

AD-410 Installation Manual

Phase 7

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

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

— WHAT TO DO IF YOU SMELL GAS:

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

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

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

— Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil.

— QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:

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

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



American Dryer Corporation

88 Currant Road

Fall River MA 02720-4781 USA

Telephone: +1 (508) 678-9000 / Fax: +1 (508) 678-9447

e-mail: techsupport@amdry.com

www.amdry.com

Retain This Manual in a Safe Place for Future Reference

This product embodies advanced concepts in engineering, design, and safety. If this product is properly maintained, it will provide many years of safe, efficient, and trouble free operation.

Only qualified technicians should service this equipment.

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

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

FOR YOUR SAFETY

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

POUR VOTRE SÉCURITÉ

Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil.

We have tried to make this manual as complete as possible and hope you will find it useful. The manufacturer reserves the right to make changes from time to time, without notice or obligation, in prices, specifications, colors, and material, and to change or discontinue models. The illustrations included in this manual may not depict your particular dryer exactly.

IMPORTANT

For your convenience, log the following information:

DATE OF PURCHASE _____ MODEL NO. AD-410 PH7

RESELLER'S NAME _____

SERIAL NUMBER(S) _____

Replacement parts can be obtained from your reseller or the ADC factory. When ordering replacement parts from the factory, you can FAX your order to ADC at +1 (508) 678-9447 or telephone your order directly to the ADC Parts Department at +1 (508) 678-9000. Please specify the dryer model number and serial number in addition to the description and part number, so that your order is processed accurately and promptly.

"IMPORTANT NOTE TO PURCHASER"

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

⚠ WARNING

Proposition 65

Use of this product could expose you to substances from fuel combustion that contain chemicals known to the State of California to cause cancer, birth defects and other reproductive harm.

IMPORTANT

You must disconnect and lockout the electric supply and the gas supply or the steam supply before any covers or guards are removed from the machine to allow access for cleaning, adjusting, installation, or testing of any equipment per OSHA standards.

Please observe all safety precautions displayed on the equipment and/or specified in the installation manual included with the dryer.

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

CAUTION

Dryer(s) should never be left unattended while in operation.

When discarding or storing your old clothes dryer, remove the door.

Lorsque vous entreposez ou mettez votre sècheuse au rebut, enlevez-en la porte.

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

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

WARNING

Children should not be allowed to play on or near the dryer(s). Children should be supervised if near dryer(s) in operation.

Under no circumstances should the dryer door switch(es), lint door/drawer switch(es), or heat safety circuit(s) ever be disabled.

The dryer must never be operated with any of the back guards, outer tops, or service panels removed. Personal injury or fire could result.

The dryer must never be operated without the lint filter/screen in place, even if an external lint collection system is used.

FOR YOUR SAFETY

Do not dry mop heads in the dryer. Do not use dryer in the presence of dry cleaning fumes.

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

The wiring diagram for the dryer is located behind the control panel.

Table of Contents

Safety Precautions	4
Specifications	5
Dimensions and Component Identification / Location	6
Installation Procedures	9
Reassembly of Dryer	9
Location Requirements	18
Fresh Air Supply Requirements	19
Exhaust Requirements	19
Compressed Air Supply System	22
Electrical Information	22
Gas Information	23
Steam Information	25
Preoperational Test	27
Preparation for Operation/Start-Up	28
Shutdown Instructions	29
Service / Parts Information	29
Service	29
Parts	29
Warranty Information	29
Returning Warranty Cards	29
Warranty	29
Returning Warranty Parts	29
Routine Maintenance	30
Cleaning	30
Adjustments	31
Lubrication	31
Component System Descriptions	31
Burner and Tumbler / Lint Chamber	
Manual Reset Hi-Limit Instructions	32
Phase 7 – Gas Models Only	32
Data Label Information	33
Procedure for Functional Check of Replacement Components	33
S.A.F.E. System	33

List of Acronyms

DSI	Direct Spark Ignition
HVAC	Heating, Ventilating, and Air-Conditioning
in WC	Inches of Water Column
L.C.D.	Liquid Crystal Display
L.E.D.	Light Emitting Diode
L.P.	Liquid Propane
OSHA	Occupational Safety and Health Administration
R.M.A.	Return Material Authorization
UL	Underwriters Laboratory

Safety Precautions

WARNING

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

The dryer must never be operated with any of the back guards, outer tops, or service panels removed. Personal injury or fire could result.

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

Purchaser/user should consult the local gas supplier for proper instructions to be followed in the event the user smells gas. The instructions should be posted in a prominent location.

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 gas supplier.

Dryer(s) must be exhausted to the outdoors.

Although ADC produces a very versatile dryer, there are some articles that, due to fabric composition or cleaning method, should not be dried in it.

WARNING

Dry only water washed fabrics. Do not dry articles spotted or washed in dry cleaning solvents, a combustible detergent, or "all purpose" cleaner. Explosion could result.

Do not dry rags or articles coated or contaminated with gasoline, kerosene, oil, paint, or wax. Explosion could result.

Do not dry mop heads. Contamination by wax or flammable solvents will create a fire hazard.

Do not use heat for drying articles that contain plastic, foam, sponge rubber, or similarly textured rubber materials. Drying in a heated tumbler may damage plastics or rubber and may be a fire hazard.

A program should be established for the inspection and cleaning of lint in the heating unit area, exhaust ductwork, and inside the dryer. The frequency of inspection and cleaning can best be determined from experience at each location.

WARNING

The collection of lint in the burner area and exhaust ductwork can create a potential fire hazard.

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

NOTE: Failure to do so will void the warranty.

Under no circumstances should the dryer door switch, lint drawer switch, or heat safety circuits ever be disabled.

WARNING

Personal injury or fire could result.

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

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

WARNING

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

Do not operate steam dryers with more than 125 psi (8.61 bar) steam pressure. Excessive steam pressure can damage steam coil and/or harm personnel.

Replace leaking flexible hoses or other steam fixtures immediately. Do not operate the dryer with leaking flexible hoses. Personal injury may result.

Read and follow all caution and direction labels attached to the dryer.

For safety, proper operation, and optimum performance, the dryer must not be operated with a load less than sixty-six percent, 270 lb (122.47 kg) of its rated capacity.

WARNING

You must disconnect and lockout the electric supply and the gas supply or the steam supply before any covers or guards are removed from the machine to allow access for cleaning, adjusting, installation, or testing of any equipment per OSHA standards.

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

MAXIMUM CAPACITY (DRY WEIGHT)			410 lb	185.97 kg
TUMBLER DIAMETER			68-3/4"	174.63 cm
TUMBLER DEPTH			66-3/8"	168.61 cm
TUMBLER VOLUME			143 cu ft	4049.309 L
TUMBLER/DRIVE MOTOR			7-1/2 hp	5.59 kW
BLOWER/FAN MOTOR (GAS / STEAM)			15 hp / 25 hp	11.2 kW / 18.7 kW
DOOR OPENING			38" w x 50" h	96.52 cm x 127 cm
DOOR SILL HEIGHT			39-3/4"	100.97 cm
WATER CONNECTION			1" F.N.P.T.	
DRYERS PER 20'/40' CONTAINER			1 / 3	
DRYERS PER 48'/53' TRUCK			3 / 4	
Gas	VOLTAGE AVAILABLE		208-575v	3ø 3,4w 50/60 Hz
	APPROX. NET WEIGHT		6,300 lb	2,857.63 kg
	APPROX. SHIPPING WEIGHT		6,800 lb	3,084.43 kg
	AIRFLOW		9,200 cfm	260.52 cmm
	HEAT INPUT		1,400,000 Btu/hr	352,794 kcal/hr
	EXHAUST CONNECTION (DIAMETER)		28"	71.12 cm
	COMPRESSED AIR CONNECTION		3/8" F.N.P.T.	
	COMPRESSED AIR VOLUME (1-WAY / 2-WAY)		5-1/2 cfh / 7 cfh	0.16 cmh / 0.2 cmh
	INLET PIPE CONNECTION		1-1/2" F.N.P.T.	
Electric	VOLTAGE AVAILABLE		N / A	
	APPROX. NET WEIGHT			
	APPROX. SHIPPING WEIGHT			
	AIRFLOW			
	EXHAUST CONNECTION (DIAMETER)			
	COMPRESSED AIR CONNECTION			
	COMPRESSED AIR VOLUME (1-WAY / 2-WAY)			
	OVEN SIZE			
	kW	Btu/hr	kcal/hr	
Steam	VOLTAGE AVAILABLE		208-575v	3ø 3,4w 50/60 Hz
	APPROX. NET WEIGHT		6,800 lb	3,084.43 kg
	APPROX. SHIPPING WEIGHT		7,300 lb	3,311.22 kg
	AIRFLOW		9,200 cfm	260.52 cmm
	STEAM CONSUMPTION		1,257 lb/hr	570.17 kg/hr
	OPERATING STEAM PRESSURE		125 psi max	8.62 bar
	EXHAUST CONNECTION (DIAMETER)		28"	71.12 cm
	COMPRESSED AIR CONNECTION		3/8" F.N.P.T.	
	COMPRESSED AIR VOLUME (1-WAY / 2-WAY)		5-1/2 cfh / 7 cfh	0.16 cmh / 0.2 cmh
	BOILER HORSEPOWER (NORMAL LOAD)		38 Bhp	
	SUPPLY CONNECTION		2" M.N.P.T.	
	RETURN CONNECTION		1-1/4" M.N.P.T.	

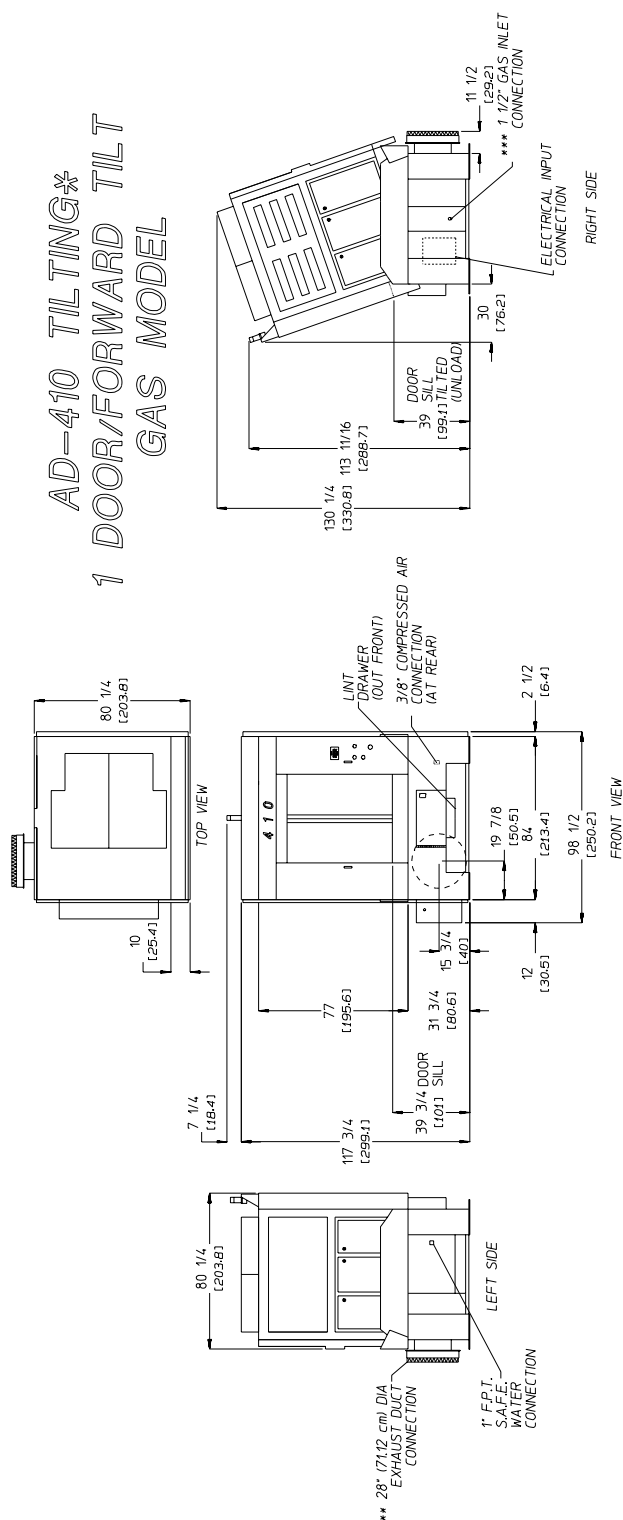
Shaded areas are stated in metric equivalents

9/2/04

NOTE: Dryers must be provided with a clean, dry, regulated 80 psi +/- 10 psi (5.51 bar +/- 0.68 bar) air supply (equivalent volume = 11 cfh [0.31 cmh]).

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

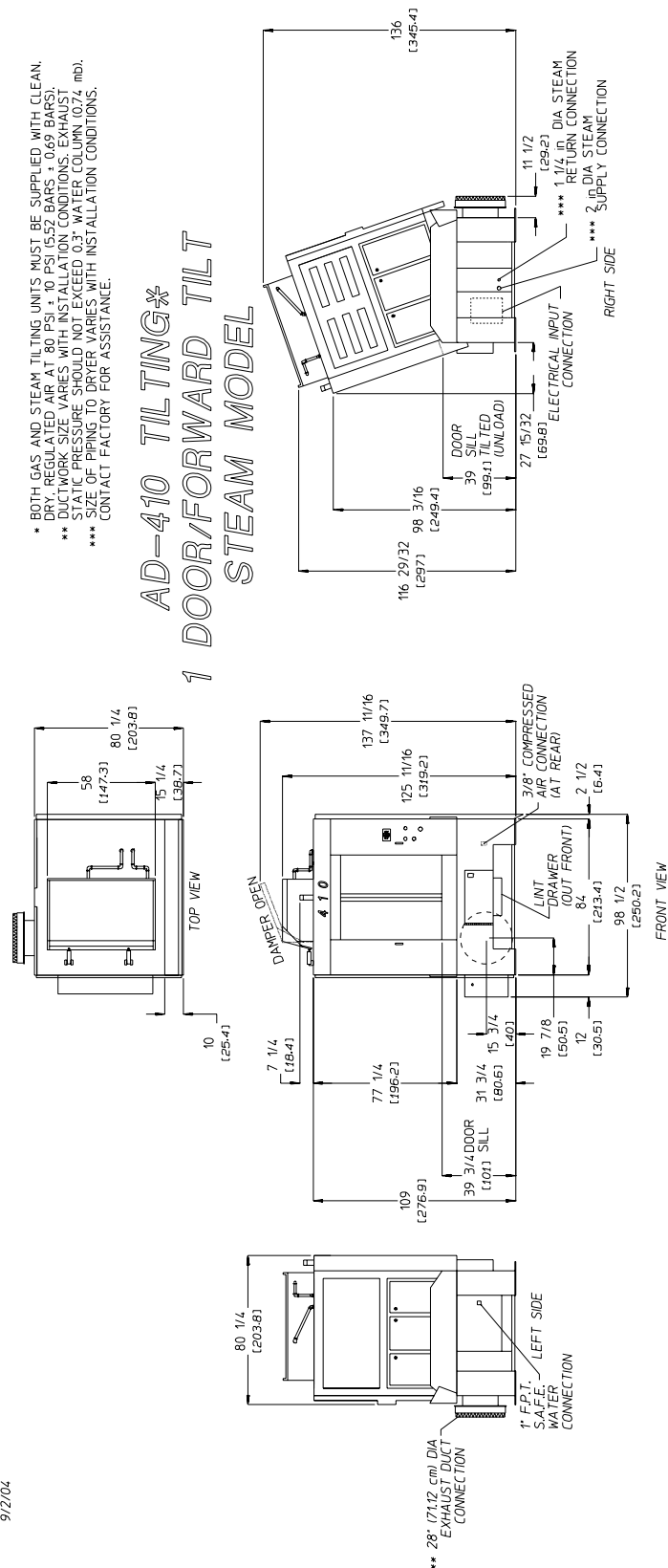
AD-410 TILTING* 1 DOOR/FORWARD TILT GAS MODEL



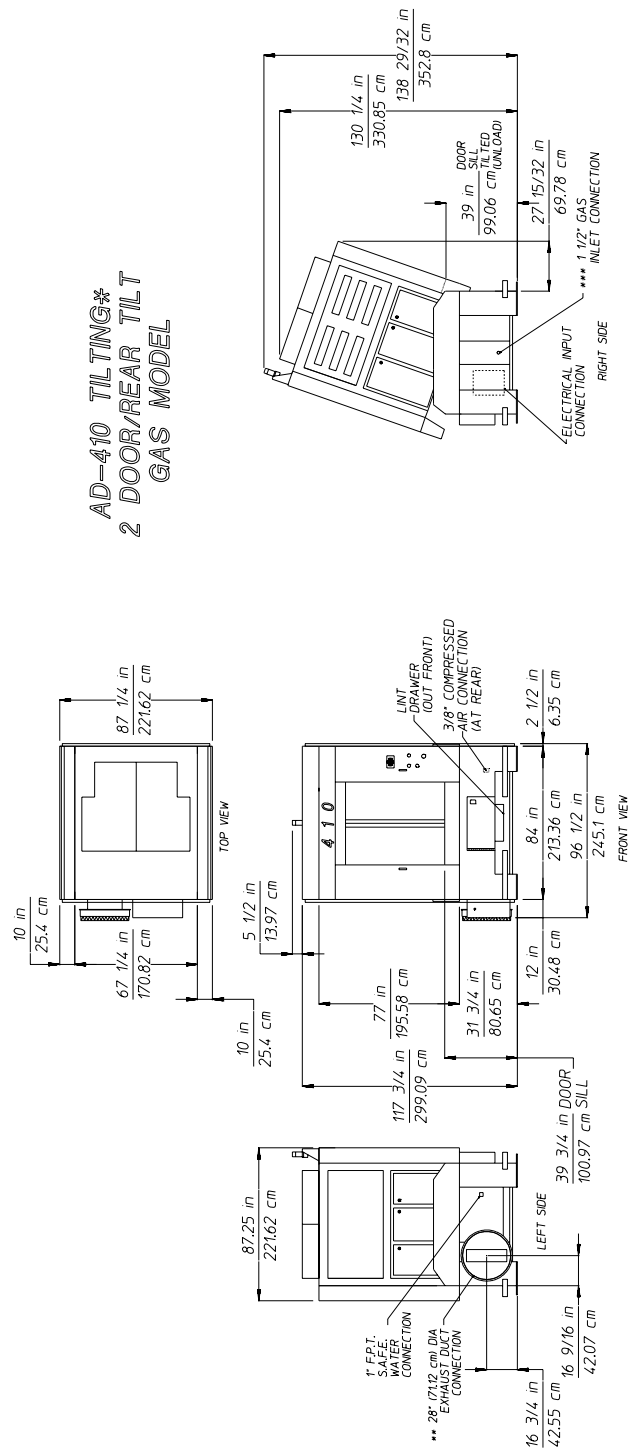
9/2/04

* BOTH GAS AND STEAM TILTING UNITS MUST BE SUPPLIED WITH CLEAN, DRY, REGULATED AIR AT 80 PSI ± 10 PSI (5.52 BARS ± 0.69 BARS).
** DUCTWORK SIZE VARIES WITH INSTALLATION CONDITIONS. EXHAUST STATIC PRESSURE SHOULD NOT EXCEED 0.3" WATER COLUMN (0.74 mm).
*** SIZE OF PIPING TO DRYER VARIES WITH INSTALLATION CONDITIONS. CONTACT FACTORY FOR ASSISTANCE.

AD-410 TILTING* 1 DOOR/FORWARD TILT STEAM MODEL

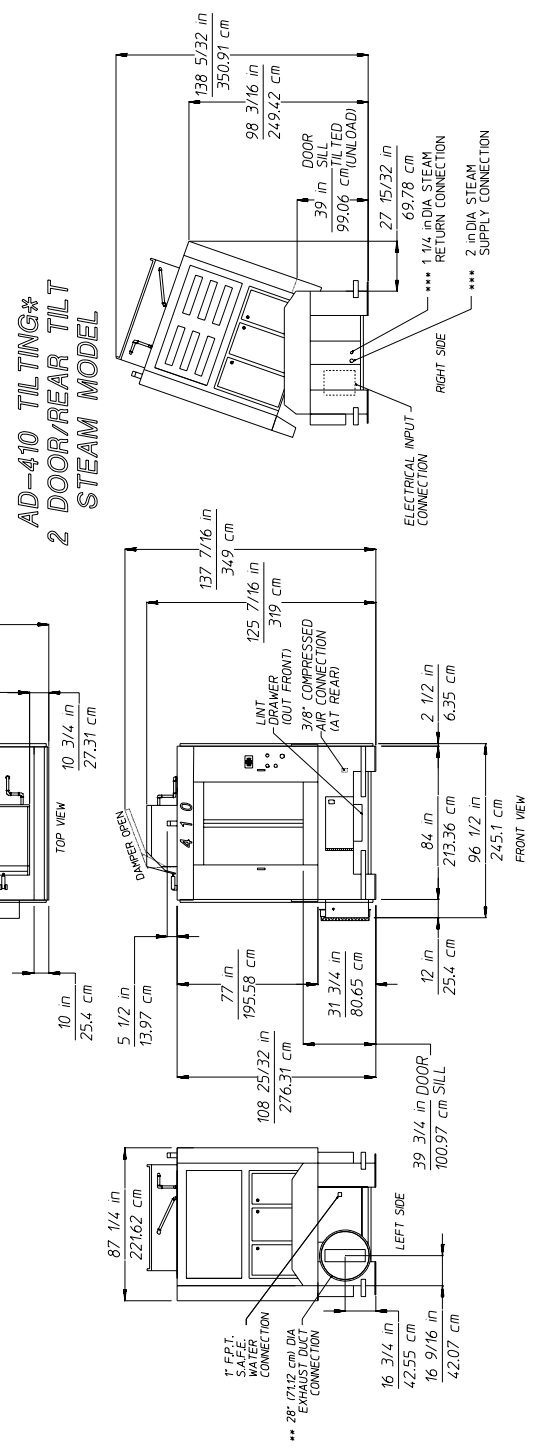


NOTE: ADC reserves the right to make changes in specifications at any time without notice or obligation.

