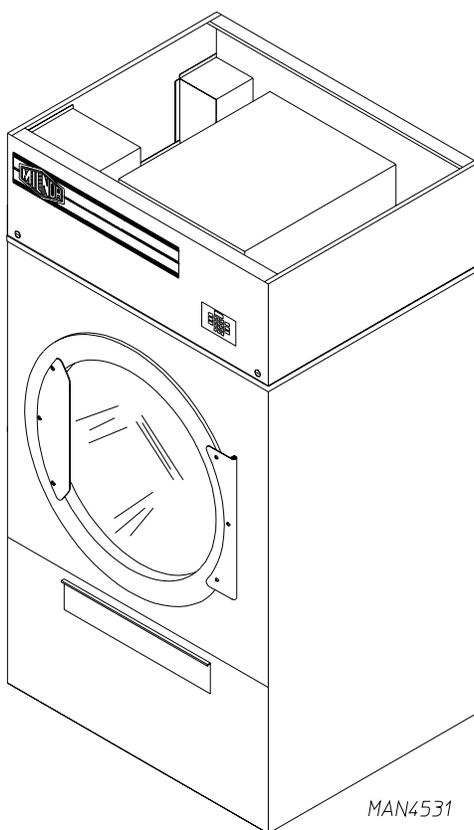




**ML-96**



# Service Manual

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**American Dryer Corporation**  
88 Currant Road  
Fall River, MA 02720-4781  
Telephone: (508) 678-9000 / Fax: (508) 678-9447  
e-mail: techsupport@amdry.com

# Retain This Manual In A Safe Place For Future Reference

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

*ONLY qualified technicians should service this equipment.*

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

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

**FOR YOUR SAFETY**

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

**POUR VOTRE SÉCURITÉ**

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

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

## Important

For your convenience, log the following information:

DATE OF PURCHASE \_\_\_\_\_ MODEL NO. **ML-96** \_\_\_\_\_  
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 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.**

“Caution: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper operation.”

«Attention: Lors des opérations d'entretien des commandes étiqueter tous fils avant de les déconnecter. Toute erreur de câblage peut être une source de danger et de panne.»

## **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.**

## **FOR YOUR SAFETY**

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

## **WARNING**

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

**WARNING**

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

**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/or 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.

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# SECTION I

## IMPORTANT INFORMATION

### A. SAFETY PRECAUTIONS

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

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

1. **DO NOT** store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
2. Purchaser/user should consult the local gas supplier for proper instructions to be followed in the event the user smells gas. The instructions **should be** posted in a prominent location.
3. WHAT TO DO IF YOU SMELL GAS.
  - a. **DO NOT** try to light any appliance.
  - b. **DO NOT** touch any electrical switch.
  - c. **DO NOT** use any phone in your building.
  - d. Clear the room, building, or area of **ALL** occupants.
  - e. Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
  - f. If you **cannot** reach your gas supplier, call the fire department.
4. Installation and service **must be** performed by a qualified installer, service agency, or gas supplier.
5. Dryer(s) **must be** exhausted to the outdoors.
6. Although ADC produces 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" cleaner.  
**EXPLOSION COULD RESULT.**

**WARNING:** **DO NOT** dry rags or articles coated or contaminated with gasoline, kerosene, oil, paint, wax.  
**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 rubber materials. Drying in a heated tumbler (basket) may damage plastics or rubber and also may be a fire hazard.

7. A program **should be** established for the inspection and cleaning of lint in the heating unit area, exhaust duct work, and inside the dryer. The frequency of inspection and 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.

8. For personal safety, the dryer **must be** electrically grounded in accordance with local codes and/or the National Electrical Code ANSI/NFPA NO. 70-LATEST EDITION or in Canada, the Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION.

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

9. **UNDER NO CIRCUMSTANCES** should the dryer door switches, lint door switch, heat safety circuit ever be disabled.

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

10. This dryer is not to be used in the presence of dry cleaning solvents or fumes.
11. Remove articles from the dryer as soon as the drying cycle has been completed.

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

12. **DO NOT** operate steam dryers with more than 125 PSI (8.61 bars) steam pressure. Excessive steam pressure can damage steam coil and/or harm personnel.
13. Replace leaking flexible hoses or other steam fixtures immediately. **DO NOT** operate the dryer with leaking flexible hoses. **PERSONAL INJURY MAY RESULT.**
14. **READ and FOLLOW ALL CAUTION and DIRECTION LABELS ATTACHED TO THE DRYER.**

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

# 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.**

**WARNING: KEEP DRYER AREA CLEAR and FREE FROM COMBUSTIBLE MATERIALS, GASOLINE and OTHER FLAMMABLE VAPORS and LIQUIDS.**

**NOTE:** Suggested time intervals shown for average usage which is considered six (6) to eight (8) operational (running) hours per day.

Clean lint drawer and screen every third load.

**NOTE:** Frequency can best be determined at each location.

#### ***DAILY***

(beginning) of each work shift.

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

#### ***WEEKLY***

Clean lint accumulation from lint chamber, thermostat and microprocessor temperature sensor (sensor bracket) area.

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

#### ***90 DAYS***

Remove lint from tumbler (basket), drive motors and surrounding areas. Remove lint from gas valve burner area with a dusting brush or vacuum cleaner attachment.

**NOTE:** To prevent damage, avoid cleaning or touching ignitor and flame-probe assembly.

Remove lint accumulation from inside control box and at rear area behind control box.

## ***EVERY 6 MONTHS***

Inspect and remove lint accumulation in customer furnished exhaust duct work system and from dryer's internal exhaust ducting.

**WARNING: THE ACCUMULATION OF LINT IN THE EXHAUST DUCT WORK CAN CREATE A POTENTIAL FIRE HAZARD.**

**WARNING: *DO NOT* OBSTRUCT THE FLOW OF COMBUSTION and VENTILATION AIR. CHECK CUSTOMER FURNISHED BACK DRAFT DAMPER IN EXHAUST DUCT WORK. INSPECT and REMOVE ANY LINT ACCUMULATION WHICH CAN CAUSE DAMPER TO BIND or STICK.**

**NOTE:** A back draft damper that is sticking partially closed can result in slow drying and shutdown of the heat circuits safety switches or thermostats.

**NOTE:** When cleaning dryer cabinets, avoid using harsh abrasives. A product intended for cleaning appliances is recommended.

## **B. ADJUSTMENTS**

### ***7 DAYS AFTER INSTALLATION and EVERY 6 MONTHS THEREAFTER***

Inspect bolts, nuts, screws, (bearing set screws), nonpermanent gas connections (unions, shut-off valves, orifices, and grounding connections). Motor and drive belts **should be** examined. Cracked or seriously frayed belts **should be** replaced. Tighten loose V-belts when necessary. Complete operational check of controls and valves. Complete operational check of **ALL** safety devices (door switch, lint drawer switch, sail switch, burner and hi-limit thermostats).

## **C. LUBRICATION**

The drive shaft bearings and idler shaft bearings **should be** lubricated every three (3) months. Use a #3 grease or equivalent. Lubrication is necessary.

The motor bearings and under normal/most conditions the tumbler bearing are permanently lubricated. It is physically possible to re-lubricate the tumbler bearing if you choose even though this practice may not be necessary. Use Industrial Chevron ball or roller bearing SRI grease NLGI2 or its equivalent which has a broad operating temperature range of 22° F (-6° C) to 350° F (177° C).

# SECTION III

## INSTALLATION REQUIREMENTS

Installation **should be** performed by competent technicians in accordance with local and state codes. In the absence of these codes, the installation **must conform** to applicable AMERICAN NATIONAL STANDARDS: National Fuel Gas Code ANSI.Z223.1-LATEST EDITION or National Electrical Code ANSI/NFPA No. 70-LATEST EDITION, or in Canada, the installation **must conform** to applicable Canadian Standards: 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) or Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION (for Electrical Connections).

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

**NOTE:** The following information is very brief and general. For detailed description, refer to the ML-96 Installation Manual supplied with dryer. (ADC Part No. 113053.)

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 tumbler (basket), and exhausts it out of the building. Therefore, the room air **must be** continually replenished from the outdoors. If the make-up air is inadequate, drying time and drying efficiency will be adversely affected. Ignition problems and sail switch “fluttering” problems on gas dryers may result, and you also could have premature motor failure from overheating. The air supply **must be** given careful consideration to insure proper performance of each dryer.

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

Exhaust duct work **should be** designed and installed by a competent technician. Improperly sized duct work will create excessive back pressure which will result in slow drying, increased use of energy, and 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 Electrical 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 Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION (for Electrical Connections) 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. [liquid propane]) 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 (610 meters), unless elevation requirements of over 2,000 feet (610 meters) 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 (610 meters) 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

1. Turn on electric power to the dryer.
2. To start dryer:
  - a. Display will read “READY.”
  - b. Press “E” on the keyboard (touchpad) of microprocessor controller (computer).
  - c. The dryer will start and display will show “DRYING MANUAL CYCLE, 30 MIN REMAIN,” then display the drum temp.

**NOTE:** Pressing touchpad selections “A,” “B,” “C,” “D,” and “F” will also start the dryer. Six (6) preprogrammed drying cycles (A through F) have been stored in the computer’s memory. (Refer to computer operator’s manual for details.)

3. Make a complete operational check of **ALL** the operating controls to assure that the timing is correct, temperature selection switches are functioning, etc.
4. Make a complete operational check of **ALL** safety-halted circuits: door switches, hi-limit thermostat, sail switch, cycling thermostats, etc.
5. For gas dryers a gas pressure test **should be** taken at the gas valve pressure tap of each dryer to assure that the water column pressure is correct and consistent.

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

Natural Gas - 3.5 inches water column (W.C.) - 8.7 mb.

L.P. Gas - 10.5 inches water column (W.C.) - 26.1 mb.

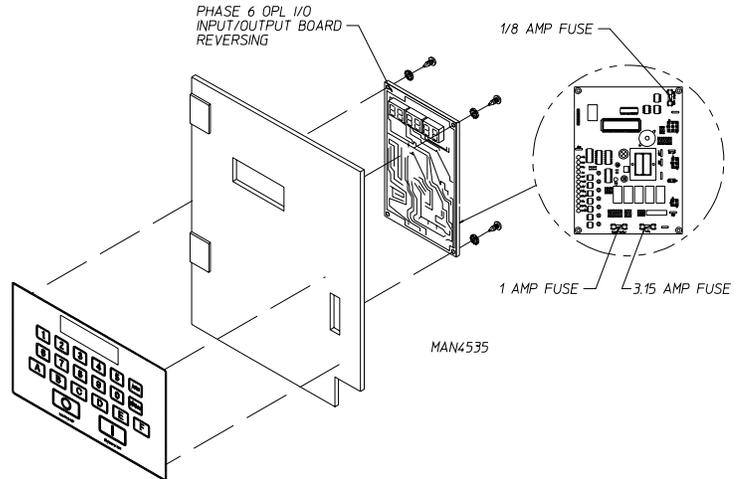
6. If computer program changes are required, refer to the Phase 6 OPL Operator's Manual (ADC Part No. 113022) for details.
7. The dryer **should be** operated through one complete cycle to assure that no further adjustments are necessary and that **ALL** components are functioning properly.
8. Check the electric service phase sequence. While the dryer is operating, check to see if the blower wheel is rotating in the proper direction. Looking from the front, the blower wheel should spin in the clockwise (CW) direction. If so, the phasing is correct. If the phasing is incorrect, reverse two (2) leads at connections L1, L2, or L3 of power supply to the dryer.

# SECTION IV

## DESCRIPTION OF PARTS

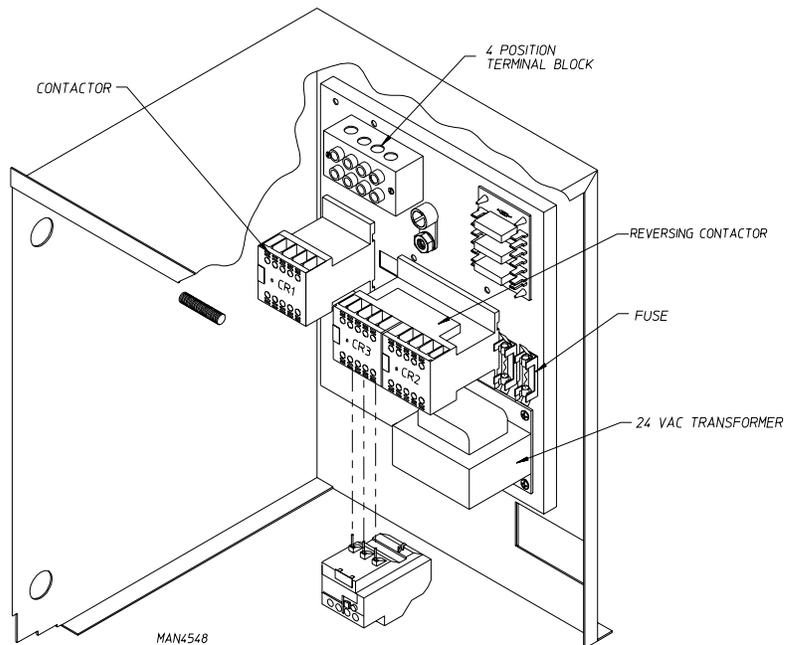
### A. COMPUTER PANEL (MICROPROCESSOR)

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



### B. REVERSING RELAY PANEL

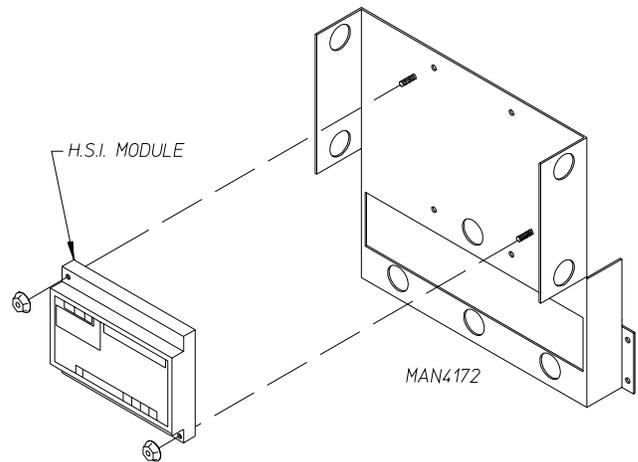
Lifting the control door will reveal the reversing relay box. Located on the back of the relay box is the reversing relay panel. Included on this panel is a four (4) position terminal block, blower overload, blower contactor, reversing contactor, 24 VAC transformer, fuse or circuit breaker, ground lug, and an arc suppressor (A.S.) board.



...with fuses

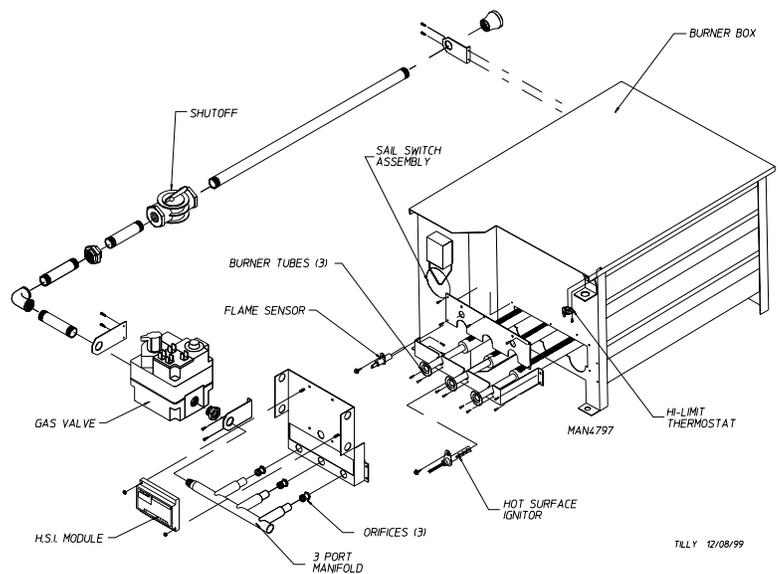
## C. HSI (HOT SURFACE IGNITION) MODULE (Gas Models Only)

The HSI (Hot Surface Ignition) system consists of a microprocessor based control module, along with a hot surface ignitor probe and a flame probe assembly. The hot surface ignitor is a silicon carbide ignitor that upon application of 24 VAC will glow bright orange for the inter-purge time period. Upon ignition, the resistance in the flame sensor electrode changes and the information is sent to the HSI (Hot Surface Ignition) module via the sensor probe lead connection to the module. Once the resistance is changed and sensed, the HSI (Hot Surface Ignition) module will sustain the gas flow (provide 24 VAC power to the gas valve).



