

AD-230/AD-235

Installation/Operator's Manual

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 death.

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

— **WHAT DO YOU DO IF YOU SMELL GAS**

- * Do not try to light any appliance.
- * Do not touch any electrical switch; do not use any phone in your building.
- * Clear the room, building or area of all occupants.
- * Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- * If you cannot reach your gas supplier, call the fire department.

— Installation and service must be performed by a qualified installer, service agency or the gas supplier.

AVERTISSEMENT: Assurez-vous de bien suivre les instructions données dans cette notice pour réduire au minimum le risque d'incendie ou d'explosion ou pour éviter tout dommage matériel, toute blessure ou la mort.

— 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.

— **QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:**

- * Ne pas tenter d'allumer d'appareil.
- * Ne touchez à aucun interrupteur. Ne pas vous servir des téléphones se trouvant dans le bâtiment où vous vous trouvez..
- * Évacuez la pièce, le bâtiment ou la zone.
- * Appelez immédiatement votre fournisseur de gaz depuis un voisin. Suivez les instructions du fournisseur.
- * Si vous ne pouvez rejoindre le fournisseur de gaz, appelez le service des incendies.

— L'installation et l'entretien doivent être assurés par un installateur ou un service d'entretien qualifié ou par le fournisseur de gaz.



For replacement parts, contact the distributor from which the dryer was purchased or

American Dryer Corporation

88 Currant Road

Fall River MA 02720-4781

Telephone: (508) 678-9000 / Fax: (508) 678-9447

E-mail: techsupport@amdry.com

040194

101398SL/mt

ADC Part No. 112160

Retain This Manual In A Safe Place For Future Reference

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

ONLY qualified technicians should service this equipment.

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

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

FOR YOUR SAFETY

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

POUR VOTRE SÉCURITÉ

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

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

Important

For your convenience, log the following information:

DATE OF PURCHASE _____ **MODEL NO.** _____

DISTRIBUTORS NAME _____

Serial Number(s) _____

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

The illustrations on the following pages may not depict your particular dryer exactly. The illustrations are a composite 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

DRYER(S) 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 DRYER(S) 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.

Table of Contents

SECTION I

IMPORTANT INFORMATION	3
A. RECEIVING and HANDLING	3
B. SAFETY PRECAUTIONS	4

SECTION II

SPECIFICATIONS	6
-----------------------------	----------

SECTION III

INSTALLATION PROCEDURES	9
A. UNPACKING/SETTING UP	9
B. LOCATION OF THE DRYER	10
C. DRYER ENCLOSURE REQUIREMENTS	11
D. FRESH AIR SUPPLY	11
E. EXHAUST REQUIREMENTS	13
F. ELECTRICAL INFORMATION	17
G. GAS INFORMATION	21
H. PREPARATION FOR OPERATION	24
I. PREOPERATIONAL TESTS	24
J. SHUT DOWN INSTRUCTIONS	27

SECTION IV

OPERATING INSTRUCTIONS	28
A. STARTING THE DRYER	28

SECTION V

SERVICE/PARTS INFORMATION	30
A. SERVICE	30
B. PARTS	30

SECTION VI

WARRANTY INFORMATION	31
A. RETURNING WARRANTY CARD(S)	31
B. WARRANTY	31
C. RETURNING WARRANTY PARTS	31

SECTION VII

ROUTINE MAINTENANCE	33
A. CLEANING	33
B. ADJUSTMENTS	35
C. LUBRICATION	35

SECTION VIII
TROUBLESHOOTING 36

SECTION IX
PROCEDURE FOR FUNCTIONAL CHECK OF REPLACEMENT COMPONENTS 42

SECTION I

IMPORTANT INFORMATION

A. RECEIVING and HANDLING

The dryer is shipped in a protective stretch wrap cover with protective cardboard corners and top cover (or optional box) as a means of preventing damage in transit. Upon delivery, the dryer and/or packaging, and wooden skid **should be** visually inspected for shipping damage. If any damage whatsoever is noticed, inspect further before delivering carrier leaves.

Dryers Damaged in Shipment:

1. **ALL** dryers **should be** inspected upon receipt and before they are signed for.
2. If there is suspected damage or actual damage, the trucker's receipt **should be** so noted.
3. If the dryer is damaged beyond repair, it **should be** refused. Those dryers which were not damaged in a damaged shipment **should be** accepted, but the number received and the number refused **must be** noted on the receipt.
4. If you determine that the dryer was damaged after the trucker has left your location, you should call the delivering carrier's freight terminal immediately and file a claim. The freight company considers this concealed damage. This type of freight claim is very difficult to get paid and becomes extremely difficult when more than a day or two passes after the freight was delivered. It is your responsibility to file freight claims. Dryer/parts damaged in transit **cannot** be claimed under warranty.
5. Freight claims are the responsibility of the consignee, and **ALL** claims **must be** filed at the receiving end. **ADC** assumes no responsibility for freight claims or damages.
6. If you need assistance in handling the situation, please contact the **ADC** Traffic Manager at (508) 678-9000.

IMPORTANT: The tumbler section of the dryer **must be** transported and handled in an upright position at all times.

B. 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, or 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-like materials. Drying in a heated basket (tumbler) 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 Electric Code ANSI/NFPA NO. 70-LATEST EDITION, or in CANADA, the Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION.

NOTE: Failure to do so will VOID THE WARRANTY.

9. **UNDER NO CIRCUMSTANCES** should the dryer door switch, lint door switch, or 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.

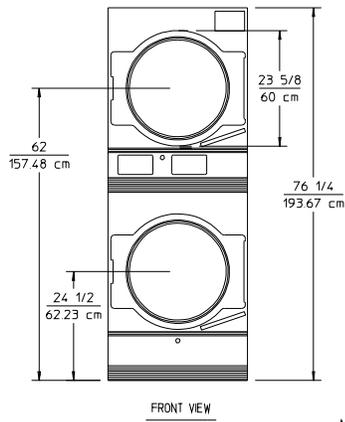
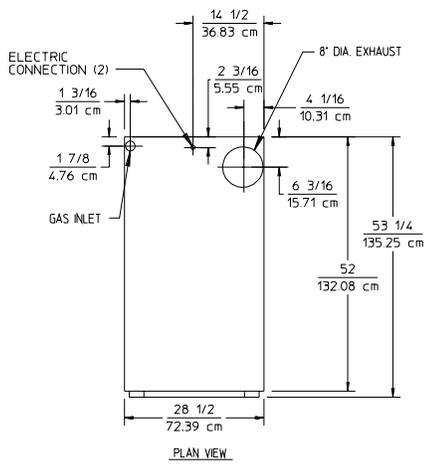
WARNING: Articles left in the dryer after the drying and cooling cycles have been completed **CAN CREATE A FIRE HAZARD.**

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

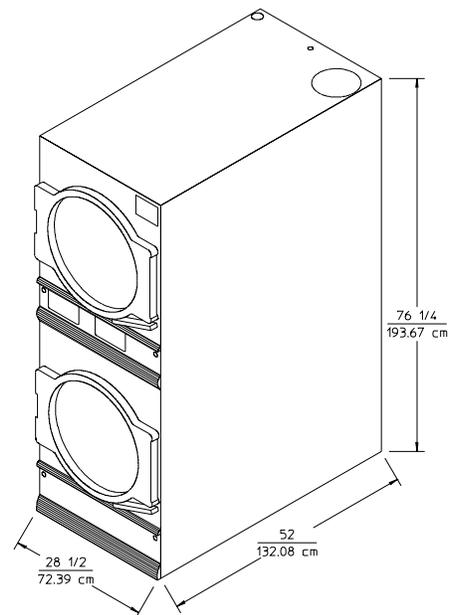
WARNING: YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY BEFORE ANY COVERS or GUARDS ARE REMOVED FROM THE MACHINE TO ALLOW ACCESS FOR CLEANING, ADJUSTING, INSTALLATION, or TESTING OF ANY EQUIPMENT per OSHA (Occupational Safety and Health Administration) STANDARDS.

SECTION II SPECIFICATIONS

ADG-230

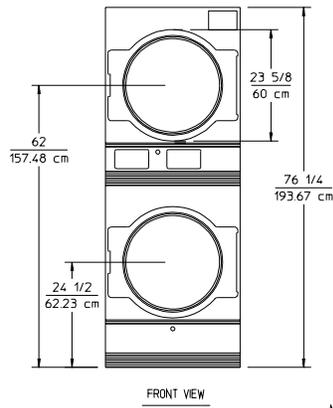
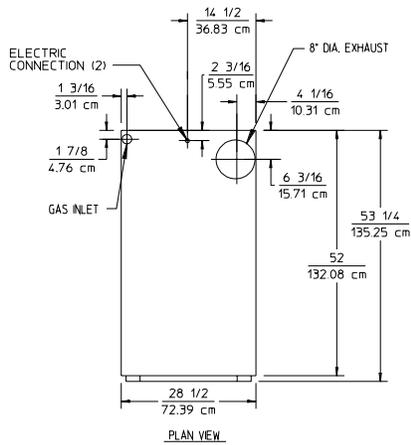


MAN1228

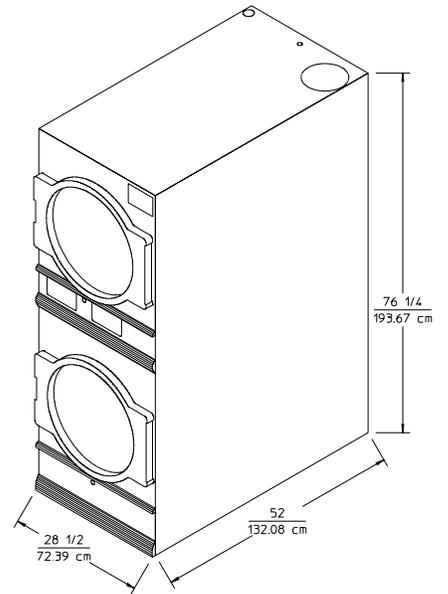


NOTE: ADC reserves the right to make changes in specifications at any time, without notice or obligation.

