage) connector and flame probe connection from the ignitor probe.
3. Disassemble ignitor from burner by removing the two (2) self-tapping screws.
4. Reverse this procedure for installing new ignitor probe.



**NOTE:** Before reestablishing power to the dryer, visually check the following; (refer to the **bottom illustration** on the previous page [page 23]).

1. The flame probe, ignitor probe, and ground rod are **ALL** on the same line of axis.
2. There should be a 1/8" gap (+/- 1/32") between the ignitor probe and ground rod.
3. **DO NOT** wrap the red HV (high voltage) wire and flame probe wire together. (Improper operation may result.) They may run along side each other.

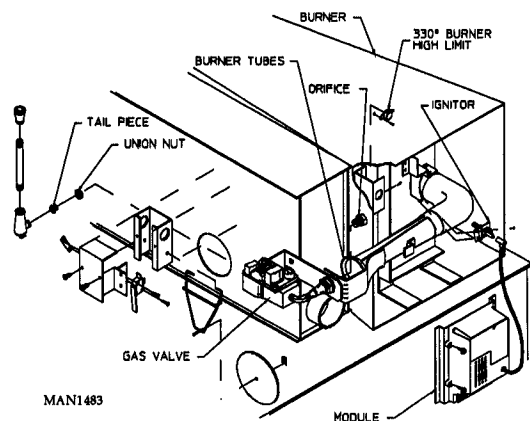
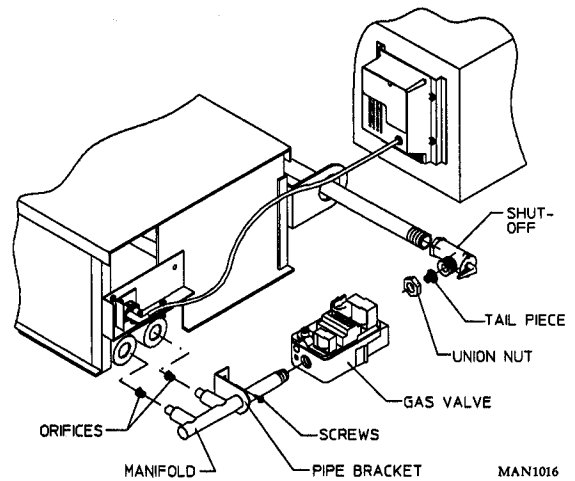
### **TO REPLACE GAS VALVE**

1. Discontinue power to the dryer.
2. Close shut-off valve in gas supply line.
3. Disconnect gas valve wiring.
4. Break union connection before the gas valve.
5. Loosen and remove the two (2) screws securing pipe bracket to the burner.
6. Remove gas valve/manifold assembly from the dryer.
7. Remove manifold from outlet of the gas valve.
8. Remove union tail piece from valve. Use a 1/2" Allen wrench (ADC Part No. 410001).
9. Reverse this procedure for installing new gas valve.

**NOTE:** Replacement valves are natural gas. Refer to **L.P. Conversion Kit Listing** on page 26.

**IMPORTANT:** Test **ALL** connections for leaks by brushing on a soapy water solution (liquid detergent works well).

**WARNING:** **NEVER TEST FOR GAS LEAKS WITH A FLAME!!!**



## **TO REPLACE MAIN BURNER ORIFICES (refer to Conversion Listing on following page)**

1. Refer to "TO REPLACE GAS VALVE" (on page 24) and follow step 1 thru step 6.
2. Unscrew main burner orifices and replace.

**NOTE:** Use extreme care when removing and replacing orifices. These orifices are made of brass and are easily damaged.

3. Reverse the removal procedure for re-installing.

**WARNING:** Test **ALL** connections for leaks by brushing on a soapy water solution. **NEVER TEST FOR LEAKS WITH A FLAME!!!**

## **TO TEST and ADJUST GAS W.C. (Water Column) PRESSURE**

There are two (2) types of devices commonly used to measure water column pressure. They are the spring/mechanical type gauges and the manometers. The spring/mechanical type gauge is **not** recommended because it is easily damaged and not always accurate. A manometer is simply a glass or transparent plastic tube with a scale in inches, which, when filled with water and pressure is applied, the water in the tube rises, showing the exact water column pressure.

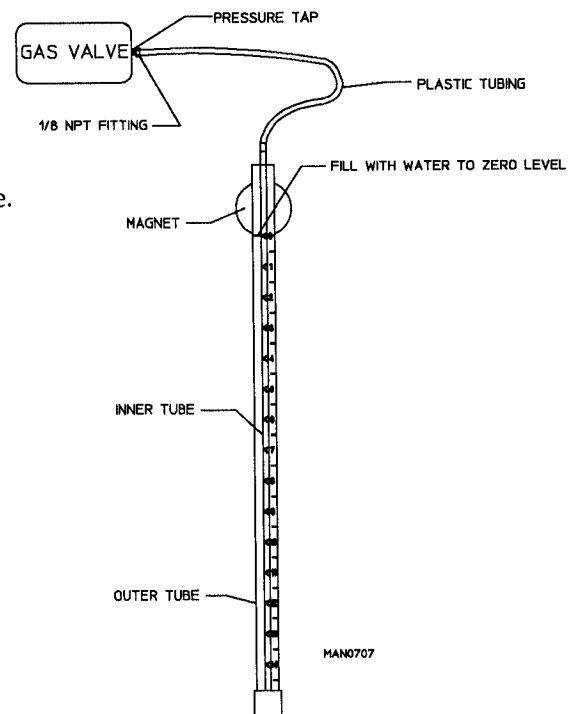
**NOTE:** Manometers are available from the factory by ordering **ADC** Part No. 122804.

1. To test gas water column (W.C.) pressure.
  - a. Connect water column test gauge connection to gas valve pressure tap (1/8" NPT). This pressure tap is located on the outlet (downstream) side of the valve.
  - b. Start the dryer. With burner on, the correct water column reading in inches would be:  
  
for NATURAL GAS ----- 3.5 - 4 Inches W.C.  
for L.P. GAS ----- 10.5 - 11 Inches W.C.

2. To adjust water column pressure:

For Natural Gas models remove the vent cap. Turn the slotted adjustment screw located on top of the valve next to the terminals. Turn clockwise (CW) to increase manifold pressure and counterclockwise (CCW) to decrease manifold pressure.

For L.P. Gas models there is no regulator on the valve.



**NOTE:** If correct W.C. pressure **cannot** be achieved, the problem may be due to an undersized gas supply line, a faulty or underrated gas meter, etc.

# DSI Burner Orifice Conversion Listing\*

| ADC Model Number | BTU Per Hour Rating | Natural Gas |        |        | L.P. Gas |        |        | L.P. Conversion Kit |
|------------------|---------------------|-------------|--------|--------|----------|--------|--------|---------------------|
|                  |                     | Qty.        | D.M.S. | P/N    | Qty.     | D.M.S. | P/N    |                     |
| ADG-15D          | 50,000              | 2           | #42    | 140810 | 2        | #54    | 140848 | 874051              |
| ADG-15DH         | 47,000              | 2           | #43    | 140809 | 2        | #54    | 140848 | 874051              |
| ADG-24D          | 60,000              | 2           | #37    | 140815 | 2        | #52    | 140800 | 874058              |
| ADG-25D          | 78,000              | 2           | #32    | 140851 | 2        | #50    | 140802 | 874052              |
| ADG-25DH         | 70,000              | 2           | #34    | 140852 | 2        | #51    | 140801 | 874053              |
| ADG-285D         | 72,000              | 2           | #33    | 140855 | 2        | #51    | 140801 | 874054              |
| ADG-30D          | 90,000              | 2           | #30    | 140819 | 2        | #46    | 140806 | 874050              |
| ADG-30DH         | 80,000              | 2           | #1/8   | 140843 | 2        | #49    | 104803 | 874049              |
| ADG-50D          | 150,000             | 2           | #21    | 140827 | 2        | #40    | 140854 | 874044              |
| ADG-50DH         | 130,000             | 2           | #26    | 140823 | 2        | #43    | 140809 | 874045              |
| UDG-50D          | 160,000             | 3           | #29    | 140820 | 3        | #48    | 140804 | 874046              |
| UDG-50DH         | 140,000             | 2           | #23    | 140856 | 2        | #42    | 140810 | 874047              |
| ADG-75D          | 200,000             | 1           | #H     | 141153 | 1        | #21    | 141152 | 874042              |
| ADG-75DH         | 200,000             | 1           | #H     | 141153 | 1        | #21    | 141152 | 874042              |

\* Consult factory for elevations over 2,000 feet.

**IMPORTANT:** This listing supersedes any other listing and/or information previously issued on the Direct Spark Ignition (DSI) system.

## **TO CONVERT FROM NATURAL to L.P. GAS**

1. Disconnect electrical power to the dryer.
2. Close **ALL** shut-off valves in dryer gas supply line.
3. Disconnect gas valve wiring.

**NOTE:** Identify location of each wire for correct reinstallation.

4. Break union connection (nut) between union shut off and the gas valve.
5. Loosen and remove screws from bracket holding the gas valve/ manifold assembly to burner box.
6. Remove gas valve/ manifold assembly from the dryer.
7. Unscrew main burner orifices and replace with L.P. orifices supplied.

**NOTE:** Use extreme care when removing and replacing orifices. **These orifices are made of brass which are easily damaged.**

8. To convert the gas valve for use with L.P. gas, refer to instructions included in kit envelope (#F92-0737) supplied.
9. Reverse this procedure for reinstalling valve manifold assembly to the dryer.

**IMPORTANT:** External regulation of a consistent gas pressure of between 10.5 and 11.0 inches water column **must be provided.**

10. Open **ALL** shut-off valves and test for leaks.

**IMPORTANT:** **DO NOT TEST FOR LEAKS WITH AN OPEN FLAME.** Use soapy water solution or product intended for that purpose.

11. Operate dryer through one (1) complete cycle to insure proper operation.

**IMPORTANT:** Conversion **should be** performed by competent technicians in accordance with local and state codes. Improper assembly or adjustments can cause a hazardous condition.

**NOTE:** There is no regulator provided in an L.P. dryer. The water column pressure **must be** regulated at the source (L.P. tank), or an external regulator **must be** added to each dryer.

12. Call ADC for L.P. conversion kits or the proper orifices for natural gas or L.P. gas.

## **TO REPLACE BURNER TUBES**

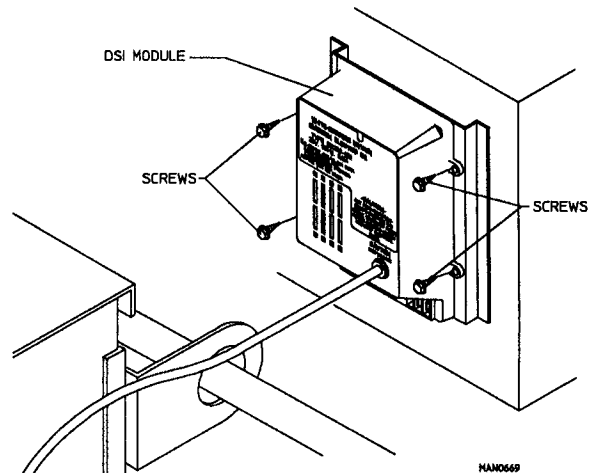
1. Discontinue electrical power to the dryer.
2. Close shut-off valve in the gas supply line.
3. Disconnect gas valve wiring.
4. Break union connection before the gas valve.
5. Loosen and remove two (2) screws securing pipe bracket to the burner.
6. Remove gas valve/ manifold assembly from the dryer.
7. Remove the screws securing the front flanges of the burner tubes to the burner rest.
8. Remove burner tubes by sliding them out.
9. Reverse this procedure for reinstalling burner tubes.

**IMPORTANT:** Test **ALL** connections for leaks by brushing on a soapy water solution (liquid detergent works well).

**WARNING:** **NEVER TEST FOR GAS LEAKS WITH A FLAME!!!**

## **TO REPLACE DSI (Direct Spark Ignition) MODULE** (For models ADG-15, ADG-30, and ADG-75)

1. Discontinue electrical power to the dryer.
2. Remove the wires connected to the terminal strip at the bottom of the DSI module.
3. Remove the soft orange high voltage wire from the module.
4. Remove the four (4) screws securing the module to the ignition control panel.
5. On the model ADG-75, remove the four (4) screws securing the DSI module to back of the dryer.
6. Replace module by reversing this process.



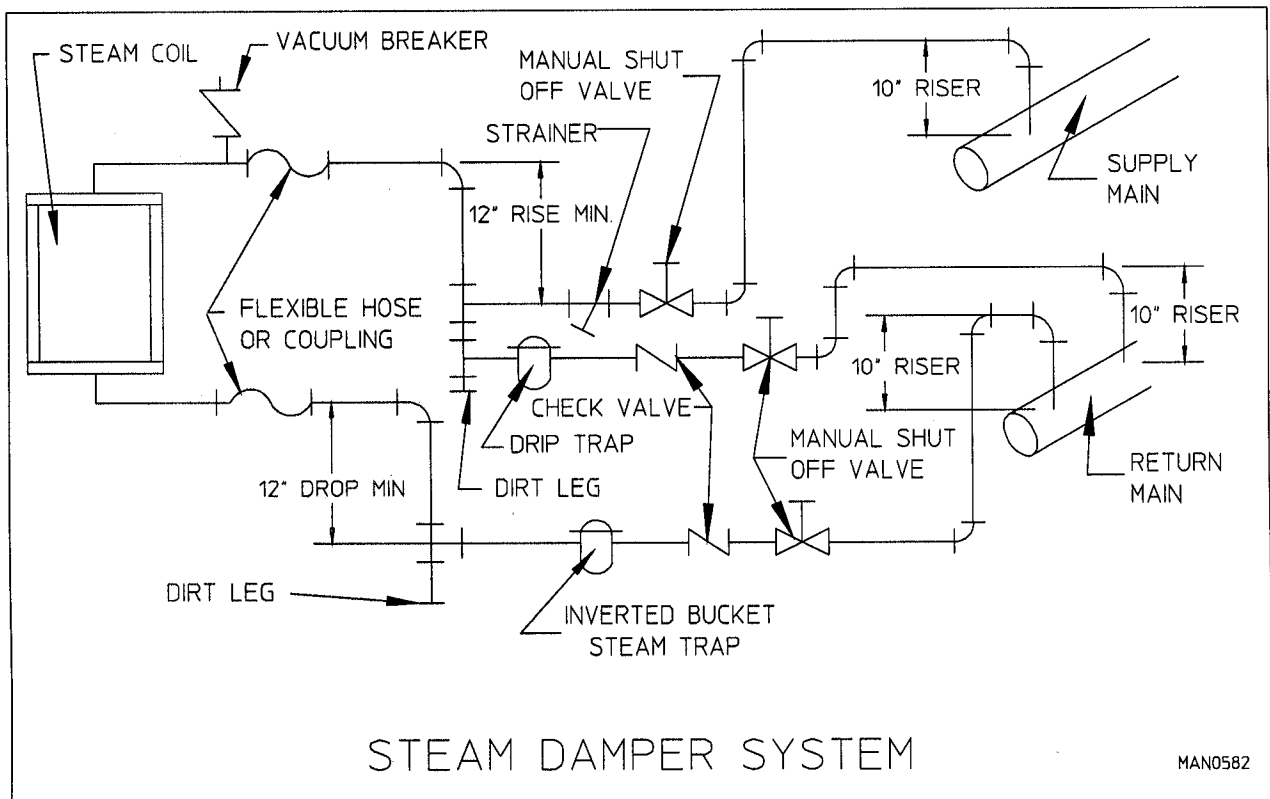
**TO REPLACE DSI (Direct Spark Ignition) MODULE**  
(For models ADG-25, ADG-285, ADG-50, and UDG-50)

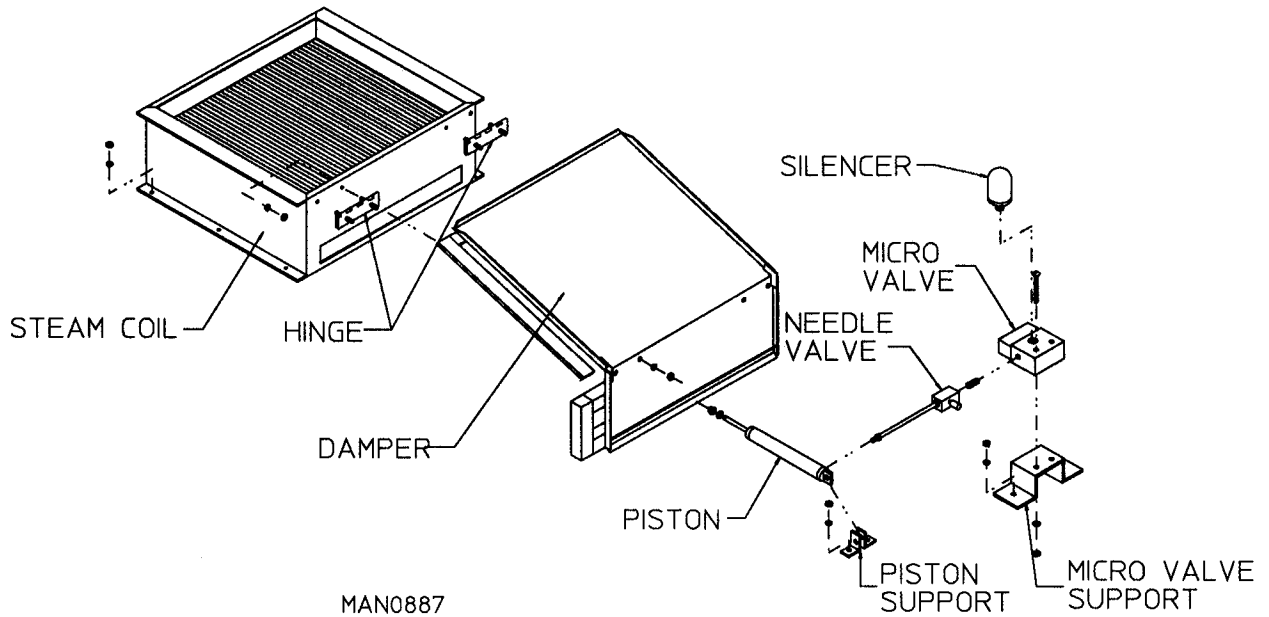
1. Discontinue electrical power to the dryer.
2. Remove the wires connected to the terminal strip at the bottom of the DSI module.
3. Remove the soft orange high voltage wire from the module.
4. Remove the two (2) screws securing the module to the plate.
5. Replace the DSI module by reversing this procedure.