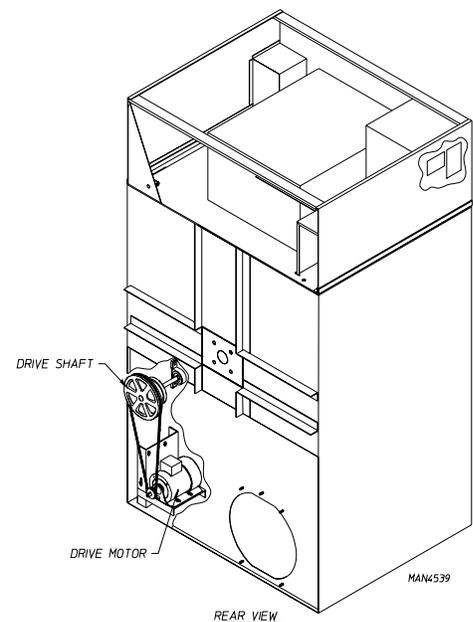
## D. GAS BURNER ASSEMBLY

Gas heated dryers are equipped with a gas burner assembly consisting of three (3) burner tubes, gas valve, hot surface ignitor, flame sensor, sail switch, and hi-limit thermostat. The inlet piping enters through the rear of the dryer on the left hand side (viewing from the front) and runs to the front of the dryer where the gas valve is located.



## E. DRIVE MOTOR

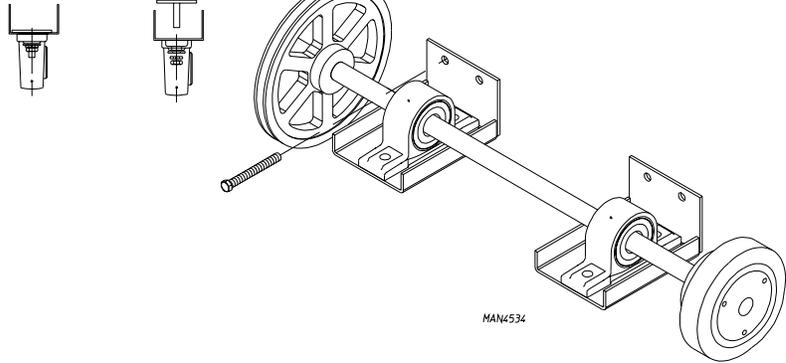
The T.E.F.C. (Totally Enclosed, Fan-Cooled) drive motor is located in the front left corner (viewing from front) behind the front panel of the dryer. It sits on an adjustable base so the motor can be easily adjusted to the left or right, up or down, forward or backward. The drive motor is a 3 HP motor and operates on 208 to 460 volts, 50/60 Hz, 3-phase (3 $\phi$ ).



## F. DRIVE SHAFT ASSEMBLY

(Viewing from the front of the dryer.)

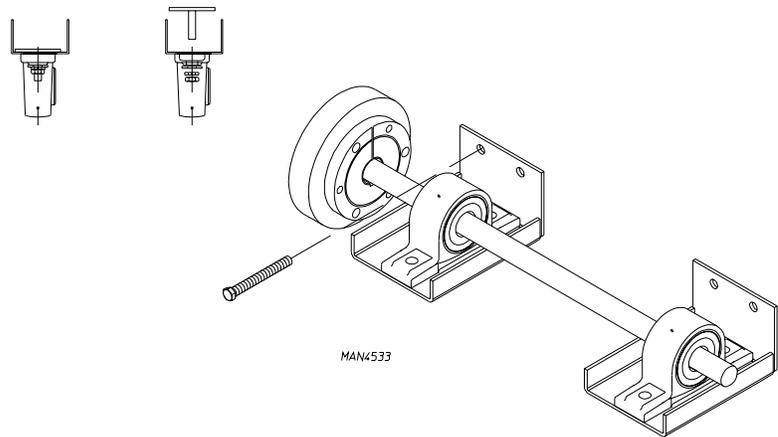
Behind front panel on the left side of the dryer, you can view the drive shaft assembly which consists of a 9-inch (22.86 cm) drive pulley, two (2) 6-inch (15.24 cm) wheels, one (1) taper lock bearings, and one (1) 1-inch (2.54 cm) pillow block bearings.



## G. IDLER SHAFT ASSEMBLY

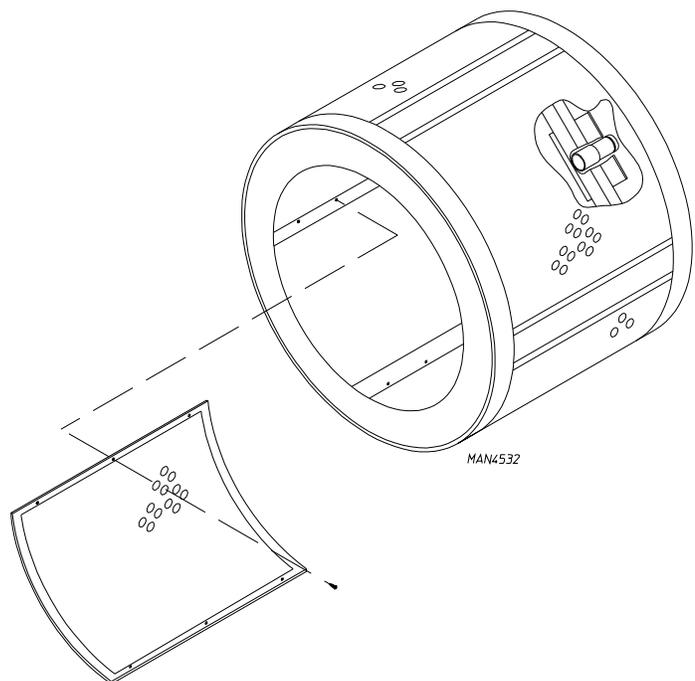
(Viewing from the front of the dryer.)

Behind the front panel on the right side of the dryer you will view the idler shaft assembly which consists of one (1) 6-inch (15.24 cm) wheels, one (1) taperlock bearings, and two (2) 1-inch (2.54 cm) pillow block bearings.



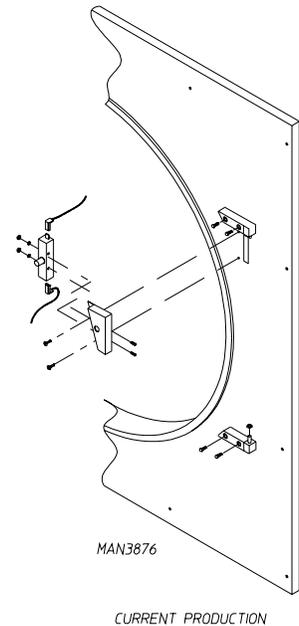
## H. TUMBLER (BASKET)

The tumbler (basket) consists of a tumbler (basket) which has four (4) ribs and four (4) removable perforated panels which are mounted to the rib sections of the tumbler (basket) with 1/4-20 x 1/4" socket button head screws.



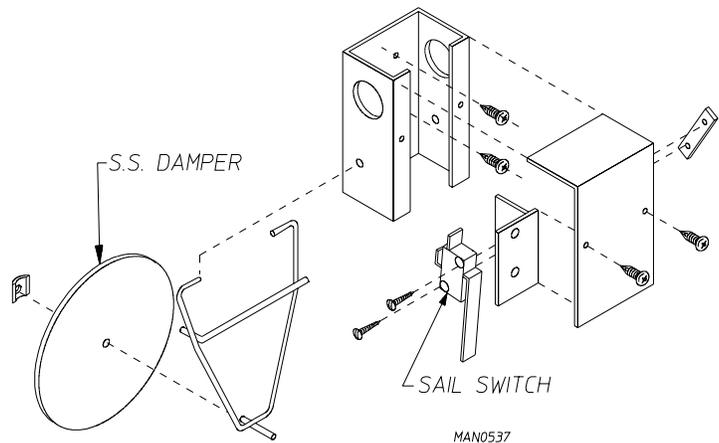
## I. MAIN DOOR SWITCH

The main door switch is mounted to the front panel behind the main door. When the main door opens, the switch will also open, preventing the dryer from operating. The main door switch is a safety device and **should never be disabled**.



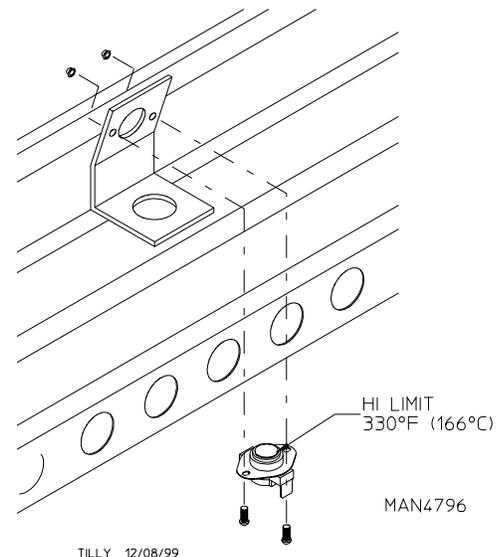
## J. SAIL SWITCH (Gas Models Only)

The sail switch is located on the front of the burner box. A sail switch consists of a round damper plate on a lever arm which is in contact with an electric switch. When the fan or air blower comes on, it draws air through the gas burner. This creates a negative pressure inside the burner box, and this negative pressure pulls in the round damper and activates the sail switch. If there is improper airflow, the damper will not pull in, preventing the burner from starting. The display will also read “no airflow” with an audio indication. Improper airflow can be caused by improperly designed exhaust ducting where the duct run is too long or has too many sharp bends in it. It can also be caused by a lack of make-up air.



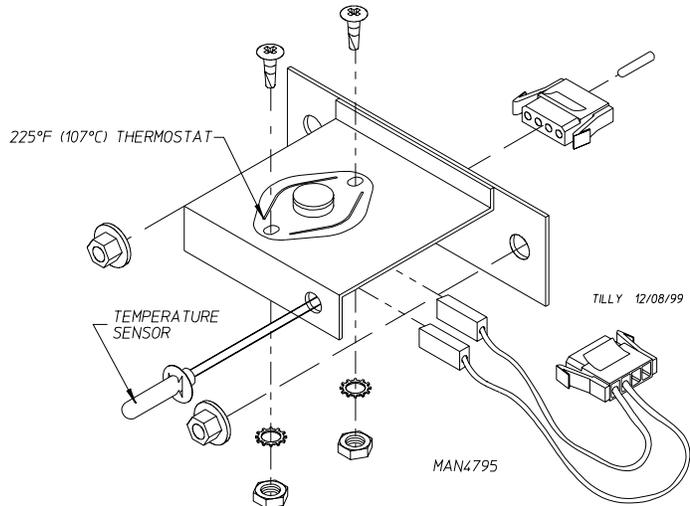
## K. BURNER HI-LIMIT (Gas Models Only)

The high limit thermostat is a manual reset disc-type thermostat set at 330° F (166° C) and located near the burner. If the burner flame gets too hot, this thermostat will shut off the burner. This is generally caused by low airflow through the dryer. In a hi-limit situation the display will read “bURNER SAFETY FAIL” with an audio indication. The manual reset thermostat **must be** reset manually or the 24 VAC burner circuit will never be complete. This will cause the Phase 6 microprocessor (computer) to continue to go off on “bURNER SAFETY FAIL” with an audio indication.



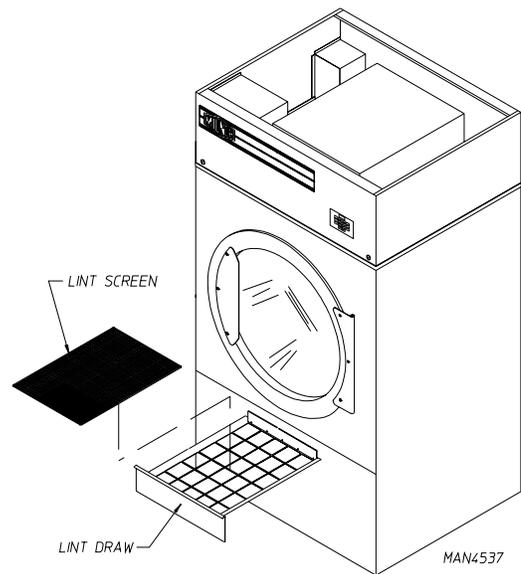
## L. MANUAL RESET THERMOSTAT

This is located inside the dryer in the lint compartment above the lint screen. This thermostat senses the heated air after it passes through the tumbler (basket). If the air temperature gets too hot, the thermostat will shut off the burner. The dryer will not run until the air temperature cools down. At this time, the manual reset thermostat **must be** reset manually or the 24 VAC burner circuit will never be completed. Tumbler (basket) and blower will run but the dryer will not heat. If the temperature sensor opens the display will read “TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE” with an audio indication. If the thermostat opens the display will read “dRUM SAFETY FAIL” with an audio indication.



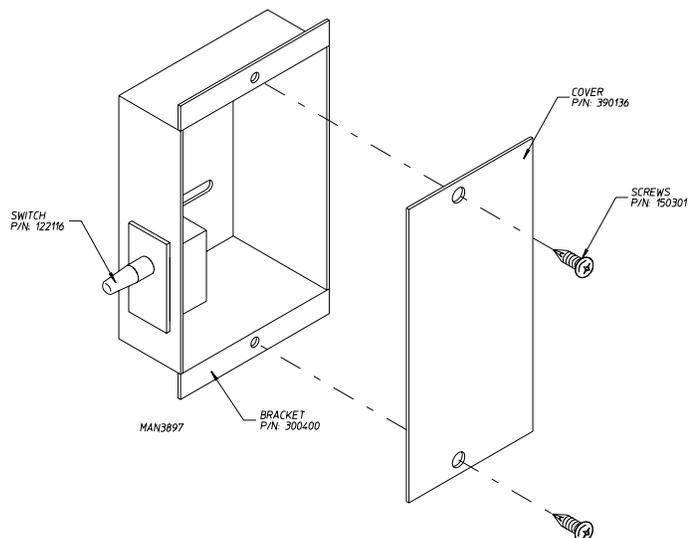
## M. LINT SCREEN

The lint screen is located in the front of the dryer in the Lint Coop Assembly. To clean the lint off the screen simply brush the screen clean. The lint screen **must be** kept clean in order for the dryer to operate properly and efficiently. Inspect the screen for tears and replace as needed.



## N. LINT DRAWER SWITCH

The lint door switch is located in the lint compartment and attached to the side of the lint coop. The lint door switch ensures that the dryer will operate only when the lint door is completely closed. This is a safety device and **should never be** disabled.



# SECTION V

## SERVICING

### INTRODUCTION

**ALL** electrical and 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.

Before considering replacement, make sure that **ALL** connectors are in place and making proper contact.

