cissell

Member of:

INDUSTRIAL LAUNDRY GROUP

OWNER'S MANUAL

HD 80 LAUNDRY DRYER

Shown with simple microprocessor control system

Technical specifications

Installation instructions

Operating instructions

Maintenance

THIS MANUAL MUST BE GIVEN TO THE EQUIPMENT OWNER.

HD 80.1

Cissell Manufacturing Co.

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MAN HD80 (ECN5603) 2/99

D0033

IMPORTANT NOTICES—PLEASE READ

For optimum efficiency and safety, we recommend that you read the manual before operating the equipment.Store this manual in a file or binder and keep for future reference.

WARNING: Purchaser must post the following notice in a prominent location:

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

- Do not store or use gasoline or other flammable vapors or 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.

WARNING: In the event the user smells gas odor, instructions on what to do must be posted in a prominent location. This information can be obtained from the local gas supplier.

WARNING: Purchaser must post the following notice 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.

WARNING: A clothes dryer produces combustible lint and should be exhausted outside the building. The dryer and the area around the dryer should be kept free of lint.

WARNING: Be safe, before servicing machine, the main power should be shut off.

WARNING: Wear safety shoes to prevent injuries.

ATTENTION: L'ACHETEUR DOIT PLACER L'AVERTISSEMENT SUIVANT DANS UN ENDROIT CLAIR ET VISIBLE:

AVERTISSEMENT. Assurez-vous de bien suivre les instructions donnees dans cette notice pour reduire au minimum le risque d'incendie ou d'explosion ou pour eviter tuot dommage materiel, toute blessure ou la mort.

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

__ QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:

- Ne pas tenter d'allumer d'apparell.
- Ne touchez a aucun interrupteur. Ne pas vous servir des telephones se trouvant dans le batiment ou vous vous trouvez.
- Evacuez la piece, le batiment ou la zone.
- Appelez immediatement 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 etre assures par un installateur ou un service d'entretien qualifie ou par le fournisseur de gaz.

ATTENTION: L'ACHETEUR DOIT PLACER L'AVERTISSEMENT SUIVANT DANS UN ENDROIT CLAIR ET VISIBLE:

POUR VOTRE SECURITE

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

WARNING: To avoid fire hazard, do not dry articles containing foam rubber or similar texture materials. Do not put into this dryer flammable items such as baby bed mattresses, throw rugs, undergarments, (brassieres, etc.) and other items which use rubber as padding or backing. Rubber easily oxidizes causing excessive heat and possible fire. These items should be air dried.

WARNING: Synthetic solvent fumes from drycleaning machines create acids when drawn through the dryer. These fumes cause rusting of painted parts, pitting of bright or plated parts, and completely removes the zinc from galvanized parts, such as the tumbler basket. If drycleaning machines are in the same area as the tumbler, the tumbler's make-up air must come from a source free of solvent fumes.

WARNING: Do not operate without guards in place.

WARNING: Check the lint trap often and clean as needed but at least a minimum of once per day.

WARNING: Alterations to equipment may not be carried out without consulting with the factory and only by a qualified engineer or technician. Only Manufacturer's parts may be used.

WARNING: Remove clothes from dryer as soon as it stops. This keeps wrinkles from setting in and reduces the possibility of spontaneous combustion.

WARNING: Be safe - shut main electrical power and gas supply off externally before attempting service.

WARNING: Never use drycleaning solvents, gasoline, kerosene, or other flammable liquids in the dryer. FIRE AND EXPLOSION WILL OCCUR. NEVER PUT FABRICS TREATED WITH THESE LIQUIDS INTO THE DRYER. NEVER USE THESE LIQUIDS NEAR THE DRYER..

WARNING: Fabrics exposed to cooking oils and put into an enclosed space, like a dryer, can spontaneously combust. Never put fabrics exposed to cooking oils in the dryer without first thouroughly washing them.

WARNING: Never let children play near or operate the dryer. Serious injury could occur if a child should crawl inside and the dryer is turned on.

WARNING: Never tumble fiberglass materials in the dryer unless the labels say they are machine dryable. Glass fibers break and can remain in the dryer. These fibers cause skin irritation if they become mixed with other fabrics.

WARNING: Before operating gas ignition system - purge air from natural gas or propane gas lines per manufacturer's instructions.

WARNING: To reduce the risk of electric shock, disconnect this appliance from the power supply before attempting any user maintenance other than cleaning the lint trap. Turning the controls to the OFF position does not disconnect this appliance from the power supply.

CISSELL DRYER WARRANTY

The Cissell Manufacturing Company (Cissell) warrants all new equipment (and the original parts thereof) to be free from defects in material or workmanship for a period of two (2) years from the date of sale thereof to an original purchaser for use, except as hereinafter provided. With respect to non-durable parts normally requiring replacement in less than two (2) years due to normal wear and tear, and with respect to all new repair or replacement parts for Cissell equipment for which the two (2) year warranty period has expired, or for all new repair or replacement parts for equipment other than Cissell equipment, the warranty period is limited to ninety (90) days from date of sale. The warranty period on each new replacement part furnished by Cissell in fulfillment of the warranty on new equipment or parts shall be for the unexpired portion of the original warranty period on the part replaced.

With respect to electric motors, coin meters and other accessories furnished with the new equipment, but not manufactured by Cissell, the warranty is limited to that provided by the respective manufacturer.

Cissell's total liability arising out of the manufacture and sale of new equipment and parts, whether under the warranty or caused by Cissell's negligence or otherwise, shall be limited to Cissell repairing or replacing, at its option, any defective equipment or part returned f.o.b. Cissell's factory, transportation prepaid, within the applicable warranty period and found by Cissell to have been defective, and in no event shall Cissell be liable for damages of any kind, whether for any injury to persons or property or for any special or consequential damages. The liability of Cissell does not include furnishing (or paying for) any labor such as that required to service, remove or install; to diagnose troubles; to adjust, remove or replace defective equipment or a part; nor does it include any responsibility for transportation expense which is involved therein.

The warranty of Cissell is contingent upon installation and use of its equipment under normal operating conditions. The warranty is void on equipment or parts; that have been subjected to misuse, accident, or negligent damage; operated under loads, pressures, speeds, electrical connections, plumbing, or conditions other than those specified by Cissell; operated or repaired with other than genuine Cissell replacement parts; damaged by fire, flood, vandalism, or such other causes beyond the control of Cissell; altered or repaired in any way that effects the reliability or detracts from its performance, or; which have had the identification plate, or serial number, altered, defaced, or removed.

No defective equipment or part may be returned to Cissell for repair or replacement without prior written authorization from Cissell. Charges for unauthorized repairs will not be accepted or paid by Cissell.

CISSELL MAKES NO OTHER EXPRESSED OR IMPLIED WARRANTY, STATUTORY OR OTHERWISE, CONCERNING THE EQUIPMENT OR PARTS INCLUDING, WITHOUT LIMITATION, A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, OR A WARRANTY OF MERCHANTABILITY. THE WARRANTIES GIVEN ABOVE ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. CISSELL NEITHER ASSUMES, NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT, ANY OTHER WARRANTY OR LIABILITY IN CONNECTION WITH THE MANUFACTURE, USE OR SALE OF ITS EQUIPMENT OR PARTS.

For warranty service, contact the distributor from whom the Cissell equipment or part was purchased. If the distributor cannot be reached, contact Cissell.

IDENTIFICATION NAMEPLATE

The identification nameplate is located on side wall of the control box behind the uppermost control door. It contains the dryer serial number, product number, model number, electrical specifications and other important data that may be needed when servicing and ordering parts, wiring diagrams, etc. Do not remove this nameplate.

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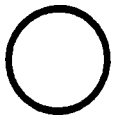
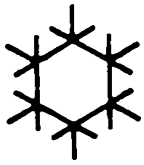
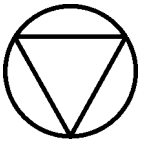
SYMBOLS

The following symbols are used in this manual and/or on the machine.

Symbol	Description	Symbol
	NOTE!	
	Hot! Do Not Touch Heiß! Nicht Beruhren Haute temperature! Ne pas toucher Caliente! no tocar	
	dangerous voltage tension dangereuse Gefährliche elektrische Spannung tension peligrosa	
	On Marche Ein Conectado	
	Off Arrêt Aus Desconectado	
	Start Demarrage Start Arranque de un movimiento	
	Emission of heat in general Emission de chaleur en general Warmeabgabe allgemein Emisión de calor	
	Cooling Refroidissement Kühlen Enfriamiento	
	Rotation in two directions Rotation dans les deux sens Drehbewigung in zwei Richtungen Movimiento rotativo en los dos sentidos	
	Direction of rotation Sens de mouvement continu De rotation Drehbewegung in Pfeilrichtung movimiento Giratorio o rotatorio en el sentido de la flecha	
	End of Cycle	
	Caution Attention Achtung Atencion; precaucion	

UNPACKING

Upon arrival of the equipment, any damage in shipment should be reported to the carrier immediately.

Upon locating permanent location of a unit, care should be taken in movement and placement of equipment.

See outline clearance diagrams for correct dimensions.

Remove all packing material such as: tape, manuals, skid, etc

Leveling: Use spirit level on top of dryer. Adjust leveling bolts on dryer (see adjustable leveling bolts in maintenance section).

Check voltage and amperes on rating plate before installing the dryer.

GENERAL INSTALLATION (ALL DRYERS)

The construction of the dryers permits installation side-by-side to save space or to provide a wall arrangement. Position dryer for the least amount of exhaust piping and elbows, and allow free access to the rear of dryer for future servicing of belts, pulleys and motors. The installation clearance from all combustible material is 0" ceiling. The rear clearance required is 0", and the side clearance is 0".

Before operating dryer, open basket door and remove blocking between front panel and basket. Read the instruction tags, owner's manual, warnings, etc.

IMPORTANT
Opening the clothes loading door deactivates the door switch to shut off the motors, fan, gas, steam or electric element. To restart the dryer, close the door and press in the push to start button.

IMPORTANT
This dryer is designed for a capacity maximum load. Overloading it will result in long drying times and damp spots on some clothes.

IMPORTANT
Maximum operating efficiency is dependent upon proper air circulation. The lint screen must be kept clean daily to ensure proper air circulation throughout the dryer.

IMPORTANT
Provide adequate clearance for air opening into the combustion chamber.

GENERAL INFORMATION

The dryer is so designed that when an operator opens the dryer door, the basket and exhaust fan stop. You can expect fast drying from a laundry dryer. Hot, dry air is properly and effectively moved through the basket and exhausted through a lint trap to the atmosphere. The dryer comes equipped with an inclined self-cleaning lint screen. In this system, lint accumulates on the underside of the screen until a blanket of lint will fall from the screen to the bottom of the dryer cabinet, and should be removed daily or as required, to prevent an over-accumulation.

IMPORTANT
Provide adequate clearance for air openings into the combustion chamber.

DRYER "COOL-DOWN" CYCLE

Permanent press, durable press and other modern day fabrics require the care that your laundry dryers now provide. At the end of the drying cycle, a timed "Cool-Down" control automatically takes over and continues the rotation of the fan and basket without heat until the garment load reaches a safe cool temperature. This function is performed at the end of each drying cycle.

REPLACEMENT PARTS

Replacement parts for this dryer are available from your distributor or by contracting the factory at the address or phone number printed on the cover page of this manual.

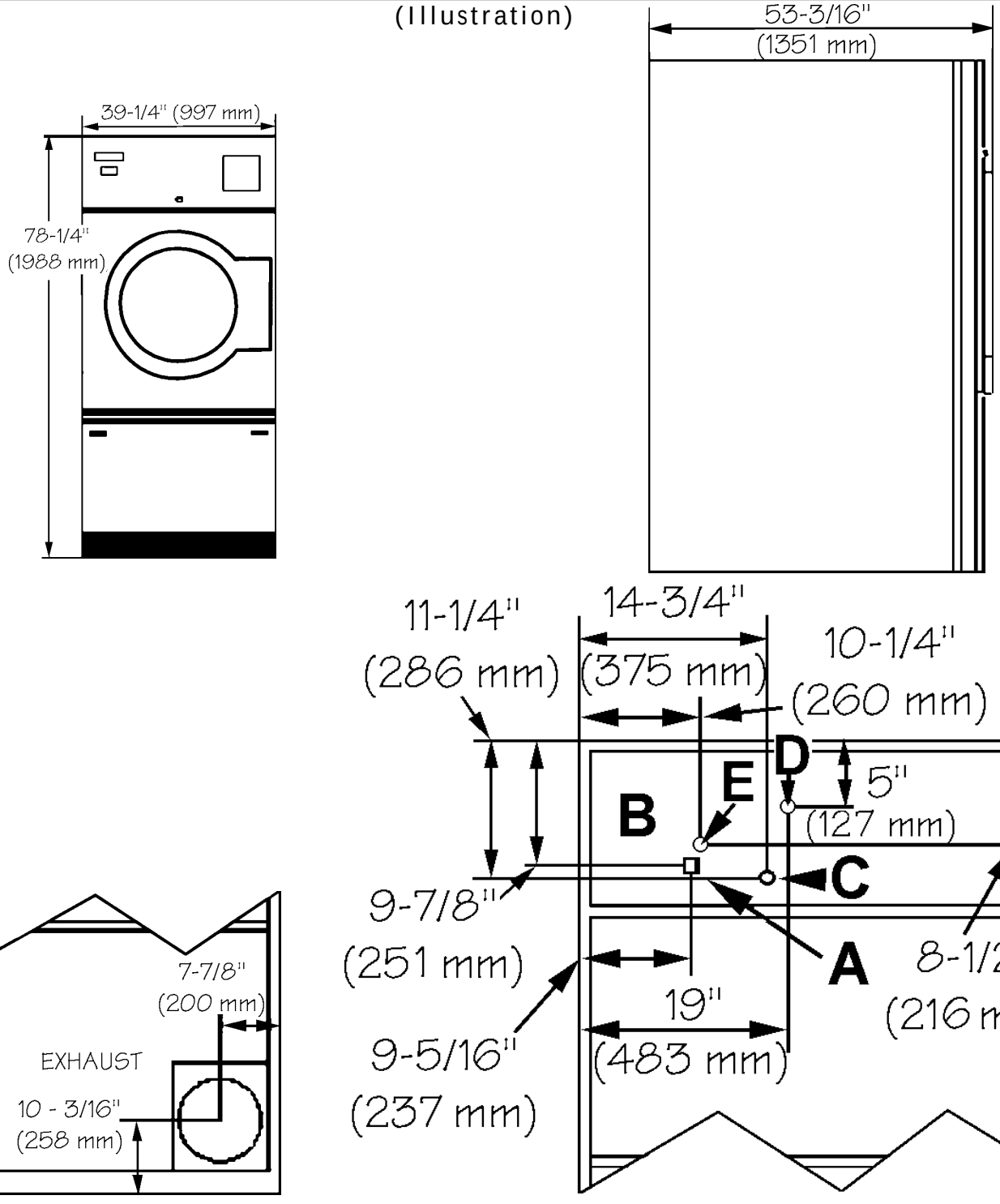
ONLY MANUFACTURERS PARTS SHOULD BE USED.

