cissell

50 lb. Laundry Dryer

MODELS

GAS	STEAM	ELECTRIC
L36USS30G	L36URS30S	L36URS30E
L36USD30G	L36URD30S	L36URD30E
L36URS30G		
L36URD30G		

OWNER'S MANUAL

CISSELL MANUFACTURING COMPANY

U.S. HEADQUARTERS
831 SOUTH FIRST ST.
P.O. BOX 32270
LOUISVILLE, KY
40203-2270
PHONE: (502) 587-1292
FAX: (502) 585-3625

EUROPEAN HEADQUARTERS
PANTEX/CISSELL B.V.
INDUSTRIEWEG 27
P.O.BOX 53
9670 AB WINSCHOTEN
THE NETHERLANDS
PHONE: (05970) 58333
FAX: (05970) 12723

MAN14

1500 1/93 B&K

D0603

IMPORTANT NOTICES - PLEASE READ

For optimum efficiency and safety, we recommend that you read the Owner's 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 the 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

This dryer must be used only to dry water-washed fabrics.

To avoid fire hazard, do not dry articles containing foam rubber or similar textured 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.

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.

Note: 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.

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.

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

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.

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 indentification 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.

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MAINTENANCE

ILLUSTRATED PARTS SHEETS

UNPACKING

All Cissell dryers are packed in a protective, heavy-duty plastic bag.

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

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

See outline clearance drawings for correct dimensions.

Remove all packing material such as tapes, manuals, skid, etc. On gear reducer models, remove screw from air vent and the cork from the oil reserve well.

Leveling: Use spirit level on top of dryer. Adjust leveling bolts on dryer (see "Leveling Bolts" in the Maintenance Section of this manual).

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

GENERAL INSTALLATION - ALL DRYERS

IMPORTANT

Before installing or operating this dryer, thoroughly read the owner's manual for correct instructions concerning electrical connections, exhaust ducting, gas piping, steam connections, make-up air, etc. Read the warnings in this manual. Failure to follow these instructions and warnings may create a safety hazard and may effect the warranty. Follow all local codes. If you have any installation questions, consult the factory Service Department.

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 clearances from all combustable construction is O'' ceiling clearance, O'' rear clearance, and O'' side clearance.