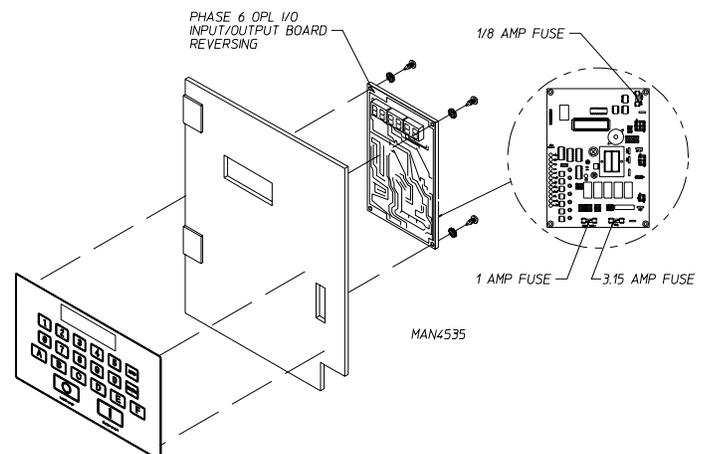
### A. COMPUTER CONTROLS

#### Display Board Replacement

1. Discontinue electrical power to the dryer.
2. Unplug keyboard (touchpad) ribbon from the rear of the computer.
3. Unplug ribbon cable assembly from the rear of the computer.
4. Remove the two (2) screws securing the computer to the computer box door. Remove the computer by pulling the other two (2) corners off the clinch studs.
5. Install new display by reversing this procedure.

#### Computer Board Replacement

1. Disconnect electrical power to the dryer.
2. Unplug keyboard (touchpad) ribbon from rear of the computer.
3. Unplug **ALL** wiring harnesses connected to the computer board.



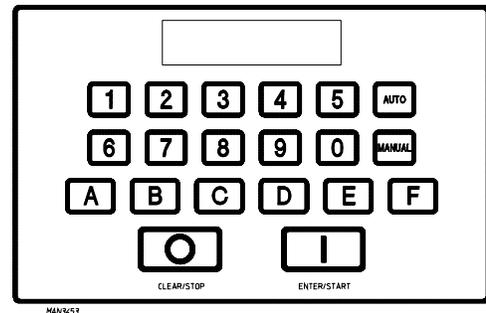
- Remove the two (2) screws securing the computer to the computer panel. Remove the computer by pulling the other two (2) corners off the clinch studs.
- Install new computer by reversing this procedure.

### Keyboard (Touchpad) Label Assembly Replacement

- Discontinue electrical power to the dryer.
- Unplug keyboard (touchpad) ribbon from rear of the computer.
- Slowly peel off and remove keyboard (touchpad) label assembly from control panel.
- Peel paper backing off new keyboard (touchpad) label assembly.
- Holding the new keyboard (touchpad) label assembly close to the panel, insert the keyboard (touchpad) ribbon through the rectangular slot in the control panel. Align label assembly into position by matching the red viewing window on the label to the rectangular cutout in the panel and gently press into place.
- Connect keyboard (touchpad) ribbon to the computer.
- Reestablish electrical power to the dryer.

### Microprocessor Temperature Sensor Probe Replacement

- Discontinue electrical power to the dryer.
- Remove perforated panel from tumbler (basket).
- Remove microprocessor sensor bracket assembly from dryer.
  - Disconnect sensor bracket harness connector.
  - Loosen the two (2) Phillips head screws which secure bracket assembly to dryer and remove bracket from dryer.



**NOTE: *DO NOT* remove screws.**

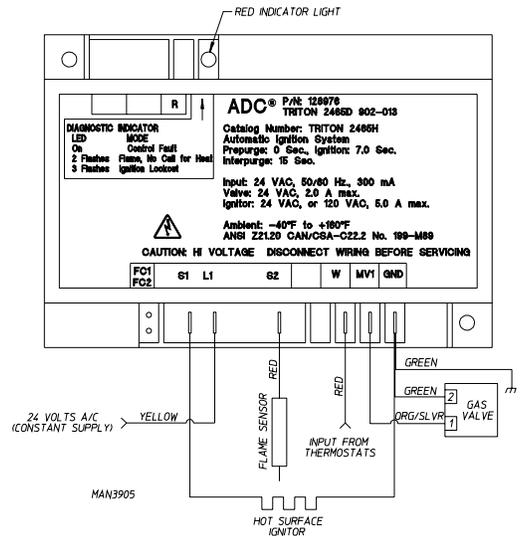
- Disassemble sensor probe from bracket assembly by removing the top push-on fastener securing the probe from bracket. Use a small screwdriver to slowly pry the fastener off.
- Disconnect the two (2) “orange” wires from the high heat (225° F [107° C]) thermostat, and remove modular bracket connector, wires, and probe from bracket assembly.
- Install new sensor probe assembly (ADC P/N 880252) by reversing procedure.
- Reestablish electrical power to the dryer.

**NOTE:** If, when electrical power is reestablished, the computer display reads “TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE,” check for a loose connection in the wiring.

## B. IGNITION CONTROLS

### Hot Surface Ignition Module Replacement (refer to burner illustration on [page 11](#))

1. Discontinue electrical power to the dryer.
2. Disconnect wire from S1 and GND on the HSI (Hot Surface Ignition) module.
3. Disassemble ignitor from burner by removing the one (1) self tapping screw.
4. Reverse procedure for installation of new ignitor.

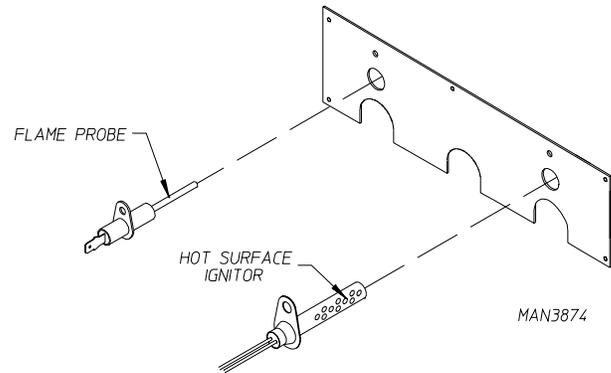


**NOTE:** Before reestablishing electrical power to the dryer visually check the following (refer to illustration above).

5. Reestablish procedure for installation of new ignitor.

### Flame Sensor Probe Replacement

1. Discontinue electrical power to the dryer.
2. Disconnect the “red” wire from the flame sensor probe which goes to S2 on the HSI (Hot Surface Ignition) module.
3. Disassemble flame sensor probe from burner by removing the one (1) self tapping screw.
4. Reverse procedure for installation of new flame sensor probe.



**NOTE:** Before reestablishing electrical power to the dryer visually check the following (refer to illustration above).

5. Reestablish procedure for installation of new ignitor.

### Hot Surface Ignitor Flame Sensor Probe

1. Disconnect electrical power to the dryer.
2. Disconnect the hot surface ignitor wires S1 and ground (GND) on the HSI (Hot Surface Ignition) Module.
3. Disassemble Hot Surface Ignitor Probe from the burner by removing the one (1) self tapping screw.
4. Reverse procedure for installation of new hot surface ignitor.

**NOTE:** Before reestablishing electrical power to the dryer visually check the following (refer to illustration above).

**NOTE: DO NOT WRAP THE HOT SURFACE IGNITOR WIRES AND THE FLAME ELECTRODE WIRE TOGETHER. IMPROPER OPERATION MAY RESULT. THEY MAY RUN ALONGSIDE EACH OTHER.**

5. Reestablish procedure for installation of new ignitor.

### Gas Valve Replacement (Refer to burner illustration on **page 11**)

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

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

4. Unscrew (break) union connection before gas valve.
5. Loosen and remove four (4) screws securing pipe brackets to burner.
6. Remove valve and manifold assembly from dryer.
7. Remove valve mounting bracket, manifold and piping from gas valve.
8. Reverse procedure for installing new gas valve.

**WARNING:** Test ALL connections for leaks by brushing on a soapy water solution.

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

### Main Burner Orifices Replacement

1. Refer to “To Replace Gas Valve” and follow *Step #1 through Step #6*.
2. Unscrew main burner orifices and replace.

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

3. Reverse the removal procedure for reinstalling.

**WARNING:** Test ALL connections for leaks by brushing on a soapy water solution.

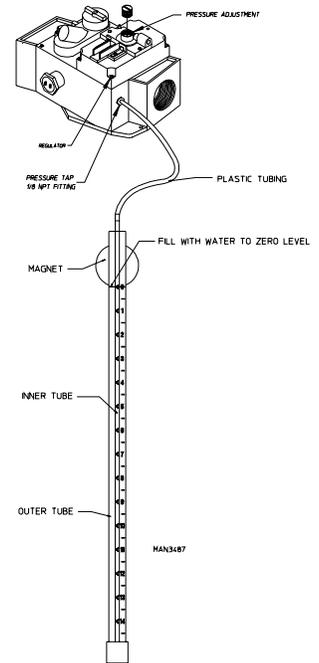
**WARNING: NEVER TEST FOR LEAKS WITH A FLAME!!!**

## To Test and Adjust Gas (Water Column) Pressure

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

**NOTE:** Manometers are available from the factory by ordering ADC P/N 122804.

1. To test gas water column (W.C.) Pressure:
  - a. Connect water column test gauge connection to gas valve pressure tap (1/8" NPT). This pressure tap is located on the outlet (manifold) side of the valve.
  - b. Start dryer. With burner on, the correct water column reading in inches would be:
    - Natural Gas - 3.5 Inches Water Column (8.7 mb).
    - L.P. Gas - 10.5 Inches Water Column (26.1 mb).
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 (CW) to increase manifold pressure and counterclockwise (CCW) 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 Natural Gas to L.P. Gas

**NOTE:** **ALL** dryers are sold as natural gas, unless otherwise specified at the time the dryer order was placed. For L.P. gas the dryer **must be** converted as follows.

1. Refer to “Replace Gas Valve” and follow **Step #1 through Step #6**.
  - a. For models with 3/4” White-Rodgers valve.
    - 1) Remove top vent cap.
    - 2) Insert spring and pin.
    - 3) Replace vent cap.
2. Unscrew main burner orifices and replace with L.P. orifices.

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

- Reverse the procedure for reinstalling valve assembly to the dryer.

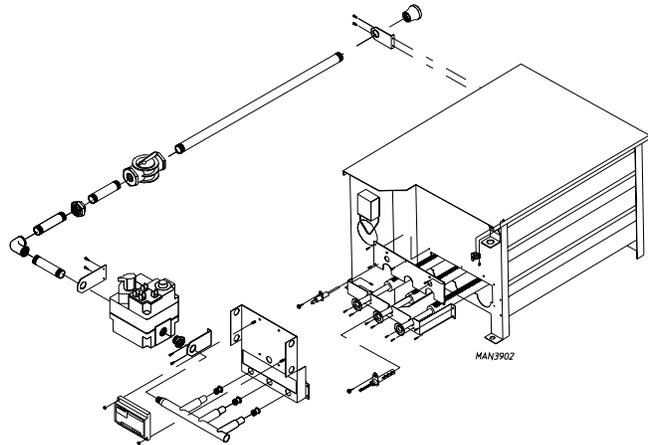
**WARNING:** Test ALL connections for leaks by brushing on a soapy water solution.

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

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

### Burner Tubes Replacement

- Refer to “Replace Gas Valve” and follow *Step #1 through Step #6*.
- Remove four (4) screws securing the HSI (Hot Surface Ignition) module mounting bracket.
- Remove front flanges of the burner tubes to the burner tube rest.
- Remove the screws securing the burner tube rest to the oven and remove this rest.
- Remove screws securing burner box cover plate to the oven and remove the cover.
- Remove burner tubes by sliding them out.
- Replace by reversing procedure.

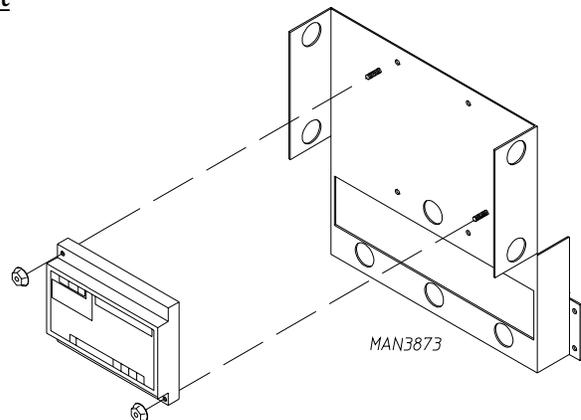


**WARNING:** Test ALL connections for leaks by brushing on a soapy water solution.

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

### HSI (Hot Surface Ignition) Module Replacement

- Discontinue electrical power to the dryer.
- Remove the wires connected to the terminal strip at the bottom of the module. (Mark correct location of each wire to aid in replacement on new module).
- Remove the four (4) pal nuts securing the module to the mounting bracket.
- Replace module by reversing procedure.
- Reestablish electrical power to the dryer.

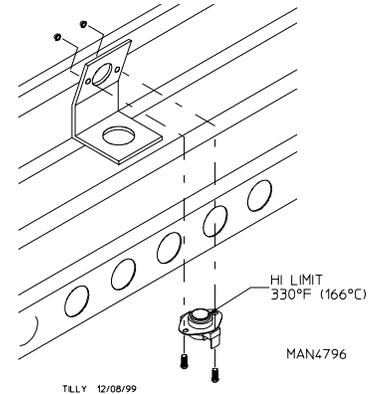


## C. MANUAL RESET BURNER HI-LIMIT (330° F [166° C]) THERMOSTAT REPLACEMENT (Gas Models Only)

1. This thermostat is an important safety device as an added protection against failure of the airflow (sail switch) to open in the event of motor failure or reduced airflow conditions.

**IMPORTANT:** UNDER NO CIRCUMSTANCES should heat circuit safety devices ever be disabled.

**NOTE:** Models manufactured as of 1998 are equipped with a manual reset hi-limit thermostat.

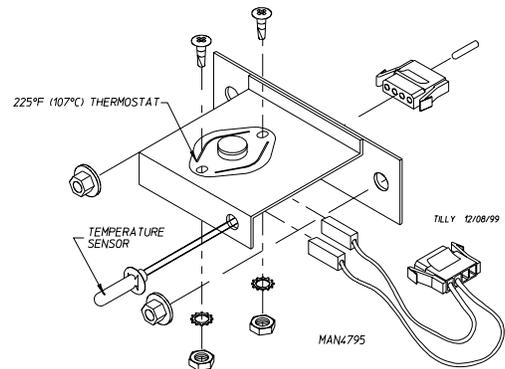


1. Discontinue electrical power to the dryer.
2. Disconnect wires from hi-limit thermostat.
3. Remove the two (2) screws, washers and nuts securing thermostat to the bracket. Remove thermostat.
4. Reversing procedure for installing new thermostat.
5. Reestablish electrical power to dryer.

## Manual Reset Tumbler Hi-Limit (225° F [107° C]) Thermostat Replacement

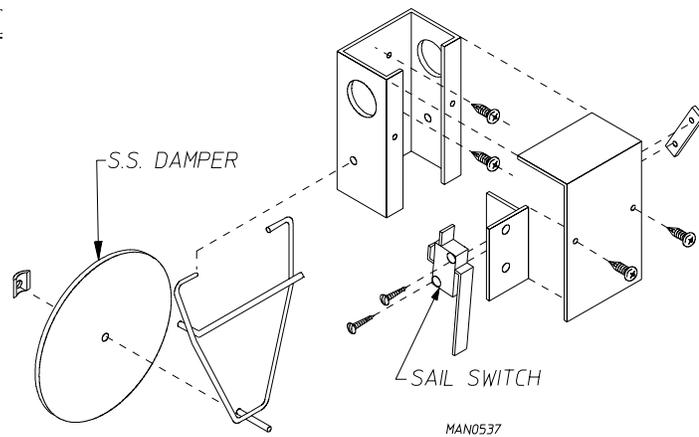
This thermostat is part of the “sensor bracket assembly” and is secured to the underside of the basket wrapper in the lint compartment. As a safety device, this thermostat will open (shut off) the heating unit circuit if an excessive temperature occurs. The dryer motor will remain on, even if the thermostat is open.