HD 80 Dryer Dimensions - Standard Gas

Specifications	U.S. Measure	Metric Measure
Capacity (Dry Linen)	80 lb	36 kg
Basket		
Diameter	37 inch	940 mm
Depth	36 inch	914 mm
Volume	22.4 cu ft	633 liter
Cabinet		
Height	78-1/4 inch	1988 mm
Width	39-1/4 inch	997 mm
Depth	53-3/16 inch	1351 mm
Door Opening		
Diameter	22-5/8 inch	575 mm
Loading height	35-1/2 inch	902 mm
Temperature		
Minimum	100° F	38° C
Maximum	185° F	85° C
Motor		
Drum	1/2 Hp	0.37 kW
Fan	3 Hp	2.24 kW
Exhaust		
Flow Rate		
Gas	1465 cfm	2490 m^3/h
Steam	1530 cfm	2600 m^3/h
Diameter	10 inch	254 mm
Recommended Minimum Air Supply Area	300 in^2	1,935cm^2
Diameter	10 inch	254 mm
Electric Conn.		
220/380 V	50Hz-3Ph	10.9/6.2 Amp
240/415V	50 Hz-3 Ph	10.7/5.9 Amp
346 V	50 Hz-3Ph	6.2 Amp
575 V	60 Hz-3Ph	4.6 Amp
480 V	60 Hz-3Ph	5.3 Amp
208-240 V	60Hz-3 Ph	11.1/10.4 Amp
Power		
Gas Input	225,000 Btu/h	56,699 kcal/h
Steam Consumption 125 psi (max. Pressure)	7.2 BHP	61,130 kcal/h
Connection		
Gas	3/4"	DN20
Steam Inlet	3/4"	DN20
Steam Outlet	1/2"	DN15
Gas Pressure		
Inlet supply (Nat. Gas)	6"-12" wc	15-30 mbar
Manifold Pressure (Nat. Gas)	3 1/2" wc	8.5 mbar
Manifold Pressure (LP Gas)	11" wc	27.4 mbar
Shipping Dim. (H xW x D)	84 X 41-1/2 X 57 inch	2134 X 1054 X 1448 mm
Weight Net	800 lb	363 kg
Gross (Carton)	850 lb	386 kg

HD 80 Dryer Dimensions - Gas

(Illustration)



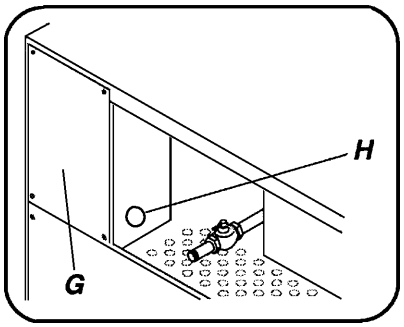
A = INLET ELECTRIC CONN.
B = ELECTRIC CONN. BOX
C = GAS SUPPLY CONN.
D = STEAM CONN.
E = CONDENSATE RETURN

Electric connection

Dryers must be electrically grounded by a separate #14 or larger green wire from the grounding terminal within the Service Connection Box, to a cold water pipe. In all cases, the grounding method must comply with local electrical code requirements; or in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70 or the Canadian Electrical Code, CA C22.1.

See wiring diagram furnished with dryer. Do not change wiring without consulting the factory, as you may void the factory warranty. DO NOT CONNECT THE DRYER TO ANY VOLTAGE OR CURRENT OTHER THAN THAT SPECIFIED ON THE DRYER RATING PLATE. (Wiring diagram is located on rear wall of dryer.)

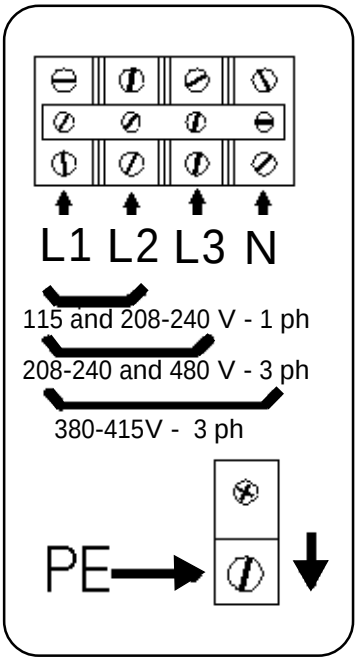
All panels must be in position before operation of dryer.



The connection needs to be made in the wiring box at the back. Remove the coverplate (G) in order to reach the connection clamps.

The connection cable needs to be brought in through the opening (H) in the side of the wiring box.

It is necessary to ground the dryer for your personal safety and to ensure a good operation.



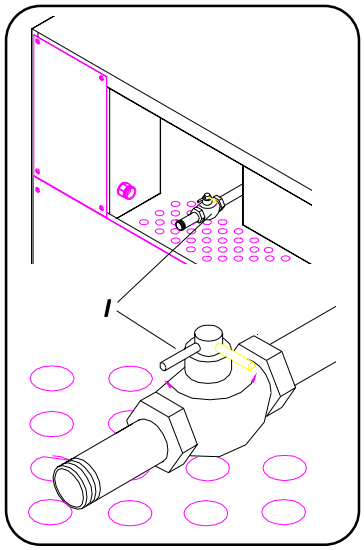
208-240 and 480 V - 3 ph

The 3 mains wires (L1), (L2) and (L3) should be connected to the 3 left clamps and the yellow/green grounding wire (PE) should be connected to the grounding clamp.

380-415V - 3 ph

The 3 mains wires (L1), (L2) and (L3) should be connected to the 3 left clamps, the blue neutral (N) should be connected to the right clamp and the yellow/green grounding wire (PE) should be connected to the grounding clamp.

Gas connection



The gas supply pipe should be connected to the gas tap (I), which is on the right next to the wiring box on the back.

It is very important to have the connections done by a qualified technician, in order to make sure that the installation is effected in accordance with the prevailing standards and instructions.

The dryer should be connected to the type of gas, which is indicated on the serial plate.

The use of too small gas pipes can result in insufficient gas supply, which can lead to slow heat-up and a poor drying quality.

When the dryer is used in combination with a weighing platform, the gas supply pipe has to be made of flexible material to allow the weighing system to keep moving freely.

Test all connections for possible leaks by means of a soap solution, but never with a flame.

It is important to work with the right gas pressure (see technical remarks) in order to obtain a good ignition, heating and consequently a good operation in general.

After the gas supply has been connected, the gas tap in the dryer should be turned on (clockwise).

Electrical Controls Service

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

Verify proper operation after servicing.

«Attention. Lors des opérations d'entretien des commandes, ètiqueter tous les fils avant de les dèconnecter. Toute erreur de câblage peut être une source de danger et de panne»

GAS PIPING INSTALLATION

1. The installation must conform with local codes, or in the absence of local codes with the National Fuel Gas Code, ANSI Z223.1 or the CAN/CGA-B149 Installation Codes.

2. Check identification nameplate for type of gas for dryer.

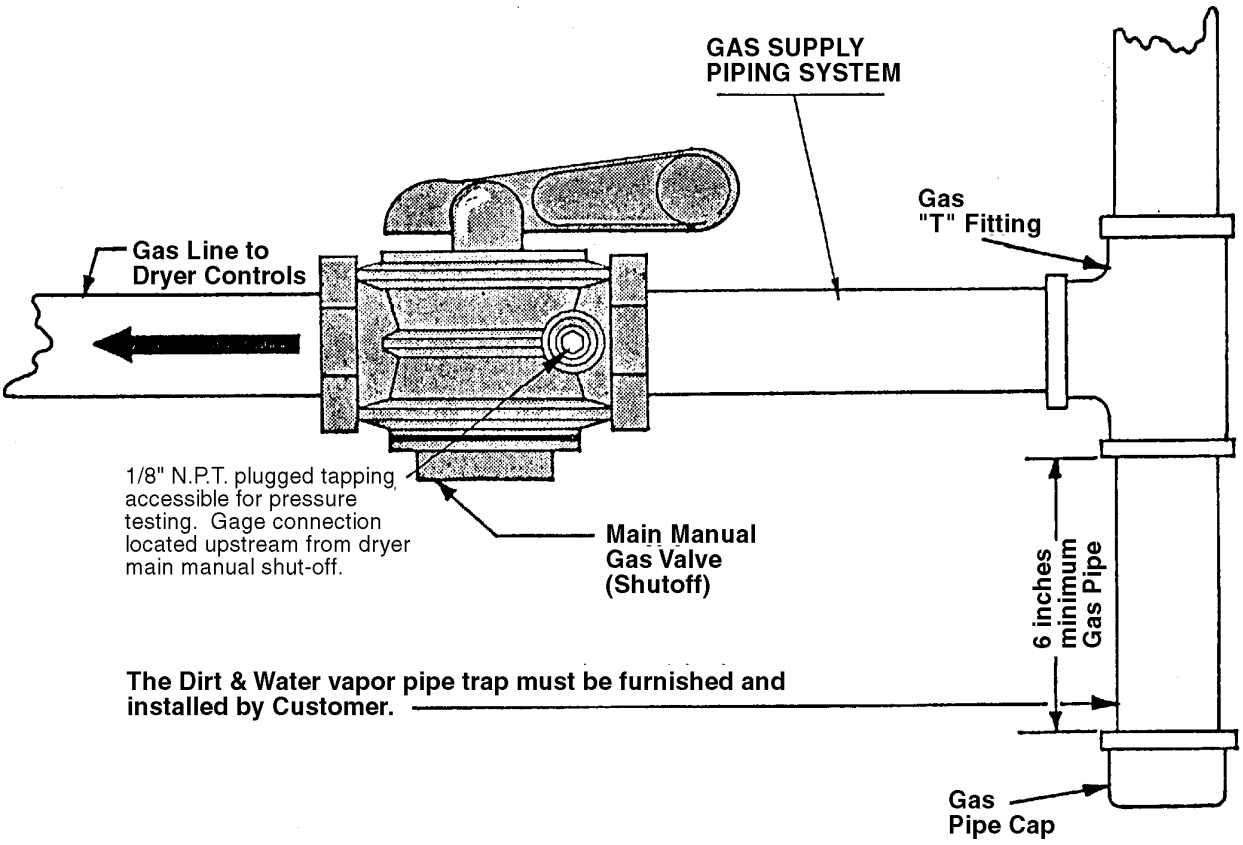
3. Check the altitude of dryer.

4. Check with utilities company for proper gas pressure and gas supply line.

5. Natural gas only—check the gas pressure inlet supply to dryer, 12 inches (305 mm) water column maximum. Manifold pressure—3.5 inches (89 mm) water column pressure.

6. L.P. gas only—manifold pressure—11 inches (280 mm) water column maximum.

CAUTION: Low gas pressure and intermittent gas will cause gas ignition problems and inadequate drying of laundry.



The dryer and it's 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 psi (3.5 kPa).

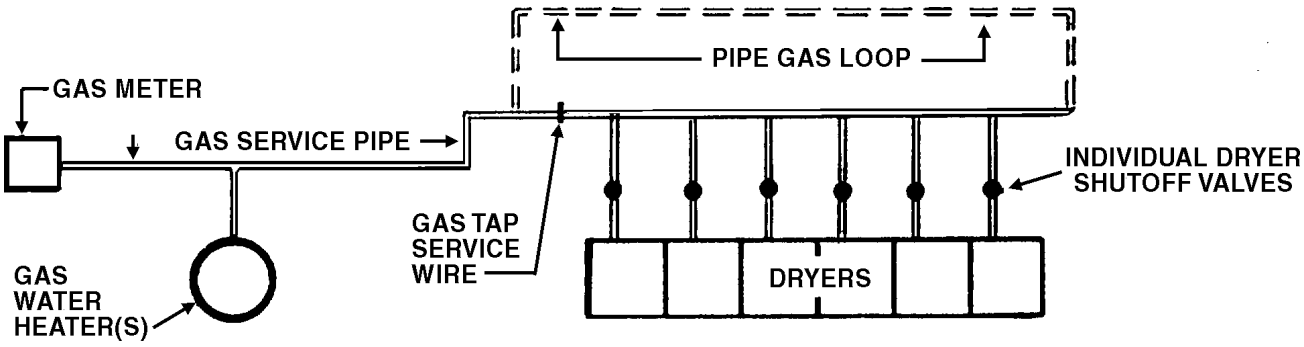
The dryer must be isolated from the gas supply piping system by closing it's individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psi (3.5 kPa).

GAS SERVICE INSTALLATION INSTRUCTIONS

The size of the gas service pipe is dependant upon many variables, such as tees, lengths, etc. Specific pipe size should be obtained from the gas supplier. Refer to the "Gas Pipe Size" chart in this manual for general gas pipe size information.

CAUTION: Gas loop piping must be installed as illustrated to maintain equal gas pressure for all dryers connected to a single gas service

Other gas-using appliances should be connected upstream from the loop.



WARNING:
LIQUIFIED PETROLEUM GASES ONLY !

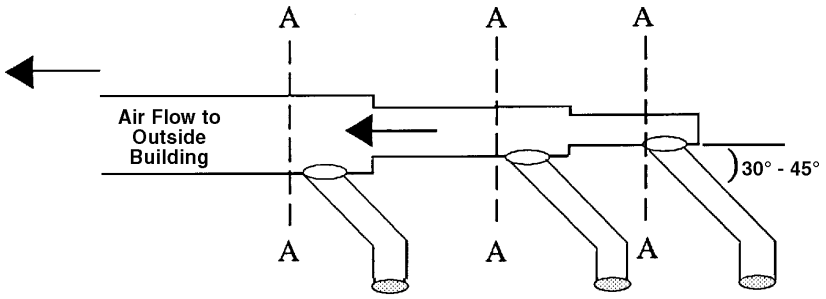
GAS PRESSURE REGULATOR FOR LIQUIFIED PETROLEUM GASES

A gas pressure regulator for liquified petroleum gases is not furnished on gas heated clothes dryers. This regulator is normally furnished by the installer. In accordance with American Gas Association (AGA) standards, a gas pressure regulator, when installed indoors, must be equipped with a vent limiter or a vent line must be installed from the gas pressure regulator vent to the outdoors.