**D. STEAM CONTROLS**

**INSTALLATION**

Piping must be installed in accordance with good commercial steam system practice. Refer to the illustration below for a typical pipe arrangement.





### **TO REPLACE STEAM COIL (Damper System)**

1. Discontinue electrical power to the dryer.
2. Remove the four (4) lock washers and hex nuts securing the hinges to the steam coil.
3. Remove hinges from the steam coil housing (these will be used on the new steam coil assembly).
4. Remove six (6) washers and hex nuts securing the steam coil to dryer.
5. Remove the steam coil assembly.
6. Reverse this procedure for installing the new steam coil assembly.

### **TO REPLACE PISTON**

1. Discontinue electrical power to the dryer.
2. Discontinue the air supply to the dryer.
3. Remove left and right piston supports by removing the two (2) washers and hex nuts and slide pin out.
4. Remove 1/8" M.P.T. connector from the piston and remove acorn nut on the end of the piston shaft (these will be used on the new piston).
5. Reverse this procedure for installing new piston.



### **TO REPLACE THE NEEDLE VALVE**

1. Discontinue electrical power to the dryer.
2. Discontinue the air supply to the dryer.
3. Remove the 1/8" brass close nipple from the needle valve.
4. Remove the 1/8" M.P.T. connector from the needle valve.
5. Remove the needle valve.
6. Reverse this procedure to install the new needle valve.

### **TO REPLACE THE 3-WAY MICRO VALVE**

1. Discontinue electrical power to the dryer.
2. Discontinue the air supply to the dryer.
3. Remove inlet side of air from the 3-way micro valve.
4. Remove the two (2) 1" machine bolts and mounting hardware holding the 3-way micro valve to the mounting bracket.
5. Remove the 1/8" brass close nipple from the outlet side of the micro valve.
6. Remove the 3-way micro valve.
7. Reverse this procedure to install the new micro valve.

### **TO REPLACE STEAM COIL**

1. Shut off steam supply line to the dryer and run dryer to remove any condensation.
2. Discontinue electrical power to the dryer.
3. Break union at the flexible hose just before the steam coil at both inlet and outlet.

**CAUTION: STEAM COIL and/or PIPING MAY BE HOT, ALLOW TIME TO COOL.**

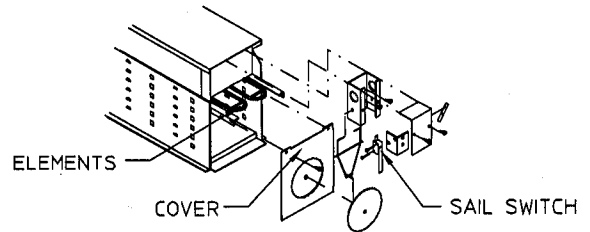
4. Remove remaining piping from the steam coil.
5. Remove six (6) screws holding coil to steam rack and lift the core out.
6. Reverse this procedures for installing the new core.

## E. ELECTRICAL OVEN CONTROLS

### TO REPLACE ELECTRICAL ELEMENTS

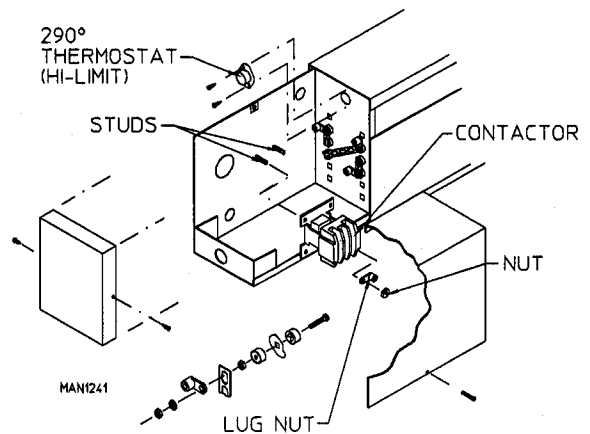
1. Discontinue electrical power to the dryer.
2. Remove the cover by removing two (2) screws and lifting the cover.
3. Remove the screws and wiring holding the element in place at the rear of the electric oven.
4. From the front of the electric oven, slide out the element.
5. Reverse this procedure for installation of the new electrical element.

**ELECTRIC OVEN  
(Front View)**



MAN0568

**ELECTRIC OVEN  
(Rear View)**



### TO REPLACE OVEN CONTACTOR

1. Discontinue electrical power to the dryer.
2. Remove wiring from the oven contactor.
3. Remove the three (3) nuts and lugnuts from the studs.
4. Pull the oven contactor off.
5. Reverse this procedure for installing the new oven contactor.

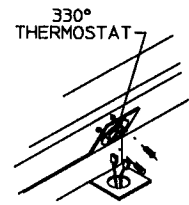
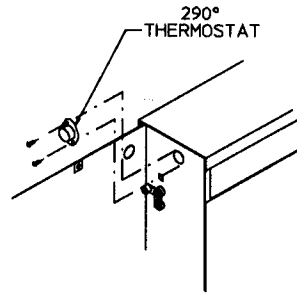
## F. THERMOSTATS and TEMPERATURE SENSOR

### TO REPLACE HI-LIMIT THERMOSTAT

(330° on GAS DRYERS and 290° on ELECTRIC DRYERS)

**THIS THERMOSTAT IS AN IMPORTANT SAFETY DEVICE** serving as an added protection against failure of the air sail switch to open in the event of motor failure or reduced air flow condition.

**IMPORTANT: UNDER NO CIRCUMSTANCES SHOULD HEAT CIRCUIT SAFETY DEVICES EVER BE DISABLED.**



ELECTRIC DRYERS

GAS DRYERS

MAN0671

1. Discontinue electric power to the dryer.
2. Disconnect the wires from the hi-limit thermostat.
3. Remove screw, washer, and nut securing thermostat to the mounting bracket. Remove thermostat.
4. Reverse this procedure for installing new thermostat.

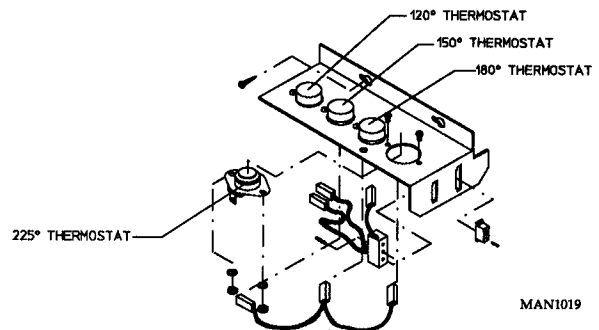
### TO REPLACE LINT COMPARTMENT HI-HEAT PROTECTOR AND THERMOSTATS (Non-Microprocessor Models)

These thermostats are part of the "Sensor Bracket Assembly" and are secured to the underside of the basket (tumbler) wrapper in the lint compartment as safety devices. These thermostats will open (shut off) the heating unit circuit if an excessive temperature occurs. The dryer motor will remain on, even if thermostat is open.

**IMPORTANT: UNDER NO CIRCUMSTANCES SHOULD HEAT CIRCUIT SAFETY DEVICES EVER BE DISABLED.**

1. Discontinue electrical power to dryer.
2. Open and remove the lint door.
3. Locate the sensor bracket assembly under the basket (tumbler). Loosen the two (2) Phillips head screws holding the sensor basket to the machine.
4. Slide bracket to the rear of the dryer and remove from the machine.
5. Refer to the illustration for the location and the identification of which thermostat you need to change.

Non-MICROPROCESSOR SENSOR BRACKET ASSEMBLY



MAN1019

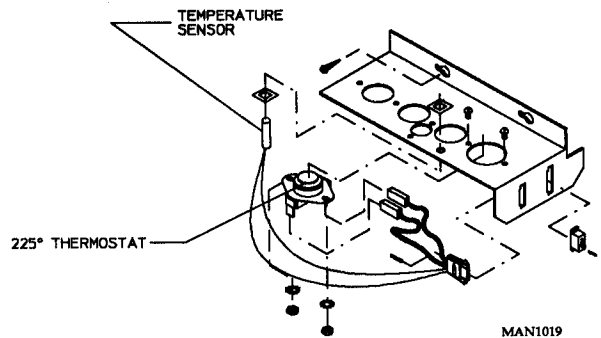
6. Remove the two (2) screws, washers, and nuts accompanying the proper thermostat.
7. Remove the two (2) connectors on the thermostat.
8. Remove thermostat.
9. Reverse this procedure for installing the new thermostat.

**TO REMOVE THE HIGH HEAT PROTECTOR or TEMPERATURE SENSOR  
(Microprocessor [computer] Models)**

**A. HIGH HEAT PROTECTOR**

1. Discontinue power to the dryer.
2. Open and remove lint door.
3. Locate temperature sensor bracket assembly under the basket (tumbler). Loosen the two(2) Phillips head screws. Disconnect the connector.
4. Slide bracket toward the rear of the machine and remove the bracket assembly from the dryer.
5. At this point you have access to remove either the high heat protector or the temperature sensor.
6. To remove the high heat protection, remove the two (2) screws, washers, and nuts holding the high heat protector in place.
7. Remove the high heat protector.
8. Reverse this procedure for installation of the new high heat protector.

MICROPROCESSOR SENSOR BRACKET ASSEMBLY



**B. TEMPERATURE SENSOR  
(Microprocessor [computer] Models)**

1. Discontinue power to the dryer.
2. Open and remove the lint door.
3. Disconnect sensor bracket harness connector.
4. Loosen the two (2) Phillips head screws securing bracket assembly to dryer and remove by sliding the bracket towards the rear of the dryer.
5. Disassemble the sensor probe from bracket assembly by removing the top push-on fastener securing the probe to the bracket.
6. Disconnect the two (2) orange wires from the high heat temperature thermostat. Remove the four (4) position connector, wires, and probe from the bracket assembly.
7. Install the new probe assembly (ADC Part No. 880251) by reversing this procedure.

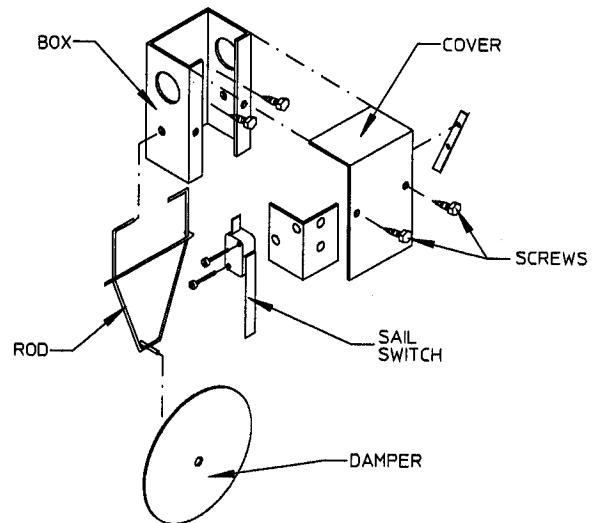
## G. SAIL SWITCH ASSEMBLY (Gas and Electric Models)

The sail switch is a heat circuit safety device which controls the heat circuit only. When the dryer is operating and there is proper air flow, the sail switch damper pulls in and closes the sail switch. If an improper air flow occurs, the sail switch damper will release, and the circuit will open

**IMPORTANT: UNDER NO CIRCUMSTANCES SHOULD THE HEAT CIRCUIT SAFETY DEVICES EVER BE DISABLED.**

### TO REPLACE SAIL SWITCH

1. Discontinue power to the dryer.
2. Remove the two (2) screws which mount the sail switch box.
3. Disconnect the two (2) wires from the switch.
4. Disassemble sail switch from the mounting bracket by removing the two (2) screws securing the switch in place.
5. Reverse this procedure for installing the new sail switch.



MAN0369

### TO ADJUST SAIL SWITCH

1. Operate the installed dryer normally to verify that the heat system is fully operational.
2. Open the main dryer door.
3. Manually depress the door switch actuator.
4. While continuing to depress the door switch actuator, and with the door open, start the dryer.
5. If the heat system is not activated in 15 seconds, the sail switch is properly adjusted.
6. If the heat system is activated, the sail switch is improperly adjusted and **must** be readjusted by bending the actuator arm of the sail switch toward the front of the dryer. If the actuator arm is bent too far toward the front of the dryer, the dryer may not have heat when needed. After any adjustments of the sail switch, the above procedure **must** be repeated to verify proper operation.

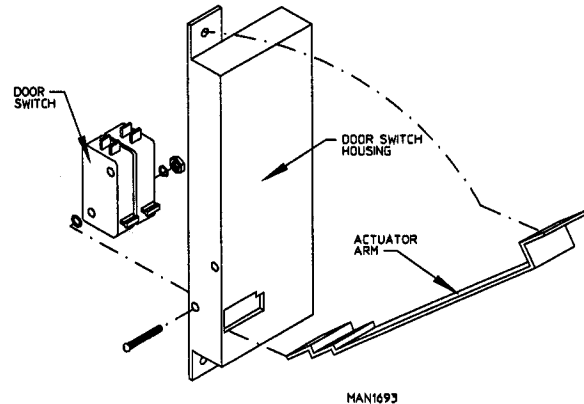
**CAUTION: DO NOT DISABLE THE SAIL SWITCH by taping or screwing the sail switch damper to the burner.**

**PERSONAL INJURY or FIRE COULD RESULT.**

## H. FRONT PANEL and MAIN DOOR ASSEMBLIES

### TO REPLACE MAIN DOOR SWITCH(ES)

1. Discontinue power to the dryer.
2. Open the main door.
3. Remove the two (2) Phillips head screws holding the main door switch cover in place.
4. Remove the screws, nuts, and washers that are securing the switches to the housing.
5. Disconnect the two (2) wires on the appropriate door switch. Connect the new door switch(es) to the appropriate two (2) wires.



**NOTE:** Make sure the same color wires are on the same switch(es).

6. Reverse this procedure for installing the new door switch.

**IMPORTANT: UNDER NO CIRCUMSTANCES SHOULD THE DOOR SWITCH BE DISABLED.**

### TO REPLACE MAIN DOOR ASSEMBLY

1. Remove screws holding the main door to the main door hinge.
2. Reverse this procedure for reinstalling the new main door assembly.

### TO INSTALL NEW MAIN DOOR GLASS

1. Remove main door assembly from the dryer (follow main door removal procedure).
2. Lay main door on a flat surface with the front of the door face down.
3. Remove the glass and clean **ALL** old sealant off of the main door. This area **must be** completely cleaned for correct bonding.
4. Apply a narrow bead of silicone (ADC Part No. 170730 for plastic type doors and cast type doors) **ALL** the way around the main door area where glass will rest.
5. Install glass on to door/adhesive and slightly press the glass in place.

**IMPORTANT: DO NOT press hard or silicone thickness between the glass and the door will be reduced resulting in poor bonding.**

6. The door assembly should now be put in an area where it will not be disturbed for at least 24 hours. Depending on the conditions, the curing time of the adhesive is 24 to 36 hours.
7. After the 24 hour curing period, install the main door on the dryer by reversing Step #1.

### **TO REPLACE FRONT PANEL**

1. Discontinue power to the dryer.
2. Follow the procedure for removal of the main door assembly.
3. Open control (service) door.
4. Open the lint door.
5. Remove the screws securing the front panel to the dryer.
6. Gently remove the top right hand corner of front panel assembly from the dryer.
7. Disconnect the main door switch harness at connector.

**IMPORTANT:** When removing the front panel assembly be careful not to damage the main door switch wires disconnected in Step #2.

8. Reverse this procedure for installing the new front panel.

### **TO REPLACE MAIN DOOR HINGE**

1. Discontinue power to the dryer.
2. Remove the main door assembly (follow **TO REPLACE MAIN DOOR ASSEMBLY**). Refer to the previous page (**page 36**).
3. Remove the front panel assembly (follow **TO REPLACE FRONT PANEL** above).
4. Disassemble hinge from the front panel by removing the nuts located on the back side of the front panel, which hold the hinge to the front panel.

**IMPORTANT:** When removing hinge assembly from the front panel be careful not to damage the main door switch wires.

5. Remove the main door switch assembly.
6. Reassemble by reversing this removal procedure.

## **TO REPLACE THE NYLON CATCH**

1. Open the main door .
2. Drill out the two (2) pop rivets holding the nylon catch to the front panel using a #21 (.1590) drill bit.
3. Using two (2) pop rivets (ADC Part No. 154215) install the nylon catch (ADC Part No. 170330) to the front panel.

