



**AD-15 thru AD-75
Coin Service Manual
Phase 5 Microprocessor Controls
and
Coin Meter Controls
(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.

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SECTION I

IMPORTANT INFORMATION

A. SAFETY PRECAUTIONS

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 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.
7. Under no circumstances should the dryer door switch or heat circuit safety devices ever be disabled.

WARNING: PERSONAL INJURY OR FIRE COULD RESULT.

8. Read and follow all caution and direction labels attached to dryer.

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.

SUGGESTED INTERVAL

FUNCTION

DAILY

Clean lint from the lint screen. Inspect 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.

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

120 DAYS

On gas and electric models remove lint from gas burner area with a dusting brush or vacuum cleaner attachment.

On steam dryers clean coil. Proper cleaning of the steam coil 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 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.

IMPORTANT: The accumulation of lint in the exhaust duct work can create a potential fire hazard.

AS REQUIRED

In the 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.

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

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 motor bearings, idler bearings and tumbler bearings are permanently lubricated, and 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, 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 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 installation manual for recommended distances and minimum allowances required.)

When the dryer is operating, it draws in room air, heats it, passes the 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 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, 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 you 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, 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.

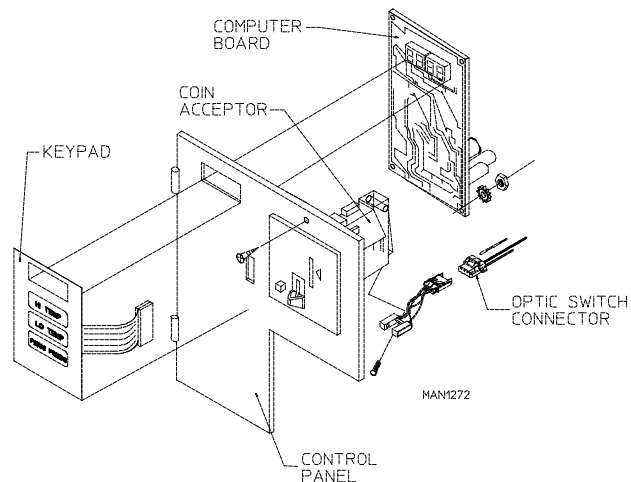
4. The dryer should be operated through one complete cycle to assure that no future adjustments are necessary and that all components are functioning properly.
5. For 3Ø motor models check the electric service phase sequence while the dryer is operating. Check to see if the blower wheel is rotating in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

SECTION IV

DESCRIPTION OF PARTS

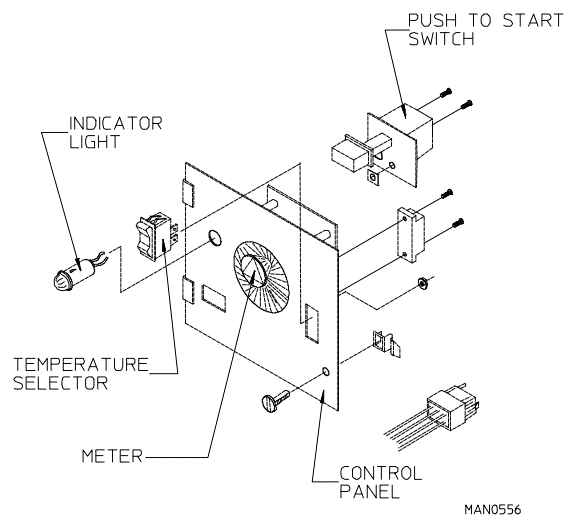
A. Control Panel (Microprocessor)

Lifting the control door will reveal the control panel assembly. Opening the control panel will allow access to the major components which include the 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. The illustration to the right is a dual coin control panel. Some models are shipped as dual coin machines, however, the basic operation remains the same.



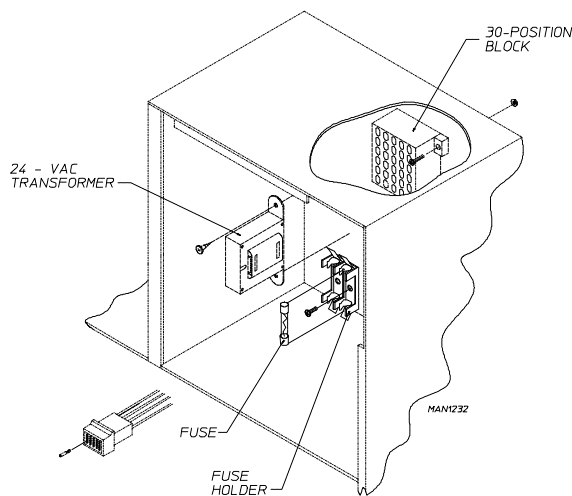
B. Control Panel (Non-Microprocessor)

On models without microprocessors, a rotary meter is used to accept the coins. A rotary meter acknowledges that a coin has been inserted when the knob has been turned. This meter is also a timer that will shut off the dryer at a specific time. The time is determined by a cam located in the meter. 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.



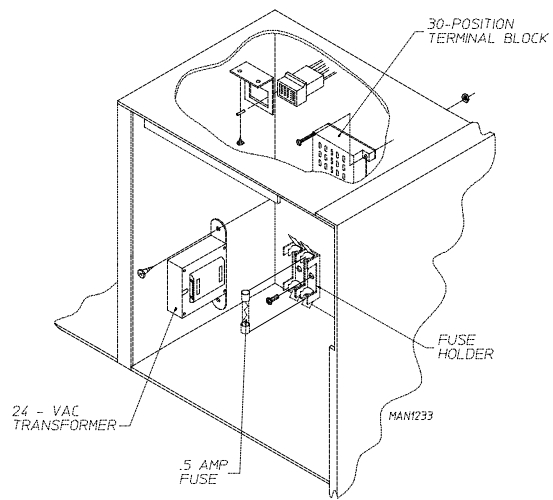
C. Control Box (Computer Controls)

The computer control box is made up of a fuse(s), 24vac transformer, and a 30 position terminal block. The fuse(s) protect the incoming voltage from shorting. The transformer is used to break down the incoming voltage to 24vac for the control voltage 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.



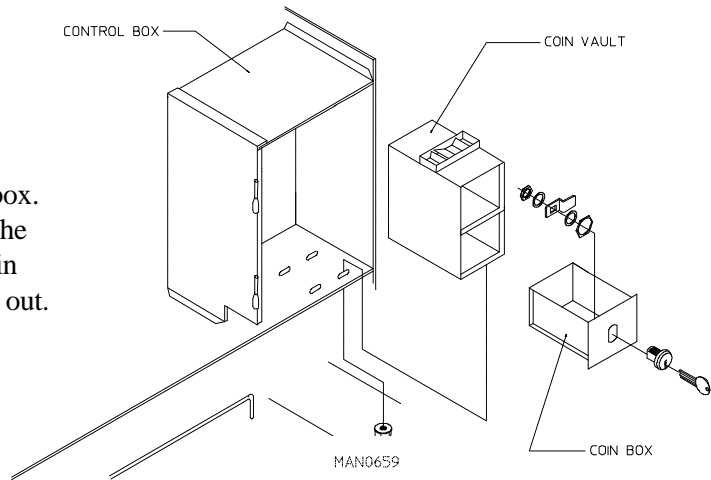
D. Control Box (Non-Computer Control)

The non-computer control box is made up of, a 30 position terminal block, fuses, and a 24vac transformer, depending which model, the transformer may be mounted in a different place. The fuses 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.



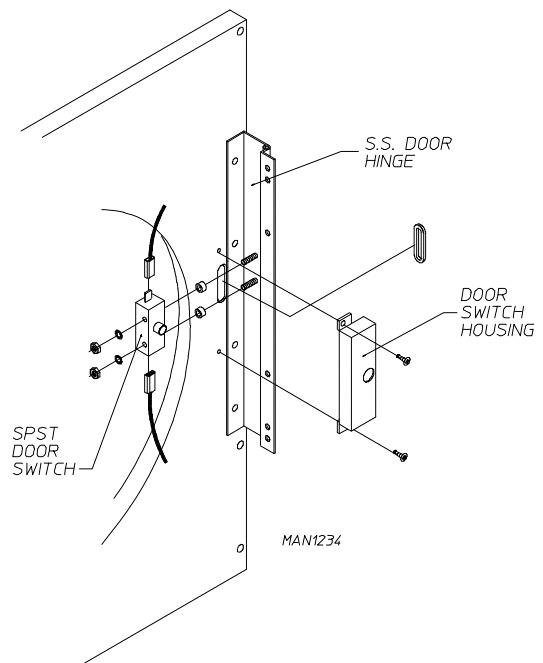
E. Coin Box and Vault

The coin box and vault are located in the control box. When a coin passes the coin sensor, it drops into the coin vault. Lifting the control doors reveals the coin box. To remove the coin box turn the key and pull out.



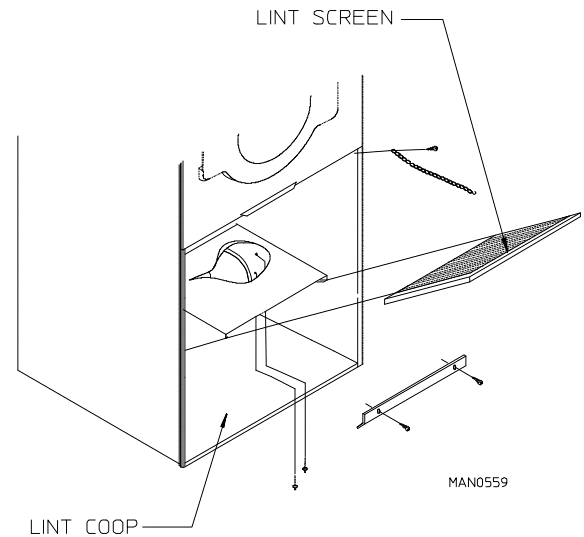
F. Main Door Switch

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.



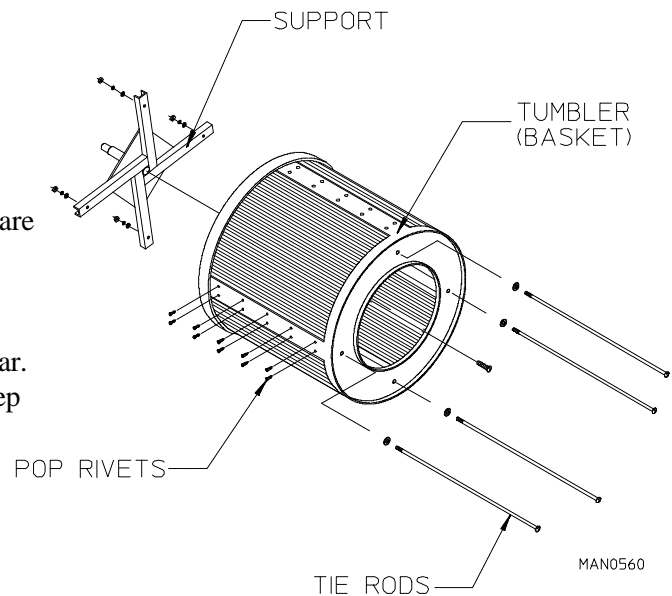
G. Lint Coop

The lint coop is 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. On AD-15 and AD-25 models there are two (2) lint screens. The lint screens should be cleaned on a daily basis. Lint screens with tears or holes should be replaced immediately.



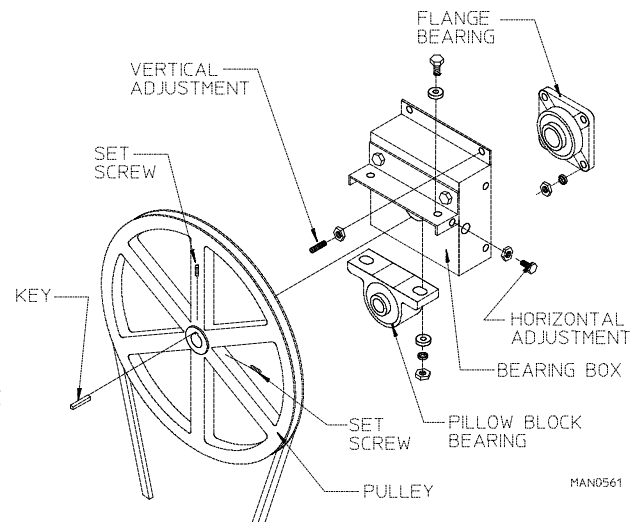
H. Tumbler

The 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 tumbler also consists of tie rods which support the tumbler from front to back. The tumbler support is used to mate the 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.



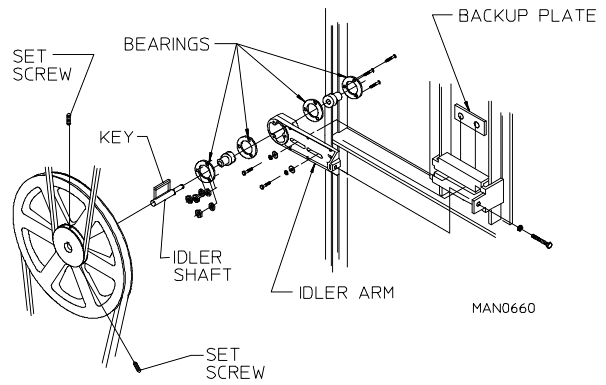
I. Tumbler Bearing and Pulley Arrangement

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 bearing which serve to adjust, drive, and support the tumbler. The AD-15 and AD-25 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 vertically and horizontally.



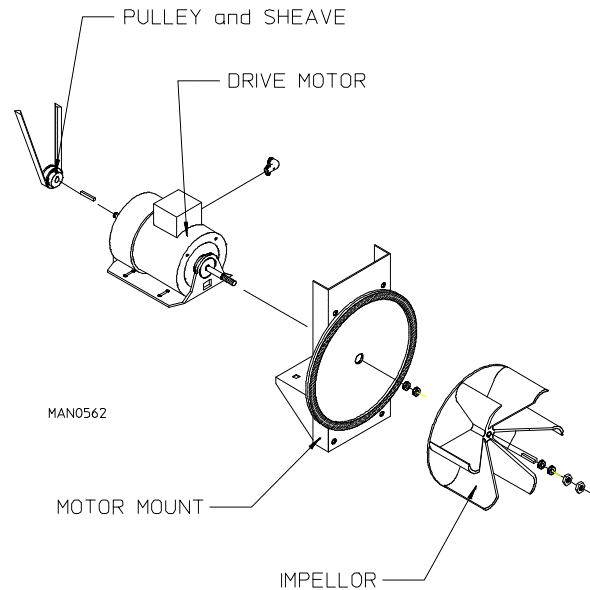
J. Idler Bearing

(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 idler's main purpose is to reduce the speed and increase the torque provided to the tumbler bearing. Also, the idler assembly belt tension can be adjusted. AD-15 thru AD-30 requires a 9" x 2-1/2" pulley. AD-50 thru AD-75 requires a 14" x 3" pulley.



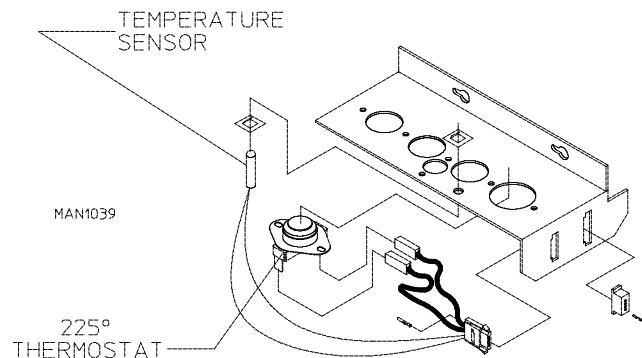
K. Drive Motor and Blower Motor

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. The blower end of the motor is connected to the impellor, a backward curved paddlewheel. The impellor provides airflow 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.



