

INDUSTRIAL TUMBLE DRYERS

25kg
35kg

INSTALLATION, OPERATION, MAINTENANCE

70420401en
Publication date: Jan 2013

Installation must conform with local codes or, in the absence of local codes, with:

In the U.S.A., installation must conform to the latest edition of the American National Standard Z223.1/ NFPA 54 “National Fuel Gas Code” and Standard ANSI/NFPA 70 “National Electric Code.”

In Canada, installation must comply with Standards CAN/CSA-B149.1 or Natural Gas and Propane Installation Code and CSA C22.1, latest edition, Canadian Electric Code, Part I.

In Australia and New Zealand, installation must comply with the Gas Installations Standard AS/NZS 5601 Part 1: General Installations.



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.

W033

- **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.**

W052

IMPORTANT: Information must be obtained from a local gas supplier on instructions to be followed if the user smells gas. These instructions must be posted in a prominent location. Step-by-step instructions of the above safety information must be posted in a prominent location near the tumble dryer for customer use.



WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- **Disconnect electric power to the tumble dryer before servicing.**
- **Close gas shut-off valve to gas tumble dryer before servicing.**
- **Close steam valve to steam tumble dryer before servicing.**
- **Never start the tumble dryer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumble dryer is properly grounded.**

W002R1



WARNING

- **Installation of unit must be performed by a qualified installer.**
- **Install tumble dryer according to manufacturer's instructions and local codes.**
- **DO NOT install a tumble dryer with flexible plastic venting materials. If flexible metal (foil type) duct is installed, it must be of a specific type identified by the appliance manufacturer as suitable for use with tumble dryer. Refer to section on connecting exhaust system. Flexible venting materials are known to collapse, be easily crushed, and trap lint. These conditions will obstruct tumble dryer airflow and increase the risk of fire.**

W752R1

The following information applies to the state of Massachusetts, USA.

- This appliance can only be installed by a Massachusetts licensed plumber or gas fitter.
- This appliance must be installed with a 91 cm (36 inch) long flexible gas connector.
- A "T-Handle" type gas shut-off valve must be installed in the gas supply line to this appliance.
- This appliance must not be installed in a bedroom or bathroom.

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Introduction

Model Identification

Information in this manual is applicable to these models:

	Gas			Steam/Thermal Oil		Electric
50 Pound	GA050L	KT050L	LU050N	GT050S	LU050S	GT050E
	GA050N	KT050N	PA050L	GT050T	LU050T	GU050E
	GK050N	KU050L	PA050N	GU050S	PT050S	KT050E
	GT050L	KU050N	PK050N	GU050T	PT050T	KU050E
	GT050N	LA050L	PT050L	KT050S	PU050S	LT050E
	GU050L	LA050N	PT050N	KT050T	PU050T	LU050E
	GU050N	LK050N	PU050L	KU050S		PT050E
	KA050L	LT050L	PU050N	KU050T		PU050E
	KA050N	LT050N		LT050S		
	KK050N	LU050L		LT050T		
	75 Pound	GA075L	KT075L	LU075N	GT075S	LU075S
GA075N		KT075N	PA075L	GT075T	LU075T	GU075E
GK075N		KU075L	PA075N	GU075S	PT075S	KT075E
GT075L		KU075N	PK075N	GU075T	PT075T	KU075E
GT075N		LA075L	PT075L	KT075S	PU075S	LT075E
GU075L		LA075N	PT075N	KT075T	PU075T	LU075E
GU075N		LK075N	PU075L	KU075S		PT075E
KA075L		LT075L	PU075N	KU075T		PU075E
KA075N		LT075N		LT075S		
KK075N		LU075L		LT075T		

Includes models with the following control suffixes:

BB – reversing basic electronic, coin
 BC – basic electronic, coin
 BG – basic electronic, OPL mode
 BL – basic electronic, central pay
 BW – reversing basic electronic,
 prep for coin

BX – basic electronic, prep for coin
 BY – basic electronic, prep for card
 BZ – reversing basic electronic, prep
 for card
 EO – OPL electronic

OM – OPL micro
 QT – dual digital timer
 RE – reversing electronic OPL
 RM – reversing OPL micro
 RQ – reversing dual digital timer

Introduction

Contact Information

If service is required, contact the nearest Factory Authorized Service Center.

If you are unable to locate an authorized service center or are unsatisfied with the service performed on your unit, contact the source from which you purchased your unit.


When calling or writing about your unit, PLEASE GIVE THE MODEL AND SERIAL NUMBERS. The model and serial numbers are located on the nameplate. The nameplate will be in the location shown in *Figure 1*.

Date Purchased _____

Model Number _____

Serial Number _____

Please include a copy of your bill of sale and any service receipts you have.

	WARNING
To reduce the risk of serious injury or death, DO NOT repair or replace any part of the unit or attempt any servicing unless specifically recommended in the user-maintenance instructions or in published user-repair instructions that you understand and have the skills to carry out.	
<small>W329</small>	

If replacement parts are required, contact the source from where you purchased your tumble dryer.

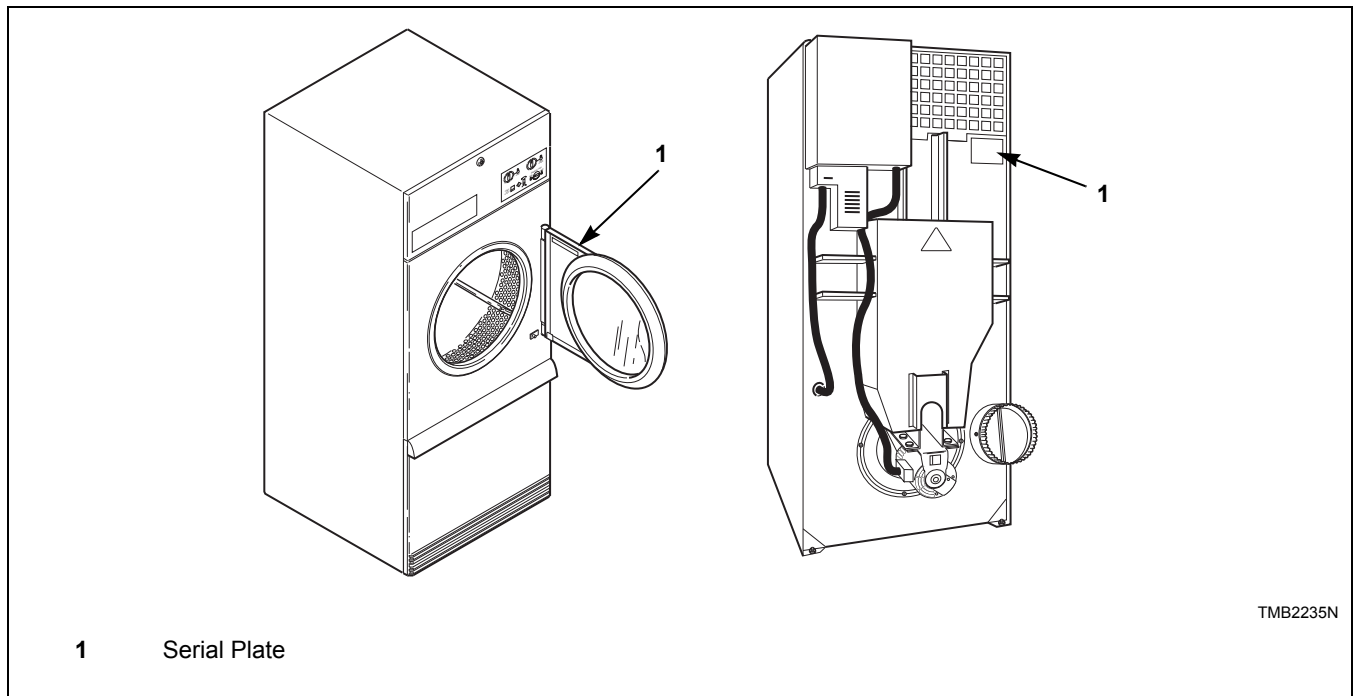





Figure 1

Safety Information

Precautionary statements (“DANGER,” “WARNING,” and “CAUTION”), followed by specific instructions, are found in this manual and on machine decals. These precautions are intended for the personal safety of the operator, user, servicer, and those maintaining the machine.

	DANGER
Indicates an imminently hazardous situation that, if not avoided, will cause severe personal injury or death.	


	WARNING
Indicates a hazardous situation that, if not avoided, could cause severe personal injury or death.	

	CAUTION
Indicates a hazardous situation that, if not avoided, may cause minor or moderate personal injury or property damage.	

Additional precautionary statements (“IMPORTANT” and “NOTE”) are followed by specific instructions.

IMPORTANT: The word “IMPORTANT” is used to inform the reader of specific procedures where minor machine damage will occur if the procedure is not followed.

NOTE: The word “NOTE” is used to communicate installation, operation, maintenance or servicing information that is important but not hazard related.


	WARNING
Failure to install, maintain, and/or operate this machine according to manufacturer’s instructions may result in conditions which can produce serious injury, death and/or property damage.	
W051R1	

NOTE: The WARNING and IMPORTANT instructions appearing in this manual are not meant to cover all possible conditions and situations that may occur. It must be understood that common sense, caution and carefulness are factors which CANNOT be built into this tumble dryer. These factors MUST BE supplied by the person(s) installing, maintaining or operating the tumble dryer.

Always contact your dealer, distributor, service agent or the manufacturer on any problems or conditions you do not understand.

Save These Instructions

Important Safety Instructions

	WARNING
<p>To reduce the risk of fire, electric shock, serious injury or death to persons when using your tumbler, follow these basic precautions.</p>	
W776	

1. Read all instructions before using the tumble dryer.
2. Install the tumble dryer according to the INSTALLATION instructions. Refer to the EARTHING (grounding) instructions for the proper earthing (grounding) of the tumble dryer. All connections for electrical power, earthing (grounding) and gas supply must comply with local codes and be made by licensed personnel when required. It is recommended that the machine be installed by qualified technicians.
3. Do not install or store the tumble dryer where it will be exposed to water and/or weather. The tumble dryer cannot be used in a closed room where the air supply is insufficient. If necessary, ventilation grids must be installed in the doors or the windows.
4. This appliance must not be activated without lint/foam filter.
5. When you perceive a gas odor, immediately switch off the gas supply and ventilate the room. Do not switch on electrical appliances and do not pull electrical switches. Do not use matches or lighters. Do not use a phone in the building. Warn the fitter, and if so desired, the gas company, as soon as possible.
6. To avoid fire and explosion, keep surrounding areas free of flammable and combustible products. Regularly clean the dryer drum and exhaust tube should be cleaned periodically by competent maintenance personnel. Daily remove piled up dust from filter and inside of filter compartment.
7. Do not use or store flammable materials near this appliance.
8. Do not dry articles that have been previously cleaned in, washed in, soaked in or spotted with gasoline or machine oils, vegetable or cooking oils, cleaning waxes or chemicals, dry-cleaning solvents, thinner or other flammable or explosive substances as they give off vapors that could ignite, explode or cause fabric to catch on fire by itself.
9. Do not spray aerosols in the vicinity of this appliance while it is in operation.
10. Items such as foam rubber (latex foam), shower caps, waterproof textiles, rubber backed articles and clothes or pillows filled with foam rubber pads should not be dried in the tumble dryer. Do not use the appliance to dry materials with a low melting temperature (PVC, rubber, etc.).
11. Do not tumble fiberglass curtains and draperies unless the label says it can be done. If they are dried, wipe out the cylinder with a damp cloth to remove particles of fiberglass.
12. Do not allow children on or in the tumble dryer. This appliance is not intended for use by young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the appliance.
13. Do not reach into the tumble dryer if the cylinder is revolving.
14. Use tumble dryer only for its intended purpose, drying fabrics. Always follow the fabric care instructions supplied by the textile manufacturer and only use the dryer drum to dry textiles that have been washed in water. Only insert spin-dried linen in the dryer.
15. Always read and follow manufacturer's instructions on packages of laundry and cleaning aids. Heed all warnings or precautions. To reduce the risk of poisoning or chemical burns, keep them out of the reach of children at all times (preferably in a locked cabinet).
16. Do not use fabric softeners or products to eliminate static unless recommended by the manufacturer of the fabric softener or product.
17. Remove laundry immediately after tumble dryer stops.

18. DO NOT operate the tumble dryer if it is smoking, grinding or has missing or broken parts or removed guards or panels. DO NOT tamper with the controls or bypass any safety devices.
19. Tumble dryer will not operate with the loading door open. DO NOT bypass the door safety switch to permit the tumble dryer to operate with the door open. The tumble dryer will stop tumbling when the door is opened. Do not use the tumble dryer if it does not stop tumbling when the door is opened or starts tumbling without pressing or turning the START mechanism. Remove the tumble dryer from use and call for service.
20. Tumble dryer(s) will not operate with lint panel open. DO NOT bypass lint panel safety switch to permit the tumble dryer to operate with the lint panel open.
21. Do not modify this appliance.
22. Always clean the lint filter daily. Keep area around the exhaust opening and adjacent surrounding area free from the accumulation of lint, dust and dirt. The interior of the tumble dryer and the exhaust duct should be cleaned periodically by qualified service personnel.
23. Solvent vapors from dry-cleaning machines create acids when drawn through the heater of the drying unit. These acids are corrosive to the tumble dryer as well as the laundry load being dried. Be sure make-up air is free of solvent vapors.
24. At the end of each working day, close off all main supplies of gas, steam and current.
25. Do not repair or replace any part of the tumble dryer, or attempt any servicing unless specifically recommended in the user-maintenance instructions or in published user-repair instructions that the user understands and has the skills to carry out. ALWAYS disconnect and lockout the electrical power to the tumble dryer before servicing. Disconnect power by shutting off appropriate breaker or fuse.
26. Before the tumble dryer is removed from service or discarded, remove the door to the drying compartment and the door to the lint compartment.
27. Failure to install, maintain, and/or operate this tumble dryer according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

NOTE: The WARNINGS and IMPORTANT SAFETY INSTRUCTIONS appearing in this manual are not meant to cover all possible conditions and situations that may occur. Common sense, caution and care must be exercised when installing, maintaining, or operating the tumble dryer.

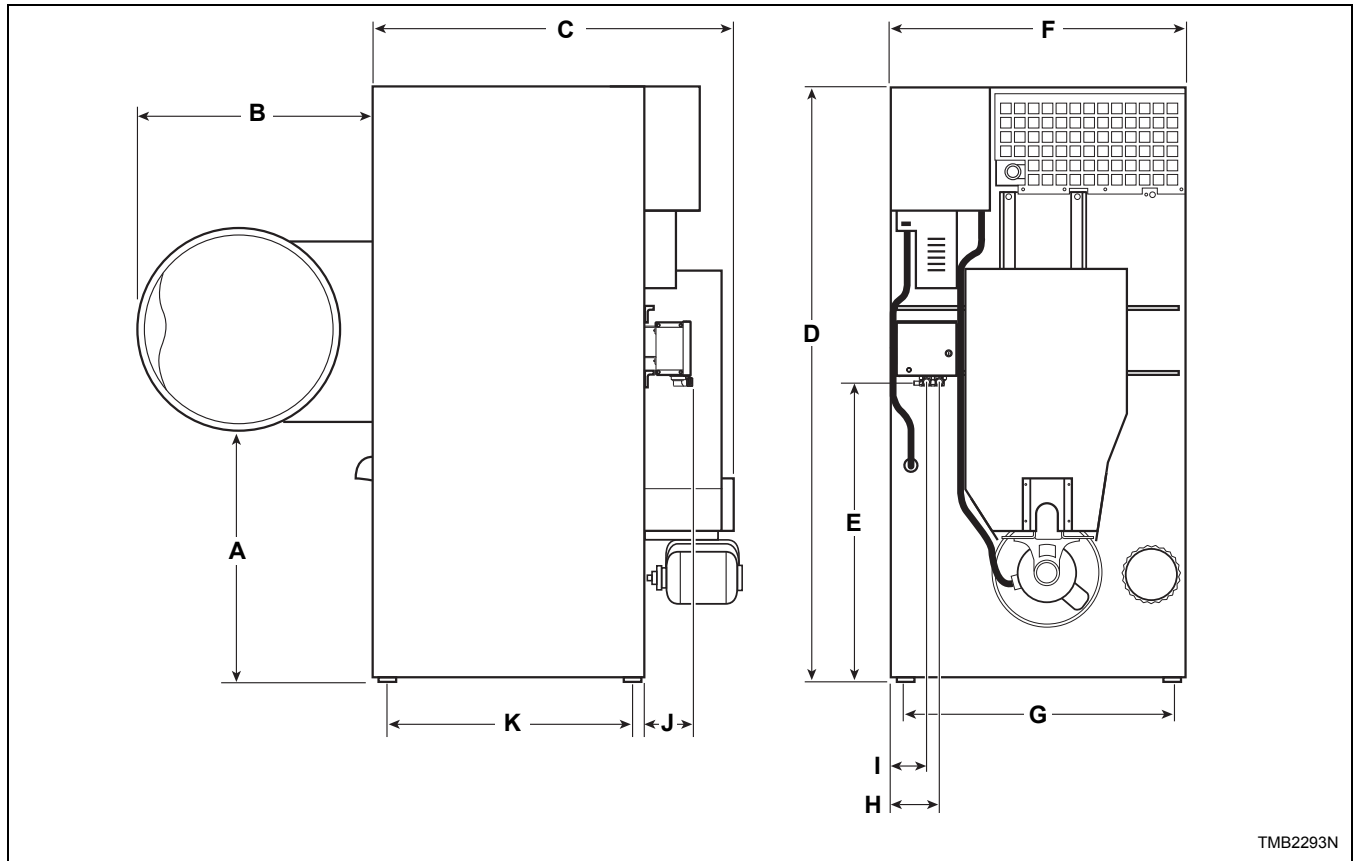
Always contact your dealer, distributor, service agent or the manufacturer on any problems or conditions you do not understand.

Specifications and Dimensions

Specifications	050 Series	075 Series
Noise level measured during operation at operator position of 1 meter (3.3 feet) in front of machine and 1.6 meters (5.2 feet) from floor (approximate)	60 dBA	65 dBA
Net Weight (approximate): Kilograms (Pounds)	247 (545)	279 (615)
Standard Packaging Weight: Kilograms (Pounds)	273 (602)	307 (677)
Standard Packaging Shipping Dimensions: Millimeters (Inches)	1054 x 1323 x 2057 (41.5 x 52.1 x 81)	1054 x 1433 x 2057 (41.5 x 56.4 x 81)
Slat Crate Packaging Weight: Kilograms (Pounds)	303 (669)	337 (742)
Slat Crate Shipping Dimensions: Millimeters (Inches)	1130 x 1397 x 2229 (44.5 x 55 x 87.75)	1130 x 1505 x 2229 (44.5 x 59.25 x 87.75)
Cylinder Size: Millimeters (Inches)	940 x 762 (37 x 30)	940 x 914 (37 x 36)
Cylinder Capacity (dry weight): Kilograms (Pounds)	22.7 (50)	34 (75)
Air Outlet Diameter: Millimeters (Inches)	203 (8)	203 (8)
Maximum Static Back Pressure: Millibar (W.C.I.)	1.3 (0.5)	1.3 (0.5)
Maximum Airflow: L/sec (C.F.M.)	354 (750)	Gas/Steam 60 Hz 434 (920) 50 Hz 354 (750) Electric 354 (750)
Motor Horsepower: kW (horsepower) Nonreversing Reversing Fan Cylinder	0.373 (1/2) 0.249 (1/3) 0.249 (1/3)	0.560 (3/4) 0.249 (1/3) 0.249 (1/3)
Gas Models		
Gas Connection	1/2 in. NPT	1/2 in. NPT
Gas Burner Rating: kW (Btu/hr.)	38.1 (130,000)	48.359 (165,000)
Electric Models		
Heating Element Rating: Kilowatts	21 kW (240 V/50 Hz) 30 kW (other voltages)	30 kW
Steam Models		
Steam Connection	3/4 in. NPT	3/4 in. NPT
Steam Coil Rating at 100 psig: kg/hr. (Btu/hr.) (recommended operating pressure 80-100 psig)	83.14 (177,500)	98.5 (210,300)

NOTE: All machines are shipped with extra nipple to convert to metric thread (from Standard).

Cabinet Dimensions



TMB2293N

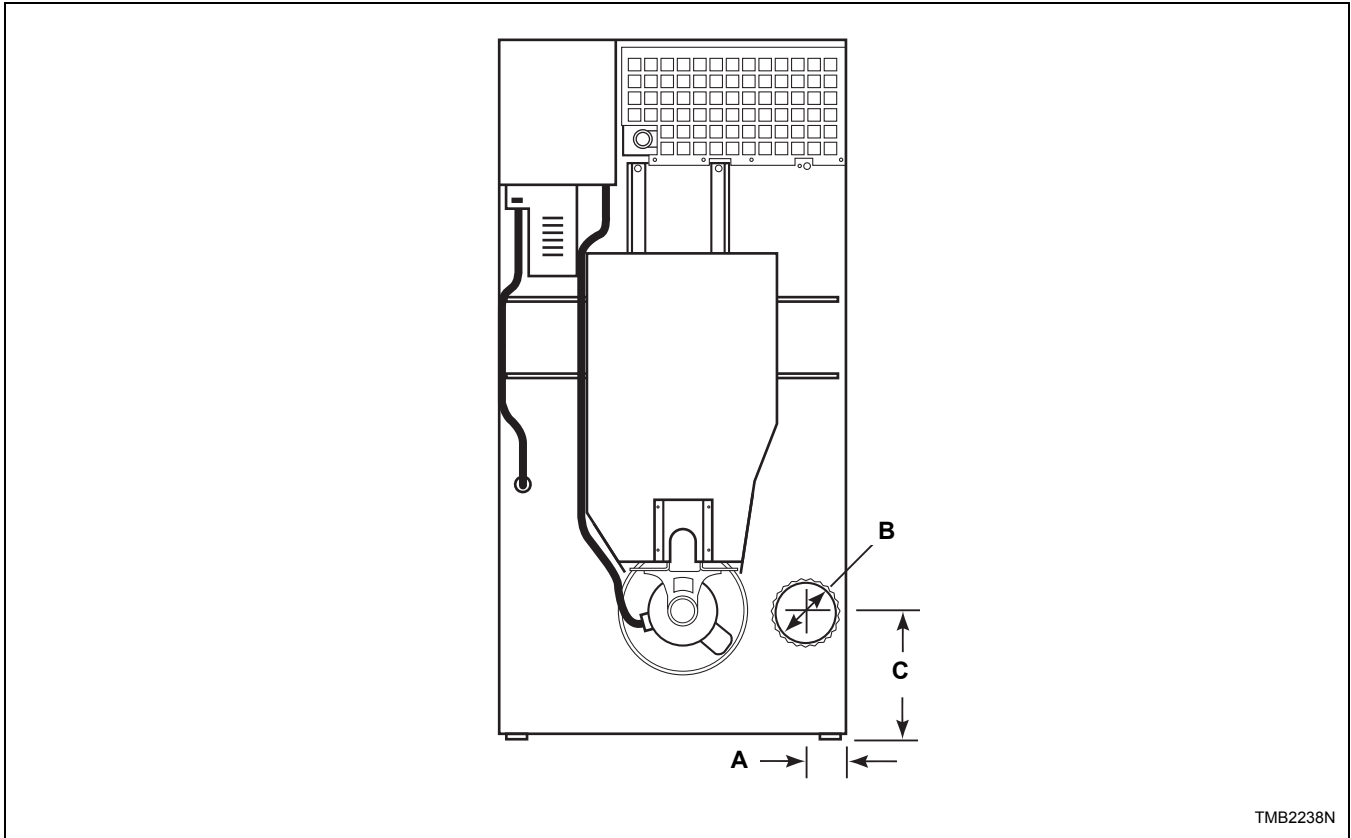
Models	A	B	C	D	E*	F
050 Series Gas and Electric	781 mm (30.75 in.)	860 mm (33.87 in.)	1226 mm (48.25 in.)	1946 mm (76.625 in.)	914 mm (36 in.)	981 mm (38.625 in.)
050 Series Steam	781 mm (30.75 in.)	860 mm (33.87 in.)	1226 mm (48.25 in.)	2032 mm (80 in.)	914 mm (36 in.)	981 mm (38.625 in.)
075 Series Gas and Electric	781 mm (30.75 in.)	860 mm (33.87 in.)	1378 mm (54.25 in.)	1946 mm (76.625 in.)	914 mm (36 in.)	981 mm (38.625 in.)
075 Series Steam	781 mm (30.75 in.)	860 mm (33.87 in.)	1378 mm (54.25 in.)	2032 mm (80 in.)	914 mm (36 in.)	981 mm (38.625 in.)

Models	G	H*	I*	J*	K
050 Series Gas and Electric	838 mm (33 in.)	180 mm (7.1 in.)	140 mm (5.5 in.)	166 mm (6.53 in.)	749 mm (29.5 in.)
050 Series Steam	838 mm (33 in.)	180 mm (7.1 in.)	140 mm (5.5 in.)	166 mm (6.53 in.)	749 mm (29.5 in.)
075 Series Gas and Electric	838 mm (33 in.)	180 mm (7.1 in.)	140 mm (5.5 in.)	166 mm (6.53 in.)	902 mm (35.5 in.)
075 Series Steam	838 mm (33 in.)	180 mm (7.1 in.)	140 mm (5.5 in.)	166 mm (6.53 in.)	902 mm (35.5 in.)

* Fire suppression system optional - may not be on machine.