1. Disconnect electrical power to the dryer.
2. Open lint door.
3. Locate sensor bracket assembly. Remove the two (2) bolts securing bracket assembly to the tumbler (basket) wrapper.
4. Disconnect sensor bracket harness connector and remove bracket assembly from dryer.
5. Disconnect the two (2) “orange” wires from the thermostat.
6. Disassemble thermostat from bracket assembly by removing the two (2) mounting screws, washers and nuts.
7. Reverse this procedure for installing a hi-heat protector thermostat.
8. Reestablish electrical power to the dryer.



## D. SAIL SWITCH ASSEMBLY (Gas)

The sail switch is a heat circuit safety device which controls the burner circuit only. When the dryer is operating and there is proper airflow, the sail switch damper pulls in and closes the sail switch. Providing **ALL** the other heat-related circuits are functioning properly, ignition should now be established. If an improper airflow occurs, the sail switch damper will release, and the circuit will open.



### Sail Switch Replacement

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

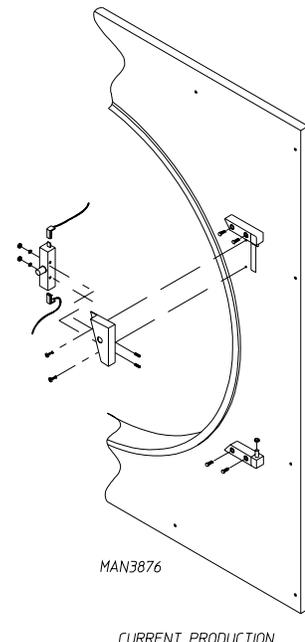
### To Adjust Sail Switch

With the dryer operating at a high temperature setting, pull the sail switch away from the burner. The sail switch should open and extinguish the burner. The dryer will continue to run for 3-minutes or until 100° F (38° C) is reached. The computer will display “no airflow.” If the sail switch circuit does not operate as described, bend the actuator arm of the sail switch accordingly until proper operation is achieved. To check proper “open” position of sail switch, open main door, manually depress main door switch and start dryer. With the main door open and the dryer operating, the sail switch **should be** open, and the burner should not come on.

## E. FRONT PANEL and MAIN DOOR ASSEMBLIES

### Main Door Switch Replacement

1. Discontinue electrical power to the dryer.
2. Open main door.
3. Remove the two (2) Phillips head screws holding the main door switch bracket assembly in place.
4. Disconnect wiring from switch assembly.
5. Remove the two screws which secure the switch to the housing.
6. Reverse this procedure for installing new door switch assembly.
7. Reestablish electrical power to the dryer.



**IMPORTANT: UNDER NO CIRCUMSTANCES should the door switch be disabled.**

## Main Door Assembly Replacement

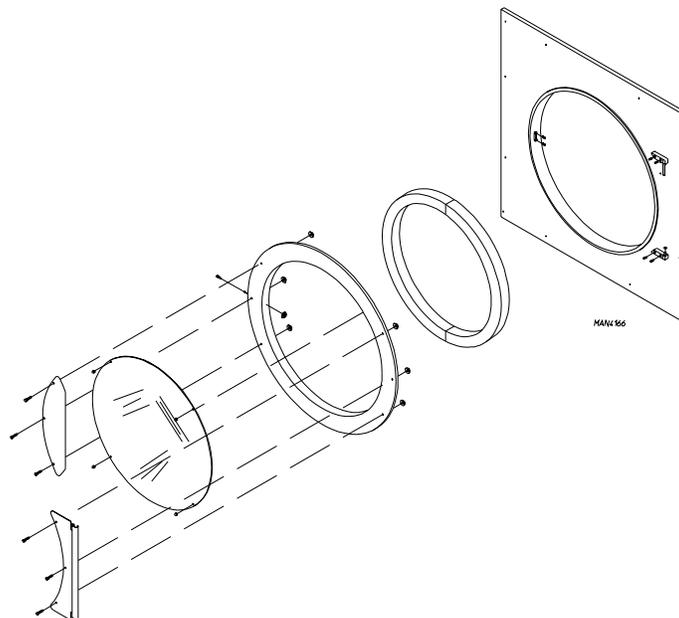
1. Open main door.
2. Holding the door upward remove the two (2) screws from the top hinge block.
3. Lift the door up to remove.
4. Reverse this procedure for reinstalling new main door assembly.

## To Install New Main Door Glass

1. Remove main door assembly from dryer (follow main door removal procedure).
2. Lay main door on flat surface with the back of the door facing down.
3. Remove the four (4) #10-32 acorn nuts securing the glass to the door.
4. Remove glass and clean **ALL** old sealant off main door. This area **must be** clean for correct bonding.
5. Place a bead of silicone (ADC P/N 170730) around the edge door and lightly press glass into place.
6. Reinstall the four (4) #10-32 acorn nuts that were removed in *Step #3*.

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

7. 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 this adhesive is 24 to 36 hours.
8. After the curing period, install main door on dryer by reversing *Step #1*.



## Front Panel Replacement

1. Discontinue electrical power to the dryer.
2. Remove bottom lint drawer assembly.
3. Remove the screws securing the front panel to the dryer.
4. Disconnect the two (2) door switch wires located behind the front panel.
5. Remove the front panel.

**IMPORTANT:** When pulling the front panel off, the door switch harness in the upper right hand corner *must be* unplugged.

**NOTE:** The main door assembly can be removed to make the panel removal easier. Refer to “Replace Main Door Assembly” directions.

6. Reinstall the new front panel by reversing *Step #1 through Step #4*.
7. Reestablish electrical power to the dryer.

## Main Door Hinge Block Replacement

1. Discontinue electrical power to the dryer.
2. Follow procedure for removal of main door assembly for top hinge removal.
3. Remove the two screws from the bottom hinge block.
4. Reassemble by reversing removal procedure.
5. Reestablish electrical power to the dryer.

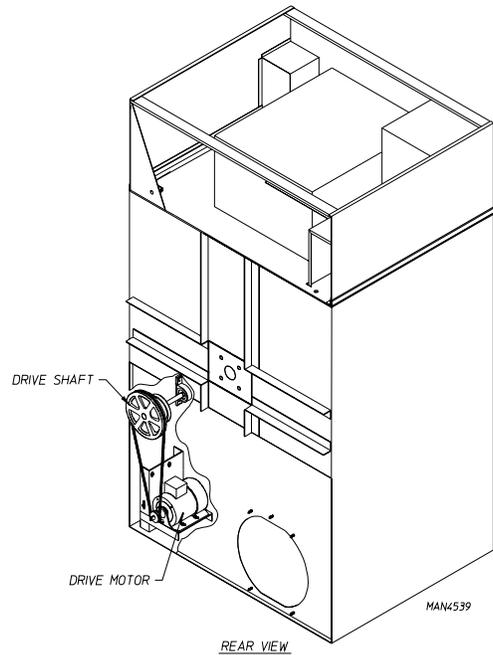
## F. DRIVE SHAFT PULLEY REPLACEMENT

1. Discontinue electrical power to the dryer.
2. Remove front panel from dryer (Follow front panel replacement directions on [page 24.](#))
3. Loosen V-belts. Rotate pulley and roll V-belts out of grooves.
4. Remove set screw from the 9" (22.86 cm) pulley.
5. Remove pulley and key.

**NOTE:** A gear puller may be required to remove pulley.

6. Reverse this procedure for replacement.

**NOTE:** Pulley *must be* aligned for proper operation.



## Drive Motor Pulley Replacement

1. Discontinue electrical power to the dryer.
2. Remove front panel from the dryer. (Follow front panel replacement directions on [page 24.](#))
3. Loosen V-belts. Rotate pulley and roll V-belt out of groove.
4. Remove set screw from the drive motor pulley.
5. Remove pulley and key.

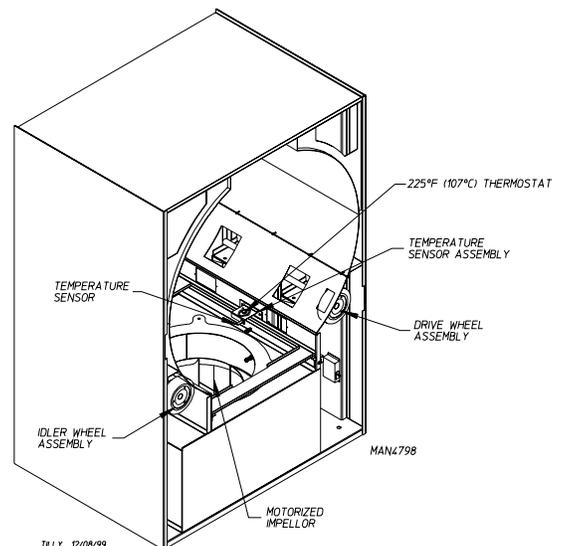
**NOTE:** A gear puller may be required to remove pulley.

6. Reverse this procedure for replacement.

**NOTE:** Pulleys *must be* aligned for proper operation.

## G. TUMBLER WHEEL REPLACEMENT ON DRIVE ASSEMBLY (Taper Lock Models)

1. Discontinue electrical power to the dryer.
2. Remove front panel from dryer. (Follow front panel replacement directions on [page 24.](#))
3. Remove the ten (10) 1/4-20 x 1/4" socket button head screws from the perforated basket side.
4. Remove wrapper assembly.



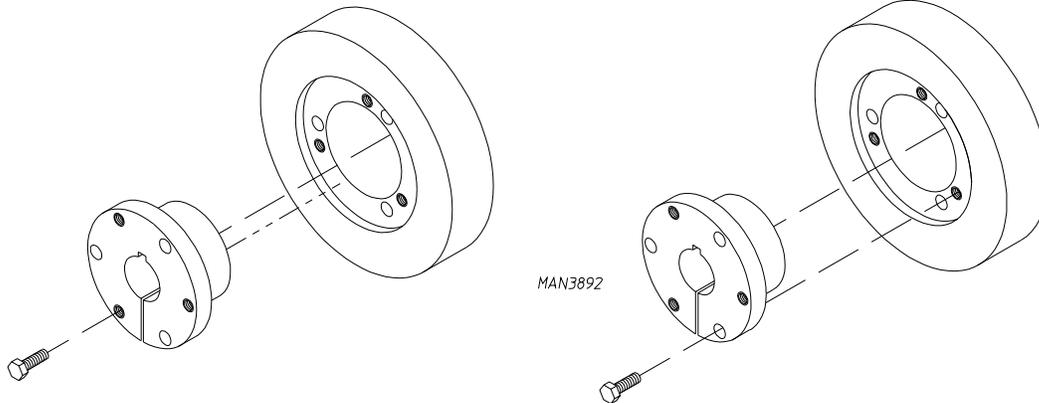
5. Loosen V-belts. Rotate pulley and V-belts out of the groove.
6. Block the tumbler (basket) assembly in position.
7. Mark the position of pillow block bearing then remove the bolts from the pillow block bearings.
8. Remove the drive shaft assembly through the front of the machine.
9. Remove the set screw from the 9" (22.86 cm) pulley.
10. Remove the pulley and key.

**NOTE:** A gear pulley may be required to remove the pulley.

11. Remove cap screws from bushing.
12. Insert cap screws in the tapped removal holes and tighten evenly until bushing becomes loose on shaft.
13. Remove the bushing, tumbler wheel, and key.
14. Reverse this procedure for replacement.

TUMBLER WHEEL REMOVAL

TUMBLER WHEEL INSTALLATION



**IMPORTANT:** Tighten screws evenly and progressively. Never allow the sheave to be drawn in contact with the flange of the bushing. This gap should measure from 1/8" to 1/4". Proper cap screw torque is 30 ft-lbs. (41 Nm). If greater tightening forces are applied, excess pressure will be created in the hub of the mounted sheave which may cause it to crack.

## H. TUMBLER WHEEL REPLACEMENT ON IDLER ASSEMBLY (Taper Lock Models)

1. Disconnect electrical power to the dryer.
2. Remove the front panel from the dryer. (Follow front panel replacement directions on [page 24](#).)

3. Remove the ten (10) 1/4-20 x 1/4" socket button head screws from the perforated basket side.
4. Remove the wrapper assembly.
5. Block the tumbler (basket) assembly in position.
6. Mark the position of the pillow block bearings. Then remove the bolts from the pillow block bearing.
7. Remove the idler shaft assembly through the front of the machine.
8. Remove the cap screws from bushing.
9. Insert cap screws in the tapped removal holes and tighten evenly until bushing becomes loose on shaft.
10. Remove the bushing, tumbler wheel and key.
11. Reverse this procedure for replacement.

## I. BASKET ASSEMBLY

**NOTE:** Dryer *must be* level prior to tumbler (basket) alignment.

1. Discontinue electrical power to the dryer.
2. Remove the perforated tumbler (basket) panel.
3. Remove wrapper panel to access the drive and idler shaft.
4. Place a level on the shafts to verify if level.
5. Measure distance between tumbler (basket) and wrapper 1/2" to 3/4" gap **should be** derived.
6. Loosen the eight (8) bolts on the pillow block bearings and turn the adjustment screw clockwise (CW) or counterclockwise (CCW) to increase or decrease the gap between the tumbler (basket) and wrapper.
7. Measure the length of the adjustment bolts and **ALL should be** equal.
8. Place a level on the shaft to verify it is level if any adjustment has been made.
9. Check the basket drive belt for proper tension. Adjust if necessary.
10. Replace the wrapper panels.
11. Replace the perforated tumbler (basket) panel.

## J. 1-15/16 FLANGE BEARING REPLACEMENT

1. Disconnect electrical power to the dryer.
2. Remove the four (4) bolts securing the bearing cap located in the rear of the dryer. And remove.

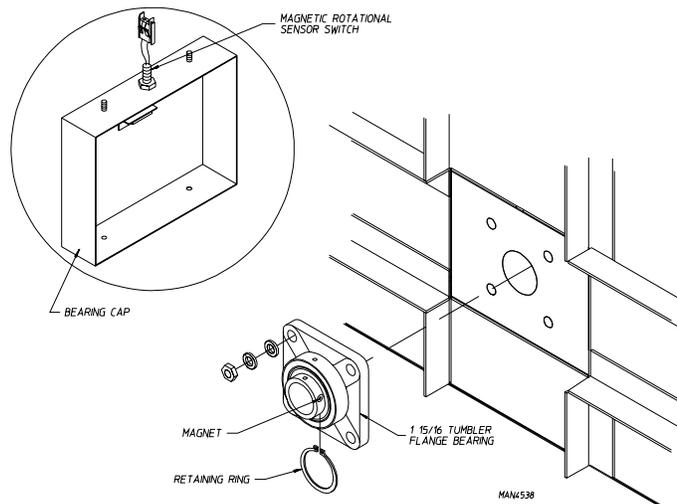
3. Depress the tabs on the rotational sensor harness plug and pull apart.
4. Remove the retaining ring from the tumbler shaft.
5. Remove the four (4) bolts, lock washers and flat washers securing the flange bearing to the dryer cabinet.
6. Loosen the set screws from the flange bearing.
7. Remove the flange bearing from the tumbler shaft.
8. To replace new flange bearing reverse **Step #2 through Step #8**.
9. Reestablish electrical power to the dryer.

