AD-530 HS
Hot Surface Ignition
Service Manual

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030399MFM/cj

ADC Part No. 450177

Retain This Manual In A Safe Place For Future Reference

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

ONLY qualified technicians should service this equipment.

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

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

FOR YOUR SAFETY	POUR VOTRE SÉCURITÉ
Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.	Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de cet appareil ou de yout autre appareil.

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

Important

For your convenience, log the following information:

DATE OF PURCHASE _____ **MODEL NO.** **AD-530 HS**

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.

CAUTION

DRYERS SHOULD NEVER BE LEFT UNATTENDED WHILE IN OPERATION.

WARNING

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

CHILDREN SHOULD BE SUPERVISED IF NEAR DRYERS IN OPERATION.

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.

WARNING

DRYER MUST NEVER BE OPERATED WITHOUT THE LINT FILTER/SCREEN IN PLACE...EVEN IF AN EXTERNAL LINT COLLECTION SYSTEM IS USED.

IMPORTANT

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

Dryers **must not** be installed or stored in an area where it will be exposed to water or weather.

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

Table of Contents

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 other appliance.

2. Purchaser or 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 **ADC's** 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, or wax. Fire or explosion could result.

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

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

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

WARNING:	The collection of lint in the burner 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 the National Electric Code ANSI/NFPA No. 70-LATEST EDITION or in Canada the CANADIAN ELECTRICAL CODES PARTS 1 & 2 CSA C22.1-1990 OR LATEST EDITION (for ELECTRICAL CONNECTIONS).

NOTE: Failure to do so will void the warranty.

7. Under no circumstances should the dryer door, lint drawer switches or heat safety devices ever be disabled.

8. Read and follow **ALL** caution and direction labels attached to dryer.

WARNING:	CHILDREN **SHOULD NOT BE** ALLOWED TO PLAY ON OR IN THE DRYERS. CHILDREN **SHOULD BE** SUPERVISED IF NEAR DRYER(S) IN OPERATION.

SECTION II
Routine Maintenance

A. Cleaning

A program and 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 airflow. If the guidelines in this section are met, an **ADC** 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 screen. Inspect lint screen and replace if torn.
90 DAYS	Remove lint accumulation from lint chamber thermostats and sensors.

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

	Remove lint from the motor air vents and surrounding area.
	Inspect and tighten ALL set screws (i.e.; pulleys, idler bearings, tumbler bearings).

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

120 DAYS	On gas and electric models, remove lint from gas burner area with a dusting brush or vacuum cleaner attachment.
	On steam dryers, clean the coil. Proper cleaning of the steam coils is necessary to prevent lint buildup between the fins. When cleaning the coils, b extremely careful not to bend the aluminum fins, which will also reduce airflow. If the fins are bent, straighten them by using a comb. Fins combs are available from local air conditioning supply houses. Regular cleaning will prevent lint buildup and blockage of the coil.

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

WARNING: LINT FROM MOST FABRICS IS HIGHLY COMBUSTIBLE. THE ACCUMULATION OF LINT CAN CREATE A POTENTIAL FIRE HAZARD.

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

B. Adjustments

SUGGESTED INTERVAL	FUNCTION
6 MONTHS	Motor and drive belts **should be** examined. Cracked seriously frayed belts **should be** replaced. Tighten loose belts when necessary, and check belt alignment.
	Complete operational check of control and valves.
	Complete operational check of **ALL** safety devices (door switches, sail burner and lint chamber thermostats.)
12 MONTHS	Inspect bolts, nuts, screws, nonpermanent gas connections, (unions, sail switch, burner and lint chamber thermostats.)

C. Lubrication

The new bearing, idler bearings and tumbler bearing are sealed, lubrication is not necessary.

SECTION III
Installation Requirements

Installation **should be** performed by competent technicians in accordance with local and state codes. In the absence of these codes, installation must conform to applicable AMERICAN NATIONAL STANDARDS: National Fuel Gas Code ANSI Z223.1-LATEST EDITION or National Electric Code ANSI/NFPA No. 70-LATEST EDITION. In Canada the CANADIAN ELECTRICAL CODES PARTS 1 & 2 CSA C22.1-1990 OR LATEST EDITION (for ELECTRICAL CONNECTIONS) or the CAN/CGA-B149.1-M91 (Natural Gas) or CAN/CGA-B149.2-M91 (L.P. Gas) or LATEST EDITION (for GENERAL INSTALLATION and GAS PLUMBING).

A. Enclosure, Air Supply, and Exhaust Requirements

NOTE: The following information is very brief and general. For detailed description, refer to the AD-95 Installation Manual supplied with dryer. (ADC P/N 112197)

Bulkheads and partitions around the dryer **should be** made of noncombustible materials. Allowances **should be** made for the opening and closing of the control door and lint door. (Refer to appropriate installation manual for recommended distances and minimum allowances required.)

When the dryer is operating, it draws in room air, heats it, passes this air through the basket (tumbler), and exhausts it out of the building. Therefore, the room air must be continually replenished from the outdoors. If the makeup 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. The air supply **must be** given careful consideration to ensure proper performance of each dryer.

IMPORTANT: Makeup air ***must be*** provided from a source free of dry cleaning fumes. Makeup 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 shutdown of the burner by the airflow (sail) switch, burner hi-limit or lint chamber hi-heat protector thermostat. (Refer to appropriate installation manual for more detail.)

CAUTION: IMPROPERLY SIZED OR INSTALLED 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 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. 70-LATEST EDITION or in Canada the CANADIAN ELECTRICAL CODES PARTS 1 & 2 CSA C22.1-1990 OR LATEST EDITION (for ELECTRICAL CONNECTIONS).

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

The dryer installation **must meet** the AMERICAN NATIONAL STANDARD, NATIONAL FUEL GAS CODE ANSI Z223.1-LATEST EDITION or in Canada the CAN/CGA-B149.1-M91 (Natural Gas) or CAN/CGA-B149.2-M91 (L.P. Gas) or LATEST EDITION (for GENERAL INSTALLATION and GAS PLUMBING), as well as, local codes and ordinances, and **must be** done by a qualified technician.

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

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

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

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

C. Operational Service Check Procedure

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

1. Make a complete operational check of **ALL** the operating controls to insure that the timing is correct, temperature selection switches are functioning properly.

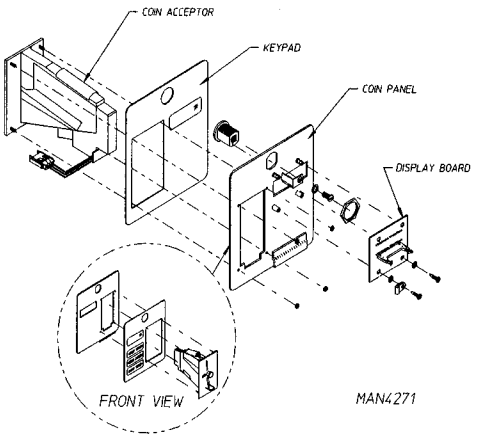
2. Make a complete operational check of **ALL** safety related circuits, door switches, hi-limit thermostats, sail switch, cycling thermostats, etc.

SECTION IV

Description of Parts

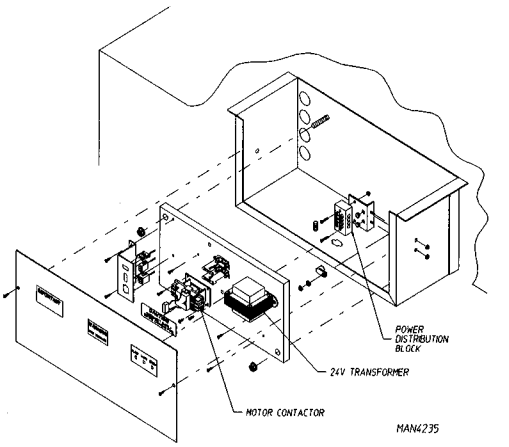
A. Control Panel

The Coin panel assembly consists of the coin operator, a display board, and the keypad label. The coin acceptor is used to acknowledge that the proper coin has been put through the acceptor. The displayed board will just display the time, temperature in a readable number of letter character. The keypad label is used to input a Hi, Low, Perm Press selection for the dryer to start.



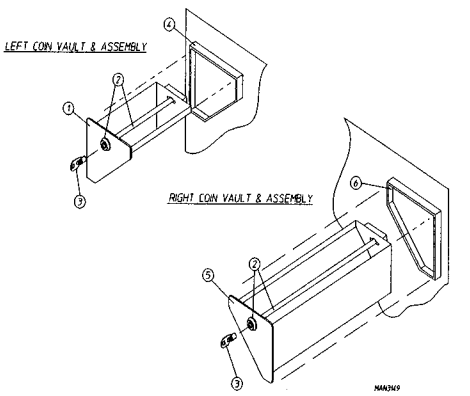
B. Control and Relay Box

The control and relay box is located in the back of the machine in the middle top selection. The function of the control and relay box is to compile signals from the computer or the incoming voltage and transfer the signals to the motor and heat circuit, when the computer executes these various signals.



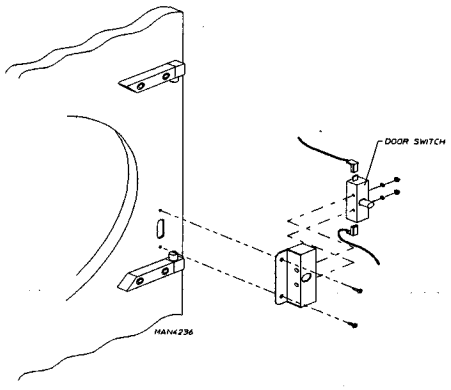
C. Coin Box

The coin box assembly is located below the belt and right coin panel. It is a good size triangular box. When a coin passes the acceptor, the optic switch sends a signal to the computer and the coin then falls into the coin box.



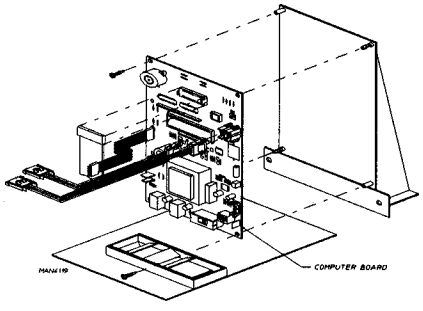
D. Door Switch (Hinge Block)

The main door switch is located behind the main door on the right hand side. When the main door is opened, the switch will also open preventing the dryer from operating. The main door switch is a safety device and **should never be** disabled.



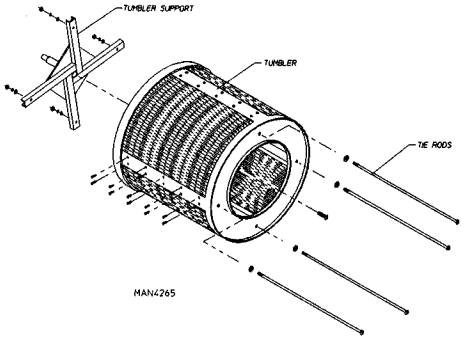
E. Microprocessor Assembly

The microprocessor board is the latest phase 5 controls. It monitors the machine functions all the time. Indicator L.E.D.'s are mounted on the board to help with servicing of the machine.



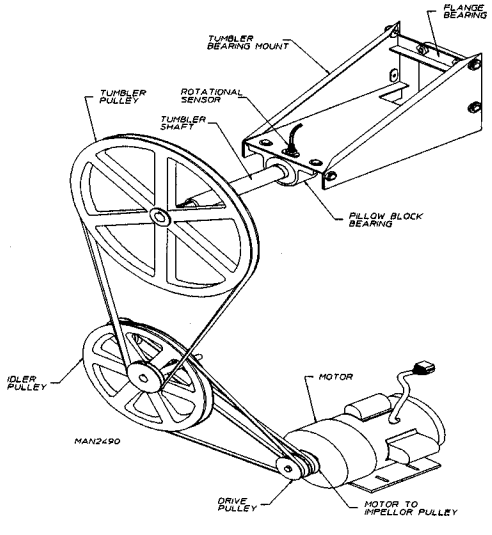
F. Tumbler

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



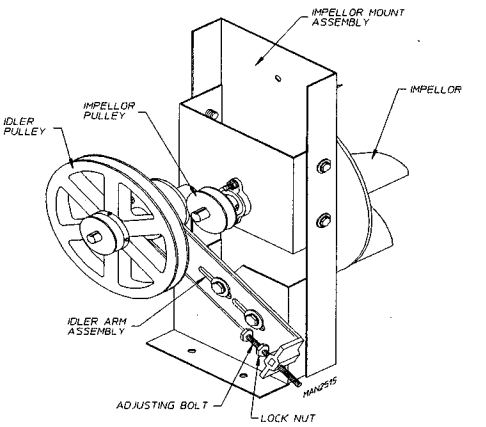
G. Tumbler Bearing and Pulley Arrangement

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



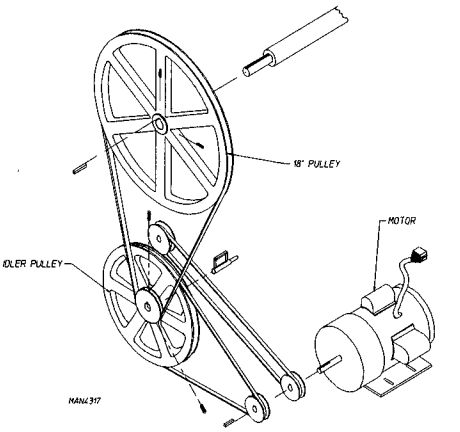
H. Idler Arm and Impellor Mount Assembly

The idler assembly is located in the back of the dryer, it is attached to the impellor mount. The main purpose of the idler assembly is to reduce the speed of the motor in turn increasing the torque of the basket pulley. The impellor (fan) is also affixed to this mount, it's main purpose is to provide the air flow throughout the machine.



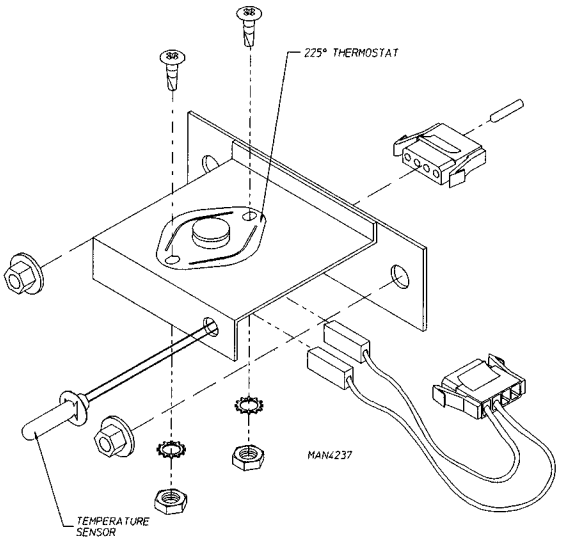
I. Drive Motor and Pulley Arrangement

The AD-530 HS has different kind of drive system. There are two motor pulleys, one drives the idler arm assembly by the basket and the other motor drives a set of bearing that rotates the impellor



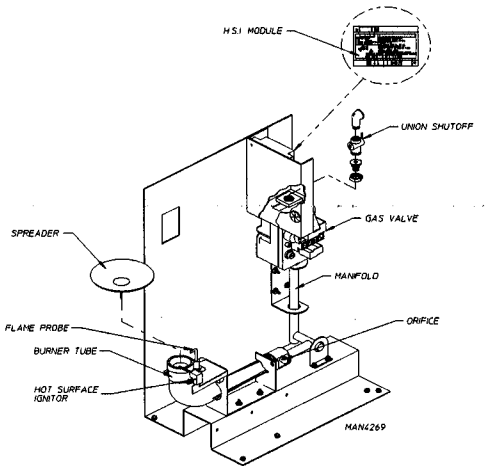
J. Temperature Sensors

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



K. Gas Burner

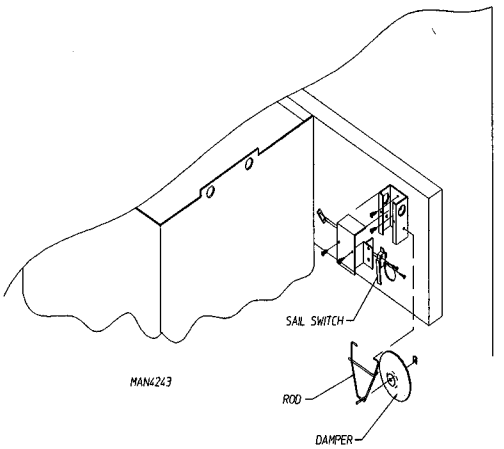
The gas burner assembly consists of the burner tube, orifice (the orifice has a hole in it to allow gas to flow through. The hole size varies with different elevation BTU's), gas valve (which can be up for natural or L.P.), hot surface ignitor, and flame probe assembly. The H.S.I. Module is also included on this gas burner assembly.