Specifications and Dimensions

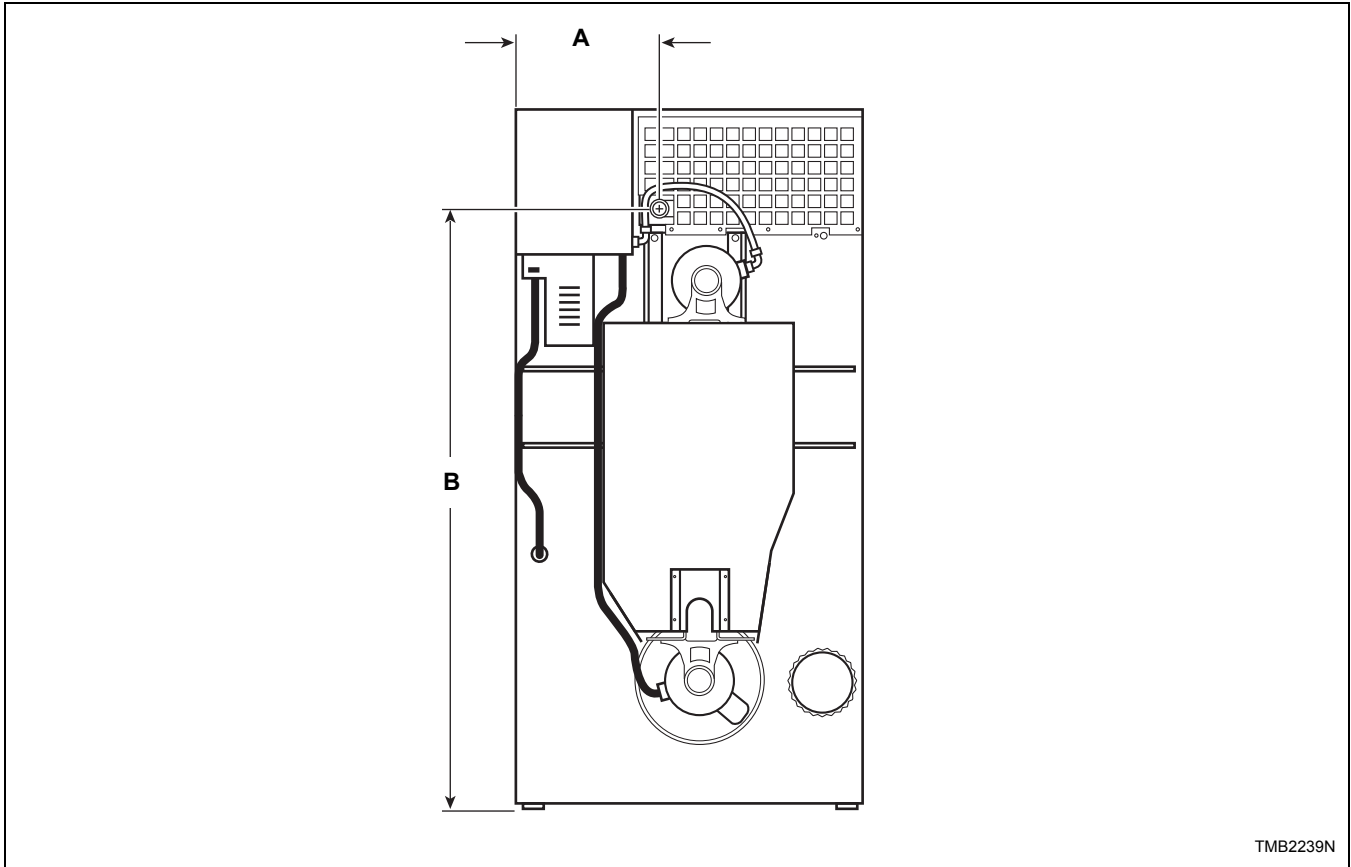
Exhaust Outlet Locations



TMB2238N

A	B	C
137 mm (5.375 in.)	203 mm (8 in.)	340 mm (13.375 in.)

Gas Connection Locations

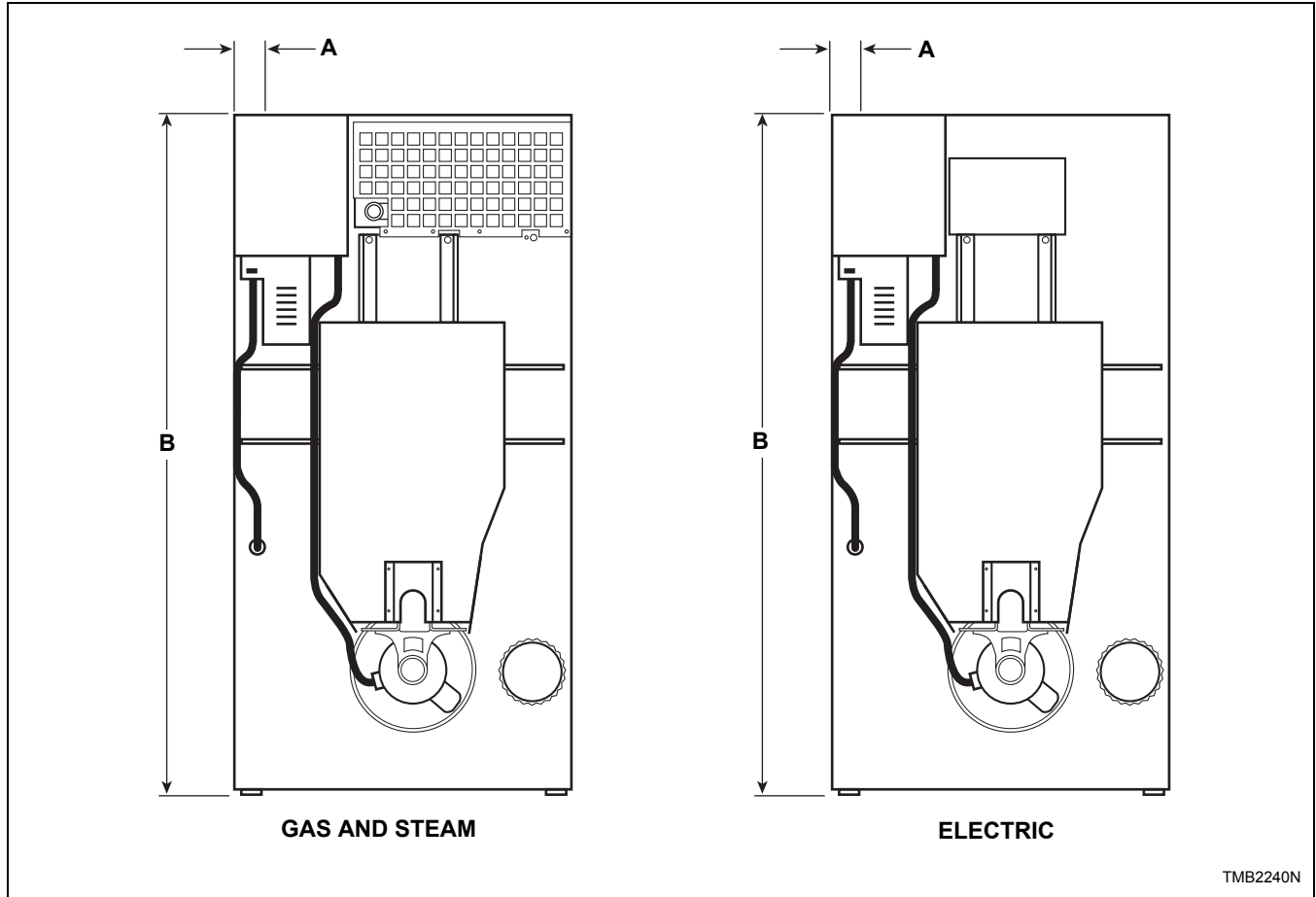


TMB2239N

Diameter	A	B
050/075 – 1/2 in. NPT	375 mm (14.75 in.)	1670 mm (65.75 in.)

Specifications and Dimensions

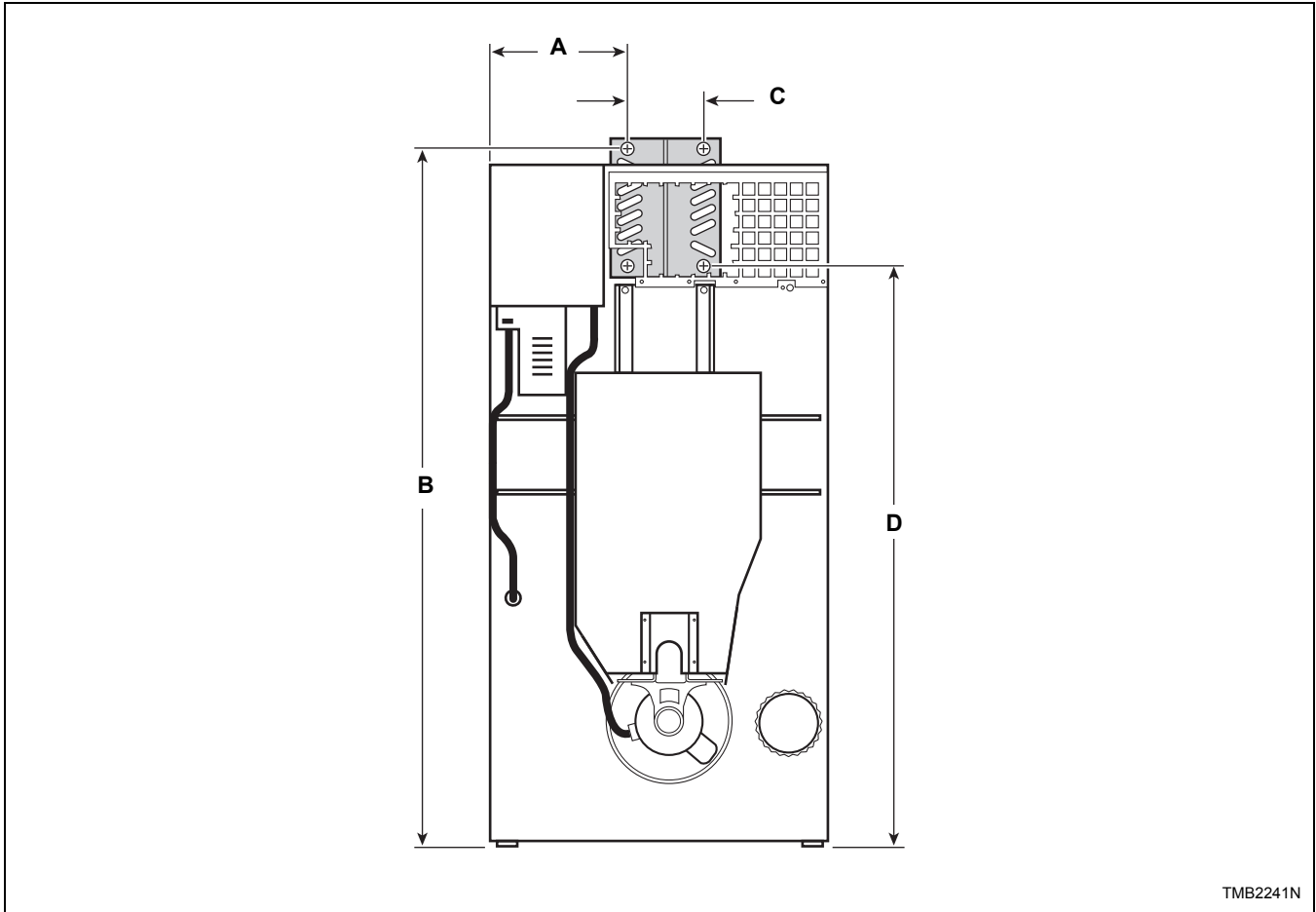
Electrical Connection Locations



A	B
83 mm (3.25 in.)	1918 mm (75.5 in.)

NOTE: These figures are approximate dimensions only.

Steam Connection Locations



TMB2241N

Diameter	A	B	C	D
3/4 in. NPT	387 mm (15.25 in.)	1848 mm (72.75 in.)	190 mm (7.5 in.)	1645 mm (64.75 in.)

Installation

Pre-Installation Inspection

Upon delivery, visually inspect the crate, carton and parts for any visible shipping damage. If the crate, carton, or cover is damaged or signs of possible damage are evident, have the carrier note the condition on the shipping papers before the shipping receipt is signed, or advise the carrier of the condition as soon as it is discovered.

Remove the crate and protective cover as soon as possible and check the items listed on the packing list. Advise the carrier of any damaged or missing articles as soon as possible. A written claim should be filed with the carrier immediately if articles are damaged or missing.

IMPORTANT: Remove the shipping tape from the two back draft dampers located in the exhaust outlet.

IMPORTANT: Warranty is void unless tumble dryer is installed according to instructions in this manual. Installation should comply with minimum specifications and requirements detailed in this manual and applicable local gas fitting regulations, municipal building codes, water supply regulations, electrical wiring regulations, and any other relevant statutory regulations. Due to varied requirements, applicable local codes should be thoroughly understood and all pre-installation work arranged for accordingly.

Materials Required (Obtain Locally)	
All Models	One Single Pole fused disconnect switch or circuit breaker on 1 Phase models. Circuit breaker on 3 Phase models.
Gas Models	One gas shut-off valve for gas service line to each tumble dryer.
Steam Models	One steam shut-off valve for steam service line to be connected upstream of solenoid steam valve. Two steam shut-off valves for each condensate return line. Flexible steam hoses with a 8.79 kg/sq. cm (125 psig [pounds per square inch gaug]) working pressure for connecting steam coils. Refer to <i>Figure 26</i> for sizing and connection configurations. Two steam traps for steam coil outlets to condensate return line. Optional – Two vacuum breakers for condensate return lines.

IMPORTANT: 3 Phase Only – Each tumble dryer must be connected to its own individual branch circuit breaker, not fuses, to avoid the possibility of “single phasing” and causing premature failure of the motor(s).

Location Requirements

The tumble dryer must be installed on a level floor. Floor covering materials such as carpeting or tile should be removed.

To assure compliance, consult local building code requirements. The tumble dryer must not be installed or stored in area where it will be exposed to water and/or weather.

IMPORTANT: DO NOT block the airflow at the rear of the tumble dryer with laundry or other articles. Doing so would prevent adequate air supply to the combustion chamber of the tumble dryer.

A typical tumble dryer enclosure is shown in *Figure 2*.

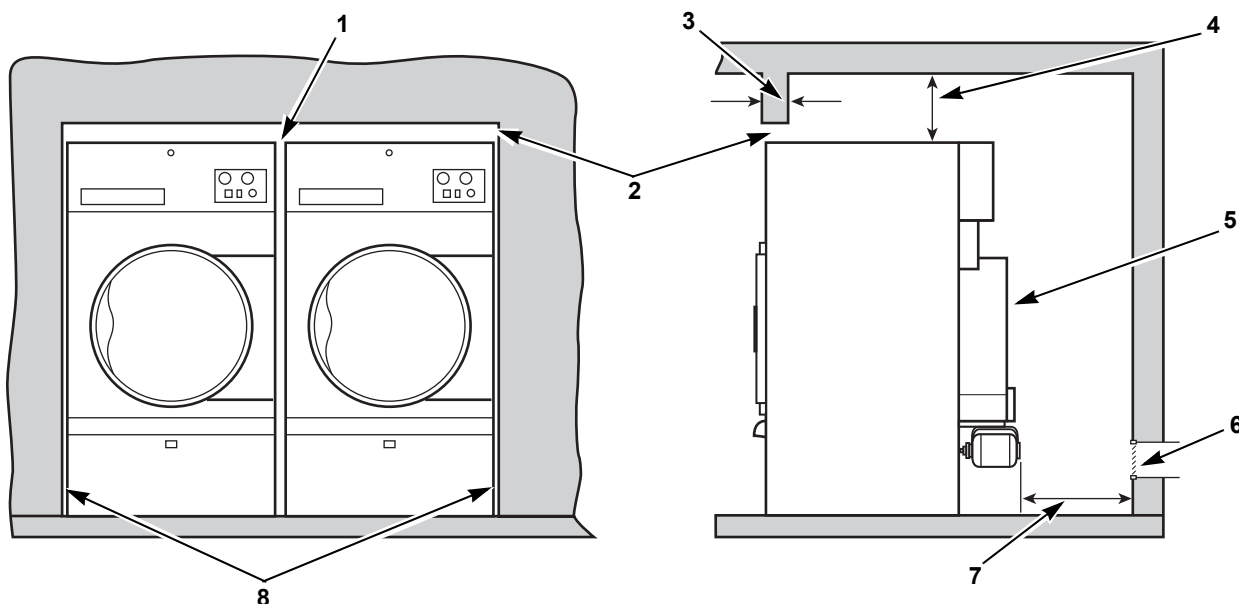
IMPORTANT: Install tumble dryers with sufficient clearance for servicing and operation, refer to *Figure 2*.



WARNING

To reduce the risk of severe injury, clearance of tumbler cabinet from combustible construction must conform to the minimum clearances, and/or local codes and ordinances.

W770



TMB2242N

NOTE: Shaded areas indicate adjacent structure.

- 1 13 mm (0.5 in.) recommended between machines for removal or installation
- 2 Allow 51-102 mm (2-4 in.) opening at top of machine to aid in removal or installation. A removable trim piece may be used to conceal the opening; zero clearance allowed for trim.
- 3 102 mm (4 in.) maximum header thickness
- 4 305 mm (12 in.) minimum clearance permitted for remainder
- 5 Guard
- 6 Provision for make-up air
- 7 610 mm (24 in.) minimum, 914 mm (36 in.) recommended for maintenance purposes
- 8 6 mm (0.25 in.) recommended for removal or installation purposes, zero clearance allowed

Figure 2

Installation

Position and Level the Tumble Dryer

Remove lint panel door, and unscrew the four shipping bolts (one at each corner). Remove tumble dryer from skid.

NOTE: Do not throw bolts away – they are the leveling legs.

Remove four nuts from the literature package, and screw one fully on to each leveling leg.

Screw the four leveling legs (bolts) back into the level adjusting fittings from the bottom.

Slide tumble dryer to its permanent location. Adjust the leveling legs until the unit is level, or no more than 3.18 mm (0.125 inch) higher in the front. Refer to *Figure 3*. Tumble Dryer must not rock. Lock leveling legs with nuts previously installed.

NOTE: The front of the tumble dryer should be slightly higher than the rear (approximately 3.18 mm [0.125 inch]). This will prevent the clothes, while tumbling, from wearing on the door glass gasket.

IMPORTANT: Keep tumble dryer as close to floor as possible. The unit must rest firmly on floor so weight of tumble dryer is evenly distributed.

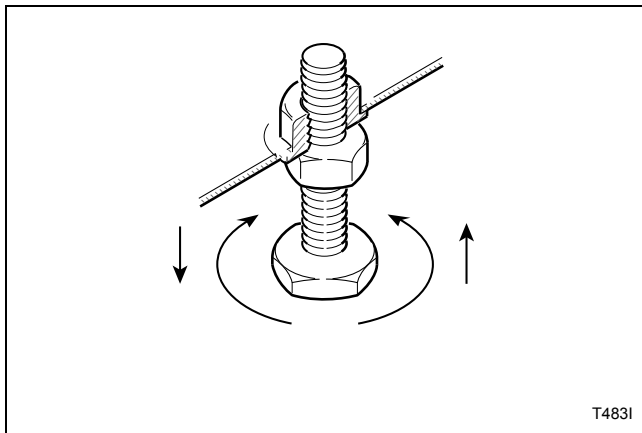


Figure 3

Fire Suppression System

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 assure that the plumbing is adequate and conforms to local, state, and federal regulations or codes.

IMPORTANT: It is the installation or owner's 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.

Water Requirements

IMPORTANT: Water must be supplied to the fire suppression system, or the fire suppression system will not operate as intended.

Connection point to the electric water solenoid valve is a 19 mm (3/4 inch) hose. The fire suppression system equipped tumble dryer must be supplied with a minimum water pipe size of 12.7 mm (1/2 inch) and be provided with a minimum of 138 kPa (20 psi) and a maximum of 827 kPa (120 psi) of pressure at all times. Flowrate must be no less than, but approximately 57 liters (15 gallons) per minute.

NOTE: Water pressure under 138 kPa (20 psi) will cause low flow and water leakage at water solenoid valve.

If the rear of the tumble 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.

IMPORTANT: Temperature of the water supply must be kept between 4.4°C and 48.9°C (40°F and 120°F). If water in the supply line or water solenoid valve freezes, the fire suppression system will not operate.

IMPORTANT: If temperature sensors inside the tumble dryer register a temperature below 4.4°C (40°F), the fire suppression system control will lock out. This feature protects against operation of the tumble dryer with a possible frozen water supply. Only when the temperature sensors register a temperature above 4.4°C (40°F) will the machine reset for operation.

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

Water Connections

Two hoses and a Y-valve are provided with the tumble dryer to allow for connection of water supply to tumble dryer. The water connections are made to the bushings of the water solenoid valve, located on the rear of the tumble dryer. The Y-valve provides a single female hose connection (Standard US 3/4-11 1/2 NH thread). Refer to *Figure 4* and *Figure 5*.

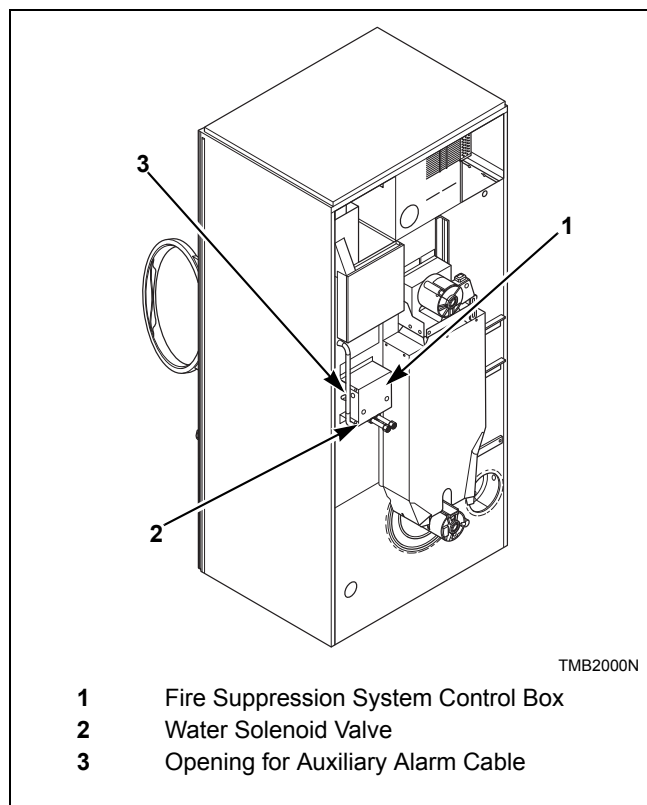


Figure 4

To connect the two hoses (supplied with tumble dryer), insert rubber washers (from literature pack) in water inlet hose couplings. Refer to *Figure 5*.

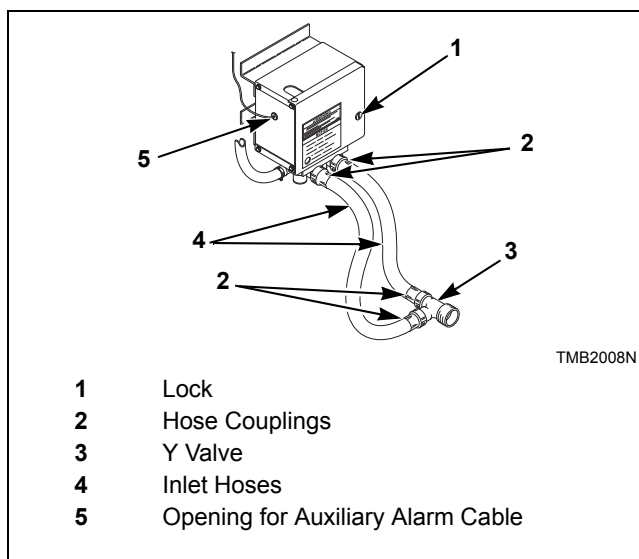


Figure 5

Connect inlet hoses to water supply. Flush the lines for approximately two minutes to remove any foreign materials that could clog the screens in the water mixing valve. This is especially important when installing a tumble dryer in a newly constructed or renovated building. Then connect the hoses to the Y-valve; connect the Y-valve to the connections at the rear of the tumble dryer.

IMPORTANT: Thread hose couplings onto valve connections finger tight, then turn 1/4 turn with pliers. Do not cross thread or overtighten couplings.

IMPORTANT: Hoses and other natural rubber parts deteriorate after extended use. Hoses may develop cracks, blisters or material wear from the temperature and constant high pressure they are subjected to.

All hoses should be checked on a yearly basis for any visible signs of deterioration. Any hose showing the signs of deterioration listed above should be replaced immediately. All hoses should be replaced every five years.

NOTE: Longer inlet hoses are available (as optional equipment at extra cost) if the hoses supplied with the tumble dryer are not long enough for installation. Order hoses as follows:

- Part No. 20617 Inlet hose 2.44 m (8 feet)
- Part No. 20618 Inlet hose 3.05 m (10 feet)

NOTE: Replacement outlet hoses are available (at extra cost). Order 44073301 Hose, 99 cm (39 in.).

Installation

Electrical Requirements



WARNING

Electrical power must be provided to tumbler at all times. The fire suppression system will be inoperative if the main electrical power supply is disconnected.

W690

No independent external power source or supply connection is necessary. Power to operate the 24 Volt fire suppression system is from the rear junction/contacter box.

Auxiliary Alarm

The fire suppression system provides an auxiliary output signal when the system is activated. During tumble dryer installation, you have the option to connect a separate alarm system to this auxiliary output. Potential uses of the auxiliary output include, but are not limited to: (1) sounds an alarm, (2) activates a building sprinkler system, (3) notifies a fire department, etc. Use of the auxiliary output is not required for the fire suppression system to operate, but may be used for additional protection.

The connection to the auxiliary output is made through the FS-1 and FS-2 fast-on connections inside the fire suppression control box. Refer to *Figure 6*. The relay is rated for 24 VAC, 5.2 Amp, sealed current.

NOTE: The auxiliary output is activated during fire suppression system maintenance test sequence. Consider this fact prior to your system test every three months. (Example: If the external system uses the auxiliary output to call the fire department, inform the fire department before and after the fire suppression system maintenance test.)

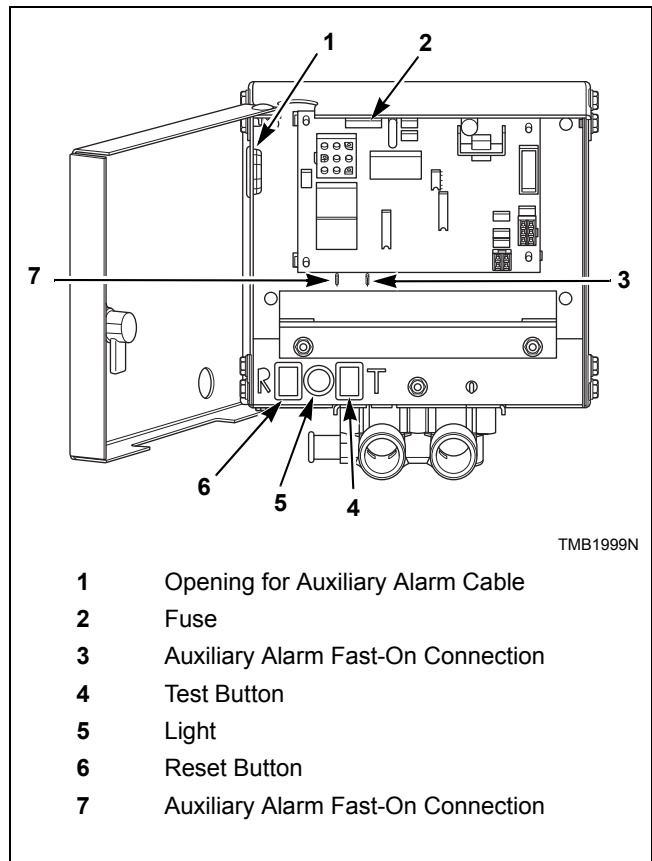


Figure 6

Bolt-On Angle Option

050 Series Tumble Dryers Only

This option allows the tumble dryer depth to be reduced to 871 mm (34 5/16 inches). The tumble dryer should then fit through a 914 mm (36 inch) door opening (actual 876 mm [34.5 inches]).