## K. ROTATIONAL SENSOR ASSEMBLY

The Rotational Sensor Assembly is located in the rear of the dryer. It consists of a magnet which rotational switch, mounted to the bearing cap is riveted to the 1-15/16 (5 cm) Flange Bearing.

The magnetic rotational sensor switch senses the rotation of the tumbler (basket). If the gap between the sensor switch and the magnet is greater than a preset amount, then the dryer will shut down on “SEFL” (“rotational sensor failure”).

1. To Replace Rotational Sensor Switch.
  - a. Discontinue electrical power to the dryer.
  - b. Remove the bearing cap from the dryer.
  - c. Remove the adjustment nut from the bearing cap.
  - d. Remove the magnetic rotational sensor switch from the bearing cap.
  - e. Depress the tabs on the rotational sensor harness plug and pull apart, then remove the sensor switch.
  - f. To install a new sensor switch, connect the plug of the new sensor switch to the sensor harness.
  - g. Place one (1) adjustment nut onto the sensor switch and insert into the bearing cap.
  - h. Place the second adjustment nut on but **DO NOT TIGHTEN**. The magnet on the Flange Bearing and the sensor switch **must be** in a horizontal line to one another.
  - i. The gap between the magnet and the sensor switch **must be** 1/8-inch.
  - j. Tighten the adjustment nuts installed in **Step #6 and Step #7**.
  - k. Reestablish electrical power to the dryer.



## L. IDLER SHAFT PILLOW BLOCK BEARING REPLACEMENT

1. Refer to tumbler wheel replacement on idler assembly **page 26**.
2. Complete **Step #1 through Step #11**.
3. Remove both set screws from each pillow block bearing.
4. Remove pillow block bearing from shaft.
5. Reverse this procedure for replacement.

**NOTE:** Once the shaft assembly has been installed into dryer. Return pillow block bearings to the marked position and tighten set screws.

6. Refer to basket assembly section **page 27** for shaft and basket alignment.

## M. DRIVE SHAFT PILLOW BLOCK BEARING REPLACEMENT

1. Refer to tumbler wheel replacement on drive assembly **page 25**.
2. Complete **Step #1 through Step #14**.
3. Remove both set screws from each pillow block bearing.
4. Remove pillow block bearings from shaft.
5. Reverse this procedure for replacement.

**NOTE:** Once the shaft assembly has been installed into dryer. Return pillow block bearing to the marked position and tighten set screws.

6. Refer to basket assembly section **page 27** for shaft and basket alignment.

## N. V-BELT ADJUSTMENT (Motor to Drive Axle)

1. Discontinue electrical power to the dryer.
2. Remove the belt guard cover from the rear of the dryer.
3. Loosen the four (4) bolts holding the drive motor mount to the side of the dryer.
4. Loosen the jam nuts on the adjustment screw on the top of the motor mount.
5. Turn the adjustment screw to lower the motor mount (to tighten the belts) or raise the motor mount (to loosen the belts.)
6. Check the vertical plane of the motor and idler pulleys for parallel adjustment.
7. If realignment is required, loosen motor pulley and bushing, and move motor pulley to proper position.

8. Retighten motor mount bolts and jam nuts.
9. Assemble front panel lint door assemblies back to dryer.
10. Reestablish electrical power to the dryer.

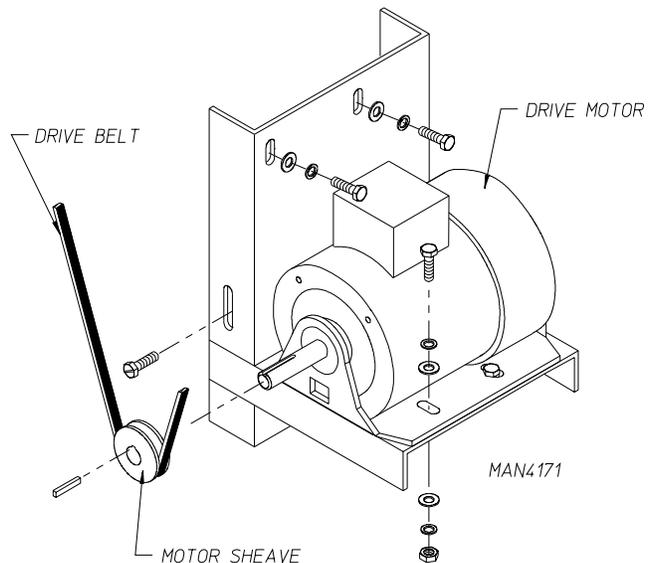
### Drive Motor V-Belts Replacement

1. Discontinue electrical power to the dryer.
2. Remove the belt guard cover from the rear of the dryer.
3. Loosen tension on V-belt so that it can easily be rolled off pulley. This can be done by loosening the four (4) bolts holding the motor to the side of the dryer, as well as the adjustment bolt on top.
4. Replace V-belt.
5. Retighten V-belt and adjust tension and alignment per previous instructions.

## O. MOTORS

### Drive Motor Replacement

1. Discontinue electrical power to the dryer.
2. Remove the belt guard cover from the rear of the dryer.
3. Remove drive belt.
4. Disconnect wiring harness from motor.
5. Remove bolts holding motor to mount and replace with new motor. **DO NOT TIGHTEN BOLTS.**
6. Remove pulley from old motor and install on new motor. By removing the set screw from the drive motor pulley.

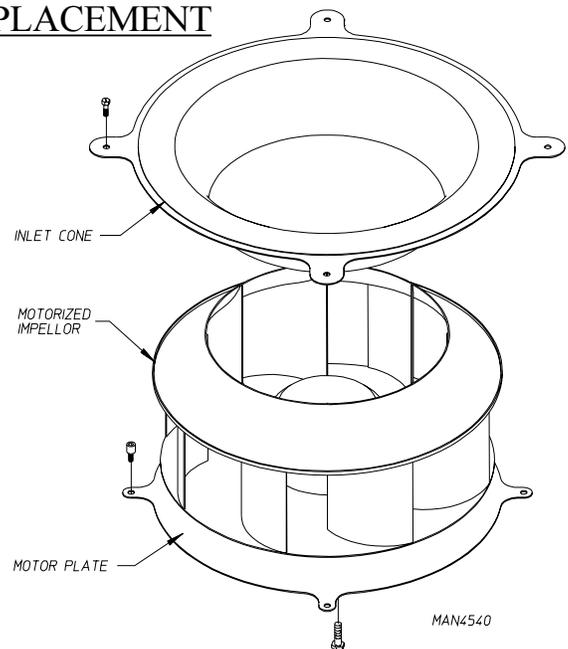


**NOTE:** A gear puller may be required to remove pulley.

7. Align motor pulley with drive assembly pulley and tighten set screw holding motor pulley.
8. Replace belts and adjust belt tension.
9. Retighten bolts.
10. Reestablish electrical power to the dryer.

## P. MOTORIZED IMPELLOR (BLOWER) REPLACEMENT

1. Discontinue electrical power to the dryer.
2. Remove lint draw.
3. Remove the perforated panel inside the tumbler (basket).
4. Remove the bolts securing the inlet cone.
5. Remove the inlet cone.
6. Remove the bolts securing the motor plate to the dryer cabinet.
7. Remove the motorized impellor along with the motor plate.

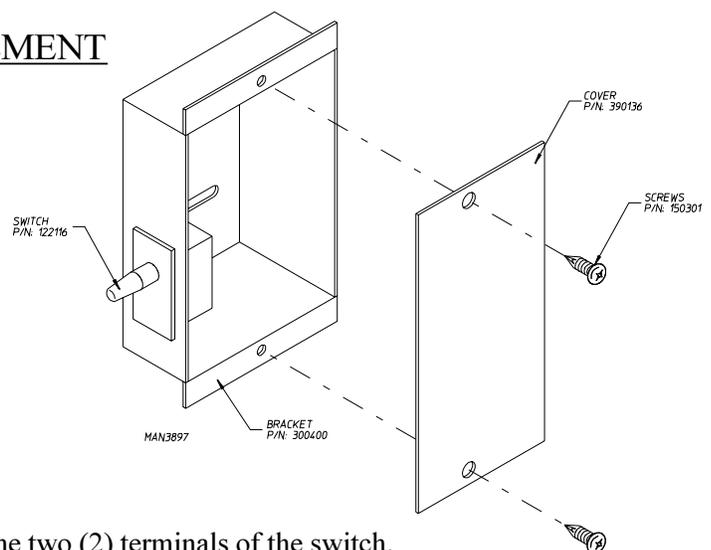


**NOTE:** The motorized impellor assembly **will not be** able to be removed due to the wiring harness still connected.

8. Disconnect the wiring harness from motor.
9. Remove the motor plate from the motorized impellor and install it on the new motor.
10. Reconnect the wiring harness to the motor.
11. To replace new motorized impellor assembly, reverse **Step #10 through Step #2**.
12. Reestablish electrical power to the dryer.

## Q. LINT DOOR SWITCH REPLACEMENT

1. Disconnect electrical power to the dryer.
2. Remove the lint door panel.
3. Remove the front panel.
4. Disconnect both 4-pin connectors at the rear of the lint switch cover.
5. Remove the two (2) screws holding the lint switch cover on.



6. Remove the lint switch cover and disconnect the two (2) terminals of the switch.
7. Remove switch by pressing tabs together and pushing switch out.
8. Install new lint door switch by reversing these procedures.

# SECTION VI

## TROUBLESHOOTING

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

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

**IMPORTANT:** When replacing blown fuses, the replacement *must be* of the exact rating as the fuse being replaced. The information provided *should not be* misconstrued as a handbook for use by an untrained person in making repairs.

**WARNING: ALL SERVICE and TROUBLESHOOTING *SHOULD BE* PERFORMED BY A QUALIFIED PROFESSIONAL or SERVICE AGENCY.**

**WARNING: WHILE MAKING REPAIRS, OBSERVE ALL SAFETY PRECAUTIONS DISPLAYED ON THE DRYER or SPECIFIED IN THIS MANUAL.**

### **A. No L.E.D. (light emitting diode) display on microprocessor controller (computer)...**

1. Open circuit breaker switch or blown fuse.
2. Tripped blower motor overload.
3. Faulty wiring connection.
4. Faulty transformer.
5. "EMERGENCY STOP" (E-Stop) button is depressed.
6. Faulty microprocessor controller (computer).

### **B. Computer will not accept keypad (touchpad) entries...**

1. Keypad (touchpad) ribbon is not plugged into computer securely.
2. Faulty keypad (touchpad).
3. Faulty microprocessor controller (computer).

**C. Dryer will not start, but computer L.E.D. (light emitting diode) indicators are on...**

1. Failed contactors.
2. Failed arc suppressor (A.S.) board.
3. Failed microprocessor controller (computer).
4. Failed motors.

**D. Drive motor runs, burner is on, but tumbler (basket) will not turn...**

1. Broken, damaged or loose V-belt.
2. Belts contaminated (oil, grease, etc.).
3. Loose or broken pulley.

**E. Dryer operates but is taking too long to dry...**

1. Improperly programmed microprocessor controller (computer).
2. An inadequate exhaust duct work system.
3. Restriction in exhaust system.
4. Insufficient make-up air.
5. Poor housekeeping.
  - a. Dirty or clogged lint screen.
6. Washing machine extractors are not performing properly.
7. An exceptionally cold/humid or low barometric pressure atmosphere.
8. The supply gas may have a low heating valve, check with local gas supplier.
9. Failed temperature sensor (temperature calibration is incorrect).
10. Failed microprocessor controller (computer).

**F. Thermal overload for drive motor is tripping...**

1. Either an exceptionally low or high voltage supply.
2. Motor bearing failure.
3. Motor vents are blocked with lint.
4. Failed motor.
5. Failed overload.
6. Out of balance impellor (fan).
7. Insufficient make-up air.

**G. Overload for impellor (fan) motor is tripping...**

1. Either an exceptionally low or high voltage supply.
2. Motor bearing failure.
3. Motor vents are blocked with lint.
4. Failed motor.
5. Failed overload.
6. Insufficient make-up air.

**H. Burner hi-limit safety thermostat is tripping...**

1. Insufficient exhaust duct work, size or restriction in exhaust system.
2. Insufficient make-up air.
3. Lint screen needs cleaning.
4. Damaged impellor (fan).

**NOTE:** For models with the manual reset hi-limit thermostat refer to **page 20**.

**I. L.E.D. (light emitting diode) display reads “Temp Sensor Failure Check Temp Sensor Fuse.”  
Dryer Sensor Circuit Failure...**

1. Check 1/8-amp fuse on microprocessor controller (computer).
2. Faulty microprocessor temperature sensor probe.
3. Open circuit in either one of two (2) wires leading from the sensor probe to the computer...
  - a. Connection at sensor bracket assembly connector.
  - b. Connection at computer harness connector.
4. Faulty microprocessor controller (computer).

**J. Dryer does not start. Display reads “main door” or “lint door” with an audio indication...**

1. Main door is open.
2. Lint drawer is open.
3. Faulty main door or lint door switch.
4. Open circuit in either main door or lint drawer switch harnesses.
5. Faulty 24 VAC transformer.

**K. There is excessive vibration coming from the tumbler (basket)...**

1. Tumbler (basket) is out of adjustment.
2. Drive shaft or idler shaft is out of alignment.
3. Faulty pillow block bearing.
4. Faulty tumbler wheel.
5. Drive motor and shaft not aligned.

# SECTION VII

## PHASE 6 OPL SYSTEM DIAGNOSTICS

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

**ALL** major circuits, including door, microprocessor temperature sensor, heat and motor circuits are monitored. The Phase 6 OPL microprocessor controller (computer) will inform the user, via the L.E.D. (light emitting diode) display of certain failure codes, along with indicators both in L.E.D. (light emitting diode) display and at the output of each relay (and door switch circuit) to easily identify failures.

### A. DIAGNOSTIC (L.E.D. [Light Emitting Diode] DISPLAY) FAILURE CODES

1. **SAIL SWITCH FAIL**- This routine will prevent start up on the machine unless the sail switch is in the correct position. If the sail switch is closed prior to start up the display will read “SAIL SWITCH FAIL” along with an audio indication.
2. **No AIRFLOW**- If the sail switch opens during cycle operation the display will read “No AIRFLOW” along with an audio indication. The machine will continue to run with no heat for three (3) minutes or until the temperature drops below 100° F (38° C). Upon failure the machine will shut down and display “No AIRFLOW” with an audio indication.
3. **bURNER SAFETY FAIL**- Routine monitors the temperature above the burner. If the burner hi-limit switch opens the display will read “bURNER SAFETY FAIL.” The machine will run with no heat for three (3) minutes or until the temperature drops below 100° F (38° C). Upon failure the machine will shut down and display “bURNER SAFETY FAIL” with an audio indication.
4. **dRUM SAFETY FAIL**- This routine monitors the tumbler (basket) temperature if the tumbler (basket) hi-limit switch opens prior or during the cycle while the heat was on the machine will display “dRUM SAFETY FAIL.” The machine will continue to run with no heat for three (3) minutes or until the temperature drops below 100° F (38° C). Upon failure the machine will shut down and display “dRUM SAFETY FAIL” with an audio indication.
5. **No HEAT**- This routine monitors the burner ignition. If the burner mis-ignites (does not light) the HSI (Hot Surface Ignition) module will check to see if the microprocessor program has any retries left. The standard retry count is two (2). If the module notices that there are retries left it will purge for one (1) minute then try to ignite the burner again. The HSI (Hot Surface Ignition) module will try this for a total of three (3) times or until there are no retries left. If the burner does not ignite after three (3) attempts the L.E.D. display will display the error code “no heat” with an audio indication. When this occurs the machine will run with no heat for three (3) minutes or until the temperature drops below 100° F (38° C).

