IPSO - USA

OWNER'S MANUAL
170 lb. IPD LAUNDRY DRYER

Gas: Natural and LP

Steam

Technical specifications

Installation instructions

Operating instructions

Maintenance

IPD170

IPSO-USA
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THIS MANUAL MUST BE GIVEN TO THE EQUIPMENT OWNER

MANIPD170 8/06 **D0388**

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 **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: Do not place items exposed to cooking oils in your dryer. Items contaminated with cooking oils may contribute to a chemical reaction that could cause a load to catch fire.

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.

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.

IPSO warrants all new equipment (and the original parts thereof) to be free from defects in material or workmanship for a period of three (3) 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 three (3) years due to normal wear and tear, and with respect to all new repair or replacement parts for IPSO equipment for which the three (3) year warranty period has expired, or for all new repair or replacement parts for equipment other than IPSO equipment, the warranty period is limited to ninety (90) days from date of sale. The warranty period on each new replacement part furnished by IPSO 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 IPSO, the warranty is limited to that provided by the respective manufacturer.

IPSO's total liability arising out of the manufacture and sale of new equipment and parts, whether under the warranty or caused by IPSO's negligence or otherwise, shall be limited to IPSO-USA repairing or replacing, at its option, any defective equipment or part returned f.o.b. IPSO's factory, transportation prepaid, within the applicable warranty period and found by IPSO to have been defective, and in no event shall IPSO 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 IPSO 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 IPSO 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 IPSO; operated or repaired with other than genuine IPSO replacement parts; damaged by fire, flood, vandalism, or such other causes beyond the control of IPSO; 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 IPSO for repair or replacement without prior written authorization from IPSO. Charges for unauthorized repairs will not be accepted or paid by IPSO.

IPSO 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. IPSO 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.

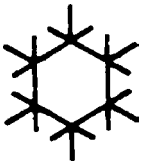
For warranty service, contact the distributor from whom the IPSO equipment or part was purchased. If the distributor cannot be reached, contact IPSO.

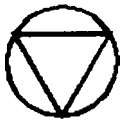
IDENTIFICATION NAMEPLATE

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

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

Symbol	Description
	**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**

Symbol	Description
	**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

This dryer is packed in a large wooden crate.

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. The use of shims are acceptable for this procedure.

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. Installation clearance from all combustable material is 0" ceiling clearance, 0" rear clearance, and 0" side clearance.

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.

GENERAL

IMPORTANT

REPLACEMENT PARTS

PROCEDURE FOR DISASSEMBLING THE TOP OF THE DRYER

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

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

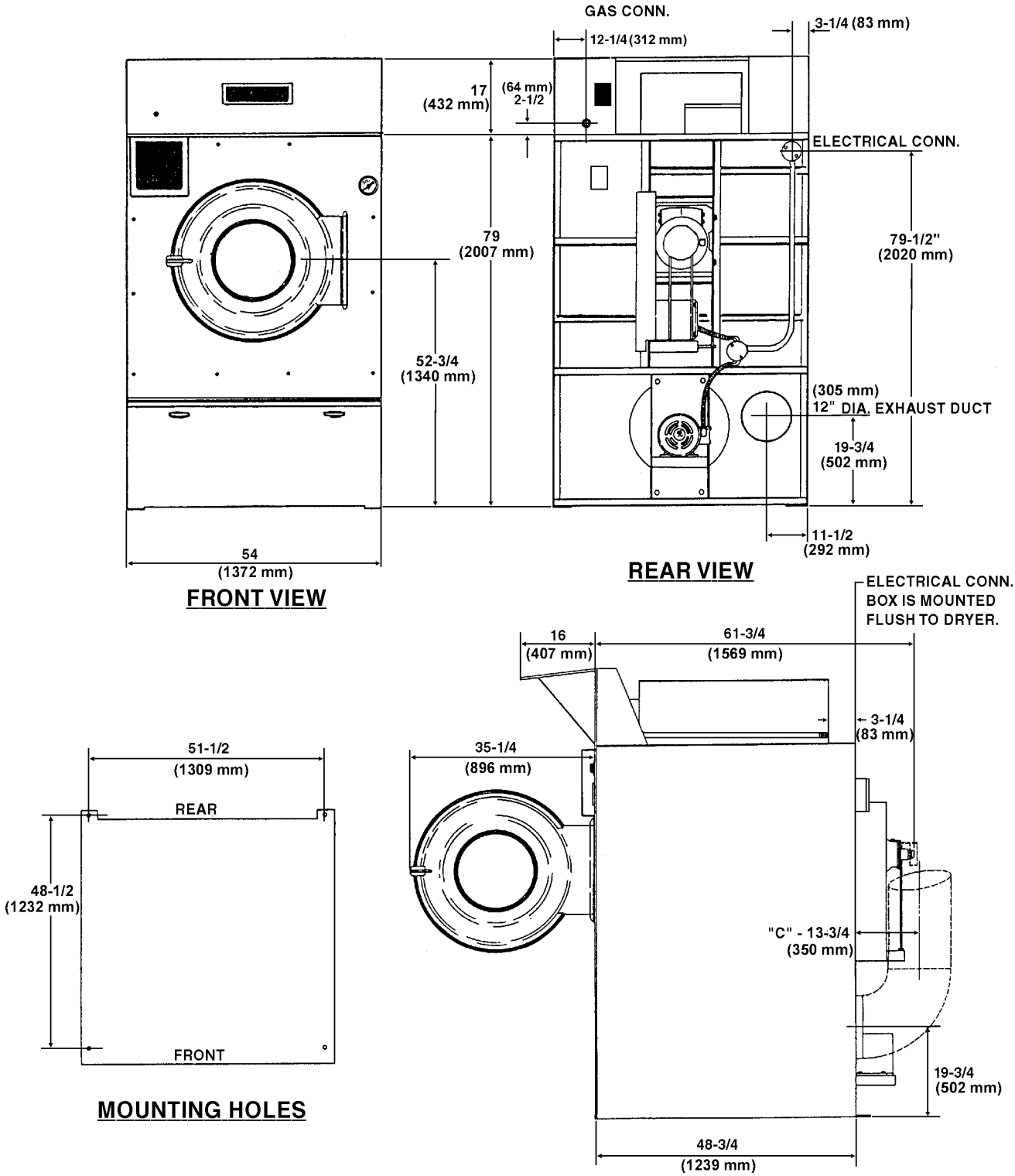
1. Unscrew two (2) front cover panel hold-down screws and open the front cover panel. If wires enclosed are not color coded or numbered, mark wires before disconnecting. Refer to the wiring diagram.

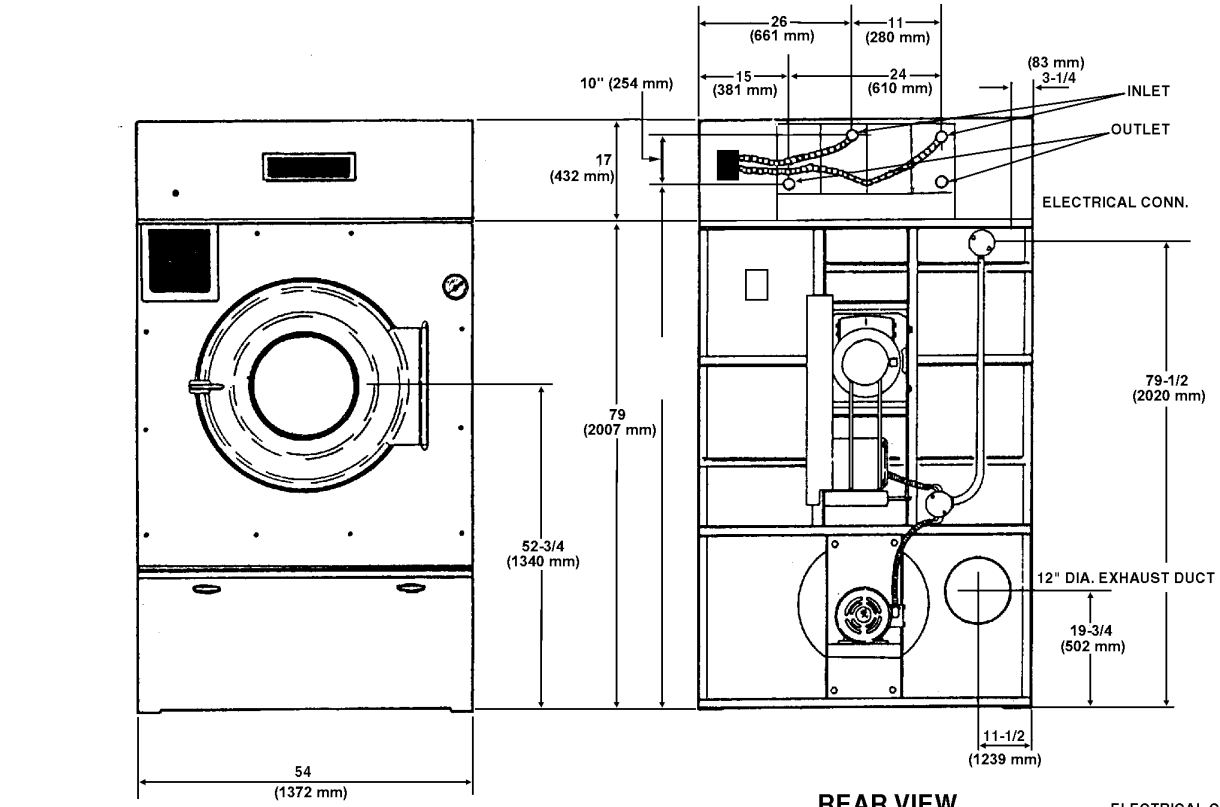
2. Disconnect the wire plugs in the right and left control boxes. Unscrew the two (2) hold-down bolts from the bottom of the boxes and one screw from the outside rear of the boxes. Remove the two (2) screws that hold the conduit plate to the boxes. Remove the boxes and the top brace as one assembly.

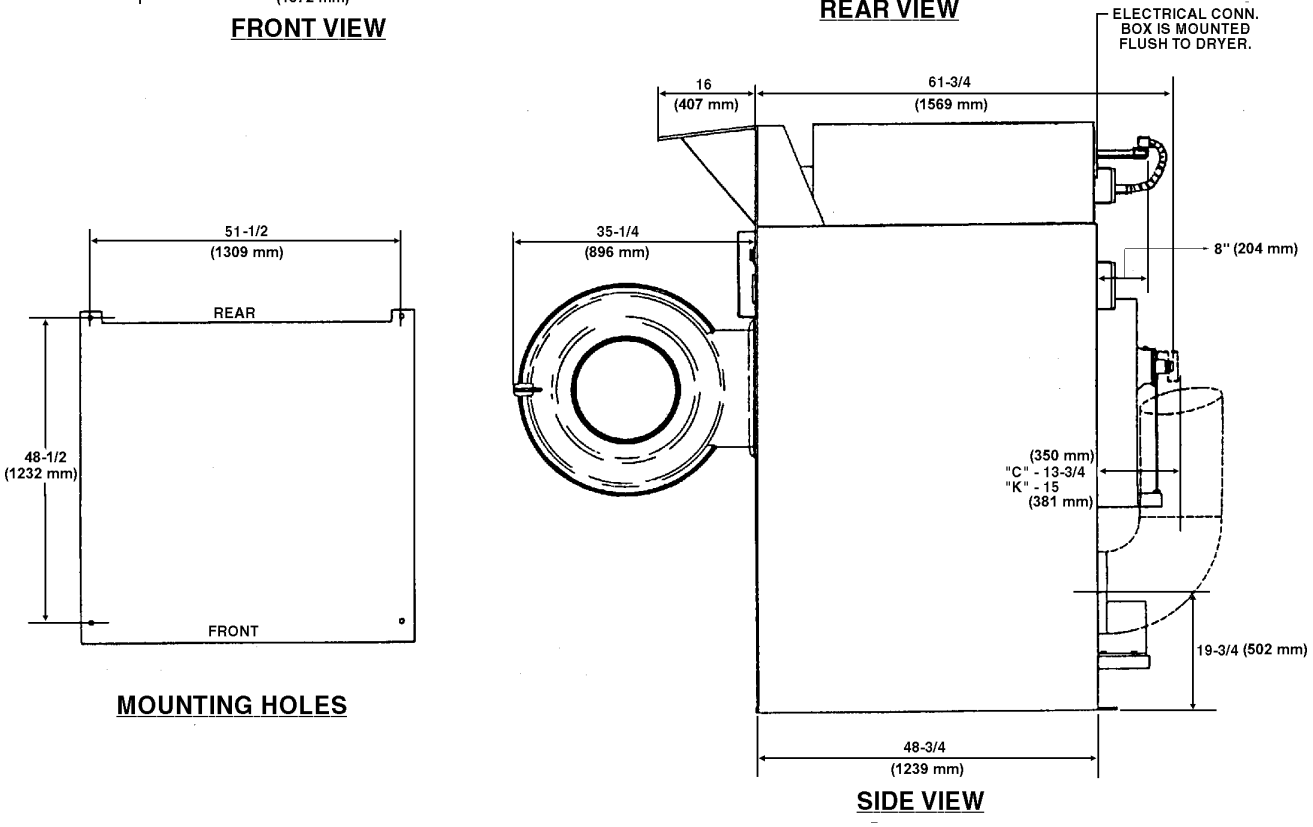
3. Unscrew the six (6) bolts that hold down the heating unit.

4. Remove the air switch box on the rear of the dryer and disconnect the two (2) wires and the box from the rear of the dryer. Leave the air switch fastened to the dryer rear wall.

5. To re-assemble, reverse this procedure.


GAS CONN.
12-1/4 (312 mm)
3-1/4 (83 mm)
17
(432 mm)
(64 mm)
2-1/2
ELECTRICAL CONN.
79
(2007 mm)
79-1/2"
(2020 mm)
52-3/4
(1340 mm)
(305 mm)
12" DIA. EXHAUST DUCT
19-3/4
(502 mm)
11-1/2
(292 mm)
54
(1372 mm)
FRONT VIEW
REAR VIEW
ELECTRICAL CONN.
BOX IS MOUNTED
FLUSH TO DRYER.
16
(407 mm)
61-3/4
(1569 mm)
3-1/4
(83 mm)
35-1/4
(896 mm)
51-1/2
(1309 mm)
REAR
48-1/2
(1232 mm)
"C" - 13-3/4
(350 mm)
19-3/4
(502 mm)
FRONT
MOUNTING HOLES
48-3/4
(1239 mm)


26
(661 mm)
11
(280 mm)
10" (254 mm)
15
(381 mm)
24
(610 mm)
(83 mm)
3-1/4
INLET
OUTLET
17
(432 mm)
ELECTRICAL CONN.
79-1/2
(2020 mm)
79
(2007 mm)
52-3/4
(1340 mm)
12" DIA. EXHAUST DUCT
19-3/4
(502 mm)
11-1/2
(1239 mm)
54
(1372 mm)
FRONT VIEW
REAR VIEW


ELECTRICAL CONN.
BOX IS MOUNTED
FLUSH TO DRYER.
16
(407 mm)
61-3/4
(1569 mm)
51-1/2
(1309 mm)
35-1/4
(896 mm)
8" (204 mm)
REAR
48-1/2
(1232 mm)
(350 mm)
"C" - 13-3/4
"K" - 15
(381 mm)
19-3/4 (502 mm)
FRONT
48-3/4
(1239 mm)
MOUNTING HOLES
SIDE VIEW

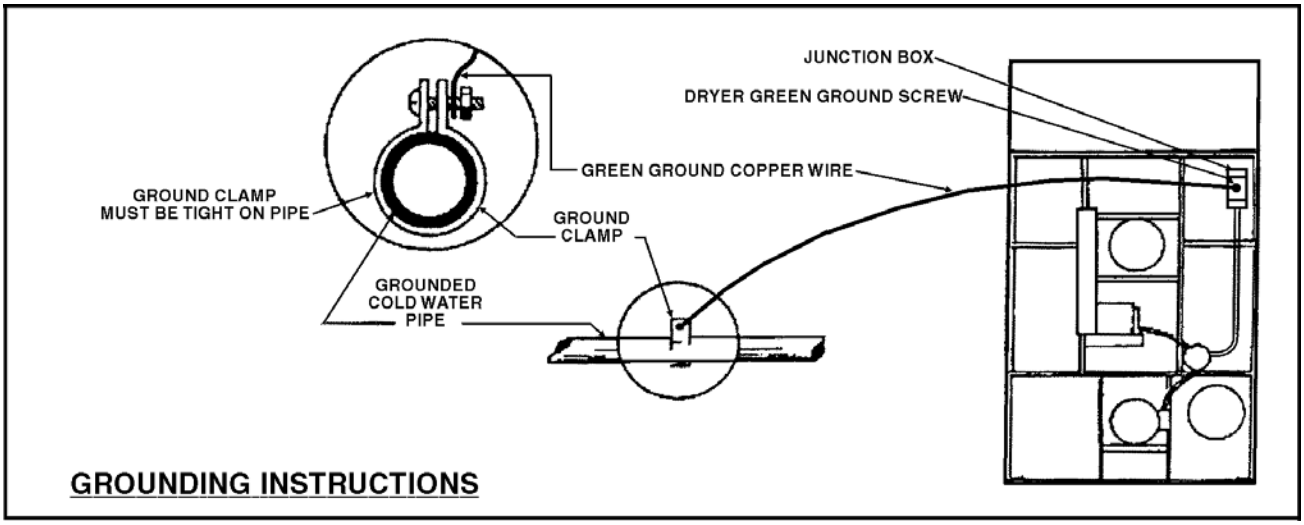
DRYER SPECIFICATIONS

GENERAL SPECIFICATIONS FOR 150 lb. DRYERS

Floor Space	64" (1626 mm) Deep x 54" (1372 mm) Wide x 96" (2439 mm) High
Doors	31-1/4" (794 mm) Diameter
Basket Size	50" (1270 mm) Diameter x 42" (1067 mm) Deep
Basket Capacity (Dry Weight)	150 lbs. (68.0 kg) Dryweight
Basket Motor	1-1/2 HP (1.12 kW)
Fan Motor	1-1/2 HP (1.12 kW)
Basket RPM (Reversing)	28 - 3.2 reversals per min.
(Non-Reversing)	30
Exhaust Duct	12" (305 mm) Diameter
Maximum Air Displacement	2,250 cfm (3825 m^3/h)
Recommended Operating Range	1,900 - 2,100 cfm (3230 - 3570 m^3/h)
Net Weight *(Gas)*	1,740 lbs. (789 kg) approx.
(Steam)	1,754 lbs. (796 kg) approx.
Shipping Weight *(Gas)*	1,890 lbs. (857 kg) approx.
(Steam)	1,944 lbs. (882 kg) approx.
Export Shipping Dimensions	104" H (2642 mm) x 60" W (1524 mm) x 74" L (1880 mm)
Export Crate *(Gas)*	254.5 ft^3 (7.21 m^3)
(Steam)	261.1 ft^3 (7.40 m^3)
Load Weight on Floor Area	.69 lb./sq. in. (48.5 lb./sq. in.)
BTU Input Rating * (see next page)	370,000 Btu per hour (93,240 kcal/h) (Nat., Mixed, Mfg., Butane and Propane Gases)
Steam Consumption	12.5 bhp - 419 lbs. (418,187 Btu/h)
Operating Steam Pressure	100 psi (6.9 bar) max
Gas Supply	1" (3 mm) Pipe Connection
Manifold Pressure	3.5"w.c. (8.7 mbar) (Natural Gas) 11"w.c. (27 mbar) (LP Gas)
Electric Ignition	Direct Spark Ignition System

DRYER SPECIFICATIONS

STEAM HEATED DRYERS ONLY	Operating Steam Pressure	100 psig (6.9 bar) Maximum
	Boiler HP	12.5 HP (9.33 kW)
	Heat Capacity	8 Coil
	Steam Coils	(4) 6”(153 mm) x 10 1/4” (261 mm) x 40 1/2”(1029 mm)
	Steam Supply Connection	3/4” (20 mm)
	Steam Return Connection	3/4” (20 mm)
	Trap Connection	(2) 3/4” (20 mm)
	Maximum Air Displacement	2250 cfm (63.7 m^3/h)



ELECTRICAL CONNECTIONS FOR ALL DRYERS

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—Latest Edition***.

See wiring diagram furnished with dryer. Your 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 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.

