D90 Installation Manual

Phase 7 Gas (DSI / HSI) Non-Coin

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.

JLA™

Your **in**house Laundry Partner

JLA Limited
Meadowcroft Lane, Halifax Road
Ripponden
West Yorkshire, England
HX6 4AJ

Telephone: 01422 822282 / Fax: 01422 824390

Part No. 113374-4

Retain This Manual In A Safe Place For Future Reference

This product embodies 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	POUR VOTRE SÉCURITÉ
Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.	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. Manufacturer 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.** **D90**

DISTRIBUTOR'S NAME _____

Serial Number(s) _____

_____

_____

Replacement parts can be obtained from your distributor or **JLA**. When ordering replacement parts from **JLA**, you can FAX your order to **JLA** at 01422 824390 or telephone your order directly to the **JLA** Parts Department at 01422 822282. 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 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 DRYER(S).

CHILDREN SHOULD BE SUPERVISED IF NEAR DRYERS IN OPERATION.

FOR YOUR SAFETY

DO NOT DRY MOP HEADS IN THE DRYER.

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

WARNING

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

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

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

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).

Table of Contents

SECTION I
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 **JLA** 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 burner area, exhaust ductwork, and area around the back of 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 electrically ground the dryer properly will VOID THE WARRANTY.

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

WARNING: PERSONAL INJURY OR FIRE COULD RESULT SHOULD THE DRYER DOOR SWITCH, THE LINT DRAWER SWITCH, OR THE HEAT SAFETY CIRCUIT EVER BE DISABLED.

10. This dryer is not to be used in the presence of dry cleaning solvents or fumes.

11. Remove articles from the dryer as soon as the drying cycle has been completed.

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

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

13. For safety, proper operation, and optimum performance, the dryer **must not be** operated with a load less than sixty-six percent (66%), 63 pounds (28.57 kg) of its rated capacity.

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

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

SECTION II

SPECIFICATIONS/COMPONENT IDENTIFICATION

A. SPECIFICATIONS

MAXIMUM CAPACITY (DRY WEIGHT)			95 lb	**43.1 kg**
TUMBLER DIAMETER			41-3/8"	**105.1 cm**
TUMBLER DEPTH			28-7/8"	**73.3 cm**
TUMBLER VOLUME			22.5 cu ft	**637.12 L**
TUMBLER/DRIVE MOTOR			1/2 hp	**0.373 kW**
BLOWER/FAN MOTOR			3 hp	**2.238 kW**
DOOR OPENING (DIAMETER)			31-3/8"	**79.7 cm**
DOOR SILL HEIGHT			N / A	
WATER CONNECTION*			3/4"-11.5 NH (North America)	
			3/4" B.S.P.T. (Outside North America)	
DRYERS PER 20'/40' CONTAINER			10 / 20	
DRYERS PER 48'/53' TRUCK			24 / 26	
Gas**	VOLTAGE AVAILABLE		208-460V 3ø 3,4w 50/60 Hz	
	APPROXIMATE NET WEIGHT		1,087 lb	**493.1 kg**
	APPROXIMATE SHIPPING WEIGHT		1,157 lb	**524.8 kg**
	AIRFLOW	60 Hz	2,700 cfm	**76.5 cmm**
		50 Hz	2,268 cfm	**64.2 cmm**
	HEAT INPUT		350,000 Btu/hr	**88,200 kcal/hr**
	EXHAUST CONNECTION (DIAMETER)		16"	**40.6 cm**
	COMPRESSED AIR CONNECTION		1/4" Quick Connection	
	COMPRESSED AIR VOLUME		3.25 cfh	**0.09 cmh**
	INLET PIPE CONNECTION		1" F.B.S.P.T.	
			1" B.S.P.T. (CE and Australia Only)	
Electric	VOLTAGE AVAILABLE		N / A	
	APPROXIMATE NET WEIGHT			
	APPROXIMATE SHIPPING WEIGHT			
	AIRFLOW			
	EXHAUST CONNECTION (DIAMETER)			
	COMPRESSED AIR CONNECTION			
	COMPRESSED AIR VOLUME			
	OVEN SIZE			
	kW	Btu/hr	**kcal/hr**	
Steam	VOLTAGE AVAILABLE		N / A	
	APPROXIMATE NET WEIGHT			
	APPROXIMATE SHIPPING WEIGHT			
	AIRFLOW			
	STEAM CONSUMPTION			
	OPERATING STEAM PRESSURE			
	EXHAUST CONNECTION (DIAMETER)			
	COMPRESSED AIR CONNECTION			
	COMPRESSED AIR VOLUME			
	BOILER HORSEPOWER (NORMAL LOAD)			
	SUPPLY CONNECTION			
	RETURN CONNECTION			

Shaded areas are stated in metric equivalents 5/5/04

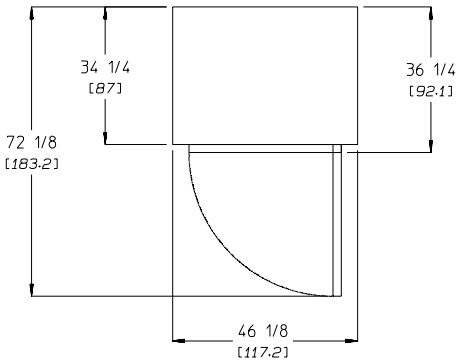
* The fire suppression system must be supplied with water at a pressure of 40 psi +/- 20 psi (2.75 bar +/- 1.37 bar).
** The dryers must be provided with a clean dry regulated 80 psi +/- 10 psi (5.51 bar +/- 0.69 bar) air supply.

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

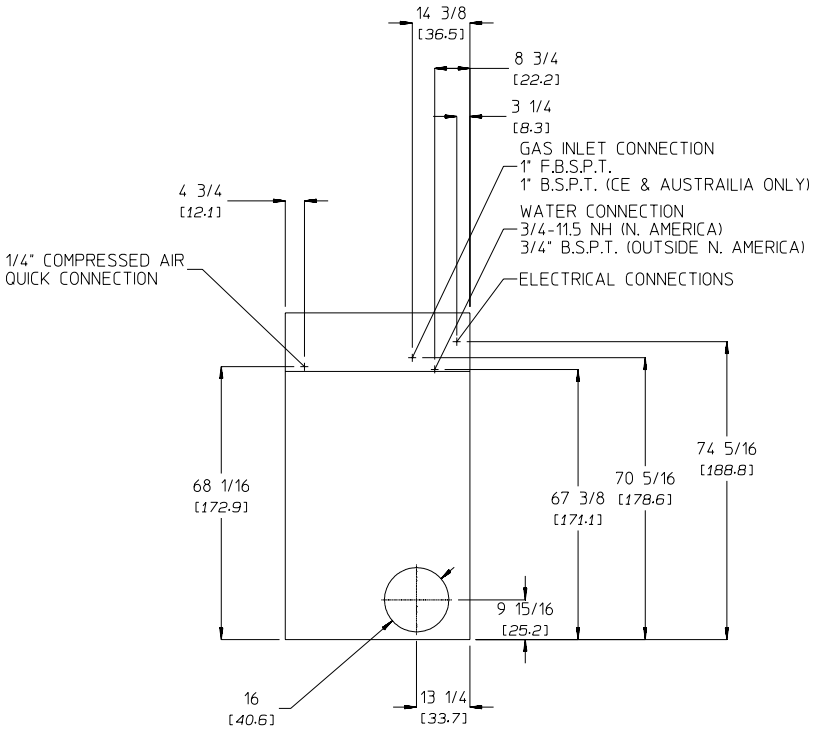
SPECIFICATIONS

DRYER NOTES:

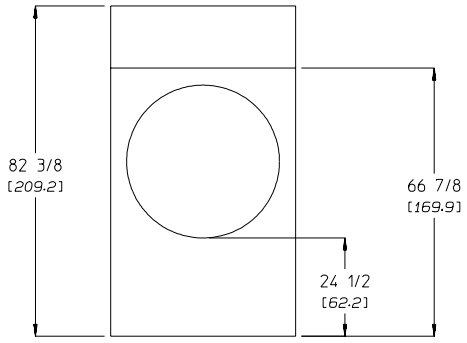
° A MINIMUM OF 1 in PIPE MUST BE SUPPLIED TO THE GAS INLET FOR EACH DRYER. SIZE OF PIPING TO DRYER VARIES WITH INSTALLATION CONDITIONS.
° TOP SECTION CAN BE REMOVED FOR EASY INSTALLATION. WITH TOP MODULE REMOVED THE HEIGHT OF THE CABINET IS REDUCED TO 67 1/4 in. (170.8 cm).
° DUCTWORK FOR HORIZONTAL VENTING MUST BE A MINIMUM OF 16 in (40.6 cm) DIA.
° EXHAUST STATIC PRESSURE MUST BE NO LESS THAN 0 AND MUST NOT EXCEED 0.3" (0.74 MB) WATER COLUMN.



