



**AD-215/220/230**  
**Coin Service Manual**  
**MICROPROCESSOR CONTROLS**  
**(PHASE 3 AND PHASE 4)**  
**GLO BAR MODELS**  
**1986 thru February 1990**

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**American Dryer Corporation**  
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Fall River, MA 02720-4781  
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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 qualified 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.

The following "FOR YOUR SAFETY" caution must be posted near the dryer in a prominent location.

## FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

## POUR VOTRE SÉCURITÉ

Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de cet appareil ou de tout autre appareil.

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 from the various dryer models. Be sure to check 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.

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# SECTION I

## IMPORTANT INFORMATION

### A. SAFETY PRECAUTIONS

1. Do not store 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 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 mop heads. 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 like materials. Drying in a heated tumbler may cause 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).
7. Under no circumstances should the dryer door switch or heat circuit safety devices ever be disabled.
8. Read and follow all caution and direction labels attached to dryer.

**WARNING:** Children should not be allowed to play on or in the dryers. Children should be supervised if near dryers in operation.

# 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, and 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.

#### SUGGESTED INTERVAL

#### FUNCTION

EVERY LOAD	Clean lint from lint screen. Inspect lint screen daily 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.

90 DAYS	Remove lint from the motor air vents and surrounding area.
90 DAYS	Inspect and tighten all set screws ie; pulleys, idler bearings, tumbler bearings.
90 DAYS	Clean out 3" flex duct reclaimer located in the back, from the burner to the blower housing.

**IMPORTANT:** Lint accumulation will restrict internal motor air flow, causing overheating and irreparable damage. Motor failure due to lint accumulation will void the manufacturer's warranty

120 DAYS	Remove lint from gas burner area with a dusting brush or vacuum cleaner attachment.
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6 MONTHS

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

<p><b>IMPORTANT:</b> The accumulation of lint in the exhaust duct work can create a potential fire hazard</p>
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AS REQUIRED

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

## **B. ADJUSTMENTS**

### **SUGGESTED INTERVAL**

### **FUNCTION**

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.

6 MONTHS

Complete operational check of controls and valves.

6 MONTHS

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 new bearings, idler bearings and tumbler bearing are sealed lubrication is not 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, installation must conform to applicable American & National Standards.

ANSI Z223.1 (LATEST EDITION) NATIONAL FUEL GAS CODE

ANSI/NFPA NO. 70 (LATEST EDITION) NATIONAL ELECTRIC CODES

### 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 coin machines.

Bulkheads and partitions around the dryer should be made 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 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 exhaust 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, premature electric element failure may result. Air supply must be given careful consideration to insure proper performance of each dryer.

**IMPORTANCE:** 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 installation manual for more detail.)

**CAUTION:** Improperly sized, installed or maintained (cleaned) exhaust duct work 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 dryer installation must meet the American National Standard, 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 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's 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.

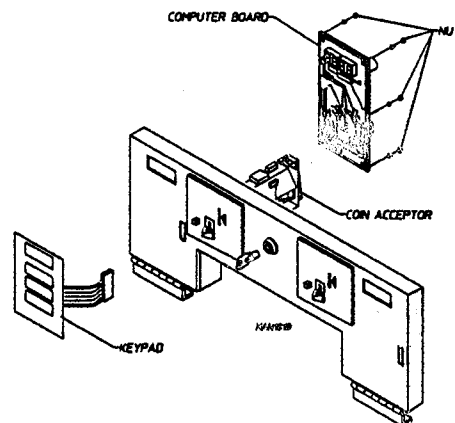
1. Make a complete operational check of all the operating controls to insure that the timing is correct, temperature selection switches are functioning properly.
2. Make a complete operational check of all safety related circuits, door switch(s), hi-limit thermostat, sail switch, cycling thermostats, etc.

# SECTION IV

## DESCRIPTION OF PARTS

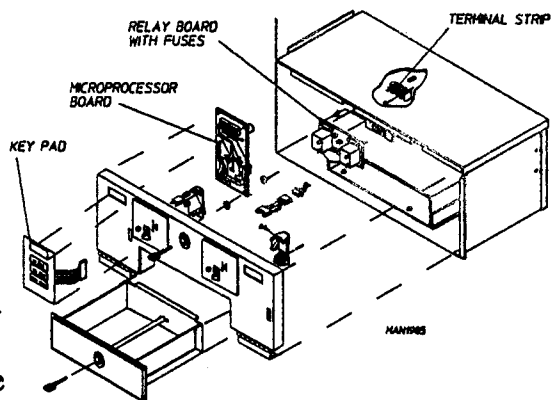
### A. Control Panel (Microprocessor)

Opening the control door will reveal the control panel assembly. Opening the control panel will allow access to the major components which include the coin acceptors, computer board, and keypad. The coin acceptor sends the signal to the computer that a coin has been inserted. The keypad inputs to the computer what temperature has been selected. The computer controls the entire operation of the machine. It accepts inputs and gives outputs to various parts throughout the machine.



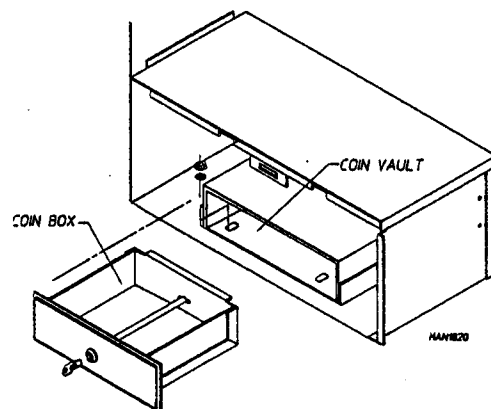
### B. Control Box

The control box is made up of a relay board, fuse(s), a 110 vac transformer, if 208vac or higher and 8 position terminal strip. The fuse(s) protect the incoming voltage from shorting. The transformer is used to break the incoming voltage to 110vac for the glo-bar circuit of the machine. The 8 position terminal block is used to combine the various common wires throughout the machine for simplicity and ease of service. The relay board is used to drive the motor and the glo-bar circuit when the computer applies voltage to the contactors coil.



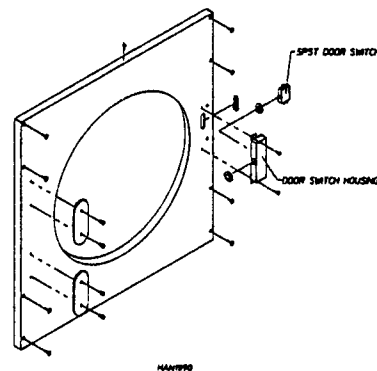
### C. Coin Box and Vault

The coin box and vault are located under the control panel. When a coin passes the coin sensor, it drops into the coin vault. Opening the control door reveals the coin box. To remove the coins turn the key and pull box out.



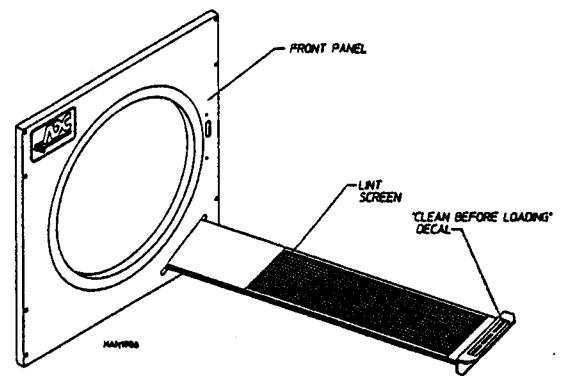
### D. Main Door Switch

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.



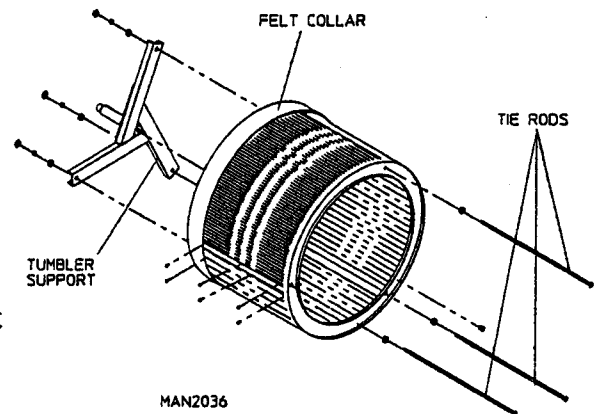
## E. Lint Screen

The lint screen located in the bottom portion of the front panel. The lint screen prevents lint from entering the exhaust system. The lint screen should be kept clean at all times. Lint screens with tears or holes should be replaced immediately.



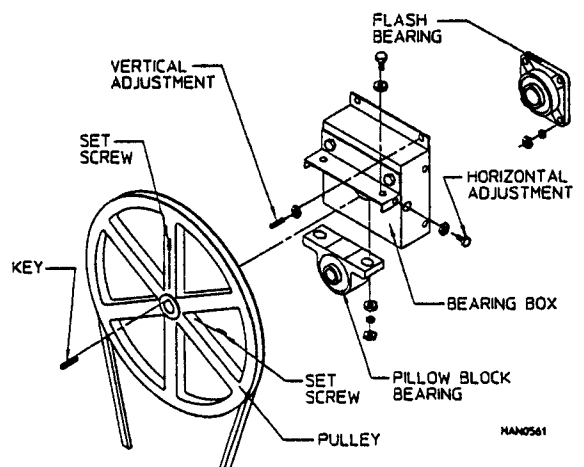
## G. Tumbler

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



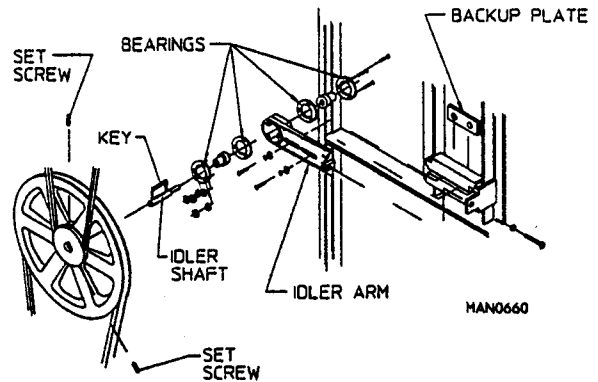
## H. Tumbler Bearing and Pulley Arrangement

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. The bearing box has various nuts and bolts that are made to adjust the basket vertically and horizontally.



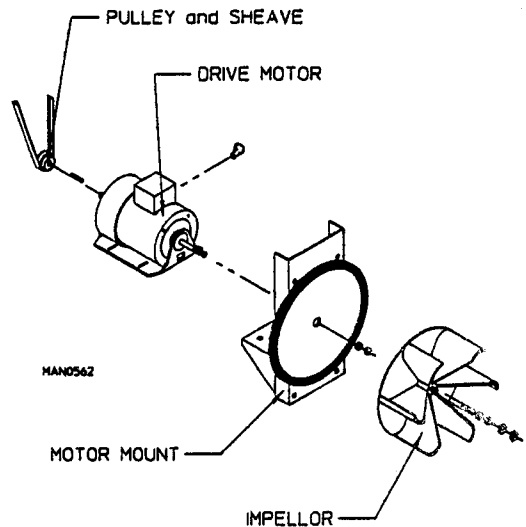
## I. Idler Bearing

(Viewing from the rear of the dryer) The idler assembly is located approximately on the lower left hand side of the dryer. The idler assembly consists of one (1) compound pulley. The idlers main purpose is to reduce the speed and increase torque provided to the tumbler bearing. Also, the idler assembly belt tension can be adjusted. The AD-230 requires a 9" x 2 1/2" pulley, and a shaft and two bearings which is pressed into the idler arm.



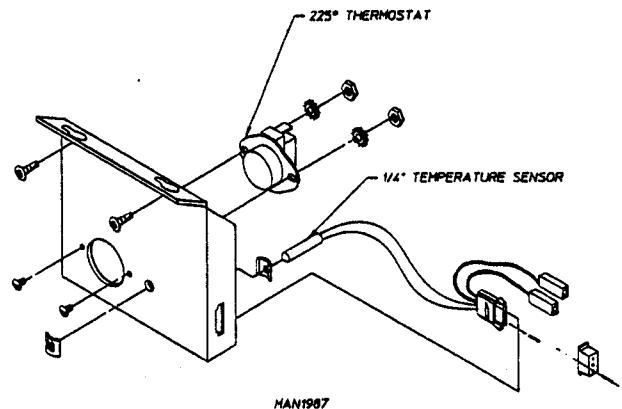
## J. Drive Motor and Impellor

The drive motor is located on the back, approximately lower center of the dryer for the top and same position. But lower for the bottom pocket. It sits on an adjustable base so the motor can easily be adjusted to the left or right, up or down. 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 through the lint screen and out the exhaust.