1. Remove the loading door, access panel, front panel and lint panel. Refer to *Figure 7*.

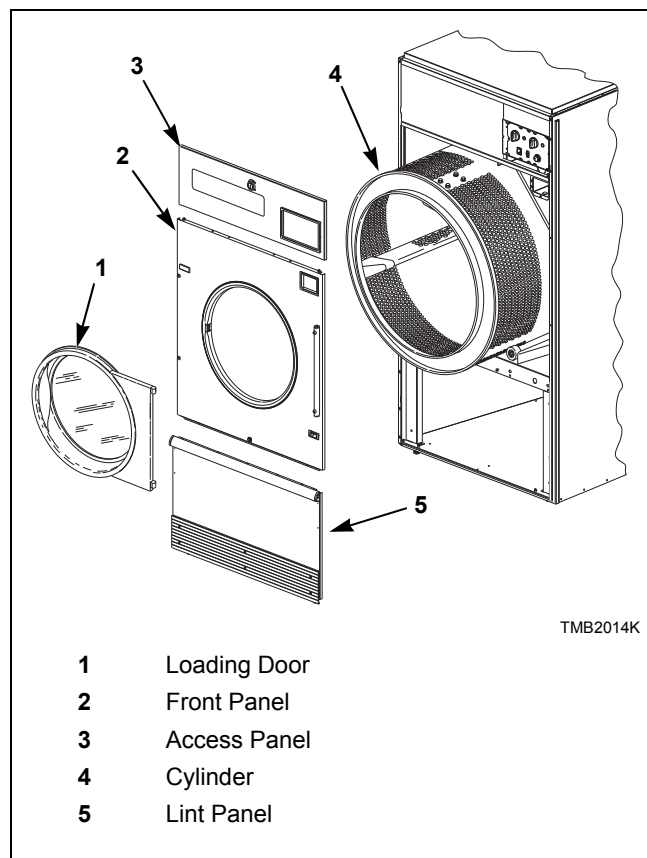


Figure 7

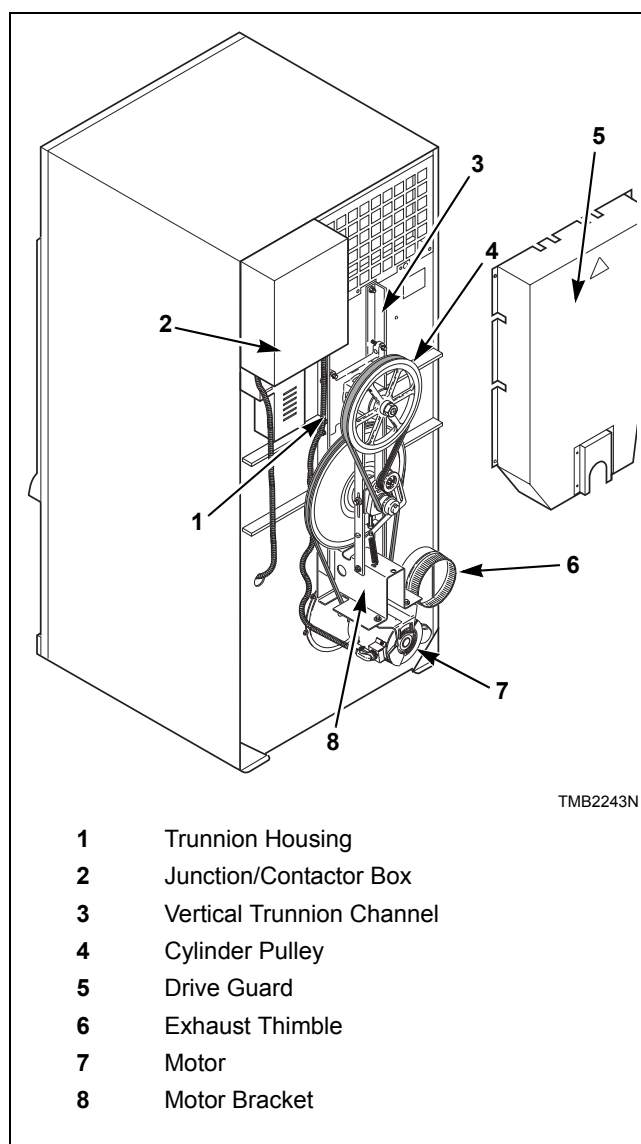


Figure 8

2. Remove the drive guard. Refer to *Figure 8*.
3. Remove the drive belts. Refer to *Figure 8*.
4. Remove the cylinder pulley and shaft key.
5. Pull the cylinder out through the front of the tumble dryer. Refer to *Figure 7*.
6. To ensure proper cylinder balance for reassembly, mark each channel's original location on cylinder head and number of shims for each channel before removal. Refer to *Figure 9*.
7. Remove the complete idler assembly.
8. Remove the trunnion housing. Refer to *Figure 8*.
9. Disconnect the motor harness(es).

Installation

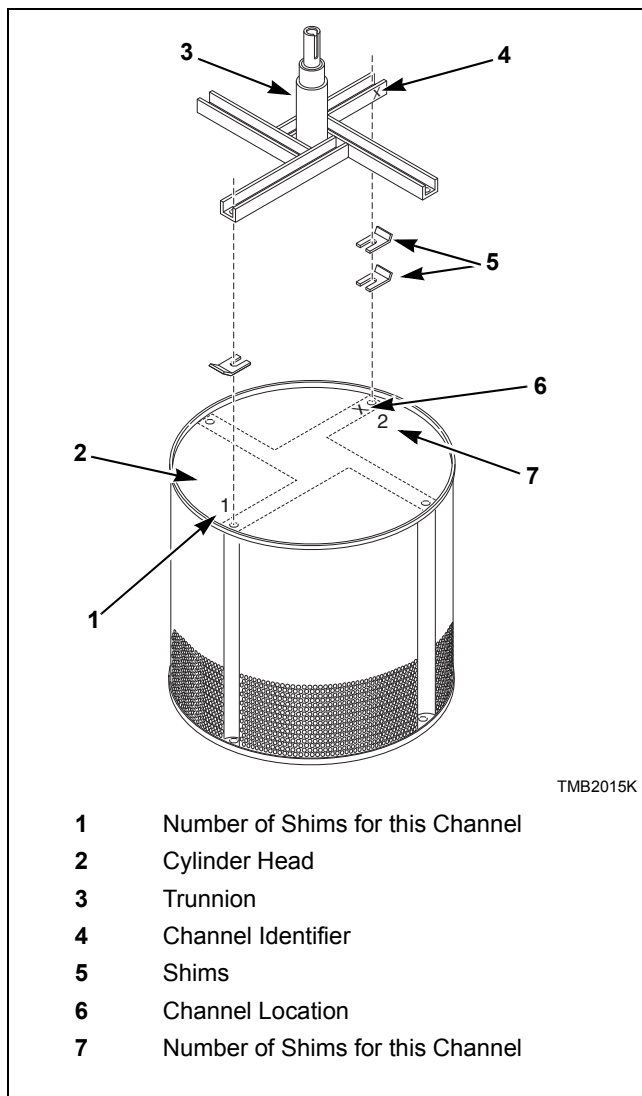


Figure 9

10. Remove the motor(s) and motor bracket(s). Refer to *Figure 8*.
11. Unbolt and remove the two vertical trunnion channels.
12. Remove the junction/contacter box. Refer to *Figure 8*.
13. Remove the exhaust thimble.
14. The gas supply line may require removal if it extends past the rear panel. If so, disconnect the union located between the gas and shutoff valves and remove the assembly out through the front of the tumble dryer.
15. Remove the tumble dryer from the crate base and slide it through the door, sideways.
16. Refer to the appropriate service video, installation manual and wiring diagram to reassemble and install the tumble dryer correctly.

To Reverse the Loading Door

The tumble dryer is delivered with a right hinged door, but the door can be changed to a left hinged position.

1. Disconnect power supply to tumble dryer.
2. Unlock and remove control panel. Remove two control assembly mounting screws from right side. Swing open control to access upper flange right guide lug assembly. Refer to *Figure 10*.
3. Remove lint panel.

IMPORTANT: Support door and hinge assembly securely to prevent it from dropping once side screws are removed from door hinge lug.

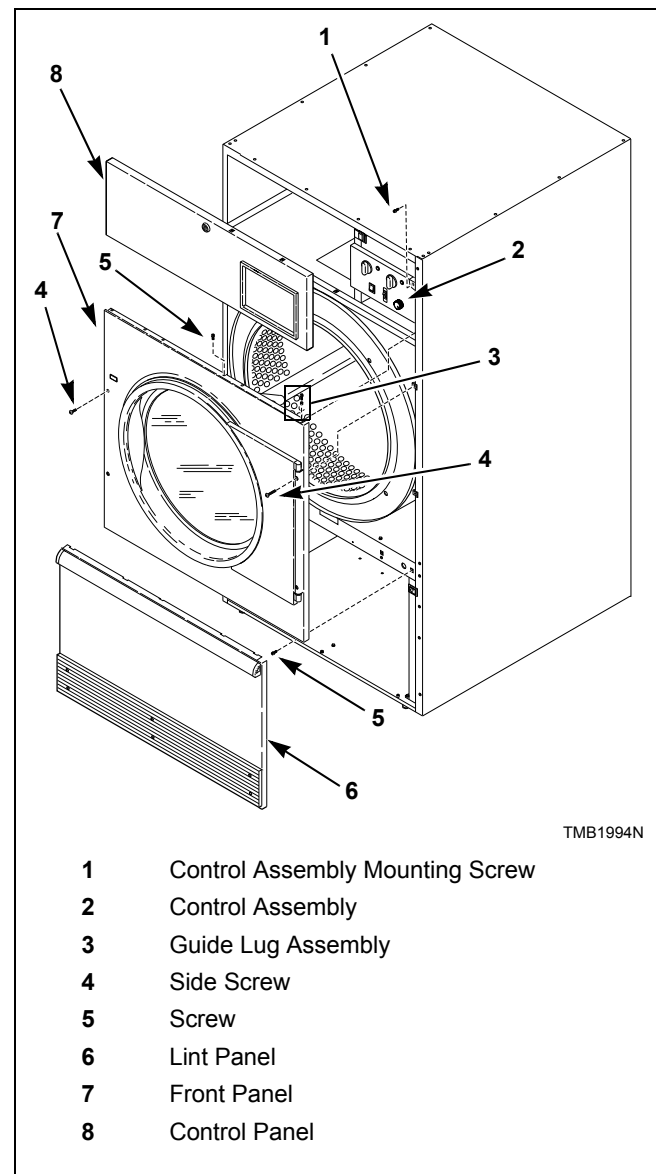


Figure 10

4. Remove four front panel screws. Refer to *Figure 10*. Keep door hinge cams in place on door hinge lug. Pull lug and door assembly off as one piece. Refer to *Figure 11*.
5. Remove remaining front panel screws. Refer to *Figure 10*. Disconnect door switch harness from switch. Take off front panel. Refer to *Figure 11*.
6. Exchange switch and plug locations. Depress tabs with an adjustable pliers to remove plug and switch from front panel. Reinstall switch, orienting button toward center of machine. Reinstall plug in switch's previous location. Refer to *Figure 11*.

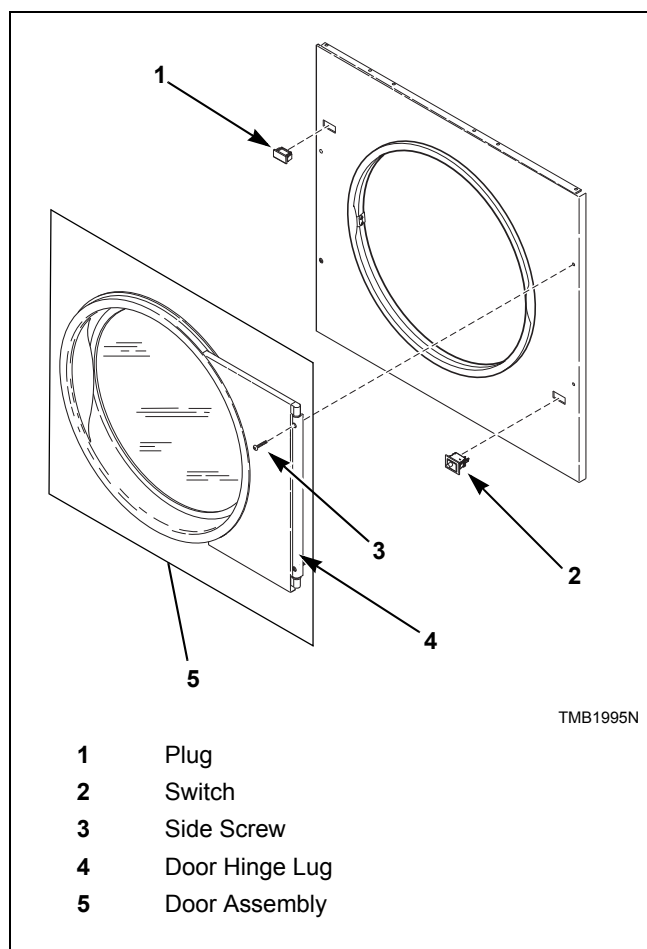


Figure 11

7. Reroute door switch harness up through top panel, along underside of front flange, through screw cable clamp, back down through top panel and into upper left quadrant of cylinder enclosure. Refer to *Figure 12*.

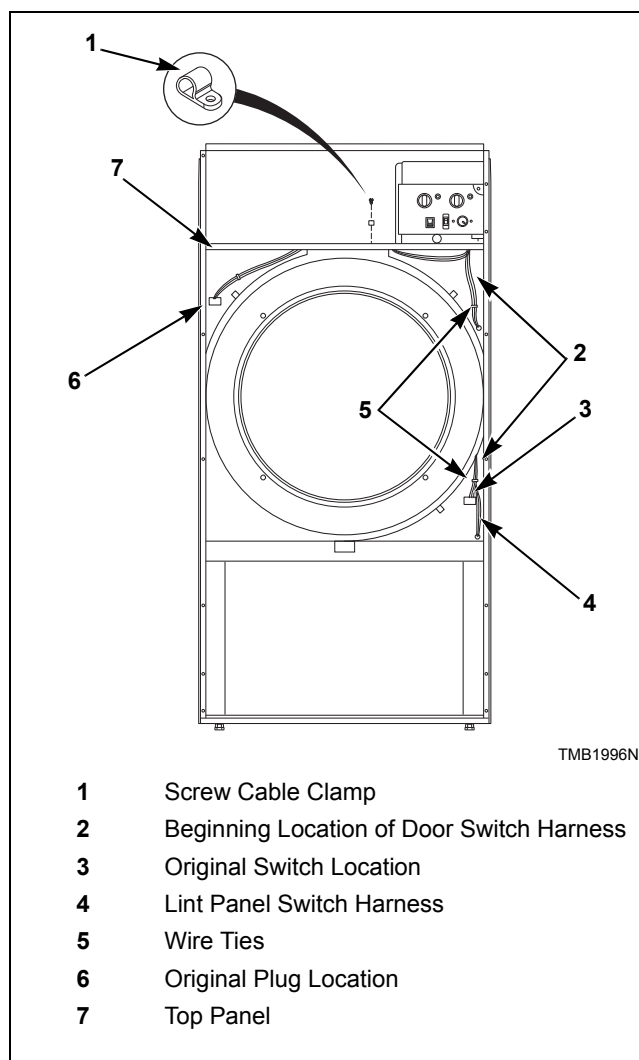


Figure 12

8. Place front panel on machine, loosely attach four bottom screws. Connect door switch harness to switch in new location. Install door assembly and four front panel side screws loosely. Refer to *Figure 13*.
9. Check lint panel fit, adjusting front panel up or down as required. Tighten four front panel side screws to maintain position of front panel for proper lint panel clearance.
10. Remove lint panel. Fully tighten bottom screws on front panel.
11. Reinstall top screws and guide lugs.

Installation

12. Adjust door catch if necessary to allow 0.48 – 1.03 bar (7 – 15 pounds) pull at center of handle.
13. Reinstall control assembly using mounting screws.
14. Reinstall control panel and lint panel.

IMPORTANT: Restore power to tumble dryer and test for proper operation of loading door switch. Tumble Dryer should not start with door open; an operating tumble dryer should stop when door is opened.

NOTE: If machine is converted back to right hand hinge operation, the door switch harness must be rerouted.

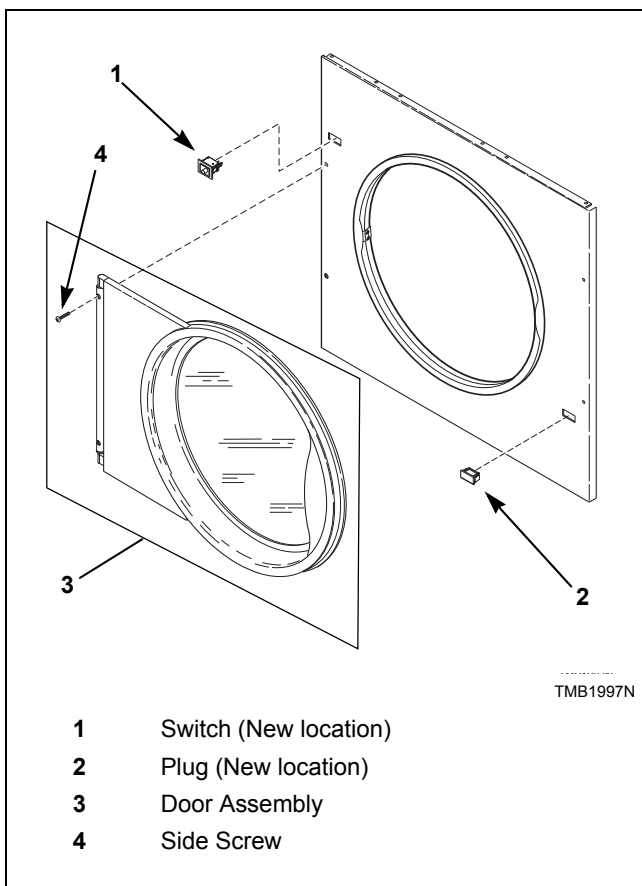


Figure 13

Before Placing Tumble Dryer into Service

1. Remove or open all panels and check accessible bolts, nuts, screws, terminals and fittings for tightness.
2. Check belt tension and adjust if necessary. Refer to *Adjustments* section.
3. Replace all panels and guards.
4. Turn on electrical supply to tumble dryer.
5. Open the supply valve for gas or steam heated tumble dryers.
6. After performing the previous checks, start the tumble dryer by pressing START. (Refer to the *Operating Manual* for detailed instructions.) Release the start button and open the loading door. The cylinder should stop rotating within seven seconds after the door is opened a maximum of 51 mm (2 inches). If it does not, adjust the loading door switch. Refer to *Adjustments* section.
7. **Gas Tumble Dryers:** Start the tumble dryer and check the burner flame. Adjust the air inlet shutter as required. Refer to *Adjustments* section.


IMPORTANT: The electronic ignition system will attempt to light the gas by sparking for the “trial for ignition” period. If gas does not ignite within this period, the ignition control will go into a safety lockout and the valve will no longer open until the control is reset. It may be necessary to retry several times to bleed air from the gas lines. To reset, open and close the loading door and restart tumble dryer.

	Prepurge Time (seconds)	Trial for Ignition (seconds)	Reset Lockout Condition By:
Australia	18	10	Press reset button
CE	18	10	Press reset button
All Others	1 – 3	10	Open loading door

If lockout condition persists, check that the manual gas shut-off valve is in the ON position and that the gas service is properly connected. If condition still persists, remove tumble dryer from service.

8. Load the cylinder with a full load of clean rags and run to remove oil or dirt from cylinder.
9. Check the airflow switch operation refer to **Adjustments** section. The heating systems should shut off when the lint panel is opened a maximum of 38 mm (1.5 inches).

The airflow switch operation may be affected by shipping tape still in place, lack of make-up air, or an obstruction in the exhaust duct. These should be checked and the required corrective action taken before attempting to adjust the airflow switch. To adjust the airflow switch, refer to **Adjustments** section.

	WARNING
<p>Do not operate tumble dryer if airflow switch is faulty. An explosive gas mixture could collect in tumble dryer if airflow switch does not operate properly.</p>	
W407R1	

10. Wipe out the cylinder using an all-purpose cleaner or detergent and water solution. Refer to *Figure 14*.

IMPORTANT: The use of chlorine bleach for removing any discoloration should be avoided because bleach could damage the finish.

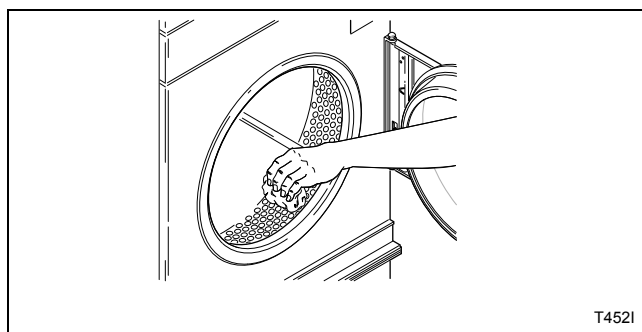


Figure 14

If the tumble dryer does not meet ANY of the listed requirements, remove tumble dryer from use. Refer to **Removing Tumble Dryer from Service** section.

Required for CE Models Only

Once machine is installed, please be sure to complete the following items:

- Review and verify machine operation with customer.
- Leave all literature and a signed Declaration of Conformity with customer.
- Review machine warranty information with customer.
- Apply warning sticker on front panel of machine, in language appropriate to country of sale (included in literature packet).

Installation

Installing CE Gas Drying Tumble Dryer

General Information

This information is to be used when installing gas tumble dryers in countries and/or on gases different than the machine's factory configuration. Tumble Dryers are supplied from the factory for operation on Natural Gas 8914 kcal/m³ (1000 Btu/cu. ft.), or L.P. Gas 22,250 kcal/m³ (2500 Btu/cu. ft.), in the countries of GB/IE/PT/ES/IT/GR/LU/CH/BE. To install machines in any other country, or on any other gas, requires some level of modification.

Machines are built in two different configurations:

- **Natural Gas** – regulated/governor
- **Liquefied Petroleum (L.P.) Gas** – not regulated/no governor

For converting models from Natural Gas to L.P. Gas:

050 series – M4544P3

075 series – M4545P3

Serial plates supplied from the factory are configured for GB/IE/PT/ES/IT/GR/LU/CH/BE. These instructions pertain to the situations when the country of use or gas supply is different than that on the serial plate.

These instructions are only valid if the following country code is on the appliance: GB/IE/PT/ES/IT/GR/LU/CH/BE. If this code is not present on the appliance, it is necessary to refer to the technical instructions which will provide the necessary information concerning the modification of the appliance to the condition of use for the country.

Before installation, check that the local distribution conditions, nature of gas and pressure, and the adjustment of the appliance are compatible.

Table 1 describes the different gases that are available in different CE countries, and how the machines need to be configured to operate with those gases. In the CE, there are Natural Gas configurations that do not allow for machine regulation and L.P. Gas configurations that must be regulated. For L.P. Gas, third family B/P at 50 mbar, order Regulated Natural Gas machines and convert according to *Table 1*.

Orifices

Gas Type	Gas Family	Group	Gas Designation	Supply Pressure	Manifold Pressure		Capacity/ Model	Orifice Diameter (mm)	Orifice Part Number	Quantity
				mbar	mbar	in. wc				
Natural Gas	Second	I _{2H(E)}	G20	20 / 25	8.9	3.57	50	3.0	M401017	2
							75	2.9	M401022	3
		I _{2L}	G25	25	12.6	5.06	50	3.7	M400998	2
							75	3.6	M401014	3
		I _{2E+}	G20	20	Unregulated	Unregulated	50	3.7	M400998	2
							75	3.6	M401014	3
LP	Third	I _{3B/P}	G30	28 / 30	Unregulated	Unregulated	50	2.1	M401027	2
							75	2.0	M400999	3
			G30	37 / 50	30	12.05	50	2.1	M401027	2
							75	2.0	M400999	3
		I _{3+ / 3P}	G30 / G31	28 / 37	Unregulated	Unregulated	50	2.1	M401027	2
							75	2.0	M400999	3

Table 1

Properties of CE Gases


Gas Type	Gas Family	Group	Gas Description	Gas Designation	Wi		Hi		Ws		Hs		Density
					Wobbe Index (net)		Heating Value (net)		Wobbe Index (gross)		Heating Value (gross)		
					MJ/ m ³	Btu/ ft ³	MJ/ m ³	Btu/ ft ³	MJ/ m ³	Btu/ ft ³	MJ/ m ³	Btu/ ft ³	
Natural Gas	Second	I _{2H,E}	Not Applicable	G20	45.67	1226	34.02	913	50.72	1362	37.78	1014	0.555
		I _{2E+}	2H										
		I _{2L}	Not Applicable	G25	37.38	1004	29.25	785	41.52	1115	32.49	872	0.612
		I _{2E+}	2L										
LP	Third	I _{3B/P}	Not Applicable	G30	80.58	2164	116.09	3117	87.33	2345	125.81	3378	2.075
		I ₃₊	Pure Butane										
		I ₃₊	Pure Propane	G31	70.69	1898	88	2363	76.83	2063	95.65	2568	1.55
		I _{3P}	LPG with Propane										

Table 2

Installation

Basic Configuration

1. Determine the necessary conversion operations to convert from the factory-supplied configuration to the desired configuration.
2. Perform the conversions required so the machine is properly configured for the desired country and gas (refer to *Specific Conversion Procedures* section):
 - How to Convert Gas Valve from Regulated to Unregulated
 - How to Change Burner Orifice Size
 - How to Adjust Gas Valve Governor/Regulator
3. If applicable, peel off the appropriate country sticker (included with machine) and apply it to the serial plate over the existing country information.
4. If applicable, peel off the appropriate conversion sticker (included with machine) and apply it to the serial plate over the “ADJUSTED FOR _____ GAS: _____” information.
5. Commission tumble dryer for use.