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

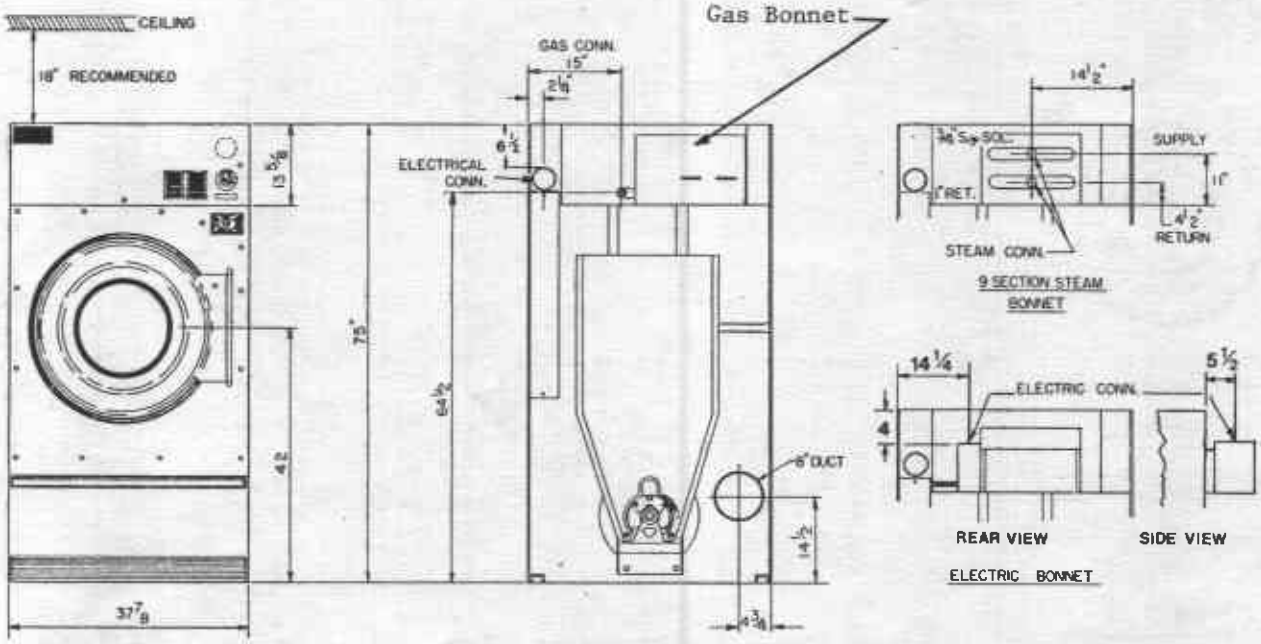
GENERAL INFORMATION

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 basket and exhausted through a lint trap to 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.
IMPORTANT: Provide adequate clearance for air openings into the combustion chamber.

CISSELL "COOL-DOWN" CYCLE

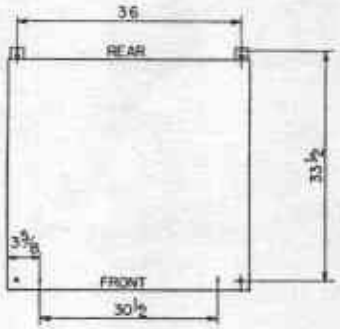
Permanent press, durable press and other modern dav fabrics require the care that your Cissell Laundry Dryers now provide. At the end of the drying cycle, a timed "Cool-Down'' control automatically takes over and continues the rotation of the fan and basket without heat until the garment load reaches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