«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 SERVICE INSTALLATION INFORMATION

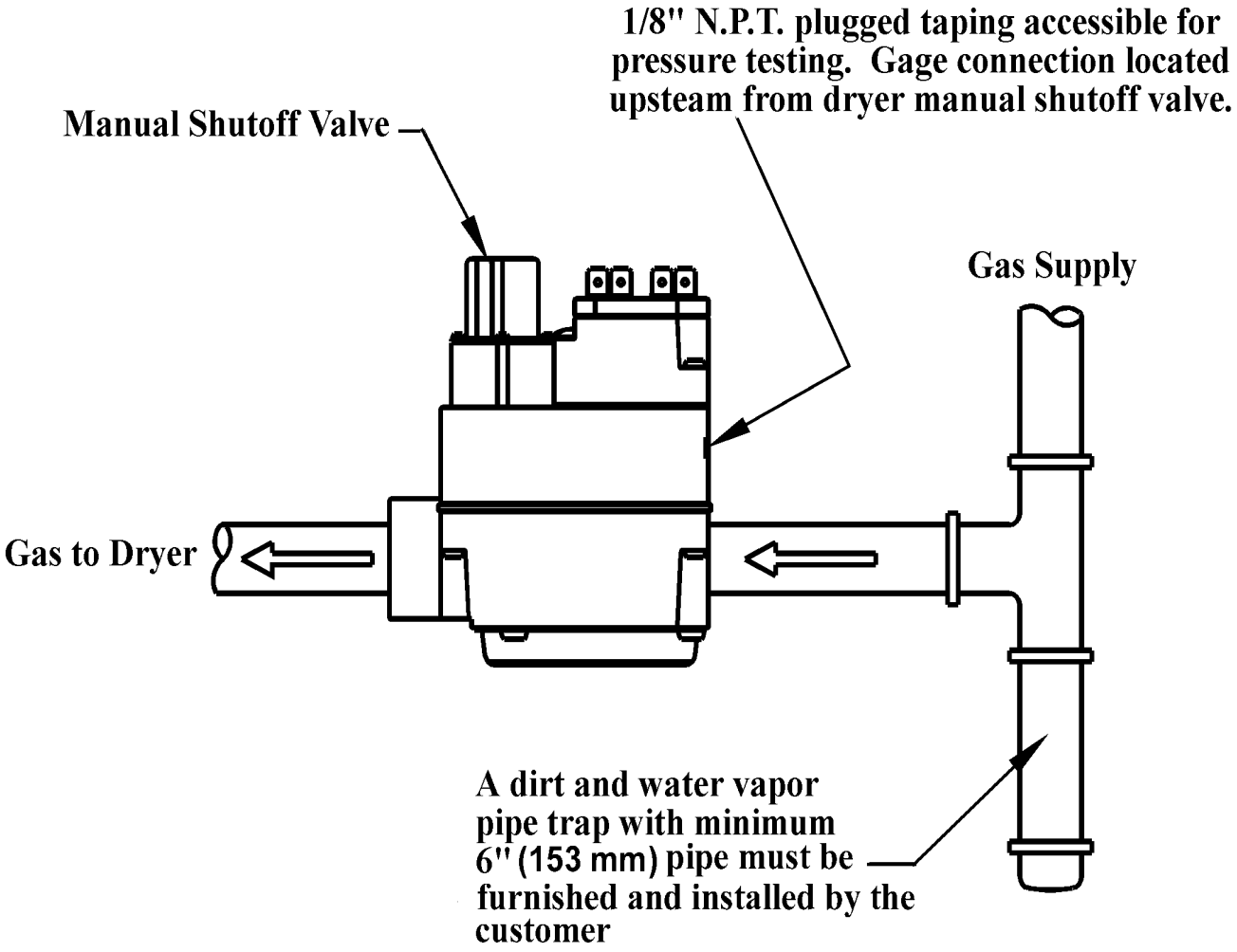
The size of the gas service pipe is dependant upon many variables, such as tees, lengths, etc. Specific pipe size should be obtained from the gas supplier. Refer to the *Gas Pipe Size Chart* in this manual for general *gas pipe size* information.

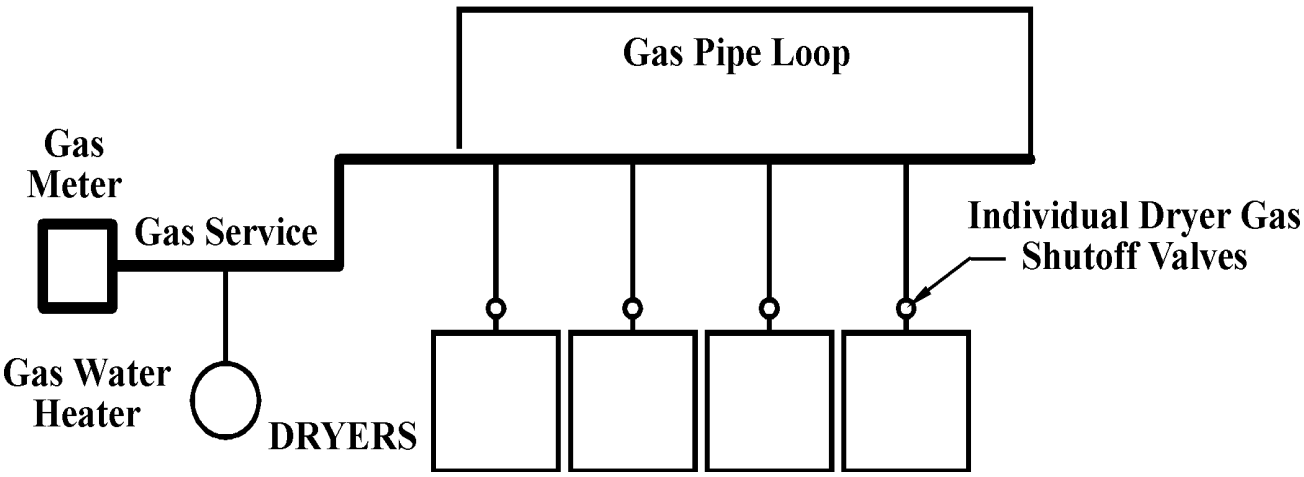
CAUTION
Gas loop piping must be installed as shown in Illustration, to maintain equal gas pressure for all dryers connected to a single gas service.

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

WARNING
(LIQUIFIED PETROLEUM GASES ONLY)
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 PIPING INSTALLATION (ILLUSTRATION)





GAS PIPE SIZE CHART

TOTAL BTU/HR (for LP Gas correct total Btu/h below by multiplying by .6)	TOTAL KCAL	GAS PIPE SIZE FOR 1000 Btu (252 kcal/h) NATURAL GAS AT 7" w. c. (17.5 bar) 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

GAS PIPING INSTALLATION

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

2. Check with utilities for proper gas pressure and gas supply line.

3. Check the altitude elevation of dryer.

4. The dryer and its individual shut-off valve must be disconnected from the gas supply piping system at test pressures in excess of 1/2 psig (.04 bar).

5. The dryer must be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system, at test pressures equal to or less than 1/2 psig (.04 bar).

NATURAL GAS ONLY

Check the gas pressure inlet supply to the dryer, 11"w.c. (27.4 bar) pressure maximum. Check the manifold pressure, 3.5"w.c. (8.8 bar) pressure inside the dryer.

CAUTION

Low gas pressure and intermittent gas will cause gas ignition problems and inadequate drying of the clothes load.

STEAM DRYERS-OPTION INSTALLATION INSTRUCTIONS

1. The dryer comes in two wood crates:

   A - Very large crate

   B - Smaller crate

2. Open Crate A and lift dryer off the skid and set in place.

3. Open Crate B. It contains two assemblies:

   I - Control Box Assembly

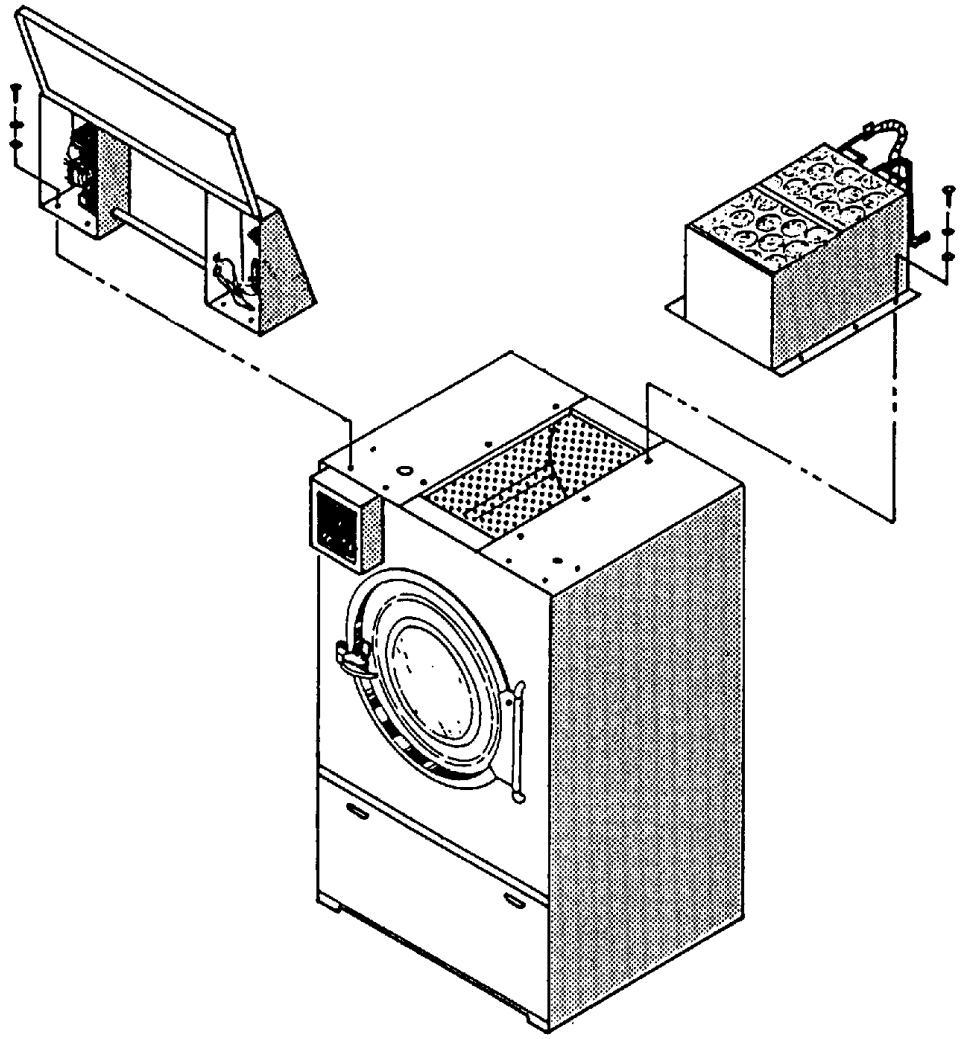
   II - Steam Bonnet Assembly

4. Place II - Steam Bonnet Assembly on top of the dryer and slide piped end to rear of dryer. Bolt to top with six 3/8" (10 mm) bolts, flat washers and lockwashers provided. Attach Solenoid Conduits (2) to the Right Front Control Box. Then connect the wires as per diagram on the rear wall of dryer.

5. Place I - Control Box Assembly on top front of the dryer and bolt in place with six 3/8" (10 mm) bolts, flat washers and lockwashers. Snap the electrical connections together.

6. Proceed with steam piping, electrical services and duct work, as specified in technical manual.

I - Control Box Assembly ***II - Steam Bonnet Assembly***



STEAM PIPING - INSTALLATION INSTRUCTIONS

STEAM PIPING - INSTALLATION INSTRUCTIONS

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

2. To prevent condensate draining from headers to dryer, piping should have a minimum 12” (305 mm)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 improperly 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 return line, it is recommended that each have a 3/4”(20 mm) union and 3/4” (20 mm) 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" (458 mm) 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.

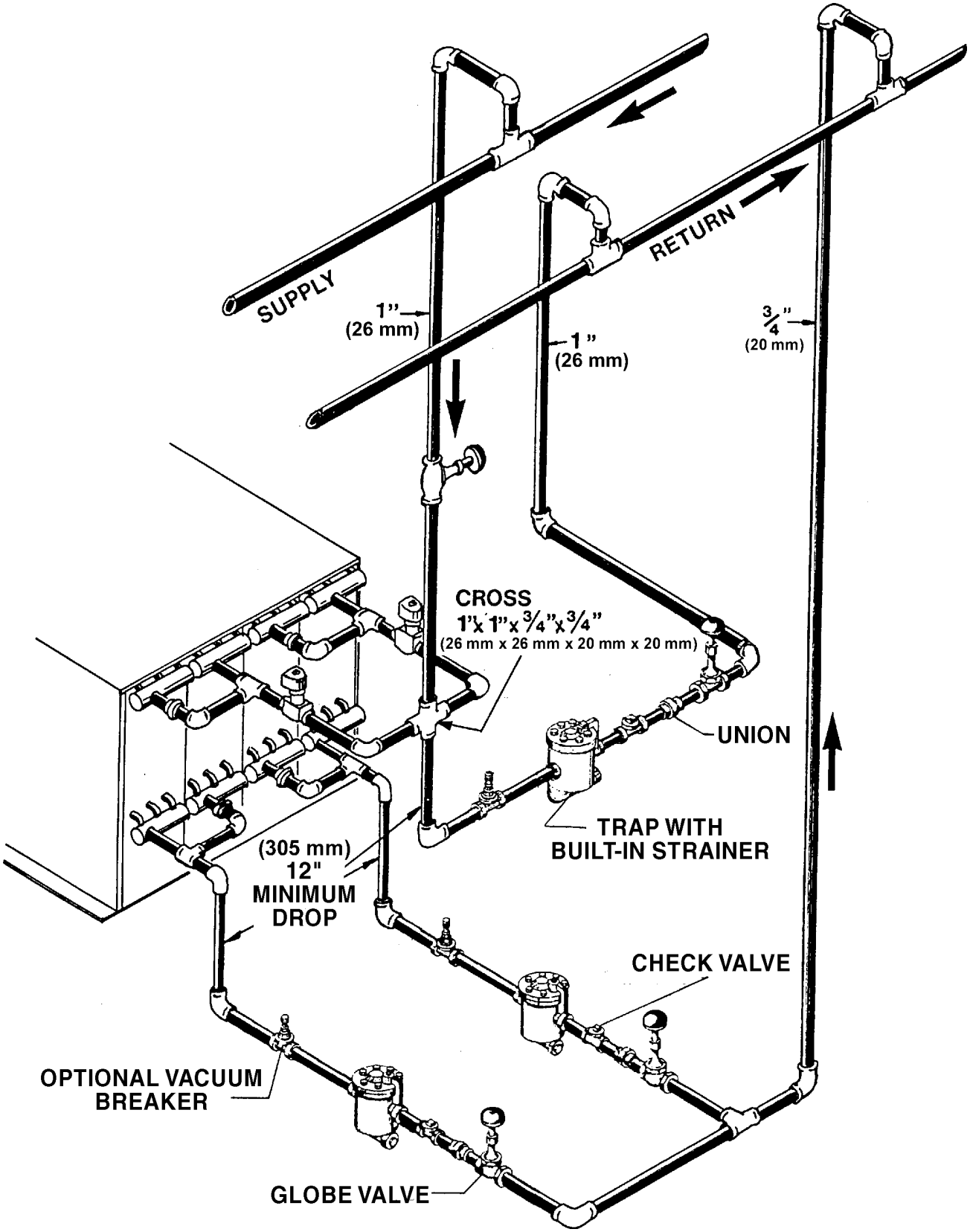
PIPING RECOMMENDATIONS

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 (2 m)beyond dryer. Install gloge valve, union, check valve and by-pass trap at end of line. If gravity return to boiler, omit trap.

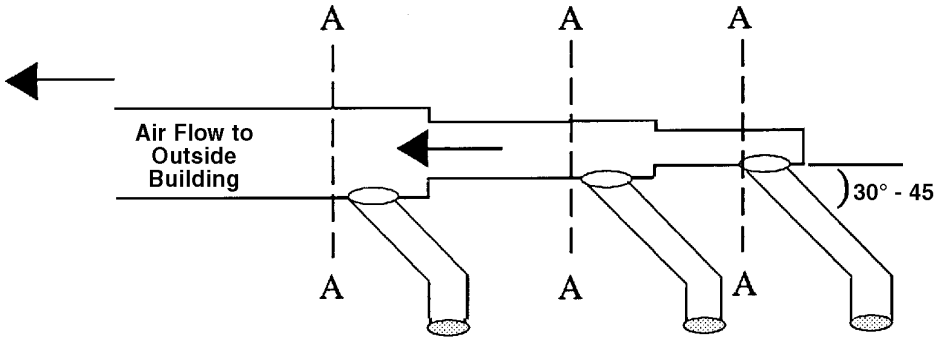
3. Insulate steam supply and return line for safety of operator and safety while servicing dryer.

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



INDIVIDUALLY TRAPPED COILS ARE RECOMMENDED RATHER THAN MANFOLDING RETURN INTO ONE TRAP.

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



DRYER EXHAUSTS

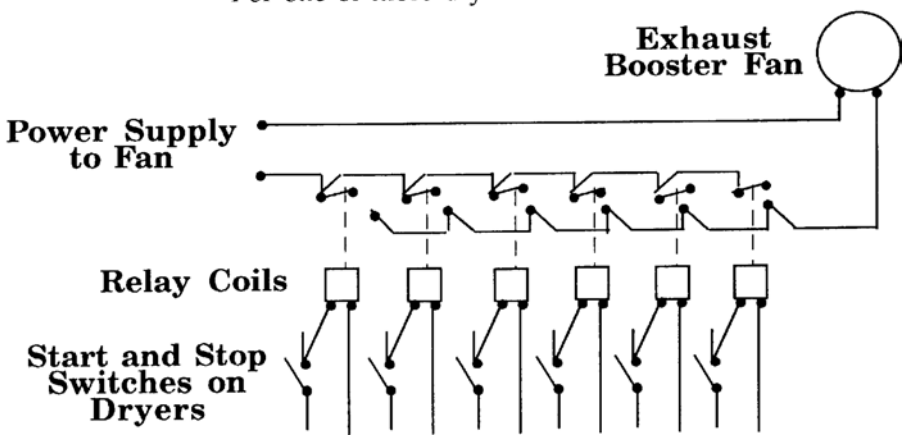
Area of section "A-A" must be equal to the sum of dryer exhaust pipes entering multiple exhaust pipe. (*See chart below.*)

MODELS: IPD150

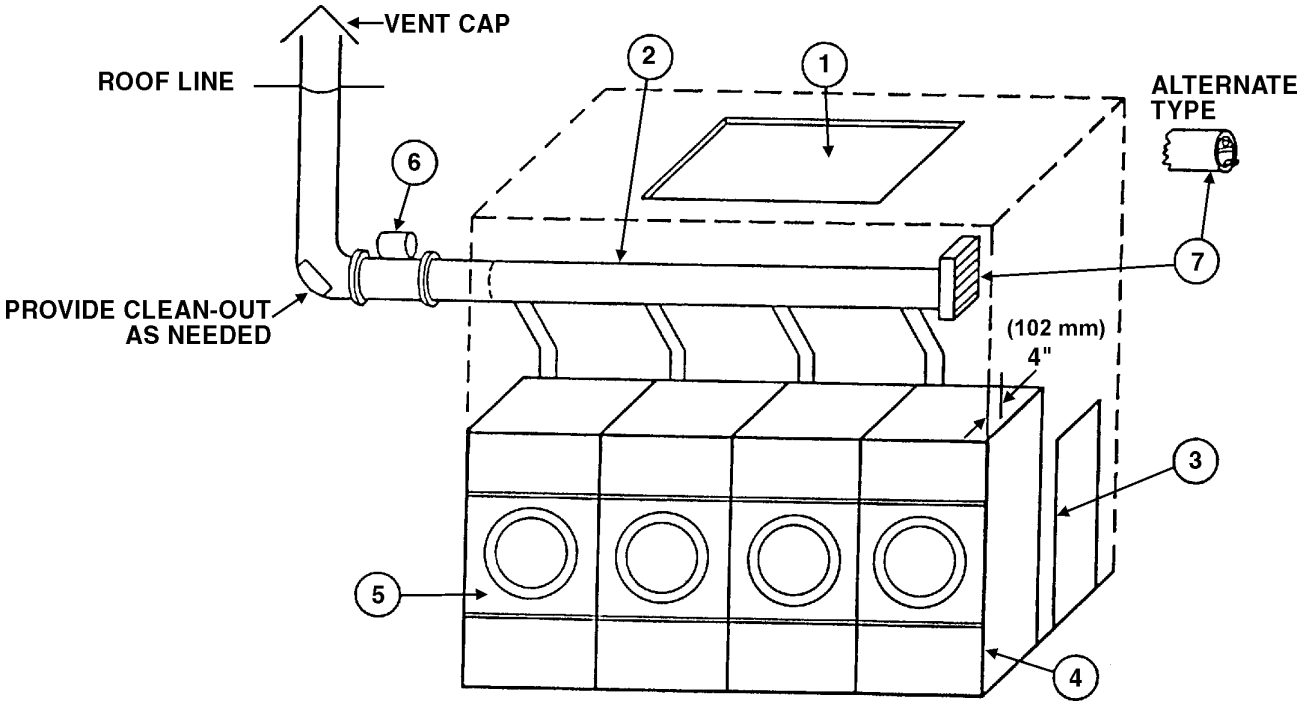
No. of Dryers	1	2	3	4	5	6	7	8	9	10	11	12
Duct Diameter (in inches)	12	17	21	24	27	30	32	34	36	38	40	42
(in CM)	30	43	53	61	68	76	81	86	91	97	100	106

AUTOMATIC ELECTRICAL CONTROL FOR EXHAUST FAN

For one or more dryers to start fan.



DRYER INSTALLATION WITH MULTIPLE EXHAUST (ILLUSTRATION)



EXHAUST INSTALLATION— MULTIPLE MANIFOLD DUCT

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 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: 6-8 in. (153-204 mm) diameter duct = 1-19.6 in. (26-498 mm) diameter duct in area. Use 20 in. (508 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.

   EXAMPLE: 110 lb. dryer, 2000 cfm (3400 m^3/h) = 50,000 Btu/h (12,600 kcal/h) loss.

4. Zero inches clearance to combustible material allowed on sides and at points within 4 inches (102 mm) of front on top.

5. Heat loss into laundry room from dryer fronts *only* is about 60 Btu/h (16 kcal/h) per square foot.

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 page 23.* Must meet local electrical codes. Fan air flow (cfm) 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.**

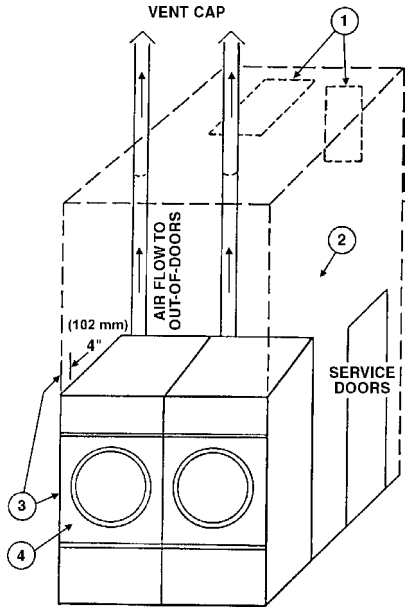
CAUTION
Never exhaust dryers with other types of equipment.