L. Sail Switch

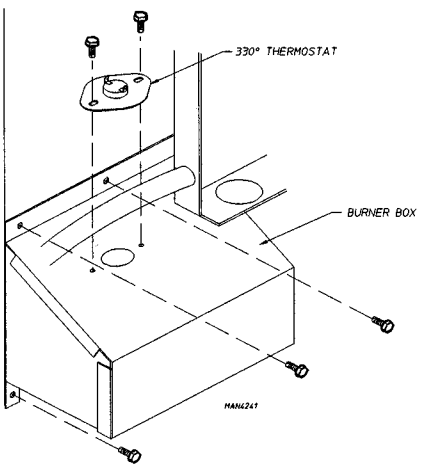
The sail switch consists of a round damper plate on a lever arm which acts like an actuator for a micro-switch. When the air blower comes on, it draws air through the burner. This creates a negative pressure inside the burner box, and this negative pressure pulls in the round damper which activates the sail switch. If there is improper airflow, the damper will not pull in, preventing the burner from coming on.

Improper air flow can be caused by improperly designed exhaust ducting, where the duct run is too long or has too many sharp bends on it. It can also be caused by a lack of make up air or any obstruction such as back draft damper sticking or lint build up. Sail switch is located in the back of the burner.



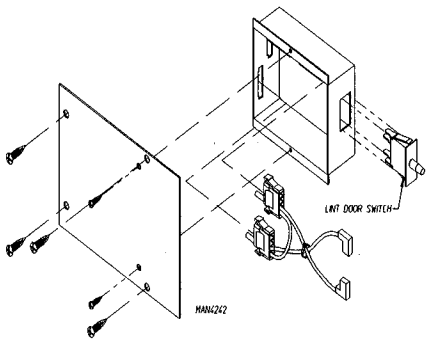
M. Hi-Limit Thermostat

The burner hi-limit thermostat is another safety device that we use on the dryer. The hi-limit is located in the burner area. The hi-limit thermostat cuts off the heat if the temperature should reach 330° or higher. Under normal conditions the only way this device would shut off the heat is when the air flow changes to the extent of causing the intense heat from the burner to trip the thermostat.



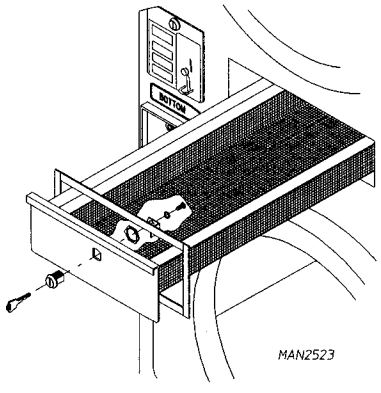
N. Lint Basket Switch

The lint basket switch is located under the basket on the right side. It is another added safety device that stops the operation of the dryer when the lint drawer is opened. This device and the door switch are the two safety switches designed to halt the tumbler.



O. Lint Drawer

The lint basket is located under the basket(s) of each pocket. It is a fairly large draw that is designed to be right in the main path of the airflow, to catch any lint that happens to come out of the articles being dried.



SECTION V
Service

INTRODUCTION

ALL electrical or 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 an untrained person 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.

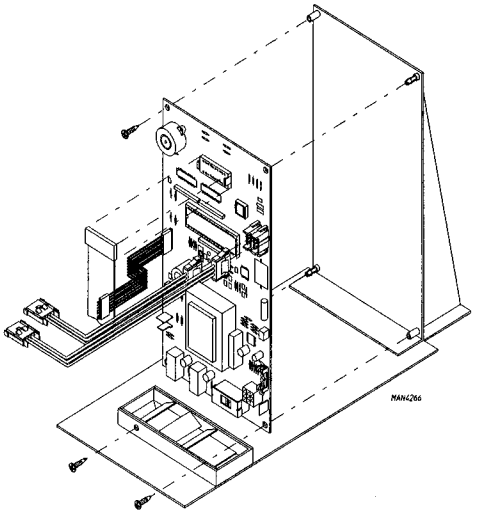
The information provided will help isolate probable components associated with the difficulty described. The experience technician realizes, however that a loose connection or broken or shorted wire may be at fault where electrical components are concerned, not necessarily the suspected component itself. Electrical parts **should always be** checked for failure before being returned to the factory.

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

A. Controls (computer)

To replace computer

1. Disconnect power to dryer.
2. Open coin panel (1 lock in the center of the coin panel)
3. Disconnect the display harness from the computer board (push the two tabs on the side of the connector outwards)
4. Disconnect the optic switch harness from the computer, (Squeeze the tabs on the side of the connector)
5. Disconnect the keypad connector from the computer board keypad harness (simply pull straight out)



6. Disconnect the 9 pin main computer harness from the computer, (squeeze the one tab on the connector and pull straight back).

7. Disconnect the green ground wire from the computer board.

8. Remove the two Phillips head screws that secure the computer to the panel. Remove the board from the panel by pulling at the corners of the board.

9. Replace in the reverse steps of the above.

10. Reestablish power to the dryer.

NOTE: Use caution when handling the M.P. Controller as it can be easily damaged by static electricity.

TO REPLACE KEYPAD

1. Discontinue power to dryer.

2. Open the coin panel and disconnect the keypad ribbon connector from the ribbon cable it is plugged into.

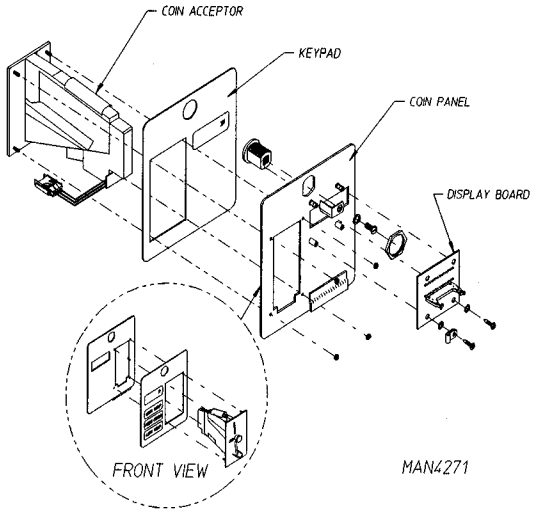
3. Peel the keypad from the front of the control panel taking care to avoid scratching the panel.

4. Clean any adhesive residue from the panel.

5. Peel off paper backing from new keypad.

6. Align the display window on the keypad with the cutout in the control panel and press in place.

7. Connect keypad ribbon to the board and reconnect power to the dryer.



8. Test for operation by pressing each temperature selection.

TO REPLACE COIN ACCEPTOR

1. Discontinue power to the dryer.

2. Open the coin panel.

3. Remove the four (4), 3 mm nuts holding the coin acceptor to the panel

4. Unplug optic switch harness connector.

5. Pull coin acceptor out gently.

6. Reverse procedure for installing new acceptor.

TO REMOVE OPTIC SWITCH

1. Disconnect power to dryer

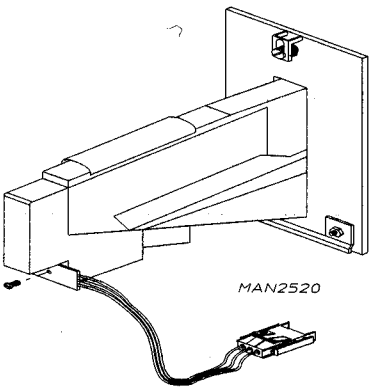
2. Open top and bottom coin panel.

3. Remove optic switch from the coin acceptor (one screw).

4. Unplug optic switch connector.

5. Remove optic switch from machine.

6. Reverse procedure for installing new optic switch.



TO REPLACE MOTOR CONTACTOR 2-POLE, 24 VAC

1. Discontinue power to dryer.

2. Remove back guard.

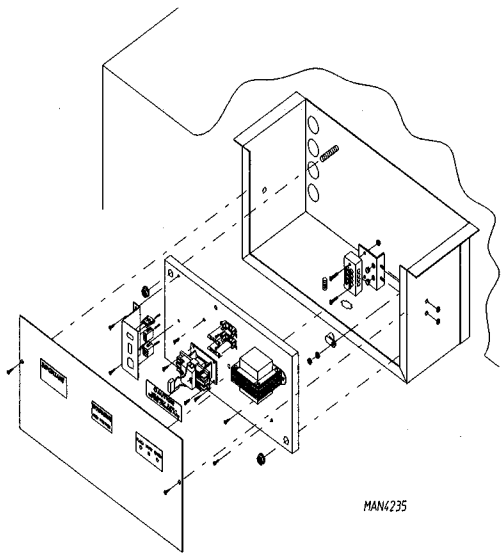
3. Remove relay box cover.

3. Remove both screws securing motor contactor to the electrical panel.

4. Remove all wires from contactor (Note: make sure each wire is marked with location removed from).

5. Install new contactor in reverse procedure

6. Reestablish power to dryer.



TO REPLACE GAS VALVE

1. Discontinue power to dryer

2. Close the union shut-off located just before the gas valve and remove the two wires on top of the gas valve.

3. Break and loosen union nut between union shut-off and gas valve.

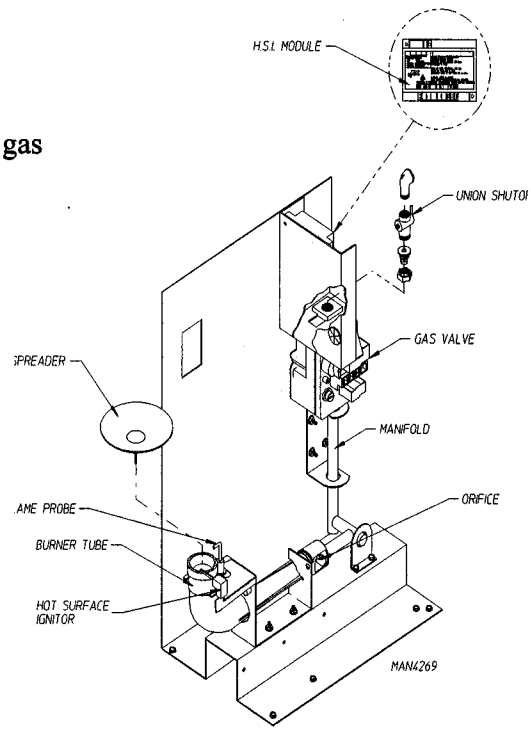
4. Remove the four (4) screws holding the two pipe brackets on each side of the gas valve.

5. Remove gas valve and manifold (still attached) from dryer.

6. Remove the single port manifold from the output side of the gas valve.

7. Remove the union tail piece and nut from the input of valve (a 1/2" Allen wrench is required)

8. Reverse procedure for installing new valve.



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

REPLACE UP-SHOT BURNER TUBE ASSEMBLY (see Illustration below)

1. Discontinue power to dryer

2. Remove the two (2) hex nuts that hold the burner tube bracket to the burner train bracket.

3. Lift burner tube and bracket up over the two (2) weld studs that those two hex nuts were affixed to in step 2.

4. Disconnect the high voltage wire and the flame sensor wire from the D.S.I. module.

5. Reassemble new upshot burner tube assembly (P/N: 880741) in reverse procedure.

IMPORTANT: Do not wrap the high voltage wire and flame probe wires together, improper operation may result. They may run along side each other.

IMPORTANT: Make sure the gap from the ignitor to the top of the burner tube is 1/8" ± 1/32".

TO REPLACE FLAME SENSOR OR IGNITOR PROBE

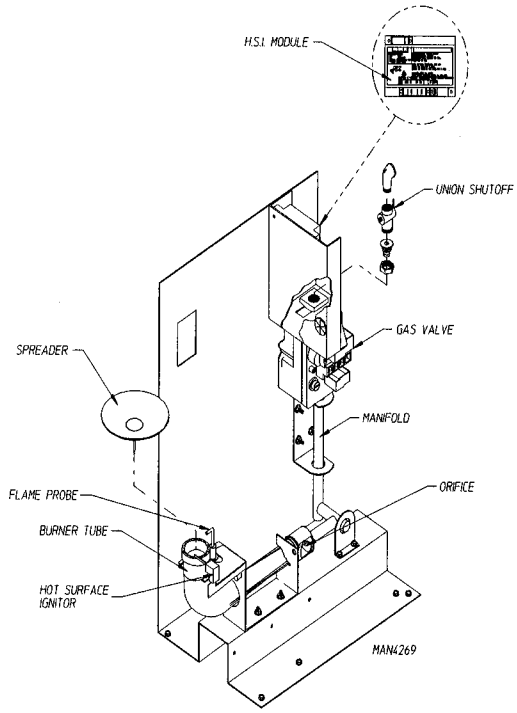
1. Discontinue power to dryer.

2. To remove either flame sensor or ignitor probe one screw holds them to the burner tube bracket.

3. If replacing flame sensor simply remove the screw and disconnect the connector on the flame sensor, remove it.

4. If replacing ignitor probe, remove screw, disconnect high voltage wire from D.S.I. module and remove the probe and high voltage wire from the bracket.

5. Replace new items in reverse procedure.



IMPORTANT: Do not wrap the high voltage wire and flame probe wires together, improper operation may result. They may run alongside each other.

IMPORTANT: Make sure the gap from the ignitor to the top of the burner tube is 1/8" ± 1/32".

TO REPLACE MAIN BURNER ORIFICE

1. Refer to "TO REPLACE GAS VALVE" and follow steps one through five.

2. Unscrew main burner orifice and replace.

> **NOTE:** Use extreme care when removing and replacing orifice. The orifice is made of brass and can be easily damaged.

3. Reverse the removal procedure for reinstalling.

> **WARNING:** Test all connections for leaks by brushing on a soapy water solution. Never test for leaks with 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. One form of a manometer is a hydro-gauge which simply consists of an inner and outer tube. When this tube is filled with water and pressure is applied the water in the inner tube decreases giving you your gas pressure reading.

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

1. Test gas water column (W.C.) pressure.

   A. Connect water column test gauge connection to gas valve pressure tap (1/8 N.P.T). This pressure tap is located on the outlet (downstream) side of the valves.

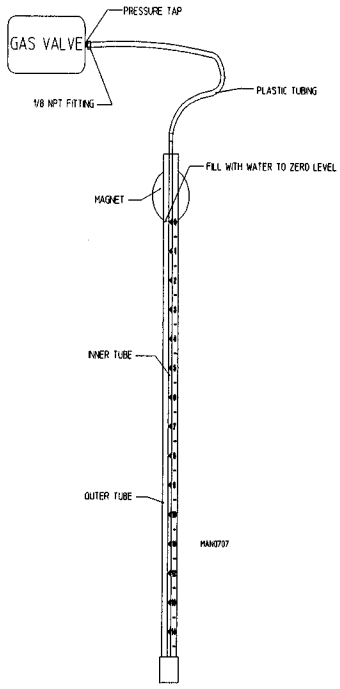
   B. Start the dryer. With burner on, the correct water column reading in inches would be:

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

2. To adjust water column pressure (natural gas only, L.P. gas must be regulated at source):

   A. Remove the slotted vent cap on the top of the valve.

   B. Turn the slotted adjustment screw, located on the top of the valve next to the terminals. Turn clockwise to increase manifold pressure and counterclockwise to decrease.



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

TO CONVERT FROM NATURAL TO L.P. GAS

1. Disconnect electrical power to dryer.

2. Close all shut-off valves in dryer gas supply line.

3. Disconnect gas valve wiring.

NOTE: Identify location of each wire for correct reinstallation.

4. Break union connection (nut) between union shut off and gas valve.

5. Loosen and remove screws (4) from pipe brackets holding the gas valve/manifold assembly to the gas valve plate.

6. Remove gas valve and manifold assembly form dryer.

7. Unscrew main burner orifice 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 installing valve manifold assembly to dryer.

IMPORTANT: External regulation of a consistent gas pressure of 10.5 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 a 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 adjustment can cause hazardous condition.

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

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

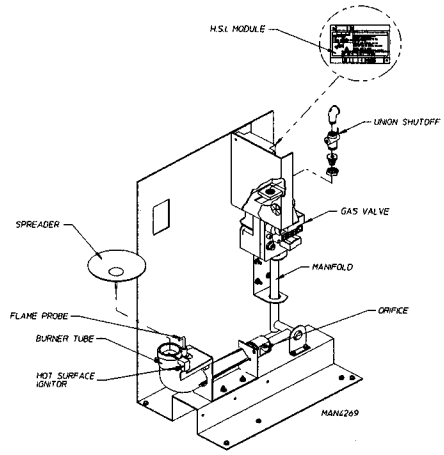
TO REPLACE H.S.I. MODULE

1. Discontinue power to the dryer

2. Remove the wires connected to the terminal strip at the bottom of the module.

3. Remove the four (4) pal nuts securing the module to the mounting bracket.

4. Replace module by reversing process.



NOTE: Take note of where wires are for installing the new module

C. THERMOSTATS AND TEMPERATURE SENSOR

TO REPLACE HI-LIMIT THERMOSTAT (330°)

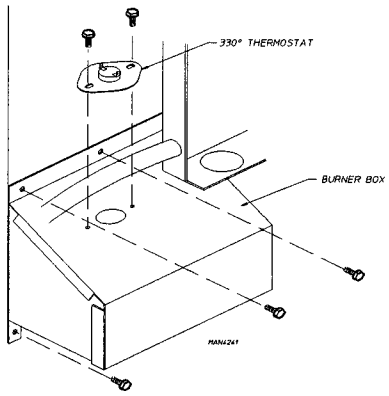
This thermostat is an important safety device serving as an added protection against failure of the airflow sail switch to open in the event of a motor failure or reduced air flow condition.