Gas Pipe Size Chart

TOTAL BTU/HR (for LP Gas correct total BTU/HR below by multiplying by .6)	TOTAL KCAL	GAS PIPE SIZE FOR 1000 BTU (250 KCAL) NATURAL GAS AT 7" (17.8 CM) W.C. PRESSURE In figuring total length of pipe, make allowance for tees and elbows.					
	HOUR	(25 ft.) 7,62 m	(50 ft.) 15,24 m	(75 ft.) 22,86 m	(100 ft.) 30,48 m	(125 ft.) 38,1 m	(150 ft.) 45,72 m
60,000	15000	3/4	3/4	3/4	3/4	3/4	3/4
80,000	20000	3/4	3/4	3/4	1	1	1
100,000	25200	3/4	3/4	1	1	1	1
120,000	30200	3/4	1	1	1	1	1
140,000	35200	3/4	1	1	1	1	1 1/4
160,000	40300	3/4	1	1	1 1/4	1 1/4	1 1/4
180,000	45300	1	1	1	1 1/4	1 1/4	1 1/4
200,000	50400	1	1	1 1/4	1 1/4	1 1/4	1 1/2
300,000	75600	1	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2
400,000	100800	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	2
500,000	126000	1 1/4	1 1/2	1 1/2	2	2	2
600,000	151200	1 1/2	1 1/2	2	2	2	2
700,000	176400	1 1/2	2	2	2	2	2 1/2
800,000	202000	1 1/2	2	2	2	2 1/2	2 1/2
900,000	230000	2	2	2	2 1/2	2 1/2	2 1/2
1,000,000	250000	2	2	2	2 1/2	2 1/2	2 1/2
1,100,000	270000	2	2	2 1/2	2 1/2	2 1/2	2 1/2
1,200,000	300000	2	2	2 1/2	2 1/2	2 1/2	2 1/2
1,300,000	330000	2	2 1/2	2 1/2	2 1/2	2 1/2	3
1,400,000	350000	2	2 1/2	2 1/2	2 1/2	3	3
1,500,000	380000	2	2 1/2	2 1/2	2 1/2	3	3
1,600,000	400000	2	2 1/2	2 1/2	3	3	3
1,700,000	430000	2	2 1/2	2 1/2	3	3	3
1,800,000	450000	2 1/2	2 1/2	3	3	3	3
1,900,000	480000	2 1/2	2 1/2	3	3	3	3
2,000,000	504000	2 1/2	2 1/2	3	3	3	3 1/2
2,200,000	550000	2 1/2	3	3	3	3 1/2	3 1/2
2,400,000	605000	2 1/2	3	3	3	3 1/2	3 1/2
2,600,000	650000	2 1/2	3	3	3 1/2	3 1/2	3 1/2
2,800,000	705000	2 1/2	3	3	3 1/2	3 1/2	3 1/2
3,000,000	750000	2 1/2	3	3 1/2	3 1/2	3 1/2	4
3,200,000	806000	3	3	3 1/2	3 1/2	3 1/2	4
3,400,000	850000	3	3 1/2	3 1/2	3 1/2	4	4
3,600,000	907000	3	3 1/2	3 1/2	3 1/2	4	4
3,800,000	960000	3	3 1/2	3 1/2	4	4	4
4,000,000	1000000	3	3 1/2	3 1/2	4	4	4

For Exhaust Duct less than 14 feet (5 m) and 2 elbows equivalent and less than 0.3 inches (8 mm) static pressure.

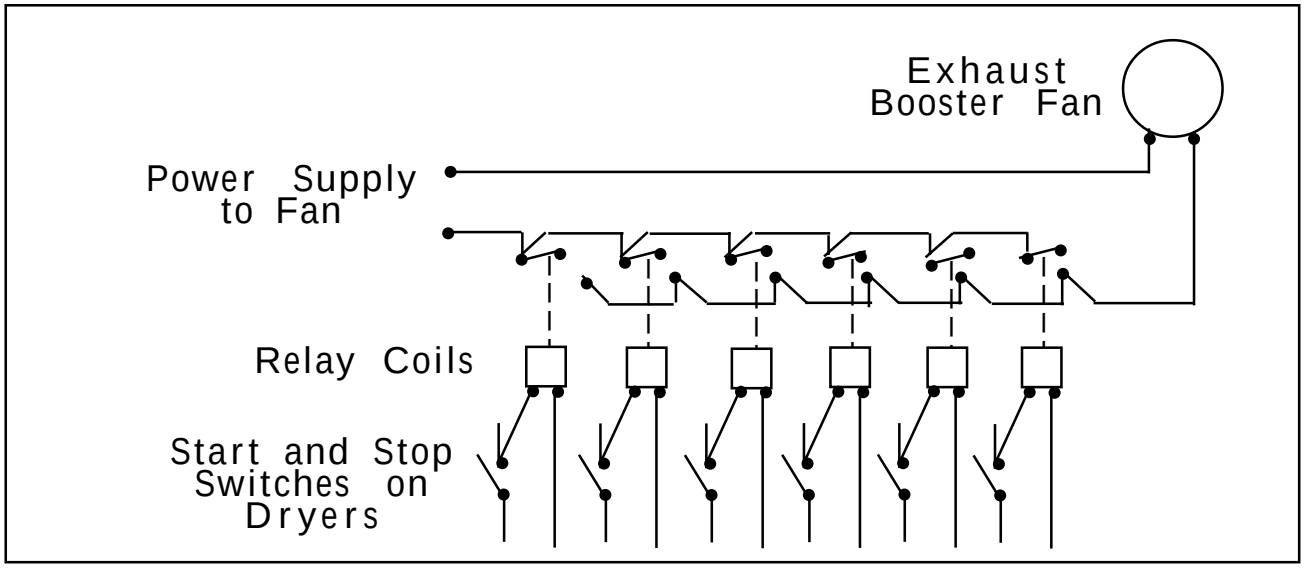


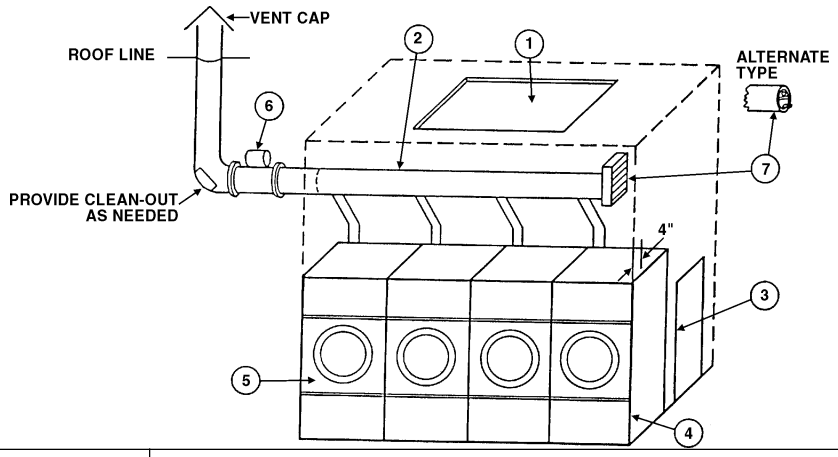
DRYER EXHAUSTS

Area of section "A-A" must be equal to the sum of dryer exhaust pipes entering multiple exhaust pipe. (See chart below.)

HD80

No. of Dryers	1	2	3	4	5	6	7	8	9	10	11	12											
Duct Diameter (in inches)	10	14	17	20	22	24	26	28	30	32	33	35											
(in cm)	26	36	43	51	56	61	66	71	76	81	84	89											





DRYER INSTALLATION WITH MULTIPLE EXHAUST

For exhaust duct more than 14 feet (5 m) and 2 elbows equivalent and more than 0.3 inches (8 mm) static pressure.

1. Make-up air from outside the building may enter enclosure from top or side walls. (See Dryer Make-up Air Requirements Chart)
2. Use constant diameter duct with area equal to the sum of dryer duct areas.
   EXAMPLE: 6 dryer ducts that are 10 inches (254 mm) diameter have a combined area equal to one duct that is 24 1/2 inches (622 mm) diameter. Use a 25 inch (635 mm) diameter duct or diameter to match tube-axial fan.
3. Enclosure (plenum) with service door. This separates the dryer air from room comfort air. If dryers use room air instead of outside air, the heat loss can be another 25 Btu/h (6.3 kcal/h) for each cubic foot per minute (cfm) used.
4. The installation clearance from all combustible material is 0" ceiling clearance. The rear clearance required is 0", and the side clearance is 0".
5. Heat loss into laundry room from dryer fronts only is about 60 Btu/h per square foot (15 kcal/h per 0.1m²).
6. Flange mounted, belt driven tube-axial fan. Fan must run when one or more dryers are running. See suggested Automatic Electrical Control Wiring Diagram on previous page. Must meet local electrical codes. Fan air flow (cfm or m³/min.) is equal to the sum of dryer air flows, but static pressure (SP) is dependent on length of pipe and number of elbows.
7. Barometric bypass damper—Adjust to closed flutter position with all dryers and exhaust fan running. Must be located within enclosure.

CAUTION: Never install hot water heaters or other gas appliances in the same room as dryers. Never install cooling exhaust fans in the same room as dryers.

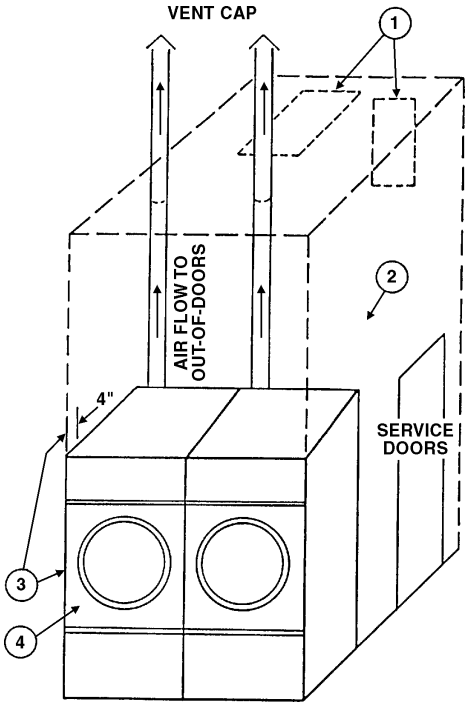
CAUTION: Never exhaust dryers with other types of equipment.

Suggested Minimum Dryer Make-up Air Requirements

Dryer Model	Dryer Pocket Capacity		Maximum Air Flow Rate per Pocket		Duct Size For Service Connection		Required Make-up Air Area per Pocket	
	lb	kg	cfm	m3/h	inch	mm	sq. inch	cm2
C 30	30	13.6	700	1190	8	203	135	871
C 30 E/S	30	13.6	400	680	6	153	77	497
C 30 ST	30	13.6	450	765	6	153	87	561
C 50	50	22.7	800	1360	8	203	154	994
C 50 E/S	50	22.7	450	765	6	153	87	561
C 75	75	34	1000	1700	8	203	192	1239
C 75 E/S	75	34	536	911	6	153	103	665
C 75 ST	75	34	1000	1700	12	305	192	1239
HD80	80	36.3	1465	2490	10	254	282	1819
C 110	110	50	2200	3740	12	305	422	2723
C 110 E/S	110	50	850	1445	8	203	163	1052
C 125	125	56.7	2000	3400	12	305	384	2477
C 150	150	68	2250	3825	12	305	432	2787
HD175	175	79.4	2780	4726	12	305	534	3445
HD190	190	86.2	3000	5100	12	305	576	3716
HD20	20	9.1	450	765	6	153	87	561
HD30	30	13.6	625	1063	8	203	120	774
HD50	50	22.7	700	1190	8	203	135	871
HD75	75	34	750	1275	8	203	144	929

Notes:

1) The Model C 30 ST has 2 pockets per dryer, each pocket has the above listed characteristics; each pocket is exhausted separately with a 6" (152 mm) duct.
2) The Model C 75 ST has 2 pockets per dryer, each pocket has the above listed characteristics; both pockets have one 8" (203 mm) exhaust manifolded into one 12" (305 mm) exhaust duct for connection.
3) For the C 30 ST and the C 75 ST Models, the Required Make-up Air Area shown in the table should be doubled since it is shown per pocket, only.
4) E/S indicates an Energy Saving Model.



DRYER INSTALLATION WITH SEPARATE EXHAUST (PREFERRED)

For ductwork less than 14 feet (5m) and 2 elbows equivalent and less than 0.3 inches (8 mm) static pressure:

NEVER exhaust the dryer into a chimney.
NEVER install wire mesh screen over the exhaust or make-up air area.
NEVER exhaust into a wall, ceiling, or concealed space.

1. Make-up air opening from the outside the building may enter the enclosure from the top or side walls. (See Dryer Make-up Air Requirements chart)
2. Enclosure (plenum) with service door. This separates the dryer air from the room comfort air. If dryers use room air instead of outside air, additional heat loss can be another 25 Btu/h (6.3 kcal/h) for each cubic foot per minute (cfm) (.03m³/min.) used.
3. The installation clearance from all combustible material is 0" ceiling clearance. The rear clearance required is 0", and the side clearance is 0".
4. Heat loss into laundry room from dryer front panels is about 60 Btu/h per square foot (15 kcal/h per 0.1m²).

DRYER AIR FLOW INSTALLATION

Nothing is more important than air flow for the proper operation of a clothes dryer. A dryer is a pump which draws make-up air from the out-of-doors, through the heater, through the clothes and then forces the air through the exhaust duct back to the out-of-doors. Just as in a fluid water pump, there must be a fluid air flow to the inlet of the dryer, if there is to be the proper fluid air flow out of the exhaust duct.

In summary, there must be the proper size out-of-doors inlet air opening and an exhaust duct, size and length of which allows flow through the dryer with no more than 0.3 inches water column static pressure in the exhaust duct.

In some instances, special fans are required to supply make-up air, and/or booster exhaust fans are required.

EXHAUST DUCT

FOR BEST DRYING:

1. Exhaust duct maximum length 14 feet (4.3 m) of straight duct and maximum of two 90° bends.
2. Use 45° and 30° elbows wherever possible.
3. Exhaust each dryer separately.
4. Do not install wire mesh or other restrictions in the exhaust duct.
5. Use clean-outs in the exhaust duct and clean periodically when needed.
6. Never exceed 0.3 inches (7.6 mm) water column static pressure in the exhaust duct.
7. Inside surface of the duct must be smooth.
8. Recommend pop rivets for duct assembly.

MAKE-UP AIR

FOR BEST DRYING:

1. Provide opening to the out-of-doors in accordance with the following:
   The area of the opening must be a minimum of 300 square inches (1935 cm^2) for each dryer. This will deliver the proper amount of make-up air at an air velocity of approximately 500 fpm (152 m/min) through the opening.
2. Use barometric shutters in the inlet air opening to control air when dryers are not running.

OTHER RECOMMENDATIONS

OTHER RECOMMENDATIONS

To assure compliance, consult local building code requirements.

TROUBLESHOOTING

TROUBLESHOOTING

Hot dryer surfaces, scorched clothes, slow drying, lint accumulations, or air switch malfunction are indicators of exhaust duct and/or make-up air problems.

RULES FOR SAFE OPERATION OF DRYER

1. Be sure your dryer is installed properly in accordance with the recommended instructions.
2. CAUTION
   Be safe—shut main electrical power supply and gas supply off externally before attempting service.
3. CAUTION
   Never use drycleaning solvents: gasoline, kerosene, or other flammable liquids in the dryer. Fire and explosion will occur.
   Never put fabrics treated with these liquids into the dryer.
   Never use these liquids near the dryer.
   Always keep the lint screen clean.
   Never use heat to dry items that contain plastic, foam or sponge rubber, or rags coated with oils, waxes or paints. The heat may damage the material or create a fire hazard. Rubber easily oxidizes, causing excessive heat and possible fire.
   Never dry the above items in the dryer.
4. Never let children play near or operate the dryer. Serious injury will occur if a child should crawl inside and the dryer is turned on.
5. Never use dryer door opening and top as a step stool.
6. Read and follow manufacturer's instructions on packages of laundry and cleaning aids. Heed any warnings or precautions.
7. Never tumble fiberglass materials in the dryer unless the labels say they are machine dryable. Glass fibers break and can remain in the dryer and could cause skin irritation if they become mixed into other fabrics.
8. Reference: Shut-down instructions and wiring diagrams are located on the rear wall of the dryer cabinet.
9. The dryer must not be installed or stored in an area where it will be exposed to water and/or weather.