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
IPD30 ST	30	13.6	450	765	6	153	87	561
IPD75 ST	75	34	1000	1700	12	305	192	1240
IPD110.1	110	50	2200	3740	12	305	422	2723
IPD110.1 E/S	110	50	850	1445	8	203	163	1052
IPD125.1	125	56.7	2000	3400	12	305	384	2477
IPD150.1	150	68	2250	3825	12	305	432	2787
IPD175.1	175	79.4	2780	4726	12	305	534	3445
IPD190.1	190	86.2	3000	5100	12	305	576	3716
IPD20.1	20	9.1	450	765	6	153	87	561
IPD30SL	30	13.6	600	1020	8	203	116	748
IPD30.1	30	13.6	625	1063	8	203	120	774
IPD50.1	50	22.7	850	1445	8	203	164	1058
IPD75.1	75	34	1000	1700	8	203	192	1240
IPD80.1	80	36.3	1000	1700	10	254	192	1240

Notes:

1) The Model IPD30 ST has 2 pockets per dryer, each pocket has the above listed characteristics; each pocket is exhausted separately with a 6" (153mm) duct.
2) The Model IPD75 ST has 2 pockets per dryer, each pocket has the above listed characteristics; both pockets have one 8" (203mm) exhaust manifolded into one 12" (305mm) exhaust duct for exhaust connection.
3) For the IPD30 ST and the IPD75 ST Models, the Required Make-up Air Area shown in the table should be doubled since it is shown per pocket,only.



DRYER INSTALLATION WITH SEPARATE EXHAUST (PREFERRED)

DRYER INSTALLATION WITH SEPARATE EXHAUST (PREFERRED)

For Exhaust Duct less than 14 feet (5 m) and 2 elbows equivalent and less than 0.3 (8 mm) 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. ***(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, the heat loss can be another 25 Btu/h (6.3 kcal/h) for each cubic foot per minute (cfm) used.
   EXAMPLE: A 125 lb. dryer with 2000 cfm (3400 m^3/h) = heat loss of 50,000 Btu/h (12,600 kcal/h).
3. Zero inches clearance to combustible material allowed on sides and at points within 4 inches (102 mm) of front on top.
4. Heat loss into laundry room from dryer fronts *only* is about 60 Btu/h (15.2 kcal/h) per square foot.

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 (.8 mbar) 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.

EXHAUST DUCT

FOR BEST DRYING:

1. Exhaust duct maximum length 14 feet (5 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 water column (.8 mbar) static pressure in the exhaust duct without a booster fan.
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:
   For each dryer—
   8 inches (204 mm) diameter exhaust requires 2 square feet (.1858 m²) make-up air.
   12 inches (305 mm)diameter exhaust requires 4 square feet (.3716 m²) make-up air.
2. Use barometric shutters in the inlet air opening to control air when dryers are not running.

OTHER RECOMMENDATIONS TROUBLESHOOTING

Other Recommendations

To assure compliance, consult local building code requirements.

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.

NOTE
It is best to run a properly sized bag of rags and/or old towels through one or two cycles prior to drying in service. This process will remove any films or residual coatings left by the manufacturing process.

CAUTION
Synthetic solvent *fumes* from dry cleaning machines create acids when drawn through the dryer. These acid fumes cause rusting of painted parts, pitting of bright plated parts and completely removes the zinc from galvanized metal parts, such as the tumbler basket.

If the dry cleaning machines are in the same area as the tumbler, then the tumbler *make-up air* must come from a source free of solvent fumes.

ABOVE 2,000 FEET (610 M)

ELEVATIONS ABOVE 2,000 FEET (610 M)
Input ratings shown on the rating plate (serial tag) are for elevations up to 2,000 feet (610 m). For elevations above 2,000 feet (610 m), rating should be reduced at a rate of 4% for each 1,000 feet (305 m) above sea level.

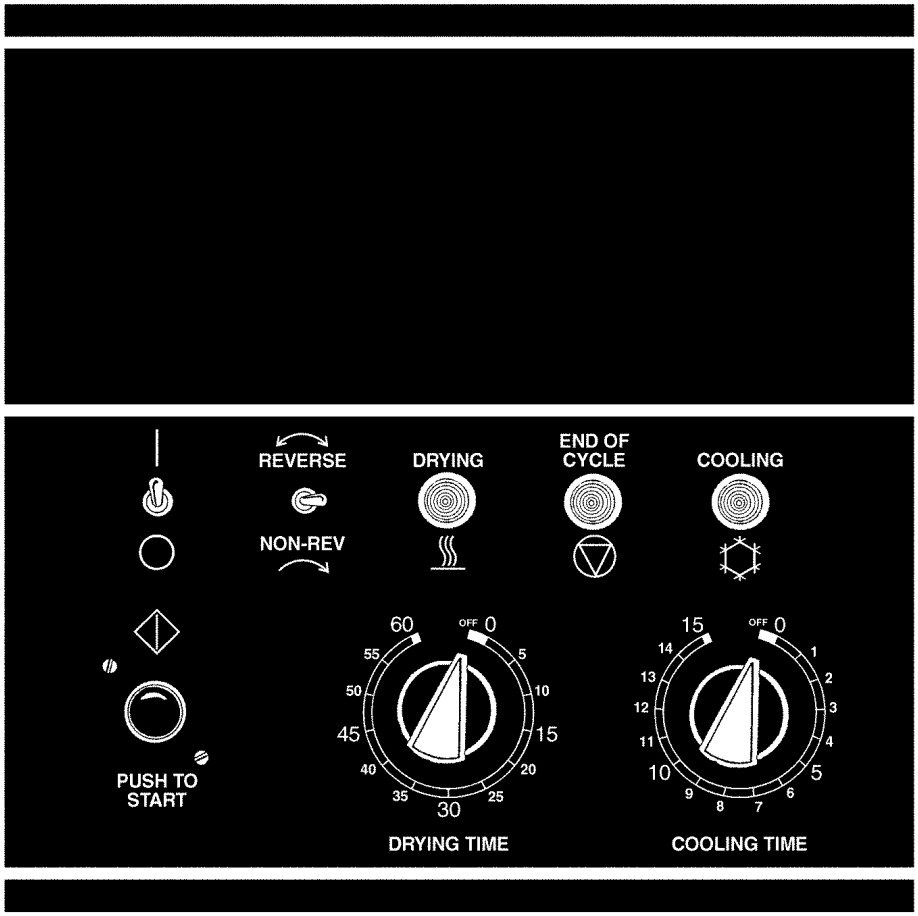


Fig. 1

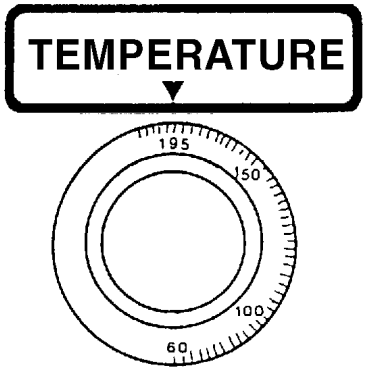


Fig. 2 Temperature Selection

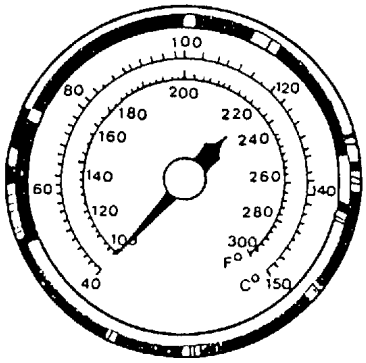


Fig. 3 Thermometer

OPERATING INSTRUCTIONS—TWO TIMER MODELS

OPERATING INSTRUCTIONS—TWO TIMER MODELS

1. After loading the dryer with the water washed clothes load, close the loading door. For better drying, do not load dryer with combination of garments that twist.

2. Turn the 60-minute drying timer to the desired drying time. The drying cycle light will be on and indicate the drying. The light shuts off when drying time is complete. (figure 1 on page 31.)

3. Turn the 15-minute cooling cycle timer to the desired cool down time. After the drying cycle is completed, then the cooling cycle time will automatically operate. The cooling light will be on and indicate the cooling of the clothes load. The light shuts off when cooling time is completed. (figure 1 on page 31.)

4. **Temperature Selector**—Select temperature per type of load being dried in the dryer. (figure 2 on page 26.)
   High Heat—Mixed and heavy fabrics, set dial to 195°F (77°C).
   Normal—Cottons and linens, set dial to 170°F (77°C).
   Permanent Press Heat—Poly knit synthetics, blends, light-weight fabrics, set dial to 150°F (66°C).
   Low Heat—Delicate, sheer fabrics, easy-to-dry, set dial to 135°F (58°C).

5. **Thermometer**—Use this with your temperature selection. Note what temperature is too hot or too cold. (figure 3 on page 31.)

6. Turn switch to "ON" or "I" position. (figure 1 on page 31.)

7. Close the dryer door, but the basket will not rotate until the **PUSH-TO-START BUTTON** is pressed. Press in the **PUSH-TO-START BUTTON** (approximately 2 seconds) until the dryer starts running and then release button. (figure 1 on page 31.)

OPERATING INSTRUCTIONS—TWO TIMER MODELS

OPERATING INSTRUCTIONS—TWO TIMER MODELS (continued)

What is happening to the drying operation:

a. The fan motor will operate.
b. The basket will rotate.
c. The heat source will be energized.
d. The heated air will mix with the water washed clothes to evaporate the moisture from the garments.
e. The thermostats will function to maintain a safe temperature throughout the drying cycle.
f. The heat will be shut off and the motor will continue to run to cool the dry load to a desired handling temperature.

8. When the drying timer completes its time, then the cooling timer will be energized and the cooling light will be "On". When the cooling timer completes its time, the cooling light will turn "Off" and the "End-of-Cycle" light will be "On". The "End-of-Cycle" light will go off when the "Start/Stop" switch is turned to "Off" or "O". At the end of the cool-down cycle, the clothes load is dry.

9. To shut the dryer "Off", move the "Start/Stop" switch to "Off" or "O" position. This switch is a safety switch to immediately stop the dryer's operation.

Special Reversing Feature—Set the "Reversing/Non-reversing" switch to "Reversing". See service manual for setting of time of each reversal. Reversing of the basket is designed for loads that twist (**example**—bed sheets and large mixed loads). "Non-reversing" is for small or medium-size items that don't twist.

TROUBLESHOOTING

To help you troubleshoot the dryer, listed below are 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

1. Is the door completely closed?
2. Are the controls set to the **"ON"** or **"I"** 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.

DRYER WON'T HEAT

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

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

The dryer has a safety device which automatically shuts off the gas if the burner fails to light in a short time. If this happens, turn the dryer off. Check and see if the manual gas valve is open. Wait 5 minutes for the safety device to reset. Then reset the dryer controls. If the dryer still fails to heat, call for service. All panels, covers and doors must be in place and closed before starting the dryer.

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.
	Incorrect power.	Check power source; voltage, phase and frequency must be the same as specified on electrical rating plate.
	Time off.	Turn timer clockwise to desired time setting.
	Loose wiring connections.	Check wire connections in electrical box on rear of dryer.
	Defective starting relay.	Check coils and contacts.
Motor tripping on thermal overload.	Low voltage.	Check voltage at motor terminals. Voltage must be within + 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 in service section for recommended make-up air openings.
	Poor housekeeing.	Clean lint accumulation on and around motors.
Basket motor will not run.	Loading door OPEN. Door Switch out of	Close door.
	adjustment.	Adjust switch by removing cover and bend Actuator Lever to clear Switch Button 3/8" (10mm) with cover in place.
	Defective Door Switch.	Replace switch.
	Defective Basket Motor Contractor.	Replace contactor.
	V-Belt broken.	Replace V-Belt.
Motor runs, but basket will not revolve.	V-Belt loose. Motor Pulley loose.	Adjust belt tension. Tighten set screw.
	Basket overloaded.	Remove load.
	Not leveled.	Check manual for proper leveling procedures.
Dryer noisy or vibrating.	Fan out of balance.	Accidental damage to the fan blade can change the dynamic
	Basket rubbing.	balance. Damaged fans should be replaced. Adjust basket clearance.
	V-Belt sheaves.	Tighten set screws. Make sure sheaves are in proper
	Belt.	alignment. Adjust belt tension.
	Foreign objects.	Occcasionally 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.

TROUBLE	CAUSE	REMEDY
Dryer runs, but no heat.	Incorrect voltage.	Check for correct control voltage - 24V.
	No voltage.	Check power supply, check secondary voltage on transformer and check wiring and wiring diagram.
	Lint Door open.	Close lint door.
	Defective gas valve.	Replace valve assembly.
	Gas turned off.	Turn manual gas valve on.
	Line fuse or heater circuit fuse blown to unit.	Replace fuse.
	Defective door switch. Spark igniter not	Replace door switch.
	igniting gas. Air switch not operat-	Check ground.
	ing.	Clean out lint compartment daily. Check back draft damper for foreign objects, lint accumulation or other causes that may prevent damper from operating. 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 or water column, or less, for normal operation of dryer, 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.
	Air switch out of	See Air Switch Adjustment Sheet in Service Manual.
	adjustment. 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	Turn power ON.
	heating unit turned off. Defective relay. Defective	Replace relay.
	thermostat.	Replace thermostat.
	Defective safety Overload	Replace thermostat.
	Thermostat. Lint compartment door open.	Open door.

TROUBLESHOOTING CHART

TROUBLE	CAUSE	REMEDY
Main burners burning improperly.	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.	Defective ground.	Check ground.
Low or high gas flame.	Incorrect main burner orifices.	Replace orifices. Check factory for correct size.
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. Remove lint.
	Lint accumulated.	Must be full open or replace.
	Exhaust duct dampers.	Adjust gas pressure as specified on Rating Plate.
	High gas pressure.	Check Service section for recommended sizes. Remove
	Partially restricted or inadequately sized exhaust system.	obstructions or lint build up from duct work. NEVER use smaller size exhaust duct. ALWAYS use larger size. Replace thermostat.
	Defective thermostat.	Replace timer.
Dryer does not stop at end of time period (6).	Defective timer.	Check all valves in steam supply and return. Make sure
Dryer runs no steam to coils.	Valve closed.	they are OPEN. Remove and clean. Replace if defective.
	Steam Trap blocked.	On dryers using solenoid temperature control, thermostat
	Solenoid Valve.	controls operation of solenoid valve by advancing thermostat. On dryers using solenoid temperature control, thermostat
	Thermostat.	controls operation of solenoid valve. If defective, replace thermostat. Check for inlet and outlet marking on Check Valve and invert if
	Check valve installed incorrectly.	neccessary. Remove plug and blow down Strainer or remove and clean
Water in steam line.	Strainer clogged.	thoroughly if heavily clogged. Check piping per steam installation instructions.
	Steam piping installed incorrectly.	Check trap for size and capacity. If dirty and sluggish, clean
	Trap not functioning.	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 for 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 ignition period. This will continue until the number of retries has been used up. At that time, the module will go into safety lockout.

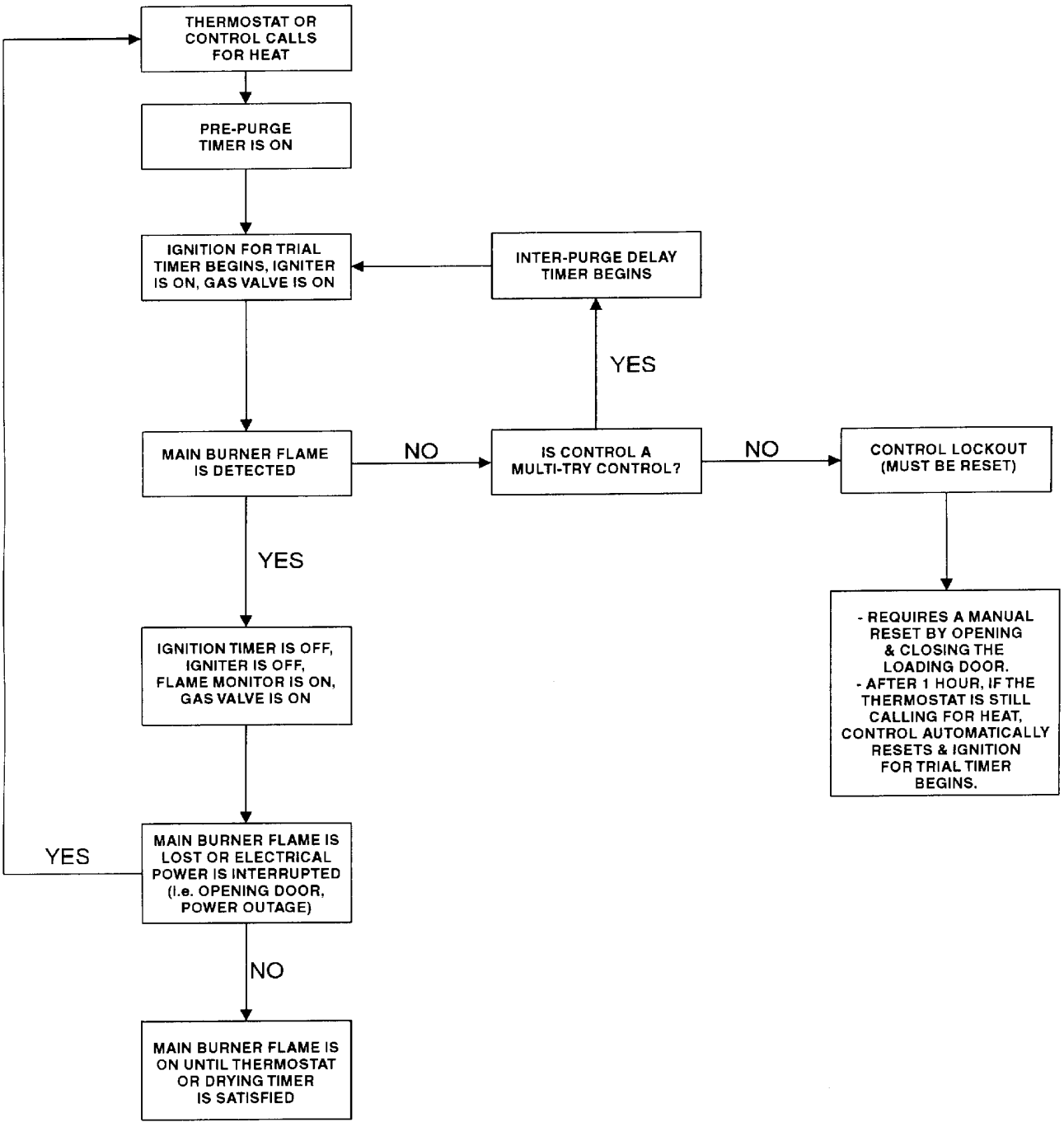
4. Recovery from safety lockout requires one of the following:
   a. A manual reset by opening and closing the loading door.
   b. After one hour if the control thermostat is still calling for heat, the module will automatically reset and the trial for ignition period will start over.

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.

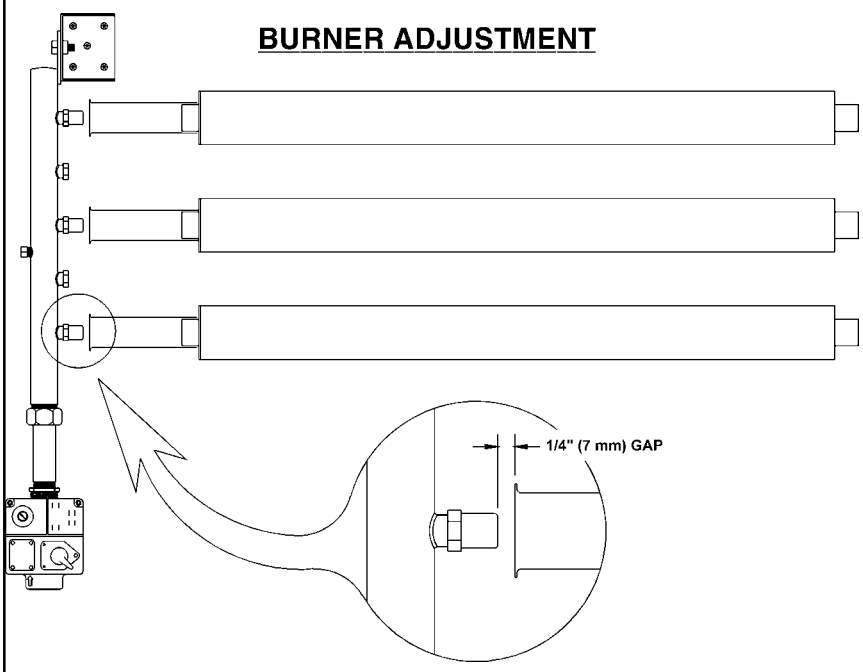
7. The machine will continue to run in a cooldown mode without heat. This process will cool the load to the touch and help to eliminate wrinkling.

