

AD-330/AD-320

Dual Microprocessor Controller (DMC)
Gas - Electric - Steam
(for models mfd. as of February 1992)

Installation 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 vapors and liquids in the vicinity of this or any other appliance.

— **WHAT TO 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 à proximité de cet appareil ou de tout autre appareil.

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

- Ne pas tenter d'allumer d'appareils.
- Ne touchez à aucun interrupteur. Ne pas vous servir des téléphones se trouvant dans le bâtiment.
- 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 reseller 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

www.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 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 and 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 à proximité 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. The illustrations included in this manual may not depict your particular dryer **exactly**.

Important

For your convenience, log the following information:

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

RESELLER'S NAME _____

Serial Number(s) _____

Replacement parts can be obtained from your reseller 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 order 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.

“IMPORTANT NOTE TO PURCHASER”

Information **must be** obtained from your local gas supplier on the instructions to be followed if the user smells gas. These instructions **must be** posted in a prominent location near the dryer.

IMPORTANT

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

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

«Attention: Au moment de l'entretien des commandes, étiquetez tous les fils avant de les débrancher. Des erreurs de câblage peuvent entraîner un fonctionnement inadéquat et dangereux.»

CAUTION

DRYERS SHOULD NEVER BE LEFT UNATTENDED WHILE IN OPERATION.

WARNING

CHILDREN SHOULD NOT BE ALLOWED TO PLAY ON OR NEAR THE DRYERS.
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 dryer door switch, lint door switch, or heat safety circuit 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 manual included with the dryer.

Dryer *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.

IMPORTANT

Dryer *must be* installed in a location/environment, which the ambient temperature remains between 40° F (4.44° C) and 130° F (54.44° C).

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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 dryer <i>must be</i> transported and handled in an upright position at <u>ALL</u> times.
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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 dryer, 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 rubberlike materials. Drying in a heated basket (tumbler) may damage plastics or rubber and may be a fire hazard.

7. A program **should be** established for the inspection and cleaning of lint in the heating unit area, exhaust ductwork, 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 ductwork 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 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. **DO NOT** operate steam dryers with more than 125 PSI (8.62 bar) 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.**
15. For safety, proper operation, and optimum performance, the dryer **must not be** operated with a load less than sixty-six percent (66%) of its rated capacity. AD-320 (26.4 lbs [12 kg]) and AD-330 (39.7 lbs [18 kg]).

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

IMPORTANT: Dryer *must be* installed in a location/environment, which the ambient temperature remains between 40° F (4.44° C) and 130° F (54.44° C).

SECTION II

SPECIFICATIONS

A. SPECIFICATIONS (AD-320)

AD-320				
MAXIMUM CAPACITY (TOTAL DRY WEIGHT)			40 lbs	18.14 kg
BASKET (TUMBLER) DIAMETER			27-1/4"	69.22 cm
BASKET (TUMBLER) DEPTH			25"	63.5 cm
BASKET (TUMBLER) VOLUME (PER BASKET [TUMBLER])			8.43 cu.ft.	0.239 cu.m.
BASKET (TUMBLER) MOTOR (2 PLACES)			1/3 hp	0.249 kW
DOOR OPENING - DIAMETER (2 PLACES)			21-1/2"	54.61 cm
EXHAUST DUCT OUTLET (2 PLACES)			6"	15.24 cm
Gas	VOLTAGE AVAILABLE		120-240v 1Ø 50/60 Hz	
	APPROX. WEIGHT (UNCRATED)		760 lbs	344.7 kg
	APPROX. WEIGHT (CRATED)		795 lbs	360.6 kg
	HEAT INPUT (TOTAL FOR BOTH BASKETS [TUMBLERS])		120,000 btu/hr	30,240 kcal/hr
	AIRFLOW (PER BASKET [TUMBLER])		400 cfm	11.3 cmm
	GAS INLET SIZE (2 PLACES)		1/2" F.N.P.T.	
Electric	VOLTAGE AVAILABLE		208-416v 1Ø-3Ø 50/60 Hz	
		OVEN SIZE		
		kW	Btu/hr	kcal/hr
		15	51,195	12,900
Steam*	VOLTAGE AVAILABLE		120-240v 1Ø 50/60 Hz	
	APPROX. WEIGHT (UNCRATED)		837 lbs	379.7 kg
	APPROX. WEIGHT (CRATED)		884 lbs	401 kg
	HEAT INPUT (TOTAL FOR BOTH BASKETS [TUMBLERS])		2.9 Bhp	
	AIRFLOW (PER BASKET [TUMBLER])		400 cfm	11.3 cmm
	APPROXIMATE STEAM CONSUMPTION		101 lbs/hr	45.8 kg/hr
	OPERATING STEAM PRESSURE		125 PSI	8.62 bar
	STEAM SUPPLY (INLET)		1" F.N.P.T.	
	STEAM RETURN (OUTLET)		3/4" F.N.P.T.	

Shaded areas are stated in metric equivalents

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* Dryer **must be** provided with a clean, dry, regulated 80 PSI +/- 10 PSI (5.51 bar +/- 0.68 bar) air supply.

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

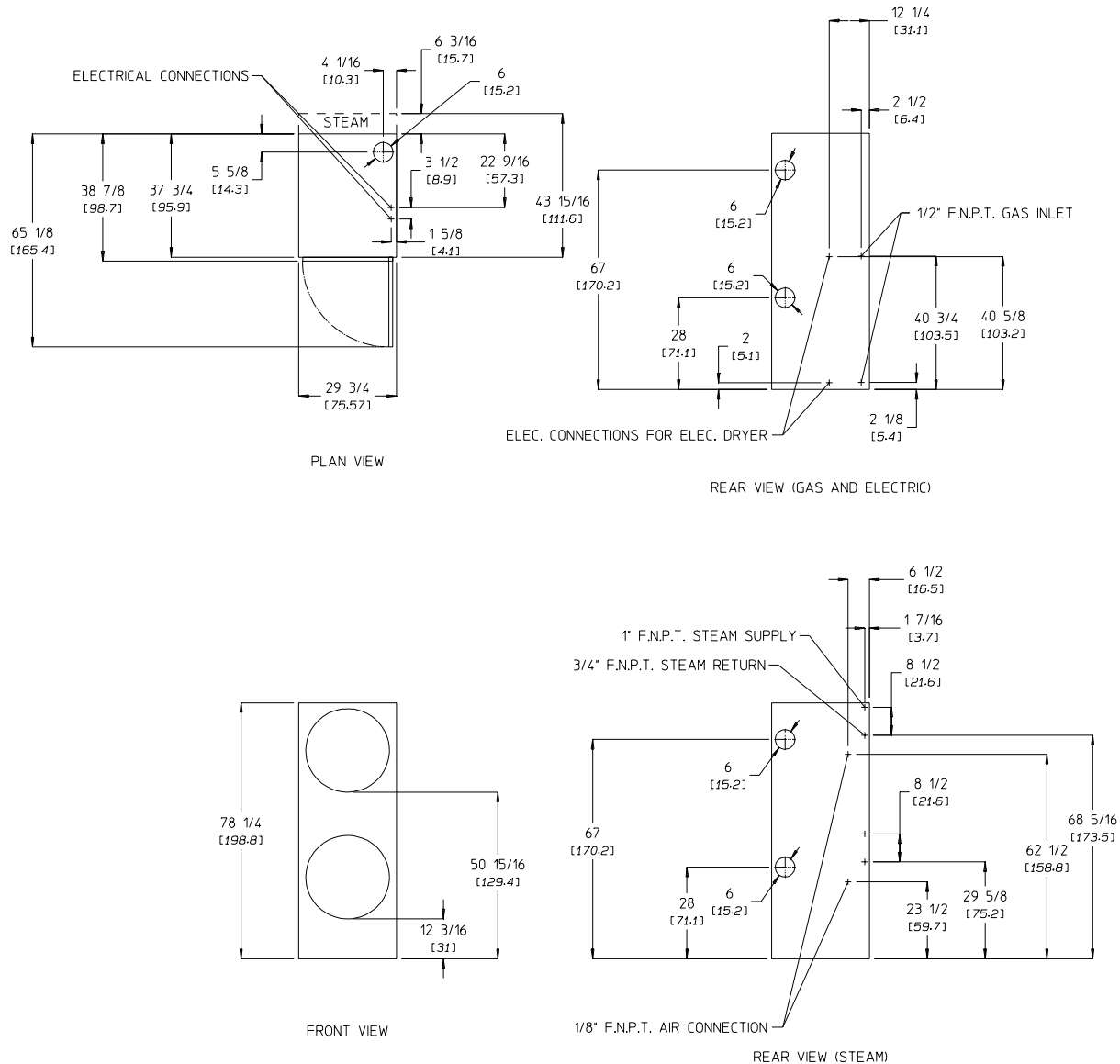
Specifications

DRYER NOTES:

- ° DUCTWORK SIZE VARIES WITH INSTALLATION CONDITIONS.
- ° EXHAUST STATIC PRESSURE MUST BE NO LESS THAN 0 AND MUST NOT EXCEED 0.3" (0.74 MB) WATER COLUMN.
- ° UPPER POCKET OPTIONAL TOP OR REAR EXHAUST.

STEAM DRYER NOTES:

- ° OPERATING HEIGHT OF STEAM DRYER IS 77" (195.6 CM).
- ° SIZE OF PIPING TO DRYER VARIES WITH INSTALLATION CONDITIONS. CONTACT FACTORY FOR ASSISTANCE.
- ° STEAM DRYERS MUST BE PROVIDED WITH CLEAN, DRY, REGULATED 80 PSI \pm 10 PSI (5.5 BAR \pm 0.69 BAR) AIR SUPPLY.
- ° REAR EXHAUST STANDARD.



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

B. SPECIFICATIONS (AD-330)

AD-330				
MAXIMUM CAPACITY (TOTAL 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 [TUMBLER])			10.1 cu.ft.	0.286 cu.m.
BASKET (TUMBLER) MOTOR (2 PLACES)			1/3 hp	0.279 kW
DOOR OPENING - DIAMETER (2 PLACES)			21-1/2"	54.61 cm
Gas	VOLTAGE AVAILABLE		120-240v 1Ø 50/60 Hz	
	APPROX. WEIGHT (UNCRATED)		793 lbs	359.7 kg
	APPROX. WEIGHT (CRATED)		860 lbs	390.1 kg
	HEAT INPUT (TOTAL FOR BOTH BASKETS [TUMBLERS])		136,000 Btu/hr	34,272 kcal/hr
	AIRFLOW (PER BASKET [TUMBLER])		400 cfm	11.3 cmm
	GAS INLET SIZE (2 PLACES)		1/2" F.N.P.T.	
Electric	VOLTAGE AVAILABLE		208-416v 1Ø-3Ø 50/60 Hz	
		OVEN SIZE		
		kW	Btu/hr	kcal/hr
		15	51,195	12,900
Steam*	VOLTAGE AVAILABLE		120-240v 1Ø 50/60 Hz	
	APPROX. WEIGHT (UNCRATED)		873 lbs	396 kg
	APPROX. WEIGHT (CRATED)		949 lbs	430.5 kg
	HEAT INPUT (TOTAL FOR BOTH BASKETS [TUMBLERS])		2.9 Bhp	
	AIRFLOW (PER BASKET [TUMBLER])		400 cfm	11.3 cmm
	APPROXIMATE STEAM CONSUMPTION		101 lbs/hr	45.8 kg/hr
	OPERATING STEAM PRESSURE		125 PSI	8.62 bar
	STEAM SUPPLY (INLET)		1" F.N.P.T.	
	STEAM RETURN (OUTLET)		3/4" F.N.P.T.	

Shaded areas are stated in metric equivalents

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* Dryer **must be** provided with a clean, dry, regulated 80 PSI +/- 10 PSI (5.51 bars +/- 0.68 bars) air supply.

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

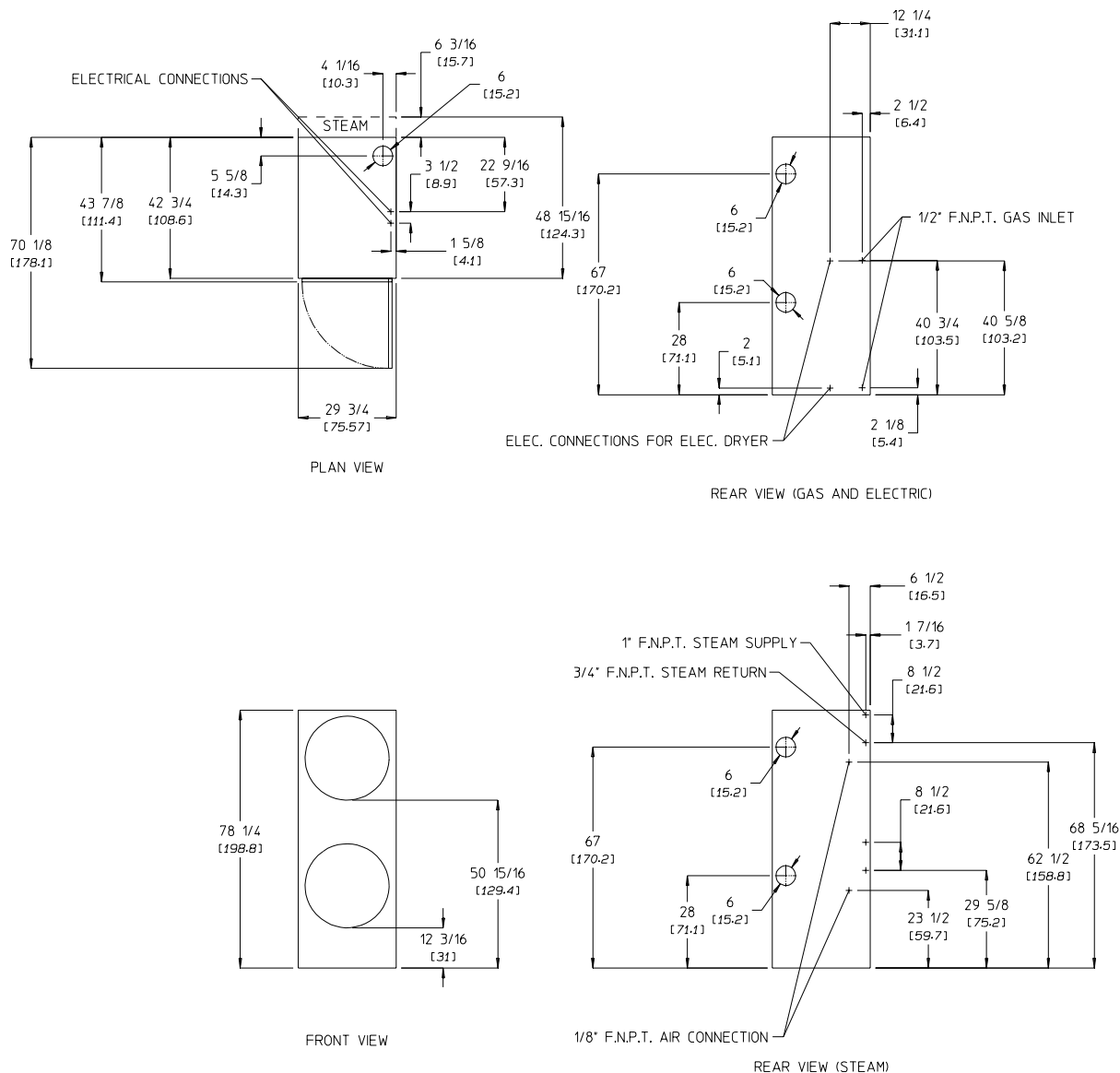
Specifications

DRYER NOTES:

- ° DUCTWORK SIZE VARIES WITH INSTALLATION CONDITIONS.
- ° EXHAUST STATIC PRESSURE MUST BE NO LESS THAN 0 AND MUST NOT EXCEED 0.3" (0.74 MB) WATER COLUMN.
- ° UPPER POCKET OPTIONAL TOP OR REAR EXHAUST.