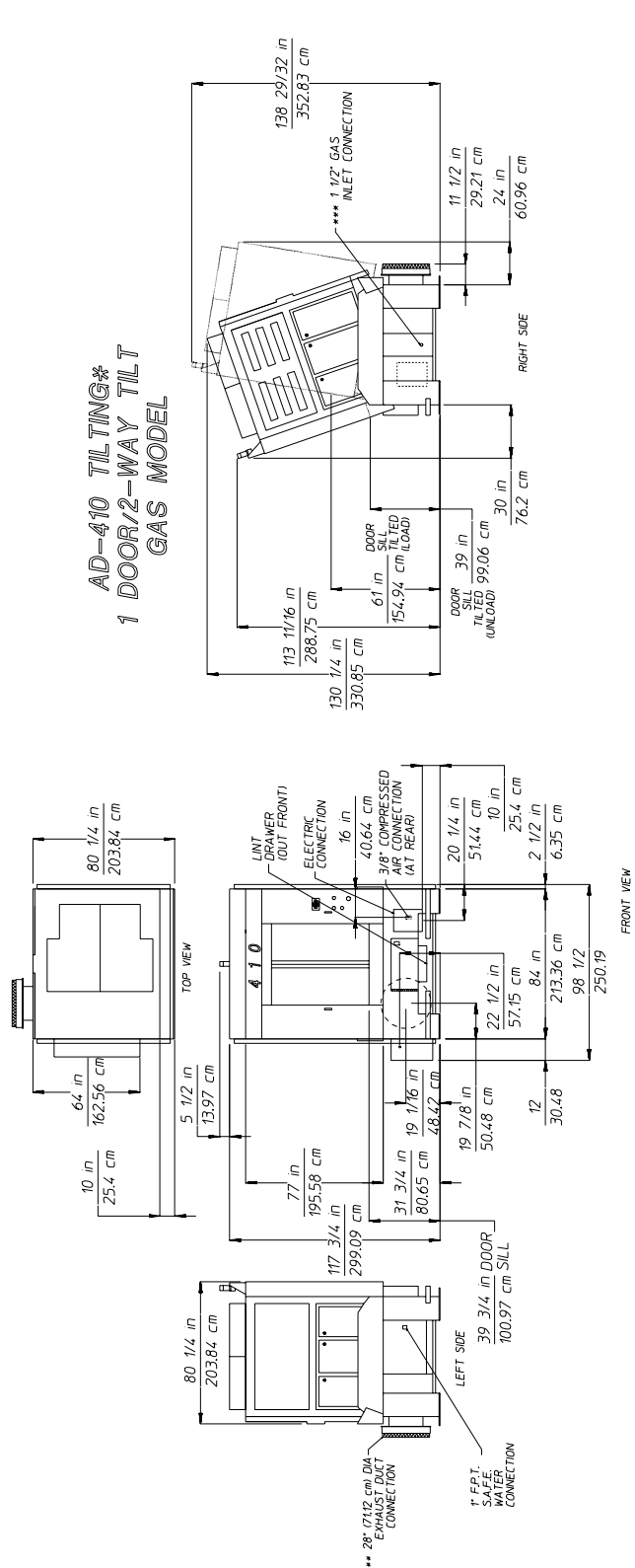


* BOTH GAS AND STEAM TILTING UNITS MUST BE SUPPLIED WITH CLEAN, DRY, REGULATED AIR AT 80 PSI (5.5 BAR) & 0.69 BAR. DUCTWORK SHALL BE INSTALLED TO MAINTAIN A MINIMUM OF 1" (25.4 mm) STATIC PRESSURE SHOULD NOT EXCEED 0.3" WATER COLUMN (0.74 mb). SIZE OF PIPING TO DRYER VARIES WITH INSTALLATION CONDITIONS. *** CONTACT FACTORY FOR ASSISTANCE.

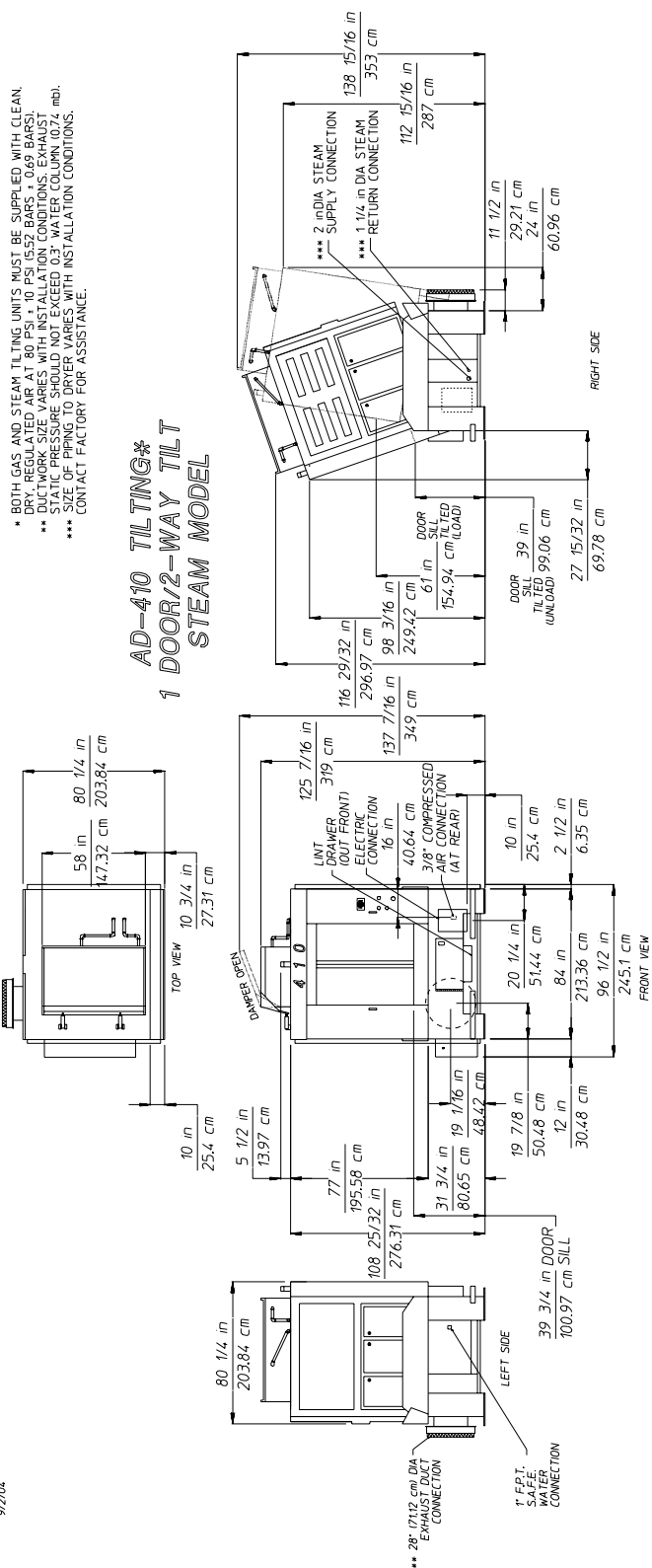
9/2/04



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



9/2/04



* BOTH GAS AND STEAM TILTING UNITS MUST BE SUPPLIED WITH CLEAN, DRY, REGULATED AIR AT 80 PSI ± 10 PSI (5.52 BARS ± 0.69 BARS).
** DUCTWORK SIZE VARIES WITH INSTALLATION CONDITIONS. EXHAUST SIZE (DUCT PRESSURE SHOULD NOT EXCEED 0.3" WATER COLUMN (0.74 inHg).
*** CONTACT FACTORY FOR ASSISTANCE.

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

Installation Procedures

Installation should be performed by competent technicians in accordance with local and state codes. In the absence of these codes, the installation must conform to applicable American National Standards: ANSI Z223.1-LATEST EDITION (National Fuel Gas Code) or ANSI/NFPA NO. 70-LATEST EDITION (National Electrical Code) or in Canada, the installation must conform to applicable Canadian Standards: CAN/CGA-B149.1-M91 (Natural Gas) or CAN/CGA-B149.2-M91 (L.P. Gas) or LATEST EDITION (for General Installation and Gas Plumbing) or Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION (for Electrical Connections).

Reassembly of Dryer

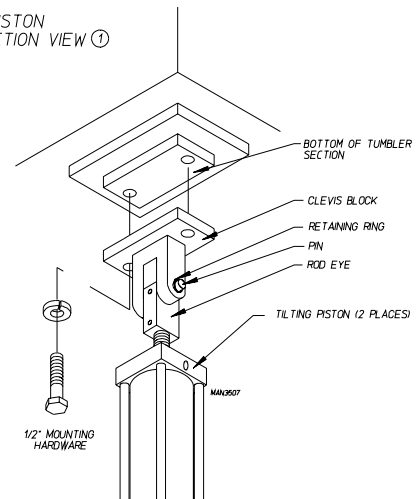
IMPORTANT: Always keep the tumbler section of the dryer in an upright position when moving it.

The dryer may be shipped 1 of 2 ways: as a complete unit fully assembled and ready for hookup or with the tumbler section separated from the base. If the dryer is shipped in 2 pieces, the tumbler section will have to be lifted onto the base. Use cables through the eyebolts on top of the tumbler section, or use a forklift for the lifting process.

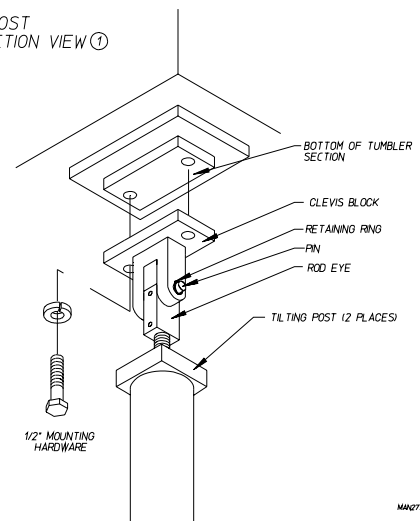
The tilting dryer is made in many loading and unloading options. Please refer to the reassembly instructions on the following pages for your particular style of dryer.

If a steam dryer is shipped in 2 pieces, the steam coil may have been removed from the top of the tumbler section and shipped with the base. If this is the case, lift the steam coil onto the top of the tumbler section with the steam pipe connections facing towards the right side of the dryer and bolt the coil to the top of the dryer with the 1/4" hardware supplied. There are 3 panels that cover the front, right side, and rear of the steam coil. Fasten these in proportion also. Reconnect the steam and condensate pipe unions to the coil. These pipes run down to the flex hoses in the base.

TILTING PISTON
RECONNECTION VIEW ①

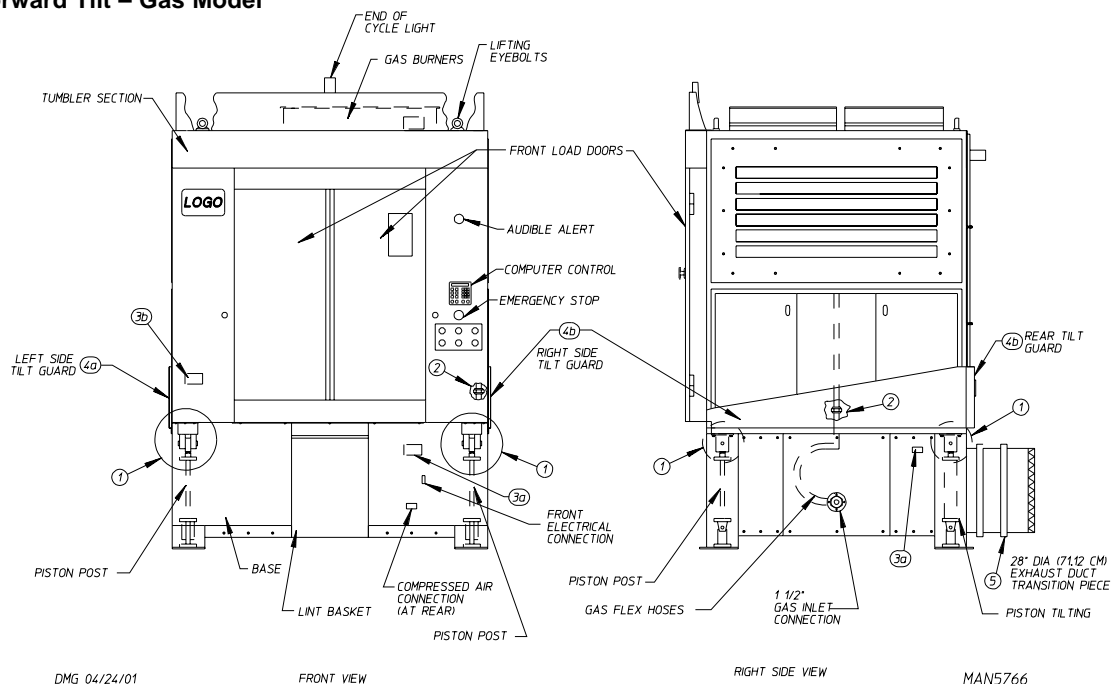


TILTING POST
RECONNECTION VIEW ①



Reassembly Instructions for Gas Dryer Shipped in 2 Pieces

1 Door / Forward Tilt – Gas Model



DMG 04/24/01

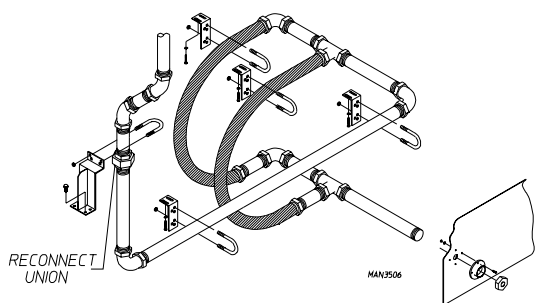
FRONT VIEW

RIGHT SIDE VIEW

MAN5766

1 Door / Forward Tilt – Gas Model

GAS FLEX HOSE UNION RECONNECTION VIEW ②



Reassembly Instructions for 1 Door / Forward Tilt Gas Dryers

Lift the tumbler section onto the base.

Forward tilt dryers have 2 tilting pistons in the rear of the base. On the top of each piston is a clevis block. Use the four 1/2" x 1-1/8" long hex head bolts with lock washers to secure each piston clevis block to the bottom of the tumbler section. (Refer to [top] View 1 on the previous page.)

The flexible gas hose union is disconnected when the dryer is shipped in 2 pieces. The flexible gas hoses are located in the right side of the base. Insert the flexible hoses with the union half up through the hole on the bottom of the tumbler section and retighten the union. The flex hoses must not be kinked. (Refer to View 2 above.)

There are 2 electrical reconnections:

A plug and cable is located in the right side of the base. This must be lifted up and reconnected into the mating socket located at the bottom of the right tumbler section.

The tumbler section power cable must be lifted up from the base and reconnected into the junction box next to the tumbler drive motor in the left side of the tumbler section.

Make sure both reconnected cables have enough slack in them to allow the dryer to tilt freely in both directions.

Reattach the tilt guard panels:

Use 1/4" self-tapping screws to secure the right side and left side tilt guards.

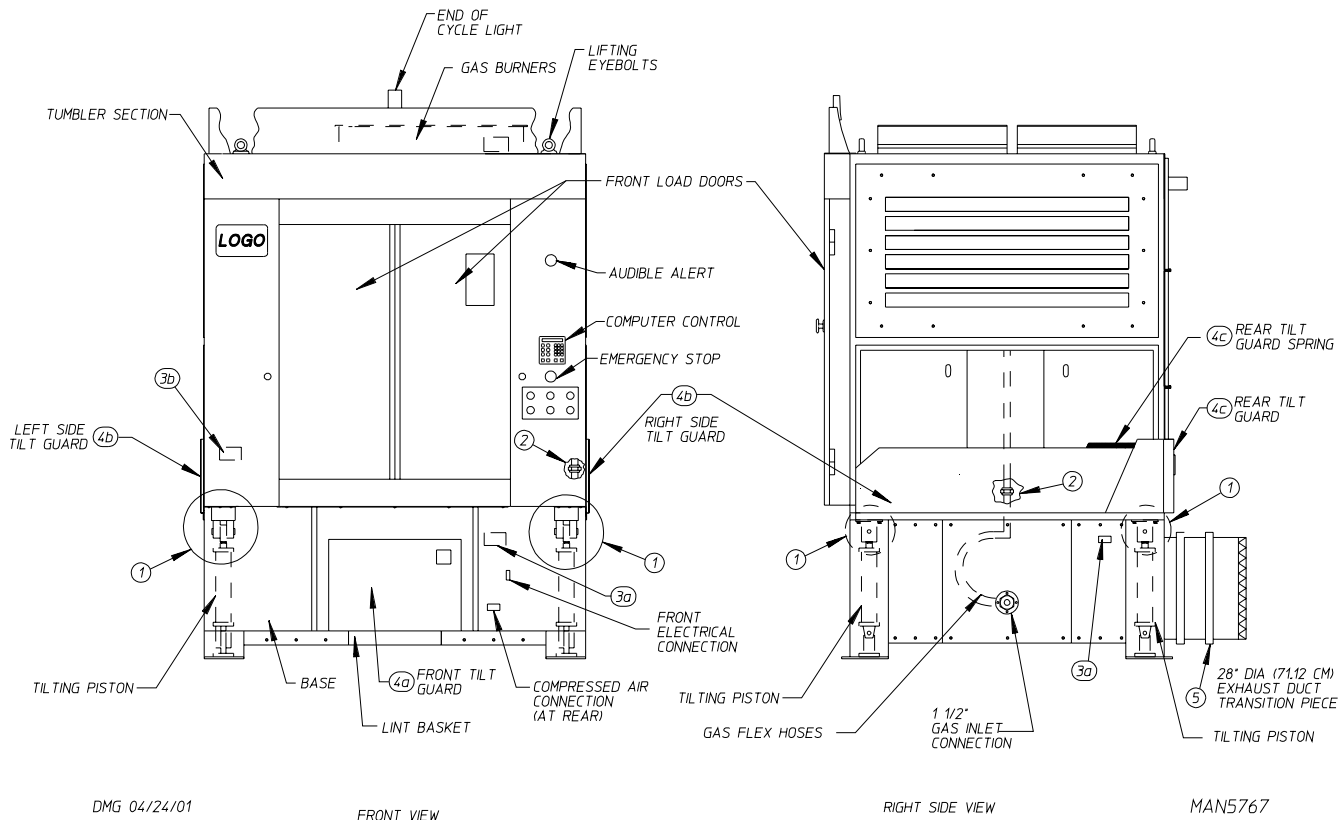
Use 1/4" self-tapping screws to secure the rear tilt guards on the rear of the base. Also, secure both outside edges of the rear tilt guard to each side guard using sheet metal screws.

Secure the 28-inch (71.12 cm) diameter exhaust duct transition piece to the dryer's rectangular exhaust duct with the 1/4-20 self-tapping screws supplied with the dryer. The exhaust duct exits from the rear of the base.

On dryers equipped with an automatic (piston operated) load door, reconnect the 2 poly-flo air lines that run from the base up to the door pistons.

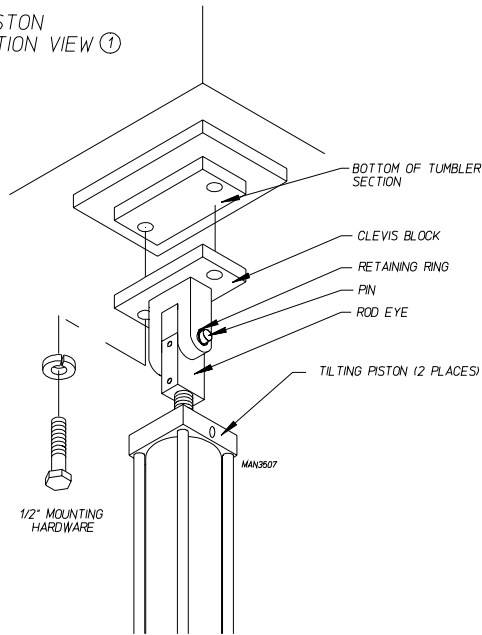
Reassembly Instructions for Gas Dryer Shipped in 2 Pieces

1 Door / 2-Way Tilt – Gas Model



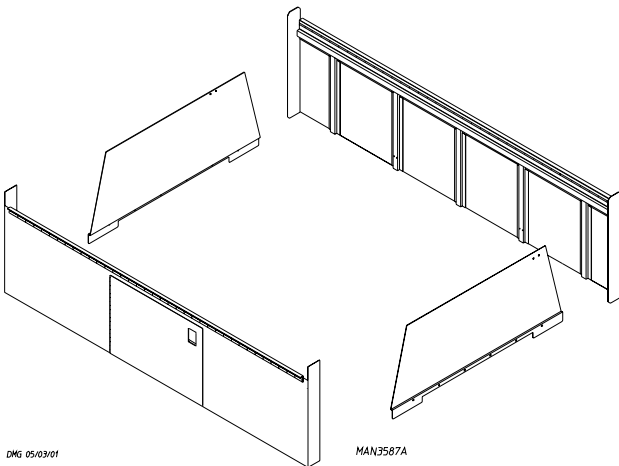
NOTE: ADC reserves the right to make changes in specifications at any time without notice or obligation.

TILTING PISTON
RECONNECTION VIEW ①

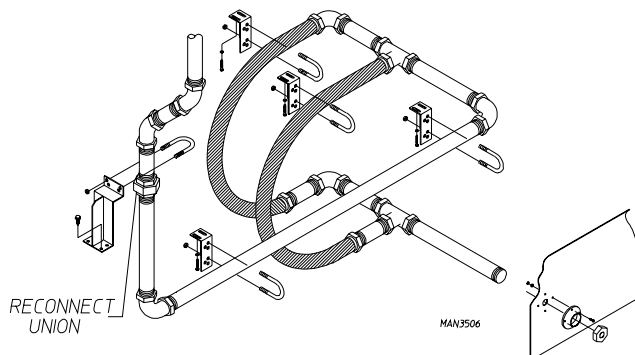


1 Door / 2-Way Tilt – Gas Model

TILT GUARD PANEL RECONNECTION VIEW ④



GAS FLEX HOSE UNION RECONNECTION VIEW ②



Reassembly Instructions for 1 Door / 2-Way Tilt Gas Dryers

Lift the tumbler section onto the base.