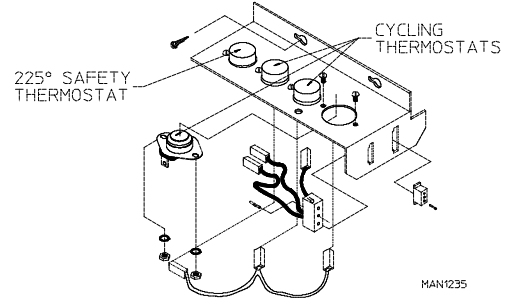
L. Temperature Sensors (Computer Controls)

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



M. Non-Computer

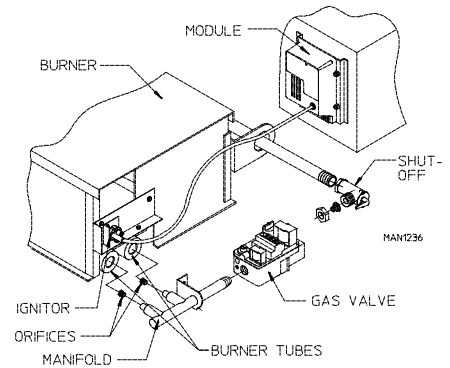
The non-computer machines use thermostats located on the bracket under the basket. These thermostats shut the head off at their rated temperature.



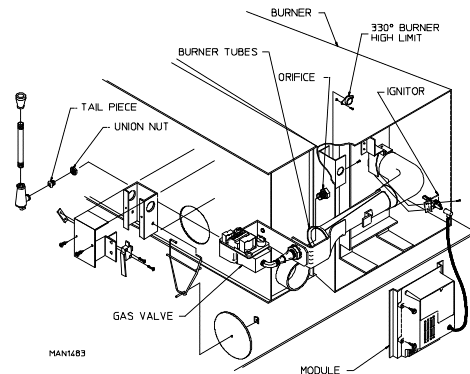
AD-15, AD-25, AD-30, AD-50, UD-50

N. 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 BTUs), gas valve (which can be set up for natural gas or L.P.), spark ignitor/flame-probe assembly, sail switch, and 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.



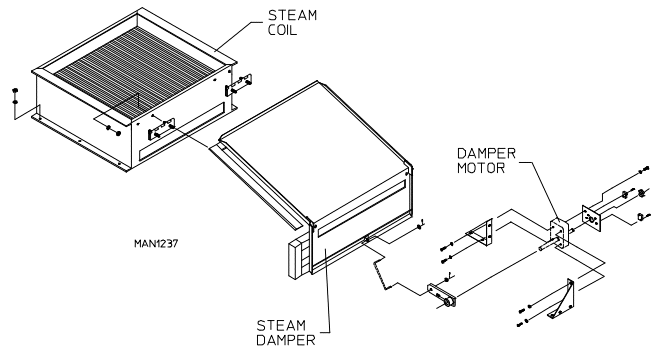
AD-75



O. Electro-Mechanical Steam Damper

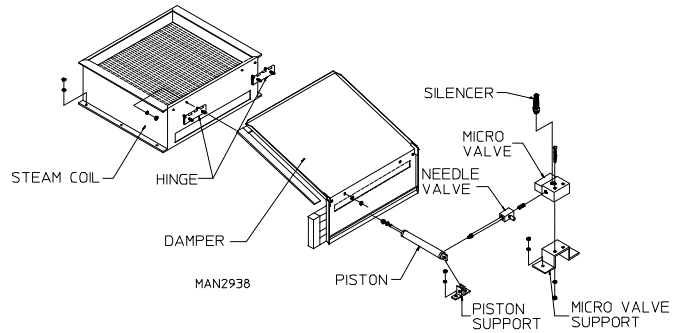
(Available only on model numbers AD-15, AD-25, AD-30, AD-50, and UD-50.)

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



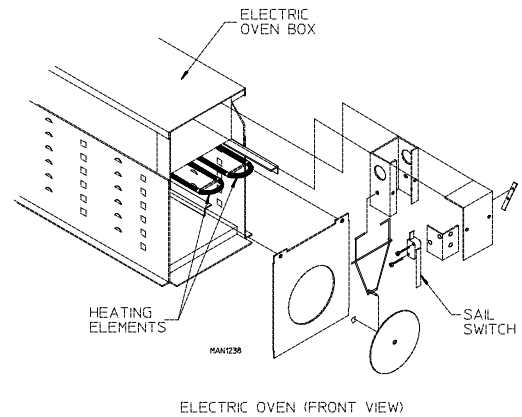
P. Steam Damper System (Air)

The newest type system is called the steam damper. It uses compressed air to open and close the steam damper. Air supply is 80 P.S.I. +/- 10 P.S.I.



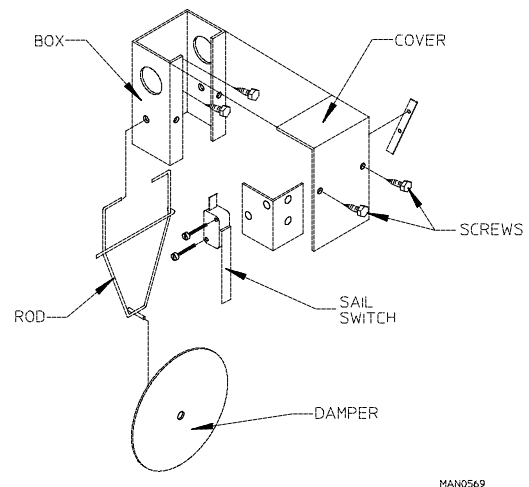
Q. Electric Oven

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 airflow entering the tumbler. All ovens have Kw ratings. This is the rating of how much heat the oven can produce. The higher the rating the more heat.



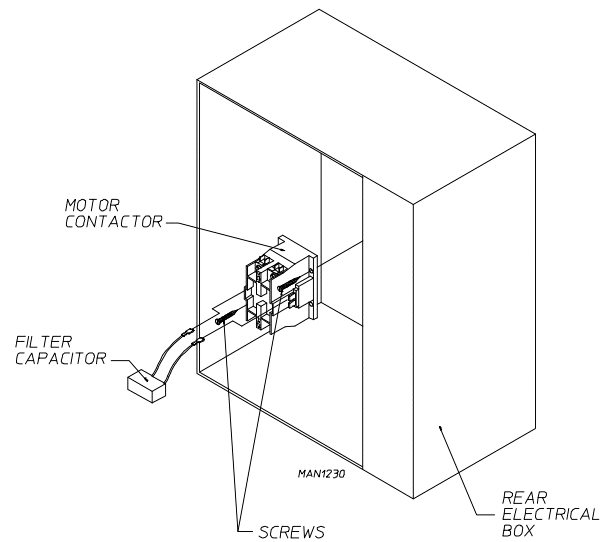
R. Sail Switch (Electric and Gas Models)

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 box, and this negative pressure pulls in the round damper which activates the sail switch. If there is improper airflow, the damper will not pull in, preventing the burner from coming on. Improper airflow 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. Sail switch is located in front of the oven on electric models and in the back of the burner on gas models.



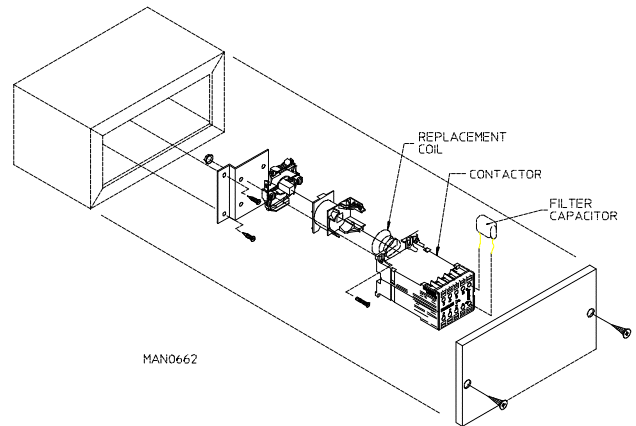
S. Motor Contactor (1Ø Motor)

This motor contactor used on a single phase dryer, is located in the rear of the machine, in the Electrical Panel Box. It's purpose is to transfer the higher voltage to the motor when the contactor coil voltage has been achieved.



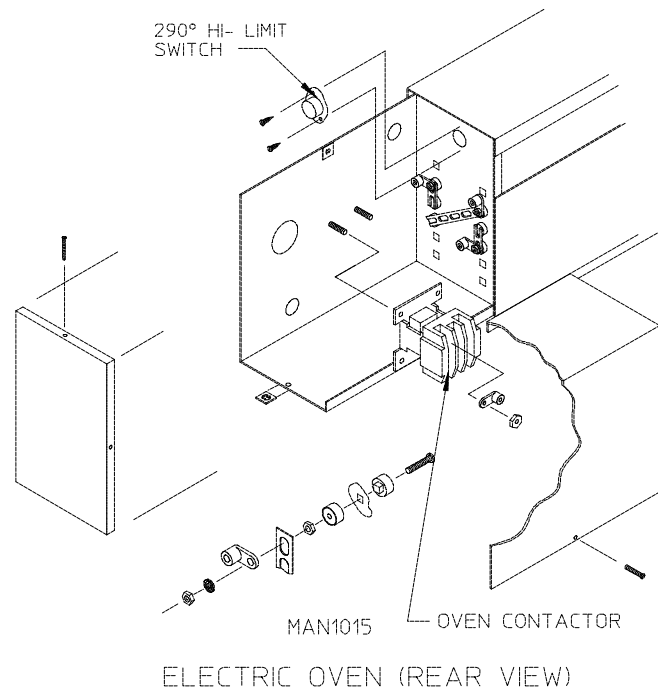
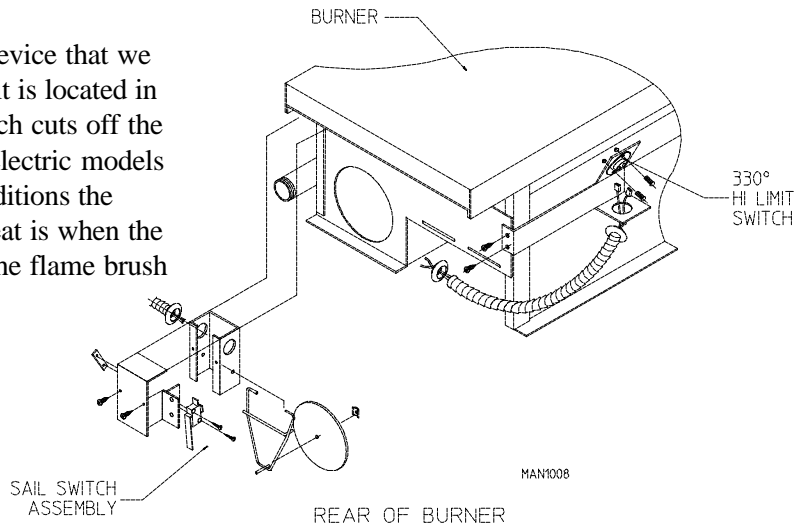
T. Non-Reversing Contactor (3Ø Motor)

The non-reversing contactor is used on 3-phase non-reversing dryers and is located on the upper left hand side of the dryer (view from the rear). 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.



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

The hi-limit thermostat is another safety device that we use 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 290° for electric models or 330° for gas models. 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.



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.

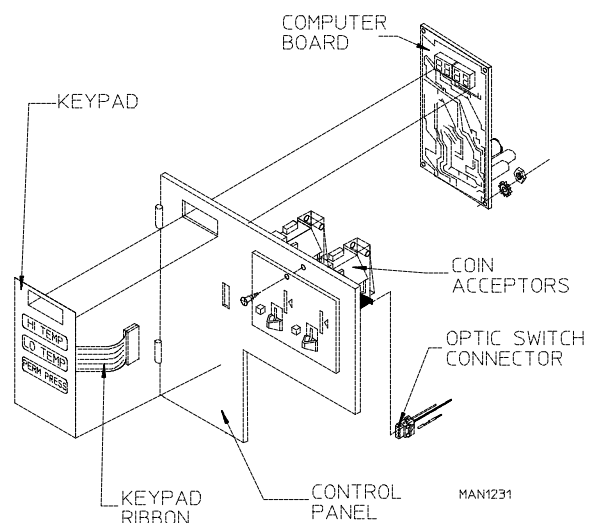
CAUTION: Observe all safety precautions displayed on the dryer or specified in this manual before and while making repairs.

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 a complete cycle.

A. Controls (Computer)

TO REPLACE CONTROL PANEL ASSEMBLY

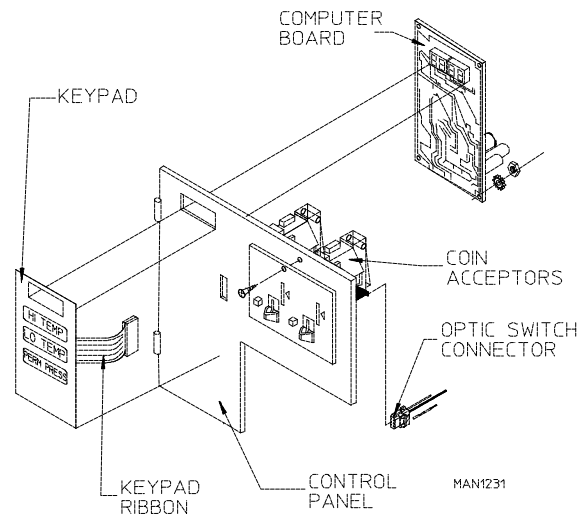
1. Disconnect power to dryer.
2. Disconnect main power harness from rear of computer by squeezing the top locking tap and pulling connector straight back.
3. Disconnect the green ground wire from the computer.
4. Disconnect coin acceptor optic switch connector from 15 pin harness.
5. To remove control 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 the procedure.
7. Be sure to check or reset programs.



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

TO REPLACE COMPUTER

1. Discontinue power to dryer.
2. Disconnect main power harness from the rear of the computer by squeezing the top locking tab and pulling connector straight back.
3. Disconnect the green ground wire from the computer.
4. Disconnect the keypad ribbon from the computer.
5. Remove the two (2) screws securing the computer to the control panel and remove computer from panel, by pulling upwards on the corners.
6. Install new computer by reversing this procedure.
7. Be sure to check or reset programs.



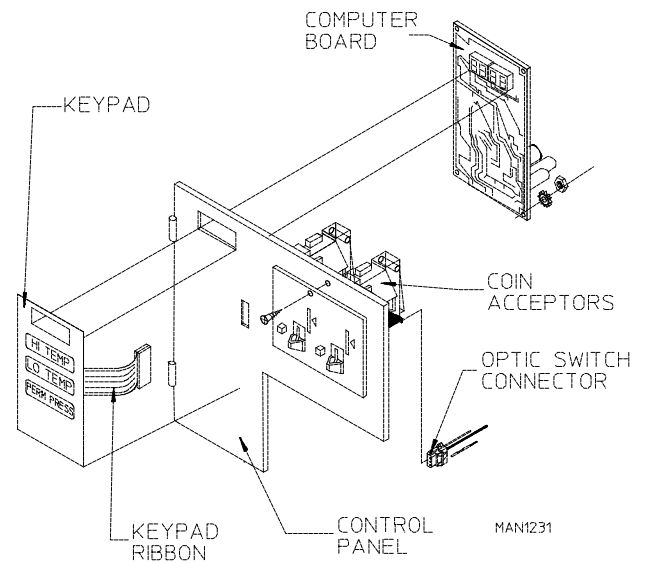
NOTE: Use caution when handling MP Controller. Easily damaged by static electricity.