STEAM DRYER NOTES:

- ° OPERATING HEIGHT OF STEAM DRYER IS 77" (195.6 CM).
- ° SIZE OF PIPING TO DRYER VARIES WITH INSTALLATION CONDITIONS. CONTACT FACTORY FOR ASSISTANCE.
- ° STEAM DRYERS MUST BE PROVIDED WITH CLEAN, DRY, REGULATED 80 PSI ± 10 PSI (5.5 BAR ± 0.69 BAR) AIR SUPPLY.
- ° REAR EXHAUST STANDARD.



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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: ANSI Z223.1-LATEST EDITION (National Fuel Gas Code) or ANSI/NFPA NO. 70-LATEST EDITION (National Electrical Code) or in Canada, the installation **must conform** to applicable Canadian Standards: CAN/CGA-B149.1-M91 (Natural Gas) or CAN/CGA-B149.2-M91 (Liquid Propane [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. 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 (1) 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.

For more effective automatic door closure and better tumbling action (and improved efficiency), the dryer **should be** tilted slightly to the rear.

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 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).

The dryer **must be** installed on a sound level floor capable of supporting its weight. Carpeting **must be** removed from the floor area that the dryer is to rest on.

IMPORTANT: “The dryer **must be** installed on noncombustible floors only.”

Even though a 12-inch (30.48 cm) clearance is acceptable, it is recommended that the rear of the dryer be positioned approximately 2 feet (0.61 meters) away from the nearest obstruction, i.e., wall, for ease of installation, maintenance, and service.

The dryer **must be** installed with a proper exhaust duct connection to the outside.

The dryer **must be** installed with provisions for adequate combustion and make-up air supply.

CAUTION: This dryer produces combustible lint and **must be** exhausted to the outdoors. Every 6 months, inspect the exhaust ducting and remove any lint build up.

IMPORTANT: Dryer **must be** installed in a location/environment, which the ambient temperature remains between 40° F (4.44° C) and 130° F (54.44° C).

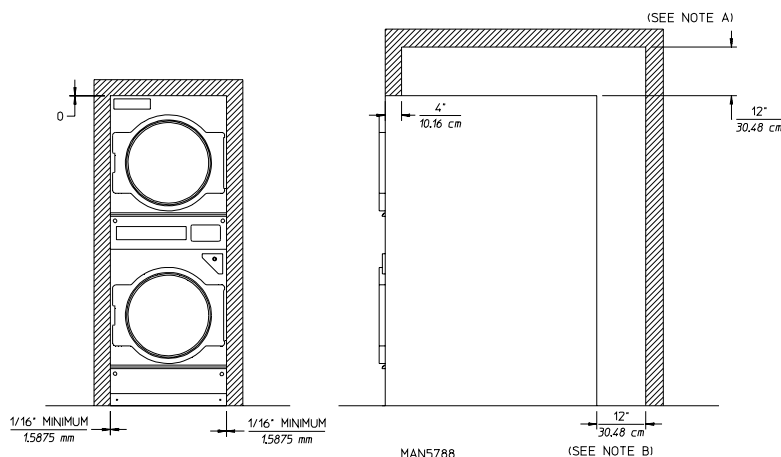
C. DRYER ENCLOSURE REQUIREMENTS

Bulkheads and partitions **should be** made of noncombustible materials and **must be** located a minimum of 12-inches (30.48 cm) 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 (30.48 cm) above the dryer outer top is acceptable, a clearance of 18-inches (45.72 cm) or more is suggested for ease of installation and service (power electrical connections).

NOTE: When fire sprinkler systems are located above the dryers, a minimum of 12-inches (30.48 cm) above the dryer outer top is required.

CLEARANCES SHOWN ARE MINIMUM DIMENSIONS TO NEAREST COMBUSTIBLE MATERIALS.



NOTES:

A. MINIMUM OF 12" (30.48 cm) CLEARANCE IS ACCEPTABLE FOR EASE OF INSTALLATION AND SERVICE (POWER CONNECTIONS); AT LEAST 18" (45.72 cm) IS RECOMMENDED.

B. MINIMUM OF 12" (30.48 cm) CLEARANCE IS ACCEPTABLE FOR EASE OF INSTALLATION, MAINTENANCE AND SERVICE, AT LEAST 24" (60.96 cm) IS RECOMMENDED.

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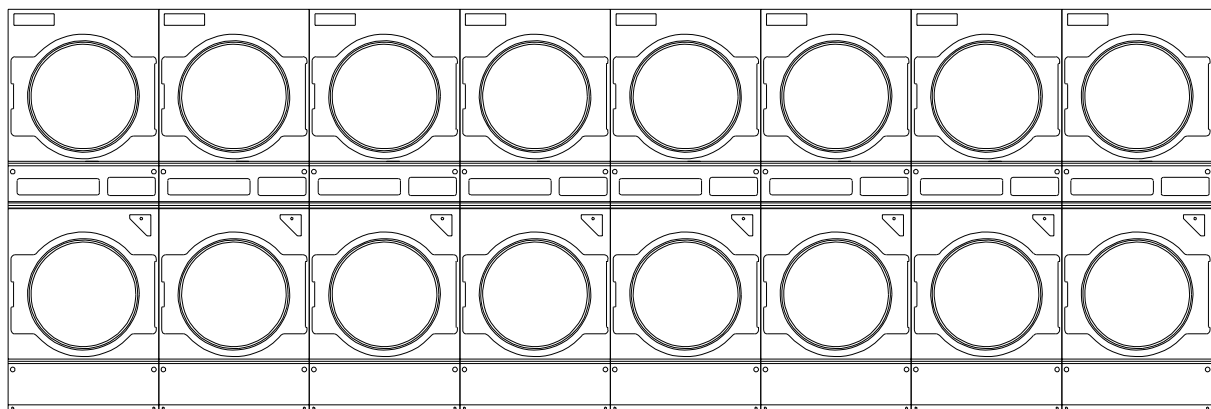
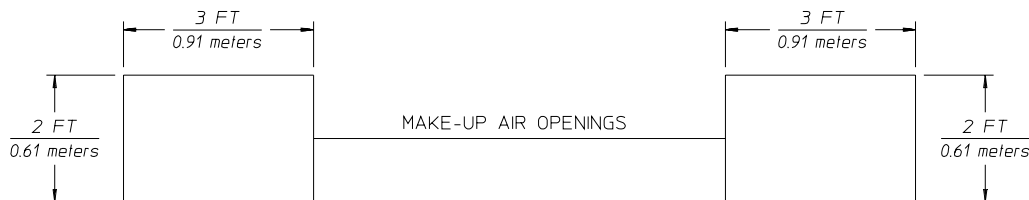
D. FRESH AIR SUPPLY REQUIREMENTS

Air supply (make-up air) **must be** given careful consideration to assure proper performance of each dryer. An unrestricted source of 400 cfm (11.3 cmm) is necessary for each dryer. An unrestricted air entrance from the outdoors (atmosphere) of a minimum of 1-1/2 square feet (0.14 square meters) 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 (1.15 square meters) is required. Two (2) openings measuring 2 feet by 3 feet (0.61 meters by 0.91 meters) 6 square feet (0.56 square meters) are acceptable. The dryer **must be** installed with provisions for adequate combustion and make-up air supply.

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 solvent fumes will result in irreparable damage to the motors and other dryer components.

IMPORTANT: Make-up air openings **should not be** located near ductwork exhaust outlets. If make-up air openings are too close to the exhaust outlet, lint and fumes may be drawn back into the dryer area through these openings.



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TYPICAL INSTALLATION SHOWING MAKE-UP AIR OPENINGS

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

E. EXHAUST REQUIREMENTS

Exhaust ductwork **should be** designed and installed by a qualified professional. Improperly sized ductwork 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. The dryer **must be** installed with a proper exhaust duct connection to the outside.

CAUTION: This dryer produces combustible lint and **must be** exhausted to the outdoors.

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

IMPORTANT: It is recommended that exhaust or booster fans not be used in the exhaust ductwork system.

The exhaust ductwork **should be** laid out in such a way that the ductwork travels as directly as possible to the outdoors with as few turns as possible. When single dryer (10-inches [25.4 cm]) vertical venting is used, the ductwork from the dryer to the outside exhaust outlet **must not exceed** 35 feet (10.67 meters) or for 10-inches (25.4 cm) horizontal 10 feet (3.05 meters). In the case of multiple (common) dryer venting, the distance from the last dryer to the outside exhaust outlet **must not exceed** 15 feet (4.57 meters). The shape of the exhaust ductwork is not critical so long as the minimum cross-sectional area is provided.

It is suggested that the use of 90° turns in ducting be avoided; use 30° or 45° angles instead. Excluding basket (tumbler)/dryer elbow connections or elbows used for outside protection from the weather, no more than two (2) elbows **should be** used in the exhaust duct run. If more than two (2) elbows are used the cross section area of the ductwork **must be** increased in proportion to the number of elbows added.

1. Exhaust Connections of Top and Bottom Baskets (Tumblers)

There is no common venting connection provided with the dryer. Each basket (tumbler) exhaust duct is provided with its own back draft damper. Each basket (tumbler) can be exhausted directly outdoors independently or connected to a common duct. Both single or common ductwork can be rigid ducting or flexible ducting. For common connections, a kit (ADC Part No. 882035) is available from the factory and includes the necessary flex ducting, elbows, and “Y” assembly, etc., to join the top and bottom exhausts together.

NOTE: THE FLEXIBLE EXHAUST DUCT KIT IS NOT RECOMMENDED FOR STEAM DRYERS.

ALL ductwork joints **must be** taped to prevent moisture and lint from escaping into the building.

IMPORTANT: Exhaust back pressure measured by a manometer at each basket (tumbler) exhaust duct area **must be** no less than 0 and **must not exceed** 0.3 inches (0.74 mb) water column (W.C.) when both baskets (tumblers) are operating.

NOTE: Common exhaust connections of top and bottom baskets (tumblers) **should be** installed in such a manner that the back guards can be removed easily for servicing.

NOTE: As per the National Fuel Gas Code, “Exhaust ducts for type 2 clothes dryers shall be constructed of sheet metal or other noncombustible material. Such ducts shall be equivalent in strength and corrosion resistance to ducts made of galvanized sheet steel not less than 0.0195-inches (26 gauge [0.05 mm]) thick.”

2. Single Dryer Venting

When possible, it is suggested to provide a separate exhaust duct for each dryer. The exhaust ductwork **should be** laid out in such a way that the ductwork 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 ductwork is not critical so long as the minimum cross-sectional area is provided.

NOTE: Exhaust back pressure measured by a manometer at the dryer exhaust duct area **must be** no less than 0 and **must not exceed** 0.3 inches (0.74 mb) water column (W.C.).

It is suggested that the ductwork from each dryer not exceed the limitations noted in this manual. If the ductwork exceeds these limitations or has numerous elbows, the cross-sectional area of the ductwork **must be** increased in proportion to length or number of elbows in it.

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

The ductwork **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** ductwork 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 ductwork for periodic inspection and cleaning.

NOTE: When the exhaust ductwork passes through a wall, ceiling, or roof made of combustible materials, the opening **must be** 2-inches (5.08 cm) larger than the duct (all the way around). The duct **must be** centered within this opening.

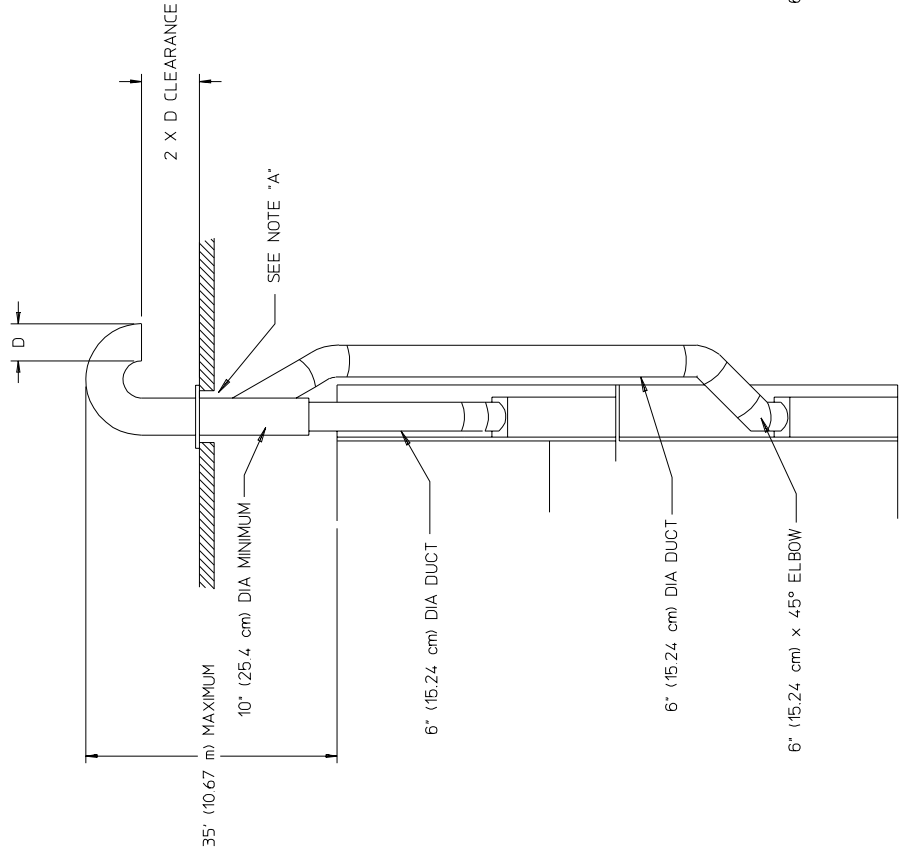
To protect the outside end of the horizontal ductwork from the weather, a 90° elbow bent downward **should be** installed where the exhaust exits the building. If the exhaust ductwork travels vertically up through the roof, it **should be** protected from the weather by using a 180° turn to point the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

IMPORTANT: **DO NOT** use screens, louvers, or caps on the outside opening of the exhaust ductwork.