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

1. Discontinue power to dryer.

2. Remove the two (2) hex head screws from the hi-limit switch. The two lock washers and the hi-limit will be removed from the burner box. Remove the two (2) wires from the hi-limit

3. Reverse procedure for installing new thermostat.



TO REMOVE THE TEMPERATURE SENSOR OR HIGH HEAT PROTECTOR

A. HIGH HEAT PROTECTOR

1. Discontinue power to dryer

2. Remove the lint drawer from the dryer.

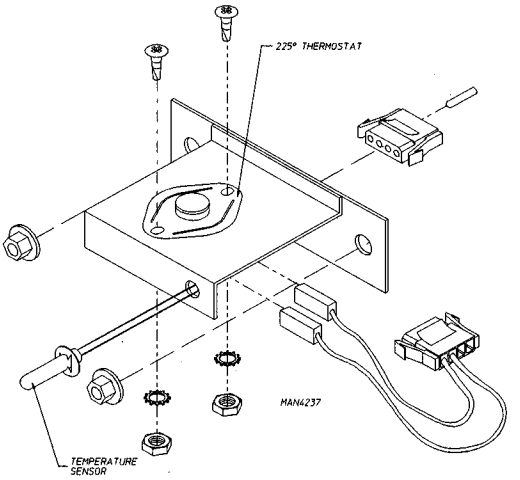
3. Remove the 2 free spin wash nuts that is securing the temperature sensor bracket to the dryer.

4. Disconnect the 4 pin connector on that temperature sensor bracket.

> **NOTE:** Be careful not to let the sensor harness that you just disconnected to fall back into the computer area.

5. Remove the two (2) nuts, washers, and screws securing the 225° Hi-Limit to the sensor bracket also disconnect the 2 connectors on the 225° Hi-Limit.

6. Reverse the procedure for installation of new high heat protector.



B. TEMPERATURE SENSOR

1. Discontinue power to dryer.

2. Remove the lint draw from the dryer.

3. Remove the two (2) free spin wash nuts that is securing the temperature sensor bracket to the dryer.

4. Disconnect the 4-pin connector on that temperature sensor bracket.

> **NOTE:** Be careful not to let the sensor harness that you just disconnected to fall back into the computer area.

5. Remove the top tinnerman clip that secures the sensor probe to the bracket also remove the connector from the bracket . Disconnect the 2 wires going to the 225° Hi-Limit. The sensor probe assembly can now be removed from the bracket.

6. Install new probe assembly (ADC P/N: 880251) by reversing procedure.

D. SAIL SWITCH ASSEMBLY

The sail switch is a heat circuit safety device which controls the heat circuit only. When the dryer is operating and there is proper air flow the sail switch damper pulls in and closes the sail switch. Providing all the other heat-related circuits are functioning properly. If an improper air flow occurs, the sail switch damper will release, and the circuit will open.

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

TO REPLACE SAIL SWITCH

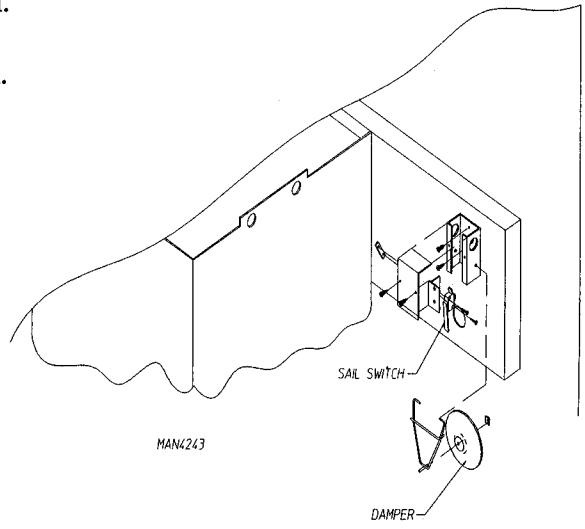
1. Discontinue power to the dryer.

2. Remove the two (2) screws which hold the sail switch to the bracket.

NOTE: Be careful not to drop or loose the twin speed nut on the backside of the sail switch

3. Disconnect the two (2) connectors on the sail switch.

4. Reverse this procedure for installing new sail switch. Adjust sail switch as described in the next section.



TO ADJUST SAIL SWITCH

1. Operate the installed dryer normally to verify that the heat system is fully operational.

2. Open the main dryer door.

3. Manually depress the door switch actuator.

4. While continuing to depress the door switch actuator, and with the door open, start the dryer.

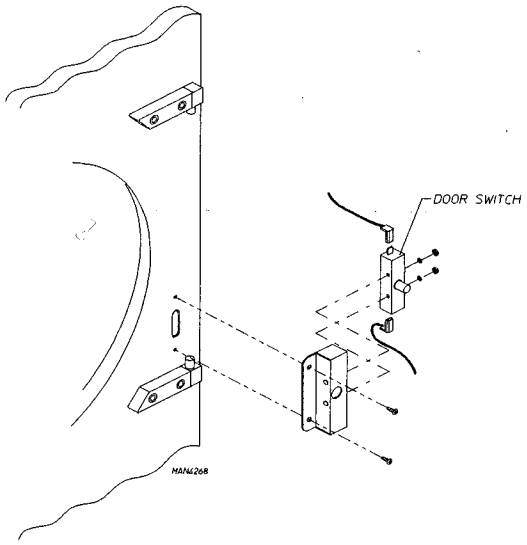
5. If the heat system is not activated in 15 seconds, the sail switch is properly adjusted.

6. If the heat system is activated, the sail switch is improperly adjusted and must be readjusted by bending the actuator arm of the sail switch toward the left side of the dryer. If the actuator arm is bent too far toward the left side of the dryer, the dryer may not have heat when needed. After any adjustments of the sail switch, the above procedure must be repeated to verify proper operation.

CAUTION: Do not disable this switch by taping or screwing sail switch damper to burner Personal injury or fire could result.

E. FRONT PANEL AND MAIN DOOR ASSEMBLIES

TO REPLACE MAIN DOOR SWITCH



1. Discontinue power to dryer.

2. Open main door.

3. Remove the two (2) Phillips head screws holding the main door switch in place.

5. Disassemble door switch bracket by removing the two (2) nuts holding the door switch to the housing, and remove the door switch.

6. Reverse this procedure for installing new door switch.

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

TO REPLACE MAIN DOOR HINGE

1. Discontinue power to the dryer,

2. Remove the two (2) top 3/16" Allen screws securing the top hinge pin to the front panel.

3. Remove the door from the dryer by lifting the door off the bottom hinge pin.

4. Remove the bottom hinge pin assembly from the front panel two (2) 3/16" Allen screws securing the hinge pin to the front panel.

NOTE: Be careful not to loose the plastic washer on the hinge pin.

5. Reassemble by reversing steps.

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 a narrow bead of silicone (ADC P/N: 170730) all around main door area where glass will rest.

5. Install glass on to door and adhesive, and slightly press glass in place.

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

6. The door assembly should now be put in an area where it will not be disturbed for at least 24 hours. Depending on the conditions, the curing time of the adhesive is 24 to 36 hours.

7. After 24 hour curing period, install main door on dryer by reversing step 1.

TO REPLACE FRONT PANEL

1. Discontinue power to dryer.

2. Follow procedure for removal of main door assembly (plastic or steel).

3. Follow procedure for removal of main door switch assembly (plastic or steel).

4. Remove lint screen drawers from the dryer.

5. Remove the screws securing the front panel to the dryer.

6. Disconnect the 4-pin door switch harness connector from the lint drawer switch box.

7. Remove the front panel assembly from dryer.

8. Reverse this procedure for installing new front panel.

TO REPLACE THE NYLON CATCH

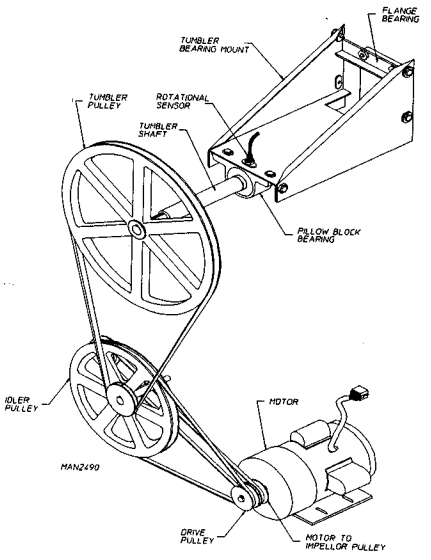
1. Open main door.

2. Drill out the (2) pop rivets holding nylon catch to front panel using #21 (.1590) drill bit.

3. Using two (2) pop rivets (P/N: 154215) install nylon catch (P/N: 170330) to front panel.

F. TUMBLER AND BEARING ASSEMBLY

(Remove back guard to access assembly)



TO REPLACE TUMBLER PULLEY

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

NOTE: Check belt alignment before operating dryer.

TO REPLACE THE REAR TUMBLER BEARING or PILLOW BLOCK BEARING

1. Disconnect power to dryer
2. Remove tumbler pulley (follow tumbler pulley removal procedure).
3. Remove the two (2) nuts, lock washers and flat washers that hold the pillow-block bearing to the tumbler support mount.
4. Take note of the position of the two (2) side adjusting bolts on the side of the bearing mount assembly. Loosen these two (2) bolts enough to slide the pillow-block bearing off the shaft.
5. Loosen the two (2) 5/16" set screws on the pillow-block bearing.
6. Slide the bearing off of the shaft.

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

7. Install new bearing in reverse procedure.

NOTE: Check the alignment of tumbler to make sure the basket is not hitting the sides, the top or the bottom of the basket. While the set screws are loose check front to back alignment of the basket. Make sure set screws are tight when alignment is finished.

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

TO REPLACE THE FRONT TUMBLER BEARING or FLANGE BEARING

1. Discontinue power to dryer

2. Remove backguards

3. Remove the front panel (follow to replace front panel).

4. Remove tumbler pulley by loosening the two (2) set screws (5/16") screws in the pulley.

5. Loosen the two (2) set screws located both in the flange bearing and in the pillow block bearing.

6. Remove the basket and support assembly (follow to replace the tumbler and/or tumbler support).

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

7. Remove the pillow block bearing by loosening the two (2) bolts securing the pillow block bearing to the bearing box.

8. Remove the flange bearing by loosening the four (4) nuts securing the bearing to the back of the dryer.

9. Reverse procedure for installing new tumbler bearings.

10. Replace blackguards and reestablish power to the dryer.

NOTE: Check the alignment of tumbler to make sure basket not hitting the sides or the top or the bottom of the basket. While the set screws are loose check front to back alignment of the of the basket. Make sure set screws are tight when alignment is finished.

G. IDLER & BEARING ASSEMBLY

(Remove back guard to access assembly)

TO REPLACE IDLER PULLEY

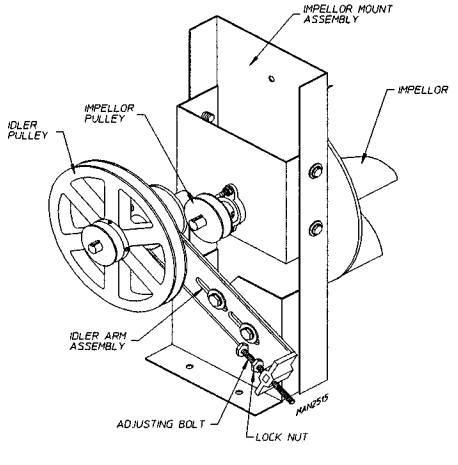
1. Discontinue power to the dryer

2. Remove back guard.

2. Loosen v-belts, then rotate pulley and roll v-belts out of grooves.

4. Loosen the two (2) set screws on the pulley and pull off the shaft.

5. Reverse procedure for installing new idler pulley.



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

NOTE: The idler shaft is pressed onto the bearings. If this is not done properly component failure could result. ADC recommends that the whole idler assembly be replaced (ADC P/N: 801008).

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.

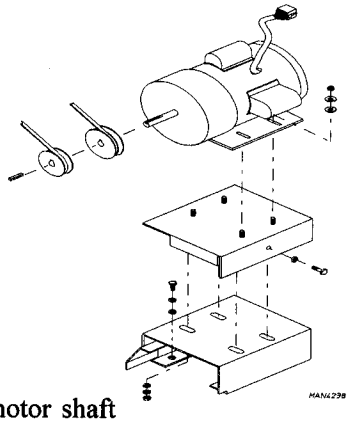
   D. Remove 3 bolts securing the bearing to the idler arm and remove bearings.

3. Reverse procedure for installing new idler bearings.

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

K. DRIVE PULLEY

(Remove back guard to access assembly)



1. Remove back guard.

2. Loosen idler arm assembly then rotate pulley and roll v-belts out of groove.

3. Loosen the set screw of both pulleys if you are changing the pulley closer to the motor, or just the set screw of the first pulley if you are changing the first pulley. Then slide the pulley off the motor shaft

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

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

I. TUMBLER (BASKET)

TUMBLER ALIGNMENT (VERTICAL)

1. Discontinue power to dryer.

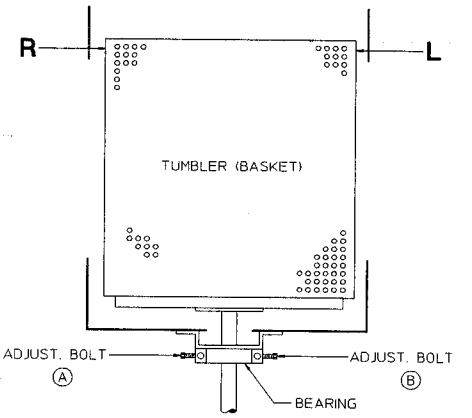
2. Remove back guard.

3. Loosen the four (4) hex head bolts on the sides of the tumbler bearing mount.

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.



REAR OF DRYER

MAN0699

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 tumbler bearing mount, and the two (2) locking nuts located on the allen head adjustment screws.

9. Replace back guard.

10. Reconnect power to dryer.

TUMBLER ALIGNMENT (LATERAL)

1. Discontinue power to the dryer.

2. Remove back guard.

3. Loosen the two (2) hex head bolts, (one turn is enough), that holds the pillow block bearing to the bearing box.

4. Back off the two (2) jam nuts on the side adjustment bolts. Now rotate the tumbler from the front of the dryer, checking the space between the tumbler and the front panel. This should be equal on the left hand and right hand side.

5. Lateral adjustment (viewing from the rear)

   A. Loosening (by turning counterclockwise) the left hand adjustment bolt and tightening (by turning clockwise) the right hand adjustment bolt will shift the basket to the right.

   B. Loosening (by turning counterclockwise) the right hand adjustment bolt and tightening (by turning clockwise) the left hand adjustment bolt will shift the basket to the left.

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

7. Tighten the bearing box bolts.

8. Replace back guard and reestablish power to the dryer.

TO REPLACE THE TUMBLER OR TUMBLER SUPPORT

1. Remove the tumbler pulley, and tumbler bearing mount (follow "TO REPLACE THE REAR TUMBLER BEARING" steps 1 through 6).

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

3. Loosen set screws on front tumbler bearing.

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

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

5. Remove the 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.

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

8. Replace back guard and reestablish power to dryer.

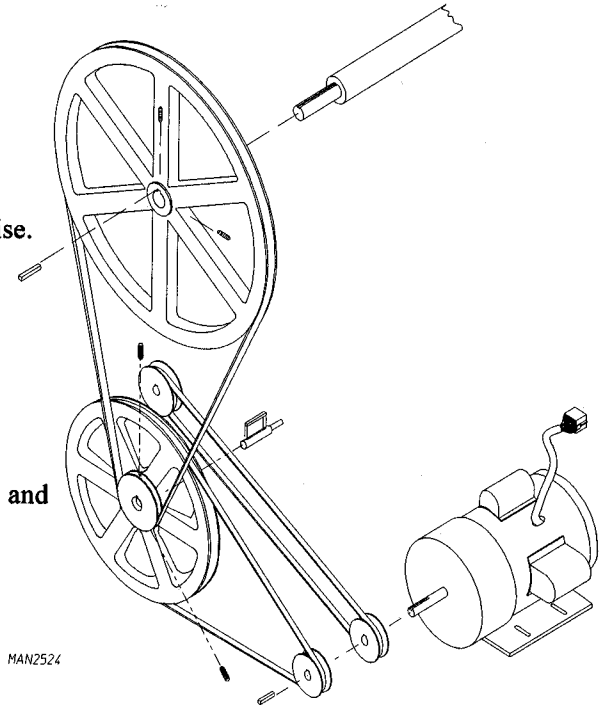
J. V-BELTS

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.

NOTE: The motor to impellor adjustment must be performed first before the other two (motor to idler, and idler to tumbler van be performed).

V-BELT TENSION ADJUSTMENT-TUMBLER TO IDLER

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



V-BELT TENSION ALIGNMENT - MOTOR TO IDLER

1. Discontinue power to dryer.
2. Loosen the four (4) nuts underneath the motor mountslide plate.
3. Loosen the lock nut on the adjusting bolt located on the side of the motor mount slide.
4. Adjust the tension of the motor to impellor pulley belt by tightening that adjusting bolt to tighten the belt or loosening the bolt to loosen the belt.

5. Once the proper tension of the motor to impellor belt has been achieved, tighten the four (4) nuts, loosened in step 2.

