cissell
MANUFACTURING COMPANY

OWNER'S MANUAL

20 Lb. Laundry Dryer

MODELS

GAS	STEAM	ELECTRIC
L	L	L

CISSELL MANUFACTURING COMPANY
HEADQUARTERS
831 SOUTH FIRST ST.
P.O. BOX 32270
LOUISVILLE, KY 40232-2270

PHONE: (502) 587-1292
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SERVICE/PARTS FAX: (502) 681-1275

THIS MANUAL MUST BE GIVEN TO THE EQUIPMENT OWNER.

MAN2020 6/97 D0525

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: **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.**

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

- WHAT TO DO IF YOU SMELL GAS

- **Do not try to light any appliances.**
- **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 the 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: Wear Safety Shoes to prevent injuries.

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: 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 **Cissell** 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: 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..

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 EXPRESS 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, EXPRESS 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 the rear wall of the dryer. 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.

TABLE OF CONTENTS
20 LB. LAUNDRY DRYER

SYMBOLS

The following symbols are used in this manual and/or on the machine. The numbers between () refer to the numbers on the machine surveys.

Symbol	Description	Part/Measurement
	**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** **êmission de chaleur en general** **Warmeabgabe allgemein** **emisión de calor**	
	**cooling** **refroidissement** **Kühlen** **enfriamiento**	

SYMBOLS

Symbol	Description	Part/Measurement
	**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 Cissell 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. Installation clearance from all combustable material is 0" ceiling clearance, 0" rear clearance, and 0" side clearance.

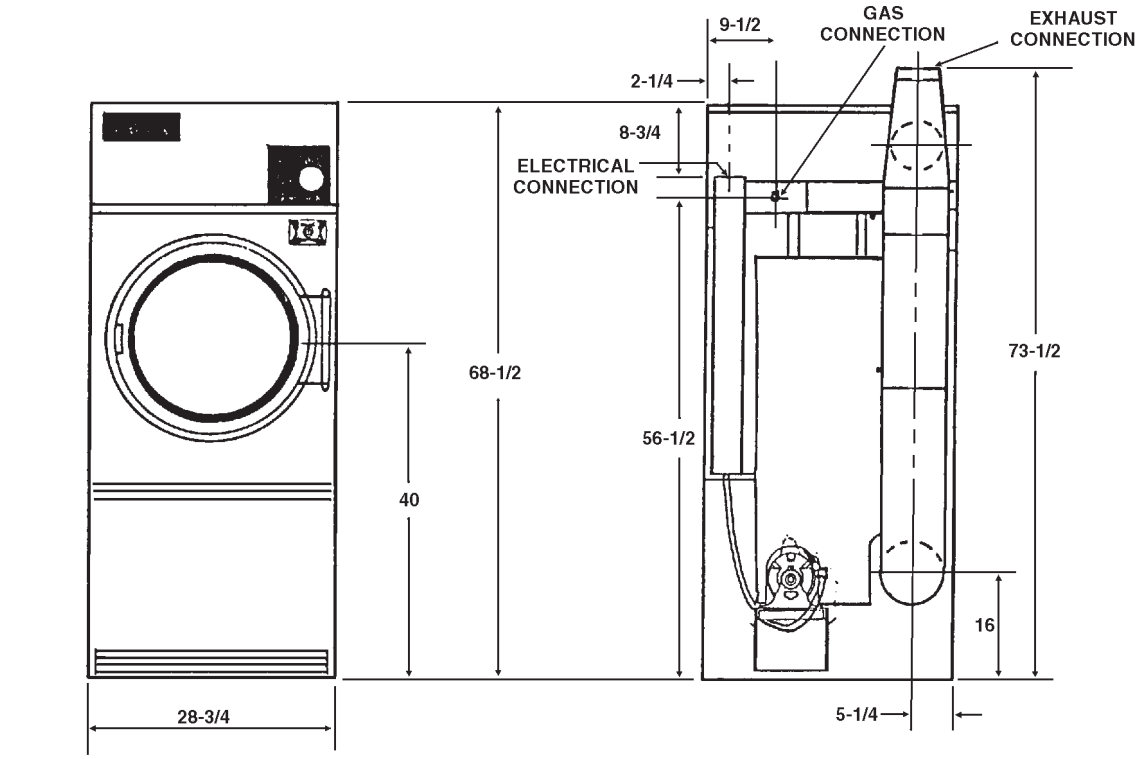
Before operating dryer, open basket door and remove blocking between front panel and basket. Read the instruction tags, owner's manual, warnings, etc.

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 and hold briefly.

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

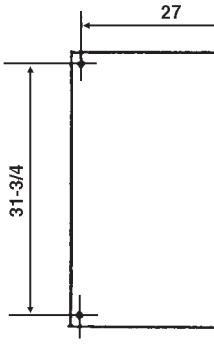
IMPORTANT
Maximum operating efficiency is dependent upon proper air curculation. The lint screen must be kept cleaned daily to insure proper air circulation throughout the dryer.

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

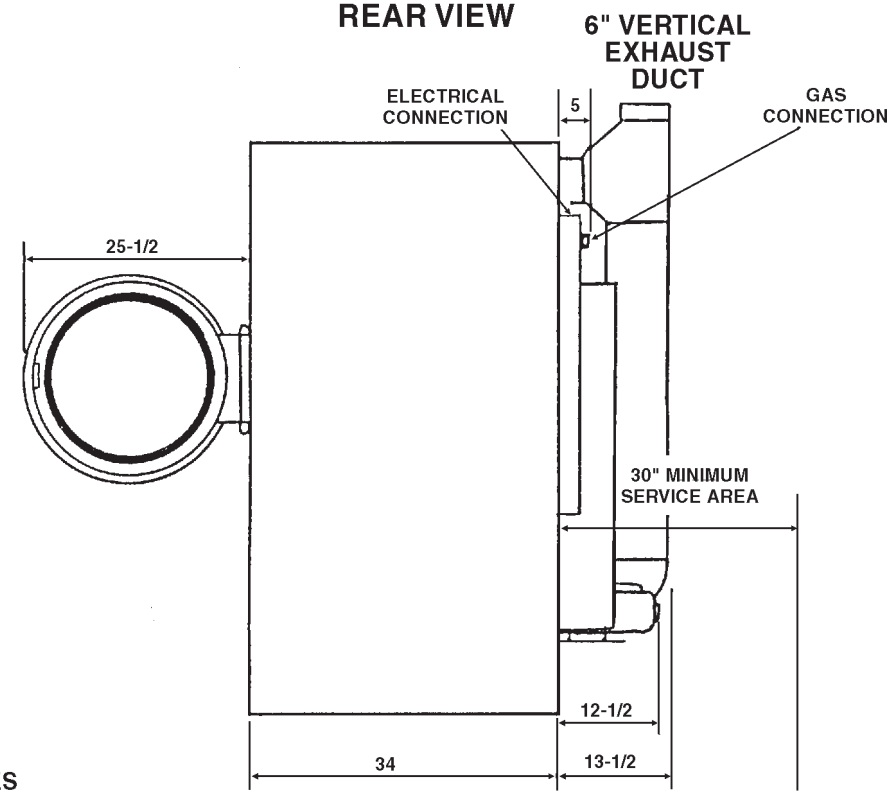


FRONT VIEW

REAR VIEW



BASE MOUNTING HOLES



VERTICAL EXHAUST FACTORY STANDARD

SIDE VIEW

DIMENSIONS GIVEN IN ± 1/4 INCHES

20 lb. DRYER SPECIFICATIONS

Maximum Air Displacement	700 CFM (19.82 M^3/Min.)
Recommended Operating Range	530-630 CFM (15.01-17.84 M^3/Min.)
Steam Supply Connection	3/4" (1.91 cm)
Steam Return Connection	3/4" (1.91 cm)
Operating Steam Pressure	7-15 lbs. (3.18-6.9 kg) low pressure 100 lbs. (56.7 kg) high pressure
Drying Time (approx.)	25 lbs. (11.34 kg) Dryweight (Indian Head) 70% moisture retention - 30 minutes (low pressure) 22 minutes (high pressure)
Steam Consumption	3.4 BHP - 117.3 lbs. (53.21 kg)/hr. with normal load - high pressure 2.6 BHP - 89.7 lbs. (40.69 kg)/hr. with normal load - low pressure
Net Weight	478 lbs. (146 kg)
Domestic Shipping Weight (approx. 1 carton)	522 lbs. (159 kg)
Export Shipping Weight (approx. 1 box)	526 lbs. (160 kg)
Export Shipping Dimensions	74" L (188 cm) x 35" W (89 cm) x 55" H (140 cm)
Maximum Air Displacement	700 CFM (19.82 M^3/Min.)
Recommended Operating Range	530-630 CFM (15.01-17.84 M^3/Min.)
Heater Input	21 KW/Hr (18,061 K/CAL)
Total Heater Current	See chart on separate page
Drying Time (approx.)	12 lbs. (5.44 kg) Dryweight (Indian Head) 70% moisture retention - 12 minutes
Net Weight (approx.)	463 lbs. (141 kg)
Domestic Shipping Weight (approx. 1 carton)	498 lbs. (152 kg)
Export Shipping Weight (approx. 1 box)	513 lbs. (156 kg)
Export Shipping Dimensions	74" L (188 cm) x 31" W (79 cm) x 52" H (132 cm)

NOTE
See Electric Heating Unit section for further specifications

Motor No.	Voltage	Hz.	Phase	HP	Amps	RPM
MTR200	115/208-230	60	1	1/2	5.8/2.9	1725
MTR127	240	50	1	3/4	4.5	1425
MTR214	208-230/460	60	3	1/2	2.5/1.1	1725
MTR302	200-240/346-415	50	3	1/2	1.8/0.9	1425
MTR302	220/380	60	3	1/2	1.8/0.9	1725

GENERAL INFORMATION

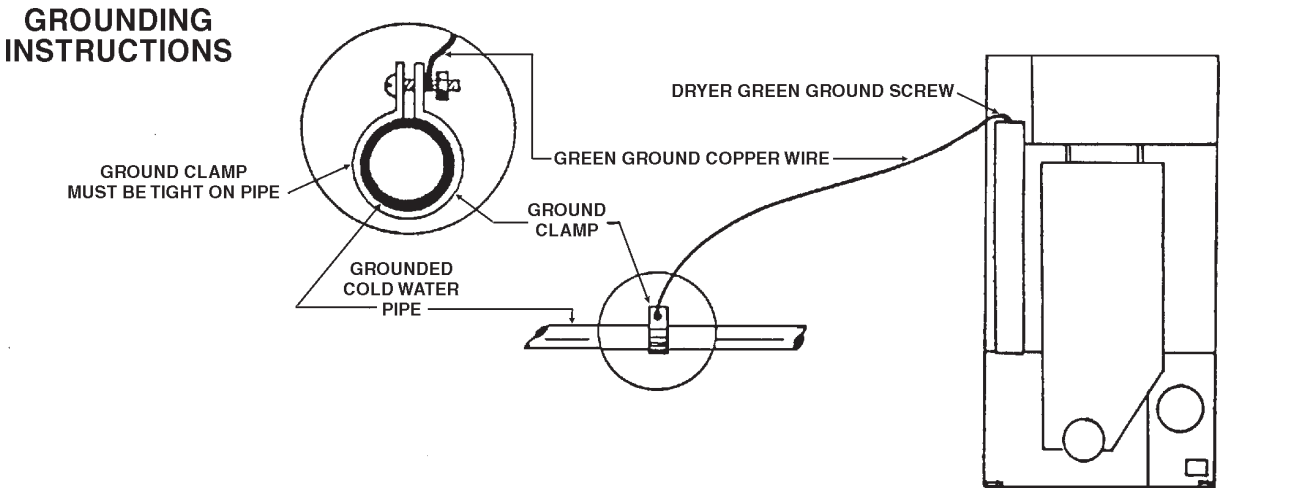
The Cissell Dryer is so designed that when an operator opens the dryer door, the basket and exhaust fan stops. You can expect fast drying from a Cissell Laundry Dryer. Hot, dry air is properly and effectively moved through the basket and exhausted through a lint trap to the atmosphere. The Cissell Dryer comes equipped with an inclined, self-cleaning lint screen. In this system, lint accumulates on the underside of the screen until a blanket approximately 1/4" thick is formed. This 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.

CISSELL COOL-DOWN

Permanent press, durable press and other modern day fabrics require the care that your Cissell 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 and continues for two minutes.

Grounding Instructions (Illustration)



ELECTRICAL CONNECTIONS

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, or through the fourth green wire properly **grounded** and connected to the **grounding terminal**. **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 as ANSI/ NFPA 70 (Latest Edition)**.

See wiring diagram furnished with dryer. Your Cissell Dryer is completely wired at the factory and it is only necessary for the electrician to connect the power leads to the wire connectors within the service connection box on the rear of the dryer. **Do not change wiring without consulting 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.)

PIPING RECOMMENDATIONS

1. Trap each dryer individually. Always keep the trap clean and in good working condition.

2. When dryer is on the end of a line of equipment, extend header at least 4 feet beyond dryer. Install globe valve, union, check valve and by-pass trap at end of line. If gravity return to boiler, omit trap.

3. Insulate steam supply and return line for safety of operator and safety while servicing dryer.

4. Keep dryer in good working condition. Repair or replace any worn or defective parts.

STEAM HEATING UNITS

1. Keep steam coils clean.

2. Check periodically and clean as often as required.

3. Remove lint and dirt accumulation from coil fins periodically as dirty lint-laden coil fins decrease the efficiency of steam-heated dryers.

GAS PIPING INSTALLATION

1. The installation must conform with local codes, or in the absence of local codes with the National Fuel Gas Code as: ANSI Z223.1—(Latest Edition).