**IMPORTANT:** For other countries, such as Australia, the retry count *may not* apply due to local approvals.

6. **bURNER CONTROL FAIL-** This routine monitors the ignition control's gas valve output response. If the valve output signal is not present from the ignition control within the valve time limits the Phase 6 microprocessor controller (computer) determines the ignition control has failed. If this occurs when the cycle is active the machine will display "bURNER CONTROL FAIL." If the tumbler temperature is above 100° F (38° C) the machine will continue to display "bURNER CONTROL FAIL." The machine will run with no heat for three (3) minutes or until the temperature drops below 100° F (38° C). If the tumbler temperature is below 100° F (38° C) upon failure the machine will shut down and display "bURNER CONTROL FAIL" with an audio indication.
7. **bURNER FLAME FAIL-** This routine allows two (2) flame out retries to occur before proceeding into the error. The count of two (2) will be established every time the call for heat was to occur. Only if it reaches the count of two (2) before the tumbler temperature has reached the set temperature will this error be triggered. The machine will run with no heat for three (3) minutes or until the temperature drops below 100° F (38° C). If the tumbler temperature is below 100° F (38° C) upon failure, the machine will shut down and display "bURNER FLAME FAIL" with an audio indication. This process will occur every time the heat output is active.
8. **MAIN DOOR-** This monitors the door circuit. If the machine was not active and the main door was opened the display would read "REAdY." If a program attempt was made with the main doors open the display will read "MAIN dOOR" with an audio indication. If the machine is active and the main door was opened the display would read "MAIN dOOR" with no audio indication and the dryer will shut down. Once the main door has closed the display would read "PRESS START" press the "ENTER/START" key and it will continue the programmed cycle.
9. **LINT dOOR-** This monitors the lint drawer and door circuit. If the machine was not active and the lint drawer and door was opened the display would read "REAdY." If a program attempt was made with the lint drawer and door open the display would read "LINT dOOR" with an audio indication. If the machine is active and the lint drawer and door was opened the display would read "LINT dOOR" with no audio indication and the dryer will shut down. Once the lint door was closed the display would read "PRESS START" press the "ENTER/START" key and it will continue the programmed cycle.
10. **TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE-** This routine monitors the tumbler temperature. When the temperature sensor or fuse opens with the machine not active the display will read "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE" with an audio indication. If the machine was active at the time that the temperature sensor or fuse opened the display would read "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE." If the tumbler temperature is above 100° F (38° C) the machine will continue to display "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE" with an audio indication and run with no heat for three (3) minutes or until the temperature drops below 100° F (38° C). If the tumbler temperature is below 100° F (38° C) upon failure the machine will shut down and display "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE" with an audio indication. The display will continue to read "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE" an audio indication will sound for approximately 5 seconds, every 30 seconds until the problem is corrected or the power to the dryer is disconnected (and the problem is corrected).

**NOTE:** Once the Phase 6 microprocessor controller (computer) detects a problem in the heat circuit, it updates every 30 seconds, so that if the problem was a loose connection in the circuit which corrected itself, the "TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE" condition would automatically be cancelled and the display will return to "REAdY."

11. **ROTATE SENSOR FAIL-** Indicates a rotational sensor circuit failure meaning that there is a fault somewhere in the tumbler (basket) rotating circuit, or the Phase 6 OPL microprocessor controller (computer) program related to this circuit (program location 2) is set incorrectly. In the active mode it **should be** (ROTATE SENSOR ACTIVE), if the dryer is not equipped with the optional rotational sensor it **should be** set in the nonactive mode (No ROTATE SENSOR).

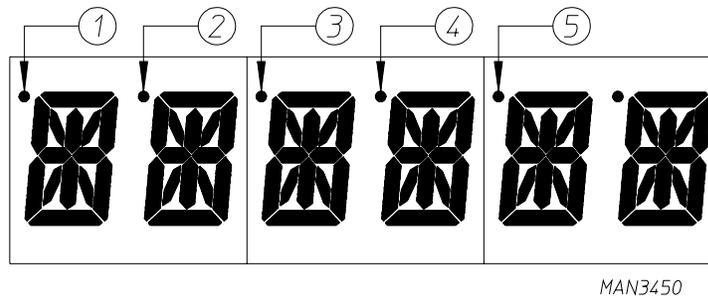
**NOTE: RPM-** This routine monitors the timing response from the existing rotational sensor input and derives a RPM measurement. To display this RPM measurement (press the “ENTER/START” key once and release, then press the “ENTER/START” key a second time and hold. This will display the RPM measurement). The rotational sensor *must be* active for operation of this feature.

12. **CHECK MAIN FUSE-** Indicates that the circuit fuse protection which is located on the back side of the Phase 6 microprocessor controller (computer) the display would read “CHECK MAIN FUSE.” If the display continues after the fuse has been replaced then it is the fault of the Phase 6 microprocessor controller (computer).

## B. L.E.D. (LIGHT EMITTING DIODE) DISPLAY INDICATORS

The L.E.D. (light emitting diode) indicator dots located on the top portion of the display indicates various Phase 6 OPL computer output functions while a cycle is in progress. These indicator dots (as shown in the illustration below) **DO NOT** necessarily mean that the outputs are functioning. They are only indicating that the function output **should be** active (on).

### 1. L.E.D. DISPLAY INDICATOR NUMBER 1



- a. For Optional Reversing Models:

- 1) This indicator dot is on when the drive tumbler (basket) motor is operating in the forward mode (clockwise [CW] direction).

### 2. L.E.D. DISPLAY INDICATOR NUMBER 2

- a. For Optional Reversing Models:

- 1) This indicator dot is on when the drive (basket [tumbler]) motor is operating in the reverse mode (counterclockwise [CCW] direction).

### 3. L.E.D. DISPLAY INDICATOR NUMBER 3

- a. Heat Circuit Indicator:

- 1) This indicator dot is on whenever the Phase 6 OPL microprocessor controller (computer) is calling for the heating circuit to be active (on).

#### 4. L.E.D. DISPLAY INDICATOR NUMBER 4

a. On Indicator:

- 1) This indicator dot is on whenever a cycle is in progress. Additionally, when the Anti-Wrinkle program is active, the indicator dot will be on whenever the Phase 6 OPL microprocessor controller (computer) is in the Guard On Time program.

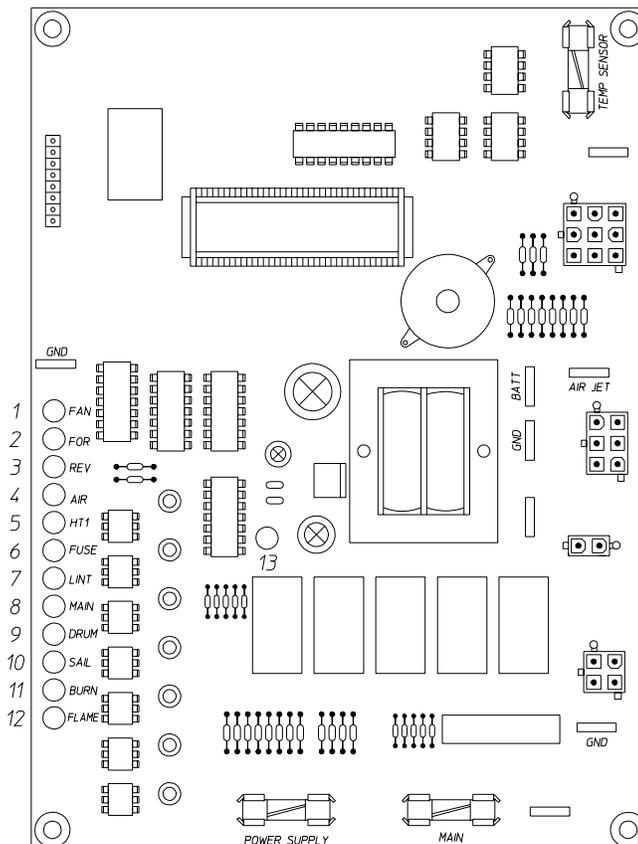
#### 5. L.E.D. DISPLAY INDICATOR NUMBER 5

a. Air Jet Circuit - **OPTIONAL**

- 1) This indicator dot is on at the end of the dryer cycle for approximately 60 seconds.

### C. PHASE 6 OPL MICROPROCESSOR CONTROLLER (COMPUTER) RELAY OUTPUT L.E.D. (LIGHT EMITTING DIODE) INDICATORS

There are a series of five (5) L.E.D. (light emitting diode) indicators (ORANGE LIGHTS) located at the backside of the Phase 6 OPL microprocessor controller (computer). These are identified or labeled (from top to bottom in the illustration below as: FAN-BLOWER, FOR-FORWARD, REV-REVERSE, AIR-AIR-JET, HT1-HEAT OUTPUT. There are a series of seven [7] L.E.D. (light emitting diode) indicators [red lights] FUSE-MAIN FUSE, LINT-LINT DOOR, MAIN-MAIN DOOR, DRUM-TUMBLER HI-LIMIT, SAIL-SAIL SWITCH, BURN-BURNER HI LIMIT, FLAME-FLAME PROBE). The L.E.D. (light emitting diode) in the center of the board (red light) indicates power supplied to the Phase 6 OPL microprocessor controller (computer). These L.E.D.'s (light emitting diode) indicate the inputs and outputs of the Phase 6 OPL microprocessor (computer) as it monitors the safety circuits.



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## 1. “FAN” (BLOWER) Output L.E.D. (light emitting diode) Indicator

- a. If the dryer is started and the blower motor is not operating, yet the Phase 6 OPL microprocessor controller (computer) display fan indicator dot and power supply input L.E.D. (light emitting diode) are on, but the fan output L.E.D. is off, then the fault is the Phase 6 OPL microprocessor controller (computer) itself.
  - 1) If the motor is not operating. The fan indicator dot and output L.E.D. (light emitting diode) are also on, then the problem (fault) is elsewhere (i.e., external of the Phase 6 OPL microprocessor controller [computer]).

## 2. “FOR” (FORWARD) Output L.E.D. (light emitting diode) Indicator (for optional reversing model ONLY)

- a. If the dryer is started and the blower motor is operating, but the drive (tumbler/basket) motor is not, yet the Phase 6 OPL microprocessor controller (computer) display “FORWARD” indicator dot is on, the “FOR” (FORWARD) motor output L.E.D. (light emitting diode) is off; then the fault is the Phase 6 OPL microprocessor controller (computer) itself.
  - 1) If the drive tumbler (basket) motor is not operating and the forward indicator dot and output L.E.D. (light emitting diode) is on; then the problem (fault) is elsewhere (i.e., external of the Phase 6 OPL microprocessor controller [computer]).

## 3. “REV” (REVERSE) Output L.E.D. (light emitting diode) Indicator (for optional reversing models ONLY)

- a. If the dryer is started and the blower motor is operating but the drive (tumbler and basket) motor is not, yet the Phase 6 OPL microprocessor controller (computer) displays “REVERSE” indicator dot is on but the “REV” (REVERSE) motor output L.E.D. (light emitting diode) is off; then the fault is of the Phase 6 OPL microprocessor controller (computer) itself.
  - 1) If the drive tumbler (basket) motor is not operating and reverse indicator dot and output L.E.D. (light emitting diode) is on; then the problem (fault) is elsewhere (i.e., external of the Phase 6 OPL microprocessor controller [computer]).

## 4. “AIR” (AIR JET) Output L.E.D. (light emitting diode) Indicator - *OPTIONAL*

- a. “AIR” is on with the display dot at the end of the dry cycle once the display reads “dONE,” it is on for approximately 60-seconds and the output L.E.D. (light emitting diode) indicator and the display dot go out. If the air jet **DOES NOT** energize it is not the fault of the Phase 6 OPL microprocessor controller (computer). If the output L.E.D. (light emitting diode) or dot **DO NOT** go on it is the fault of the Phase 6 OPL microprocessor controller (computer).

## 5. “HT1” (HEAT) Output L.E.D. (light emitting diode) Indicator

- a. If the dryer is started and there is “No Heat” yet the Phase 6 OPL microprocessor controller (computer) display heat circuit indicator dot is on, but the “HT1” output L.E.D. (light emitting diode) indicator is off; then the fault is in the Phase 6 OPL microprocessor controller (computer) itself.
  - 1) If the dryer is started and there is “No Heat” yet both the Phase 6 OPL microprocessor controller (computer) display indicator dots and the “HT1” output L.E.D. (light emitting diode) indicator are on; then the problem (fault) is elsewhere (i.e., external of the Phase 6 OPL microprocessor controller [computer]).

6. **“FUSE” (MAIN FUSE) Input L.E.D. (light emitting diode) Indicator**
  - a. **Should be on ALL** the time (even if the dryer is not running). If the L.E.D. (light emitting diode) is not on; then the display will read “CHECK MAIN FUSE.” If the main fuse is good then the fault is on the Phase 6 microprocessor controller (computer).
7. **“LINT” (LINT DOOR) Input L.E.D. (light emitting diode) Indicator**
  - a. **Should be on ALL** the time (unless the lint door is opened then the “LINT” L.E.D. [light emitting diode] indicator will go out).
  - b. If the dryer is active (running) and the lint door is opened the “LINT” L.E.D. (light emitting diode) indicator will go out and the display will read “LINT dOOR.” The dryer will stop until the Lint Drawer has been closed, at which time the L.E.D. (light emitting diode) display will read “PRESS START.” At this time, to resume the drying cycle press “ENTER/START” key.
8. **“MAIN” (MAIN DOOR) Input L.E.D. (light emitting diode) Indicator**
  - a. **Should be on ALL** the time (unless the lint door is open or the main door is opened then the “MAIN” L.E.D. [light emitting diode] indicator will go out).
  - b. If the dryer is active (running) and the main door is opened the “MAIN” L.E.D. (light emitting diode) indicator will go out and the display will read “MAIN dOOR.” The dryer will stop until the main door has been closed, at which time the L.E.D. (light emitting diode) display will read “PRESS START.” At this time, to resume the drying cycle press “ENTER/START” key.
9. **“DRUM” (TUMBLER [BASKET] HI-LIMIT) Input L.E.D. (light emitting diode) Indicator**
  - a. **Should be on at ALL** times (unless the tumbler [basket] hi-limit switch opens prior during the cycle while the heat was on the display would read “dRUM Safety FAIL”). The machine will run with no heat for three (3) minutes or until the temperature drops below 100° F (38° C). Then the machine will shut down still displaying “dRUM SAFETY FAIL” with an audio indication.
10. **“SAIL” (SAIL SWITCH) Input L.E.D. (light emitting diode) Indicator**
  - a. This routine will prevent start up on the machine unless the sail switch is in the correct position. If the sail switch is in the closed position prior to start, the “SAIL” output L.E.D. (light emitting diode) indicator will be off, the machine will not start and the display will read “SAIL SWITCH FAIL” along with an audio indication.
  - b. If the sail switch opens during the cycle the “SAIL” output L.E.D. (light emitting diode) will go out and the display will read “NO AIRFLOW.” The machine will run with no heat for three (3) minutes or until the temperature drops below 100° F (38° C). Then the machine will shut down still displaying “NO AIRFLOW” along with an audio indication.
11. **“BURN” (BURN HI-LIMIT) Input L.E.D. (light emitting diode) Indicator**
  - a. This routine monitors the temperature of the burner. If the burner hi-limit opens during the cycle while the heat was on the “BURN” output L.E.D. (light emitting diode) indicator goes out and the display reads “bURNER SAFETY FAIL.” The machine will run with no heat for three (3) minutes or until the temperature drops below 100° F (38° C) then the machine will shut down still displaying “bURNER SAFETY FAIL” with an audio indication.