6. Tighten the locking nut of the adjusting bolt.

TO REPLACE V-BELTS

1. Loosen tension on V-Belts going to the idler arm assembly, so that they can easily be rolled off pulleys.

2. Replace V-Belts.

3. Retighten V-Belts and adjust tension alignment per previous instructions.

K. MOTOR

TO REPLACE MOTOR

1. Discontinue power to dryer.

2. Remove the two (2) belts from the dual motor pulleys.

3. Disconnect wiring harness from motor.

4. Remove the four (4) nuts, flat washers, lock washers securing the upper half of the split motor mount assembly to the lower half of the motor mount assembly and remove the motor form the dryer.

5. Remove the motor pulleys from the existing motor shaft and transfer to the new motor.

6. Remove the four (4) nuts, lock washers, and flat washers securing the motor to the upper half of the motor mount assembly.

7. Reassemble in the reverse of the above.

L. REPLACING THE IMPELLOR MOUNT ASSEMBLY

(See illustration on next page)

1. Discontinue power to dryer.

2. Loosen and remove the two (2) bolts holding the idler arm assembly to the impellor mount plate.

3. Remove the idler arm assembly and the belts from the dryer.

4. Remove the two (2) bolts, lock washers, and flat washers securing the bottom of the impellor mount to the machine.

5. Remove the one nut, lock washer, and flat washer from the top of the impellor mount.

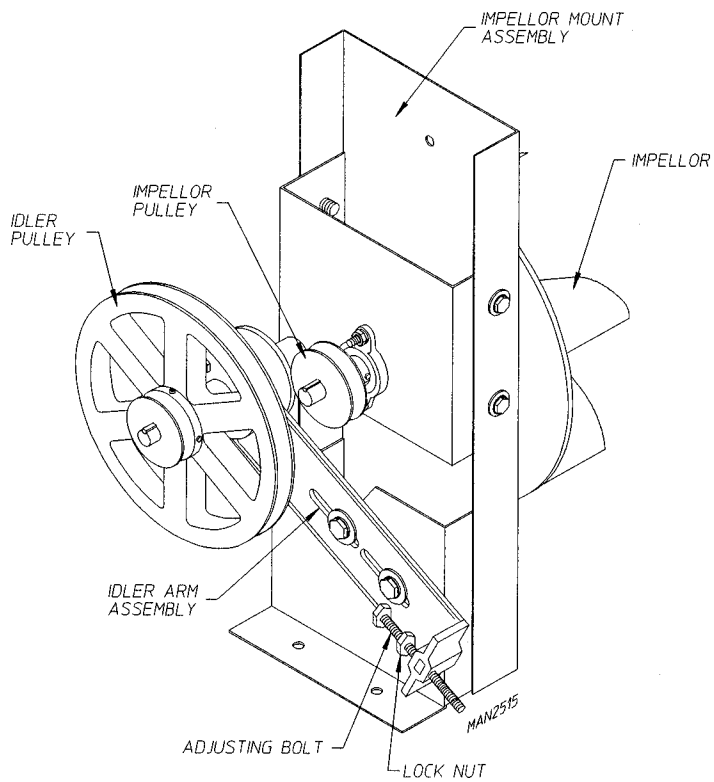
6. Remove the impellor mount assembly from the dryer.

7. Remove the two nuts and washers from the end of the impellor shaft.

8. Work the impellor free from the shaft by means of either pulling evenly on the impellor or a puller, be careful not to damage the end of the impellor shaft.

9. Reassemble by means of the above procedure.

NOTE: BE SURE TO CHECK TENSION AND ALIGNMENT OF THE FAN AND THE IDLER BELTS WHEN REPLACING THE FAN MOUNT ASSEMBLY IF NEED BE READ THE BELTS SECTION IN THIS MANUAL.



SECTION VI

HOT SURFACE IGNITION SYSTEM

A. GENERAL SYSTEM INFORMATION

1. HOT SURFACE IGNITION (HSI) SYSTEM COMPONENTS/FUNCTIONS:

a. The HSI MODULE is designed to be the "controller" of the HSI system. When activated by the dryer's controls, this module constantly monitors and controls the functions of the HSI system (i.e., ignitor activation, gas valve on and off functions, flame verification, etc.), can be operated at either 50 Hz or 60 Hz; and has self diagnostic capabilities.

The red L.E.D. (indicator light) on the HSI module simplifies the troubleshooting procedure in the event of a fault within the HSI system. If the LED on the HSI module ***does not*** blink constantly, then the system is functioning properly. A blinking **red** L.E.D. (LOCKOUT MODE) indicates that ignition flame ***has not*** been confirmed. Refer to the *TROUBLESHOOTING SECTION* of this manual for specific diagnostic information.

The green indicator L.E.D. on type 2 and 3 is a helpful troubleshooting clue to let the user know the Hot Surface Module has received the thermostat or sail switch voltage (24 VAC).

1) Failure To Light - LOCKOUT

a) Should the main burner fail to light, or if a flame is not detected during the first trial for ignition period, the gas valve is de-energized and the HSI module goes through an interpurge delay before another ignition attempt. The control will attempt two (2) additional ignition trials before going into LOCKOUT and the gas valve will be de-energized immediately.

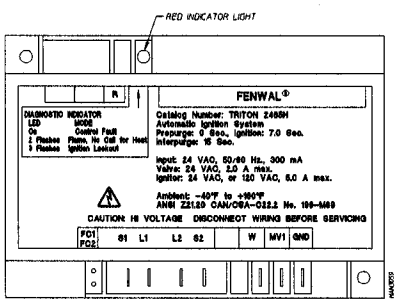
1) Recovery from LOCKOUT requires a manual reset by either resetting the thermostat or sail switch or removing the 24 VAC from the HSI module for a period of five (5) seconds.

2) Hot Surface Module

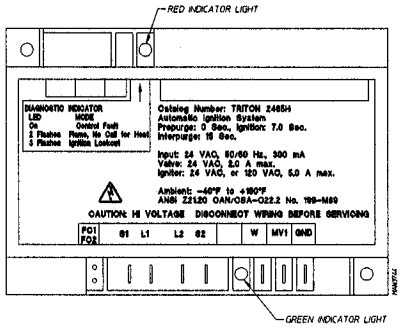
There are three types of H.S.I. modules. The system operations of the three are exactly the same. What differs between the modules are some positions of terminations and a green L.E.D. indicator has been added.

This green indicator L.E.D. is an enhanced feature to let the user know the 24 VAC thermostat voltage has reached the hot surface ignition module.

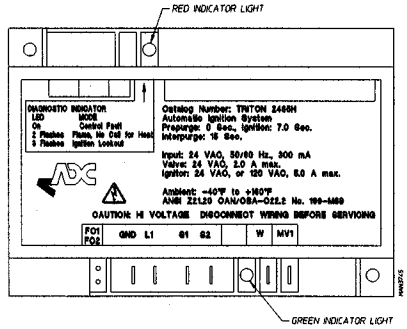
TYPE 1



TYPE 2



TYPE 3



(2) If the microprocessor (computer) is still calling for heat after one (1) hour, the HSI module will automatically reset and attempt to ignite the burner again.

2) Flame Failure Re-ignition

a) If the established flame signal is lost while the burner is operating, the HSI module will respond within 0.8 seconds. The gas valve is de-energized, the HSI module resets and starts a new ignition sequence in an attempt to relight the burner. If the burner ***does not*** light, the HSI module will de-energize the gas valve. The HSI module will make two (2) more attempts to relight the burner. If the burner ***does not*** relight, the HSI module will go into LOCKOUT. If flame is reestablished, normal operation resumes.

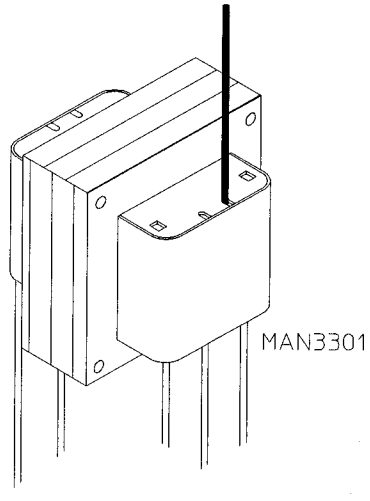
IMPORTANT: The HSI MODULE is a precision instrument, and *should be* handled carefully. ROUGH HANDLING or DISTORTING COMPONENTS COULD CAUSE THE MODULE TO MALFUNCTION.

WARNING: THE HSI MODULE IS NOT FIELD REPAIRABLE.

NOTE: To reset the HSI MODULE if it is in the LOCKOUT MODE, open and close the main door then restart the dryer. If the module repeatedly goes into LOCKOUT, refer to the *TROUBLESHOOTING SECTION* of this manual.

b) The 24 VAC TRANSFORMER is designed to step down the operating (primary) voltage of the dryer from 120 VAC, 208 VAC, or 240 VAC to the 24 VAC (secondary voltage) which is necessary to operate the HSI system and in some cases the controls of the dryer.

The 24 VAC TRANSFORMER has multi-primary taps which allow for one (1) transformer to be used for any voltage application including 120 volt, 208 volt, or 240 volt. Refer to the *SERVICE INFORMATION SECTION* of this manual for specific transformer and wiring termination information.



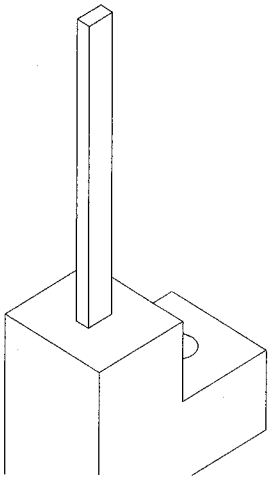
24 VAC Transformer

c. The HOT SURFACE IGNITOR and FLAME SENSOR ASSEMBLY is located in the burner flame area and is used to ignite the gas by the use of a HOT SURFACE IGNITOR. To provide feedback information to the HSI module a FLAME SENSOR is used to determine whether the burner flame is evident (on).

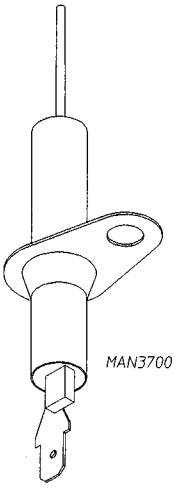
The HOT SURFACE IGNITOR is a silicon carbide ignitor that upon application of 24 VAC will glow bright orange for the interpurge time period. The proper location of the silicon carbide ignitor is very important to achieve optimum system performance for both ignition and flame sensing.

After the interpurge period the gas valve will open.

Upon ignition, the resistance in the flame sensor electrode changes and the information is sent to the HSI module via the sensor probe lead connection to the module. Once the resistance is changed and sensed, the HSI module will sustain the gas flow (provide 24 VAC power to the gas valve).

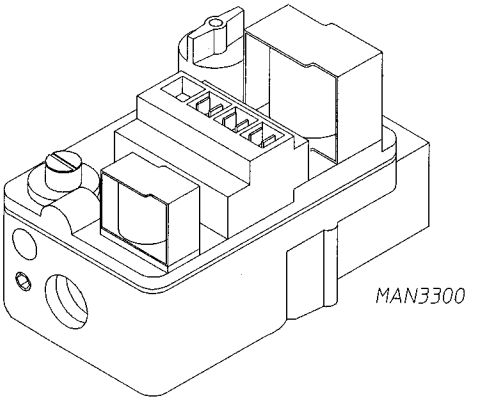


Hot Surface Ignitor



Flame Sensor Assembly

d. The HSI 24 VAC GAS VALVES used are of the redundant type which means the gas valve is actually two gas valves in one; one in series with the other. This is a safety feature which provides protection against gas flow in the event of a failure of one of the valves to seat properly. Other features are that the gas valves have a manual shut off, a pressure tap outlet, and are designed for easy conversion to regulated L.P. gas.



36E Redundant Gas Valve

WARNING: THE HSI GAS VALVES ARE NOT FIELD REPAIRABLE.

IMPORTANT: THERE ARE NO PARTS AVAILABLE FOR FIELD REPAIR. Replace the gas valve only with *exact* model or type number as noted on gas valve.

2. SYSTEM (basic) ELECTRICAL RATINGS/SPECIFICATIONS

INPUT POWER	CONTROL: 18-30 VAC 50/60 Hz
INPUT CURRENT DRAIN	300 mA @ 24 VAC with GAS VALVE RELAY ENERGIZED (control only)
GAS VALVE RATING	2.0A @ 24 VAC
OPERATING TEMPERATURE	0° F (Fahrenheit) to 160° F (Fahreheit) 0° C (Celsius) to 71° C (Celsius)
FLAME SENSITIVITY	.7μA minimum
FLAME FAILURE RESPONSE TIME	0.8 seconds maximum
TYPE of GASES	NATURAL, L.P. (liquid propane), or manufactured
SIZE (length x width x height)	4.23" x 3.23" x 1.63" (with cover) 10.75 cm x 8.21 cm x 3.97 cm (with cover)
WEIGHT	5 ounces (nominal) 145 grams (nominal)
ENCLOSURE	GRAY (Noryl N-190) FIRE RETARDANT PLASTIC
TRIES FOR IGNITION	three (3)
TRIAL FOR IGNITION PERIOD	4 seconds
INTER-PURGE	3.5 seconds

B. HSI (Hot Surface Ignition) SYSTEM OPERATION

1. HSI SYSTEM OPERATION

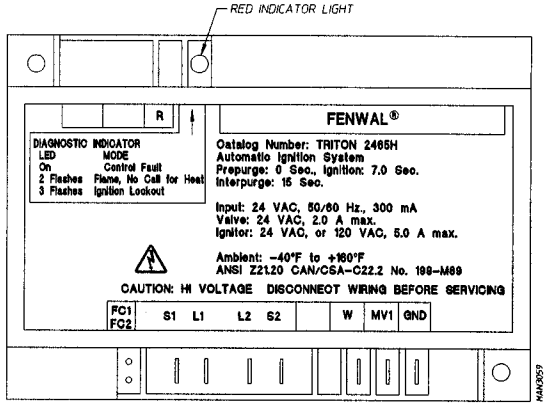
a. The HSI Module's **red** indicator light will light for up to approximately five (5) seconds (self check routine).

If the HSI Module's **red** indicator light stays on or flashes continuously, then the HSI module is wired incorrectly or has failed.

b. Start the drying cycle. If all the safety devices, (sail switch, 225° F or 330° F thermostats are closed. The green L.E.D. indicator light will come on and stay on. This indicator will stay on through out the heating cycle, until the voltage (24 vac) is stopped to the H.S.I. module via thermostats, computer.

c. The Hot Surface Ignitor will turn on. After approximately four (4) seconds the Hot Surface Ignitor will shut off and the gas valve will be energized. ***The flame should now be established.***

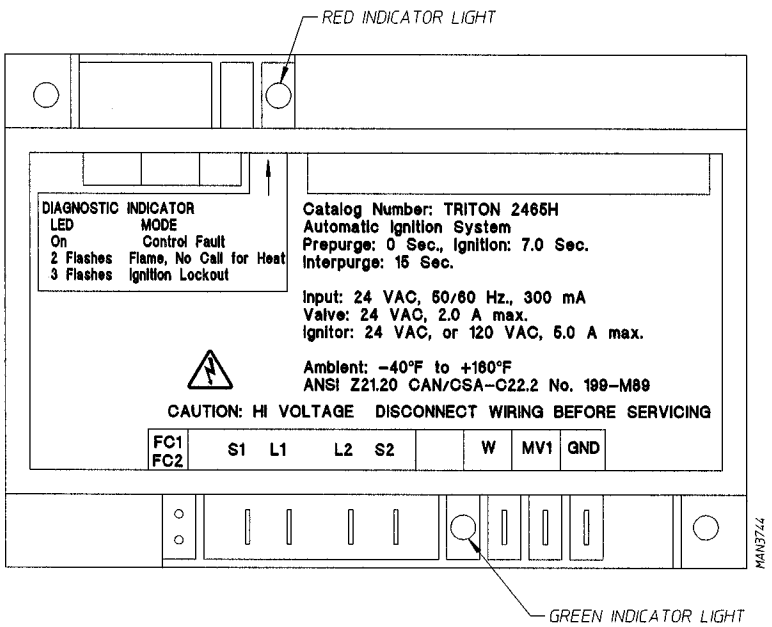
TYPE 1



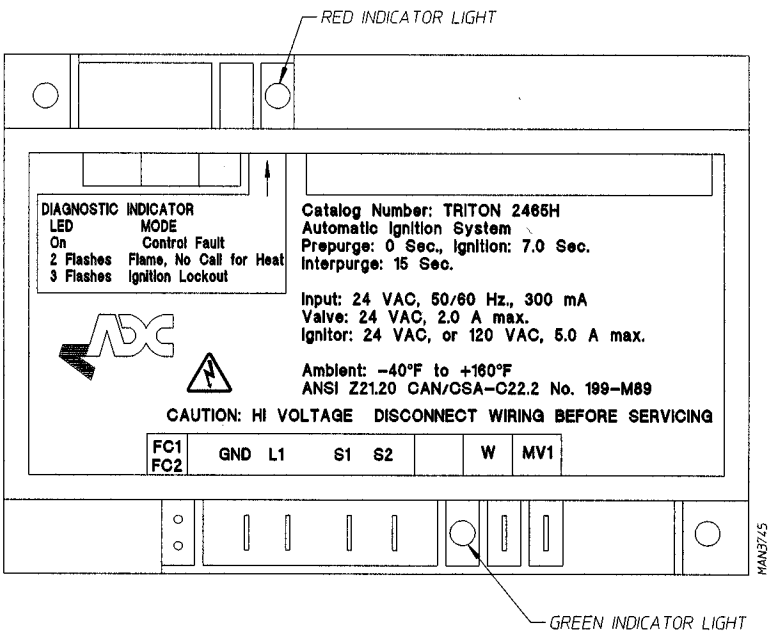
d. With the burner flame on, remove the flame sensor wire from the *S2 terminal* of the HSI module. ***The burner flame must shut off immediately.***

e. Stop the drying cycle, with the flame sensor removed, restart the drying cycle.