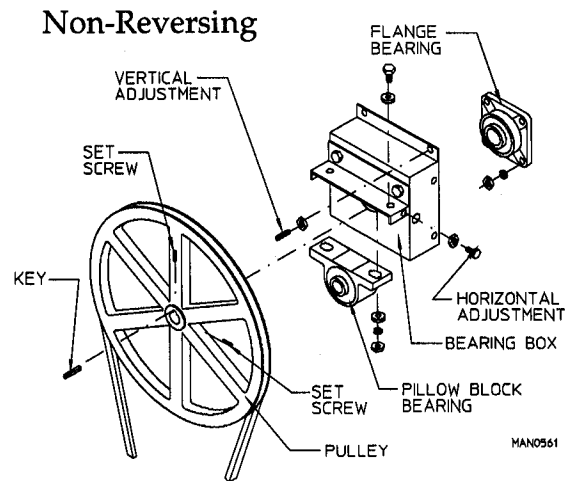
## **I. BASKET (TUMBLER) and BEARING ASSEMBLY**

**(Remove Back Guard To Access Assembly)**

### **TO REPLACE BASKET (TUMBLER) PULLEY** **(Non-Reversing)**

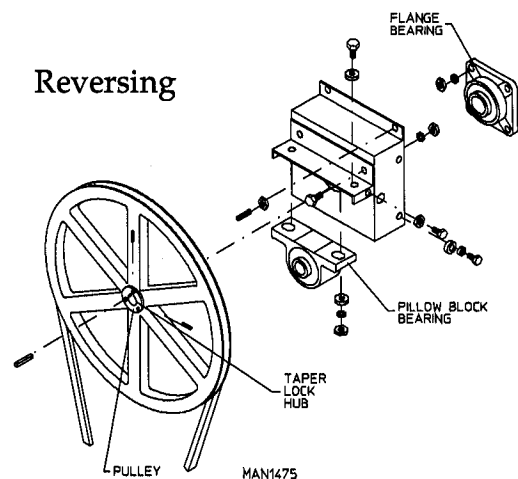
1. Loosen V-belts, then rotate pulley and roll the V-belts out of the grooves.
2. Loosen the two (2) set screws on the pulley and pull the pulley off of the shaft.
3. Reverse this procedure for installing the new basket (tumbler) pulley.

**NOTE:** Check the belt alignment before operating the dryer.



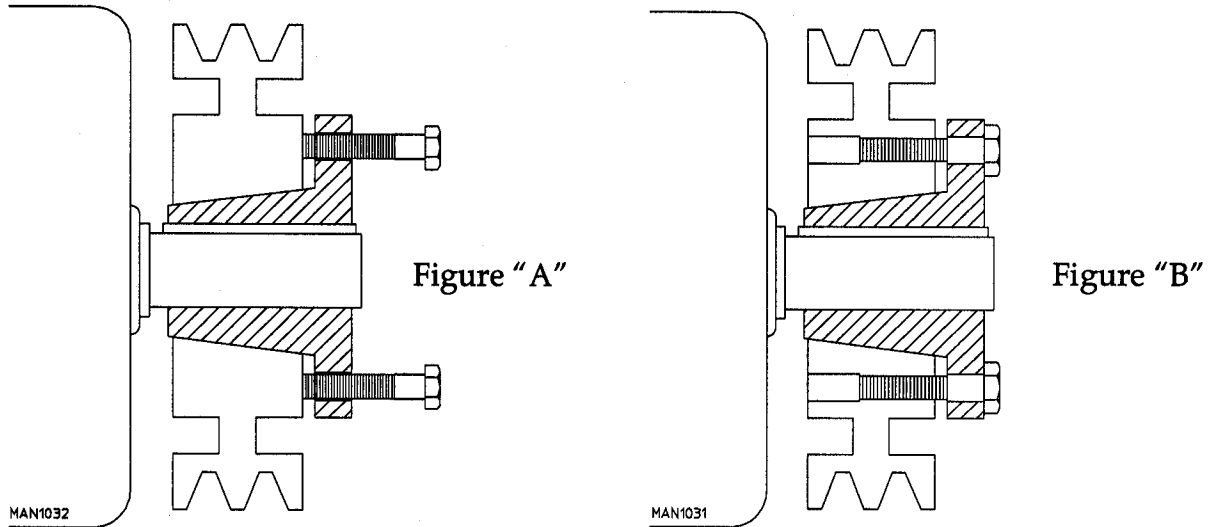
### **TO REPLACE TUMBLER PULLEY** **(Reversing)**

1. Loosen V-belts, then rotate pulley and roll V-belts out of the grooves.
2. Remove cap screws securing taper lock hub to the pulley.
3. Insert cap screws in tapped removal holes and tighten evenly until the bushing becomes loose in the pulley (refer to Figure "A" on [page 39](#)).
4. Remove the bushing, the pulley, and the key.
5. Assemble the bushing and the pulley (as illustrated in Figure 'B' on [page 39](#)). When the cap screws are loosely inserted, the bushing remains fully expanded to provide a sliding fit on tothe shaft.





6. Insert key on the shaft, then slide the pulley to desired position with cap screw heads to the outside.
7. Tighten the cap screws progressively. There remains a gap between the pulley hub and the flange of the bushing.



**IMPORTANT:** Tighten the screws evenly and progressively. **NEVER ALLOW** the pulley to be in contact with the flange of the bearing. This gap should measure from 1/8" to 1/4". Proper cap screw torque is 30 ft-lbs., if greater tightening forces are applied, excess pressure will be created in the hub of the mounted pulley which may cause it to crack.

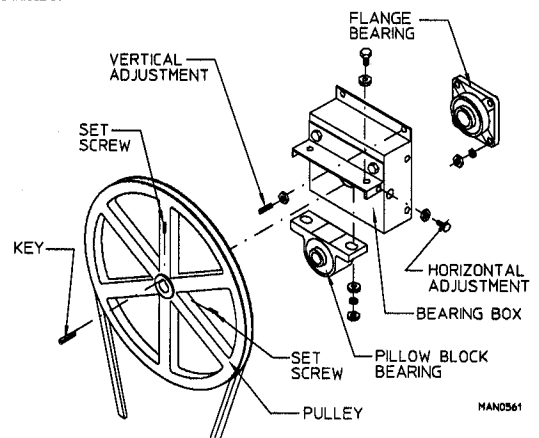
### **TO REPLACE THE PILLOW BLOCK BEARING**

1. Remove the tumbler pulley (follow **TO REPLACE TUMBLER PULLEY**). Refer to the **previous page (page 38)**.
2. Remove the four (4) bolts securing the bearing box to the back of the dryer.
3. Loosen the set screws securing the bearing to the shaft.
4. Pull bearing box and pillow block bearing off of the shaft.

**NOTE:** If any rust has developed, use emery cloth to polish the shaft.

5. Remove bolts securing the bearing to the bearing box and remove the bearing.
6. Reverse this procedure for installing the new tumbler bearing.

**NOTE:** Check alignment of the pulleys before operating the dryer.



## **TO REPLACE THE FLANGE BEARING**

1. Remove the tumbler pulley and the bearing box (follow **TO REPLACE PILLOW BLOCK BEARING**). Refer to **Step #1 thru Step #4** on the **previous page (page 39)**.
2. Loosen the set screws on the flange bearing.
3. Remove the four (4) nuts securing the bearing to the dryer back and remove by sliding the bearing off of the tumbler shaft.
4. Reverse this procedure for installing the new tumbler bearing.

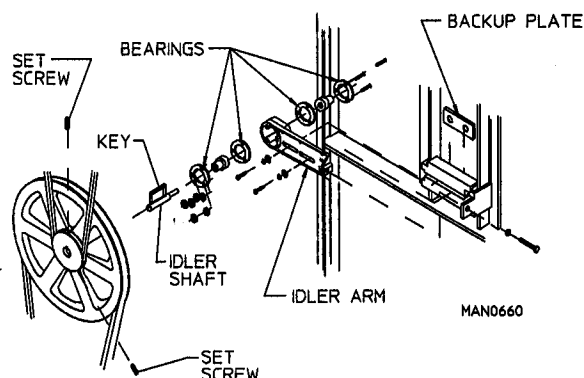
**NOTE:** Check tension of belts and alignment of the tumbler before operating the dryer.

5. Replace the back guard.

## **I. IDLER and BEARING ASSEMBLY** **(Remove Backguard To Access Assembly)**

### **TO REPLACE IDLER PULLEY**

1. Loosen V-belts, then rotate pulley and roll V-belts out of the grooves.
2. Loosen the two (2) set screws on the pulley and pull off of the shaft.
3. Reverse this procedure for installing new idler pulley.



**NOTE:** Check tension and alignment of the belts before operating the dryer.

4. Replace the back guard.

### **TO REPLACE IDLER BEARING**

1. Remove the idler pulley (follow **TO REPLACE IDLER PULLEY** above).
2. Remove the idler arm.
  - a. Remove the two (2) bolts securing the idler arm to the idler backup plate.
  - b. Remove the idler arm assembly.
  - c. Loosen the set screws on both the front bearing and the rear bearing and remove the idler shaft.
  - d. Remove the three (3) bolts securing the bearing to the idler arm and remove bearings.

- Reverse this procedure for installing new idler bearings.

**NOTE:** Check tension and alignment of belts before operating the dryer.

## K. DRIVE PULLEY

### **(Remove Back Guard To Access Assembly)**

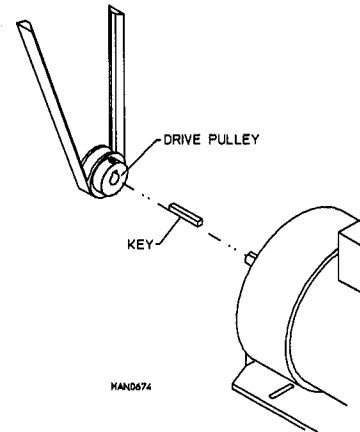
- Loosen V-belts, then rotate pulley and roll V-belts out of the grooves.
- Loosen the set screws and pull the motor pulley off.

**NOTE:** If rust has developed on the shaft use emery cloth to polish the shaft.

- Reverse this procedure for installing the new drive pulley.

**NOTE:** Check tension and alignment of belts before operating dryer.

- Replace the back guard.

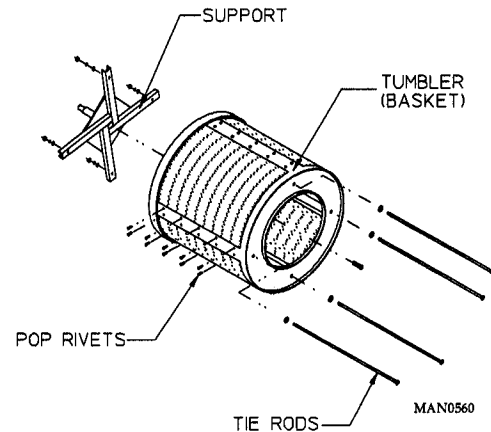


## L. TUMBLER (BASKET)

### **TUMBLER (BASKET) ALIGNMENT**

#### **(Vertical)**

- Discontinue power to the dryer.
- Remove the back guard,.
- Loosen the four (4) hex head bolts on the sides of the bearing box (2 on each side).
- Back off the jam nuts on the two (2) Allen head adjustment screws at the top of the bearing box.
- Turn the screws clockwise evenly to raise the tumbler (basket) or counterclockwise evenly to lower the tumbler (basket).



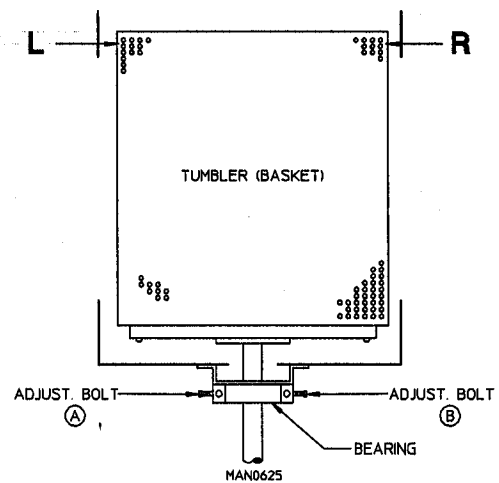
**NOTE:** V-belt tension may need to be loosened.

- Rotate the tumbler (basket) from the front and check alignment with the main door opening.

7. Leave a larger gap from the inside ring on the top of the front panel opening to the tumbler (basket), and a smaller gap on the bottom to compensate for the weight of the clothes being dried.
8. Tighten the four (4) hex head bolts on the sides of the bearing box, and the two (2) Allen head adjustment screws.
9. Replace the back guard
10. Reestablish power to the dryer.

### **TUMBLER (BASKET) ALIGNMENT (LATERAL)**

1. Discontinue power to the dryer.
2. Remove the backguard.
3. Loosen the two (2) hex head bolts (one [1] turn) that hold the pillow block bearing to the bearing box.
4. Back off the two (2) jam nuts on the side adjustment bolts. Now rotate the tumbler (basket) from the front of the dryer, checking the space between the tumbler (basket) and the front panel. This should be equal on both the left hand side and the right hand side.
5. Lateral adjustment (viewing from the rear)...
  - a. Loosening (by turning counterclockwise) the left hand adjustment bolt and tightening (by turning clockwise) the right hand adjustment bolt will shift the basket (tumbler) to the right.
  - b. Loosening (by turning counterclockwise) the right hand adjustment bolt and tightening (by turning clockwise) the left hand adjustment bolt will shift the basket (tumbler) to the left.
6. Tighten and secure both adjustment bolts and jam nuts.
7. Tighten the bearing box bolts.
8. Replace the back guard.
9. Reestablish power to the dryer.



**REAR OF DRYER**

## **TO REPLACE THE TUMBLER (BASKET) and/or TUMBLER SUPPORT**

1. Discontinue power to the dryer.
2. Remove the tumbler (basket) pulley.
3. Remove the front panel assembly.
  - a. Open the control (service) door.
  - b. Open the lint door.
  - c. Remove the screws securing the front panel to the dryer.
  - d. Gently remove the top right hand corner of the front panel to remove assembly from the dryer.
  - e. Disconnect the main door switch harness at the connector.

**IMPORTANT:** When removing the front panel assembly be careful not to damage the door switch wires.

4. Loosen the set screws on the rear tumbler flange bearings and pillow block bearings.
5. Using a wheel puller gently push the tumbler shaft towards the front through the tumbler bearings.

**NOTE:** An alternate method would be to place a block of wood on the end of the tumbler shaft and strike it with a heavy hammer. To prevent damage to the shaft, the wheel puller method is preferred.

6. Remove the tumbler (basket) and tumbler support through the front of the dryer.
  - a. Remove the bolt in the center of the tumbler (basket) back wall.
  - b. Loosen and remove the nuts and washers from the tumbler (basket) tie rods...remove the tie rods.
  - c. Replace either tumbler (basket) and/or tumbler support by reversing this procedure.
7. Reassemble the components into the dryer by reversing Step #1 thru Step #4.
8. Check the tumbler (basket) lateral alignment and vertical alignment. Also, check the V-belt tension and the V-belt alignment.
9. Replace the back guard.
10. Reestablish power to the dryer.

## M. V-BELTS

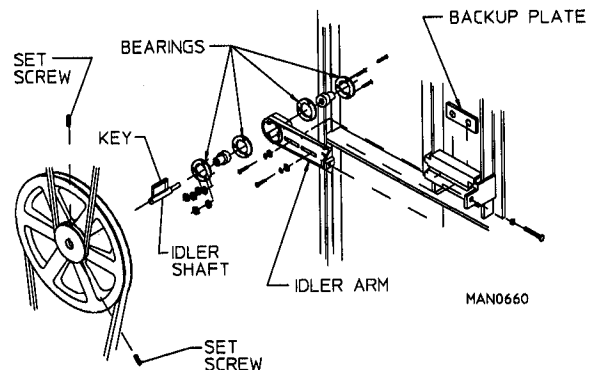
(refer to Illustrations in Section I, Section J, and Section K)

V-belts should have proper tension. If V-belts are too loose, they will slip, if too tight excessive wear on the bearing will result. If the pulleys are not properly aligned, excessive belt wear will result. Proper V-belt tension will allow 1/2" displacement under normal thumb pressure at mid span of the V-belt.

### V-BELT TENSION ADJUSTMENT

(Tumbler To Idler)

1. Loosen the two (2) bolts connecting idler arm to the back-up plate.
2. Back off the jam nut on the adjustment bolt.
3. Tighten V-belts by turning adjustment bolt clockwise (turn counterclockwise to loosen belts).
4. Tighten both bolts connecting the idler arm to the back up plate.
5. Check vertical plane of idler pulley for parallel alignment with the tumbler pulley.
6. If realignment is required, loosen the tumbler pulley and move the tumbler pulley to proper position.
7. Re-tighten the jam nut.



### V-BELT TENSION ALIGNMENT

(Motor To Idler)

1. Loosen the two (2) bolts connecting the idler arm to the backup plate.
2. Back off on jam nut(s) on the adjusting bolt.
3. Loosen/tighten adjustment bolt to either decrease or increase the V-belt tension.
4. Tighten the adjustment bolt jam nut(s).
5. Tighten the two (2) bolts loosened in Step #1.

### TO REPLACE V-BELTS

1. Loosen tension on the V-Belts, so that they can easily be rolled off of the pulleys.
2. Replace the V-belts.
3. Re-tighten V-belts and adjust the tension and the alignment per previous instructions.

## N. MOTOR

### **TO REPLACE MOTOR** **(Non-Reversing Dryers)**

**NOTE:** Follow Step #1 thru Step #4 and Step #6 thru Step #10 (in Section N below) for **Reversing Dryers**.

1. Discontinue power to the dryer.
2. Remove the drive belt.
3. Disconnect the wiring harness from the motor.
4. Remove nuts and washers holding the motor mount to the rear of the dryer and pull the motor mount away.
5. Remove the two (2) left hand nuts on the motor shaft securing the impellor (fan/blower). Work the the impellor (fan/blower) free from the motor shaft by means of a puller to prevent damage to the motor shaft.
6. Remove the bolts holding the motor to the motor mount and replace it with a new motor.
7. Remove the pulley from the old motor and install on the new motor.
8. Align motor with impellor (fan/blower) face in plane with the motor mount at no less than 3/16" clearance.
9. Replace the motor mount to the dryer.
10. Reestablish power to the dryer.