PLAN VIEW



REAR VIEW



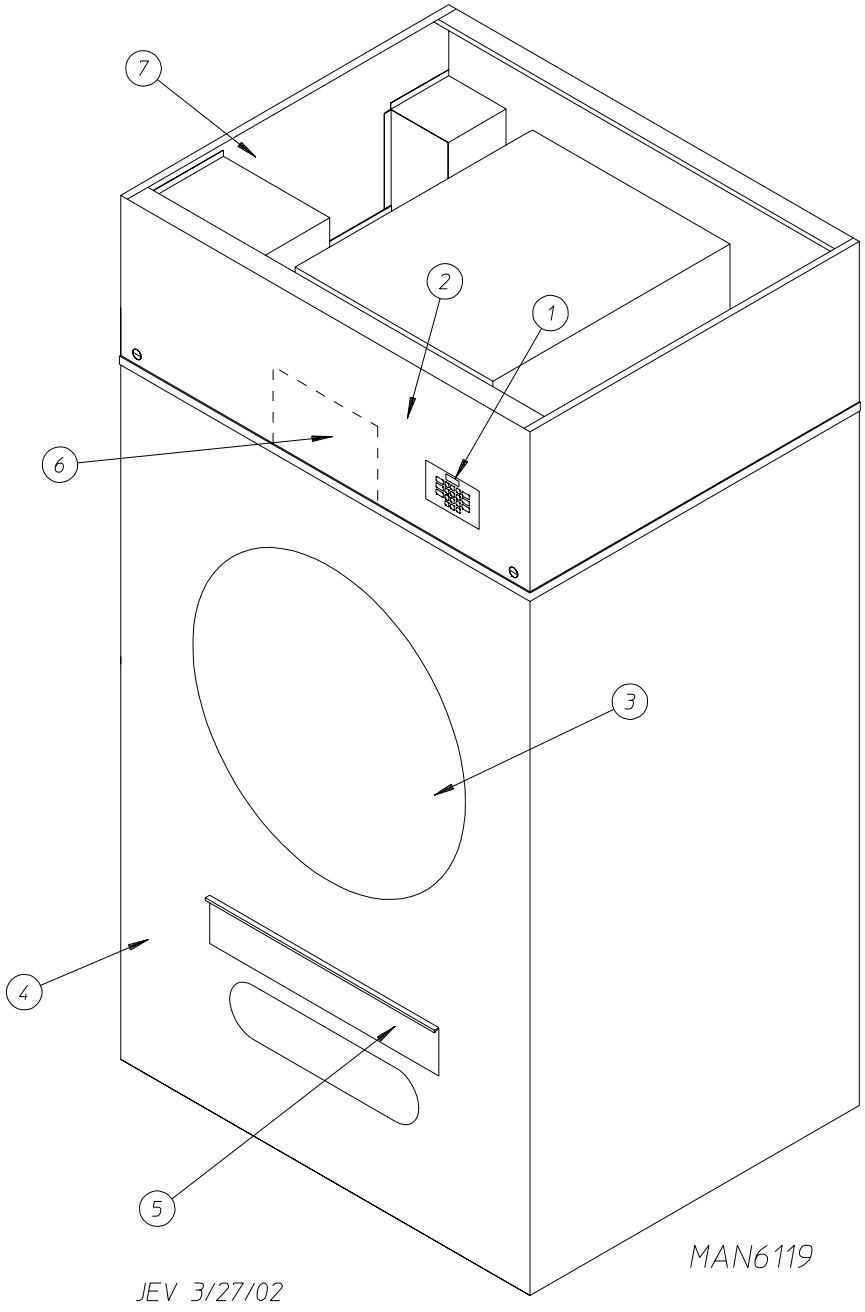
FRONT VIEW

6/17/04

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

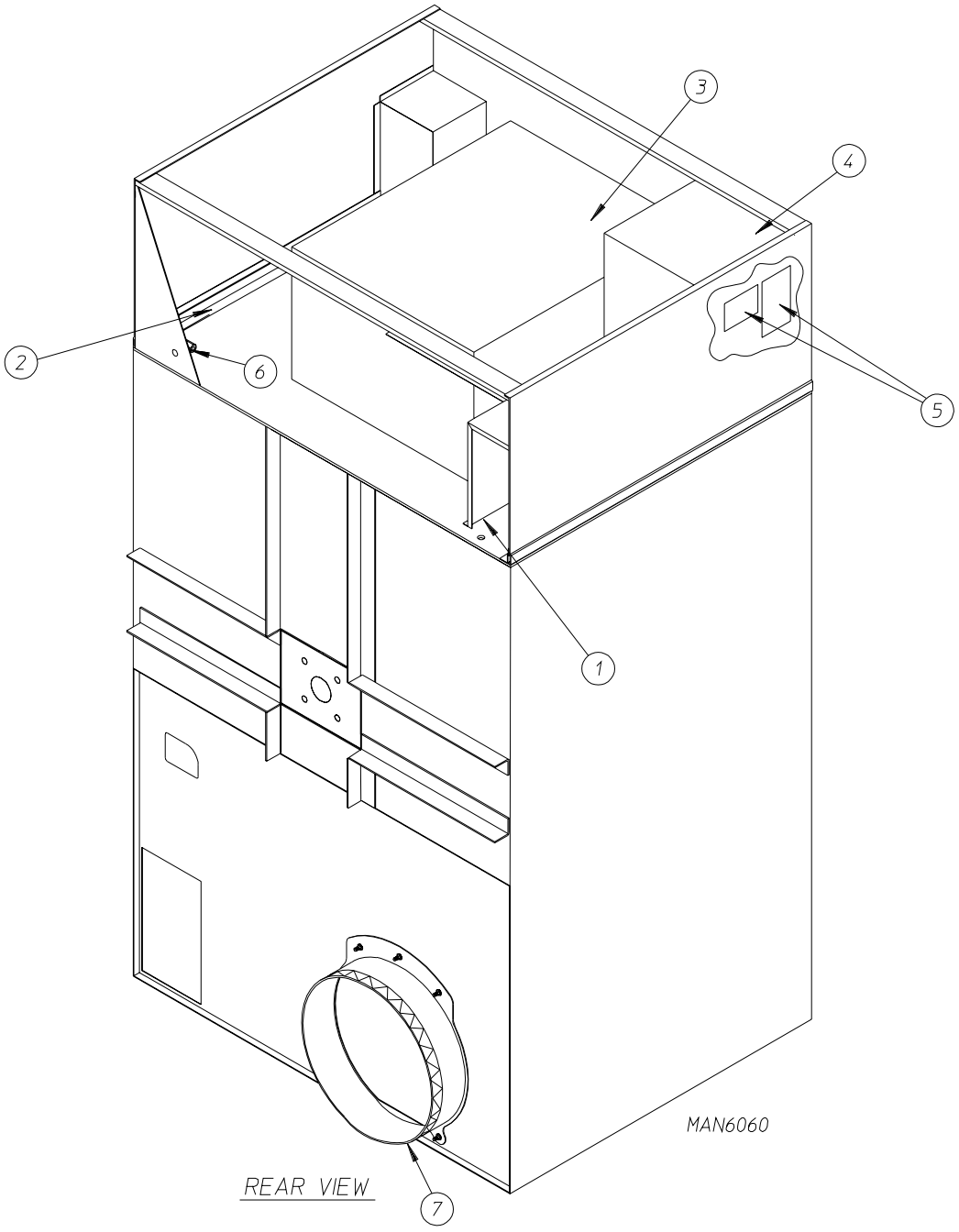
B. COMPONENT IDENTIFICATION

1. Dryer Front View



Illus. No.	Description
1	Microprocessor Control/Keyboard (touch pad) Panel Assembly (controls)
2	Control (top access) Door Assembly
3	Main Door Assembly
4	Lint Panel Assembly
5	Lint Door
6	Wire Diagram (located behind control door)
7	Top Console (module) Assembly

2. Dryer Rear View



Illus. No. Description

1	Electrical Service Connections
2	Top Console
3	Heating Unit
4	Relay/Wiring Box
5	Data Label and Installation Label
6	Air Connection
7	Exhaust Transition Piece

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. LOCATION REQUIREMENTS

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).

1. 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."

2. The dryer **must not be** installed or stored in an area where it will be exposed to water and/or weather.

3. The dryer is for use in noncombustible locations.

4. Provisions for adequate air supply **must be** provided as noted in this manual (refer to **Fresh Air Supply Requirements** in **Section D**).

5. Clearance provisions **must be** made from combustible construction as noted in this manual (refer to **Dryer Enclosure Requirements** in **Section C**).

6. Provisions **must be** made for adequate clearances for servicing and for operation as noted in this manual (refer to **Dryer Enclosure Requirements** in **Section C**).

7. The dryer **must be** installed with a proper exhaust duct connection to the outside as noted in this manual (refer to **Exhaust Requirements** in **Section E**).

8. Dryer **must be** located in an area where correct exhaust venting can be achieved as noted in this manual (refer to **Exhaust Requirements** in **Section E**).

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

9. The dryer **must be** installed with adequate clearance for air openings into the combustion chamber.

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.

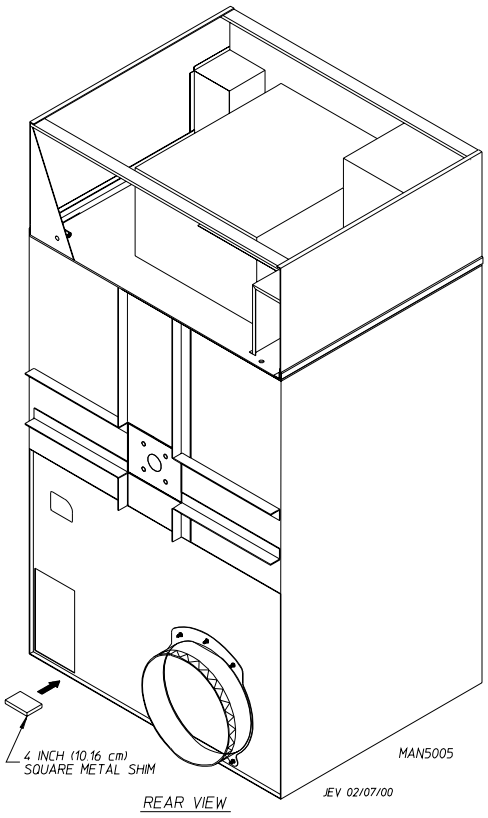
IMPORTANT: Dryer *must be* installed in a location/environment, which the ambient temperature remains between 40º F (4.44º C) and 130º F (54.44º C).

B. UNPACKING/SETTING UP

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

IMPORTANT: The dryer ***must be*** transported and handled in an upright position at **ALL** times.

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) lag bolts securing the base of the dryer to the wooden skid. Two (2) are at the rear base, and two (2) are located in the bottom of the lint chamber. To remove the two (2) lag bolts located in the lint chamber area, remove the front panel.



1. Leveling Dryer

   To level the dryer, place 4-inch (10.16 cm) square metal shims or other suitable material under the base pads. It is suggested that the dryer be tilted slightly to the rear (refer to the **illustration on right**).

2. If more headroom is needed when moving the dryer into position, the top console (module) may be removed.

   To Remove Top Console (module)...