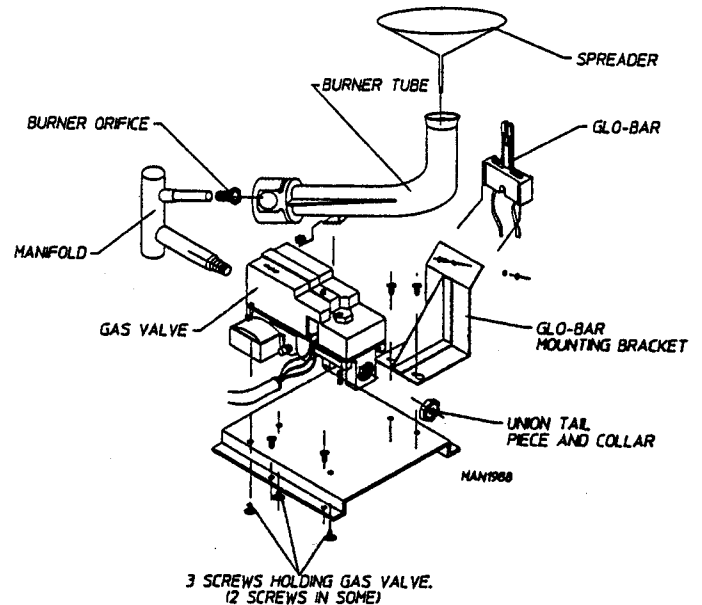
## K. Temperature Sensor

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



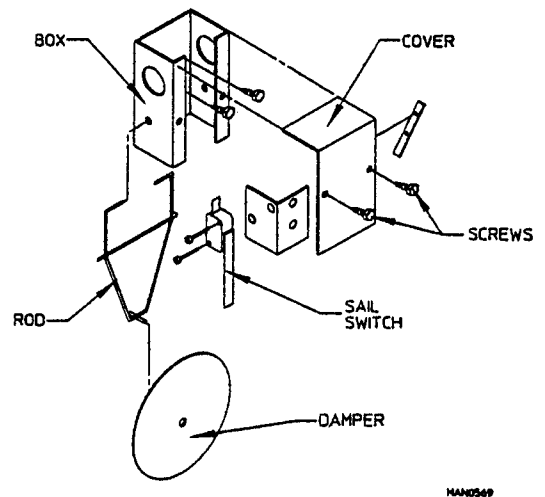
## L. Gas Burner

The gas burner assembly consists of the burner tube, orifice (the orifice has a hole in it 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.), and glo-bar.



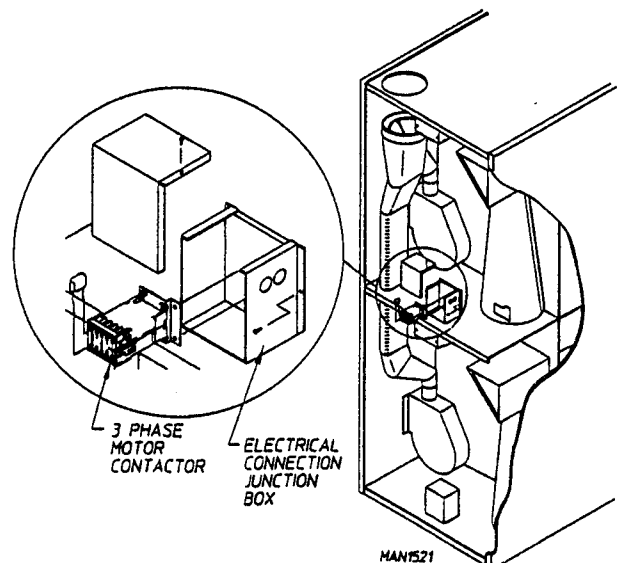
## M. Sail Switch

The sail switch consists of a round plate on a lever arm which acts like an actuator for a micro-switch. When the blower motor comes on, it draws air from the burner. This creates a negative pressure inside the basket area, 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 on it. It can also be caused by a lack of make up air.



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

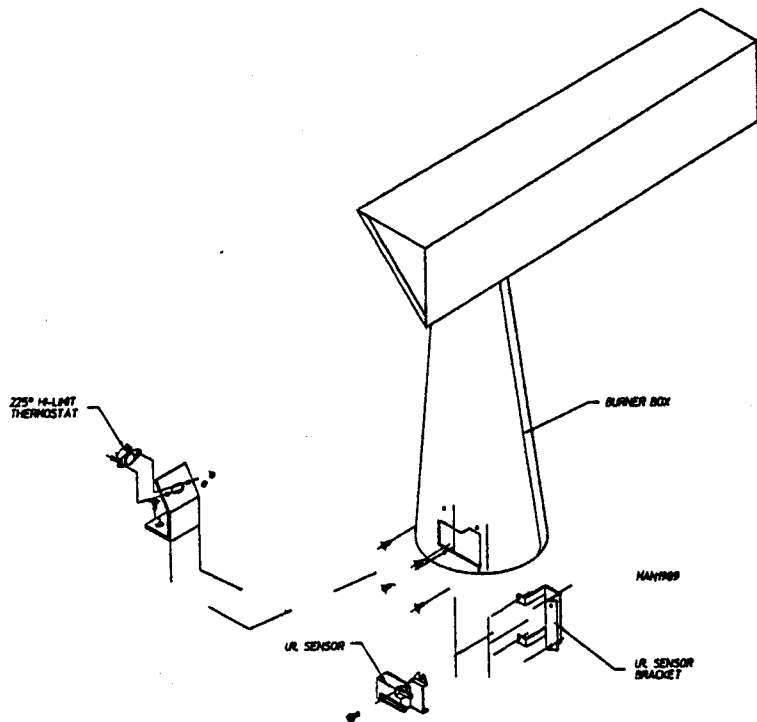
The non-reversing contactor is used on 3 phase non-reversing dryers and is located in the junction box in the rear of dryer. It is through the contactor that the voltage inputs are fed. Its purpose is to transfer the higher voltage to the motor when the contactor coil voltage have been achieved.



## O. Burner Hi-Limit Thermostat

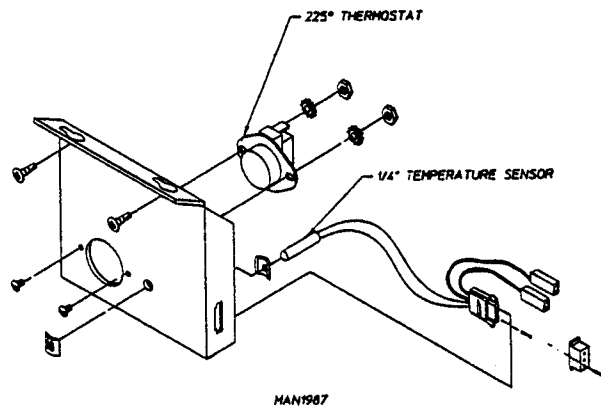
The hi-limit thermostat is another safety device that we use. The hi-limit is located in the burner area. The hi-limit switch cuts off the heat if the temperature exceeds 225°. Under normal conditions the only way this device would shut off the heat is when the air flow changes to the extent of making the flame brush up against it.

**NOTE:** This device along with all other safety devices should never be disabled.



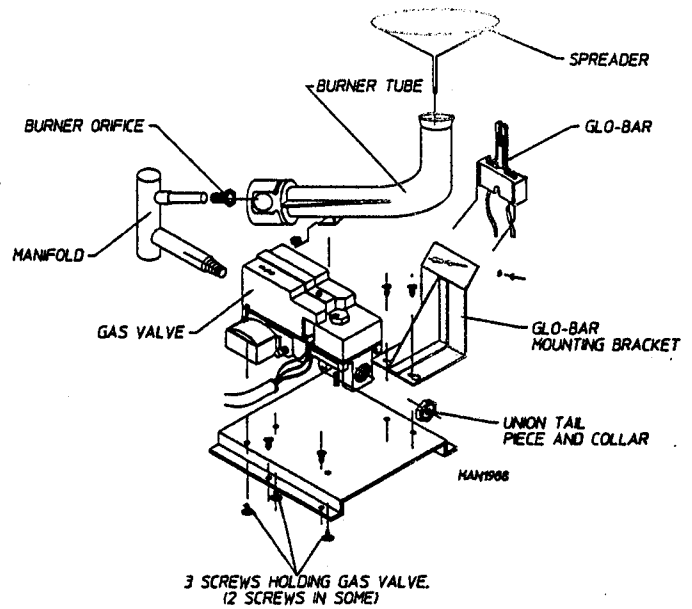
## P. Basket Hi-Limit Thermostat

The basket hi-limit is rated at 225°. This means that if the basket ever reached the 225° temp. The heat would automatically shut-off. This is a safety device besides all the others in the dryer.



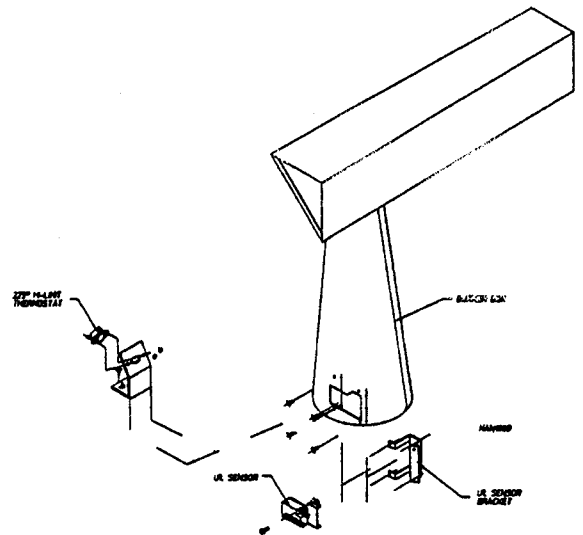
## O. Glo-Bar

The glo-bar is a silicon carbide ignitor. That once the computer or timer calls for heat will glow bright Orange. When the I.R. sensor detects this heat to a certain point shuts off the glo-bar and turns on the gas valve. The gas then hits the glo-bar and ignition occurs.



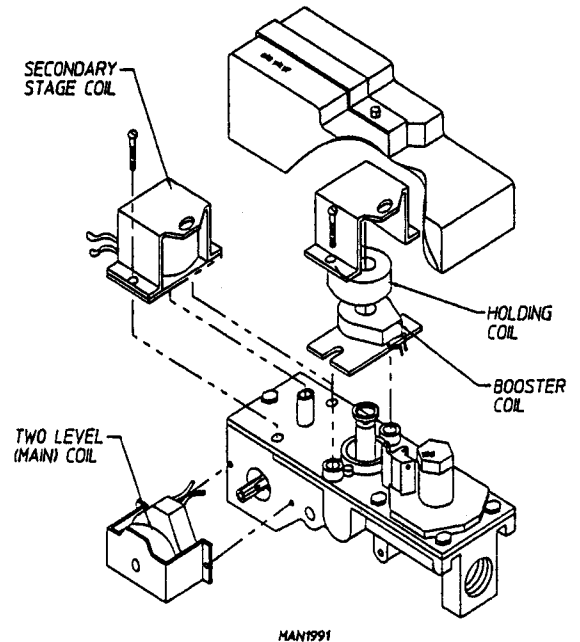
## R. I.R. Sensor

The I.R. sensor or sometimes called flame switch or flame sensor. This is a switch that opens upon heat. The glo-bar supplies the heat through the window of the I.R. sensor the contacts of the sensor stay open, providing heat (flame) has been established.



## S. 3/8 Hi/Lo Glo-Bar Gas Valve

This gas valve has 4 coils that pick-up and let down plungers inside the valve. This process will create either high fire low fire or off. See Section VII, Part B, for further explanation on the valve.



# SECTION V

## SERVICE

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.

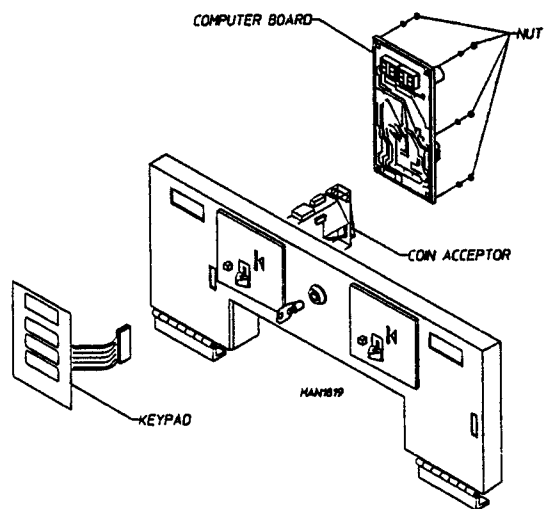
Before considering replacement make sure that all connectors are in place and making proper contact. Check input voltage and temperature sensor. After replacing any parts performing adjustments or service run through a complete cycle.

**IMPORTANT:** YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY BEFORE ANY COVERS or GUARDS ARE REMOVED FROM INSTALLATION, or TESTING OF ANY EQUIPMENT PER OSHA (Occupational Safety and Health Administration) STANDARDS.

### A. CONTROLS (COMPUTER)

#### TO REPLACE COMPUTER

1. Disconnect power to dryer.
2. Open control door (2 locks)
3. Open Computer Panel (1 Lock)
4. Disconnect main power harness from the rear of the computer by squeezing the top locking tabs and pulling connector straight back.
5. Disconnect the green ground wire from the computer.
6. Disconnect the keypad ribbon from the computer.





7. Disconnect the "Hi" & "Ho" terminals from the computer.
8. Remove the two (4) nuts securing the computer to the control panel and remove computer.
9. Install new computer by reversing this procedure.
10. Be sure to check programs.

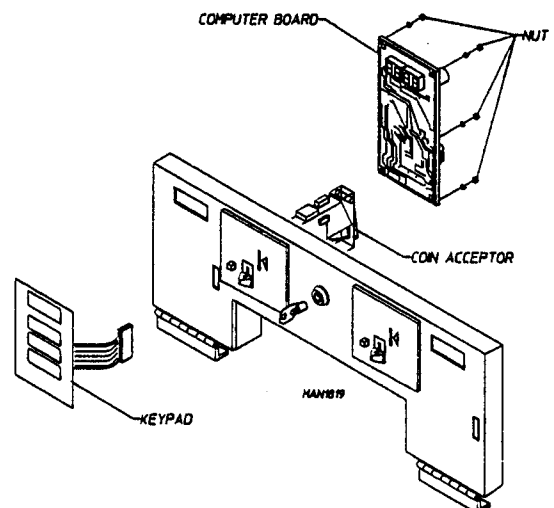
**NOTE:** Use caution when handling MP Controller. Easily damaged by static electricity.