## O. IMPELLOR (FAN/BLOWER)

**NOTE:** Follow Step #1 thru Step #5, Step #8, and Step #10 in Section N above.

## P. LINT SCREEN

### **TO REPLACE LINT SCREEN**

1. Open the lint door and remove.
2. Remove the two (2) hex head screws securing the lint screen hold down in place and remove hold down from the trap.
3. Slide lint screen out along the lint coop track.
4. Reverse this procedure for installing the new lint screen.
5. Close the lint door.

# SECTION VI

## TROUBLESHOOTING

**IMPORTANT: YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY BEFORE ANY COVERS or GUARDS ARE REMOVED FROM THE MACHINE TO ALLOW ACCESS FOR CLEANING, ADJUSTING, INSTALLATION, or TESTING OF ANY EQUIPMENT per OSHA (Occupational Safety and Health Administration) STANDARDS.**

The information provided will help isolate the most probable components associated with the difficulty described. The experienced technician realizes, however, that a loose connection or broken or shorted wire may be at fault where electrical components are concerned.... not necessarily the suspect component itself.

Electrical parts **should always** be checked for failure before being returned to the factory.

The information provided should not be construed as a device for use by an untrained person in making repairs. Only properly licensed technicians should service the equipment.

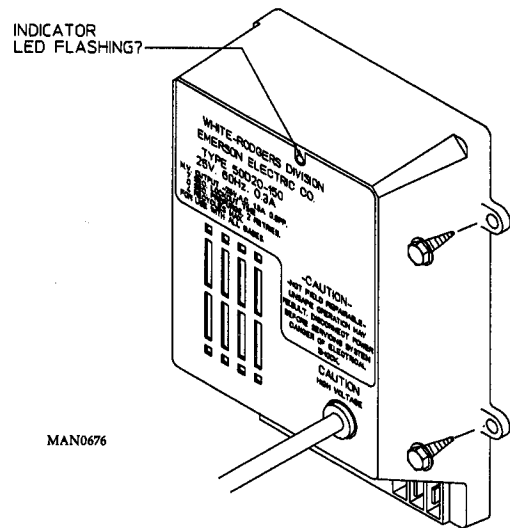
Observe **ALL** safety precautions displayed on the equipment or specified in this manual while making repairs.



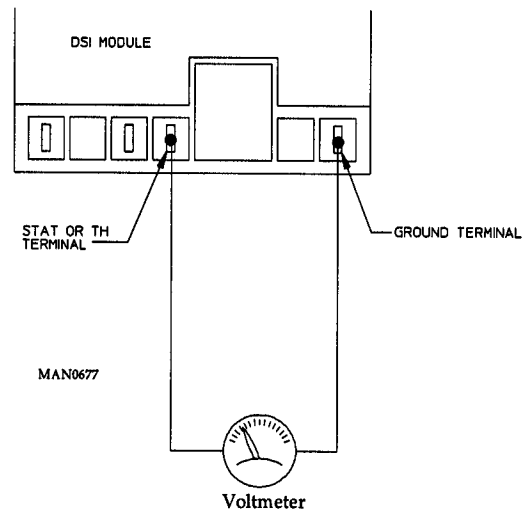
## A. NO HEAT CONDITION (Gas Models)

The following procedure **must** be performed with the microprocessor controller (computer) L.E.D. display in the normal operating mode, and the heat indicator dot on.

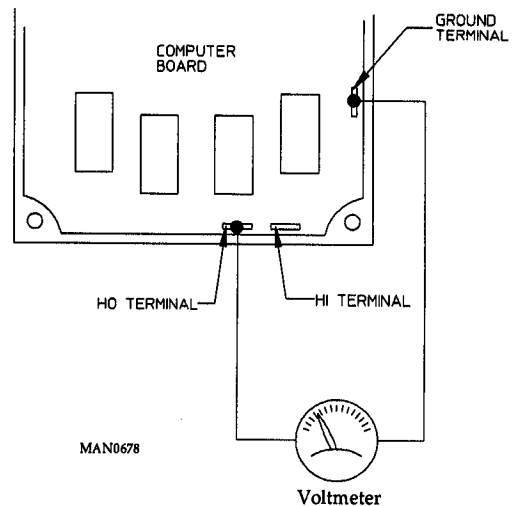
1. Check to see if DSI module fault indicator L.E.D. is on or flashing.
  - a. If yes, refer to the Direct Spark Ignition (DSI) Technical Manual...Part No. 450142 (for ADC DSI Module) or Part No. 450119 (for White-Rodgers [W/R] DSI Module).



2. Check for voltage (approximately 24 VAC) across the DSI module terminals "STAT" or "TH" and "GND."
  - a. If voltage is evident, refer to the Direct Spark Ignition (DSI) Technical Manual...Part No. 450142 (for ADC DSI Module) or Part No. 450119 (for White-Rodgers [W/R] DSI Module).



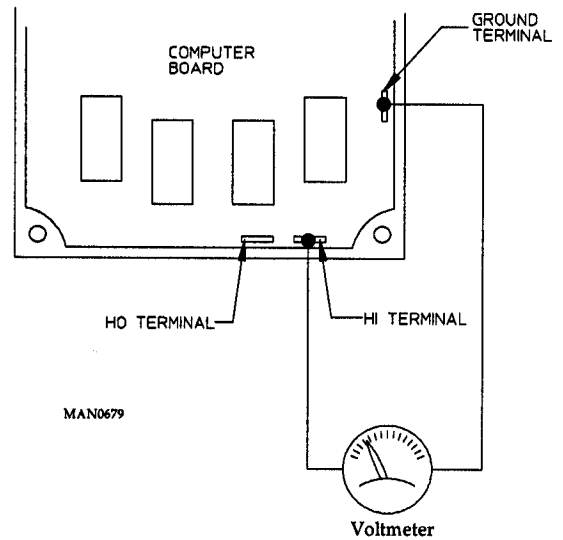
3. Check for voltage (approximately 24 VAC) across the microprocessor controller (computer) "HO" (heat out) terminal and "GND" terminal.
  - a. If voltage is evident, the problem is...
    - 1) Break in the wire or termination between the microprocessor controller (computer) "HO" (heat out) terminal and the DSI module "STAT" or "TH" terminal.



4. Check for voltage (approximately 24 VAC) across the microprocessor controller (computer) "HI" (heat in) terminal and GND terminal.

a. If voltage is evident, the problem is...

1) Defective microprocessor controller (computer).

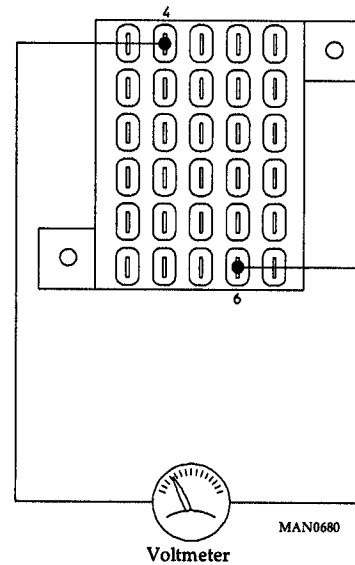


5. Check for primary voltage (incoming voltage) to the DSI transformer across TB #4 and TB #6.

a. If voltage is evident the problem is...

1) Defective DSI transformer.

2) Break in wire or termination between DSI transformer and TB #4 and/or TB #6

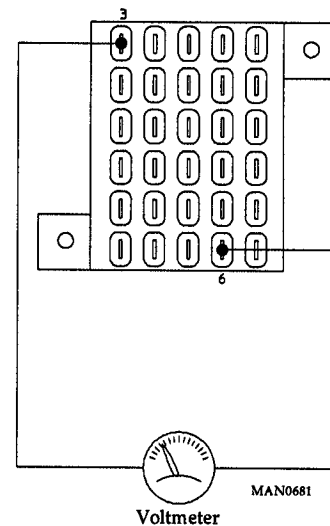


6. Check for voltage across TB #3 and TB #6.

a. If voltage is evident, the problem is...

1) Sail switch is not closing - out of proper adjustment, exhaust restriction - check exhaust all the way to the outside for obstruction.

**NOTE:** For models with a 3-phase (3ø) motor, check rotation direction of the impellor (fan/blower) as noted on label at rear of dryer.



- 2) Defective burner hi-limit - check for continuity...
  - a) If no continuity...hi-limit is defective.
- 3) Defective sail switch - check for continuity with switch pushed in...
  - a) If no continuity...sail switch is defective.
- 4) Break in wire or termination in sail switch/hi-limit circuit somewhere between TB #3 and TB #4.
  - a) If no voltage (incoming voltage) is evident the problem is...
    - 1) Defective 225° thermostat in the lint compartment - check for continuity...
      - A) If no continuity the thermostat is defective.
      - B) Break in the wire or termination between TB #7 and TB #3.

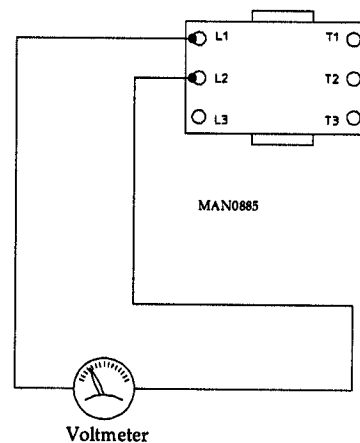
**IMPORTANT: DISCONTINUE POWER TO THE DRYER BEFORE CHECKING FOR CONTINUITY.**

- b) Check continuity of wire between sensor bracket and TB #7...
  - 1) If no continuity...the problem is a break in the wire or termination.
- c) Check continuity of wire between the sensor bracket and TB #3...
  - 1) If no continuity...the problem is a break in the wire or termination.

## **B. NO HEAT CONDITION (Electric Models)**

The following procedure **must** be performed with the microprocessor controller (computer) L.E.D. display in the normal operating mode and the heat indicator dot on. Your check for voltages **should** be 110 volts, 208 volts, or 230 volts unless otherwise specified.

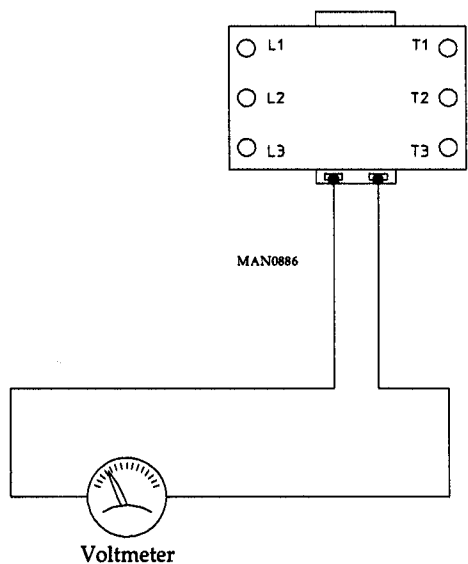
1. Check to see if voltage is present across the top of the oven contactor.
  - a. If no voltage is present, the problem is the incoming voltage to machine.
    - 1) Check circuit breaker and/or protection fuses.



2. Check for voltage across the coil of oven contactor.

a. If voltage is present, replace the contactor.

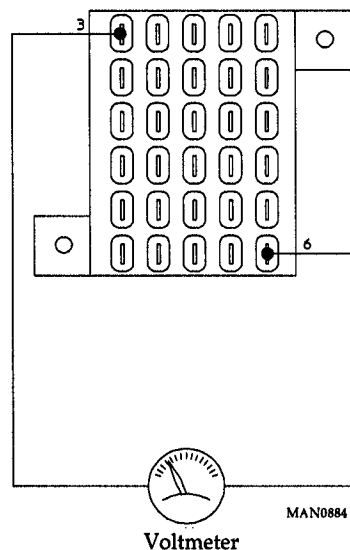
1) If no voltage is evident, continue.



3. Check for voltage across TB #6 and TB #3.

a. If voltage is present, the 225° thermostat is okay.

1) If no voltage is evident, continue.

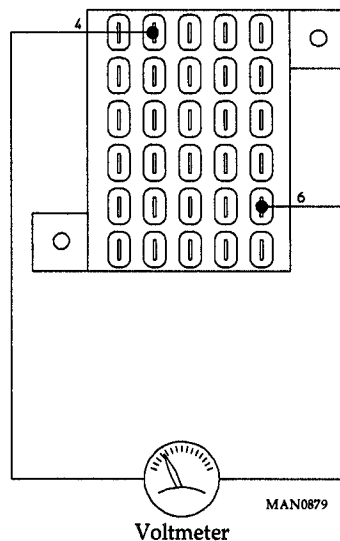


4. Check for voltage across TB #6 and TB #4.

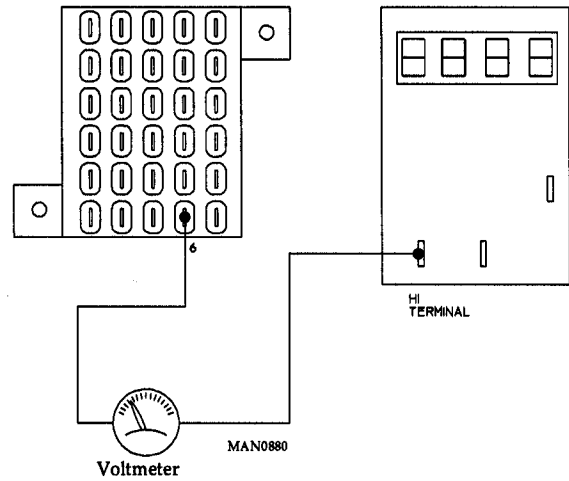
a. If voltage is present, the sail switch is okay. (In some cases the hi-limit is tied into the circuit at TB #6 and TB #4...if this is the case, both the sail switch and the hi-limit are okay.)

b. If no voltage is evident at the above points, the sail switch and/or its wiring and/or the hi-limit (if the hi-limit is tied into the circuit) is bad.

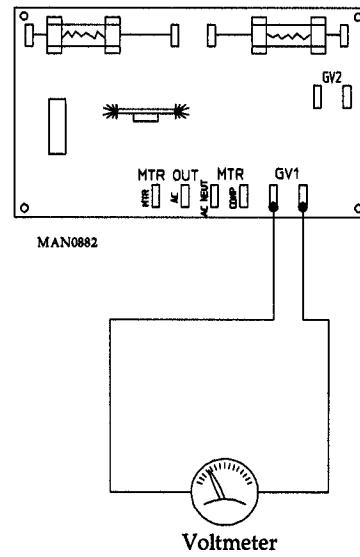
1) If voltage is present, proceed to Step #6.



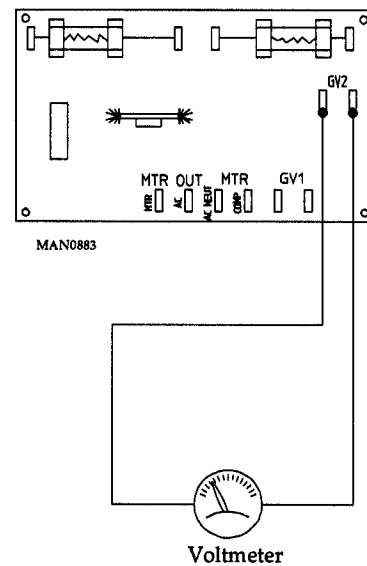
5. Check for voltage across the "HI" terminal on the microprocessor controller (computer) and TB #6.
  - a. If no voltage is evident, the hi-limit and/or its wiring is bad.
    - 1) If voltage is present, continue.



6. Check voltage on the two (2) GV1 terminals on the relay board.
  - a. If no voltage is evident, replace the microprocessor controller (computer).
    - 1) If voltage is present, continue.



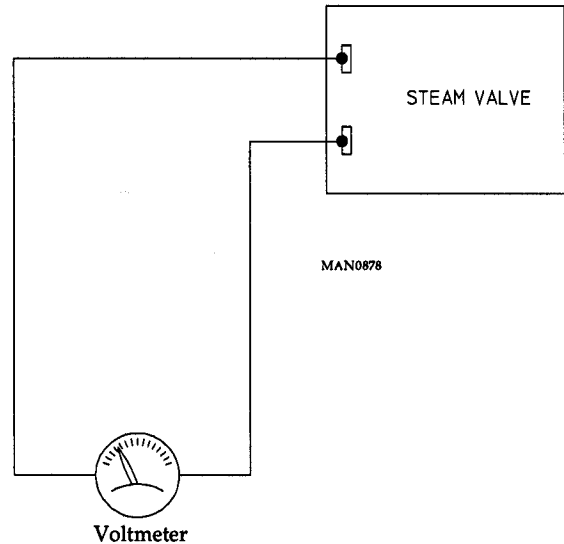
7. Check for voltage across the two (2) GV2 terminals on the relay board.
  - a. If no voltage is evident, replace the relay board.
  - b. If voltage is present, the problem is the two (2) wires from the GV2 terminals down to the contactor coil.



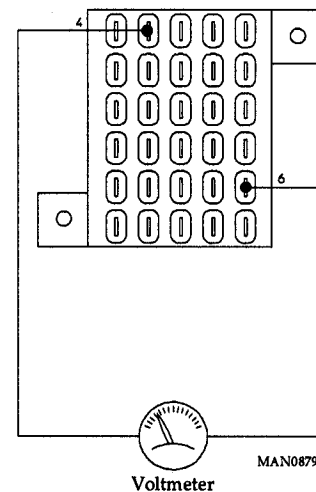
## C. NO HEAT CONDITION (Steam Models)

The following procedure **must** be performed with the microprocessor controller (computer) L.E.D. in the normal operating mode, and the heat indicator dot on. Your check for voltages **should** be 110 volts, 208 volts, or 230 volts unless otherwise specified.