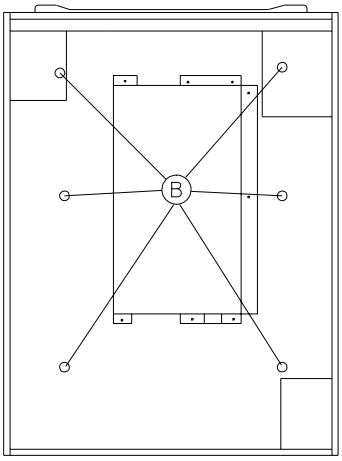
   a. Disconnect the ground wire (A in the **illustration below**) located at the rear upper left corner of the dryer.

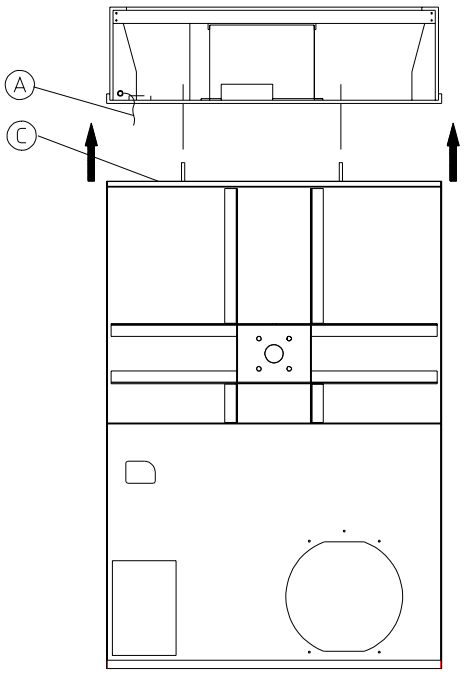
   b. Remove the six (6) sets of nuts and washers (B in the **illustration below**) holding the console (module) to the base.

   c. Disconnect the white plug connector (C in the **illustration on right**) located on the top of the rear electric service/relay box (provides power to the heat circuit).

   d. Disconnect air connection from the 3-way micro valve.

   e. Lift the console (module) off of the dryer base.



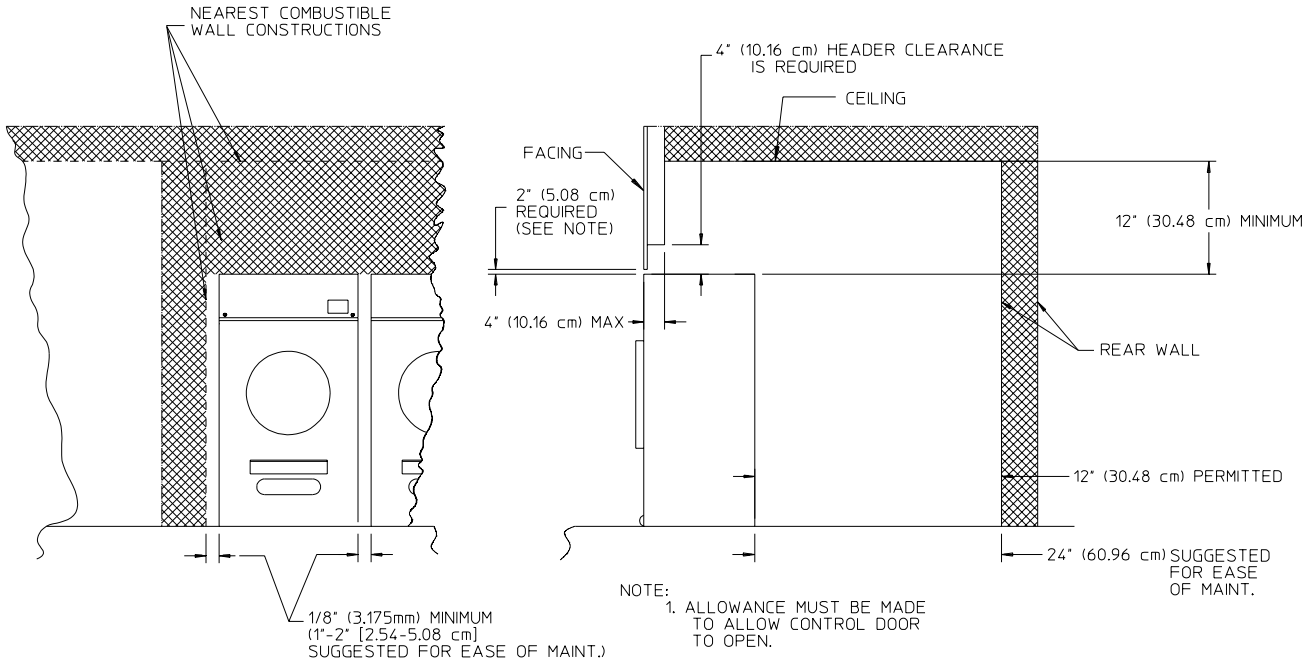


IMPORTANT: The dryer ***must be*** transported and handled in an upright position at **ALL** times.

C. DRYER ENCLOSURE REQUIREMENTS

Even though a 12-inch (30.48 cm) clearance is acceptable, it is recommended that the rear of the dryer be positioned approximately 24-inches (60.96 cm) from the nearest obstruction (i.e., wall) for ease of installation, maintenance, and service. Bulkheads and partitions **should be** made from noncombustible materials. The clearance between the bulkhead header and the dryer **must be** a minimum of 4-inches (10.16 cm) and must not extend more than 4-inches (10.16 cm) to the rear of the front. A 2-inch (5.08 cm) clearance is required between the bulkhead facing and the top of the dryer.

NOTE: Bulkhead facing ***should not be*** installed until after the dryer is in place. Ceiling area ***must be*** located a minimum of 12-inches (30.48 cm) above the dryer top console (module).



INSTALLATION: DRYER CLEARANCE TO ADJACENT WALL STRUCTURES.

JEV 3/27/02

NOTE: When fire sprinkler systems are located above the dryers, a minimum of 18-inches (45.72 cm) above the dryer console (module) is required. Dryers may be positioned sidewall to sidewall, however, 1 or 2-inches (2.54 or 5.08 cm) is suggested for ease of installation and maintenance. Allowances ***must be*** made for the opening and closing of the control door and the lint door.

D. FRESH AIR SUPPLY REQUIREMENTS

When the dryer is operating, it draws in room air, heats it, passes this air through the basket (tumbler), and exhausts it out of the building. Therefore, the room air **must be** continually replenished from the outdoors. If the make-up air is inadequate, drying time and drying efficiency will be adversely affected. Ignition problems and sail switch "fluttering" problems may result, as well as premature motor failure from overheating. The dryer **must be** installed with provisions for adequate combustion and make-up air supply.

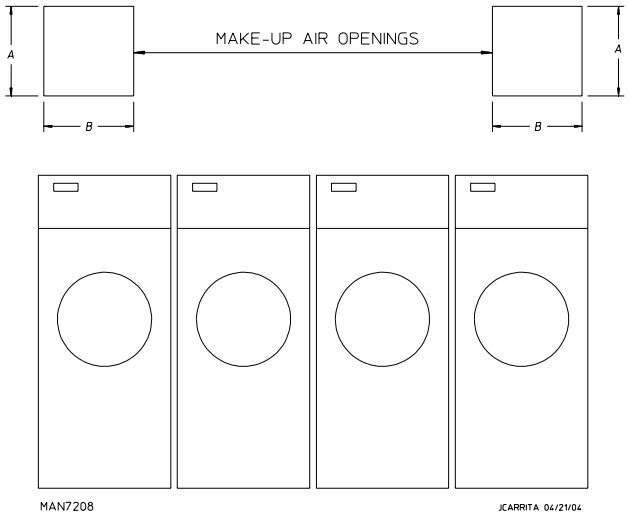
Air supply (make-up air) **must be** given careful consideration to ensure proper performance of each dryer. An unrestricted source of air is necessary for each dryer. As a general rule, an unrestricted air entrance from the outdoors (atmosphere) of a minimum of 350 square inches (2258.1 square cm) is required for each gas dryer (based on 1 square inch per 1000 Btus).

To compensate for the use of registers or louvers used over the openings, this make-up air **must be** increased by approximately thirty-three percent (33%). Make-up air openings **should not be** located in an area directly near where exhaust vents exit the building.

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 **ALL** the dryers.

EXAMPLE: For a bank of four (4) dryers, two (2) unrestricted openings measuring 26-inches by 26.9-inches (66.1 cm by 68.4 cm) each are acceptable.

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



A = 26-Inches (66.1 cm) B = 26.9-Inches (68.4 cm)

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.

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

E. EXHAUST REQUIREMENTS

1. General Exhaust Ductwork Information

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.

NOTE: When dryers are exhausted into a multiple (common) exhaust line, each dryer ***must be*** supplied with a back draft damper.

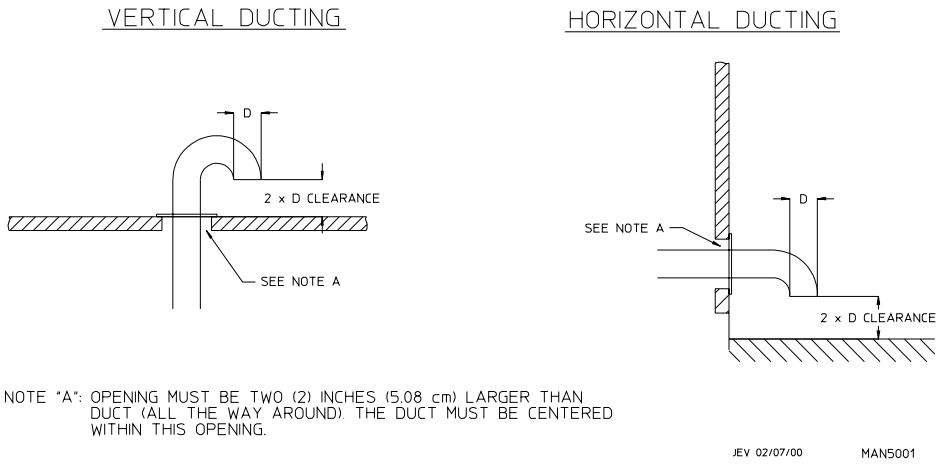
The ductwork **should be** laid out in such a way that the ductwork travels as directly as possible to the outdoors with as few turns as possible. Single or independent dryer venting is recommended.