ADG-235



MAN1227



NOTE: ADC reserves the right to make changes in specifications at any time, without notice or obligation.

ADG-230 and ADG-235		
Maximum Capacity (DRY WEIGHT)	60 lbs	27.2 kg
Basket (TUMBLER) Diameter	27-1/4"	69.22 cm
Basket (TUMBLER) Depth	30"	76.2 cm
Basket (TUMBLER) Volume (PER BASKET)	10.1 cu.ft.	.286 cu.m.
Basket (TUMBLER) Motor (2 PLACES)	1/2 HP	.373 kw
Door Opening - Diameter (2 PLACES)	21-1/2"	54.61 cm
Airflow (PER BASKET)	800 cfm	22.65 cmm
Heat Input (TOTAL FOR BOTH BASKETS)	144,000 btu/hr	36,272 kcal/hr
Gas Inlet Size	3/4" N.P.T.	1.91 cm
Exhaust Duct Outlet	8"	20.32 cm
Approximate Weight (UNCRATED)	850 lbs	385.9 kg
Approximate Weight (CRATED)	900 lbs	408.6 kg
Voltage Available	120-240v / 1 ϕ / 50/60 Hz	
	208-240v / 3 ϕ / 50/60 Hz	

Shaded areas are shown in metric equivalents

NOTE: ADC reserves the right to make changes in specifications at any time, without notice or obligation.

SECTION III

INSTALLATION PROCEDURES

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
and/or
National Electric 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)
and/or
Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION
(for Electrical Connections)

A. UNPACKING/SETTING UP

Remove protective shipping material (i.e., plastic wrap, and/or optional shipping box) from dryer.

NOTE: The access keys for the service doors are included in the information packet shipped in the basket (tumbler). These keys **should be** removed and put in a safe place yet made accessible because some will be needed throughout various phases in the installation of the dryer.

Dryers are shipped with a coin box and coin box faceplate ONLY. The coin box lock **is not** included and **must be** purchased elsewhere or the lock can be ordered as a parts order from the **ADC** factory.

The dryer can be moved to its final location while still attached to the skid or with the skid removed. To unskid the dryer, locate and remove the four (4) bolts securing the base of the dryer to the wooden skid. Two (2) are at the rear of the base, and two (2) are located in the front. Once the bolts are removed, slide the dryer off the skid.

With the skid removed, to make it easier to slide the dryer into its final position, slightly lower **ALL** four (4) leveling legs, so that the dryer will slide on the legs instead of the base frame. The dryer is equipped with four (4) leveling legs, one at each corner of the dryer base. The hex head adjustment bolts for the two (2) front leveling legs are located directly behind the lower access door, and the rear two (2) adjustments are directly behind the lower rear back (guard) panel.

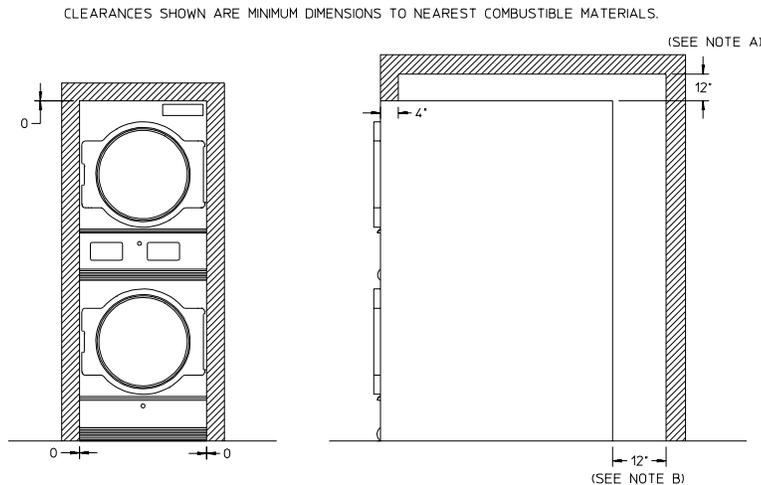
B. LOCATION OF THE DRYER

Before installing the dryer, be sure the location conforms to local codes and ordinances. In the absence of such codes or ordinances the location **must conform** with the National Fuel Gas Code ANSI.Z223.1-LATEST EDITION, or in CANADA, the Canadian Installation Codes CAN/CGA-B149.1-M91 (Natural Gas) or CAN/CGA-B149.2-M91 (L.P. Gas) or LATEST EDITION.

1. The dryer **must be** installed on a sound level floor capable of supporting its weight. It is recommended that carpeting be removed from the floor area that the dryer is to rest on.
2. The dryer **must not be** installed or stored in an area where it will be exposed to water and/or weather.
3. The dryer is for use in noncombustible locations.
4. Provisions for adequate air supply **must be** provided as noted in this manual (refer to **Fresh Air Supply** in Section D).
5. Clearance provisions **must be** made from non-combustible construction as noted in this manual (refer to **Dryer Enclosure Requirements** in Section C).

Even though a 12-inch clearance is acceptable, it is recommended that the rear of the dryer be positioned approximately 2 feet away from the nearest obstruction, i.e., wall, for ease of installation, maintenance, and service. (Refer to the illustration below.)

6. Provisions **must be** made for adequate clearances for servicing and for operation as noted in this manual (refer to **Dryer Enclosure Requirements** in Section C).
7. Dryer **must be** exhausted to the outdoors in an area where correct exhaust venting can be achieved as noted in this manual (refer to **Exhaust Requirements** in Section E).
8. Dryer **must be** located in an area where correct exhaust venting can be achieved as noted in this manual (refer to **Exhaust Requirements** in Section E).



NOTES:

- A. MINIMUM OF 12" CLEARANCE IS ACCEPTABLE FOR EASE OF INSTALLATION AND SERVICE (POWER CONNECTIONS). AT LEAST 18" IS RECOMMENDED.
- B. MINIMUM OF 12" CLEARANCE IS ACCEPTABLE FOR EASE OF INSTALLATION, MAINTANCE AND SERVICE. AT LEAST 24" IS RECOMMENDED.

IMPORTANT: Dryer *should be* located where a minimum amount of exhaust duct *will be* necessary.

C. DRYER ENCLOSURE REQUIREMENTS

Bulkheads and partitions **should be** made of noncombustible materials and **must be** located a minimum of twelve (12) inches (18-inches or more is recommended for ease of installation, maintenance, and service) above the dryer outer top, except along the front of the dryer which may be closed in if desired.

NOTE: Even though a minimum of 12-inches above the dryer outer top is acceptable, a clearance of 18-inches (or more) is suggested for ease of installation and service (electrical power connections).

NOTE: When fire sprinkler systems are located above the dryers, a minimum of 12-inches above the dryer outer top is required.

NOTE: Allowances **must be** made for opening the control door.

Dryers may be positioned side wall to side wall. However, allowances **must be** made for opening and closing of the control door and the lint door. It is suggested that the dryer be positioned about two (2) feet away from the nearest obstruction for ease of installation, maintenance, and service (to be measured from the back guard.) (Refer to the **previous illustration** (on **page 10**) for details.)

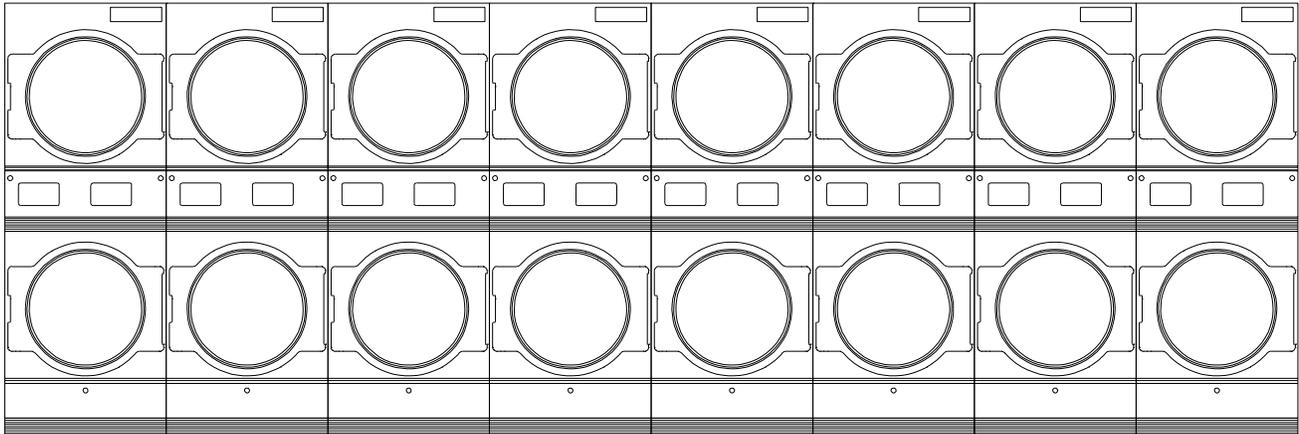
NOTE: Air considerations are important for proper and efficient operation.

D. FRESH AIR SUPPLY

Air supply (make-up air) **must be** given careful consideration to assure proper performance of each dryer. An unrestricted source of 800 cfm is necessary for each dryer. An unrestricted air entrance from the outdoors (atmosphere) of a minimum of 1-1/2 square feet is required for each dryer. This area **must be** enlarged if louvers or registers cover the opening. It is not necessary to have a separate make-up air opening for each dryer. Common make-up air openings are acceptable. However, they **must be** set up in such a manner that the make up air is distributed equally to the dryers. For example, for a bank of eight (8) dryers, a total make-up air opening of 12 square feet is required. Two (2) openings measuring 2' by 3' (6 square feet) are acceptable. (Refer to the **illustration** on **page 12**.)

Allowances **must be** made for remote or constricting passageways or where dryers are located at excessive altitudes or predominantly low-pressure areas.