2. Check Identification Nameplate for type of gas for dryer.

3. Check for altitude elevation of dryer.

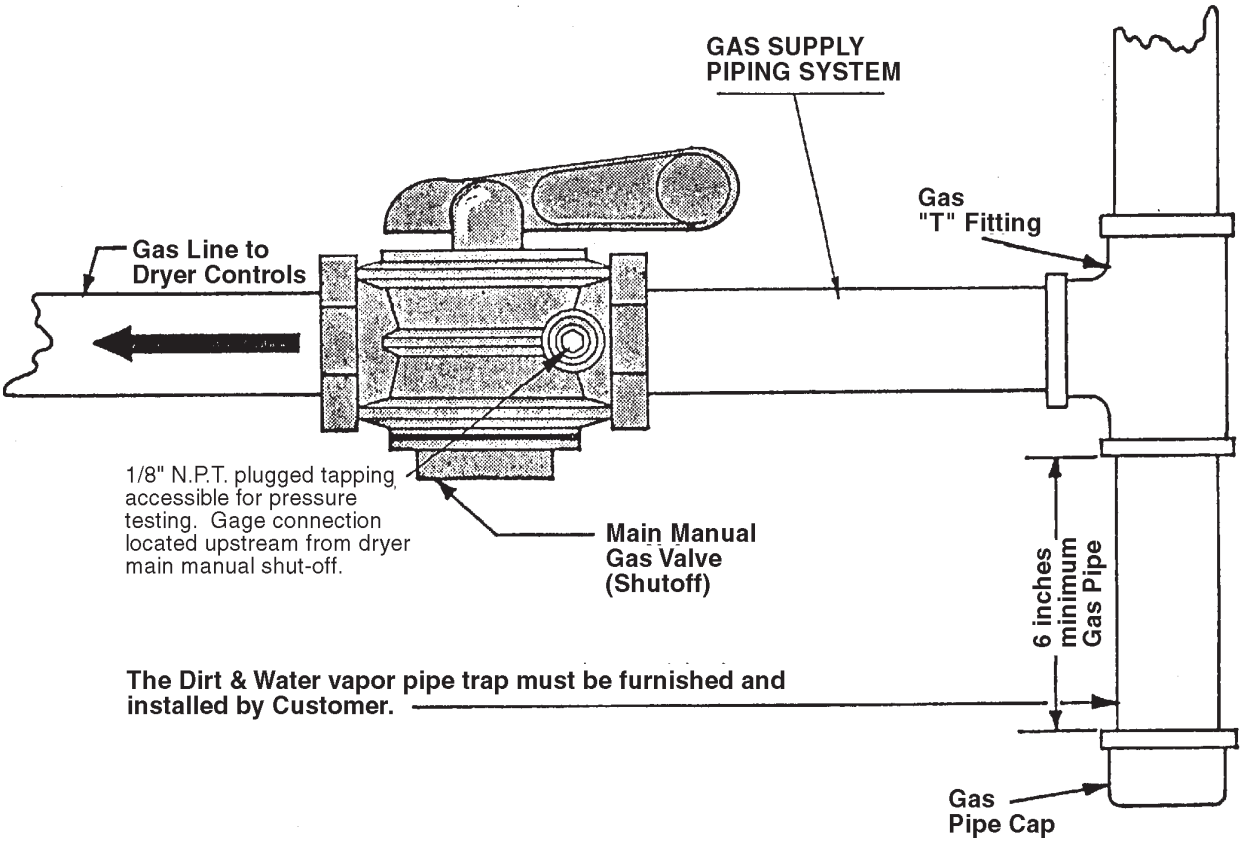
4. Check with utilities company for proper gas pressure and gas supply line.

5. Natural Gas Only—Check the gas pressure inlet supply to dryer, 11 inches Water Column maximum. Manifold Pressure—3.5 inches Water Column pressure.

6. L.P. Gas Only—Manifold pressure—13 inches Water Column maximum.

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

Gas Piping Installation (Illustration)



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 PSIG.

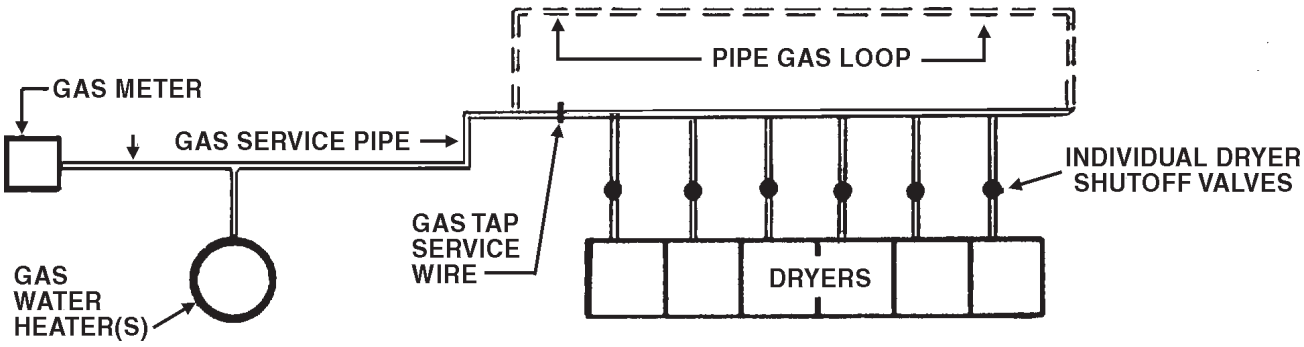
The dryer must be isolated from the gas supply piping system by closing it's individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 PSIG.

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 Cissell 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 HOUR	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.					
		(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

STEAM PIPING INSTALLATION INSTRUCTIONS

1. Set and anchor dryer in position. Machine should be level to assure proper steam circulation.

2. To prevent condensate draining from headers to dryer, piping should have a minimum 12” above respective header. Do not make steam connection to header with a horizontal or downwardly facing tee or elbow.

3. Whenever possible, horizontal runs of steam lines must drain, by gravity, to respective steam header. Water pockets, or an imporperly drained steam header will provide wet steam, causing improper operation of dryer. If pockets or improper drainage cannot be eliminated, install a by-pass trap to drain condensate from the low point in the steam supply header to the return.

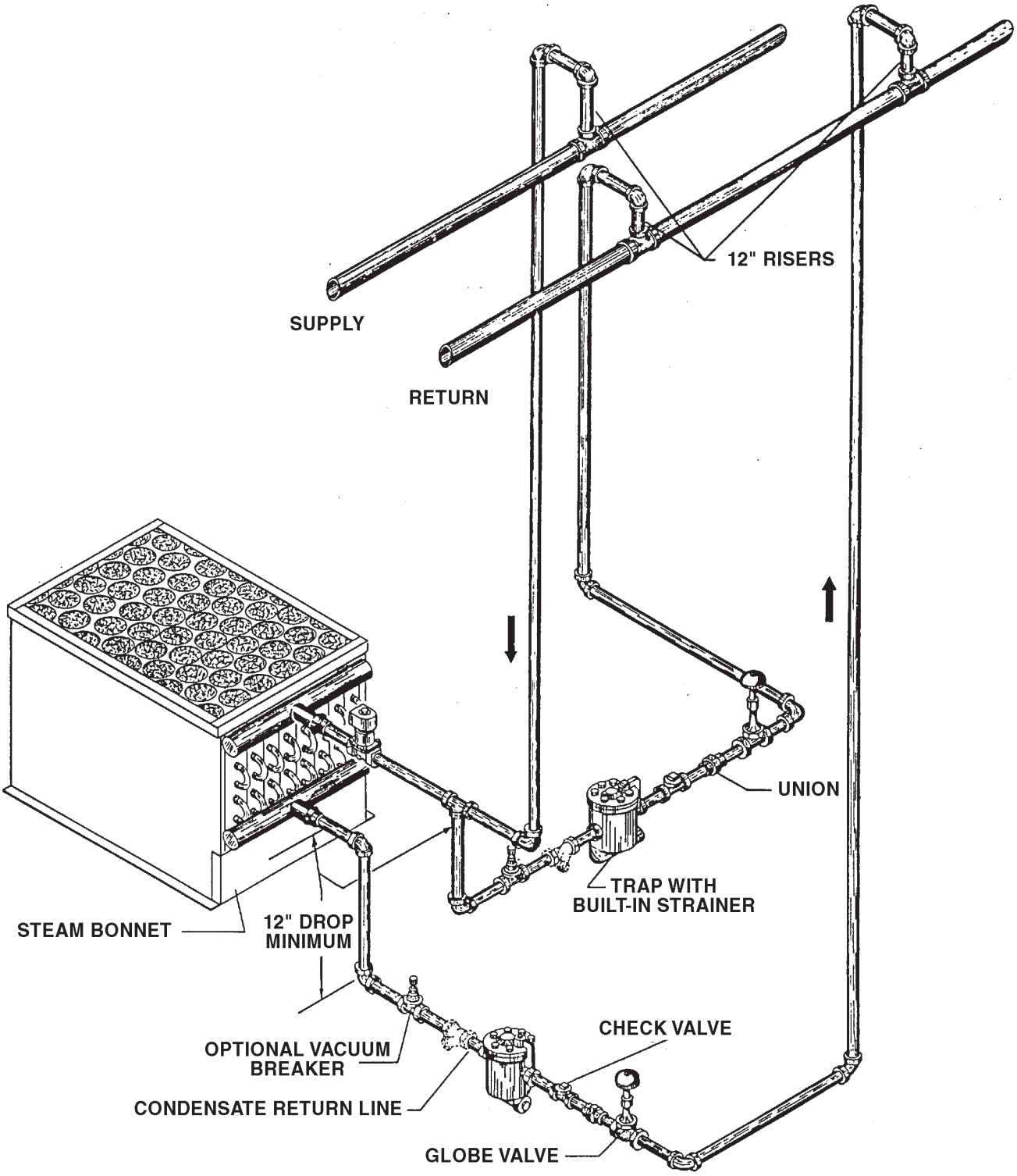
4. In both steam supply and steam retyrn line, it is recommended that each have a 3/4” union and 3/4” globe valve. This will enable you to disconnect the steam connections and service the dryer while your plant is in operation.

5. Before connecting trap and check valve to dryer, open globe valve in steam supply line and allow steam to flow through dryer to flush out any dirt and scale from dryer. This will assure proper operation of trap when connected.

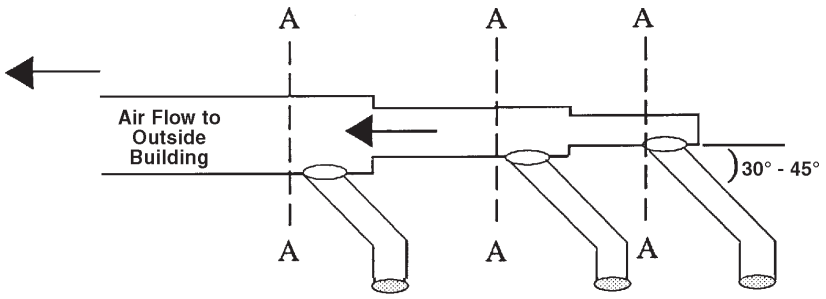
6. After flushing system, install bucket trap (with built-in strainer) and check valve. For successful operation of dryer, install trap 18” below coil and as near to the dryer as possible. Inspect trap carefully for inlet and outlet markings and install according to trap manufacturer's instructions. If steam is gravity returned to boiler, omit trap but install check valve in return line near dryer.

7. Install union and globe valve in return line and make final pipe connections to return header.

Steam Piping Installation (Illustration)



For Exhaust Duct less than 14 feet and 2 elbows equivalent and less than 0.3 inches 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.*)

MODELS: L28FD30, L28US30, L36FD30, L36US30, L36US36, L44FD42

No. of Dryers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Duct Diameter (in inches)	6	9	11	12	14	15	16	17	18	19	20	21	22	23	23	24	25	26	26	27	28	28	29	30
(in CM)	15	23	27	30	35	38	41	43	46	48	51	53	56	58	58	61	63	66	66	68	71	71	73	76

MODELS: L28CD30, L28UR30, L36CD30, L36UR30, L36UR36, L36AR36, L44FD42

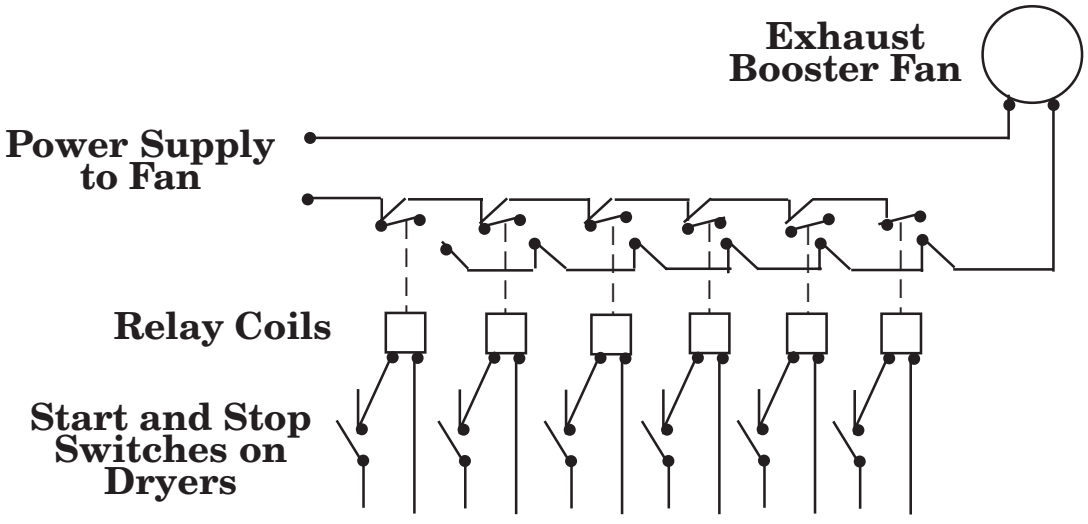
No. of Dryers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Duct Diameter (in inches)	8	12	14	16	18	20	22	23	24	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
(in CM)	20	30	25	41	46	51	56	58	61	66	68	71	73	76	78	81	84	86	89	91	94	97	99	100

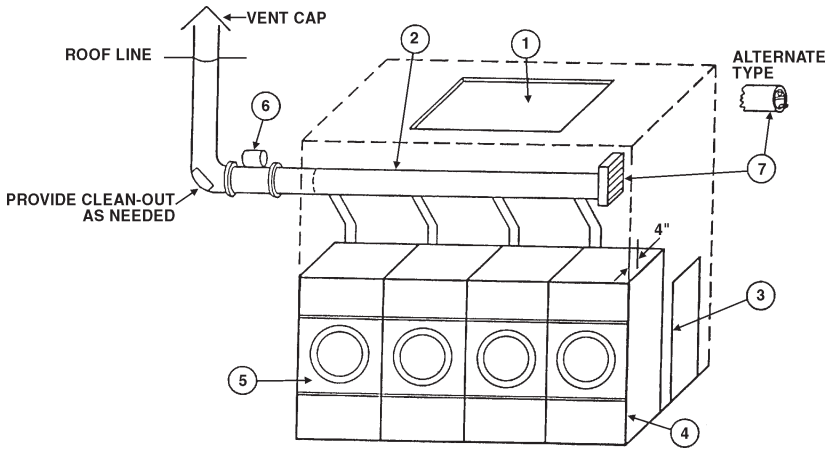
MODELS: L44CD42, L50CD42

No. of Dryers	1	2	3	4	5	6	7	8	9	10	11	12
Duct Diameter (in inches)	12	17	21	24	27	30	32	34	36	38	40	42
(in CM)	30	43	53	61	68	76	81	86	91	97	100	106

AUTOMATIC ELECTRICAL CONTROL FOR EXHAUST FAN

For one or more dryers to start fan.