**TO REPLACE KEYPAD** (refer to illustration below)

1. Discontinue power to dryer.
2. Open control door and open control panel, unplug keypad ribbon from computer board.
3. Peel the keypad 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.
6. Align the display window on the keypad with the cutout in the control panel and press in place.
7. Connect keypad ribbon to the board and reconnect power to the dryer.
8. Test for operation by pressing each temperature selection.

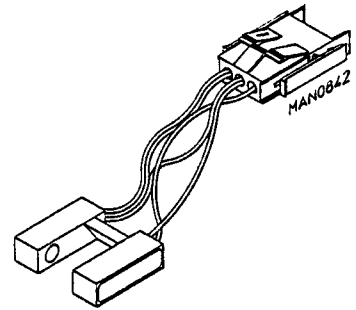
**TO REPLACE COIN ACCEPTOR**

1. Discontinue power to dryer.
2. Swing control panel open.
3. Unplug optic switch harness connector.
4. Remove one (1) screw holding acceptor in place.
5. Pull coin acceptor out gently.
6. Reverse procedure for installing new acceptor.



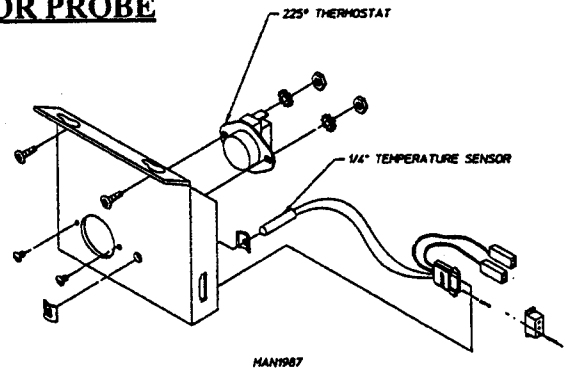
## TO REMOVE OPTIC SWITCH

1. Unplug optic switch connector.
2. Remove screw and washer holding optic switch to the coin acceptor and pull switch away.
3. Reverse procedure for installing new optic switch.



## TO REPLACE COMPUTER TEMPERATURE SENSOR PROBE

1. Discontinue power to dryer.
2. Remove M.P. sensor bracket assembly from the dryer.
  - A. Disconnect sensor bracket harness connector
  - B. Loosen the two (2) phillips head screws securing the bracket assembly to the dryer and remove the bracket from the dryer.



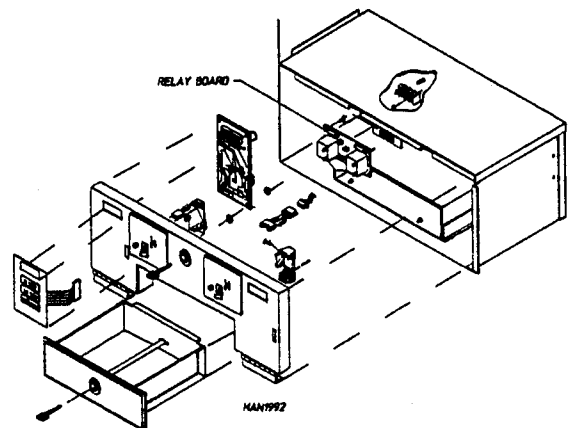
**NOTE:** Do not remove screws

3. Disassemble sensor probe from bracket assembly by removing the top push-on fastener securing the probe to the bracket. Use a small screwdriver to slowly pry the fasteners off.
4. Disconnect the two (2) orange wires from the high heat (225 degrees) temperature thermostat. Remove modular bracket connector, wires, and probe from bracket assembly.
5. Install new sensor probe assembly (p/n: 880251) by reversing the procedure.
6. Re-establish power to dryer.

**NOTE:** If when power is reestablished the computer display reads "dsfl," check for a loose connection on the wiring.

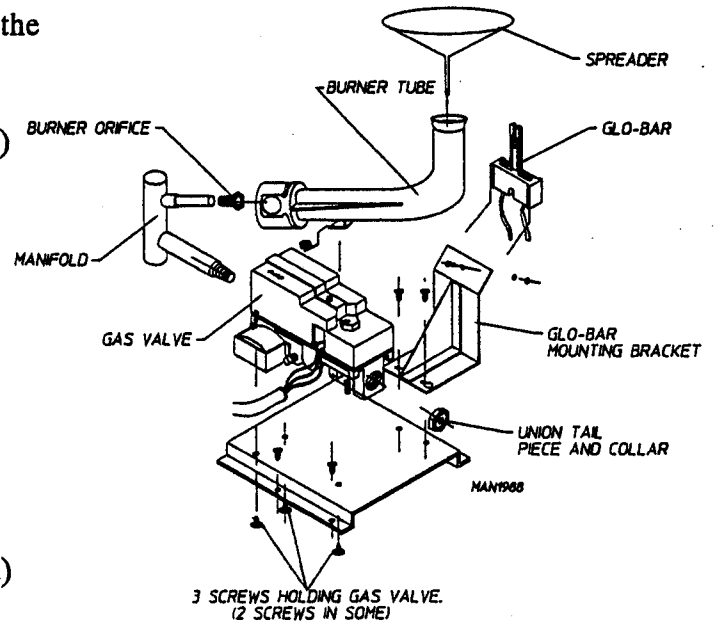
## TO REPLACE RELAY BOARD

1. Discontinue power to dryer.
2. Remove the board from the (4) nylon standoffs in each corner of the board.
3. Remove all wires from contactor (Note: make sure each wire is marked with location removed from).
4. Install new relay board in reverse procedure
5. Re-establish power to dryer.



## TO REPLACE GAS VALVE

1. Discontinue power to dryer
2. Close shut-off valve on right side of gas valve (black lever).
3. Break & loosen union nut between union shut-off and gas valve.
4. Remove the two (2) hex head screws securing the gas valve bracket to the dryer.
5. Remove the two (2) or three (3) screws (vary's) holding the gas valve to the gas valve bracket (underneath gas valve bracket)
6. Remove gas valve and manifold (still attached) from dryer.
7. Remove the single port manifold from the output side of the gas valve.
8. Remove the union tail piece and nut from the input of valve (a 3/8" Allen wrench is required)
9. Remove all wires, from the junction box, glow-bar, I.R. sensor..
10. Reverse procedure when installing new one.



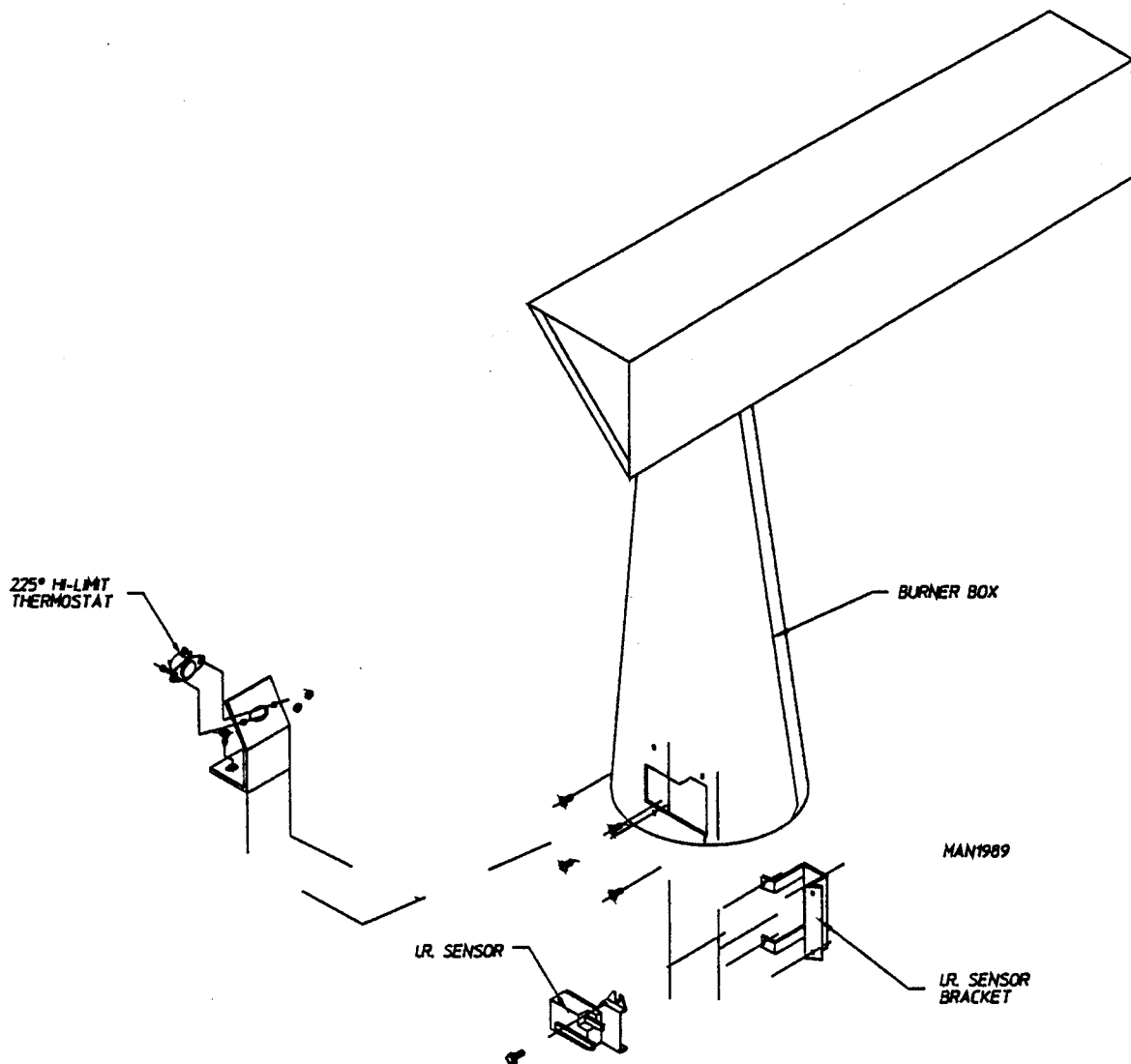
**IMPORTANT:** Pipe dope must be applied to manifold before installing it into new valve.

## REPLACE GLO-BAR (Refer to Above Diagram)

1. Discontinue power to dryer
2. Remove screw, nut, washer holding the glo-bar to the bracket. Disconnect glo-bar connector.
3. Re-assemble in reverse procedure.
4. Reestablish power to the dryer.

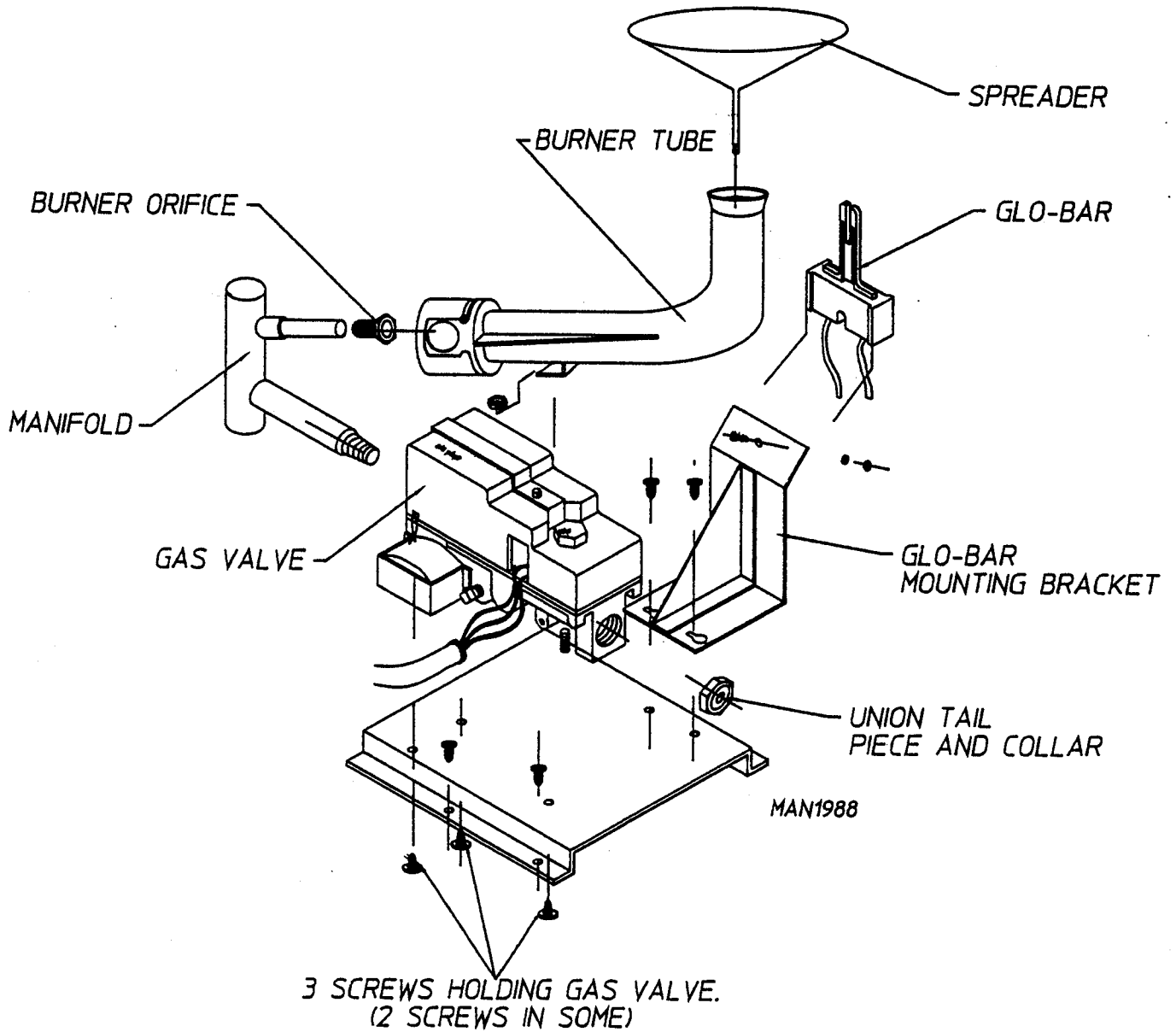
## TO REPLACE FLAME SENSOR (I.R. Sensor)

1. Discontinue power to dryer.
2. Remove backguard assembly.
3. Remove the two wires on the sensor.
4. Remove the screw holding the sensor to the burner
5. Replace new I.R. sensor in reverse procedure
6. Re-establish power to dryer



## B. BURNER CONTROLS

The illustration below shows you the gas valve assembly and the gas chamber.