NOTE: Refer to the **illustrations** on **page 15 through page 17** for examples of single dryer venting.

EXTERNAL SINGLE DRYER VENTING CONNECTIONS (WITH DRYER COMMON EXHAUST)

VERTICAL DUCTING

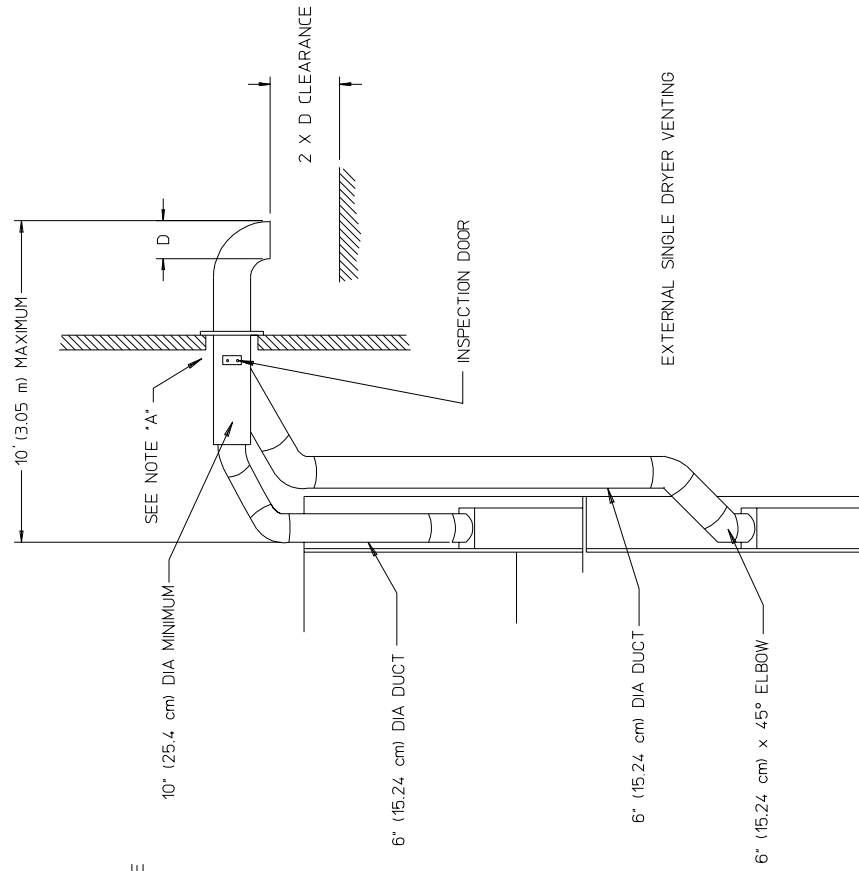


SIDE VIEW OF DRYER
(SECTION VIEW)

TCOSTA 05/24/00

NOTE "A": OPENING MUST BE 2-INCHES (5.08 cm) LARGER THAN THE DUCT (ALL THE WAY AROUND).
THE DUCT MUST BE CENTERED WITHIN THE OPENING.

HORIZONTAL DUCTING

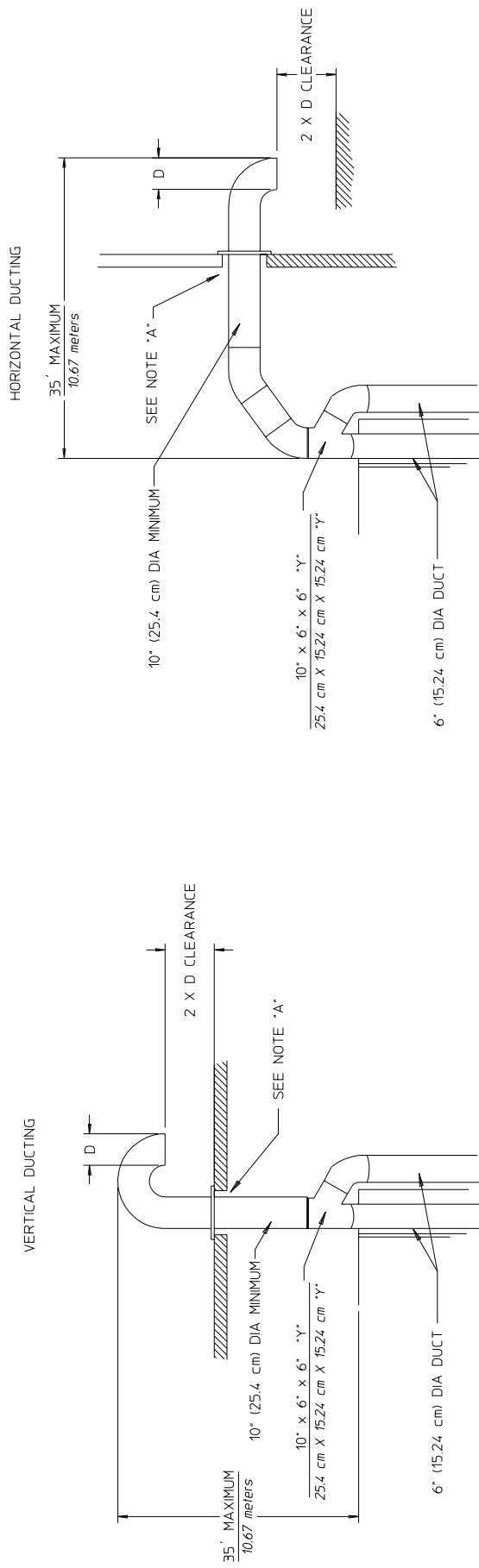


SIDE VIEW OF DRYER
(SECTION VIEW)

MAN5295

EXTERNAL SINGLE DRYER VENTING

EXTERNAL SINGLE DRYER VENTING CONNECTIONS
(WITH DRYER COMMON EXHAUST)



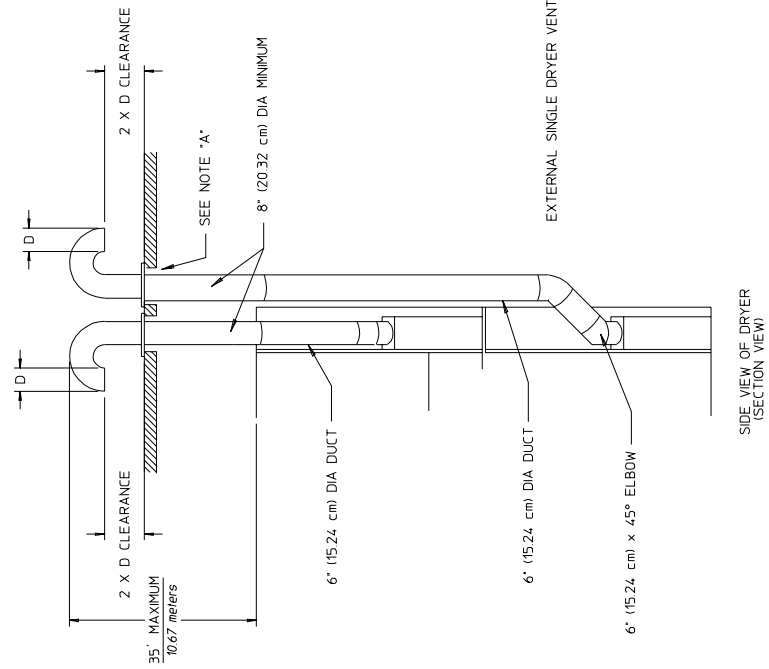
MAN5302

TCOSTA 05/23/00

NOTE "A": OPENING MUST BE TWO 2-INCHES (5.08 cm) LARGER THAN THE DUCT (ALL THE WAY AROUND).
THE DUCT MUST BE CENTERED WITHIN THIS OPENING.

EXTERNAL SINGLE DRYER VENTING CONNECTIONS
(WITH DRYER INDEPENDENT EXHAUST)

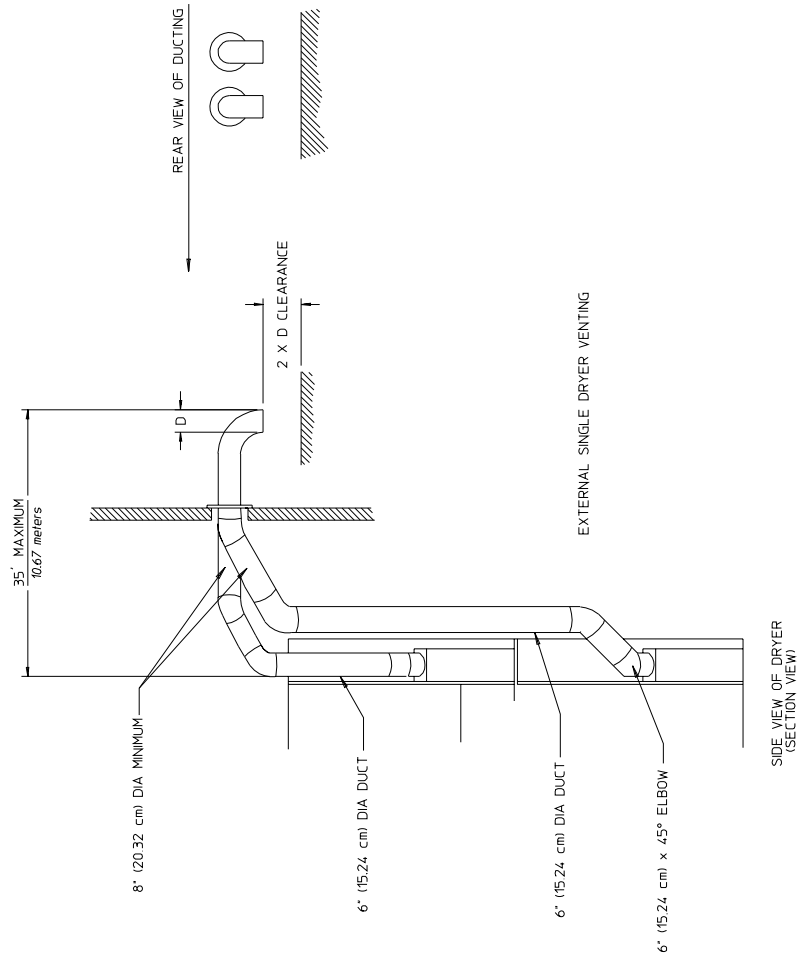
VERTICAL DUCTING



MAN5303

NOTE 'A': OPENING MUST BE 2-INCHES (5.08 cm) LARGER THAN THE DUCT (ALL THE WAY AROUND).
THE DUCT MUST BE CENTERED WITHIN THE OPENING

HORIZONTAL DUCTING



TCOSTA 05/23/00

3. 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 airflow. The main duct **should be** tapered, with the diameter increasing before each individual 10-inch (25.4 cm) duct (when dryer common exhaust is used) is added. If single 6-inch (15.24 cm) basket (tumbler) exhaust ducts are used, the diameter **should be** increased after every second 6-inch (15.24 cm) duct.

IMPORTANT: No more than four (4) dryers or eight (8) baskets (tumblers) total **should be** connected to one (1) main common duct.

NOTE: Refer to the **illustrations** on **page 20** for examples of multiple dryer (common) venting.

The main duct may be any shape or cross-sectional area so long as the minimum cross-sectional area is provided. The **illustrations** on **page 20** show 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 15 feet [4.57 meters]) or has numerous elbows (more than one [1]) in it. In calculating ductwork size, the cross-sectional area of a square or rectangular duct **must be** increased twenty percent (20%) for each additional 15 feet (4.57 meters). The diameter of a round exhaust **must be** increased ten percent (10%) for each additional 15 feet (4.57 meters).

IMPORTANT: For extended ductwork runs, the cross-sectional area of the ductwork can only be increased to an extent. Maximum proportional ductwork run **cannot** exceed 15 feet (4.57 meters) more than the original limitations of 15 feet (4.57 meters) with two (2) elbows. When the ductwork approaches the maximum limits as noted in this manual, a professional heating, venting, and air conditioning (HVAC) firm **should be** consulted for proper venting information.

IMPORTANT: Exhaust back pressure measured by a manometer at each basket (tumbler) exhaust duct area **must be** no less than 0 and **must not exceed** 0.3 inches (0.74 mb) water column (W.C.).

The ductwork **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** ductwork 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 ductwork for periodic inspection and cleaning.

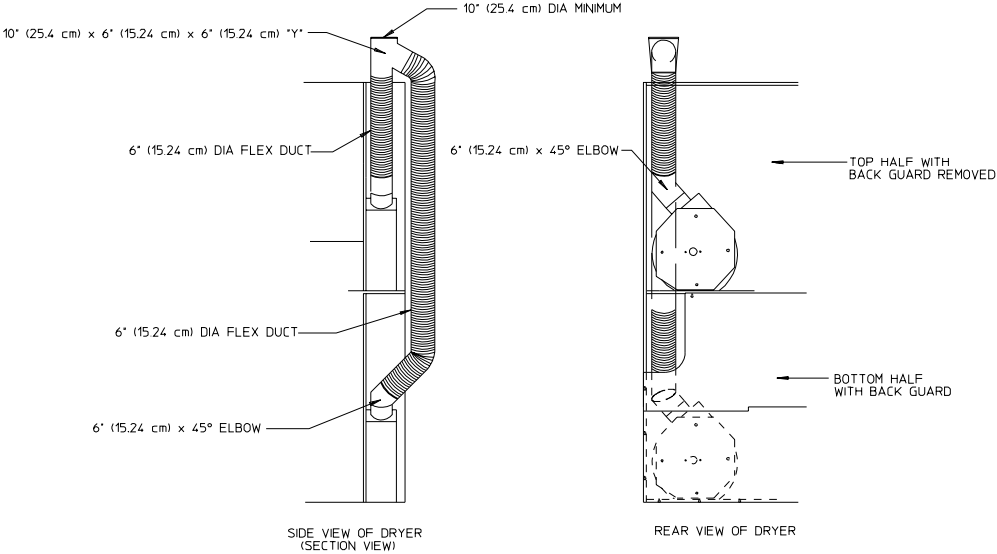
NOTE: When the exhaust ductwork passes through a wall, ceiling, or roof made of combustible materials, the opening **must be** 2-inches (5.08 cm) larger than the duct (all the way around). The duct **must be** centered within this opening.