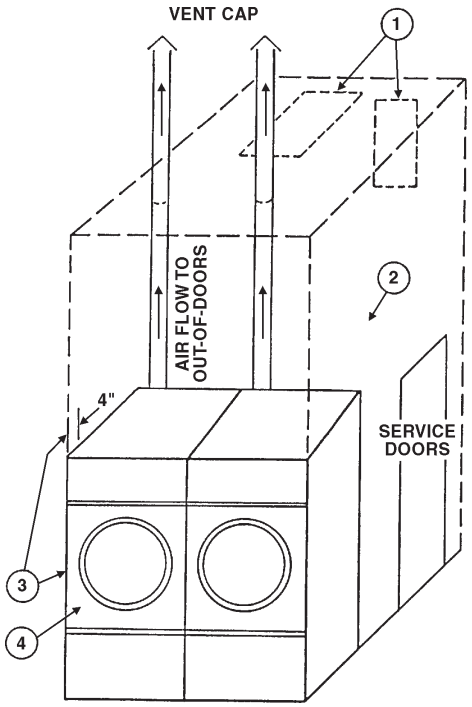
DRYER INSTALLATION WITH MULTIPLE EXHAUST

For Exhaust Duct more than 14 feet and 2 elbows equivalent and more than 0.3 inches static pressure.
(See illustration on next page.)

1. Make-up air from outside building may enter enclosure from top or side walls. Area of opening should be equal to 4 to 6 times the sum of dryer duct areas. Provide 1 square foot (.1m^2) for each 6 inches (15.24 cm) diameter; 2 square feet (.2m^2) for each 8 inches (20.3 cm) diameter; and 4 square feet (.4m^2) for each 12 inches (30.5 cm) diameter.
2. Use constant diameter duct with area equal to the sum of dryer duct areas.
   EXAMPLE: 6-8 inches (20 cm) diameter duct = 1-19.6 inches (49.8 cm) diameter duct in area. Use 20 inches (50 cm) 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/HR (6.3 kcal/hr) for each cubic foot per minute (CFM) used.
4. Zero inches clearance to combustible material allowed on sides and at points within 4 inches (100 mm) of front on top.
5. Heat loss into laundry room from dryer fronts *only* is about 60 BTU/HR per square foot (15 kcal/hr per 0.1m^2).
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) (M^3/min.) is equal to 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.



DRYER INSTALLATION WITH SEPARATE EXHAUST (PREFERRED)

For ductwork less than 14 feet and 2 elbows equivalent and less than 0.3 inches 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 outside the building may enter the enclosure from the top or side walls. The area of the opening should be equal to 4 to 6 times the sum of the dryer duct areas. Provide 1 square foot (.1m^2) for each 6 inches (15.24 cm) diameter; 2 square feet (.2m^2) for each 8 inches (20.3 cm) diameter; and 4 square feet (.4m^2) for each 12 inches (30.5 cm) diameter.
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/HR (6.3 kcal/hr) for each cubic foot per minute (CFM) (.03m^3/min.) used.
3. Zero inches (mm) clearance to combustible material allowed on sides and at points within 4 inches (100 mm) of front on top.
4. Heat loss into laundry room from dryer front panels is about 60 BTU/HR per square foot (15 kcal/hr per 0.1m^2).

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 (4-6 times the combined areas of the air outlet) 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 boost exhaust fans are required for both regular and energy saving models.

EXHAUSTING DUCT

FOR BEST DRYING:

1. Exhaust duct maximum length 14 feet (4.3 mm) of straight duct and maximum of two 90° bends.
2. Use 45° and 30° elbows wherever possible.
3. **Exhaust each dryer separately.**
4. Use 2 feet (0.6 m) of straight duct on dryer before installing an elbow on Energy-Saver models only.
5. **Do not** install wire mesh or other restrictions in the exhaust duct.
6. Use clean-outs in the exhaust duct and clean periodically when needed.
7. **Never** exceed 0.3 inches (7.6 mm) water column static pressure in the exhaust duct.
8. Inside surface of the duct **must be smooth**.
9. 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:
   For each dryer—
   6 inches (15 cm) diameter exhaust requires a 1 square feet (0.1 m^2) opening for make-up air.
   8 inches (20 cm) diameter exhaust requires a 2 square feet (0.2 m^2)opening for make-up air.
   12 inches (30 cm) diameter exhaust requires a 4 square feet (0.4 m^2)opening for make-up air.
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**
   Lighting and 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.

OPERATING INSTRUCTIONS—COIN METER MODELS

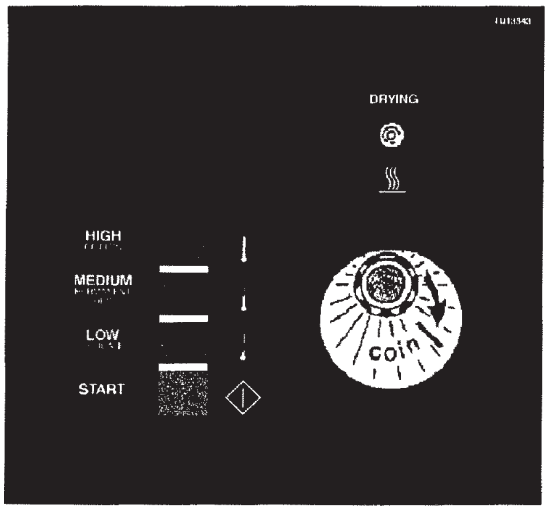
OPERATING INSTRUCTIONS—COIN METER MODELS

1. After loading the dryer with water washed clothes, close the loading door.

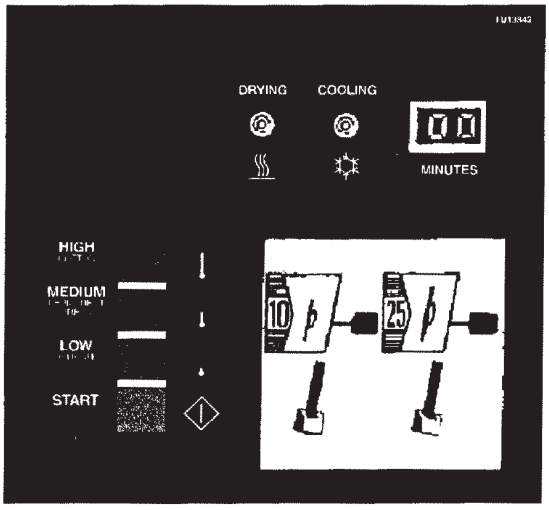
2. **ELECTRO-MECHANICAL COIN METER:** Insert proper coin(s) in slot and turn knob until it stops.
   COMPUTERIZED COIN METER: Insert coin. Amount of drying time will appear on the digital display. Maximum time is 99 minutes. Additional coins may be vended any time during the cycle.

3. Turn Temperature Fabric Selector to desired setting:
   HIGH—185° F exhaust temperature, *heavy fabrics and hard to dry, (cottons and linens).*
   MEDIUM—150°F exhaust temperature, *permanent press, synthetic blends.*
   LOW—135°F exhaust temperature, *delicate, sheer fabrics*.

4. Press the **"Start"** button to start the drying and cooling cycles.



ELECTRO-MECHANICAL COIN METER



COMPUTERIZED COIN METER

WHAT IS HAPPENING AFTER STEP 4:

1. Digital Display will count down time remaining in cycle (Computerized Coin Meter).

2. The fan motor and basket will revolve.

3. The heat source will be energized.

4. The heated air will mix with the wet clothes and evaporate the moisture.

5. The thermostats will operate at a safe temperature.

6. The heat will shut off and the cooling cycle will begin.

IMPORTANT

IMPORTANT

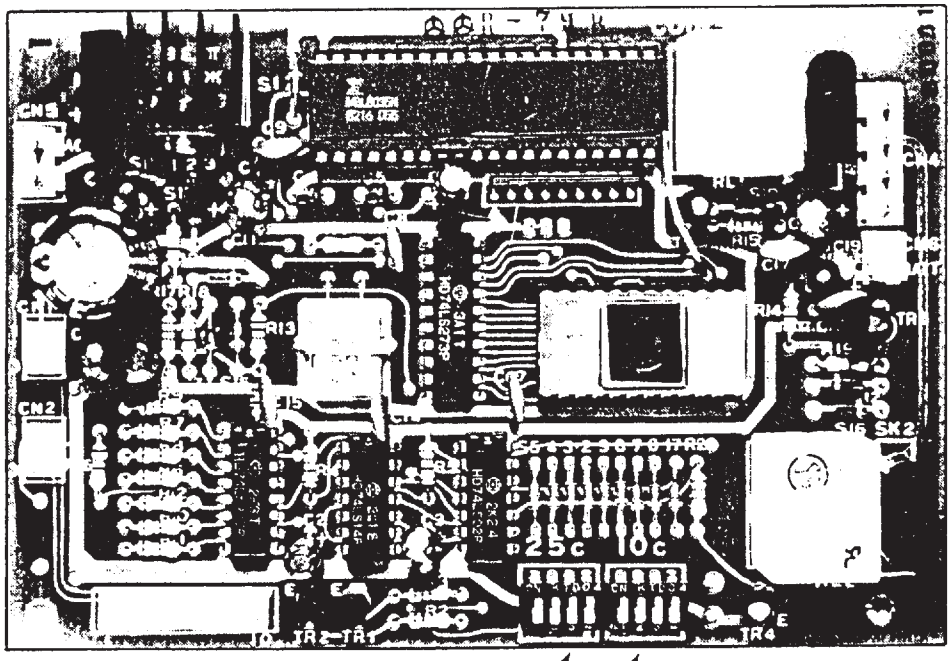
If the tumbler door is opened during the drying cycle, the fan and heat will shut off. Press **"START"** button to resume the cycle.

This dryer is designed for a capacity maximum load. Overloading it will result in longer drying time and damp spots on some of the load.

Maximum operating efficiency depends on proper air flow. The lint screen must be kept clean daily to insure proper circulation of air throughout the dryer.

This commercial dryer has keys for the lint door and access door to burners and controls. This is for the safety of the user.

INSTRUCTIONS FOR SETTING TIME ON "COMPUTERIZED COIN METER"

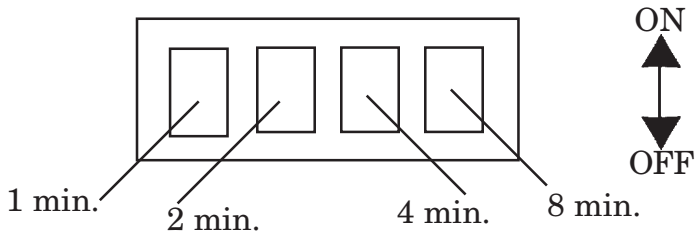


DIP Switch Banks are located here

INSTRUCTIONS FOR SETTING TIME ON COMPUTERIZED COIN METER

1. This dryer is equipped with a bank of four DIP switches.

2. Each DIP switch bank consists of 4 small switches each with a specified amount of time (minutes), as shown:

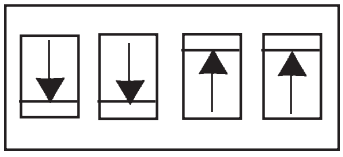


3. To set the time on the DIP bank simply set the appropriate switch to the **ON** (up) position to total the desired amount of time.

NOTE
There are three minutes built into the electronic coin board which should be included in the total time desired.

NOTE
OFF (down) position equals 0 minute.

EXAMPLE: 25¢ for 15 minutes



MINUTES: 0 + 0 + 4 + 8 + 3 (Built-In) = 15 min.

OPERATING INSTRUCTIONS—SINGLE TIMER MODELS

Step 1. After loading the dryer tumbler with the washed clothes load, proceed to close the loading door.

Step 2. Turn timer knob to the desired drying time.

Step 3. Turn *Temperature Fabric Selector* to desired setting.
"LOW" is for delicate, sheer, and easy dry fabrics 130°-140°F exhaust temperature.
"MEDIUM" is for synthetics and permanent press fabrics 155°-165°F exhaust temperature.
"HIGH" is for cottons, linens and heavy fabrics 170°-180°F exhaust temperature.

Step 4. Then **"ON/OFF"** toggle switch to **"ON"** and press **"START"** button, holding about 2 seconds, until dryer is running.
(To shut the dryer off at any time during the cycles, switch the **"ON/OFF"** switch to **"OFF"**.)

Step 5. *1)* The fan motor and basket will be energized and revolve.
2) The heat source will be energized (gas burners will operate).
3) The heated air will mix with the wet clothes and evaporate the moisture from the garments.
4) The thermostats will operate at a safe temperature.
5) The heat will shut off and the cooling cycle will begin (motor will operate only to cool the clothes load for desired handling temperature).
6) The light will stay on until the therm-o-cool thermostat cools below 135°F before the contacts open to shut off dryer.