## TO REPLACE MAIN BURNER ORIFICE

1. Refer to "TO REPLACE GAS VALVE" and follow steps one through five.
2. Unscrew main burner orifice and replace.

**NOTE:** Use extreme care when removing and replacing orifice. The orifice is made of brass is 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 flame."

**NOTE:** The orifice for AD-230 natural gas is # 20 (p/n: 140828). L.P. gas # 41 (p/n: 140811)

## TO TEST AND ADJUST GAS (WATER COLUMN) PRESSURE

There are two (2) types of devices commonly used to measure water column pressure. They are spring/mechanical type gauges and 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 tubes rises, showing the exact water column pressure.

**NOTE:** Manometers are available from the factory by ordering part number 122804.

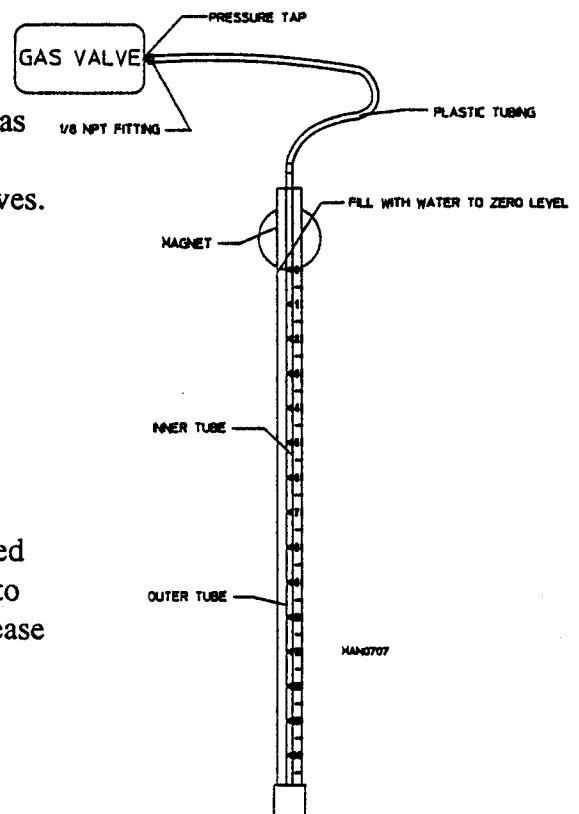
1. Test gas water column (w.c) pressure.

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 valves.

B. Start the dryer. With burner on, the correct water column reading in inches would be:

NATURAL GAS: 3.5-4 INCHES W.C.  
L.P. GAS: 10.5-11 INCHES W.C.

2. To adjust water column pressure: For natural gas models remove vent cap. Turn the slotted adjustment screw located on top of the valve next to the terminals. Turn clockwise to increase manifold pressure and counterclockwise to decrease for L.P. gas models there is no regulator on valve



**NOTE:** If correct w.c. pressure cannot be achieved, problems may be due to an undersized gas supply line, a faulty or underrated gas meter, etc.

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

1. Disconnect electrical power to dryer.
2. Refer to "Replace Gas Valve" steps 2 - 7.
3. Replace the "Inner gas valve orifice located on manifold side of valve. Use the one supplied in kit P/N: 874033 for AD-230.BH, P/N: 874040 for AD-220BH, and P/N: 874034 for ADG-215BH.
4. Replace the orifice (supplied) on the manifold.
5. Replace the hex head vent cap on top of valve, with the one supplied (hex head screw w/stem).

**IMPORTANT:** Replace washer supplied when replacing the hex head screw w/stem.

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

6. To convert gas valve for use with L.P. gas, refer to instructions included in kit envelope (#f92-0737) supplied.
7. Reverse procedure for installing valve manifold assembly to dryer.

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

8. 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.

9. Operate dryer through one complete cycle to insure proper operation.

**IMPORTANT:** Conversion should be performed by competent technicians in accordance with local and state codes. Improper assembly or adjustment 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.

10. Call American Dryer Corp. for L.P. conversion kits or the proper orifices for natural or L.P. gas.

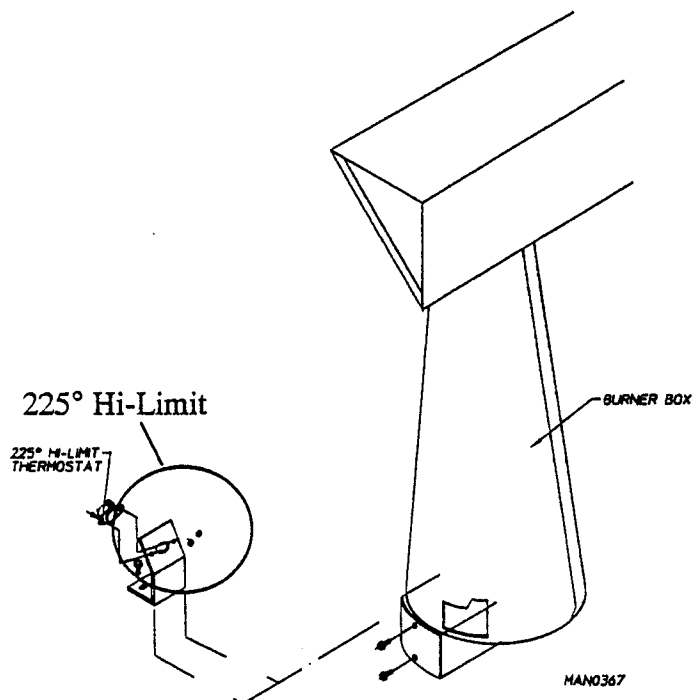
## **C. THERMOSTATS AND TEMPERATURE SENSOR**

### **TO REPLACE BURNER HI-LIMIT THERMOSTAT (225°)**

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.

1. Discontinue power to dryer.
2. Disconnect wires from hi-limit thermostat.
3. Loosen the two screws securing hi-limit bracket to the dryer. Slide bracket and remove the bracket and hi-limit from dryer.
4. Remove the two pal nuts securing the hi-limit to the bracket, remove hi-limit.
5. Reverse procedure for installing new thermostat.





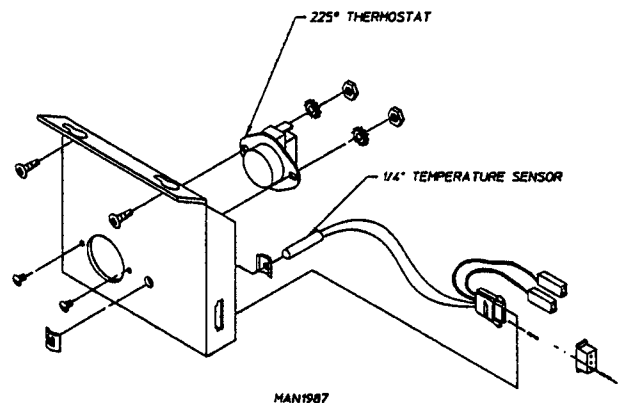
## TO REMOVE THE TEMPERATURE SENSOR OR HIGH HEAT PROTECTOR

### **A. BASKET HIGH HEAT PROTECTOR (225 °)**

1. Discontinue power to dryer
2. Open lint access panel and remove lint screen.
3. Locate temperature sensor bracket assembly on the side of the basket. Loosen the two phillips head screws. Disconnect the connector.
4. Slide bracket toward the rear of the machine and remove the basket 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. Disconnect the two connectors on the basket hi heat protector.
7. Remove the high heat protector.
8. Reverse the procedure for installation of new high heat protector.

### **B. TEMPERATURE SENSOR**

1. Discontinue power to dryer.
2. Open lint access panel and remove lint screen.
3. Disconnect sensor bracket harness connector.
4. Loosen the two (2) phillips head screws securing the bracket assembly to the dryer and remove by sliding bracket towards the rear of the dryer.
5. Disassemble sensor probe from the 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 new probe assembly (ADC P/N: 880251) by reversing procedure.



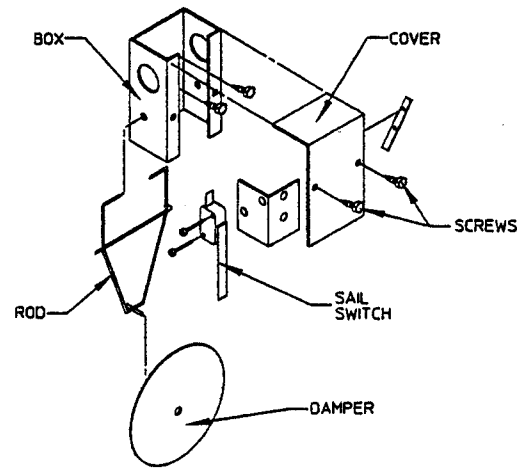
## D. SAIL SWITCH ASSEMBLY

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. Providing all the other heat-related circuits are functioning properly. If an improper air flow occurs, the sail switch damper will release, and the circuit will open.

**IMPORTANT:** Under no circumstances should heat circuit safety devices ever be disabled.

### TO REPLACE SAIL SWITCH

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



### TO ADJUST SAIL SWITCH

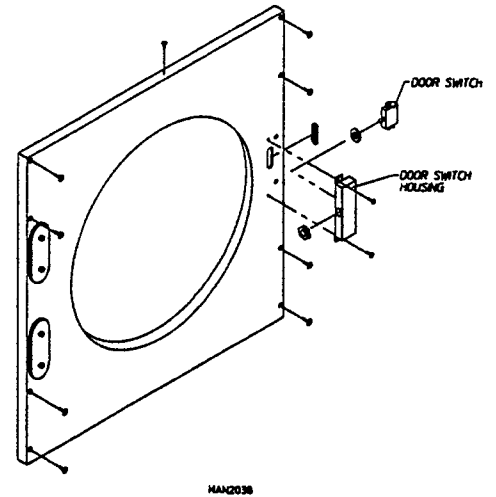
1. Operate the installed dryer normally to verify that the heat system is fully operational.
2. Open the main dryer door.
3. Manually depress the door switch actuator.
4. While continuing to depress the door switch actuator, and with the door open, start the dryer.
5. If the heat system is not activated 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 this switch by taping or screwing sail switch damper to burner. Personal injury or fire could result.

## **E. FRONT PANEL AND MAIN DOOR ASSEMBLIES**

### **TO REPLACE MAIN DOOR SWITCH**

1. Discontinue power to dryer.
2. Open main door.
3. Remove the two (2) phillips head screws holding the main door switch bracket in place.
4. Remove door switch bracket and disconnect wiring from the switch.



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

5. Disassemble door switch bracket by removing the nut & washer holding the door switch in place and assemble new door switch on to the bracket.
6. Reverse this procedure for installing new door switch.

**NOTE:** When reconnecting wires to door switch, be sure wiring sequence is correct.

**IMPORTANT:** Under no circumstances should the door switch be disabled.

### **TO REPLACE MAIN DOOR ASSEMBLY**

1. Remove screws (4) holding main door to main door hinge.
2. Reverse this procedure for installing new main door assembly.

### **TO INSTALL NEW MAIN DOOR GLASS**

1. Remove main door assembly from dryer (follow main door removal procedure).
2. Lay main door on a flat surface with front of door face up.
3. Remove glass and clean all old sealant off main door. This area must be completely cleaned for correct bonding.
4. Apply a narrow bead of silicone (ADC P/N: 170730) all around main door area where glass will rest.
5. Install glass on to door/adhesive and slightly press glass in place.

**IMPORTANT:** Do not press hard or silicone thickness between the glass and 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 24 hour curing period, install main door on dryer by reversing step 1.

### **TO REPLACE FRONT PANEL**

1. Discontinue power to dryer.
2. Follow procedure for removal of main door assembly.
3. Open control door (if replacing top panel).
4. Open lint door (if replacing bottom panel).
5. Remove 7 of the 8 screws securing the front panel to the dryer.
6. Remove 2 screws holding door switch bracket to front panel and remove wires on door switch.

**IMPORTANT:** Be sure to make note of the way wires are on the door switch.

7. Pull wires gently through front panel channel.

**IMPORTANT:** When removing front panel assembly be careful not to damage switch wires disconnected in step # 6.

8. Remove the 8th screw from step. 5 above
9. Remove front panel from dryer.
10. Reverse proceeding for installing new front panel..

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

1. Discontinue power to dryer.
2. Follow procedure for removal of main door assembly.
3. Follow procedure for removal of front panel assembly.
4. Disassemble hinge from front panel by removing the nuts located on the back side of the front panel, which hold the hinge to the front panel.
5. Re-assemble by reversing removal procedure.