2-Way tilt dryers have 4 tilting pistons in the base, 1 on each corner. On the top of each piston is a clevis block to the bottom of the tumbler section. (Refer to [top] View 1 on the left.)

The flexible gas hose union is disconnected when the dryer is shipped in 2 pieces. The flexible gas hoses are located in the right side of the base. Insert the flexible hoses with the union half up through the hole on the bottom of the tumbler section and retighten the union. The flex hoses must not be kinked. (Refer to [bottom] View 2 on the left.)

There are 2 electrical connections:

A plug and cable is located in the right side of the base. This must be lifted up and reconnected into the mating socket located at the bottom of the right tumbler section.

The drive motor wires must be lifted up from the base and reconnected into the junction box next to the tumbler drive motor in the left side of the tumbler section.

Make sure both reconnected cables have enough slack in them to allow the dryer to tilt freely in both directions.

Reattach the tilt guard panels:

Use 1/4-20 x 3/8" hex head bolts with lock washers to bolt the top of the front and rear tilt guard up into the bottom of the tumbler section.

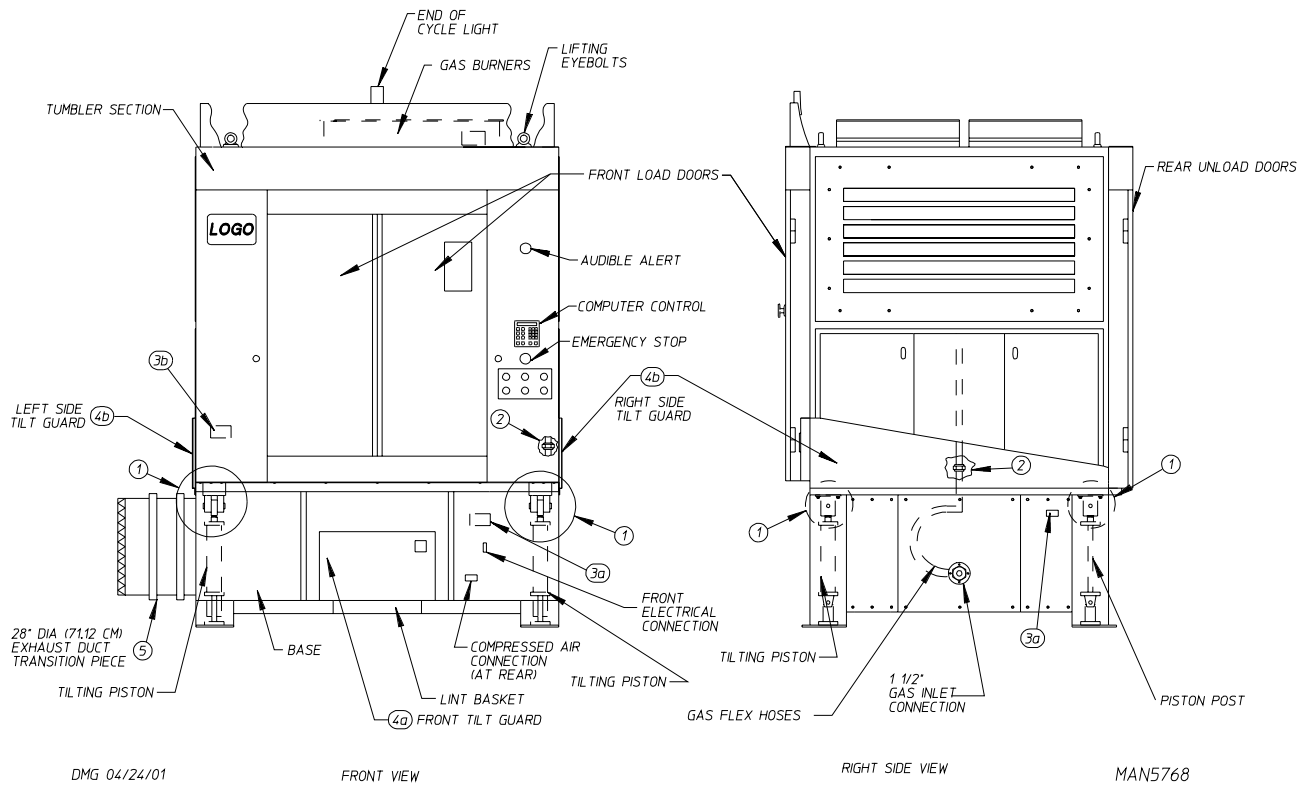
Use 1/4" self-tapping screws to secure the right side and left side tilt guards.

Secure the 28-inch (71.12 cm) diameter exhaust duct transition piece to the dryer's rectangular exhaust duct with the 1/4-20 self-tapping screws supplied with the dryer. The exhaust duct exits from the rear of the base.

On dryers equipped with an automatic (piston operated) load door, reconnect the 2 poly-flo air lines that run from the base up to the door pistons.

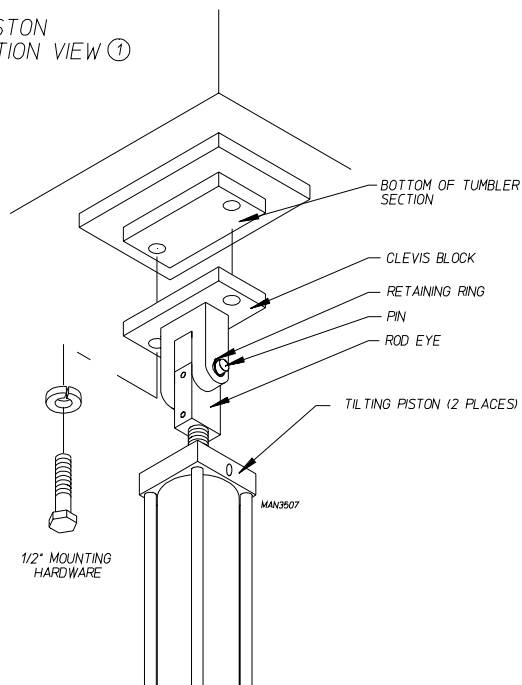
Reassembly Instructions for Gas Dryer Shipped in 2 Pieces

2 Door / Rear Tilt (Pass Thru) – Gas Model

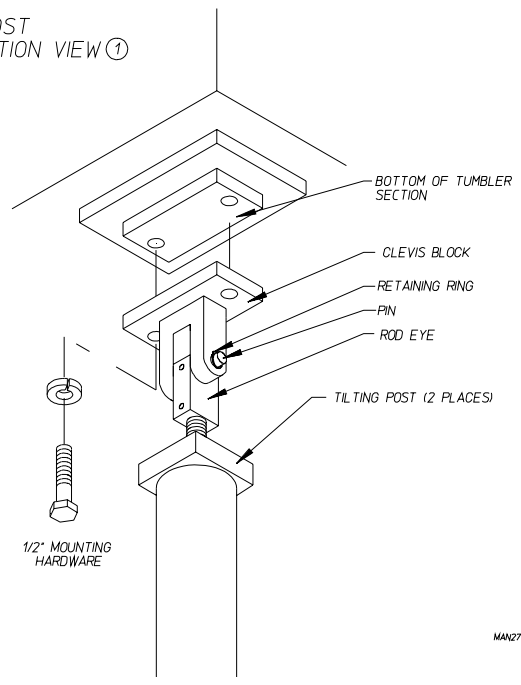


NOTE: ADC reserves the right to make changes in specifications at any time without notice or obligation.

TILTING PISTON
RECONNECTION VIEW ①

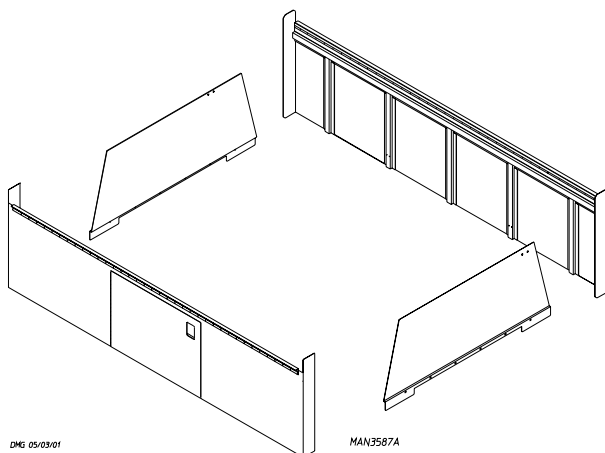


TILTING POST
RECONNECTION VIEW ①

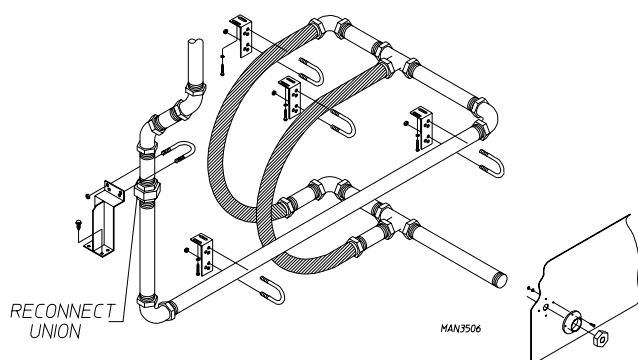


2 Door / Rear Tilt (Pass Thru) – Gas Model

TILT GUARD PANEL RECONNECTION VIEW ④



GAS FLEX HOSE UNION RECONNECTION VIEW ②



Reassembly Instructions for 2 Door / Rear Tilt (Pass Thru) Gas Dryers

Lift the tumbler section onto the base.

Rear tilt dryers have 2 tilting pistons. The 2 pistons are in the front corners of the base and there are 2 piston posts in the rear corners of the base. On the top of both tilting pistons and both piston posts are clevis blocks. Use the four 1/2" x 1-1/8" long hex head bolts with lock washers to secure each clevis block to the bottom of the tumbler section. (Refer to [bottom] View 1 on the previous page.)

The flexible gas hoses are located in the right side of the base. Insert the flexible hoses with the union half up through the hole on the bottom of the tumbler section and retighten the union. The flex hoses must not be kinked. (Refer to View 2 above.)

There are 2 electrical reconnections:

A plug and cable is located in the right side of the base. This must be lifted up and reconnected into the mating socket located at the bottom of the right tumbler section.

The tumbler section power cable must be lifted up from the base and reconnected into the junction box next to the tumbler drive motor in the left side of the tumbler drive section.

Make sure both reconnected cables have enough slack in them to allow the dryer to tilt freely in both directions.

Reattach the tilt guard panels:

Use 1/4-20 x 3/8" hex head bolts with lock washers to bolt the top of the front and rear tilt guard up into the bottom of the tumbler section.

Use 1/4" self-tapping screws to secure the right side and left side tilt guards.

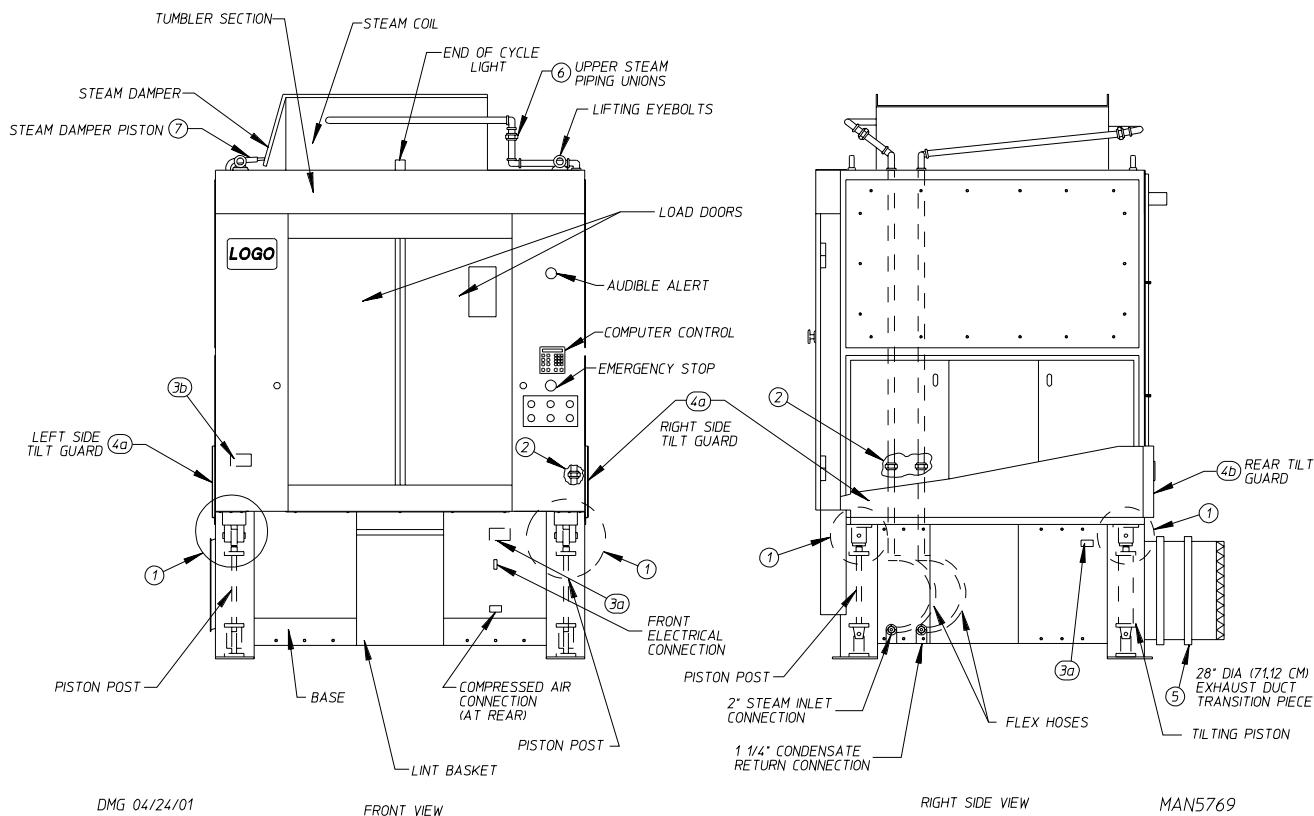
Secure the 28-inch (71.12 cm) diameter exhaust duct transition piece to the dryer's rectangular exhaust duct with the 1/4-20 self-tapping screws supplied with the dryer. The exhaust duct exits from the left side of the base.

On dryers equipped with 2 automatic (piston operated) load and unload doors, reconnect the poly-flo air lines that run from the base up to each set of door pistons.

NOTES

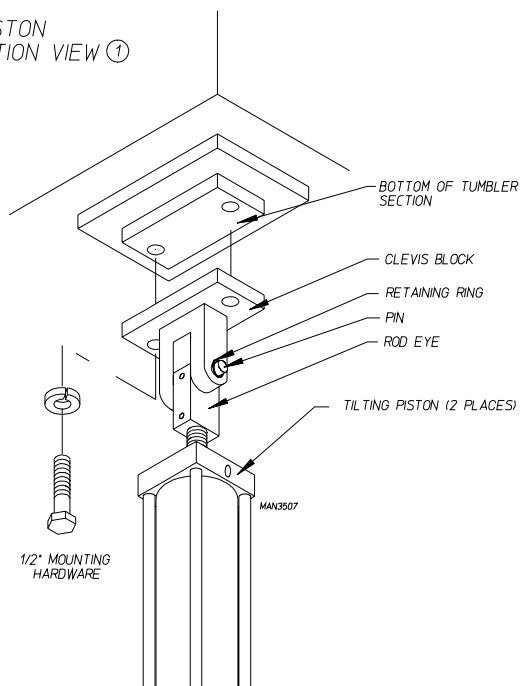
Reassembly Instructions for Steam Dryer Shipped in 2 Pieces

1 Door / Forward Tilt – Steam Model

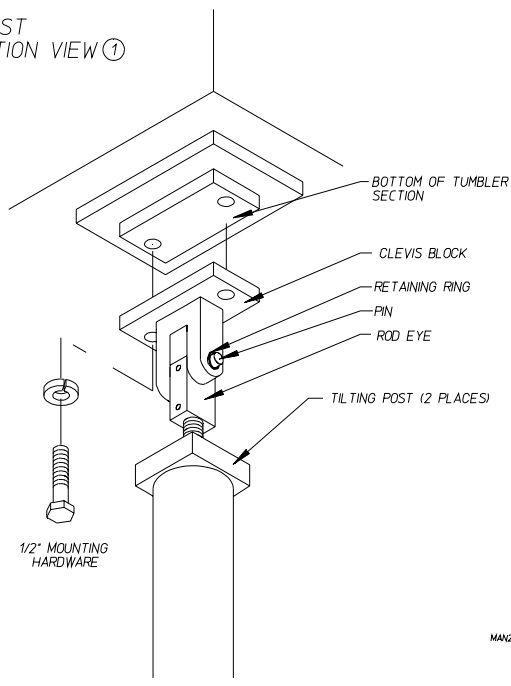


NOTE: ADC reserves the right to make changes in specifications at any time without notice or obligation.

TILTING PISTON RECONNECTION VIEW ①

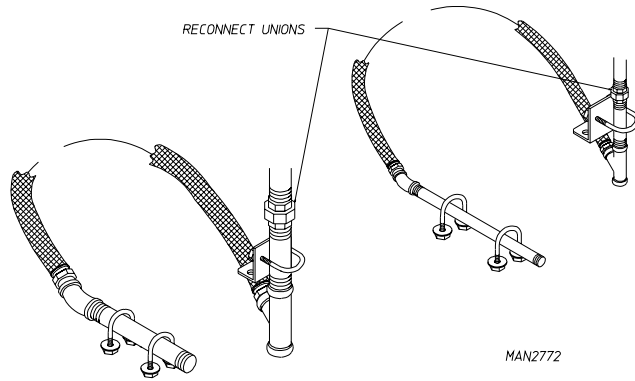


TILTING POST RECONNECTION VIEW ①



1 Door / Forward Tilt – Steam Model

STEAM FLEX HOSE UNION RECONNECTION
VIEW ②



Reassembly Instructions for 1 Door / Forward Tilt Steam Dryers

Lift the tumbler section onto the base.

Forward tilt dryers have 2 tilting pistons in the rear corners of the base and there are 2 piston posts in the front corners of the base. On the top of both tilting pistons and piston posts are clevis blocks. Use the four 1/2" x 1-1/8" hex head bolts with lock washers to secure each clevis block to the bottom of the tumbler section. (Refer to [bottom] View 1 on the previous page.)

Both the 2-inch steam supply line and the 1-1/4" condensate return line flexible hose unions are disconnected when the dryer is shipped in 2 pieces. The flexible hoses are located in the right side of the base. Insert both flexible hose union halves up through the holes on the bottom of the tumbler section and retighten the unions. The flex hoses must not be kinked. (Refer to View 2 above.)

There are 2 electrical reconnections:

A plug and cable is located in the right side of the base. This must be lifted up and reconnected into the mating socket located at the bottom of the right tumbler section.

The tumbler section power cable must be lifted up from the base and reconnected into the junction box next to the tumbler drive motor in the left side of the tumbler section.

Make sure both reconnected cables have enough slack in them to allow the dryer to tilt freely in both directions.

Reattach the tilt guard panels:

Use 1/4" self-tapping screws to secure the right side and the left side of the tilt guards.

Use 1/4" self-tapping screws to secure the rear tilt guards on the rear of the base. Also, secure both outside edges of the rear tilt guard to each side guard using sheet metal screws.

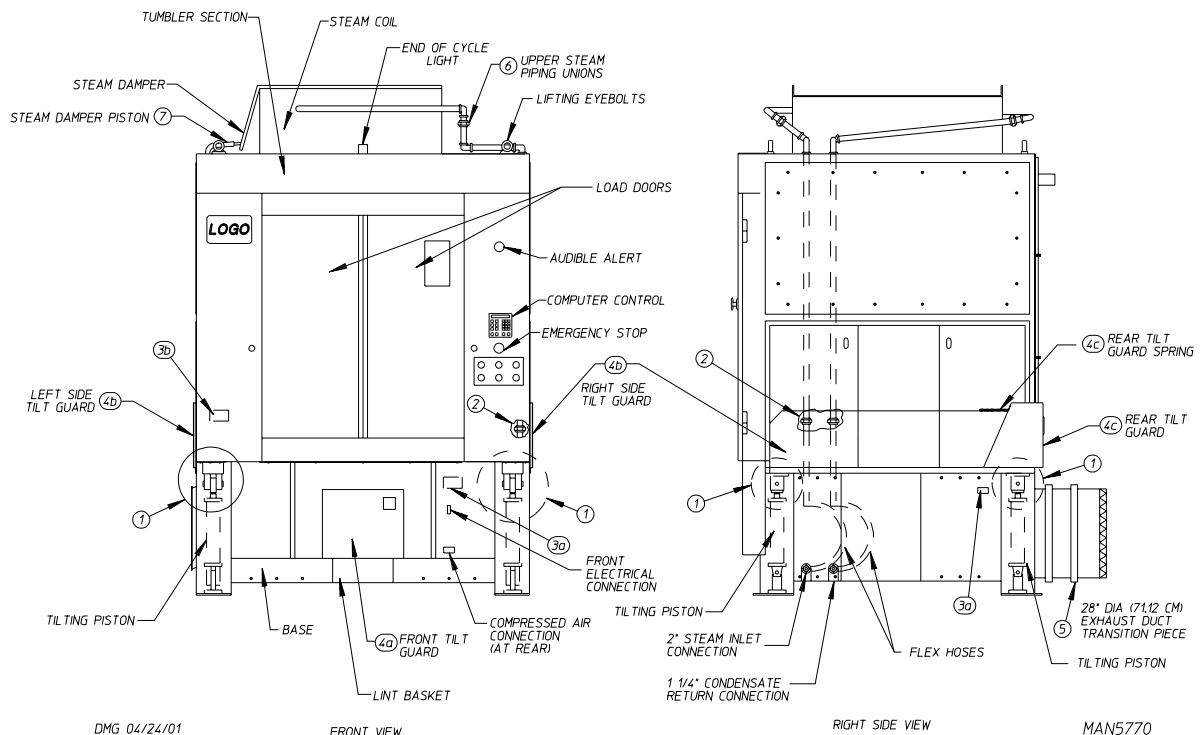
Secure the 28-inch (71.12 cm) diameter exhaust duct transition piece to the dryer's rectangular exhaust duct with the 1/4-20 self-tapping screw supplied with the dryer. The exhaust duct exits from the left side of the base.