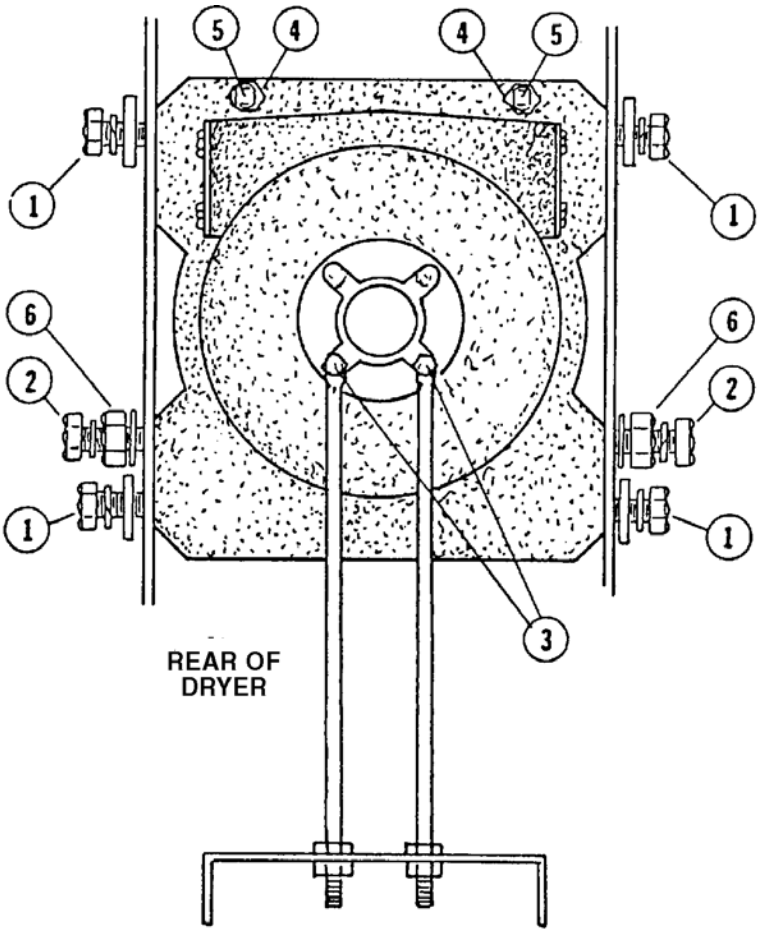
DIRECT SPARK IGNITION OPERATION FLOW CHART



DAILY	**CLEAN LINT TRAP DAILY.** Remove lint before starting day's operation. A clean lint trap will increase the efficiency of the dryer, as the moisture-laden air will be exhausted more quickly. **DRYER AREA.** Keep dryer area clean and free from combustible materials, gasoline and other flammable vapors and liquids. **SLIDING DOORS.** Check track for foreign objects.
WEEKLY	**UNITS HEATED BY STEAM.** Keep steam coils clean. Check periodically and clean often, as required. Remove lint and dirt build-up from fins. Dirty fins decrease the efficiency of units heated by steam. **GAS BURNERS.** Keep burners clean. Check periodically and clean often. **AIR PRESSURE.** Check airlines for water. Check/service any air regulator/filter per manufactures information. May need to do this check more often, depending on air quality.
MONTHLY	**FIRE DECTECTION AND SUPPRESSION SYSTEM (FDS).** Check FDS to make sure the system is working properly. See manuals for details.
THREE MONTHS	**CLEAN BASKET AND SWEEP SHEETS.** Clean periodically and/or as often as required. The basket and sweep sheets are easily accessible by removing the front panel of the dryer. **EXHAUST SYSTEM.** Check and clean. **GEAR MOTORS.** Check oil level. See separate information on gear motor for maintenance **GEAR REDUCER.** Maintain the correct oil level. See separate page on gear reducer operation and maintenance, for detailed information.
SIX MONTHS	**PULLEYS AND BELTS.** Keep belts clean. Oil and dirt will shorten the useful life of the belt. Never allow a belt to run against the belt guard. Check periodically for alignment. Pulley shafts must be parallel and the grooves must be aligned. Check and re-tighten pulley set screws periodically. Check belt tension periodically. Lower motor to increase tension by adjusting the nuts fastening the motor plate to the rod connected to the gear reducer. **MAKE-UP AIR.** Do not obstruct the flow of combustion (make-up) air and ventilating air. Check ducting for obstructions. **GAS PRESSURE.** Check gas pressure. **DRYER VOLTAGE.** Check dryer voltage per dryer Rating Plate. **AIR SWITCH.** Check air switch alignment. Some models do not have air switches.
YEARLY	**ELECTRIC MOTORS.** Keep motors clean and dry. **LOADING DOOR GASKET.** Check for tears, rips, gashes, etc. Replace if damaged.

BURNER AIR INLET ADJUSTMENT




5
4
4
5
1
1
6
6
2
2
1
1
3
REAR OF
DRYER

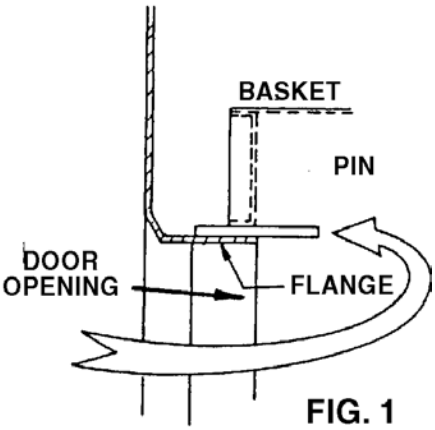

BASKET
PIN
DOOR
OPENING
FLANGE

FIG. 1

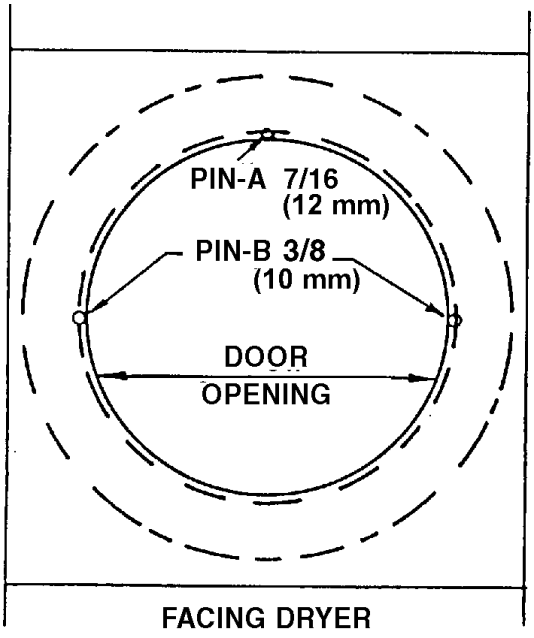

PIN-A 7/16
(12 mm)
PIN-B 3/8
(10 mm)
DOOR
OPENING
FACING DRYER

FIG. 2

INSTRUCTIONS FOR ALIGNING BASKETS ON 110 LB. DRYERS

INSTRUCTIONS

1. Loosen bolts number one (1) through five (5).

2. Place pin "A" in position shown in figures 1 and 2.

3. Check pins "B" at position shown in figures 1 and 2 for equal clearance.

4. If pin "B" clearance is unequal, adjust at nut #6.

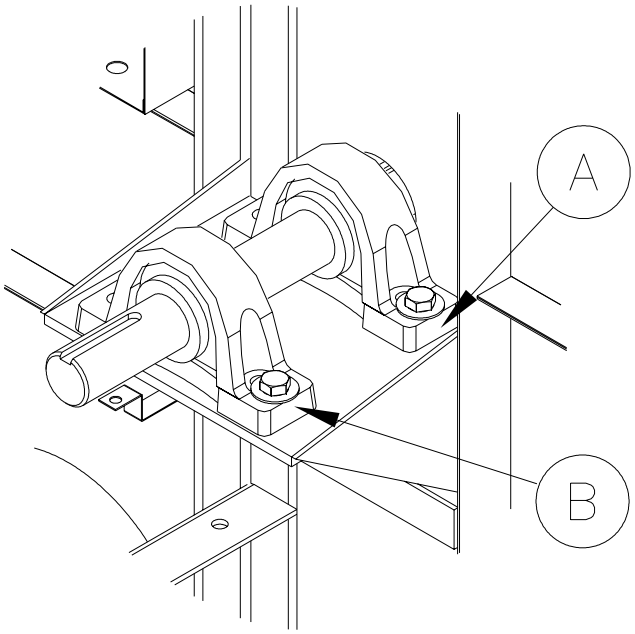
5. When clearance at pin "B" is correct, tighten bolts #1 in the following order, as viewed from rear of dryer, top right, bottom left, top left and bottom right.

6. Tighten bolts #5 until flush against back of dryer. Tighten lock nut #4 to secure bolt #5 in position.

7. Tighten bolts #2 and #3.

8. Remove pin "A" and check for proper clearance at points "A" and "B". If clearance is incorrect, repeat the above steps.

NOTE
Use short sections of round steel rod for pins or drill bits may be used in place of round rod.



Jacket Rear View

BASKET TOO LOW

If there are shims under Bearing B;

1. Loosen bolts
2. Remove shim(s).
3. Tighten bolts - check alignment.

If there are no shims under B;

1. Loosen bolts on bearing A.
2. Add shim(s) under bearing A.
3. Tighten bolts - check alignment
4. Repeat until aligned.

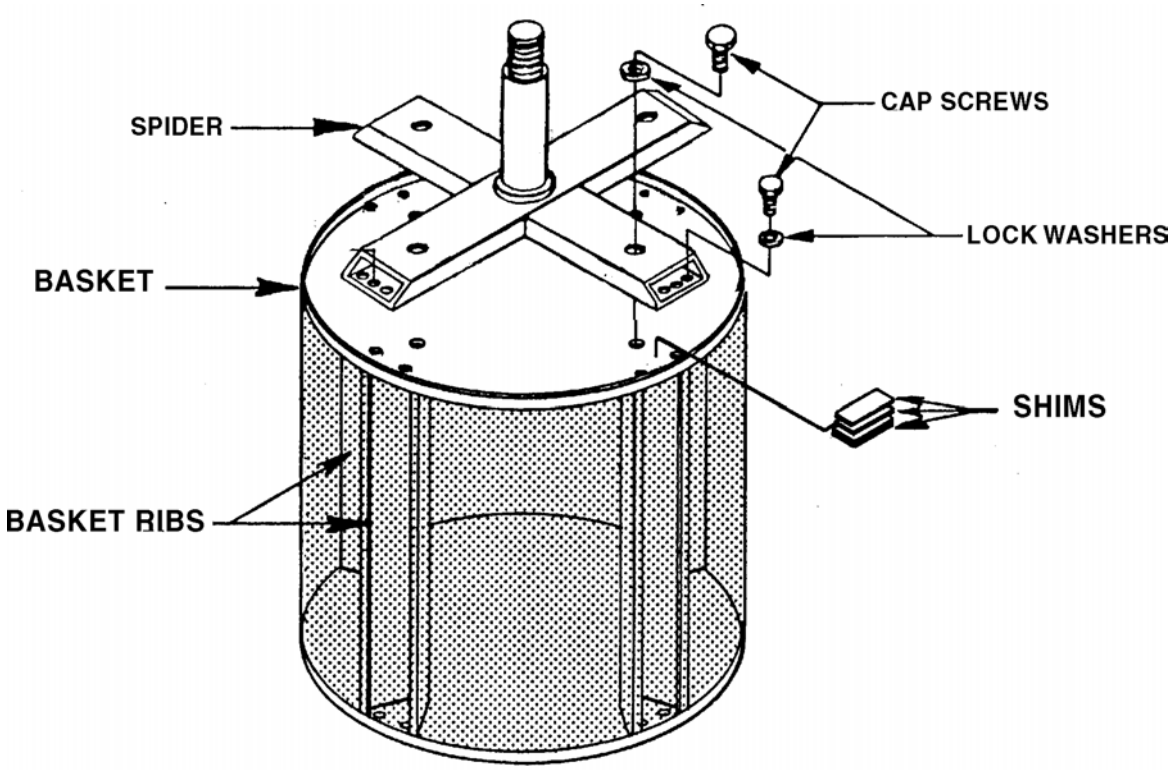
BASKET TOO HIGH

If there are shims under A;

1. Loosen bolts
2. Remove shim(s).
3. Tighten bolts - check alignment.

If there are no shims under A;

1. Loosen bolts on bearing B.
2. Add shim(s) under bearing B.
3. Tighten bolts - check alignment
4. Repeat until aligned



INSTRUCTIONS FOR SHIMMING THE BASKET AND SPIDER ASSEMBLY

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

A. Align the basket as per instructions on the previous page.
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. If it is between two ribs, both ribs may need to be shimmed.
D. Remove the basket from the dryer (do not loosen the alignment bolts).
E. With the basket on the floor (spider up), loosen the cap screws and tie rod nuts enough to insert one or two shims between the spider leg and the basket at the marked position. With shims in place, tighten the screws and nuts.
F. Install spider and basket assembly and check again.
G. If basket is still out-of-round, start at *Step B* and repeat procedure.
H. When shimming is completed, re-align basket.

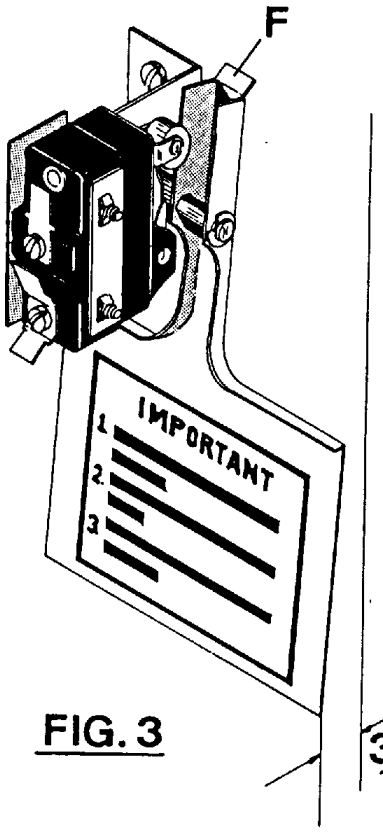


FIG. 3

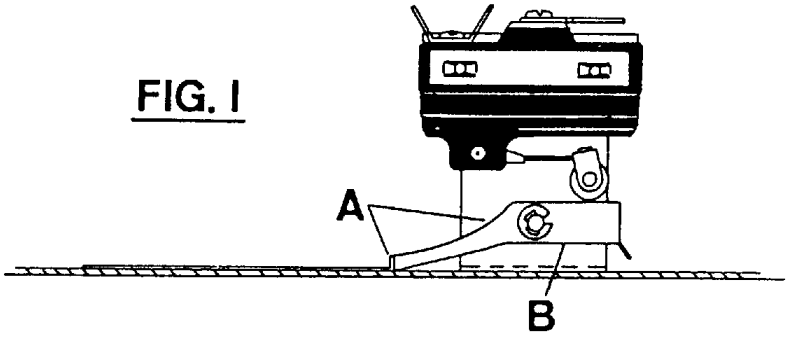


FIG. I

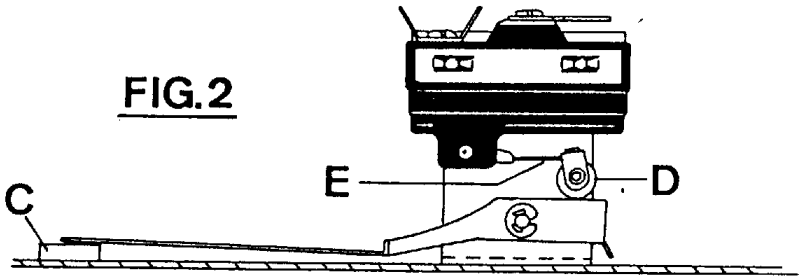


FIG.2

3/4" (20 mm)

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" (10 mm x 16 mm) 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" (20 mm) (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.

INSTRUCTIONS FOR DRYERS WITH REVERSING CONTROL TIMER

Instructions

In operation, coasting of basket increases, making it necessary to readjust reversing timer.

> **CAUTION**
> **Failure to do this will cause the thermal overload units for the basket to cut-out unnecessarily and probably damage the gear reducer.**

Adjustment of reversing timer dwell time

> **CAUTION**
> **Dryer power supply must be shut off before adjusting timer.**

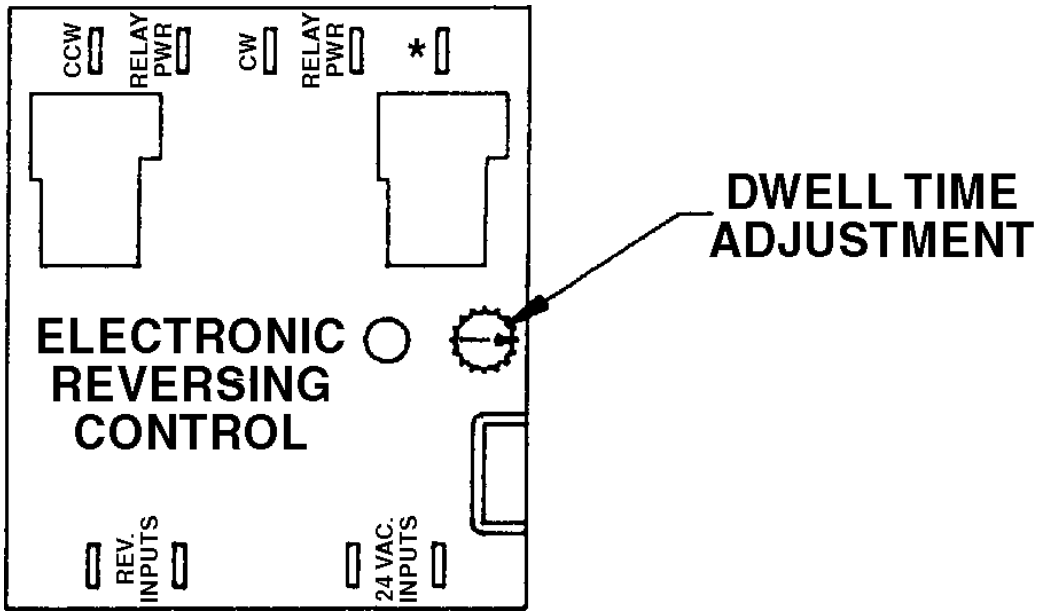
The dwell time is the time from when the motor turns "off", to when it turns "on" again in the opposite direction.

Turning the dwell adjustment knob counter-clockwise increases the dwell time and turning it clockwise decreases the dwell time.

Recommended dwell time for the basket to stop completely is 5 to 7 seconds. Minimum basket stopping time is
4 seconds.

> **NOTE**
> **Select non-reversing or reversing before starting dryer.**

> **NOTE**
> **Fan rotates counter-clockwise as viewed from back end of motor. See arrow on motor support. to change rotation, reverse power leads L1 and L2.**



INSTRUCTIONS FOR DRYERS WITHOUT REVERSING CONTROL

FAN AND BASKET ROTATION

Instructions

NOTE
Fan rotates counter-clockwise as viewed from back end of motor. See arrow on motor support.

Basket rotates counter-clockwise as viewed from back end of motor. See arrow on motor support.

Basket rotates clockwise as viewed from front of tumbler.

To change rotation of both fan and basket, reverse power leads L1 and L2.

To change rotation of fan only, reverse motor leads F1 and F2.

To change rotation of basket only, reverse motor leads B1 and B2.

LARGE GEAR REDUCER MAINTENANCE

LARGE GEAR REDUCER MAINTENANCE

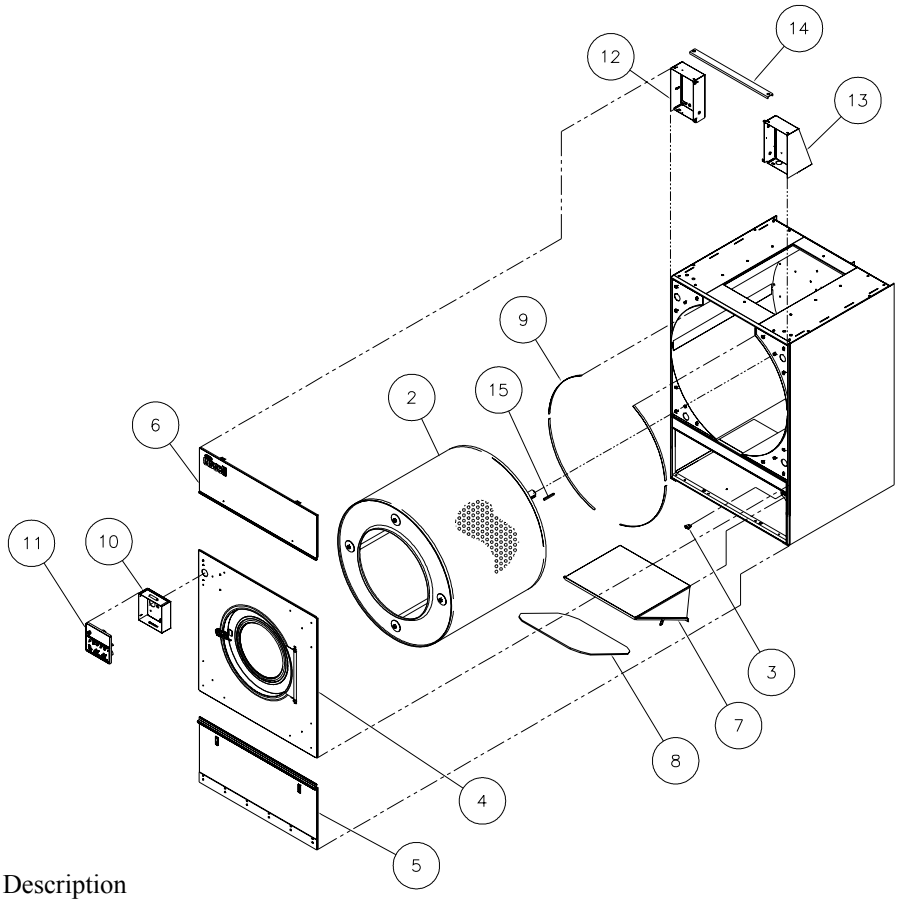
Before placing the dryer in operation, check the oil level. If the oil level is correct, it can be checked by removing the fill overflow plug on the right hand side of the gear reducer (facing rear).

If oil must be added, remove the pop-off valve at the top of the gear reducer and add as needed.

CHANGE OIL ONCE EVERY 6 MONTHS.