TYPE 2



TYPE 3

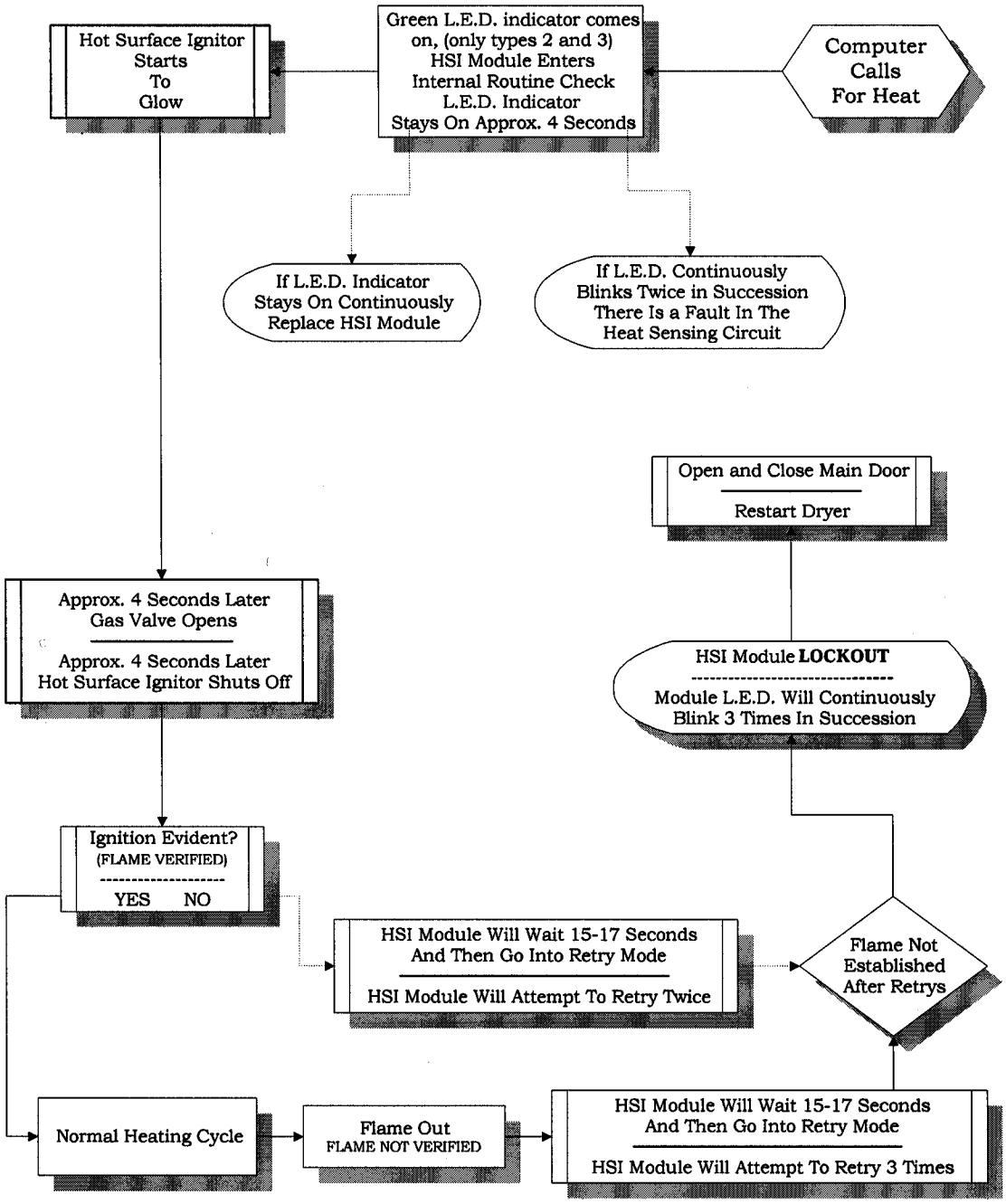


f. The Hot Surface Ignitor will turn on and after approximately four (4) seconds the Hot Surface Ignitor will shut off. The gas valve will be energized and a burner flame ***should be evident*** for approximately seven (7) seconds and then shut off.

g. The HSI Module will attempt two (2) additional ignition trials after which the HSI Module will LOCKOUT and the red indicator light ***will flash 3 blinks, wait one (1) second, and then keep flashing 3 blinks continuously until the HSI Module is reset manually.***

h. Functional check of the HSI (Hot Surface Ignition) Module is complete.

2. <u>HSI SYSTEM OPERATION</u> (Flow Chart)



3. NORMAL OPERATION (summary)

When a signal is received from the thermostat supplying 24 volts to the *W terminal* of the HSI module, the green L.E.D. indicator will come on (only type 2 and 3), the control will reset, perform a self check routine, flash the diagnostic L.E.D. for up to four (4) seconds and a pre-purge delay begins. Following the inter-purge period, the Hot Surface Ignitor is activated and the gas valve is energized for the trial for ignition period. When a flame is detected during the trial for ignition, the Hot Surface Ignitor is deactivated and the gas valve remains energized. The thermostat and main burner flame are constantly monitored to assure the system continues to operate properly. When the thermostat microprocessor controller (computer) is satisfied and the demand for heat ends, the gas valve is de-energized immediately.

Should the main burner fail to light, or a flame ***is not*** detected during the first trial for ignition period, the gas valve is de-energized and the HSI Module (controller) goes through an interpurge delay before an other ignition cycle is attempted. The HSI Module will attempt two (2) additional ignition trials before going into LOCKOUT and the gas valve relay will be de-energized immediately.

Recovery from LOCKOUT requires a manual reset by either resetting the thermostat or removing the 24 volts for a period of five (5) seconds.

If the computer is still calling for heat after one (1) hour the HSI Module (controller) will automatically reset and attempt to ignite the burner again.

C. TROUBLESHOOTING

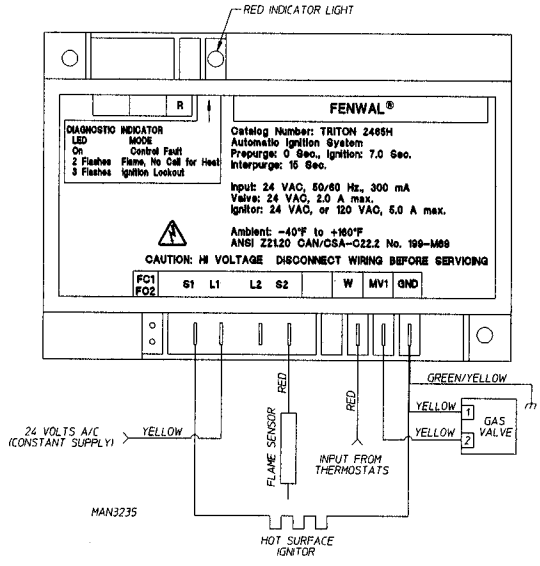
The troubleshooting information provided in this manual is intended for use only by QUALIFIED SERVICE TECHNICIANS. Observe **ALL** safety precautions displayed on the equipment or specified in the installation and operator's manual included with the dryer.

IMPORTANT: UNDER NO CIRCUMSTANCES SHOULD ANY SAFETY OR HEAT CIRCUIT DEVICE EVER BE DISABLED.

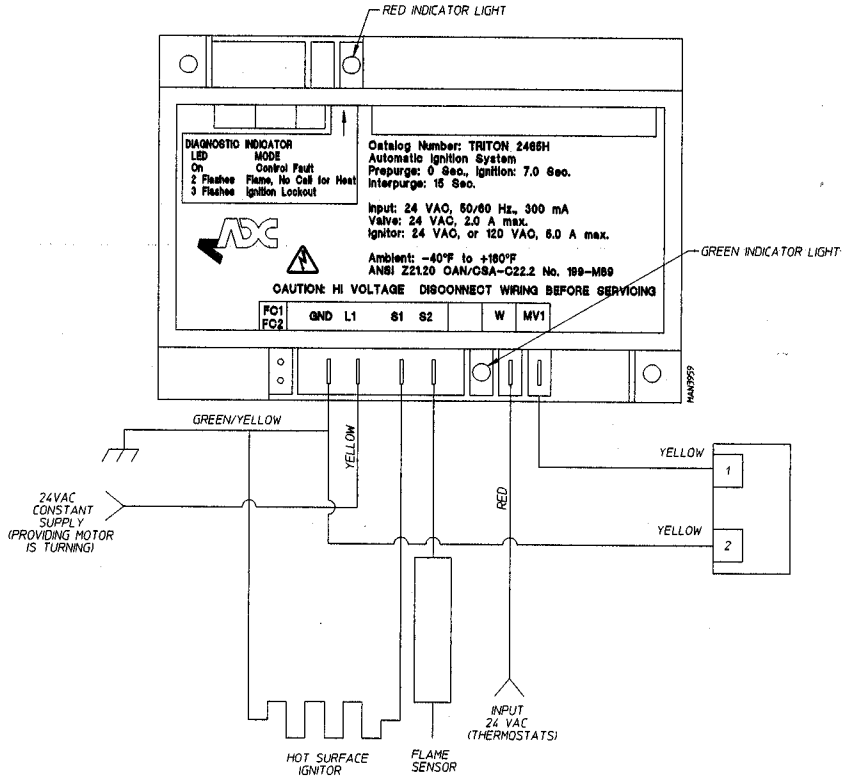
1. TYPICAL WIRING DIAGRAM OF THE THREE TYPE H.S.I. MODULE

The following troubleshooting guide provides systematic procedures for isolating equipment problems, and again, is intended for use by a QUALIFIED SERVICE TECHNICIAN.

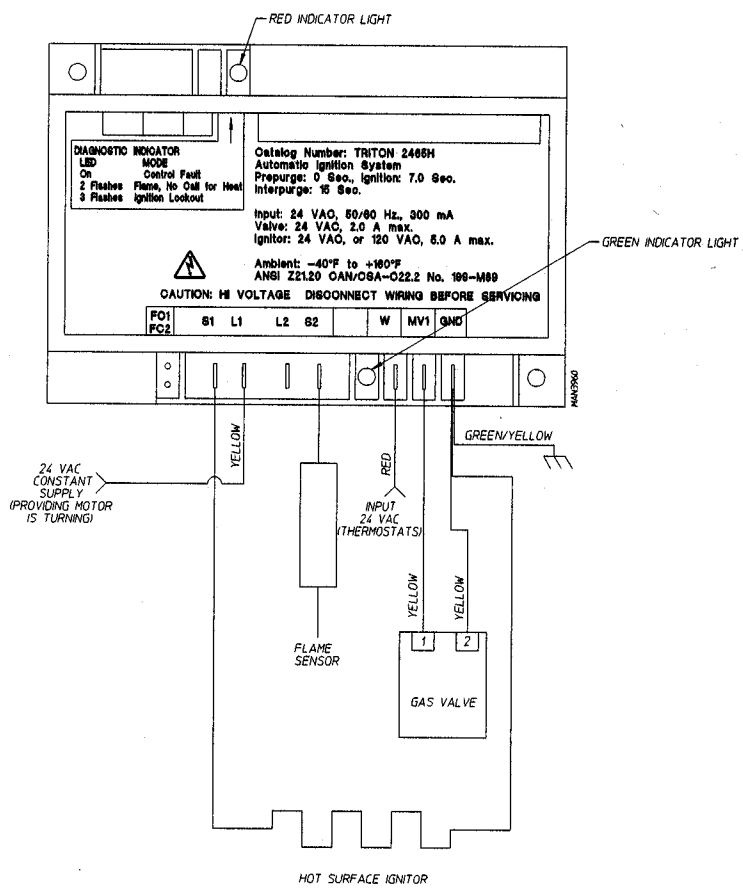
TYPE 1



TYPE 2


RED INDICATOR LIGHT
DIAGNOSTIC INDICATOR
LED MODE
On Control Fault
2 Flashes Flame, No Call for Heat
3 Flashes Ignition Lockout
Catalog Number: TRITON 2465H
Automatic Ignition System
Prepurge: 0 Sec., Ignition: 7.0 Sec.
Interpurge: 15 Sec.
Input: 24 VAC, 50/60 Hz., 300 mA
Valve: 24 VAC, 2.0 A max.
Ignitor: 24 VAC, or 120 VAC, 5.0 A max.
Ambient: -40°F to +160°F
ANSI Z21.20 CAN/CSA-C22.2 No. 199-M89
CAUTION: HI VOLTAGE DISCONNECT WIRING BEFORE SERVICING
FC1 FC2 GND L1 S1 S2 W MV1
GREEN INDICATOR LIGHT
GREEN/YELLOW
YELLOW
RED
YELLOW
1
YELLOW
2
24VAC CONSTANT SUPPLY (PROVIDING MOTOR IS TURNING)
INPUT 24 VAC (THERMOSTATS)
HOT SURFACE IGNITOR
FLAME SENSOR

TYPE 3


RED INDICATOR LIGHT
DIAGNOSTIC INDICATOR
LED MODE
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2 Flashes Flame, No Call for Heat
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Ambient: -40°F to +160°F
ANSI Z21.20 CAN/CSA-C22.2 No. 199-M89
CAUTION: HI VOLTAGE DISCONNECT WIRING BEFORE SERVICING
FC1 FC2 S1 L1 L2 S2 W MV1 GND
GREEN INDICATOR LIGHT
YELLOW
RED
GREEN/YELLOW
24 VAC CONSTANT SUPPLY (PROVIDING MOTOR IS TURNING)
INPUT 24 VAC (THERMOSTATS)
YELLOW
YELLOW
1
2
GAS VALVE
FLAME SENSOR
HOT SURFACE IGNITOR

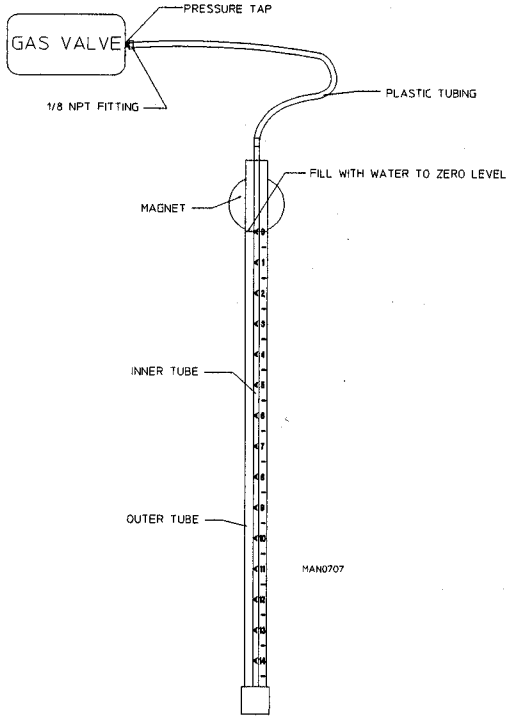
TEST EQUIPMENT

The following pieces of test equipment will be required to troubleshoot this system with minimal time and effort.

MANOMETER

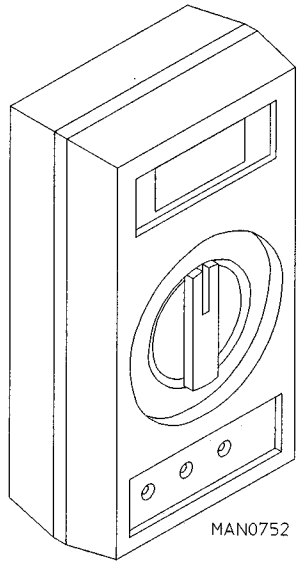
Used to measure gas pressure in inches of water column (W.C.)

Available from ADC - Part No. 122804



MULTIMETER/VOLTMETER

For measuring voltage and/or amperage



1. <u>HSI (Hot Surface Ignition) TROUBLESHOOTING TERMS</u> (definitions)

   a. <u>INTERNAL CONTROL FAILURE</u> - HSI module **red** L.E.D. (light emitting diode) indicator light stays on continuously. This indicates there is a system fault and most likely the fault is the HSI Module itself.

   b. <u>HSI MODULE **RED** L.E.D INDICATOR LIGHT</u> - this light is located on the top left side of the HSI Module (refer to the **illustration** on **<u>pages 3 or 6</u>** of this manual). This DIAGNOSTIC INDICATOR simplifies the operational and troubleshooting procedures of the system.

   c. <u>FLAMEOUT</u> - burner flame shut down by the HSI Module due to lack of flame verification. This condition occurs only after ignition has been evident but is lost. The HSI system will immediately attempt to relight the burner for a total of three (3) times before going into LOCKOUT. Once in the LOCKOUT MODE the HSI Module ***must be*** reset manually

   d. <u>TRIAL FOR IGNITION</u> (T.F.I.) - the period after the Hot Surface Ignitor shuts off and before the gas ignites.

   e. <u>LOCKOUT</u> - when the flame is lost or the gas ***is not*** ignited after three (3) tries. The **red** L.E.D. (light emitting diode) indicator light flashes 3 blinks (i.e., LOCKOUT) continuously until the HSI Module is reset manually.

f. FLAME SENSOR FAULT - if there is a problem or fault within the flame sensing circuit or the Flame Probe, the **red** L.E.D. (light emitting diode) indicator light flashes 2 blinks (i.e., FLAME SENSOR FAULT) continuously until the problem or fault is corrected (fixed) or until the HSI Module is reset manually.