On dryers equipped with an automatic (piston operated) load door, reconnect the 2 poly-flo air lines that run from the base up to the door pistons.

Reconnect the 1/4" poly-flo air line which runs from the base up to the steam damper solenoid valve, which is located on the top of the dryer.

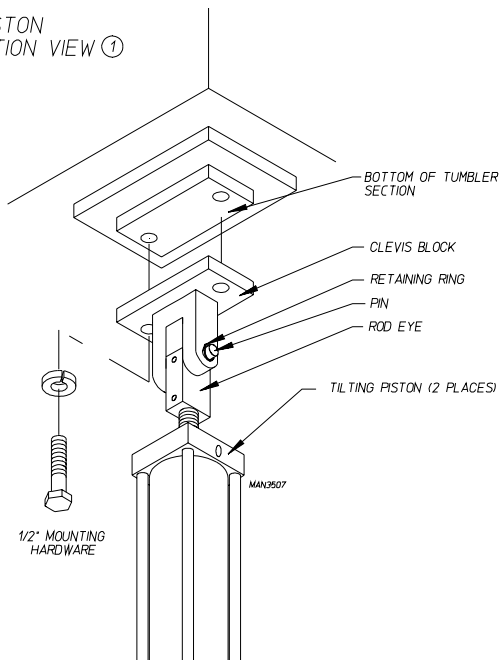
Reassembly Instructions for Steam Dryer in 2 Pieces

1 Door / 2-Way Tilt – Steam Model



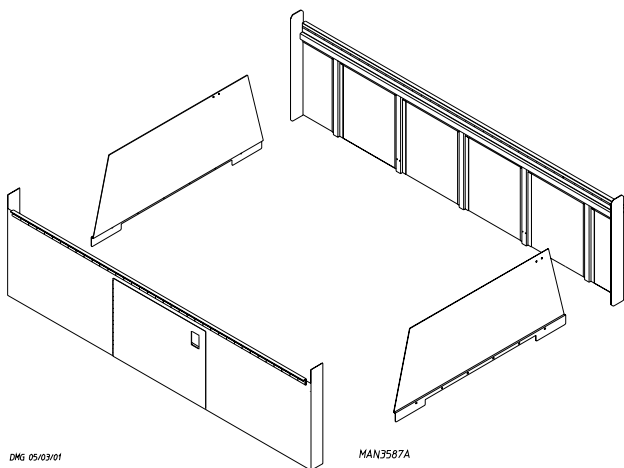
NOTE: ADC reserves the right to make changes in specifications at any time without notice or obligation.

TILTING PISTON
RECONNECTION VIEW ①

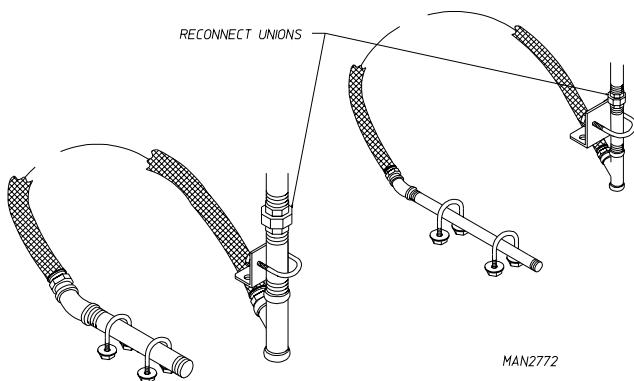


1 Door / 2-Way Tilt – Steam Model

TILT GUARD PANEL RECONNECTION VIEW ④



STEAM FLEX HOSE UNION RECONNECTION
VIEW ②



Reassembly Instructions for 1 Door / 2-Way Tilt Steam Dryers

Lift the tumbler section onto the base.

2-Way tilt dryers have 4 tilting pistons in the base, 1 on each corner. On the top of each piston is a clevis block. Use the four 1/2" x 1-1/8" long hex head bolts with lock washers to secure each piston clevis block to the bottom of the tumbler section. (Refer to [top] View 1 on the left.)

Both the 2-inch steam supply line and the 1-1/4" condensate return line flexible hose unions are disconnected when the dryer is shipped in 2 pieces. The flexible hoses are located in the right side of the base. Insert both flexible hose union halves up through the holes on the bottom of the tumbler section and retighten the unions. The flex hoses must not be kinked. (Refer to [bottom] View 2 on the left.)

There are 2 electrical reconnections:

A plug and cable is located in the right side of the base. This must be lifted up and reconnected into the mating socket located at the bottom of the right tumbler section.

The tumbler section power cable must be lifted up from the base and reconnected into the junction box next to the tumbler drive motor in the left side of the tumbler section.

Make sure both reconnected cables have enough slack in them to allow the dryer to tilt freely in both directions.

Reattach the tilt guard panels:

Use 1/4-20 x 3/8" hex head bolts with lock washers to bolt the top of the front and rear tilt guard up into the bottom of the tumbler section.

Use 1/4" self-tapping screws to secure the right side and left side tilt guards.

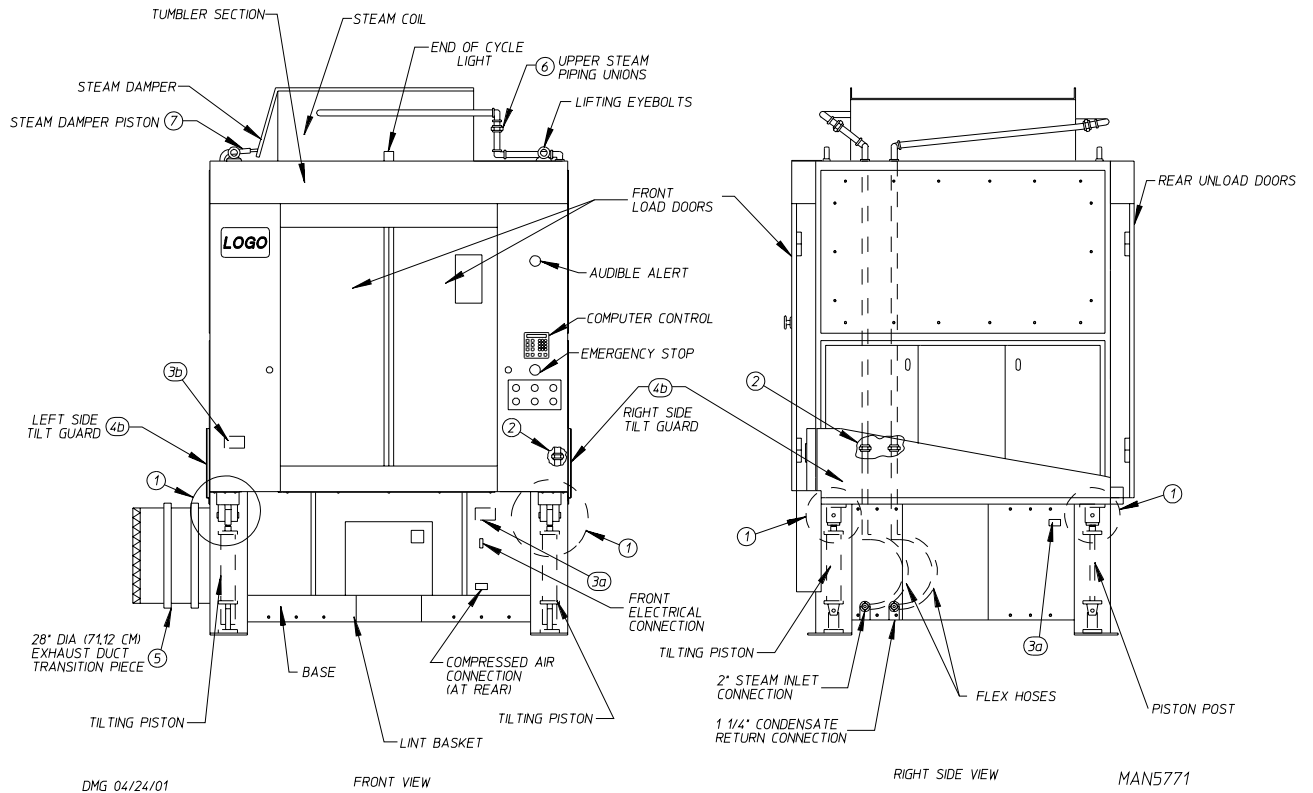
Secure the 28-inch (71.12 cm) diameter exhaust duct transition piece to the dryer's rectangular exhaust duct with the 1/4-20 self-tapping screws supplied with the dryer. The exhaust duct exits from the left side of the base.

On dryers equipped with an automatic (piston operated) load door, reconnect the 2 poly-flo air lines that run from the base up to the door pistons.

Reconnect the 1/4" poly-flo air line which runs from the base up to the steam damper solenoid valve, which is located on the top of the dryer.

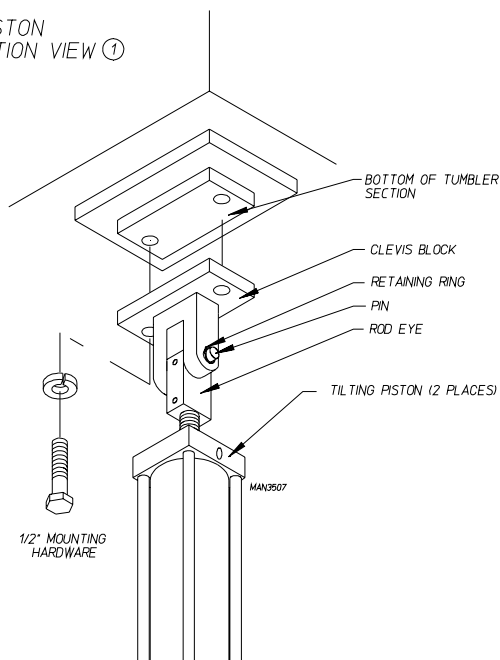
Reassembly Instructions for Steam Dryer Shipped in 2 Pieces

2 Door / Rear Tilt (Pass Thru) – Steam Model

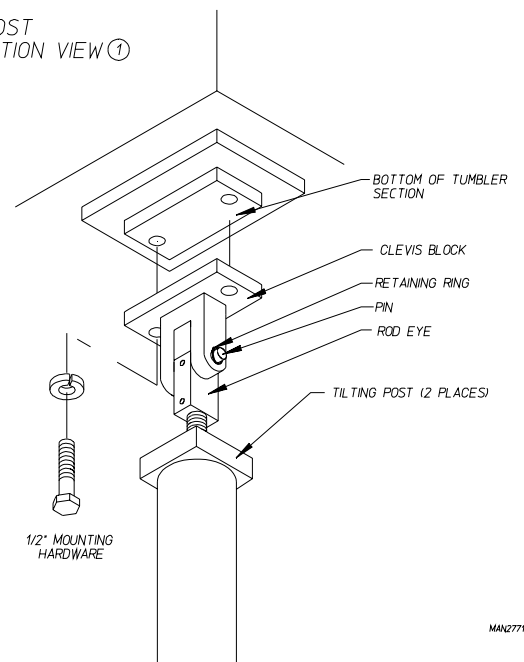


NOTE: ADC reserves the right to make changes in specifications at any time without notice or obligation.

TILTING PISTON
RECONNECTION VIEW ①

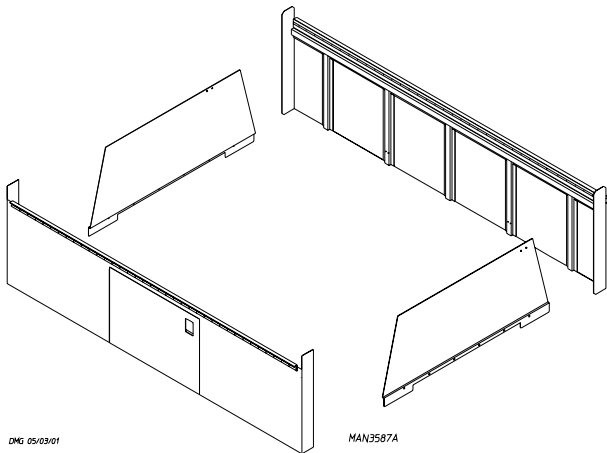


TILTING POST
RECONNECTION VIEW ①

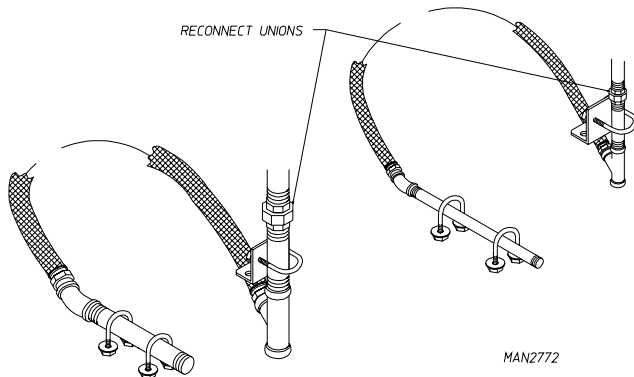


2 Door / Rear Tilt (Pass Thru) – Steam Model

TILT GUARD PANEL RECONNECTION VIEW ④



STEAM FLEX HOSE UNION RECONNECTION VIEW ②



Reassembly Instructions for 2 Door / Rear Tilt (Pass Thru) Steam Dryers

Lift the tumbler section onto the base.

Rear tilt dryers have 2 tilting pistons. The 2 pistons are in the front corners of the base and there are 2 piston posts in the rear corners of the base. On the top of both tilting pistons and both piston posts are clevis blocks. Use the four 1/2" x 1-1/8" long hex head bolts with lock washers to secure each clevis block to the bottom of the tumbler section. (Refer to [bottom] View 1 on the previous page.)

Both the 2-inch steam supply line and the 1-1/4" condensate return line flexible hose unions are disconnected when the dryer is shipped in 2 pieces. The flexible hose union halves up through the holes are located in the right side of the base. Insert both flexible hose union halves up through the holes on the bottom of the tumbler section and retighten the units. The flex hoses must not be kinked. (Refer to View 2 above.)

There are 2 electrical reconnections:

A plug and cable is located in the right side of the base. This must be lifted up and reconnected into the mating socket located at the bottom of the right tumbler section.

The tumbler section power cable must be lifted up from the base and reconnected into the junction box next to the tumbler drive motor in the left side of the tumbler section.

Make sure both reconnected cables have enough slack in them to allow the dryer to tilt freely in both directions.

Reattach the tilt guard panels:

Use 1/4-20 x 3/8" hex head bolts with lock washers to bolt the top of the front and rear tilt guard up to the bottom of the tumbler section.

Use 1/4" self-tapping screws to secure the right side and left side tilt guards.

Secure the 28-inch (71.12 cm) diameter exhaust duct transition piece to the dryer's rectangular exhaust duct with the 1/4-20 self-tapping screws supplied with the dryer. The exhaust duct exits from the rear of the base.

On dryers equipped with an automatic (piston operated) load door, reconnect the 2 poly-flo air lines that run from the base up to the door pistons.

Reconnect the 1/4" poly-flo air line which runs from the base up to the steam damper solenoid valve, which is located on the top of the dryer.

Location Requirements

The tilt model dryer requires 18-inches (45.72 cm) on the right side of the dryer for ease of service. The requirement for the left side clearance on a 1 door dryer is 18-inches (45.72 cm) and for a 2 door dryer 36-inches (91.44 cm) is required due to the side exhaust. The rear of the dryer requires a 36-inch (91.44 cm) clearance for ease of service. Refer to the chart below for ceiling height requirement for each of the tilting dryer models.

The dryer must be leveled for proper operation. If shimming is required, place 11-inch x 10-inch (27.94 cm x 25.4 cm) metal shims under the base feet. The dryer must be lagged to the floor.

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

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

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

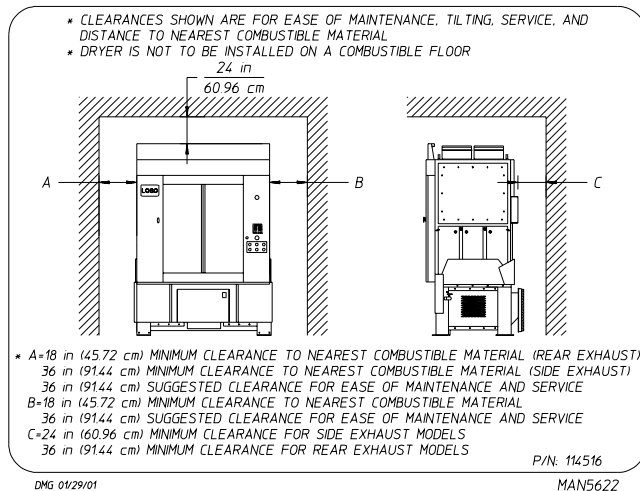
TILT CLEARANCE ALLOWANCE		
Dryer Style	Ceiling Height Requirement	
Gas		
1 Door / Forward Tilt	142-inches	360.68 cm
1 Door / 2-Way Tilt	142-inches	360.68 cm
2 Door / Rear Tilt	142-inches	360.68 cm
Steam		
1 Door / Forward Tilt	150-inches	381 cm
1 Door / 2-Way Tilt	150-inches	381 cm
2 Door / Rear Tilt	150-inches	381 cm

Shaded areas are stated in metric equivalents

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

WARNING

Dryer should be located where a minimum length of exhaust duct will be necessary.



Fresh Air Supply Requirements

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

Air supply (make-up air) must be given careful consideration to assure proper performance of each dryer. An unrestricted source of air is necessary for each dryer. An airflow of 9,200 cfm (cubic feet per minute) 260.52 cmm (cubic meters per minute) must be supplied to each gas dryer and 12,000 cfm (339.8 cmm) for each steam dryer. As a general rule, an unrestricted air entrance from the outdoors (atmosphere) of a minimum of 6 square feet (0.56 square meters) is required for each gas dryer and a minimum of 8 square feet (0.74 square meters) for each steam dryer.

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

It is not necessary to have a separate make-up air opening for each dryer. Common make-up openings are acceptable. However, they must be set up in such a manner that the make-up air is distributed equally to all the dryers.

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

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

NOTE: Component failure due to dry cleaning solvent fumes will void the warranty.

Exhaust Requirements

NOTE: For 1 door dryers, the 28-inch (71.12 cm) diameter exhaust duct exits from the rear of the base. For 2 door dryers, the 28-inch (71.12 cm) diameter exhaust duct exits from the left side of the base.

General Exhaust Ductwork Information

Exhaust ductwork should be designed and installed by a qualified professional. Improperly sized ductwork will create excessive back pressure, which results in slow drying, increased use of energy, overheating of the dryer, and shutdown of the burner by the airflow (sail) switches, burner hi-limits, or tumbler hi-limit thermostats. The dryer must be installed with a proper exhaust duct connection to the outside.

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

Improperly sized or installed exhaust ductwork can create a potential fire hazard.

NOTE: The dryer must be independently exhausted. Common ductwork is not acceptable.

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

The shape of the ductwork is not critical so long as the minimum cross section area is provided. It is suggested that the use of 90° turns in ducting be avoided; use 30° and/or 45° angles instead. The radius of the elbow should preferably be 1-1/2 times the diameter of the duct.

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

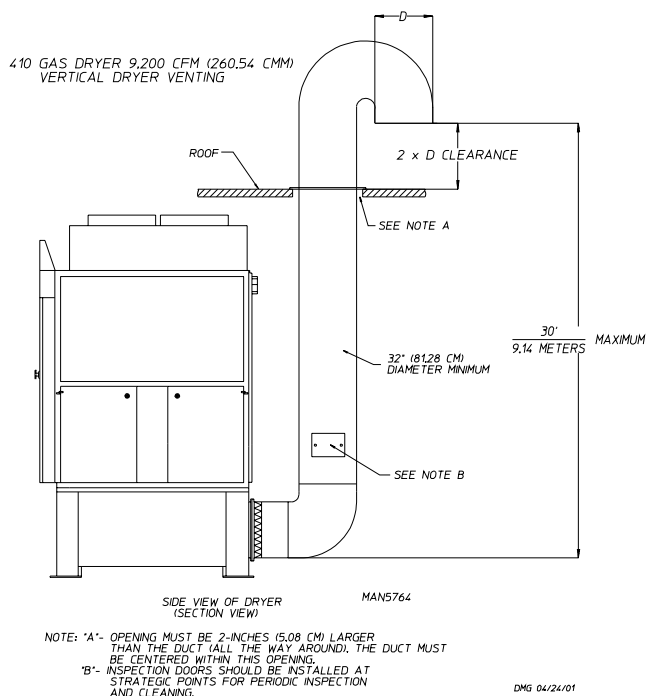
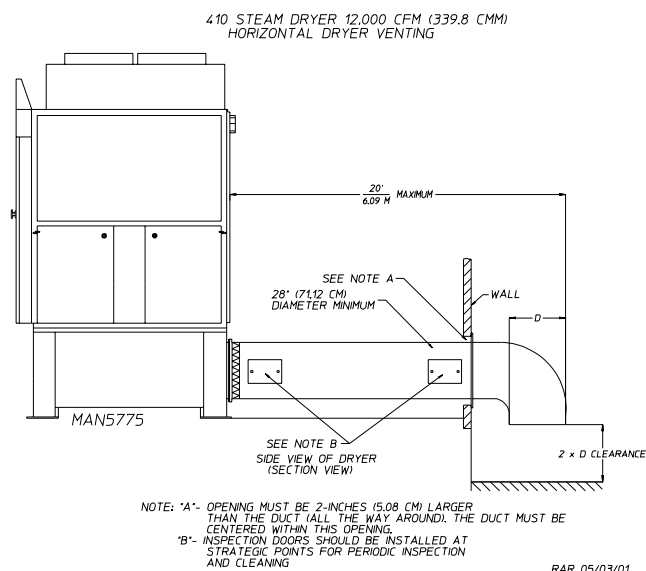
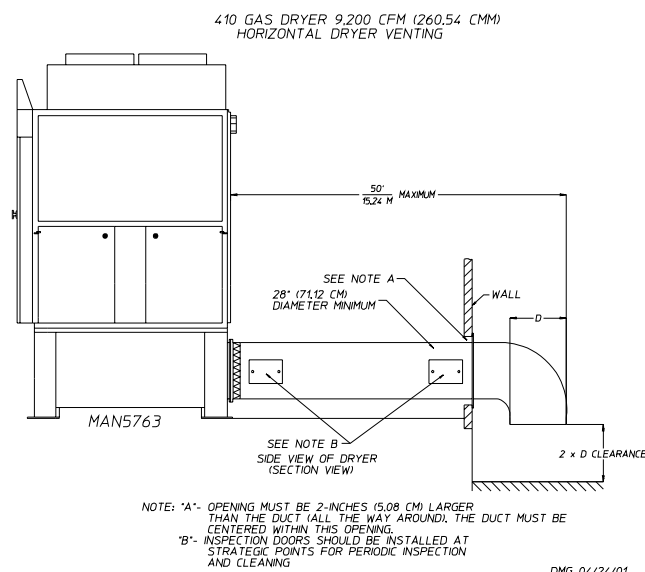
IMPORTANT: It is recommended that exhaust or booster fans not be used in the exhaust ductwork system.