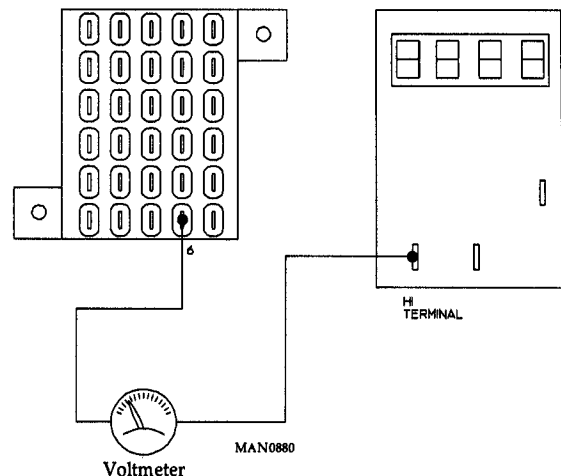
1. Check for voltage across the steam valve (motor solenoid - 110 volts, 208 volts, 230 volts).
  - a. If voltage is present, replace the steam valve otherwise continue.
    - 1) If checking for voltage on the damper type system, check for 24 VAC across the two (2) black leads of the 3-position micro valve.
      - A) If voltage is present, replace the micro valve.



2. Check for voltage between TB #4 and TB #6 (110 volts, 208 volts, 230 volts).
  - a. If no voltage is evident, replace the thermostat under the basket (tumbler) on the temperature sensor bracket.
    - 1) If voltage is present, continue.



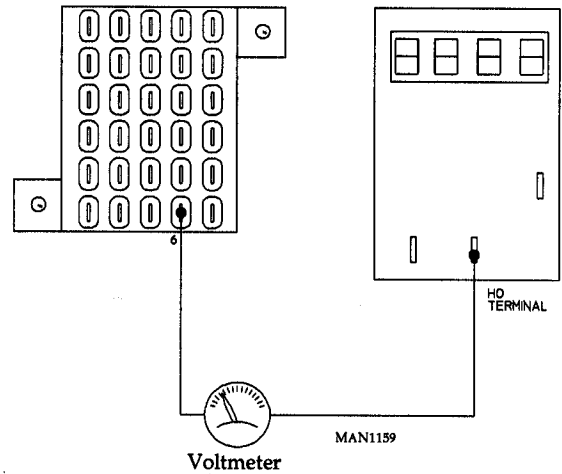
3. Check for voltage across the "HI" terminal on the microprocessor controller (computer) and TB #6.
  - a. If no voltage is evident, replace the wire from the TB #4 to the "HI" terminal on the microprocessor controller (computer).
    - 1) If voltage is present, continue.



4. Check for voltage across the "HO" terminal on the microprocessor controller (computer) and TB #6.

a. If no voltage is evident, the microprocessor controller (computer) is bad.

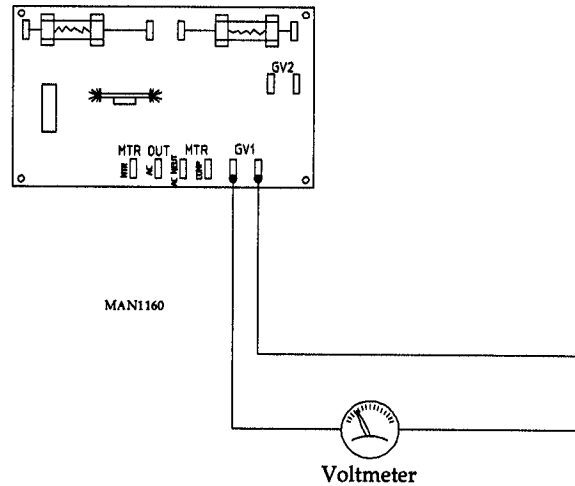
1) If voltage is present, continue.



5. Check for voltage across the two (2) GV1 terminals on the relay board.

a. If no voltage is evident, the problem is a bad wire or termination between TB #6 and one of the GV1 terminals, or the problem is the wire or termination between the other GV1 terminal and the "HO" terminal on the microprocessor controller (computer).

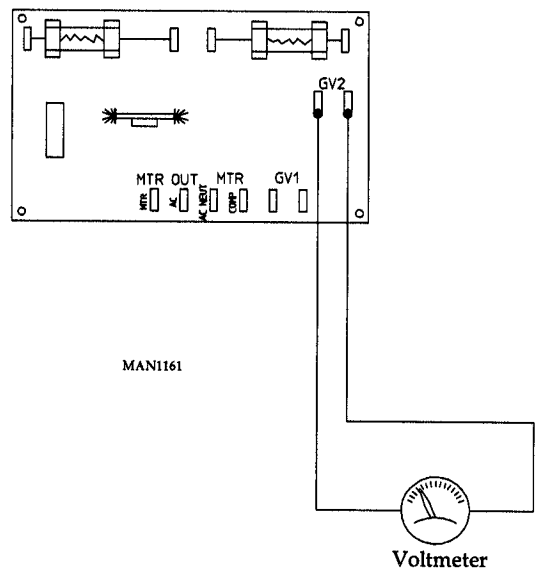
1) If voltage is present, continue.



6. Check for voltage across the two (2) GV2 terminals on the relay board.

a. If no voltage is evident, the relay board is bad.

1) If voltage is present, replace the wire harness from the GV2 terminals to the steam valve.



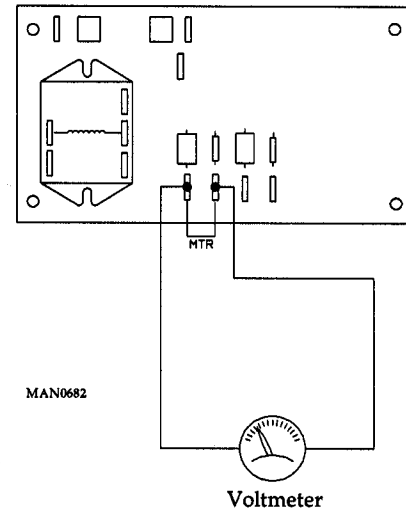
## D. NO START CONDITION

(for models with Electromechanical Relays ONLY)

The following procedure **must** be performed with the microprocessor controller (computer) L.E.D. display in the normal operating mode and the motor indicator dot on.

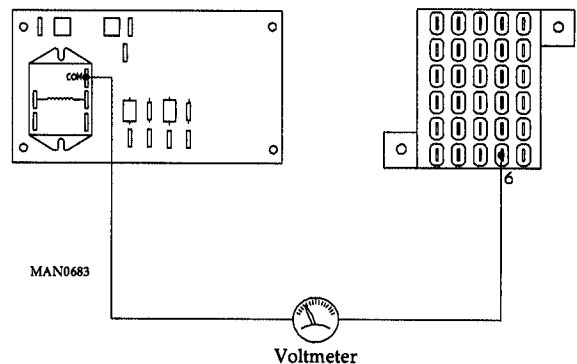
1. Check for voltage (the voltage your machine is rated at - 110 volts, 208 volts, or 230 volts) across the arc suppressor board (ASB) MTR (motor) terminals.

- a. If no voltage is evident, proceed to Step #5.



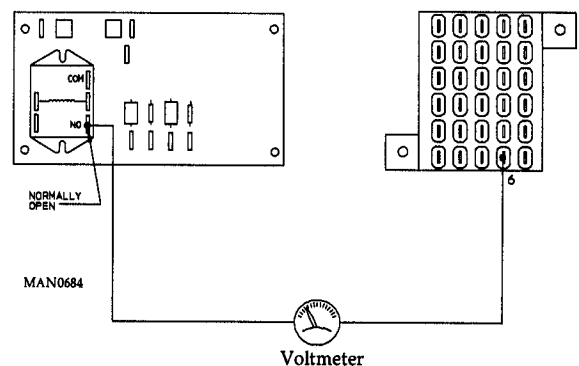
2. Check for voltage (the voltage your machine is rated at - 110 volts, 208 volts, or 230 volts) across TB #6 and the ASB motor relay "COM" (common) terminal

- a. If no voltage is evident, the problem is a break in the wire or termination between the relay "COM" (common) terminal and TB #8.



3. Check for voltage (the voltage your machine is rated at - 110 volts, 208 volts, or 230 volts) across TB #6 and the ASB motor relay "NO" (normally open) terminal.

- a. If no voltage is evident, the problem is a defective arc suppressor board (ASB).



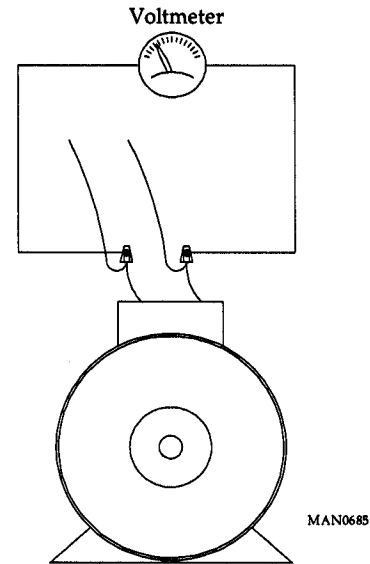


4. Check for voltage (the voltage your machine is rated at - 110 volts, 208 volts, or 230 volts) at the motor.

a. If voltage is present, the problem is a defective motor.

1) If no voltage is evident, the problem is a break in the wiring or termination between the motor and the controls (ASB or L2/N connections).

**NOTE:** For models with a 3-phase (3 $\phi$ ) motor, proceed to Step #6.



5. Disconnect the microprocessor 15-position (pin) connector from the microprocessor controller (computer) and locate connector hole no. 6.

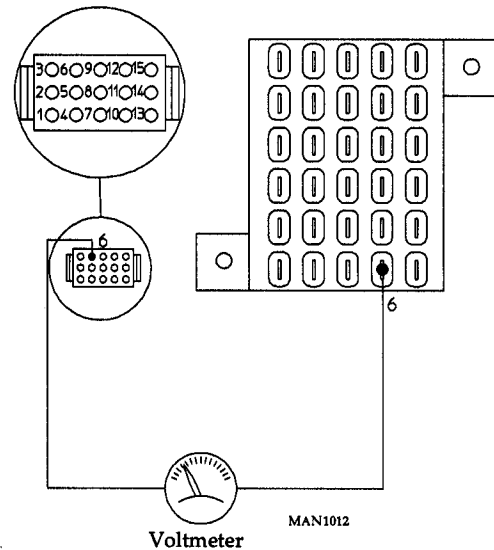
a. Check for voltage across the microprocessor 15-position (pin) connector hole no. 6 and TB #6.

1) If voltage is present, problem is...

A) Defective microprocessor controller (computer).

B) Microprocessor 15-position (pin) connector terminal no. 6 and microprocessor controller (computer) pin terminal are not mated properly.

C) Break in the wire or termination between the microprocessor 15-position (pin) connector terminal no. 15 and ASB MTR terminal or TB #6 and MTR terminal.



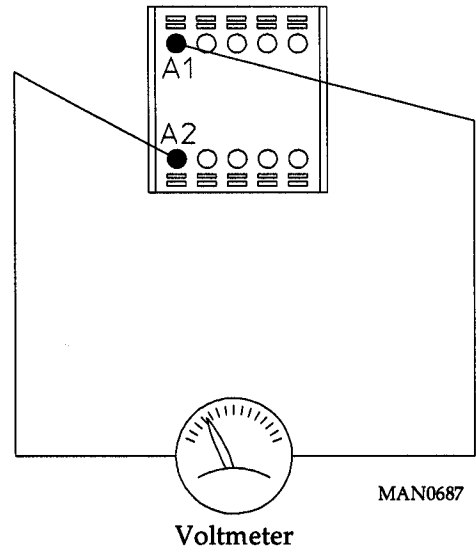
b. If no voltage is evident, check for voltage across TB #6 and TB #5.

1) If voltage is present between TB #6 and TB #5, the problem is break in the wire or termination between microprocessor connector hole no. 6 and TB #5.

2) If voltage is not evident, refer to **Section G** (A.C. Door Switch Circuit) on **page 62**, **page 63**, and **page 64**.

## 6. Models with 3-phase motors ONLY.

- a. Check for voltage across the 3-phase (3 $\phi$ ) contactor coil terminals.
  - 1) If no voltage is evident, the problem is break in the wiring terminations between the controls (motor relay "NO" [normally open] terminal and L2).
  - 2) If voltage is present, and...
    - A) Contactor is not closing, the problem is the coil contactor.
    - B) Contactor is closing, but there is no power out, the problem is the power line connections to the contactor itself.



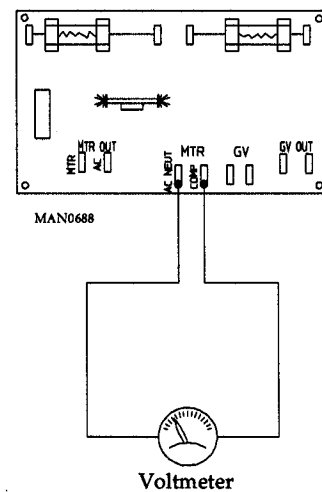
## E. NO START CONDITION

(for models with Solid State Relay [SSR] boards ONLY)

The following procedure **must be** performed with the microprocessor controller (computer) L.E.D. display in the normal operating mode and the motor indicator dot on.

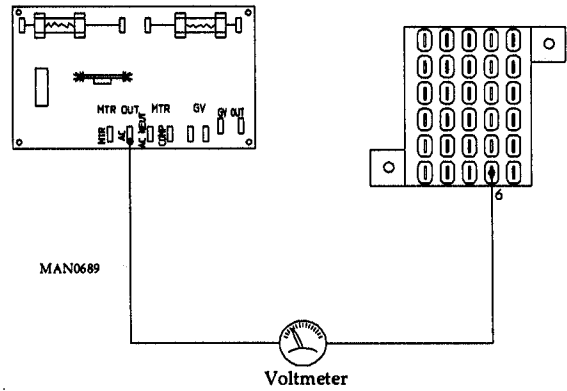
**NOTE:** The control voltage to be checking for should be 110 volts, 208 volts, or 230 volts unless otherwise specified.

1. Check for voltage across the SSR board MTR ("AC," "NEUT," and "COMP") terminals.
  - a. If no voltage is evident, proceed to Step #5.



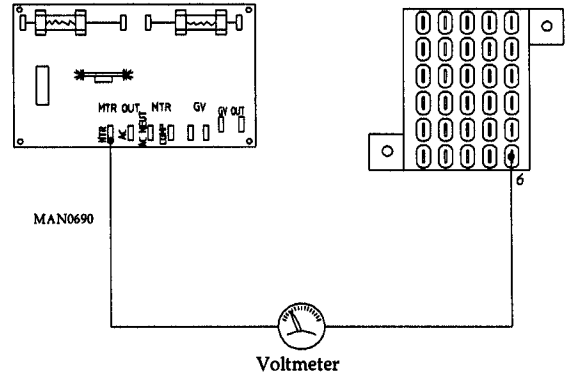
2. Check for voltage across TB #6 and the SSR board "MTR OUT AC HOT TERMINAL."

- a. If no voltage is evident, the problem is a break in the wire or termination between the SSR board "MTR AC HOT TERMINAL" and TB #8.



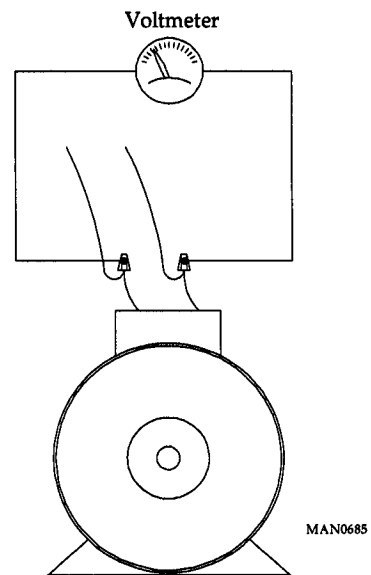
3. Check for voltage across TB #6 and SSR board "MTR OUT MOTOR TERMINAL."

- a. If no voltage is evident, the problem is a defective SSR board.



4. Check for voltage at the motor.

- a. If voltage is present, the problem is a defective motor.
- b. If no voltage is evident, the problem is a break in the wiring or termination between the motor and controls (SSR board or L2/N connections.)



5. Disconnect microprocessor 15-position (pin) connector from the microprocessor controller (computer) and locate connector hole no. 6.

a. Check for voltage across the microprocessor 15-position(pin) connector hole no. 6 and TB #6.

1) If voltage is present, the problem is...

A) Defective microprocessor controller (computer).

B) Microprocessor 15-position (pin) connector terminal no. 6 and microprocessor controller (computer) pin terminal are not mated properly.

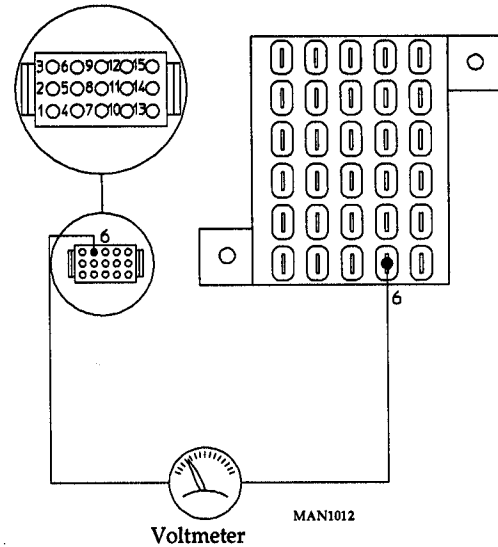
C) Break in the wire or termination between microprocessor 15-position (pin) connector terminal no. 15 and SSR board or TB #6 "MTR AC NEUT" terminal.

b. If no voltage is evident, check for voltage across TB #6 and TB #5.