ENERGY - SAVING TIPS

1. Install dryer so that you can use short, straight venting. Turned elbows and long vent tubing tend to increase drying time. Longer drying time means the use of more energy and higher operating costs.
2. Operate dryer using full-size loads. Very large loads use extra energy. Very small loads waste energy.
3. Dry light-weight fabrics separately from heavy fabrics. You will use less energy and get more even drying results by drying fabrics of similar weight together.
4. Clean the lint screen area daily. A clean lint screen helps give faster, more economical drying.
5. Do not open the dryer door while drying. You let warm air escape from the dryer into the room.
6. Unload the dryer as soon as it stops. This saves having to re-start your dryer to remove wrinkles.

DIRECT SPARK IGNITION OPERATION

NOTE: All gas dryers manufactured by are equipped with the DSI (direct spark ignition) modules. These are designed to increase dryer efficiency and to reduce dryer operating costs. The main burner is directly ignited from a spark electrode. A burning flame provides an electrical path for a small amount of sensing current to allow gas valve operation. If the main burner flame extinguishes for any reason (aside from the thermostatic control) sensing current will shut down the gas valve and the spark ignition circuit.

1. Once flame is established, the spark shuts off, and the main burner flame is then electronically monitored by means of a sensing spark probe which is located over the burner. The gas valve remains energized (open).

2. If no flame is detected within the first 11 seconds the DSI will go into a safety "lock-out". The gas valve is denergized.

3. Recovery from a safety lockout requires one of the following:

   A. Opening the main door thus interrupting power to the DSI module and allowing dryer diagnostic trouble shooting.

   B. Disconnecting the entire dryer from a power source using a circuit breaker as a switch.

4. By closing the main door the ignition circuit will be restored for another trial of the ignition circuit.

5. Once the thermostatic control has been satisfied by reaching a pre-set temperature or the drying timer has been timed out, the ignition circuit will be de-energized thus extinguishing the flames.

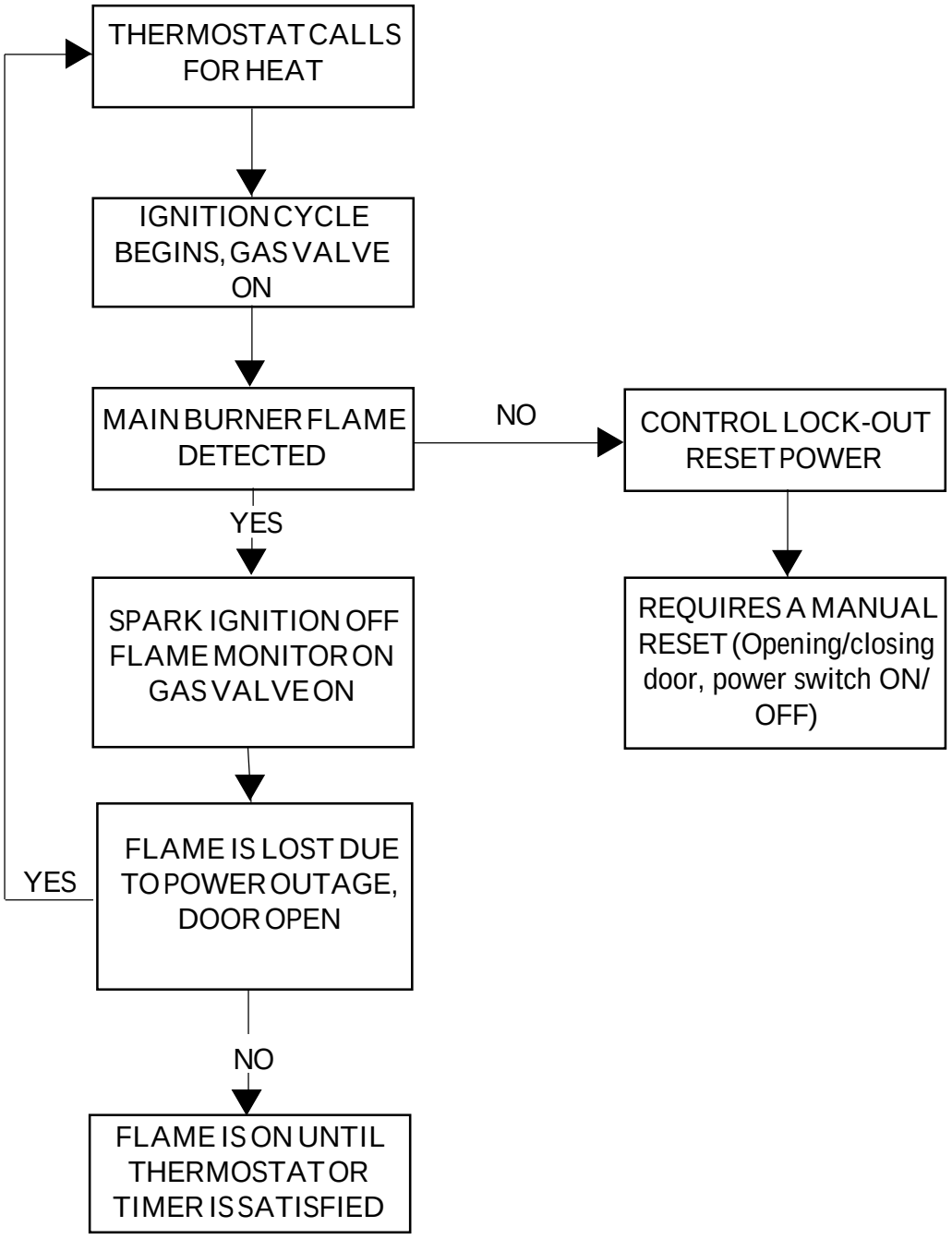
6. The dryer will continue to run in a cool-down mode without heat. This process will cool the load to the touch and help to eliminate wrinkling.

7. The cool - down time can be set manually from 2-60 minutes. The cool-down cycle prevents fabric wrinkles by allowing clothes to reach room ambient temperature while still in a continuous levitation state until clothes are ready to be folded or pressed.

DIRECT SPARK
IGNITION OPERATION
FLOW CHART

The DSI module is powered by a 24 volt AC supplied by a step-down transformer in series with eight safety interlocks:

A. Timer switching device (1)
B. Main door and lint door switches (2)
C. Sail switch (1)
D. Under basket and burner housing thermal safety switches (2)
E. Variable thermostat (1)
F. Push to start switch (1)



GENERAL MAINTENANCE

1. Clean lint trap daily. Remove lint before or after each day of operation. A clean lint trap will increase the efficiency of the dryer and the moisture-laden air will be exhausted outside more quickly.

2. Keep basket and sweep sheets clean. Clean as often as needed. The basket and sweep sheets are accessible by removing the front panel of the dryer.

3. Gas burners, steam coils, electric coils. Check and clean often.

4. Pulleys and belts. Keep clean, as oil and dirt will shorten the life of a belt. Check periodically for alignment. Pulley shafts must be parallel and the grooves must be aligned. Check belt tension periodically. Adjust tension by movement of idler bracket. Lubricate basket shaft and fan shaft bearings once every two months, using six grams of high temperature grease. Do not over-grease.

5. Electric motor. Keep motor clean and dry. Motors are packed with sufficient grease for 10 years normal service. After that, bearings and housing should be cleaned and repacked one-third full with Chevron grease No. SR1-2. See label on motor for further information.

   If motor overheats, check voltage and wiring. Low voltage, inadequate wiring and loose connections are the main cause of motor failures.

6. Adjustable leveling bolts. One at each corner permits accurate alignment of dryer.
   To adjust: block one corner of dryer up off the floor, loosen hex nut. With wrench, turn bolt clockwise to raise dryer, opposite to lower. Rear bolts are inside of the rear cover of the dryer, and front bolts are inside the lint trap compartment.

GENERAL MAINTENANCE (continued)

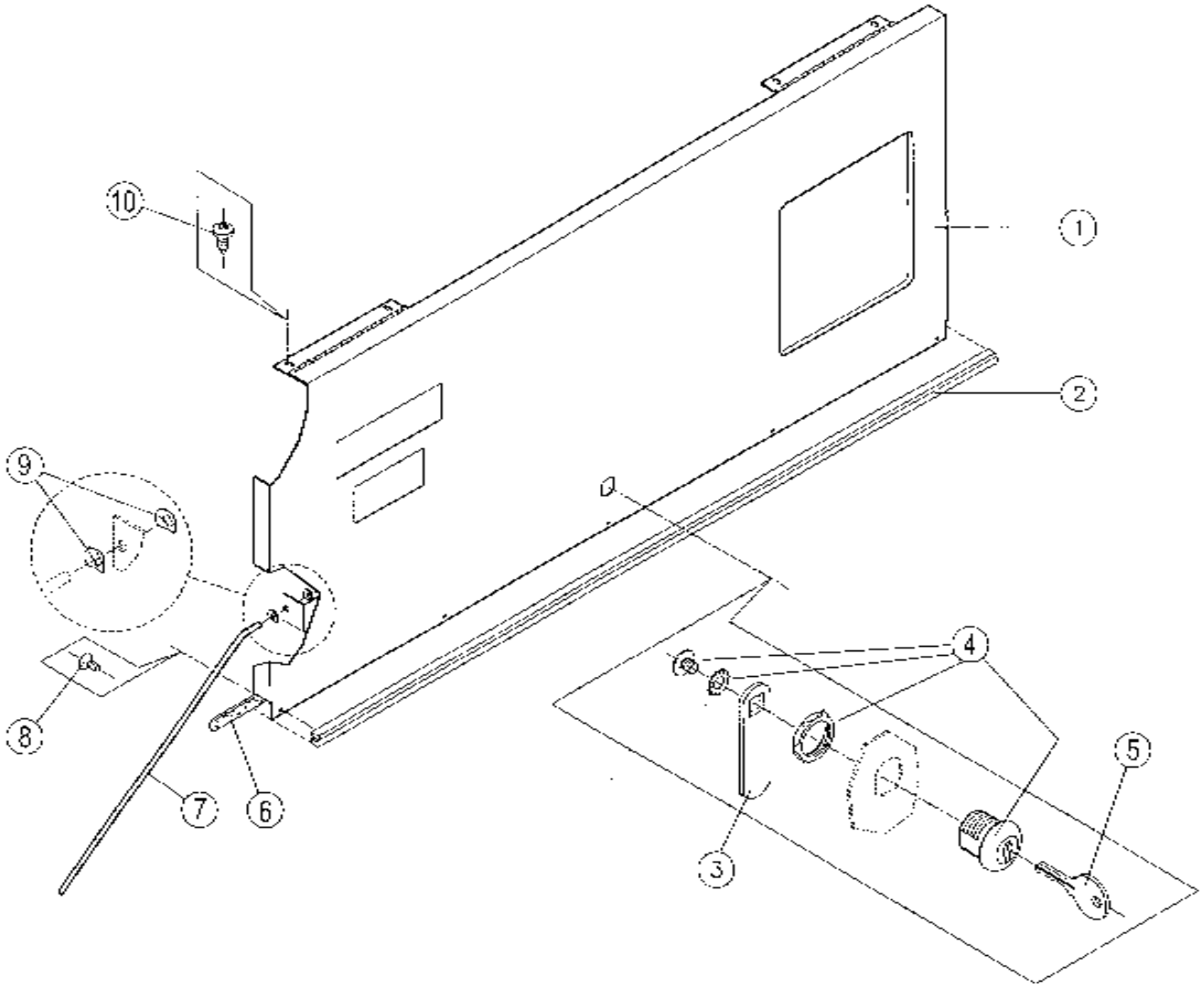
7. Periodically clean and examine exhaust system.

8. Keep dryer area clean and free of gasoline, combustible materials and other flammable liquids or vapors.

9. Do not obstruct the flow of combustion (make-up) air and ventilating air.

10. Check gas pressure periodically.

CONTROL DOOR ASSEMBLY

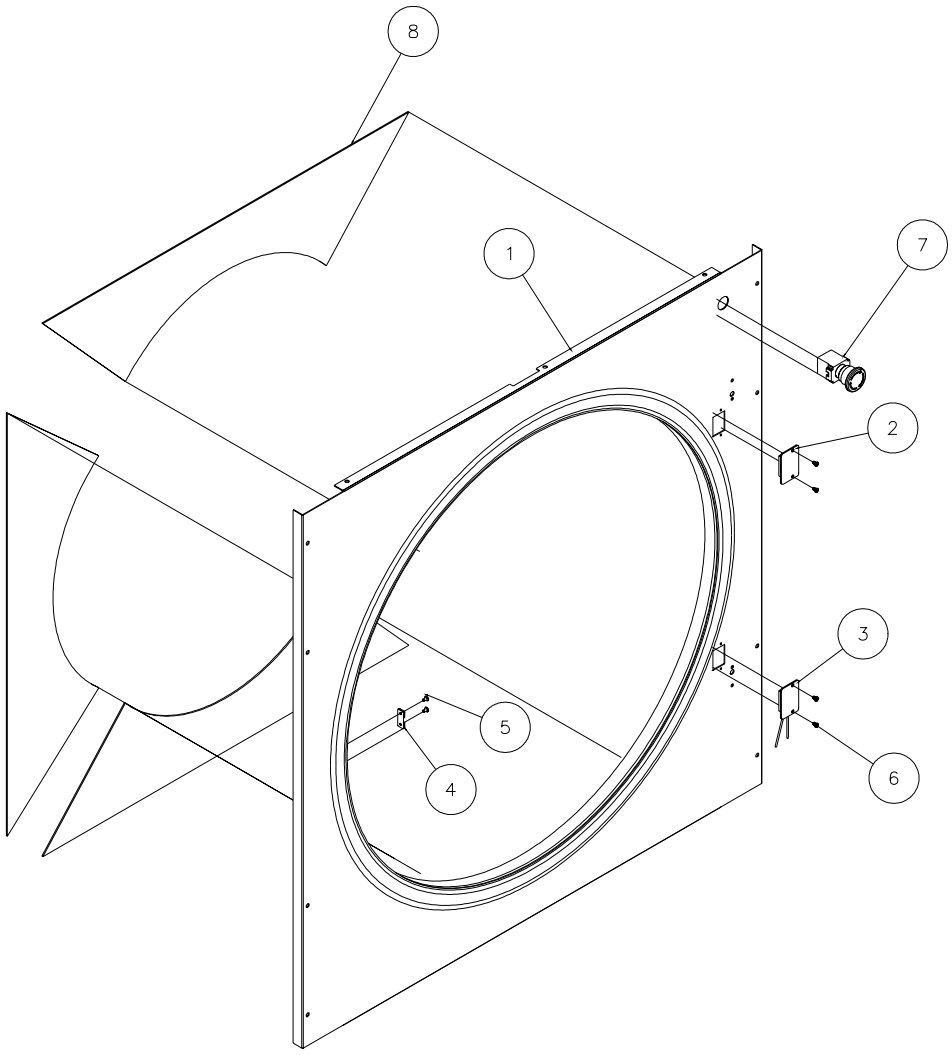


CSA-01584WH Complete control door assy-
Simple Micro Processor

Note: Door rod assy. is not part of above complete assy.