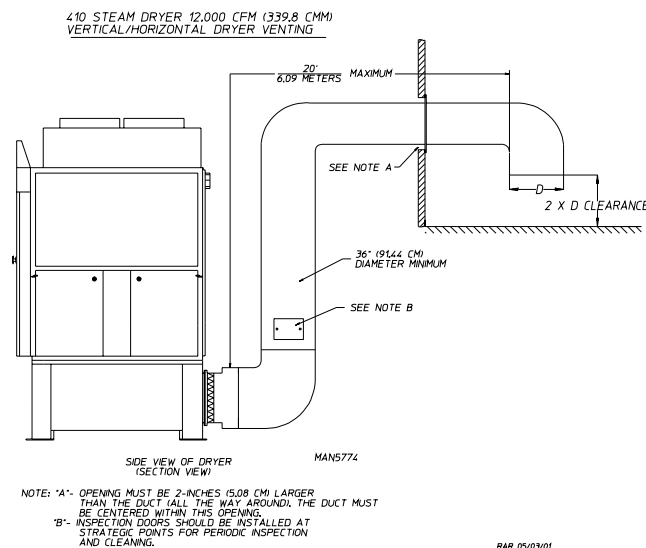
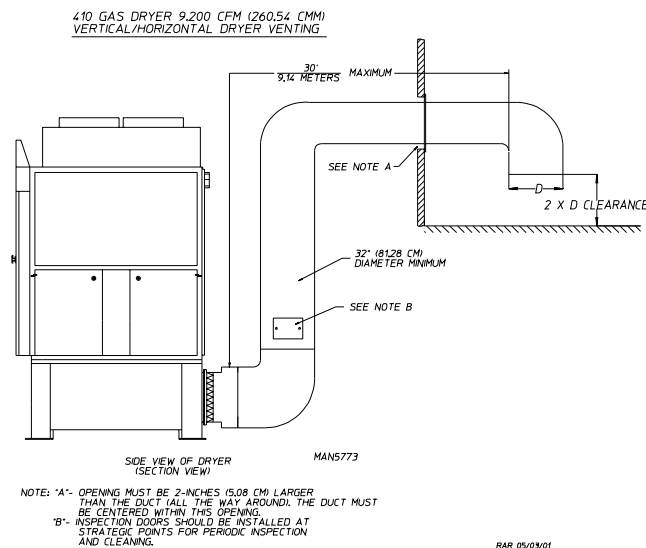
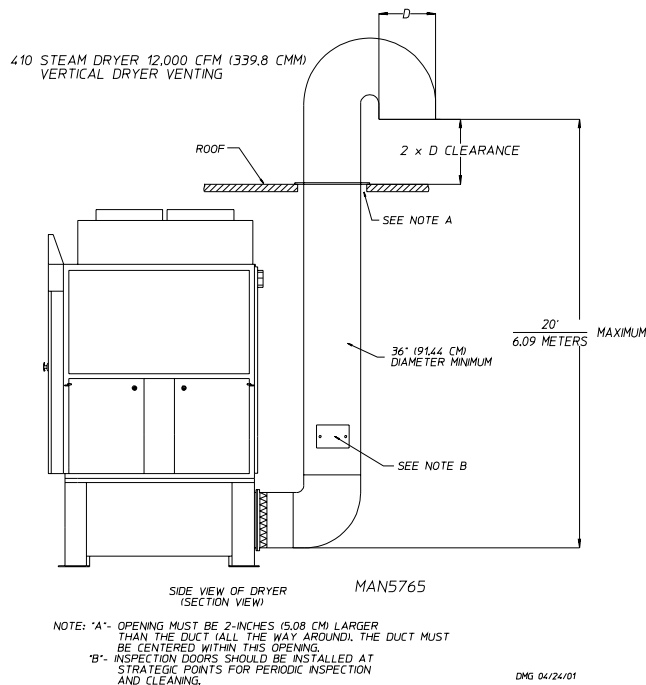
NOTE: As per the National Fuel Gas Code, "Exhaust ducts for type 2 clothes dryers shall be constructed of sheet metal or other noncombustible material. Such ducts shall be equivalent in strength and corrosion resistance to ducts made of galvanized sheet steel not less than 26 gauge (0.0195-inches [0.50 mm]) thick."

The internal dimensions of the dryer's rectangular exhaust vent ductwork is 8-1/2" x 21-inch (20.6 cm x 53.5 cm). A transition piece to 28-inches (71.12 cm) in diameter round is supplied. The location's exhaust duct must be the minimum exhaust size requirement of (28-inch [71.12 cm] round duct or 452 square inch [2,916 square centimeters] square duct) the ductwork from the dryer to the outside exhaust outlet for a horizontal run with no more than 1 elbow must not exceed 50 feet (15.24 meters) for gas and 20 feet (6.09 meters) for steam dryers. (Refer to the illustrations below and on the left.) For locations with more than 1 elbow, the minimum exhaust size for a gas model dryer is 32-inch (81.28 cm) round duct (615 square inch [3,967 square centimeters] duct). For steam model a 36-inch (91.44 cm) round duct (840 square inch [5,419 square centimeters] duct) must be used. The horizontal or vertical duct total run on a gas model must not exceed 30 feet (9.14 meters) and steam models must not exceed 20 feet (6.09 meters), which includes the use of no more than 3 elbows (refer to the illustrations on page 34 and page 35). Should more than the maximum number of elbows be used or if the run exceeds the maximum limits noted, a professional HVAC firm should be consulted for proper venting information.

IMPORTANT: For extended ductwork runs or where more than the specified number of elbows are used, a professional HVAC firm should be contacted for proper venting information.

NOTE: For extended ductwork runs the cross-sectional area of a duct can only be increased to an extent. In some cases, the addition of a booster fan in the ductwork may be necessary.





Outside Ductwork Protection

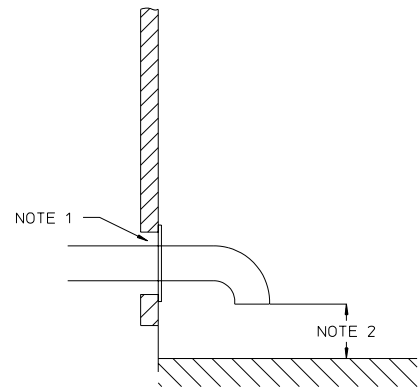
To protect the outside end of the horizontal ductwork from the weather, a 90° elbow bent downward should be installed where the exhaust exits the building. If the exhaust ductwork travels vertically up through the roof, it should be protected from the weather by using a 180° turn to point the opening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

IMPORTANT: Do not use screens, louvers, or caps on the outside opening of the exhaust ductwork.

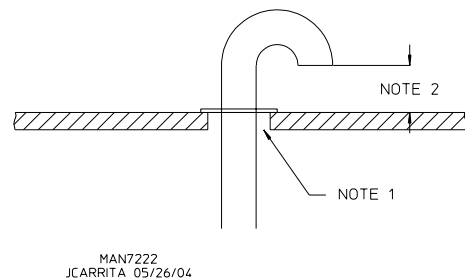
NOTE: Exhaust back pressure measured by a manometer at the dryer exhaust duct area must be no less than 0 and must not exceed 0.3 in wc (0.74 mb).

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

HORIZONTAL DUCTING



VERTICAL DUCTING



NOTE 1 Opening must be 2-inches (5.08 cm) larger than the duct (all the way around). The duct must be centered within this opening.

NOTE 2 Distance should be 2 times the diameter of the duct to the nearest obstruction.

Compressed Air Supply System _____

The compressed air supply system of the tilting dryer consists of a number of pneumatic pistons located throughout the dryer. The pistons are actuated by solenoid and flow control valves that are under computer control. The pneumatic pistons are used to:

- Tilt the Dryer for Loading and Unloading
- Open and Close the Load and Unload Doors (for dryer models equipped with automatic doors)
- Operate the Steam Coil Damper (for steam heated models only)

Filter/Regulator/Gauge Assembly

The compressed air supply to the dryer is connected into the 3/8" F.P.T. fitting of the filter/regulator/gauge assembly, which is located at the bottom rear of the right side of the base.

The filter/regulator/gauge assembly performs 3 essential functions. The filter removes most solids and liquid particles from the compressed air stream and traps them in a bowl where this waste can be readily removed through the drain valve at the bottom of the bowl.

The filter bowl should be cleaned monthly.

The regulator will remain a nearly constant outlet air pressure so that the dryer's air pistons will function normally despite upstream air pressure variations. After the compressed air is connected into the filter/regulator/gauge assembly, adjust the regulator knob so that the gauge needle reads 80 psi (5.51 bar).

Tilting-Piston Solenoid Valves

A 2-way tilt dryer has 2 of these solenoid valves ... 1 to control the front set of tilting pistons and a second to control the rear set of tilting pistons. A 1-way tilt dryer has only 1 solenoid valve.

Each valve has five 3/8" F.P.T. ports and 2 electric solenoid operators, 1 on each side of the valve.

To tilt the dryer forward, a 24 volt signal is applied to the rear pistons solenoid connector "L6" and no voltage is applied to the solenoid connector "L7". On 2-way tilt dryers, a 24 volt signal is present at the front piston solenoid connector "L4," this prevents both front and rear pistons from extending their rods at the same time. The internal spool in the valve will move and 80 psi (5.51 bar) of air will enter the bottom port of the rear tilting pistons, extending the rear tilting piston rods and tilting the dryer forward for unloading. The top piston ports are bled into the atmosphere.

To level the dryer, the voltage signals are reversed. No voltage is applied to the "L6" solenoid, and 24 volts is applied to the "L7" solenoid. The valve spool will now move so that 80 psi (5.51 bar) of air is applied at the top piston ports, while the bottom piston ports are bled into the atmosphere. The piston rod will now retract leveling the dryer. On rear tilt dryers, the front tilting piston ports are bled to the atmosphere.

The tilting piston valves are 5-port/3-position valves. If no voltage is applied to both the "L6" and "L7" solenoids, all 5 valve ports are blocked. This means that, if the dryer is tilting or leveling and the power is shutoff, the pistons will lock in position, holding the dryer in a partially tilted position.

The tilting piston valves are located on the pneumatic plate in the rear of the dryer's base.

Optional Automatic (Piston Operated) Load / Unload Doors

If the dryer is equipped with the automatic door option then the loading doors are operated by 2 pneumatic pistons located above the load doors. On 2 door dryers, the unloading doors on the back of the dryer will also be controlled by 2 pistons, located above the unload doors.

The 24 volt solenoid valve controlling the door pistons are located on the pneumatic panel in the rear of the dryer's base. These solenoid valves are configured so that if power to the dryer is shut off, the door piston's ports are bled to the atmosphere so that the doors can be opened and closed by hand.

Electrical Information _____

Electrical Requirements

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

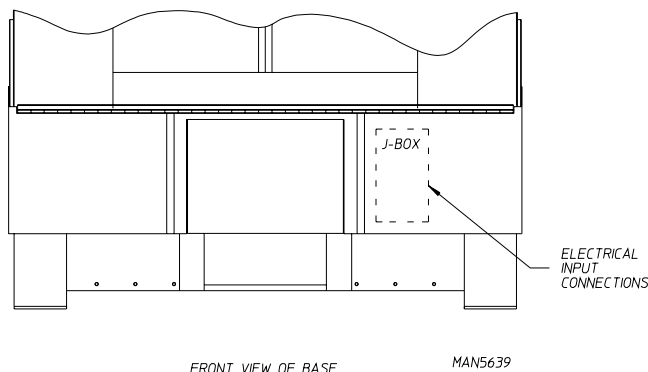
IMPORTANT: Failure to comply with these codes or ordinances, and/or the requirements stipulated in this manual can result in personal injury or component failure.

NOTE: Component failure due to improper installation voids the warranty.

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

NOTE: The use of aluminum wire will void the warranty.

The electrical input power connections are made into the base junction box located in the right front portion of the dryer's base.



Electrical Service Specifications

ELECTRICAL SERVICE SPECIFICATIONS (PER DRYER)					
IMPORTANT:		208 VAC and 230/240 VAC are not the same. When ordering, specify exact voltage.			
NOTES:		A. When fuses are used they must be dual element, time delay, current limiting, class RK1 or RK5 ONLY. Calculate/determine correct fuse value, by applying either local and/or National Electrical Codes to listed appliance amp draw data.			
		B. Circuit breakers are thermal-magnetic (industrial) motor curve type ONLY. For others, calculate/verify correct breaker size according to appliance amp draw rating and type of breaker used.			
		C. Circuit breakers for 3-phase (3ø) dryers must be 3-pole type.			
SERVICE VOLTAGE	PHASE	WIRE SERVICE	APPROX. AMP DRAW		CIRCUIT BREAKER
			60 Hz	50 Hz	
GAS – REAR EXHAUST					
208	3ø	3 / 4	70	—	100
220	3ø	3	68	—	100
240	3ø	3	66	—	90
230	3ø	3	—	75	100
380	3ø	3 / 4	—	39	60
400	3ø	3 / 4	—	37	60
416	3ø	3 / 4	—	37	60
460	3ø	3	34	—	60
480	3ø	3	34	—	60
575	3ø	3	28	—	45
STEAM / GAS – SIDE EXHAUST					
208	3ø	3 / 4	103	—	150
230	3ø	3	95	98	150
380	3ø	3 / 4	—	54	80
400	3ø	3 / 4	—	54	80
416	3ø	3 / 4	—	53	80
460	3ø	3	48	—	70
480	3ø	3	48	—	70
575	3ø	3	38	—	60

8/14/08

IMPORTANT: The dryer must be connected to the electric supply shown on the data label.

WARNING

208 VAC and 230/240 VAC are not the same. Any damage done to dryer components due to improper voltage connections will automatically void the warranty.

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

Electrical Connections

NOTE: A wiring diagram is included with each dryer and is located in the blueprint pocket inside the left side control cabinet.

The main electrical input connections to the dryer are the 3-phase (3Ø) power leads (L1, L2, and L3), GROUND, and in the case of 4-wire service, the Neutral. The electrical connections are made at the power distribution block located in the base front electrical enclosure.

The main electrical (3-phase [3Ø]) connections (L1, L2, and L3) must be provided and installed in accordance with state and local codes. In the absence of these codes, grounding must conform to applicable requirements of the National Electrical Code ANSI/NFPA NO. 70-LATEST EDITION, or in Canada, the installation must conform to applicable Canadian Standards: Canadian Electrical Codes Parts 1 & 2 CSA C22.1-1990 or LATEST EDITION.

NOTE: A circuit servicing each dryer must be provided.

Main Grounding

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

NOTE: A grounding connection (terminal lug) is provided in the dryer in the base electrical junction box.

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

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

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

Gas Information

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

IMPORTANT: Failure to comply with these codes or ordinances, and/or the requirements stipulated in this manual, can result in personal injury and improper operation of the dryer.

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

IMPORTANT: Failure to isolate or disconnect the dryer from supply as noted can cause irreparable damage to the gas valve, which will void the warranty.

WARNING

Fire or explosion could result.

Gas Supply

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

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

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

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

The input ratings shown on the dryer data label are for elevations up to 2,000 feet (609.6 meters) unless elevation requirements over 2,000 feet (609.6 meters) were specified at the time the dryer order was placed with the factory. The adjustment or conversion of the dryers in the field for elevations over 2,000 feet (609.6 meters) is made by changing each burner orifice. If this conversion is necessary, contact the reseller who sold the dryer or contact the ADC factory.

Technical Gas Data

Gas Specifications

Type of Gas	Manifold Pressure*	In-Line Pressure
Natural	3.5 in wc	6.0 - 12.0 in wc
	8.7 mb	14.92 - 29.9 mb
Liquid Propane	10.5 in wc	11.0 in wc
	26.1 mb	27.4 mb

Shaded areas are stated in metric equivalents

* Measured at gas valve pressure taps when the gas valves are on.

Gas Connections

Run a 2-inch pipe from the main gas header to the dryer. There is a 1-1/2" inlet connection at the bottom right side of the dryer's base.

Inlet connection 1-1/2" N.P.T.

Btu/hr input (per dryer) . 1,400,000 Btu/hr (352,794 kcal/hr)

Natural Gas

Pressure regulation is controlled by both gas valve's internal regulators. Incoming supply pressure must be consistent between a minimum of 6.0 in wc (14.92 mb) and a maximum of 12.0 in wc (29.9 mb).

L.P. gas burners have both of their gas valve's internal pressure regulators blocked open so that the gas pressure must be regulated upstream of the dryer. The pressure measured at each gas valve pressure tap must be a consistent 10.5 in wc (26.1 mb). There is no regulator or regulation provided in an L.P. gas dryer. The water column must be regulated at the source (L.P. tank) or external regulator/regulation must be added to each dryer.

Piping / Connections

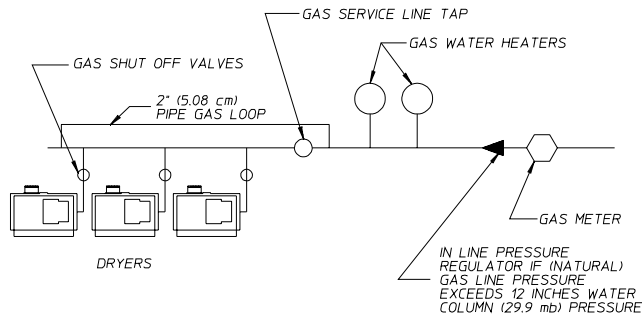
All components/materials must conform to National Fuel Gas Code Specifications ANSI Z223.1-LATEST EDITION, or in Canada, CAN/CGA-B149.1-M91 (Natural Gas) or CAN/CGA-B149.2-M91 (L.P. Gas) or LATEST EDITION (for General Installation and Gas Plumbing), as well as local codes and ordinances and must be done by a qualified professional. It is important that gas pressure regulators meet applicable pressure requirements, and that gas meters be rated for the total amount of all the appliance Btu being supplied.

The dryer is provided with a 1-1/2" N.P.T. inlet pipe connection located at the right side of the base of the dryer. For ease of servicing, the gas supply line of each dryer must have its own shutoff valve.

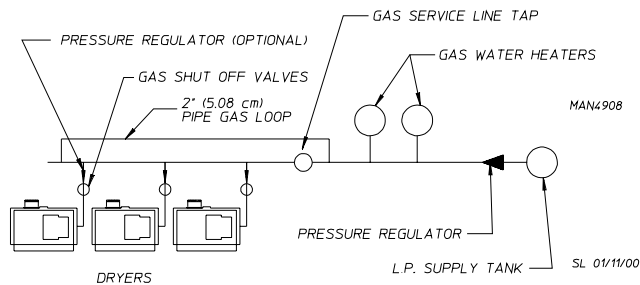
The size of the main gas supply line (header) will vary depending on the distance this line travels from the gas meter or, in the case of L.P. gas, the supply tank, other gas-operated appliances on the same supply line, etc. Specific information regarding supply line size should be determined by the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

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

TYPICAL NATURAL GAS INSTALLATION



TYPICAL L.P. GAS INSTALLATION



Consistent gas pressure is essential at all gas connections. It is recommended that a 2-inch (5.08 cm) pipe gas loop be installed in the supply line servicing a bank of dryers. An in-line pressure regulator must be installed in the gas supply line (header) if the (natural) gas pressure exceeds 12.0 in wc (29.9 mb) pressure.

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

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

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

Test all connections for leaks by brushing on a soapy solution (liquid detergent works well).

WARNING

Never test for leaks with a flame!!!

All components/materials must conform to National Fuel Gas Code Specifications ANSI Z223.1-LATEST EDITION, or in Canada, CAN/CGA-B149.1-M91 (Natural Gas) or CAN/CGA-B149.2-M91 (L.P. Gas) or LATEST EDITION (for General Installation and Gas Plumbing), as well as local codes and ordinances and must be done by a qualified professional. It is important that gas pressure regulators meet applicable pressure requirements, and that gas meters be rated for the total amount of all the appliance Btu being supplied.

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

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

Steam Information

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

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

NOTE: The dryer is manufactured with a pneumatic (piston) damper system, which requires an external supply of clean, dry, and regulated air (80 psi +/- 10 psi [5.51 bar +/- 0.68 bar]).

Steam Coil pH Level

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

IMPORTANT: Coil failure due to improper pH level will void the warranty.

Steam Requirements – High Pressure

Inlet 2" supply line connection

Return 1-1/4" return line connection

Operating Steam Pressure

Maximum	125 psig*	861.84 kPa
Heat Input (Normal Load)	38 Bhp	
Consumption (Approximate)	1,257 lb/hr	570.17 kg/hr

Shaded areas are stated in metric equivalents

* The minimum operating pressure for optimum results is 100 psig (689.47 kPa).