## TO REPLACE THE MAGNET HOLDER ASSEMBLY

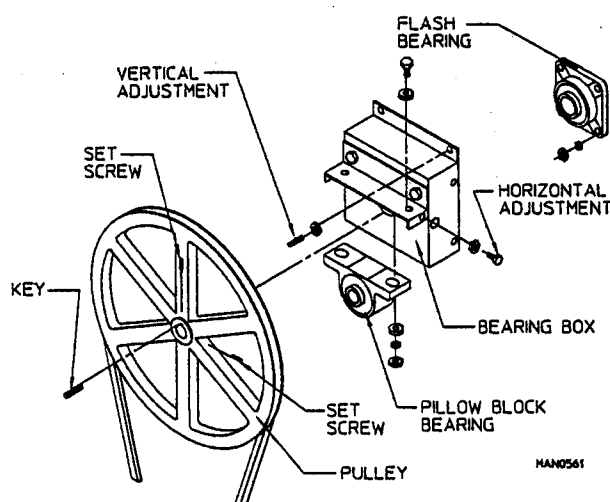
1. Open main door.
2. Remove the two screws holding the magnet holder assembly to the main door.
3. Install the new magnet holder assembly with the two screws removed in step 2.

## F. TUMBLER AND BEARING ASSEMBLY

(Remove backguard to access assembly)

### TO REPLACE TUMBLER PULLEY

1. Disconnect power to dryer.
2. Remove backguard.
3. Loosen v-belts, then rotate pulley and roll v-belts out of grooves.
4. Loosen two (2) set screws on the pulley and pull the pulley off the shaft.
5. Reverse procedure for installing new tumbler pulley.



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

### TO REPLACE THE REAR TUMBLER BEARING

1. Disconnect power to dryer
2. Remove tumbler pulley (follow tumbler pulley removal procedure).
3. Remove the four (4) bolts securing the bearing box to the back of the dryer.
4. Loosen screws securing bearing to shaft.
5. Pull bearing box and bearing off of shaft.

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

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

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

### **TO REPLACE THE FRONT TUMBLER BEARING**

1. Discontinue power to dryer
2. Remove tumbler pulley and bearing box (follow "TO REPLACE THE REAR TUMBLER BEARING" steps 1 through 4).

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

3. Loosen set screws on rear tumbler bearing.
4. Using a wheel puller gently push the tumbler shaft towards the front through the front tumbler bearing.

**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.

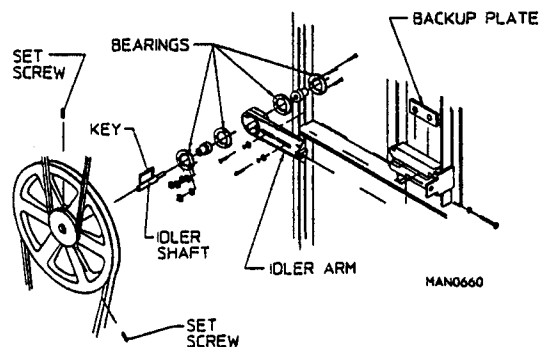
5. Remove the four (4) nuts securing the bearing to the dryer back and remove the bearing.
6. Reverse procedure for installing new tumbler bearing.
7. Replace backguard.

## **G. IDLER AND BEARING ASSEMBLY**

(Remove backguard to access assembly)

### **TO REPLACE IDLER PULLEY**

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



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

## **TO REPLACE IDLER BEARING**

1. Remove idler pulley (follow "TO REPLACE IDLER PULLEY")
2. Remove idler arm.
  - A. Remove two (2) bolts securing idler arm to the idler backup plate.
  - B. Remove idler arm assembly.
  - C. Loosen set screws on both the front and rear bearing and remove the idler shaft.
  - D. Remove 3 bolts securing the bearing to the idler arm and remove bearings.
3. Reverse procedure for installing new idler bearings.

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

## **H. DRIVE PULLEY**

(Remove backguard to access assembly)

1. Remove backguard.
2. Loosen v-belts then rotate pulley and roll v-belts out of grooves.
3. Loosen set screws and pulley motor pulley out.

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

4. Reverse procedure for installing new drive pulley.

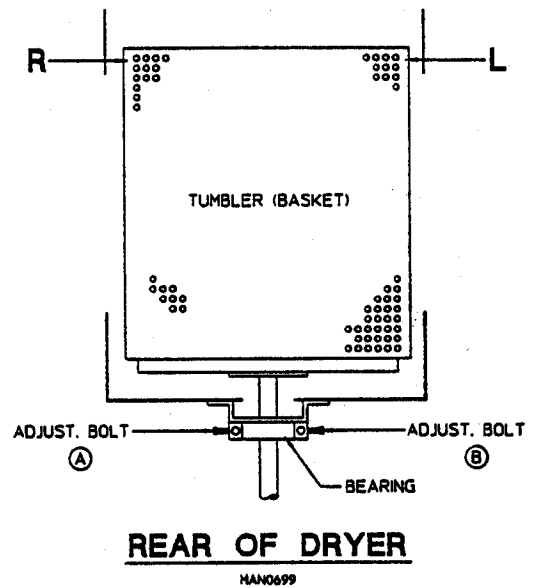
**NOTE:** Check tension and alignment of belts before operating dryer.

## **I. TUMBLER (BASKET)**

### **TUMBLER ALIGNMENT (VERTICAL)**

1. Discontinue power to dryer.
2. Remove backguard.
3. Loosen the four (4) hex head bolts on the sides of the bearing box (2 on each side).
4. Back off jam nuts on the two (2) allen head adjustment screws.

5. Turn the screws clockwise evenly to raise the tumbler or counterclockwise evenly to lower the tumbler.
6. Rotate the tumbler from the front and check alignment with the main door opening.
7. Leave a large gap from the inside ring on the top of the front panel opening to the tumbler, and a smaller gap on the bottom to compensate for the weight of the clothes drying.
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 backguard.
10. Reconnect power to dryer.



### TUMBLER ALIGNMENT (LATERAL)

1. Discontinue power to the dryer.
2. Remove backguard.
3. Loosen the two (2) hex head bolts, (one turn is enough), that holds 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 from the front of the dryer, checking the space between the tumbler and the front panel. This should be equal on the left hand and 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 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 to the left.

6. Tighten and secure both adjustment bolts and jam nuts.

7. Tighten the bearing box bolts.

8. Replace backguard and re-establish power to the dryer.

**TO REPLACE THE TUMBLER AND/OR TUMBLER SUPPORT**

1. Remove tumbler pulley and bearing box (follow "TO REPLACE THE REAR TUMBLER BEARING" steps 1 through 4).

2. Remove front panel assembly (follow "TO REPLACE FRONT PANEL ASSEMBLY").

3. Loosen set screws on rear tumbler bearing.

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

4. Using a wheel puller gently push the tumbler shaft towards the front through the front tumbler bearing.

**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.

5. Remove the tumbler and support through the front of the dryer.

A. Remove the bolt in the center of the tumbler back wall.

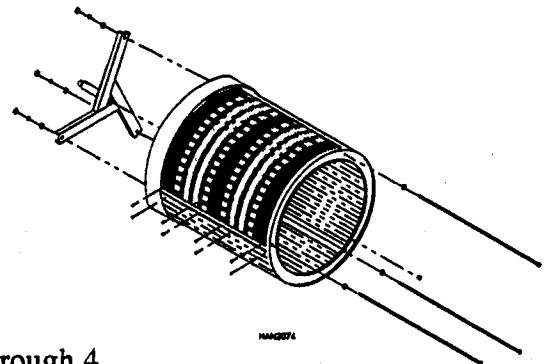
B. Loosen and remove the nuts and washers from the tumbler tie rods. Remove the rods.

C. Replace either tumbler or tumbler support by reversing the procedure.

6. Reassemble components into dryer by reversing steps 1 through 4.

7. Check tumbler lateral and vertical alignment. Also, check belt tension and alignment.

8. Replace backguard and re-establish power to dryer.

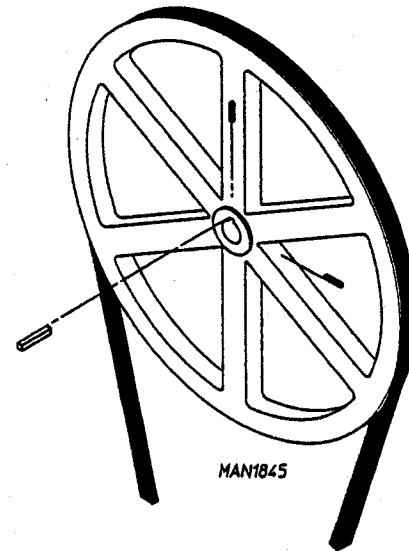


## **J. V-BELTS (REFER TO ILLUSTRATIONS IN SECTIONS I, J, K)**

V-Belts should have proper tension. If 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 belt tension will allow 1/2" displacement under normal thumb pressure at mid span of the belt.

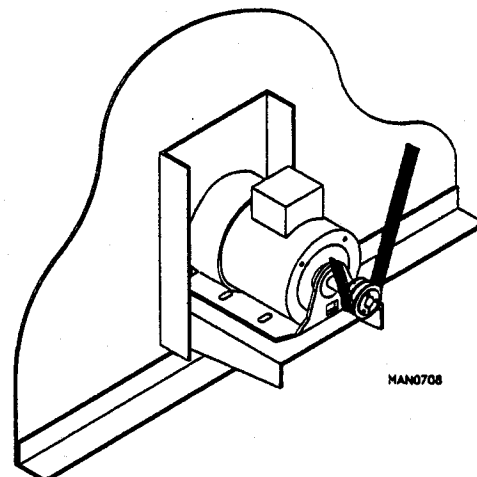
### **V-BELT TENSION ADJUSTMENT-TUMBLER TO IDLER**

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



### **V-BELT TENSION ALIGNMENT - MOTOR TO IDLER**

1. Loosen two (2) bolts connecting idler arm to back-up plate.
2. Back-off on jam nut(s) on the adjustment bolt.
3. Loosen/tighten adjustment bolt to relax/increase belt tension.
4. Tighten adjustment bolt jam nut(s).
5. Tighten the two (2) bolts loosened in step 1.



### **TO REPLACE V-BELTS**

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

## K. MOTOR

### TO REPLACE MOTOR

1. Discontinue power to dryer.
2. Remove drive belt.
3. Disconnect wiring harness from motor.

**IMPORTANT:** If top pocket is being replaced, duct work on the side of the motor mount must be removed.

4. Remove nuts and washers holding the motor mount to the rear of the dryer and pull motor mount away.
5. Remove the two (2) left hand nuts on the motor shaft retaining the impellor. Work the impellor free from the motor shaft by means of a puller to prevent damage to the motor shaft.
6. Remove the bolts holding the motor and install on new motor.
7. Remove pulley from old motor and install on new motor.
8. Align motor with impellor face in place with the motor mount at no less than 3/16" clearance.
9. Reassemble in the reverse of the above procedure.

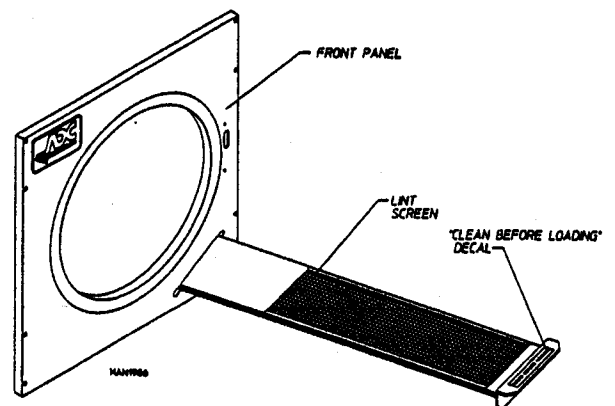
## L. IMPELLOR

**NOTE:** Follow steps 1 through 5 and 9 in "Section V, Part K."

## M. LINT SCREEN

### TO REPLACE LINT SCREEN

1. Control door and right access door
2. Slide lint screen out 3/4 of the way reach through the access door and flip the hinge welded to the back side of the screen up.
3. Slide lint screen out along the lint coop track.
4. Reverse procedure for installing new lint screen.
5. Close lint door.



# SECTION VI

## PHASE III AND IV

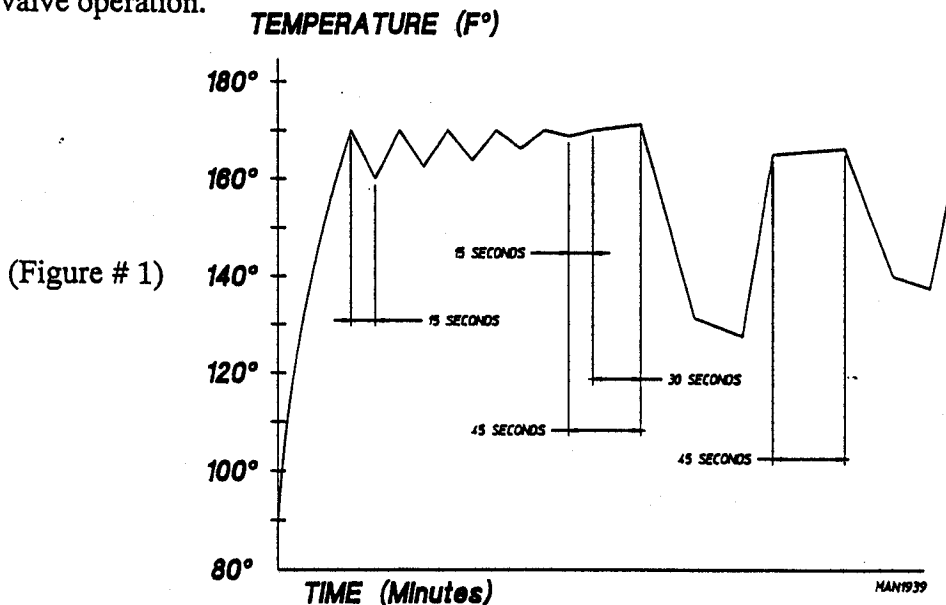
### GLO-BAR OPERATIONS

#### A. THEORY OF OPERATION:

When the tumbler cavity reaches the selected drying temperature, the computer display heat indicator dot goes off, and the gas flow is reduced to low fire for 15 seconds.