When single dryer venting is used, the ductwork from the dryer to the outside exhaust outlet **should not exceed** 20 feet (6.09 meters). In the case of multiple (common) dryer venting, the distance from the last dryer to the outside exhaust outlet **should not exceed** 20 feet (6.09 meters). The shape of the ductwork is not critical as long as the minimum cross-sectional area is provided. It is suggested that the use of 90º turns be avoided; use 30º and/or 45º bends/angles instead. The radius of the elbows **should preferably be** 1-1/2 times the diameter of the duct. 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-sectional area of the ductwork **must be** increased in proportion to the number of elbows used.

ALL 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. Inspection doors **should be** installed at strategic points in the exhaust ductwork for periodic inspection and cleaning of lint from the ductwork.

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

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.



Outside Ductwork Protection

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 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 the nearest obstruction.

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

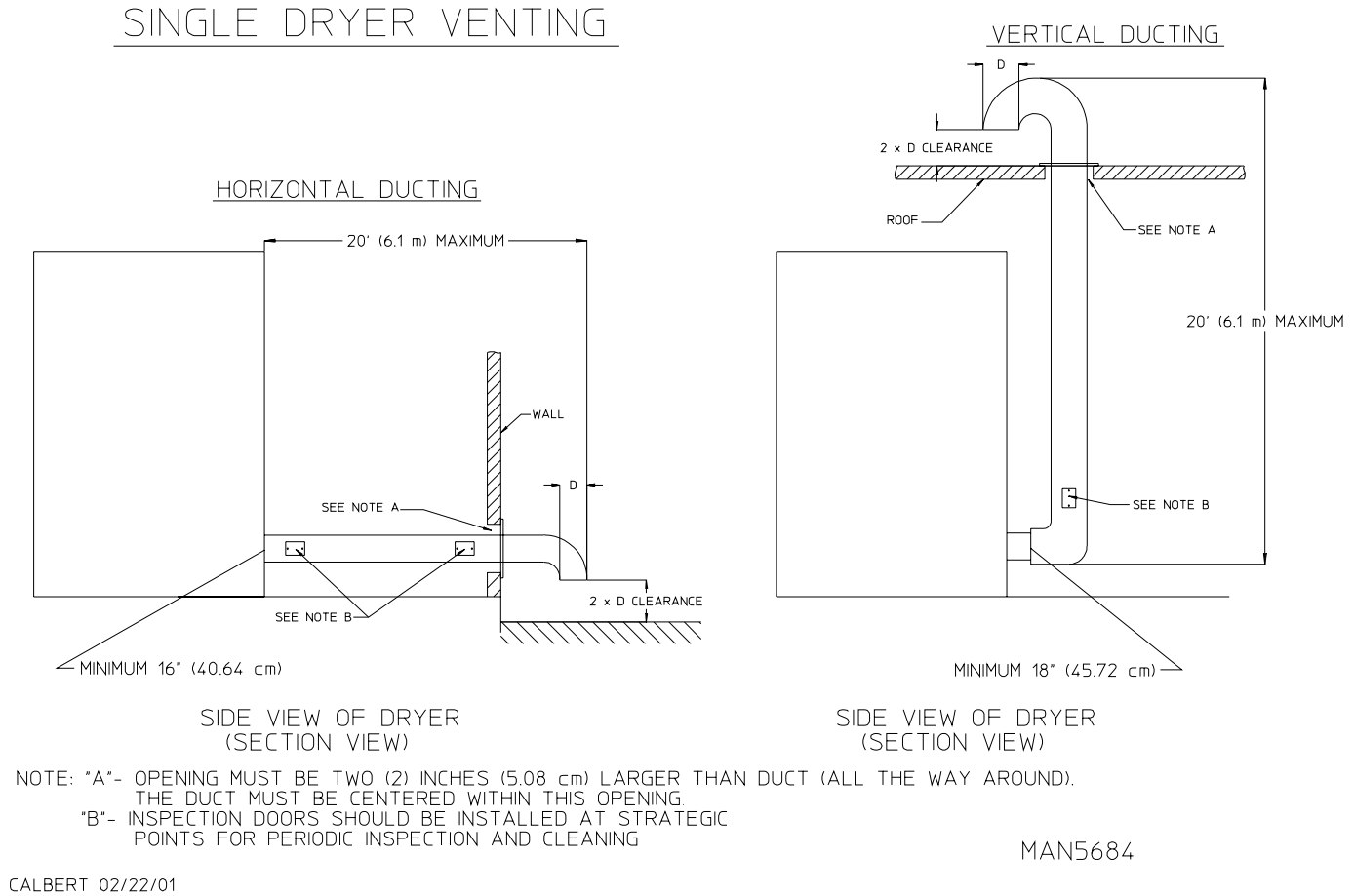
2. Single Dryer Venting

Where possible, it is suggested to provide a separate exhaust duct for each dryer. The exhaust duct **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 the ducting be avoided; use 30° and/or 45° angles instead. The shape of the exhaust ductwork is not critical as long as the minimum cross section area is provided.

IMPORTANT: The minimum duct size for a gas unit is 16-inches (40.64 cm) for a round duct and 14-1/4" x 14-1/4" (36.2 cm x 36.2 cm) for a square duct. **THE DUCT SIZE *MUST NOT BE* REDUCED ANYWHERE DOWNSTREAM OF THE DRYER**.

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) of water column (W.C.).

It is suggested that the ductwork from each dryer not exceed 20 feet (6.09 meters) with no more than two (2) elbows (excluding dryer connections). If the ductwork exceeds 20 feet (6.09 meters) or has numerous elbows, the cross-sectional area of the ductwork **must be** increased in proportion to the length and number of elbows in it. In calculating duct size, the cross-sectional area of a square or rectangular duct **must be** increased twenty percent (20%) for each additional 20 feet (6.09 meters). The diameter of a round exhaust duct **should be** increased ten percent (10%) for each additional 15 feet (4.57 meters). Each 90º elbow is equivalent to an additional 40 feet (12.19 meters), and each 45º elbow is equivalent to an additional 20 feet (6.09 meters).



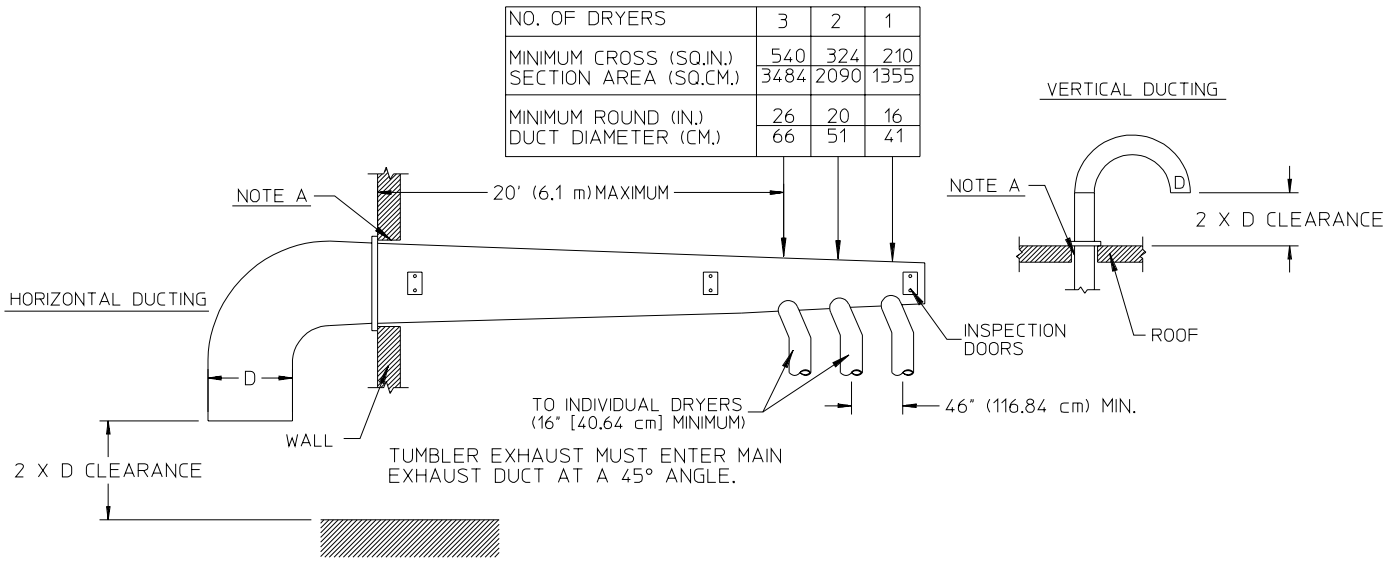
IMPORTANT: For extended ductwork runs, the cross section area of the ductwork can only be increased to an extent. Maximum proportional ductwork runs **cannot** exceed 20 feet (6.09 meters) more than the original limitations of 20 feet (6.09 meters) with two (2) elbows. When the ductwork approaches the maximum limits as noted in this manual, a professional heating, ventilating, and air-conditioning (HVAC) firm ***should be*** consulted for proper venting information.

ALL 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. Inspection doors **should be** installed at strategic points in the exhaust ductwork for periodic inspection and cleaning of lint from the ductwork.

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.

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 the flow and **should be** spaced at least 46-inches (116.84 cm) apart. The main duct **should be** tapered, with the diameter increasing before each individual 16-inch (40.54 cm) duct is added.



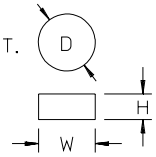
IMPORTANT: NO MORE THAN 3 DRYERS CAN BE CONNECTED TO ONE COMMON DUCT (VENT).

CALBERT 02/27/01 MAN5691

FORMULAS TO CALCULATE DUCTING CROSS SECTIONAL AREA

CROSS SECTIONAL AREA OF A ROUND DUCT = 0.785 (19.939 mm) x D^2 WHERE D = DIAMETER OF THE DUCT.

CROSS SECTIONAL AREA OF A RECTANGULAR DUCT = W x 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.

IMPORTANT: When exhausted into a multiple (common) exhaust line, a back draft damper ***must be*** installed at each dryer duct.