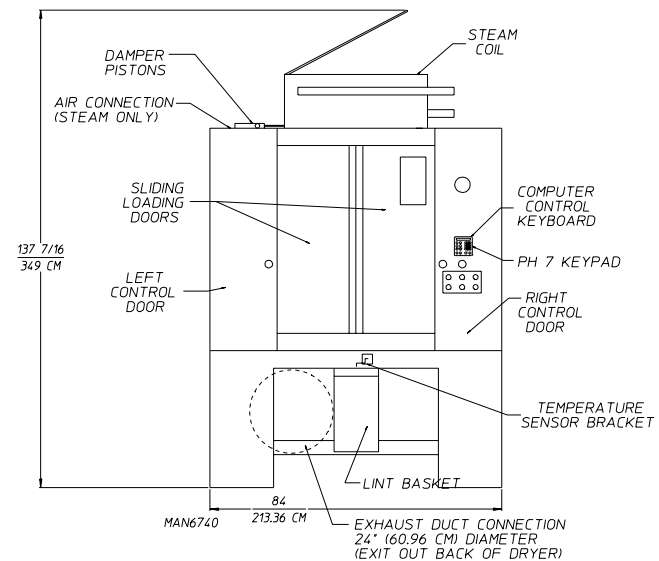
Installation Instructions

To ensure that adequate supply of steam is provided, be sure that the steam supply lines and steam return lines are sized and laid out as stipulated in this manual. Inadequate steam supply lines and steam return lines or improper steam plumbing will result in poor performance and can cause component failure. Clean, dry, and regulated steam must be provided to the dryer.

IMPORTANT: Steam coil failure due to water hammer by wet steam will void the warranty.

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

The dryer is manufactured with a pneumatic (piston) damper system, which requires an external supply of compressed air. The air connection is made at the left hand side on top of the dryer.



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

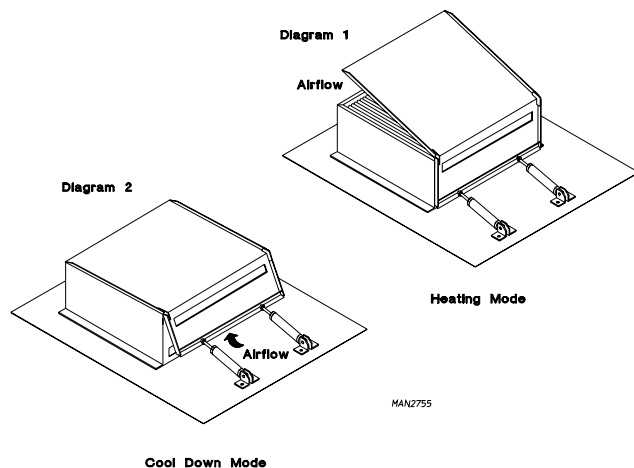
Steam Damper System Operation

The steam damper, as shown in the illustration below, allows the coil to stay constantly charged eliminating repeated expansion and contraction. When the damper is opened, the air immediately passes through the already hot coil, providing instant heat to start the drying process. When the damper is closed, ambient air is drawn directly into the tumbler, allowing a rapid cool down.

Diagram 1 shows the damper in the heating (open) mode, allowing heat into the tumbler.

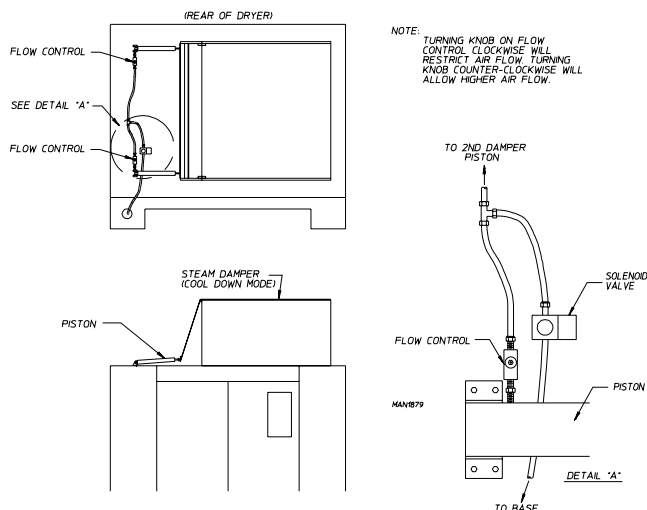
Diagram 2 shows the damper in the cool down (closed) mode, pulling ambient air directly into the tumbler without passing through the coils.

NOTE: With the dryer off or with no air supply, the damper is in the cool down mode as shown in Diagram 2.



NOTE: Turning knob on flow control clockwise will restrict airflow. Turning knob counterclockwise will allow higher airflow.

Steam Damper Air Piston (Flow Control) Operation Adjustment



Steam damper operation was tested and adjusted prior to shipping at 80 psi (5.51 bar). If steam damper adjustment is necessary, locate the flow control valve and make the necessary adjustments as noted in illustration.

NOTE: Adjust both flow control valves equally, so that both pistons operate at the same time.

Preoperational Test

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

Turn on electric power to the dryer.

Make sure the loading doors are closed and the lint drawer is closed.

Press in "green" power button and it will illuminate.

Microprocessor controller (computer) system operational test, to start the dryer:

Display will read "READY."

Press "D" (preprogrammed) cycle key on the keypad.

The dryer will then start (i.e., blower, tumbler, and heat).

The L.E.D. display will read MANUAL DRYING CYCLE D, 00:00 MIN REMAIN.

NOTE: Press the "UP ARROW" to view the tumbler temperature at any time.

The dryer can be stopped at any time by pressing the "STOP/CLEAR" key. If the temperature is above the Cool Down set point when the "STOP/CLEAR" is pressed, the dryer will go into a Cool Down Cycle. If the "STOP/CLEAR" key is pressed again at this point the cycle that was in progress will be canceled and returned to the "READY" state. If the temperature is below the Cool Down set point, the cycle that was in progress will be canceled and go into Wrinkle Guard Cycle.

When the programmed drying time has expired, the Phase 7 OPL microprocessor controller (computer) will proceed into the Cool Down Cycle (mode).

Once the Cool Down Cycle begins at the end of the heat cycle, the L.E.D. display will read COOL DOWN TEMP ____/____ MINUTE REMAINING. At the end of the heat cycle, the dryer will shutoff the heat and continue the fan and tumbler until the Cool Down time, or temperature is reached.

Once the Cool Down Cycle is completed, the Phase 7 OPL microprocessor controller (computer) will proceed into the Wrinkle Guard Cycle. The Audio Alert tone will sound for the amount of time set in Audio Alert ON Time. The L.E.D. display will read "WRINKLE GUARD". The times are fixed at 2 minutes OFF, 2 minutes ON for a maximum time of 99 minutes. These times are not programmable. During the ON time, the blower (fan) and the tumbler will start to rotate (without heat for 2 minutes). The Phase 7 OPL microprocessor controller (computer) will repeat this process until the Maximum Wrinkle Guard On Time has expired (99 minutes). The L.E.D. display will then read "CYCLE DONE" and lockout the dryer functions until the doors are opened. It will then return to "READY."

NOTE: Mechanical functions of the dryer are not allowed during the ON time. The blower (fan) must be OFF to perform mechanical functions. However the "STOP/CLEAR" key may be pressed at any time to end the Wrinkle Guard Cycle. Mechanical functions of the dryer is allowed during the OFF time.

Dryer can be stopped at any time by pressing the "STOP/CLEAR" key twice. The display will show "READY", at this time a new keypad key function must be selected for the dryer to operate.

Pressing keypad key "A," "B," "C," "D," or "F" will also start the dryer. The six preprogrammed drying cycles "A" through "F" have been stored in the microprocessor controller's (computer's) memory. Refer to the Programming Manual supplied with the dryer for these preprogrammed cycles.

Check to ensure that the tumbler starts in the clockwise direction. Additionally, check the direction of the blower motor to ensure that it rotates in the counterclockwise direction as viewed from the left side of the dryer. If it does, the phasing is correct. If the phasing is incorrect, reverse 2 of the leads at L1, L2, or L3 of the power supply connections made to the dryer.

IMPORTANT: Dryer blower motor and impellor/fan shaft as viewed from the left side of the dryer must turn in the counterclockwise direction, otherwise the dryer efficiency will be drastically reduced, and premature component failure can result.

Heat Circuit Operational Test

Gas Models

When the dryer is first started (during initial start-up), the burners have a tendency not to ignite on the first attempt. This is because the gas supply piping is filled with air, so the dryer may have to be stopped and restarted several times for this air to be purged from the lines.

The dryer has 2 burner boxes and each burner has its own DSI module and spark ignitor/flare-probe assembly. If ignition is not established after first attempt, the heat circuit DSI module will lockout until it is manually reset. To reset the DSI system, open and close the loading doors and restart the dryer (press "ENTER/START" key).

If 1 burner lights and the other does not, then the system will shut both burners off and the burner fault code will be displayed showing which of the 2 burners failed to ignite.

NOTE: During the purging period, verify that all gas shutoff valves are open.

Once ignition is established, a gas pressure test should be taken at each gas valve pressure tap of the dryer to assure that the water column pressure is correct and consistent.

NOTE: Water column pressure requirements (measured at both gas valve pressure taps)...

Natural Gas..... 3.5 in wc (8.7 mb)

L.P. Gas 10.5 in wc (26.1 mb)

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

Steam Models

Check to ensure that the steam damper is functioning properly.

Make a complete operational check of all safety related circuits (i.e., lint drawer switch and sail switches on gas models).

Reversing tumbler dryers should never be operated with less than a 270 lb (122.47 kg) load (dry weight), since the load's weight affects tumbler coast time during a direction reversal command. It is important that the tumbler come to a complete stop prior to starting in opposite direction. For automatic (mode) cycle only, the spin and dwell (stop) times are not adjustable and have been preprogrammed into the microprocessor controller (computer) for a 2-1/2 minute reverse spin time and a 7-second dwell (stop) times.

Tumbler Coating

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

Each dryer should be operated through 1 complete cycle to assure that no further adjustments are necessary and that all components are functioning properly.

Microprocessor controller (computer) programs / selections...

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

Preparation for Operation/Start-Up __

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

- Read all "CAUTION," "WARNING," and "DIRECTION" labels attached to the dryer.
- Check incoming supply voltage to be sure that it is the same as indicated on the dryer data label that is affixed to either the backside of the upper control door or left side panel/wall area behind the control door. The supply voltage must match the electrical service exactly.
- GAS MODELS – Check to assure that the dryer is connected to the type of heat/gas indicated on the dryer data label.

- GAS MODELS – The sail switch damper assembly was installed and adjusted at the factory prior to shipping. However, each sail switch adjustment must be checked to assure that this important safety control is functioning.
- GAS MODELS – Be sure that all gas shutoff valves are in the open position.
- Be sure all side and base panels are on the dryer.
- Check all service doors to assure that they are closed and secure.
- Be sure lint drawer is securely in place.

NOTE: Lint drawer must be all the way in place to activate safety switch otherwise the dryer will not start.

- Rotate the tumbler (drum) by hand to be sure it moves freely.
- Check bolts, nuts, screws, terminals, and fittings for security.
- Check to ensure air supply (80 psi [5.51 bar]) is connected to the dryer.
- STEAM MODELS – Check to ensure all steam shutoff valves are open.

Shutdown Instructions _____

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

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

Discontinue the heat supply:

GAS MODELS – Discontinue the gas supply.

Shut off external (location furnished) gas supply shutoff valve.

Shut off internal (location furnished) gas supply shutoff valve located in the gas valve burner area.

STEAM MODELS – Discontinue steam supply.

Shut off external (location furnished) shutoff valve.

Shut off internal (location furnished) steam valves in the supply lines and the return lines.

Service / Parts Information _____

Service

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

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

Parts

Replacement parts should be purchased from the reseller from whom the ADC equipment was purchased. If the reseller cannot be contacted or is unknown, contact the ADC Parts Department for a reseller in your area. Parts may also be purchased directly from the factory by calling the ADC Parts Department at +1 (508) 678-9000 or you may FAX in your order at +1 (508) 678-9447.

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

Warranty Information _____

Returning Warranty Cards

Before any dryer leaves the ADC factory test area, a warranty card is placed on the back side of the main door glass. These warranty cards are intended to serve the customer where we record the individual installation date and warranty information to better serve you should you file a warranty claim.

If a warranty card did not come with your dryer, contact the ADC Warranty Department or the ADC Service Department at +1 (508) 678-9000.

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

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

Warranty

For a copy of the ADC commercial warranty covering your particular dryer(s), contact the ADC reseller from whom you purchased the equipment and request a dryer warranty form. If the reseller cannot be contacted or is unknown, warranty information can be obtained from the factory by contacting the ADC Warranty Department at +1 (508) 678-9000.

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

Returning Warranty Parts

All dryer or parts warranty claims or inquiries should be addressed to the ADC Warranty Parts Department. To expedite processing, the following procedures must be followed:

No parts are to be returned to ADC without prior written authorization (R.M.A.) from the factory.

NOTE: An R.M.A. is valid for only 30 days from date of issue.

The R.M.A. issued by the factory, as well as any other correspondence pertaining to the returned part(s), must be included inside the package with the failed merchandise.

Each part must be tagged with the following information:

Model number and serial number of the dryer from which part was removed.

Nature of failure (be specific).

Date of dryer installation.

Date of part failure.

Specify whether the part(s) being returned is for a replacement, a credit, or a refund.

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

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

The company returning the part(s) must clearly note the complete company name and address on the outside of the package.

All returns must be properly packaged to insure that they are not damaged in transit. Damage claims are the responsibility of the shipper.

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

All returns should be shipped to the ADC factory in such a manner that they are insured and a proof of delivery can be obtained by the sender.

Shipping charges are not the responsibility of ADC. All returns should be "prepaid" to the factory. Any "C.O.D." or "COLLECT" returns will not be accepted.

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

Routine Maintenance _____

Cleaning

A program and/or schedule should be established for periodic inspection, cleaning, and removal of lint from various areas of the dryer, as well as throughout the ductwork system. The frequency of cleaning can best be determined from experience at each location. Maximum operating efficiency is dependent upon proper air circulation. The accumulation of lint can restrict this airflow. If the guidelines in this section are met, an ADC dryer will provide many years of efficient, trouble free, and most importantly, safe operation.

WARNING

Lint from most fabrics is highly combustible. The accumulation of lint can create a potential fire hazard.

Keep dryer area clean and free from combustible materials, gasoline, and other flammable vapors and liquids.

NOTE: Suggested time intervals shown are for average usage, which is considered 6 to 8 operational (running) hours a day.

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

Cleaning Schedule

Every Third or Fourth Load

Clean the lint basket. A clogged lint basket will cause poor dryer performance. The lint basket is located in the lint drawer in the base of the dryer. Pull out the lint drawer, brush the lint off the basket, and remove the lint. Inspect lint screen assembly and replace if torn.

NOTE: Frequency can best be determined at each location.

Weekly

Open the hinged panels on each side of the tumbler section and remove any lint accumulation from the tumbler drive motor, drive shafts, gear reducer, V-belts, drive wheels, and drive shaft bearings.

Slide the lint basket all the way out of the dryer and clean any lint accumulation off of the temperature sensor bracket, which is located above the lint basket.

WARNING

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

Monthly

Empty the compressed air filter bowl.

Every 3 Months

Regrease the two 1-3/8" bearings that support the impellor/fan shaft. Use Shell Alvania #2 grease or its equivalent. Impellor/fan shaft bearings must be lubricated.

Apply a hi-temperature grease to the four 1-1/2" diameter tumbler drive shaft pillow block bearings. (Use Shell Alvania #2 grease or its equivalent.)

Retighten setscrews in the collars of the four 1-1/2" diameter tumbler drive shaft bearings.

Clean lint accumulation from the gas valve/burner area at the top of the dryer, the fan (impellor) motor, and the fan/impellor bearings located in the dryer's base.

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

Every 6 Months

Remove the gear oil in the tumbler drive shaft gear reducer. Replace with 1.4 liters of Mobil oil DTE HH5G (I.S.O. viscosity grade 460) or its equivalent.

Check fan (impellor) and drive motor V-belts for tightness and wear. Retighten and replace if required.

STEAM MODELS – Clean the steam coil fins. We suggest using compressed air and a vacuum cleaner with brush attachment.

NOTE: When cleaning steam coil fins, be careful not to bend the fins. If fins are bent, straighten by using a fin comb, which is available from local air-conditioning supply houses.

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

CAUTION: The accumulation of lint in the exhaust ductwork can create a potential fire hazard.

NOTE: Do not obstruct the flow of combustion and ventilation air. Check customer furnished back draft dampers in the exhaust ductwork. Inspect and remove any lint accumulation, which can cause the damper to bind or stick.

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

Adjustments

7 Days After Installation and Every 6 Months Thereafter

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

30 Days After Installation

Shut off all power to the dryer. Verify that the electrical connections to the motor contactors and overloads are tight. This is done to accommodate the compression of the wires over time.

Lubrication

Monthly

The 2 bearings that support the impellor/fan shaft must be lubricated. Use Shell Alvania #2 grease or its equivalent. Generically, this grease would be described as an NLGI Grade 2 multipurpose industrial grease with a lithium thickener and mineral base oil.

Every 3 Months

The 4 bearings that support the drive and idler shafts must be lubricated. Use Shell Alvania #2 grease or its equivalent. Generically, this grease would be described as an NLGI Grade 2 multipurpose industrial grease with a lithium thickener and mineral base oil.

Component System Descriptions

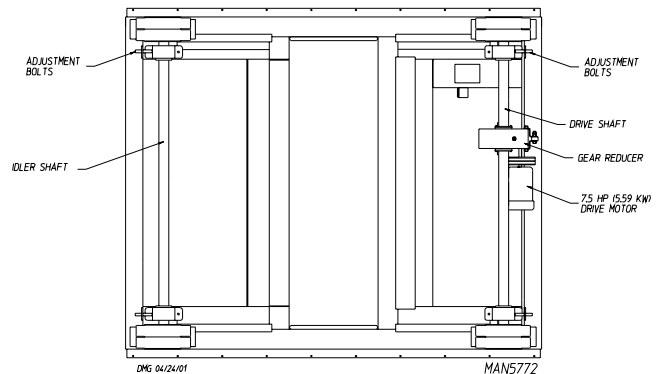
Tumbler Drive System

The tumbler is supported and driven by 4 11-inch (27.94 cm) diameter drive wheels. 2 of these wheels are attached to a 2-inch (5.08 cm) diameter idler shaft, while the other 2 are attached to a 2-inch (5.08 cm) diameter drive shaft. Each of the wheels is fastened to the shafts by a taper lock bushing. The taper lock is made up of 3 pieces: an inner collar, an outer sleeve, and a key. The inner and outer elements have matching opposing tapers. As a result, when the bolts are tightened, the taper lock contracts onto the shaft and expands into the drive wheel hub locking the wheel onto the shaft.

The idler shaft and drive shaft are each supported by two 2-inch (5.08 cm) diameter pillow block bearings. These bearings sit on slotted support channels and can be moved inward or outward by the adjustment bolts to raise or lower the tumbler.

The drive system consists of a shaft mounted (5.6 to 1 ratio) gear reducer, 2 "A" section V-belts, and a 7-1/2 hp (5.59 kW) drive motor. This produces a tumbler speed of approximately 31.5 rpm. Proper tension is maintained on the V-belt by tightening the gear reducer turnbuckle support. The oil in the gear reducer must be replaced every 6 months by 1.4 liters of I.S.O. viscosity grade 460 gear oil.

Tumbler Drive System



Tumbler

The tumbler is made of 14-gauge stainless steel perforated panels, 4 stainless steel ribs, and 2 outer tumbler rings made of rolled steel angle iron that has been turned on a lathe for smoothness. The tumbler is a completely welded assembly, so the perforated panels are not removable.

Air Blower Drive System

The impellor (fan) used in the dryer is an 18-1/2" (47 cm) diameter squirrel cage impellor (fan) wheel. It spins in a counterclockwise direction looking at the back of the blower housing.

The impellor (fan) shaft is mounted in 2 pillow block bearings, and the shaft is driven by 2 B-section V-belts connected to the blower motor.

The blower motor is mounted on an adjustable base. The motor position can be easily adjusted, so that proper tension can be maintained on the V-belts.

Safety Devices

Load / Unload Door Switches

There are 2 of these switches located above the main loading doors. These switches ensure that the doors are closed before the dryer can start and ensures that the doors are fully open before the dryer will tilt. If the dryer is started when the load doors are open, the microprocessor controller (computer) L.E.D. display will show "door."

Lint Basket Switch

This switch ensures that the lint basket is closed before the dryer can start. This switch is located at the front of the dryer on the right side of the lint basket. If the lint basket is open when the dryer is started, the microprocessor controller (computer) L.E.D. display will show "lint drawer open" and will not reset until the lint drawer has remained open for 15-seconds.

Auto Reset Tumbler Hi-Limit Safety Thermostat

The auto reset tumbler hi-limit switch is a thermostat type switch located above the lint basket. Its function is to discontinue heat (flame) in the event of an over temperature situation (above 225° F [107° C]). This will shut off the gas flow to the burner boxes; and the display will read an error code of "tumbler hi-limit fault." The auto reset hi-limit safety will automatically reset and the Phase 7 computer must be reset. (Access to the switch is gained by sliding/pulling the lint basket completely out of the dryer.)

Burner Box Hi-Limit Safety Thermostats (for Gas Dryers Only)

These disk temperature switches have a setting of 330° F (166° C). They are located on the right side of each burner box, and they are a manual reset type of switch. These switches ensure that there is a proper airflow through the burner box. Upon a low airflow condition, which may be caused by a clogged lint screen excessively long or blocked exhaust duct, or improper make-up air, the temperature in the burner boxes will increase tripping these switches. This will shut off the gas flow to the burner boxes; and the display will read an error code of "Burner Hi-Limit Fault". The thermostat must be manually reset and the Phase 7 computer must be reset.