To protect the outside end of the horizontal ductwork from the weather, a 90° elbow bent downward **should be** installed where the exhaust exits the building. If the exhaust ductwork 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.

IMPORTANT: *DO NOT* use screens, louvers, or caps on the outside opening of the exhaust ductwork.

NOTE: Refer to the **illustrations on page 20** for examples of multiple dryer (common) venting.

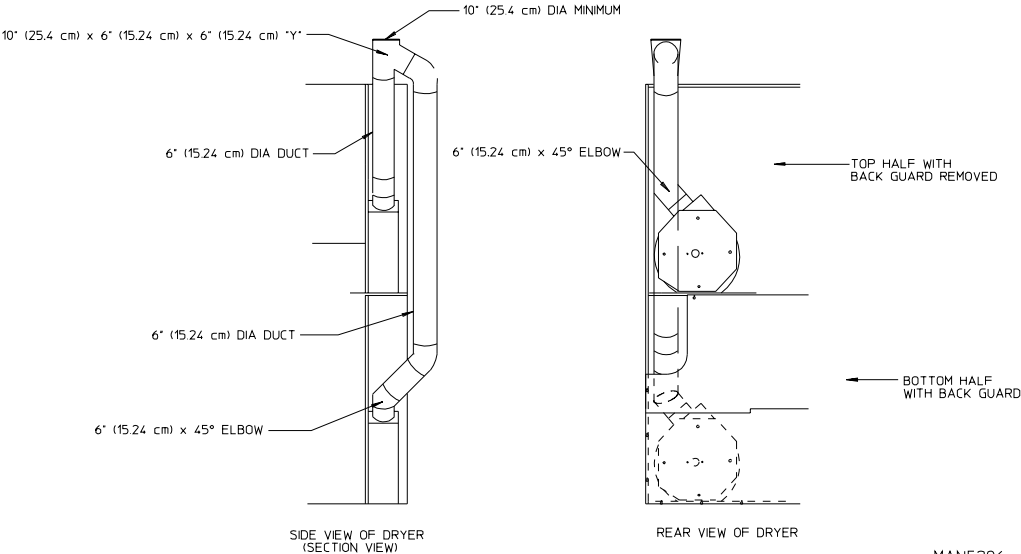
DRYER COMMON EXHAUST CONNECTIONS USING FLEX DUCT WORK



NOTE: USE DUCT TAPE AT ALL CONNECTIONS.

REFERENCE: OPTIONAL EXHAUST DUCT KIT P/N 882035

DRYER COMMON EXHAUST CONNECTIONS USING RIGID DUCT WORK

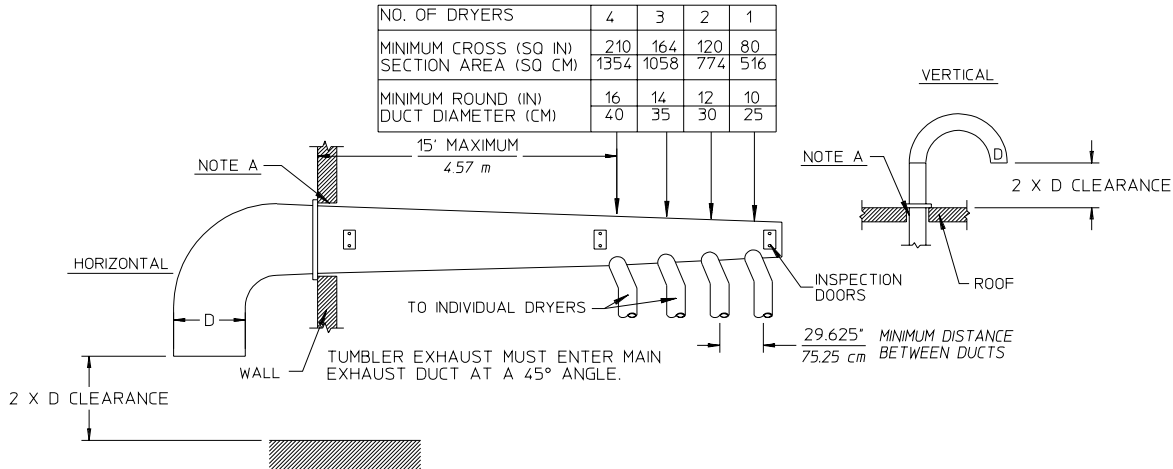


NOTE: USE DUCT TAPE AT ALL CONNECTIONS.

TCOSTA 05/24/00

MAN5296

**MULTIPLE DRYER VENTING
WITH 10" (25.4 cm) DIAMETER EXHAUST CONNECTIONS AT COMMON DUCT**



**IMPORTANT: NO MORE THAN 4 DRYERS (8 TUMBLERS) CAN
BE CONNECTED TO ONE COMMON DUCT (VENT).**

TCOSTA 05/24/00

MAN5309

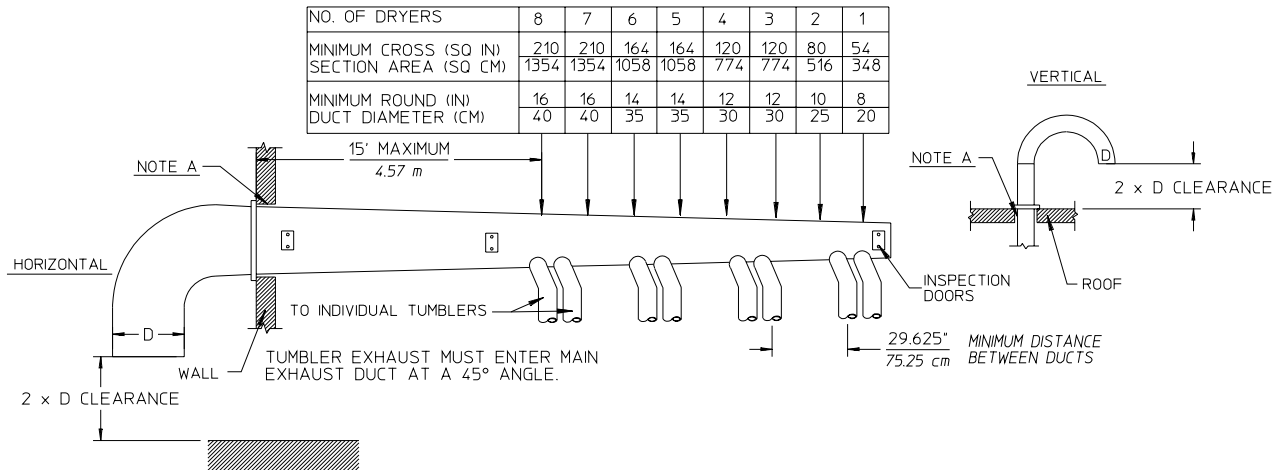
FORMULAS TO CALCULATE DUCTING CROSS SECTIONAL AREA

CROSS SECTIONAL AREA OF A ROUND DUCT = $.785 (19.939 \text{ mm}) \times D^2$ WHERE D = DIAMETER OF THE DUCT.

CROSS SECTIONAL AREA OF A RECTANGULAR DUCT = $W \times H$ WHERE W = WIDTH AND H = HEIGHT.

NOTE A: OPENING MUST BE 2-INCHES (5.08 cm) LARGER THAN THE DUCT (ALL THE WAY AROUND). THE DUCT MUST BE CENTERED WITHIN THIS OPENING.

**MULTIPLE DRYER VENTING
WITH 6" (15.24 cm) DIAMETER EXHAUST CONNECTIONS AT COMMON DUCT**



**IMPORTANT: NO MORE THAN 4 DRYERS (8 TUMBLERS) CAN
BE CONNECTED TO ONE COMMON DUCT (VENT).**

TCOSTA 05/24/00

MAN5310

FORMULAS TO CALCULATE DUCTING CROSS SECTIONAL AREA

CROSS SECTIONAL AREA OF A ROUND DUCT = $.785 (19.939 \text{ mm}) \times D^2$ WHERE D = DIAMETER OF THE DUCT.

CROSS SECTIONAL AREA OF A RECTANGULAR DUCT = $W \times H$ WHERE W = WIDTH AND H = HEIGHT.

NOTE A: OPENING MUST BE 2-INCHES (5.08 cm) LARGER THAN THE DUCT (ALL THE WAY AROUND). THE DUCT MUST BE CENTERED WITHIN THIS OPENING.

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 to 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 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.

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.

It is recommended that a separate circuit servicing each basket (tumbler) 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.

2. Electrical Connections

A wiring diagram is included with each dryer showing the wiring connection sequence. The electrical connections are made in a box located at the top of the dryer. The dryer is shipped with three (3) connection points (L1, L2/Neutral, and Ground) for each basket (tumbler).

If 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 rating of 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.

Electrical Connections Leads		
Black + Positive	White - Neutral	Green Ground
(L1)	(L2)	(GND)

NOTE: It is recommended that a circuit servicing each basket (tumbler/drum) be provided.

3. 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 Electrical Code ANSI/NFPA NO. 70-LATEST EDITION, or in Canada, the installation **must conform** to applicable Canada Standards: 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 (sized 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 connections **ALL** the way to the electrical ground. If there are any nonmetallic interruptions, such as, a meter, pump, plastic, rubber, or other insulating connectors, they **must be** jumped out with no. 4 wire and securely clamped to bare metal at both ends.

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

4. Electrical Service Specifications (per pocket)

IMPORTANT: The dryer ***must be*** connected to the electrical supply shown on the dryer data label located on the inside of the middle access (control) door.

WARNING: Any damage done to dryer components due to improper voltage application or connections will automatically **VOID THE WARRANTY.**

ADG-320/ADG-330, 1Ø MOTOR

ADS-320/ADS-330, 1Ø MOTOR

ELECTRICAL SERVICE SPECIFICATIONS (PER DRYER)

IMPORTANT: 208 VAC AND 240 VAC **ARE NOT THE SAME.** When ordering, ***specify exact voltage.***

- NOTES:**
- A. When fuses are used they **must be** dual element, time delay, current limiting, class RK1 or RK5 **ONLY**. Calculate/determine correct fuse value, by applying either local and/or National Electrical Codes to listed appliance amp draw data.
 - B. Circuit breakers are thermal-magnetic (industrial) motor curve type **ONLY**. For others, calculate/verify correct breaker size according to appliance amp draw rating and type of breaker used.
 - C. Circuit breakers for 3-phase (3Ø) dryers **must be** 3-pole type.

SERVICE VOLTAGE	PHASE	WIRE SERVICE	APPROX. AMP DRAW		MINIMUM WIRE SIZE	FUSING	CIRCUIT BREAKER
			60 Hz	50 Hz		Dual Element Time Delay	
100	1Ø	2	9.0	8.0	*	15	15
115	1Ø	2	9.1	---	*	15	15
208	1Ø	2	4.8	---	*	15	15
240	1Ø	2	5.1	4.3	*	15	15

* AWG Stranded Wire Type...size wire as per National Electrical Code or local codes.

050703

NOTE: Contact factory for electrical information not listed.

ADE-330 (Electric)

ELECTRICAL SERVICE SPECIFICATIONS (PER DRYER)

IMPORTANT: 208 VAC AND 240 VAC **ARE NOT THE SAME**. When ordering, *specify exact voltage*.

- NOTES:**
- A. When fuses are used they **must be** dual element, time delay, current limiting, class RK1 or RK5 **ONLY**. Calculate/determine correct fuse value, by applying either local and/or National Electrical Codes to listed appliance amp draw data.
 - B. 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.
 - C. Circuit breakers for 3-phase (3Ø) dryers **must be** 3-pole type.

OVEN SIZE (kW)	SERVICE VOLTAGE	PHASE	WIRE SERVICE	APPROX. AMP DRAW
15 (60 Hz)	208	1Ø	2	76.9
15 (60 Hz)	240	1Ø	2	67.6
15 (50 Hz)	240	1Ø	2	66.8
15 (60 Hz)	208	3Ø	3	46.4
15 (60 Hz)	240	3Ø	3	41.1
15 (50 Hz)	240	3Ø	3	40.4
15 (50 Hz)	380-400	3Ø	4*	27.1
15 (50 Hz)	416	3Ø	4*	25.1

050703

* 380, 400, and 416 volt dryers are built 4-wire only. Customer must contact factory to special order 3-wire systems.

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 to 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 (Liquid Propane [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 shutoff 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 shutoff 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, which will VOID 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 located on the inside of the middle access (control) door. If this information does not agree with the type of gas available, contact the reseller who sold the dryer or contact 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 (609.6 meters) unless elevation requirements of over 2,000 feet (609.6 meters) 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 (609.6 meters) is made by changing each burner orifice. If this conversion is necessary, contact the reseller who sold the dryer or contact the **ADC** factory.

IMPORTANT: THIS GAS DRYER **IS NOT** PROVIDED WITH AN INTERNAL GAS SUPPLY SHUTOFF AND AN EXTERNAL GAS SUPPLY SHUTOFF **MUST BE** PROVIDED.

2. Technical Gas Data

a. Gas Specifications

TYPE OF GAS				
	NATURAL		LIQUID PROPANE	
Manifold Pressure*	3.5 inches W.C.	8.7 mb	10.5 inches W.C.	26.1 mb
In-Line Pressure	6.0 - 12.0 inches W.C.	14.92 - 29.9 mb	11.0 inches W.C.	27.4 mb

Shaded areas are stated in metric equivalents

* Measured at gas valve pressure tap when gas valve is on.