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



MAN1226

TYPICAL INSTALLATION SHOWING MAKE-UP AIR OPENINGS

IMPORTANT: Make-up air openings **SHOULD NOT** be located near duct work exhaust outlets. If make-up air opening(s) are too close to the exhaust outlet, lint and fumes may be drawn back into the dryer area through these openings.

NOTE: Component failure due to dry cleaning fumes will VOID THE WARRANTY.

E. EXHAUST REQUIREMENTS

Exhaust duct work **should be** designed and installed by a qualified professional. Improperly sized duct work will create excessive back pressure which results in slow drying, increased use of energy, overheating of the dryer, and shutdown of the burner by the airflow (sail) switches, burner hi-limits, or basket (tumbler) hi-heat thermostats.

CAUTION: IMPROPERLY SIZED OR INSTALLED EXHAUST DUCT WORK CAN CREATE A POTENTIAL FIRE HAZARD.

The exhaust duct work **should be** laid out in such a way that the duct work travels as directly as possible to the outdoors with as few turns as possible. When single dryer venting is used, the duct work from the dryer to the outside exhaust outlet **should not** exceed twenty (20) feet. In the case of multiple (common) dryer venting, the distance from the last dryer to the outside exhaust outlet **should not** exceed twenty (20) feet. The shape of the exhaust duct work is not critical so long as the minimum cross-sectional area is provided.

1. SINGLE DRYER VENTING

Where possible, it is suggested to provide a separate exhaust duct for each dryer. The exhaust duct work **should be** laid out in such a way that the duct work travels as directly as possible to the outdoors with as few turns as possible. It is suggested that the use of 90° turns in ducting be avoided; use 30° or 45° angles instead. The shape of the exhaust duct work is not critical so long as the minimum cross-sectional area is provided.

IMPORTANT: Exhaust back pressure measured by a manometer at each basket exhaust duct area **should not** exceed 0.3 inches of water column.

It is suggested that the duct work from each dryer not exceed 20 feet with no more than two (2) elbows. If the duct work exceeds 20 feet or has numerous elbows, the cross-sectional area of the duct work **must be** increased in proportion to length or number of elbows in it.

IMPORTANT: For extended duct work runs, the cross-sectional area of the duct work can only be increased to an extent. When the duct work approaches the maximum limits as noted in this manual, a professional HVAC firm **should be** consulted for proper venting information.

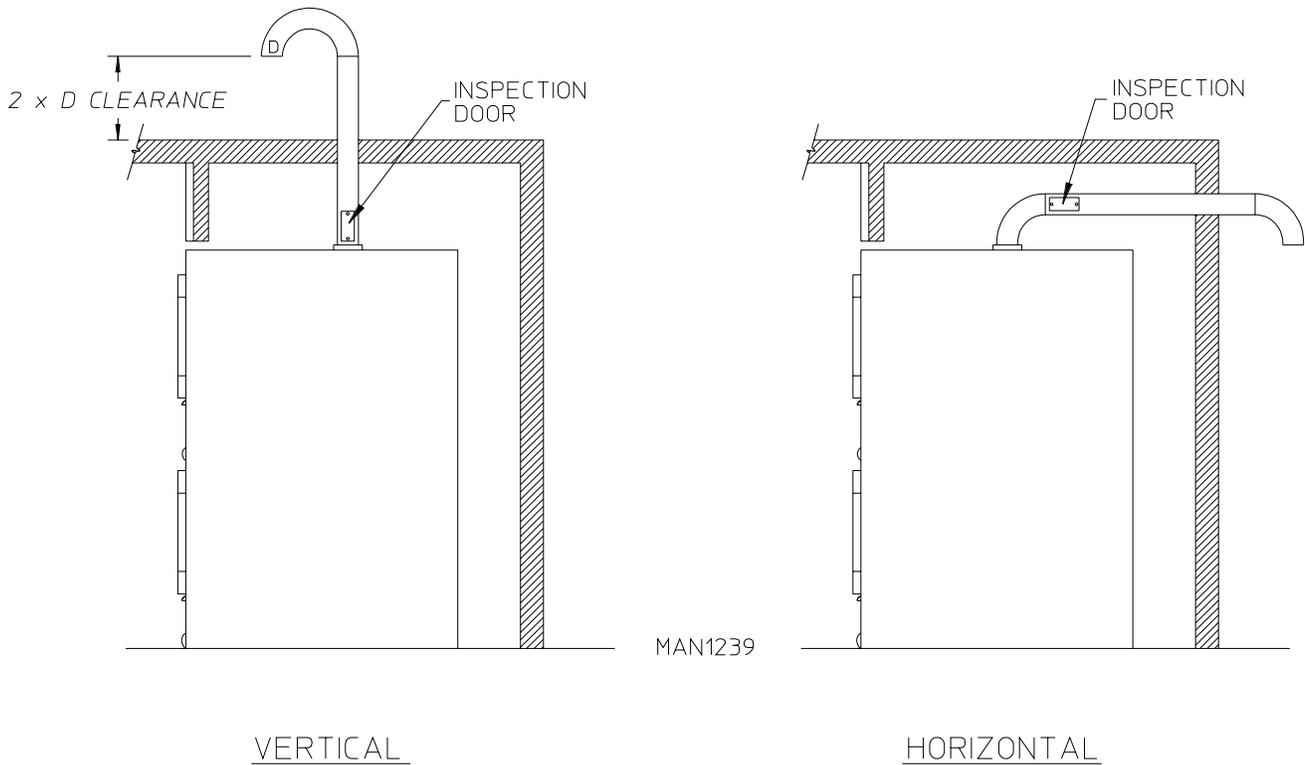
The duct work **should be** smooth inside with no projections from sheet metal screws or other obstructions which will collect lint. When adding ducts, the duct to be added should overlap the duct to which it is to be connected. **ALL** duct work joints must be taped to prevent moisture and lint from escaping into the building. Also, inspection doors **should be** installed at strategic points in the exhaust duct work for periodic inspection and cleaning.

NOTE: Where the exhaust duct passes through a wall, ceiling, or roof made of combustible materials, the opening **must be** 2-inches larger (all the way around) than the duct. The duct **must be** centered within this opening.

To protect the outside end of the horizontal duct work from the weather, a 90° elbow bent downward **should be** installed where the exhaust exits the building. If the exhaust duct work travels vertically up through the roof, it **should be** protected from the weather by using a 180° turn to point the opening downward. In either case, allow at least twice the diameter of the duct between the duct opening and nearest obstruction.

ADG-230 and ADG-235
SINGLE DRYER VENTING

SINGLE DRYER VENTING



IMPORTANT: DO NOT use screens or caps on the outside opening of exhaust duct work.

2. MULTIPLE DRYER (Common) VENTING

If it is not feasible to provide separate exhaust ducts for each dryer, ducts from individual dryers may be channeled into a "common main duct." The individual ducts should enter the bottom or side of the main duct at an angle not more than 45° in the direction of the airflow. The main duct should be tapered, with the diameter increasing before each individual 8-inch duct is added.

IMPORTANT: No more than eight (8) dryers *should be* connected to one main common duct.

NOTE: Refer to the **illustration** on **page 16** for examples of multiple dryer (common) venting.

The main duct may be any shape so long as the minimum cross-sectional area is provided. The **illustration** on **page 16** shows the minimum cross-sectional area for multiple dryer venting. These figures **must be** increased in proportion if the main duct run from the last dryer to where it exhausts to the outdoors is unusually long (over 20 feet) or has numerous elbows (more than two [2]) in it.

IMPORTANT: For extended duct work runs, the cross section area of the duct work can only be increased to an extent. Maximum proportional duct work runs **cannot** exceed 20 feet more than the original limitations of 20 feet with two (2) elbows. When the duct work approaches the maximum limits as noted in this manual, a professional HVAC firm *should be* consulted for proper venting information.

IMPORTANT: Exhaust back pressure measured by a manometer at each basket (tumbler) exhaust duct area *should not* exceed 0.3 inches W.C. (water column).

The duct work **should be** smooth inside with no projections from sheet metal screws or other obstructions which will collect lint. When adding ducts, the duct to be added should overlap the duct to which it is to be connected. **ALL** duct work joints **must be** taped to prevent moisture and lint from escaping into the building. Also, inspection doors **should be** installed at strategic points in the exhaust duct work for periodic inspection and cleaning.

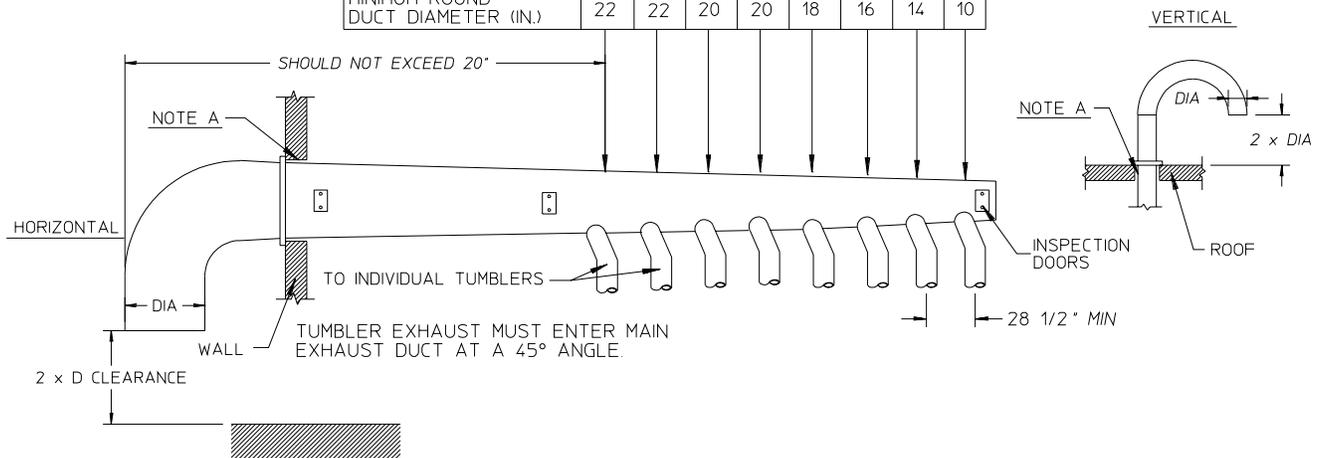
NOTE: Where the exhaust passes through a wall, ceiling, or roof made of combustible materials, the opening *must be* 2-inches larger (all the way around) than the duct. The duct *must be* centered within this opening.