TO REPLACE KEYPAD (refer to illustration above)

1. Discontinue power to dryer.
2. Swing control panel open and 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 of 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.

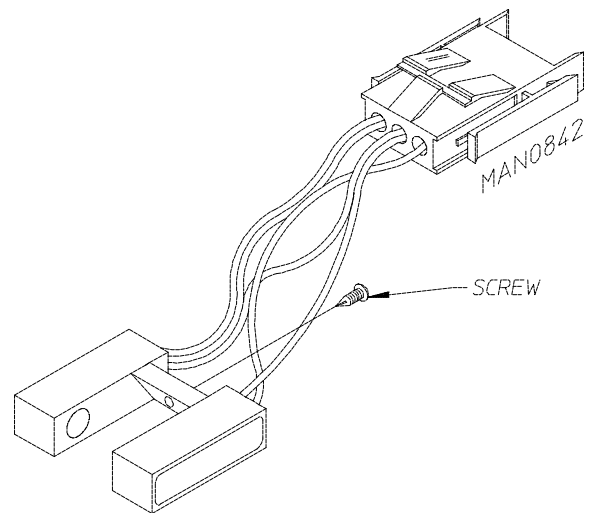
TO REPLACE COIN ACCEPTOR

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



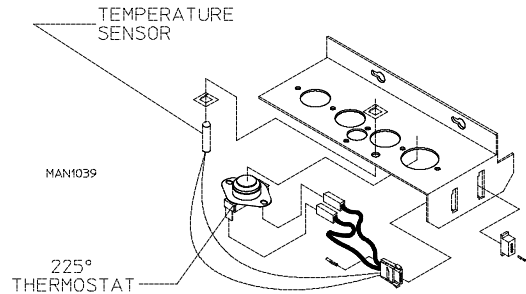
TO REMOVE OPTIC SWITCH

1. Unplug optic switch connector.
2. Remove screw and washer holding optic switch to the coin acceptor and pull optic 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.



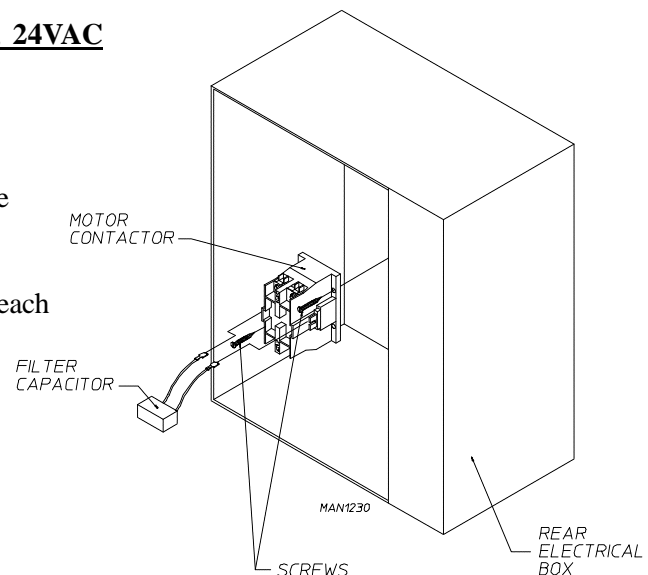
NOTE: Do not remove screws

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 fastener 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 re-established the computer display reads “dsfl,” check for loose connection on the wiring.

TO REPLACE MOTOR CONTACTOR 2-POLE, 24VAC

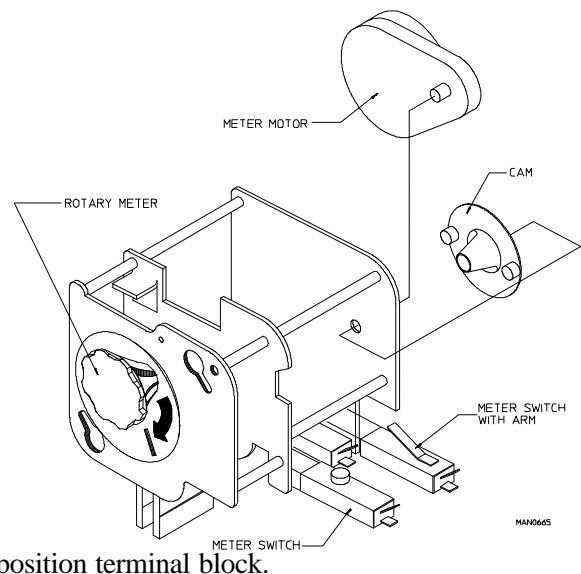
1. Discontinue power to dryer.
2. Remove both screws securing motor contactor to the electrical panel.
3. Remove all wires from contactor (Note: make sure each wire is marked with location removed from).
4. Install new contactor in reverse procedure.
5. Re-establish power to dryer.



B. CONTROLS (METER)

TO REPLACE ROTARY METER

1. Discontinue power to dryer.
2. Swing control panel open.
3. Remove two (2) freespin washernuts and disconnect obstructive wiring. The two (2) freespin washernuts are located as follows:
One is on top of the meter and the 2nd is on the bottom right hand corner of the meter. Remove wiring from the meter switches (Note: be sure to check wiring diagram for proper installation of new meter) also remove the one (1) yellow meter motor wire from the 30 position block.
4. Pull rotary meter out.
5. Reverse procedure to install new rotary meter assembly.



TO REPLACE METER MOTOR

1. Disconnect power to dryer.
2. Swing control panel open.
3. Remove two (2) screws holding meter motor.
4. Remove the yellow wire of the meter motor from switch "A". Remove the other yellow meter motor wire from 3 position terminal block.
5. Pull meter motor away and reverse procedure to install new meter motor.

TO REPLACE METER SWITCHES

1. Disconnect power to dryer.
2. Swing control panel open.
3. Disconnect wiring at the meter switches.

NOTE: Be sure to check wiring diagram for correct wiring of switches.

4. Remove two (2) screws holding switches in place.
5. Remove switches.
6. Reverse procedure for installing new switches.

TO REPLACE CAM

1. Disconnect power to dryer.
2. Remove control panel from dry.
 - A. Swing control panel open and remove main power harness.
 - B. Lift panel off of hinges and remove.
3. With a small screw driver pry the cam and brass fixture off of motor shaft.
4. Reverse procedure for installing new cam.

NOTE: When installing new cam place fixture on cam first. Align flat side of the hold on the fixture with the flat surface of the shaft.

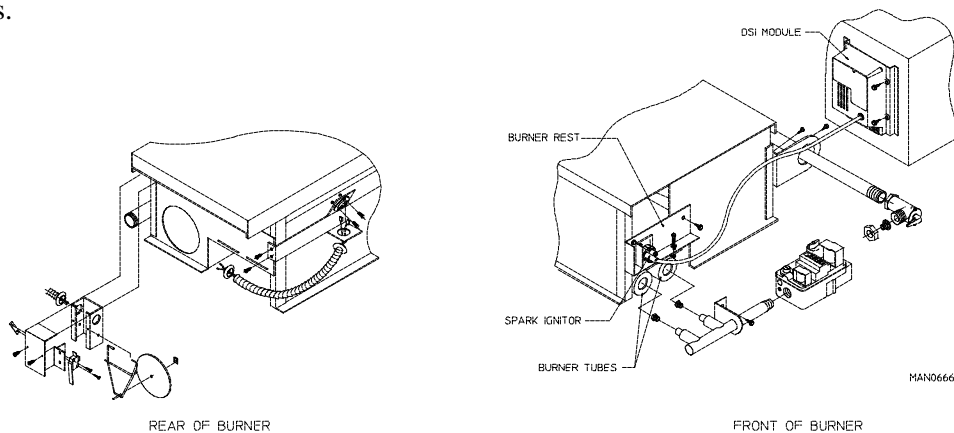
Timing Cam Chart # of Pins / Minutes

Pin Number	Motor RPM's	
	1 / 30	1 / 60
1	30 Mins.	60 Mins.
2	15	30
3	10	20
4	7.5	15
5	6	12
6	5	10

Pin Number	Motor RPM's	
	1 / 30	1 / 60
7	4 1 / 4	8 5 / 8
8	3 3 / 4	7 1 / 2
9	3 1 / 3	6 2 / 3
10	3	6
11	2 2 / 3	5 1 / 2
12	2 1 / 2	5

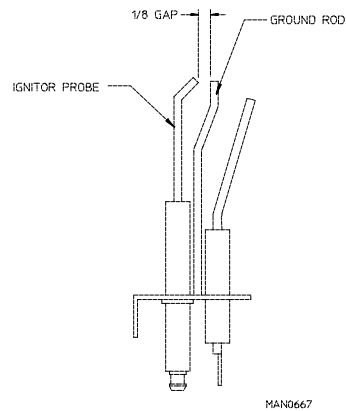
C. BURNER CONTROLS (Gas)

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

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

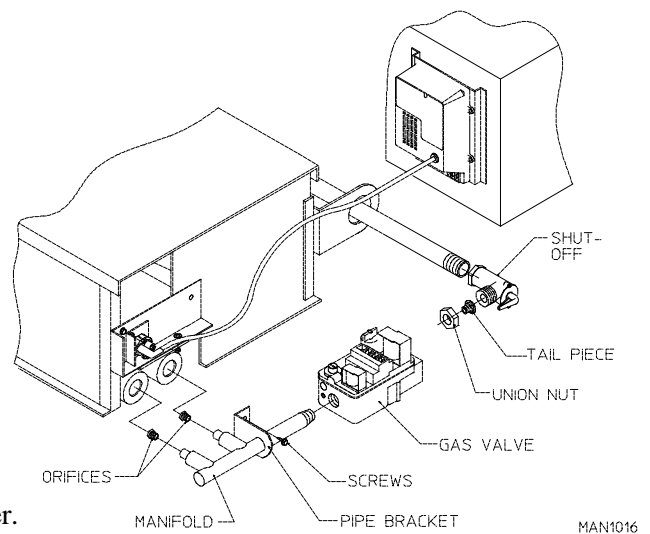


NOTE: Before re-establishing power to dryer, visually check the following: (see illustration)

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 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 dryer.
2. Close shut off valve in gas supply line.
3. Disconnect gas valve wiring.
4. Break union connection before 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 manifold from output of the gas valve.
8. Remove union tail piece from valve. Use a 1/2" allen wrench (ADC P/N: 410001)
9. Reverse procedure for installing new gas valve.



NOTE: Replacement valves are natural gas. See page 24 for L.P. Kit Listing.

WARNING: Test all connections for leaks by brushing on a soapy water solution (**Never Test For Leaks With A Flame**)

TO REPLACE MAIN BURNER ORIFICES (See Chart On Following Page)

1. Refer to “ TO REPLACE GAS VALVE” and follow steps one through six.
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 (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 tube rises, showing the exact water column pressure.

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

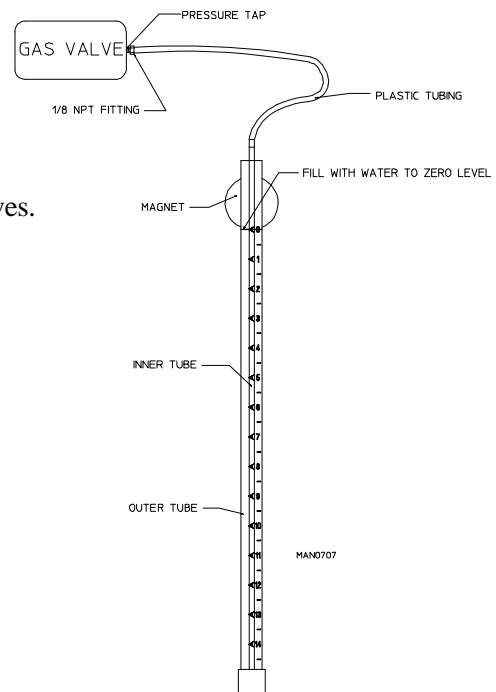
1. To test gas water column (w.c.) pressure.

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 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 counter clockwise to decrease. For L.P. gas models there is no regulator on valve.



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

DSI Burner Orifice Conversion Listing*

Models 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-26D	60,000	1	#26	140823	1	#43	140809	874061
ADG-215D	100,000**	2	#29	140820	2	#46	140806	874055***
ADG-215DH	100,000**	2	#29	140820	2	#46	140806	874055***
ADG-220D	120,000**	2	#26	140823	2	#43	140809	874056***
ADG-220DH	120,000**	2	#26	140823	2	#43	140809	874056***
ADG-230D	144,000**	2	#20	140828	2	#41	140811	874057***
ADG-230DH	144,000**	2	#20	140828	2	#41	140811	874057***
ADG-235D	144,000**	2	#20	140828	2	#41	140811	874059***
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	#26	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

* Consul factory for elevations over 2,000 feet for correct burner orifice size(s).

** BTU PER HOUR rating is total for both baskets.

*** L.P. Conversion Kit includes orifices for both baskets.

IMPORTANT: This listing supersedes any other listing and/or information previously issued on the DSI system.

TO CONVERT FROM NATURAL TO L.P. GAS

1. Disconnect electrical power to 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 re-installation.

4. Break union connection (nut) between union shut off and 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 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 gas valve for use with L.P. gas, refer to instructions included in kit envelope (#F92-0737) supplied.
9. Reverse procedure for reinstalling 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.

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 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 hazardous condition.

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

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

TO REPLACE BURNER TUBES

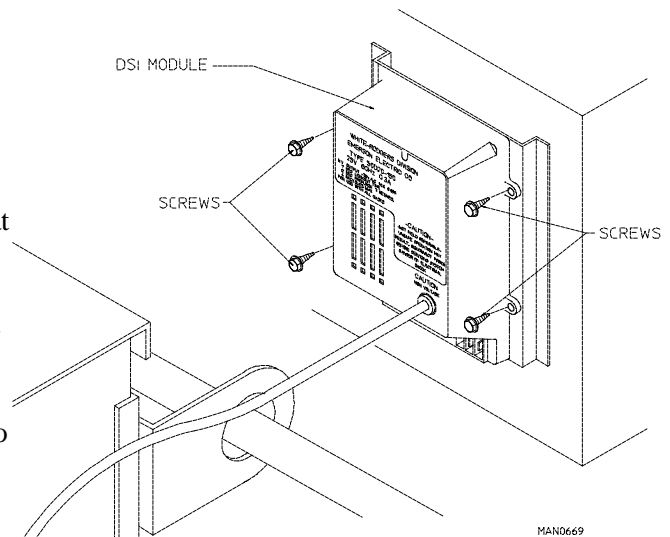
1. Discontinue power to dryer.
2. Close shut off valve in gas supply line.
3. Disconnect gas valve wiring.
4. Break union connection before gas valve.
5. Loosen and remove two (2) screws securing pipe bracket to the burner.
6. Remove gas valve / manifold assembly from the dryer.
7. Remove the screws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

WARNING: Test all connections for leaks by brushing with a soapy water solution. “ **Never Test For Leaks With A Flame.**”

TO REPLACE DSI MODULE

(For models AD-15, AD-30, AD-230, AD-75)

1. Discontinue power to the dryer.
2. Remove the wires connected to the terminal strip at the bottom of the 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. Replace module by reversing process.