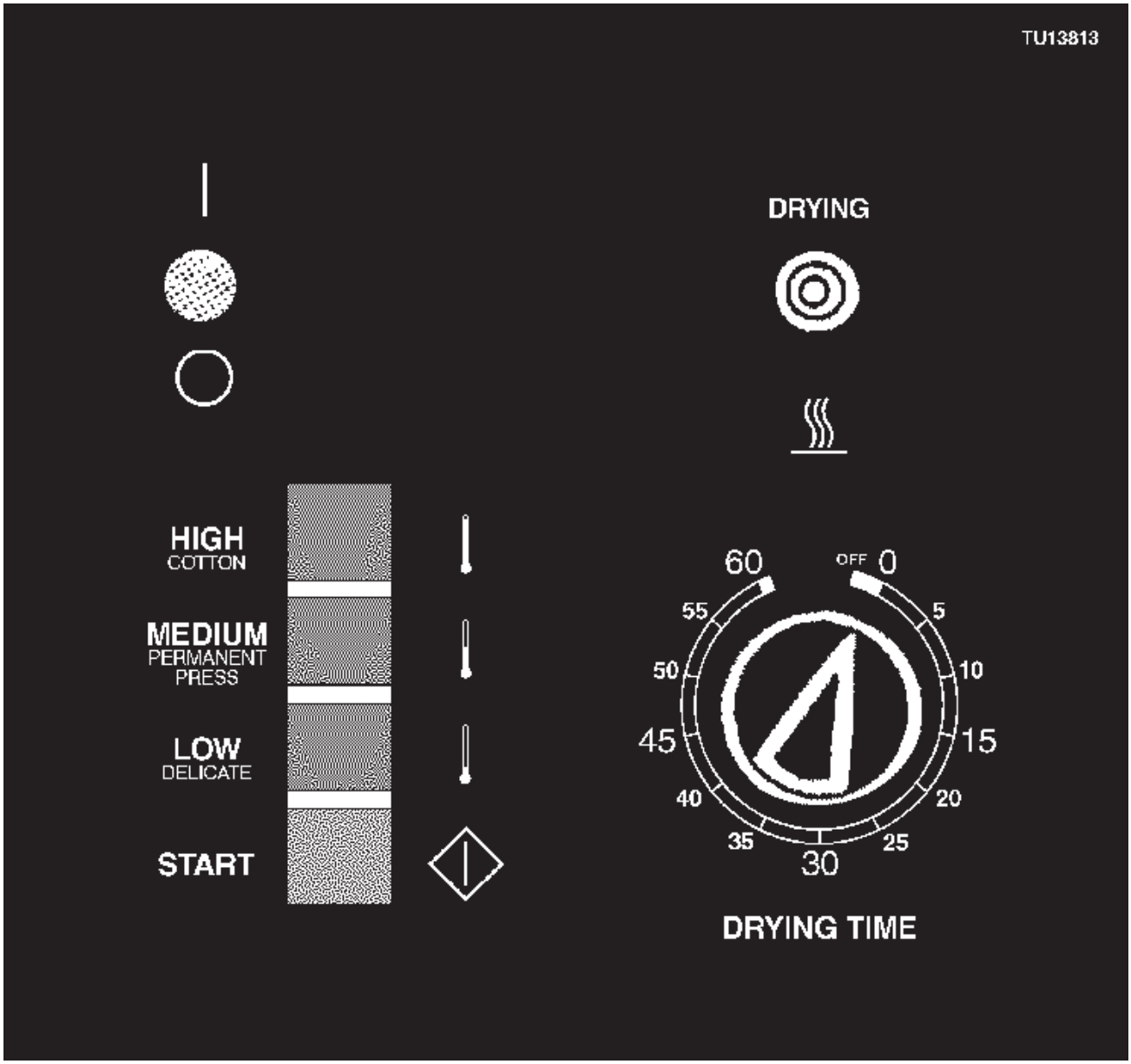
IMPORTANT

IMPORTANT
If tumbler door is opened during the drying cycle, the fan and heat will shut off. Press "START" button to resume cycle.

This dryer is designed for a capacity maximum load. Overloading it will result in longer drying time and damp spots on some of the load.

Maximum operating efficiency depends on proper air flow. The lint screen must be kept clean daily to insure proper circulation of air throughout the dryer.

Single Timer Model (Illustration)



TROUBLESHOOTING

To help you troubleshoot the dryer, we list below the most common reasons for service calls and some answers to the problems. **Before you call service**, please review the following items:

DRYER WON'T START

DRYER WON'T START

1. Is the door completely closed?
2. Are the controls set to the **"on"** position?
3. Did you push the **"start"** control?
4. Has a fuse blown or a circuit breaker tripped?
5. Are the fuses tight?
6. Check for low voltage.
7. Has the Bonnet thermostat (Gas only) tripped? If so, push to reset.

DRYER WON'T HEAT

DRYER WON'T HEAT

1. Is the dryer set for **"cooling time"** rather than **"drying time"**?
2. Are the gas valve in the dryer and the valve on the main gas line turned on?
3. Check for low or intermittant **gas pressure**.
4. Check Spark Ignition Module diagnostic light.

CLOTHES ARE NOT SATISFACTORILY DRY

CLOTHES ARE NOT SATISFACTORILY DRY

1. *Timed cycle*—Did you allow enough heating time before the cool-down part of the cycle?
2. Is the lint screen blocked?
3. Is the exhaust duct to the outside clean and not blocked? *(A blocked exhaust will cause slow drying and other problems.)*

GAS DRYER IGNITION

GAS DRYER IGNITION

Refer to the page on *"Instructions for the Direct Ignition System Operation".* Check to see if the manual gas valve is open. Then reset the dryer controls. **All panels, covers, and doors must be in place and closed before starting the dryer.**

VERY IMPORTANT

VERY IMPORTANT
When calling the factory for service, always refer to the model number and serial number.

Troubleshooting Chart

TROUBLE	CAUSE	REMEDY
Motor will not start.	No power.	Check fuses on Circuit Breakers. Make sure Main Control Switch is "ON". Check Bonnet Thermostat (Gas only).
	Incorrect power.	Check power source; voltage, phase and frequency must be the same as specified on Electrical Rating Plate.
	Time off.	Check Timer for proper setting or check Coin Meter for properly vending.
	Loose wiring connections.	Check wire connections in electrical box on rear of dryer.
	Loading Door OPEN.	Close door.
	Door Switch out of adjustment.	Adjust switch by removing front panel and bend Actuator Lever to clear Switch Button 3/8" with front panel in place.
	Defective Door Switch.	Replace switch.
	Defective Basket Motor Contactor.	Replace contractor.
	Tripped/defective safety thermostat on gas bonnet.	Reset/replace thermostat.
Motor tripping on thermal.	Low voltage.	Check voltage at motor terminals. Voltage must be within $\pm$ 10% of voltage shown on Motor Rating Plate. If not, check with local power company for recommended corrective measures.
	Inadequate wiring.	Check with local power company to insure that wiring is adequately sized for load.
	Loose connections.	Check all electrical connections and tighten any loose connections.
	Inadequate air.	Check Installation Sheet for recommended make-up air openings.
	Poor housekeeping.	Clean lint accumulation on and around motors.
Dryer does not stop at end of time period.	Defective Timer.	Replace Timer.
Motor runs but basket will not revolve.	V-Belt broken.	Replace V-Belt.
	V-Belt loose.	Adjust belt tension.
	Motor Pulley loose.	Tighten set screw.
	Basket overloaded.	Remove load.

Troubleshooting Chart

TROUBLE	CAUSE	REMEDY
Dryer noisy or vibrating.	Not leveled.	Check manual for proper leveling procedures.
	Fan out of balance.	Accidental damage to the fan blade can change the dynamic balance. Damaged fans should be replaced.
	Basket rubbing.	Adjust basket clearance.
	V-Belt sheaves.	Tighten set screws. Make sure sheaves are in proper alignment.
	Belt.	Adjust belt tension.
	Foreign objects.	Occasionally screws, nails, etc, will hang in the basket perforations and drag against the sweep sheets surrounding the basket. Such foreign objects should be removed immediately.
Dryer runs, but no heat.	Incorrect voltage.	Check for correct control voltage - 120V.
	No voltage.	Check power supply, check secondary voltage on transformer and check wiring and wiring diagram.
	Direct Spark Ignition module defective.	Replace Direct Spark Ignition module.
	Defective Gas Valve.	Replace Coil Assembly.
	Gas turned OFF.	Turn Manual Gas Valve ON.
	Defective Door Switch.	Replace Door Switch.
	Air Switch not operating.	Clean out lint compartment daily. Check Back Draft Damper for foreign objects, lint accumulation or other causes that may prevent damper from opening. Check duct work for lint build-up. Check installation sheet to insure that duct work and make-up air openings are adequately sized. Check exhaust outlet. If a screen has been improperly installed on the outlet, it may be clogged with lint or frozen over in winter. NEVER install a screen on the exhaust outlet. Vacuum within dryer drops to .09 inches of water column, or less, for normal operation of dryer. Vacuum reading (in inches of water) should range between .15 and .3 inches. Vacuum reading can be made with a vacuum U-gauge by removing a sheet metal screw in the front panel of dryer and inserting the rubber tube of the vacuum gauge into screw opening.

Troubleshooting Chart

TROUBLE	CAUSE	REMEDY
Dryer runs, but no heat. (continued)	Air Switch out of adjustment.	See Air Switch Adjustment Sheet.
	Air Switch defective.	Replace Air Switch.
	Gas pressure too low.	Check manifold pressure and adjust to pressure specified on Rating Plate. If this pressure cannot be obtained, have gas supplier check main pressure.
	Improper orifice.	Dryer is orificed for type of gas specified on Rating Plate. Check with gas supplier to determine specifications for gas being used. If different from Rating Plate, contact factory and obtain proper orifices.
	Electric power to heating unit turned OFF.	Turn power ON.
	Line Fuse or Heater Circuit Fuse blown to unit.	Replace fuse.
	Defective relay.	Replace relay.
	Defective electric elements.	Replace elements.
	Defective thermostat.	Replace thermostat.
	Defective Safety Overload Thermostat.	Replace thermostat.
	Lint compartment door OPEN.	CLOSE door.
Main Burners burning improperly.	Burner Air Shutters CLOSED.	OPEN for blue flame.
	Dirt in burner.	Blow out.
	High gas pressure.	Adjust gas pressure per Rating Plate.
	Orifice too large.	Send to factory for correct orifices.
	Restricted or blocked exhaust.	Clean exhaust.
Main Burner cycles ON and OFF.	Direct Spark Ignition defective.	Replace Direct Spark Igniter.
Low or high gas flame.	Incorrect Main Burner orifices.	Replace orifices. Check factory for correct size.

Troubleshooting Chart

TROUBLE	CAUSE	REMEDY
Dryer too hot.	Incorrect Main Burner orifice.	Replace orifices. Check factory for correct size.
	Inadequate make-up air.	Make-up air must be 4 to 6 times the exhaust area of the dryer.
	Lint accumulated.	Remove lint.
	Exhaust duct dampers.	Must be full OPEN or replace.
	High gas pressure.	Adjust gas pressure per Rating Plate.
	Partially restricted or inadequately sized exhaust system.	Check service section for recommended sizes. Remove obstructions or lint build up from duct work. NEVER use smaller size exhaust duct. ALWAYS use larger size.
	Defective thermostat.	Replace thermostat.
Dryer runs no steam to coils.	Valve CLOSED.	Check all valves in steam supply and return. Make sure they are OPEN.
	Steam Trap blocked.	Remove and clean. Replace if defective.
	Solenoid Valve.	On dryers using solenoid temperature control, check operation of Solenoid Valve by advancing thermostat.
	Thermostat.	On dryers using solenoid temperature control, thermostat controls operation of Solenoid Valve. If defective, replace thermostat.
	Check Valve installed incorrectly.	Check for inlet and outlet marking on Check Valve and invert if necessary.
	Strainer clogged.	Remove plug and blow down Strainer or remove and clean thoroughly if heavily clogged.
Water in Steam Line.	Steam Piping installed incorrectly.	Check piping per Steam Installation Instructions.
	Trap not functioning.	Check trap for size and capacity. If dirty and sluggish, clean thoroughly or replace. Check return line for high back pressure, or another trap charging against the trap functioning improperly.

DIRECT SPARK IGNITION OPERATION

NOTE: Some models are equipped with a dual ignition system. The dual ignition system contains two Direct Spark Ignition modules in parallel. Each module has its own Flame Sense circuit and acts independently of the other. If either Bonnet Limit Thermostat opens because of high heat or flame impingement, the entire ignition system will shut down.

1. When a call for heat is received from the control supplying 24VAC to the Ignition Control Module, the pre-purge delay timer begins. This delay time allows any air/sediment to be ejected prior to burner ignition. Following the pre-purge delay period, the gas valve is energized and the spark ignitor sparks for the trial ignition period.

2. When a flame is detected during the trial for ignition period, the spark ignitor shuts off and the gas valve remains energized.

3. If no flame is detected by the Flame Sense Circuit, the Ignition Control Module will go into safety lockout. The valve will be turned off immediately. If the module has multiple retries and no flame is detected, the gas valve is de-energized and the module goes into an interpurge delay. After this delay, the module will attempt another trial for the ignition period. This will continue until the number of retries has been used up. At the time, the module will go into safety lockout.