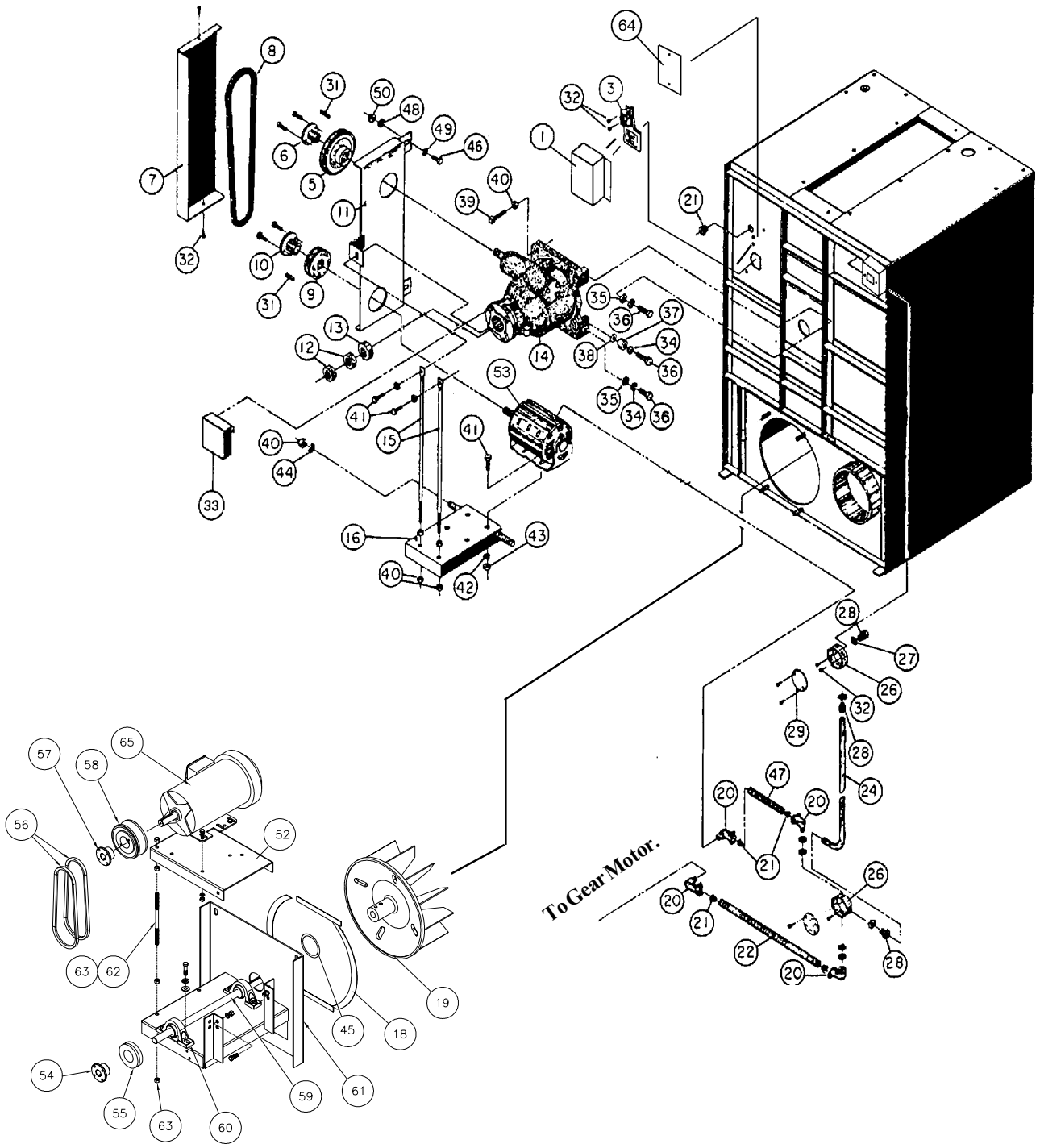
WARNING:
Oil level shall not exceed 52 oz.
Please drain oil to oil level plug if required.

FRONT VIEW



Ref. No.	Part No.	Description
2	TU9608	Basket and Spider Assembly (Galvanized) (TM200 Gear Reducer)
	TUS9608	Basket and Spider Asembly (Stainless Steel) (TM200 Gear Reducer)
	TU16029	Basket and Spider Assembly (Galvanized) (Gear Motor)
	TUS16029	Basket and Spider Asembly (Stainless Steel) (Gear Motor)
	TU9609	Basket, without Spider (Galvanized)
	TUS9609	Basket, without Spider (Stainless Steel)
	TU13340	Spider, without Basket (TM200 Gear Reducer)
	TU16027	Spider, without Basket (Gear Motor)
3	EA-11621-0	Lint Door Switch
4	TU15449	Time/Temp. Front Panel Asm. (Specify color)
5	TU14627	Lint Door Assembly
6	TU14624	Burner Access Door Asm. (Specify color)
7	TU10345	Lint Trap Hood
8	K121	Frame Lint Screen (only)
	K368	Screen (only)
9	430146179	Gasket
10	TU15605	Control Box with Hardware (Specify color)
11	******	Control Panel Asm. (See Details)
12	TU15456	Left Hand Control Box Asm. (Specify color)
13	TU15455	Right Hand Control Box Asm. (Specify color)
14	TU5674	Control Box Brace
15	TU9975	Key (TM200 Gear Reducer)
	TUX454	Key (Gear Motor)

REAR VIEW (TM200 GEAR REDUCER)

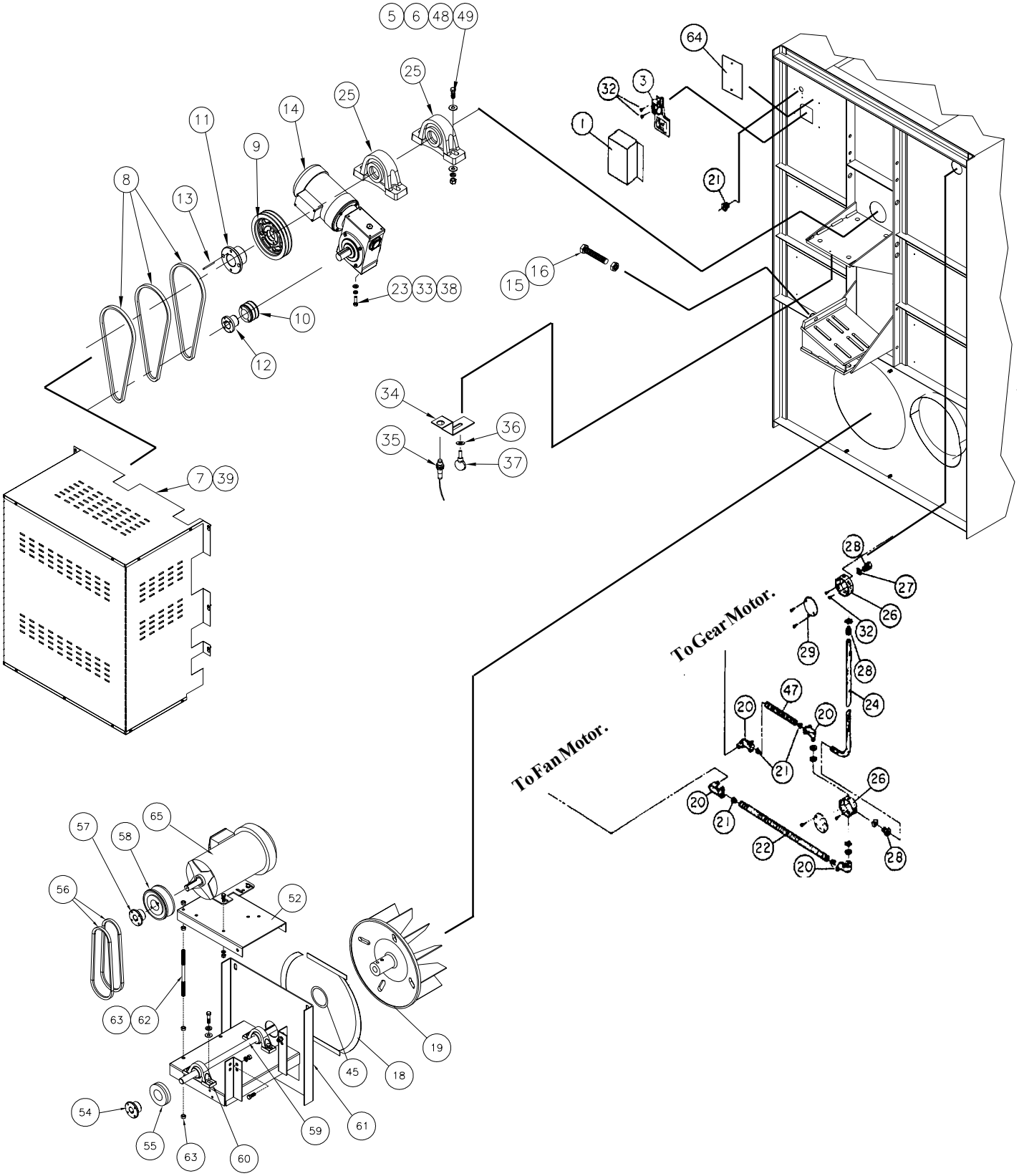


See following page for part numbers.

REAR VIEW (TM200 GEAR REDUCER)

1	TUX415	Air Switch Cover
3	TU8206	Air Switch Assembly
5	TU9663	Gear Sheave (50/60 Hz.)
6	TU3807	Sheave Bushing
7	TU14092	Rear Guard Cover Plate
8	TU2363	"V" Belt 5L500
9	TU9751	Motor Sheave—60 Hz.
	TU6081	Motor Sheave—50 Hz.
10	TU2007	Sheave Bushing
11	TU9615	Inside Belt Guard
12	TU470	1 - 3/8" - 12 Hex Nut
13	TU6633	Basket Shaft Washer
14	TM200	Gear Reducer
15	TU5328	Belt Adjusting Rod
16	TU4626	Basket Motor Mount Weldment
18	TU2473	Gasket Set
19	TU6086	Fan Wheel
20	TU4791	90° Elbow Connector
21	TU2372	Snap Bushing
22	CFB2100	1/2" Greenfield Cable - 21" Long
23	TU6026	Top Motor Conduit
24	TU13834	Back Motor Conduit
25	TU6028	Power Lead Conduit
26	500300644	Junction Boxes (2)
27	TU7130	1/2" Straight Connector (2 each)
28	TU7131	3/4" Straight Connector (2 each)
29	SB170	Junction Box Cover (2)
31	TU4684	Key (2 each)
32	TU7733	#8 - 18 x 1/2" Self Tap Screw (Pkg. of 6)
33	TU7517	Shaft Cover "C" Only
34	TU2831	1/2" Split Lockwasher (Pkg. of 6)
35	TU1851	1/2" Flat Washer
36	TU2195	1/2" - 13 x 1 3/4" Hex Head Cap Screw (Pkg. of 6)
37	TU455	Cam Adjustment Nut
38	TU3575	7/8" I.T. Lockwasher
39	TU5312	3/8" - 16 x 3" Sq. Hd. Set Screw
40	TU4787	3/8" - 16 Hex Nut (Pkg. of 6)
41	TU5439	5/16" - 18 x 3/4" Hex Hd. Cap Screw (Pkg. of 6)
42	TU2814	5/16" Split Lockwasher (Pkg. of 6)
43	C249	5/16" - 18 Hex Nut (Pkg. of 6)
44	VSB134	3/8" Split Lockwasher (Pkg. of 6)
45	TU108	Felt Seal
46	FB189	1/4" - 20 x 1" Hex Head Screw
47	CFB1000	1/2" Greenfield Cable—10" L
48	TU2846	1/4" Split Lockwasher (Pkg. of 6)
49	TU2847	1/4" Flat Washer (Pkg. of 6)
50	TU4934	1/4" - 20 x 7/16" Hex Nut (Pkg. of 6)
52	TU4706	Plate, MTR. Mount
53	MTR100	Motor, 1-1/2 Hp. (600/60/3)
	MTR304	Motor, 1-1/2 Hp. (208-480/50/60/3)
54	TU3807	Bushing, Sheave 3/4"
55	TU2009	Sheave, 3.9 (60 Cycle)
	TU15793	Sheave, 3.4 (50 Cycle)
56	TU3393	Belt, V
57	TU6723	Bushing, Sheave, 1-1/8"
58	TU2008	Sheave, 4.6
59	TU1693	Shaft, Jack 3/4"
60	TU16035	Bearing, Pillow Block 3/4"
61	TU5659	Mount, Motor
62	TU1950	Rod, Motor Support
63	TU4787	Nut, 3/8-16 H.H.
64	TU5507	Plate, Cover (Steam Only)
65	MTR318	Motor, 3 Hp.

REAR VIEW (GEAR MOTOR)

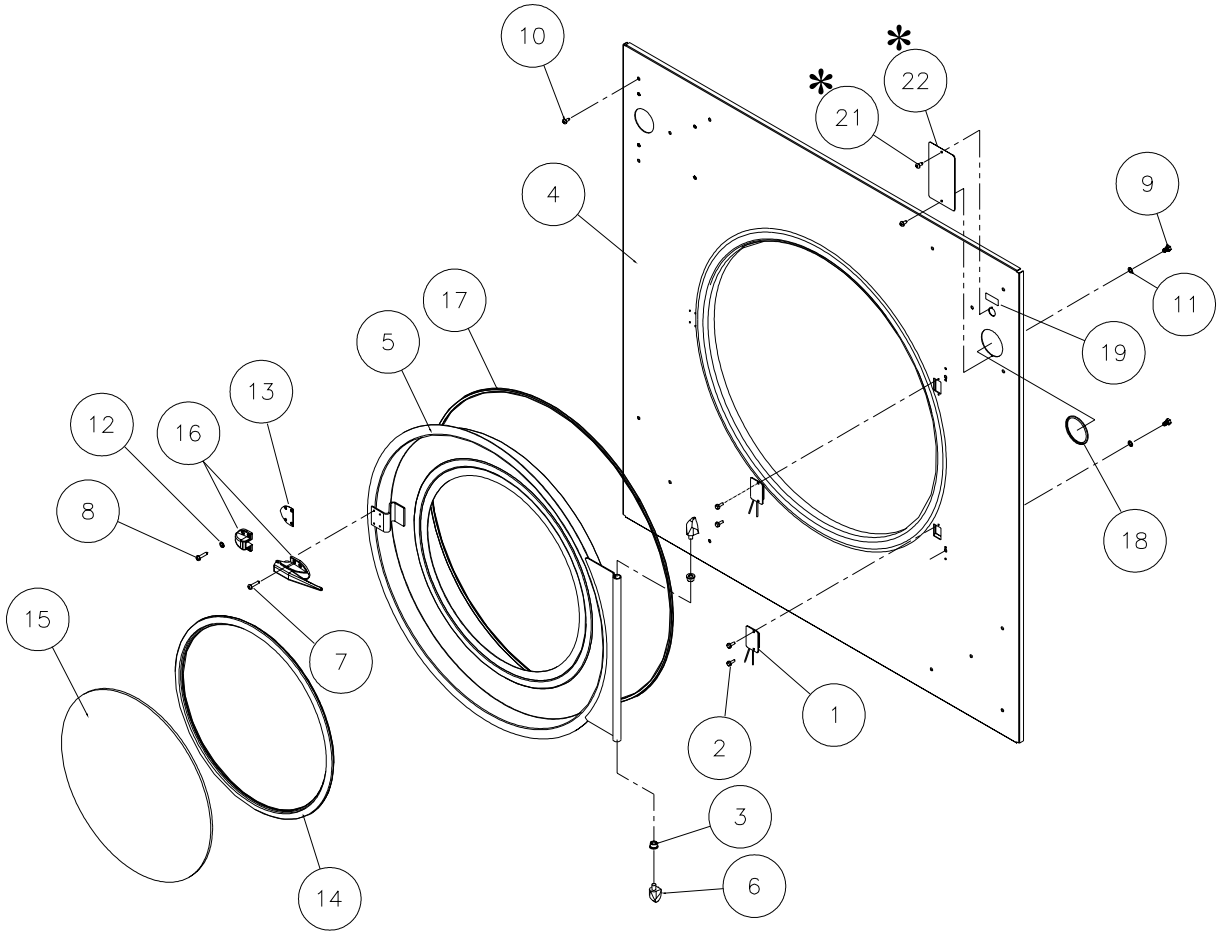


See following page for part numbers.

REAR VIEW (GEAR MOTOR)

1	TUX415	Air Switch Cover
3	TU8206	Air Switch Assembly
5	TU3418	Washer, Lock, 5/8"
6	TUX328	Nut, Hex, 5/8-11
7	TU16046	Beltguard
8	TU16091	Belt, BX47 (60 Cycle)
	TU16085	Belt, BX46 (50 Cycle)
9	TU16043	Pulley, 3B86 (60 Cycle)
	TU16064	Pulley, 3B80 (50 Cycle)
10	TU16042	Sheave, 3B44
11	TU16021	Bushing, SK2
12	TU16045	Bushing, SH 1-3/8
13	TUX454	Key, 1/2" Sq.
14	TUX594	Gear Motor, 2 Hp.
15	TUX575	Adjusting Rod
16	TU2881	Nut, Hex, 5/8-18
18	TU2473	Gasket Set
19	TU6086	Fan Wheel
20	TU4791	90° Elbow Connector
21	TU2372	Snap Bushing
22	CFB2100	1/2" Greenfield Cable - 21" Long
23	TU16092	Screw, 7/16-14 x 1 1/4" Long
24	TU13834	Back Motor Conduit
25	TU16016	Pillow Block Bearing, 2"
26	500300644	Junction Boxes (2)
27	TU7130	1/2" Straight Connector (2 each)
28	TU7131	3/4" Straight Connector (2 each)
29	SB170	Junction Box Cover (2)
32	TU7733	#8 - 18 x 1/2" Self Tap Screw (Pkg. of 6)
33	TU16099	Washer, Lock, 7/16"
34	TU16015	Bracket, Rotation Sensor
35	TU14414	Sensor, Rotation
36	TU4820	Washer, Flat, 3/16"
37	FR244	Screw, Thumb, #10-32
38	TU16100	Washer, Flat, 7/16"
39	SB-00837-0	Screw, #8
45	TU108	Felt Seal
47	CFB1000	1/2" Greenfield Cable—10" L
48	TUX329	Washer, Flat, 5/8"
49	TU16030	Screw, 5/8-11 x 2-3/4" Long
52	TU4706	Plate, MTR. Mount
54	TU3807	Bushing, Sheave 3/4"
55	TU2009	Sheave, 3.9 (60 Cycle)
	TU15793	Sheave, 3.4 (50 Cycle)
56	TU3393	Belt, V
57	TU6723	Bushing, Sheave, 1-1/8"
58	TU2008	Sheave, 4.6
59	TU1693	Shaft, Jack 3/4"
60	TU16035	Bearing, Pillow Block 3/4"
61	TU5659	Mount, Motor
62	TU1950	Rod, Motor Support
63	TU4787	Nut, 3/8-16 H.H.
64	TU5507	Plate, Cover (Steam Only)
65	MTR318	Motor, 3 Hp.

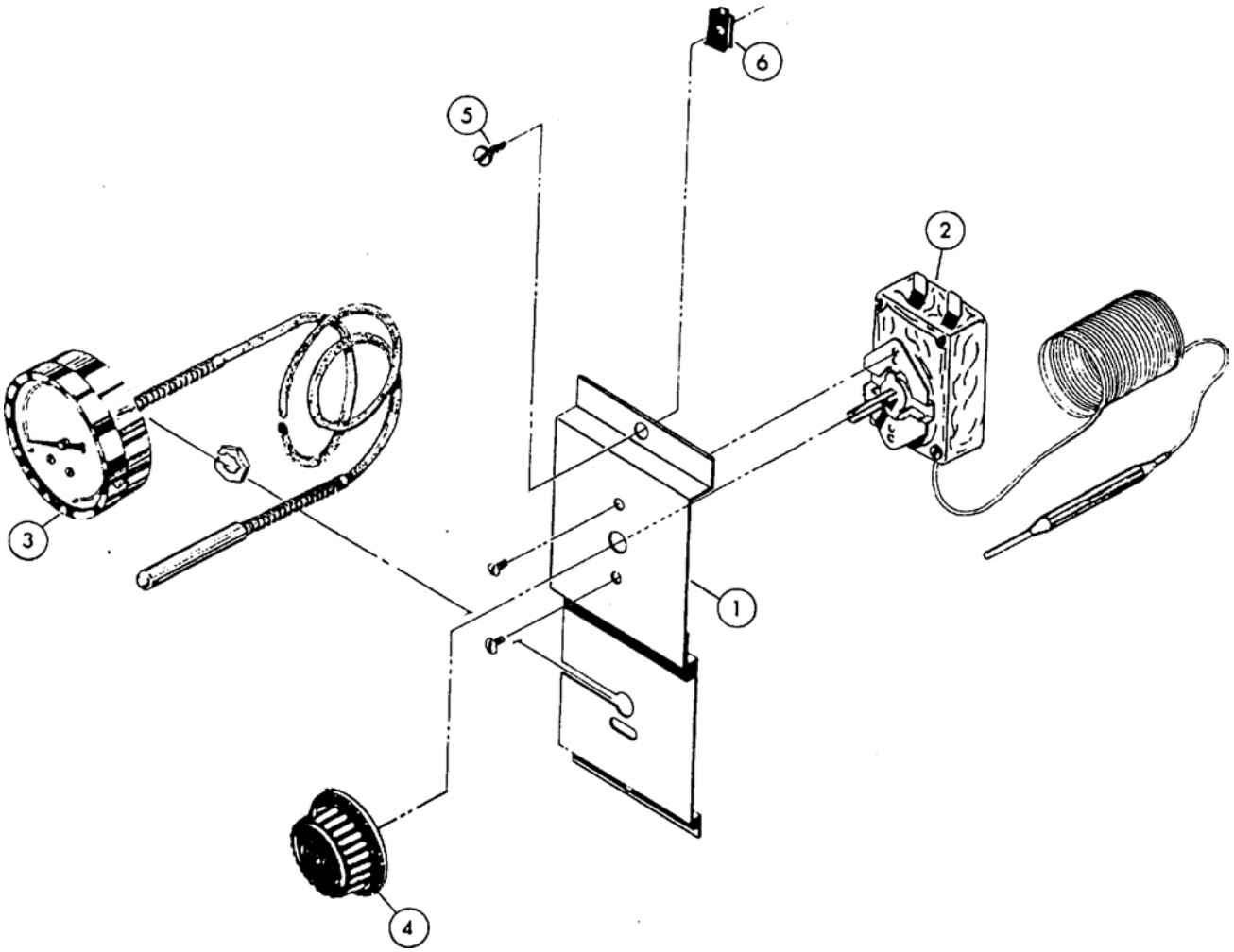
TU15449 FRONT PANEL ASSEMBLY



* Cover plate used for DMP and PRO HC.