ADG-330D		
Gas Inlet Size (each basket/tumbler)	1/2" N.P.T.	
Btu/hr Input (each basket/tumbler)	68,000	17,136 kcal/hr
Btu/hr Input (total for both baskets/tumblers)	136,000	34,272 kcal/hr

N.P.T. = National Pipe Thread

ADG-320D		
Gas Inlet Size (each basket/tumbler)	1/2" N.P.T.	
Btu/hr Input (each basket/tumbler)	60,000	15,120 kcal/hr
Btu/hr Input (total for both baskets/tumblers)	120,000	30,240 kcal/hr

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 (14.92 mb) and a maximum of 12.0 inches (29.9 mb) water column (W.C.) pressure.

c. Liquid Propane (L.P.) Gas

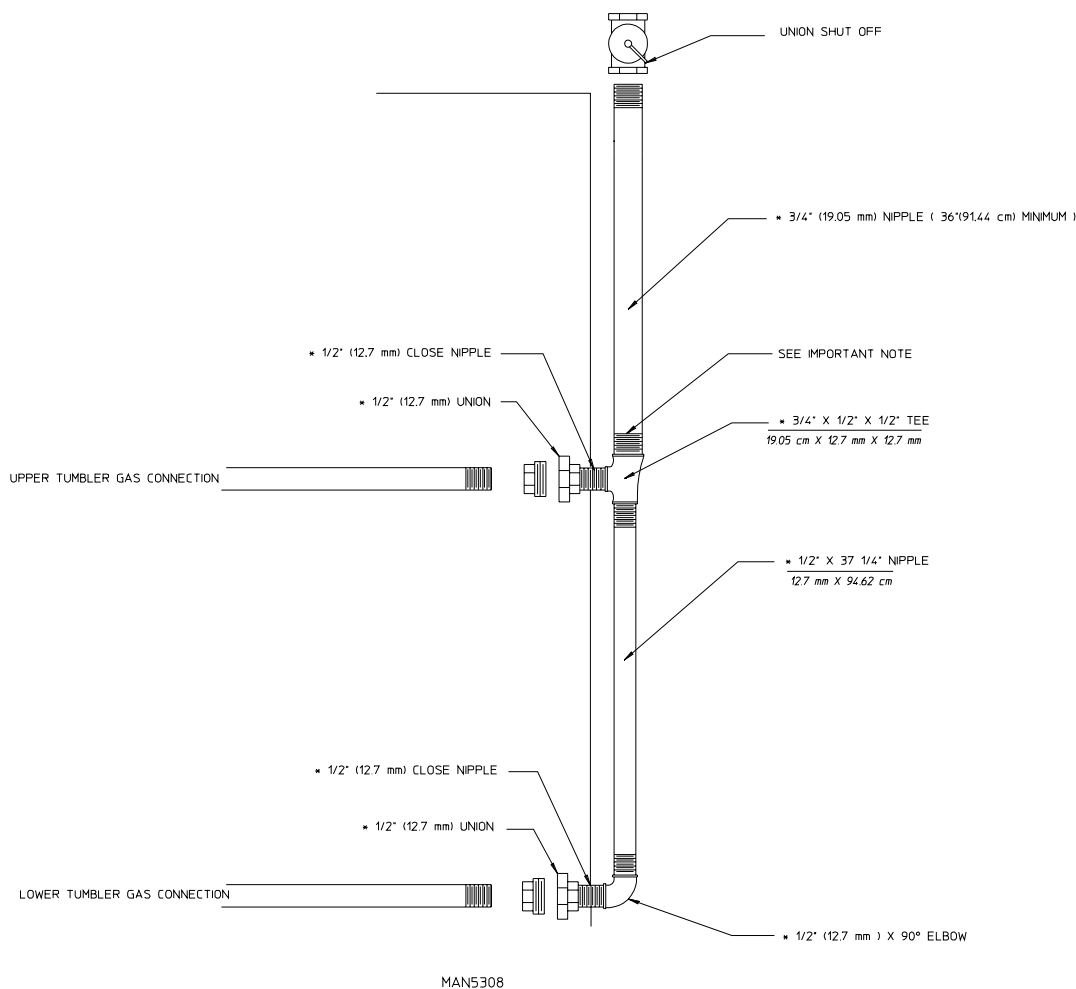
Dryers made for use with L.P. gas have the gas valve's internal pressure regulator blocked open so that the gas pressure **must be** regulated upstream of the dryer. The pressure measured at each gas valve pressure tap **must be** a consistent 10.5 inches (26.1 mb) water column. There is no regulator 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 ANSI Z223.1-LATEST EDITION, or in Canada, CAN/CGA-B149.1-M91 (Natural Gas) or CAN/CGA-B149.2-M91 (Liquid Propane [L.P.] Gas) or LATEST EDITION (for General Installation and Gas Plumbing), as well as local codes and ordinances and **must be** done by a qualified professional. It is important that gas pressure regulators meet applicable pressure requirements, and that gas meters be rated for the total amount of **ALL** the appliance BTUs being supplied.

The dryer is provided with two (2) 1/2" N.P.T. inlet pipe connections (one [1] for each basket [tumbler]) at the rear of the dryer. If a separate feed is provided for each basket (tumbler) from the main supply line (header), then a 1/2" (12.7 mm) line connection is sufficient. However, if the top and bottom basket (tumbler) connections are connected together, the supply from the header **must be** increased to 3/4-inch (19.05 mm). An optional piping kit is available from the factory as illustrated below and on **page 55**. It is **recommended** that a gas shutoff valve be provided to the gas supply line of each dryer for ease in servicing.

TYPICAL GAS CONNECTIONS



• INCLUDED IN OPTIONAL GAS PIPING KIT P/N 880128

TCOSTA 05/24/00

IMPORTANT: When plumbing upper and lower baskets (tumblers) together, as illustrated above, supply connection **must be** a minimum of 3/4" (19.05 mm).

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 liquid propane [L.P.] 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" (19.05 mm) pipe loop be installed in the supply line servicing 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 (29.9 mb) water column (W.C.) pressure. Refer to the **illustration** on **page 28** for details.

IMPORTANT: Water column pressure of 3.5 inches (8.7 mb) for natural gas dryers and 10.5 inches (26.1 mb) for L.P. gas is required at the gas valve pressure tap of each dryer for proper and safe operation.

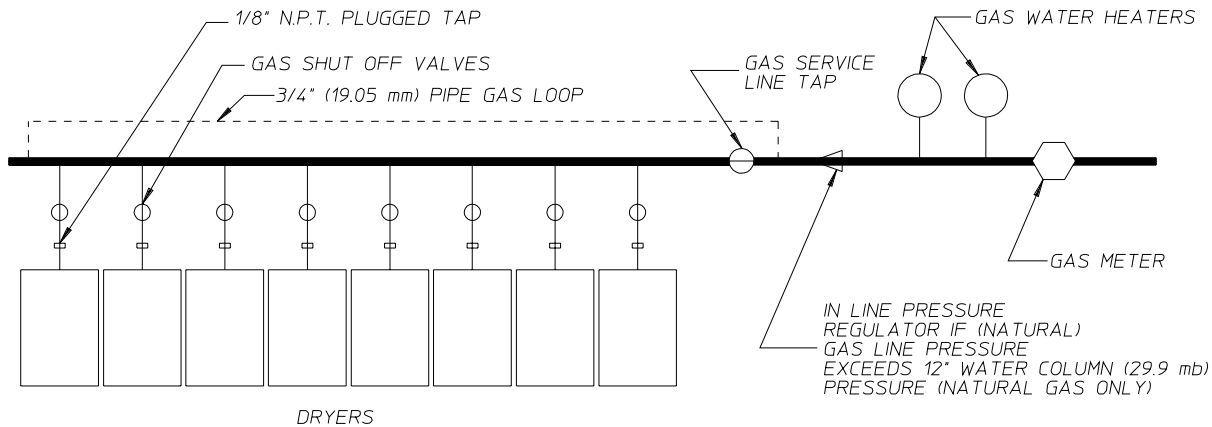
A 1/8" N.P.T. plugged tap, accessible for a test gauge connection, **must be** installed in the main gas supply line immediately upstream of each dryer.

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

WARNING: Test **ALL** connections for leaks by brushing on a soapy water solution (liquid detergent works well).

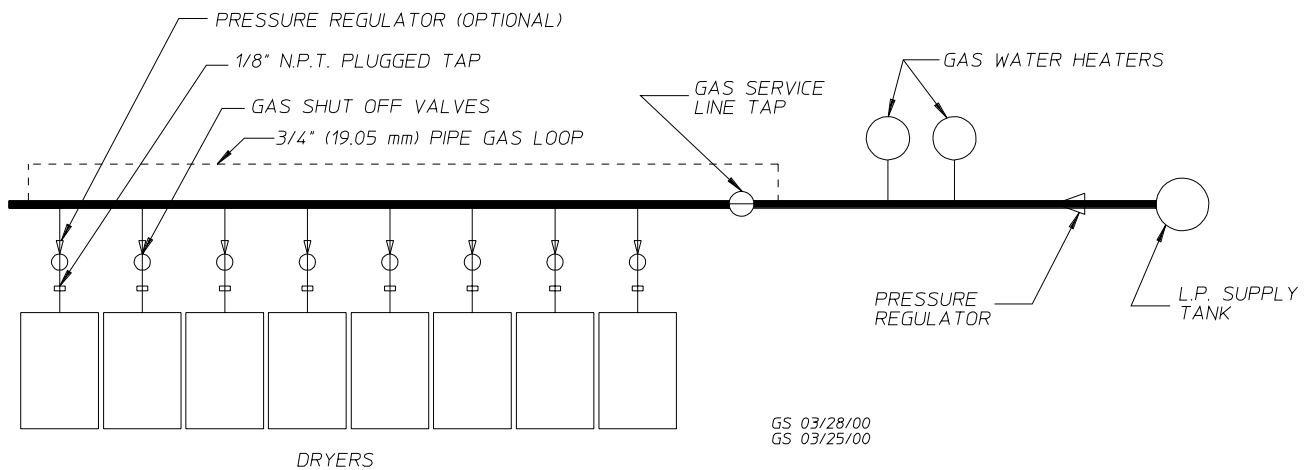
WARNING: **NEVER TEST FOR LEAKS WITH A FLAME!!!**

TYPICAL NATURAL GAS INSTALLATION



MAN5155

TYPICAL L.P. GAS INSTALLATION



H. STEAM PIPING HOOKUP

Piping **must be** installed in accordance with good commercial steam system practice.

It is your responsibility to have **ALL** steam plumbing connections made by a qualified professional to assure that the installation is adequate and conforms with local and state regulations or codes.

Care **must be** exercised when leveling steam dryers in final position. After leveling the dryer, check the downward pitch of the heat exchanger from front to rear with a level. Likewise, check the downward pitch of the return condensate manifold toward its outlet part. Absence of these downward pitches will result in probable water hammer and premature heat exchanger fracture and leakage.

The presence of condensate in the steam will cause water hammer and subsequent heat exchanger failure. The steam supply connection **must be** taken from the top of a well dripped steam main. If the supply run out to the dryer exceeds 20 feet (6.1 meters), it **should be** dripped just before the control valve with a proper trap and dirt pocket.

Low-Pressure (up to 15 PSI [1.03 bar]) or High-Pressure (16-125 PSI [1.10 -8.62 bar]) Damper Models

Adherence to the following instructions is necessary to eliminate coil failures due to water hammer caused by wet steam.

The **ADC** steam dryer uses a damper system instead of an electric steam valve to control the dryer's temperature. On a call for heat, the steam damper opens allowing room air to be drawn through the steam coil, then into the basket (tumbler). Once the set point temperature has been reached, the steam damper closes and room air now bypasses the steam coil and passes directly into the basket (tumbler).

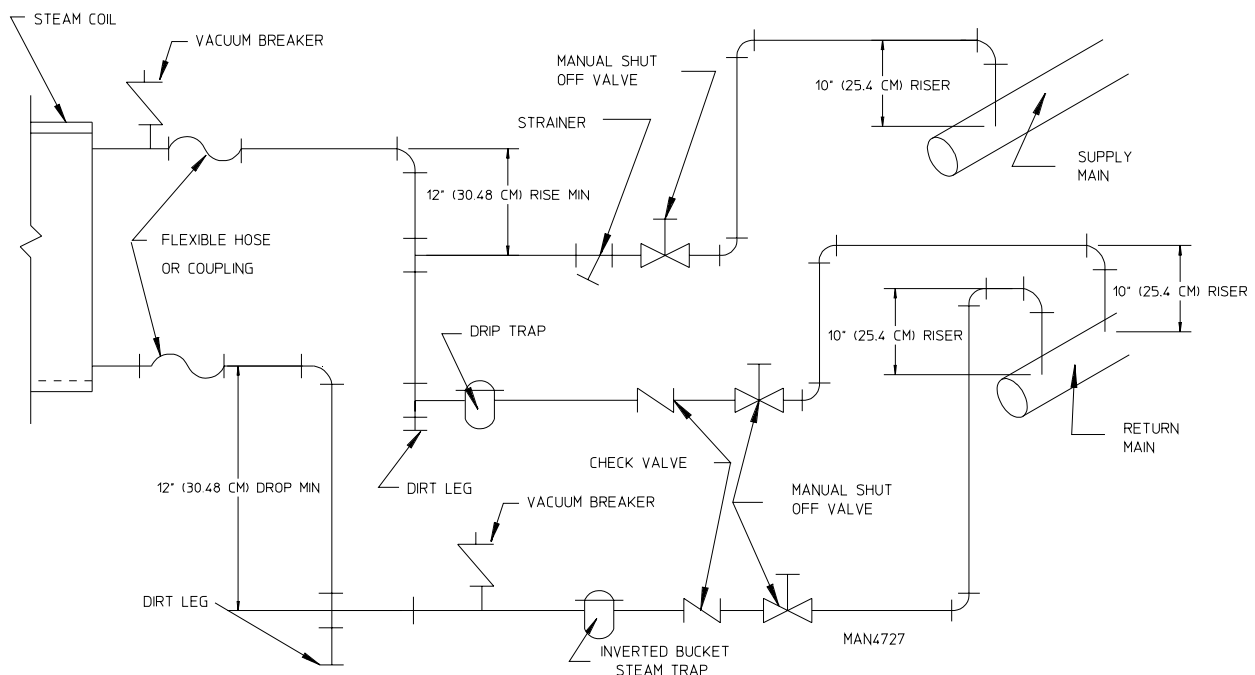
The pressure of condensate in the steam supply line will cause water hammer and subsequent heat exchanger failure. The steam supply connection into the main supply line **must be** made with a minimum 10-inch (25.4 cm) riser. This will prevent any condensate from draining towards the dryer.

The steam supply line to the dryer must include a 12-inch (30.48 cm) riser along with a drip trap and check valve. This will prevent any condensate from entering the steam coil. Flexible hoses or couplings **must be** used. The dryer vibrates slightly when it runs and this will cause the steam coil connections to crack if they are hard piped to the supply and return mains.

Shutoff valves for each dryer **should be** installed in the supply, return, and drip trap return lines. This will allow the dryer to be isolated from the supply and return mains if the dryer needs maintenance work.

Install an inverted bucket steam trap and check valve at least 12-inches (30.48 cm) below the steam coil as near to the coil as possible. A vacuum breaker **should be** installed in the piping. This will prevent the condensing steam from causing a vacuum inside the coil possibly damaging the coil. The supply and return lines **should be** insulated. This will save energy and provide for the safety of the operator and maintenance personnel.

Water pockets in the supply line, caused by low points, will provide wet steam to the coil possibly causing coil damage. **ALL** horizontal runs of steam supply piping **should be** pitched 1/4" (6.35 mm) every foot (0.30 meter) back towards the steam supply header causing any condensate in the line to drain to the header. Install a bypass trap in any low point to eliminate wet steam.



IMPORTANT: Failure to comply with the requirements stipulated in this manual can result in component failure, which will VOID THE WARRANTY.