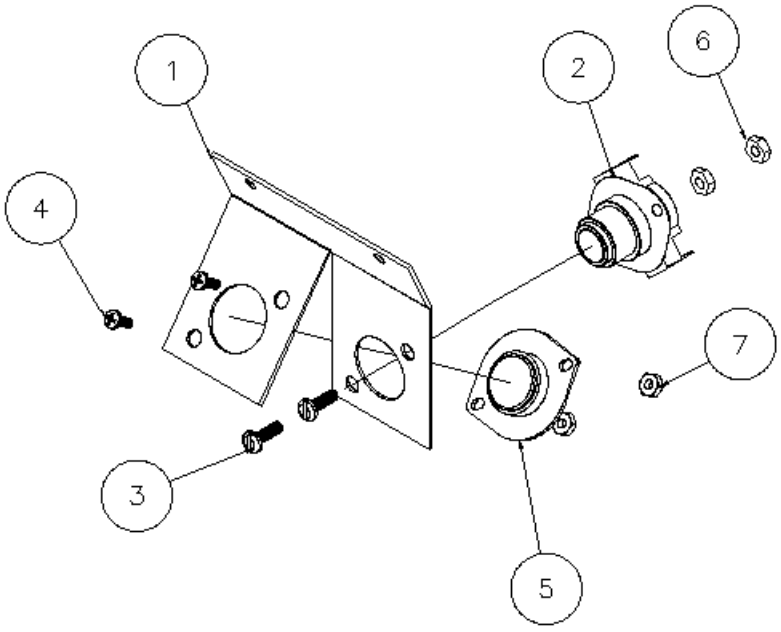
Ref. No.	Part No.	Description
1	CSA-01511WH	Control door assy.- Simple Microprocessor
2	CA-00858-0	Trim - Control door
3	LA-11941-0	Cam lock-Control door
4	LA-00121-0	Lock - Control door
5	LA-00119-0	Key - Control door
6	CA-13098-0	Gasket
7	CA-10085-0	Support rod
8	SB-00951-0	Screw-Phillips #8X7/16" flat hd.
9	SB-00971-0	Tinnerman push-on fastener
10	TU7733	Screw self drilling #8-18x1/2"

FRONT PANEL ASSEMBLY



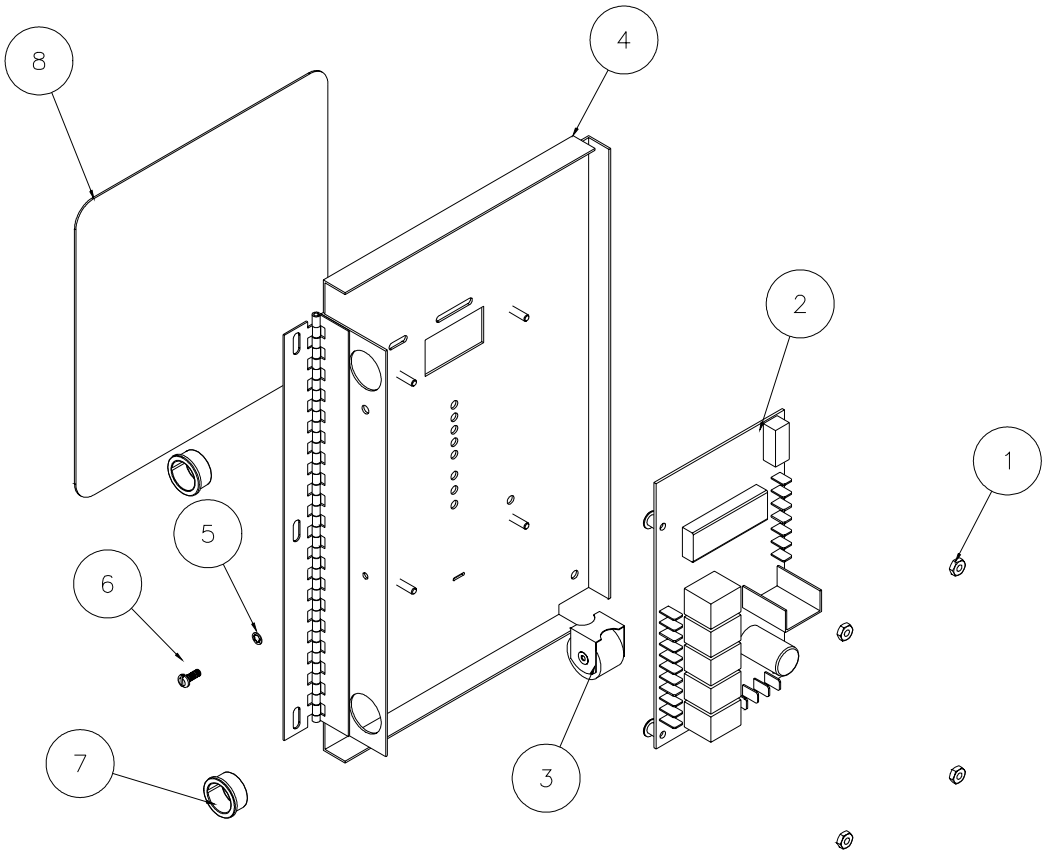
Ref. No.	Part No.	Description
1	CSA-01567WH	Front panel, HD80
2	EA-00827-0	Mounting plate, reed switch
3	ESA-00862-0	Reed switch assembly
4	TU2876	Latch, strap
5	TU3213	Rivet, tube. stl. 9/64
6	SB-00975-0	Screw, #6-32 x 1/4 phillips pn
7	TU14435	Asm/button/emer/stop
8	CA-00676-1	Insulation

THERMOSTAT ASSEMBLY



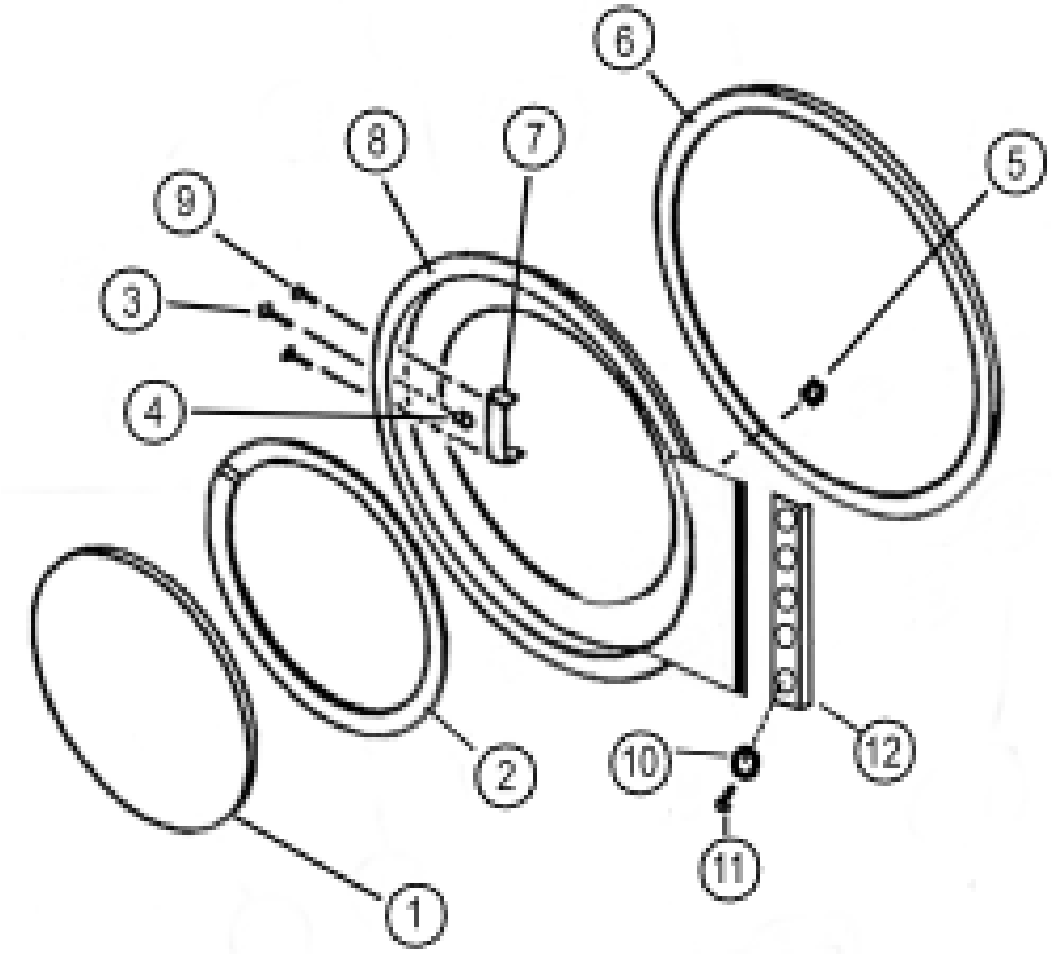
Ref. No.	Part No.	Description
1	CA-13172-0	Mtg. bracket
2	EA-00594-0	Thermostat
3	SB-00828-0	#8-32 x 1/2” screw
4	SB-00952-0	#6-32 x 3/8” screw
5	TU11991	Thermistor
6	TU3266	#8-32 Hex nut
7	TU3400	#6-32 Hex nut

CONTROL PANEL ASSEMBLY
DIAGNOSTIC MICROPROCESSOR



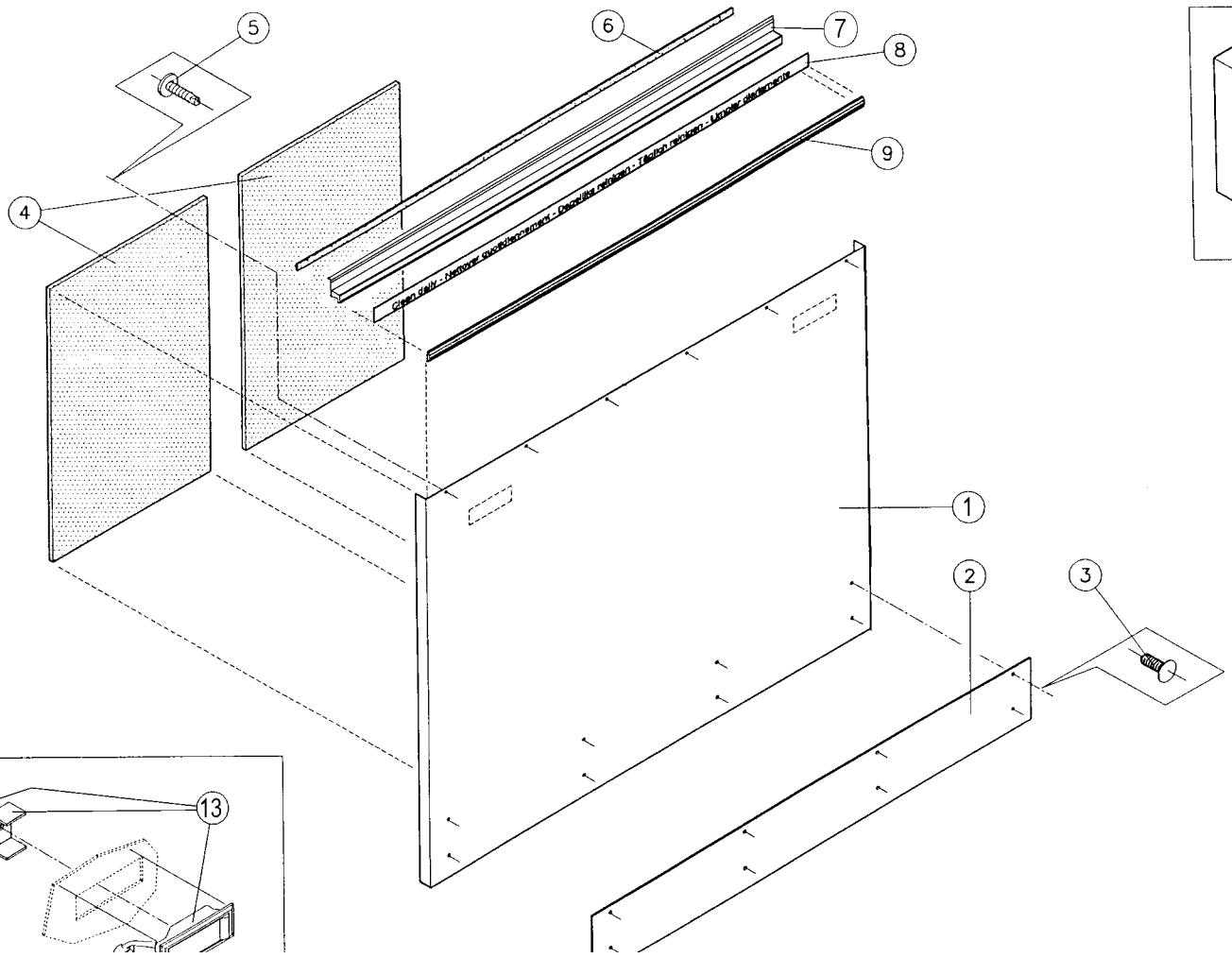
Ref. No.	Part No.	Description
1	TU3400	Nut, hex #6-32
2	TU14404	Control board
3	TU14137	Buzzer, 24 volt
4	CSA-01693WH	Control panel
5	M270	Washer, lock #6
6	LB291	Screw, #6-32 x 3/8
7	SB00868-0	Bushing
8	TU14405	Overlay

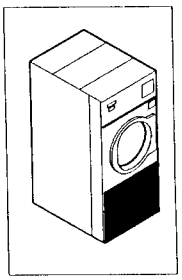
DOOR ASSEMBLY



Ref. No.	Part No.	Description
	MSD-00860WH	Complete door assy (consists of items 1 thru 9 only)
1	MD-00362-0	Door Glass - clear
2	MD-00354-0	Gasket - door glass - straight
3	CA-13218-0	Catch Pin
4	TU4840	Crown nut
5	MD-00337-0	Magnet - read switch
6	MD-00338-0	Gasket - door rim
7	TU2874	Basket door handle
8	MSD-00858-WH	Basket door
9	TU3215	Screw #10 - 32 X 3/8"
10	SB-00852-0	Washer 1/4" external starluck
11	SB-00921-0	Screw 1/4"-20 round head
12	MD-00348-0	Hinge spacer