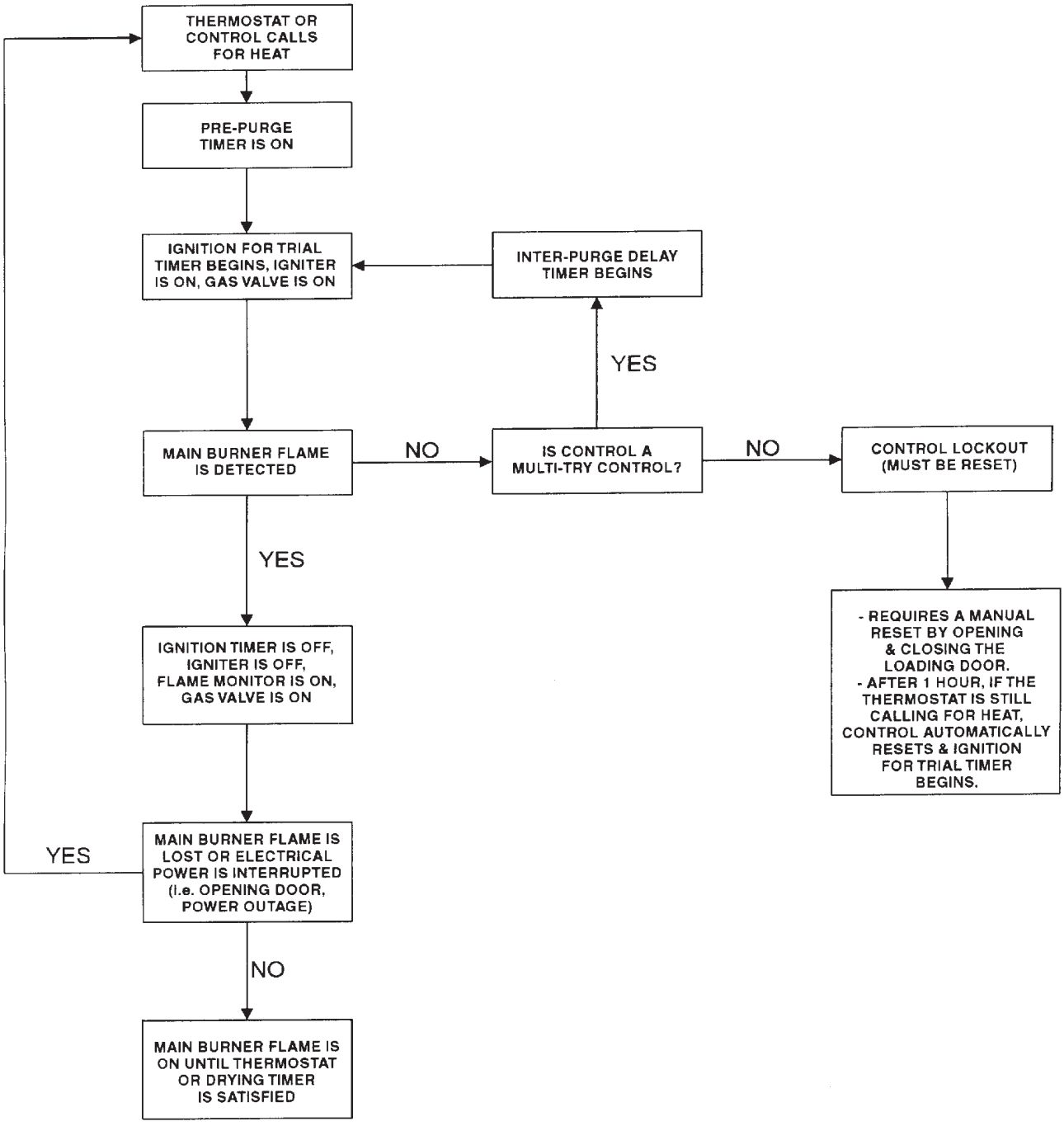
4. Recovery from safety lockout requires one of the following:
   a. A manual reset by opening and closing the loading door.
   b. After one hour if the Control Thermostat is still calling for heat, the module will automatically reset and the trial for ignition period will start over.

5. Opening the loading door will cause the flame to extinguish. Closing the door and starting the dryer will restart the trial for ignition period.

6. Once the Control Thermostat has been satisfied and/or the Drying Timer has been timed out, the Ignition Control Module(s) will be de-energized, the gas valve(s) will be de-energized and the flames will extinguish.

7. The machine will continue to run in a cooldown mode without heat. This process will cool the load to the touch and help to eliminate wrinkling.

DIRECT SPARK IGNITION OPERATION FLOW CHART



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 idler pulley 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 outside of dryer and front bolts are inside lint trap compartment.

GENERAL MAINTENANCE

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.

11. **Gas burners air inlet shutters** can be adjusted for proper flame by following instructions outlined on separate page of this manual.

12. **Main Basket Bearings.** Lubricate once every six months using six grams of high temperature grease. Do not over-grease.

13. **Steam Heating Units.** Keep steam coils clean. Check periodically and clean as often as required. Remove lint and dirt accumulation from coil fins to avoid decreasing their efficiency.

14. **Clean Out Panel (Energy Saver Gas Models Only).** Remove this panel located on the Energy Saver Heating Unit and clean the inside area of lint and dirt on a regular basis.

BURNER AIR INLET SHUTTERS ADJUSTMENT

Burner Air Inlet Shutters are correctly adjusted when the flame is primarily blue.

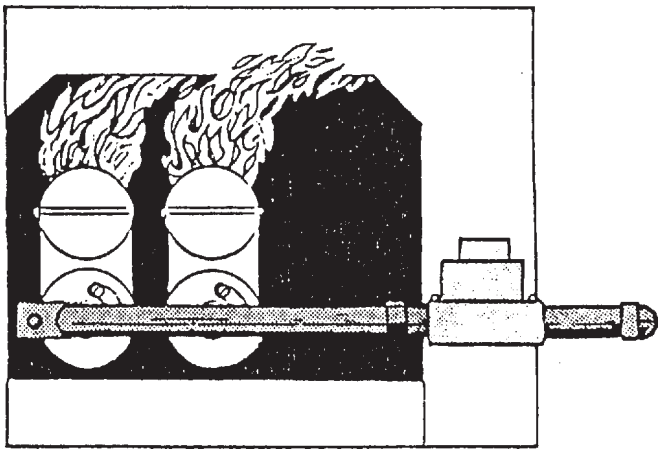
TYPE OF GAS	BURNER AIR INLET SHUTTERS ADJUSTMENT
Natural Gas	1/2 Open
Liquid Petroleum	1/4 Open
Manufactured Gas	1/16 Open

AIR SHUTTERS ADJUSTMENT

AIR SHUTTERS ADJUSTMENT:

Proper Method

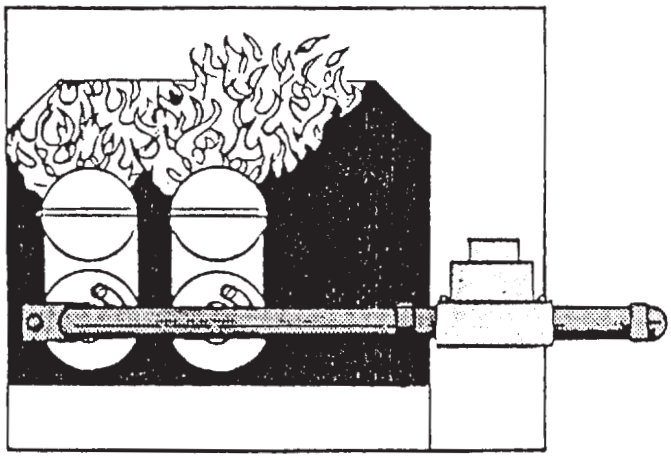
Close air shutters to *yellow tip*, then open air shutters to *blue flame tip*. *Orange tips* are impurities in the air such as lint, dust, etc.



CORRECT

BURNER AIR INLET SHUTTERS ADJUSTMENT

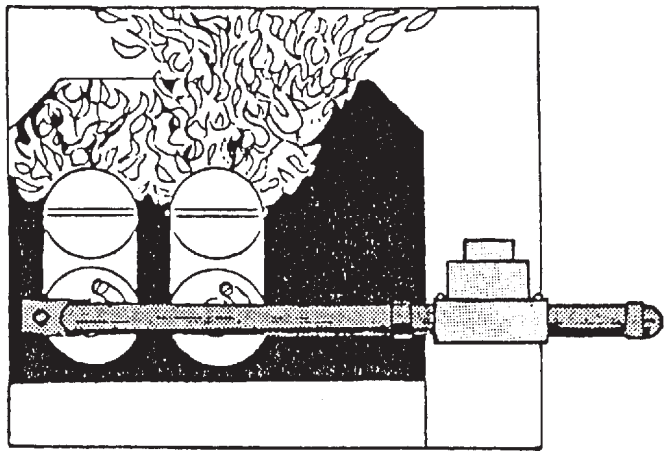
Burner Air Inlet Shutters are adjusted closed. Insufficient air is admitted through the burner. Flame pattern is straight up and flame is yellow.



WRONG—NEED TO ADJUST SHUTTER

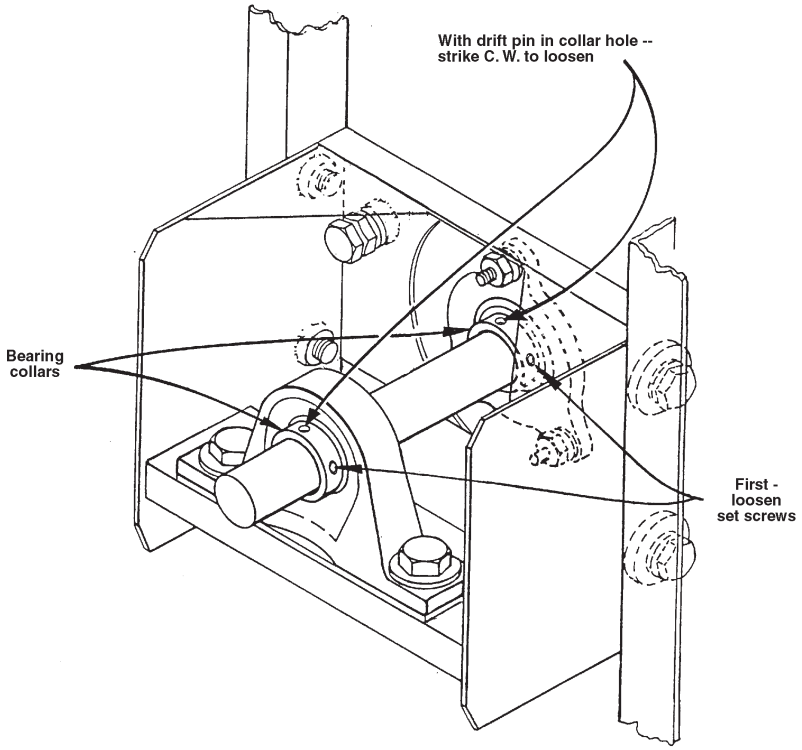
BURNER AIR INLET SHUTTERS ADJUSTMENT

This flame pattern indicates the Burner Air Inlet Shutters are correctly adjusted, but air through the dryer is insufficient. This condition indicates excessive lint in the lint compartment, lack of make-up air in the room, restricted exhaust duct, or a vacuum in the room caused by an exhaust fan.



WRONG—NEED TO PROVIDE CORRECT AIRFLOW THROUGH THE DRYER

Removing & Replacing Bearing Collars Instructions (Illustration)



REAR VIEW OF DRYER

REPLACING BEARINGS AND COLLARS INSTRUCTIONS

Step 1 Remove belt guard, V-belt, spacer and basket sheave.

Step 2 Loosen set screw in first locking collar and remove from shaft by rotating clockwise. If necessary, use punch and mallet, hitting in clockwise direction to break collar loose.

Step 3 Remove the two bolts holding the pillow block bearing and take it off the shaft.

Step 4 Remove the second locking collar in the same manner as in Step 2.

Step 5 Remove the three nuts and washers holding the flange basket bearing and take it off the dryer.

Step 6 Inspect the bearings and collars for damage and replace as necessary in reverse order of removing them. Before tightening securely, align basket per instructions on separate instruction sheet.

Step 7 Lubrication Guide Grease bearings at regular intervals shown on the following page. Use #42-032-6015 Lubriplate #310
1 lb. can or 14.5 oz. tube, Lubriplate #930-2 multi-purpose grease #10098.
Bearings are factory lubricated and ready for use. They are equipped with fittings for lubricating. Add grease slowly; when grease begins to come out of the seals, the bearing will contain the correct amount.

Operating Conditions	Grease Intervals
Clean	Every 6 months
Dirty	Every month
Moisture	Every week

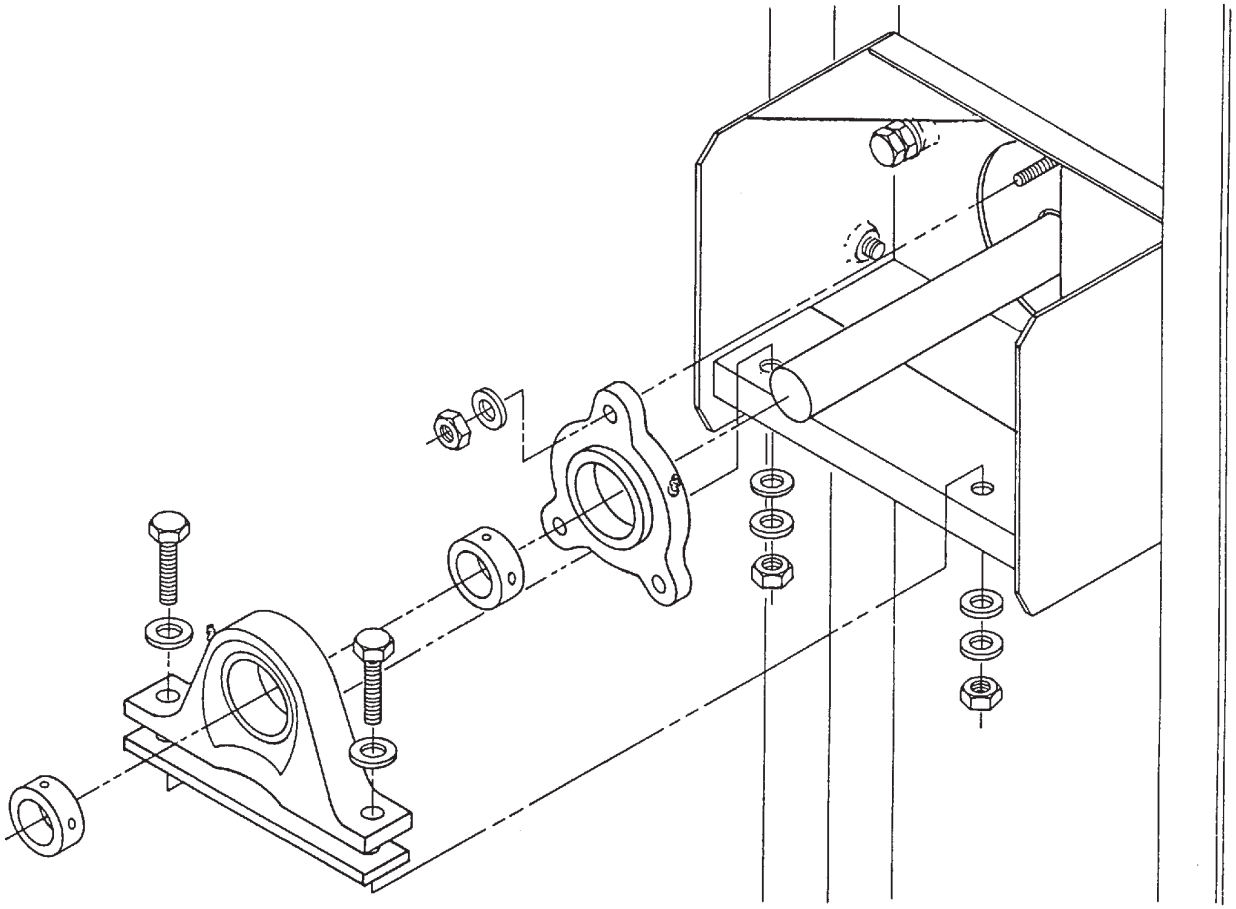
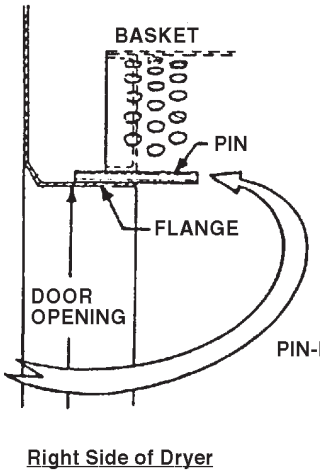
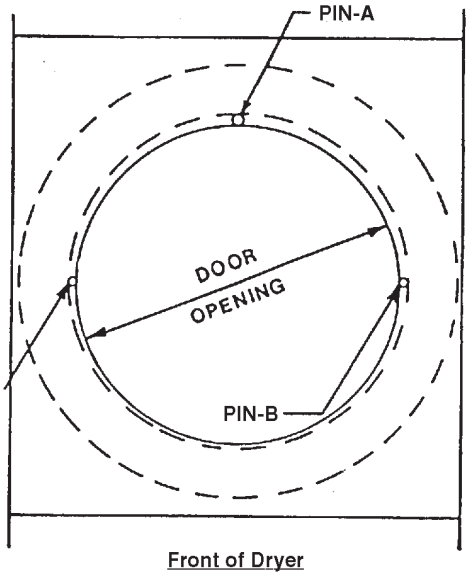


FIG. 1



Right Side of Dryer

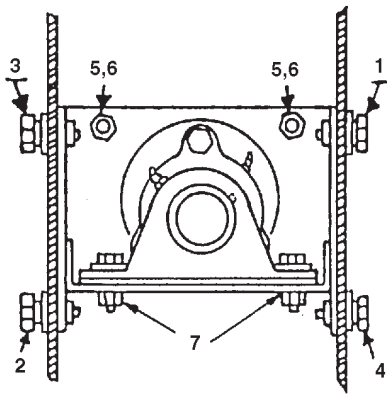
FIG. 2



Front of Dryer

PIN-A - 1/2 DIA.
PIN-B - 5/16 DIA.