To protect the outside end of the horizontal duct work from the weather, a 90° elbow bent downward **should be** installed where the exhaust exits the building. If the exhaust duct work travels vertically up through the roof, it **should be** protected from the weather by using a 180° turn to point the opening downward. In either case, allow at least twice the diameter of the duct between the duct opening and nearest obstruction.

ADG-230 and ADG-235
MULTIPLE DRYER VENTING
 with 8" DIAMETER EXHAUST CONNECTIONS AT COMMON DUCT

MULTIPLE DRYER VENTING
 WITH AN 8" DIAMETER EXHAUST CONNECTIONS AT COMMON DUCT

NO. OF DRYERS	8	7	6	5	4	3	2	1
MINIMUM CROSS SECTION AREA (SQ.IN.)	380	380	315	315	255	200	155	80
MINIMUM ROUND DUCT DIAMETER (IN.)	22	22	20	20	18	16	14	10



IMPORTANT: NO MORE THAN 8 DRYERS CAN
 BE CONNECTED TO ONE COMMON DUCT (VENT).

MAN1224

FORMULAS TO CALCULATE DUCTING CROSS SECTIONAL AREA	
CROSS SECTIONAL AREA OF A ROUND DUCT = $.785 \times \text{DIA}^2$	
CROSS SECTIONAL AREA OF A RECTANGULAR DUCT = WIDTH x HEIGHT.	

NOTE A: OPENING MUST BE TWO (2) INCHES LARGER THAN DUCT (ALL THE WAY AROUND). THE DUCT MUST BE CENTERED WITHIN THIS OPENING.

IMPORTANT: DO NOT use screens or caps on the outside opening of exhaust duct work.

F. ELECTRICAL INFORMATION

1. Electrical Requirements

It is your responsibility to have **ALL** electrical connections made by a properly licensed and competent electrician to assure that the electrical installation is adequate and conforms with local and state regulations or codes. In the absence of such codes, **ALL** electrical connections, materials, and workmanship **must conform** to the applicable requirements of the National Electric Code ANSI/NFPA NO.70-LATEST EDITION, or in CANADA, the Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION..

IMPORTANT: Failure to comply with these codes or ordinances, and/or the requirements stipulated in this manual, can result in PERSONAL INJURY or COMPONENT FAILURE.

NOTE: Component failure due to improper installation will VOID THE WARRANTY.

A separate circuit serving each dryer **must be** provided. The dryer **must be** connected to copper wire ONLY. **DO NOT** use aluminum wire which could cause a fire hazard.

NOTE: The use of aluminum wire will VOID THE WARRANTY.

IMPORTANT: The dryer **must be** connected to the electrical supply shown on the data label affixed to the dryer. In the case of 208 VAC or 240 VAC, the supply voltage **must match** the electric service specifications of the data label **exactly**.

WARNING: **208 VAC and 240 VAC ARE NOT THE SAME**. Any damage done to dryer components due to improper voltage connections will automatically VOID THE WARRANTY.

NOTE: On gas dryers, to convert from 208 VAC to 240 VAC (or vice versa), the Direct Spark Ignition (DSI) transformer wiring **must be** changed.

2. Grounding

A ground (earth) connection **must be** provided and installed in accordance with state and local codes. In the absence of these codes, grounding **must conform** to applicable requirements of the National Electric Code ANSI/NFPA NO. 70-LATEST EDITION, or in CANADA, the Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION. The ground connection may be to a proven earth ground at the location service panel.

For added personal safety, when possible, it is suggested that a separate ground wire (per local codes) be connected from the ground connection of the dryer to a grounded cold water pipe. **DO NOT ground to a gas pipe or hot water pipe.** The grounded cold water pipe **must have** metal to metal connection all the way to electrical ground. If there are any nonmetallic interruptions, such as, a meter, pump, plastic, rubber, or other insulating connectors, they **must be** jumped with no. 4 copper wire and securely clamped to bare metal at both ends.

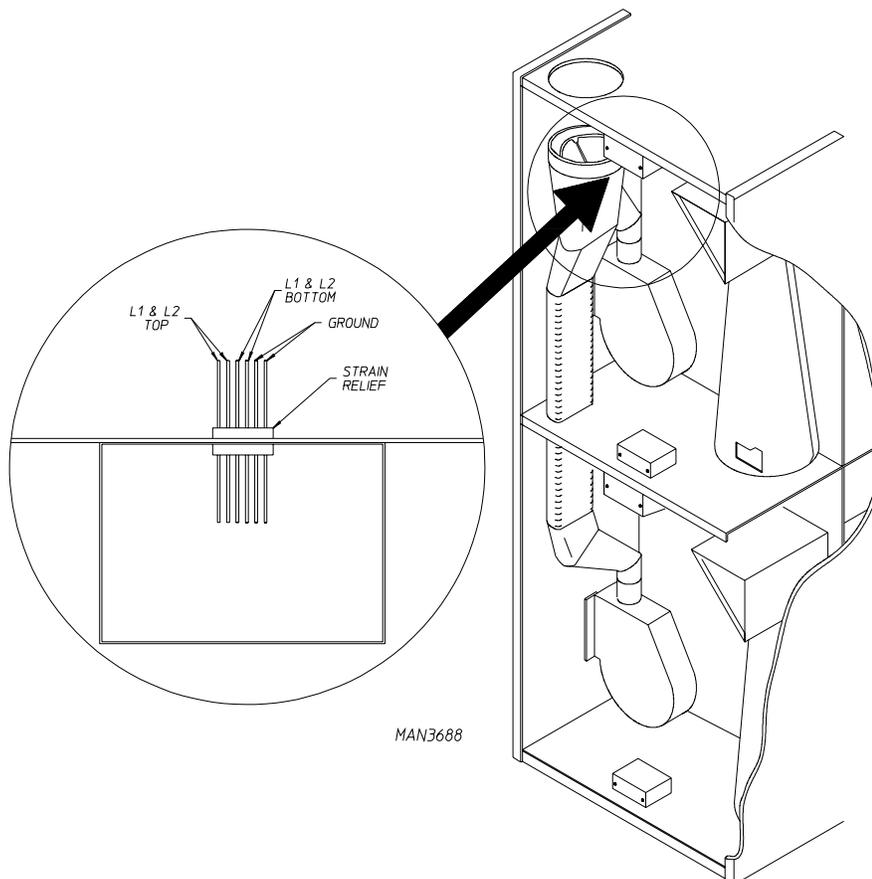
IMPORTANT: For personal safety and proper operation, the dryer **must be** grounded.

3. Electrical Connections

A wire diagram is located on the inside of the control (service) box for connection data.

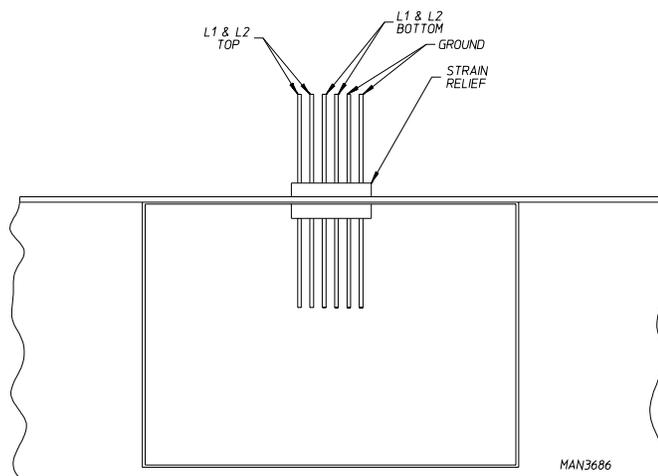
a. Single-Phase (1Ø) Hookup

The electrical connections on **ALL** single-phase (1Ø) dryers are made into the junction box located at the upper rear of the dryer. A separate circuit serving each dryer tumbler **must be** provided.



Single-Phase (1Ø) Electrical Connection Leads		
Black + Positive	White - Neutral	Green Ground
or L2		

Providing local codes permit, power to the dryer can be made by use of a flexible U.L. listed power cord/pigtail (wire size **must conform** to the rating of the dryer), or the dryer can be hard wired directly to the service breaker panel. In both cases, a strain relief **must be** installed where the wiring enters the dryer.



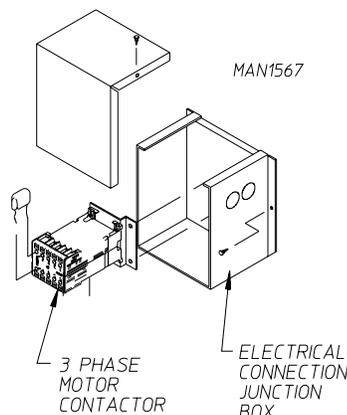
4. 3-Phase (3Ø) Wiring Connections

The only electrical input connections to the dryer are the 3-phase (3Ø) power leads (L1, L2, L3, and sometimes Neutral) and ground. Single phase (1Ø) power for the control circuit and for any single-phase (1Ø) motors (if present) is done internally to the dryer. No single-phase (1Ø) input connection is required on a 3-phase (3Ø) dryer.

a. 3-Phase (3Ø) Hookup

For gas dryers manufactured for operation at 3-phase (3Ø), the electrical connections are made at the power distribution block located in the service box at the rear, upper left corner of the dryer. To gain access to the service box and contactor, the service box cover **must be** removed.

Providing local codes permit, power to the dryer can be made by use of a flexible U.L. listed power cord/pigtail (wire size **must conform** to the rating of the dryer), or the dryer can be hard wired directly to the service breaker panel. In both cases, a strain relief **must be** installed where the wiring enters the dryer.