	WARNING
<p>When converting the tumble dryer to a different gas or pressure, first verify that the supply inlet pressure is equipped with a pressure regulator (located ahead of the tumble dryer) that will maintain the gas supply at the inlet pressure specified.</p>	
<small>W430R1</small>	

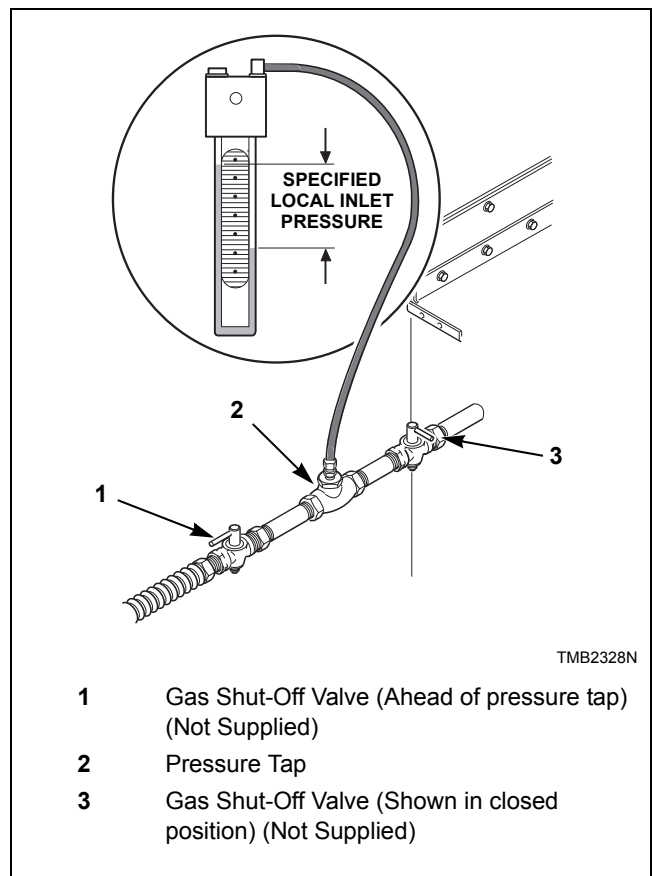


Figure 15

Specific Conversion Procedures

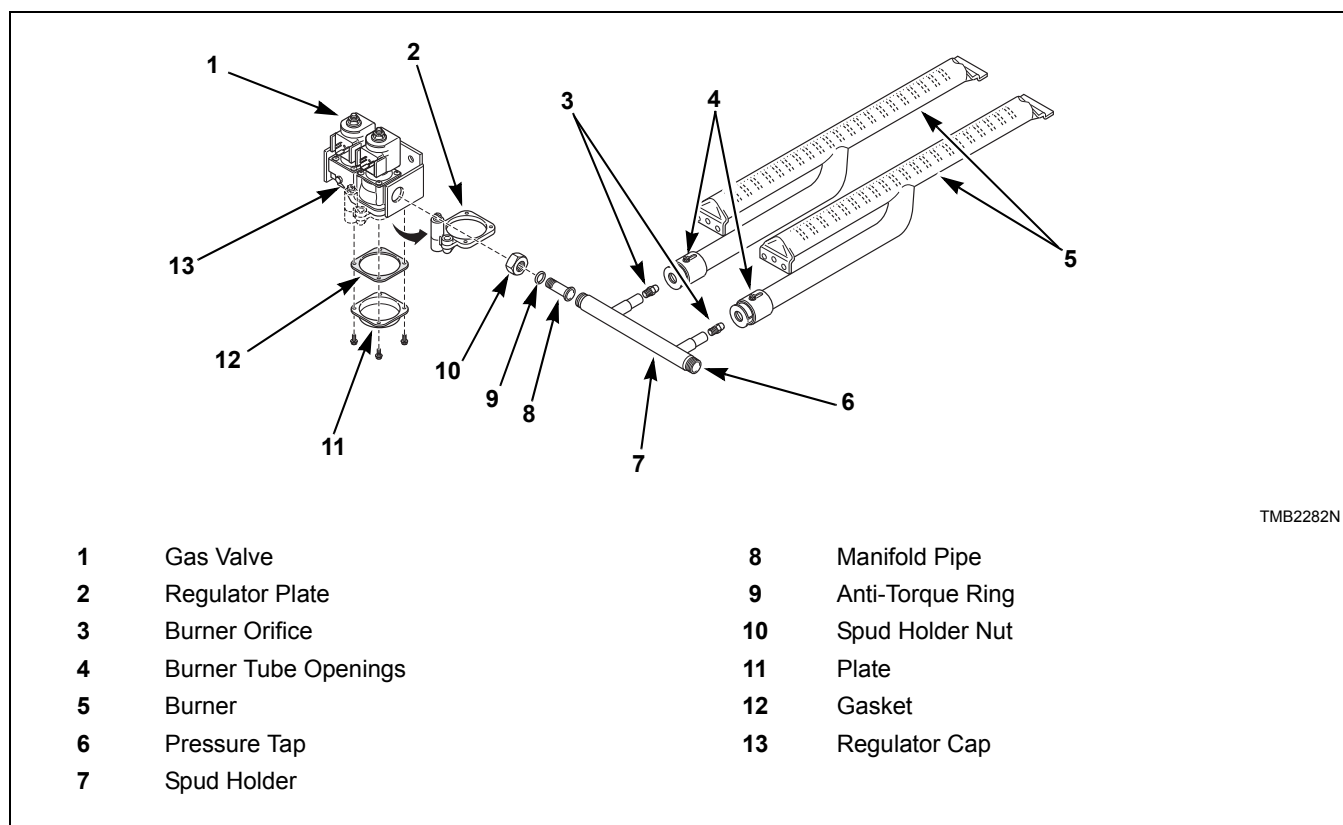
How to Convert Gas Valve from Regulated to Unregulated

NOTE: Conversion from regulated to unregulated is only needed when regulated tumble dryers were ordered, but unregulated tumble dryers were needed.

1. Disconnect electrical power from tumble dryer. Close gas shut-off valve to tumble dryer. Refer to *Figure 15*.
2. Follow instructions in Conversion Kit, Part No. M400763 (Johnson Part No. Y71AA-5C).

NOTE: This kit does not contain any burner orifices.

3. Replace burner orifice(s) as per *Table 1*.
4. Commission tumble dryer for use.



TMB2282N

Figure 16

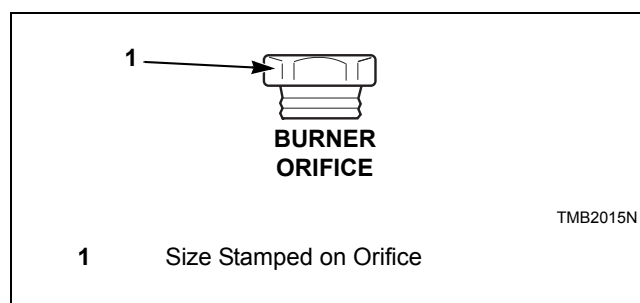
How to Change Burner Orifice Size

1. Disconnect electrical power from tumble dryer. Close gas shut-off valve to tumble dryer. Refer to *Figure 15*.
2. Remove spud holder. Unscrew spud holder nut near gas valve. Remove the burner orifice(s) from spud holder. Refer to *Figure 16*.
3. Install the new, correct burner orifice(s). Refer to *Figure 17* and *Table 1*. Torque each to 9 – 10 Nm.
4. Reinstall spud holder assembly to gas valve, making certain burner orifice(s) are in line with burner tube opening. Refer to *Figure 17*.
5. Commission tumble dryer for use.

NOTE: Blank burner orifices are Part No. M400995.

How to Adjust Gas Valve Governor/Regulator


1. Check gas burner orifice (manifold) pressure as follows. Refer to *Figure 16*.
2. Remove screw plug from pressure tap.
3. Connect a “U”-tube manometer (or similar pressure gauge) to the burner orifice (manifold) pressure tap.
4. Start tumble dryer and note pressure once flame is burning. Remove regulator cap and adjust regulator screw until the burner orifice pressure per applicable table is achieved. Replace regulator cap. Refer to *Figure 16*.
5. Commission tumble dryer for use.



TMB2015N


Figure 17

Exhaust Requirements

	WARNING
<p>A drying tumble dryer produces combustible lint. To reduce the risk of fire, the tumble dryer must be exhausted to the outdoors.</p> <p style="text-align: right;">W057R1</p>	
<p>To reduce the risk of fire, DO NOT use plastic or thin foil ducting to exhaust the tumbler.</p> <p style="text-align: right;">W773</p>	
<p>To reduce the risk of fire and accumulation of combustible gases, DO NOT exhaust tumble dryer air into a window well, gas vent, chimney or enclosed, unventilated area such as an attic wall, ceiling, crawl space under a building, or concealed space of a building.</p> <p style="text-align: right;">W059R1</p>	

Make-up air openings in rooms containing tumble dryer(s) and/or gas fired hot water heater or other gravity vented appliances must be increased sufficiently to prevent downdrafts in any of the vents when all tumble dryers are in operation. Do not locate gravity vented appliances between tumble dryer(s) and make-up air openings. If it is necessary to duct make-up air to tumble dryer(s), increase area of duct work by 25% to compensate for restrictions in air movement.

Venting

	WARNING
<p>To reduce the risk of fire due to increased static pressure, we do not recommend installation of in-line secondary lint filters or lint collectors. If secondary systems are mandated, frequently clean the system to assure safe operation.</p> <p style="text-align: right;">W749</p>	

Layout

Whenever possible, install tumble dryers along an outside wall where duct length can be kept to a minimum, and make-up air can be easily accessed. Construction must not block the airflow at the rear of the tumble dryer. Doing so would prevent adequate air supply to the tumble dryer combustion chamber.

Make-Up Air

A tumble dryer is forced air exhausted and requires provisions for make-up air to replace air exhausted by tumble dryer.

IMPORTANT: Do not obstruct flow of combustion and ventilation air.

Required Make-Up Air Opening (to the outside) for Each Tumble Dryer	
Model	Opening
050 Series	3658 mm ² (144 in. ²)
075 Series	4953 mm ² (195 in. ²)


Make-up air openings with louvers will restrict airflow. The opening must be increased to compensate for area taken up by louvers.

IMPORTANT: Installing in-line filters or lint collectors will cause increased static pressure. Failure to maintain the secondary lint system will decrease tumble dryer efficiency and may void machine warranty.

For maximum efficiency and minimum lint accumulation, tumble dryer air must be exhausted to the outdoors by the shortest possible route.

Proper sized exhaust ducts are essential for proper operation. All elbows should be sweep type. Exhaust ducts must be assembled so the interior surfaces are smooth, so the joints do not permit the accumulation of lint. DO NOT use plastic, thin foil or Type B ducts - rigid metal ducts are recommended. Use exhaust ducts made of sheet metal or other noncombustible material. DO NOT use sheet metal screws or fasteners on exhaust pipe joints which extend into the duct and catch lint. Use of duct tape or pop-rivets on all seams and joints is recommended, if allowed by local codes.

Verify that old ducts are thoroughly cleaned out before installing new tumble dryer(s).

	WARNING
<p>Improperly sized or assembled ductwork causes excess back pressure which results in slow drying, lint collecting in the duct, lint blowing back into the room, and increased fire hazard.</p> <p style="text-align: right;">W355</p>	

NOTE: Exhaust ducts must be constructed of sheet metal or other noncombustible material. Such ducts must be equivalent in strength and corrosion resistance to ducts made of galvanized sheet steel not less than 0.495 mm (0.0195 inches) thick.

Where the exhaust duct pierces a combustible wall or ceiling, the opening must be sized per local codes. The space around the duct may be sealed with noncombustible material. Refer to *Figure 19*.

IMPORTANT: For best performance provide an individual exhaust duct for each tumble dryer. Do not install a hot water heater in a room containing tumble dryers. It is better to have the water heater in a separate room with a separate air inlet.

Individual Venting

For maximum efficiency and performance, it is preferred to exhaust tumble dryer(s) individually to the outdoors.

IMPORTANT: At no point may the cross sectional area of installed venting be less than the cross sectional area of the exhaust outlet of the tumble dryer.

The exhaust duct must be designed so the static back pressure measured 305 mm (12 inches) from the exhaust outlet does not exceed the maximum allowable pressure specified on the installation sticker on the rear of the tumble dryer.

NOTE: Static back pressure must be measured with the tumble dryer running.

The maximum allowable length venting is 4.3 m (14 feet) and two 90° elbows or equivalent. If the equivalent length of a duct required for an installation exceeds the maximum allowable equivalent length, the diameter of a round duct must be increased by 10% for each additional 6.1 m (20 feet). Cross section area of a rectangular duct must be increased by 20% for each additional 6.1 m (20 feet). Refer to *Table 3* to determine equivalent venting.

Duct Diameter	Equivalent Length of Rigid Straight Duct
203 mm (8 in.)	One 90° elbow = 2.83 m (9.3 ft.)
254 mm (10 in.)	One 90° elbow = 3.5 m (11.6 ft.)
305 mm (12 in.)	One 90° elbow = 4.3 m (14 ft.)
356 mm (14 in.)	One 90° elbow = 4.9 m (16 ft.)
406 mm (16 in.)	One 90° elbow = 5.7 m (18.7 ft.)
457 mm (18 in.)	One 90° elbow = 6.4 m (21 ft.)

Equivalent Length (meter) = 1,17 x Duct Diameter (mm)

Table 3

Example: A 305 mm (12 inch) diameter duct’s equivalent length of 4.3 m (14 feet) of duct and two 90° elbows is:

Equivalent Length
 = 4.3 m (14 ft.) + (2) 90° elbows
 = 4.3 m (14 ft.) + 4.3 m (14 ft.) + 4.3 m (14 ft.)
 = 12.8 m (42 ft.)

With the tumble dryer in operation, airflow at any point in the duct should be at least 366 m/min. (1200 feet/min.) to ensure that lint remains airborne. If 366 m/min. (1200 feet/min.) per minute cannot be maintained, schedule monthly inspections and cleaning of the ductwork.

NOTE: The maximum length of a flexible metal duct must not exceed 2.4 m (7.87 ft.) as required to meet UL2158, clause 7.3.2A.

Exhaust Requirements

Manifold Venting

While it is preferable to exhaust tumble dryers individually to the outdoors, a main collector duct may be used if it is sized according to *Figure 20* and *Figure 21*. This illustration indicates minimum diameters, and should be increased if the collector length exceeds 4.3 m (14 feet) and two 90° elbows. The diameter of a round duct must be increased by 10% for each additional 6.1 m (20 feet). Cross sectional area of a rectangular or square duct must be increased 20% for each additional 6.1 m (20 feet). Refer to *Table 4* and *Table 5* to determine equivalent ducting sizing. The collector duct may be rectangular or square in cross section, as long as the area is not reduced. Provisions **MUST** be made for lint removal and cleaning of the collector duct.

The vent collector system must be designed so the static back pressure measured 305 mm (12 inches) from the exhaust outlet does not exceed the maximum allowable pressure of 1.3 bar (0.5 W.C.I.) as specified on the installation sticker on the rear of tumble dryer. Static back pressure must be measured with all tumble dryers vented into the collector operating.

NOTE: Never connect a tumble dryer duct at a 90° angle to the collector duct. Refer to *Figure 18*. Doing so will cause excessive back pressure, resulting in poor performance. Never connect two tumble dryer exhaust ducts directly across from each other at the point of entry to the collector duct.

With the tumble dryer in operation, airflow at any point in the duct should be at least 366 m/min. (1200 feet/min.) to ensure that lint remains airborne. If 366 m/min. (1200 feet/min.) cannot be maintained, schedule monthly inspections and cleaning of the ductwork.

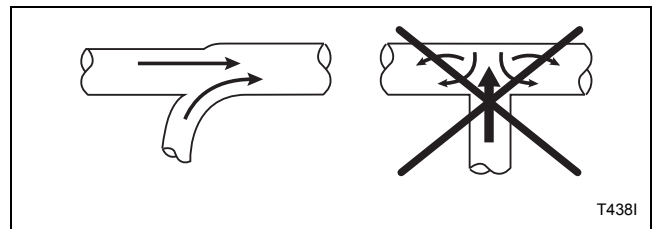


Figure 18

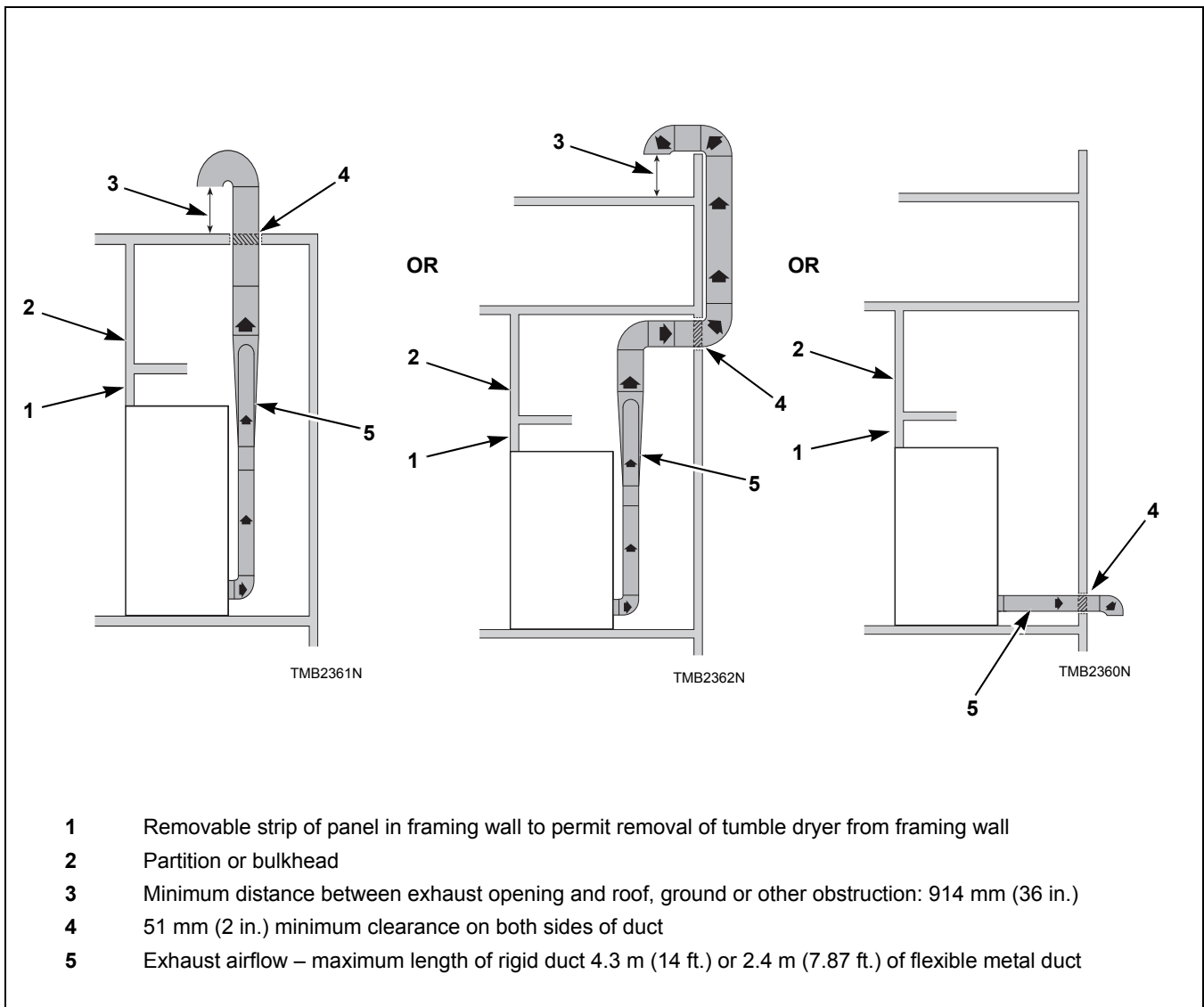


Figure 19

NOTE: Do not install wire mesh or screen in exhaust duct opening to avoid lint build-up or impacting proper discharge of air from tumble dryers.

NOTE: Where exhaust duct pierces a combustible wall or ceiling, the opening must be sized per local codes.

NOTE: Inside of duct must be smooth. Do not use sheet metal screws to join sections.

Consult your local building code for regulations which may also apply.

Exhaust Requirements

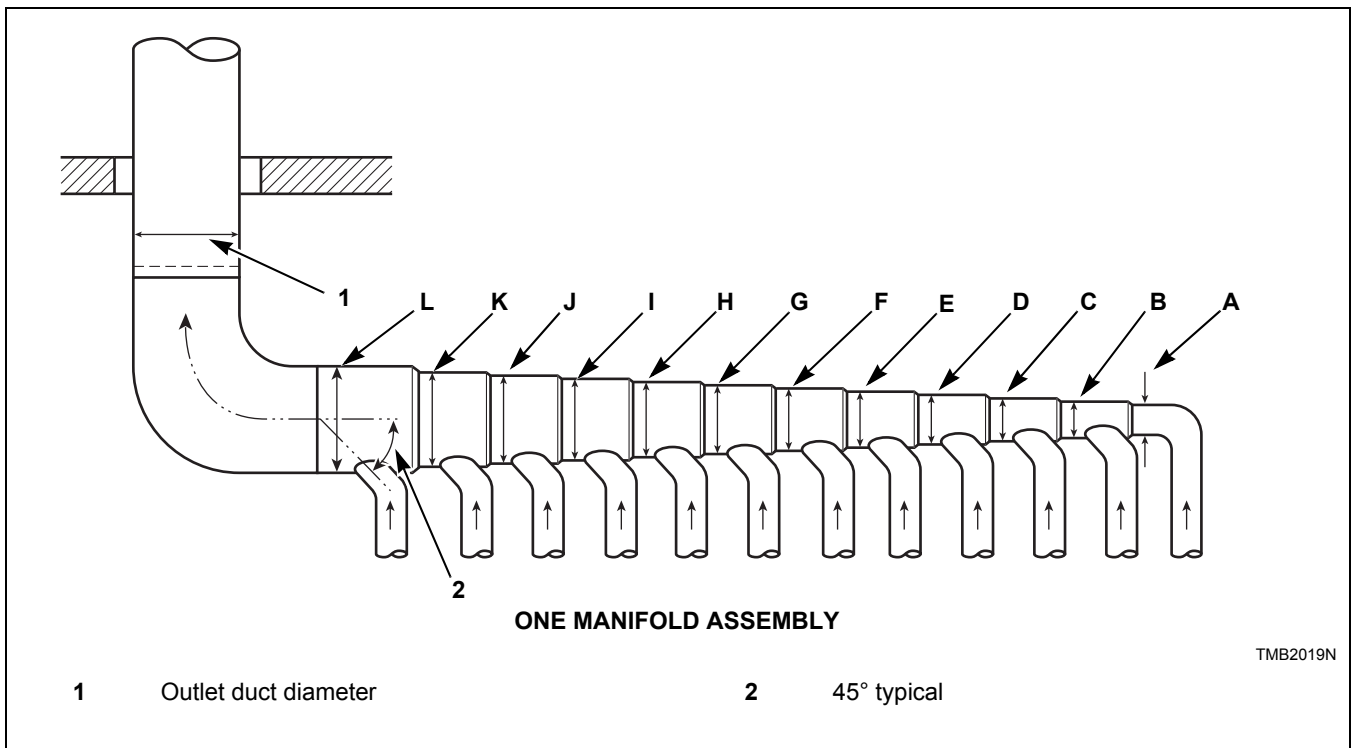


Figure 20

A	203 mm (8 in.)
B	305 mm (12 in.)
C	381 mm (15 in.)
D	432 mm (17 in.)
E	483 mm (19 in.)
F	533 mm (21 in.)
G	584 mm (23 in.)
H	635 mm (25 in.)
I	660 mm (26 in.)
J	686 mm (27 in.)
K	737 mm (29 in.)
L	762 mm (30 in.)

Table 4

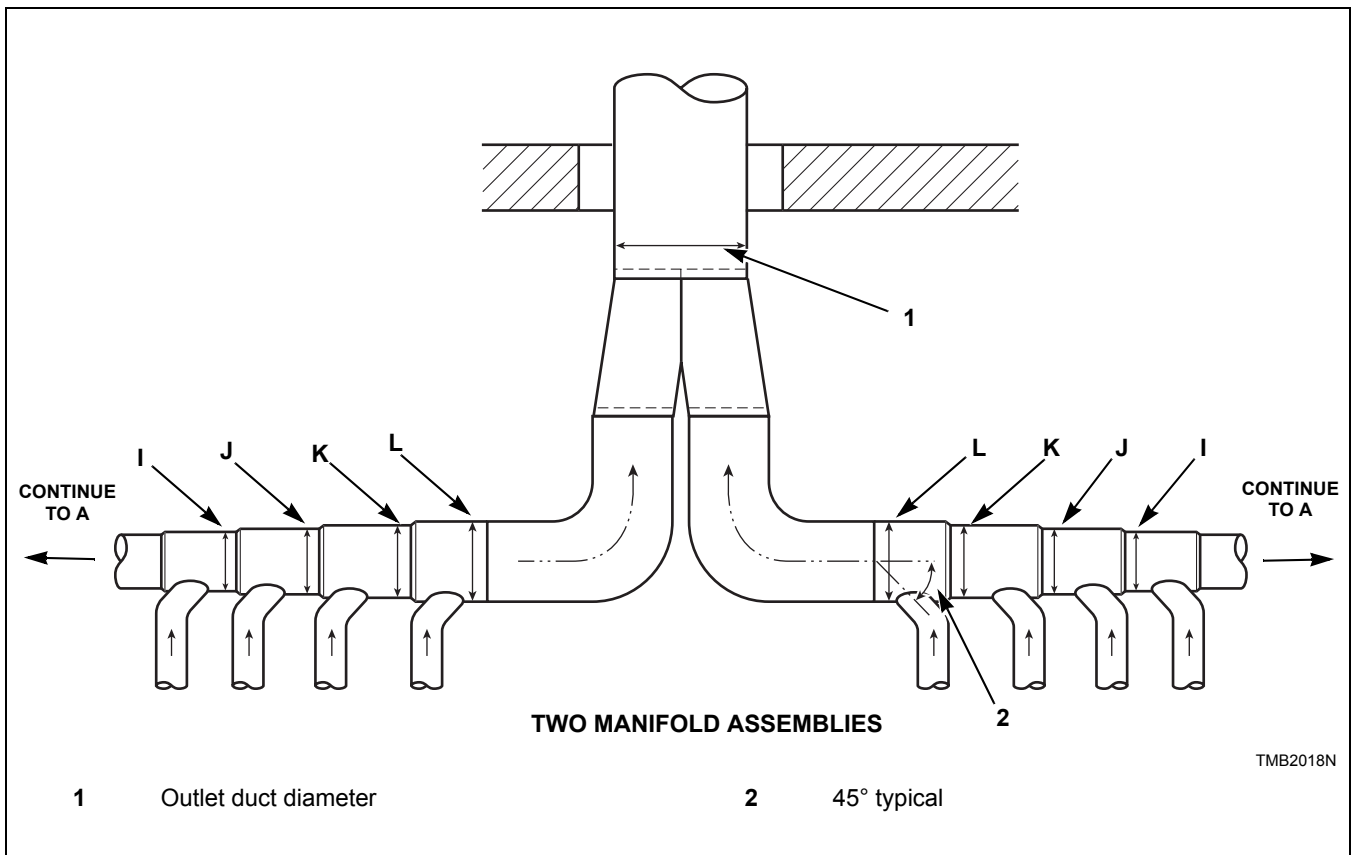



Figure 21

A	330 mm (13 in.)
B	432 mm (17 in.)
C	457 mm (18 in.)
D	610 mm (24 in.)
E	686 mm (27 in.)
F	762 mm (30 in.)
G	838 mm (33 in.)
H	864 mm (34 in.)
I	940 mm (37 in.)
J	991 mm (39 in.)
K	1016 mm (40 in.)
L	1067 mm (42 in.)