FIG. 3



BASKET ALIGNMENT INSTRUCTIONS

Step 1 Loosen both eccentric locking collars on the two basket bearings (flange and pillow block types). Loosen the set screws and turn clockwise. If necessary, use a punch and mallet, striking the punch hole in a clockwise direction to break it loose.

Step 2 Loosen the four side bolts, "1, 2, 3, 4" on the basket bearing bracket (see FIGURE 3). Loosen the two adjusting bolts and locknuts "5, 6" inside the bracket. And loosen the bolts "7" on the pillow block bearing.

Step 3 Place one "A" and two "B" diameter pins inside the drying compartment between the rim of the basket opening and the rim of the door opening in the positions shown in FIGURES 1&2. Check the two "B" pins for equal clearance.

NOTE: Push the basket toward the rear.

Step 4 With the pins in position, lock the collar nearest the rear wall of the dryer on the shaft by striking the punch hole in a counterclockwise direction. Tighten the set screw.

Step 5 Tighten the side bolts "1, 2, 3, 4" in numerical order. Tighten the bolts "7" on the pillow block bearing. And tighten the bolts "5" and locknuts "6".

CAUTION

Step 6 Remove the aligning pins and if alignment is okay, then tighten the collar on the pillow block bearing the same as in *Step 4*.

CAUTION
Check to see that the set screws are wrench tight on the locking collars.

BASKET SHIMMING INSTRUCTIONS

This procedure is normally necessary when replacing either the basket or the spider assembly on any Cissell tumbler. The alignment of these two parts is crucial in assuring a true running basket.

A. Align the basket as per instructions in the manual.
B. Rotate the basket to determine where the most out-of-round point is (where the basket scrapes or comes closest to scraping the sweep sheet).
C. Mark this position and the nearest rib to this position.
D. Remove the basket (do not loosen the alignment bolts).
E. With the basket on the floor (spider up), place one or two shims between the spider leg and the back of the basket at the marked rib position. (See drawing.)
F. Re-insert spider and basket assembly and re-check cylinder.
G. If at this point, basket is still out-of-round, procedure must be repeated starting with *Step "B"*.
H. Upon completion of shimming process, realignment of basket is necessary.

NOTE
If the point mentioned in *Step "B"* is between two ribs, both ribs might have to be shimmed.

Air Switch Adjustment (Illustration)

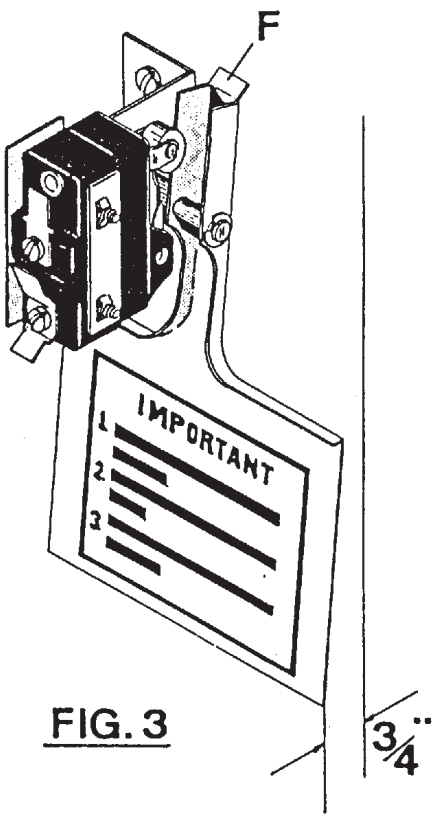


FIG. 3

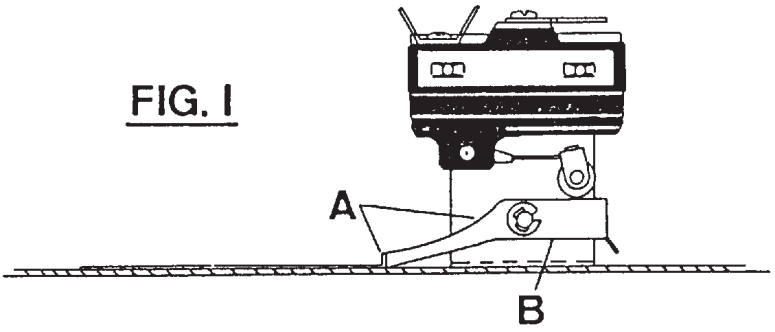


FIG. 1

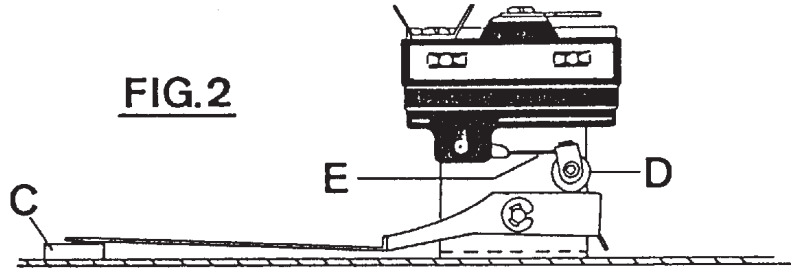


FIG.2

AIR SWITCH ADJUSTMENT

1. Shut off current; disconnect leads and remove air switch.

2. Lay air switch assembly on flat surface. Adjust air blade at “A” (FIGURE 1) so that air blade lays flat and surface “B” is parallel to the flat surface.

3. Place 3/8” x 5/8” spacer bar or equivalent “C” (FIGURE 2) under air blade in position shown; hold switch mounting bracket firmly and adjust switch actuator “D” with needle nose pliers at “E” by twisting actuator right or left whichever is needed so that switch closes when end of air blade engages bar “C”.

4. Maximum opening of air switch must be no greater than 3/4" (FIGURE 3). Bend tab “F” in or out to maintain this dimension.

5. Re-install air switch assembly on rear of dryer.

6. Re-check operation of air blade. Switch must close before air blade engages face of opening and re-open before stop “F” engages.

1	TU7733	#8X1/2" Self Drill Screw
2	TU1771	#6 Twin Nut
3	TU1979	Door Switch
4	TU1770	Insulator
5	TU2373	Switch Bracket
6	TU3219	#6 x 1" S.M.S.
7	TU10010	Jacket Welded Assembly
8	TU4937	3/8"-16 Jam Nut
9	TU3211	3/8"-16 x 2 1/2" Leveling Bolt
10	TU10290	Lint Screen Housing
11	TU10362	Lint Screen Only
	TU5225	Frame Only
12	TU9035	Lock JWC2
	TU2844	Key JWC2
	TUB1867	Lock & Key JWC2
	TU8928	Cam
13	TU9511	Lint Door (Specify Color)
14	TU7472	Lint Door Handle
15	TU2710	Trim Holder
16	TU2384	Bottom Trim
17	TU2620	Solid Top (Gas Model)
	TU6129	Solid Top (Electric Model)
18	TU2877	#10 Speed Nut
19	TU2483	Sweep Sheet Gaskets
20	TU5887	Key
21	TU2882	1/2"-20 Hex Nut
22	TU2831	1/2" Split Lockwasher
23	TU10651	Cover Plate (Steam)
24	K20	Spider Replacement Kit
25	TU10284	Lint Trap Front Support
26	TU10177	Spacer
27	TU8457	Thermostat Cover
28	TU9225	Coin Vault, Lock and Key
29	*TU9033	Front Panel and Door Assembly (Specify Color)
30	TU2083	Basket Welded Assembly
	TU7188	Basket/Spider Assembly
31	TU2883	1/2" Cut Washer
32	TU2313	Tie Rod
33	TU13409	Spark Ignition Mount, 3-Trial (Gas only)
	TU13627	Spark Ignition Mount, 1-Trial (Gas only) (Australia only)
34	*TU9111	Thermostat Assembly (Coin Meter Model Only)
	*TU10285	Thermostat Assembly (Timer Model Only) 35
35	TU13629	Cable, Hi-Voltage DSI
36	TU7690	Insulation
39	TU6336	Filler Plate-Timer Models (Specify Color)
40	TU8152	Insulation—US Model Only
41	TU7735	Insulation—US Model Only
42	TU8108	Insulation—US Model Only
43	TU7736	Insulation—US Model Only
44	TU9512	Adjustment Strip
45	P104	1/4" Washer (Pkg of 6)
46	TU9384	Adjustment Strip
47	TU3479	#10-32 x 7/16" Truss Head Screw
48	TU2842	Hex Nut
50	TU2878	#10 x 5/8" Screw

* See separate page for exploded view.

Parts—20 lb. Dryer (Rear of Dryer)

1	TU7733	#8 x 1/2” Self Drill Screw
2	TU3211	3/8-16 x 2-1/2” Leveling Bolts
3	TU4937	3/8-16 Jam Nut
5	TU4787	3/8-16 Hex Nut
6	VSB134	3/8” Split Lockwasher
7	TU12803	Idler Bracket
8	TU12576	3/8-16 x 1” Carriage Bolt
9	TU3247	Retaining Ring
10	TU7184	Sleeve Bearings (2 required)
11	TU5217	14” Idler Sheave (50/60 Cy.)
12	TU3395	V-Belt (4L580) 50 Hz.
	TU7021	V-Belt (4L570) 60 Hz.
13	TU3395	V-Belt (4L580) 50/60 Hz.
14	TU5887	Key
15	TU7016	15” Basket Sheave (50/60 Cy.)
16	TU10676	Pillow Block Bearing**
17	TU13147	Bearing Support Bracket
18	TU2831	1/2” Split Lockwasher
19	RC347	1/2”-13 x 1-1/2” Cap Screw
20	TU13372	3/8”-16 Jam Nut w/Nylon Insert
21	TU10002	Flange Basket Bearing**
22	TU13480	Transformer - 240V/24V
	TU13515	Transformer - 120V/24V
	TU13514	Transformer - 460V/24V
	TU13642	Transformer - 575V/24V
	TU13643	Transformer - 380-415V/24V
23	TU8206*	Air Switch Assembly
25	TU6263	Hex Hd. Screw
26	IB140	3/8” Washer
27	TU5890	Control Box Cover
28	TU13463	Relay - 9A, 3 Pole w/Aux.
	TU13516	Relay - 12A, 3 Pole w/Aux.
29	TU8746	Fan, 60 Hz. W/Set Screws
	TU5874	Fan, 50 Hz. W/Set Screws
30	TU9272	5/16” Nylon Patch Set Screw
31	TU2476	Felt Seal
32	TU2473	Side Gasket (2 Required)
33	C249	5/16”-18 Hex Nut
34	TU2814	5/16” Split Lockwasher
35	TU4787	3/8”-16 Hex Nut
36	VSB130	5/16” Cut Washer
37	TU5439	5/16”-18 x 3/4” Hex Head Screw
38	- -	Motor (Specify Motor No., Voltage, Cycle and Horsepower)
39	TU4684	Key
41	TU6559	Motor Sheave—60 Hz.
	TU7603	Motor Sheave—50 Hz.
42	VSB134	3/8” Lockwasher
43	CFB3000	Cable—1/2” x 30” Lg.
44	PT196	Cable Strap
45	TU5850	Motor Mount—50/60 Hz.
46	TU4790	Straight Connector (2 Req’d)
47	TU2474	Gasket (2 Required)
48	TU4684	Key
49	TU13408	5/16”-18 x 1/2” Set Screw Nylok
50	TU11708	Rear Guard—“UR” Models
	TU10134	Rear Guard—“US” Models
	TU10131	Right Rear Cover—”US” Models
51	TU10433	Locking Collar Label
52	TU10418	Lubrication Label
53	TU10010	Jacket Welded Assembly
54	OP251	1/2” Int. Tooth Lockwasher
55	OP233	1/2” Hex Nut
56	TU2195	1/2”-13 x 1-3/4” Cap Screw
57	TU2883	1/2” Flat Washer
62	TU10651	Mechanism Box Cover (Steam Dryer Only)
63	TU10177	Spacer (Mounted Inside Jacket)
64	SB170	Junction Box Cover
65	TU2372	Snap Bushing
67	TU10359	Motor Adapter—3 Ph. Only
68	TU13044	Motor Adapter—1 Ph. Only

* See separate page for exploded view.