1. Steam Coil PH Level

The normal PH level for copper type steam coils **must be** maintained between a value of 8.5 to 9.5. For steel type steam coils the PH level **must be** maintained between a value of 9.5 to 10.5. These limits are set to limit the acid attack of the steam coils.

IMPORTANT: Coil failure due to improper PH level will VOID THE WARRANTY.

a. Instructions for Steam Damper/Piston and Steam Coil Installation (for Steam Models Only)

For shipping purposes, the steam damper/piston assemblies (two [2] each) and steam coils (two [2] each) are not assembled to the dryer and **must be** installed at the time of dryer installation. The steam damper/piston assemblies are independently packaged and are shipped in the rear section of the dryer. The steam coils are shipped in a separate container (one [1] box/crate which includes both coils) included with the dryer but not in the dryer.

- 1) Prior to installing steam damper plate, locate air supply Port No. 3 on the solenoid valve (refer to **Illustration C** on **page 31**).

- 2) Install steam damper as shown in **Illustration A** on **this page**.

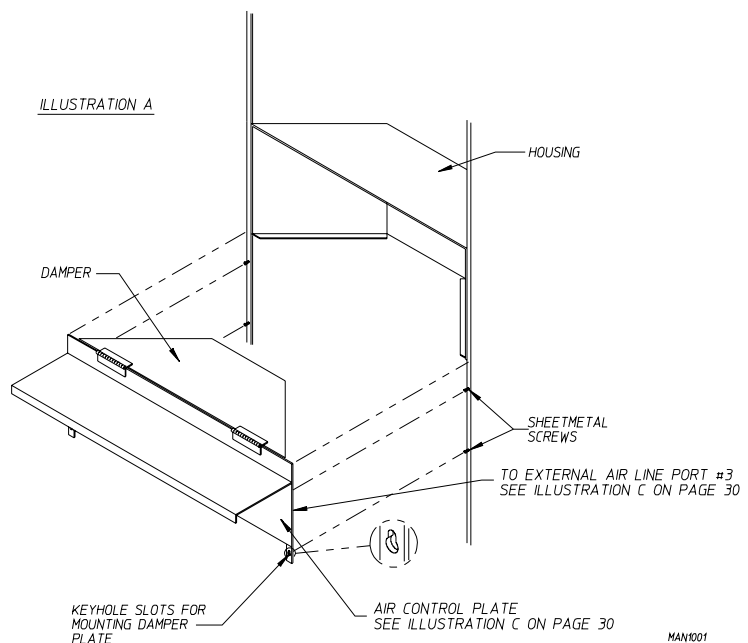
- 3) Make sure the steam damper rests on the side flanges of the housing and is free to move up and down.

- 4) Tighten **ALL** four (4) sheet metal screws to secure steam damper plate to the dryer.

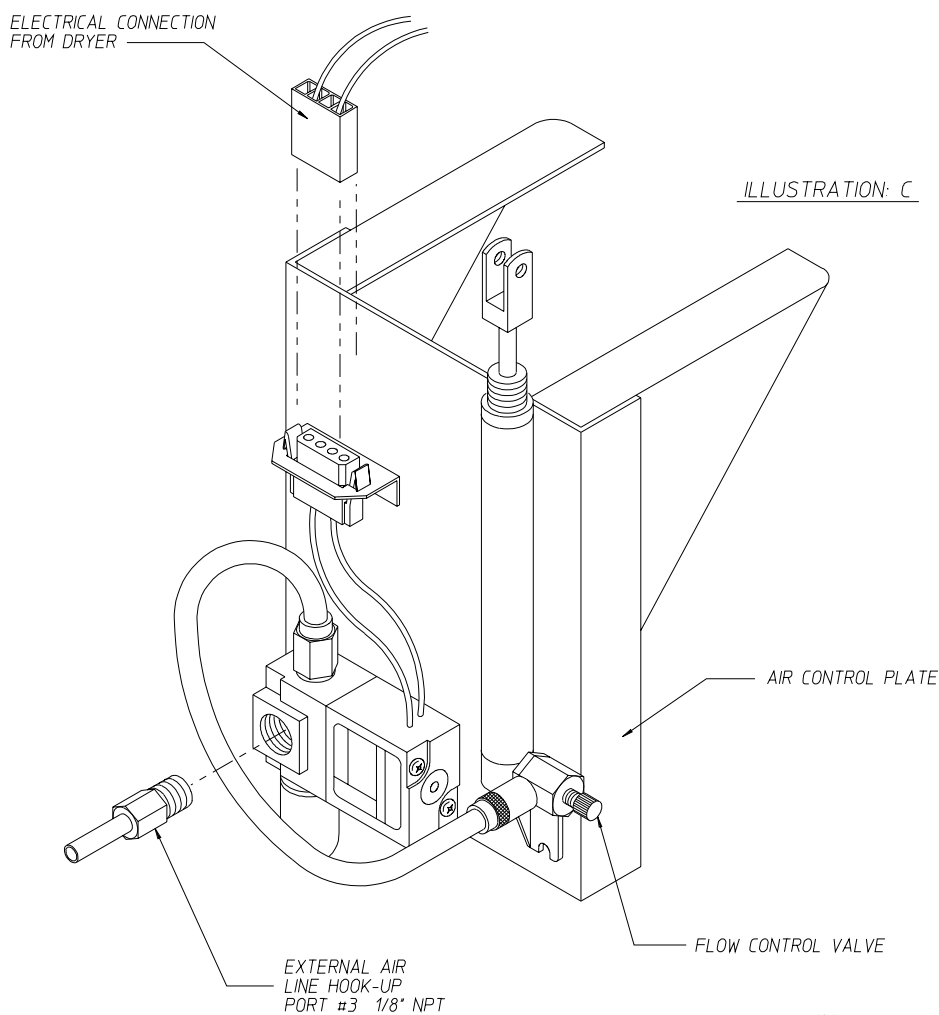
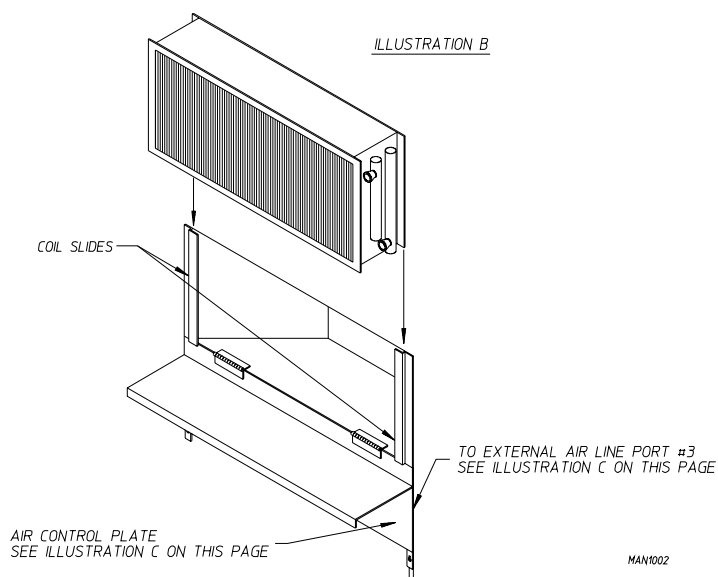
- 5) Locate the steam coil slides on side of housing as shown in **Illustration B** on **page 31**.

- 6) Slide steam coils down from top, making sure the rear flanges of the steam coil are behind coil slides and the steam coil rests on the damper plate.

- 7) Piping on coil **should be** located on right hand side when facing the rear of the dryer.



- 8) The air supply line can now be connected to the solenoid valve in Port No. 3 using a 1/8" N.P.T. pipe fitting (refer to **Illustration C** on this page).
- 9) Plug the electrical connector from the dryer to the mating electrical connector on the air control plate as shown in **Illustration C** on this page.



NOTE: Turning knob on flow control valve clockwise (CW) will restrict airflow. Turning knob on flow control valve counterclockwise (CCW) will increase airflow.

b. Steam Damper Air System Connections

The pneumatic (piston) damper system requires an external supply of compressed air. The air connection is made to the system solenoid valve, which is located at the rear inner top area of the dryer.

1) Air Requirements

COMPRESSED AIR SUPPLY	AIR PRESSURE	
Normal	80 PSI	5.51 bar
Minimum Supply	70 PSI	4.82 bar
Maximum Supply	90 PSI	6.21 bar

Shaded areas are stated in metric equivalents

2) Air Connection

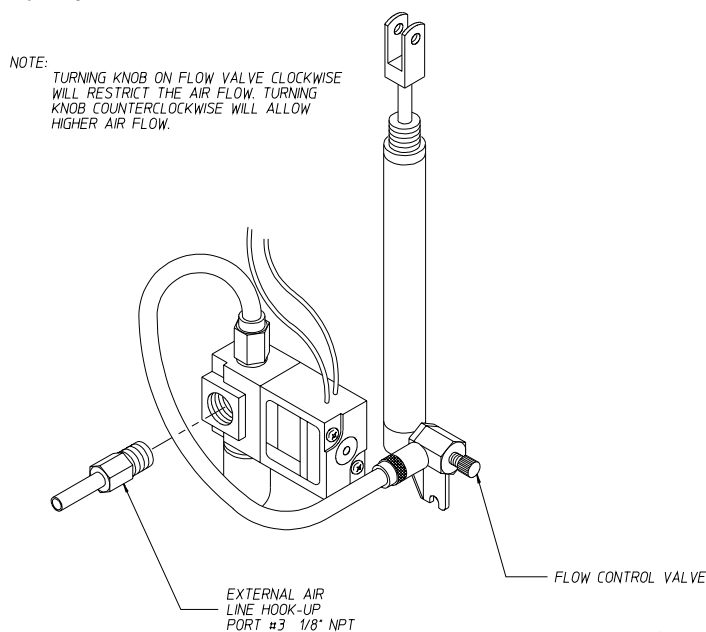
Air connection to system --- 1/8" N.P.T.

3) Air Regulation

No air regulation is provided with the dryer. External regulation of 80 PSI (5.51 bar) **must be** provided. It is suggested that a regulator/filter gauge arrangement be added to the compressed air line just before the dryer connection. This is necessary to insure that correct and clean air pressure is achieved.

4) Steam Operation

Steam operation was tested and adjusted prior to shipping at 80 PSI (5.51 bar). If damper air adjustment is necessary, locate the flow control knob (as shown in the **illustration below**) and make necessary adjustments as noted below.



I. 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 located on the inside of the middle access (control) 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 AND 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 shutoff 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 they move freely.
10. **STEAM MODELS** - check to insure that the air supply (80 PSI [5.51 bar]) is on the dryer.
11. For more effective automatic door closure and better tumbling action (and improved efficiency), the dryer **should be** tilted slightly to the rear.

J. 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.

1. Turn on electric power to the dryer.
 - a. Open **ALL** gas or steam shutoff valves (for gas and steam models only)
2. Dual Microprocessor Controller (DMC) Computer System Operational Test
 - a. Coin Models Only
 - 1) The light emitting diode (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”...“tEnP.”

- 3) Start the dryer by pressing the desired setting for either the upper basket (tumbler) or lower basket (tumbler) (i.e., “LO” selection for the upper basket [tumbler]). The light emitting diode (L.E.D.) display will now read 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 the dryer, shut the main door and press the desired setting.

- 4) Open the 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 the setting key circuits and door switch circuits are functioning properly.

NOTE: 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.

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

b. OPL (Non-Coin) Models Only

- 1) The L.E.D. display(s) will flash back and forth between “FILL” and “FrEE” meaning that the dryer is available.
- 2) Start the dryer by pressing the desired setting for either the upper basket (tumbler) or lower dryer basket (tumbler) (i.e., “LO” selection for the upper basket [tumbler]). The L.E.D. display will now read selection (setting) made and the drying time portion of the L.E.D. display will read “00” and count upwards in time.

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

- 3) Open the 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 the setting key circuits and door switch circuits are functioning properly.

NOTE: 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.

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

3. Heat Circuit Operational Test

a. Gas Models

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.

The dryer is equipped with a Direct Spark Ignition (DSI) system, which has internal diagnostics. If ignition is not established, the heat circuit DSI module will lockout until it is manually reset. To reset the DSI system, open and close the main door and restart the dryer (press desired temperature selection).

NOTE: During the purging period, check to be sure that **ALL** gas shutoff valves are open.

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 (W.C.) pressure is correct and consistent.

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

Natural Gas 3.5 Inches (8.7 mb) Water Column.

Liquid Propane (L.P.) Gas 10.5 Inches (26.1 mb) Water Column.

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

b. Electric Models

Check to insure that the heating units (electric ovens) are functioning properly.

c. Steam Models

Check to insure that the steam dampers open and close properly. If steam dampers open and/or close too fast, make the necessary adjustments at the steam damper/piston flow control valve. Refer to the **illustration on page 32.**

4. Make a complete operational check of **ALL** safety related circuits (i.e., lint basket switches and sail switches).
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.

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

BASKET (TUMBLER) COATING

The basket (tumbler) is treated with a protective coating. We suggest dampening old garments or cloth material with a solution of water and nonflammable mild detergent and tumbling them in the basket (tumbler) to remove this coating.

NOTE: Drying and cooling cycles are complete when the light emitting diode (L.E.D.) display reads "donE."

6. Computer Programs/Selections...

Each Dual Microprocessor Controller (DMC) 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 DMC Programming Manual, which was shipped with the dryer.

K. SHUTDOWN INSTRUCTIONS

In the case where the dryer is to be shutdown (taken out of service) for a period of time, the following **must be** performed:

1. Discontinue power to the dryer (both baskets [tumblers]) either at the external disconnect switch or the circuit breaker.
2. Discontinue the gas or steam supply:
 - a. ***GAS MODELS...discontinue the gas supply.***
 - 1) **SHUT OFF external gas supply shutoff valve** (for both the top basket [tumbler] and the bottom basket [tumbler] where the independent supply line for each basket [tumbler] is used).
 - b. ***STEAM MODELS...discontinue the steam supply.***
 - 1) **SHUT OFF external (location furnished) shutoff valve** (for both the top basket [tumbler] and the bottom basket [tumbler] where the independent supply line for each basket [tumbler] is used).

SECTION IV

OPERATING INSTRUCTIONS

A. STARTING THE DRYER

1. Coin Dryers

The dryer is available for use when the light emitting diode (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:

- a. 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”...“tEnP.”
- b. Determine fabric setting (selection). Setting “HI TEMP” is the high temperature range, “PERM PRESS” is the medium temperature range, and “LO TEMP” is the low temperature range.

Once the fabric temperature setting (selection) has been determined, you start the dryer by pressing the fabric setting key for the basket (tumbler) being used (i.e., “LO TEMP” setting for the upper basket [tumbler]).