At the end of this 15 sec. Period, the computer checks the tumbler temperature. If the tumbler temp. Drops below the selected drying temperature, then the computer returns the gas valve to the high fire stage, and the heat circuit dot comes back on. High fire continues until the selected drying temperature has been reached at which point the low fire stage is again activated. This low/high fire cycling will continue as long as the tumbler's temperature is below the selected drying temperature at the end of the 15 second low fire stage. As the clothes in the tumbler get dryer, lo fire gas flow will eventually produce enough heat to keep the tumbler at or above the selected drying temperature.

When at the end of the 15 second low fire period the tumbler's temperature is equal to or above the selected drying temperature, the computer keeps the gas valve in it's low fire stage for approx. 30 more seconds. At the end of this additional 30 second period of low fire, the computer again checks the tumbler's temperature. If the tumbler's temperature has dropped below the selected drying temperature, then the high fire stage is turned back on. If, however, the tumbler's temperature is still above the selected drying temperature, then the gas flow is shut off completely. This means both heat circuit and gas valve circuit indicator dots will be off. At this point the glo-bar sequence will restart upon a call of heat. this process will go like this till the time has elapsed. Refer to diagram figure #1 for graph of the gas valve operation.



**NOTE:** This diagram depicts a compressed drying time and an arbitrary cycling temperature.

## **B. INTERNAL OPERATION OF THE GAS VALVE**

The principal advantages of this ignition system is its reliability and long life. There are only one set of contacts in the system (I.R.Sensor) and it is housed in a dust protective enclosure.

On a call for heat from the thermostats (120v,208v...) The ignitor is energized and the split coil valve opens as the following three circuits are made simultaneously:

- 1) The L1 voltage supplied goes through the holding coil and back to ground.
- 2) The L1 voltage supplied passes through the flame sensor contacts, booster coil, and back to ground.
- 3) The L1 voltage supplied goes through the flame switch contacts, igniter and back to ground.

Approximately 30 seconds later, the igniter reaches ignition temperature causing the flame switch contacts to open. The secondary valve will now open as the circuit is completed from the L1 voltage supplied through the secondary coil and igniter back to ground. As this circuit is completed, The igniter starts to cool. The current draw is reduced from about 4 amps to .1 amp. As the flame switch contacts open, the current flow through the booster coil approaches zero.

Main burner ignition should now occur. Flame from the main burner will keep the flame switch contacts open. The dryer will continue to operate under these conditions until one of the safety devices open.

## **C. FAIL-SAFE FEATURES OF THE 140009 GAS VALVE**

### **MOMENTARY POWER INTERRUPTION:**

Upon resumption of power the flame switch contacts will be open, permitting the secondary valve to open, but the split-coil valve will remain closed because the pull-in circuit for the booster coil cannot be made through the flame switch contacts. When the flame switch contacts do re-close the secondary valve will close and the split-coil valve will open. dryer will then go through normal cycle for re-ignition.

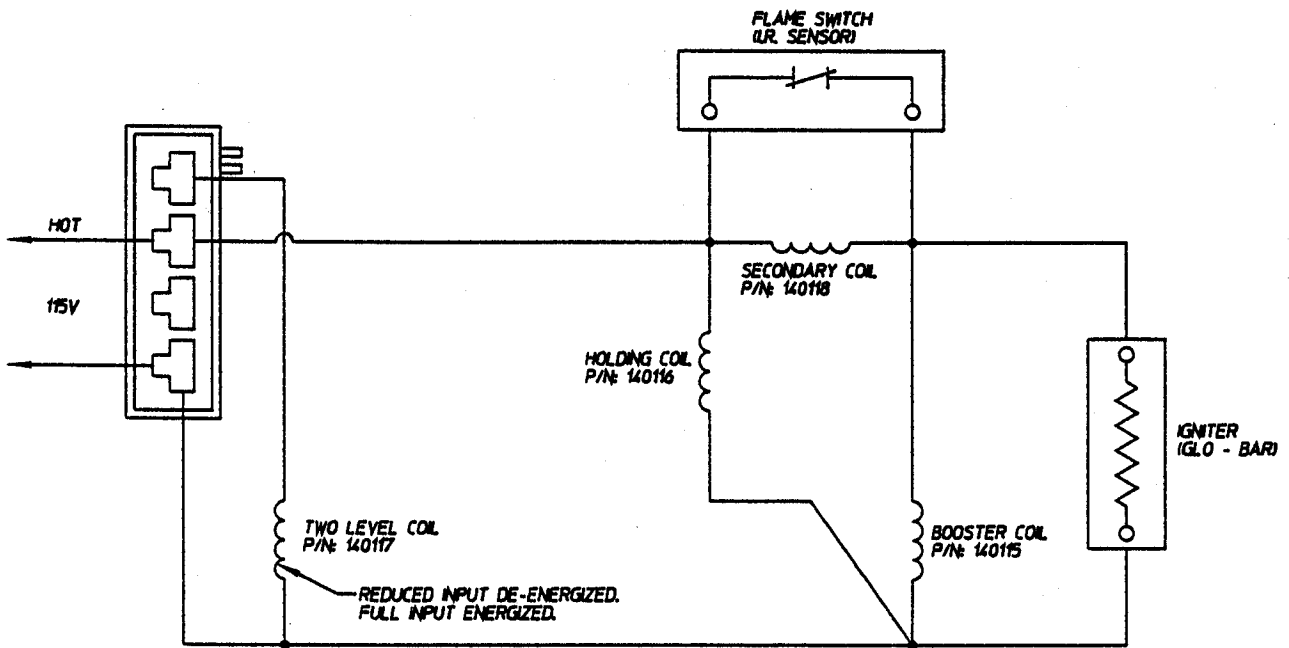
### **IGNITION FAILURE:**

If flame is not established as flame switch contacts open, the secondary valve will remain open until the flame switch contacts reclose, at which time the secondary valve will re-close. Flame switch will continue to recycle the igniter and secondary valve (about once a minute) until the computer terminates the cycle.

### Flame Failure:

In the event of flame failure the flame switch contacts will close in about 45 seconds at which time the secondary valve will close (split-coil valve will stay open) and a try for re-ignition will be made as in a normal cycle.

Figure # 2  
3/8" HIGH / LOW GAS VALVE



MAN1940

# SECTION VII

## ELECTRICAL TROUBLESHOOTING

**NOTE:** The voltage you are checking for in this next section is you incoming voltage. Example: 110v,208v,240v.

### A. "NO DISPLAY CONDITION"

1. Check circuit breaker panel for tripped breaker, or check incoming protection fuses.
2. Check for voltage across terminal strip #'s 6 and 8.

If there is no voltage, the problem is a break in the wire or termination from the terminal strip to the incoming voltage lines.

3. Check for voltage across the relay board terminal F1A and terminal strip #6.

If there is no voltage problem is a break in the wire terminal strip #8 and relay board terminal F1A.

4. Check for voltage across relay board terminal F1B and between terminal strip #6.

If there is no voltage problem is a blown 4amp fuse on the relay board between F1A and F1B, or faulty solder connection on under side of the relay board.

5. 208v/240v models only!!! - See schematic on page 36 , 115v models proceed to step #6.

Check for voltage across relay board terminal F2A and terminal strip#8.

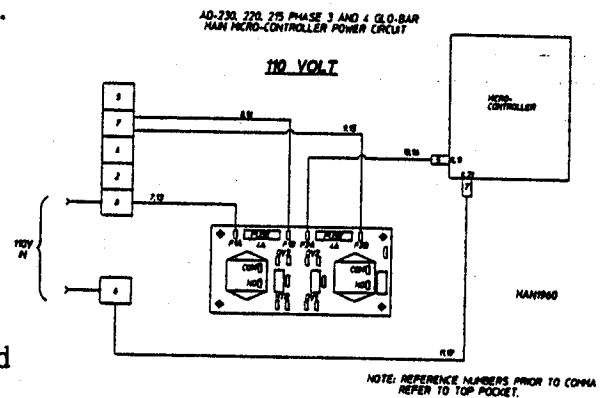
If there is no voltage, problem is a break in the wire or bad termination between terminal strip #6 and the relay board terminal F2A.

Check for voltage across the relay board terminal F2B and terminal strip #8.

If there is no voltage, problem is a blown fuse (4amp) or faulty relay board (bad solder joint on underside of the relay board).

6. Check for voltage across the relay board terminal F2B and terminal strip #6.

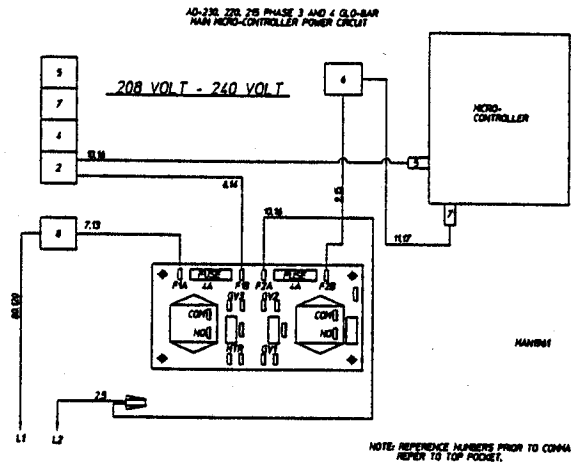
If there is no voltage problem is a break in the wire between terminal strip #7 and relay board terminal F2B.



Check for voltage across relay board terminal F2A and terminal strip #6.

If there is no voltage problem is a blown 4amp fuse on the relay board between F2A and F2B, or faulty solder connection on under side of the relay board.

7. Disconnect microprocessor 15 pin connector and locate hole #'s 7 and 5. (wire #11 and 10 for the bottom pocket and wire #16 and 17 for the top pocket).



If there is no voltage:

- a. Check for voltage across hole #5 (wire #10 or 16) and terminal strip #6. If no voltage, problem is break in wire or termination between relay board terminal F2A and the microprocessor 15 pin connector hole #5 (wire #10 or 16).
- b. Check for voltage across microprocessor 15 pin connector hole #7 (wire #11 or 17) and terminal strip #8. if no voltage, problem is break in wire or termination between terminal strip #6 and microprocessor 15 pin connector hole #7 (wire #11 or 17).

If there is voltage, the problem is either the 15 pin microprocessor connector not meeting properly with the connector on the microprocessor board or the microprocessor is defective.

## B. "No Start" Condition

Note: This test must be preformed in the normal operating mode with the appropriate M.P. indicator dot on!!!

Note: The voltage your checking for is the incomming 110v,208v,230v,240v.

1. Check for voltage across the relay board (2) mtr, terminals.

If there is no voltage, proceed to step #5.



2. Check for voltage across terminal strip #6 and the relay boards motor relay (left handed relay on the board) COM. Terminal.

If there is no voltage, problem is a break in wire or termination between the motor relay “COM” terminal to terminal strip #8.

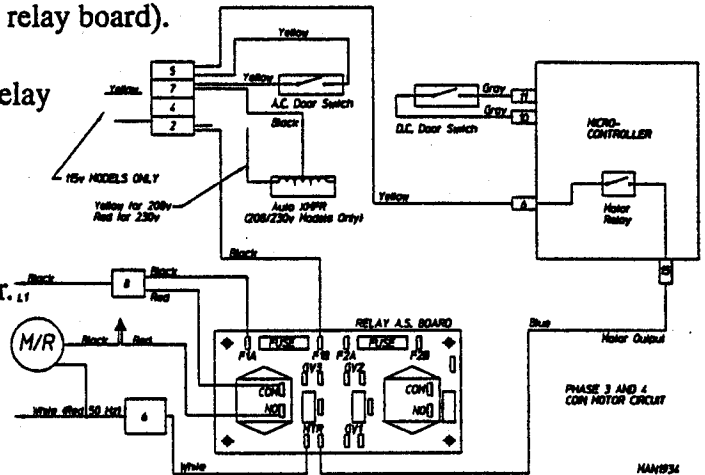
3. Check for voltage across terminal strip #6 and the relay boards motor relay “NO” terminal (the motor relay is the left handed relay on the relay board).

If there is no voltage the problem is defective relay board.

4. Check for voltage at the motor.

If there is voltage, problem is a defective motor.

If there is no voltage, the problem is a break in wiring or termination between the motor and the controls..ie relay board or the terminal strip #6.



**NOTE: Models with 3 phase motors go on to step #6.**

5. Disconnect the 15 pin microprocessor connector from the microprocessor. Locate hole #6 (yellow wire, look on diagram for correct # of wire). check for voltage across this hole #6 and terminal strip #6.

If voltage is evident problem is .....

- a. Defective microprocessor controller.
- b. The mating of the pin and socket on hole # 6 and the corresponding pin on the microprocessor (spread the split pin on the microprocessor with a small screw driver or knife this will insure better connection).
- c. Break in the wire or termination between the microprocessor 15 pin connector hole #15 (blue wire, check wiring diagram for specific number) and the relay board “MTR” terminal. Also check for break in the wire or termination between the terminal strip #6 to the other 1/2 of the “MTR” terminal on the relay board (white wire, check wiring diagram for specific number wire).

If there is no voltage, then check for voltage across terminal strip #5 and terminal strip #6.