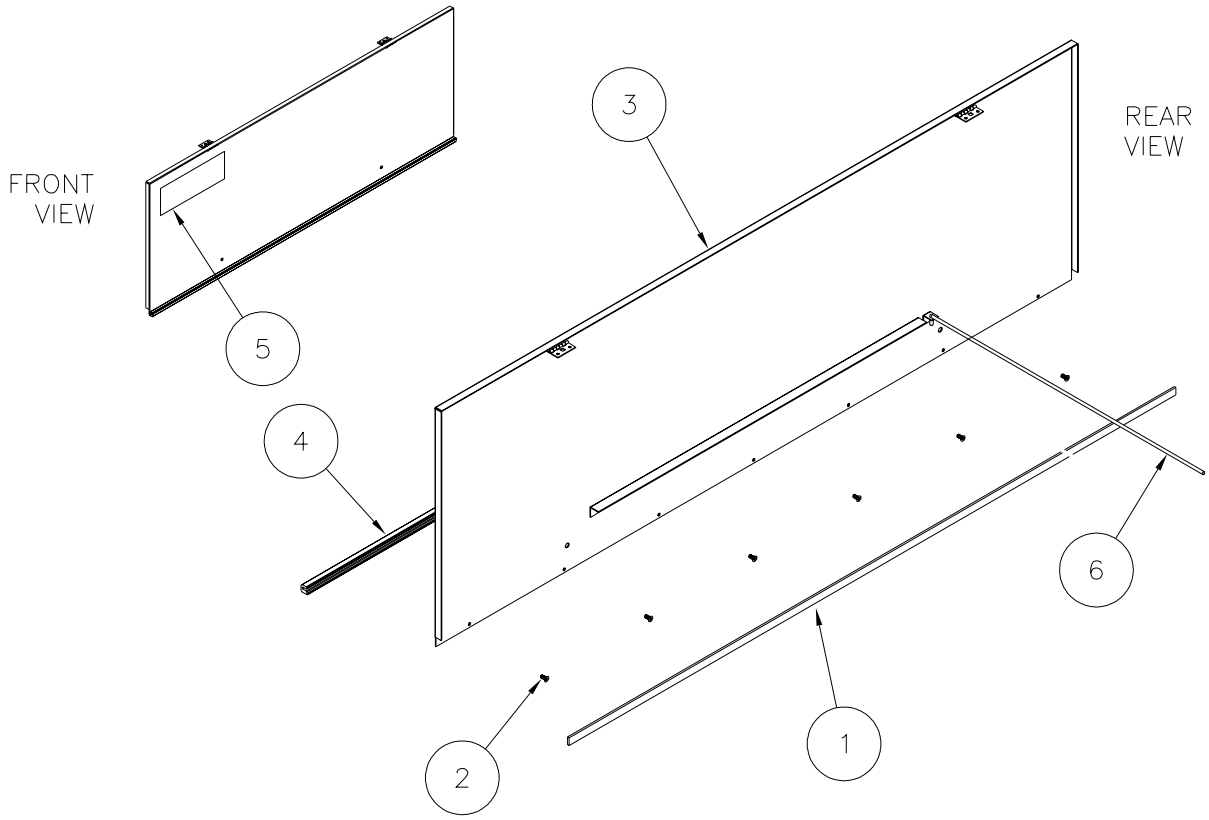
Ref. No.	Part No.	Description
1	EA-00652-0	Reed Switch
2	SB-00975-0	#6-32 Screw
3	PIF172	Hinge post bearing
4	TU15448	Front panel (Specify color)
5	TU14483	Loading door (Specify color)
6	TU2236	Hinge post
7	TU2686	#8-32 Pan Hd. screw
8	TU2687	#8 Ph. Hd. screw
9	TU2836	5/16-18 H.H. screw
10	TU3209	#14 Pan Hd. screw
11	TU3212	5/16 Lock washer
12	TU3785	#8 E.T. Cup washer
13	TU5503	Door latch spacer
14	TU15966	Gasket
15	TU15107	Door glass - 20 1/4”
16	TUA2319H	Door latch w/keeper
17	TU5288	Door gasket
18	TU2641	Thermometer gasket
19	TU5458	Temperature label
20	TU6030	Thermostat asm.(see detail)
*21	TU7733	#8 X 1/2 Lg. Screw
*22	TU15525	Cover plate (Specify color)

THERMOSTAT ASSEMBLY - 2 TIMER



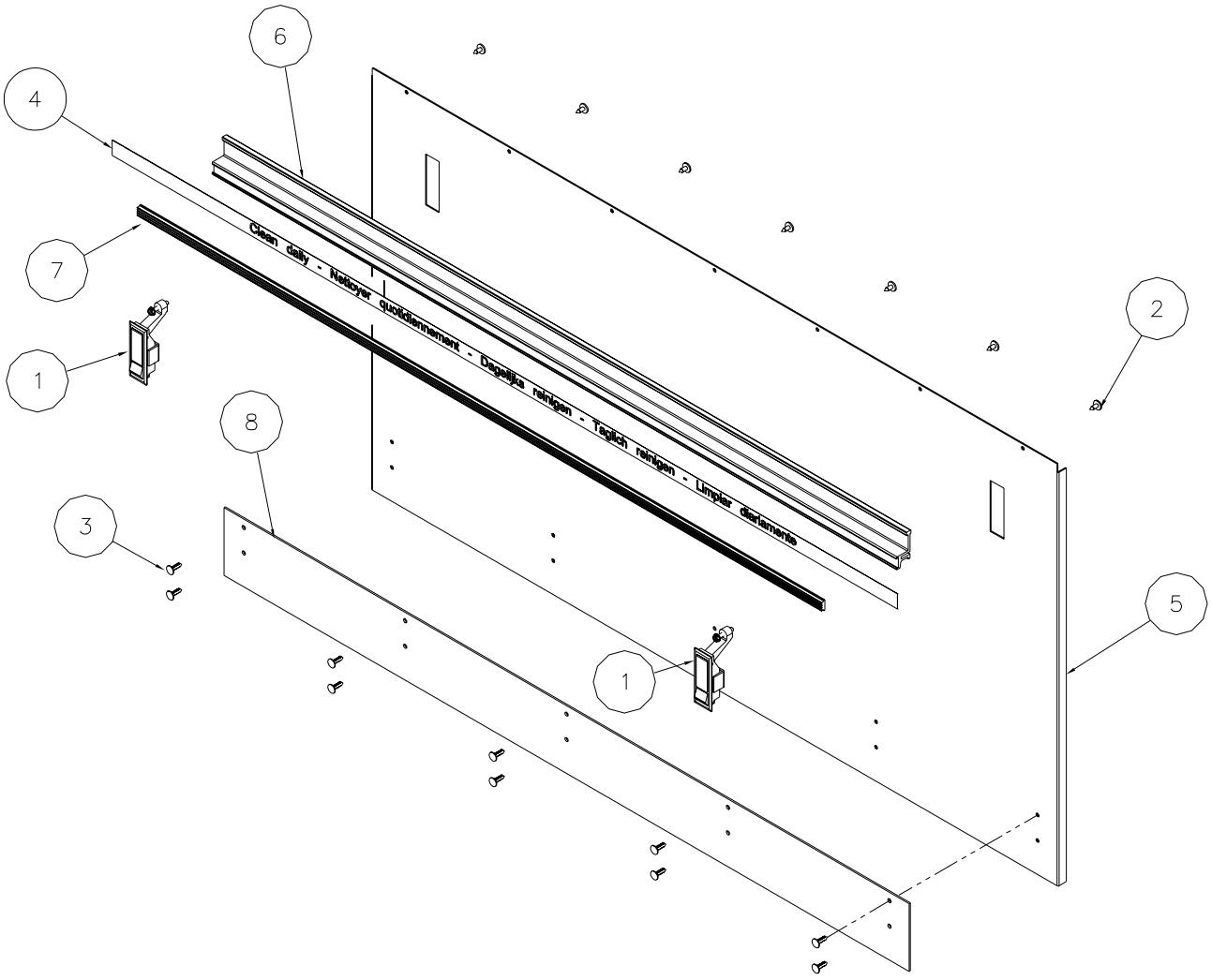
Ref. No.	Part No.	Description
TU6030	Assembly, Thermostat	
1	TU5530	Mounting Bracket
2	TU1980	Thermostat
3	TU3593	Thermometer
	TU3816	Lens Replacement (Texas Gage ONLY)
	TU8475	Lens Replacement (Marshaltown Inst. ONLY)
	TU11193	Lens Replacement (Weiss—consult factory)
	TU13213	Lens Replacement (Weiss—consult factory)
4	TU490	Thermostat Knob (Fahrenheit)
	TU491	Thermostat Knob (Centigrade)
5	TU3209	#14 x 5/8" S.M.S.
6	TU7848	#14 Tinnerman Clip

BURNER ACCESS DOOR

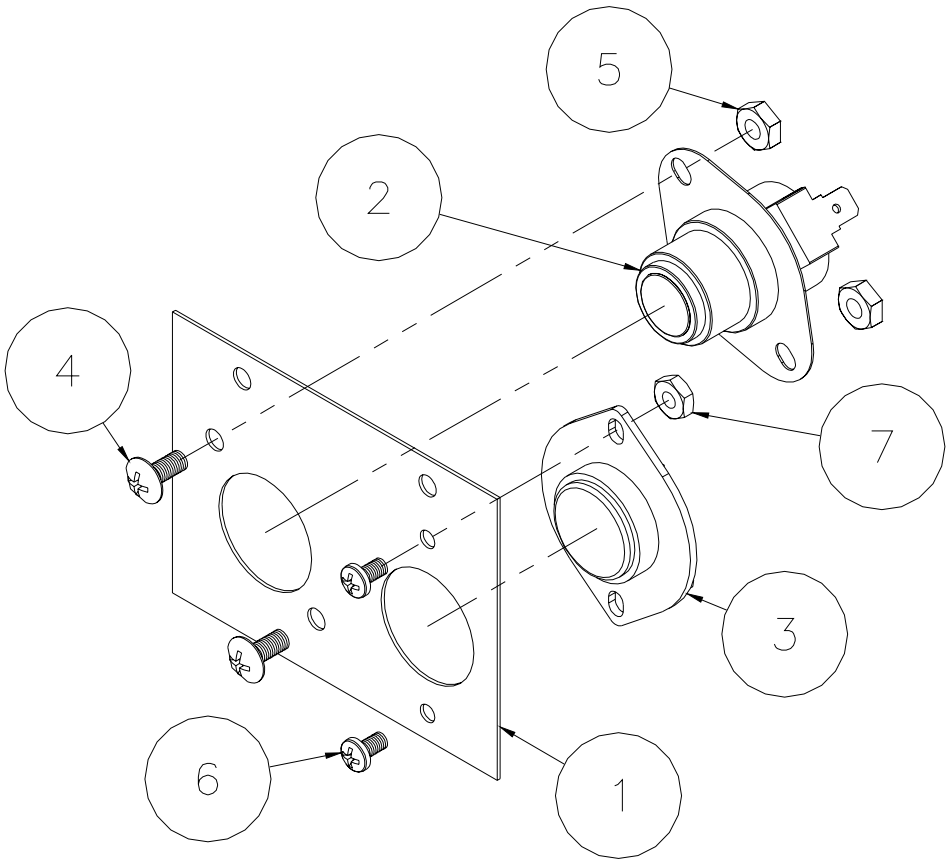


Ref. No.	Part No.	Description
TU14624 - Burner Access Door complete (Specify color)		
1	CA-13098-0	Gasket, DR dryer control doors
2	SB-00951-0	Screw,#8 X 7/16" Philips F.H.
3	TU14622	Asm, Access door weld (Specify color)
4	TU14623	Trim, Burner access door
5	IPSO	Logo, IPSO
6	TU5739	Rod, support arm

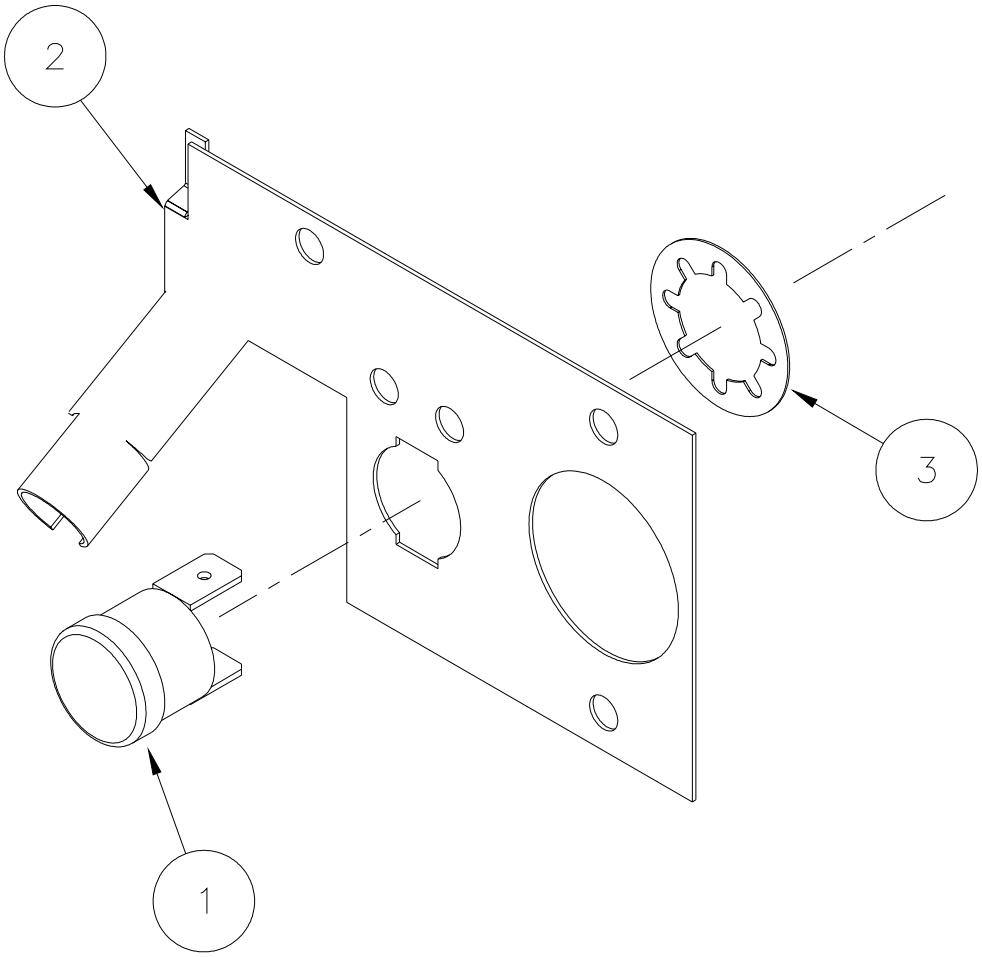
LINT DOOR ASSEMBLY



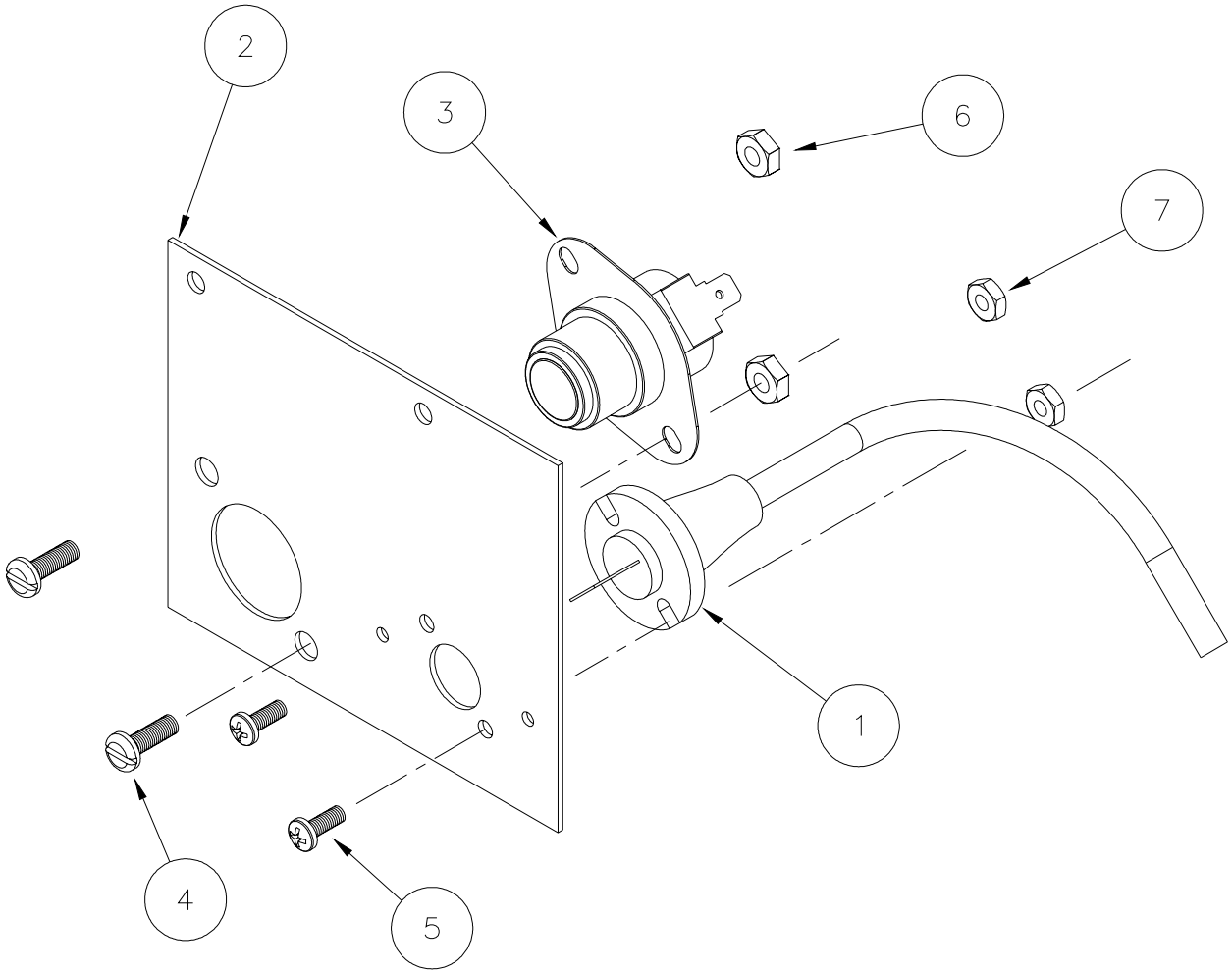
Ref. No.	Part No.	Description
TU14627	Lint Door Complete (Specify color)	
1	LA-00123-0	Latch
2	SB-00836-0	Screw, Pancake
3	SB-00949-0	Fastener, Kickplate
4	TU15410	Label, 5 Language
5	TU14626	Lint Door Welded Asm. (Specify color).
6	TU14529	Handle
7	TU14530	Trim
8	TU14640	Kickplate



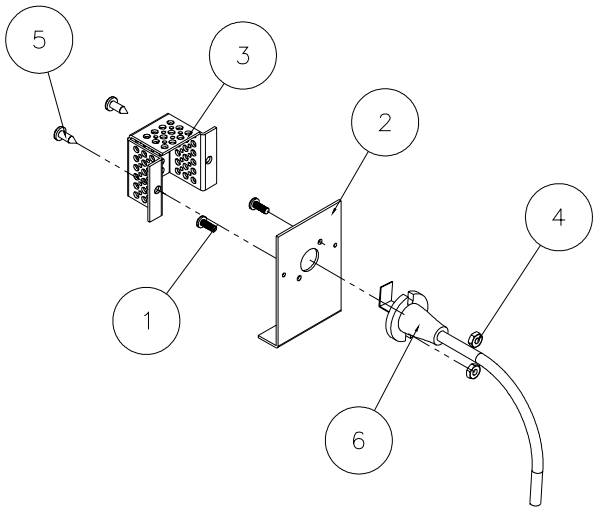
Ref. No.	Part No.	Description
TU15538		DMP Thermostat Assembly
1	TU15537	Bracket
2	EA-00411-0	Switch - 220 degrees
3	TU11991	Thermistor
4	M262	Screw, #8-32
5	TU3266	Nut, hex brass #8-32
6	TU3624	Screw, #6-32
7	TU3400	Nut, hex brass #6-32



Ref. No.	Part No.	Description
	TU6029 - Thermostat Assembly	
1	TU2477	Thermostat #AR594
2	TU2486	Bracket
3	TU3801	Nut, speed #C18784-010-4