1) If voltage is present between TB #6 and TB #5, the problem is break in the wire or termination between microprocessor connector hole no. 6 and TB #5.

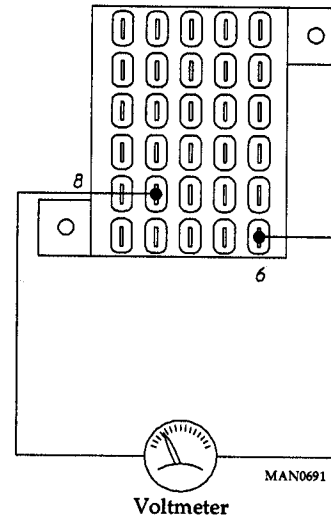
2) If voltage is not evident, refer to **Section G (A.C. Door Switch Circuit)** on **page 62, page 63, and page 64.**

**IMPORTANT:** SSR boards cannot be used on models with 3-phase (3 $\phi$ ) motors. For this application the electromechanical type relay boards are used.

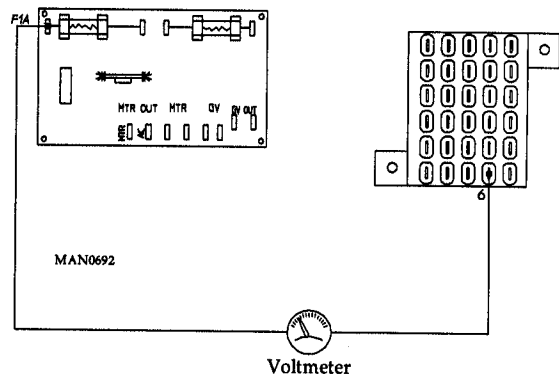


## E. NO DISPLAY CONDITION

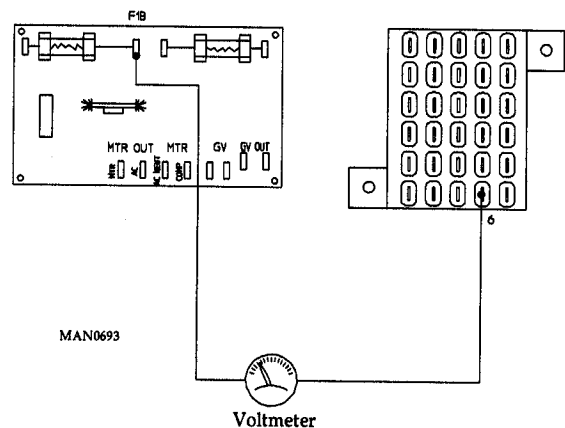
1. Check the power supply.
2. Check for voltage across TB #8 (L1) and TB #6 (L2 or N).
  - a. If no voltage is evident, the problem is a break in the wire or termination between the terminal block (TB) and the power supply.



3. Check for voltage across SSR board F1A terminal and TB #6.
  - a. If no voltage is evident, the problem is a break in the wire or termination between the SSR board F1A terminal and TB #8.



4. Check for voltage across SSR board F1B terminal and TB #6.
  - a. If no voltage is evident, the problem is...
    - 1) Blown fuse.
    - 2) Defective SSR board (check for burn spots on the underside of SSR board F1A terminal and F1B terminal).



**5. For 208 volt and 230 volt control models ONLY.**  
*For 115 volt models, proceed to Step #6.*

**a. Check for voltage across SSR board F2A terminal and TB #8.**

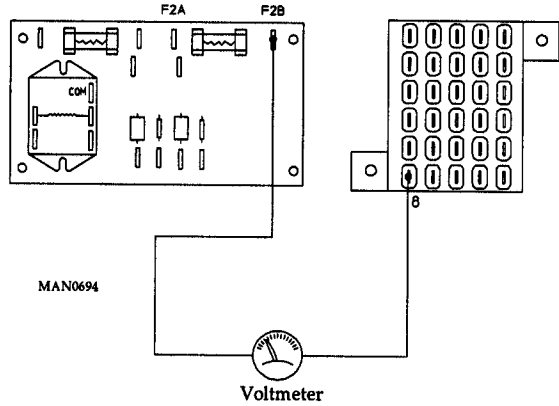
1) If no voltage is evident, the problem is a break in the wire or termination between SSR board F2A terminal and TB #8.

2) Check for voltage across SSR board F2B terminal and TB #8.

A) If no voltage is evident, the problem is...

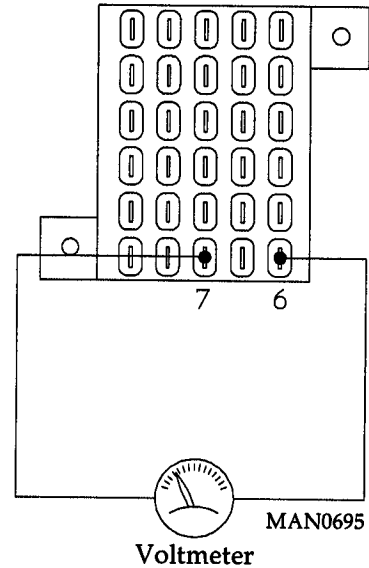
(1) Blown fuse.

(2) Defective SSR board (check for burn spots on the underside of SSR board F2A terminal and F2B terminal).



**6. Check for voltage across TB #7 and TB #6.**

a. If no voltage is evident, the problem is a break in the wire or termination between the SSR board F1B terminal and TB #7.



7. Disconnect the microprocessor 15-position (pin) connector and locate hole no. 5 and hole no. 7.

a. Check for voltage across hole no. 5 and hole no. 7.

1) If no voltage is evident...

A) Check for voltage across microprocessor connector hole no. 5 and TB #6.

(1) If no voltage is evident, the problem is a break in the wire or termination between TB #7 and microprocessor connector hole no. 5.

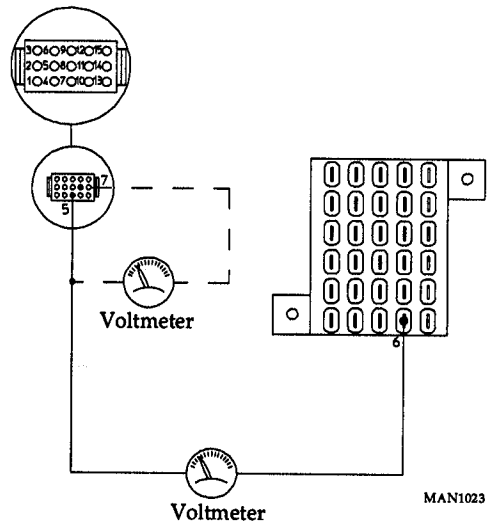
(2) Check for voltage across microprocessor connector hole no. 7 and TB #8.

(a) If no voltage is evident, the problem is a break in the circuit (wire or termination) between TB #6 and microprocessor connector hole no. 7.

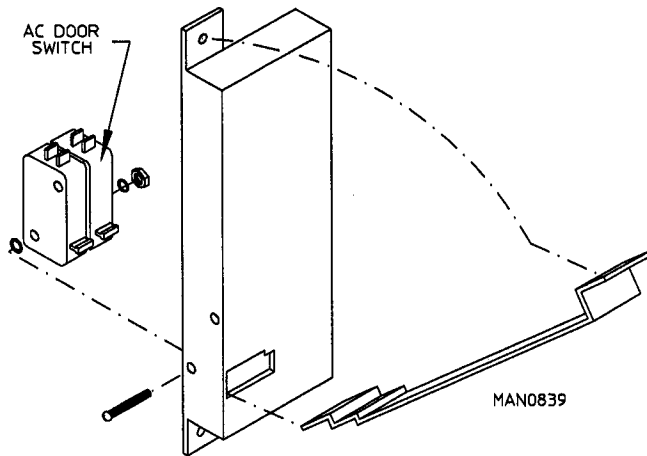
B) If voltage is present, the problem is...

(1) Microprocessor 15-position (pin) connector terminals and the microprocessor controller (computer) terminals are not mated properly.

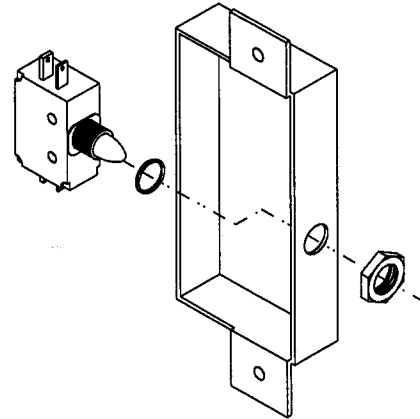
(2) Defective microprocessor controller (computer).



## G. AC DOOR SWITCH CIRCUIT



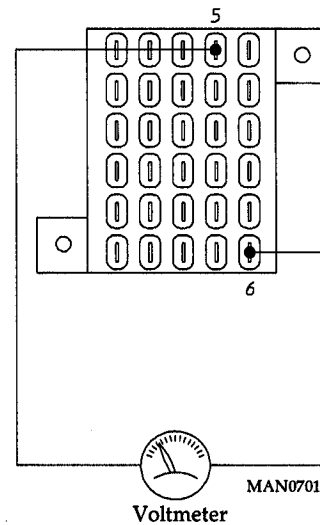
### **NEW STYLE DOOR SWITCH**



### **OLD STYLE DOOR SWITCH**

The following test procedure **must** be performed with the microprocessor controller (computer) L.E.D. display in the normal operating mode and the indicator dot(s) on, unless otherwise indicated.

1. Check for voltage across TB #6 and TB #5.
  - a. If voltage is present, the door switch circuit (door switch and wiring) is okay, proceed to Step #4.

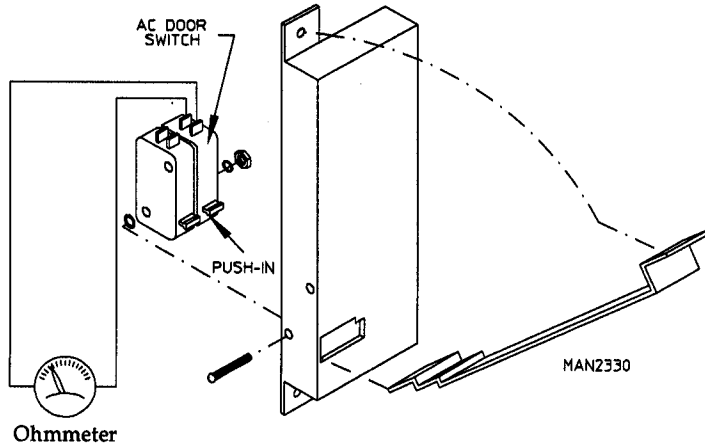


2. Discontinue power to the dryer.
  - a. Open the main door and remove the door switch box assembly from the dryer front panel...  
**DO NOT** disconnect the wires from the door switch(es).

On the "NEW" style door switch, locate the switch with the yellow wires going to it. With the door switch plunger pushed in, check for continuity across these two (2) terminals. If there is no continuity, the door switch is defective. (Refer to the illustration on the following page [page 63].)

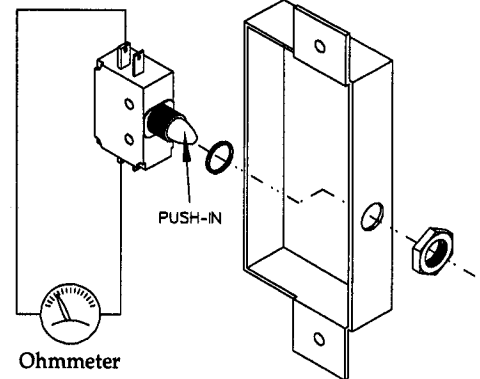


On the "OLD" style door switch, locate the AC door switch terminal "COM" (common) and "NO" (normally open).



**NEW STYLE  
DOOR SWITCH**

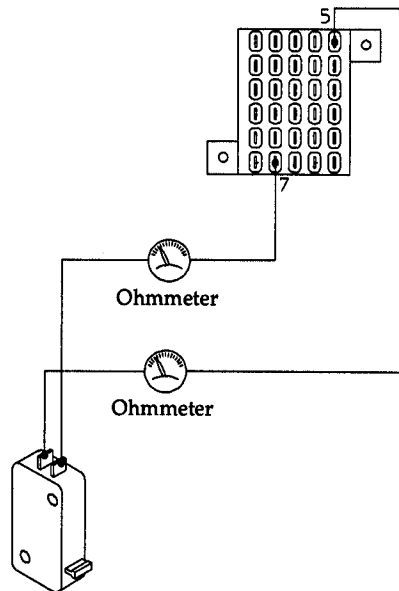
**NOTE:** AC Terminals are the larger/wider of the pair of terminals.



**OLD STYLE  
DOOR SWITCH**

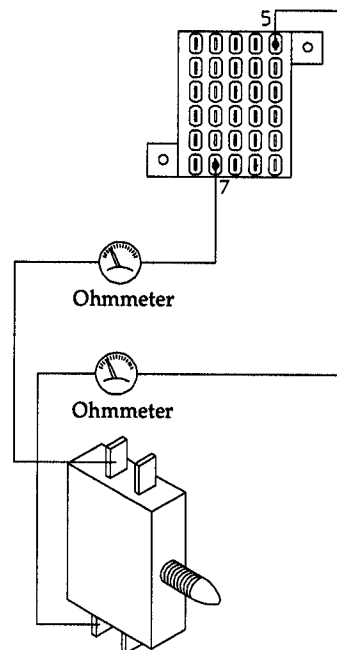
3. Check for continuity across each AC door switch terminal and the appropriate door switch wire to TB #5 and TB #7.

a. If there is no continuity in any of these two (2) wires, the problem is break in the wire or termination.



MAN1022

**NEW STYLE  
DOOR SWITCH**



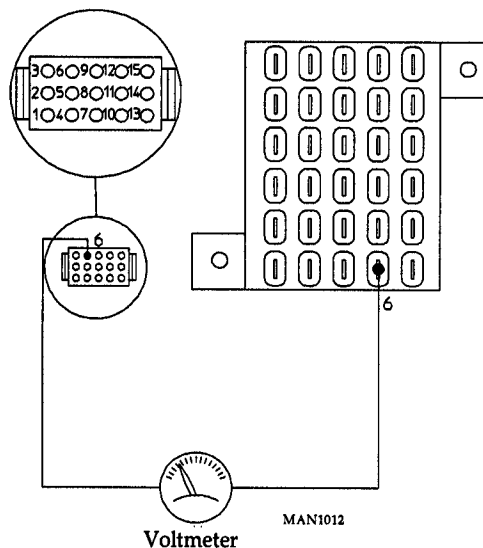
**OLD STYLE  
DOOR SWITCH**

**IMPORTANT:** When reassembling the door switch box to the front panel assembly; after pushing the AC door switch wires and the DC door switch wires back into the hole in the front panel, put some slack in the wire. Failure to do so may result in wires being damaged during normal operation of the dryer.

4. Disconnect the microprocessor 15-position (pin) connector and locate hole no. 6.

a. Check for voltage across hole no. 6 and TB #6.

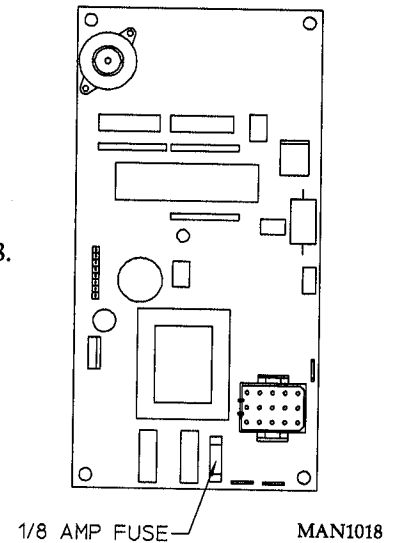
- 1) If no voltage is evident, the problem is a break in the wire or termination between microprocessor connector hole no. 6 and TB #5.
- 2) If voltage is present, refer to **Section D** (No Start Condition [for models with Electro-mechanical Relays ONLY]) on **page 54** thru **page 56** or **Section E** (No Start Condition [for models with SSR boards ONLY]) on **page 56** thru **page 58**.



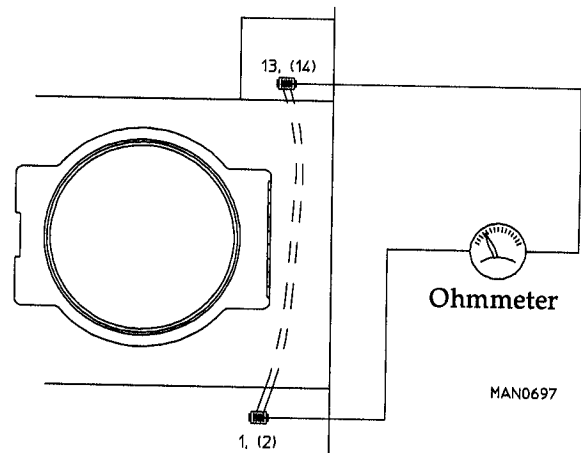
## H. "dSFL" DISPLAY CONDITION

When the L.E.D. display reads "dSFL" this condition indicates a fault in the microprocessor controllers (computers) heat circuit. This circuit includes the microprocessor controller (computer), the microprocessor temperature sensor (located in the lint compartment), and wires to and from these two (2) points.

1. Check to see if the microprocessor controller (computer) has a 1/8-amp fuse on the computer.
  - a. If it does, check with an ohmmeter...
    - 1) If there is no continuity, replace fuse with ADC Part No. 136048.
    - 2) If no fuse is on the computer, continue.
2. Check for a loose connection at the microprocessor sensor bracket harness connector (located in the lint compartment), and the microprocessor 15-position (pin) connector at the microprocessor controller (computer).