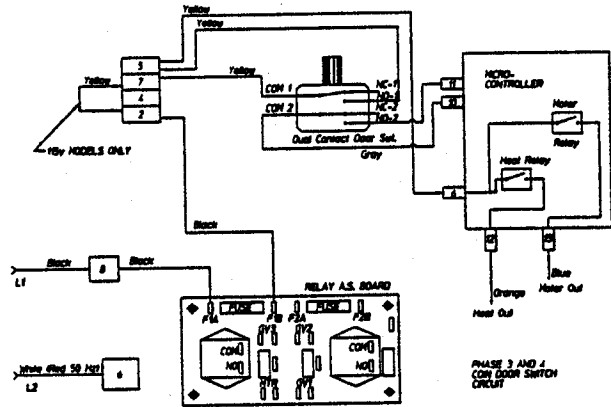
If there is voltage, between terminal strip #5 and terminal strip #6 problem is a break in wire between the M.P. connector hole #6 and terminal strip #5.

If there is no voltage, refer to the A.C. Door switch troubleshooting section.

## C. "A.C. DOOR SWITCH CIRCUIT"

The following test procedure must be performed with the M.P. Controller display in the normal operating mode and the indicator dot(s) on, unless otherwise indicated.

1. Check for voltage across terminal strip #6 and terminal strip #5. If voltage is evident, door switch circuit (door switch & wiring) is ok. If no voltage, proceed to step no. 4.



2. Discontinue power to dryer. Open main door and remove door switch box assembly from dryer front panel...Do not disconnect wires from door switch. Locate A.C. door switch terminals (yellow wires) common (com) and normally open (no). With door switch plunger pushed in, check for continuity across these two (2) terminals. If no continuity, door switch is defective.
3. Check for continuity across each A.C. door switch terminal and the appropriate door switch wire to terminal strip #5 and terminal strip #7. If there is no continuity in any of these two (2) wires, problem is break in wire or termination.

**IMPORTANT:** When re-assembling door switch box to front panel assembly, after pushing A.C. and D.C. Door switch wires back into hole in front panel; pull slack up through hole in base of control box. Failure to do so may cause wires to get damaged during normal operation of the dryer.

4. Re-establish power to dryer and disconnect M.P. 15-position connector and locate hole no. 6.
  - a. If no voltage, problem is a break in wire of termination between M.P. connector hole no.6 and terminal strip #5.
  - b. If voltage is evident, refer to "no start condition" in the trouble shooting section.

## D.) "DSFL" DISPLAY CONDITON

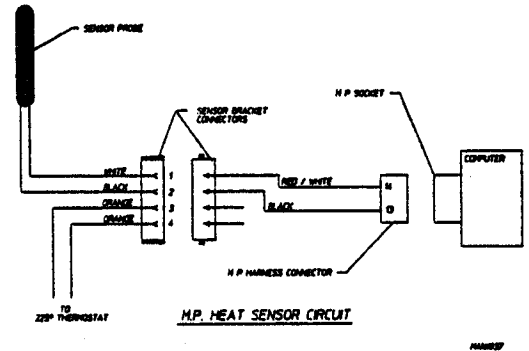
When the display reads "dsfl", this condition indicates a fault in the M.P. Controllers heat sensing circuit. This circuit includes the M.P. controller, M.P. temperature sensor (located in lint compartment) and wires to and from these two (2) points.

**IMPORTANT:** If the microprocessor is equipped with a .125 amp fuse, check this fuse for continuity before proceeding on.

2. Discontinue power to the dryer. Disconnect the M.P. 15-position connector from M.P. Controller and locate connector hole no.'s 13 and 14. Disconnect sensor harness from sensor bracket assembly (located in lint compartment). Check for continuity across each wire from harness connector in lint compartment to appropriate M.P. 15-pos. Connector hole (13 and 14). If no continuity, problem is break in wire or termination.
3. Check for continuity across each M.P. Sensor wire (M.P. 15-pos. Connector hole no. 13 and 14) to ground. If continuity is evident, problem is wire pinched to ground somewhere behind front panel area.

4. If above procedures check out ok, problem is....

- a. Defective M.P. temperature sensor.
- b. Defective M.P. controller



## **E. "door" DISPLAY CONDITION**

When the display reads "door", this indicates that there is a fault (open circuit) somewhere in the M.P. Controller's d.c. Door switch circuit. This circuit includes the door switch, M.P. Controller and the wires to and from these two points.

Before following this test procedure, check the door switch to insure that:

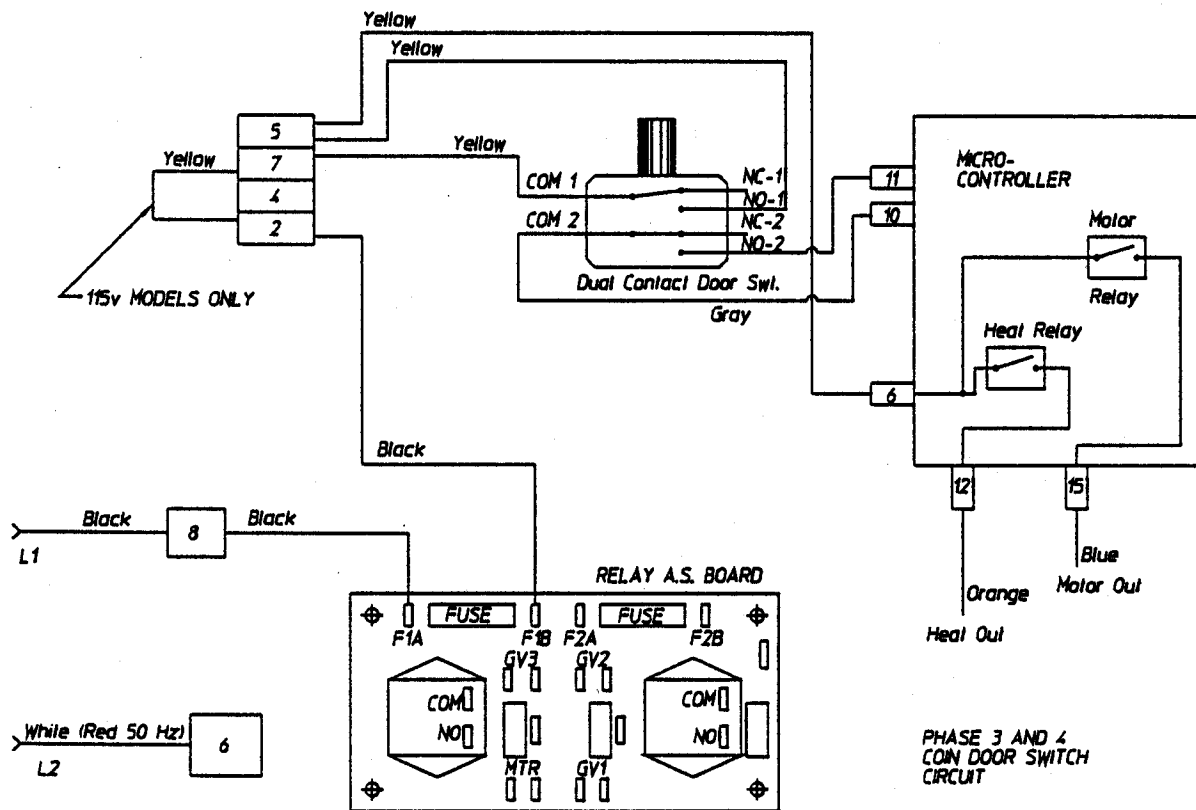
- a. The door switch is adjusted properly where the plunger is being pushed in when the main door is closed.
- b. The door switch plunger is not damaged.

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

1. Open main door and dis-assemble door switch box assembly from dryer...Do not disconnect wires to door switch. Push door switch plunger in and check for continuity across the com (common) and no (normally open) D.C. contacts (smaller terminals of door switch). If no continuity, door switch is defective.
2. Disconnect M.P. 15-position connector from M.P. Controller and locate hole no.'s 10 and 11. Check for continuity across each D.C. Door switch terminal and appropriate door switch wire to M.P. 15-position connector hole no.'s 10 and 11. If no continuity, problem is break in wire or termination.

3. Check for continuity across each D.C. Door switch wire to ground. If continuity, wire is pinched to ground somewhere behind front panel area.
4. If all the above procedures check out ok, problem is...
  - a. M.P. 15-position connector terminals and M.P. Controller terminals are not mated properly.
  - b. Defective M.P. Controller.

**IMPORTANT:** When re-assembling door switch box to front panel assembly, after pushing A.C. and D.C. door switch wires back into hole in front panel; pull slack up through hole in base of control box. Failure to do so may result in wires being damaged during normal operation of the dryer.



MAN1962

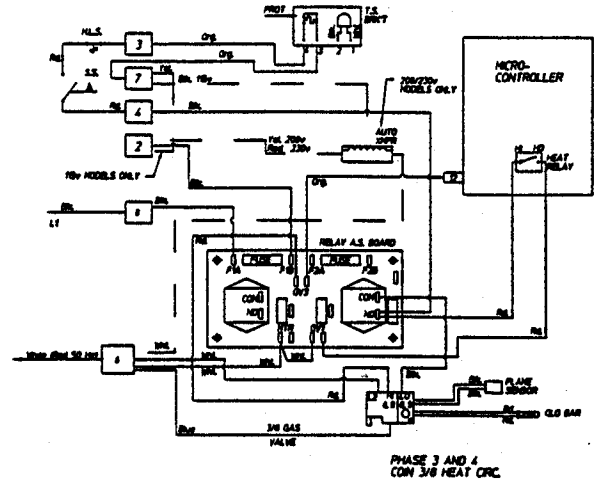
## F. "No heat" condition

**NOTE:** All appropriate MP indicator dots should be on to troubleshoot this section.

1) Does the glo-bar come on?

If yes, the problem is one or more of the following:  
If no, continue on with this section.

- The gas valve needs to be replaced.
- The glo-bar needs to be adjusted so that it is present around the outer ring of the burner tube, approx. 1/4" above the tube.
- The gas pressure has dropped below the specific usage level (3.5"-4" nat. and 10.5"-11" L.P)



**NOTE FOR:** 208 volts and higher proceed with step #2. Lower voltage than 208 go to step #3.

**NOTE:** Make sure the glo-bar is good. Replace with new one or check for voltage at the connector where the glo-bar plugs into.

2) Check for voltage across terminal strip #'s 7 and 6.

If no voltage replace the glo-bar transformer.

3) Check for voltage across terminal strip #'s 3 and 6.

If no voltage replace the 225 deg. thermostat on the temp. sensor bracket located on the side of the basket under the lint screen or the problem can be a bad wire or termination on that 225 deg. thermostat harness from the thermostat to the terminal strip.

4) Check for voltage across terminal strip #'s 4 and 6.

If no voltage replace or check for continuity across the 225° hi-limit located underneath the burner cone and the sail switch. When checking for continuity on the above devices discontinue power before doing so. With your meter leads connected to the sail switch terminals push the sail switch damper in to get the proper continuity reading if the above checks out ok the problem can be a bad wire or termination between the sail switch, the hi-limit switch or the wires to from these devices to the terminal strip.

5) Check for voltage across the computer board terminal marked "Hi" and terminal strip #6.

If no voltage check for bad wire (s) or termination (s) between the terminal strip #4 to the relay board right relay "No" terminal then another wire that meets that wire on the "Ho" terminal to the "Hi" terminal on the computer.

- 6) Making sure the appropriate MP indicator dot is on, check for voltage across the computer board terminal "Ho" and terminal strip #6.

If there is no voltage replace the computer.

- 7) Check for voltage across the two "GV1" terminals on the relay board.

If there is no voltage the problem is a bad wire or termination between the relay board GV1 terminal to the computer board "Ho" terminal..

- 8) Check for voltage across the "COM" terminal on top of the right handed relay on the relay board, and terminal strip #6.

If there is no voltage replace the relay board.

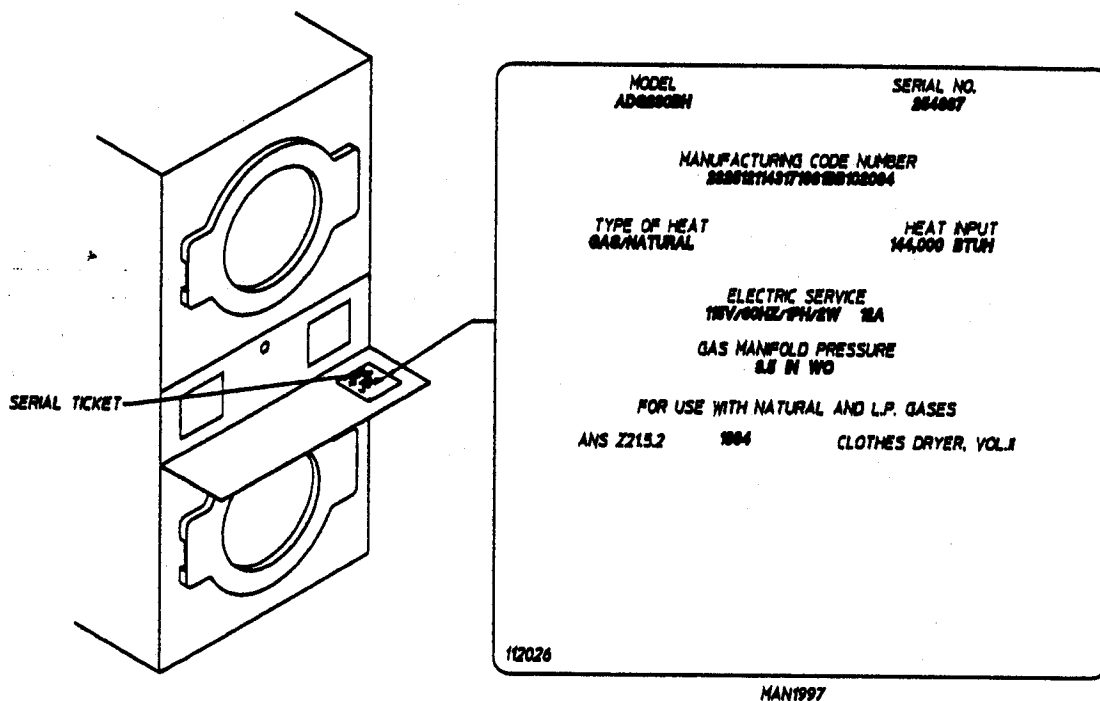
If there is voltage replace the 3/8" gas valve (p/n-140009).