- c. The dryer will now start, and the L.E.D. display for the basket (tumbler) selected will read the setting and the time vended (i.e., “LO 10”).
- d. The cycle time will count down until the drying and cooling cycles are completed.
- e. Upon completion of the drying cycle and cooling cycle, the dryer will shut off, the tone (buzzer) will sound for 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 Dual Microprocessor Controller (DMC) 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.”

f. 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 the desired setting.

NOTE: When a cycle is interrupted by opening the main door, cycle time will continue to count downward, regardless if the door is open or closed, until a keyboard (touch pad) 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 light emitting diode (L.E.D.) display(s) will read "PUSH"... "tEnP," and the selection (setting) key for the appropriate basket (tumbler) **must be** pressed.

NOTE: Any one (1) of the three (3) selection keys can be pressed for the appropriate basket (tumbler). No matter which key is pressed, the Dual Microprocessor Controller (DMC) computer will continue the cycle selection time that was in operation at the time of inserting additional coins.

NOTE: When both baskets (tumblers) are in operation and additional coins are inserted for one (1) basket (tumbler) and the appropriate basket (tumbler) selection is made, the other basket (tumbler) automatically resumes cycle status.

2. Non-Coin (OPL) Dryers

The dryer is available for use when the L.E.D. display reads "FILL" and/or "FrEE." Once the load has been put into the dryer and the main door is closed, start the dryer as follows:

- a. Determine fabric setting (selection). Setting "HI TEMP" is the high temperature range, the "PERM PRESS" is the medium temperature range, and the "LO TEMP" setting is the low temperature range.

Once the fabric temperature setting (selection) has been determined, you start the dryer by pressing the fabric setting key for the basket (tumbler) being used (i.e., "LO TEMP" setting for the upper basket [tumbler]).

- b. The dryer will now start, and the L.E.D. display for the basket (tumbler) selected will read the setting (selection) and the drying portion of the L.E.D. display will read "00" and count upwards in time.
- c. Upon completion of the drying cycle and cooling cycle, the dryer will shut off, the tone (buzzer) will sound for 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 DMC 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 "FrEE."

d. 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: 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 "FrEE."

- 2) Selection (setting) changes can be made at any time during the drying cycle by opening and closing the main door then making a new selection.

SECTION V

SERVICE/PARTS INFORMATION

A. SERVICE

1. Service **must be** performed by a qualified trained technician, service agency, or gas supplier. If service is required, contact the reseller from whom the **ADC** equipment was purchased. If the reseller **cannot** be contacted or is unknown, contact the **ADC** Service Department for a reseller 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 reseller from whom the **ADC** equipment was purchased. If the reseller **cannot** be contacted or is unknown, contact the **ADC** Parts Department for a reseller in your area. Parts may also be purchased directly from the factory by calling the **ADC** Parts Department at (508) 678-9000 or you may FAX in your order at (508) 678-9447.

NOTE: When ordering replacement parts from the **ADC** reseller 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 CARDS

1. Before any dryer leaves the **ADC** factory test area, a warranty card 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 should you file a warranty claim.
 - a. If a warranty card 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 the warranty card(s).

B. WARRANTY

For a copy of the **ADC** commercial warranty covering your particular dryer(s), contact the **ADC** reseller from whom you purchased the equipment and request a dryer warranty form. If the reseller 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 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

ALL dryer or parts warranty claims or inquiries **should be** addressed to the **ADC** Warranty Parts Department. 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" [R.M.A.]) from the factory.

NOTE: An R.M.A. is valid for only thirty (30) 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 reply **is not** received by the ADC Warranty Department within thirty (30) days from the FAX/letter date, then no replacements, credits, or refunds **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 ductwork 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 are for average usage, which is considered six (6) to eight (8) operational (running) hours per day.

IMPORTANT: Dryer produces combustible lint and *must be* exhausted to the outdoors. Every 6 months, inspect the exhaust ducting and remove any lint build up.

SUGGESTED CLEANING SCHEDULE

DAILY (beginning of each work shift)

Clean lint from lint drawer/screen.

Inspect lint screen and replace if torn.

WEEKLY

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

WARNING: TO AVOID HAZARD OF ELECTRICAL SHOCK, DISCONTINUE ELECTRICAL POWER SUPPLY TO THE DRYER.

STEAM DRYERS

Clean steam coil fins. Suggest using compressed air and vacuum cleaner with brush attachment.

90 DAYS

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

WARNING: THE ACCUMULATION OF LINT IN THE EXHAUST DUCTWORK CAN CREATE A POTENTIAL FIRE HAZARD.

WARNING: *DO NOT* OBSTRUCT THE FLOW OF COMBUSTION AND VENTILATION AIR.

WARNING: INSPECT AND REMOVE ANY LINT ACCUMULATION, WHICH CAN CAUSE THE BACK DRAFT 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 circuit safety switches and/or thermostats.

NOTE: When cleaning dryer cabinet(s), avoid using harsh abrasives. A product intended for the cleaning of appliances is recommended.

B. ADJUSTMENTS

7 DAYS AFTER INSTALLATION AND EVERY 6 MONTHS THEREAFTER

Inspect bolts, nuts, screws, (bearing setscrews), grounding connections, and nonpermanent gas connections (unions, shutoff valves, and orifices). 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 switches, lint drawer switch, sail switch, burner, and hi-limit thermostats).

C. LUBRICATION

The motor bearings, idler bearings, and under normal/most conditions the basket (tumbler) bearings are permanently lubricated. It is physically possible to relubricate the basket (tumbler) bearings if you choose to do so, even though this practice is not necessary. Use Shell Alvania #2 grease or its equivalent. The basket (tumbler) bearings used in the dryer **DO NOT** have a grease fitting. Provisions are made in the bearing housing for the addition of a grease fitting, which can be obtained elsewhere, or from **ADC** by ordering Part No. 882159...which includes two (2) grease fittings.

SECTION VIII

TROUBLESHOOTING

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

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 light emitting diode (L.E.D.) display...

1. Service panel fuse blown or tripped breaker.
2. Blown control circuit fuse (3 AG 1/2-amp [Slo-Blo] fuse).
3. Failed Dual Microprocessor Controller (DMC) computer.

B. Basket (tumbler) does not start, but motor and DMC computer motor L.E.D. dot and motor output L.E.D. indicators are on...

1. DMC computer indicator is on...
 - a. Failed motor contactor/relay.
 - b. Failed motor.

2. Dual Microprocessor Controller (DMC) computer indicator is off (and the light emitting diode [L.E.D.] display does not read “door”)...
 - a. Failed DMC computer.
- C. Basket (tumbler) does not turn, but motor and DMC computer motor L.E.D. dot and motor output L.E.D. indicators are on...**
 1. Loose basket (tumbler) belt (check tension/adjustment).
 2. Basket (tumbler) belt jumped off of motor or idler shaft.
 3. Broken basket (tumbler) belt.
- D. The dryer will not stop, even with no cycle (L.E.D. display reads “FILL”) in progress...**
 1. Failed motor contactor/relay.
- E. The dryer operates for a few minutes, and with the DMC computer motor L.E.D. indicator dot on the motor stops, and then after a period of time restarts on its own...**
 1. Motor is overheating and tripping out on its internal overload...
 - a. Motor air vents clogged with lint.
 - b. Low voltage to motor.
- F. The dryer operates for a few minutes and then stops...DMC 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/lint drawer circuit...
 - a. Main door switch or lint drawer switch out of proper adjustment.
 - b. Loose connection in main door switch or lint drawer switch wiring.
 - c. Failed main door switch or lint drawer switch.
- G. The dryer does not start, and the DMC computer L.E.D. display reads “door”...**
 1. DMC “door” input L.E.D. is off...
 - a. Main door and/or lint drawer is not properly closed.
 - b. Failed main door switch.
 - c. Failed lint drawer switch.
 - d. Open circuit (broken wire and/or termination) in main door switch circuit wiring or lint drawer switch circuit wiring.

e. Failed 24 VAC step down transformer.

2. Dual Microprocessor Controller (DMC) “door” input light emitting diode (L.E.D.) is on...

a. Failed DMC computer.

H. The dryer does not start (COIN MODELS ONLY)...coin(s) inserted and the L.E.D. display continues to read “FILL” and/or “Amount To Start” (does not read “PUSH”)...

1. Coin acceptor is not adjusted properly (housing is not flush with panel) or is dirty with lint.

2. Failed coin acceptor optic switch.

3. Parameter in Program Location 01 (**PL01**) set incorrectly...

a. Faulty coin program **should be** set for “bCrS” and not “bCLO.”

I. DMC computer L.E.D. display reads “dSFL”...

1. L.E.D. display consistently reads “dSFL” and will not clear...

a. DMC computer 1/8-amp (Slo-Blo) fuse is blown.

b. Failed DMC computer temperature sensor.

c. Broken wire and/or termination in sensor harness somewhere between the sensor bracket and the DMC computer.

2. L.E.D. display reads “dSFL” for a short period of time (30-seconds or less) and then returns to the normal stop “FILL” mode...

NOTE: Once the DMC 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 canceled.

a. Loose wire and/or termination in sensor harness somewhere between the sensor bracket and the DMC computer.

b. Failed DMC computer temperature sensor.

J. DMC computer L.E.D. display reads “Hot”...

The “Hot” display condition indicates a possible overheating condition. The DMC computer monitors the temperature in the dryer at **ALL** times. If the DMC computer detects that the temperature in the dryer has exceeded 170° F (77° 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 170° F (77° C) or lower and the DMC computer is manually reset by closing and opening the Program Switch (PS).

Possible reasons for overheating...

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

K. Dual Microprocessor Controller (DMC) computer light emitting diode (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) rotational detection circuit or the DMC computer program related to this circuit (**PL01**) is set incorrectly in the active mode (“SEn”) where the dryer is not equipped with the optional rotational sensor and **should be** set in the inactive mode (“nSEn”).

If the dryer is equipped with the optional rotational sensor and for whatever reason the DMC 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 DMC computer is manually reset by closing and opening the Program Switch (PS).

Possible causes...

1. Loose/slipping (out of proper adjustment) basket (tumbler) belt.
2. Broken basket (tumbler) V-belt.
3. Failed motor (refer to **Item B** on **page 44** and **page 45** and **Item E** on **page 45**).
4. Failure in the rotational sensor circuit...
 - a. Failed rotational sensor.
 - b. Loose connection or break between the rotational sensor and the DMC computer.

L. DMC computer will not accept any, or ONLY accept certain keyboard (touch pad) entries...

1. Failed keyboard (touch pad) label assembly.
2. Failed DMC computer.

M. DMC 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 1 minute (**NOTE:** for dryer models with the optional battery back up...disconnect battery), then reestablish power to the dryer. If a problem is still evident, proceed to **Item M2**, **Item M3**, and **Item M4**.

2. Failed keyboard (touch pad) label assembly.
3. Improper grounding of the dryer or the Dual Microprocessor Controller (DMC) computer ground connections to the panel or the dryer are not proper.
4. Failed DMC computer.

N. Dryer stops during a cycle and the DMC computer light emitting diode (L.E.D.) display returns to “FILL”...

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

1. Refer to **Item M1**, **Item M3**, or **Item M4** on page 47 and page 48.

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 DMC computer.
3. Improper grounding of the dryer or the DMC computer ground connections to the panel or the dryer are not proper.
4. Failed DMC computer.

O. Heating unit is not operating (no heat)...both DMC computer heat indicator dot and “HEAT” indicator are on...but no spark at burner area when the dryer is first started...

1. Failed DMC computer.

P. Gas heating unit is not operating (no heat)...both DMC 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 ductwork.
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 DSI ignitor and/or flame-probe assembly.

Q. No heat (GAS MODELS ONLY)...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 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 the burner. Gap **must be** set 1/8" +/- 1/32" (3.175 mm +/- 0.79248 mm).
2. Failed ignitor/flame-probe assembly or problem with wiring connections to the assembly.
3. No gas (check shutoff valves) or insufficient (low water column [W.C.] pressure) gas supply.
4. Failed DSI module.
5. Failed gas valve.

R. No heat (GAS MODELS ONLY)...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 DSI flame sensor (probe).
3. Sail switch is fluttering...
 - a. Lint drawer/screen is dirty or clogged.
 - b. Restriction in exhaust ductwork.
4. Insufficient make-up air.
5. Failed DSI module.

S. No heat (ELECTRIC MODELS ONLY)...both the Dual Microprocessor Controller (DMC) computer heat indicator dot and "HEAT" output light emitting diode (L.E.D.) indicator are on...but electric oven is not operating...

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 ductwork.
2. Fault in oven hi-limit circuit or thermostat.
3. Fault in basket (tumbler) hi-limit circuit or thermostat.

4. Failed oven contactor.

5. Failed oven electric element.

T. No heat (STEAM MODELS ONLY)...both the Dual Microprocessor Controller (DMC) computer heat indicator dot and “HEAT” output light emitting diode (L.E.D.) indicator are on...but steam damper system is not operating...

1. Fault in basket (tumbler) hi-limit circuit or thermostat.

2. No external compressed air to steam damper (80 PSI [5.51 bar] required).

3. Steam damper is stuck or damper system airflow control valve is not adjusted properly.

4. Failed steam damper 24 VAC pneumatic solenoid switch.

5. Failed steam damper piston.

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

1. Exhaust ductwork run is too long or is undersized...back pressure **must be** no less than 0 and **cannot** exceed 0.3 inches (0.74 mb) water column (W.C.).

2. Low and/or inconsistent gas pressure (gas models only).

3. Insufficient make-up air.

4. Poor air/gas mixture at burner (gas models only)...yellow or poor flame pattern. Adjust gas burner air adjustment shutters.

5. Lint drawer/screen is not being cleaned out on a regular basis or often enough.

6. Extractors (washers) are not performing properly.

7. Sail switch is fluttering...restriction in exhaust (gas and electric models only).

8. Failed DMC computer temperature sensor...temperature calibration is inaccurate.

9. Failed DMC computer...temperature calibration is inaccurate.

10. Failed burner/oven hi-limit (gas and electric model only).

11. Failed basket (tumbler) hi-limit thermostat.

12. Steam damper system is not functioning properly (steam models only)...

a. Steam damper is sticking closed or is not adjusted properly.

b. Leak in pneumatic (air) system.

13. Failed electric element (electric models only).

14. Lint accumulation in location exhaust system.

V. Condensation on main door glass...

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

W. Dryer is making scraping noise at basket (tumbler) 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)...setscrews may have come loose and basket (tumbler) walked forwards or backwards.
3. Loose or broken basket (tumbler) tie rod.
4. Broken basket (tumbler) support.