ADG-230 AND ADG-235

ELECTRIC SERVICE SPECIFICATIONS (per dryer)

IMPORTANT: 208 VAC and 230/240 VAC ARE NOT THE SAME. When ordering, specify exact voltage.

NOTES: A. Circuit breakers are thermal magnetic (industrial) type **ONLY**. For others, calculate/verify correct breaker size according to appliance amp draw rating and type of breaker used.
 B. Circuit breakers for 3 dryers **must be** 3-pole type.

SERVICE VOLTAGE	PHASE	WIRE SERVICE	APPROX. AMP DRAW	MINIMUM WIRE SIZE*	CIRCUIT BREAKER
120	1Ø	2	8.6	14	20
208	1Ø	2	5.1	14	15
230/240	1Ø	2	4.8	14	15
208	3Ø	3	2.9	14	15
230/240	3Ø	3	3.2	14	15
380	3Ø	3	2.1	14	15
416	3Ø	3	2.2	14	15
460	3Ø	3	2.1	14	15
480	3Ø	3	2.1	14	15
575	3Ø	3	1.8	14	15
380	3Ø	4	2.1	14	15
416	3Ø	4	2.2	14	15
460	3Ø	4	2.1	14	15
480	3Ø	4	2.1	14	15

* AWG Stranded Type Wire ... for individual lengths less than 100 feet.

NOTE: Contact factory for electrical information not listed.

NOTE: ADC reserves the right to make changes in specifications at any time without notice or obligation.

G. GAS INFORMATION

It is your responsibility to have **ALL** plumbing connections made by a qualified professional to assure that the gas plumbing installation is adequate and conforms with local and state regulations or codes. In the absence of such codes, **ALL** plumbing connections, materials, and workmanship **must conform** to the applicable requirements of the National Fuel Gas Code ANSI Z223.1-LATEST EDITION, or in CANADA, the Canadian Installation Codes CAN/CGA-B149.1-M91 (Natural Gas) or CAN/CGA-B149.2-M91 (L.P. Gas) or LATEST EDITION.

IMPORTANT: Failure to comply with these codes or ordinances, and/or the requirements stipulated in this manual, can result in PERSONAL INJURY and IMPROPER OPERATION of the dryer.

The dryer and its individual shut-off valve **must be** disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.5 kPa).

The dryer **must be** isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply system at test pressures equal to or less than 1/2 psig (3.5 kPa).

IMPORTANT: Failure to isolate or disconnect the dryer from supply as noted can cause irreparable damage to the gas valve VOIDING THE WARRANTY.

WARNING: FIRE or EXPLOSION COULD RESULT.

1. Gas Supply

The gas dryer installation **must meet** the American National Standard...National Fuel Gas Code ANSI Z223.1-LATEST EDITION, or in CANADA, the Canadian Installation Codes CAN/CGA-B149.1-M91 (Natural Gas) or CAN/CGA-B149.2-M91 (L.P. Gas) or LATEST EDITION. as well as local codes and ordinances and **must be** done by a qualified professional.

NOTE: Undersized gas piping will result in ignition problems, slow drying, increased use of energy, and can create a safety hazard.

The dryer **must be** connected to the type of heat/gas indicated on the dryer data label. If this information does not agree with the type of gas available, **DO NOT operate the dryer**. Contact the distributor who sold the dryer or the ADC factory.

IMPORTANT: Any burner changes or conversions **must be** made by a qualified professional.

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

2. Technical Gas Data

a. Gas Specifications

	TYPE OF GAS	
	Natural	Liquid Propane (L.P.)
Manifold Pressure*	3.5 inches W.C.	10.5 inches W.C.
Inline Pressure	6.0 - 12.0 inches W.C.	10.5 inches W.C.

* Measured at gas valve pressure tap when the gas valve is on.
W.C. = Water Column in inches.

ADG-230 AND ADG-235	
Gas Inlet Size	3/4" N.P.T.
Btu/hr Input (each basket/tumbler)	72,000
Btu/hr (total for both baskets/tumblers)	144,000

N.P.T. = National Pipe Thread.

b. Natural Gas

Regulation is controlled by each gas valve's internal regulator. Incoming supply pressure **must be** consistent between a minimum of 6.0 inches and a maximum of 12.0 inches water column pressure.

c. Liquid Propane (L.P.) Gas

Dryers made for use with L.P. gas have the gas valve's internal pressure regulator blocked open so that the gas pressure **must be** regulated upstream of the dryer. The pressure measured at each gas valve pressure tap **must be** a consistent 10.5 inches water column. There is no regulator or regulation provided in an L.P. dryer. The water column pressure **must be** regulated at the source (L.P. tank) or an external regulator **must be** added to each dryer.

3. Piping Connections

ALL components / materials **must conform** to National Fuel Gas Code specifications, or in CANADA, the Canadian Installation Codes (for General Installation and Gas Plumbing).

It is important that the gas pressure regulators meet applicable pressure requirements and that gas meters be rated for the total amount of **ALL** the appliance Btu's being supplied.

The dryer is provided with a 3/4" N.P.T. inlet pipe connection at the upper right hand corner (when viewed from the rear) of each dryer. It is recommended that a gas shutoff valve be provided to the gas supply line of each dryer for ease of servicing.

The size of the main gas supply line (header) will vary depending on the distance this line travels from the gas meter (or in the case of L.P. [liquid propane] gas, the supply tank), the number of tees, other gas-operated appliances on the supply line, etc. Specific information regarding supply line size **should be** determined by the gas supplier.

NOTE: Undersized gas supply piping can create a low or inconsistent pressure which will result in erratic operation of the burner ignition system.

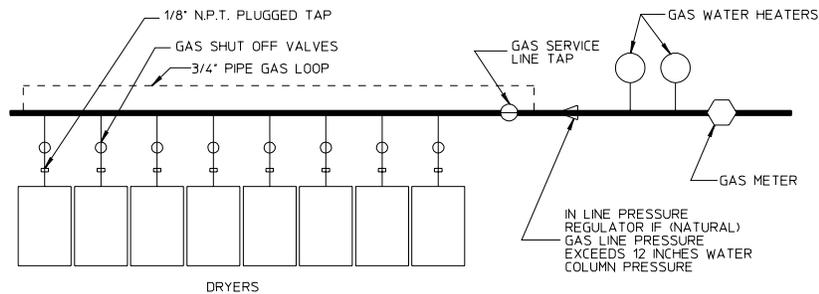
Consistent gas pressure is essential at **ALL** gas connections. It is recommended that a 3/4" pipe loop be installed in the supply line serving the bank of dryers. An in-line pressure regulator **must be** installed in the gas supply line (header) if (natural) gas line pressure exceeds 12.0 inches water column pressure. (Refer to the illustration below for details.)

IMPORTANT: Water column pressure of 3.5 inches for natural gas dryers and 10.5 inches for L.P. gas is required at the gas valve pressure tap of each dryer for proper and safe operation.

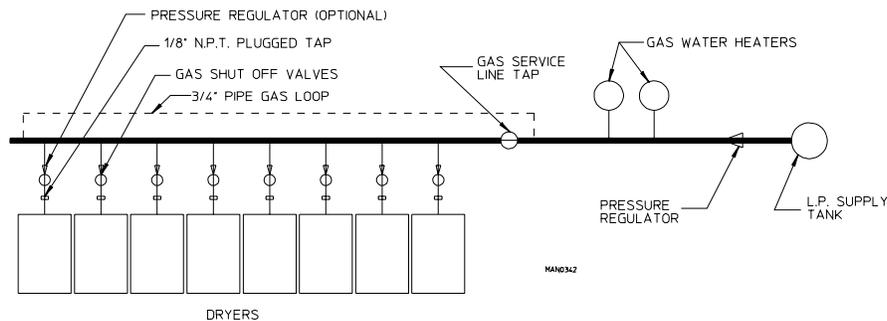
A 1/8" N.P.T. plugged tap, accessible for a test gauge connection, **must be** installed in the main gas supply line immediately upstream of each dryer.

IMPORTANT: Pipe joint compounds that resist the action of natural gas and L.P. gas **must be** used.

TYPICAL NATURAL GAS INSTALLATION



TYPICAL L.P. GAS INSTALLATION



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

It is important that gas pressure regulators meet applicable pressure requirements and that gas meters be rated for the total amount of appliance Btu's being supplied.

H. PREPARATION FOR OPERATION

The following items **should be** checked before attempting to operate the dryer:

1. Read ALL "CAUTION," "WARNING," and "DIRECTION" labels attached to the dryer.
2. Check incoming supply voltage to be sure that it is the same as indicated on the dryer data label affixed on the back of the dryer control (service) door.
3. **GAS MODELS** - check to assure that the dryer is connected to the type of heat/gas indicated on the dryer data label.
4. **GAS & ELECTRIC MODELS** - the sail switch damper assembly was installed and adjusted at the factory prior to shipping. However, each sail switch adjustment **must be** checked to assure that this important safety control is functioning.
5. Check bolts, nuts, screws, terminals, and fittings for tightness.
6. **GAS MODELS** - be sure that ALL gas shut-off valves are in the open position.
7. Be sure ALL back guard panels and service box covers have been replaced..
8. Check the lint door to assure that it is closed and secured in place.
9. Rotate the basket (tumbler) by hand to be sure it moves freely.

I. PREOPERATIONAL TESTS

ALL dryers are thoroughly tested and inspected before leaving the factory. However, a preoperational test **should be** performed before the dryer is publicly used. It is possible that adjustments have changed in transit or due to marginal location (installation) conditions.

1. Turn on electric power to the dryer.
 - a. **COIN MODELS ONLY**
 - 1) The L.E.D. display(s) will flash back and forth between "FILL" and the amount needed to start the dryer (i.e., "25"), meaning that the dryer is available and 25¢ is required to start it.