IMPORTANT: No more than three (3) dryers ***should be*** connected to one (1) main common duct.

The main duct may be any shape or cross-sectional area, as long as the minimum cross section area is provided. The **illustration above** shows the minimum cross section area for multiple dryer round or square venting. These figures **must be** increased 10 square inches (64.52 square centimeters) when rectangular main ducting is used, and the ratio of duct width to depth **should not be** greater than 3-1/2 to 1. These figures **must be** increased in proportion if the main duct run to the last dryer to where it exhausts to the outdoors is unusually long (over 20 feet [6.09 meters]) or has numerous elbows (more than two [2]) 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 20 feet (6.09 meters). The diameter of a round exhaust **must be** increased ten percent (10%) for each additional 20 feet (6.09 meters). Each 90° elbow is equivalent to an additional 40 feet (12.19 meters) and each 45° elbow is equivalent to an additional 20 feet (6.09 meters).

IMPORTANT: For extended ductwork runs, the cross section area of the ductwork can only be increased to an extent. Maximum proportional ductwork runs **cannot** exceed 20 feet (6.09 meters) more than the original limitations of 20 feet (6.09 meters) with two (2) elbows. When the ductwork approaches the maximum limits as noted in this manual, a professional heating, ventilating, and air-conditioning (HVAC) firm ***should be*** consulted for proper venting information.

IMPORTANT: Exhaust back pressure measured by a manometer in the exhaust duct ***must be*** no less than 0 and ***must not exceed*** 0.3 inches (0.74 mb) of 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. Inspection doors **should be** installed at strategic points in the exhaust ductwork for periodic inspection and cleaning of lint from the ductwork.

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 duct.

F. ELECTRICAL INFORMATION

1. Electrical Requirements

It is your responsibility to have **ALL** electrical connections made by a properly licensed and competent electrician to ensure that the electrical installation is adequate and conforms to local and state regulations or codes. In the absence of such codes, **ALL** electrical connections, material, and workmanship **must conform** to the applicable requirements of the National Electrical Code ANSI/NFPA NO. 70-LATEST EDITION or in Canada, the Canadian 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 or component failure.

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

Each dryer **should be** connected to an independently protected branch circuit. The dryer **must be** connected with copper wire only. ***DO NOT use aluminum wire, which could cause a fire hazard***. The copper conductor wire/cable **must be** of proper ampacity and insulation in accordance with electric codes for making **ALL** service connections.

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

NOTE: Wiring diagrams are affixed to the inside at the top front control door and the rear upper back guard/panel.

2. Electrical Service Specifications

ELECTRICAL SERVICE SPECIFICATIONS (PER DRYER)					
IMPORTANT: 208 VAC AND 230/240 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**		**CIRCUIT BREAKER**
			60 Hz	50 Hz	
208	3ø	3	11.2	—	20
240	3ø	3	9.4	—	15
230	3ø	3	—	8.0	15
380	3ø	4*	—	5.1	15
400	3ø	4*	—	4.8	15
416	3ø	4*	—	4.6	15
460	3ø	3	5.5	—	15
480	3ø	3	5.5	—	15

* Built 4-wire only. Customer must contact the factory to special order 3-wire systems. 10/2/07

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

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

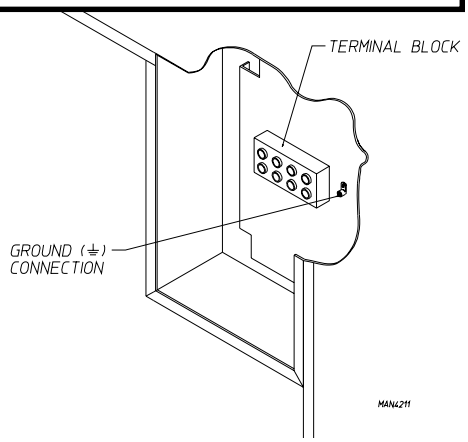
NOTE: JLA reserves the right to make changes in specifications at any time without notice or obligation.

3. Electrical Connections

NOTE: A wire diagram is included with each dryer and is affixed to the back side of the top control (access) door.

The only electrical input connections to the dryer are the 3-phase (3ø) power leads (L1, L2, and L3), GROUND, and in the case of 4 wire service, the NEUTRAL. These electrical connections are made at the terminal block located in the service/relay box at the rear, upper left hand corner of the dryer. To gain access into this service box, the service cover **must be** removed.

The "LINE POWER" and the "GROUND" connections to the dryer **must be** made through the knockout hole at the top of the electric service/relay box. A strain relief **must be** used where the line power ground wires go into the electric service/relay box.



Providing local codes permit, power connections to the dryer can be made by use of a flexible underwriters laboratory (U.L.) listed power cord/pigtail (wire **must conform** to ratings of the dryer), or the dryer can be hard wired directly to the service breaker. In **ALL** cases, a strain relief **must be** used where the wire(s) enter the dryer electrical service (relay) box.

NOTE: A CIRCUIT SERVICING EACH DRYER *MUST BE* PROVIDED.

4. 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.

NOTE: A grounding connection (terminal lug) is provided in the dryer's electrical service/relay box at the rear, upper left hand corner of the dryer.

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 connection **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 copper wire and securely clamped to bare metal at both ends.

IMPORTANT: For personal safety and proper operation, the dryer ***must be*** grounded. For proper operation of the microprocessor controller (computer), an earth (zero) ground is required.

NOTE: Grounding via metallic electrical conduit (pipe) **is not recommended**.

G. GAS INFORMATION

It is your responsibility to have **ALL** plumbing connections made by a qualified professional to ensure 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 valves **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 test 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 dryer from supply as noted can cause irreparable damage to the gas valve, which will VOID THE WARRANTY.

WARNING: FIRE OR EXPLOSION COULD RESULT DUE TO FAILURE OF ISOLATING OR DISCONNECTING THE GAS SUPPLY AS NOTED.

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 label. If this information does not agree with the type of gas available, ***DO NOT operate the dryer***. Contact the distributor who sold the dryer or contact the **JLA** 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 distributor who sold the dryer or contact the **JLA** factory.

2. Technical 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 the gas valve pressure tap when the gas valve is on.

b. Gas Connections:

Inlet connection ---- 1" F.P.T.
Inlet supply size ---- 1" Diameter Pipe (minimum)
Btu/hr input --------- 350,000 (88,200 kcal/hr)

1) Natural Gas

Regulation is controlled by the dryer's 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.

2) 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.

		TYPE OF GAS						Liquid Propane Conversion Kit Part Number
Btu/hr Rating	**kcal/hr Rating**	Natural			Liquid Propane			
		Qty.	D.M.S.*	Part No.	Qty.	D.M.S.*	Part No.	
350,000	**88,200**	3	#7	140862	3	#31	140818	883309

Shaded area is stated in metric equivalent

* Drill Measurement Size (D.M.S.) equivalents are as follows:
Natural Gas ..... #7 = 0.2010" (5.334 mm).
Liquid Propane Gas ..... #31 = 0.1200" (3.048 mm).

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 a 1" N.P.T. inlet pipe connection extending out the back area of the burner box. The minimum pipe size (supply line) to the dryer is 1" diameter. For ease in servicing, the gas supply line of each dryer must have its own shutoff valve.

The size of the main gas supply line (header) will vary depending on the distance this line travels from the gas meter or, in the case of L.P. gas, the supply tank, other gas-operated appliances on the same 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 1-inch (2.54 cm) pipe gas loop be installed in the supply line servicing a bank of dryers. An in-line pressure regulator **must be** installed in the gas supply line (header) if the (natural) gas pressure exceeds 12.0 inches (29.9 mb) of water column (W.C.) pressure.

NOTE: A consistent water column test pressure of 3.5 inches (8.7 mb) for natural gas and 10.5 inches (26.1 mb) for L.P. dryers 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.

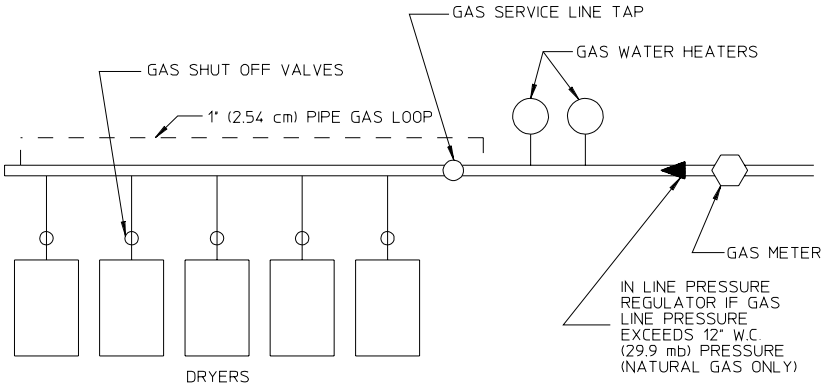
IMPORTANT: Test **ALL** connections for leaks by brushing on a soapy water solution (liquid detergent works well).

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

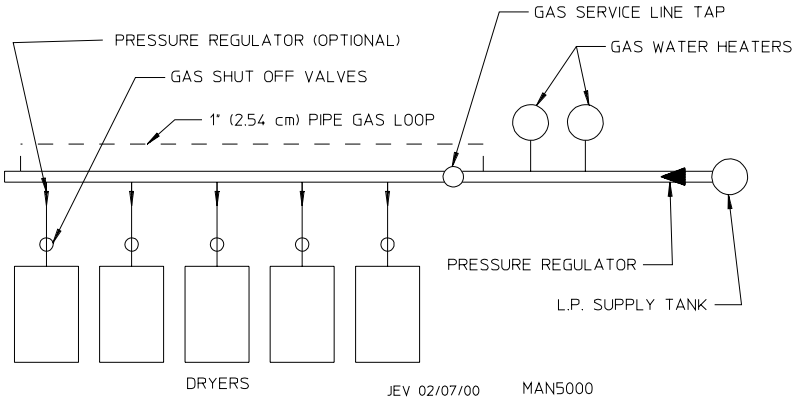
IMPORTANT: The dryer and its individual shutoff valve ***must be*** disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.5 kPa).