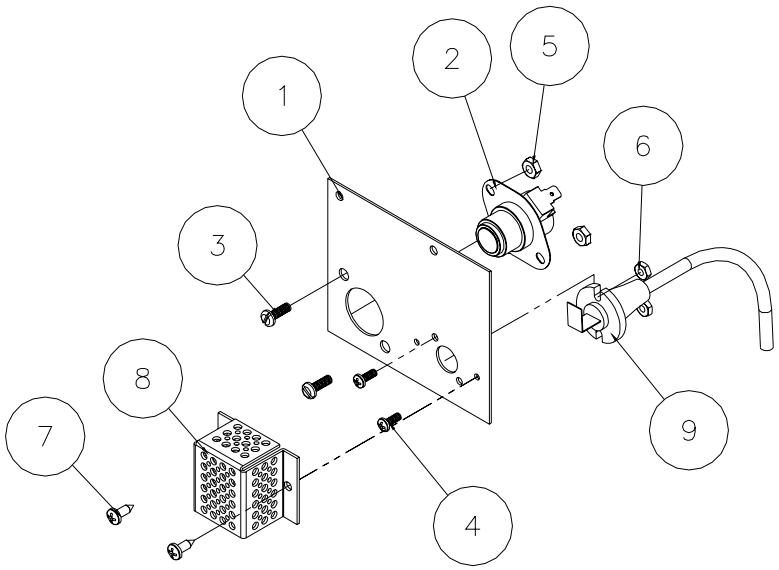


Ref. No.	Part No.	Description
	ESA-00940-0	Sensor Assembly
1	254/00009/10	Thermistor
2	CA-23067-0	Thermostat
3	EA-00411-0	Switch, 220 Degrees
4	SB-00828-0	Screw, Mach. P.H. #8-32 X 1/2
5	SB-00952-0	Screw, P.H. #6-32 x 3/8
6	TU3266	Nut, Hex #8-32
7	TU3400	Nut, Hex #6-32



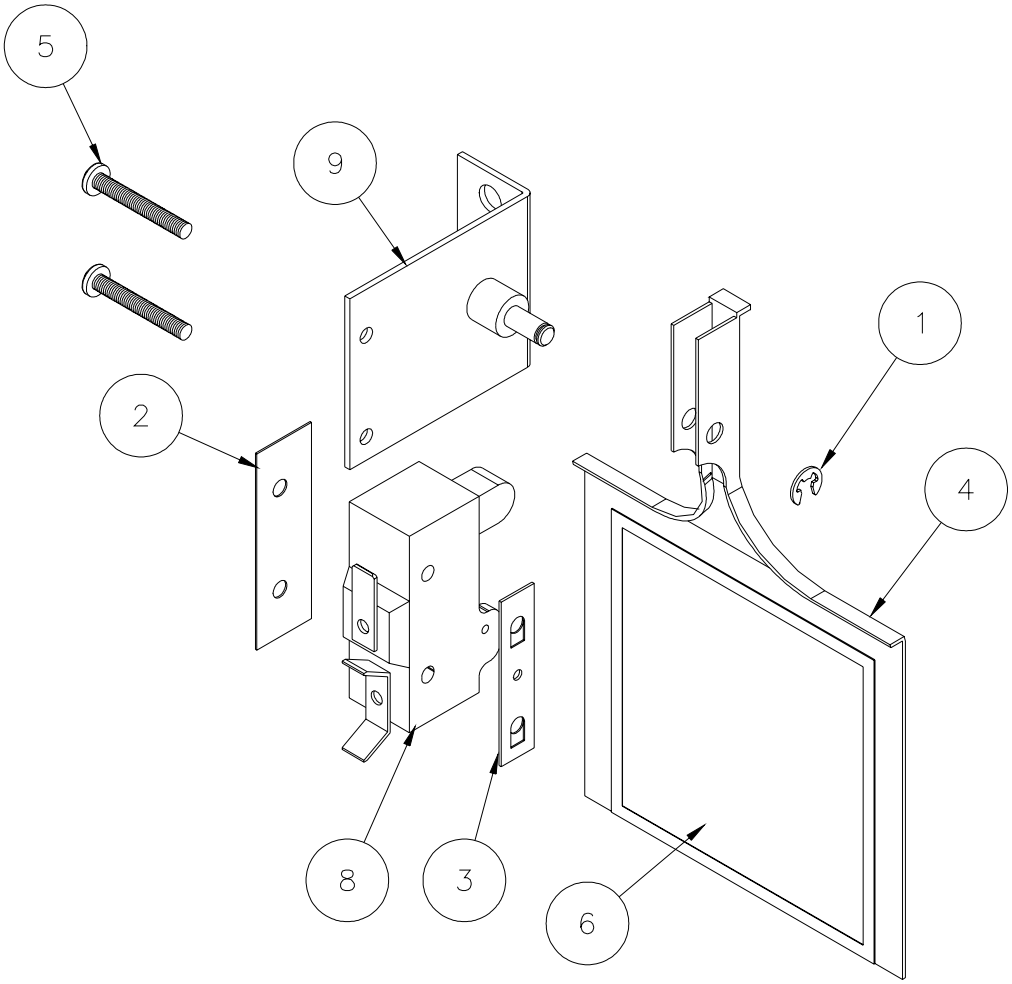
UPPER ASSEMBLY

Ref. No.	Part No.	Description
		TU14724 PROHC Sensor assembly (upper)
1	SB-00952-0	Screw, #6-32x 3/8" long
2	TU14693	Mounting plate upper probe
3	TU14694	Cover plate, probe
4	TU3400	Nut, #6-32
5	TU7733	Screw, self drill #8-18x 1/2" long
6	254/00060/00	Humidity sensor



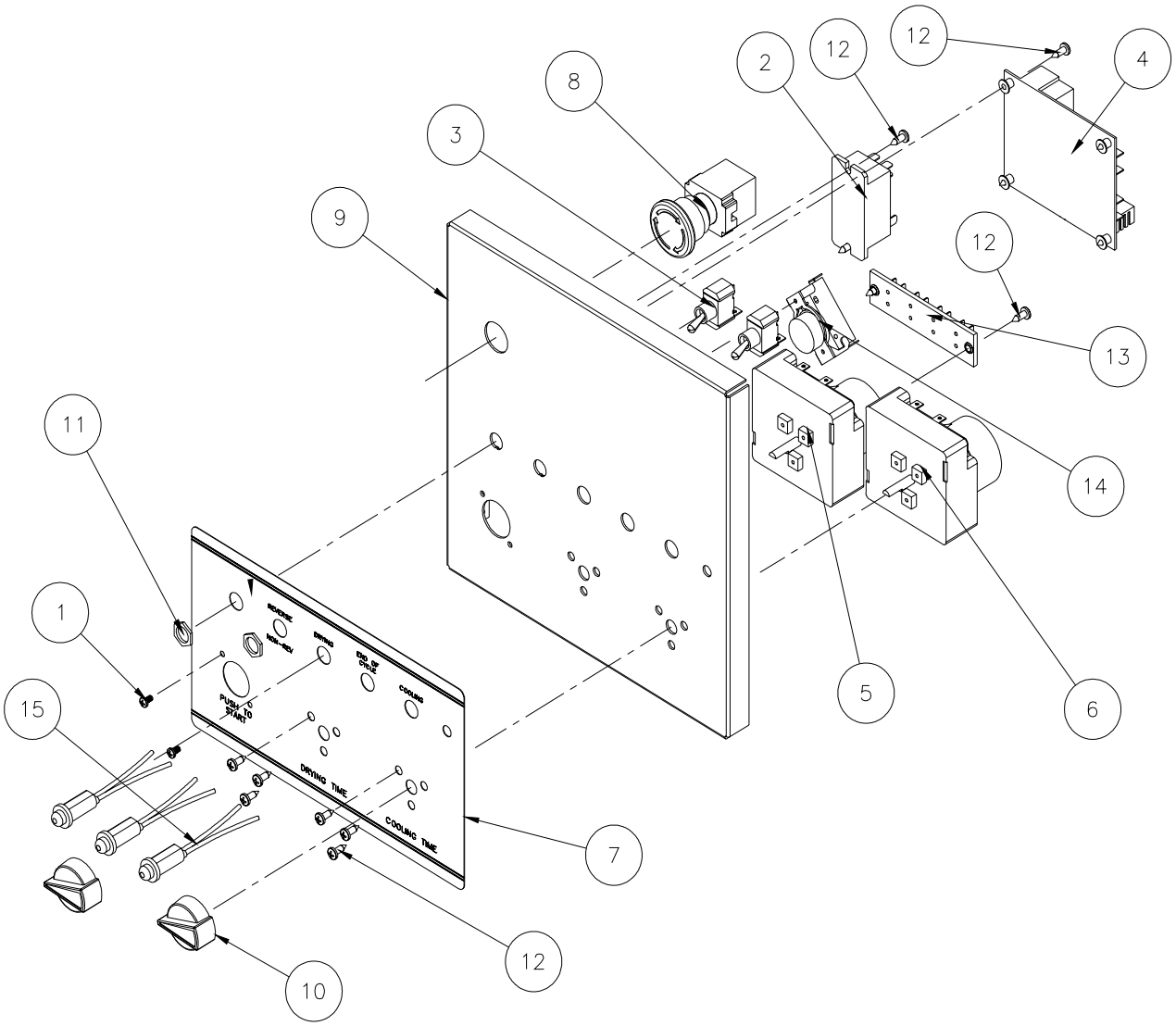
LOWER ASSEMBLY

		Description
		TU14723 PROHC Sensor assembly (lower)
1	CA-13067-0	Bracket (sensor)
2	EA-00594-0	Switch, 220 degrees
3	SB-00828-0	Screw, machine #8-32x 1/2" long
4	SB-00952-0	Screw, #6-32x 3/8" long
5	TU3266	Nut, hex brass #8-32
6	TU3400	Nut, hex brass #6-32
7	TU7733	Screw, self drill #8-18x 1/2" long
8	TU14694	Cover, plate
9	254/00060/10	Humidity sensor



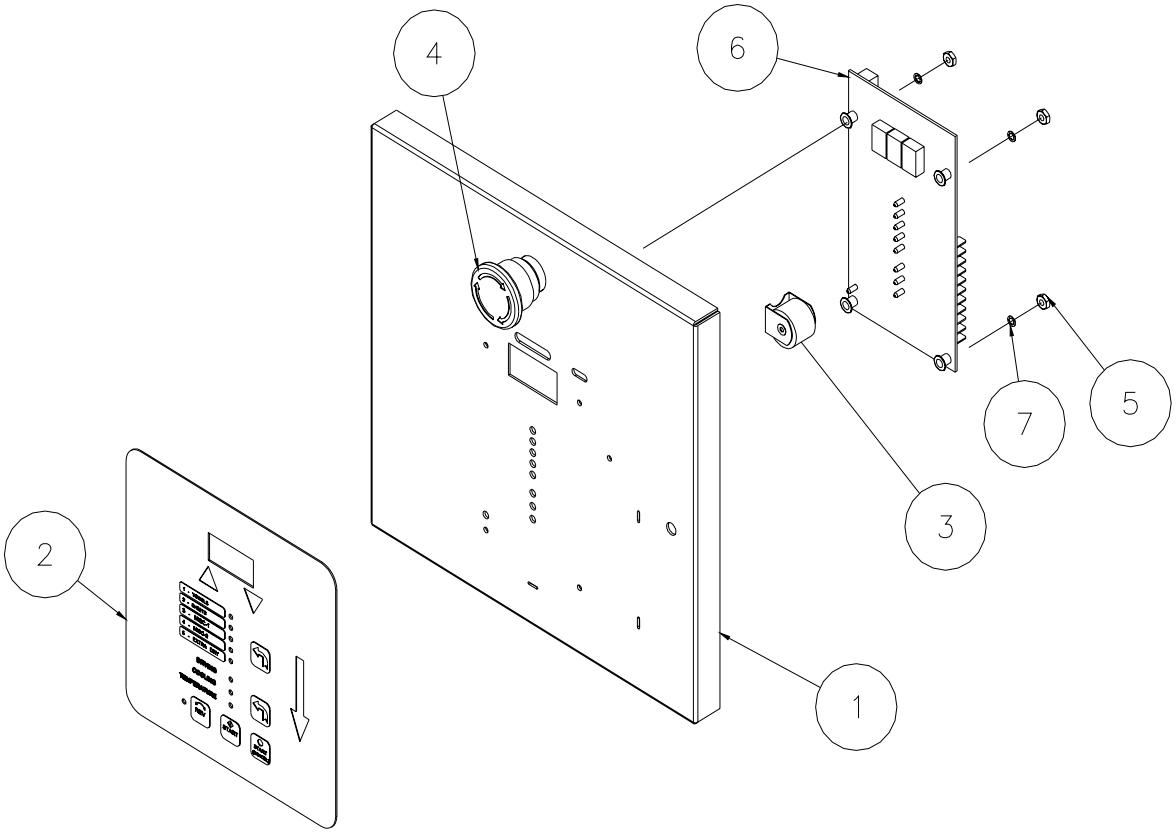
Ref. No.	Part No.	Description
TU8206	Assembly, Air Switch	
1	F888	E-Ring
2	TU1770	Insulator
3	TU1771	Tinnerman Nut, #6
4	TU2463	Actuator Arm
5	TU3219	Screw, #6
6	TU3476	Decal
7	TU7733	Screw, #8
8	TU8155	Micro Switch
9	TU8171	Bracket Assembly

2 TIMER CONTROL PANEL ASSEMBLY



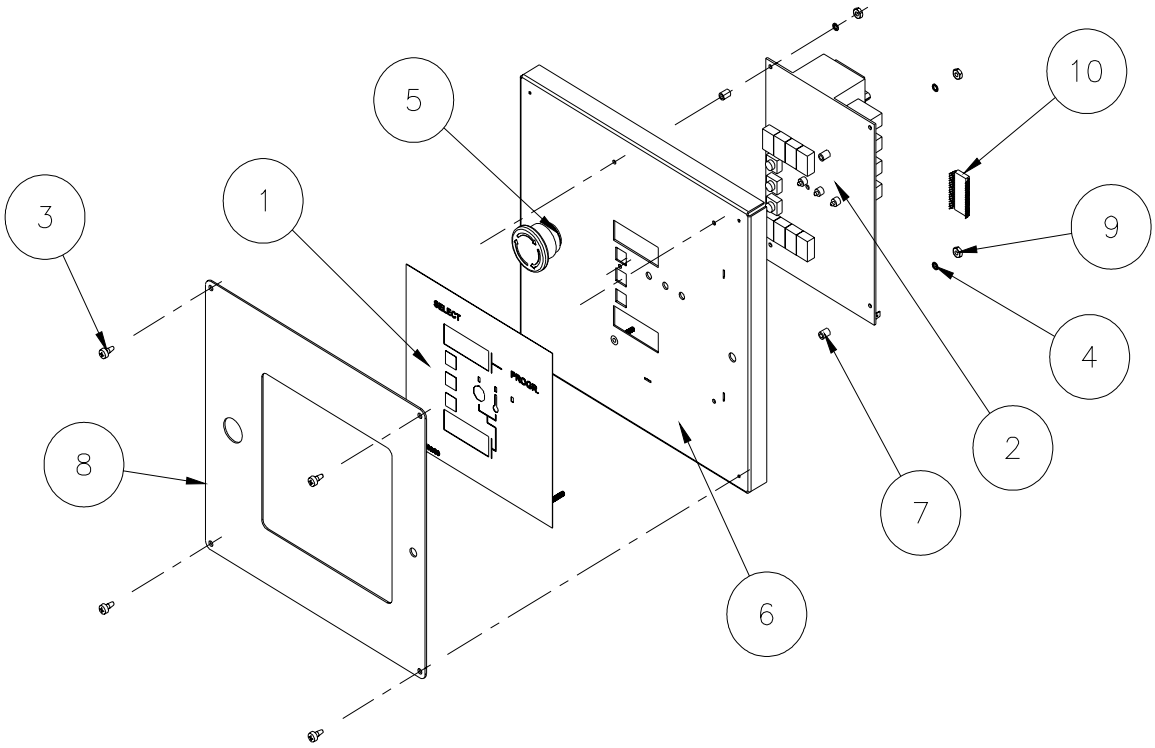
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	ET208	#6-32 x 1/4" Binding Hd Screw	9	TU15406WHT	Panel W/A
2	F1300	24V Relay	10	TU2555	Knob Assembly
3	FG147	Toggle Switch	11	TU3805	#15-32 Hex Nut
4	TU12874	Reversing Board	12	TU7733	#8-18 x 1/2" Self Drilling Screw
5	TU12932	Timer (0-60 Minutes)	13	TU8629	Terminal Board
6	TU12933	Timer (0-15 Minutes)	14	TU9028	Push Button Switch
7	TU15459	2T Nameplate	15	TUT316	24V LED Light
8	TU14435	Emergency Stop (50 Hz)			
	TU15724	7/8" Button Plug (60 Hz)			

DMP CONTROL PANEL ASSEMBLY

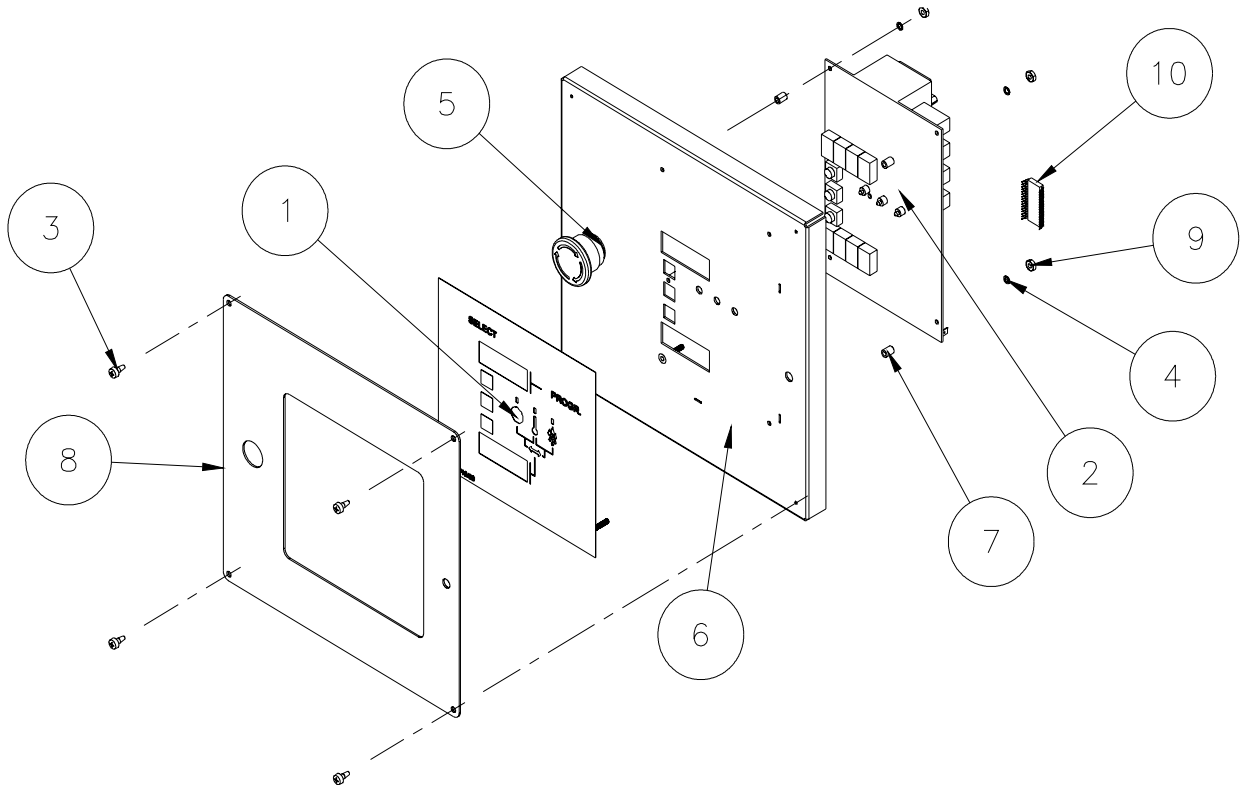


Ref No.	Part No.	Description
1	TU14469WHT	DMP Control Panel Welded Assembly
2	TU15184	Opl Dmp, Rt-Side (Dn) Overlay
3	TU14137	Buzzer, 24V
4	TU14435	Emergency Stop (50 Hz)
	TU15724	7/8" Button Plug (60 Hz)
5	TU3400	#6-32 Hex Nut
6	TU14404	Controller Opl/Coin Board, New
7	M270	#6 Int Tooth Lock Washer