50 LB. DRYER DIMENSIONS - STANDARD GAS, STEAM, & ELECTRIC HEATED

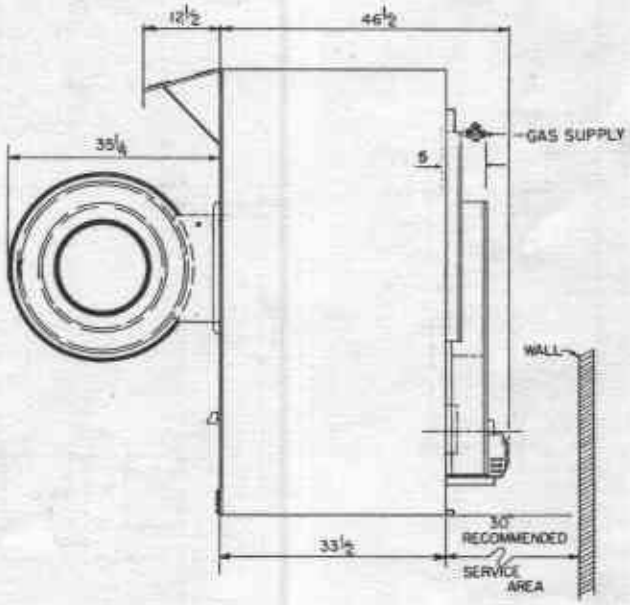


FRONT VIEW

REAR VIEW



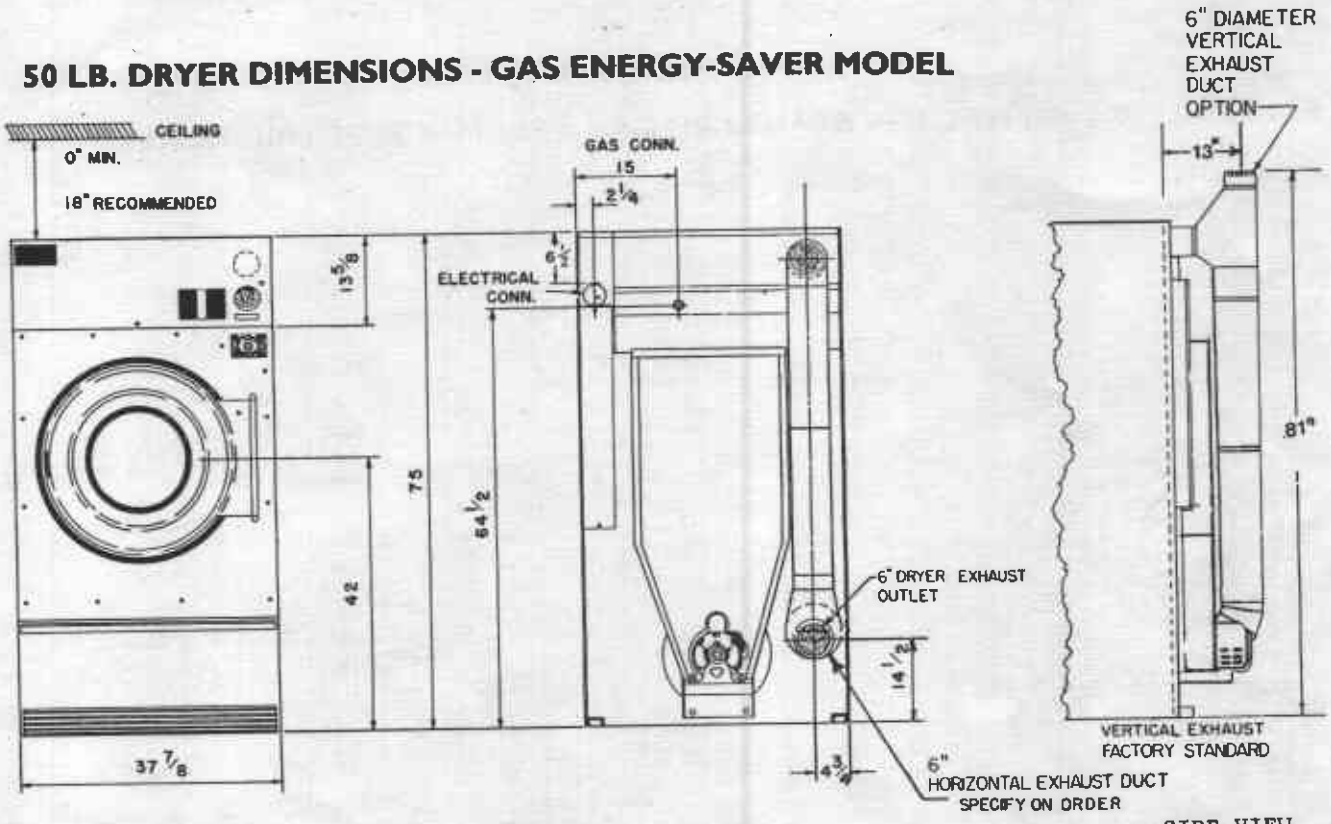
MOUNTING HOLES



SIDE VIEW

ALL DIMENSIONS GIVEN IN INCHES ± ¼

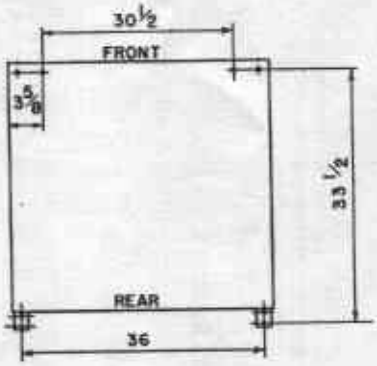
50 LB. DRYER DIMENSIONS - GAS ENERGY-SAVER MODEL