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

TYPICAL NATURAL GAS INSTALLATION



TYPICAL L.P. GAS INSTALLATION



H. WATER INFORMATION

Before You Start!

Check Local Codes and Permits

Call your local water company or the proper municipal authority for information regarding local codes.

IMPORTANT: It is your responsibility to have **ALL** plumbing connections made by a qualified professional to ensure that the plumbing installation is adequate and conforms to local, state, and federal regulations or codes.

It is the installation or owners responsibility to see that the necessary or required water, water pressure, pipe size, or connections are provided. Manufacturer assumes no responsibility if the fire suppression system **is not** connected, installed, or maintained properly.

1. Installation

   Requirements

   The fire suppression system **must be** supplied with a minimum water pipe size of 1/2" and be provided with 40 psi +/- 20 psi (2.75 bar +/- 1.37 bar) of pressure. For use of optional manual bypass, a second source with the same piping and pressure requirements is required.

   Flexible 1/2 feeds **must be** provided to avoid damage to electric water solenoid valve by vibration.

IMPORTANT: Flexible supply line/coupling ***must be*** used. Solenoid valve failure due to hard plumbing connections WILL VOID WARRANTY.

If the rear area of the dryer, or the water supply is located in an area where it will be exposed to cold/freezing temperatures, provisions **must be** made to protect these water lines from freezing.

WARNING: If the water in the supply line or water solenoid valve freezes, the fire suppression system **will be** INOPERATIVE!!

IMPORTANT: Appliance is to be connected to the water mains using a new hose-set and the old hose-sets ***should not be*** reused.

2. Water Connections:

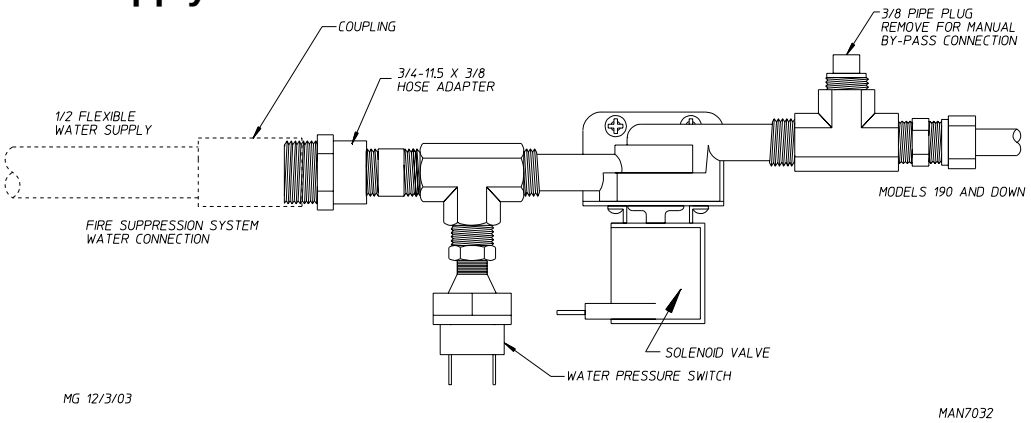
   The water connection is made to the 3/4"-11.5 NH hose adapter of the electric water solenoid valve, located at the rear upper midsection of the dryer (refer to the photo).

   The water solenoid valve has a 3/8" M.P.T. connection supplied with a 3/4"-11.5 NH hose adapter to provide the minimum 1/2-inch supply (feed) line. Flexible supply line/coupling **must be** used in an effort to avoid damaging the electric water solenoid valve.

NOTE: The 3/4"-11.5 NH is a standard hose coupling screw thread. It **is not** to be confused with 3/4" N.P.T. The sealing of an NH connection is made with a washer opposed to the mating threads of an N.P.T. assembly. The two (2) thread designs **are not** compatible.

IMPORTANT: Flexible supply line/coupling ***must be*** used. Solenoid valve failure due to hard plumbing connections WILL VOID WARRANTY. **It is recommended** that a filter or strainer be installed in the water supply line.

Typical Water Supply:

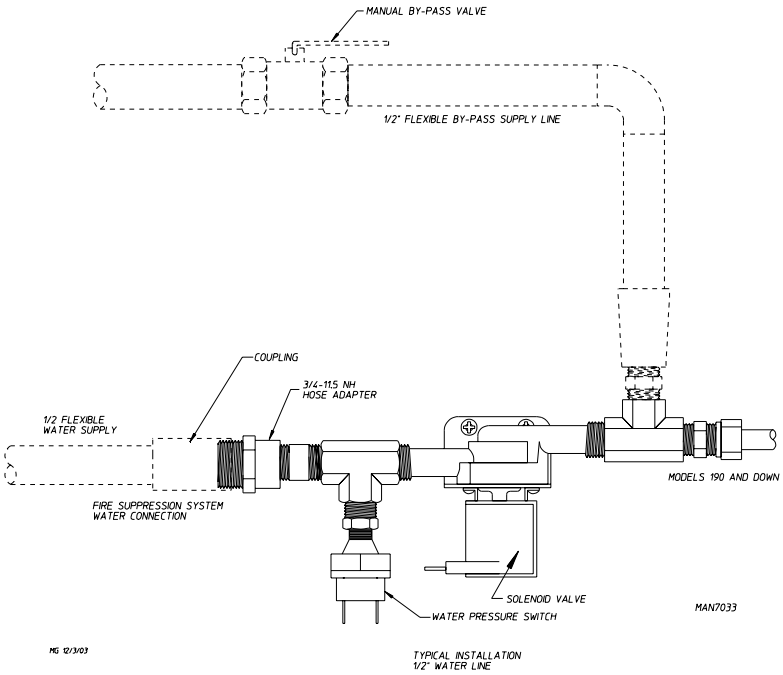


Optional Manual Bypass

Provisions are made in the dryer's fire suppression system for the installation of an optional manual bypass. Depending on the model dryer, the connections for the manual bypass are made at the "T" or "three way" fitting located in the outlet supply side of the water solenoid valve. The use and connections of this manual bypass are at the option or discretion of the owner.

The water connection for the manual bypass is made to the "T" or "three way" fitting which has a 3/8" F.P.T. and a coupling **must be** used to provide the minimum 1/2" supply (feed) line.

If the rear area of the dryer, or the water supply is located in an area where it <u>will</u> <u>be</u> exposed to cold/ freezing temperatures, provisions **must be** made to protect these water lines from freezing.



WARNING: If the water in the supply line or water solenoid valve freezes, the fire suppression system **<u>will</u> <u>be</u>** INOPERATIVE!!

The manual ball cock shutoff valve **must be** located outside of the dryer at a distance from the dryer where it is easily accessible.

3. <u>Electrical Requirements</u>

   No independent external power source or supply connection is necessary. The 24 volt power to operate the fire suppression system is accomplished internally in the dryer (from the dryer controls).

WARNING: Electrical power ***must be*** provided to the dryer at **<u>ALL</u>** times. If the main electrical power supply to the dryer is disconnected, the fire suppression system is INOPERATIVE!!

I. PREPARATION FOR OPERATION/START-UP

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. In the case of 208 VAC or 240 VAC **THE SUPPLY VOLTAGE *MUST MATCH* THE ELECTRIC SERVICE EXACTLY**.

3. GAS MODELS – check to ensure that the dryer is connected to the type of heat/gas indicated on the dryer data label.

4. GAS MODELS – the sail switch damper assembly was installed and pre-adjusted at the factory prior to shipping. However, each sail switch adjustment **must be** checked to ensure that this important safety control is functioning.

5. Check to be sure that the drive belts between the idler pulley and the motor pulley have been reconnected.

NOTE: The drive belts were disconnected at the factory prior to dryer shipment.

6. GAS MODELS – be sure that **ALL** gas shutoff valves are in the open position.

7. Be sure **ALL** back panels (guards) and electric box covers have been replaced.

8. Check **ALL** service doors to ensure that they are closed and secured in place.

9. Be sure the lint drawer is securely in place.

NOTE: LINT DRAWER *MUST BE* ALL THE WAY IN PLACE TO ACTIVATE THE SAFETY SWITCH OTHERWISE THE DRYER WILL NOT START.

10. Rotate the basket (tumbler/drum) by hand to be sure it moves freely.

11. Check bolts, nuts, screws, terminals, and fittings for security.

12. GAS MODELS – check to ensure air supply (80 psi [5.51 bar]) is connected to the dryer.

13. Check basket (tumbler) bearing setscrews to ensure they are **ALL** tight.

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 or due to marginal location (installation) conditions.

1. Turn on electric power to the dryer.

2. Make sure the main door is closed and the lint drawer is securely in place.

3. Refer to the Operating Instructions for starting your particular model dryer.

4. Check to ensure that the basket (tumbler) starts in the clockwise (CW) direction. Additionally, check the direction of the blower motor impellor (fan) to ensure that the impellor (fan) rotates in the clockwise (CW) direction as viewed from the front. If it is, the phasing is correct. If the phasing is incorrect, reverse two (2) of the leads at L1, L2, or L3 of the power supply connections made to the dryer.

IMPORTANT: Dryer blower motor/pulley that drives the impellor/fan (squirrel cage) when viewed from the back of the dryer ***must turn*** in the counterclockwise (CCW) direction, otherwise the dryer efficiency **will be** drastically reduced and premature component failure can result.

5. Heat Circuit Operational Test

   a. Gas Models

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

         a) If the dryer is equipped with a Direct Spark Ignition (DSI) system, the DSI control module has internal diagnostics. If ignition is not established within three (3) attempts, 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.

         b) If the dryer is equipped with a Hot Surface Ignition (HSI) system, the HSI control module has internal diagnostics. If ignition is not established after the first attempt, the heat circuit HSI module will "LOCKOUT" until it is manually reset. To reset the HSI system, open and close the main door and restart the dryer.

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

      2) Once ignition is established, a gas pressure test **should be** taken at the gas valve pressure tap of each dryer to ensure 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.

6. Make a complete operational check of **ALL** safety-related circuits (i.e., lint drawer switch and sail switch on gas models).