TO REPLACE DSI MODULE

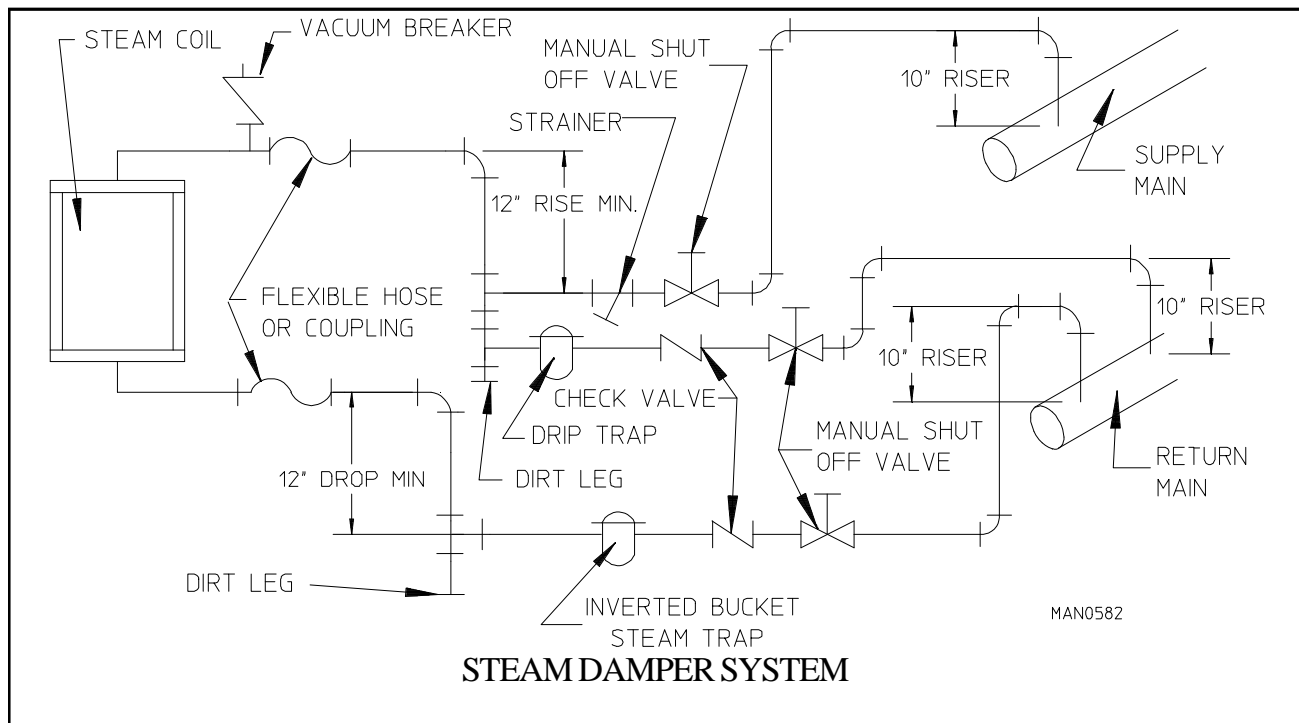
(For models AD-25, AD-285, AD-50, UD-50)

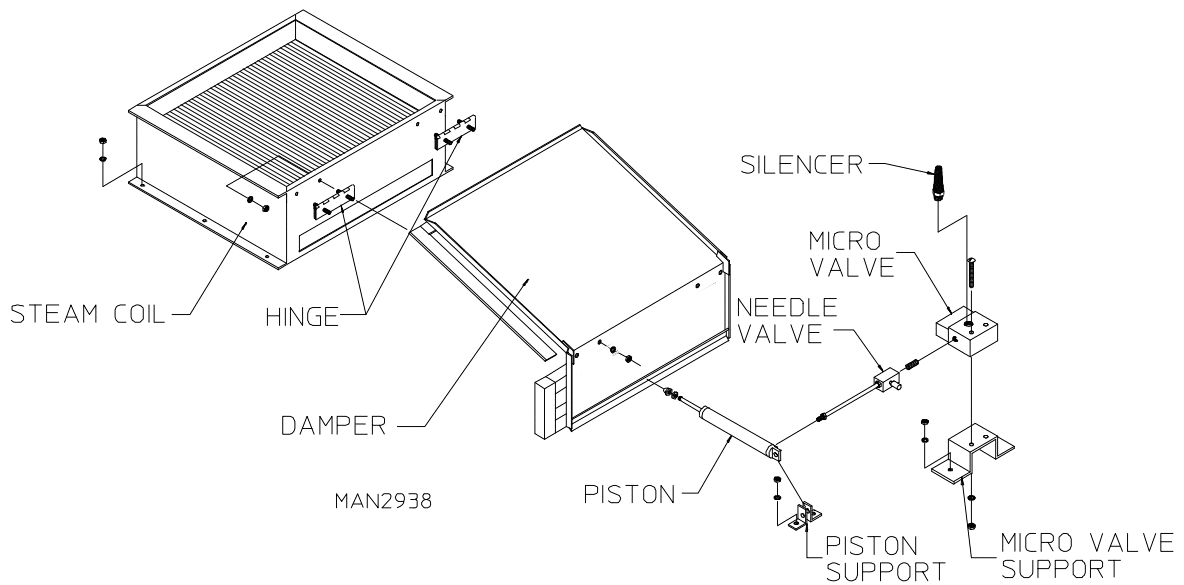
1. Discontinue power to the dryer.
2. Remove the wirers connected to the terminal strip at the bottom of the module.
3. Remove the soft orange high voltage wire from the module.
4. Remove the two (2) screws securing the module to the plate.
5. Replace module by reversing process.

D. STEAM CONTROLS

INSTALLATION

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





TO REPLACE STEAM COIL (DAMPER SYSTEM)

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

TO REPLACE PISTON

1. Discontinue power to dryer.
2. Remove left and right piston supports by removing two (2) washers and hex nuts and slide pin out.
3. Remove 1/8" MPT connector from the piston and remove a corn nut on the end of piston shaft (this will be used on new piston.).
4. Reverse procedure for installing new piston.

TO REPLACE THE NEEDLE VALVE

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

TO REPLACE THE 3-WAY MICROVALVE

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

TO REPLACE STEAM COIL

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

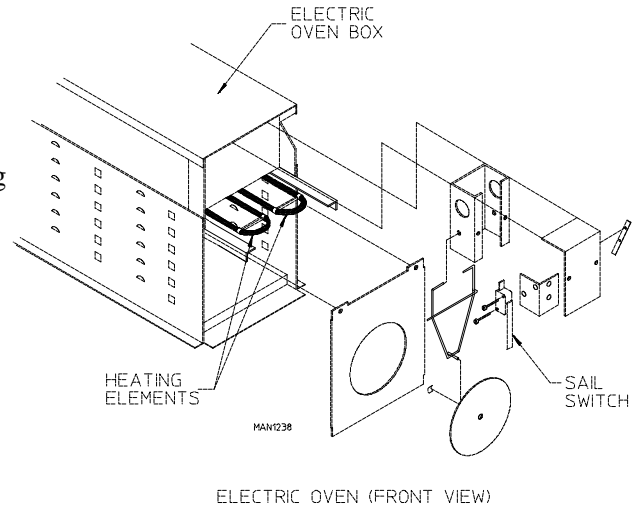
CAUTION: Steam coil and/or piping may be hot, allow time to cool.

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

E. ELECTRICAL OVEN CONTROLS

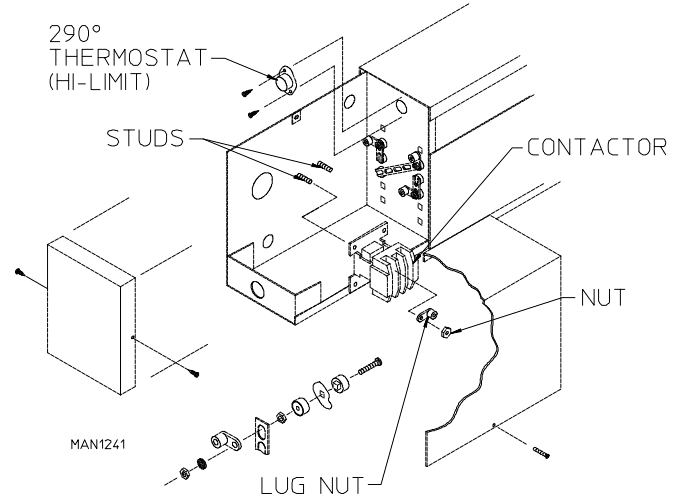
TO REPLACE ELECTRICAL ELEMENTS

1. Discontinue power to dryer.
2. Remove 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 oven.
4. From the front of the oven, slide out element.
5. Reverse procedure for installation of new element.



TO REPLACE OVEN CONTACTOR

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

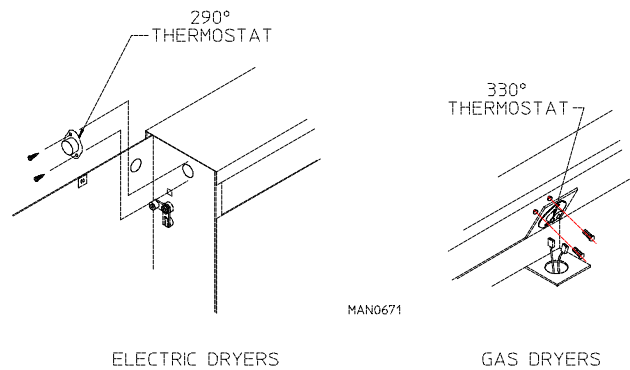


F. THERMOSTATS and TEMPERATURE SENSOR **TO REPLACE HI-LIMIT THERMOSTAT (330 DEGREES GAS, 290 DEGREES ELECTRIC)**

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. Remove screw, washer, and nut securing thermostat to the bracket, remove thermostat.
4. Reverse procedure for installing new thermostat.

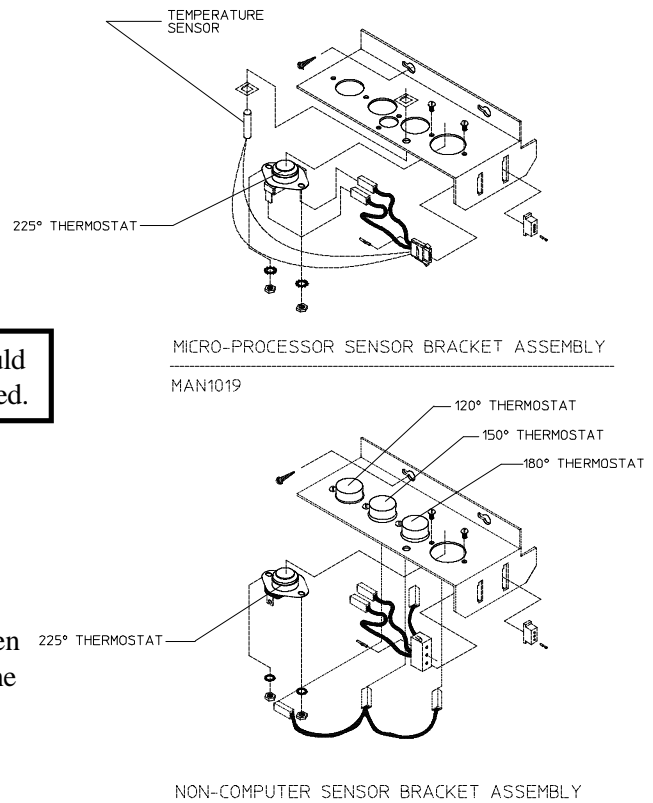


TO REPLACE LINT COMPARTMENT HI-HEAT PROTECTOR AND THERMOSTATS (NON-MICROPROCESSOR MODELS)

These thermostats are part of the “Sensor Bracket Assembly” and are secured to the underside of the 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 safety devices be disabled.

1. Discontinue power to dryer.
2. Open and remove the lint door.
3. Locate sensor bracket assembly under basket. Loosen the two phillips head screws holding the bracket to the machine, disconnect connector.



4. Slide bracket to the rear of the dryer and remove from machine.
5. See diagram for location and identification of which thermostat you need to change.
6. Remove the two (2) screws and washers and nuts accompanying the proper thermostat.
7. Remove the two (2) connectors on the thermostat.
8. Remove thermostat.
9. Reverse procedure for installing new thermostat.

TO REMOVE THE TEMPERATURE SENSOR OR HIGH HEAT PROTECTOR (MICROPROCESSOR MODELS)

A. HIGH HEAT PROTECTOR

1. Discontinue power to dryer.
2. Open and remove lint door.
3. Locate temperature sensor bracket assembly under the basket. Loosen the two phillips head screws. Disconnect the connector.
4. Slide bracket toward 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 procedure for installation of new high heat protector.

B. TEMPERATURE SENSOR (MICROPROCESSOR MODELS)

1. Discontinue power to dryer.
2. Open and remove 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 bracket towards the rear of the dryer.

5. Disassemble sensor probe from bracket assembly by removing the top push-on fastener securing the probe to the basket.
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.

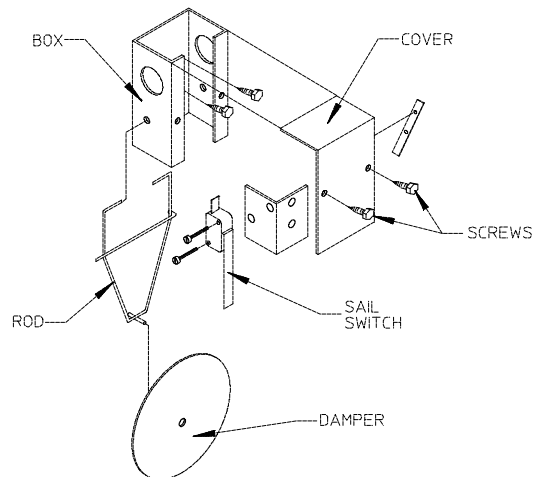
G. SAIL SWITCH ASSEMBLY (Gas and Electric Models)

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. 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 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.



MAN0569

TO ADJUST SAIL SWITCH

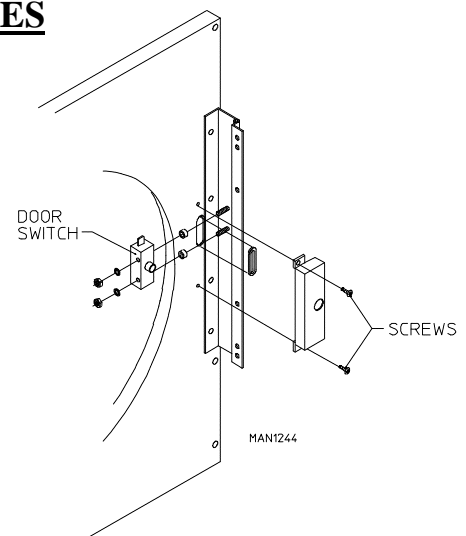
1. Operate the installed dryer normally to verify that the heat system is fully operational.
2. Open the main dryer door.
3. Manually depress the door switch actuator.
4. While continuing to depress the door switch actuator, and with the door open, start the dryer.
5. If the heat system is not activated 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 forward the front of the dryer. If the actuator arm is bent too far forward 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.

H. FRONT PANEL and MAIN DOOR ASSEMBLIES

TO REPLACE MAIN DOOR SWITCH (ES)

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



NOTE: Identify location of each wire for correct reinstallation.