- 2) Insert the proper number of coins into coin acceptor. Once the correct amount needed to start the dryer has been inserted, the L.E.D. display(s) will read "PUSH".
- 3) Start the dryer by pressing the desired setting (i.e, "LO" selection for the upper basket/tumbler). The L.E.D. display will now read the selection (setting) made and the amount of time vended (i.e., "LO 10").

NOTE: The dryer can be stopped at any time by opening the main door. To restart dryer, shut the main door and press desired setting.

- 4) Open main door to stop the dryer, and change selection to "PERM PRESS" (medium) setting. Repeat this procedure, but change the selection (setting) to "HI" (high). This will confirm that setting key circuits and door switch circuits are functioning properly.
- 5) Repeat above procedure for the other basket (tumbler).

b. OPL (NON-COIN) MODELS ONLY

- 1) The L.E.D. display(s) will read "FILL" meaning that the dryer is available.
- 2) Start the dryer by pressing the "E" of the keyboard (touchpad). The L.E.D. display will quickly show "Ld 30", "LC 04", "F 180". The dryer will start and the L.E.D. display will show "dr 30".

NOTE: The dryer can be stopped at any time by opening the main door. To restart the dryer, shut the main door and press "ENTER/START".

- 3) Repeat above procedure for the other basket (tumbler).

2. Heat Circuit Operational Test.

- a. When a gas dryer is first started (during initial start-up), it has a tendency not to ignite on the first ignition attempt. This is because the gas supply piping is filled with air, so it may take a few minutes for the air to be purged from the lines.

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

NOTE: Gas dryers are equipped with a Direct Spark Ignition (DSI) system which has internal diagnostics. If ignition is not established after the first attempt, the heat circuit in the DSI module will lock out until it is manually reset. To reset the DSI system, open and close the main door and restart the dryer.

- b. Once ignition is established, 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 of the gas valve body):

Natural Gas 3.5 Inches Water Column

L.P. Gas 10.5 Inches Water Column

IMPORTANT: **THERE IS NO REGULATOR PROVIDED IN AN L.P. DRYER.** The water column (W.C.) pressure *must be* regulated at the source (L.P. tank) or an external regulator *must be* added to each dryer.

3. Make a complete operational check of **ALL** the operating controls to insure that the timing is correct and that the temperatures are set properly.
4. Make a complete operational check of **ALL** safety-related circuits (i.e., door switches, hi-limit thermostats, sail switches, basket (tumbler) safety thermostats, etc.).

NOTE: The sail switch can be checked for proper operation by opening the control door while the dryer is running and the heating unit (burner) active (on). The heating unit(s) should shut off within a few seconds. If not, make the necessary adjustments.

5. Each basket (tumbler) **should be** operated through one (1) complete cycle to assure that no further adjustments are necessary and that **ALL** components are functioning properly.

IMPORTANT: The dryer baskets (tumblers) are treated with a protective coating. This coating can be removed by tumbling old clothes or material in the baskets (tumblers) using a mild detergent to remove the protective coating.

NOTE: Drying and cooling cycles are complete when the L.E.D. display reads ... "donE".

6. Computer Programs / Selections...

Each microprocessor controller (computer) has been preprogrammed by the factory with the most commonly used program (parameter) selections. If microprocessor controller (computer) program changes are required, refer to the computer programming manual which was shipped with the dryer.

7. On models manufactured for 3-phase (3Ø) electrical input voltage, check the electrical service phase sequence. While the dryer is operating, check to see if the baskets (tumblers) are rotating in the clockwise (CW) direction (when viewed from the front of the dryer). If the baskets (tumblers) rotate counterclockwise (CCW), the phasing is incorrect. Reverse the two (2) leads at connections L1, L2, or L3 of the power supply to the dryer.

J. SHUT DOWN INSTRUCTIONS

In the case where the dryer is to be shut down (taken out of service) for a period of time, the following **MUST BE** performed:

1. Discontinue power to the dryer either at the external disconnect switch or the circuit breaker.
2. Discontinue the gas supply (for GAS MODELS ONLY):
 - 1) **SHUT OFF external gas supply shut-off valve** (for both the top basket [tumbler] and the bottom basket [tumbler] where the independent supply line for each basket [tumbler] is used).
 - 2) **SHUT OFF internal gas supply shut-off valve located in the gas valve burner area** (for both the top basket [tumbler] and the bottom basket [tumbler]).

SECTION IV

OPERATING INSTRUCTIONS

A. STARTING THE DRYER

The dryer is available for use when the appropriate microprocessor (computer) L.E.D. display reads "FILL" and/or the amount needed to start the dryer (i.e., "25"). Once the load has been put into the dryer and the main door is closed, start the dryer as follows:

1. Insert the proper number of coins into the coin acceptor. Once the correct "Amount To Start" has been inserted, the L.E.D. display will read "PUSH".
2. Determine fabric setting (selection). Setting "HI TEMP" is the high temperature range, "PERM PRESS" is the medium-range temperature setting, and "LO TEMP" is the low-range temperature.

Once the fabric temperature setting (selection) has been determined, start the dryer by pressing the fabric setting key.

3. The dryer will now start, and the L.E.D. display will read the setting and the time vended (i.e., "LO 10").
4. The cycle time will count down until the drying and cooling cycles are completed.
5. Upon completion of the drying cycle and cooling cycle, the dryer will shut off, the tone (buzzer) will sound for five (5) seconds, and the L.E.D. display will read "donE".

NOTE: If the Anti-Wrinkle program is active, the L.E.D. display will remain reading "donE," and the microprocessor controller (computer) will proceed through the Anti-Wrinkle program until the maximum "Active Guard Time" has expired or until the main door is opened, whichever comes first.

NOTE: If the Anti-Wrinkle program is not active or in use, the L.E.D. display will read "donE" until the main door is opened, at which time, the L.E.D. display will read "FILL" and/or the "Amount To Start".

a) *Notes*

- 1) The dryer basket (tumbler) can be stopped at any time by opening the main door. To restart dryer, shut the main door and press desired setting.

NOTE: When a cycle is interrupted by opening the main door, the cycle time will continue to count downward, regardless if the door is open or closed until a keyboard (touchpad) selection is made.

- 2) Selection (setting) changes can be made at any time during the drying cycle by opening and closing the main door and then making a new selection.
- 3) Additional time can be purchased at any time. If the dryer is in operation (drying mode) and additional coins are inserted, the L.E.D. display will change to display the appropriate time vended.

SECTION V

SERVICE/PARTS INFORMATION

A. SERVICE

1. Only properly licensed or trained technicians should service the dryer. If service is required, contact the distributor from whom the **ADC** equipment was purchased. If the distributor **cannot** be contacted or is unknown, contact the **ADC** Service Department for a distributor in your area.

NOTE: When contacting the **ADC** Service Department, be sure to give them the correct **model number** and **serial number** so that your inquiry is handled in an expeditious manner.

B. PARTS

1. Replacement parts **should be** purchased from the distributor from whom the **ADC** equipment was purchased. If the distributor **cannot** be contacted or is unknown, contact the **ADC** Parts Department for a distributor in your area. Parts may also be purchased directly from the factory by calling the **ADC** Parts Department at (508) 678-9010 or you may FAX in your order at (508) 678-9447.

NOTE: When ordering replacement parts from the **ADC** dealer or the **ADC** factory be sure to give them the correct **model number** and **serial number** so that your parts order can be processed in an expeditious manner.

SECTION VI

WARRANTY INFORMATION

A. RETURNING WARRANTY CARD(S)

1. Before any dryer leaves the **ADC** factory test area, a warranty card (**ADC** Part No. 112254) is placed on the back side of the main door glass. These warranty cards are intended to serve the customer where we record the individual installation date and warranty information to better serve you, if you file a warranty claim.
 - a. If a warranty card (**ADC** Part No. 112254) did not come with your dryer, contact the **ADC** Warranty Department or the **ADC** Service Department at (508) 678-9000

IMPORTANT: A separate warranty card *must be* completed and returned for each individual dryer.

NOTE: Be sure to include the **installation date** when returning warranty card(s).

B. WARRANTY

For a copy of the **ADC** commercial warranty covering your particular dryer(s), contact the **ADC** distributor from whom you purchased the equipment and request dryer warranty form **ADC** Part No. 450199. If the distributor *cannot* be contacted or is unknown, warranty information can be obtained from the factory by contacting the **ADC** Warranty Department at (508) 678-9000.

NOTE: Whenever contacting the **ADC** factory for warranty or warranty information, be sure to have the dryer's **model number** and **serial number** available so that your inquiry can be handled in an expeditious manner.

C. RETURNING WARRANTY PARTS

ADC has a Warranty Parts Department that handles **ALL** returned warranted merchandise. To expedite processing, the following procedures **must be** followed:

1. **No** parts are to be returned to **ADC** without prior written authorization ("Return Material Authorization") from the factory.

NOTE: An R.M.A. ("Return Material Authorization") is valid for only sixty (60) days from date of issue.

- a. The R.M.A. issued by the factory, as well as any other correspondence pertaining to the returned part(s), **must be** included inside the package with the failed merchandise.
2. Each part **must be** tagged with the following information:
 - a. **Model number** and **serial number** of the dryer from which part was removed.
 - b. Nature of failure (be specific).
 - c. Date of dryer installation.
 - d. Date of part failure.
 - e. Specify whether the part(s) being returned is for a replacement, a credit, or a refund.

NOTE: If a part is marked for a credit or a refund, the invoice number covering the purchase of the replacement part **must be** provided.

NOTE: Warranty tags (ADC Part No. 450064) are available at "no charge" from ADC upon request.

3. The company returning the part(s) **must clearly note** the complete company name and address on the outside of the package.
4. **ALL** returns **must be** properly packaged to insure that they are not damaged in transit. *Damage claims are the responsibility of the shipper.*

IMPORTANT: No replacements, credits or refunds will be issued for merchandise damaged in transit.