NOTE: To check for proper sail switch operation, open the main door and while holding main door switch plunger in, start the dryer. The dryer should start but the heat circuit ***should not be*** activated (on). If the heat (burner) does activate, shut the dryer off and make the necessary adjustments.

7. A reversing basket (tumbler) dryer **must never be** operated with less than a 63 pound (28.57 kg) load (dry weight). The size of the load will affect the coast-down and dwell (stop) times. The basket (tumbler) must come to a complete stop before starting in the opposite direction.

Microprocessor Controller (Computer) Dryer Models

a. Spin and stop times are not adjustable in the Automatic Mode and have been preprogrammed into the microprocessor controller (computer) for 150-seconds spin time in the forward direction and 120-seconds in the reverse direction with a 5-second dwell (stop) time.

b. Spin and stop times are adjustable in the Manual (timed) Mode.

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.

8. Each dryer **should be** operated through one (1) complete cycle to ensure that no further adjustments are necessary and that **ALL** components are functioning properly.

9. Make a complete operational check of **ALL** operating controls.

Microprocessor Controller (Computer) Programs/Selections...

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

K. COMPRESSED AIR REQUIREMENTS

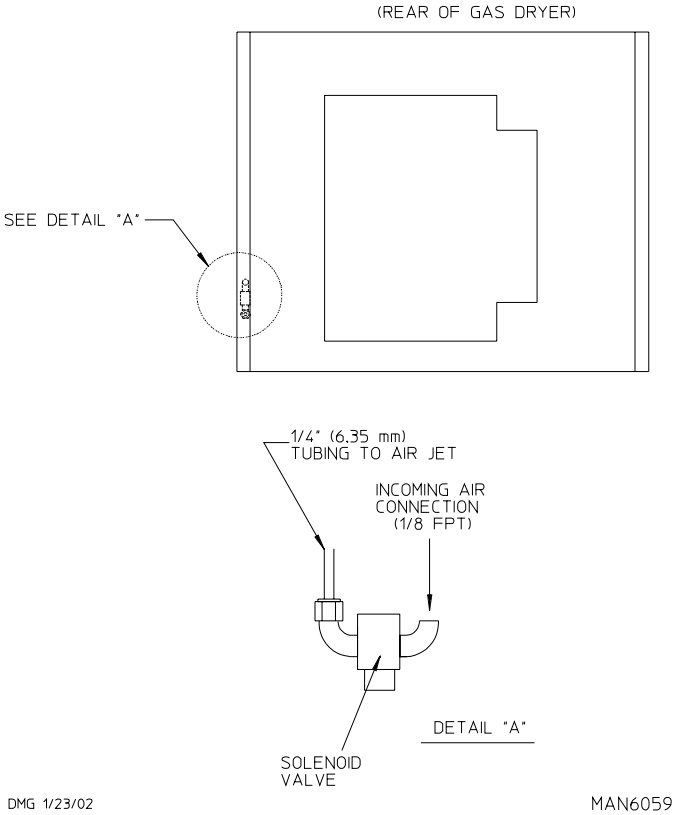
The dryer requires an external supply of compressed air (2.5 cfh [cubic feet per hour] @ 80 psi [0.07 cmh [cubic meters per hour] @ 5.51 bar]) for gas models. On gas model dryers, compressed air is necessary/required for blower air jet operation to clean lint from the impellor/fan (squirrel cage).

1. Air Requirements

Microprocessor Controller (Computer) Dryers

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 Regulation

   No air regulation or air filtration is provided with the dryer. External regulation/filtration 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 ensure that correct and clean air pressure is achieved.

3. Air Connection

   Air connection to this system is a 1/8" F.P.T. as per the **illustration above**.

L. SHUTDOWN INSTRUCTIONS

If the dryer is to be shut down (taken out of service) for a period of time, the following **must be** performed:

1. Discontinue power to the dryer either at the external disconnect switch or the circuit breaker.

2. Discontinue the heat supply:

   ***GAS MODELS* – discontinue the gas supply**.

   SHUT OFF external gas supply shutoff valve.

SECTION IV
SERVICE/PARTS INFORMATION

A. SERVICE

Service **must be** performed by a qualified trained technician, service agency, or gas supplier. If service is required, contact the distributor from whom the **JLA** equipment was purchased. If the distributor **cannot** be contacted or is unknown, contact the **JLA** Service Department for a distributor in your area.

NOTE: When contacting the **JLA** 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

Replacement parts **should be** purchased from the distributor from whom the **JLA** equipment was purchased. If the distributor **cannot** be contacted or is unknown, contact the **JLA** Parts Department for a distributor in your area. Parts may also be purchased directly from **JLA** Parts Department by calling 01422 822282 or you may FAX in your order at 01422 824390.

NOTE: When ordering replacement parts from the **JLA** distributor or **JLA**, 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 V
WARRANTY INFORMATION

A. RETURNING WARRANTY CARDS

Before any dryer leaves the 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. If a warranty card did not come with your dryer, contact the **JLA** Warranty Department.

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 **JLA** commercial warranty covering your particular dryer(s), contact the **JLA** distributor from whom you purchased the equipment and request a dryer warranty form. If the distributor **cannot** be contacted or is unknown, warranty information can be obtained from **JLA** by contacting the **JLA** Warranty Department.

NOTE: Whenever contacting **JLA** 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.

SECTION VI
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, a **JLA** 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: REMOVE POWER FROM THE DRYER BEFORE PERFORMING ANY MAINTENANCE IN THE DRYER.

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.

CLEAN LINT FROM LINT DRAWER/SCREEN EVERY THIRD OR FOURTH LOAD.

NOTE: The frequency of cleaning the lint screens can best be determined from experience at each location.

WEEKLY

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

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

90 DAYS

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

Impellor (fan/blower) shaft bearings **should be** lubricated using Shell Alvania grease NLGI 2 or its equivalent. Generically, this grease would be described as an NLGI grade 2 multipurpose industrial grease with a lithium thickener and mineral base oil.

Check to make sure that the setscrews on the impellor/fan shaft bearings are tight.

NOTE: To prevent damage, avoid cleaning and/or touching the Direct Spark Ignitor.

Remove lint accumulation from inside.

6 MONTHS

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

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

NOTE: ***DO NOT*** OBSTRUCT THE FLOW OF COMBUSTION AND VENTILATION AIR. CHECK CUSTOMER FURNISHED BACK DRAFT DAMPERS IN THE EXHAUST DUCTWORK. INSPECT AND REMOVE ANY LINT ACCUMULATION, WHICH CAN CAUSE THE DAMPER TO BIND OR STICK.

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

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

Check **ALL** V-belts for tightness and wear. Retighten, realign, or replace if required.

NOTE: V-belts ***should be*** replaced in matched sets (pairs).

B. ADJUSTMENTS

7 DAYS AFTER INSTALLATION and EVERY 6 MONTHS THEREAFTER

Inspect bolts, nuts, screws, setscrews, grounding connections, and nonpermanent gas connections (unions, shutoff valves, and orifices). Fan (impellor) V-belts, along with the motor and drive belts **should be** examined and replaced if necessary. 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).

NOTE: Squirrel cage type fan (impellor) on the blower motor **must be** inspected and cleaned every 6 months.

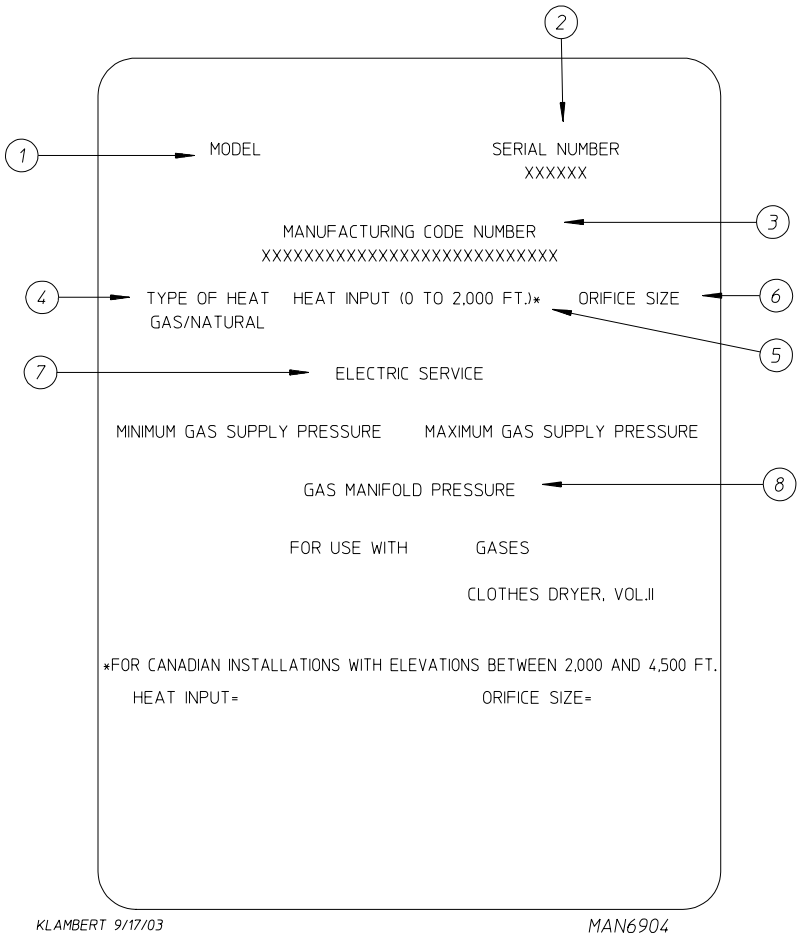
C. LUBRICATION

The fan shaft bearings and **ALL** the basket (tumbler) drive shaft and idler shaft bearings **must be** lubricated every 3 months. Use a #2 grease or its equivalent. Lubrication is necessary or premature bearing failure will be the result.

The motor bearings are permanently lubricated and **DO NOT** require to be serviced.

SECTION VII

DATA LABEL INFORMATION



When contacting **JLA**, certain information is required to ensure proper service/parts information from **JLA**. This information is on the data label that is affixed to the left side panel/wall area behind the control panel. When contacting **JLA**, please have the **model number** and **serial number** available.