LINT DOOR ASSEMBLY

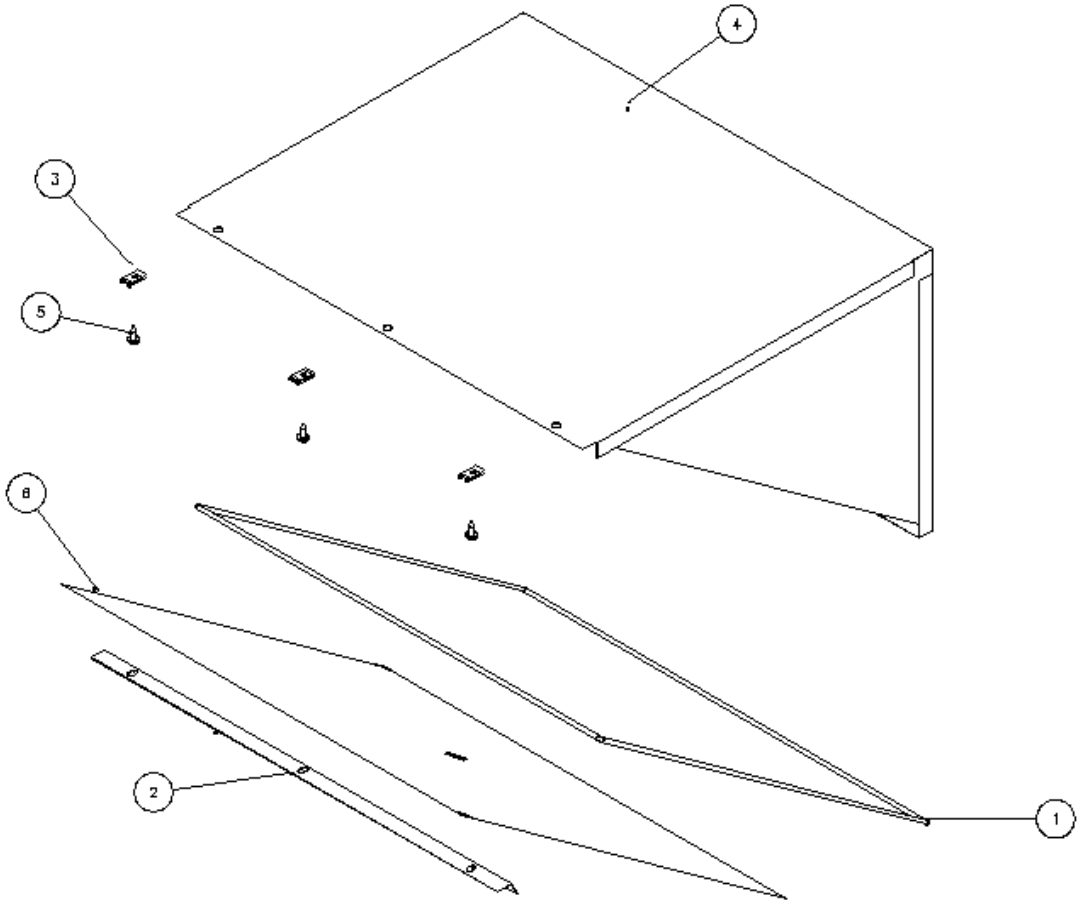




For OPL models only.

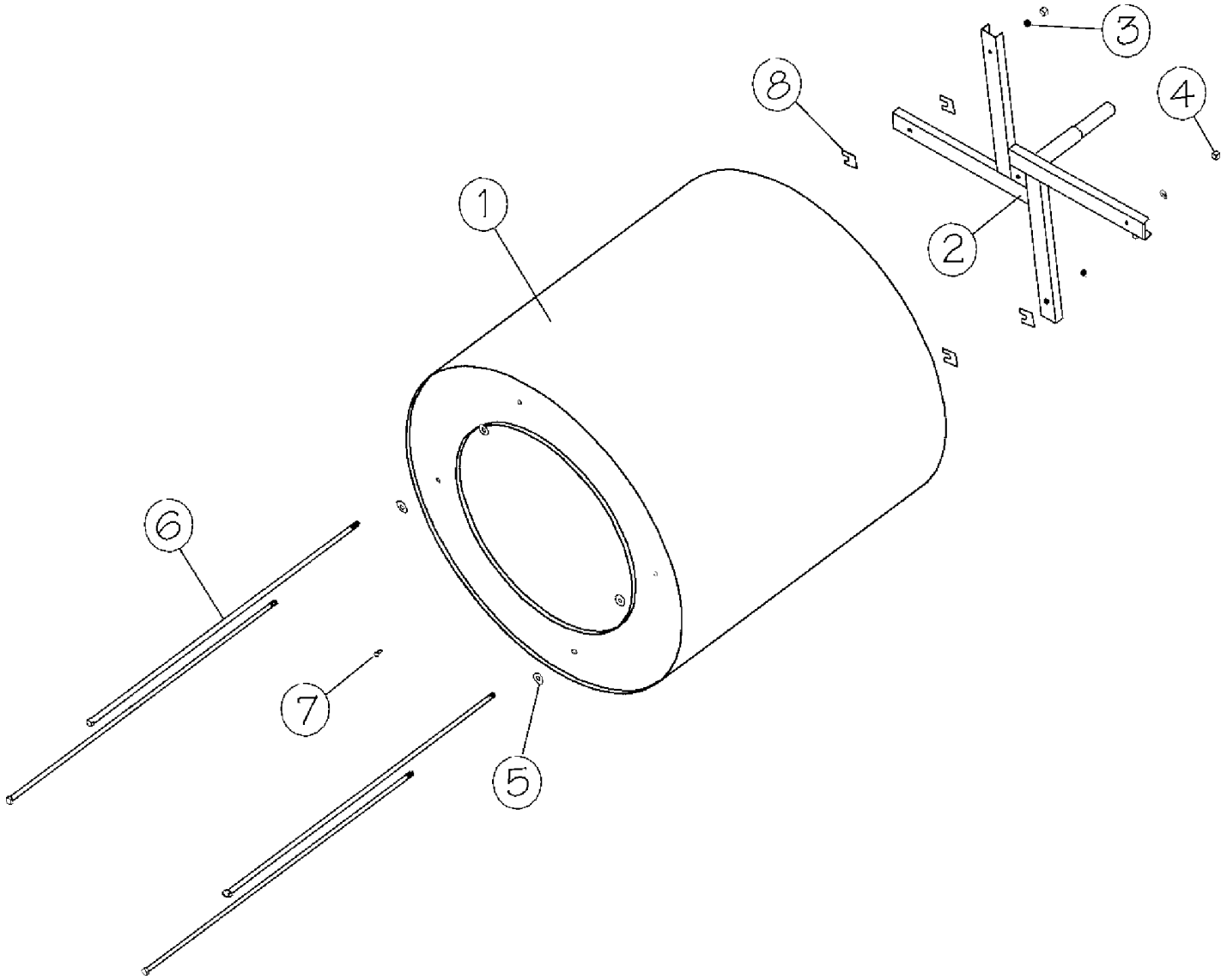
Ref. No.	Part No.	Description
	CSA-01515WH	Complete Assy.
1	CSA-01516WH	Lint door w/latch holes(white) OPL
2	CA-00839-0	Kickplate
3	SB-00949-0	Fastener plastic kickplate
4	CA-13131-0	Insulation lower frontpanel
5	SB-00915-0	Screw self drilling #10-16 X 5/8
6	TU2853	Gasket
7	CA-00697-0	Handle lint door
8	CA-00841-0	Label (not part of assy.)
9	CA-00655-0	Trim-rubrail-specify 39" long
13	LA-00123-0	Latch - trigger

LINT BOX HOUSING



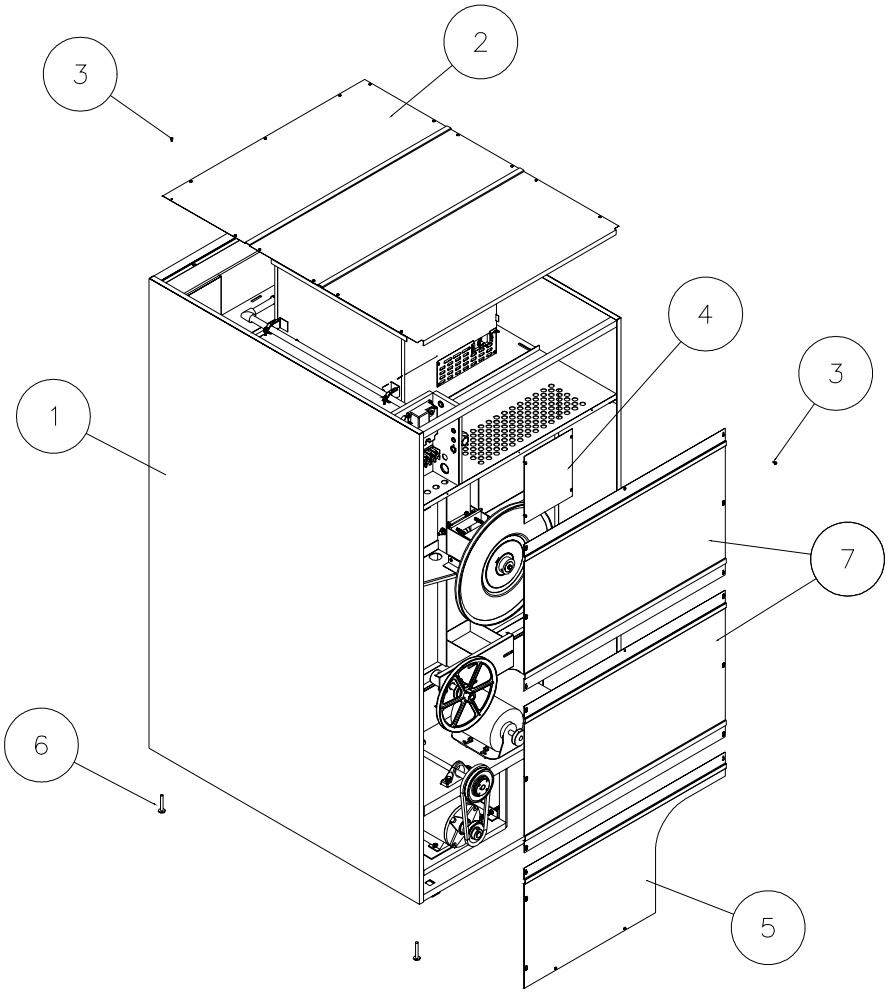
Ref No.	Part No.	Description
1	CA-13085-0	Frame,Lint Screen
2	CA-13243-0	Lint Screen Support
3	FG344	Nut,Steel Fast.
4	CSA-01689-0	Lint Housing W/A
5	TU3209	Screw,Sht. Mtl.
6	CA-13246-0	24” X 24”Lint Screen

BASKET & SPIDER ASSEMBLY



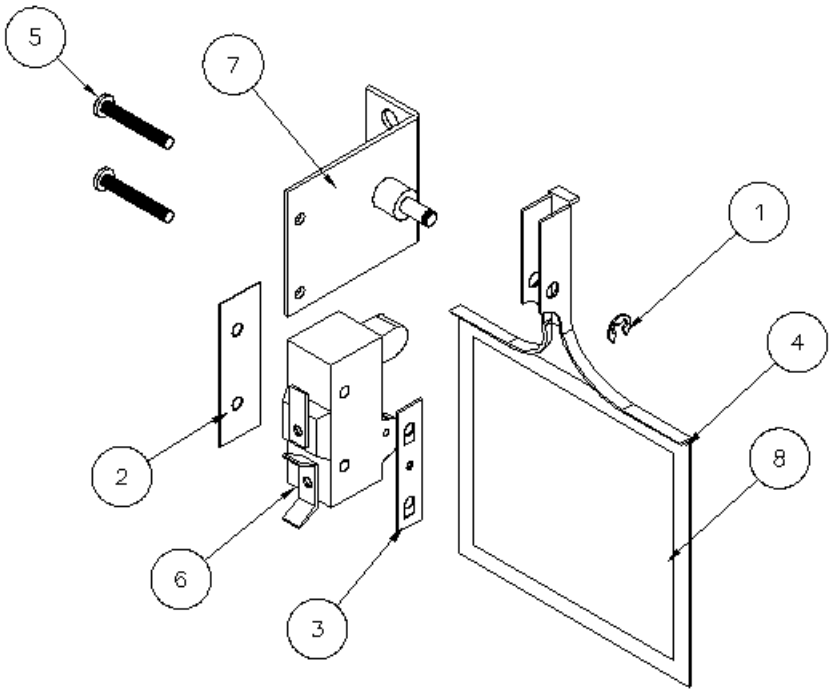
Ref. No.	Part No.	Description
1	CSA-01690-0	Basket Asm HD80 Galv.
2	CSA-00729-0	Spider Asm W/A
3	TU2831	Lock washer 1/2"
4	TU2882	Hex Nut 1/2 - 20 X 3/4
5	TU2883	Washer Cut 1/2"
6	TU8297	Basket Bolt
7	SB-00965-0	Screw Button Cap
8	TU7006	Shim Basket Spider

REAR VIEW



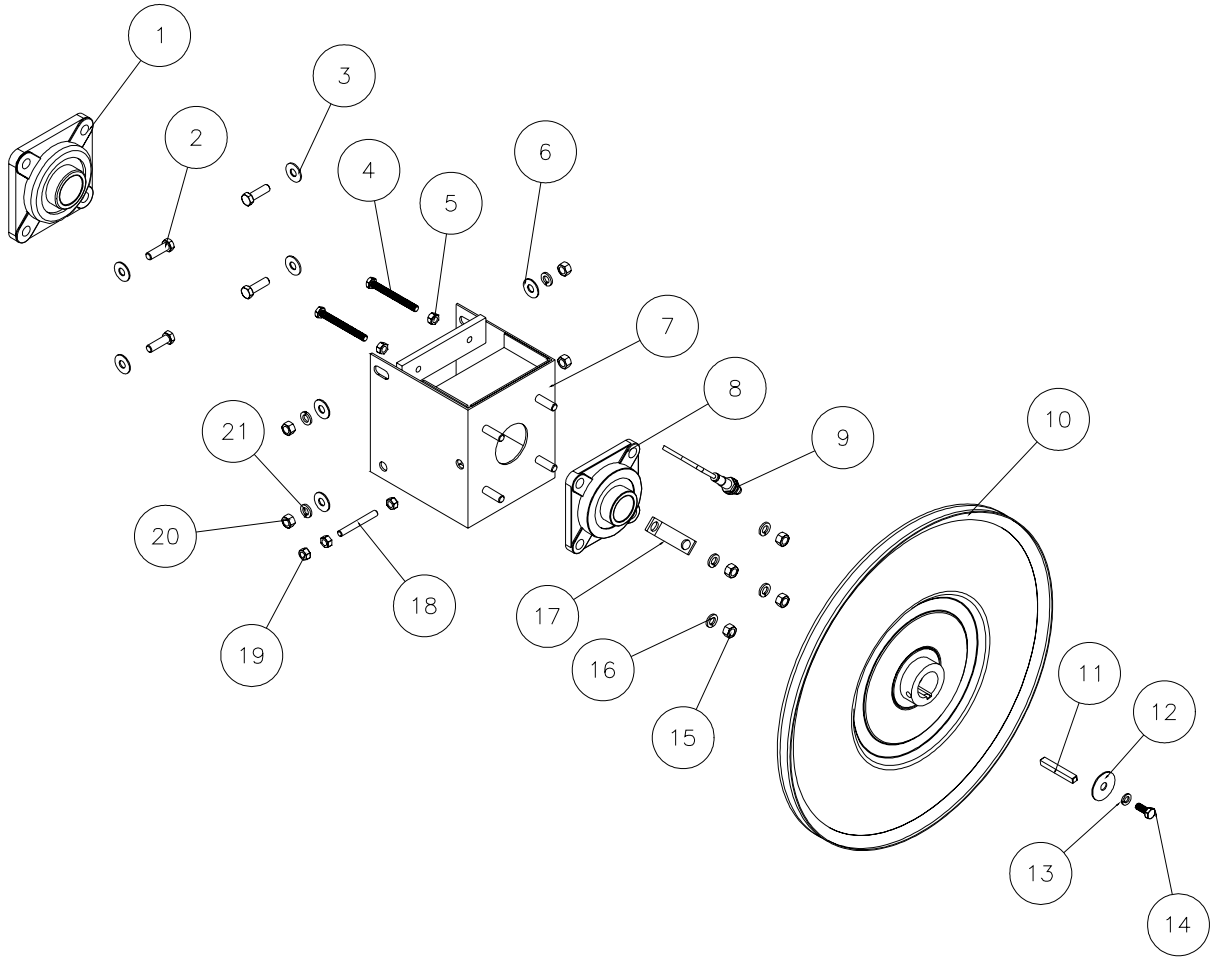
Ref. No.	Part No.	Description
1	CSA-50056WH	Jacket gas/electric (white)
	CSA-50057WH	Jacket steam (white)
2	CA-13258-0	Top Panel
3	TU7733	Screw self drilling 8-18 1/2"
4	CA-13247-0	Cover plate
5	CA-13259-0	Lower Rear Cover
6	TU3211	Leveling bolt
7	CA-13272-0	Upper Rear Cover