** Eccentric Locking Collar W/Set Screws Included

1	TU8013	Cissell Nameplate
2	TU3479	#10-32 x 7/16” Truss Head Screw
3	P104	1/4” Cut Washer
4	FB187	#10 Lockwasher
5	TU2842	#10-32 Hex Nut
6	TU9391	Access Door W/A (Specify Color)
7	TU9386	Lock JWC3
7A	TU8995	Cam
8	TU9387	Key JWC3
9	F1300	Motor Relay
10	- - -	Coin Rejector (Specify Coin Number and Denomination)
	TU9006	Rejector Single Chute (25 cents)
	TU9008	Rejector Dual Chute (25/10 cents)
	TU9897	10 cents Coin Switch Replacement
	TU9898	25 cents Coin Switch Replacement
11	TU9426	4-40 x 5/8” Machine Screw
12	TU9427	4-40 Hex Nut
13	TU13469	Digital Display Assembly
14	TU1771	Twin Clip (Pkg. 12)
15	TUT191A	Push Button Switch Plate
16	TU11510	Push Button Switch
17	TU3400	Nut
18	SV136	#6-32 x 15/16” Truss Head Screw
19	M271	#8 - Int. Tooth Lockwasher
21	TU11668	Standoff
22	TU9524	#6 x 5/16” Screw
23	TU13412	C/M Control (24V) F/1-Slot
	TU9329	C/M Control (12V) F/2-Slot
24	TU9347	P.C. Board Support
27	TU13857	Control Panel Plate Asm.
28	TU9514	Reset Label
29	TUT316	Indicator Lamps 24V
30	TU7959	Chrome Trim
31	TU5739	Door Support Arm
32	TU13842	Control Panel Nameplate
34	TU8629	Terminal Board
35	TU13942	Spacer
36	TU9898	Transformer 24V/12V (Used with TU9329 C/M Control)

Single Timer Control Panel and Access Door Parts (Illustration)

1	TU8013	Cissell Nameplate
2	TU8014	Therm-O-Cool Nameplate
3	TU7733	#10-32 x 7/16” Tr. Head Screw
4	P104	1/4” Cut Washer
5	FB187	#10 Lockwasher
6	TU2842	#10-32 Hex Nut
7	TU9391	Access Door W/A (Specify Color)
8	TU9386	Lock JWC3
8A	TU8995	Cam
9	TU9387	Key JWC3
10	TU13813	Control Panel Nameplate
11	AT383	#8 - Int. Tooth Lockwasher
12	TU11510	Push Button Switch
13	TU3400	Nut
14	TU2555	Timer Knob
15	TU5739	Support Rod
16	TUT316	Pilot Light—24V
17	TU13856	Control Panel Plate Asm.
18	FG147	Toggle Switch
19	F1300	Motor Relay
20	TU12932	Timer, 24V, 60 Hz.
21	TU8629	Terminal Board
22	TU1771	Twin Nut
23	TU9524	#6 x 5/16” Screw
24	TUT191A	Push Button Switch Plate
25	TU7959	Chrome Trim
26	TU13942	Spacer
27	TU3266	Nut
28	SV136	#6-32 x 15/16” Truss Head Scr.

1	TU9391	Access Door Weldment (Specify Color)
2	TU3479	#10-32 x 7/16” Truss Head Screw
3	P104	1/4” Cut Washer
4	TU2842	#10-32 Hex Nut
5	TU9386	Lock-JWC3
5A	TU8995	Cam
6	TU9387	Key - JWC3
7	TU8013	Cissell Nameplate
8	TU3400	Nut
9	TU13843	Control Panel Nameplate
10	TUT191A	Push Button Switch Plate
11	TU4958	#8-32 x 3/8” Machine Screw
*12	CM7364	25¢/15 Min. - 24V
	CM7365	25¢/12 Min. - 24V
	CM7366	25¢/10 Min. - 24V
	CM7368	25¢/7-1/2 Min. - 24V
	CM7370	25¢/6 Min. - 24V
	CM7372	25¢/5 Min. - 24V
13	TU3266	#8-32 x 11/32” Hex Nut
14	FB187	#10 Lockwasher
15	P104	1/4” Cut Washer
16	TUT316	Indicator Lamp—24V
17	TU13858	Control Panel Plate Asm.
18	TU5739	Support Rod
19	M262	Screw
20	TU7959	Chrome Trim
21	TU8629	Terminal Board
22	TU1771	Twin Clip
23	TU9524	#6 x 5/16” Screw
24	TU11510	Push Button Switch
25	TU13942	Spacer
26	TU3266	Nut
27	SV136	#6-32 x 15/16” Truss Head Scr.
28	M271	#8 Int. Tooth Lockwasher

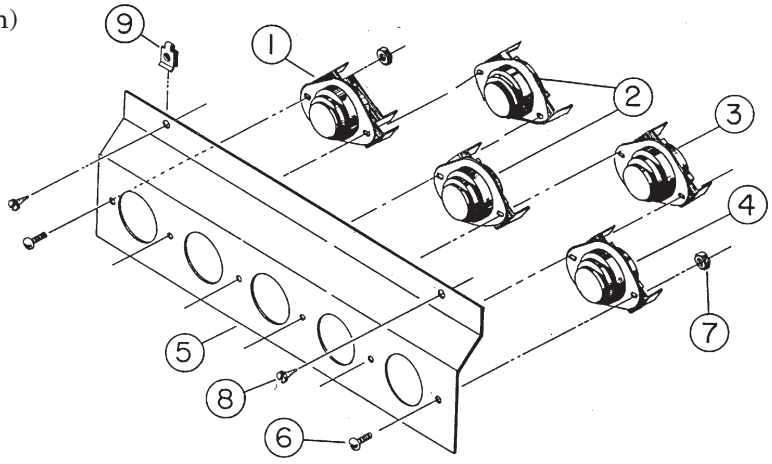
* Call factory for Coin Meter part number for 50 Cy.

TU9033 - Front Panel and Door Assembly (Illustration)

1	TU10763	Front Panel W/Door Catch
2	M262	#8-32 x 3/8” Truss Head Screw
3	TU2194	Door Switch Actuator
4	TU2105	Door Switch Spring
5	FB187	#8 Split Lockwasher
6	TU3266	#8-32 Hex Nut
7	TU2836	5/16” - 18 x 1/2” Hex Head Screw
8	TU2878	#10 x 5/8” Sheet Metal Screw
9	TU7456	Door Catch Assembly
10	TU2236	Hinge Post
11	PIF172	Delrin Bearing (Pkg. 2)
12	TU2090	Basket Door Seal
13	TU4839	#10-32 x 3/8” Machine Screw
14	TU4840	#10-32 Hex Crown Nut
15	TU7171	Basket Door (Specify Color)
16	TU3215	#10-32 x 3/8” Taptite Screw
17	TU3163	Catch Pin
18	TU2874	Basket Door Handle
19	TU7169	Rubber Gasket
20	TU7862	Door Glass (Plain)
	TU7862C	Door Glass (w/Logo)
21	TU6336	Filler Plate (Timer Model Only) (Specify Color)

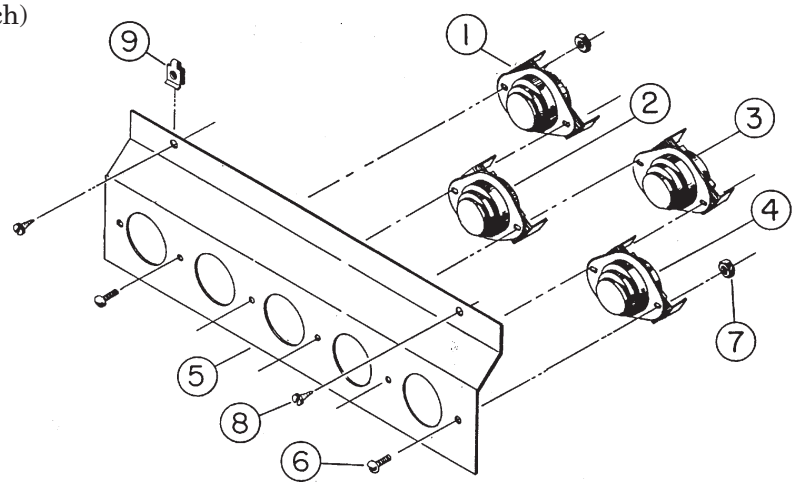
Parts—Thermostat Assembly (Timer Models) TU10285 (w/Illustration)

1	TU2045	Cool-Down Thermostat
2	TU3240	185°F Thermostat (2 each)
3	TU5150	150°F Thermostat
4	TU7244	135°F Thermostat
5	TU5143	Mounting Bracket
6	TU3624	#6-32 x 1/4” Round Head Screw (6 each)
7	TU3400	#6-32 Hex Nut
8	TU7733	#8 x 1/2” Self Drill Screw
9	TU6067	#8 Speed Nut (2 each)



Parts—Thermostat Assembly (Coin Meter Models) TU9111 (w/Illustration)

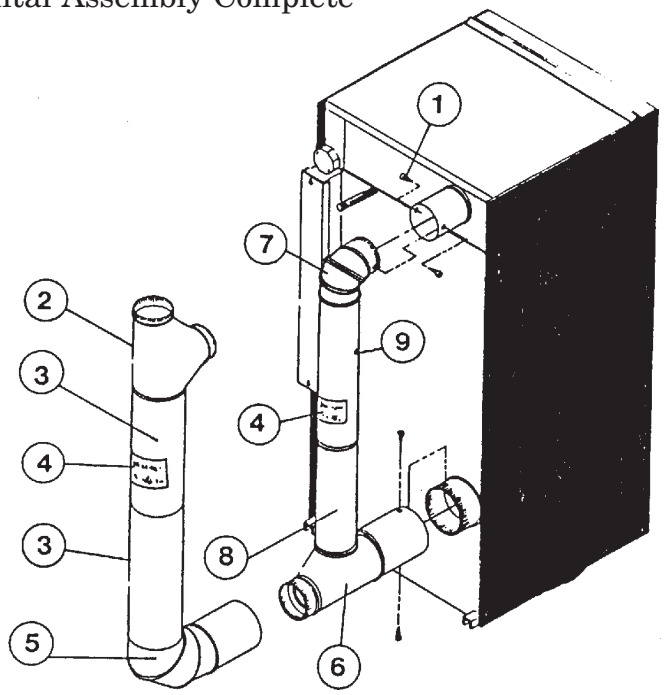
1	TU3240	Safety High Limit Thermostat
2	TU3240	185°F Thermostat
3	TU5150	150°F Thermostat
4	TU7244	135°F Thermostat
5	TU5143	Mounting Bracket
6	TU3624	#6-32 x 1/4” Round Head Screw (6 each)
7	TU3400	#6-32 Hex Nut
8	TU7733	#8 x 1/2” Self Drill Screw
9	TU6067	#8 Speed Clip (2 each)



Parts—Exhaust Duct Assembly (Energy-Saver Model Only) (w/Illustration)

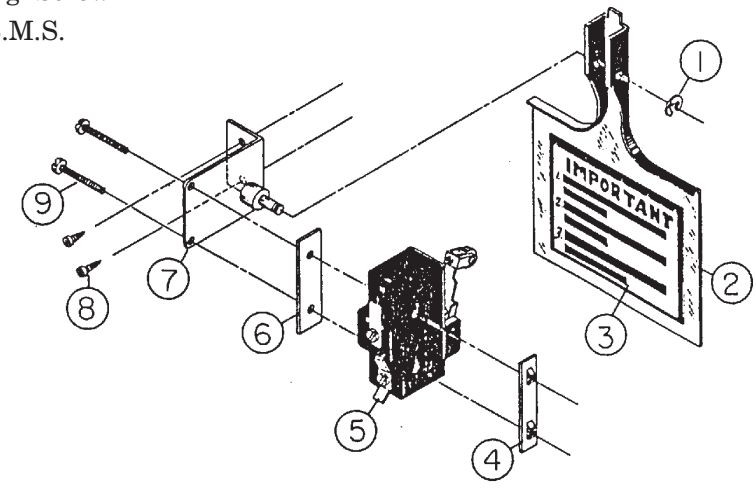
TU10269—Vertical Assembly Complete
TU10336—Horizontal Assembly Complete

1	TU7733	#8 x 1/2” Self Drill Screw
2	TU8052	Tee - 8” x 6” x 6”
3	TU8176	Pipe - 8” x 17 1/2”
4	TU9161	Installation Label
5	TU10268	Elbow - 8”
6	TU10335	Tee—8” x 6” x 6”
7	TU8053	Elbow—6”
8	TU8054	Pipe—6” x 15 1/2”
9	TU8055	Pipe—6” x 23 1/2”



Parts—Air Switch Assembly TU8206 (w/Illustration)

1	F888	“E” Ring
2	TU2463	Actuator Arm
3	TU3476	Air Switch Decal
4	TU1771	6” Tinnerman Nut
5	TU8155	Air Switch
6	TU1770	Insulator
7	TU8171	Air Switch Bracket
8	TU7733	#8 - 18 1/2” Self Drilingl Screw
9	TU3219	#6 x 1” Round Head S.M.S.