Table 5

Gas Requirements

	WARNING
<p>To reduce the risk of fire or explosion, DO NOT CONNECT THE GAS LINE TO THE TUMBLE DRYER IF THE GAS SERVICE IS NOT THE SAME AS THAT SPECIFIED ON THE TUMBLE DRYER SERIAL PLATE! It will first be necessary to convert the gas burner orifice and gas valve. Appropriate conversion kits are available.</p> <p style="text-align: right;">W060R1</p>	
<p>To reduce the risk of gas leaks, fire or explosion, use a new flexible stainless steel connector.</p> <p style="text-align: right;">W774</p>	

IMPORTANT: Any product revisions or conversions must be made by the Manufacturer's Authorized Dealers, Distributors or local service personnel.

IMPORTANT: The tumble dryer must be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressure equal to or less than 3.45 kPa, 34.5 mbar (0.5 psig).

NOTE: For gas valves with a manual shut-off switch on the gas valve, the shut-off switch does not protect the valve from this pressure test. Use the individual manual shut-off valve from the gas supply piping system to protect the gas valve.

IMPORTANT: The tumble dryer and its manually operated appliance gas valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 3.45 kPa, 34.5 mbar (0.5 psig).

IMPORTANT: The installation must comply with local codes or, in the absence of local codes:


- with the latest edition of the "National Fuel Gas Code," ANSI Z223.1/NFPA 54 in the U.S.A.
- with CAN/CSA-B149.1 or Natural Gas and Propane Installation Code in Canada
- In Australia and New Zealand, installation must comply with the Gas Installations Standard AS/NZS 5601 Part 1: General Installations.

Obtain specific gas service pipe size from the gas supplier. Refer to *Table 6* for general pipe size.

The following must be furnished and installed by the customer for the gas service line to each tumble dryer. Refer to *Figure 22*.

- Sediment traps
- Shut-off valves
- Supply pressure taps

It is important that equal pressure be maintained at all tumble dryer gas connections. This can be done by installing a 25.4 mm (1 inch) pipe gas loop to maintain equal pressure at all gas connections. Refer to *Figure 23*.

	WARNING
<p>To reduce the risk of fire or explosion, if the tumble dryer is to be connected to Liquefied Petroleum (L.P.) gas, a vent to the outdoors must be provided in the room where the tumble dryer is installed.</p> <p style="text-align: right;">W062R1</p>	

NATURAL GAS pressures with all gas appliances running (tumble dryers, water heaters, space heaters, furnace, etc.):

Maximum gas pressure – 26.1 mbar (10.5 water column inches)

Recommended gas pressure – 16.2 mbar (6.5 water column inches)

Minimum gas pressure – 12.4 mbar (5 water column inches)

An in-line pressure regulator may be required if the line pressure exceeds 26.1 mbar (10.5 water column inches) with all gas appliances running.

LIQUID PETROLEUM GAS (L.P.) pressures with all gas appliances running (tumble dryers, water heaters, space heaters, furnace, etc.):

Maximum gas pressure – 32.3 mbar (13 water column inches)

Recommended gas pressure – 27.4 mbar (11 water column inches)

Minimum gas pressure – 24.9 mbar (10 water column inches)


For converting Non-CE models from Natural Gas to L.P. Gas:

050 Series - M4979P3

075 Series - M4454P3

CE GASES refer to *Installing CE Gas Drying Tumble Dryers* section, the above data does not apply to the CE.

Turn on gas and check all pipe connections (internal and external) for gas leaks with a non-corrosive leak detection fluid. Purge air in gas service line by operating the tumble dryers in the drying mode. If burner does not light and unit goes into lockout, open and close the door and restart. Repeat these steps until burner ignites. **Use pipe compound, resistant to actions of L.P. gas, on all pipe threads.**

	WARNING
<p>Check all pipe connections, internal and external, for gas leaks using a non-corrosive leak detection fluid. To reduce the risk of explosion or fire, DO NOT USE AN OPEN FLAME TO CHECK FOR GAS LEAKS! Gas connections should be checked twice a year for leakage.</p>	
W635	

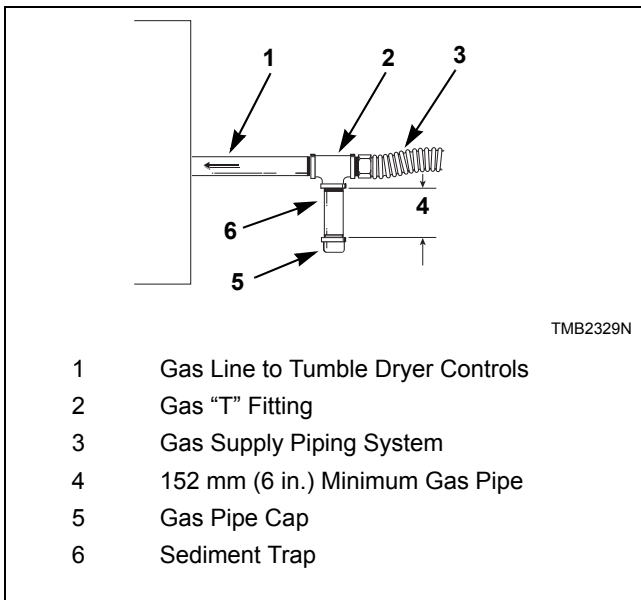


Figure 22

Gas Requirements

Gas Supply Pipe Sizing and Looping

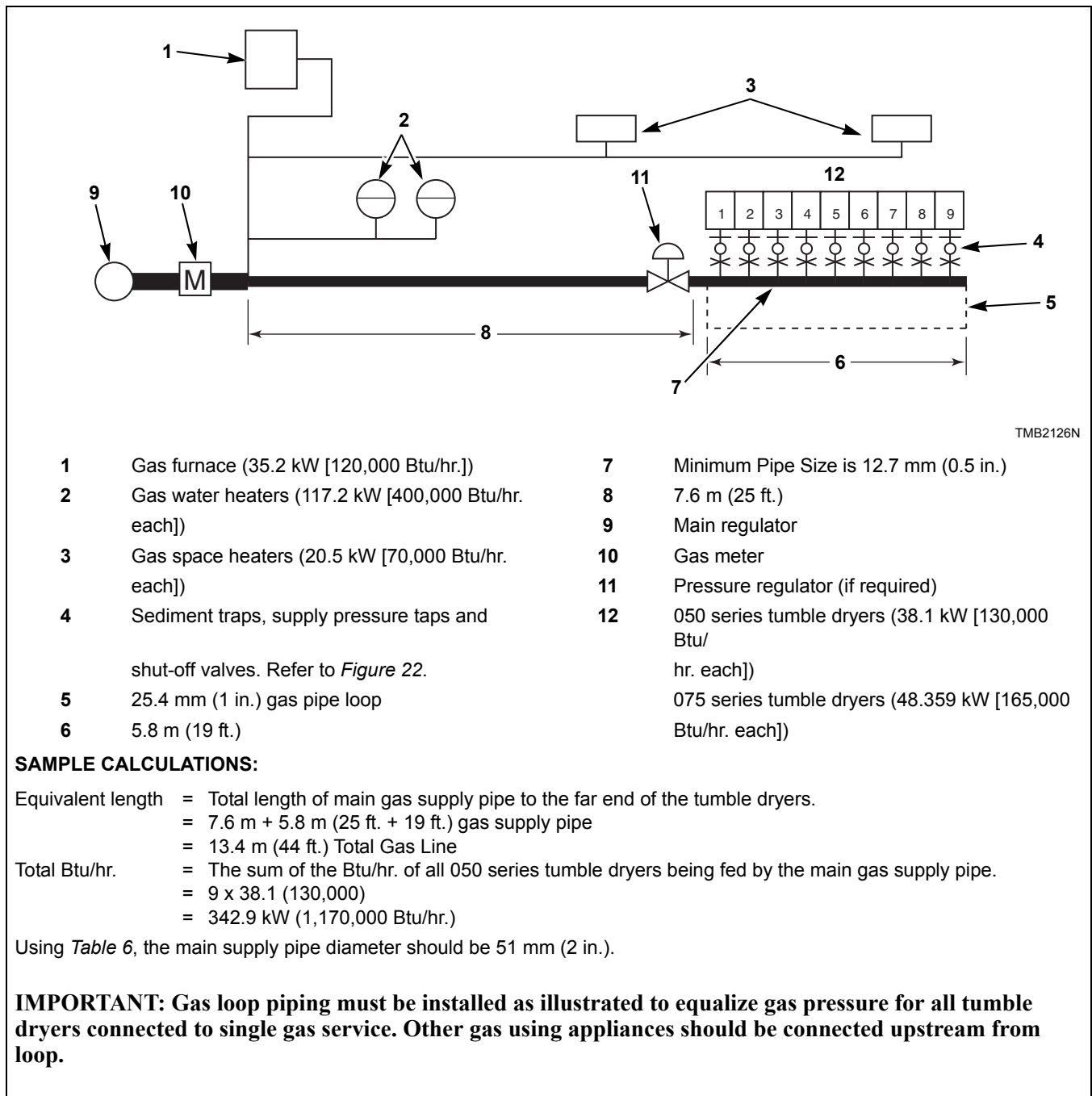


Figure 23

Gas Pipe Size Required for 1000 Btu Natural Gas — 17.4 ± 4 mbar, 1.74 ± 0.37 kPa (0.64 Specific Gravity at 7 ± 1.5 inches) Water Column Pressure						
Gas Appliances Total Btu/hr.	Equivalent Length					
	7.63 m (25 feet)	15.25 m (50 feet)	22.88 m (75 feet)	30.50 m (100 feet)	38.13 m (125 feet)	45.75 m (150 feet)
Based on 0.3 in. Water Column Pressure Drop for Length Given Sizes shown in mm (inches)						
100,000	19.05 (0.75)	19.05 (0.75)	25.40 (1)	25.40 (1)	25.40 (1)	25.40 (1)
120,000	19.05 (0.75)	25.40 (1)	25.40 (1)	25.40 (1)	25.40 (1)	25.40 (1)
140,000	19.05 (0.75)	25.40 (1)	25.40 (1)	25.40 (1)	25.40 (1)	31.75 (1.25)
160,000	19.05 (0.75)	25.40 (1)	25.40 (1)	31.75 (1.25)	31.75 (1.25)	31.75 (1.25)
180,000	25.40 (1)	25.40 (1)	25.40 (1)	31.75 (1.25)	31.75 (1.25)	31.75 (1.25)
200,000	25.40 (1)	25.40 (1)	31.75 (1.25)	31.75 (1.25)	31.75 (1.25)	38.10 (1.5)
300,000	25.40 (1)	31.75 (1.25)	31.75 (1.25)	38.10 (1.5)	38.10 (1.5)	38.10 (1.5)
400,000	31.75 (1.25)	31.75 (1.25)	38.10 (1.5)	38.10 (1.5)	38.10 (1.5)	50.80 (2)
500,000	31.75 (1.25)	38.10 (1.5)	38.10 (1.5)	50.80 (2)	50.80 (2)	50.80 (2)
600,000	38.10 (1.5)	38.10 (1.5)	50.80 (2)	50.80 (2)	50.80 (2)	50.80 (2)
700,000	38.10 (1.5)	50.80 (2)	50.80 (2)	50.80 (2)	50.80 (2)	63.50 (2.5)
800,000	38.10 (1.5)	50.80 (2)	50.80 (2)	50.80 (2)	63.50 (2.5)	63.50 (2.5)
900,000	50.80 (2)	50.80 (2)	50.80 (2)	63.50 (2.5)	63.50 (2.5)	63.50 (2.5)
1,000,000	50.80 (2)	50.80 (2)	50.80 (2)	63.50 (2.5)	63.50 (2.5)	63.50 (2.5)
1,100,000	50.80 (2)	50.80 (2)	63.50 (2.5)	63.50 (2.5)	63.50 (2.5)	63.50 (2.5)
1,200,000	50.80 (2)	50.80 (2)	63.50 (2.5)	63.50 (2.5)	63.50 (2.5)	63.50 (2.5)
1,300,000	50.80 (2)	63.50 (2.5)	63.50 (2.5)	63.50 (2.5)	63.50 (2.5)	76.20 (3)
1,400,000	50.80 (2)	63.50 (2.5)	63.50 (2.5)	63.50 (2.5)	76.20 (3)	76.20 (3)
1,500,000	50.80 (2)	63.50 (2.5)	63.50 (2.5)	63.50 (2.5)	76.20 (3)	76.20 (3)
1,600,000	50.80 (2)	63.50 (2.5)	63.50 (2.5)	76.20 (3)	76.20 (3)	76.20 (3)
1,700,000	50.80 (2)	63.50 (2.5)	63.50 (2.5)	76.20 (3)	76.20 (3)	76.20 (3)
1,800,000	63.50 (2.5)	63.50 (2.5)	76.20 (3)	76.20 (3)	76.20 (3)	76.20 (3)
1,900,000	63.50 (2.5)	63.50 (2.5)	76.20 (3)	76.20 (3)	76.20 (3)	76.20 (3)
2,000,000	63.50 (2.5)	63.50 (2.5)	76.20 (3)	76.20 (3)	76.20 (3)	88.90 (3.5)
2,200,000	63.50 (2.5)	76.20 (3)	76.20 (3)	76.20 (3)	88.90 (3.5)	88.90 (3.5)
2,400,000	63.50 (2.5)	76.20 (3)	76.20 (3)	76.20 (3)	88.90 (3.5)	88.90 (3.5)
2,600,000	63.50 (2.5)	76.20 (3)	76.20 (3)	88.90 (3.5)	88.90 (3.5)	88.90 (3.5)
2,800,000	63.50 (2.5)	76.20 (3)	76.20 (3)	88.90 (3.5)	88.90 (3.5)	88.90 (3.5)
3,000,000	63.50 (2.5)	76.20 (3)	88.90 (3.5)	88.90 (3.5)	88.90 (3.5)	101.60 (4)

For L.P. Gas, correct the total Btu/hr by multiplying it by 0.6. The answer is the equivalent Btu on the above chart.

Table 6

Gas Requirements

High Altitude Burner Orifice Sizing

For proper operation at altitudes above 610 m (2000 feet), the gas burner orifice size must be reduced to ensure complete combustion. Refer to *Table 7*.


For CE models, consult local gas supplier.

Model	Gas	Altitude		Burner Orifice				New Rate (Btu/hr.)*	
		meters	feet	No.	mm	inches	Quantity		Part Number
050 Series	Natural Gas	610-1220	2001-4000	27	3.7	0.1440	2	M400998	119,600
		1221-1830	4001-6000	28	3.6	0.1405		M401014	109,200
		1831-2440	6001-8000	29	3.4	0.1360		M400997	98,800
		2441-3050	8001-10,000	30	3.3	0.1285		M401021	88,400
	L.P. Gas	610-1220	2001-4000	43	2.3	0.0890		M406184	119,600
		1221-1830	4001-6000	44	2.2	0.0860		M401011	109,200
		1831-2440	6001-8000	45	2.1	0.0820		M401027	98,800
		2441-3050	8001-10,000	46	2.1	0.0810		M401003	88,400
075 Series	Natural Gas	610-1220	2001-4000	29	3.4	0.1360	3	M400997	151,800
		1221-1830	4001-6000	30	3.3	0.1285		M401021	138,600
		1831-2440	6001-8000	1/8	3.2	0.1250		M402489	125,400
		2441-3050	8001-10,000	31	3.0	0.1200		M401017	112,200
	L.P. Gas	610-1220	2001-4000	45	2.1	0.0820		M401027	165,000
		1221-1830	4001-6000	47	2.0	0.0785		M400999	138,600
		1831-2440	6001-8000	47	2.0	0.0785		M400999	125,400
		2441-3050	8001-10,000	48	1.9	0.0760		M401001	112,200

* Btu/hr. derate of 4% per 305 meters (1000 feet) of altitude.

Table 7


Electrical Requirements

	WARNING
<p>To reduce the risk of electric shock, fire, explosion, serious injury or death:</p> <ul style="list-style-type: none">• Disconnect electric power to the tumble dryer before servicing.• Close gas shut-off valve to gas tumble dryer before servicing.• Close steam valve to steam tumble dryer before servicing.• Never start the tumble dryer with any guards/panels removed.• Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumble dryer is properly grounded. <p style="text-align: right;">W002R1</p>	
<p>To reduce the risk of fire and electric shock, check with a qualified serviceman for proper grounding procedures. Improper connection of the equipment grounding conductor may result in a risk of electric shock.</p> <p style="text-align: right;">W068</p>	
<p>To reduce the risk of fire and electric shock, if electrical supply is coming from a three phase service, DO NOT connect a “High Leg” or “Stinger Leg” to a single phase machine. On a three phase machine, if there is a “High Leg” or “Stinger Leg” it should be connected to L3.</p> <p style="text-align: right;">W069</p>	

IMPORTANT: Electrical connections must be made by a qualified electrician using data on serial plate, installation manuals and wiring diagram provided with machine and according to local codes. Install a circuit breaker as close to the tumble dryer as possible. If more than one tumble dryer is being installed, a circuit breaker must be provided for each.

NOTE: Connect machine to an individual branch circuit not shared with lighting or other equipment.

NOTE: 3 Phase Machines Only - Do not use fuses to avoid the possibility of “single phasing” and causing premature failure of the motors.

	WARNING
<p>In case of servicing (or putting the tumble dryer out of order), disconnect the tumble dryer from the main supply by switching off the circuit breaker.</p> <p style="text-align: right;">W796</p>	

Wiring Diagram

The wiring diagram is located in the junction or contactor box.

The wiring diagram part number is in the lower portion of the electrical data on the serial plate.


Electrical Requirements


Grounding Instructions

NOTE: To ensure protection against shock, this tumble dryer **MUST** be electrically grounded in accordance with the local codes, or in the absence of local codes, with the latest edition of the National Electrical Code ANSI/NFPA No. 70. In Canada the electrical connections are to be made in accordance with CSA C22.1 latest edition Canadian Electrical Code, or local codes. Electrical work should be done by a qualified electrician.

This tumble dryer must be grounded. In the event of malfunction or breakdown, grounding will reduce the risk of electric shock by providing a path of least resistance for electric current. This tumble dryer must be connected to a grounded metal, permanent wiring system; or an equipment grounding conductor must be run with the circuit conductors and connected to the appropriate ground location.

- Metal conduit and/or BX cable is not considered ground.
- Connecting the Neutral from the electrical service box to the tumble dryer ground screw does not constitute a ground.
- A dedicated ground conduit (wire) must be connected between the electrical service box ground bar and tumble dryer ground screw.

	WARNING
<p>To reduce the risk of electrical shock, de-energize the electrical circuit being connected to the tumble dryer before making any electrical connections. All electrical connections should be made by a qualified electrician. Never attempt to connect a live circuit.</p>	
<small>W409R1</small>	

	CAUTION
<p>Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.</p>	
<small>W071</small>	

For CE Models Only

All OPL (non-vend) models are factory-equipped with an emergency stop button on the front panel. If the emergency stop function is desired on coin-operated models, an external emergency stop button may be installed.

NOTE: Activation of the emergency stop switch stops all machine control circuit functions, but **DOES NOT** remove all electrical power from machine.

Service/Ground Location

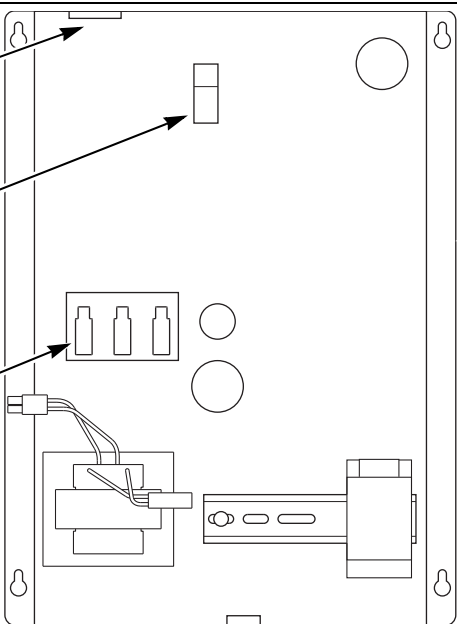
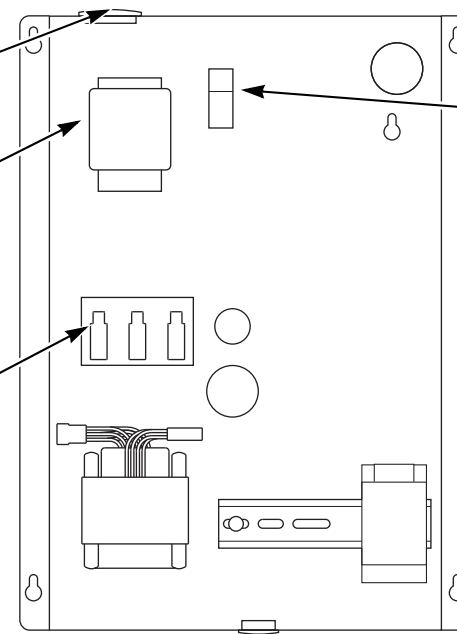
Model	Ground and Terminal Block Locations
Non-CE	 <p>Electrical Service</p> <p>Ground</p> <p>Terminal Block</p> <p>Junction Box</p> <p>TMB2269N</p>
CE	 <p>Electrical Service</p> <p>Power Disconnect (Models Through 7/31/11)</p> <p>Terminal Block</p> <p>Ground</p> <p>Junction Box</p> <p>TMB2247N</p>

Figure 24

Electrical Requirements

To Connect Electrical Service To The Tumble Dryer

The following steps outline the procedure for connecting the electrical service to the tumble dryer.

NOTE: The wiring diagram is located in the junction box.

1. Install a circuit breaker as close to the tumble dryer as possible. If more than one tumble dryer is being installed, a disconnect switch or circuit breaker should be provided for each. This will make it possible to disconnect each tumble dryer for maintenance purposes.
2. Connect the conduit-encased leads to the disconnect switch, or circuit breaker. Connect the wire leads to the appropriate labeled terminal on the terminal block. The ground wire must be connected to the ground connection as shown in *Figure 24*.
3. Check the electrical service phase sequence (three phase only) as follows:
 - a. Energize the electrical service (on reversing tumble dryers, ensure nonreversing is selected) and momentarily start the tumble dryer. Check the direction of the cylinder rotation. If the cylinder rotates clockwise (viewed from the front), the phase sequence is correct. If the cylinder rotates counterclockwise, proceed with step b.

NOTE: When viewed from the front, the fan should rotate clockwise.
 - b. Disconnect and reverse any two service leads on the terminal block (example: switch L2 and L3 on terminal block).

Jumper Configuration Instructions

Changing the transformer configuration jumper is required, **PRIOR TO SUPPLYING POWER TO THE MACHINE**, if any of the following apply:

IMPORTANT: Failure to install the proper configuration jumper may result in damage to sensitive electronic controls and may void warranty.

- Location voltage 200 – 208 Volt service and connecting a model rated for 240 Volt operation.

Replace the 240 Volt jumper with the 208 Volt jumper per the conversion label, located on the rear of the tumble dryer, sign and date conversion label to document the conversion.

Ferrite Ring Installation

Gas and Steam Models with OM and RM Control Suffixes Only (Models Through 7/31/11)

The ferrite ring provided in the literature packet must be installed over the power leads during connection of electrical service. The ferrite protects the sensitive electronic controls from destructive electrical disturbances which may be present on power lines to the machine. Failure to properly install the ferrite ring may result in damage to the electronic controls and will void control warranty.

To install:

1. Immediately after connection of power leads and before applying power to machine, locate each of the incoming service leads including ground.
2. Snap the ferrite ring closed over all the service leads inside of the contactor box as shown. It is important that the ferrite ring be installed inside the contactor box. Refer to *Figure 25*. Do not install the ferrite outside of the box or other area. Make sure that service leads are in the center of the ferrite before closing the ring so as not to pinch or damage leads.

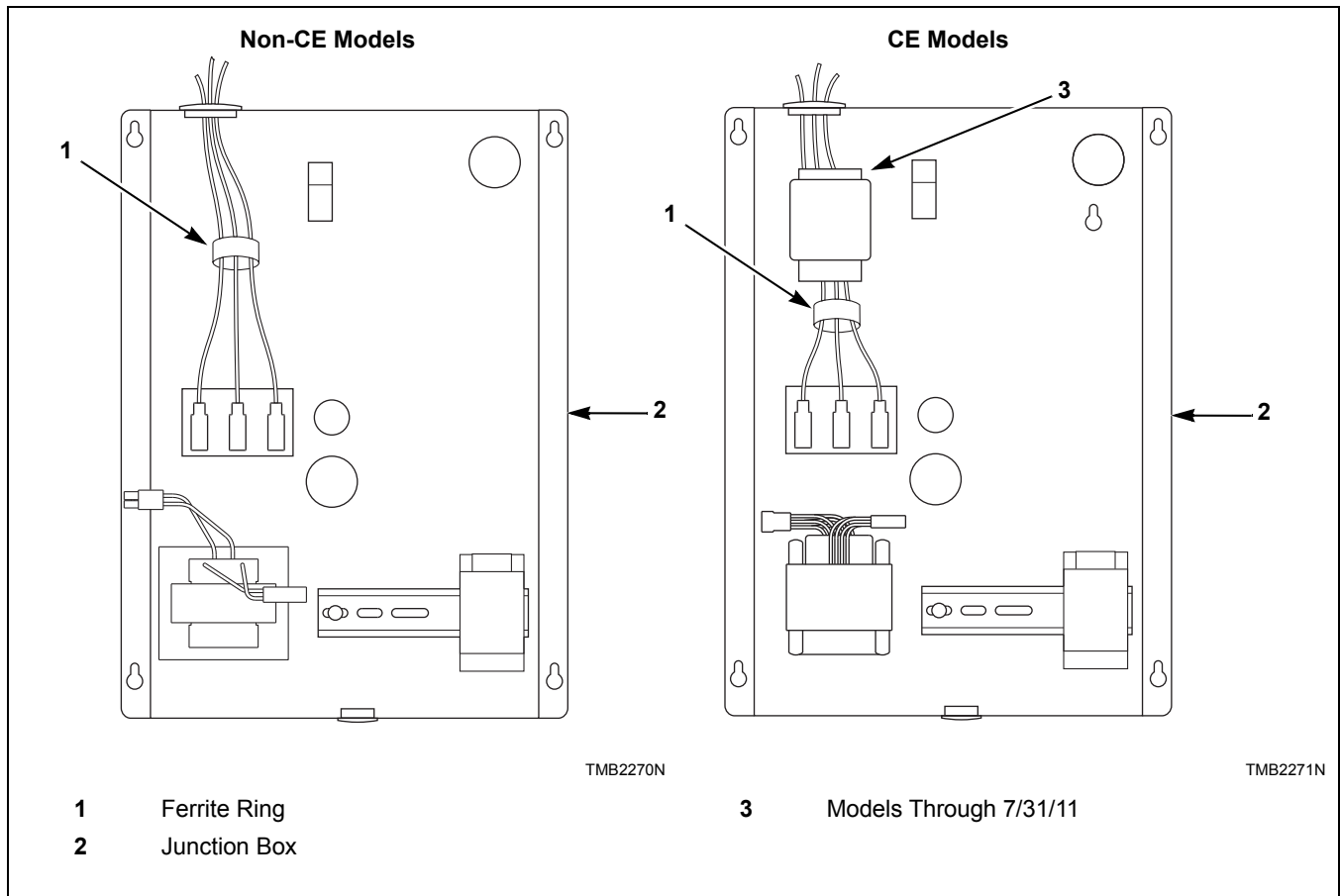


Figure 25

Electrical Requirements

Electrical Specifications

NOTE: Wire sizes were obtained from the Canadian Electrical Code for 75 C. wire and are intended for use as a guideline only. Electrical connections should be made by a qualified electrical contractor in accordance with all applicable local and national requirements.