X. Excessive noise and/or vibration...

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

Y. Basket (tumbler) turns too fast (as opposed to other basket [tumbler])...

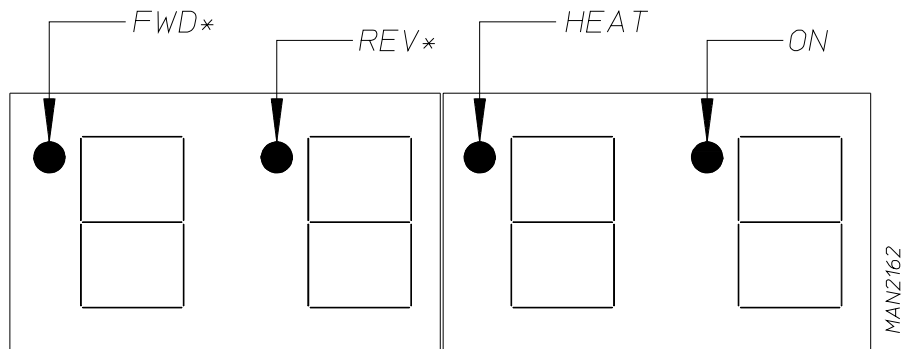
1. Foreign object(s) caught between basket (tumbler) belt and motor shaft.

SECTION IX

PROCEDURE FOR FUNCTIONAL CHECK OF REPLACEMENT COMPONENTS

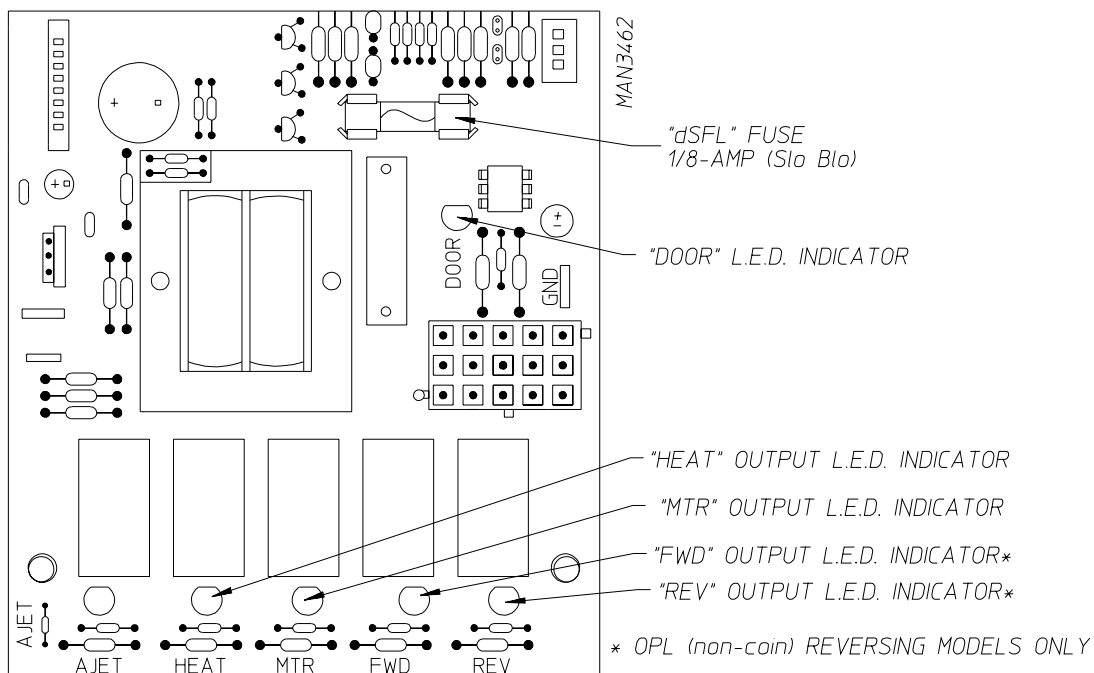
1. Microprocessor Controller (Computer) Board

- a. Upon completing installation of the replacement microprocessor controller (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 controller (computer) light emitting diode (L.E.D.) display are on. (Refer to the **illustration below.**)



**OPL (NON-COIN) REVERSING MODELS ONLY.*

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



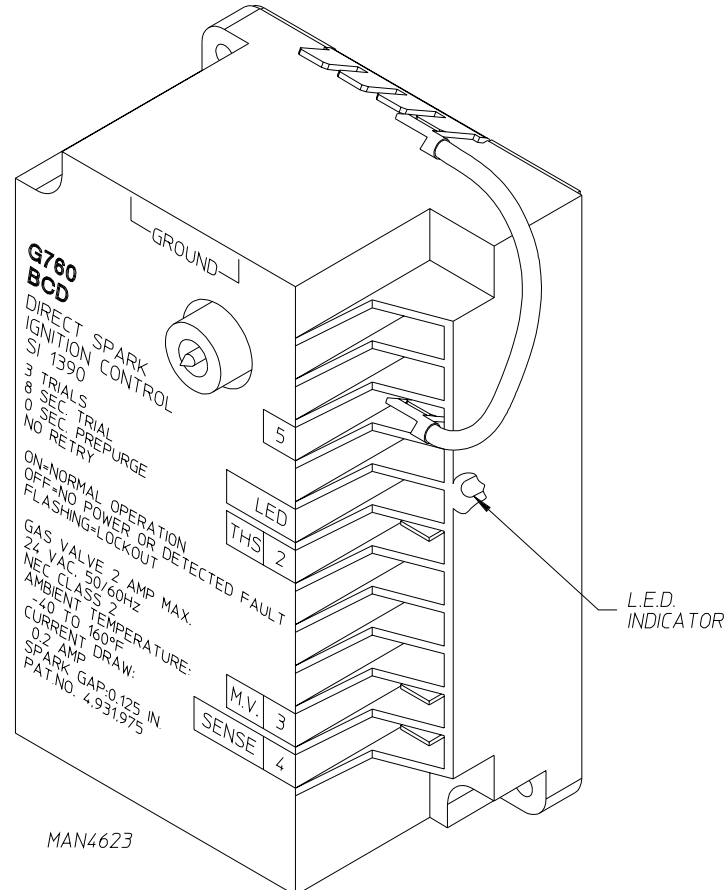
- e. Open main door. The dryer must stop and **ALL** indicator lights on the back side of the microprocessor controller (computer) board must go out.
 - f. Try to restart the dryer with the main door open.
 - g. The microprocessor controller (computer) board's light emitting diode (L.E.D.) display must read "DOOR."
 - h. Close the main door and restart the dryer.
 - i. Functional check of microprocessor controller (computer) board is complete.
2. For Models With Johnson Controls Direct Spark Ignition (DSI) Module (G760)

Theory Of Operation:

Start the drying cycle. When the gas burner ignites within the chosen trial for ignition time (6-seconds), the flame sensor detects gas burner flame and signals the DSI module to keep the gas valve open...as long as there is a call for heat. The DSI module will "LOCKOUT" if the gas burner flame is not sensed at the end of the trial for ignition period. The trial for ignition period will be repeated for a total of three (3) retries/trials (the initial try and two [2] more retries/trials). If the flame is not sensed at the end of the third retry/trial (inter-purge period of 30-seconds) the DSI module will "LOCKOUT" (L.E.D. flashes).

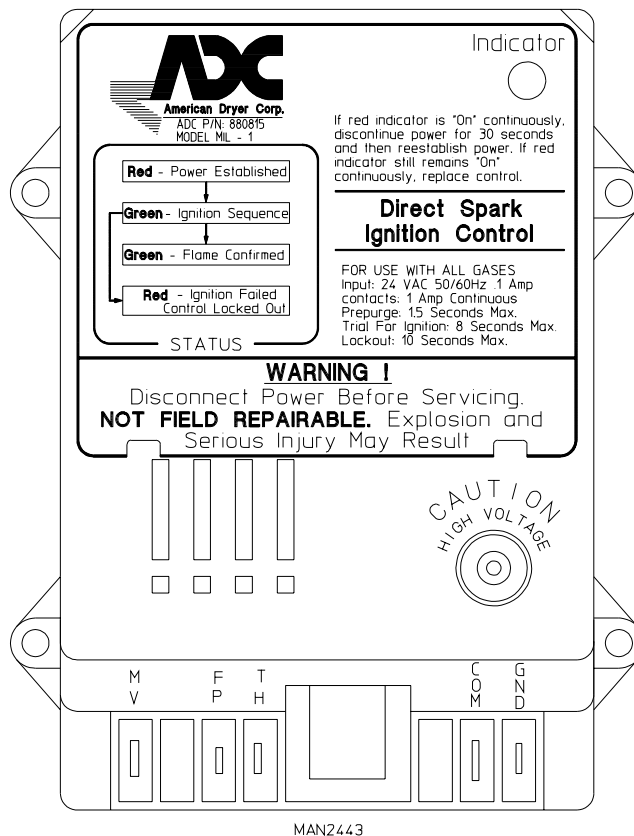
A steady L.E.D. indicator indicates *normal operation*.

No L.E.D. indicator indicates a power or an internal failure has occurred.



3. For Direct Spark Ignition (DSI) System Models Manufactured With ADC Module Part No. 880815

- a. Upon completing installation of the replacement DSI module, reestablish power to the dryer.
- b. Starting the drying cycle.
- c. The ignition DSI module's light emitting diode (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 lockout with the DSI module's indicator light "red."

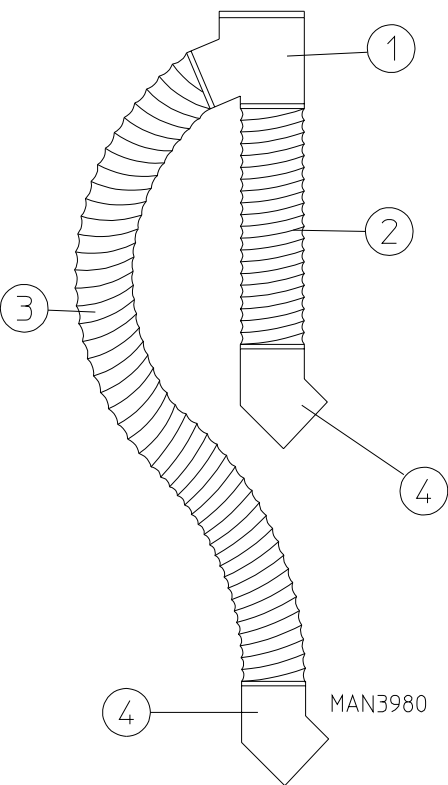


- g. Stop the drying cycle, with the flame sensor wire still removed, restart the drying cycle.
- h. The ignition module must proceed through the prepurge, with the indicator light "red," the ignition trial time of approximately 8-seconds, with the indicator light "green," and then proceed to lockout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

Optional Exhaust Duct Kit (ADG-330, ADG-320)

ADC Part No. 882035

ITEM#	QTY	P/N	DESCRIPTION
1	1	143600	10" X 6" X 6", Y DUCT
2	1	143519	FLEX DUCT 6" x 4' LONG
3	1	143509	FLEX DUCT 6" x 8' LONG
4	2	143536	45° ELBOW 6"
5	12	150300	#10 x 1/2" SELF DRILLING SCREW
NOT ILLUSTRATED	12'	117505	ALUMINUM DUCT TAPE

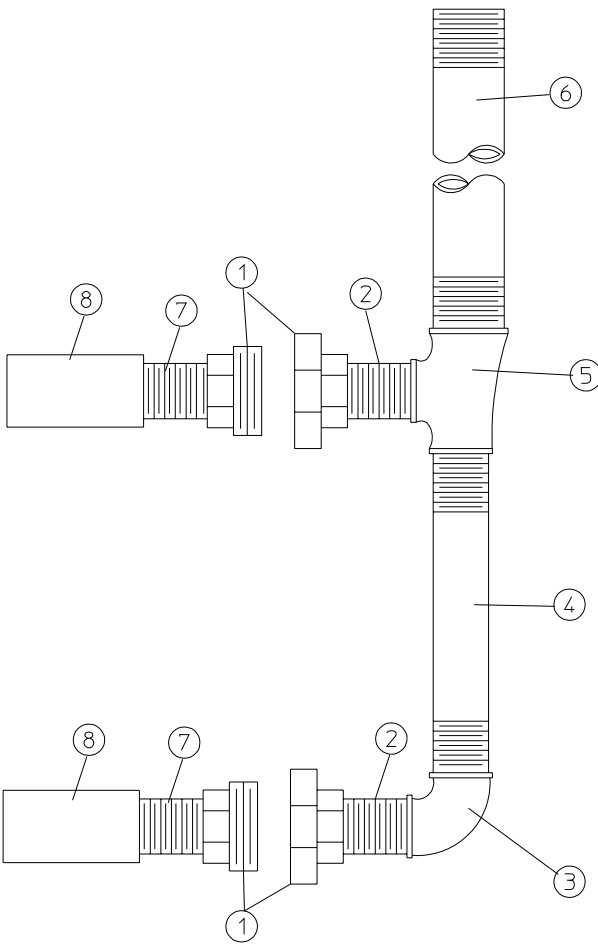


Optional Gas Piping Kit (ADG-330, ADG-320)

ADC Part No. 880128

ITEM #	QTY	P/N	DESCRIPTION
1	2	142600	1/2" UNION
2	2	142700	1/2" CLOSE NIPPLE
3	1	142500	1/2" x 90° ELBOW
4	1	142824	1/2" x 37 1/4" NIPPLE
5	1	142505	3/4" x 1/2" x 1/2" TEE
6	1	142821	3/4" x 36" NIPPLE
7	2	142814	1/2" x 2 1/2" NIPPLE
8	2	143001	1/2" COUPLING

MAN5710



CALBERT 03/14/01

ADC 112144	1 - 02/22/93-500	2 - 05/03/94-500	3 - 06/14/93-500
	4 * 11/17/93-500	5 - 01/28/94-500	6 - 04/01/94-500
	7 * 06/02/94-500	8 * 08/03/94-500	9 * 11/30/94-500
	10 - 03/23/95-500	11 * 06/08/95-500	12 * 09/01/95-500
	13 - 01/22/95-500	14 * 05/01/95-500	15 * 08/19/96-500
	16 - 09/27/96-500	17 * 03/19/97-500	18 - 07/25/97-500
	19 - 10/03/97-500	20 * 01/19/98-500	21 - 03/12/98-500
	22 * 06/11/98-500	23 - 08/17/98-500	24 * 03/10/99-1,000
	25 - 08/13/99-1,000	26 - 01/03/00-1,250	27 * 07/10/00-200
	28 - 08/03/00-250	29 * 09/28/00-500	30 * 12/26/00-500
	31 * 03/15/01-500	32 * 05/16/01-500	33 * 07/26/01-500
	34 - 01/08/02-500	35 - 03/08/02-500	36 * 05/14/02-500
	37 - 08/27/02-500	38 - 01/20/03-500	39 * 05/20/03-100