PRO CONTROL PANEL ASSEMBLY

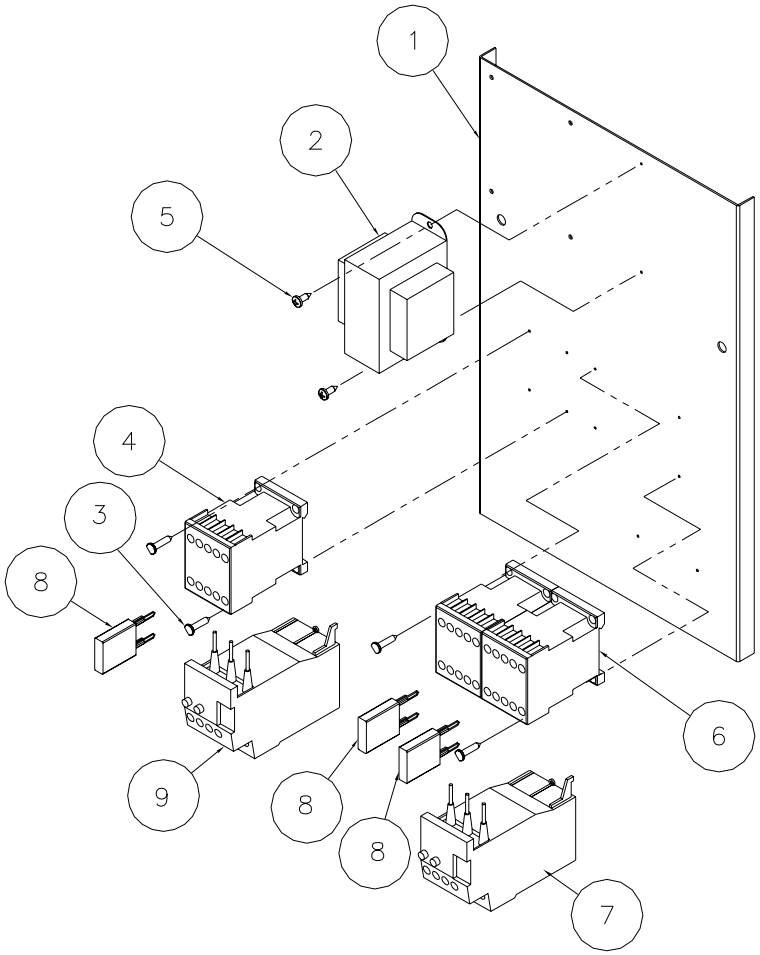


Ref. No.	Part No.	Description
1	254/00039/00	Overlay
2	254/00070/00	Pro Control
3	M261	#8-32 Screw
4	M270	Lockwasher
5	TU14435	Emergency Stop (50 Hz)
	TU15724	7/8" Button Plug (60 Hz)
6	TU14442WHT	Control Panel Welded Assembly
7	TU14701	Spacer
8	TU14727WHT	Cover
9	TU3400	#6-32 Nut
10	TU15899	Pro / ProHC EPROM Chip (Standard program)

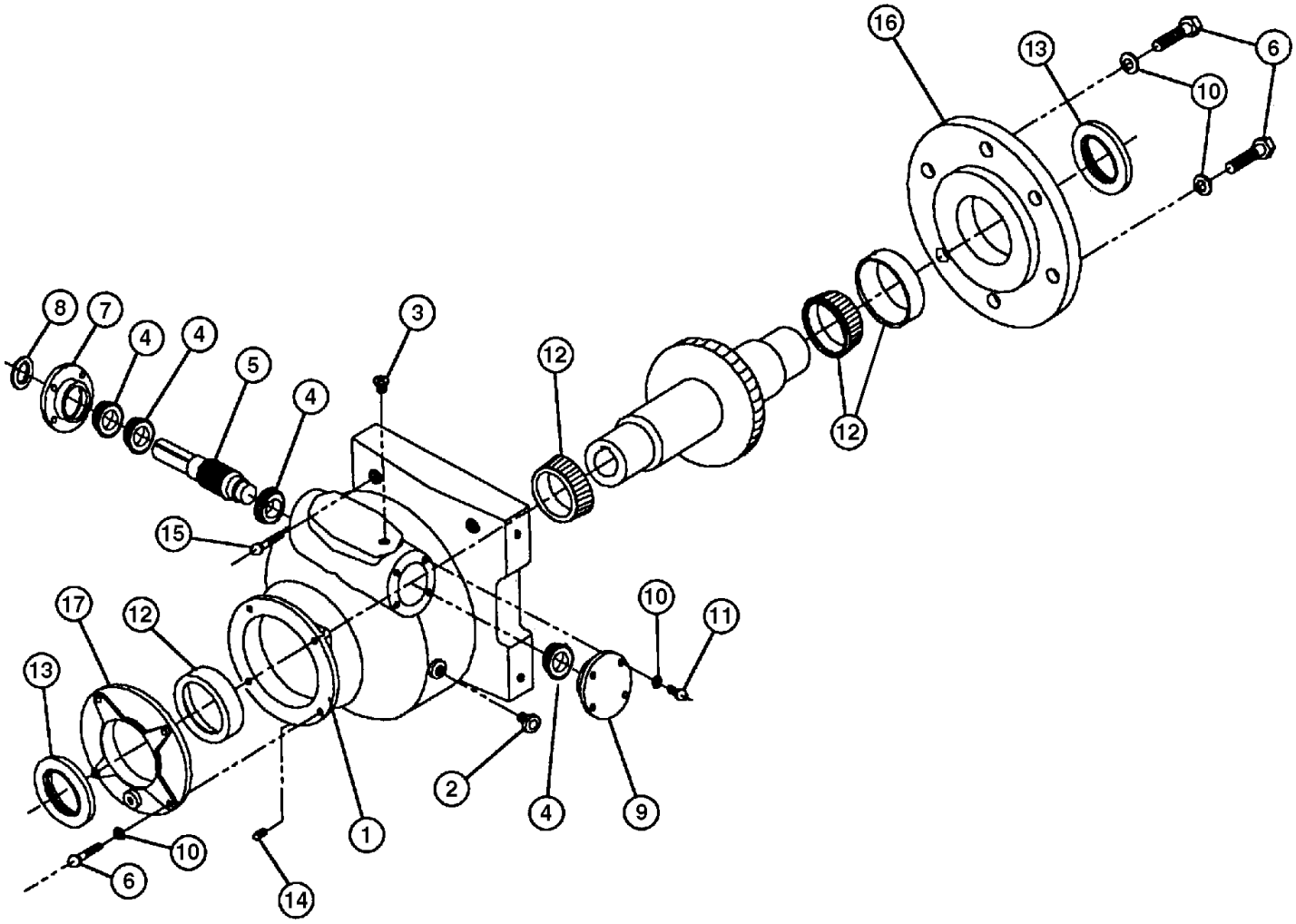


Ref. No.	Part No.	Description
1	254/00018/00	Overlay
2	254/00070/00	ProHC Control
3	M261	#8-32 Screw
4	M270	Lock Washer
5	TU14435	Emergency Stop (50 Hz)
	TU15724	7/8" Button Plug (60 Hz)
6	TU14442WHT	Control Panel W/A
7	TU14701	Spacer
8	TU14727WHT	Cover
9	TU3400	#6-32 Nut
10	TU15899	Pro / ProHC EPROM Chip (Standard program)

REAR MOTOR CONTROL ASSEMBLY



Ref. No.	Part No.	Description
1	TU13700	Plate, Motor Control
2	TU13802	Transformer, 115/208/230 75VA
	TU13514	Transformer, 60VA 460V/24V 60VA
	TU13642	Transformer, 60VA 575V/24V 60VA
3	TU2973	Screw, #8
4	TU13516	Contactor, 24VAC IEC 12A W/AUX
5	TU7733	Screw, #8 self drilling
6	EA-00685-0	Reversing Contactor, 3 POLE/24V COIL/12A
7	TU16101	Overload, 4.5-6.3
	TU15962	Overload, 2.2-3.2
8	TU14825	Surge Suppressor
9	TU15592	Overload, 2.8-4
	TU15898	Overload, 3.5-5.0
	TU16034	Overload, 7-10

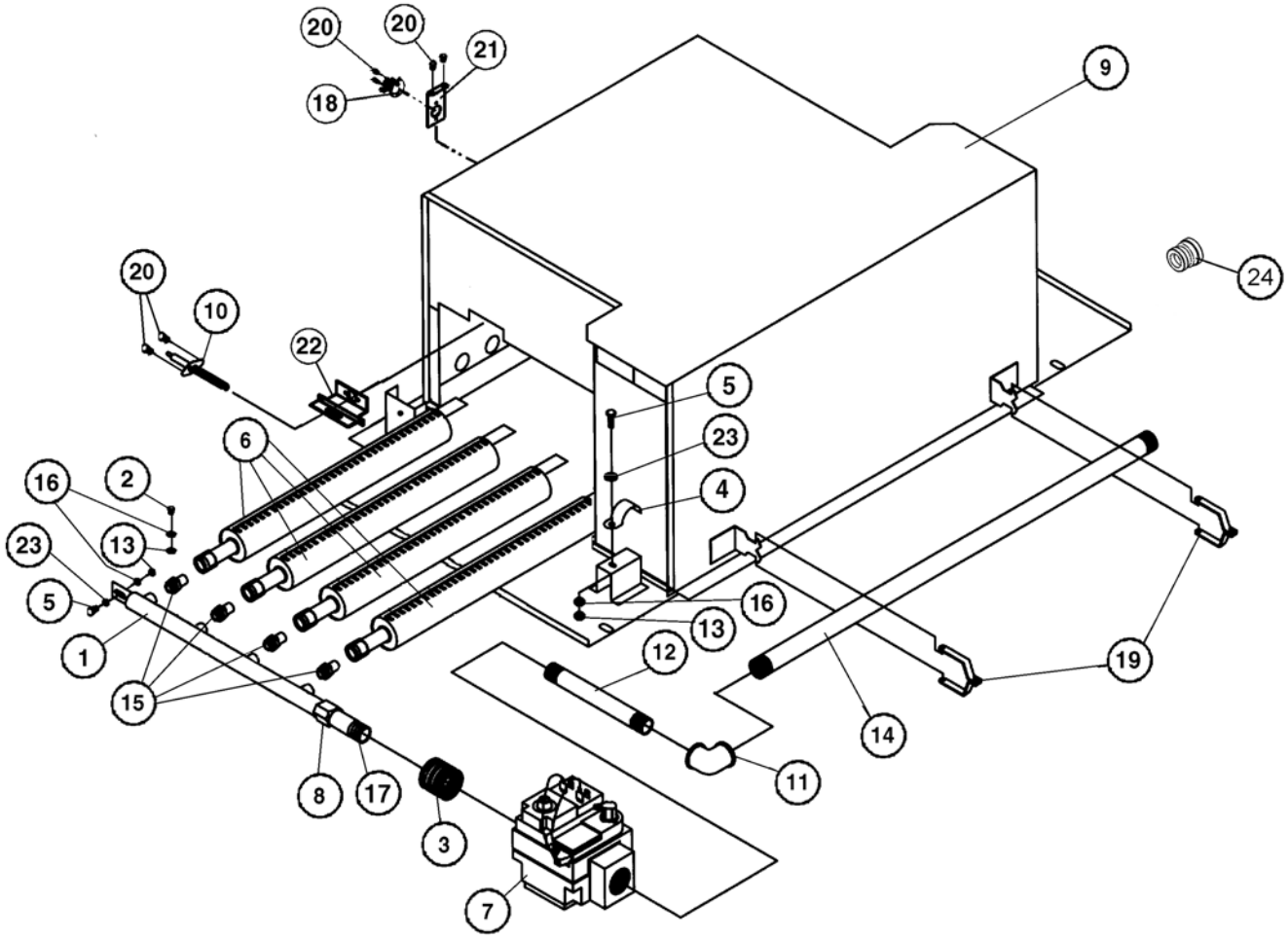


REF NO.	PART NO..	DESCRIPTION	REF NO.	PART NO.	DESCRIPTION
1	TM203	Housing	9	TM218	Small Closed End Cap
2	K474	Oil Level Plug Kit	10	VSB134	3/8" Split Lockwasher (Pkg. of 6)
3	TM119	1/4" Vent Plug	11	TU3246	3/8" - 16 x 1" Cap Screw (Pkg. of 6)
4	TM208	Small Bearing Cone & Cup	12	TM217	Large Bearing Cone & Cup
5	TM225	Worm & Worm Gear	13	TM220	Large Klozure
6	IB139	3/8" - 16 x 1 1/4" Cap Screw	14	TM221	1/4" Pipe Plug
7	TM205	Small Open End Cap	15	TU5312	3/8" x 3" Set Screw
8	TM204	Small Klozure	16	TM211	Large End Cap 10 1/2 Dia.
			17	TM212	Small End Cap 6 3/4 Dia.

TM225 Worm and Worm Gear Set (for TM200 ONLY) (only sold as set)

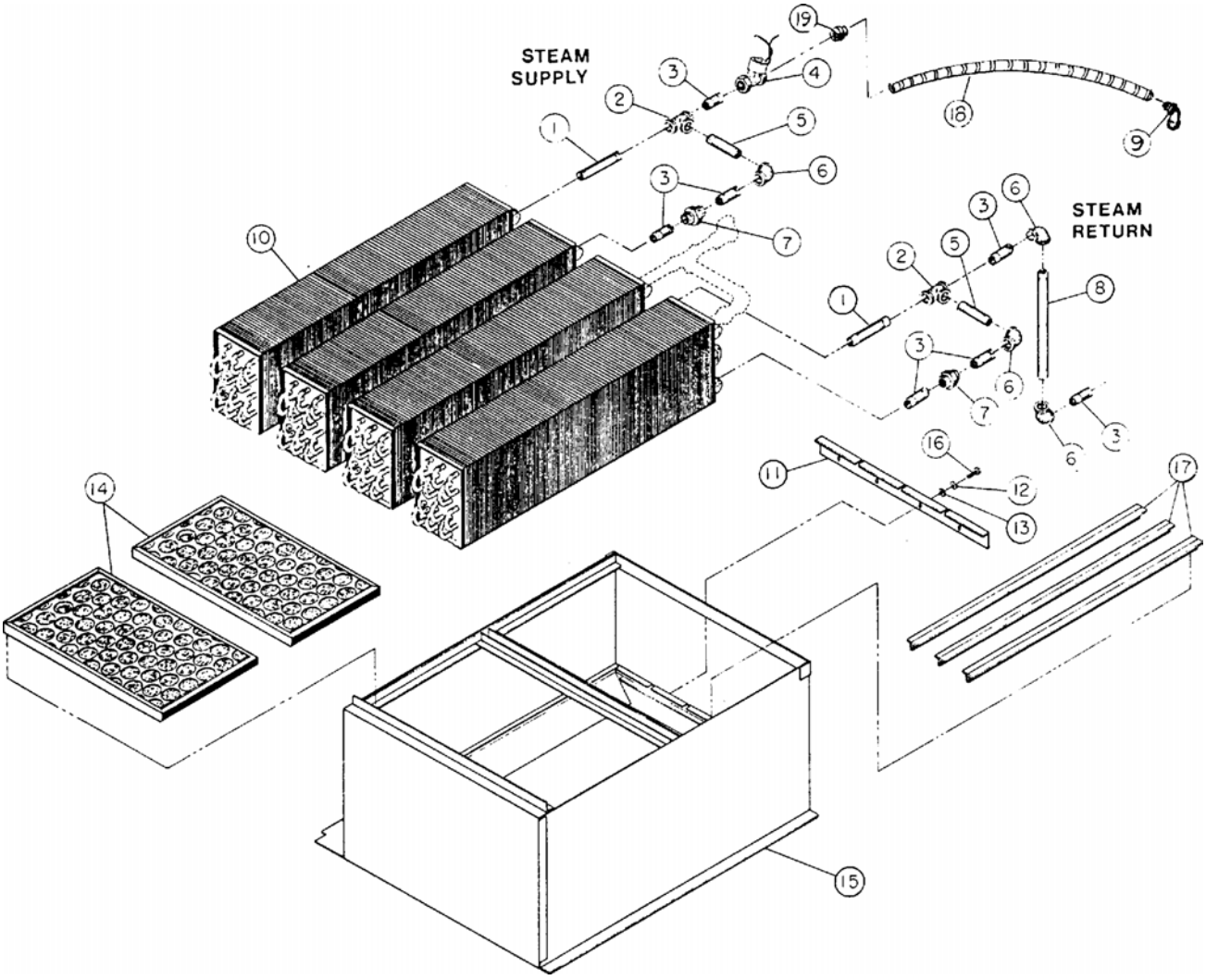
Not Illustrated—TU3465 one pint of Cissell Transmission Oil

GAS BONNET AND BURNER ASSEMBLY



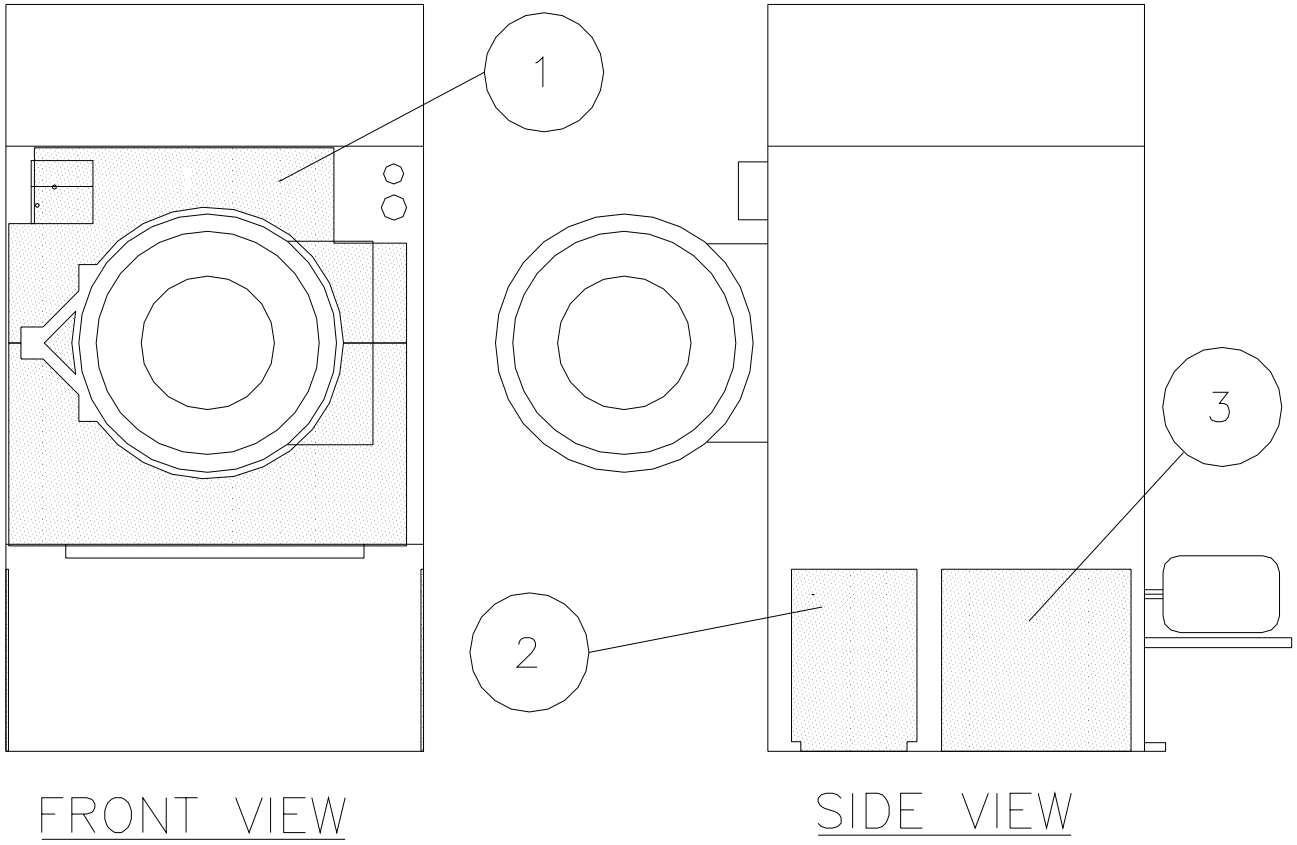
REF NO.	PART NO..	DESCRIPTION
TU15763 - Natural Gas Bonnet TU15767 - LP Gas Bonnet		
1	TU14058	Gas Manifold
2	CB36	1/4" - 20 x 1/2" Hex Head Screw
3	OP267	3/4" x 1/2" Steel Bushing
4	PT196	3/4" Strap
5	RC344	1/4" - 20 x 3/4" Hex Head Screw
6	TUX387	BSI Asm. Burner
7	TUX352	3/4" Natural Gas Valve
	TUX435	3/4" LP Gas Valve
8	TU6862	Gas Manifold Nut
9	TU13613	Bonnet Assembly
10	GA-00764-0	Direct Spark Ignition Electrode
11	TU4605	3/4" Elbow
12	TU4606	3/4" x 4" Nipple
13	TU4934	1/4" - 20 Hex Nut
14	TU13823	3/4" x 36" Nipple
15	TU3539	Burner Orifice - 3 each
16	TU2846	1/4" Lock Washer
17	664946146	Pipe, Tail
18	TU13678	Thermostat, Man. Reset 300°
19	TU2226	Manifold Mounting Bracket
20	TU7733	#8 - 18 x 1/2" Self-Drill Screw
21	TU13695	Bonnet Thermostat Bracket
22	TU13647	Electrode Mounting Bracket
23	TU2847	1/4" Flat Washer
24	TU2735	Reducer

STEAM BONNET ASSEMBLY—TU14027



REF NO.	PART NO..	DESCRIPTION
1	TU4610	3/4" x 5" Pipe Nipple
2	TU4597	3/4" Tee
3	TU4608	3/4" x 2" Pipe Nipple
4	TU13517	*Steam Solenoid Valve 24V
5	TU4620	3/4" x 4 1/2" Pipe Nipple
6	TU4605	3/4" Elbow
7	TU4600	3/4" Union
8	TU4599	3/4" x 18" Pipe Nipple
9	TU4791	Angle 90° Connector
10	TU1699	Steam Coils
11	TU9890	Hold Down Bracket
12	TU2846	1/4" Split Lockwasher (Pkg. of 6)
13	TU2847	Flat Washer (Pkg. of 6)
14	TU9953	Air Filter 20" x 24" x 1"
15	TU9873	Steam Bonnet Weldment
16	CB36	1/4" - 20 x 1/2" Hex Bolt (Pkg. of 6)
17	TU9889	Coil Support Angle
18		1/2" Greenfield Cable: Right Side—72", CFB7600 Left Side—88", CFB8800
19	TU4790	Straight Connector

INSULATION PLACEMENT



Ref. No.	Part No.	Description
1	TU15766	Insulation, Front Panel (Set)
2	TU15764	Insulation
3	TU15765	Insulation
4	TU15774	Insulation Cover, Upper Left (Not Shown)
	TU15775	Insulation Cover, Upper Right (Not Shown)
	TU15778	Insulation Cover, Lower Left (Not Shown)
	TU15779	Insulation Cover, Lower Right (Not Shown)