5. Disassemble door switch bracket by removing the two (2) screws holding the door switch (es) in place and assemble onto new door switch (es).
6. Reverse this procedure for installing new door switch (es).

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

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

TO REPLACE MAIN DOOR ASSEMBLY

1. Remove screws holding main door to main door hinge.
2. Reverse this procedure for reinstalling 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 down.
3. Remove glass and clean all old sealant off main door. This area must be completely cleaned for correct bonding.
4. Apply narrow bead of silicone (ADC P/N: 170730 for plastic type doors or ADC P/N: 170725 for cast type doors) 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. Disconnect main door switch wiring from inside control wire box.

NOTE: Identify location of each wire for correct reinstallation.

3. Follow procedure for removal of main door assembly.
4. Open control (service) door.
5. Open lint door.

6. Remove the screws securing the front panel to the dryer.
7. Gently remove front panel assembly from dryer.

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

8. Reverse this procedure 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.

IMPORTANT: When removing hinge assembly from front panel be careful you do not damage main door switch wires.

5. Remove main door switch assembly.
6. Re-assemble by reversing removal procedure.

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

TO REPLACE THE NYLON CATCH

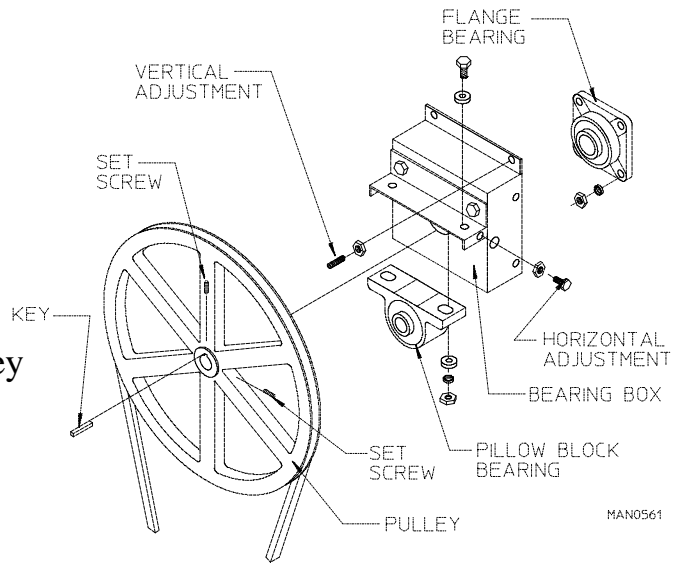
1. Open main door.
2. Drill out two (2) pop rivots (P/N 154215) install nylon catch (P/N 170330) to front panel.

I. TUMBLER AND BEARING ASSEMBLY

(Remove backguard to access assembly)

TO REPLACE TUMBLER PULLEY

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



NOTE: Check belt alignment before operating dryer.

TO REPLACE THE REAR TUMBLER BEARING

NOTE: Illustration represents models AD-30 through AD-50. Models AD-15 and AD-25 use a 1" diameter flange bearing. The same procedure applies to both.

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

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

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

NOTE: Check alignment of pulleys before operating dryer.

TO REPLACE THE FRONT TUMBLER BEARING

NOTE: Illustration represents models AD-30 through AD-50. Models AD-15 and AD-25 use a 1 1/4" diameter flange bearing. The same procedure applies to both.

1. Remove tumbler pulley and bearing box (follow "TO REPLACE THE REAR TUMBLER BEARING" steps 1 through 4).
2. Loosen set screws on rear tumbler bearing.

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

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

NOTE: An alternative 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.

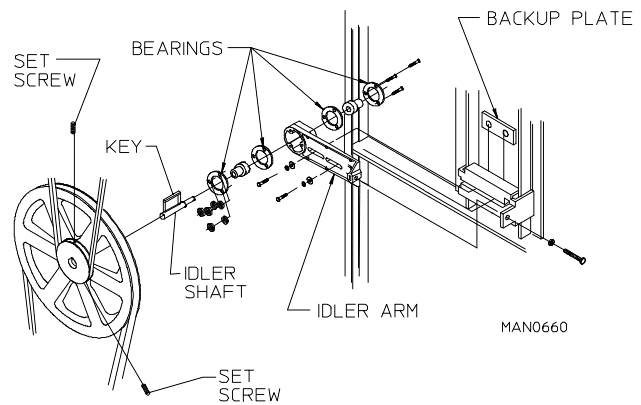
4. Remove the three (3) nuts securing the bearing to the dryer back and remove the bearing.
5. Reverse procedure for installing new tumbler bearing.
6. Replace backguard.

J. 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

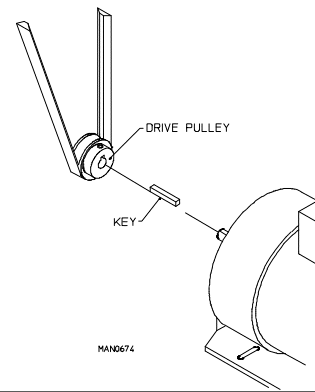
1. Remove idler pulley (follow “TO REPLACE IDLER PULLEY”).
2. Remove idler arm.
 - A. Remove two (2) bolts securing idler arm to the idler backup plate.
 - B. Remove idler arm assembly.
 - C. Loosen set screws on both the front and rear bearing and remove the idler shaft.
 - D. Remove 3 bolts securing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

K. 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.

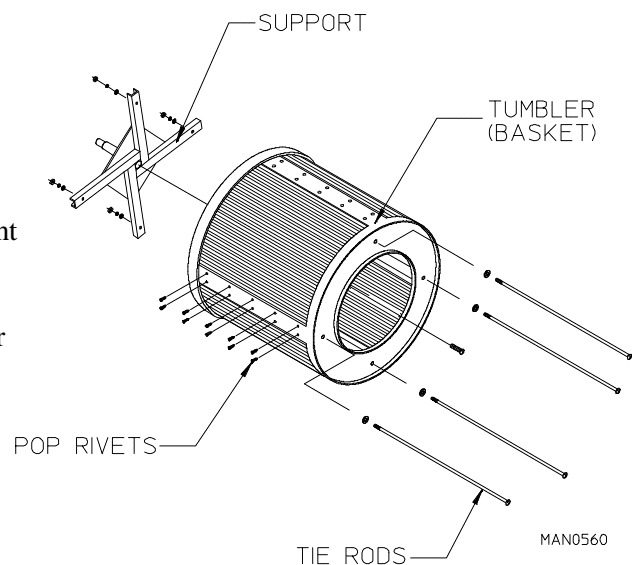
4. Reverse procedure for installing new drive pulley.

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

L. TUMBLER (BASKET)

TUMBLER ALIGNMENT (VERTICAL)

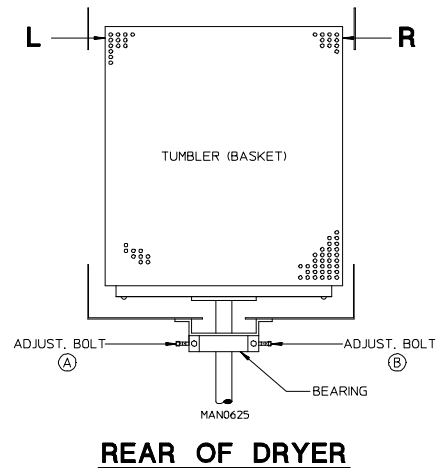
1. Discontinue power to dryer.
2. Remove backguard.
3. Loosen the four (4) hex head bolts on the sides of the bearing box (2 on each side).
4. Back off jam nuts on the two (2) allen head adjustment screws.
5. Turn the screws clockwise evenly to raise the tumbler or counterclockwise evenly to lower the 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 bearings 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 left.
 - 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 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.
 - A. Discontinue power to dryer.
 - B. Disconnect main door switch wiring from inside control wire box.

NOTE: Identify location of each wire for correct re-installation.

- C. Open control (service) door.
- D. Open lint door.
- E. Remove the screws securing the front panel to the dryer.
- F. Gently remove front panel assembly from the dryer.

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

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.

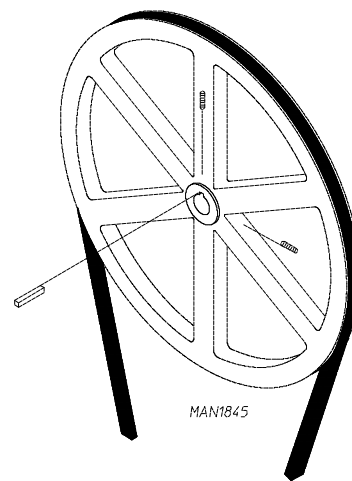
7. Check tumbler lateral and vertical alignment. Also, check belt tension and alignment.
8. Replace backguard and re-establish power to dryer.

M. V-BELTS (REFER TO ILLUSTRATION IN SECTIONS I, J, and 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.

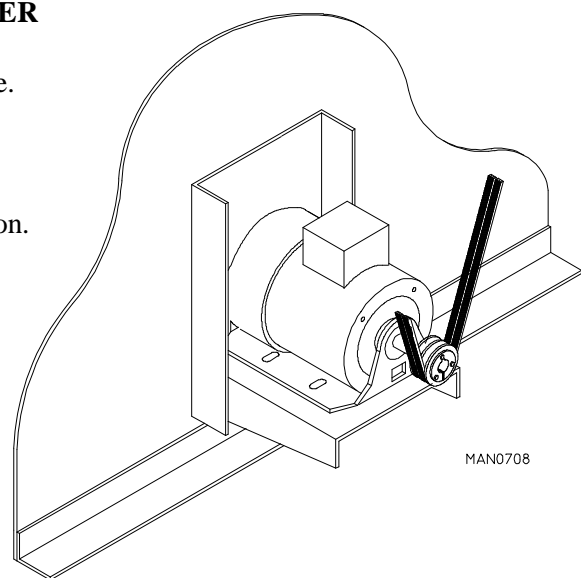
V-BELT TENSION ADJUSTMENT-TUMBLER TO IDLER

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 adjusting 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 and alignment per previous instructions.

N. MOTOR

TO REPLACE MOTOR

1. Discontinue power to dryer.
2. Remove drive belt.
3. Disconnect wiring harness from motor.
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 impeller. Work the impeller 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 pulley from old motor and install on new motor.
8. Align motor with impeller face in plane with the motor mount at no less than 3/16" clearance.

O. IMPELLER

NOTE: Follow steps 1 through 5, 8 in "Section V, Part N."

P. LINTSCREEN

TO REPLACE LINTSCREEN

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

SECTION VI

TROUBLE SHOOTING

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 displaced on the equipment or specified in this manual while making repairs.

A. PHASE 5 COIN SYSTEM DIAGNOSTICS

All major circuits, including door, microprocessor temperature sensor, heat and motor circuits are monitored. The Phase 5 coin microprocessor controller will inform the user via the L.E.D. display of certain failure codes along with indicators both in L.E.D. display at the outputs of each relay and door switch circuit to easily identify failures.

DIAGNOSTIC (L.E.D. DISPLAY) FAILURE CODES

1. **“dOOr”** - indicates door switch circuit is open.
 - a. Keyboard entry was made while main door is open, or
 - b. There is a fault in the door switch circuit (external of the microprocessor controller).
2. **“dSFL”** - indicates a fault in the microprocessor temperature sensor circuit. If a fault is detected in the microprocessor heat sensor circuit, the display will read **“dSFL,”** and the tone (buzzer) will sound for approximately 5 seconds every 30 seconds until...
 - a. the problem is corrected, or
 - b. power to the dryer is discontinued and the problem is then corrected.

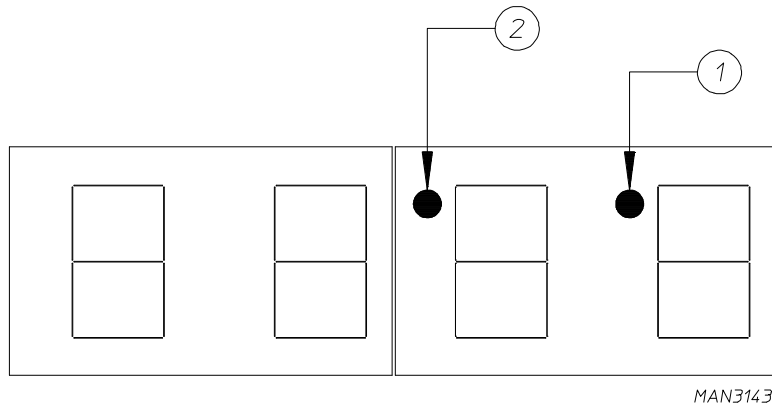
IMPORTANT: The Phase 5 coin microprocessor controller has its own internal heat sensing circuit fuse protection located on the back side of the controller. If a **“dSFL”** condition occurs, check to see if this fuse has blown. If it has, DO NOT replace the entire microprocessor controller; replace the fuse and do so with a 1/8-Amp (Slo Blo) fuse **ONLY**.

NOTE: Once the microprocessor controller detects a problem in the heat circuit, it updates every 30 seconds. If the problem was a loose connection in this circuit which corrected itself, the **“dSFL”** condition would automatically be cancelled.

3. **“SEFL”** - indicates rotational sensor circuit failure meaning that there is a fault somewhere in the basket (tumbler) rotation detection circuit, or the Phase 5 coin microprocessor controller program related to this circuit (PL01) is set incorrectly in the active mode (**SEn**) where the dryer is not equipped with the ptional rotational sensor and should be set in the non-active mode (**nSEn**).
4. **“Hot”** - indicates a possible overheating condition. The Phase 5 coin microprocessor controller monitors the temperature in the dryer at all times. If the microprocessor controller detects that the temperature in the dryer has exceeded 220°F (104°C), it will disable all outputs (shut the dryer down), the tone (**bUZ**) will sound for approximately 5 seconds, and the L.E.D. display will read **“Hot.”** The L.E.D. display will continue to read **“Hot”** until the temperature sensor has dropped to 220°F or lower and the microprocessor controller is manually reset by closing and opening the program switch (PS) on the back side of the controller (as shown in the illustration on the next page).

L.E.D. DISPLAY INDICATORS

The L.E.D. indicator dots located at the top portion of the L.E.D. display (as shown in the illustration below) indicate the Phase 5 coin microprocessor controller output functions while a cycle is in progress. These dots do not necessarily mean that the outputs are functioning. They are only indicating that the function (output) should be active (on).