2. TROUBLESHOOTING AND SYSTEM DIAGNOSIS (detailed)

TROUBLESHOOTING (Service Checks)

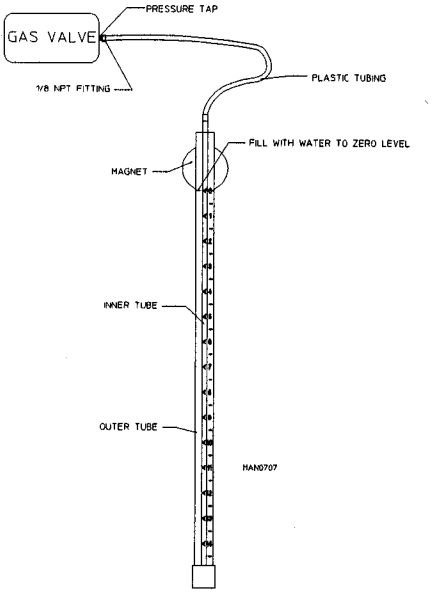
Symptom	*Cause*
1. No L.E.D. Indicator Light	*A. Miswired* *B. Transformer Bad (24 volts)* *C. Fuse or Circuit Breaker Bad* *D. HSI Module Bad*
2. Gas Valve On - No Hot Surface Ignitor	*A. Defective Hot Surface Ignitor* *B. Miswired* *C. HSI Module Bad (check voltage at Hot Surface Ignitor)*
3. Hot Surface Ignitor On - No Gas Valve	*A. Gas Valve Coil Open* *B. Open Gas Valve Wire (MV1 or GND)* *C. HSI Module Bad (check for voltage between MV1 and GND)*
4. Flame Okay For T.F.I. (Trial For Ignition) No Flame After T.F.I.	*A. Defective Hot Surface Ignitor* *B. S2 Wire Bad* *C. Poor Ground (GND) At Burner* *D. Poor Flame (check flame current)*

a. System Diagnosis

1) Gas Pressure

A gas pressure test ***should be*** taken at the gas valve pressure tap provided on every gas valve to assure that the water column (W.C.) pressure is correct and consistent.

There are two (2) types of devices used to measure water column (W.C.) pressure. They are the spring and mechanical type gauge and the water column test gauge (manometer). The use of the spring and mechanical type of gauges is **NOT RECOMMENDED** because they are very easily damaged and they ***are not*** always accurate. The preferred type of gauge is the manometer because it is a simple devise to use and is highly accurate. A manometer is simply a glass or transparent plastic tube with a scale graduated in inches. When it is filled with water and pressure is applied, the water in the tube rises, showing the exact water column (W.C.) pressure.



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

a) Connect water column test gauge (manometer) to the gas valve tap (1/8" N.P.T.).

b) Start the dryer with the burner on, the correct water column (W.C.) reading in inches ***should be***:

Natural Gas	3.5 inches W.C.
L.P. (liquid propane) Gas	10.5 inches W.C.

When a gas dryer is first started (during initial time of installation or start-up), it has a tendency not to ignite on the first ignition attempt. This is due to the fact that the gas supply piping is filled with air, so it may take a few minutes for the air to be purged from the supply lines. During this purge period, there may be insufficient gas pressure for ignition, which might cause the HSI module to go into the LOCKOUT MODE (the L.E.D. will LIGHT **RED** CONTINUOUSLY).

NOTE: During the purge period, check to be sure that **ALL** gas shut-off valves are open.

NOTE: To reset the HSI MODULE if it is in the LOCKOUT MODE, open and close the main door then restart the dryer.

2) Flame Sensor

a) Flame Sensor Fault Code

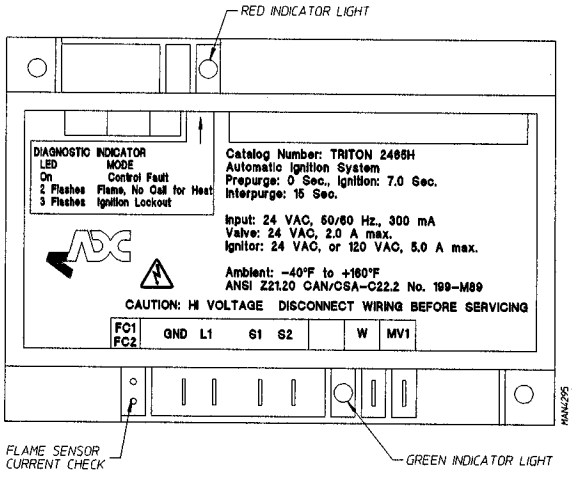
The HSI Module is equipped with a diagnostic circuit that detects a fault in the Flame Sensor Probe or any related circuits in the internal circuits in the HSI module. When a fault is detected, the **red** L.E.D. (light emitting diode) indicator light will flash 2 blinks. To clear this code either discontinue power to the dryer and HSI Module or replace the FLAME PROBE or HSI MODULE.

b) Flame Sensor Current Check

Flame current is the current which passes through the flame from the Flame Sensor to ground (GND). The minimum flame current necessary to keep the HSI system from LOCKOUT is .7 microamps. To measure flame current, connect an analog D.C. (direct current) micrometer to the *FC1 and FC2 terminals* (refer to the adjoining illustration).

The meter *should read* .7 microamps or higher. If the meter reads below "0" on the scale, then the meter leads are reversed. Disconnect power and reconnect the meter leads for proper polarity.

FLAME SENSOR CURRENT CHECK
(Same Test Points on all three tyes)



c) Flame Failure "Re-ignition"

If the established flame signal is lost while the burner is operating, the HSI module (controller) will respond within 0.8 seconds. The gas valve will be de-energized, the HSI module resets and starts a new ignition sequence in an attempt to relight the burner. If the burner ***does not*** light, the HSI module will de-energize the gas valve. The HSI module will make two (2) more attempts to relight the burner. If the burner ***does not*** relight the HSI module will go into the LOCKOUT MODE. If the flame is reestablished, normal operation resumes.

d) Fault Conditions

FAULT CONDITION INDICATIONS	
ERROR MODE	***L.E.D. INDICATION***
INTERNAL HSI MODULE FAILURE	*STEADY ON*
FLAME SENSOR FAULT	*2 FLASHES*
IGNITION LOCKOUT	*3 FLASHES*

The **red** L.E.D. (light emitting diode) will flash on for a 1/4 second, then off for a 1/4 second during a fault condition. The pause between the fault codes is three (3) seconds.

NOTE: To reset the HSI MODULE if it is in the LOCKOUT MODE or the FLAME SENSOR FAULT MODE, open and close the main door then restart the dryer.

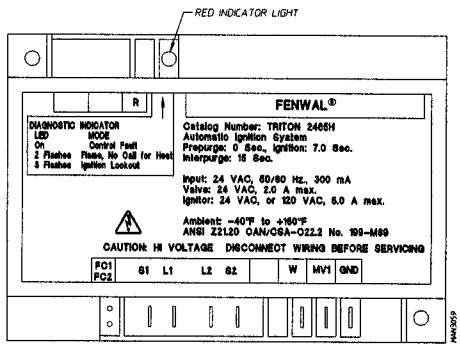
3) HSI (Hot Surface Ignition) Module

The HSI module (controller) utilizes a microprocessor to continually and safely monitor, analyze, and control the proper operation of the gas burner. Additional features consist of L.E.D. diagnostics, automatic one (1) hour reset, multiple tries, and flame current testing pins highlight the HSI module benefits.

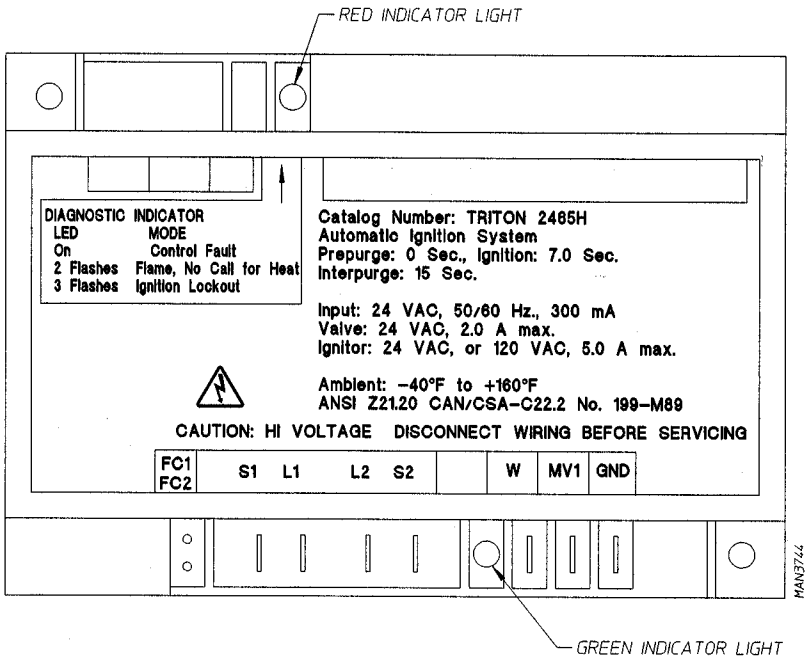
The terminal designation that are listed below correspond to the designations on the bottom portion of the HSI module (as shown from left to right).

TERMINAL DESIGNATIONS	
FC1/FC2	*FLAME SENSOR CURRENT CHECK POINTS*
S1	*IGNITOR*
L1	*24 VOLT INPUT (HOT) CONSTANT*
L2	*NOT USED (NEUTRAL - 120V INPUT ONLY)*
S2	*IGNITOR REMOTE SENSOR/FLAME SENSOR*
W	*THERMOSTAT INPUT*
MV1	*MAIN VALVE POWER*
GND	*System Ground*

TYPE 1



TYPE 2


RED INDICATOR LIGHT
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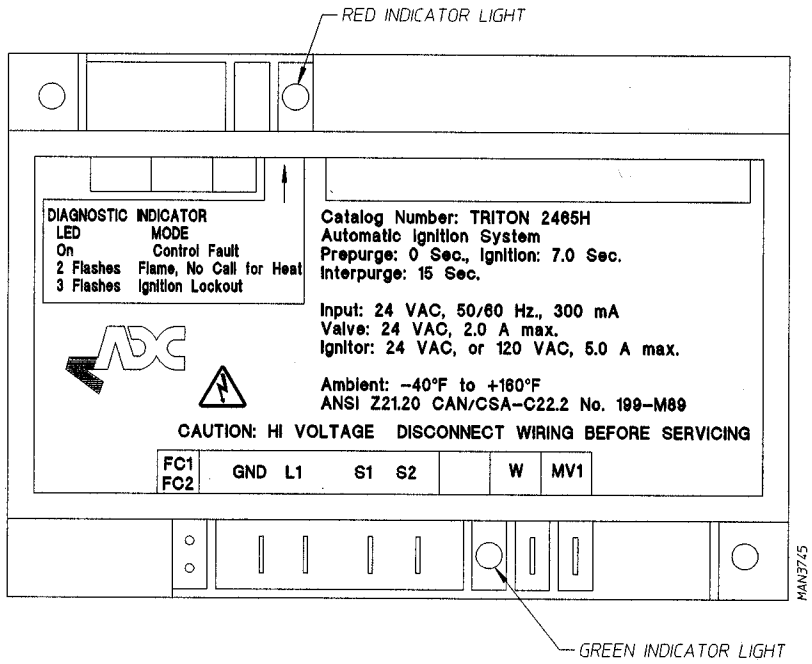
Ignitor: 24 VAC, or 120 VAC, 5.0 A max.
Ambient: -40°F to +160°F
ANSI Z21.20 CAN/CSA-C22.2 No. 199-M89
CAUTION: HI VOLTAGE DISCONNECT WIRING BEFORE SERVICING
FC1 FC2
S1 L1 L2 S2
W MV1 GND
MAN3744
GREEN INDICATOR LIGHT

TYPE 3


RED INDICATOR LIGHT
DIAGNOSTIC INDICATOR
LED MODE
On Control Fault
2 Flashes Flame, No Call for Heat
3 Flashes Ignition Lockout
Catalog Number: TRITON 2465H
Automatic Ignition System
Prepurge: 0 Sec., Ignition: 7.0 Sec.
Interpurge: 15 Sec.
Input: 24 VAC, 50/60 Hz., 300 mA
Valve: 24 VAC, 2.0 A max.
Ignitor: 24 VAC, or 120 VAC, 5.0 A max.
Ambient: -40°F to +160°F
ANSI Z21.20 CAN/CSA-C22.2 No. 199-M89
CAUTION: HI VOLTAGE DISCONNECT WIRING BEFORE SERVICING
FC1 FC2
GND L1 S1 S2
W MV1
MAN3745
GREEN INDICATOR LIGHT

4) HSI (Hot Surface Ignition) 24 VAC Transformer

The HSI transformer is designed to step down the operating voltage of the dryer to 24 VAC to operate the HSI module. This transformer, like all transformers, is two (2) sided:

a) Primary Side
This is the incoming voltage side - 120 VAC, 208 VAC, 240 VAC - of transformer.

b) Secondary Side
This is the step down side - 24 VAC - of the transformer.

WARNING: **208 VAC and 230/240 VAC ARE NOT THE SAME. ALL** voltage connections ***should be*** checked and confirmed according to the wiring diagram provided with the individual dryer. Any damage done to dryer components due to improper voltage connections will automatically VOID THE WARRANTY.

IMPORTANT: The **ADC** Service Department ***must be*** contacted prior to any wiring change or conversion because, depending on the change/conversion required, some parts may have to be added, deleted, or changed. When contacting the **ADC** Service Department they ***must be*** given the correct **model** and **serial numbers** of the dryers.

NOTE: Any wiring changes or conversions ***should be*** by a **QUALIFIED ELECTRICAL TECHNICIAN.**

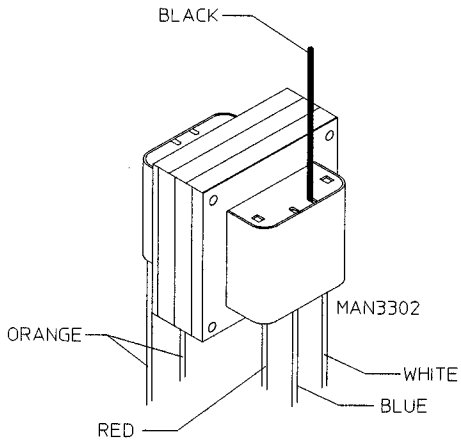
(1) Transformer Wiring

There are six (6) color-coded wires coming from the 24 VAC Transformer. There are four (4) wires coming from the primary (incoming) voltage side of the transformer. Their application and color-coding are as follows:

(a) **For 120 VAC application ONLY;**
1 - The **BLACK** and **WHITE** wires are used.
2 - The Red and Blue wires are capped off individually.

(b) **For 208 VAC application ONLY;**
1 - The **BLACK** and **BLUE** wires are used.
2 - The Red and White wires are capped off individually.

(c) **For 240 VAC application ONLY;**
1 - The **BLACK** and **RED** wires are used.
2 - The White and Blue wires are capped off individually.



There are **two (2) ORANGE** wires coming from the secondary (step down) side of the transformer;

(d) One (1) ORANGE wire is connected to the GND (ground) termination.
(e) One (1) ORANGE wire supplies the 24 VAC signal for the control and/or HSI system circuit. (Refer to the specific wiring diagram with the dryer for connection point.)

4) HSI (Hot Surface Ignition) 24 VAC Redundant Gas Valve

IMPORTANT: The HSI 24 VAC Redundant Gas Valve **contain no serviceable parts. REPLACEMENT COILS ARE NOT AVAILABLE.**

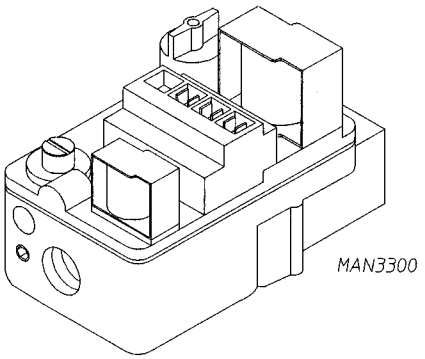
IMPORTANT: **THERE ARE NO PARTS AVAILABLE FOR FIELD REPAIR. Replace gas valve only with *exact* model or type number as noted on gas valve.**

a) The redundant gas valve utilize 24 VAC, which is provided by the HSI module.

(1) To check the resistance value;

(a) Disconnect the terminations at the gas valve from the HSI module.

WARNING: When taking ohm readings, the terminations from the HSI module ***must be*** disconnected or removed, otherwise, the readings obtained will be incorrect.