AIR SWITCH ASSEMBLY



Ref. No.		Description
	TU8206	Air switch assembly
1	F888	"E" Ring
2	TU1770	Insulator
3	TU1771	#6 Tinnerman nut
4	TU2463	Actuator arm
5	TU3219	#6 x 1" Round head screw
6	TU8155	Air switch
7	TU8171	Air Switch Bracket
8	TU3476	Air switch decal

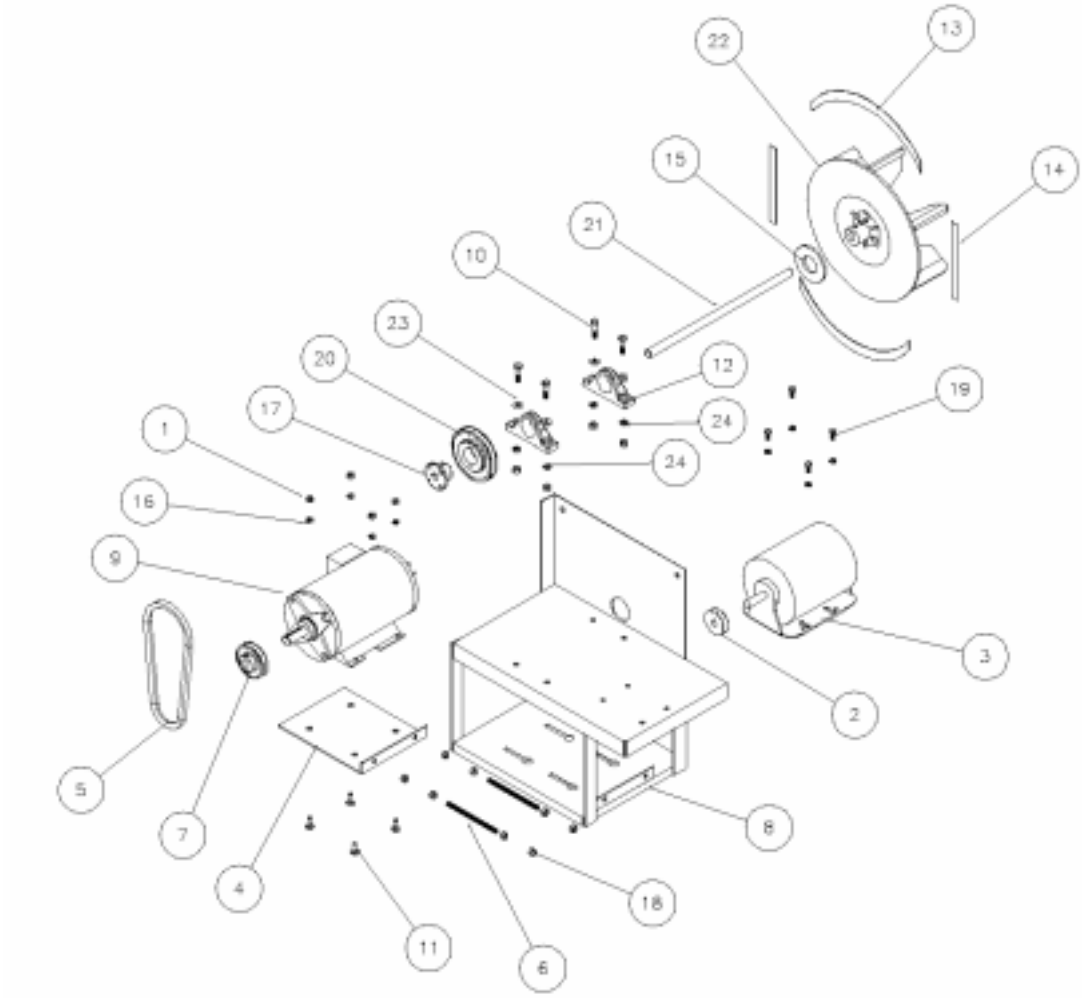
BASKET BEARINGS & SUPPORT



Ref. No.	Part No.	Description
1	DA11922-0	Bearing flange 1-9/16"
2	IB139	Screw 3/8-16 x 1-1/4"
3	IB140	Washer 3/8"
4	SB-00935-0	Screw cap 5/16-18 x 3"
5	C249	Hex nut 5/16-18
6	IB140	Washer 3/8"
7	DSA-00719-0	Bearing box assy.
8	DA-11921-0	Bearing - flange 1-3/8"
9	TU14414	Rotation sensor
10	DA-11899-0	Pulley - basket
11	DA-11914-0	Key
12	SB-00843-0	Washer 3/8 x 1-1/2"
13	TU2814	Lock washer 5/16"
14	TU5439	Screw cap 5/16-18 x 3/4"

Ref. No.	Part No.	Description
15	TU4787	Hex nut 3/8-16
16	VSB134	Lock washer 3/8"
17	CA-13269-0	Bracket - rotation sensor
18	SB-00876-0	Stud - 5/16-18 x 2-1/2"
19	C249	Hex nut 5/16-18
20	TU4787	Hex nut 3/8-16
21	VSB134	Lock washer 3/8"

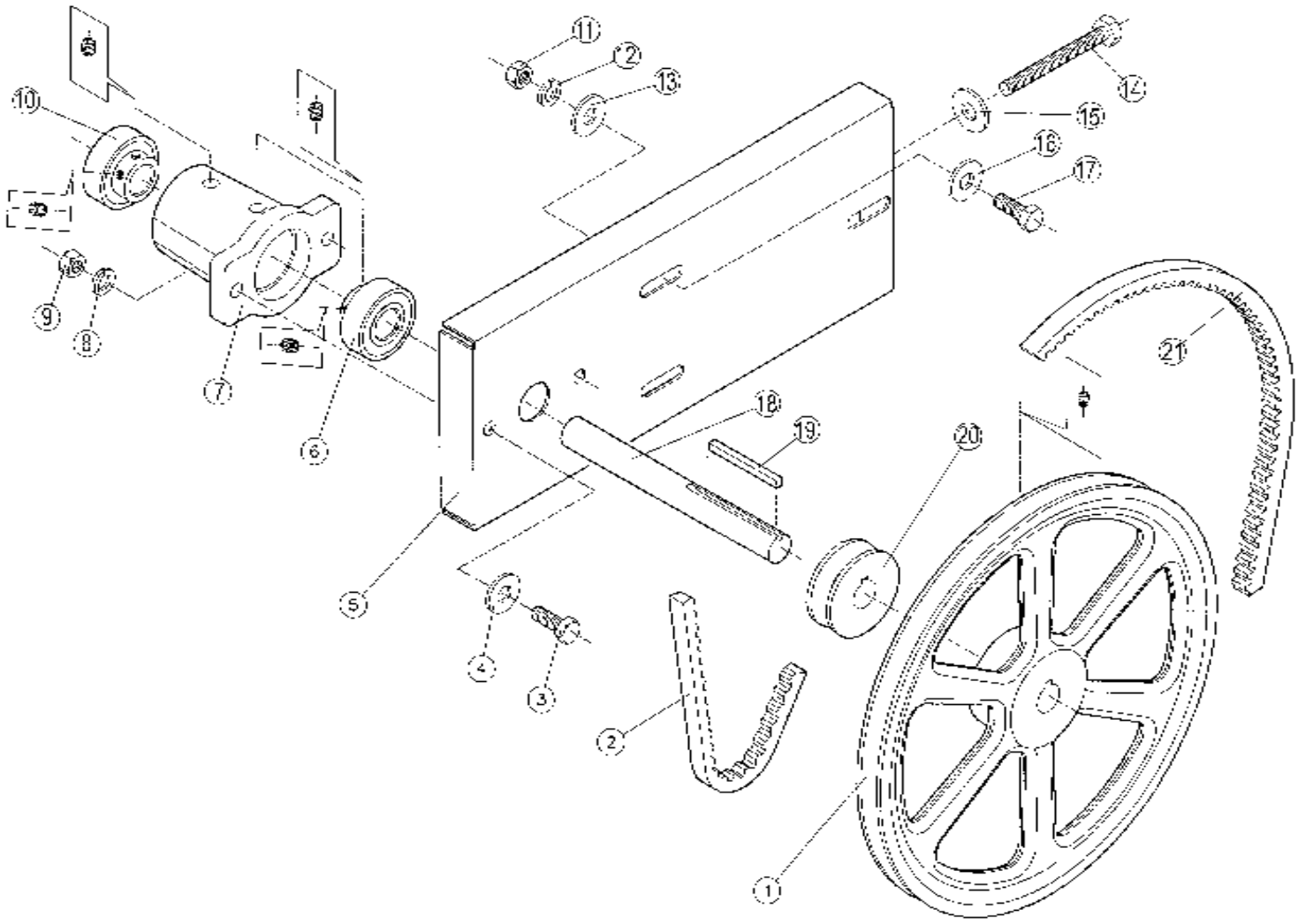
MOTOR ASSEMBLY



Ref. No.	Part No.	Description
1	C249	Nut, hex 5/6"-18 (4)
2	DA-00512-0	Motor sheave-60cy
	DA-11906-0	Motor sheave-50cy
3	DA-11909-0	Motor, 1/2 HP 50/60cy
4	DA-119203-0	Motor bracket
5	DA-119207-0	AX26 belt
6	DA-11930-0	Adjustment rod HD80 (2)
7	DA-11957-0	Pulley rev. HD80-60cy
8	DSA-00820-0	Motor mount w/a HD80
9	MTR312	3 HP motor HD80-60cy
10	OP380	Screw, hex HD 3/8"-16 (4)
11	SB-00985-0	Carriage bolt 5/16" (4)
12	SB138	Pillow block (2)
13	TU2473	Gasket curved (2)
14	TU2474	Gasket, cork 8"(2)
15	TU2476	Gasket felt seal

Ref. No.	Part No.	Description
16	TU2814	Washer, lock 5/16" (9)
17	TU3807	Bushing, sheave
18	TU4787	Nut, hex 3/8" - 16 (12)
19	TU5439	Screw 5/16" - 18 (4)
20	TU6722	Sheave, AK-51H-60cy
21	TU7356	Jackshaft
22	TU7354	Fan, alum
23	VSB130	Washer, cut 5/16" (4)
24	VSB134	Lock washer 3/8" (4)

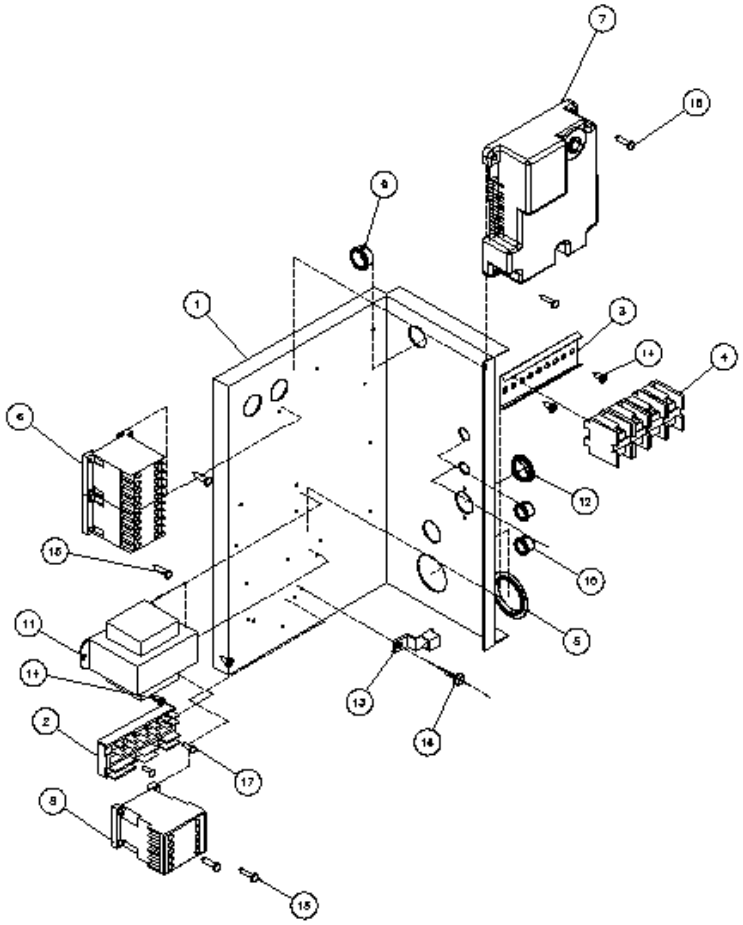
IDLER ASSEMBLY



Ref. No.	Part No.	Description
1	DA-00529-0	Idler pulley 11”
2	DA-00497-0	Basket belt -reversing - AX71
3	FB124	Screw 5/16-18*1"
4	VSB130	Washer 5/16"
5	CA-12059-0	Idler adjusting plate
6	DA-00518-0	Bearing
7	DA-00517-0	Housing - idler bearing
8	TU2814	Lock washer 5/16"
9	C249	Hex Nut 5/16-18"
10	DA-00518-0	Bearing

Ref. No.	Part No.	Description
11	C249	Hex Nut 5/16-18"
12	TU2 814	Lock Washer 5/16"
13	VSB130	Washer 5/16"
14	SB-00935-0	Screw 5/16”-18 X 3”
15	VSB130	Washer 5/16"
16	VSB130	Washer 5/16"
17	TU5439	Screw 5/16-18*1"
18	DA-11711-0	Idler shaft
19	TUD0187	Key 3/16 square 2-1/2"
20	DA-00528-0	V-belt pulley
21	DA-00494-0	Belt - motor to idler pulley AX50 Reversing