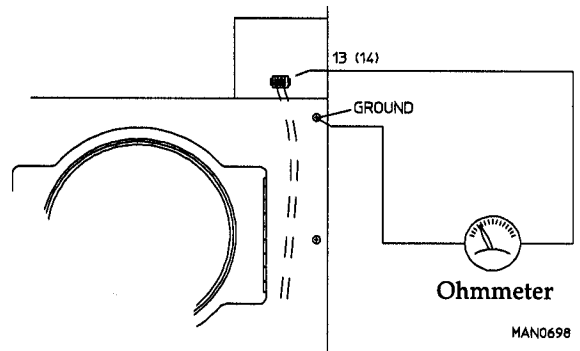


3. Discontinue power to the dryer.
  - a. Disconnect the microprocessor 15-position (pin) connector and locate connector hole no. 13 and hole no. 14.
    - 1) Disconnect sensor harness from sensor bracket assembly (located in the lint compartment).
      - A) Check for continuity across each wire from the harness connector in the lint compartment (pin #1 and pin #2) to the appropriate microprocessor 15-position (pin) connector (hole no. 13 and hole no. 14).
        - (1) If there is no continuity, the problem is a break in the wire or termination.



4. Check for continuity across each microprocessor sensor wire (microprocessor 15-position [pin] connector hole no. 13 and hole no. 14) to ground.

a. If continuity is evident, the problem is a wire pinched to ground somewhere behind the front panel area.



5. If the above procedures check out okay, then the problem is...

a. Defective microprocessor temperature sensor.

b. Defective microprocessor controller (computer).

## I. "door" DISPLAY CONDITION

When the L.E.D. display reads "door," this indicates that there is a fault (open circuit) somewhere in the microprocessor controller's (computers) DC door switch circuit. This circuit includes the door switch, microprocessor controller (computer) and the wires to and from these two (2) points. Before following this test procedure, check the door switch to insure that:

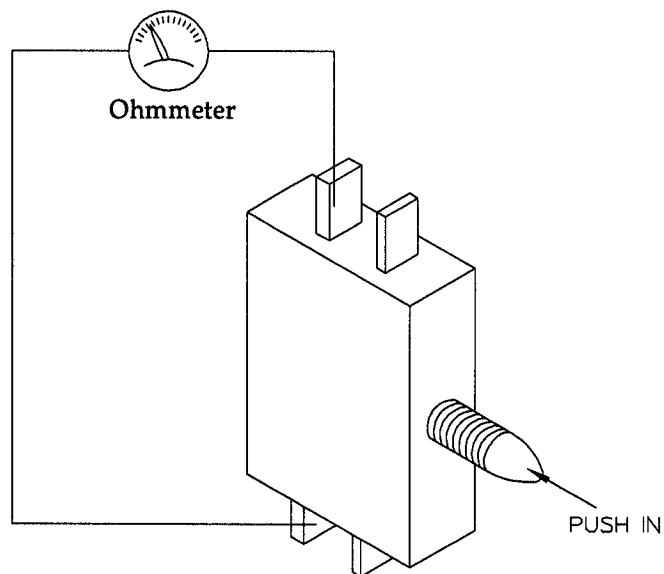
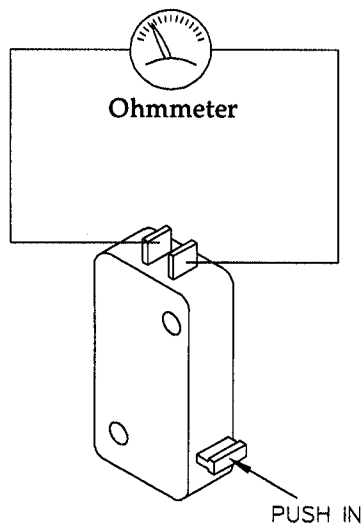
The following procedure **must** be performed with the power discontinued to the dryer.

1. Open the main door and disassemble the door switch box assembly from the dryer...

**DO NOT** disconnect the wires to the door switch(es).

On the "**NEW**" style door switch, locate the the switch with the gray wires going to it. Check for continuity across those terminals, while you push in the actuator of the switch. If no continuity switch is defective.

On the "**OLD**" style door switch, push the door switch plunger in and check for continuity across the "COM" (common) and "NO" (normally open) DC contacts (smaller terminals of the plunger type door switch) if no continuity door switch is defective.



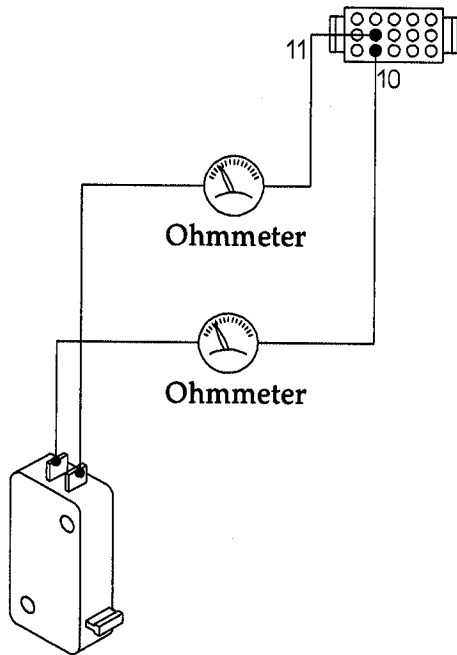
MAN1013

**NEW STYLE  
DOOR SWITCH**

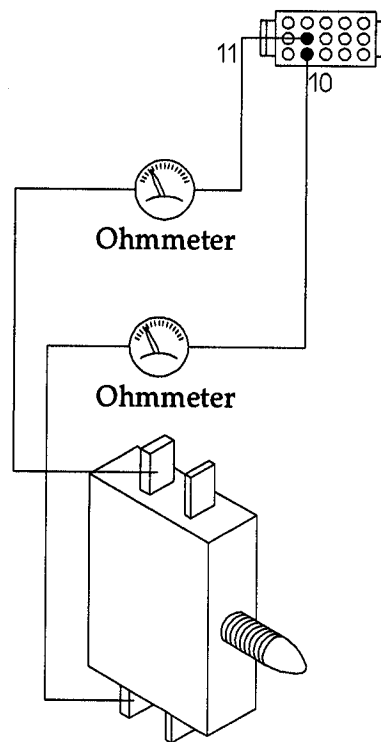
**OLD STYLE  
DOOR SWITCH**

2. Disconnect the microprocessor 15-position (pin) connector from the microprocessor controller (computer) and locate hole no. 10 and hole no. 11.
  - a. Check for continuity across each D.C. door switch terminal and appropriate door switch wire to the microprocessor 15-position (pin) connector hole no. 10 and hole no. 11.
    - 1) If there is no continuity, the problem is break in the wire or termination.

**NOTE:** Be sure to check the two (2) in-line connectors in the control box area for a loose connection or termination.



MAN1014

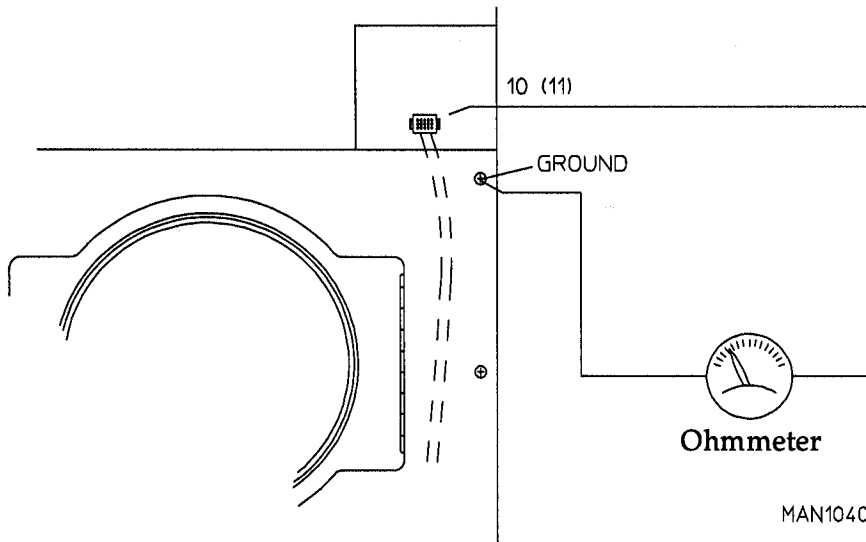


**NEW STYLE  
DOOR SWITCH**

**OLD STYLE  
DOOR SWITCH**

3. Check for continuity across each D.C. door switch wire to ground.

a. If there is continuity, the wire is pinched to ground somewhere behind front panel area.



4. If **ALL** of the procedures on **page 67** and **page 68** check out okay, the problem is...

- a. Microprocessor 15-position (pin) connector terminals and the microprocessor controller (computer) terminals are not mated properly.
- b. Defective microprocessor controller (computer).

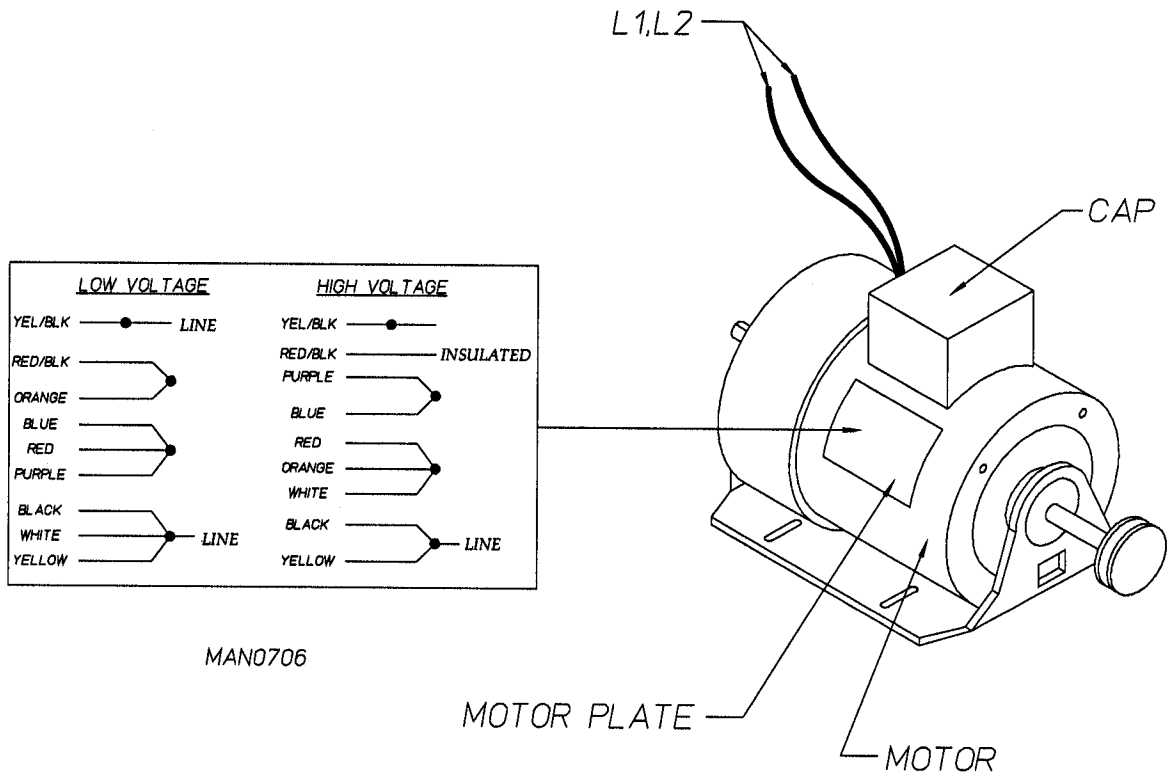
**IMPORTANT:** When reassembling the door switch box to the front panel assembly; after pushing the AC door switch wires and the DC door switch wires back into the hole in the front panel, put some slack in the wire. Failure to do so may result in wires being damaged during normal operation of the dryer.

# SECTION VII

## TECHNICAL INFORMATION

The following section contains various technical information important to the servicing and maintaining of the dryer.

### A. MOTOR LABEL (Low Voltage and High Voltage)



The motor label is located on the side of the drive motor (refer to the illustration above) and contains a graphical representation of the motor wiring for both low voltage rating and high voltage rating.

Removing the cap reveals the wiring to the motor. The wires are color coded and correspond to the colors on the motor label. Depending on whether the dryer is operating on low voltage or high voltage the wiring should match the motor plate as follows:

(The Dots and Lines Represent Connections [refer to the illustration above].)

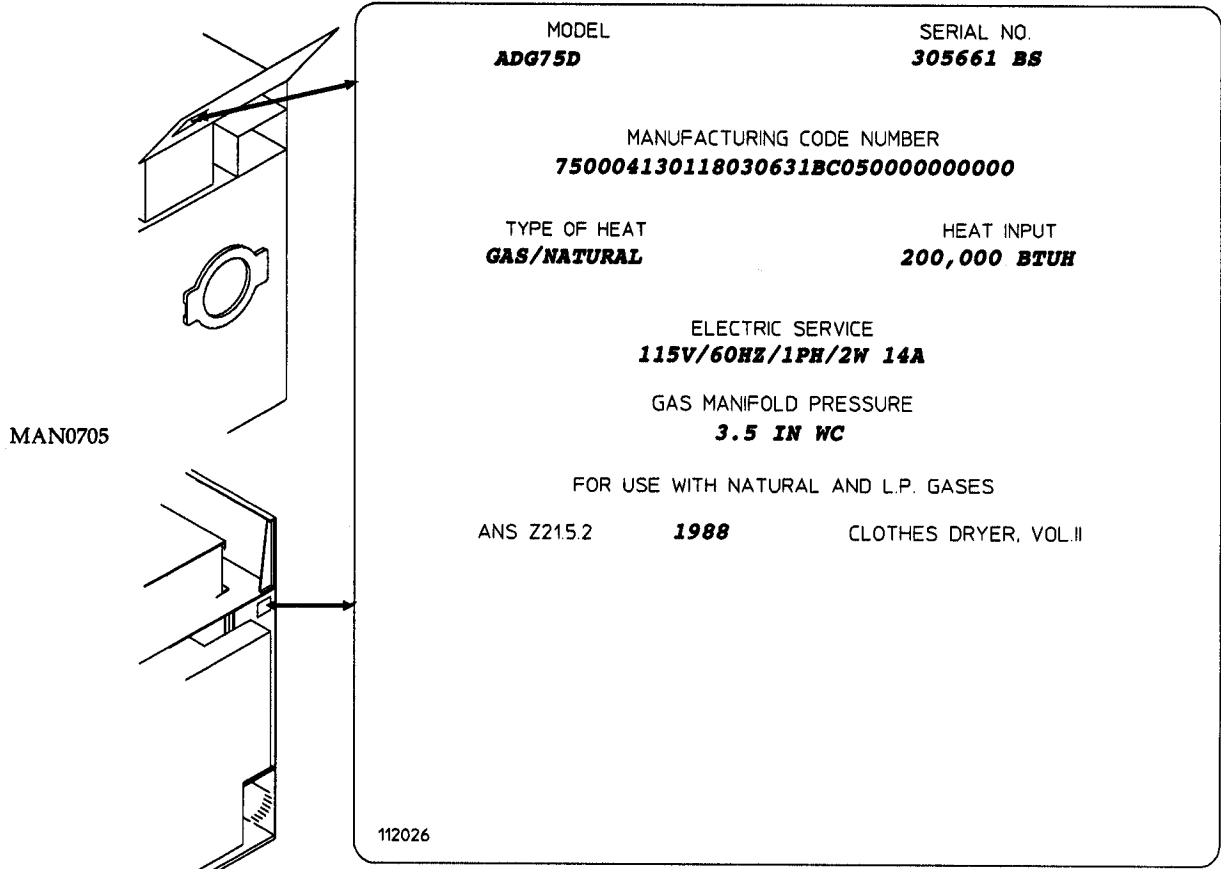
**FOR EXAMPLE: ON LOW VOLTAGE** - blue, red, and purple are connected together  
yellow/black is connected to line voltage

**ON HIGH VOLTAGE** - red, orange, and white are connected together  
red/black is insulated  
yellow/black is connected to line voltage



## B. DATA LABEL

### Contact American Dryer Corporation



When contacting American Dryer Corporation, certain information is required to insure proper service/parts information from ADC. This information is on the data label located on the control door for models AD-24, AD-27, AD-285, and AD-75, and on the back of the dryer on ALL other models. When contacting ADC, please have the model number(s) and the serial number(s) handy.

### THE DATA LABEL

1. **MODEL NUMBER** - is an ADC number which describes the size (capacity) of the dryer and the type of heat (gas, electric, or steam).
2. **SERIAL NUMBER** - allows ADC to gather the required information on your particular dryer model(s).
3. **MANUFACTURING CODE NUMBER** - is a number issued by ADC which describes ALL the possible options on your particular dryer model(s).
4. **TYPE OF HEAT** - describes the type of heat for your particular dryer model; either gas heat, electric heat, or steam heat.
5. **HEAT INPUT** - (for GAS MODELS ONLY) describes the heat input in British Thermal Units per hour (btu/hr).
6. **ELECTRIC SERVICE** - describes the electric service for your particular dryer model(s).
7. **GAS MANIFOLD PRESSURE** - (for GAS MODELS ONLY) describes the manifold pressure as taken at the gas valve pressure tap...refer to **HOW TO USE A MANOMETER** on page 72.

## C. USING A MANOMETER

### HOW TO USE A MANOMETER

1. With the dryer in non-operating mode remove plug on the gas valve pressure tap.
2. Attach plastic tubing to the pressure tap (fitting is supplied with the manometer [refer to the illustration]).
3. Attach manometer to the dryer using the magnet.