36E Redundant Gas Valve

(2) With a meter (either a multimeter or ohmmeter) set on the 200 ohm position, place the meter leads across:

(a) Terminals 1 and 2, the reading ***should be*** approximately 96 ohms +/- 5 ohms.
(b) Terminals 2 and 3, the reading ***should be*** approximately 96 ohms +/- 5 ohms also.

(3) If, after checking the resistance values on the gas valve, it is determined that the ohm readings do not approximate the ohm values listed above (96 ohms [+/- 5 ohms] for both readings respectively), then, the gas valve ***must be*** replaced.

SECTION VII

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 suspected component itself.

Electrical parts should always be checked for failure before 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 by the LED display of certain failure codes along with indicators both in the LED display at the outputs of each relay and door switch circuit to easily identify failures.

DIAGNOSTICS (LED 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 disconnected 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 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 optional 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 LED 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.

MICROPROCESSOR CONTROLLER RELAY OUTPUT L.E.D. INDICATORS

There are three (3) LED indicators (red lights) located at the lower backside area of the controller are identified and labeled "DOOR," "MTR." and "HEAT" (as shown in the illustration on the next page). These LED'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"** LED 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.

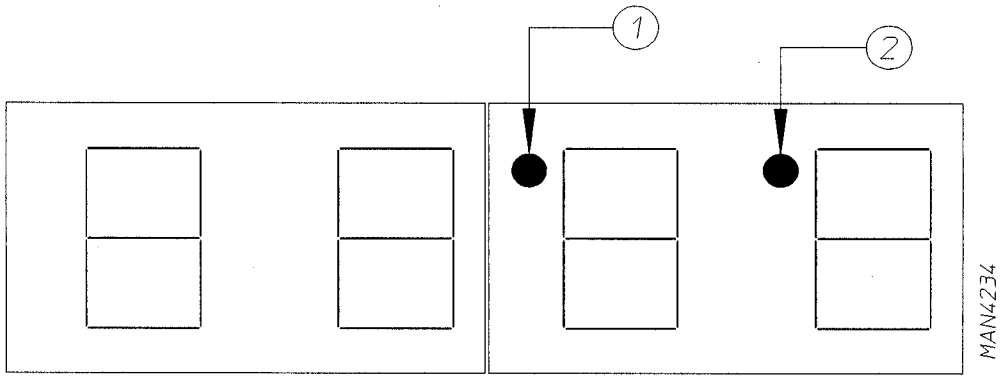
2. **"MOTOR"** Output L.E.D. Indicator - if the dryer is started and the motor is not operating, yet both the microprocessor controller display motor indicator dot and the **"dOOr"** input L.E.D. indicator are on, but the motor output LED indicator is off, then the fault is in the Phase 5 coin microprocessor 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 LED Indicator - If the dryer is started and there is no "heat." Yet the microprocessor controller display heat circuit indicator dot is on, but the output LED 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 LED indicator are on, then the problem is elsewhere (i.e., external of the micro-processor controller).

NOTE: If the dryer is started (the LED display indicator dots are on) and there are no outputs (heat and/or motor output LED's are off) and the **"dOOr"** input LED is on, the fault is in the Phase 5 microprocessor controller itself. If the LED display indicators are on and the door LED input and motor/heat output LED's are on 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.

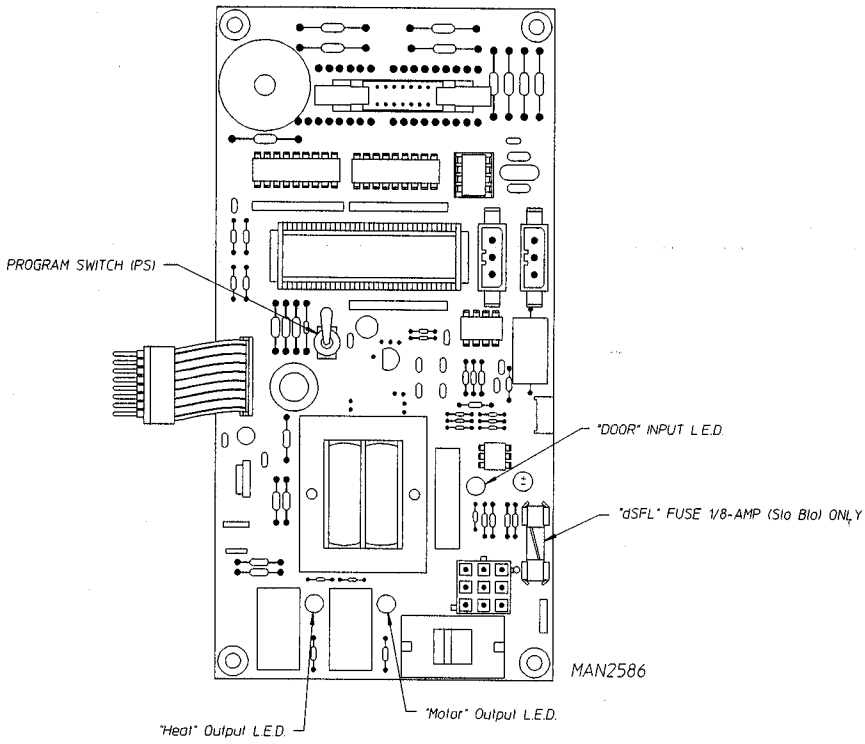
L.E.D. DISPLAY INDICATORS

The LED indicator dots located at the top portion of the LED 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).



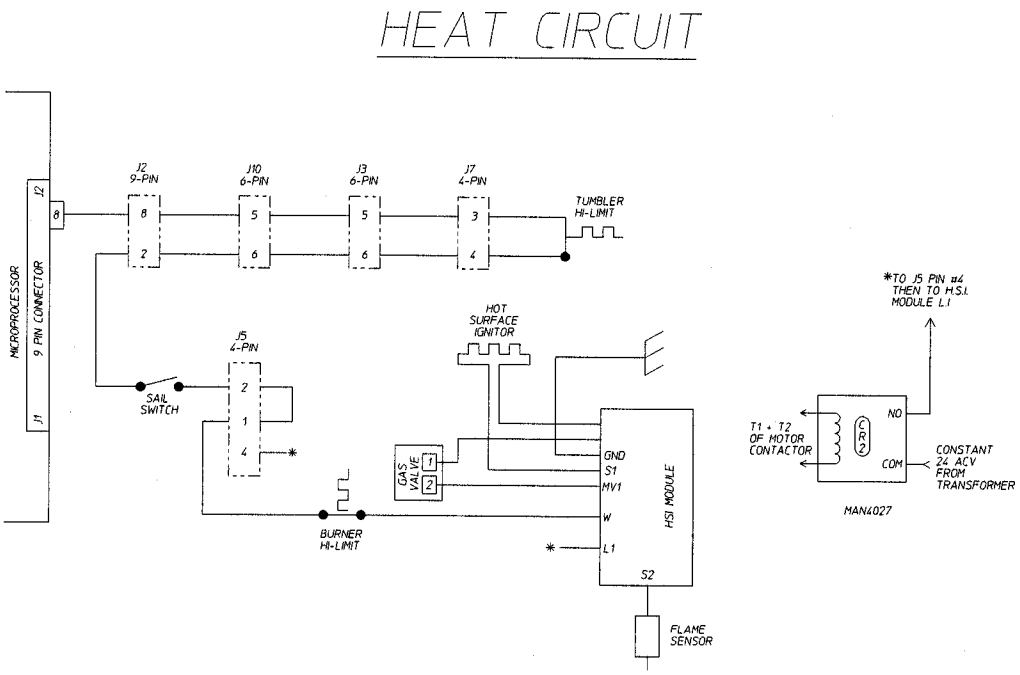
1. Heat Circuit Indicator - indicator dot is on whenever the Phase 5 coin microprocessor controller is calling for the heating circuit to be active (ON).

2. Motor Circuit Indicator - indicator dot is on whenever a cycle is in progress.

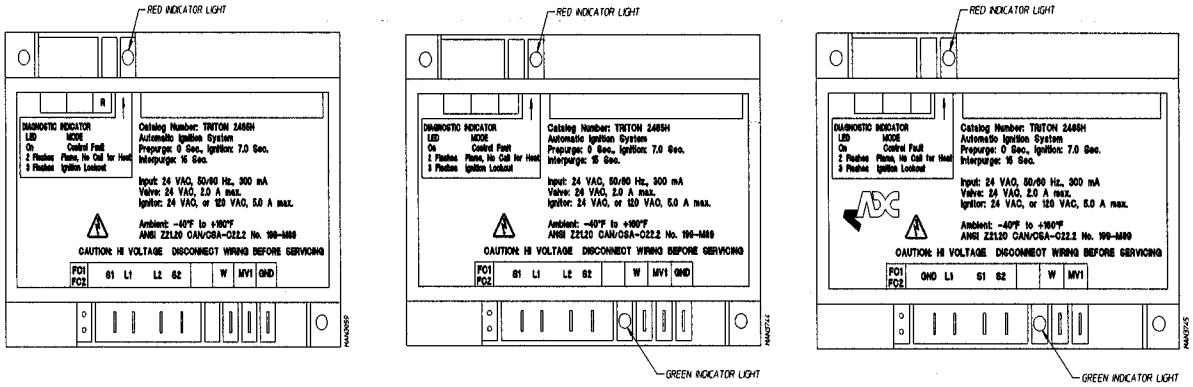


B. No Heat Condition

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



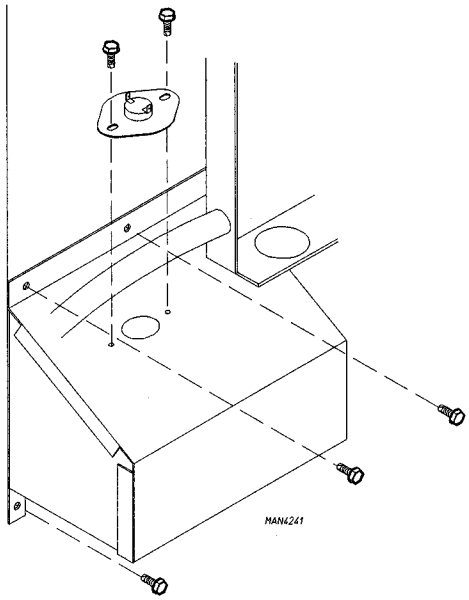
1. Is the motor or drum turning? If no, see "NO START CONDITION" page
   If yes check for voltage (24 VAC) on the H.S.I. module L1 to GND for voltage.
   If no voltage, check for bad connections on J5 pin #4 and then back to CR2 motor relay and replace motor relay CR2.



2. Check voltage (24 VAC) across "W" and "GND" terminals of H.S.I. module. (Green L.E.D. would be on if voltage is present on type II and type III H.S.I. modules, see section VII in this manual). If voltage is evident and no "SI" and "GND" voltage (24 VAC), replace H.S.I. module.

> **NOTE:** Voltage are taken with respect to ground.

3. Check for voltage across the burner Hi-Limit Switch.



4. If voltage is present on both terminals the problem is bad wires or termination between burner hi limit switch + "W" terminal on H.S.I. module.
   b. If voltage is present on only one terminal, replace the hi-limit switch.

5. Check for voltage on J5 connector pin number's 1+2
   If voltage is present on both or one pin(s), the problem is bad wire or termination on the wire from J5 connector (1+2) to the burner hi-limit switch.

6. Check sail switch damper to make sure it is closing, also check on the sail switch.
   If voltage is on only one terminal of the sail switch terminals, replace the switch.

7. Check for voltage with respect to ground, across connectors, J2 Pin 2, J10 Pin 6, J7 Pin 4.
   If voltage stops at anyone of these connectors check that connector for a poor connection.

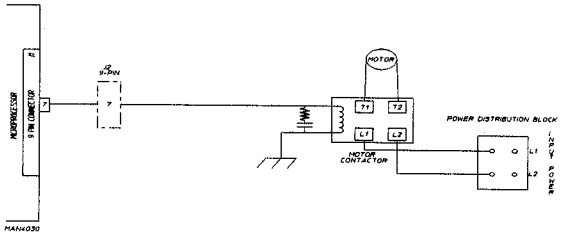
8. Check for voltage across J7 Pin 3 with respect to ground.
   If voltage replace hi-limit switch.

9. Check for voltage with respect to the ground connectors J3 Pin 5 and J2 Pin 8.
   If voltage stops at anyone of these connectors check that connector for a poor connection.

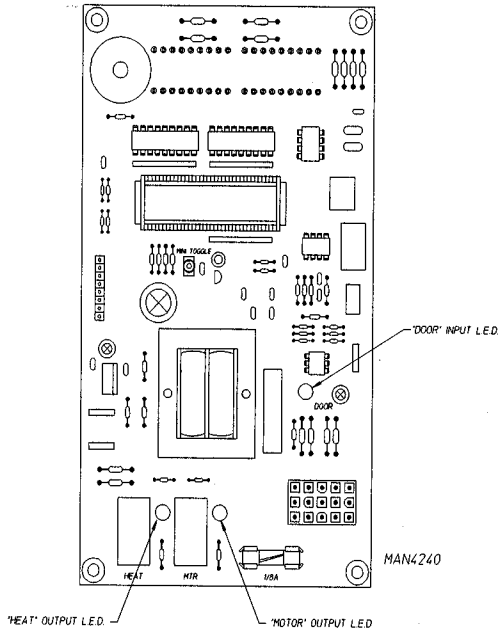
10. Check for voltage across Pin 9 computer harness Pin 8 with respect to ground.
    If voltage check fro bad wire or loose connection between Pin 8 on the computer harness and J2 Pin 8.
    If no voltage on Pin 8 of the computer harness, replace computer board.

C. NO START CONDITION

MOTOR CIRCUIT



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 LED motor output light is on. The voltage you should be reading is 24 VAC unless otherwise specified.



1. Check to see if **"dOOr"** LED input light is on. (Located on component side of the computer board.) If it's off, refer to **"dOOr"** in the trouble shooting section.

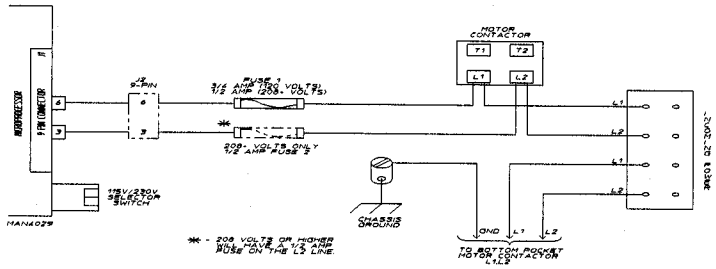
2. Check for voltage (115v-240v) at the motor (black & white wires going to the 8 pin plug). If voltage replace motor

3. Check for voltage across the coil connections of the motor relay. If voltage is evident Replace the contactor

4. Check for voltage on the 9 pin connector (J2) pin 7 to ground, if voltage problem is bad wire or termination between (J2) 9 pin connector pin 7 and the contactor coil (blue wire).

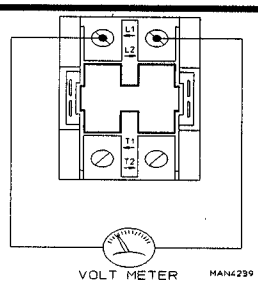
5. Check for voltage at pin 7 of the computer connector (blue wire) and ground. If voltage, problem is bad wire or termination between 9 pin connector (J2) pin 7 and the computer connector pin 7 (blue). If no voltage replace the computer.

D. NO DISPLAY CONDITION

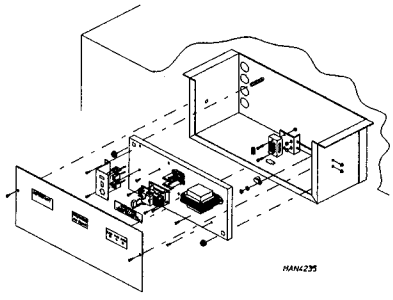


NOTE: Make sure the 230v/115v selector switch on the computer is on the proper position for the voltage on the dryer.

1. Check power supply. (Dryer voltage 110v, 208v, 220v) (Circuit breaker box or fuse panel)

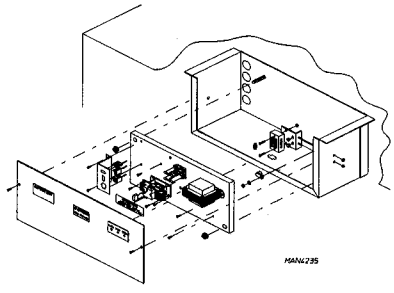


2. Check for voltage across (L1) and (L2) of motor relay. (110v, 208v, 220v). If there is no voltage evident, problem is bad wire(s) or termination from the circuit breaker panel or fuse panel to the power distribution block, on L1 & L2 of motor contactor. If there is voltage continue with step 3.