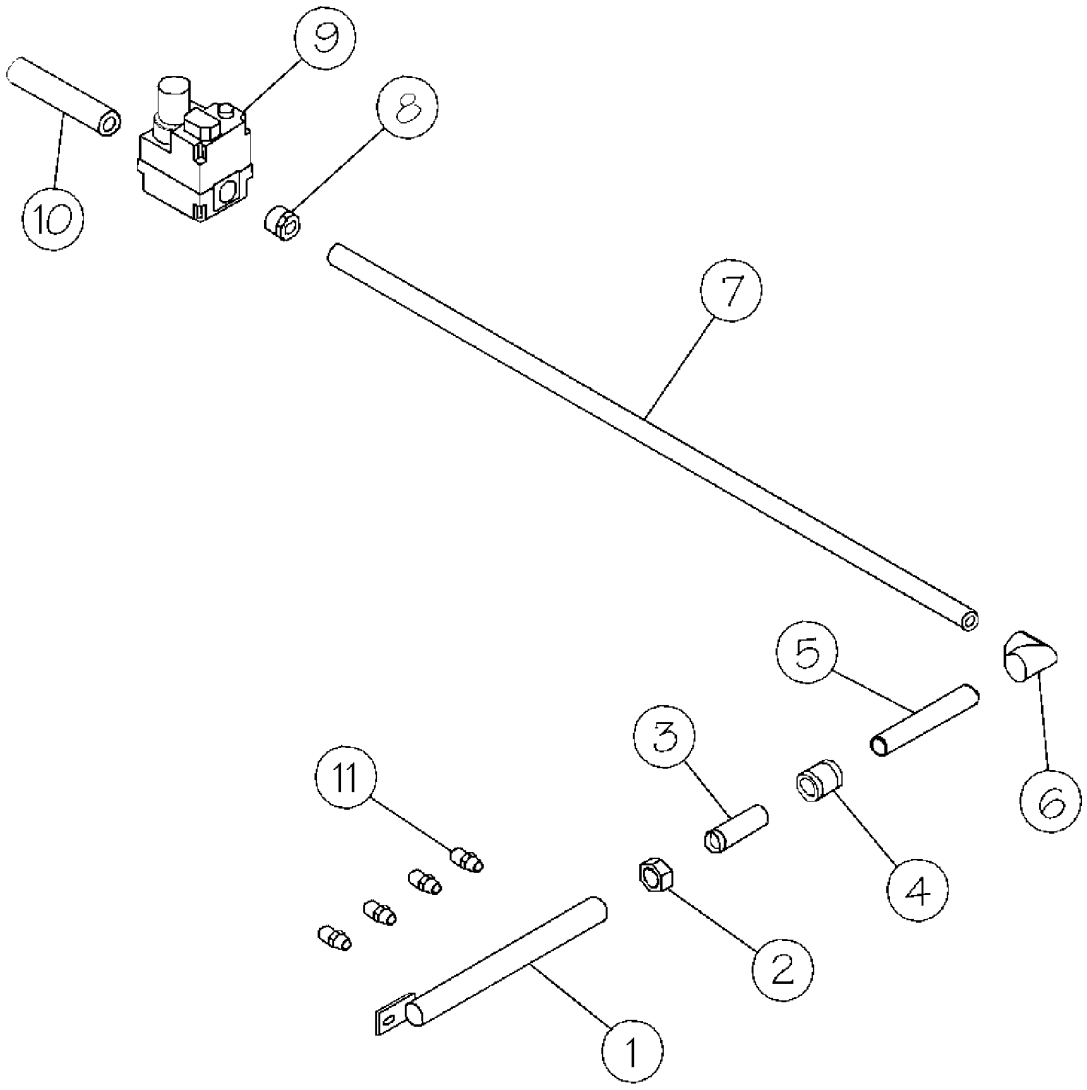
REAR CONTROL GAS PANEL ASSEMBLY



Ref. No.	Part No.	Description
	ESA-01017-0	Wirebox / rear / 208--240 / HD / gas
1	CA-13248-0	Rear wire box HD80
2	EA-00210-0	Block, terminal
3	EA-00550-0	TerminalTrack, W164
4	EA-00551-0	Terminal block, PWH75
5	EA-00680-0	Knock out plug, 1 1 / 2" dia.
6	EA-00685-0	Revcontr / 3 pole / 24v coil / 20A
7	GA-00765-0	Igniter Ram III
8	TU13463	Contactor, 9A IEC w / 24V coil
9	SB-00868-0	Insulating,#OCB-875-28
10	SB-00867	Bushing,Insulating,#OCB-500

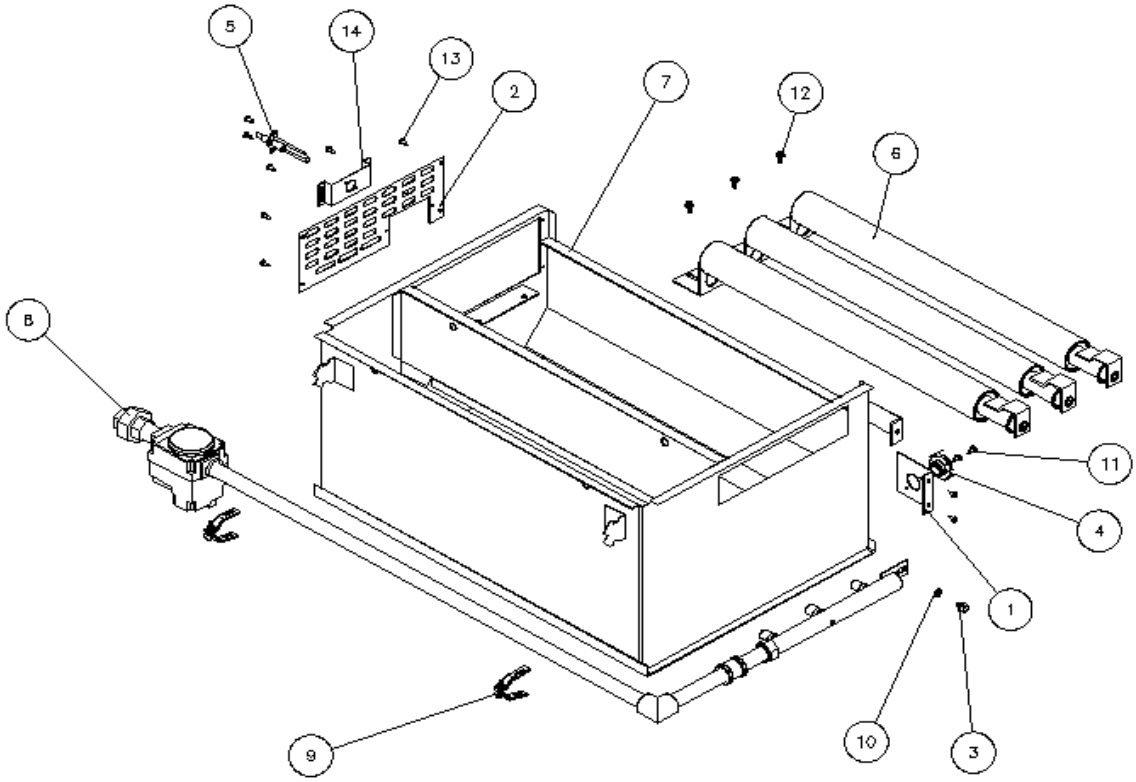
Ref. No.	Part No.	Description
11	TU13480	Trans,200-240V / 24Vw / reset
12	TU2490	Plug, button 7 / 8"
13	TU7738	Lug, ground
14	TU7733	Screw,self dr # 8-18 X 1 / 2"
15	TU2793	Screw, drill kwik 8-18 x 3/4"
16	SB-00915-0	Screw, # 10-16 x 5 / 8" ph. rd.
17	SB-00865-0	Screw, drill quick, phillips pan

MANIFOLD ASSEMBLY



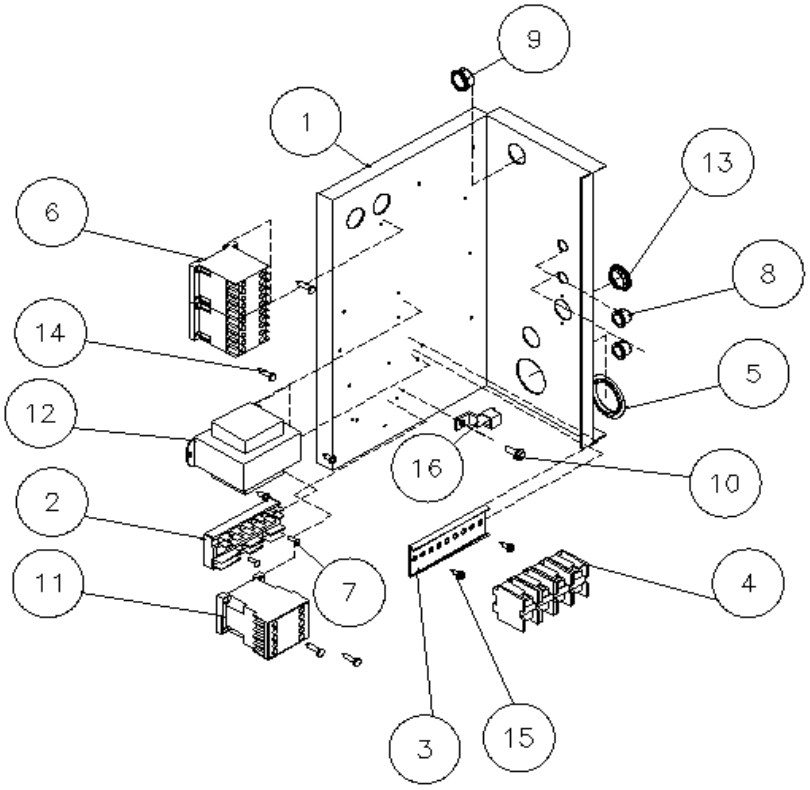
Ref. No.	Part No.	Description
1	390501053	Elbow,1/2 in 90 deg
2	664946146	Pipe-tail
3	GA-11006-0	Manifold HD80
4	OP267	Bushing,steel 3/4
5	OP296	Nipple 1/2"X5", std
6	SC505	Coupling, pipe 1/2
7	TU3539	Orfice, burner
8	TU4600	Union, 3/4"
9	TU4608	Nipple. 3/4 X 2 black
10	TU6862	Nut, union-gas
11	TU7358	Pipe 1/2 X 34 1/2"
12	TUX352	Valve, gas ng 3/4" c
	TUX435	Valve, gas lp 3/4" c

GAS HEATING UNIT



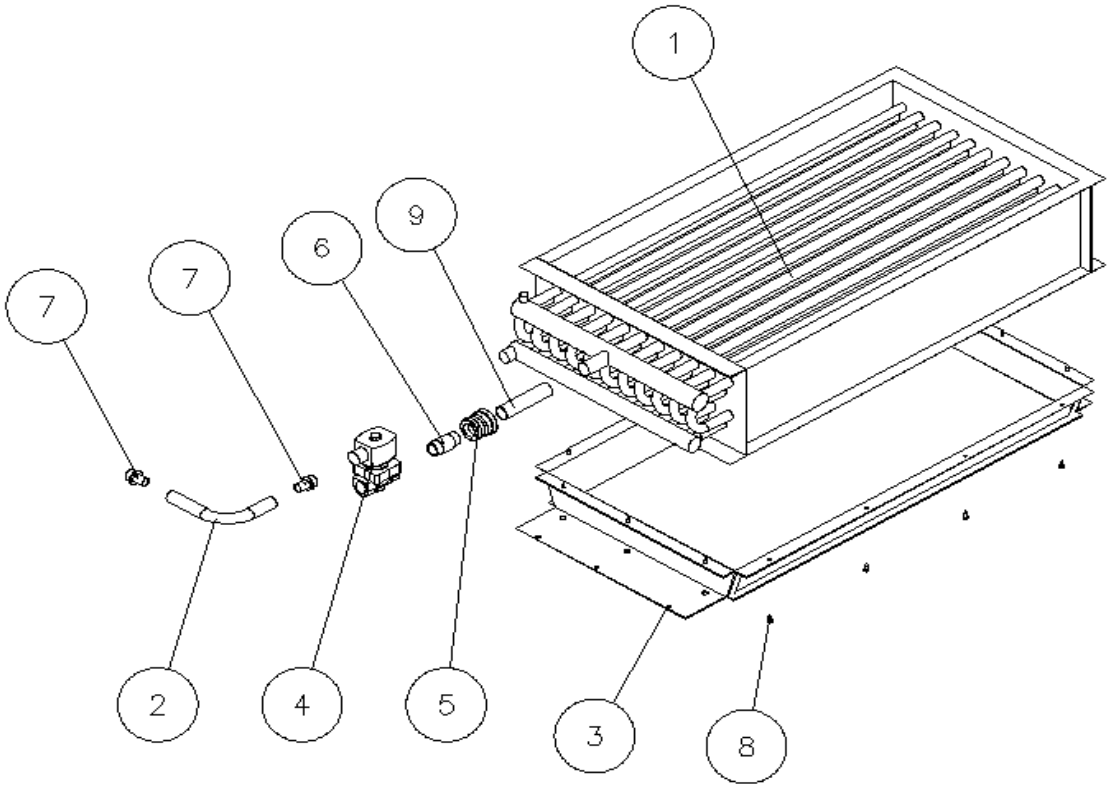
Ref. No.	Part No.	Description
1	CA-11028-0	Bracket,Hi Limit
2	CA-13251-0	Burner Cover Plate
3	CB36	Screw, 1/4-20x1/2
4	EA-00245-0	Switch, 330 Degree
5	GA-00764-0	Electrode
6	GA-11005-0	Burner Main HD80
7	GSA-00791-0	Burner Box Housing
8	GSA-00793-0	Manifold & Valve
9	TU2226	Bracket Asm
10	TU2846	Washer, Lock 1/4
11	TU2878	Screw, #10 - 16
12	TU6263	Screw, Hex Washer
13	TU7733	Screw, Self Dr. #8 - 18
14	TUD0242	Bracket, Mount - Ign.

REAR CONTROL STEAM PANEL ASSEMBLY



Ref. No.	Part No.	Description
1	CA-13248-0	Rear Wire Box
2	EA-00210-0	Block,Terminal
3	EA-00550-0	Terminal Track
4	EA-00551-0	Terminal Block
5	EA-00680-0	Plug-Knock Out
6	EA-00685-0	Rev Control/3 Pole/24V
7	SB-00865-0	Screw #6-20 x 1/2
8	SB-00867-0	Bushing-Insulating
9	SB-00868-0	Bushing-Insulating
10	SB-00915-0	Screw #10-16 x 5/8
11	TU13463	Contactor
12	TU13480	Transformer 200/240V
13	TU2490	Plug Button 7/8
14	TU2793	Screw #8-18 x 3/4
15	TU7733	Screw #8-18 x 1/2
16	TU7738	Ground Lug

STEAM HEATING UNIT



Ref No.	Part No.	Description
1	CA-13221-0	Steam Coil
2	CFB0900	Cable 1/2"x 9"
3	CSA-01602-0	Adaptor Welded Asm
4	TU13517	Steam Valve 24V 50/50 Hz
5	TU2735	Pipe Reducer 1" to 3/4"
6	TU4608	Pipe Nipple 3/4" x 2"
7	TU4790	Connector 1/2"
8	TU7733	#8-18 x 1/2"
9	TU9656	Pipe Nipple 1" x 4"