5. **ALL** returns **should be** shipped to the ADC factory in such a manner that they are insured and a proof of delivery can be obtained by the sender.
6. **Shipping charges are not the responsibility of ADC. ALL returns should be "prepaid" to the factory. Any "C.O.D." or "COLLECT" returns will not be accepted.**

IMPORTANT: No replacements, credits, or refunds will be issued if the claim **cannot** be processed due to insufficient information. The party filing the claim will be notified in writing, either by "FAX" or "CERTIFIED MAIL - Return Receipt Requested", as to the information necessary to process claim. If a reply is not received by the ADC Warranty Department within thirty (30) days from the FAX/letter date, then no replacement, credit, or refund will be issued, and the merchandise **will be discarded.**

SECTION VII

ROUTINE MAINTENANCE

A. CLEANING

A program and/or schedule **should be** established for periodic inspection, cleaning, and removal of lint from various areas of the dryer, as well as throughout the duct work system. The frequency of cleaning can best be determined from experience at each location. Maximum operating efficiency is dependent upon proper air circulation. The accumulation of lint can restrict this air flow. If the guidelines in this section are met, an 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 are for average usage which is considered six (6) to eight (8) operational (running) hours per day.

SUGGESTED CLEANING SCHEDULE

DAILY (beginning of each work shift)

Clean lint from basket(s)/tumbler(s).

Inspect lint screen(s)/drawer(s) for damage and replace if torn.

WEEKLY

Clean lint accumulation from around microprocessor temperature sensor probes and sensor bracket assemblies.

90 DAYS

Remove lint from the motor air vents and surrounding area.

IMPORTANT: Lint accumulation will restrict the airflow over the motor(s), causing overheating and irreparable motor damage. Motor failure due to lint accumulation will VOID THE WARRANTY.

Remove lint accumulation from around the openings in the dryer's back panels.

Remove lint from gas valve burner train area with a dusting brush or vacuum cleaner attachment.

Remove any lint accumulation from the coin acceptor area, including the optical switch.

Inspect and remove lint accumulation in customer-furnished exhaust duct work system and from the 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 AIR and VENTILATION AIR.

Inspect and remove lint accumulation from the dryer's exhaust duct work back draft dampers.

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

EVERY 6 MONTHS

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

ALL bearings and set screws **should be** checked to insure they are tight.

B. ADJUSTMENTS

7 DAYS AFTER INSTALLATION and EVERY 6 MONTHS THEREAFTER

Inspect bolts, nuts, screws (bearing set screws), non-permanent gas connections (unions, shut-off valves, orifices, etc.), electrical terminations, and grounding connections.

Motor and drive belts **should be** examined. A cracked or seriously frayed belt(s) **should be** replaced. Tighten loose belt(s) when necessary and check the alignment.

Complete operational check of controls and valves.

Complete operational check of ALL safety devices (door switches, lint compartment switches, sail switches, burner and hi-limit thermostats).

C. LUBRICATION

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

SECTION VIII

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.

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

The information provided **should not be** misconstrued as a handbook for use by an untrained person making repairs.

IMPORTANT: When replacing blown fuses, the replacement *must be* of the exact rating as the fuse being replaced.

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. Display ...

1. Service panel fuse blown or tripped breaker.
2. Blown control circuit fuse (3AG 1/2-Amp [Slo Blo] Fuse)..
3. Failed microprocessor controller (computer).

B. Basket (tumbler) motor does not start, microprocessor controller (computer) shows drying cycle in progress and L.E.D. motor indicator dot is on ...

1. Microprocessor controller (computer) indicator is on ...
 - a. Failed motor contactor (relay).
 - b. Failed motor.

2. Microprocessor controller (computer) indicator is off (and the L.E.D. display does not read "door") ...
 - a. Failed microprocessor controller (computer).

C. The dryer will not stop, even with no cycle (L.E.D. display reads "FILL") in progress ...

1. Failed motor contactor/relay.

D. The dryer operates for a few minutes, and with the microprocessor controller (computer) motor L.E.D. indicator dot on the motor stops, and then after a period of time restarts on it's own ...

1. Motor is overheating and tripping out on its' internal overload ...
 - a. Motor air vents clogged with lint.
 - b. Low voltage to motor.

E. The dryer operates for a few minutes and then stops...microprocessor controller (computer) L.E.D. display continues to read cycle in progress, indicator dots are off and dryer can be restarted by pressing selection key ...

1. Intermittent connection in main door circuit.

F. Microprocessor Controller (computer) L.E.D. display reads "dSFL" ...

1. L.E.D. display consistently reads "dSFL" and will not clear ...
 - a. Microprocessor controller (computer) 1/8-Amp (Slo Blo) fuse is blown.
 - b. Failed microprocessor controller (computer) temperature sensor.
 - c. Broken wire and/or termination in sensor harness somewhere between the sensor bracket and the microprocessor controller (computer).
 - d. Failed microprocessor controller (computer).
2. L.E.D. display reads "dSFL" for a short period of time (30 seconds or less) and then returns to the normal "FILL" mode ...

NOTE: Once the microprocessor controller (computer) detects a problem, it updates every 30 seconds so that if a problem was a loose connection in this circuit which corrected itself, the "dSFL" display condition would automatically be cancelled.

- a. Loose wire and/or termination in sensor harness somewhere between the sensor bracket and the microprocessor controller (computer).
- b. Failed microprocessor controller (computer) temperature sensor.

G. Microprocessor controller (computer) L.E.D. display reads "Hot" ...

The "Hot" display condition indicates a possible overheating condition. The microprocessor controller (computer) monitors the temperature in the dryer at all times. If the microprocessor detects that the temperature in the dryer has exceeded 220° F (104° C), it will disable ALL of the dryer outputs (shut the dryer down), the buzzer (tone) will sound for approximately 5 seconds, and the L.E.D. display will read "Hot". The L.E.D. display will continue to read "Hot" until the temperature has dropped to 220° F (104° C) or lower and the microprocessor controller (computer) is manually reset by closing and opening the Program Switch (PS).

Possible reasons for overheating ...

1. Restriction in location exhaust duct work ...
 - a. Dryer exhaust damper stuck in closed position.
 - b. Undersized exhaust duct work.
2. Insufficient make-up air.

H. Microprocessor controller (computer) L.E.D. display reads "SEFL" ...

The "SEFL" display condition indicates a rotational sensor circuit failure which means that there is a fault somewhere in the basket (tumbler) rotation detection circuit ... or ... the microprocessor controller (computer) program related to this circuit (PL01) is set incorrectly in the active mode ("SEn") where the dryer is not equipped with the optional rotation sensor and should be set in the non-active mode ("nSEn").

If the dryer is equipped with the optional rotational sensor and for whatever reason the microprocessor controller (computer) detects that the basket (tumbler) is not turning, it will disable **ALL** of the dryer outputs (shut the dryer down), and the L.E.D. display will read "SEFL". The L.E.D. display will continue to read "SEFL" until the microprocessor is manually reset by closing and opening the Program Switch (PS).

Possible causes...

1. Loose/slipping (out of proper adjustment) basket/tumbler and/or idler belt.
2. Broken basket/tumbler and/or idler belt.
3. Failed motor (refer to **Item B** on **page 36** and **page 37**).
4. Failure in the rotational sensor circuit ...
 - a. Failed rotational sensor.
 - b. Loose connection or break between the rotation sensor and the microprocessor controller (computer).

I. Microprocessor controller (computer) will not accept any, or only accept certain keyboard (touch pad) entries ...

1. Failed keyboard (touchpad) label assembly.
2. Failed microprocessor controller (computer).

J. Microprocessor controller (computer) locks up and the L.E.D. display reads erroneous message(s) or only partial segments...

1. Transient power voltage (spikes) ... disconnect power to the dryer, wait one (1) minute.
(NOTE: For dryer models with the optional battery back-up ... disconnect battery), then reestablish power to the dryer. If problem is still evident, proceed to **Item J2 thru Item J4**.
2. Failed keyboard (touchpad) label assembly.
3. Improper grounding of the dryer or the microprocessor controller (computer) ground connections to the panel or the dryer are not proper.
4. Failed microprocessor controller (computer).

K. Dryer stops during a cycle and the microprocessor controller (computer) L.E.D. display returns to "FILL" ...

If the dryer is equipped with optional battery back-up ...

1. Refer to Item J1, Item J3, or Item J4.
 - a. If the dryer is not equipped with optional battery back-up ...
 - 1) Loose connection somewhere in the power source to the dryer.
 - 2) Loose connection in main power circuit to the microprocessor controller (computer).
 - 3) Improper grounding of the dryer or the microprocessor controller (computer) ground connections to the panel or the dryer are not proper.
 - 4) Failed microprocessor controller (computer).

L. Heating unit is not operating (no heat) ... basket (tumbler) is turning, microprocessor controller (computer) heat indicator dot is on but "HEAT" output L.E.D. is not ...

1. Failed microprocessor controller (computer).

M. Gas heating unit is not operating (no heat) ... both microprocessor controller (computer) heat indicator dot and "HEAT" indicator are on ... but no spark at burner area when the dryer is first started ...

1. Fault in sail switch circuit ...
 - a. Sail switch is out of adjustment or has failed.
 - b. Sail switch damper is not closing or is fluttering ...
 - 1) Lint drawer/screen is dirty or clogged.
 - 2) Restriction in exhaust duct work.
 - 3) No exhaust air flow.

2. Fault in burner hi-limit circuit or thermostat.
3. Fault in basket (tumbler) hi-limit circuit or thermostat.
4. Failed Direct Spark Ignition (DSI) module (burner control).
5. Failed Direct Spark Ignition (DSI) ignitor and/or flame probe assembly.

N. No heat ... ignitor sparks but there is no flame at burner ...

1. Direct Spark Ignition (DSI) ignitor probe out of adjustment ...
 - a. Reposition ignitor assembly closer to the burner ribbon area. Also, check to make sure ribbon in burner is flush all around the top of the burner tube (ribbon **should not** stick up at any area).
 - b. Check gap between ignitor assembly and top of burner. Gap **must be** set 1/8" +/- 1/32".
2. Failed ignitor flame-probe assembly or problem with wiring connections to the assembly.
3. **NO** gas (check shut off valves) or insufficient (low Water Column [W.C.] pressure) gas supply.
4. Failed Direct Spark Ignition (DSI) module.
5. Failed gas valve.