NOTE: Electrical specifications below are subject to change without notice. Always refer to product serial plate for most current specifications of product being installed.

050 Series Gas and Steam Models

Refer to *Table 8*.

Serial Plate Rating	Terminal Block Connections Required	Serial Plate Amps		Recommended Circuit	
		Nonreversing	Reversing	Breaker Rating	Wire Size mm ² (AWG)
120V/60Hz/1ph	L1, Neutral and ground	9.3	N/A	15A – 1 pole	2.5 (14)
200-208V/60Hz/1ph	L1, Neutral and ground	5.1	N/A	10A – 1 pole	2.5 (14)
200-208-240V/60Hz/1ph	L1, L2 and ground	5.1	N/A	10A – 2 pole	2.5 (14)
230-240V/50Hz/1ph	L1, Neutral and ground	6.3	6.9	15A – 1 pole	2.5 (14)
200-208/240V/60Hz/3ph	L1, L2, L3 and ground	2.8	4.0	10A – 3 pole	2.5 (14)
200V/50Hz/3ph	L1, L2, L3 and ground	3.3	4.2	10A – 3 pole	2.5 (14)
230-240V/50Hz/3ph	L1, L2, L3 and ground	3.1	4.3	10A – 3 pole	2.5 (14)
380V/50 or 60Hz/3ph	L1, L2, L3 and ground	1.6	2.0	10A – 3 pole	2.5 (14)
400-415V/50Hz/3ph	L1, L2, L3 and ground	1.6	2.0	10A – 3 pole	2.5 (14)
440V/60Hz/3ph	L1, L2, L3 and ground	1.4	1.9	10A – 3 pole	2.5 (14)
460-480V/60Hz/3ph	L1, L2, L3 and ground	1.4	1.9	10A – 3 pole	2.5 (14)

N/A = Not Applicable

Table 8

NOTE: Use copper conductors only.

NOTE: Connect to individual branch circuit.

NOTE: 3 Phase Only – Each tumble dryer must be connected to its own individual branch circuit breaker, not fuses, to avoid the possibility of “single phasing” and causing premature failure of the motor(s).

075 Series Gas and Steam Models

Refer to *Table 9*.

Serial Plate Rating	Terminal Block Connections Required	Serial Plate Amps		Recommended Circuit	
		Nonreversing	Reversing	Breaker Rating	Wire Size mm ² (AWG)
120V/60Hz/1ph	L1, Neutral and ground	13.8	N/A	20A – 1 pole	4 (12)
200-208V/60Hz/1ph	L1, Neutral and ground	7.6	N/A	15A – 1 pole	2.5 (14)
200-208-240V/60Hz/1ph	L1, L2 and ground	7.6	N/A	15A – 2 pole	2.5 (14)
230-240V/50Hz/1ph	L1, Neutral and ground	6.7	7.0	15A – 1 pole	2.5 (14)
200-208/240V/60Hz/3ph	L1, L2, L3 and ground	3.8	4.3	10A – 3 pole	2.5 (14)
200V/50Hz/3ph	L1, L2, L3 and ground	3.5	4.5	10A – 3 pole	2.5 (14)
230-240V/50Hz/3ph	L1, L2, L3 and ground	3.5	4.9	10A – 3 pole	2.5 (14)
380V/50 or 60Hz/3ph	L1, L2, L3 and ground	1.8	2.1	10A – 3 pole	2.5 (14)
400-415V/50Hz/3ph	L1, L2, L3 and ground	1.8	2.1	10A – 3 pole	2.5 (14)
440V/60Hz/3ph	L1, L2, L3 and ground	1.9	2.1	10A – 3 pole	2.5 (14)
460-480V/60Hz/3ph	L1, L2, L3 and ground	1.9	2.1	10A – 3 pole	2.5 (14)

N/A = Not Applicable

Table 9

050 and 075 Series Electric Models

Refer to *Table 10*.

Serial Plate Rating	Terminal Block Connections Required	Serial Plate Amps		Recommended Circuit	
		Nonreversing	Reversing	Breaker Rating	Wire Size mm ² (AWG)
240V/50Hz/1ph (050 Series only)	L1, Neutral and Ground	93	95	125A – 1 pole	35 (1)
200-208V/60Hz/3ph	L1, L2, L3 and ground	89	88	125A – 3 pole	35 (1)
200V/50Hz/3ph	L1, L2, L3 and ground	84	85	125A – 3 pole	35 (1)
230V/50Hz/3ph	L1, L2, L3 and ground	73	75	100A – 3 pole	26.7 (3)
240V/50Hz/3ph	L1, L2, L3 and ground	79	78	100A – 3 pole	26.7 (3)
240V/60Hz/3ph	L1, L2, L3 and ground	79	78	100A – 3 pole	26.7 (3)
380V/50 or 60Hz/3ph	L1, L2, L3 and ground	47	48	60A – 3 pole	16 (6)
400-415V/50Hz/3ph	L1, L2, L3 and ground	43	44	60A – 3 pole	16 (6)
440V/60Hz/3ph	L1, L2, L3 and ground	41	41	51A – 3 pole	16 (6)
480V/60Hz/3ph	L1, L2, L3 and ground	38	38	50A – 3 pole	16 (6)

Table 10

Steam Requirements

NOTE: Machines require a constant 5.3 to 6.9 bar (80 to 100 psig) steam service for optimum operation. The maximum allowable steam pressure for use with 50 Hertz tumble dryers is 8.6 bar (125 psig). In no case may the pressure exceed the above value.


Obtain specific steam service pipe sizes from steam system supplier or a qualified steam fitter.

- Refer to *Figure 26* for proper steam pipe configurations.
- To prevent condensate draining from headers to tumble dryer, piping should have a minimum 305 mm (12 inch) rise above respective header. Do not make steam connection to header with a horizontal or downward facing tee or elbow.
- Whenever possible, horizontal runs of steam lines must drain, by gravity, to respective steam header. Water pockets, or an improperly drained steam header will provide wet steam, causing improper operation of tumble dryer. If pockets or improper drainage cannot be eliminated, install a bypass trap to drain condensate from the low point in the steam header to the return.
- In both steam supply and steam return line, it is recommended that each have a pipe union and shut-off valve. This will enable you to disconnect the steam connections and service the tumble dryer while your laundry facility is in operation.
- Connect the steam solenoid valve to the related steam coil inlet connection with nipples, flex hoses, unions and tees.
- Strainers may require cleaning due to materials from hoses or pipes.
- Install vacuum breaker (optional), bucket trap with built-in strainer and check valve. For successful operation of tumble dryer, install trap 457 mm (18 inches) below coil and as near to the tumble dryer as possible. Inspect trap carefully for inlet and outlet markings and install according to trap manufacturer's instructions. If steam is gravity returned to boiler, omit trap but install vacuum breaker and check valve in return line near tumble dryer. Gravity return requires entire return plumbing be below steam coil outlets.
- Install union and shut-off valve in return line and make final pipe connections to return header.

NOTE: To prevent water hammering, route return lines below outlets of steam coils.

Piping Recommendations

- Trap each steam coil individually. Always keep the trap clean and in good working condition.
- When tumble dryer is on the end of a line of equipment, extend header at least 1.2 m (4 feet) beyond tumble dryer. Install shut-off valve, union, check valve and bypass trap at end of line. If gravity return to boiler, omit trap.
- Insulate steam supply and return lines for safety of operator and safety while servicing tumble dryer.

	WARNING
<p>All system components must have a 8.6 bar (125 psig) working pressure. Shut-off valves must be installed upstream of the steam solenoid valve and downstream of each steam trap so components can be isolated for maintenance or emergency purposes.</p> <p>All components (solenoid valve, traps) must be supported to minimize loads on the tumbler steam coil connections.</p>	
<small>W701</small>	

Installing Steam Trap and Making Condensate Return Connections

The steam trap must be installed and the coil outlet connections must be connected to the condensate return lines. The following steps outline the procedure for installing the steam trap and connecting the condensate return lines. Refer to *Figure 26* for typical installations.

1. Use flexible lines between steam inlet solenoid and steam coils, as well as outlet between steam coil and traps.
2. If necessary, install a strainer at the end of each flexible hose.
3. Install a steam trap to each strainer.

IMPORTANT: Steam trap must be installed a minimum of 457 mm (18 inches) below the steam coil outlet connections.

4. Install a shut-off valve to each steam trap.
5. Connect to the condensate return lines.
6. For steam solenoid valve wiring connections, refer to Wiring Diagram supplied with tumble dryer.

Thermal Oil Prep

It is the responsibility of the customer to install appropriate coil and heating system for thermal oil prep models. The producer is not responsible for the performance or safety of the customer installed thermal oil system. To ensure proper operation, refer to the ***Specifications and Dimensions*** section for the Btu input of equivalent steam models. Thermal oil systems that do not deliver appropriate Btus will dry slower. For solenoid valve wiring connections, refer to the Wiring Diagram supplied with tumble dryer.

Steam Requirements

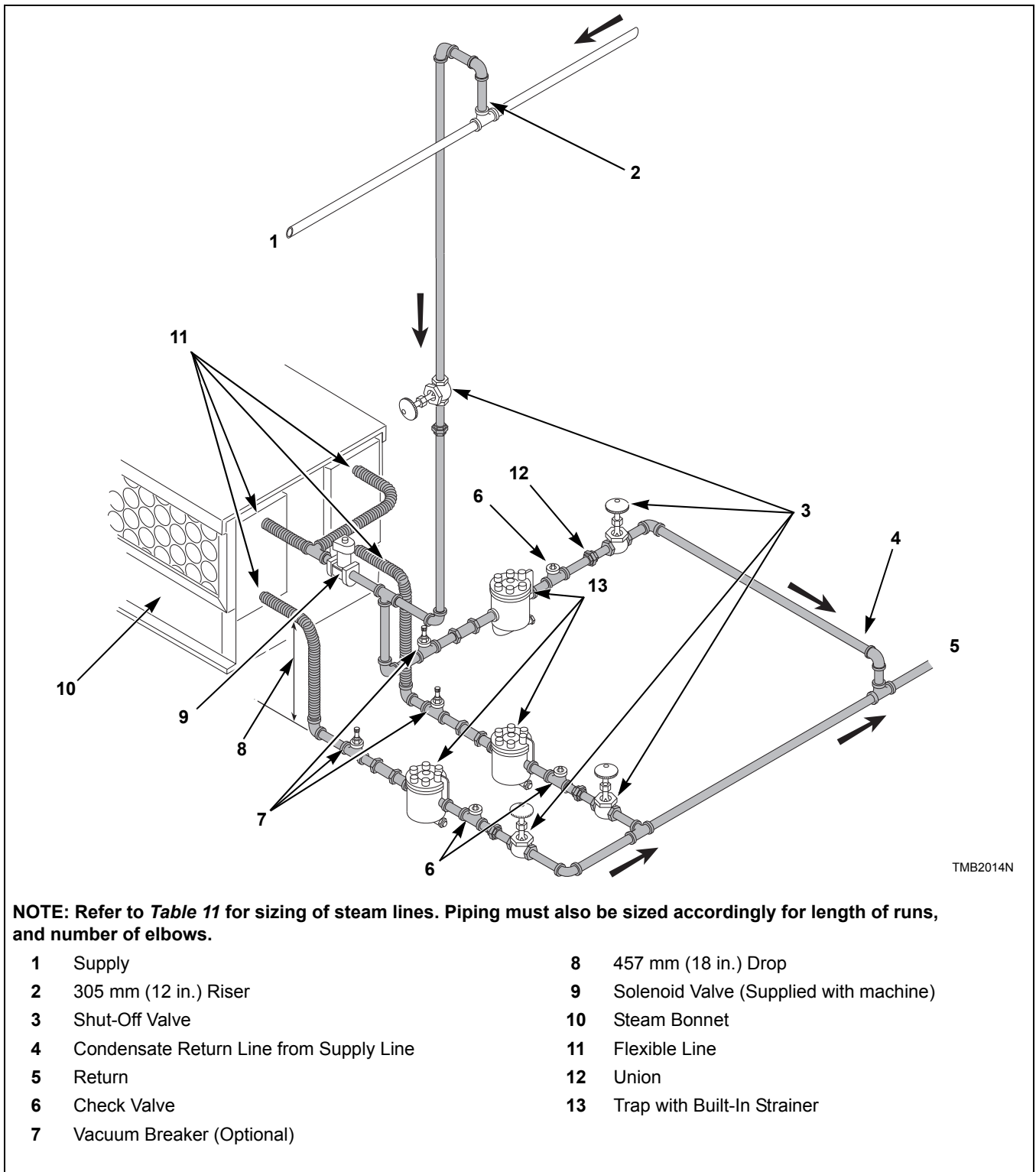


Figure 26

Steam Pressure bar (PSI)	Minimum Supply Pipe Diameter	Steam Trap Size* Kilograms Condensate/Hour (Pounds Condensate/Hour)
5.3-6.9 (80-100)	3/4 in. NPT	72.6 (160)

*Based on 6.9 bar.

Table 11

Single Drop Timer

NOTE: The following information is for models with an SD control suffix only.

Power-Up Mode

When power is applied to the tumble dryer, the *IN USE* light flashes factory status information. Following this, the control goes into READY Mode (light off) or RUN Mode if power was interrupted during a cycle (light on, time remaining unchanged).

Ready Mode

In READY Mode (light off), the control waits for the vend to be satisfied. When vend is satisfied the control goes into START Mode.

Start Mode

In START Mode (light on), the vend has been satisfied but the start button has not been pressed. Time remaining in the cycle will not change until the start button is pressed. When the start button is pressed the machine goes into RUN Mode.

Run Mode

In RUN Mode (light on), the machine is running a cycle and the time remaining is counting down. When time remaining counts down to zero, the control goes into READY Mode.

Setting Dry Time Dipswitches

To change the dry time on the tumble dryer, combinations of dipswitches can be set on the control.

There are eight dipswitches on the tumble dryer control. The first six switches are used to program the amount of additional heat time given for each coin pulse. The additional drying time is added to the factory default minimum heat time of one minute. A value of 1 to 64 minutes of additional drying time is available for each coin drop pulse.

Models Through Serial No. 0908xxxxx

The last two switches are used to program the amount of additional cool down time. The additional cool down time is added to the factory default minimum cool down time of 1 minute. A value of 1 to 3 additional minutes is available. The control is shipped from the factory programmed with 1 minute of minimum heat time, preset with 7 additional minutes of drying time (dipswitches 1, 2 and 3 in ON position) and 1 minute of minimum cool down time for a total time of 9 minutes for a coin pulse. For dipswitch settings refer to *Table 12*.

Models Starting Serial No. 0909xxxxx

The seventh switch is used to program the amount of additional cool down time. The additional cool down time is added to the factory default minimum cool down time of 1 minute. A value of 3 additional minutes is available. The control is shipped from the factory programmed with 1 minute of minimum heat time, preset with 7 additional minutes of drying time (dipswitches 1, 2 and 3 in ON position) and 1 minute of minimum cool down time for a total time of 9 minutes for a coin pulse. For dipswitch settings refer to *Table 12*.

The eight switch is used for the cycle reset. If the switch is OFF (default), the control will save the time left on a cycle in case of a power failure. If the switch is ON, the control will clear the cycle and go back to Ready Mode if there is a power failure.

The control reads the dipswitch settings at power-up. The control must be powered down to change the dipswitch settings.

To change the time for a coin pulse, the desired dry time dipswitches must be set to ON position. All other dipswitches must be in OFF position.

NOTE: The control must be powered down for 10 seconds before the dipswitches can be changed.

Resetting Cycle Time to Zero

(Models Starting Serial No. 0909xxxxx)

To remove any cycle time that may have accumulated on the control during setup, the cycle time on the control can be reset to zero.

To reset the time, unplug the tumble dryer and set dipswitch 8 to ON position. Restore power to the tumble dryer for 10 seconds and once again unplug tumble dryer. Set dipswitch 8 to OFF position and restore power to the tumble dryer.

Single Drop Timer

Dipswitch Settings

Heat Time Per Coin Pulse (in minutes)	Heat Switch Number					
	1	2	3	4	5	6
1	OFF	OFF	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF	OFF	OFF
3	OFF	ON	OFF	OFF	OFF	OFF
4	ON	ON	OFF	OFF	OFF	OFF
5	OFF	OFF	ON	OFF	OFF	OFF
6	ON	OFF	ON	OFF	OFF	OFF
7	OFF	ON	ON	OFF	OFF	OFF
8 (factory default)	ON	ON	ON	OFF	OFF	OFF
9	OFF	OFF	OFF	ON	OFF	OFF
10	ON	OFF	OFF	ON	OFF	OFF
11	OFF	ON	OFF	ON	OFF	OFF
12	ON	ON	OFF	ON	OFF	OFF
13	OFF	OFF	ON	ON	OFF	OFF
14	ON	OFF	ON	ON	OFF	OFF
15	OFF	ON	ON	ON	OFF	OFF
16	ON	ON	ON	ON	OFF	OFF
17	OFF	OFF	OFF	OFF	ON	OFF
18	ON	OFF	OFF	OFF	ON	OFF
19	OFF	ON	OFF	OFF	ON	OFF
20	ON	ON	OFF	OFF	ON	OFF
21	OFF	OFF	ON	OFF	ON	OFF
22	ON	OFF	ON	OFF	ON	OFF
23	OFF	ON	ON	OFF	ON	OFF
24	ON	ON	ON	OFF	ON	OFF
25	OFF	OFF	OFF	ON	ON	OFF
26	ON	OFF	OFF	ON	ON	OFF
27	OFF	ON	OFF	ON	ON	OFF
28	ON	ON	OFF	ON	ON	OFF
29	OFF	OFF	ON	ON	ON	OFF
30	ON	OFF	ON	ON	ON	OFF
31	OFF	ON	ON	ON	ON	OFF
32	ON	ON	ON	ON	ON	OFF
33	OFF	OFF	OFF	OFF	OFF	ON
34	ON	OFF	OFF	OFF	OFF	ON
35	OFF	ON	OFF	OFF	OFF	ON
36	ON	ON	OFF	OFF	OFF	ON
37	OFF	OFF	ON	OFF	OFF	ON

Table 10 (continued)

Table 10 (continued)

Heat Time Per Coin Pulse (in minutes)	Heat Switch Number					
	1	2	3	4	5	6
38	ON	OFF	ON	OFF	OFF	ON
39	OFF	ON	ON	OFF	OFF	ON
40	ON	ON	ON	OFF	OFF	ON
41	OFF	OFF	OFF	ON	OFF	ON
42	ON	OFF	OFF	ON	OFF	ON
43	OFF	ON	OFF	ON	OFF	ON
44	ON	ON	OFF	ON	OFF	ON
45	OFF	OFF	ON	ON	OFF	ON
46	ON	OFF	ON	ON	OFF	ON
47	OFF	ON	ON	ON	OFF	ON
48	ON	ON	ON	ON	OFF	ON
49	OFF	OFF	OFF	OFF	ON	ON
50	ON	OFF	OFF	OFF	ON	ON
51	OFF	ON	OFF	OFF	ON	ON
52	ON	ON	OFF	OFF	ON	ON
53	OFF	OFF	ON	OFF	ON	ON
54	ON	OFF	ON	OFF	ON	ON
55	OFF	ON	ON	OFF	ON	ON
56	ON	ON	ON	OFF	ON	ON
57	OFF	OFF	OFF	ON	ON	ON
58	ON	OFF	OFF	ON	ON	ON
59	OFF	ON	OFF	ON	ON	ON
60	ON	ON	OFF	ON	ON	ON
61	OFF	OFF	ON	ON	ON	ON
62	ON	OFF	ON	ON	ON	ON
63	OFF	ON	ON	ON	ON	ON
64	ON	ON	ON	ON	ON	ON

Models Through Serial No. 0908xxxxx

Cool Down Per Cycle (in minutes)	Cool Down Switch Number	
	7	8
1 (factory default)	OFF	OFF
2	ON	OFF
3	OFF	ON
4	ON	ON


Models Starting Serial No. 0909xxxxx

Cool Down Per Cycle (in minutes)	Cool Down Switch Number	Cycle Reset Switch Number
	7	
1 (factory default)	OFF	OFF
3	ON	ON

Total Cycle Time = Heat Time + Cool Down Time

Table 12

Operating Instructions

	WARNING
<p>To reduce the risk of fire:</p> <ul style="list-style-type: none">• DO NOT DRY articles containing foam rubber or similarly textured rubberlike materials.• DO NOT DRY plastics, anything containing wax or chemicals such as mops and cleaning cloths, or anything dry-cleaned at home with a dry-cleaning solvent.• DO NOT TUMBLE fiberglass curtains and draperies unless the label says it can be done. If they are dried, wipe out the cylinder with a damp cloth to remove particles of fiberglass. <p style="text-align: right;">W076</p>	
<p>To reduce the risk of serious injury, allow cylinder to stop before cleaning lint screen.</p> <p style="text-align: right;">W412</p>	

Emergency Stop Button On CE Models

All CE approved OPL tumble dryers are factory equipped with an emergency stop button located on the front panel. Refer to *Figure 27*.

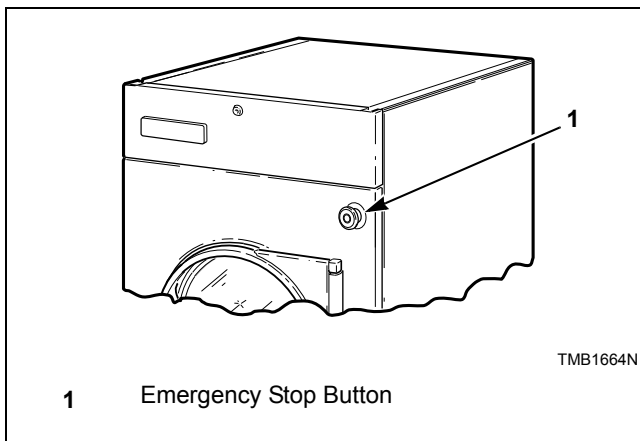



Figure 27

To operate emergency stop button:

- a. Press red emergency stop button to stop all action.
- b. To restart machine, pull red emergency stop button out and press START pad or button.

NOTE: Activation of the emergency stop button stops all machine control circuit functions, but DOES NOT remove all electrical power from machine.

	WARNING
<p>To reduce the risk of fire, electric shock, or injury to persons, read the IMPORTANT SAFETY INSTRUCTIONS before operating this appliance.</p> <p style="text-align: right;">W727</p>	


IMPORTANT: This appliance shall not be used to dry off solvents or dry cleaning fluids.

Operating Instructions

Step 1: Clean Lint Screen/Compartment

Remove any accumulated lint from the lint screen and compartment. Close panel tightly against tumble dryer frame and lock panel securely, if applicable.

IMPORTANT: Clean lint screen and lint compartment daily. Failure to clean the lint screen daily will result in higher than normal temperatures that may damage laundry.

	WARNING
<p>To reduce the risk of fire and risk of lint collecting in exhaust duct, do not operate tumbler without lint filter in place.</p> <p style="text-align: right;">W772</p>	

Step 2: Load Laundry

Open loading door and load cylinder with laundry. Maximum drying load for 050 models is 22.7 kg (50 pounds) and for 075 models is 34 kg (75 pounds). DO NOT OVERLOAD.

NOTE: Overloading causes slow drying and wrinkling.

Close loading door. Tumble dryer will not operate with the door open.

Step 3: Determine Control Type and Temperature Setting

Refer to the various controls and follow the instructions for the appropriate control type.

The type of fabric being dried will determine the temperature setting. Consult the fabric care label or fabric manufacturer to determine proper temperature setting.

IMPORTANT: Always follow the fabric care instructions supplied by the garment manufacturer.

Step 4: Remove Laundry

When the cycle is complete, open door and remove the laundry.

Operating Instructions

Control Instructions

Dual Digital Timer Control

QT and RQ Control Suffixes

1. Select HIGH, MED, LOW or NO HEAT by turning the temperature knob.

HIGH Temperature 88°C (190°F)
 MED Temperature 77°C (170°F)
 LOW Temperature 49°C (120°F)

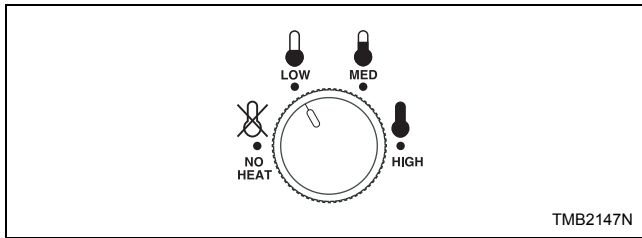


Figure 28

2. Set the HEAT TIME for the number of minutes (from 0 - 60) desired.

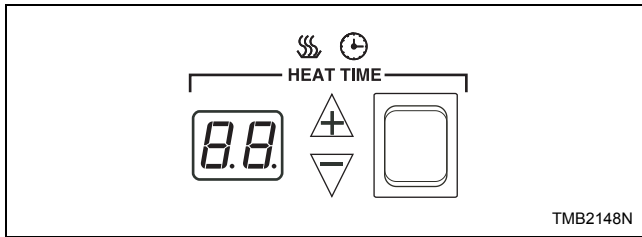


Figure 29

3. Set the COOL DOWN TIME for the number of minutes (from 0 - 15) desired.

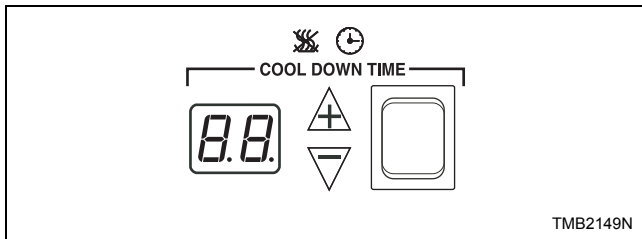


Figure 30

4. Select reversing or nonreversing cylinder rotation setting, if applicable.

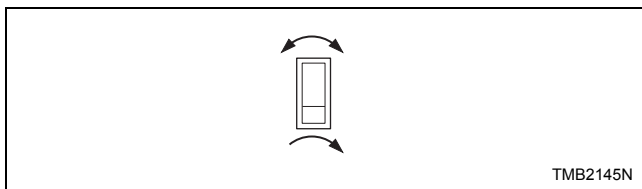


Figure 31

5. Press and release START button to start tumble dryer. Display will show minutes remaining before end of cycle.

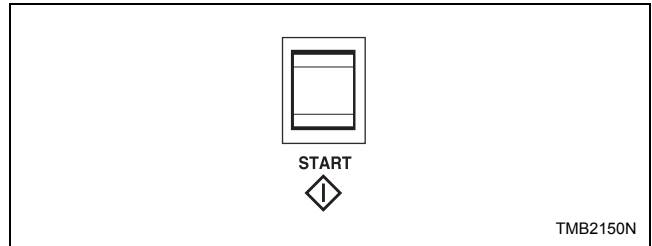


Figure 32

NOTE: One touch drying is available for repetitive loads. If the START button is pressed while the machine is in Idle Mode, when the display is dark, the tumble dryer will repeat the last drying cycle. If the cycle time is adjusted before the cycle is started, the time displayed when the start button was pressed will be used for future cycles.