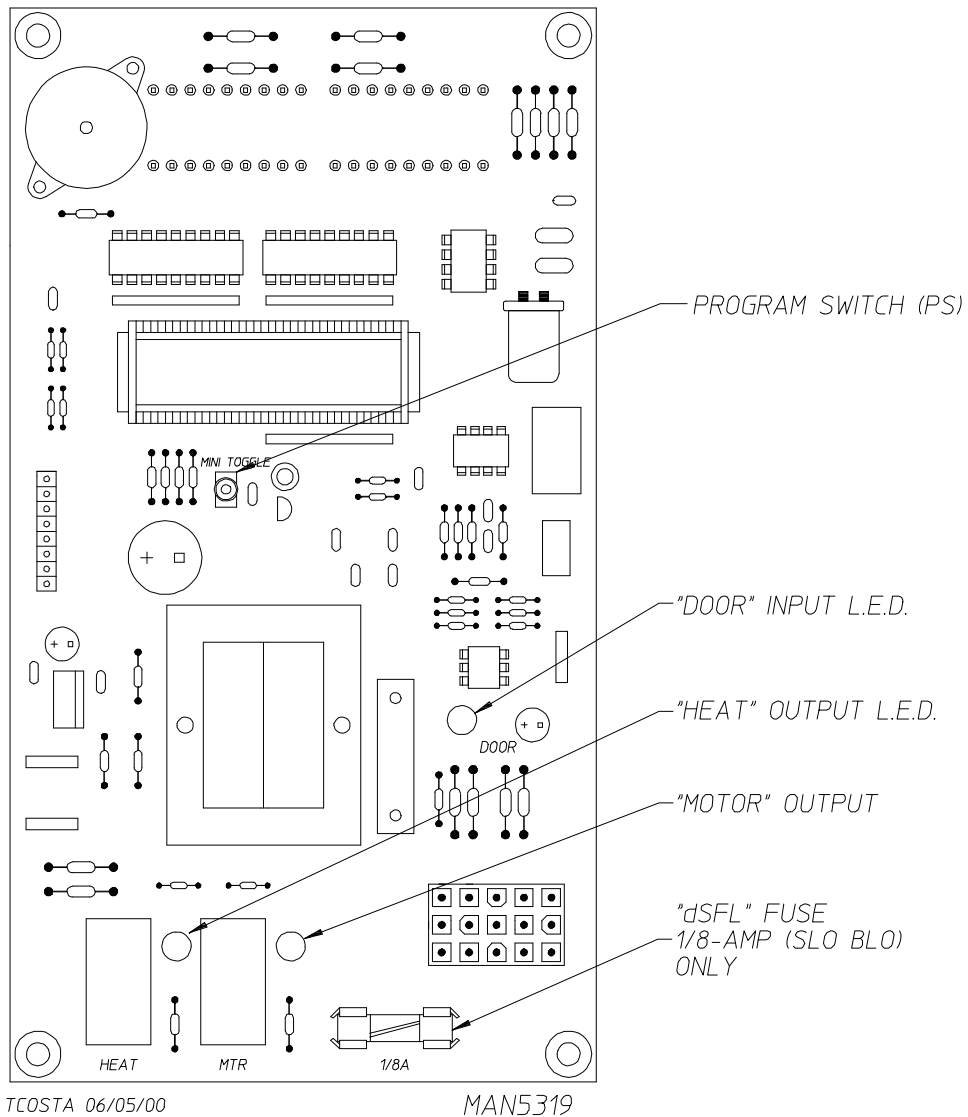
1. Heat Circuit Indicator - indicator dot is on whenever the Phase 5 coin microprocessor controller is calling for the heating circuit to be active (ON).
2. Motor Circuit Indicator - indicator dot is on whenever a cycle is in progress.

MICROPROCESSOR CONTROLLER RELAY OUTPUT L.E.D. INDICATORS

There are three (3) L.E.D. indicators (red lights) located at the lower backside area of the controller are identified/labeled “DOOR,” “MTR,” and “HEAT” (as shown in the illustration on the next page). These L.E.D.’s indicate that the outputs of the Phase 5 coin microprocessor controller or, in the case of the door switch, the input is functioning.

1. “DOOR” L.E.D. indicator should be on all the time (even if the dryer is not running) unless the main door is open or there is a problem (open circuit) in the main door switch circuit.

NOTE: If the dryer is started (the L.E.D. display indicator dots are on) and there are no outputs (heat and/or motor output L.E.D.’s are off) and the “dOOr” input L.E.D. is on, the fault is in the Phase 5 coin microprocessor controller itself. If the failure was elsewhere (i.e., dryer’s door switch circuit) the L.E.D. display would read “dOOr” if a keyboard entry was attempted. If the L.E.D. display indicators are on and the door L.E.D. input and motor/heat output L.E.D.’s are on and the motor and/or heat is not active (on), then the problem is not the door switch circuit or the Phase 5 coin microprocessor controller; the problem is elsewhere in the dryer.



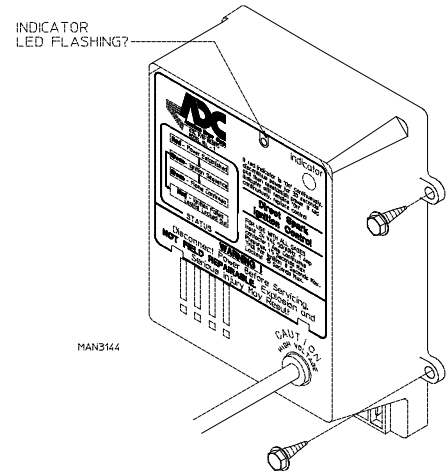
2. "MOTOR" Output L.E.D. Indicator - If the dryer is started and the motor is not operating, yet both the microprocessor controller display motor indicator dot and the "dOOR" input L.E.D. indicator are on, but the motor output L.E.D. indicator is off, then the fault is in the Phase 5 coin microprocessor controller itself. If the motor is not operating and the MOTOR output indicator is on, then the problem is elsewhere (i.e., external of the microprocessor controller).

3. "HEAT" Output L.E.D. Indicator - If the dryer is started and there is no "heat," yet the microprocessor controller display heat circuit indicator dot is on, but the heat output L.E.D. indicator is off, then the fault is in the Phase 5 coin microprocessor controller itself. If both the display heat indicator dot and the heat output L.E.D. indicator are on, then the problem is elsewhere (i.e., external of the microprocessor controller).

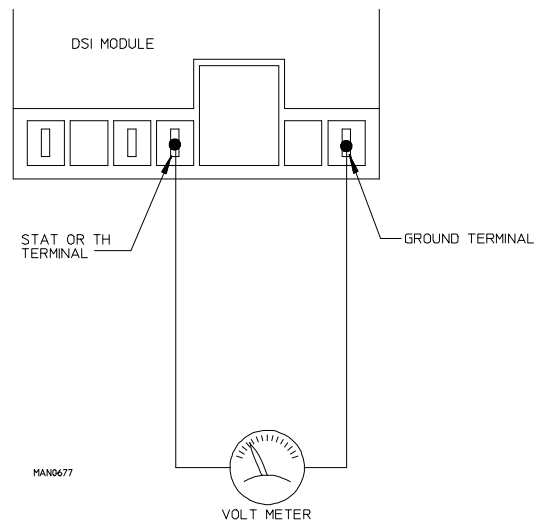
A. NO HEAT CONDITION (Gas Models)

The following procedure must be performed with the microprocessor controller display in the normal operating mode, and the heat indicator dot on, and the L.E.D. heat output light on. Voltage is 24 VAC unless otherwise specified.

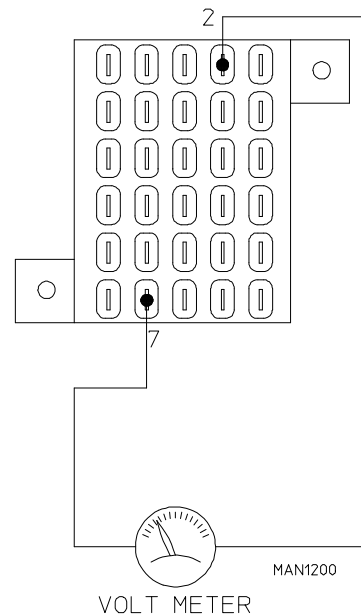
1. Check to see if DSI module fault indicator L.E.D. is on or flashing. If yes, refer to “DSI” Trouble Shooting Booklet. (P/N: 450119)



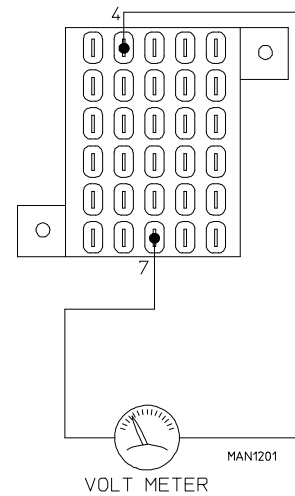
2. Check for voltage (approx. 25VAC) across DSI module terminals “STAT” or “TH” and “GND.” If voltage is evident, refer to “DSI” Trouble Shooting Booklet. (P/N: 450119)



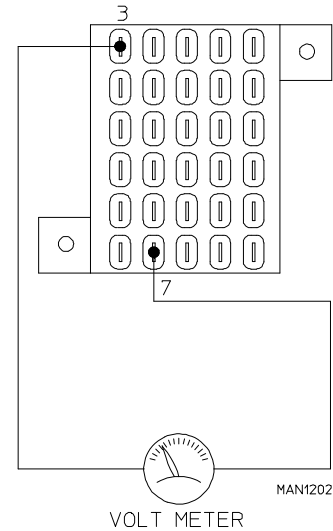
3. Check for voltage between TB#2 and TB#7. If voltage is evident, problem is break in wire or termination between TB#2 and TB#7, and the DSI module “STAT”, “TH”, or “Gnd” terminal.



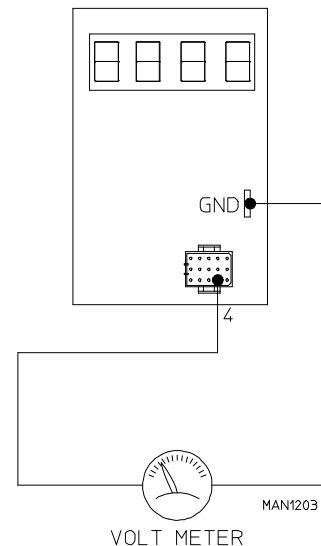
4. Check for voltage across TB#4 and TB#7.
 If voltage is evident, problem is defective burner
 hi-limit switch P/N: 130401 or the sail switch*
 P/N: 122200, or the harness connecting these two
 devices to the terminal (block #4 and #2).



5. Check for voltage across TB#3 and TB#7. If voltage
 is evident, problem is defective basket hi-limit switch
 P/N: 130103 or the harness connecting this device to
 the terminal block #3 and #4).



6. Check for voltage across the computer's 15-pin
 connector, #4 (orange wire), and the GND. Spade
 terminal on the computer. If voltage is evident,
 problem is the orange wire from the computer's 15 pin
 connector, #4 to the terminal block #3. There is a bad
 connection on either end or faulty computer.



* Make sure the sail switch damper is closing properly. If so, check to see if it is making contact with the switch. If the sail switch damper is not closing properly check for exhaust restriction, or exhaust damper restriction and/or clogged lint screen.

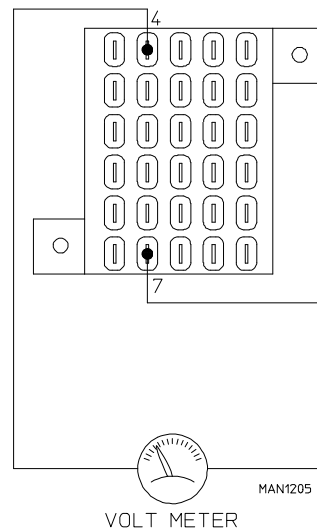
NOTE: For models with a 3-phase motor, check rotation direction of impellor (fan) as noted on label at rear of dryer.

B. NO HEAT CONDITION (STEAM MODELS)

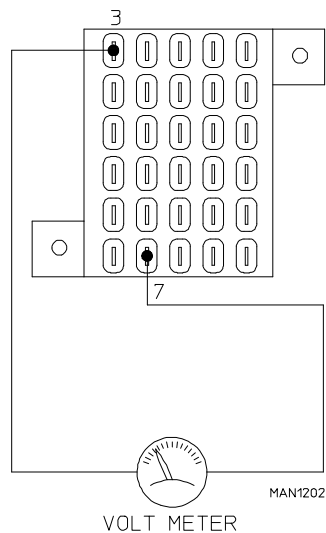
The following procedure must be performed with the microprocessor controller in the normal operating mode, and the heat dot on, and the L.E.D. heat output light is on. Make sure that 80psi +/- 10 is supplied to the 3-way microvalve. Your check for voltages should be 24 VAC unless otherwise specified.

1. Check for voltage across the two in-line connectors that the 3-way microvalve is connected to. If voltage is evident, replace steam valve solenoid.

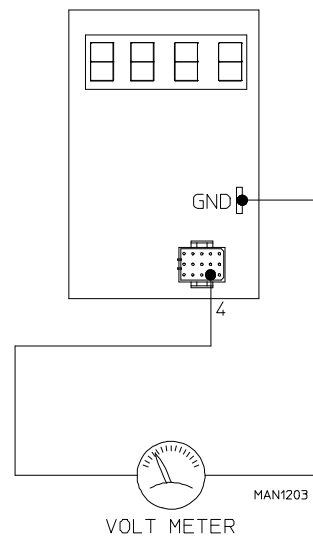
2. Check for voltage between TB#4 and #7. If voltage is evident, problem is bad wire or termination in harness between TB#4 and TB#7 to the two in-line connectors for the 3-way microvalve.



3. Check for voltage between TB#3 and #7. If voltage is evident, problem is faulty basket hi-limit (ADC P/N: 130103), or bad wire or termination harness between TB#3 AND #4 to the basket hi-limit.



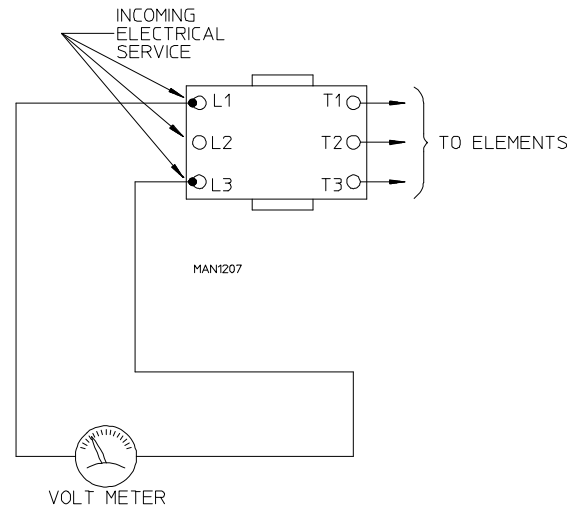
4. Check for voltage across the computer 15-pin connector #4 (this is a orange wire), and the GND. Terminal on the computer. If voltage is evedent, problem is the orange wire from the computer's 15-pin connector #4 to the TB#3. There is a bad connection on either end or faulty wire. If no voltage is evident, problem is faulty computer.



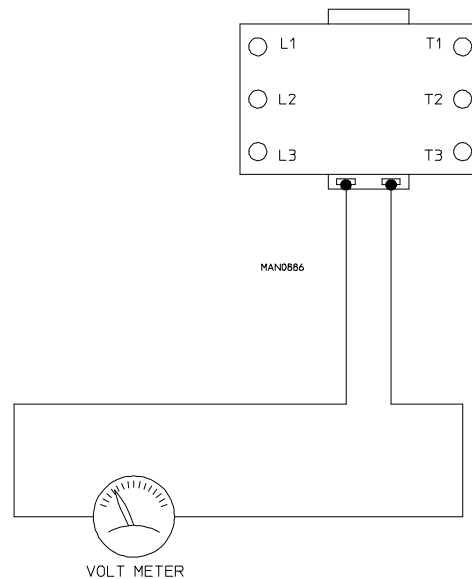
C. NO HEAT CONDITION (ELECTRIC DRYERS)

The following procedure must be performed with the microprocessor controller display in the normal operating mode and the heat indicator dot is on, and the L.E.D. heat output light is on. Your check for voltages should be 24 VAC unless otherwise specified.