12. **“FLAME” (bURNER CONTROL FAIL) Input L.E.D. (light emitting diode) Indicator**

- a. This routine monitors the ignition control’s gas valve output response. If the valve output signal is not present from the ignition control within the valve time limits the microprocessor determines the ignition control has failed. If this occurs when the cycle is active the “FLAME” output L.E.D. (light emitting diode) indicator will go out and the display will read “bURNER CONTROL FAIL.” The machine will run with no heat for three (3) minutes or until the temp drops below 100° F (38° C). Then the machine will shut down still displaying “bURNER CONTROL FAIL” with an audio indication.

13. **“POWER SUPPLY” Input L.E.D. (light emitting diode) Indicator**

- a. **Should be** on at **ALL** times (even if the dryer is not running). The power supply L.E.D. (light emitting diode) output indicator will not be on if the power supply fuse to the Phase 6 OPL microprocessor is not present. If the power supply fuse is faulty the L.E.D. (light emitting diode) output will be off and there will be no display or keypad (touchpad) function. The “FUSE,” “LINT,” and “DRUM” output L.E.D. (light emitting diode) indicators will remain on.

## D. L.E.D. CODES

### 1. Display Codes

A	SLOPE FACTOR
ALL REV	ALWAYS REVERSING
ANTI WRINKL dELAY TIME	ANTI-WRINKLE DELAY TIME
ANTI WRINKL GUARd ACTIVE	ANTI-WRINKLE PROGRAM ACTIVE
ANTI WRINKL GUARd ON TIME	ANTI-WRINKLE GUARD ON TIME
AUTO CYCLE	AUTOMATIC MODE
b	HEAT LOSS (OFF SET) FACTOR
bURNER CONTROL FAIL	GAS ONLY POWER (24 VAC) <u>IS NOT</u> EVIDENT AT GAS VALVE
bURNER FLAME FAIL	NO BURNER FLAME SENSED
bURNER SAFETY FAIL	GAS/ELECTRIC ONLY BURNER/OVEN OPEN HI-LIMIT CIRCUIT
bUZZ	BUZZER (TONE)
bUZZ TIME	BUZ TIME
CEL	DEGREE IN CELSIUS
CHECK MAIN FUSE	MAIN FUSE FAILURE
CLEAN LINT	PROMPT TO CLEAN LINT SCREEN, DRYER CYCLE LOCKOUT
COOL	COOL DOWN CYCLE IN PROGRESS
COOL TIME_M	COOL DOWN TIME
COOL TEMP_	COOL DOWN TEMPERATURE
CYCLEA	PREPROGRAMMED CYCLE A
CYCLEb	PREPROGRAMMED CYCLE B
CYCLEC	PREPROGRAMMED CYCLE C
CYCLED	PREPROGRAMMED CYCLE D
CYCLEE	PREPROGRAMMED CYCLE E
CYCLEF	PREPROGRAMMED CYCLE F
dONE	DRYING or COOLING CYCLE COMPLETE OR DRYER IN ANTI-WRINKLE MODE
dRYING	DRYING CYCLE IN PROGRESS
dRY LEVEL_	DRYNESS LEVEL (PERCENTAGE OF EXTRACTION) (NUMERICAL VALUE)
dRY TEMP F_	DRYING TEMPERATURE
dRY TIME_M	LENGTH OF DRYING CYCLE
dRUM SAFETY FAIL	TUMBLER HI-LIMIT CIRCUIT IS OPEN
ELAPSE TIME_MIN	CYCLE DISPLAY TIME
ELECTRIC	SPECIFIC HEAT TYPE OR DRYER ELECTRICALLY HEATED
F	FABRIC TEMPERATURE
FAR	DEGREE IN FAHRENHEIT
FLASH	FLASH DISPLAY ACTIVE
GAS	SPECIFIC HEAT TYPE OF DRYER GAS HEATED
HOT	INDICATES AN OVERHEAT CONDITION
LINT dOOR	LINT DRAWER/DOOR CIRCUIT IS OPEN OR FAULT IN THE A.C. SWITCH CIRCUIT
LINT COUNT	DRYING CYCLES RANGE FROM 1-10 CYCLES BEFORE CLEAN LINT DISPLAY
_M REMAIN	CYCLE DISPLAY TIME
MAIN dOOR	DOOR CIRCUIT IS OPEN OR FAULT IN THE A.C. DOOR SWITCH CIRCUIT
MANUAL CYCLE	MANUAL MODE
MAX ANTI WRINKL GUARd	MAXIMUM GUARD TIME
NFLASH	FLASH DISPLAY NOT ACTIVE
NoAIRFLOW	SAIL SWITCH OPEN
NoANTI WRINKL GUARd	ANTI-WRINKLE PROGRAM <u>IS NOT</u> ACTIVE
NoBUZZ	NO BUZZER (TONE)
NoHEAT	GAS ONLY IGNITION ATTEMPT FAILURE
NoREV	NO REVERSE
No ROTATE SENSOR	NO ROTATIONAL SENSOR SELECTED
PROGRAM	PROGRAM MODE
REAdY	NO CYCLE IN PROGRESS
ROTATE SENSOR ACTIVE	ROTATIONAL SENSOR SELECTED
ROTATE SENSOR FAIL	ROTATIONAL SENSOR CIRCUIT FAILURE
_RPM	MONITORS TUMBLER RPM WITH ROTATIONAL SENSOR CIRCUIT ACTIVE
SAIL SWITCH FAIL	GAS/ELECTRIC ONLY ATTEMPT MADE TO START DRYER WITH SAIL
	SWITCH DISABLED IN CLOSED POSITION
	SELECT REVERSE
SELREV	SPIN TIME
SPIN TIME	START ANTI-WRINKLE GUARD CYCLE
START GUARd	SPECIFIC HEAT TYPE OR DRYER STEAM HEATED
STEAM	STOP TIME
STOP TIME	FAULT IN M.P. HEAT SENSING CIRCUIT
TEMP SENSOR FAIL CHECK	
TEMP SENSOR FUSE	

## 2. Fault Codes

### **bURNER CONTROL FAIL**

- GAS MODELS ONLY POWER (24 VAC) IS NOT EVIDENT AT GAS VALVE

### **bURNER FLAME FAIL**

- The Phase 6 Microprocessor Controller (Computer) **DOES NOT** SENSE FLAME VERIFICATION (GAS MODEL ONLY)

### **bURNER SAFETY FAIL**

- GAS/ELECTRIC ONLY BURNER/OVEN OPEN HI-LIMIT CIRCUIT

### **dRUM SAFETY FAIL**

- Fault in the TUMBLER HI-LIMIT CIRCUIT

### **HOT**

- Indicates an OVERHEAT CONDITION

### **LINT dOOR**

- When the LINT DOOR OR DRAWER is open or there is a **fault** in the LINT DOOR/DRAWER CIRCUIT

### **MAIN dOOR**

- When the MAIN DOOR is open or there is a **fault** in the DOOR CIRCUIT

### **No AIRFLOW**

- **Fault** in the SAIL SWITCH CIRCUIT (GAS/ELECTRIC MODELS ONLY)

### **No HEAT**

- GAS ONLY IGNITION ATTEMPT FAILURE

### **ROTATE SENSOR FAIL**

- **Fault** in the ROTATION SENSOR CIRCUIT

### **SAIL SWITCH FAIL**

- **Fault** in the SAIL SWITCH CIRCUIT (GAS/ELECTRIC MODELS ONLY)

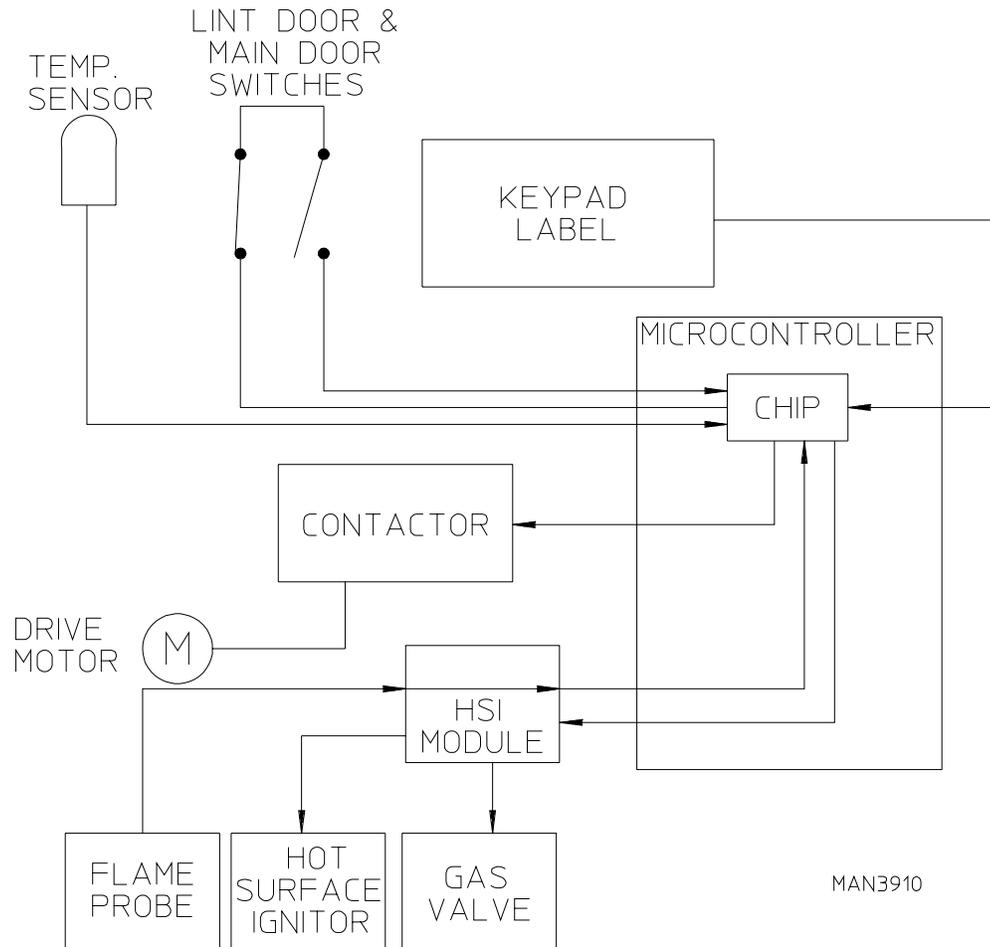
### **TEMP SENSOR CHECK TEMP SENSOR FUSE**

- **Fault** in the MICROPROCESSOR TEMPERATURE SENSOR CIRCUIT

## E. COMPUTER LOGIC and WIRING DIAGRAM

1. Operator enters desired selections.
2. Information entered is sent to the microprocessor via the keyboard (touchpad).

COMPUTER LOGIC AND WIRING DIAGRAM



3. The input information is sorted, processed and executed by the microcomputer chip.
4. The microcomputer output signal activates the contactors and HSI (Hot Surface Ignition) module which control machine functions.

**NOTE:** When contacting **ADC** with electrical questions, please have on hand the correct wiring diagram number for your particular machine. This number is located on the top right-hand corner of the diagram. It is a six (6) digit number followed by a letter to distinguish the revision dates (refer to illustration).

The wiring diagrams used in troubleshooting are specifically for dryers manufactured at the time of publishing. Your particular model may vary slightly depending on the date of manufacturing and options available. The correct wiring diagram and number is either taped to the rear of the control door or each dryer, or placed in the control box. If your particular diagram is lost or unreadable, call **ADC** with the serial number of the dryer. **ADC** will be more than happy to send you a diagram by fax or mail.



## 1. No Display Condition

- a. Check position of “EMERGENCY STOP” (E-Stop) to verify it is in operating position (pull or twist for operating position).
- b. Check fuse one or two and if either are blown, replace.
- c. Take voltage reading across the microprocessor (J7) 9-pin connector pins 1 and 2. If no voltage is present at pins 1 and 2, double check the secondary (24 VAC) side of transformer at the blower motor contactor number 13 to ground if no voltage is present check primary voltage to transformer.
- d. Check voltage across fuses 1 and 2 to ground. If voltage is present, check “EMERGENCY STOP” (E-Stop) “red” and “black” wire to ground. If voltage is present, check voltage across 95 and 96 to ground of the drive motor overload. If voltage is present, check 95 and 96 to ground of the blower motor overload. If voltage is present and transformer terminations are good, then the transformer is faulty. Refer to the schematic supplied with the dryer to assist in the troubleshooting of the dryer.

**NOTE:** In this next section ALL voltage checks *must be* done in the operating mode with the appropriate microprocessor dot on. Also appropriate L.E.D. (light emitting diode) output light on.

**NOTE:** In this next section when checking for voltage you are looking for 25 AC volts unless otherwise specified.

## 2. Drive motor reverses but **DOES NOT** forward, blower motor runs

- a. If computer dot (first dot on the left) does not come on replace the computer.
- b. Check for voltage across the coil of the forward contactor located in the reversing panel box. The contactor according to your diagram is marked CR2. The coil markings A1 and A2.

If voltage is present, replace reversing contactor.

If voltage is not present, there is a faulty wire or termination between BS2 and contactor coil (CR2).

- c. If there is voltage across the two AS2 terminals and no voltage across the two BS2 terminals, replace the arc suppressor (A.S.) board.

If there is no voltage across the two AS2 terminals on the arc suppressor (A.S.) board, the problem is a faulty wire or termination between the AS2 board and the J7 9-pin computer connector no. 8 or faulty computer.

## 3. Drive motor works in forward mode but **DOES NOT** reverse, blower motor runs

- a. If computer dot (second one from left) does not come on, check program to see if set for reverse.
- b. If set for reverse, replace computer.
- c. Check for voltage across the coil of the reversing contactor located in the rear panel box. The contactor according to your diagram is CR3, also the markings on the coil are A1 and A2.

If there is voltage, replace the coil or the complete contactor.

If there is no voltage, check for voltage across the two BS3 terminals on the arc suppressor (A.S.) board.

If there is voltage across the two BS3 terminals and no voltage across the coil of the reversing contactor (A1 and A2), the problem is faulty wires or terminations between BS1 and the contactor coil.

- d. If there is no voltage between the two BS3 terminals on the arc suppressor (A.S.) board, check for voltage across the two AS3 terminals on the board.

If there is voltage across the two AS3 terminals and no voltage across the two BS3 terminals, replace the arc suppressor (A.S.) board.

If there is no voltage across the two AS3 terminals, the problem is faulty wires or terminations between the arc suppressor (A.S.) board and the computer 9-pin connector no. 9 or a faulty computer.

#### 4. Blower motor **DOES NOT** operate, drive motor runs

- a. Check for voltage across terminals A1 and A2 of the impellor contactor. This is the single contactor in the reversing control box.

If voltage is present check for voltage across the blower motor. If there is voltage at the blower motor replace the motor.

If there is no voltage at the blower motor, the problem is faulty wires or terminations between the contactor and the motor.

- b. If there is no voltage present at A1 and A2 of the contactor, check for voltage across the two BS1 terminals of the arc suppressor (A.S.) board.

If there is voltage present at the two BS1 terminals, the problem is faulty wires or terminations between the two BS1 terminals and the coil (A1 and A2) terminals.

If there is no voltage across the two BS1 terminals, check for voltage across the two AS1 terminals.

If there is voltage across the two AS1 terminals and there is no voltage between the two BS1 terminals, replace the arc suppressor (A.S.) board.

- c. If there is no voltage across the two AS1 terminals, the problem is faulty wires or terminations between the two AS1 terminals and the computer board J7 9-pin connector no. 7 or faulty computer.

#### 5. Lint Door Condition

**NOTE:** Make sure main door and lint door are closed. Also, if checking either switch, the plunger *must be* depressed.

- a. Check L.E.D. (light emitting diode) input light "LINT" on the component side of the computer. If the light is on, replace the computer.
- b. Check voltage (24 VAC) from J7 9-pin connector no. 3 to ground. If voltage is present check no. 4 to ground if voltage is present replace board.