# SECTION VIII

## TECHNICAL INFORMATION

### A. DATA LABEL

Contact American Dryer Corporation



When contacting American Dryer Corporation certain information is required to insure proper service/parts information from American Dryer. This information is on the data label located on the control door. When contacting American Dryer please have the model number and serial number handy.

### DATA LABEL

1. **MODEL NUMBER**— The model number is an ADC number which describes the size of the dryer and the type of heat (gas or steam).
2. **SERIAL NUMBER**— The serial number allows ADC to gather information on your particular dryer.
3. **MANUFACTURING CODE NUMBER**— The manufacturing code number is a number issued by ADC which describes all possible options on your particular model.
4. **TYPE OF HEAT**— Describes the type of heat; gas (natural or L.P.) or steam or electric.
5. **HEAT INPUT**— (For gas dryers) describes the heat input in British thermal units.

6. ELECTRIC SERVICE— Describes the electric service for your particular models.
7. GAS MANIFOLD PRESSURE— Describe the manifold pressure as taken at the gas valve pressure tap. (see HOW TO USE A MANOMETER)

## **B. USING A MANOMETER**

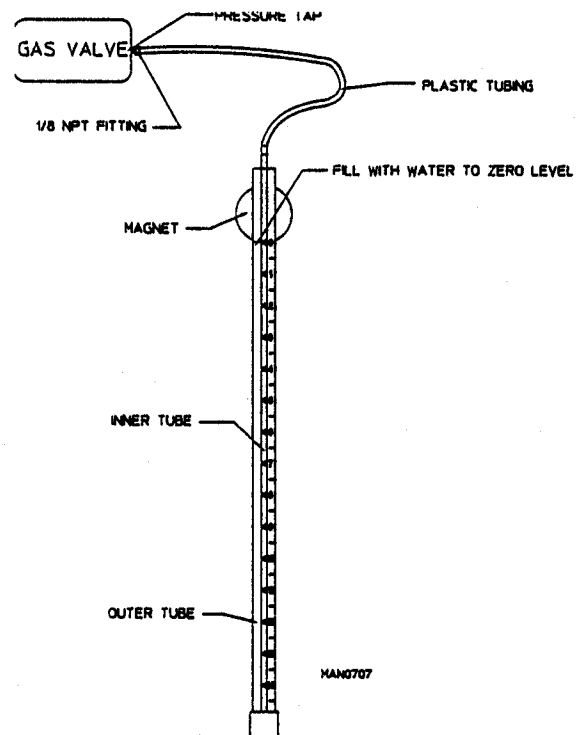
### **HOW TO USE A MANOMETER**

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

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

4. Fill manometer as shown in illustration to the zero level.
5. Start dryer. With burner on take a reading.
  - A. Read water level at the inner tube. readings should be taken at eye level.
  - B. Correct readings should be:
 

NATURAL GAS: 3.5 - 4.0 inches w.c.  
L.P. GAS: 10.5 - 11 inches w.c.
6. If water column pressure is incorrect refer to "TO ADJUST GAS PRESSURE"
7. Reverse procedure for removing manometer.





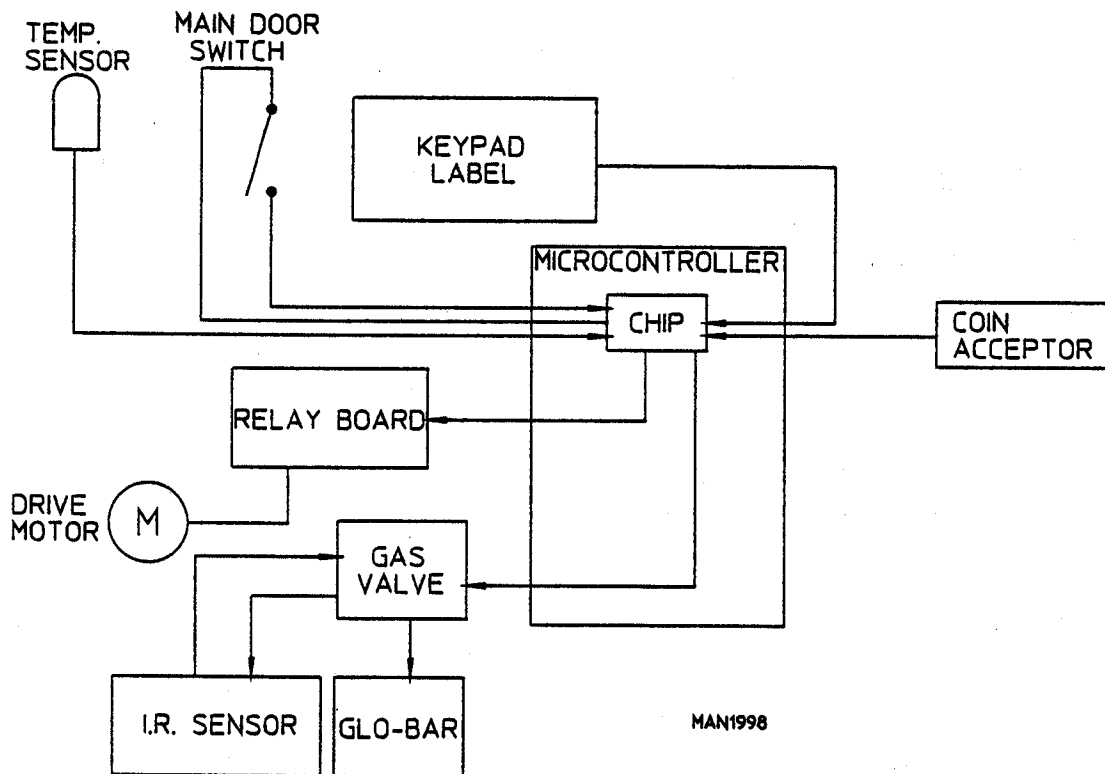
## C. L.E.D. DISPLAY CODES

<b>ACOn</b>	Accumulative Coin
<b>Adrt</b>	Maximum Auto Dryness Time
<b>AFAt</b>	Amount for Additional Time
<b>AGt</b>	Active Anti-Wrinkle Guard Time
<b>AtIn</b>	Accumulative Time
<b>AtSt</b>	Amount Start
<b>AUtO</b>	Automatic Mode ( Patent No. 4,827,627)
<b>bCLO</b>	Bad Coin Lockout
<b>bCrS</b>	Bad Coin Reset
<b>bUZ</b>	Buzzer (Tone)
<b>°CEL</b>	Degree in Celsius
<b>CLCC</b>	Clear Left Coin Count
<b>Coin</b>	Coin Mode
<b>CrCC</b>	Clear Right Coin Count
<b>donE</b>	Drying and Cooling Cycles Complete
	or
	Dryer is in Anti-Wrinkle Cycle
<b>door</b>	Door Circuit is Open
<b>drYL</b>	Dryness Level
<b>dSFL</b>	Dryer Sensor Circuit Failure
<b>°FAr</b>	Degree in Fahrenheit
<b>FILL</b>	No Cycle in Progress
<b>FLS</b>	Flash Display Active
<b>FrEE</b>	Free Dry Mode
<b>GdLY</b>	Anti-Wrinkle Off Time
<b>Gont</b>	Anti-Wrinkle On Time
<b>Grd</b>	Anti-Wrinkle Program Active
<b>HICd</b>	High Cool Down
<b>LCC</b>	Left Coin Count
<b>LCde</b>	Left Coin Denomination
<b>LOCd</b>	Low Cool Down
<b>nbUZ</b>	No Buzzer
<b>nFLS</b>	No Flash Display
<b>nGrd</b>	No Anti-Wrinkle
<b>OFF</b>	Bad Coin Lockout Program Tripped
<b>PL</b>	Program Location
<b>PPCd</b>	Perm Press Cool Down
<b>PUSH</b>	Amount to Start has been Inserted
	Make Temperature Selection
<b>rCC</b>	Right Coin Count
<b>rCdE</b>	Right Coin Denomination
<b>tInE</b>	Timed Mode
<b>tPLC</b>	Time Per Left Coin

## D. COMPUTER LOGIC AND WIRING DIAGRAM

1. Operator inserts coin.
2. Operator enters desired selection (s)...
3. Information entered is sent to the Micro-Controller via the keyboard ribbon.
4. The input information is sorted / processed and executed by the Micro-Computer chip.

COMPUTER LOGIC AND WIRING DIAGRAM



5. The micro-computer output signal activates the contactors and DSI module which controls the machines functions.

**NOTES:** When contacting American Dryer Corporation with electrical questions, please have on hand the correct wiring diagram number for your particular machine.

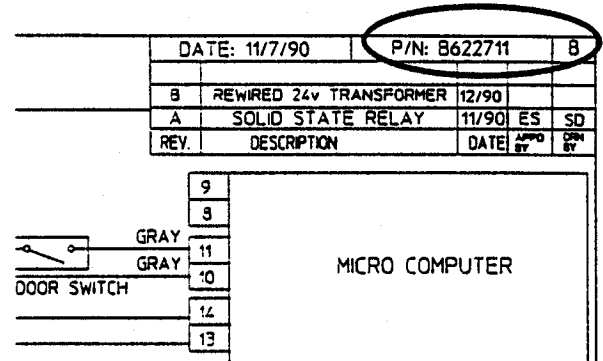
This number is located on the top right hand corner of the diagram.

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 manufacturing and options available.

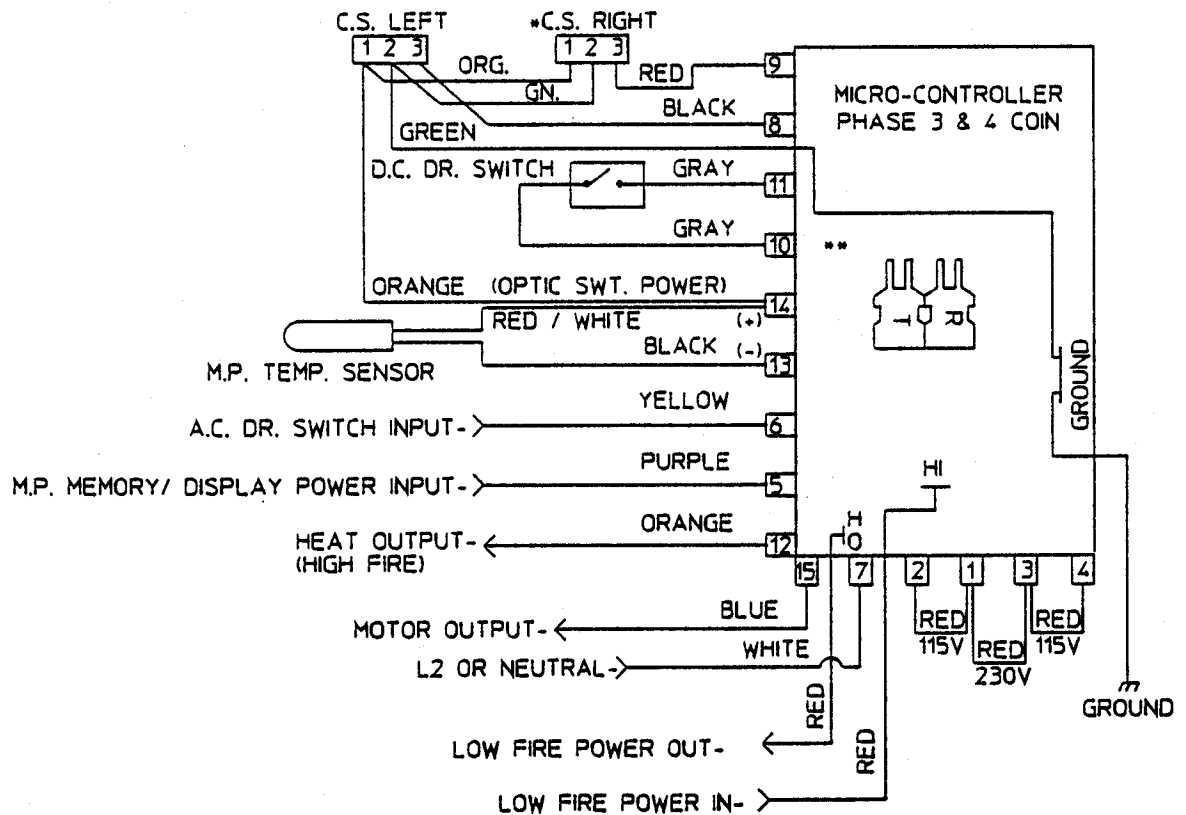
The correct wiring diagram and number is located on the left side of the coin box.

Diagrams for this book are as follows:  
(including all revisions of the numbers listed below)

B3159  
B3211



PHASE 3 AND 4 COIN CONTROLLER CIRCUITS



\* DUAL COIN MODELS ONLY  
 \*\* TRANSMITTER -RECEIVER FIBER OPTIC CONNECTORS (PHASE 4 ONLY)

MAN1932

ADC450309 1- 14/13/95-100 2\* 002/08/96-100 3\* 11/13/97-100  
4- 01/20/00-50 5- 11/09/01-25