O. No heat ... ignitor sparks, burner goes on and off right away ...

1. DSI flame sensor (probe) out of adjustment ... reposition closer to the flame area.
2. Failed Direct Spark Ignition (DSI) flame sensor probe.
3. Sail switch is fluttering ...
 - a. Lint drawer / screen is dirty or clogged.
 - b. Restriction in exhaust duct work.
4. Insufficient make-up air.
5. Failed Direct Spark Ignition (DSI) module.

P. Dryer operates, but is taking too long to dry ...

1. Exhaust duct work run is too long or is undersized ... back pressure cannot exceed .3 inches Water Column (W.C.).
2. Low and/or inconsistent gas pressure.
3. Insufficient make-up air.
4. Poor air/gas mixture at burner ... yellow or poor flame pattern. Adjust gas burner air adjustment shutters.
5. Lint drawer / screen not being cleaned out on a regular basis or often enough.

6. Extractors (washers) not performing properly.
7. Sail switch is fluttering ... restriction in exhaust.
8. Failed microprocessor temperature sensor ... temperature calibration is inaccurate.
9. Failed microprocessor controller (computer) ... temperature calibration is inaccurate.
10. Failed burner / oven hi-limit.
11. Failed basket (tumbler) hi-limit thermostat.
12. Lint accumulation in location exhaust system.

Q. Condensation on main door glass ...

1. Too long, undersized, or improperly installed duct work.
2. Exhaust back draft damper is stuck closed or partially closed.
3. Restriction in exhaust duct work.

R. Dryer is making scraping noise at basket (tumbler) wrapper area ...

1. Check for object(s) caught in the basket (tumbler) wrapper area.
2. Basket (tumbler) is out of proper alignment ...
 - a. Check both the vertical alignment and lateral alignment.
 - b. Check gap between the front panel and the basket (tumbler) front ... set screws may have come loose and basket (tumbler) walked forwards or backwards.
3. Loose or broken basket (tumbler) tie rod.
4. Broken basket (tumbler) support.

S. Excessive noise and/or vibration ...

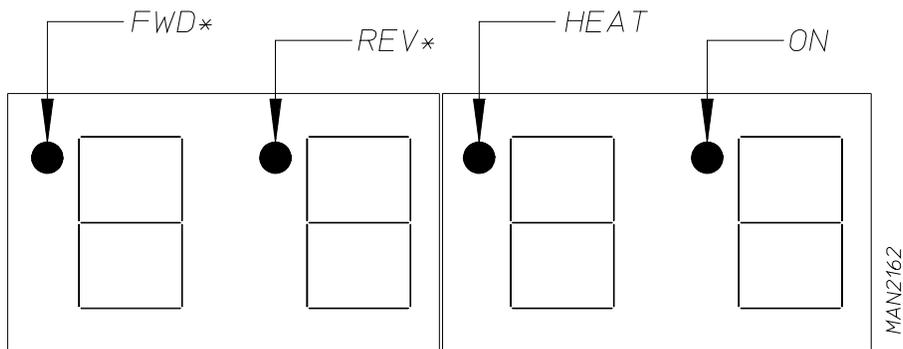
1. Dryer is not leveled properly.
2. Impellor (fan) out of balance or broken.
3. Loose basket (tumbler) tie rod.
4. Basket (tumbler) is out of adjustment, or adjustment bolts (hardware) loose.
5. Loose motor or motor mount assembly.

SECTION IX

PROCEDURE FOR FUNCTIONAL CHECK OF REPLACEMENT COMPONENTS

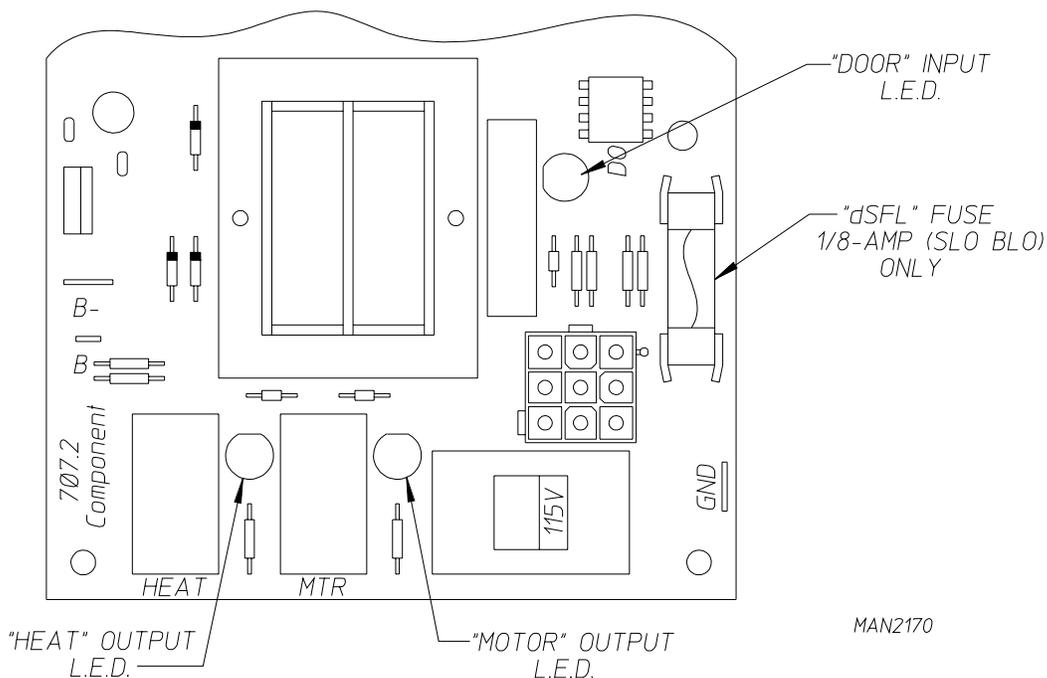
1. Microprocessor (computer) Board

- a. Upon completing installation of the replacement microprocessor (computer) board, reestablish power to the dryer.
- b. Start the drying cycle.
- c. Verify that the motor(s) and the heat indicator dots, in the microprocessor (computer) L.E.D. display are on. (Refer to the illustration below.)



*OPL (NON-COIN) REVERSING MODELS ONLY.

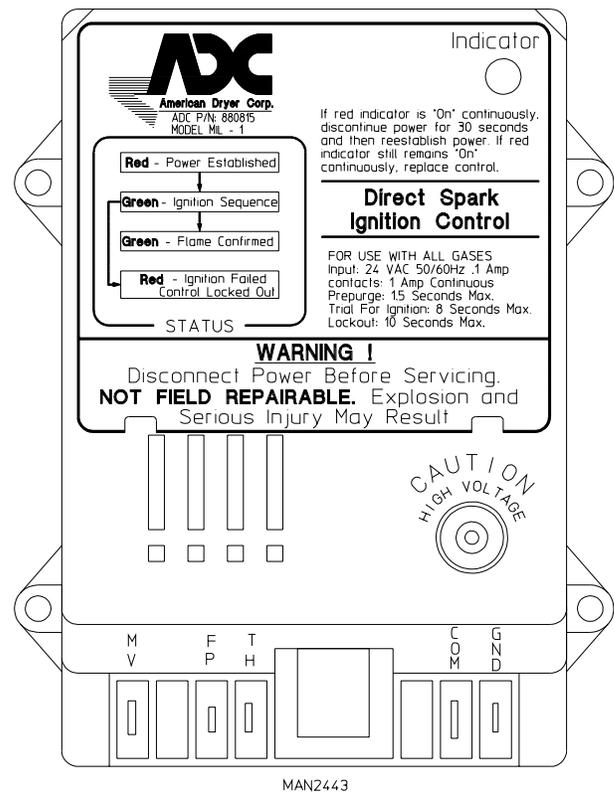
- d. Verify that motor(s) heat, and door indicator lights on the back side of the microprocessor (computer) board are lit. (Refer to illustration below.)



- e. Open main door. The dryer **must stop** and **ALL** indicator lights on the back side of the microprocessor (computer) board **must go out**.
- f. Try to restart the dryer with the main door open.
- g. The microprocessor (computer) board's L.E.D. display **must read "DOOR."**
- h. Close the main door and restart the dryer.
- i. Functional check of microprocessor (computer) board is complete.

2. Direct Spark Ignition (DSI) System

- a. Upon completing installation of the replacement Direct Spark Ignition (DSI) module, reestablish power to the dryer.
- b. Start the drying cycle.
- c. The ignition (DSI) module's L.E.D. indicator will light "red" for up to approximately 1.5 seconds (prepurge time).
- d. The module's indicator light will then turn "green." The gas valve will be energized and the ignitor probe will spark for approximately 8 seconds. The burner flame should now be established.
- e. With the burner flame on, remove the flame sensor wire from the FS terminal of the DSI module.
- f. The burner flame **must shut off** and the ignition module **must lock out** with the DSI module's indicator light "red."



- g. Stop the drying cycle, with the flame sensor wire still removed, restart the drying cycle.
- h. The ignition module **must proceed** through the prepurge, with the indicator light "red," the ignition trial time of approximately 8 seconds, with the indicator light "green," and then proceed to lock out with the indicator light "red."
- i. Functional check of the Direct Spark Ignition (DSI) Module is complete.
 - 1) Replace the flame sensor wire from the FS terminal to the DSI module.

ADC 112160 1 - 04/01/94-100 2 * 01/25/95-100
 3 - 03/15/95-100 4 * 09/01/95-100
 5 - 01/01/96-100 6 * 06/13/96-100
 7 * 09/04/96-250 8 * 01/09/97-250
 9 - 05/27/97-250 10 * 12/18/97-250
 11 * 02/13/98-250 12 * 05/26/98-250
 13 * 06/24/98-500 14 * 02/08/99-500
 15 - 06/24/99-25 16 * 06/29/99-500