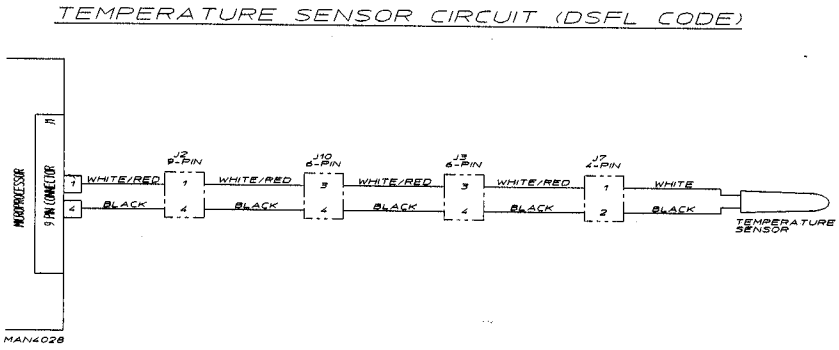
3. Check the 3/4 amp fuse on the relay panel. If dryer is rated at 110v, 115, or 120v there will only be one fuse. If Blown replace with p/n-136049. Voltages of 208v, 220v will have two 1/2 amp fuses. If blown, replace with P/N: 136057. If not continue with step # 4.

4. Check voltage across pin number 3 and 6 of the 9 pin connector (J2) (110v, 208v, 220v). If no voltage is evident, problem is bad wire or termination from the 9 pin connector numbers 3 & 6, through the fuses to the L1 & L2 connectors on the motor relay, then to the power distribution block. If there is voltage continue with step 5.



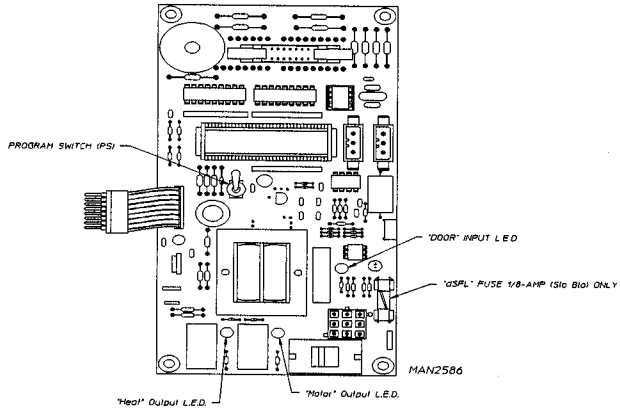
5. Check for voltage across the computer's 9 pin connector pin numbers 6 and 3 (110v, 208v, 220v). If no voltage is evident, problem is bad wire or termination from the computer's connector pin numbers 6 and 3 to the 9 pin connector (J2) pin numbers 6 & 3. If voltage is evident, problem is faulty computer.

E. "dSFL" DISPLAY CONDITION



When the display **"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 the 1/8 amp fuse on the computer board. If no continuity replace with ADC P/N: 136048. If fuse repeatedly burns out go to step 3.

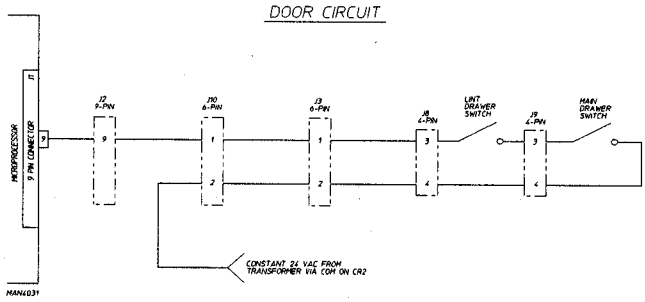


2. Check for loose connection at the microprocessor sensor bracket harness connector (located in lint compartment), and the microprocessor 9 position connector at the microprocessor controller.

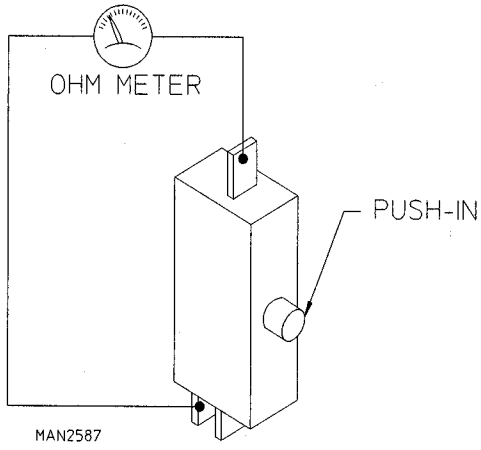
3. Discontinue power to dryer. Disconnect the microprocessor 9 position connector from microprocessor controller and locate connector holes 1 and 4. Disconnect sensor harness from sensor bracket assembly (located in the lint compartment). Check for continuity across each wire from harness connector in lint compartment (J7) (pins 1 & 2) to appropriate microprocessor 9 position connector (1 and 4). If no continuity, problem is break in wire or bad termination from that 4 pin (J7) connector through the (J3) and (J10) 6 pin connectors, pins 3 & 4 then through the (J2) 9 pin connector pins 1 & 4, and then finally to the computer 9 position connecto pins 1 & 4. Also, on the two wires, check for short to GND.

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

F. "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. Include the door switch, microprocessor controller and the wires to end from these two points. Before following this test procedure, check the component side of the computer to see if LED input light is on. If on and still reads door replace computer. Voltage is 24VAC unless otherwise specified.



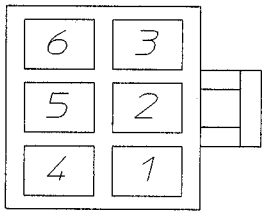
1. Remove door switch assembly from dryer. Check for continuity across the two terminals of the door switch with plunger pushed in. If no continuity, replace the door switch. If continuity is evident, reassemble door switch back on dryer.

   a.) Repeat the above procedure; for the lint door switch.

2. Make sure both the main and lint doors are closed and the plungers are pushed in. Check for voltage across pin 2 of the 6 pin connector (J10) and ground. If no voltage is evident, problem could be faulty transformer (P/N: 141403). If voltage is evident then continue with step 3.

3. Check for voltage on pin 2 of the 6 pin connector (J3) located near the temperature sensor bracket assembly and the ground. If no voltage problem is a bad wire or termination between the (J10 & J3) connectors (pin 2).

6 PIN CONNECTOR



MAN2509

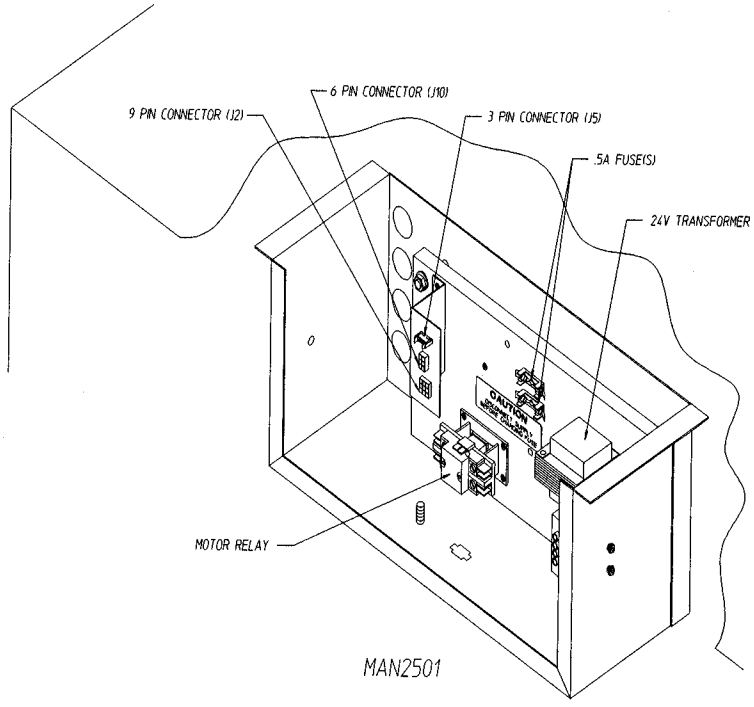
4. Check for voltage on the two (2) four pin connectors (J8, J9) pins 3 +4 with respect to ground.

NOTE: Each connector has 2 connections on them (pins 3 & 4)

A) If voltage is not present on all 4 pins of those two connectors (J8, J9) the problem is a bad wire or termination on the main door switch or the lint drawer switch or any wires associated with these devices.

5. Check for voltage on pin 1 of the 6 pin connector (J3) and ground, also check for voltage across pin 1 of the 6 pin connector (J10) with respect to ground. If no voltage, problem is bad wire or termination between the (J10) and the (J3) connectors pin 1.

6. Check for voltage on pin 9 of the 9 pin connector (J2) and ground.. If no voltage, problem is bad wire or termination between the (J2) pin 9 and the (J10) pin 1.



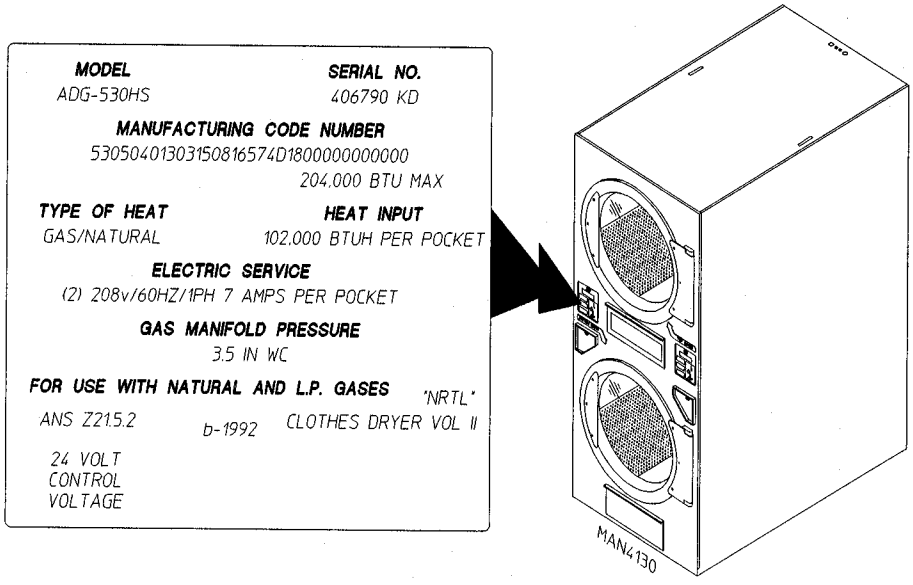
7. Check for voltage on the computers 9 pin connector, pin 9 and ground. If no voltage, problem is bad wire or termination between the computers 9 pin connector, pin 9 and the (J2) connector , pin 9. If voltage replace computer.

SECTION VIII

TECHNICAL INFORMATION

A. DATA LABEL

Contact American Dryer Corporation



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

DATA LABEL

1. MODEL NUMBER— The model number is an ADC number which describes the size of the dryer and the type of heat (gas or steam).

2. SERIAL NUMBER— The serial number allows ADC to gather information on your particular dryer.

3. MANUFACTURING CODE NUMBER— The manufacturing code number is a number issued by ADC which describes all possible options on your particular model.

4. TYPE OF HEAT— Describes the type of heat; gas (natural or L.P.) or steam or electric.

5. HEAT INPUT— (For gas dryers) describes the heat input in British thermal units.

6. ELECTRIC SERVICE— Describes the electric service for your particular models.

7. GAS MANIFOLD PRESSURE— Describe the manifold pressure as taken at the gas valve pressure tap. (see HOW TO USE A MANOMETER)

B. USING A MANOMETER

HOW TO USE A MANOMETER (ADC P/N: 122804)

1. With dryer in nonoperating 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.

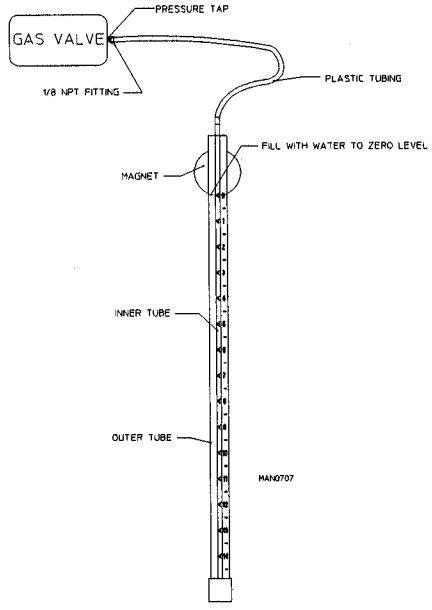
   A. Read water level at the inner tube. Readings should be taken at eye level.

   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

A	Automatic Cycle (Slope Program Factor)
ACOn	Accumulative Coin
Adrt	Maximum Auto Dryness Time
AFAt	Amount for Additional Time
AGt	Active Anti-Wrinkle Guard Time
AtIn	Accumulative Time
AtSt	Amount Start
AUtO	Automatic Mode (**Patent No. 4,827,627)**
b	Automatic Cycle (Heat loss [offset] Factor)
bCLO	Bad Coin Lockout
bCrS	Bad Coin Reset
bUZ	Buzzer (Tone)
CEL	Degree in Celsius
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
dSFL	Dryer Sensor Circuit Failure
FAr	Degree 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 Temp
Hot	Overheating Condition
LCC	Left Coin Count
LCde	Left Coin Denomination
LOCd	Low Cool Down Temp
nbUZ	No Buzzer (Tone)
nFLS	No Flash Display
Ngrd	No Anti-Wrinkle
nSEn	Rotational Sensor Not Selected
PdrY	Percent Dry
PL	Program Location

PLOC	Program Location Automatic Review
PP	Permanent Press
PUSH	Amount to Start has been Inserted Make Temperature Selection
rCC	Right Coin Count
rCdE	Right Coin Denomination
SEFL	Rotational Sensor Circuit Failure
SEn	Rotational Sensor Selected
tFAS	Time for Amount to Start
tInE	Timed Mode

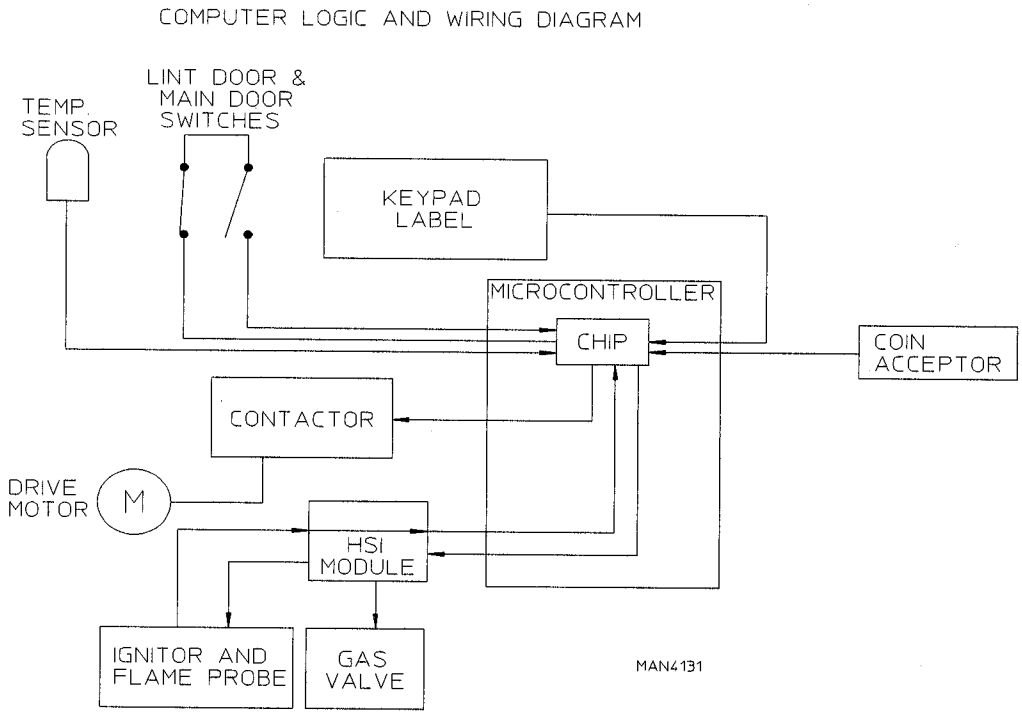
D. COMPUTER LOGIC AND WIRING DIAGRAM

1. Operator inserts coin.

2. Operator enters desired selections

3. Information entered is sent to the Micro-Controller via the keyboard ribbon.

4. The input information is sorted or processed and executed by the Micro-Computer chip.



5. The microcomputer output signal activates the contactors and DSI module which controls the machines functions.

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

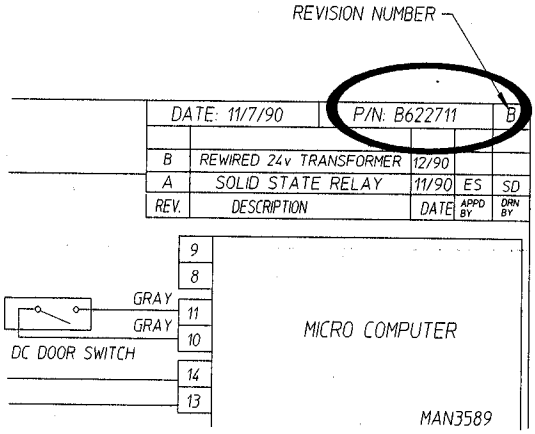
This number is located on the top right hand corner of the diagram. It is a six (6) digit number followed by a letter to distinguish the version dates (see illustration).

Your particular model will be different depending on the date of manufacturing and options available.

The correct wiring diagram for your machine is folded and placed inside of the computer area.

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

B982691
B972691



ADC450177 1- 03/03/99-50 2- 02/09/00-25 3- 09/26/00-75
4- 10/30/00-25

American Dryer Corp.