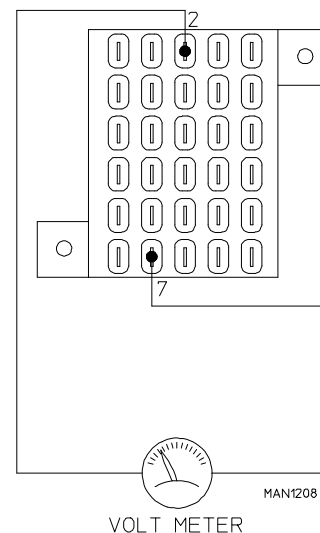
1. Check to see if voltage is present across the top of the oven contactor. If no voltage is present, problem is incoming voltage to machine. Check circuit breaker or protection fuses.



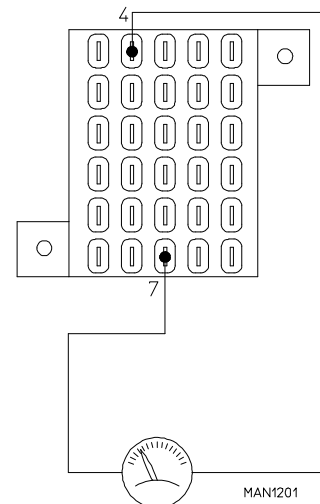
2. Check for voltage across the coil of oven contactor. If voltage is present replace the contactor.



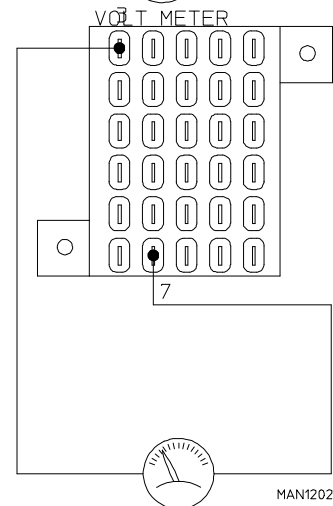
3. Check for voltage across terminal block #2 and #7. If voltage is evident, problem is faulty burner hi-limit switch (P/N: 130400), or bad wire or termination in the harness from TB #2 to the hi-limit and/or from the hi-limit to oven contactor coil.



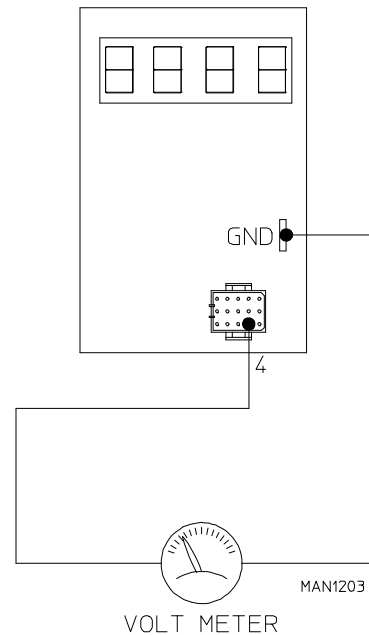
4. Check for voltage across TB #4 AND #7. If voltage is evident, problem is faulty sail switch* (P/N: 122200) or bad wire or termination in the harness connecting the sail switch* and TB #4 and TB #2.



5. Check for voltage across TB #3 and #7. If voltage is evident, problem is faulty basket hi-limit switch (P/N: 130103), or bad wire or termination in that harness between TB #3 and #4.



6. Check for voltage across the computer 15 pin connector, #4 (this is an orange wire), and the GND. Spade terminal on the computer. If voltage is evident, problem is the orange wire from the computer's 15 pin connector, #4 to the terminal block #3. There is a bad connection on either end or faulty wire. If no voltage is evident, problem is faulty computer.

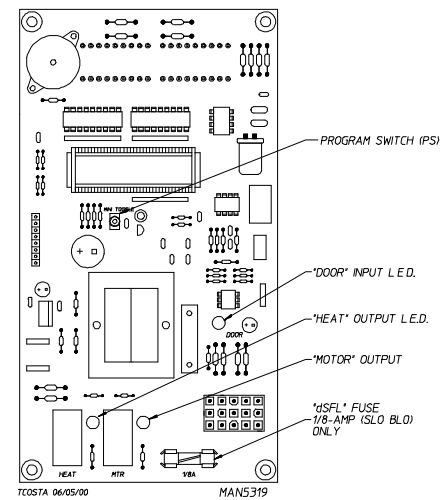


* Make sure sail switch damper is closing and if it is closing, check to see if it makes contact with the switch. If the sail switch damper is not closing properly check for exhaust restriction, or exhaust damper restriction and / or clogged lint screen..

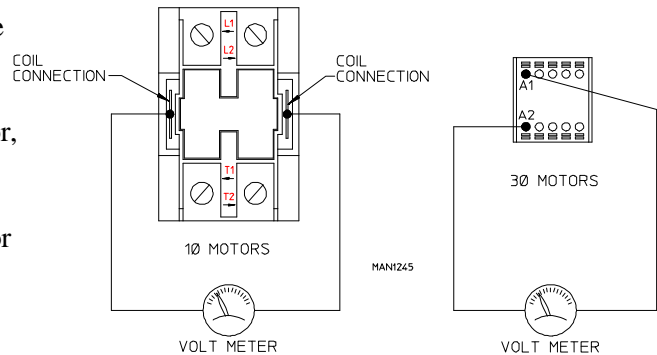
D. NO START CONDITION

Follow this test procedure, providing that the microprocessor controller is functioning where the display is in the normal operating mode and the motor indicator dot is on, and the L.E.D. motor output light is on. The voltage you should be reading is 24 VAC unless otherwise specified.

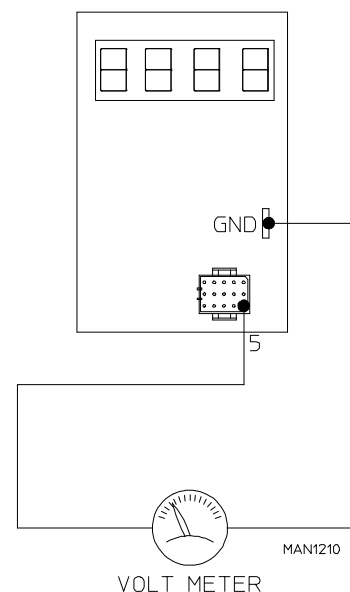
1. Check to see if “dOOr” L.E.D. input light is on. (located on component side of computer board.) If light is off, refer to “dOOr” in the trouble shooting section.



2. Check for voltage across the coil connections of the motor relay. If voltage is evident:
 - A. Manually push down on the top of contactor, if motor turns, replace contactor.
 - B. If motor doesn't turn problem is bad wire or termination from contactor down to motor or faulty motor.



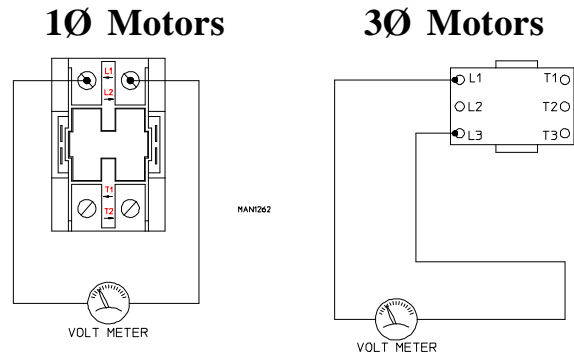
3. Check for voltage across the microprocessor's 15 pin connector #5 (blue wire) and GND spade terminal on the microprocessor. If voltage is evident, problem is bad wire or termination on blue wire from the computer to the contactor coil or the green wire from TB #7 to the opposite end of the contactor coil. If no voltage is evident, problem is faulty computer.



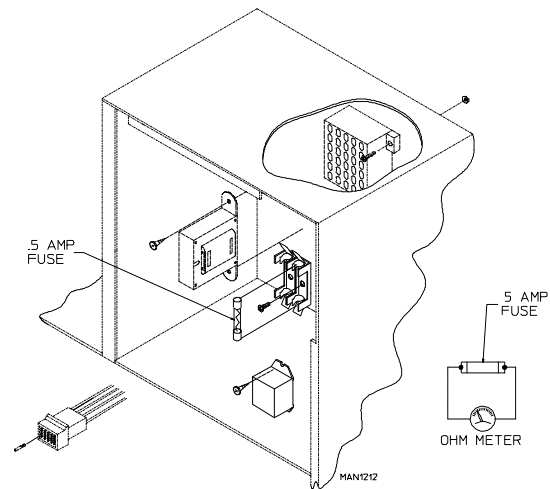
E. NO DISPLAY CONDITIONS

1. Check power supply. (dryer voltage 110v, 208v, 220v ...)

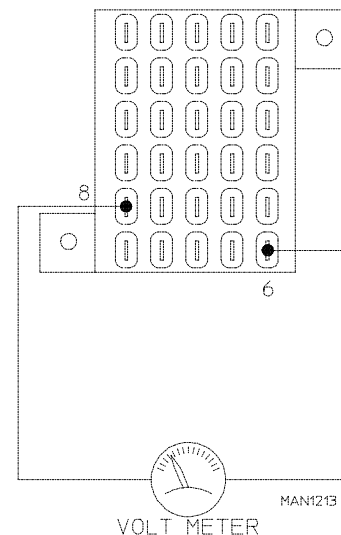
2. Check for voltage across (L1) and (L2) of motor relay. (110v, 208v, 220v ...) For 3 phase machines, check across (L1) and (L3). If no voltage is evident, problem is bad wire(s) or termination from circuit breaker panel to top of motor contactor.



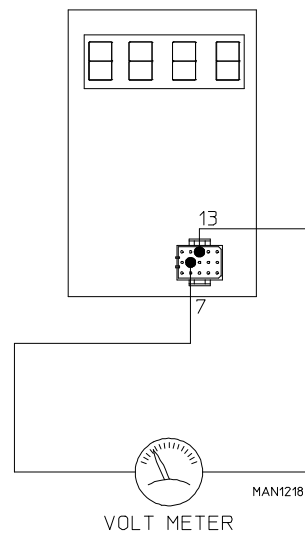
3. Check the .5 amp fuse(s) in the control box. If dryer is rated at 110v, 115v, or 120v there will only be one fuse. Voltages of 208v, 220v will have two fuses. If blown, replace with P/N: 136057



4. Check voltage across TB #8 and TB #6 (110v, 208v, 220v). If no voltage is evident, problem is bad wire or termination from TB #8 and TB #6 to the L1 and L2 connection on the motor relay.



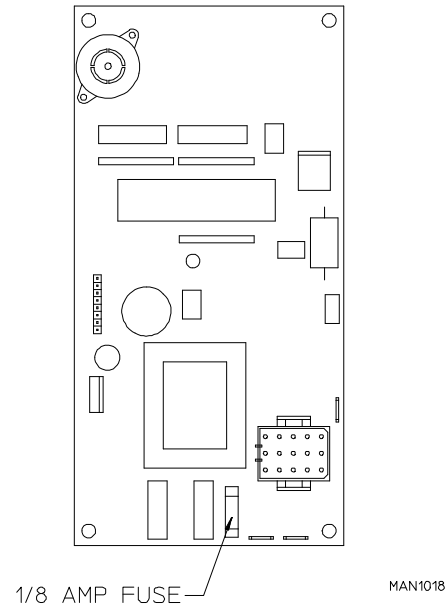
5. Check for voltage across the computer's 15-pin connector #7 and #13 (110v, 208v, 220v). If no voltage is evident, problem is bad wire or termination from the computer's 15-pin connector #7 and #13 to TB #6 and #8. If voltage is evident, problem is faulty computer.



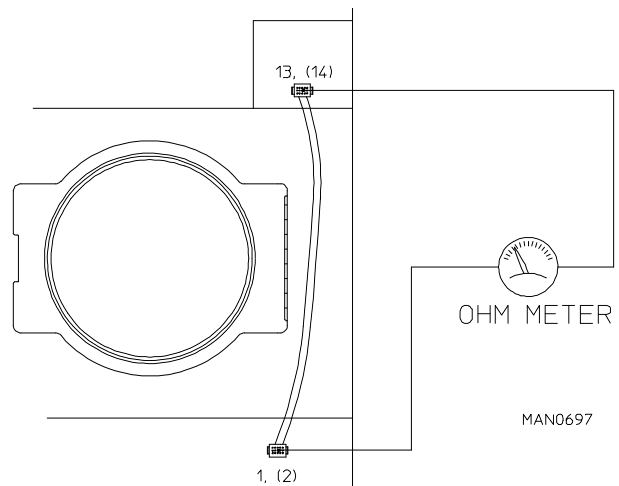
F. “sSFL” DISPLAY CONDITION

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

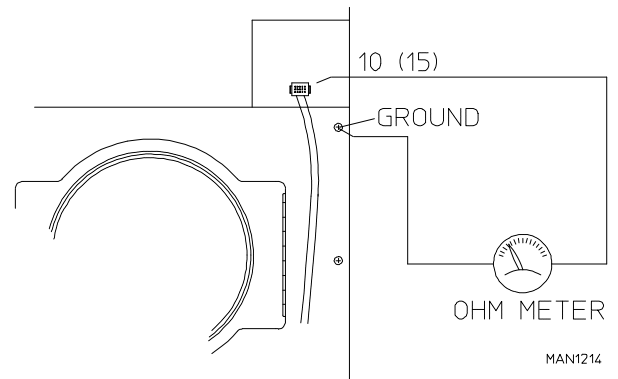
1. Check to see if microprocessor controller has 1/8 amp fuse on the board, if it does check with out ohm meter. If no continuity replace with ADC P/N: 136048. If fuse repeatedly burns out go to step 4.
2. Check for loose connection at the microprocessor sensor bracket harness connector (located in lint compartment), and the microprocessor 15 position connector at the microprocessor controller.



3. Discontinue power to dryer. Disconnect the microprocessor 15 position connector from microprocessor controller and locate connector holes no. 10 and 15. Disconnect sensor harness from sensor bracket assembly (located in the lint compartment). Check for continuity across each wire from harness connector in lint compartment to appropriate microprocessor 15 position connector hole (10 and 15). If no continuity, problem is break in wire or termination.



4. Check for continuity across each microprocessor sensor wire (microprocessor 15-position connector hole no. 10 and 15) to ground. If continuity is evident, problem is wire pinched to ground somewhere behind the front panel area.

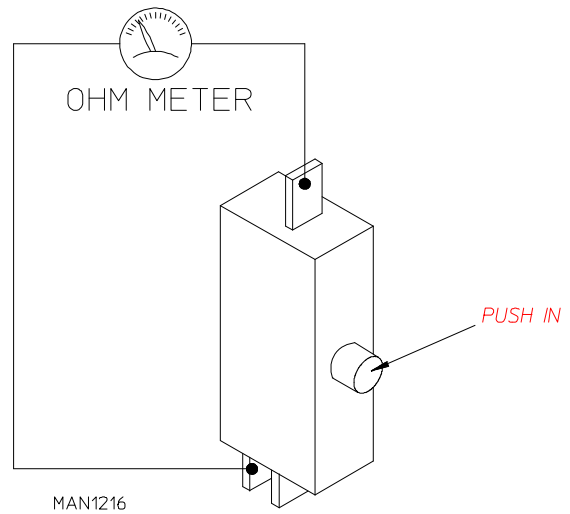


5. If above procedures check out okay, problem is a defective microprocessor temperature sensor.

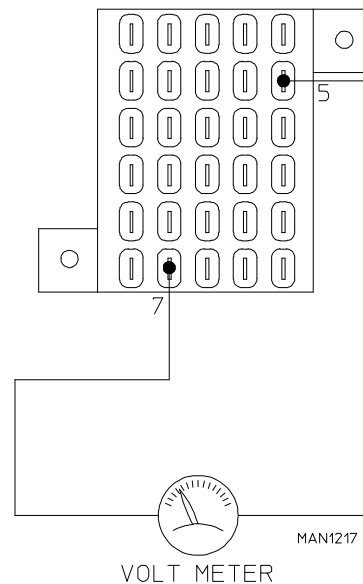
G. “dOOr” DISPLAY CONDITION

When the display reads “dOOr,” this indicates that there is a fault (open circuit) somewhere in the microprocessor controller’s door switch circuit. Includes the door switch, microprocessor controller and the wires to and from these two points. Before following this test procedure, check the component side of the computer to see if L.E.D. input light is on. If on, replace computer. Voltage is 24VAC unless otherwise specified.