**NOTE:** Place the manometer in a position so that the readings can be taken at eye level.

4. Fill the manometer (as shown in illustration) to the zero level.
5. Start the dryer.

a. With the burner on, take a reading.

1) Read water level at the inner tube.

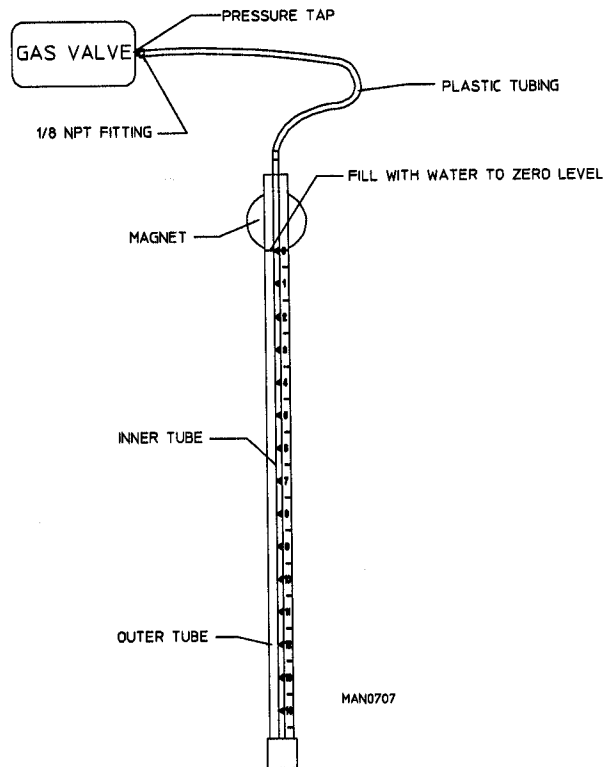
a) Readings should be taken at eye level.

2) Correct readings should be:

for NATURAL GAS: --- 3.5 inches water column (W.C.)  
for L.P. GAS -----11 inches water column (W.C.)

6. If water column pressure is incorrect, refer to **TO TEST and ADJUST GAS W.C. PRESSURE** on **page 25**.

7. Reverse this procedure for removing the manometer.



## D. PHASE 4 OPL L.E.D. DISPLAY CODES

The L.E.D. display informs the user of cycle status and program verification and displays important diagnostic and fault codes.

### *Display Operating Status*

#### 1. Cycle In Progress

While the dryer is operating, the display will read which cycle is in progress. For example, in the Drying Cycle (Mode), the L.E.D. display will read "dr," and in the Cool Down Cycle (Mode), the display will read "CL."

#### 2. Cycle Status

While a cycle is in progress, the L.E.D. display will show the progress of the cycle (load) that is being processed.

##### a. Automatic Drying Cycle

The Cycle Status portion of the display will show the percentage of extraction.

##### b. Timed (Manual) Drying Cycle

The Cycle Status portion of the display will show the drying or the cool down time and will count downward until the programmed time has expired.

#### 3. Alternate Display Programs

Programming allows for the L.E.D. display to read just the basket (tumbler) temperature or flash back and forth from the cycle in progress or basket (tumbler) temperature while the dryer cycle is in progress.

#### 4. Indicator Dots

Located at the top of the L.E.D. display is a series of dots which indicate the various microprocessor controller (computer) output functions while a cycle is in progress.

Refer to the illustration on (page 74) for details:

##### *Illus. No. 3 - On Indicator*

This indicator dot is on whenever a cycle is in progress. Additionally, when the Anti-Wrinkle Program is active, this indicator dot will be on whenever the microprocessor controller (computer) is in the Guard On Time Program.

##### *Illus. No. 4 - Heat Indicator*

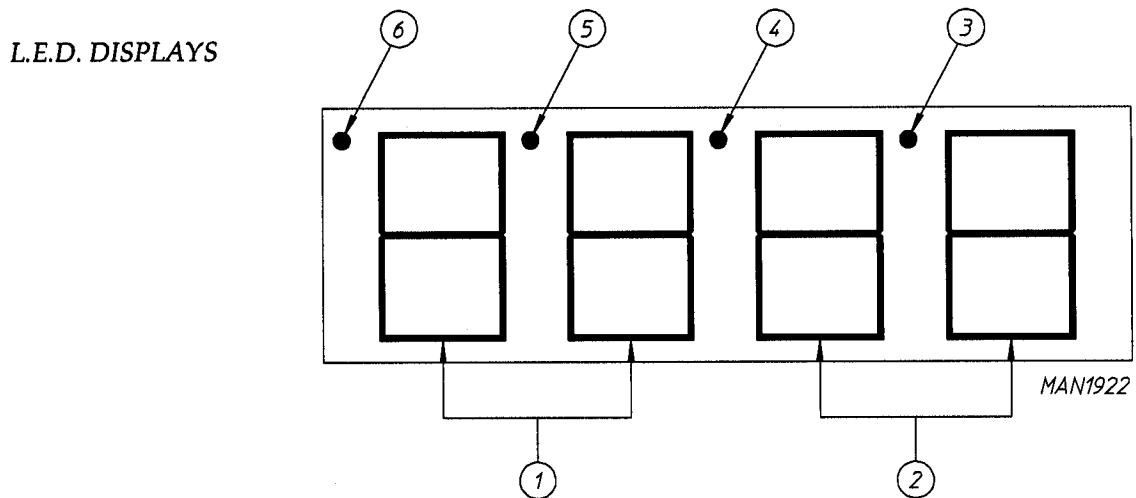
This indicator dot is on whenever the microprocessor controller (computer) is calling for heating unit to be active (on).

*Illus. No. 5 - Reverse Indicator*

This indicator is functional for models with the Reversing Action Option ONLY. This indicator will be on when the basket (tumbler) is in the Reverse (counterclockwise) direction.

*Illus. No. 6 - Forward Indicator*

This indicator is functional only for models with the Reversing Action Option ONLY. This indicator will be on when the basket (tumbler) is in the Forward (clockwise) direction. Additionally, when the Anti-Wrinkle Program is active, this indicator dot will be on whenever the microprocessor controller (computer) is in the Guard On Time Program.



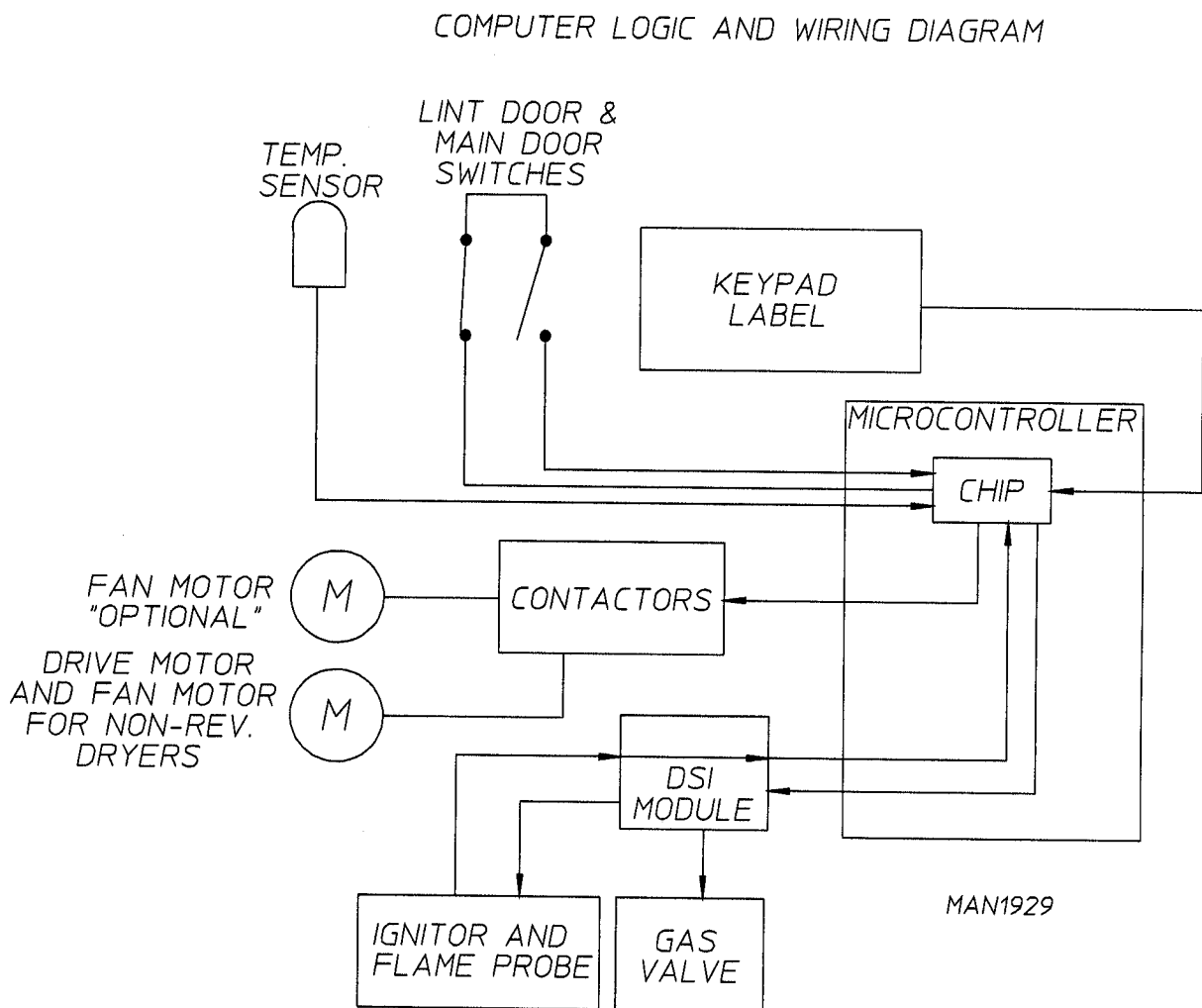
- ① **CYCLE IN PROGRESS**
  - a. dr ---- Drying Time
  - b. CL ---- Cool Down Time
- ② **CYCLE STATUS**
  - a. Automatic Mode Displays % of Extraxtion
  - b. Manual Mode Displays Drying Time or Cool Down Time
- ③ **ON** Indicator (dryer is in the Operating Mode)
- ④ **HEAT ON** Indicator
- ⑤ Basket (tumbler) in **REVERSE MODE** (counterclockwise) Indicator
- ⑥ Basket (tumbler) in **FORWARD MODE** (clockwise) Indicator

## L.E.D. Display Codes

|             |  |
|-------------|--|
| A           | Slope Factor Program                     |
| AUto        | Automatic Mode                           |
| ArEv        | Always Reverse                           |
| b           | Heat Loss (offset) Factor                |
| bUZ         | Buzzer Tone                              |
| bUZ — tinE  | Buz Time                                 |
| °CEL        | Degree in Celsius                        |
| CL          | Cool Down Cycle in Progress              |
| COOL - tinE | Cool Down Time                           |
| COOL - tEnP | Cool Down Temperature                    |
| CY A        | Preprogrammed Cycle A                    |
| CY b        | " b                                      |
| CY C        | " C                                      |
| CY d        | " d                                      |
| CY E        | " E                                      |
| CY F        | " F                                      |
| CYCL — tinE | Cycle Display Time                       |
| d           | Dryness Level (percentage of extraction) |
| done        | Drying or Cooling Cycles Complete<br>or  |
|             | Dryer is in Anti-Wrinkle Program         |
| door        | Door Circuit is Open<br>or               |
|             | Fault in D.C. Door Switch Circuit        |
| dr          | Drying Cycle in Progress                 |
| drY — LEvL  | Dryness Level (percentage of extraction) |
| drY — tEnP  | Drying Temperature                       |
| dSFL        | Dryer Sensor Circuit Failure             |
| F           | Fabric (temperature)                     |
| °FAr        | Degree in Fahrenheit                     |
| FILL        | No Cycle in Progress                     |
| FLS         | Flash Display Active                     |
| GdLY        | Anti-Wrinkle Delay Time                  |
| G on — tinE | Anti-Wrinkle On Time                     |
| Grd         | Anti-Wrinkle Program Active              |
| LC          | Load Cool Down Time                      |
| Ld          | Load Drying Time                         |
| MAAnU       | Manual Mode                              |
| MGrd        | Maximum Guard Time                       |
| nbUZ        | No Buzzer (tone)                         |
| nFLS        | No Flash Display                         |
| nGrd        | Anti-Wrinkle Program is Not Active       |
| nrEv        | No Reverse                               |
| ProG        | Program Mode                             |
| rEv         | Always Reverse                           |
| Sr          | Select Reverse                           |
| SrEv        | Select Reverse                           |
| tEnP        | Temperature                              |
| tEnP — tinE | Temperature Display Time                 |
| tinE        | Time                                     |

## E. COMPUTER LOGIC and WIRING DIAGRAM

1. Operator inserts coin(s).
2. Operator enters desired selection(s).
3. Information entered is sent to the microprocessor controller (computer) via the keyboard ribbon.
4. The input information is sorted/processed and executed by the microprocessor controller (computer) chip.
5. The microprocessor controller (computer) output signal activates the contactors and the Direct Spark Ignition (DSI) module which controls the machines functions.

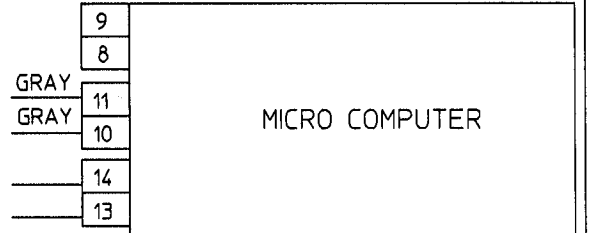


**NOTE:** When contacting ADC with electrical questions, please have on hand the correct wiring diagram number for your particular machine.

This number is located on the top right hand corner of the diagram. It is a six (6) digit number followed by a letter to distinguish the version dates (refer to the illustration on the right).

|       |                         |              |                |
|-------|-------------------------|--------------|----------------|
| DATE: | 11/7/90                 | P/N: B622711 | B              |
| B     | REWIRED 24v TRANSFORMER | 12/90        |                |
| A     | SOLID STATE RELAY       | 11/90        | ES SD          |
| REV.  | DESCRIPTION             | DATE         | APPD BY DRN BY |

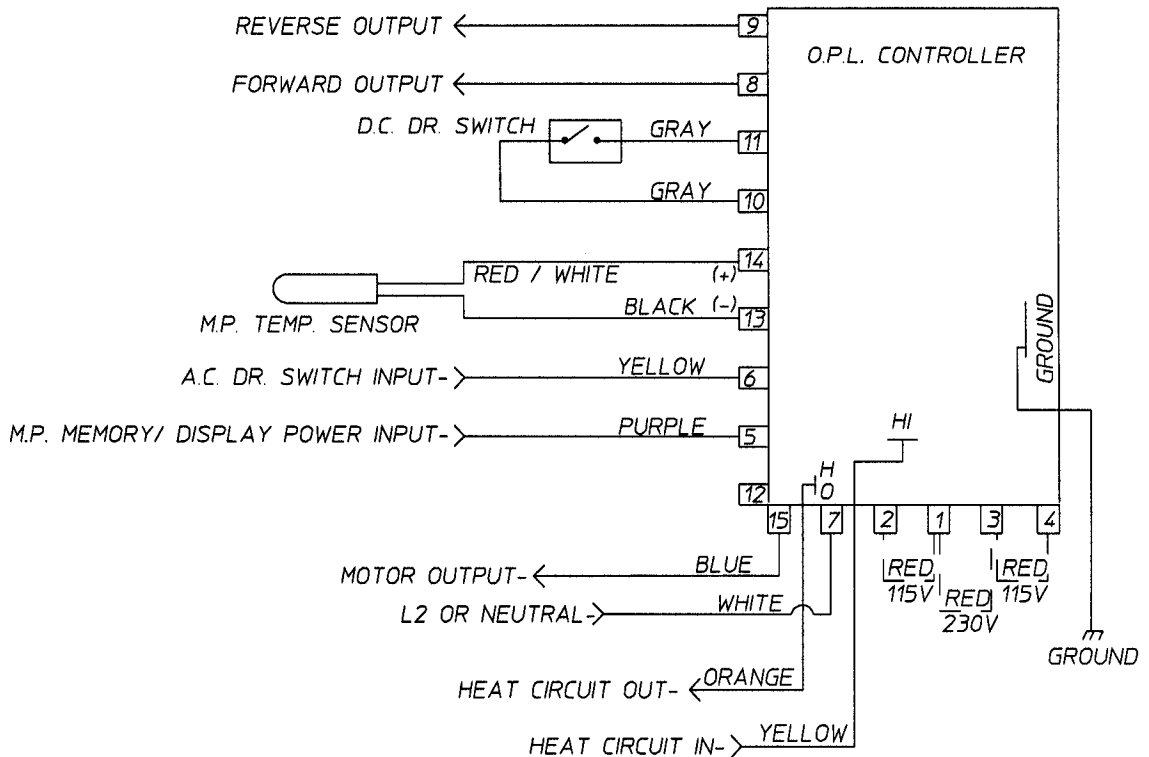
The wiring diagram below, is specifically for dryers manufactured at the time of publishing. Your particular model will be different depending on the date of manufacture and options available.



The correct wiring diagram and diagram number is taped to the control door on each dryer.

NUMBER.GEM

PHASE 4 O.P.L. CONTROLLER CIRCUITS



MAN1928

ADC450301

1 - 09/15/95-100  
4 \* 09/24/98-50  
7 - 10/04/01-25

2 \* 11/11/96-100  
5 - 09/01/99-50

3 - 01/30/98-50  
6 - 01/09/01-25