- c. If no voltage is present at J7 9-pin connector no. 4 to ground, but voltage is present at no. 3 to ground. The problem is a faulty switch, wires or termination between J7 to J8 and J8 to the lint switch no. 20 and 21.
- d. If no voltage is present at J7 9-pin connector no. 3 to ground, then voltage **should not be** present at no. 5 to ground. Replace the board.

## 6. Main Door Condition

**NOTE:** Make sure main door and lint door are closed. Also, if checking either switch, the plunger *must be* depressed.

- a. Check L.E.D. (light emitting diode) input light “MAIN” on the component side of the computer. If the light is on, replace the computer.
- b. Check voltage (24 VAC) from J7 9-pin connector no. 5 to ground. If voltage is present, check no. 6 to ground. If voltage is present, replace board.
- c. If no voltage is present at J7 9-pin connector no. 6 to ground, but voltage is present at no. 5 to ground. The problem is a faulty switch, faulty wires or terminations J7 to J8. J8 to J5 and J5 to main door switch no. 31 and no. 32.

## 7. “No Heat” drive and blower motors run, display reads normal (gas models).

- a. Check L.E.D. (light emitting diode) input light “HT1” on the component side of the computer. If the light is on replace the board.
- b. If the L.E.D. (light emitting diode) input light “HT1” on the component side of the computer is on and there is no voltage to the HSI (Hot Surface Ignition) module “w” the display will read “BURNER CONTROL FAIL.” The problem is faulty wires or terminations between microprocessor and HSI (Hot Surface Ignition) module.
- c. If voltage is present on the HSI (Hot Surface Ignition) module “w” to ground. Check voltage at the gas valve if voltage is present across the two “yellow” wires at the gas valve and the gas supply is on then the fault is that of the gas valve.

## 8. Microprocessor (Computer)

- a. Replace the temperature sensor underneath the tumbler (basket) on a bracket (the bullet shaped device).
- b. If it still reads “TEMP SENSOR FAIL CHECK TEMP SENSOR FUSE,” unplug J3 4-pin connector from the temperature sensor bracket. Also, unplug the microprocessor J14 4-pin connector from the computer board. Take a continuity reading from J14 no. 1 to J3 no. 1, then from J14 no. 2 to J3 no. 2.

If there is no continuity, check for break in wire, a short to the ground, loose terminations, or even replace the wire.

If there is continuity, computer board is faulty.



## **IMPORTANT**

### **MANUAL RESET HI-LIMIT INSTRUCTIONS**

#### FOR PHASE 6 MODELS

This dryer was manufactured with a manual reset burner hi-limit and tumbler/lint chamber hi-limit thermostat which is monitored by the Phase 6 computer. If either manual reset thermostat is open prior to start of the drying cycle, the dryer will start momentarily and then shut down, the Phase 6 computer will display an error code with an audio indication. If the tumbler/lint chamber hi-limit thermostat is open, the display will read “DRUM SAFETY FAIL.” If the burner hi-limit thermostat is open, the display will read “bURNER SAFETY FAIL.”

If either manual reset hi-limit thermostat opens during a drying cycle, the display will show the applicable error code described above along with an audio indication. If the drum temperature is above 100° F (38° C), the dryer will continue to run with no heat for three (3) minutes or until the drum temperature has flattened below 100° F (38° C). The clear/stop button on the Phase 6 keypad (touchpad) **must be** pressed to clear the error condition. The open manual reset hi-limit thermostat **must be** reset “manually” prior to the start of the next cycle.

This hi-temperature condition may be caused due to a restricted exhaust, poor airflow or improper burner operation.

The location of the burner hi-limit is on the right side of the burner box and the tumbler hi-limit is located in the lint chamber area.

**WARNING:** Discontinue power to dryer before attempting to reset hi-limit.

## **IMPORTANT**

This dryer is equipped with a burner hi-limit and tumbler/lint chamber hi-limit thermostat which must be reset manually.

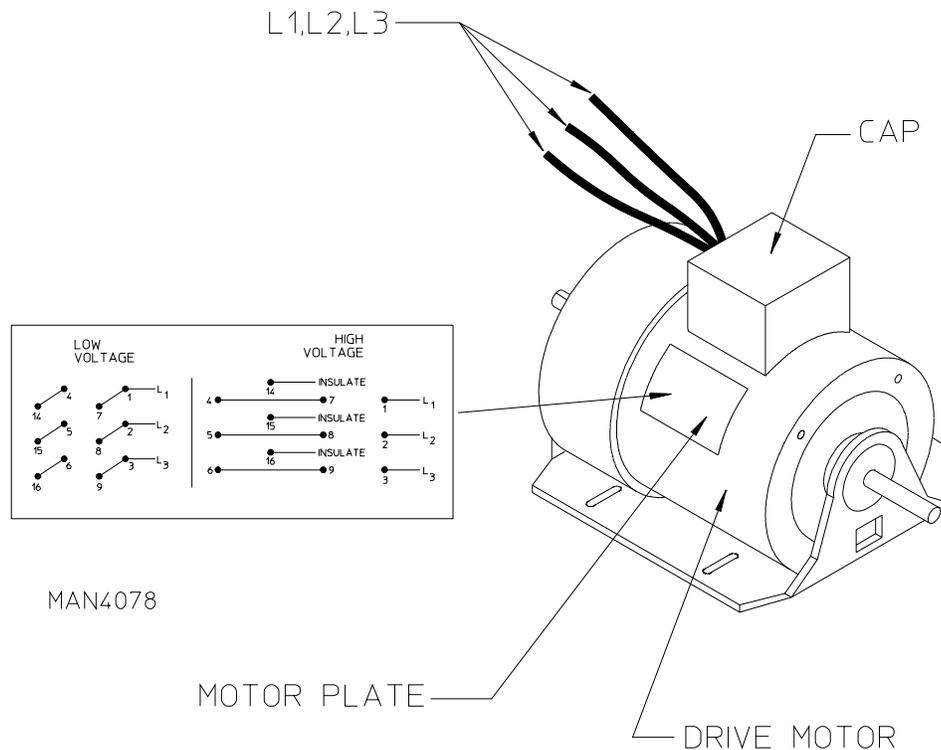
**WARNING:** Discontinue power to dryer before attempting to reset hi-limit.

# SECTION VIII

## TECHNICAL INFORMATION

The following section contains various technical information important to the service person in servicing and maintaining the dryer.

### A. MOTOR PLATE (HIGH and LOW VOLTAGE)



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

Removing the cap reveals the wiring to the motor. On each wire there is a number which corresponds to the numbers on the motor plate. Depending on whether the dryer is operating on low or high voltage, the wiring should match the motor plate as follows:

The dots and lines represent connections (refer to illustration).

**For example:**

On low voltage - wire no. 14 is connected to wire no. 4

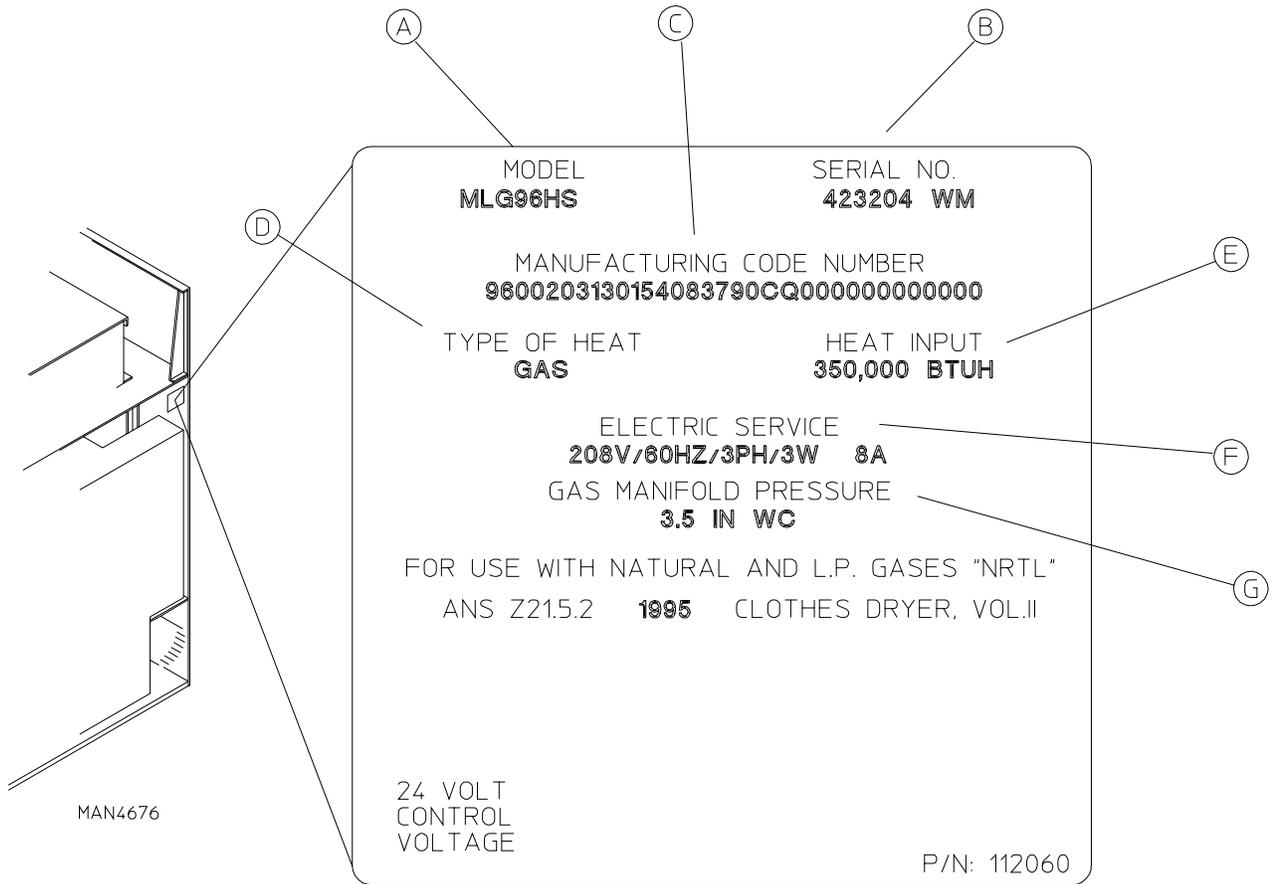
- wire no. 1 is connected to wire no. 7, which in turn are both connected to L1

On high voltage - wire no. 14 is insulated or capped

- wire no. 4 is connected to wire no. 7
- wire no. 1 is connected to L1

## B. DATA LABEL

### **Contacting American Dryer Corporation (ADC)**



When contacting **ADC**, certain information is required to ensure proper service and parts information. This information is on the data label, located on the top right corner of the dryer, viewed from the rear (refer to illustration). When contacting **ADC**, please have the model number and serial number readily accessible.

### **Information on the Data Label**

- Model number - The model number is an **ADC** number which describes the size of the dryer and the type of heat (gas or steam).
- Serial number - The serial number allows **ADC** to gather information on your particular dryer.
- Manufacturing code number - The manufacturing code number is a number issued by **ADC** which describes **ALL** possible options on your particular model.
- Type of heat - Describes the type of heat; gas (natural or L.P.), steam or electric.
- Heat input - (For gas dryers) describes the heat input in British Thermal Units.
- Electric service - Describes the electric service for your particular models.
- Gas manifold pressure - Describe the manifold pressure as taken at the gas valve pressure tap (refer to "Using a Manometer").

## C. HOW TO USE A MANOMETER

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 with water, 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.

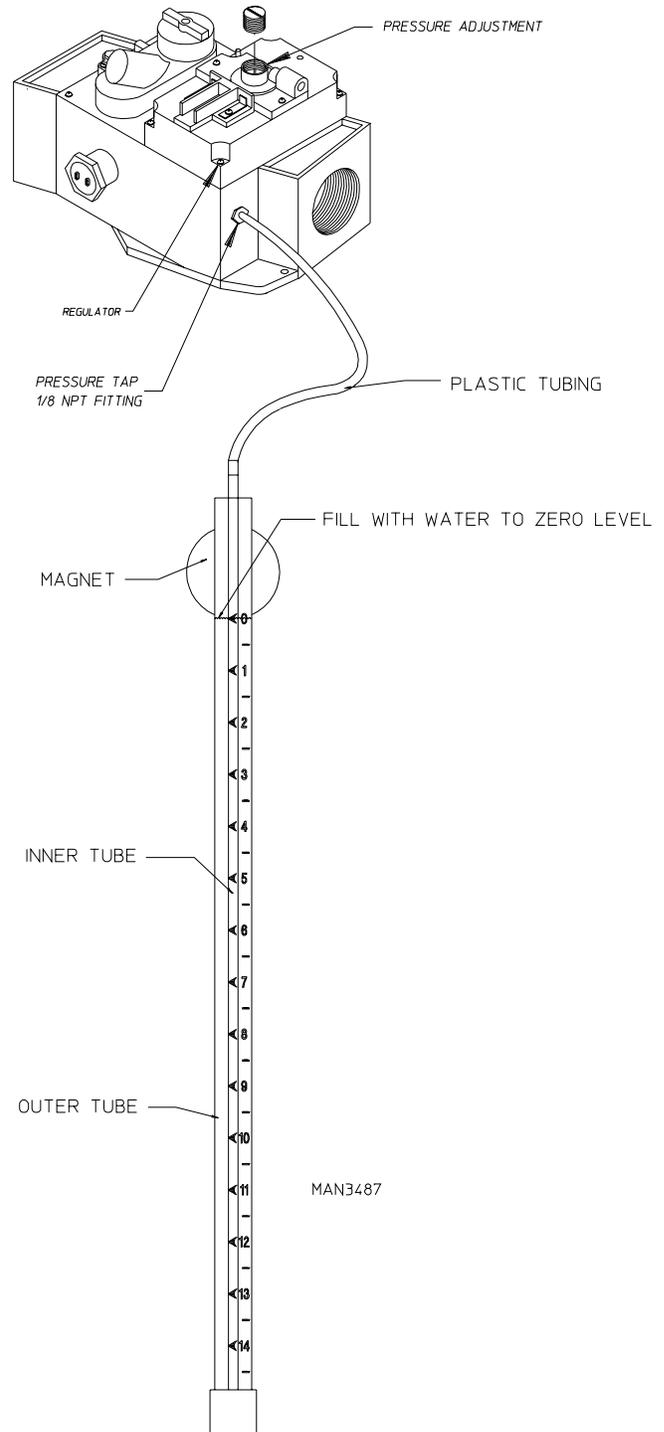
b. Correct readings **should be**:

NATURAL GAS: 3.5 inches W.C. - 8.7 mb .

L.P. GAS: 10.5 inches W.C. - 26.1 mb .

6. If water column pressure is incorrect refer to "TO ADJUST GAS PRESSURE."

7. Reverse procedure for removing manometer.



## D. ML-96 TOOL LIST

Straight Head Screwdriver

Phillips Head Screwdriver

Sensor Pin and Socket Tool (P/N 122801)

Pliers

1/4" Nut Driver

3/8" Open End Wrench

5/8" Open End Wrench

3/8" Socket Wrench

1/2" Socket or Open End Wrench

1/4" Open End Wrench

5/16" Socket or Open Wrench

1/2" Socket Wrench

7/16" Socket or Open End Wrench

5/16" Nut Driver

12" Pipe Wrench (2)

1/8" "T" Shaped or "L" Shaped Allen Wrench

3/16" "T" Shaped or "L" Shaped Allen Wrench

Wire Cutters

1/2" Allen Wrench

3/8" Allen Wrench

Channel Locks

Manometer (ADC P/N 122804)

MP Pin Extraction Tool (ADC P/N 122800)