1. **MODEL NUMBER** – Describes the size of the dryer and the type of heat (gas, electric, or steam).

2. **SERIAL NUMBER** – Allows the manufacturer to gather information on your particular dryer.

3. **MANUFACTURING CODE NUMBER** – The number issued by the manufacturer, which describes **ALL** possible options on your particular model.

4. **TYPE OF HEAT** – This describes the type of heat for your particular dryer, gas (either natural gas or liquid propane [L.P.] gas), electric, or steam.

5. **HEAT INPUT** (for GAS DRYERS) – This describes the heat input in British Thermal Units per Hour (Btu/hr).

6. **ORIFICE SIZE** (for GAS DRYERS) – Gives the number drill size used.

7. **ELECTRIC SERVICE** – This describes the electric service for your particular model.

8. **GAS MANIFOLD PRESSURE** (for GAS DRYERS) – This describes the manifold pressure taken at the gas valve tap.

SECTION VIII

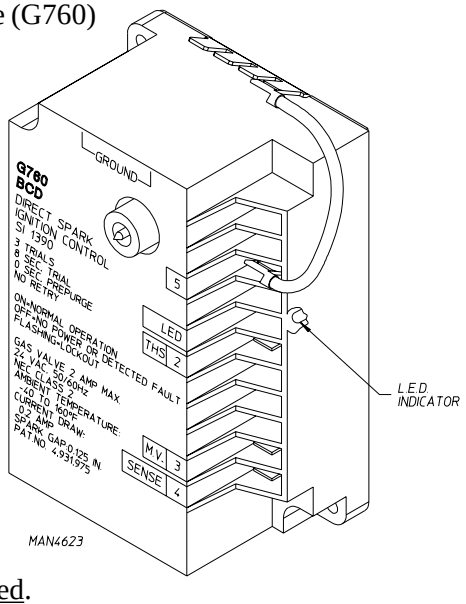
PROCEDURE FOR FUNCTIONAL CHECK OF REPLACEMENT COMPONENTS

1. For Heat Control Module Ignition Circuit

   a. For Models With Johnson Controls Direct Spark Ignition (DSI) Module (G760)

   Theory Of Operation:

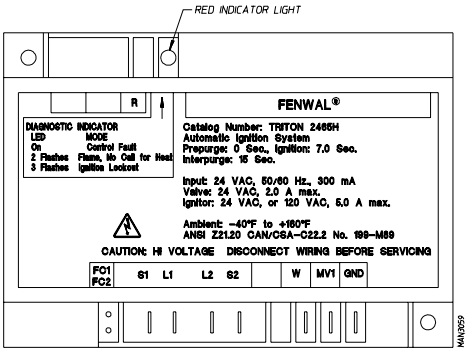
   Start the drying cycle. When the gas burner ignites within the chosen trial for ignition time (6-seconds), the flame sensor detects gas burner flame and signals the DSI module to keep the gas valve open as long as there is a call for heat. The DSI module will "LOCKOUT" if the gas burner flame is not 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" (light emitting diode [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.

   b. For Models With Hot Surface Ignition (HSI) Module

   1) Start the drying cycle.

   2) The HSI will turn on, and after approximately 4-seconds the ignitor will shut off and the gas valve will be energized. Ignition (flame) **should now be** established.

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

   4) Stop the drying cycle, with the flame sensor wire still removed, restart the drying cycle.

   5) The HSI will turn on, and after a few seconds later the gas valve will be energized and the HSI will shut off. Ignition (flame) **should be** evident for approximately 7-seconds and then shut off.

   6) The HSI module will attempt to light burner only "once." If flame is not reestablished the HSI module will lockout and the "red" indicator light will flash continuously.

   7) Functional check of the HSI module is complete.

   Replace the flame sensor wire from the S2 terminal to the HSI module.

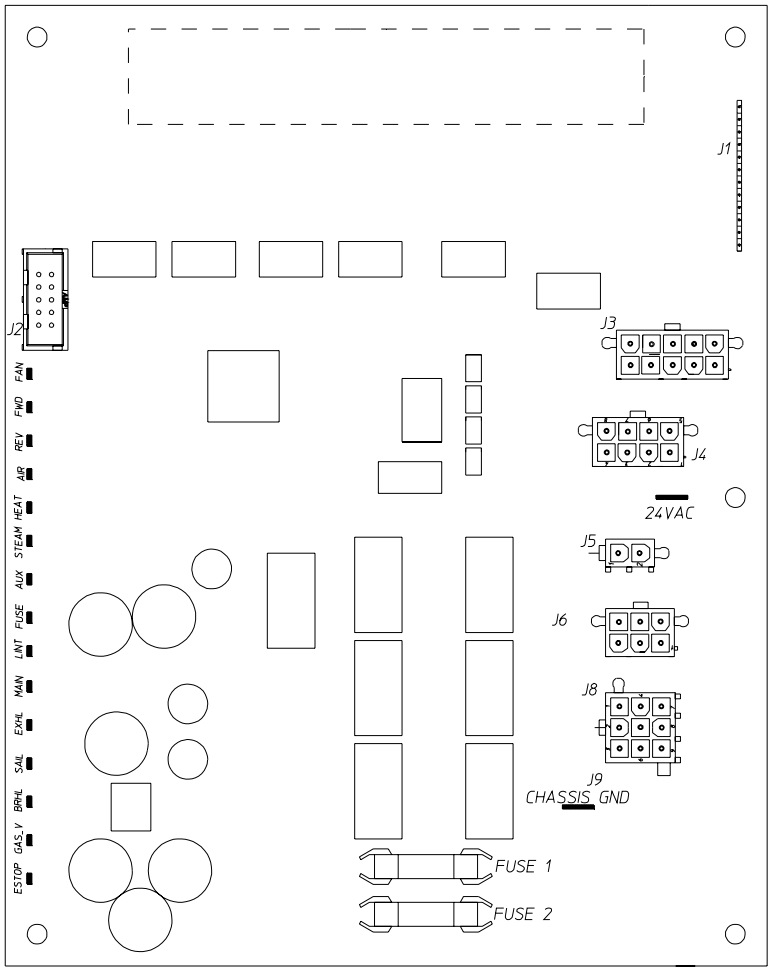
SECTION IX

PHASE 7 NON-COIN SYSTEM DIAGNOSTICS

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

ALL major circuits, including door, microprocessor temperature sensor, heat and motor circuits are monitored. The Phase 7 non-coin microprocessor controller (computer) will inform the user, via the light emitting diode (L.E.D.) display of certain failure messages, along with L.E.D. indicators on the input/output (I/O) board on the back panel of the front right control door.

A. DIAGNOSTIC (L.E.D. DISPLAY) FAULT MESSAGES



OUTPUTS: (GREEN)

1. FAN - Blower Fan On
2. FWD - Basket (Tumbler) Forward
3. REV - Basket (Tumbler) Reverse
4. AIR JET - Air Jet On
5. HEAT - Front Heat
6. STEAM - Steam Injection
7. AUX - Fire Suppression System (F.S.S.) Active On

INPUTS: (RED)

8. FUSE - 24 VAC To Board (F2)
9. LINT - Lint Drawer Closed
10. MAIN - Main Door Closed
11. EXHL - Exhaust High Limit
12. SAIL - Sail Switch
13. BRHL - Burner High Limit
14. GAS_V - Gas Valve
15. ESTOP - Emergency Stop

Input/Output (I/O) Board Output Description ("Green" light emitting diode [L.E.D.])

1. FAN – (GREEN L.E.D.)	This L.E.D. will indicate the status of the Fan output. If the request to turn on the Fan (blower) is made, then the L.E.D. is ON.
2. FWD – (GREEN L.E.D.)	This L.E.D. will indicate the status of the Basket (Tumbler) Forward direction output. If the request to tumble the drum in the Forward direction is made, then the L.E.D. is ON.
3. REV – (GREEN L.E.D.)	This L.E.D. will indicate the status of the Basket (Tumbler) Reverse direction output. If the request to tumble the drum in the Reverse direction is made, then the L.E.D. is ON.
4. AIR JET – (GREEN L.E.D.)	This L.E.D. will indicate the status of the Air Jet output. If the request to turn on the Air Jet is made, then the L.E.D. is ON.
5. HEAT – (GREEN L.E.D.)	This L.E.D. will indicate the status of the Front Heat output. If the request to turn on the Front Burner is made, then the L.E.D. is ON.
6. STEAM – (GREEN L.E.D.)	This L.E.D. will indicate the status of the Steam Injection output. If the request to turn on the Steam Injection is made, then the L.E.D. is ON.
7. AUX – (GREEN L.E.D.)	This L.E.D. will indicate the status of the fire suppression system output. If the request to turn on the fire suppression system is made, then the L.E.D. is ON.

Input/Output (I/O) Board Input Description ("Red" L.E.D.)

8. FUSE – (RED L.E.D.)	This L.E.D. will indicate the status of the (F2), which fuses the 24 VAC supplied to the board.
9. LINT – (RED L.E.D.)	This L.E.D. will indicate the status of the Lint Drawer. If the drawer is closed, then the L.E.D. is ON.
10. MAIN – (RED L.E.D.)	This L.E.D. will indicate the status of the Front Doors. If the doors are closed, then the L.E.D. is ON.
11. EXHL – (RED L.E.D.)	This L.E.D. will indicate the status of the Exhaust Hi-Limit Disk. If the disk is closed (Temperature below 225º F [107º C]), then the L.E.D. is ON.
12. SAIL – (RED L.E.D.)	This L.E.D. will indicate the status of the Sail Switch. If the switch is closed, then the L.E.D. is ON.
13. BRHL – (RED L.E.D.)	This L.E.D. will indicate the status of the Burner Hi-Limit Disk. If the disk is closed (Temperature below 330º F [166º C]), then the L.E.D. is ON.
14. GAS_V – (RED L.E.D.)	This L.E.D. will indicate the status of the Gas Valve. If the Gas Valve is open (ON), then the L.E.D. is ON.
15. ESTOP – (RED L.E.D.)	This L.E.D. will indicate the status of the Emergency Stop Switch. If the Emergency Stop Switch is open (ON), then the L.E.D. is ON.

Notes