IMPORTANT: To stop the tumble dryer at any time during the cycle, OPEN DOOR. If the loading door or lint panel door is opened during the cycle, the heating system will shut off and the motor will stop. To restart the cycle, both doors must be closed and the START button must be pressed in.

If the load cools to 32°C (90°F) before cool down time expires, the control will flash “Lr” (load ready) in the heat time display. If the door is not opened, the tumble dryer completes the selected cool down time. If the door is opened after reaching “Lr” temperature, the cycle will be terminated.

NOTE: If display shows an error code, refer to Error Codes section.

6. When the cycle is complete, open door and remove the laundry.

	WARNING
To prevent the risk of fire, remove laundry immediately in case of power failure.	
W779	

NOTE: This machine includes an anti-wrinkle/extended tumble feature. After the drying cycle is complete, the cylinder will tumble without heat every few minutes. The intermittent tumbling will continue for one hour or until the door is opened. Anti-wrinkle feature will tumble the load without heat for 30 seconds every 2 minutes for 1 hour OR until the loading door is opened.

Error Codes

Display	Definition	Corrective Action
OP	Open thermistor error	<ul style="list-style-type: none"> • Check thermistor. Replace if inoperative. • Check wiring diagram between control and thermistor. Refer to wiring diagram for proper wiring. • Check control. Replace if inoperative.
SH	Shorted thermistor error	<ul style="list-style-type: none"> • Check thermistor. Replace if inoperative. • Check wiring between control and thermistor. Refer to wiring diagram for proper wiring. • Check control. Replace if inoperative.
AF - 1	Airflow switch closed when cycle started	<ul style="list-style-type: none"> • Check airflow switch. Replace if inoperative.
AF - 2	Airflow switch failed to close after cycle started	<ul style="list-style-type: none"> • Check airflow switch. Replace if inoperative.
AF (Flashing)	Bouncing Airflow Switch	<ul style="list-style-type: none"> • Check airflow switch to ensure that it is properly aligned and securely mounted in the mounting bracket. • Make sure airflow switch can open and close freely. • Check installation and make sure there is adequate airflow. • Make sure exhaust is not blocked. • Clean the lint screen. • Replace airflow switch if inoperative.
AF (Solid)	Airflow Switch Closed when Resuming Cycle	<ul style="list-style-type: none"> • Allow up to 20 seconds for this condition to clear. • Check if airflow switch opens at end of cycle. • Replace airflow switch if inoperative.

Operating Instructions

Electronic OPL Micro Control

L and P Models with OM and RM Control Suffixes

1. To use an Automatic Cycle, press an ON/ SELECT pad. Select HIGH, MEDIUM, MED LOW, LOW or NO HEAT for items that should not be dried with heat. A light to the left of the selected pad lights up.

HIGH Temperature 82°C (180°F)
 MEDIUM Temperature 71°C (160°F)
 MED LOW Temperature 60°C (140°F)
 LOW Temperature 49°C (120°F)

To use a Time Dry or Custom Cycle, refer to the *Programming Manual*.

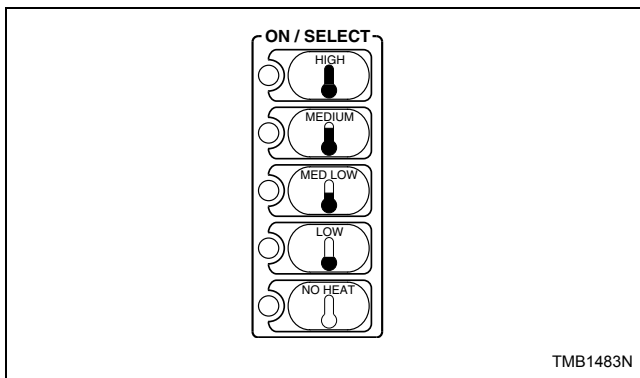


Figure 33

NOTE: Do not press directly on lights or the center of pad. For proper selection, press on pad slightly to the right of center. Refer to *Figure 34*.

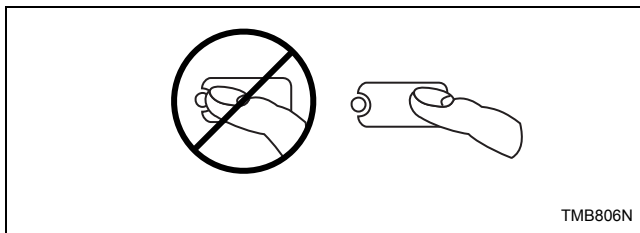


Figure 34

2. Select REVERSING or NONREVERSING cylinder rotation setting.

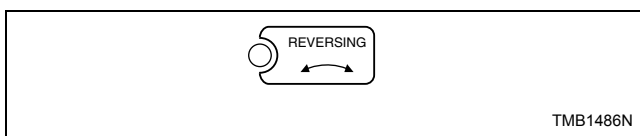


Figure 35

3. Press START pad to start tumble dryer.

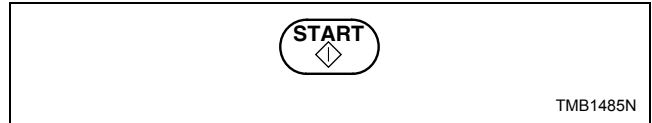


Figure 36

NOTE: All pads can be pressed in any sequence without damaging control or tumble dryer. To stop the tumble dryer at any time, open the door or press STOP/RESET.

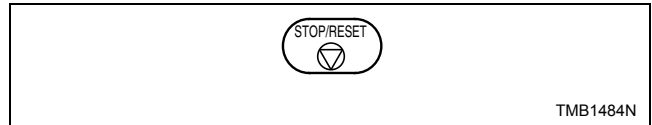


Figure 37

NOTE: The window display will flash. Press STOP/RESET twice (within three seconds) to end the cycle and reset the control to idle status. To restart the tumble dryer, CLOSE door and press START pad.

IMPORTANT: If the loading door or lint panel door is opened during the cycle, the heating system will shut off and the motor will stop. To restart the cycle, both doors must be closed and START pad must be pressed.

4. When the cycle is complete, open door and remove the laundry.

	WARNING
To prevent the risk of fire, remove laundry immediately in case of power failure.	
W779	

NOTE: This machine includes an anti-wrinkle/extended tumble feature. After the drying cycle is complete, the cylinder will tumble without heat every few minutes. The intermittent tumbling will continue for one hour or until the door is opened.

G and K Models with OM and RM Control Suffixes

1. To use an Automatic Cycle, press a TEMPERATURE pad. Select HIGH, MED, LOW, DELICATE or NO HEAT for items that should not be dried with heat. A light to the left of the selected pad lights up.

HIGH Temperature 82°C (180°F)
 MEDIUM Temperature 71°C (160°F)
 LOW Temperature 60°C (140°F)
 DELICATE Temperature 49°C (120°F)

To use a Time Dry or Custom Cycle, refer to the *Programming Manual*.

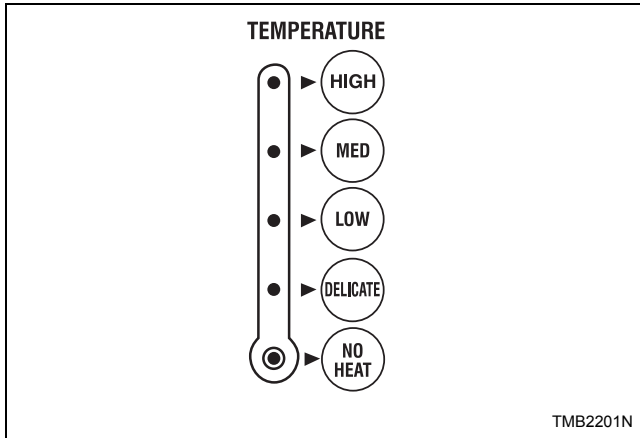


Figure 38

2. Select REVERSING or NONREVERSING cylinder rotation setting.

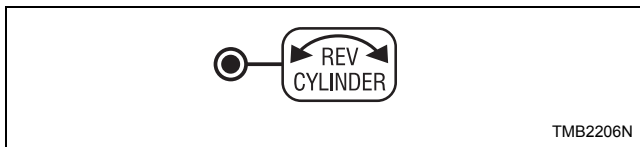


Figure 39

3. Press START pad to start tumble dryer.

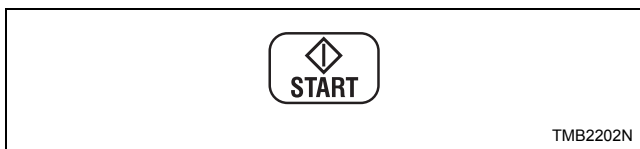


Figure 40

NOTE: All pads can be pressed in any sequence without damaging control or tumble dryer. To stop the tumble dryer at any time, open the door or press STOP.

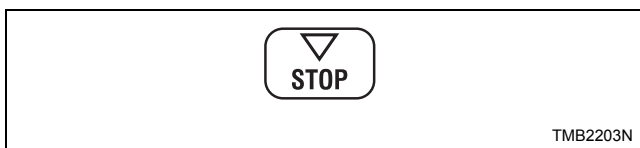


Figure 41

NOTE: The window display will flash. Press STOP twice (within 3 seconds) to end the cycle and reset the control to idle status. To restart the tumble dryer, CLOSE door and press START pad.

IMPORTANT: If the loading door or lint panel door is opened during the cycle, the heating system will shut off and the motor will stop. To restart the cycle, both doors must be closed and the PUSH TO START button must be pressed in.

4. When the cycle is complete, open door and remove the laundry.

	WARNING
To prevent the risk of fire, remove laundry immediately in case of power failure.	
<small>W779</small>	

NOTE: This machine includes an anti-wrinkle/extended tumble feature. After the drying cycle is complete, the cylinder will tumble without heat every few minutes. The intermittent tumbling will continue for one hour or until the door is opened.

Reversing Operation

Tumble Dryers with the reversing option prevent the tangling of large pieces of laundry and minimize wrinkling. These tumble dryers are equipped with a second motor and additional controls which reverse the rotation direction of the cylinder.

Reverse Control Switch

An “on-off” switch for manual timer models, or a touch pad for OPL Micro models is placed in the control panel area so the operator can select the reversing or nonreversing operation. In nonreversing mode, the cylinder will always turn clockwise (as viewed from the front of the tumble dryer). If the cylinder is turning counterclockwise when switched to nonreversing, it will continue for a few seconds and then start up in the proper direction.

IMPORTANT: After any electrical maintenance is done, make sure that the blower motor is turning clockwise as viewed from the front. Then set the reverse control switch to “nonreversing” and note that the cylinder turns constantly clockwise as viewed from the front of the tumble dryer. If not, interchange L1 and L2 service leads to the reverse drive motor.

Operating Instructions

MDC Coin and Card Control

BB, BC, BG, BL, BW, BX, BY and BZ Control Suffixes

1. Select temperature by pressing the appropriate temperature pad.

HIGH Temperature 88°C (190°F)

MED Temperature 82°C (180°F)

LOW Temperature 72°C (160°F)

DELICATES Temperature 54°C (130°F)

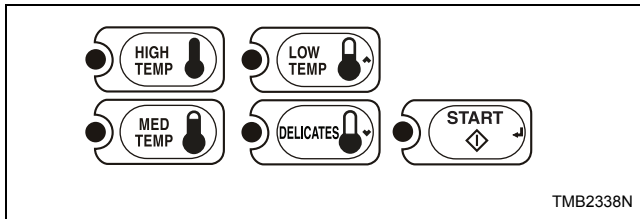


Figure 42

2. Insert the coin(s) in the coin slot, or the card into the opening.

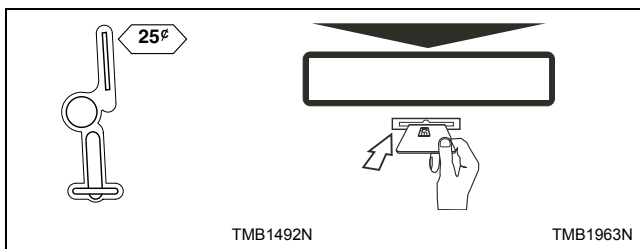


Figure 43

3. Press START pad to start tumble dryer.

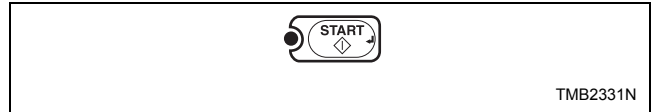
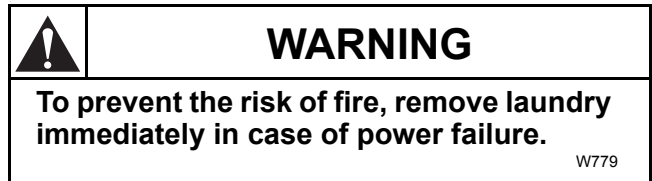


Figure 44

IMPORTANT: To stop the tumble dryer at any time during the cycle, OPEN DOOR. To restart the tumble dryer, CLOSE door and press START pad.

4. When the cycle is complete, open door and remove the laundry.



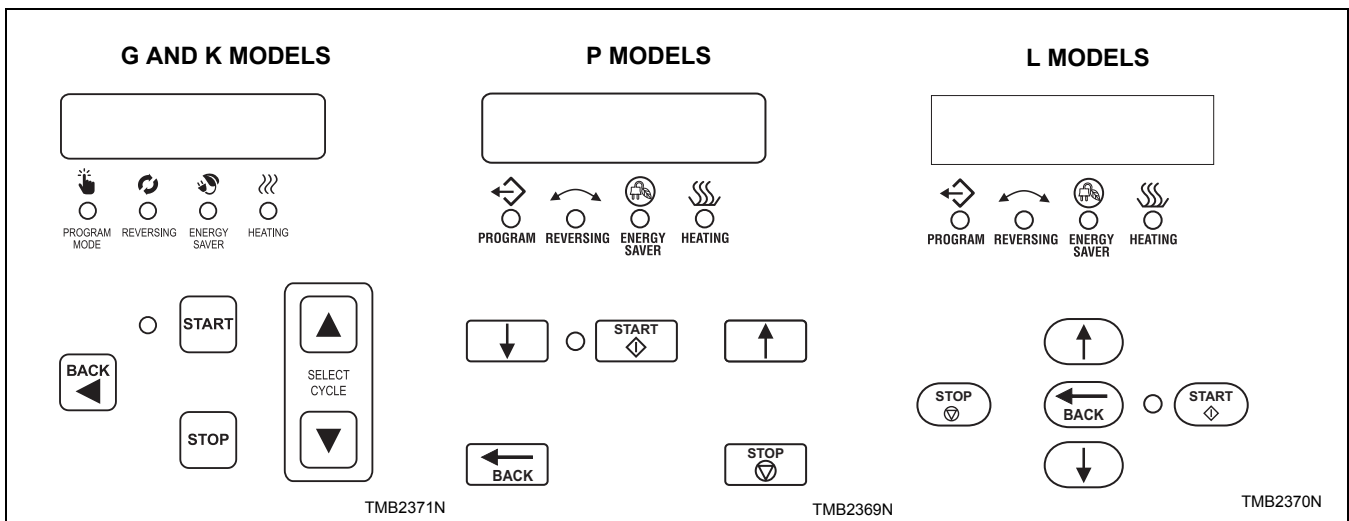


Figure 45

LED OPL Control

EO and RE Control Suffixes

1. Press the Up (↑) or Down (↓) keypad to change cycles.
To customize a cycle, refer to the *Programming Manual*.
2. Press START (◇/↻) to start selected cycle.

IMPORTANT: If the loading door or lint panel door is opened during the cycle, the heating system will shut off and the motor will stop. To restart the cycle, both doors must be closed and the START (◇/↻) pad must be pressed.

3. When the cycle is complete, open door and remove laundry.

	WARNING
To prevent the risk of fire, remove laundry immediately in case of power failure.	
<small>W779</small>	

NOTE: This machine includes an anti-wrinkle/extended tumble feature. After the drying cycle is complete, the cylinder will tumble without heat every few minutes. The intermittent tumbling will continue for one hour or until the door is opened. After an hour the machine enters delayed tumble and will tumble for two minutes every hour for up to 18 hours or until the door is opened.

Operating Instructions

Ignition Control Operation for Non-CE Models

Power Up

When power is applied to the ignition control, the control will begin the ignition sequence within 1 – 3 seconds prepurge waiting time.

Ignition Sequence

The control begins the ignition sequence after prepurge by powering the ignitor and opening the gas valve. The ignitor will remain on either until a flame is sensed or until a maximum of ten (10) seconds (10 +0/-4 sec) has elapsed. If a flame is established and lost during the 10 second period, the ignitor will be powered up again in an attempt to re-ignite the gas.

If no flame is detected within the ten (10) second ignition sequence, the control will terminate power to the gas valves, ignitor, and enter lockout within 5 seconds.

Normal Operation

Once a flame has been established, the spark ignitor will stop sparking and the control will continually monitor all inputs. If the controller senses a loss of flame after flame is established, the gas valve will remain energized and sparking will commence within one second of the flame loss. If flame reattempt fails, lockout will occur within 11 seconds of initial flame loss.

Termination of Flame

Normal flame termination occurs when the thermostat has been satisfied, meaning there is no immediate need for more heat. The thermostat will disconnect power from the ignition control, which will cause the gas valve to close and the flame to go out. After a short period of time, not less than 1 second, the thermostat will cool down and close causing power to be reapplied to the ignition control. When this occurs, the control must complete the same prepurge and ignition sequence specified above.

Control Lockout

When the control locks out, the gas valve will be closed and all requests for heat will be ignored. The lockout mode may only be discontinued by interrupting power to the control or cycling the thermostat. After this occurs, the control will restart with its normal power up and ignition sequence.

Low Voltage Detection

The control will have capability for detection of a low voltage input condition. If input voltage on power up is below 19.0VAC +0.8VAC/-0.5VAC, the control will disable output to gas valve control relay. If input voltage rises above 19.8VAC for at least three (3) seconds, the control will then re-enable function of the gas valve control relay and ignition sequence may begin. On powerup, the control function must always be disabled if greater than 19.8VAC.

Ignition Control Operation for CE Models

Power Up

After 24VAC is applied to the ignition control pins 24V and GND, the Diagnostic LED on the ignition control will turn orange/yellow. If a fault is detected the ignition control will enter Lockout Mode. If no faults are detected, the Diagnostic LED will turn Green and the ignition control will enter Standby Mode.

Standby Mode

While in Standby Mode, the ignition control will continually monitor the system for faults. Once 24VAC is applied to terminals TH and GND on the control, the ignition control will enter Start Up Mode.

Start Up Mode

During Start Up Mode, the ignition control will monitor the system for faults and begin the ignition sequence. If no faults are present, the ignition control will begin the ignition sequence by entering an 18 second waiting period. During this time the Green LED on the ignition control will switch between Red and Green, before maintaining a Green color.

After the waiting period, the ignition control will turn on the igniter and gas valve. The igniter will remain on until a flame is sensed, or up to 10 seconds.

Once a flame has been sensed the ignition control will stop sparking, the gas valve will remain on and ignition control will enter Run Mode.

If a flame is not sensed, the ignition control will then begin two additional retrials for ignition. The ignition control will re-enter the 18 seconds waiting period before the ignition control makes another attempt at ignition. If the three attempts at ignition fail, the ignition control will enter Lockout Mode.

Run Mode

While in Run Mode the ignition control leaves the gas valve on, monitors the flame signal, and leaves the igniter off.

If a flame signal is lost during Run Mode, one additional retrial for ignition will take place within one second. The ignition control will restore the spark for approximately 10 seconds. If the ignition re-attempt fails, the ignition control will enter Lockout Mode.

The ignition control will remain in Run Mode until 24VAC is removed from terminals TH and GND on the control.

Termination of Flame

The flame will go out when power is removed from ignition control. The ignition control will turn off the gas valve and enter Standby Mode.

Lockout Mode

When Lockout Mode is entered, the ignition control will remove power to the gas valve, the igniter will turn off, the Lockout/Reset Light will turn on, and the Diagnostic LED will display the appropriate Error Code.

Lockout Manual Reset

Lockout Mode is cleared by pressing an external reset switch for three seconds. The ignition control will clear all error codes and enter Standby Mode. During Lockout Manual Reset, the Diagnostic LED on the ignition control flashes red and orange, and the Reset Light remains on until the ignition control is reset. After the Reset Light turns off, stop pressing the switch. Holding the reset for three seconds after lockout has been cleared will cause a fault and result in entering Lockout Mode again.

System Tests

The following system tests are performed during normal operation. System tests are performed at a minimum of every 24 hours.

Low Voltage Detection

If the voltage between terminals TH and GND on the control is below 18.75VAC +/- 0.75VAC for more than 3 seconds the ignition control will turn off the gas valve and will not attempt to spark. The Diagnostic LED will display Error Code 5. The ignition control will not enter Lockout Mode if a low voltage condition is detected, but will enter Standby Mode and wait for the low voltage condition to be cleared.

If the voltage between terminals TH and GND on the control rises above 19.75VAC +/- 0.1VAC for at least 3 seconds, the ignition control will then enter Start Up Mode.

Low Voltage Detection test is disabled during Run Mode.

Gas Valve

The ignition control verifies that the gas valve is connected. Failure of this test results in the ignition control entering Lockout Mode with the Diagnostic LED displaying Error Code 2.

Operating Instructions

Flame Probe Tests

Unexpected Presence of Flame

The Unexpected Presence of Flame test is performed when no flame is expected. Failure of this test results in the ignition control entering Lockout Mode with the Diagnostic LED displaying Error Code 3.

Flame Monitoring

During the Flame Monitoring test, the flame is checked to ensure the gas is being burned when the gas valve is on. Failure of this test will result in the ignition control entering Lockout Mode with the Diagnostic LED displaying Error Code 3.

Diagnostic LED (DGN LED)/Error Codes

The Diagnostic LED or DGN LED is located by the power connector on the ignition control. Refer to *Figure 46*. The Diagnostic LED will indicate the status of the ignition control. Refer to *Table 13*.

LED Color	Description
Orange-Yellow	Initialization
Green	Standby/Normal Operation
Red	Fault Indication Code

Table 13

The Diagnostic LED will flash error codes one half second on and one half second off. Error codes are separated by a one second pause before the code is repeated.

Error Code	DGN LED status	Fault Type
1	Red	Ignition Control Internal Failure
2	2 Red Flashes	Gas Valve Not Connected
3	3 Red Flashes	Ignition/Flame Sense Failure
4	4 Red Flashes	Reset Switch is Shorted
5	Slow Red and Green Flashes	Low Voltage Detection
6	Fast Red and Orange Flashes	Ignition Control is in Reset Delay

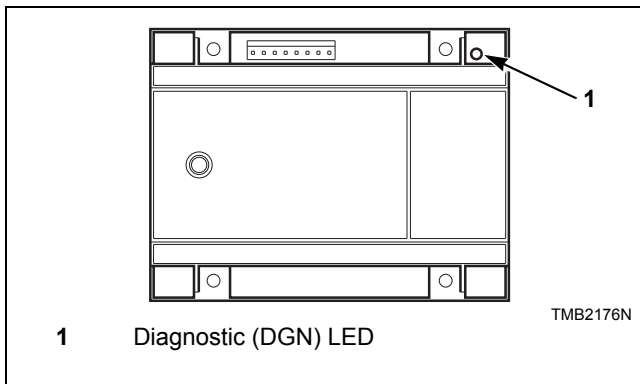


Figure 46

Adjustments



WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the tumble dryer before servicing.
- Close gas shut-off valve to gas tumble dryer before servicing.
- Close steam valve to steam tumble dryer before servicing.
- Never start the tumble dryer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumble dryer is properly grounded.

W002R1

Gas Burner Air Shutter

NOTE: Air inlet shutters on the burner must be adjusted so sufficient air is metered into the system for proper combustion and maximum efficiency. Before adjusting the inlet shutters be sure that all lint is removed from lint compartments and lint screen.

Air shutter adjustments will vary from location to location and will depend on the vent system, number of units installed, make-up air and line gas pressure. Opening the shutter increases the amount of primary air supplied to the burner while closing the shutter decreases the primary air supply. Adjust air shutter as follows:

Refer to *Figure 47*.

1. Open the access panel and remove the burner inspection hole plate.
2. Start the tumble dryer and check the flame pattern. If the flame pattern is straight up, insufficient air is flowing through the tumble dryer. A flame pattern that flares to the right and left indicates no air is flowing through the tumble dryer. Correct air and gas mixture is indicated if the flame pattern is primarily blue, with small yellow tips, and bends to the right of the heater section. Too little air is indicated if the flame is yellow, lazy and smokey.
3. To adjust the air shutter, loosen air inlet shutter adjusting screw.
4. Open or close air shutter as necessary to obtain proper flame intensity.