Sail Switches (for Gas Dryers Only)

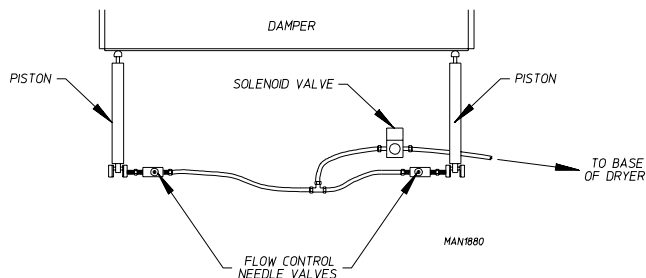
The sail switches are located in the front and back of the burner boxes. A sail switch consists of a round damper plate on a lever arm, which is in contact with an electric switch. When the air blower comes on, it draws air through the gas burners. This creates a negative pressure inside the burner boxes. This negative pressure pulls in the sail switches. If the sail switches do not pull in, this will prevent the heat circuit from energizing and the computer will display a sail switch fault.

NOTE: Overly long or blocked exhaust duct, lack of make-up air, or clogged lint screen will prevent the sail switches from pulling in.

Steam Damper Actuator System

The system consists of a hinged damper plate, 2 pneumatic pistons (each with its own flow needle valve) to control the speed of both pistons actuation, and a 24 volt solenoid valve.

On a call for heat, a 24 volt signal is applied to the 3-way/2-position solenoid valve. This signal switches the valve so that compressed air is sent to the pistons. The piston rods extend, pushing the hinged steam damper plate to the opened piston. This allows room air to be drawn through the hot steam coil and then through the tumbler.



When the temperature set point has been reached, the 24 volt signal is removed from the solenoid valve, so that the solenoid valve blocks the air supply to the piston rods, closing the steam damper. The steam damper plate now covers the steam coil and allows room air to bypass the coil before entering the tumbler for a rapid cool down.

The steam damper plate should open and close slowly and smoothly. The speed can be modulated by adjusting both needle valve knobs. Turning the knob clockwise restricts the compressed airflow and slows down the steam damper movement. Counterclockwise adjustment speeds up the steam damper motion. Upon completion of adjustment, tighten the needle valve's locking nut.

NOTE: Turning knob on flow control clockwise will restrict airflow. Turning knob counterclockwise will allow higher airflow.

Burner and Tumbler / Lint Chamber Manual Reset Hi-Limit Instructions

Phase 7 – Gas Models Only

This dryer was manufactured with a burner manual reset hi-limit and tumbler/lint chamber hi-limit thermostat. If burner manual reset hi-limit thermostat is open prior to the start of the drying cycle, or during the cycle, the dryer will recognize the open state of the burner hi-limit thermostat and display a hi-limit fault. This manual reset hi-limit thermostat must be reset manually. The tumbler high will reset automatically when tripped.

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

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

WARNING

Discontinue power to the dryer before attempting to reset hi-limit.

IMPORTANT IMPORTANT IMPORTANTE

HEATING UNIT IS EQUIPPED WITH A HI-LIMIT THERMOSTAT WHICH **MUST BE RESET MANUALLY.**

WARNING - DISCONTINUE POWER TO DRYER BEFORE ATTEMPTING TO RESET HI-LIMIT.

L'ÉLÉMENT CHAUFFANT EST ÉQUIPÉ D'UN THERMOSTAT À LIMITE MAXIMALE QUI **DOIT ÊTRE RÉGLÉ MANUELLEMENT.**

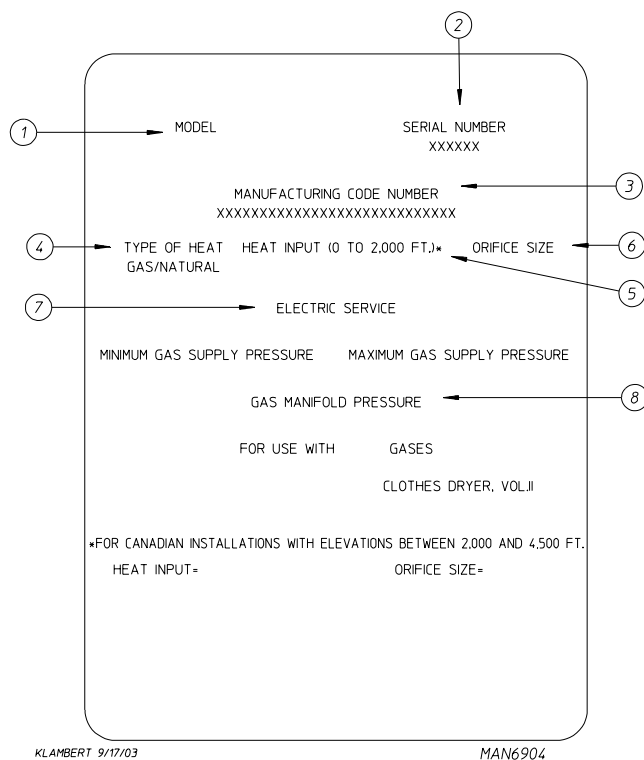
MISE EN GARDE - COUPER LE COURANT D'ALIMENTATION DU SÈCHE-LINGE AVANT DE RÉGLER LA LIMITE MAXIMALE.

LA UNIDAD DE CALENTAMIENTO ESTÁ EQUIPADA CON UN THERMOSTATO DE LÍMITE SUPERIOR **QUE DEBE REINICIARSE MANUALMENTE.**

ADVERTENCIA - DESCONECTE LA ALIMENTACIÓN ELÉCTRICA A LA SECADORA ANTES DE REINICIAR EL LÍMITE SUPERIOR.

ADC PIN: 114076

Data Label Information



When contacting American Dryer Corporation, certain information is required to ensure proper service/parts information from ADC. This information is on the data label that is affixed to either the backside of the upper control door or left side panel/wall area behind the control door. When contacting ADC, please have the model number and serial number available.

1. Model Number – This describes the style of dryer and type of heat (gas, electric, or steam).
2. Serial Number – Allows the manufacturer to gather information on your particular dryer.
3. Manufacturing Code Number – The number issued by the manufacturer, which describes all possible options on your particular model.
4. Type of Heat – This describes the type of heat for your particular dryer, gas (either natural gas or L.P. gas), electric, or steam.
5. Heat Input (For Gas Dryers) – This describes the heat input in British Thermal Units per Hour (Btu/hr).
6. Orifice Size (For Gas Dryers) – Gives the number drill size used.
7. Electric Service – This describes the electric service for your particular model.
8. Gas Manifold Pressure (For Gas Dryers) – This describes the manifold pressure taken at the gas valve tap.

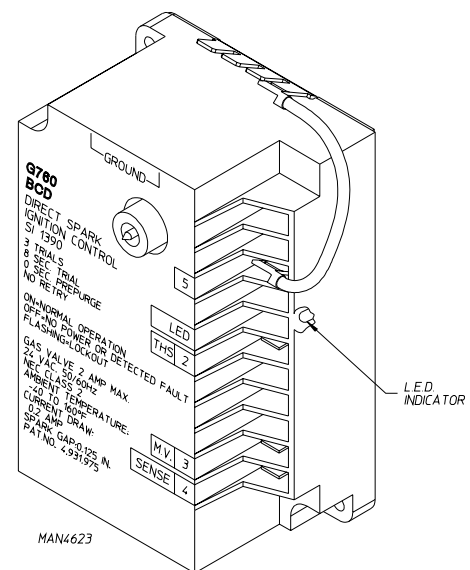
Procedure for Functional Check of Replacement Components

For Models with Johnson Controls DSI Module (G760)

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

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

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



S.A.F.E. System

The exclusive S.A.F.E. system will extinguish fires that may start in the drying tumbler. A series of sensors positioned throughout the tumbler and interfaced with the microprocessor will trigger the S.A.F.E. system water jets to quickly extinguish the flames. The water jets remain on for 2 minutes and will automatically activate again if a fire condition remains or reignites. While the water jets are activated, the tumbler will jog to move the water throughout the load. The microprocessor will display that the system was activated and will continue to display until the dryer is attended to.

Before You Start!

Check Local Codes and Permits

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

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

IMPORTANT: It is the installer's or owner's responsibility to see that the necessary or required water, water pressure, pipe size, or connections are provided. The manufacturer assumes no responsibility if the S.A.F.E. system is not connected, installed, or maintained properly.

WARNING

Water must be supplied to the S.A.F.E. system or dryer will not operate.

Installation

Requirements

The connection point to the electric water solenoid valve is a 1/2" M.P.T., the S.A.F.E. system must be supplied with a minimum water pipe size of 1/2" and be provided with a minimum of 40 psi (2.75 bar) and a maximum of 100 psi (6.89 bar) of pressure. For use of optional manual bypass, a second source with the same piping and pressure requirements is required.

Flexible 1/2" feeds must be provided to avoid damage to electric water solenoid valve by vibration (for non-tilt models only).

IMPORTANT: Flexible supply line/coupling must be used. Solenoid valve failure due to hard plumbing connections will void the warranty (for non-tilt models only).

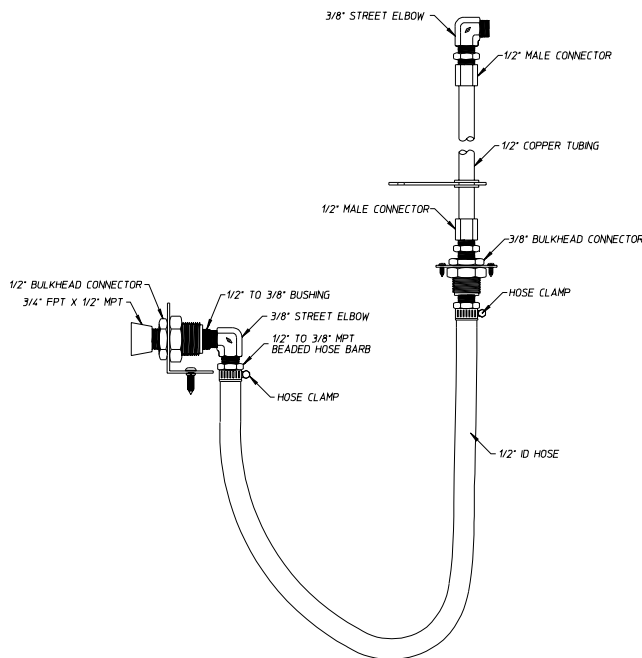
If the rear area of the dryer, or the water supply is located in an area where it will be exposed to cold/freezing temperatures, provisions must be made to protect these water lines from freezing.

WARNING

If the water in the supply line or water solenoid valve freezes, the S.A.F.E. system will be inoperative!

Water Connections

The water connection is made to the 3/4" F.P.T. bushing of the electric water solenoid valve located at the rear upper left area of the dryer. The water solenoid valve has a 1/2" M.P.T. connection and a 1/2" bushing is supplied to provide the minimum 1/2" supply (feed) line. Flexible supply line/coupling must be used in effort to avoid damage to electric water solenoid valve.



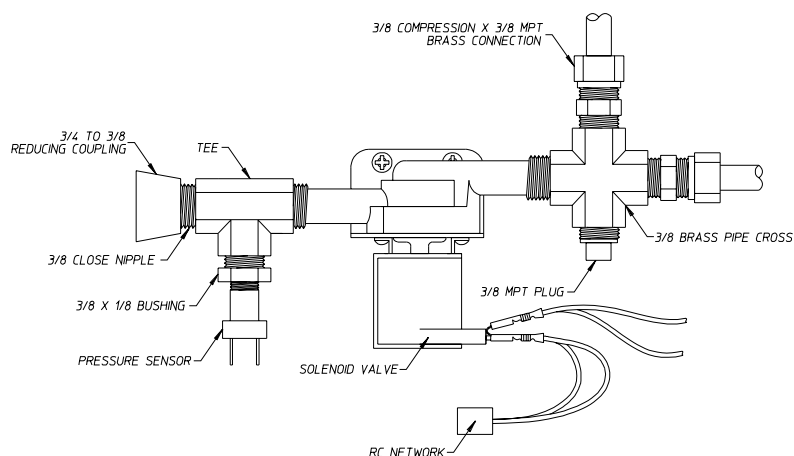
DMG 12/3/01

MAN6016

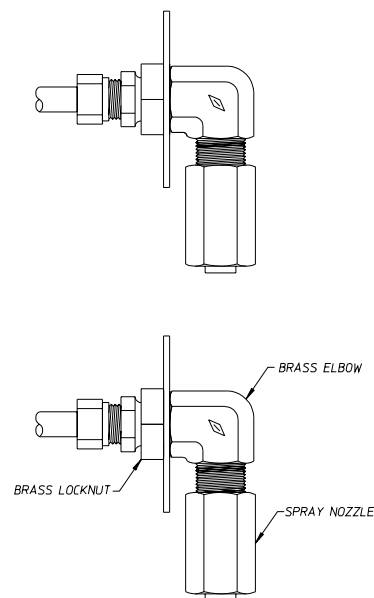
WARNING

Water must be supplied to the S.A.F.E. system or dryer will not operate.

Typical Water Supply ...



DMG 12/2/01



MAN6015

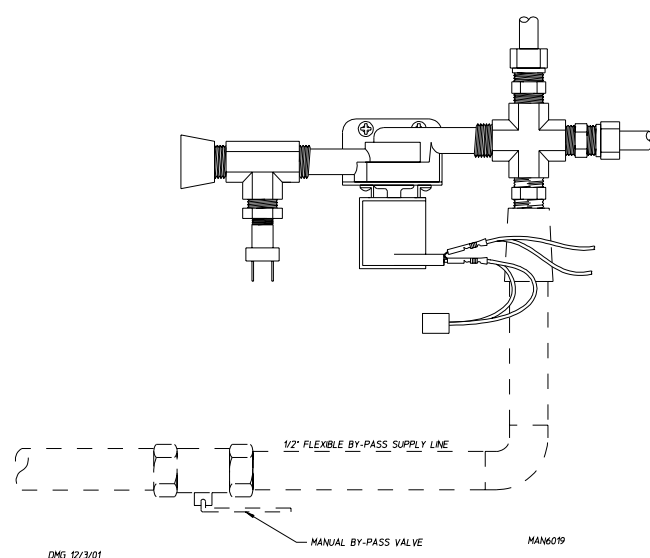
IMPORTANT: Flexible supply line/coupling must be used. Solenoid valve failure due to hard plumbing connections will void the warranty. It is recommended that a filter or strainer be installed in the water supply line.

Optional Manual Bypass

Provisions are made in the dryer for the installation of an optional manual bypass. Depending on the model dryer, the connections for the manual bypass are made at the "T" or "four way" fitting located in the outlet supply side of the water solenoid valve. The use and connections of this manual bypass are at the option or discretion of the owner.

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

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



WARNING

If the water in the supply line or water solenoid valve freezes, the S.A.F.E. system will be inoperative!

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

Electrical Requirements

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

WARNING

Electrical power must be provided to the dryer at all times. If the main electrical power supply to the dryer is disconnected, the S.A.F.E. system is inoperative!

NOTE: The S.A.F.E. system water solenoid valve test can be performed by pressing the "STOP" key and "A" key together.

S.A.F.E. System Theory of Operation

20-seconds after the heat turns off, the Phase 7 control monitors the S.A.F.E. system probe located in the top of the tumbler chamber and records the minimum temperature. If the minimum recorded temperature is no less than 120° F (48° C) and the control detects a 35° rise in temperature, this will be the trip point and the S.A.F.E. system routine will activate.

While a drying cycle is in process and the heat is on, the Phase 7 control monitors the exhaust temperature transducer. If the drying cycle temperature set point is set greater than 160° F (71° C) and the control detects an exhaust temperature rise 25° F greater than set point, this will be the trip point and the S.A.F.E. system routine will activate.

Once the S.A.F.E. system routine is activated, water will be injected into the tumbler chamber. Anytime water is being injected into the tumbler; the tumbler drive will turn the load for 1-second every 15-seconds. This process will continue for a minimum of 2 minutes. After 2 minutes has elapsed, the control will check if the temperature remained above trip point, if so water will remain on. The control will continue to check if temperature is above trip point every 30-seconds. If the water has been on for a constant 10 minutes, the water will be turned off regardless of the temperature. If the temperature has dropped below trip point, the control will turn off the water prior to 10 minutes.

System Reset

After the microprocessor determines that the situation is under control and shuts the water being injected into the tumbler off, the microprocessor display will read "S.A.F.E. System Activated," and the horn/tone will sound until reset manually.

To reset the microprocessor and S.A.F.E. system, press the red key on the keypad.

OPL S.A.F.E. System Check Procedure

The operation of the water solenoid valve can be tested to ensure that the water supply system and valve are functional. Before attempting system check, be sure that all water supply shutoff valves to the dryer are in the OPEN position, and the dryer must be in the "READY" mode where no cycle is loaded or in progress.

The procedure is as follows:

Press and hold the red "STOP" key (while in "READY" mode and no cycle in progress).

Press and hold the "A" key.

Water valve will open and water will be dispensed into tumbler area as long as both keys are held.

IMPORTANT: This is a test function only and the keys should be held and system activated for only a second or so, otherwise water will accumulate in various places in the dryer.

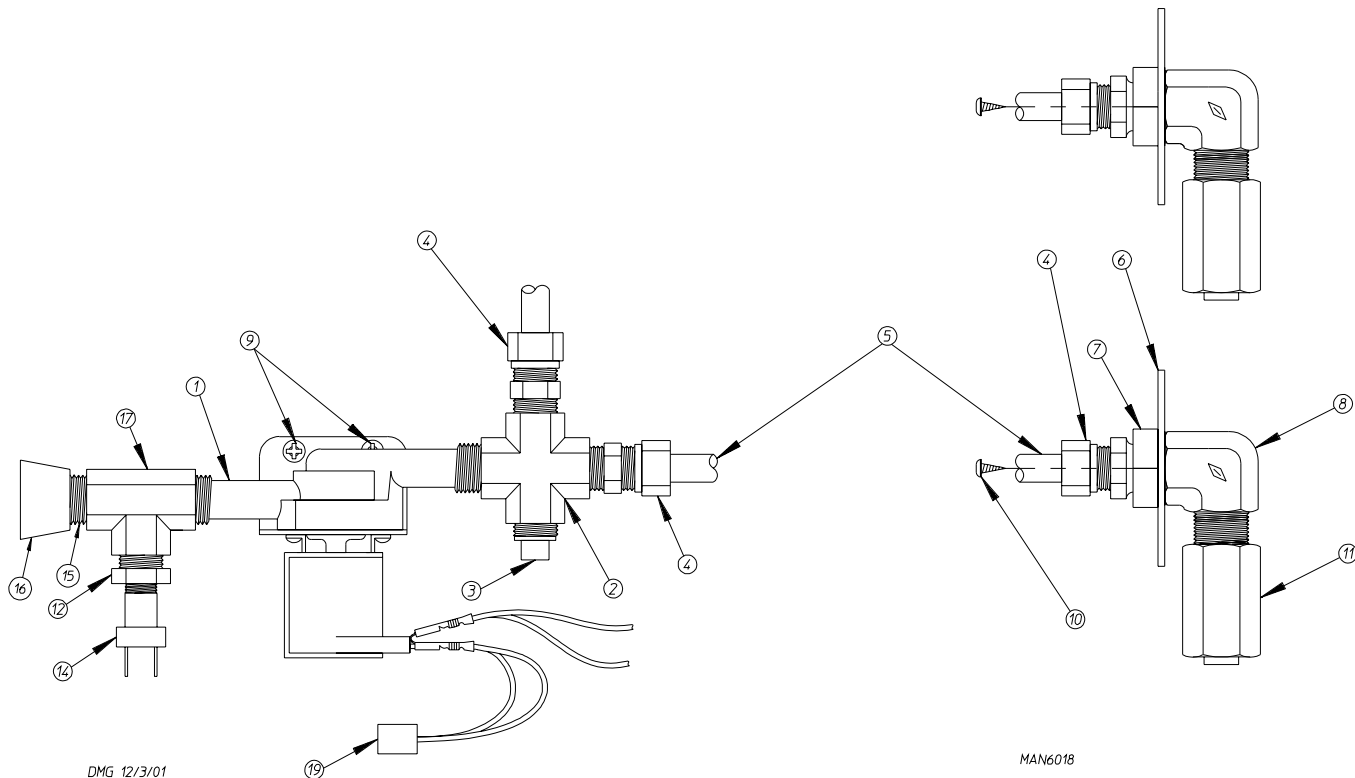
S.A.F.E. System Parts Break Down

Replacement parts can be obtained from your reseller or the ADC factory. When ordering replacement parts from the factory, you can FAX your order to ADC at +1 (508) 678-9447 or telephone your order directly to the ADC Parts Department at +1 (508) 678-9000. Please specify the dryer model number and serial number in addition to the description and part number, so that your order is processed accurately and promptly.

The following illustrations may not depict your particular dryer exactly. The illustrations are composite of the various dryer models. Be sure to check the descriptions of the parts thoroughly before ordering.