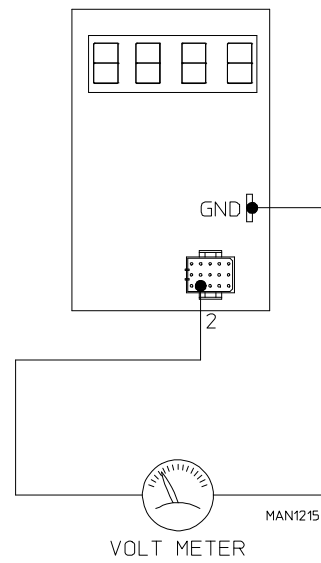
1. Remove door switch assembly from dryer. Check for continuity across the two terminals of the door switch with plunger pushed in. If no continuity, replace the door switch. If continuity is evident, reassemble door switch back on dryer.



2. Make sure main door is closed and the plunger of the door switch is pushed in. Check for voltage across TB #5 and #7. If no voltage is evident, problem could be faulty transformer (P/N: 141403) or bad wire or termination in the door switch harness, from door switch to terminal block.



3. Check for voltage across microprocessor's 15-Pin connector #2 (yellow wire), and the spade terminal on the microprocessor marked GND. If no voltage, problem is bad wire or termination in wire from microprocessor connector #2 to TB #5. If voltage, problem is faulty computer.

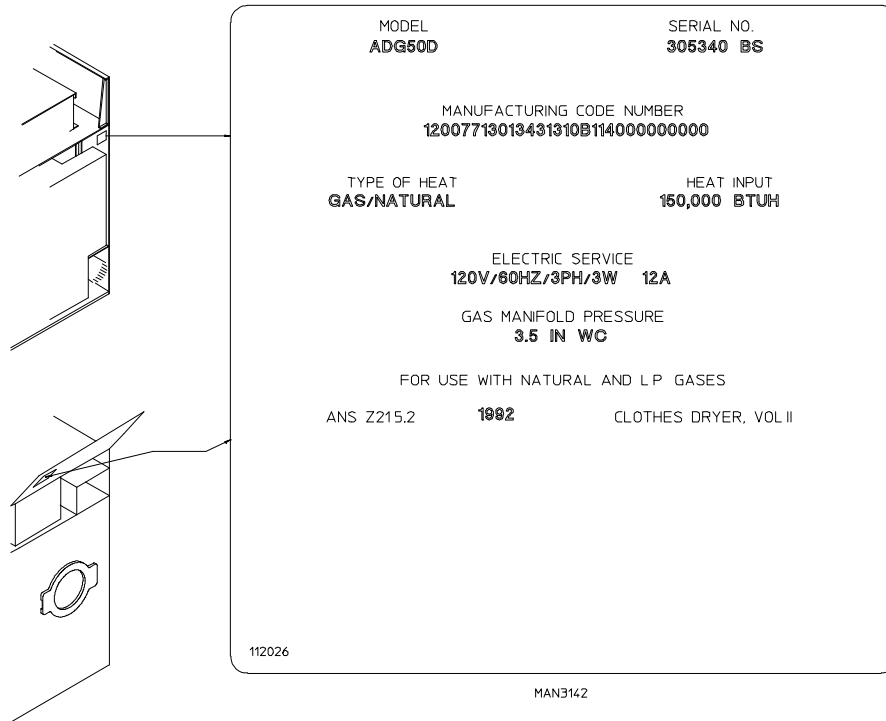


SECTION VII

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 for models 24,27,285 and 75, and on the back of the dryer on all other models. When contacting **American Dryer** please have the model number and serial number handy.

THE 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 - Describes the manifold pressure as taken at the gas valve pressure tap.
(see HOW TO USE A MANOMETER)

B. USING A MANOMETER

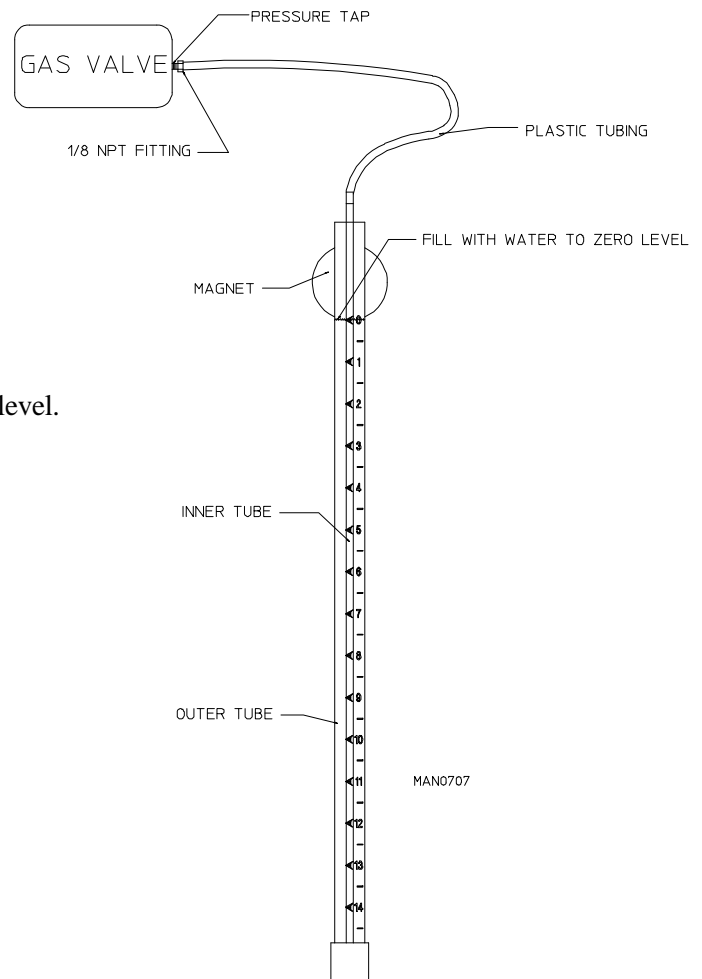
HOW TO USE A MANOMETER

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

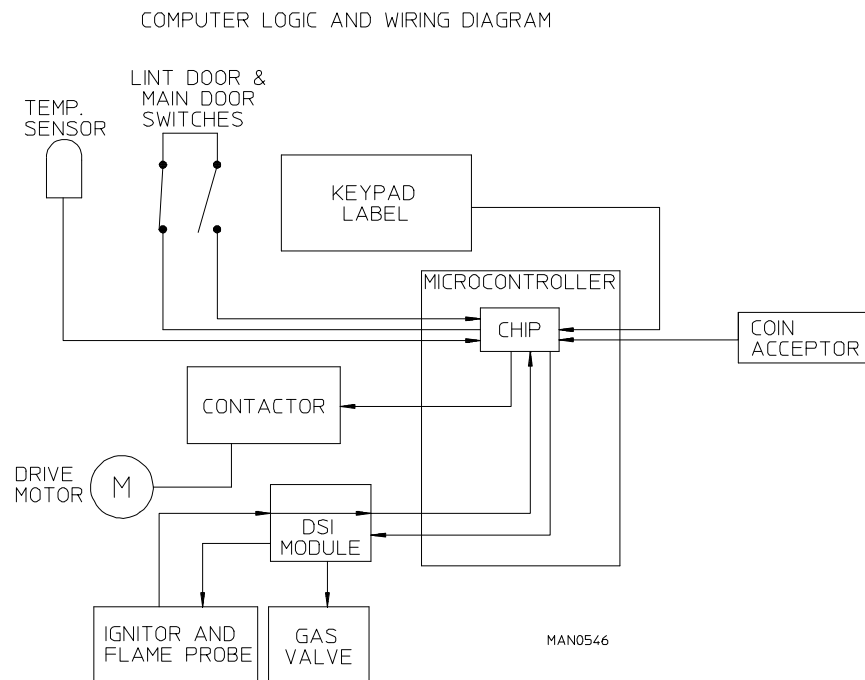


C. L.E.D. DISPLAY CODES

ACOn	Accumulative Coin
Adrt	Maximum Auto Dryness Time
AFAt	Amount for Assitional Time
AGt	Active Anti-wrinkle Guard Time
AtIn	Accumulative Time
AtSt	Amount to Start
AUtO	Automatic Mode
bCLO	Bad Coin Lockout
bCrS	Bad Coin Reset
bUZ	Buzzer (Tone)
°CEL	Degrees in Celcius
CLCC	Clear Left Coin Count
Coin	Coin Mode
CrCC	Clear Right Coin Count
donE	Drying and cooling cycles complete or Dryer is in Anti-wrinkle Cycle
door	Door Circuit is Open
drYL	Dryness Level
dSFL	Dryer Sensor Circuit Failure
°FAr	Degrees in Fahrenheit
FILL	No cycle in progress
FLS	Flash Display Active
FrEE	Free Dry Mode
GdLY	Anti-wrinkle Delay Time
Gont	Anti-wrinkle On Time
Grd	Anti-wrinkle Program Active
HICd	High Cool Down
LCC	Left Coin Count
LCdE	Left Coin Denomination
LOCd	Low Cool Dowwn
nBUZ	No Buzzer (Tone)
nFLS	No Flash Display
nGRD	No Anti-wrinkle
OFF	Bad Coin Lockout Tripped
PL	Program Location
PPCd	Perm Press Cool Down
PUSH	Amount to Start has been Inserted, Make Temperature Selection
rCC	Right Coin Count
rCdE	Right Coin Denomination
tInE	Time Mode
tPLC	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.



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

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

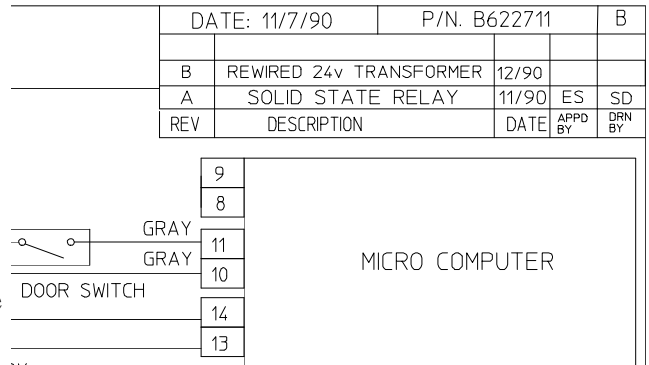
This number is located on the top right hand corner of the diagram. It is a six (6) digit number followed by a letter to distinguish the version dates (see illustration).

The wiring diagram on the next page 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.

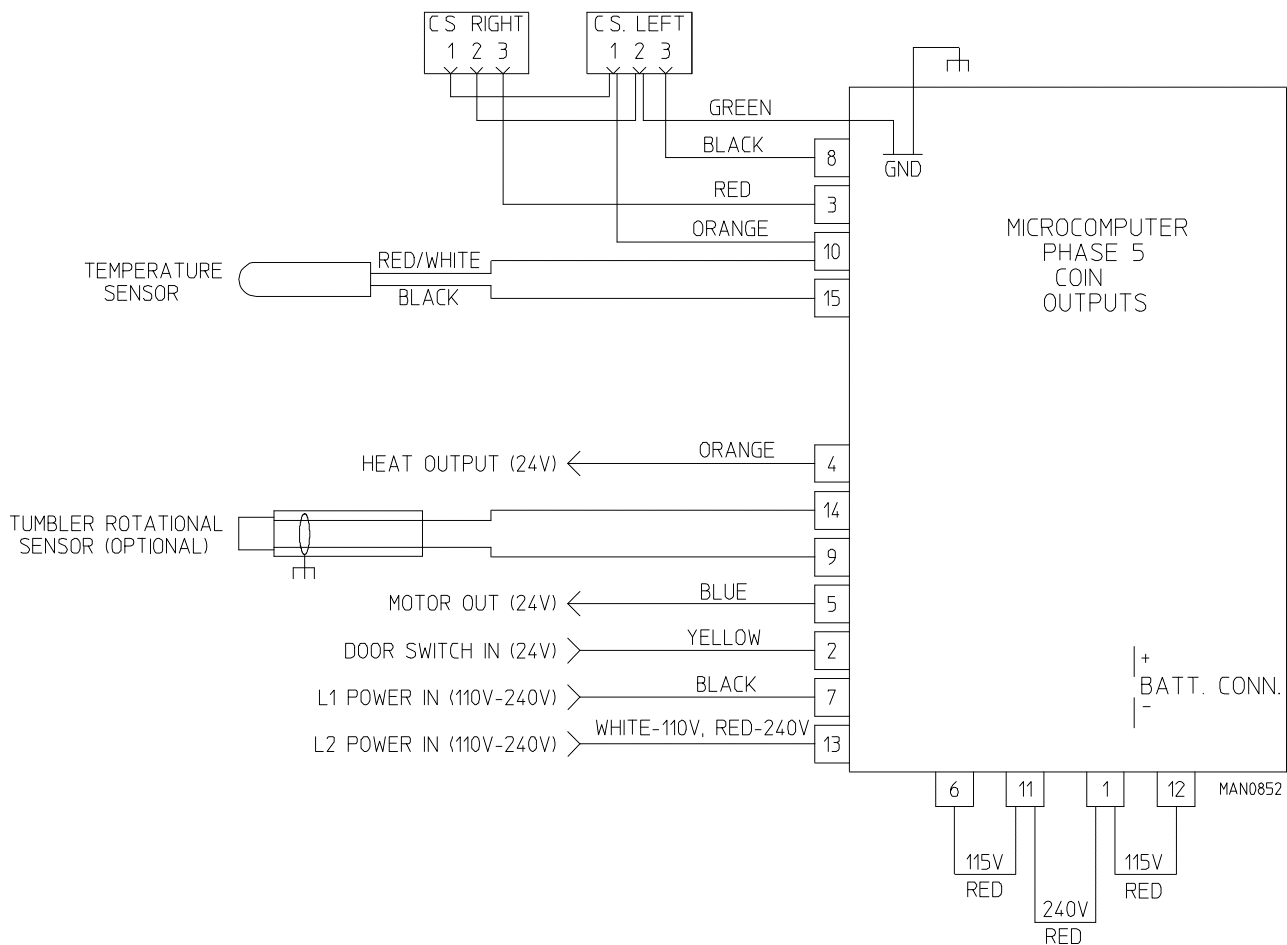
The correct wiring diagram and number is taped to the rear of the control door on each dryer.

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

- B672611 B674621
- B682611 B684621
- B632613 B684621
- B683651
- B633651



PHASE 5 COIN CONTROLLER CIRCUITS



ADC450141	1 - 03/03/93-100	2 - 04/23/93-200	3 - 10/26/93-200
	4 * 04/27/94-250	5 * 04/14/95-200	6 - 05/08/95-100
	7 * 08/26/96-100	8 * 12/30/96-100	9 - 05/20/98-100
	10 - 06/18/99-100	11 * 10/26/00-50	12 * 03/13/03-10