5. After air shutter is adjusted for proper flame, tighten air shutter adjusting screw securely.

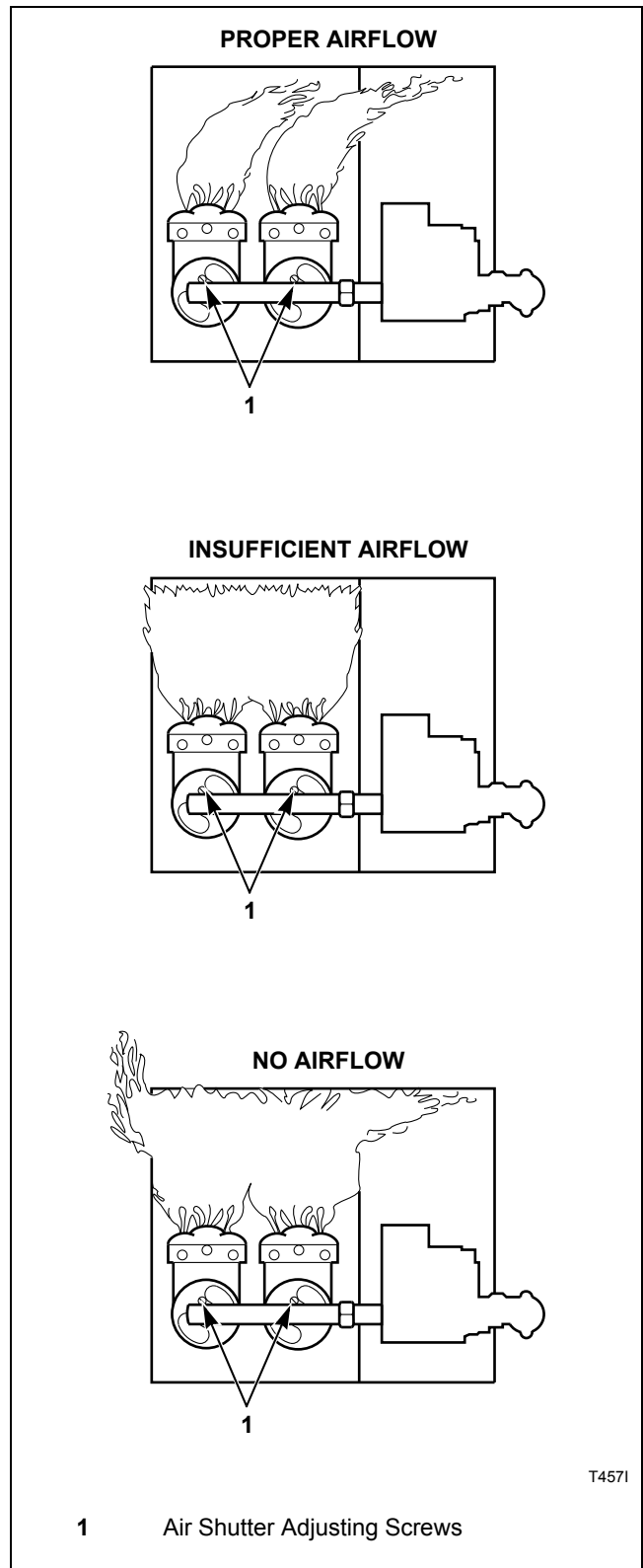



Figure 47

Adjustments

Airflow Switch

The airflow switch is set at the factory for proper operation. No adjustment necessary.

The airflow switch operation may be affected by shipping tape still in place, lack of make-up air, or an obstruction in the exhaust duct. These should be checked and the required corrective action taken.

	WARNING
<p>The tumble dryer must not be operated if the airflow switch does not operate properly. Faulty airflow switch operation may cause an explosive gas mixture to collect in the tumble dryer.</p>	
<small>W072R1</small>	

IMPORTANT: Airflow switch vane must remain closed during operation. If it opens and closes during the drying cycle, this indicates insufficient airflow through the tumble dryer. If switch remains open, or pops open and closed during the cycle, the heating system will shut off. The cylinder and fan will continue to operate even though the airflow switch is indicating insufficient airflow.

NOTE: To properly mount the airflow switch bracket, or in case of a load not drying, the airflow switch bracket may need to be checked for proper alignment. Be sure the locator pins are securely in their respective holes before tightening the bracket mounting screws. This will assure proper alignment of the airflow switch arm in the channel of the airflow switch bracket and prevent binding of the arm.

Loading Door Switch

The door switch should be adjusted so the cylinder stops when door is opened 51 mm (2 inches) plus or minus 6 mm (0.25 inch). This switch is a normally open switch and is closed by the hinge cam when the door is closed. If adjustment is required, refer to *Figure 48* and proceed as follows:

1. Close door and start tumble dryer, slowly open loading door. Cylinder and heat system should shut off when door is open 51 mm (2 inches) plus or minus 6 mm (0.25 inch).
2. Slowly close the loading door. When door is 51 mm (2 inches) from being fully closed, the door switch actuating bracket (located on the door) should depress the button and the switch arm with an audible “click.”
3. If the actuating bracket does not operate the switch at the appropriate door closure, bend the actuating switch arm in or out to achieve proper actuation.

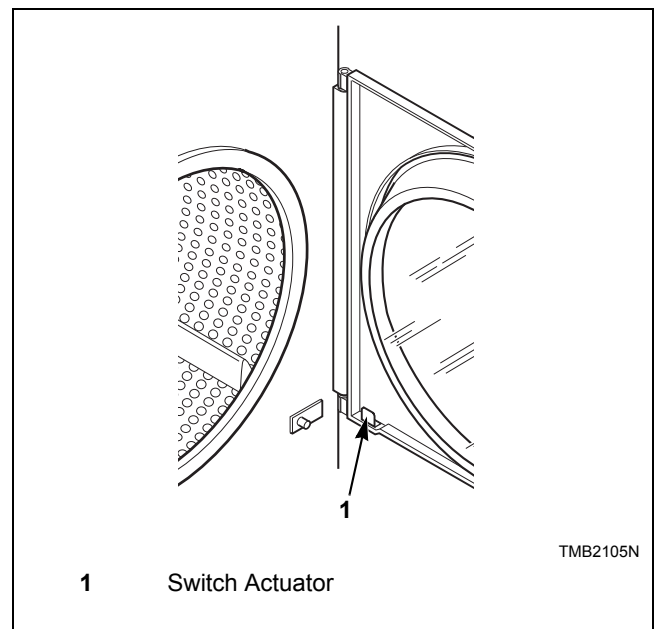


Figure 48

Loading Door Catch

The door catch must be adjusted to have sufficient tension to hold loading door closed against force of load tumbling against it. Proper adjustment is when 0.48-1.03 bar (7-15 pounds) pull is required to open door.

If adjustment is required, refer to *Figure 49* and proceed as follows:

To adjust, open door, loosen acorn nut and turn door strike screw in or out as required. Tighten acorn nut.

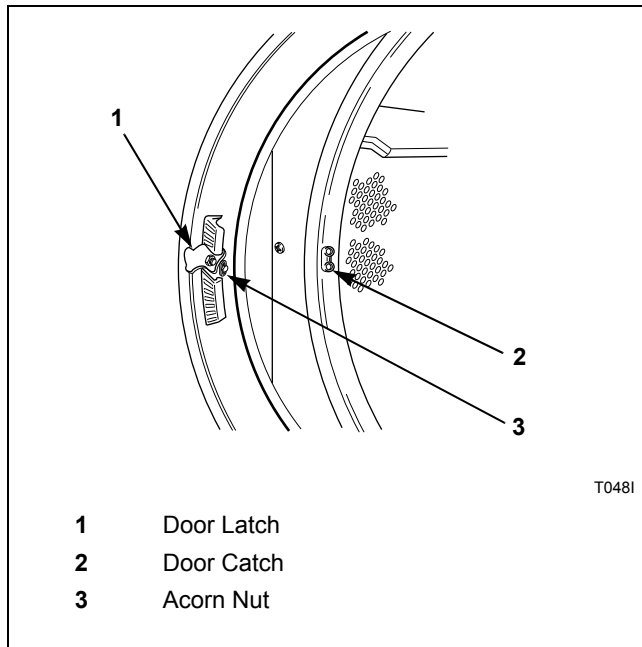


Figure 49

Drive Belt

Nonreversing Models

Refer to *Figure 50*.

Proper tension is when the drive V-belt can be depressed approximately 13 mm (0.5 inch) by applying light thumb pressure at a point midway between the sheave and motor pulley.

1. Remove guard from rear of tumble dryer.
2. To adjust belt tension, loosen idler housing bolts holding idler housing assembly to the guide rails.
3. Position housing assembly by turning adjusting bolt until proper belt tension is reached, then retighten idler housing bolts.
4. Replace the guard on rear of tumble dryer.

Reversing Models

Refer to *Figure 51*.

Proper tension is when the drive belt can be depressed approximately 13 mm (0.5 inch) by applying light thumb pressure (approximately 0.35 bar [5 pounds]) at a point midway between the sheave and motor pulley.

Proper tension is when each cylinder belt can be depressed approximately 5 mm (0.19 inch) by applying light thumb pressure (approximately 0.35 bar [5 pounds]) at a point midway between the sheave and the idler.

1. Remove guard from rear of tumble dryer.
2. To adjust cylinder belt tension, loosen idler housing bolts holding idler housing assembly to the guide rails.
3. Position housing assembly by turning adjusting bolt until proper belt tension is reached, then retighten idler housing bolts.

NOTE: Adjusting the cylinder belt tension will change the drive tension. Drive belt tension must also be adjusted.

4. Loosen the locking bolt.
5. Loosen the adjusting nut and use the adjusting screw to move the motor up or down.
6. Once proper belt tension is reached, retighten the adjusting nut and locking bolt.
7. Replace the guard on rear of tumble dryer.

Adjustments

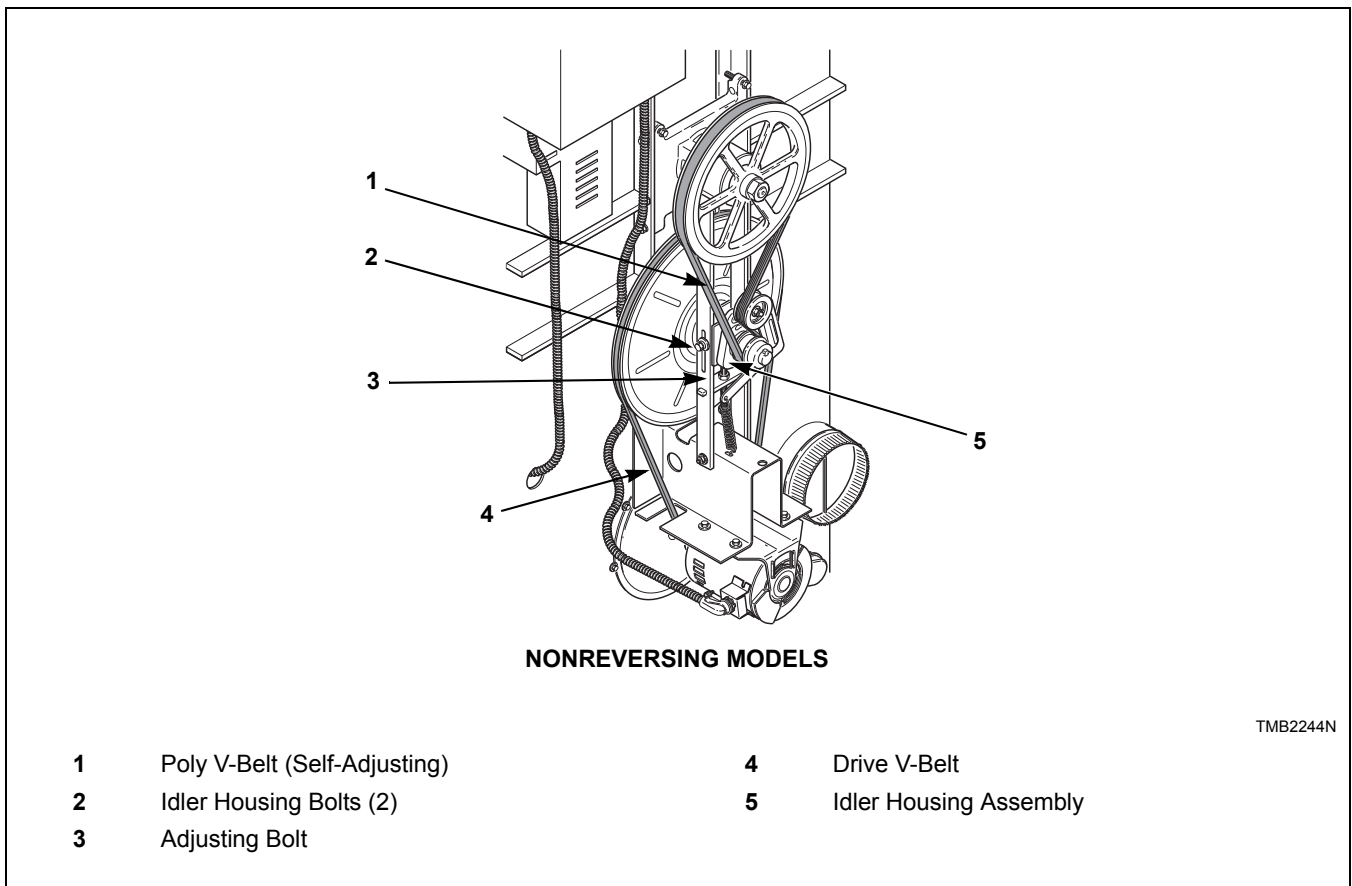
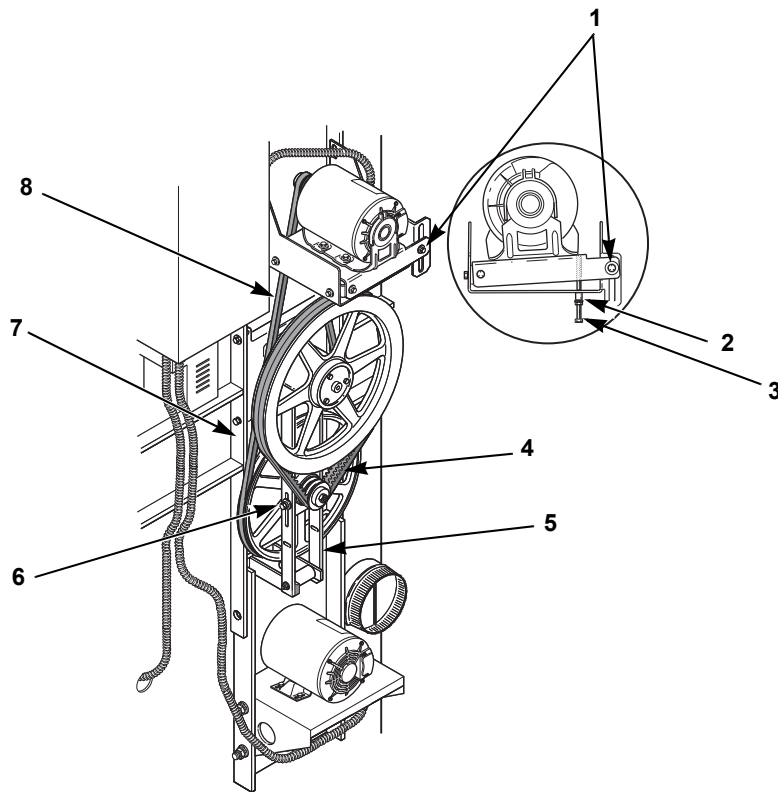


Figure 50



REVERSING MODELS

- | | | | |
|----------|-----------------|----------|----------------------------|
| 1 | Locking Bolt | 5 | Guide Rail |
| 2 | Adjusting Nut | 6 | Idler Housing Bolts (2) |
| 3 | Adjusting Screw | 7 | Adjusting Bolt (Not shown) |
| 4 | Cylinder Belts | 8 | Drive Belt |


TMB2283N

Figure 51

Maintenance

Daily

1. Inspect the area surrounding tumble dryers, remove all combustible materials, including lint, before operating the machines.
2. Check cylinder for foreign objects to avoid damage to clothing and equipment.
3. Clean lint from lint compartment and screen to maintain proper airflow and avoid overheating.

	WARNING
<p>To reduce the risk of serious injury, do not open the lint panel while the tumble dryer is in operation. Before cleaning the lint screen, open tumble dryer door and allow cylinder to completely stop.</p>	
W410R1	

- a. Open the lint panel.
 - b. Remove all accumulated lint in the lint compartment area. Lightly brush any lint that may be left on the lint screen.
 - c. Be sure the lint screen is not torn.
 - d. The lint screen is designed to completely cover the entire opening in the lint screen panel. Be sure that it does so.
 - e. Wipe lint off of the cabinet high limit thermostat and thermistor. Refer to *Figure 52*.
 - f. Replace the lint compartment panel on the tumble dryer ensuring a tight fit, and lock if applicable.
4. At end of day, clean the machine's top, front and side panels with mild detergent. Rinse with clean water. **DO NOT** use products that contain alcohol on the control panel.

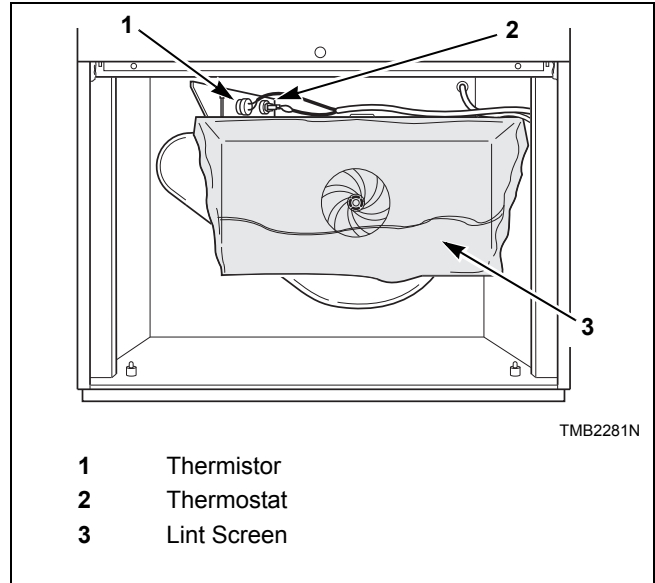


Figure 52

Monthly

1. Remove lint and debris from inside exhaust duct to maintain proper airflow and avoid overheating.
 - a. Remove external duct and duct access covers, if present.
 - b. Clean inside of duct with a vacuum.
 - c. Clean dampers and make sure they operate freely.
2. Ensure even lint distribution over lint screen.
3. Carefully wipe any accumulated lint off the cabinet high limit thermostat and thermistor, including perforated cover.
4. Clean lint and debris buildup from blower to maintain proper airflow.

Quarterly

1. Use a vacuum to clean air vents on drive motors.
2. Use a vacuum to clean lint from rear limit thermostat cover.
3. Check and clean steam coils, if applicable.
4. Check flow of combustion and ventilation air.
5. Check belt tension and condition. Replace worn or cracked belts.

Bi-Annually

1. Check mounting hardware for any loose nuts, bolts or screws.
2. Check gas connections for leakage.
3. Check for loose electrical connections.
4. Check steam connections for looseness and leakage.
5. Remove all front panels and vacuum, including coin drop mechanisms.
6. Check cylinder and front panel seals.
7. Inspect cabinet and inner panels for any damage, replace or repair as needed.
8. Clean burner tubes and orifice area of any lint buildup.

Annually

1. Remove burner tubes and clean using water and a brush.

Maintenance

Fire Suppression System Maintenance Test

To ensure proper operation, the fire suppression system must be tested every three months. If the system test does not perform as indicated:


1. Discontinue use of the tumble dryer.
2. Refer to *Troubleshooting Manual* or contact a qualified service person.
3. Restore the fire suppression system to proper working order before using tumble dryer.

Create a maintenance record with a check box for pass, the date and a signature. Store this record in an area where it will not be damaged, but is easily accessible to person performing tests.

NOTE: Failure to maintain the fire suppression system will void the tumble dryer warranty.

NOTE: The auxiliary output is activated during the fire suppression system maintenance test sequence. Consider this fact prior to testing the system every three months. (Example – If the external system uses the auxiliary output to call the fire department, inform the fire department before and after the fire suppression system maintenance test.)

IMPORTANT: For Electric Models only – Whenever the machine has been internally sprayed with water, the heating elements must be completely dry before you run the machine with heat. To fully dry the heating elements, run the machine WITHOUT HEAT for a minimum of sixty (60) minutes before resuming normal operation.

	CAUTION
Clean up any water spilled during testing to avoid personal injury.	
<small>W487</small>	

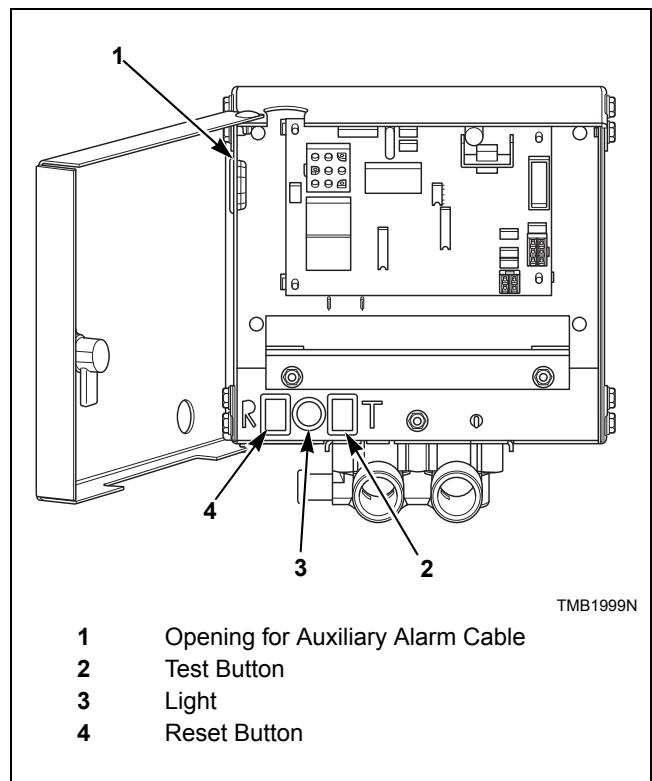


Figure 53

To perform the fire suppression system maintenance test:

1. If the auxiliary alarm output is connected to a separate alarm system, disconnect prior to performing the fire suppression system maintenance test.
2. Remove any lint from the lint compartment.
3. Ensure temperature sensors are free of lint.
4. Place a load of dry towels in the tumble dryer. Refer to *Table 14* for proper load size. Ensure the cylinder baffles are to the left and right of the spray manifold located at the center top of the cylinder.
5. Unlock the fire suppression system control box.
6. Press and hold the test button, verify the light is on, this should take approximately five seconds. Refer to *Figure 53*. After a one-second pause water should begin to spray into the cylinder.
7. After 15 seconds of water spray, press and hold the reset button until water spray is off and light is off. This should take approximately one second. Refer to *Figure 53* and *Figure 54*.

8. Immediately remove and weigh the load. Refer to *Table 14* for acceptable weight range. If less than minimum pounds indicated in *Table 14*, the fire suppression system has failed the maintenance test. Refer to the *Troubleshooting section*.

IMPORTANT: If the fire suppression system failed the maintenance test, DO NOT operate the tumble dryer.

	Dry Weight		Wet Weight		Minimum Weight	
	kg	lbs.	kg	lbs.	kg	lbs.
50	11	25	18-20	40-44	16	35
75	18	40	26-28	57-61	24	52

Table 14

9. Clean up any water on the floor.
10. **Electric Models Only:** Run machine WITHOUT HEAT for a **minimum** of 60 minutes before continuing with steps 11-14.
11. Lock the fire suppression system control box.
12. If the separate alarm option is being used, reconnect the auxiliary alarm output.
13. Start the tumble dryer to dry the test load.
14. On maintenance record, check box if fire suppression system passed the test, date and sign record.

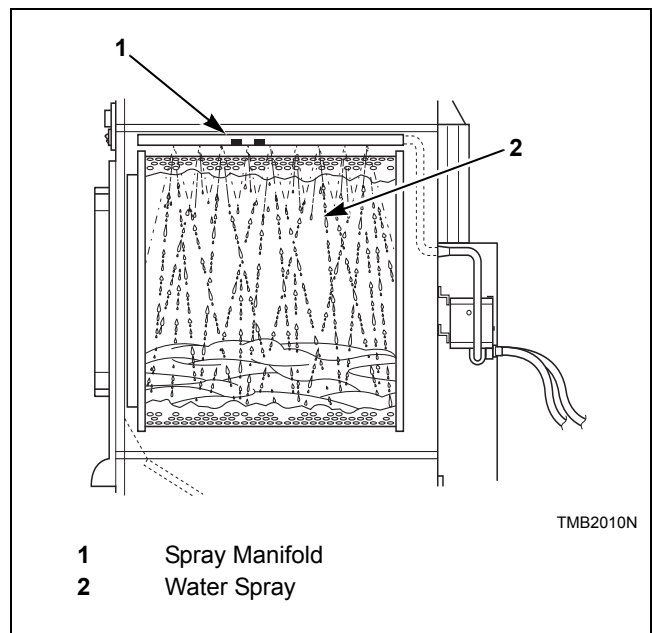


Figure 54

Before You Call for Service

Won't Start	Won't Heat	Clothes Not Dry	Possible Reason – Corrective Actions
•			Insert correct coin(s) or valid card if applicable.
•			Close the loading door tightly.
•			Close lint panel tightly.
•			Press the PUSH-TO-START or START pad/button.
•			Be sure power cord is plugged all the way into the electrical outlet.
•			Drying timer is in OFF position.
•			Check the main fuse and circuit breaker.
•			Check fuses located in the machine.
	•		Insufficient airflow.
	•		Gas shut-off valve in OFF position.
	•		Are controls properly set?
	•		Broken drive belt. Call the service person.
	•	•	Tumble Dryer is in Cool Down Mode.
	•	•	Lint screen clogged. Clean lint screen.
	•	•	Exhaust duct to outside is blocked. Clean out.

Removing Tumble Dryer from Service

If the tumble dryer is to be removed from service, perform the following steps where applicable:

- Turn off electrical supply external to machine.
- Turn off electrical disconnect on machine.
- Turn off gas supply external to machine.
- Turn off manual gas shut-off valve on machine.
- Turn off steam supply external to machine.
- Remove all electric, gas and steam connections.

Disposal of Unit

This appliance is marked according to the European directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Refer to *Figure 55*. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. Ensuring this product is disposed of correctly will help prevent potential negative consequences for the environment and human health which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact the local city office, household waste disposal service, or the source from which the product was purchased.

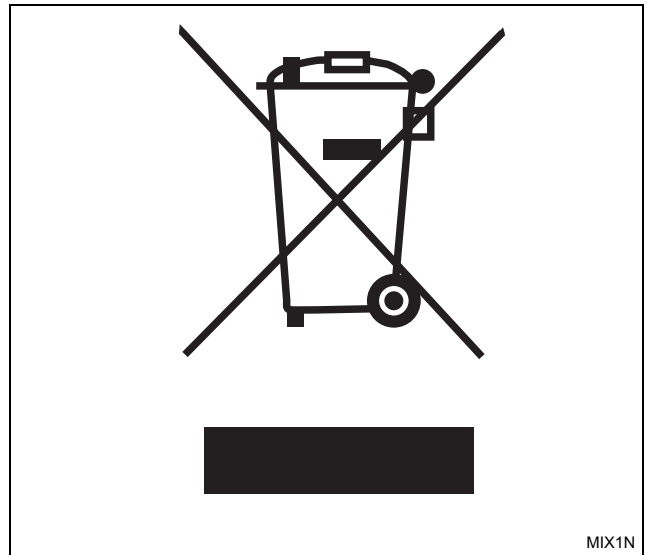


Figure 55