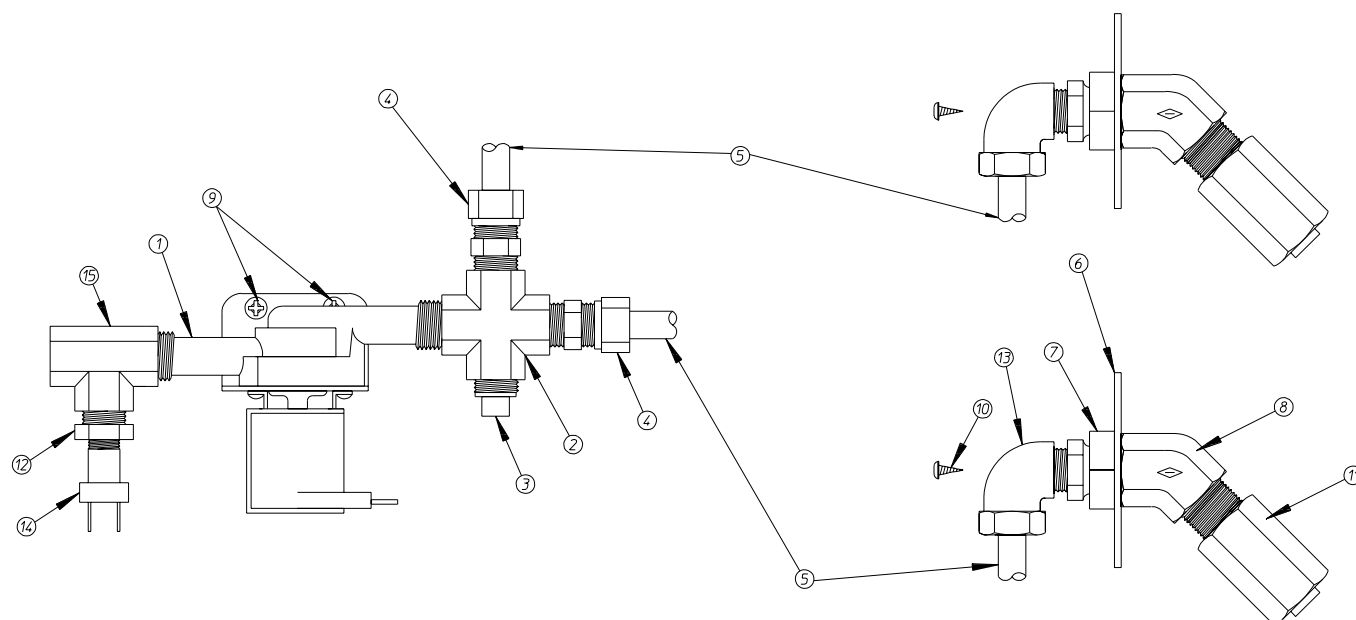
We have tried to make this manual as complete as possible and hope you will find it useful. ADC reserves the right to make changes from time to time, without notice or obligation, in prices, specifications, colors, and material, and to change or discontinue models.

Upper S.A.F.E. System Piping Assembly – Gas (Tilting)



<u>Illus. No.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1	165114	1	S.A.F.E. System Solenoid Valve 24V 50/60 Hz
2	143236	1	3/8" Brass Pipe Cross
3	143251	1	3/8" M.P.T. Brass Plug
4	143208	4	3/8" Comp x 3/8" M.P.T. Brass Connector
5	143099	3'	3/8" OD x 0.035 Wall Copper Tubing
6	311588	2	Sprinkler Head Mounting Plate
7	143303	2	3/8" N.P.T. Brass Lock Nut
8	143155	2	3/8" Brass Elbow 90°
9	150300	2	#10-16 x 1/2" Hex Washer TEK Screw
10	150301	8	#8-18 x 7/16" Phillips Pan Head TEK Screw
11	143581	2	3 GPM 3/8" F.P.T. Spray Nozzle
12	143315	1	3/8" x 1/8" Bushing (IE) 110-B-06x02
13	333178	1	S.A.F.E. System Assembly Cover ... Not Illustrated
14	136987	1	Pressure Sensor
15	143241	1	3/8" Close Nipple
16	143317	1	Reducing Coupling 3/4" x 3/8" McMaster
17	143220	1	Tee
18	154005	4	Tinnerman Clip ... Not Illustrated
19	824081	1	R.C. Network Assembly

Upper S.A.F.E. System Piping Assembly – Steam (Tilting)

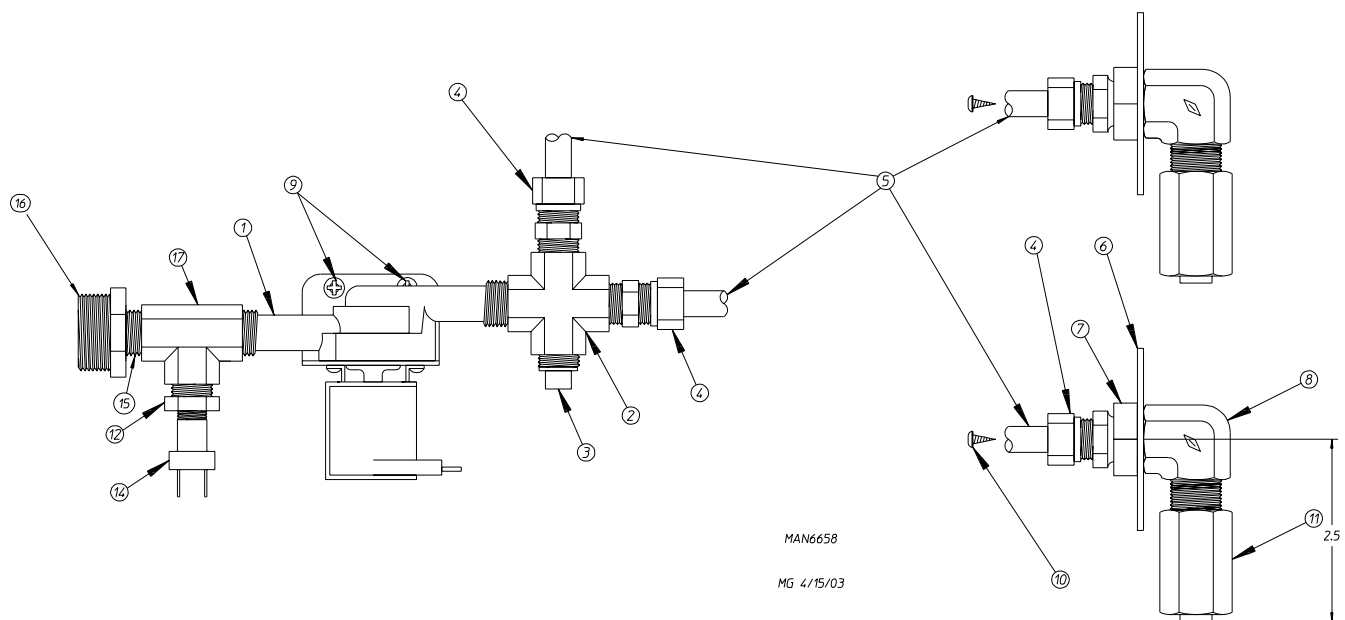


MAN6653

MG 4/14/03

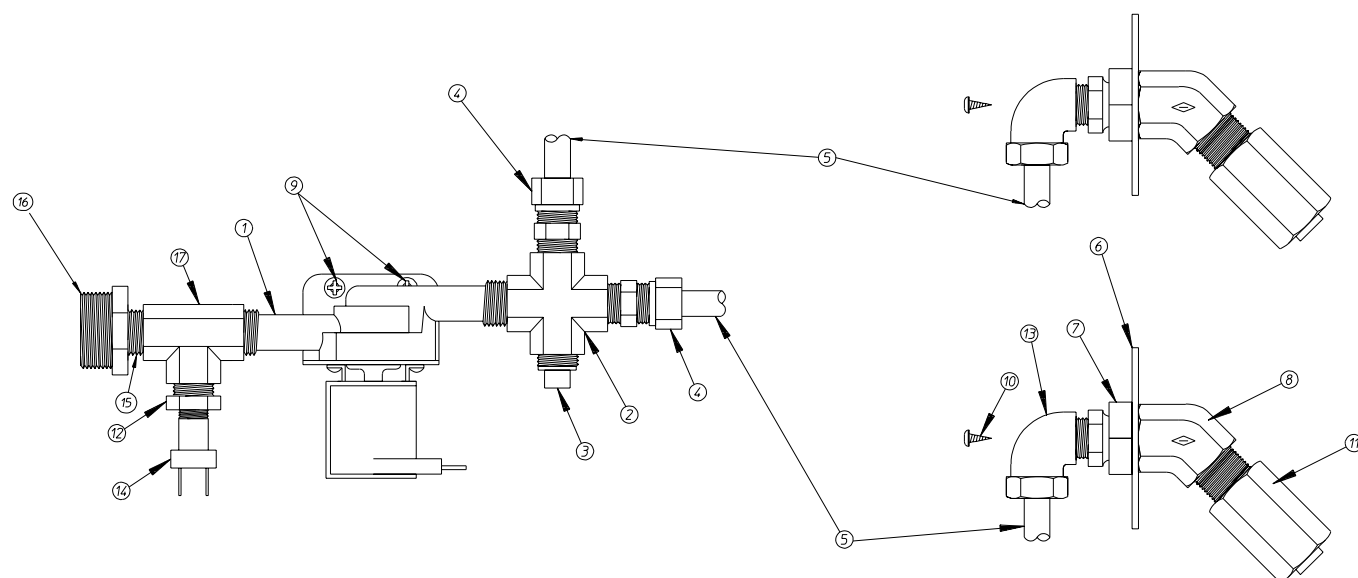
<u>Illus. No.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1	165114	1	S.A.F.E. System Solenoid Valve 24V 50/60 Hz
2	143236	1	3/8" Brass Pipe Cross
3	143251	1	3/8" M.P.T. Brass Plug
4	143208	2	3/8" Comp x 3/8" M.P.T. Brass Connector
5	143099	144'	3/8" OD x 0.035 Wall Copper Tubing
6	311588	2	Sprinkler Head Mounting Plate
7	143303	2	3/8" N.P.T. Brass Lock Nut
8	143301	2	3/8" Brass 45° Elbow
9	150300	2	#10-16 x 1/2" Hex Washer TEK Screw
10	150301	10	#8-18 x 7/16" Phillips Pan Head TEK Screw
11	143581	2	3 GPM 3/8" F.P.T. Spray Nozzle
12	143315	1	3/8" x 1/8" Bushing (IE) 110-B-06x02
13	143320	2	3/8" Comp x 3/8" M.N.P.T. 90° Elbow
14	136987	1	Pressure Sensor
15	143220	1	Tee

Upper S.A.F.E. System Piping Assembly – Gas (Non-Tilting)



<u>Illus. No.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1	165114	1	S.A.F.E. System Solenoid Valve 24V 50/60 Hz
2	143236	1	3/8" Brass Pipe Cross
3	143251	1	3/8" M.P.T. Brass Plug
4	143208	4	3/8" Comp x 3/8" M.P.T. Brass Connector
5	143099	70"	3/8" OD x 0.035 Wall Copper Tubing
6	311588	2	Sprinkler Head Mounting Plate
7	143303	2	3/8" N.P.T. Brass Lock Nut
8	143155	2	3/8" Brass Elbow 90°
9	150300	2	#10-16 x 1/2" Hex Washer TEK Screw
10	150301	8	#8-18 x 7/16" Phillips Pan Head TEK Screw
11	143581	2	3 GPM 3/8" F.P.T. Spray Nozzle
12	143315	1	3/8" x 1/8" Bushing (IE) 110-B-06x02
13	333178	1	S.A.F.E. System Assembly Cover ... Not Illustrated
14	136987	1	Pressure Sensor
15	143241	1	3/8" Close Nipple
16	143317	1	Reducing Coupling 3/4" x 3/8" McMaster
17	143220	1	Tee

Upper S.A.F.E. System Piping Assembly – Steam (Non-Tilting)

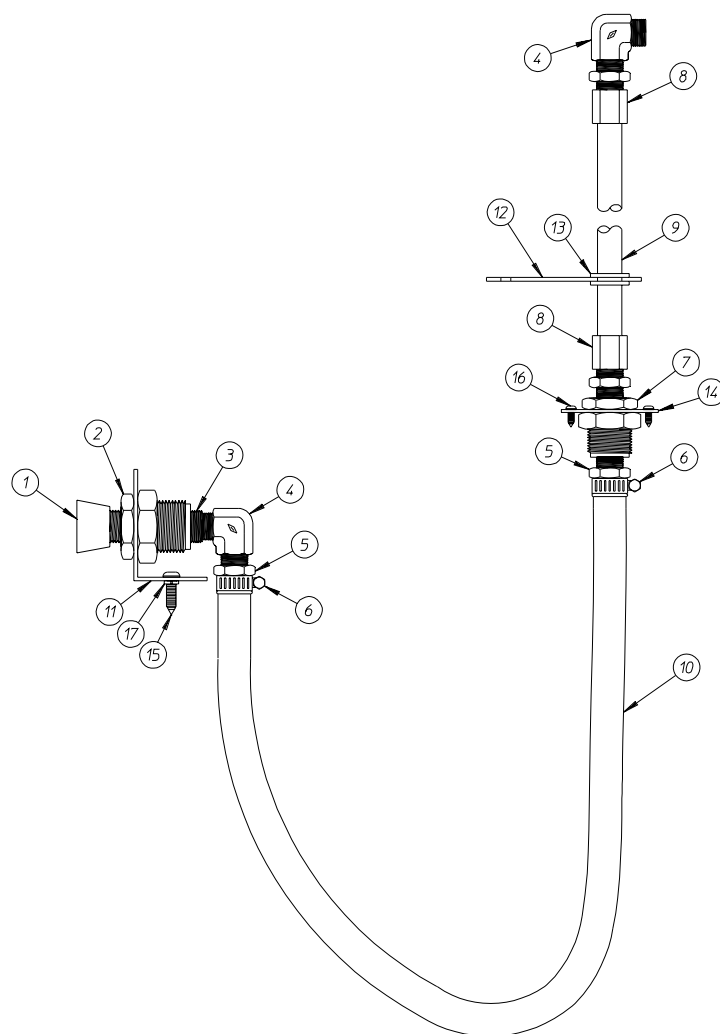


MAN6654

MG 4/14/03

<u>Illus. No.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1	165114	1	S.A.F.E. System Solenoid Valve 24V 50/60 Hz
2	143236	1	3/8" Brass Pipe Cross
3	143251	1	3/8" M.P.T. Brass Plug
4	143208	2	3/8" Comp x 3/8" M.P.T. Brass Connector
5	143099	144"	3/8" OD x 0.035 Wall Copper Tubing
6	311588	2	Sprinkler Head Mounting Plate
7	143303	2	3/8" N.P.T. Brass Lock Nut
8	143301	2	3/8" Brass 45° Elbow
9	150300	2	#10-16 x 1/2" Hex Washer TEK Screw
10	150301	10	#8-18 x 7/16" Phillips Pan Head TEK Screw
11	143581	2	3 GPM 3/8" F.P.T. Spray Nozzle
12	143315	1	3/8" x 1/8" Bushing (IE) 110-B-06x02
13	143320	2	3/8" Comp x 3/8" M.N.P.T. 90° Elbow
14	136987	1	Pressure Sensor
15	143241	1	3/8" Close Nipple
16	143317	1	Reducing Coupling 3/4" x 3/8" McMaster
17	143220	1	Tee

Lower S.A.F.E. System Piping Assembly – Gas (Tilting)

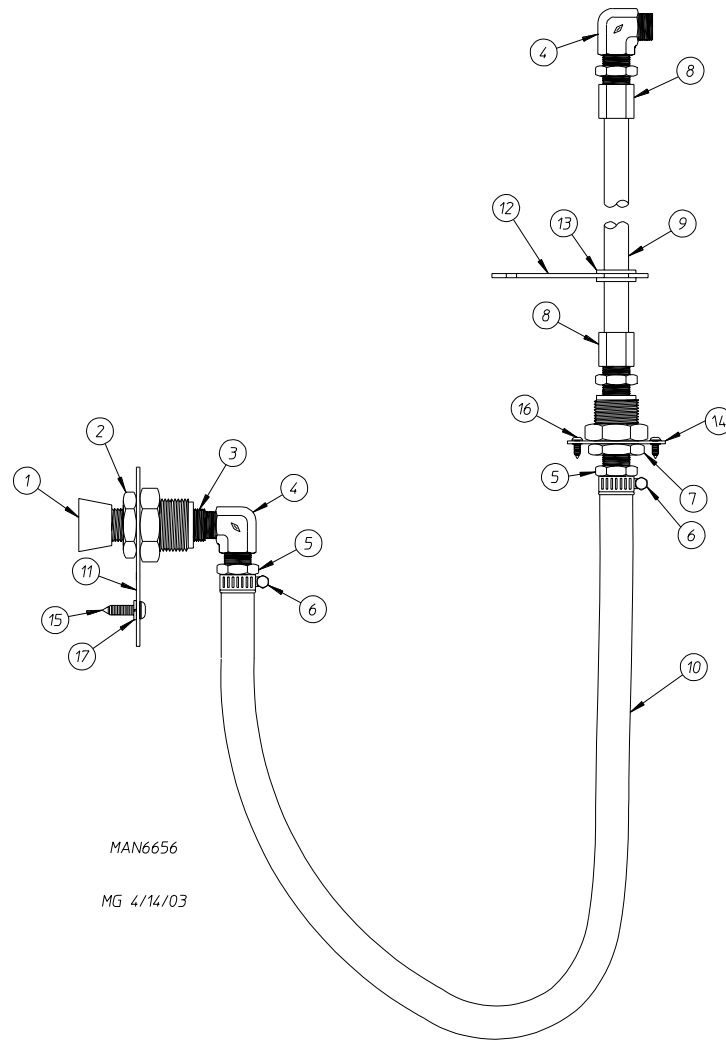


DMG 12/3/01

MAN6017

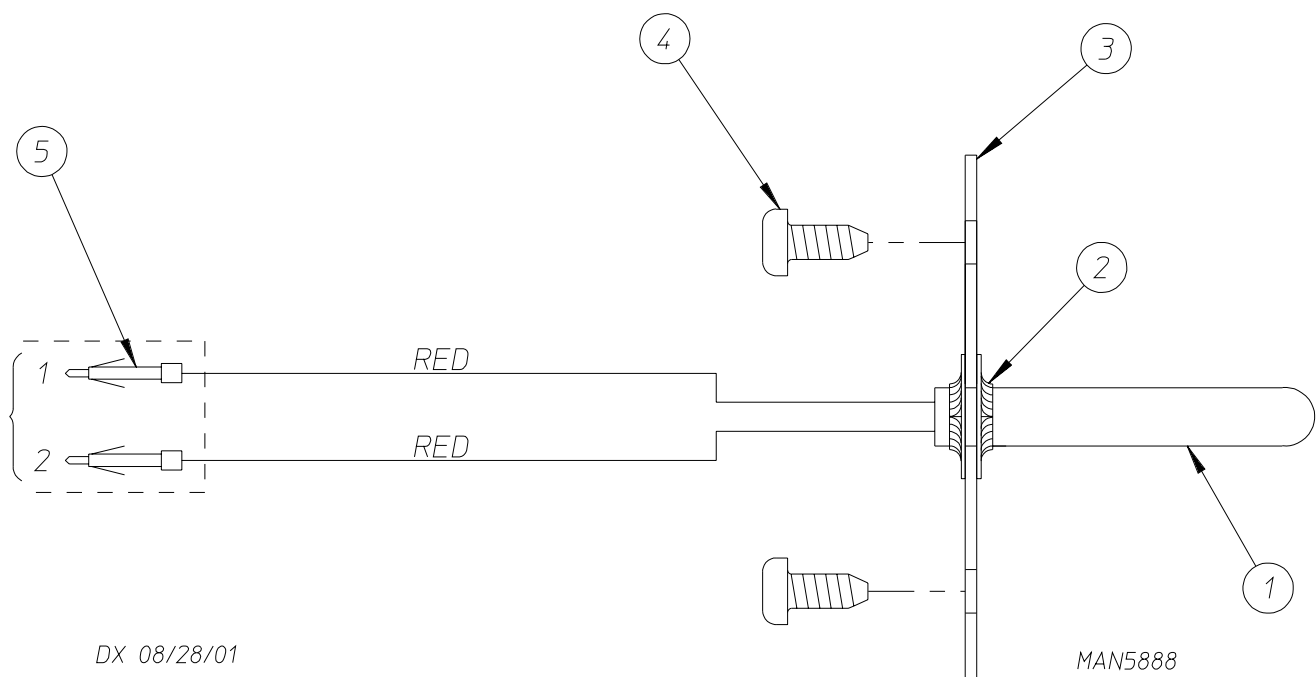
<u>Illus. No.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1	143318	1	3/4" F.P.T. x 1/2" M.P.T. Adaptor
2	182595	1	1/2" Bulkhead
3	143261	1	1/2" - 3/8" Bushing
4	143155	2	3/8" Street Elbow
5	143319	2	1/2" x 3/8" M.P.T. Beaded Hose Barb
6	182529	2	Hose Clamp
7	143257	1	3/8" Bulkhead
8	143316	2	1/2" Comp x 3/8" M.P.T. Connector
9	143104	6'	1/2" Copper Tube
10	143107	3'-6'	1/2" ID Hose
11	333179	1	Support Bracket
12	333177	1	Steady Clamp
13	121412	1	Grommet
14	334710	1	Bulkhead Plate
15	150523	2	1/4-20 x 3/4" Screw
16	150301	2	#8-18 x 7/16 Phillips Pan Head TEK Screw
17	153007	2	1/4" Lock Washer

Lower S.A.F.E. System Piping Assembly – Steam (Tilting)



<u>Illus. No.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1	143318	1	3/4" N.F.P.T. x 1/2" N.M.P.T. Adaptor
2	182595	1	1/2" Bulkhead
3	143261	1	1/2" - 3/8" Bushing
4	143155	2	3/8" Street Elbow
5	143319	2	1/2" x 3/8" M.P.T. Beaded Hose Barb
6	182529	2	Hose Clamp
7	143257	1	3/8" Bulkhead
8	143316	2	1/2" Comp x 3/8" M.P.T. Connector
9	143104	6'	1/2" Copper Tube
10	143107	3'-6'	1/2" ID Hose
11	333180	1	Support Bracket
12	333177	1	Steady Clamp
13	121412	1	Grommet
14	334710	1	Bulkhead Plate
15	150523	2	1/4-20 x 3/4" Screw
16	150301	2	#8-18 x 7/16 Phillips Pan Head TEK Screw
17	153007	2	1/4" Lock Washer

S.A.F.E. System Temperature Probe Assembly



<u>Illus. No.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1	822752	1	S.A.F.E. System Temperature Probe Assembly (includes illus. nos. 1 through 5)
2	154007	2	Push-On Fastener
3	390390	1	Sensor Bracket ONLY
4	150301	2	#8-18 x 7/16" Phillips Pan Head TEK Screw
5	122647	1	Connector ONLY (does not include terminals)

Notes