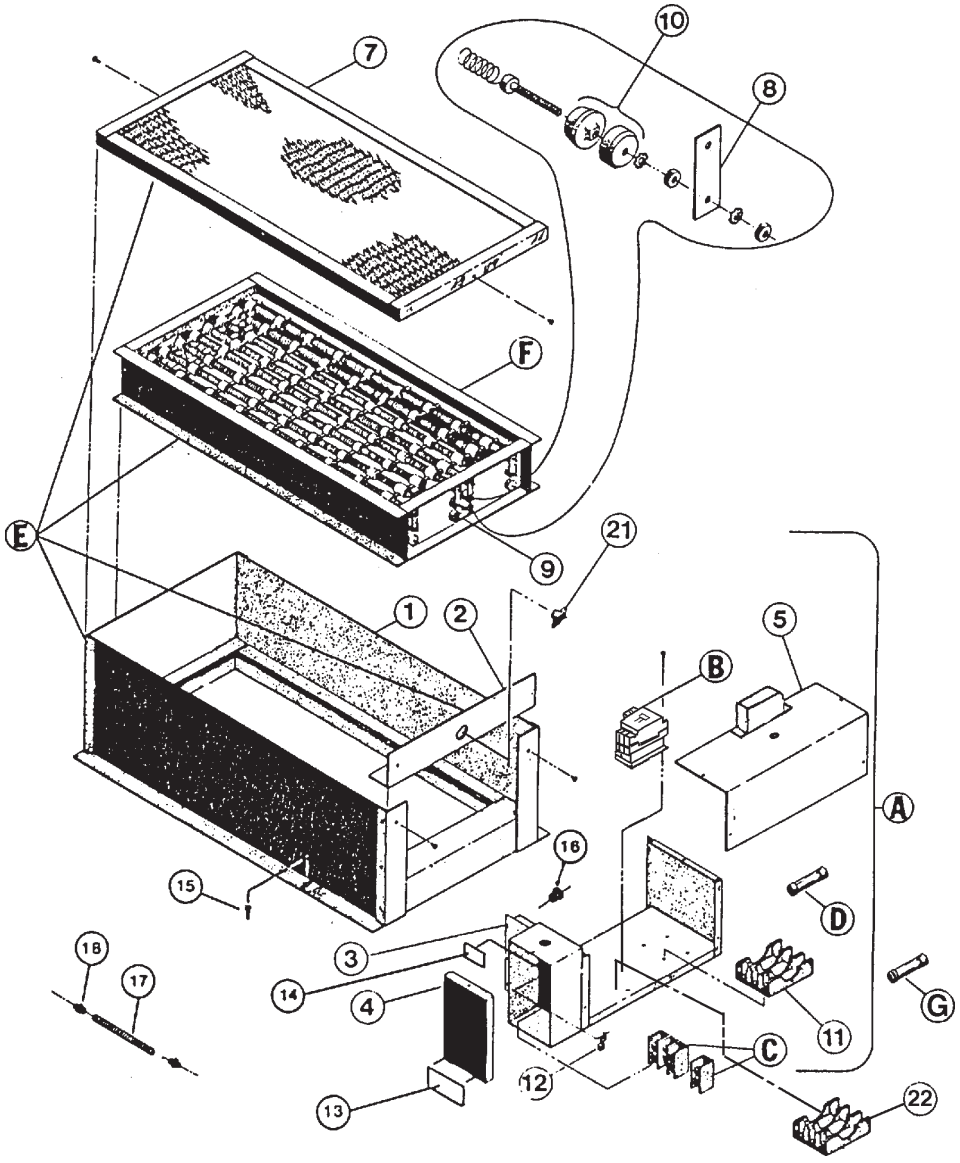


1	TU2546	Housing Weldment
2	TU2547	Front Coil Retainer
3	TU2548	Rear Coil Retainer
4	TU2413	Steam Coil Manifold
5	TU2414	3/4” - 16 x 3/8” Straight Connector
6	TU2405	Steam Coil (9 required) 7 3/4” W x 1 5/8” H x 26” L
7	CB36	#1/4” - 20 x 1/2” Hex Head Screw (Pkg. of 6)
8	TU7733	#8 x 1/2” S.M.S. (Pkg. of 6)
9	TU2598	Air Filter 16” x 25” x 1”
10	TU2735	1” x 3/4” Reducer
11	TU4608	3/4” x 2” Pipe Nipple
12	TU13517	Solenoid Valve 24V - 50/60 Hz.
13	CFB2100	Greenfield Cable, 1/2” (Specify 21” Long)
14	TU4790	1/2” Straight Conn. (2 required)
15	TU10651	Mechanism Box Cover

Gas Heating Unit (Regular Gas Fired Model) (Illustration)

1	TU8631	Bonnet	13	TU2846	1/4” Split Lockwasher
2	TU13695	Bonnet Thermostat Bracket	14	TU4934	1/4”—20 Hex Nut
3	TU13212	1/2” Pipe Nipple—24”	15	TU2847	1/4”—Flat Washer
4	390401021	1/2” Pipe Nipple—2 1/2”	16	TU2224	1/8” Pipe Plug
5	TU13523	1/2” Valve Combination (Natural Gas)	17	TU3539	Gas Burner Orifice (specify size)
	TU13513	1/2” Valve Combination (LP Gas)	18	TU8288	Manifold Assembly
6	SC505	Coupling	19	TU7840	Burner
7	TU2226	Mounting Bracket	20	TU13826	Electrode Spark Mounting Bracket
8	TU10946	Manifold Plug	21	TU8645	Caution Label
9	TU13678	Thermostat, Man. Reset 300º	22	TU11181	Burner Locator Angle
10	390501053	1/2” Elbow	23	C1365	Connector T&B
11	TU13628	Electrode Spark Igniter	24	TU13914	DSI Instruction
12	CB36	1/4”—20 x 1/2” Hex Hd. Scr.	25	TU7733	#8 Self Drill Scr. (Pkg. of 6)

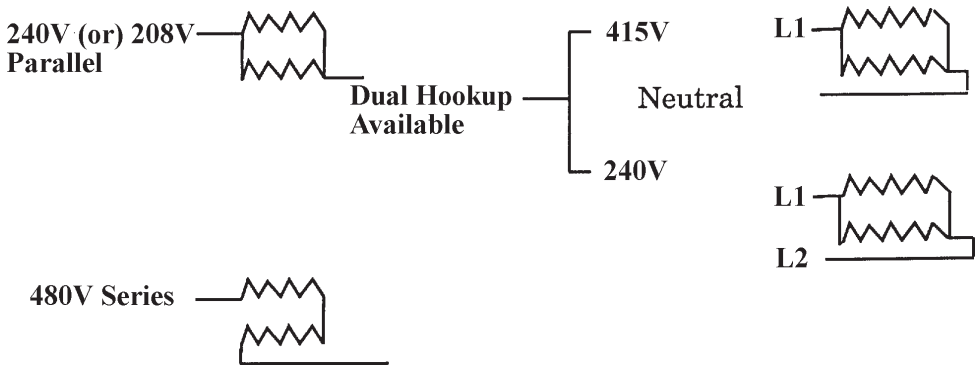
Electric Heating Unit (Illustration)



1	TU3103	Bonnet Weldment	16	TU5958	Bushing (2 required)
2	TU3102	Hold Down Plate	17	CFB0700	Cable—1/2" x 7" Lg.
3	TU9205	Control Box Weldment	18	TU4790	Straight Connector (2 required)
4	TU9207	Terminal Box Cover			
5	TU12454	Top Cover	21	TU7244	Thermostat—135°F
7	TU3104	Air Inlet Cover	22	TU13588	Motor Fuse Holder
8	TU3767	Contact Strap (4 required)			
9	TU3768	Contact Strap (1 required)			
10	TU3253	Insulators	A	see next page	Control Box Less Wiring
11	TU13866	Fuse Holder	B	"	Contactor
12	TU7738	Grounding Lug	C	"	Terminal Block
13	TU9254	High Voltage Label for 415V Only	D	"	Fuse
			E	"	Bonnet with Elements
14	TU9258	Ground Label	F	"	Heater Elements
15	CB36	1/4"-20 x 1/2" Hex Screw (Pkg. of 6)	G	"	Motor Fuse

A	B	C	D	E	F	G	H	I
Control Box Less Wiring	**Contactor (24V Coil)**	**Terminal Block**	**Heater Fuse Block**	**Heater Fuses**	**Bonnet with Elements**	**Heater Element**	**Motor Fuse Block**	**Motor Fuses**
TU13781 208V 1PH	TU13520 30/45 AMP	TU9142 (2 required)	TU11096	TU7224 40 AMPS 3 required	TU7590 - 22.5KW 208V, 1 PH	HE11080, 240V, 30KW Used for 208V, 22.5KW	TU8201	TU819710 10 AMPS 2 required
TU13782 240V 1PH	TU13520 30/45 AMP	TU9142 (2 required)	TU11096	TU7224 40 AMPS 3 required	TU7588 - 21KW 240V, 1 PH	HE11540, 240V, 21KW	TU8201	TU819710 10 AMPS 2 required
TU13783 208V 3PH	TU13520 30/45 AMP	TU9143	TU11096	TU7224 40 AMPS 3 required	TU7590 - 22.5KW 208V, 3 PH	HE11080, 240V, 30KW Used for 208V, 22.5KW	TU8201	TU819710 10 AMPS 3 required
TU13980 240V 3PH	TU13520 30/45 AMP	TU9143	TU11096	TU7224 40 AMPS 3 required	TU7588 - 21KW 240V, 3 PH	HE11540, 240V, 21KW	TU8201	TU819710 10 AMPS 3 required
TU13784 480V 3PH	TU13520 30/45 AMP	TU9143	TU9141	TU7072 40 AMPS 3 required	TU7588 - 21KW 480V, 3 PH	HE11540, 240V, 21KW Used for 480V, 21KW	TU8200	TU819908 8 AMPS 3 required
TU13794 240/415V 3PH	TU13520 30/45 AMP	TU9143* TU9142**	TU11096	TU7224 40 AMPS 3 required	TU7588 - 21KW 240 or 415V, 3 PH	HE11540, 240V, 21KW	TU8200	TU819908 8 AMPS 3 required
TU13884 208V 3PH w/1 PH motor	TU13520 30/45 AMP	TU9143	TU11096	TU7224 40 AMPS 3 required	TU7590 - 22.5KW 208V, 3 PH	HE11080, 240V, 30KW Used for 208V, 22.5KW	TU8201	TU819710 10 AMPS 2 required
TU13884 240V 3PH w/1 PH motor	TU13520 30/45 AMP	TU9143	TU11096	TU7224 40 AMPS 3 required	TU7588 - 21KW 240V, 3 PH	HE11540, 240V, 21KW	TU8201	TU819710 10 AMPS 2 required
TU13885 240/415V 3PH w/1 PH motor	TU13520 30/45 AMP	TU9143* TU9142**	TU11096	TU7224 40 AMPS 3 required	TU7588 - 21KW 240 or 415V, 3 PH	HE11540, 240V, 21KW	TU8200	TU819908 8 AMPS 2 required

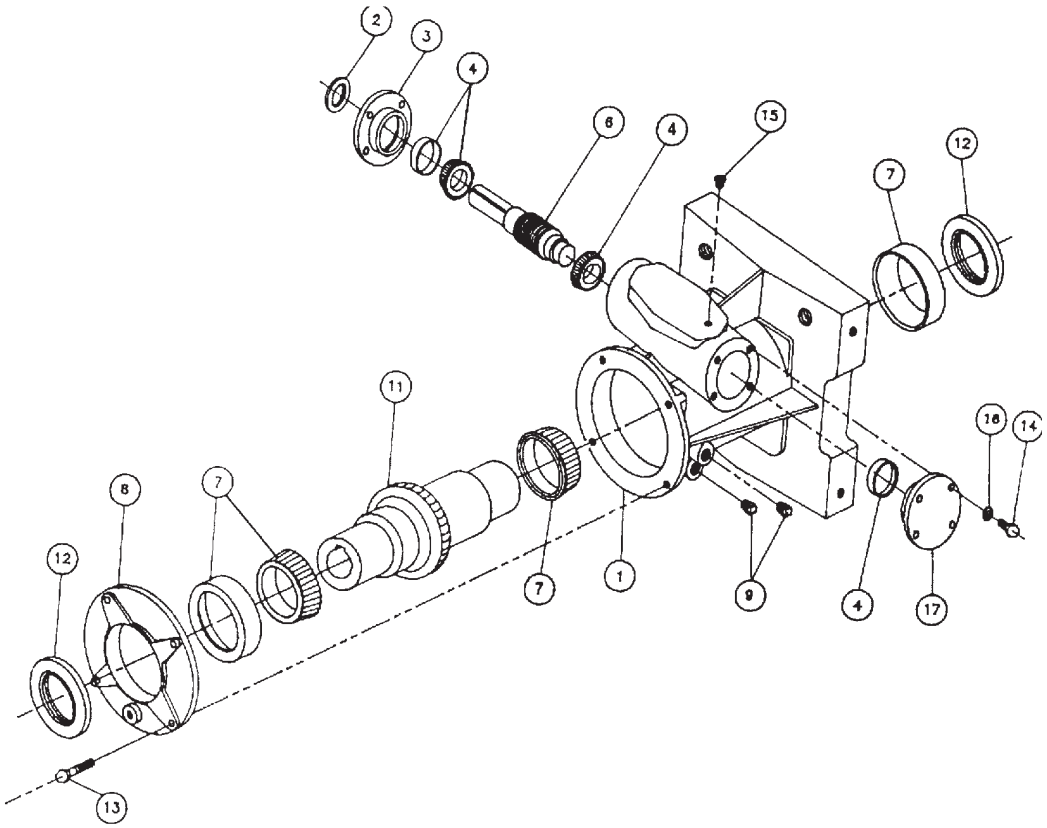
*** 3 Pole**
**** 1 Pole (Neutral)**



Rated Heater Input	Heater Amperes, Motor Amperes, Control Amperes, Total Amperes at Rated Voltage	Hz.	Minimum Size Supply Wire Based On 60C (140ºF) Insulated Copper Conductor	Circuit Minimum Conduit Trade Size	Branch Circuit Maximum Fuse Size
21KW@208V/1PH	109 AMPS	60	1AWG	1-1/2	110
21KW@208V/3PH*	66 AMPS	60	4AWG	1-1/4	70
21KW@208V/3PH	62 AMPS	60	4AWG	1-1/4	70
21KW@240V/1PH	95 AMPS	60	1AWG	1-1/2	100
21KW@240V/3PH*	59 AMPS	60	4AWG	1-1/4	60
21KW@240V/3PH	55 AMPS	60	4AWG	1-1/4	60
21KW@480V/3PH	28 AMPS	60	10AWG	3/4	30
21KW@240/414/3PH	55 AMPS	50	4AWG	1-1/4	60
21KW@550V/3PH	25 AMPS	60	10AWG	3/4	25

CAUTION: This machine has one power supply connection point. Disconnect power supply before servicing machine.

*** Single Phase Motors**



			Quantity
1	TM103	Housing	1
2	TM104	Small Seal	1
3	TM105	Small Open End Cap	1
4	TM107	Small Bearing Cup & Cone	2
6	TM101	Worm 1-1/2” x 7-1/8”	1
7	TM110	Large Bearing Cup & Cone	2
8	TM112	Large End Cap	1
9	TM115	1/4” Pipe Plug	1
11	TM102	Worm Gear	1
12	TM120	Oil Seal	2
13	TU2623	Cap Screw 3/8” - 16 x 1-1/2”	4
14	TU2839	Cap Screw 1/4” - 20 x 7/8”	8
15	TM121	Vent Plug 1/4” NPT	1
16	RC349	1/4” Internal Tooth Lockwasher	8
17	TM118	Small Closed End Cap	1