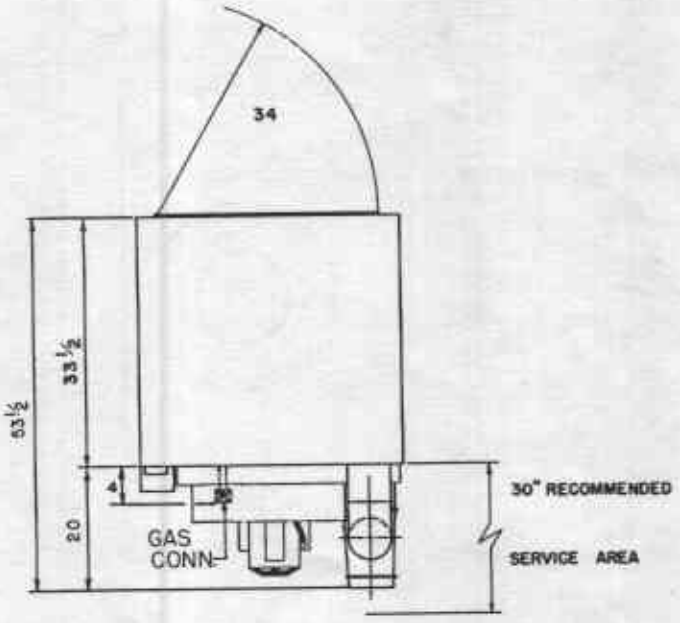
FRONT VIEW

REAR VIEW

SIDE VIEW



MOUNTING HOLES



TOP VIEW

ALL DIMENSIONS GIVEN IN INCHES ± 1/4

GENERAL SPECIFICATIONS - 50 LB. LAUNDRY DRYER

Standard Gas, Steam, and Electric Heated Models, see next page for Gas Energy-Saver Specifications

Basket Load Capacity	50 lbs (22.68 kg) Dryweight
Floor Space (Double Motor)	75" (190.5 cm) High x 45 -1/8" (114.63 cm) Deep x 37-7/8" (96.22 cm) Wide
Floor Space (Single Motor)	75" (190.5 cm) x 46-1/2" (118.1 cm) Deep x 37-7/8" (96.22 cm) Wide
Basket Size	36" (91.44 cm) Diameter x 30"(76.2 cm) Deep
Exhaust Duct	8" (20.32 cm) Diameter
Motor Size	See chart on Page 10
Maximum Air Displacement	800 C.F.M. (22.65 M^3 /Min.)
Recommended Operating Range	630-730 C.F.M. (17.84-20.67 M^3/Min.)
Net Weight (Approximate)	590 lbs. (267.62 kg) Model W/Single Motor 640 lbs. (290.3 kg) Model W/Double Motor
Domestic Shipping Weight (1 carton)	655 lbs. (297.1 kg) Model W/Single Motor
Export Shipping Weight (1 Box)	705 lbs. (319.78 kg) Model W/Double Motor
Export Shipping Weight (1 Carton)	1130 lbs. (512.56 kg) Model W/Single Motor 1180 lbs. (535.24 kg) Model W/Double Motor
Export Shipping Dimensions	83" (210.82 cm) Long x 45" (114.3 cm) Wide x 55" (139.7 cm) High
Basket R.P.M.	Reversing- 42 - 3.2 Reversals per minute Non- Reversing - 42

For total amps, check Electrical Rating Plate on dryer.
1. Can be designed for any voltage.
2. 50 HZ or 60 HZ
3. 1 or 3 Phase

Electrical wiring to dryer must comply with local electrical code requirements.

STANDARD GAS FIRED DRYERS SPECIFICATIONS

Gas Supply	1/2" (1.27 cm) Pipe Connection
B.T.U. Input* (4 Burners)	130,000/Hour (Natural Gas) 130,000/Hour (Liquid Petroleum Gases)
Electronic Ignition	Silicon Carbide Gas Ignition System
Drying Time (Approximate)	10 lbs.(4.54 kg) dryweight (Indian Head) 100% moisture retention- 10 Minutes

*Input ratings as shown are for elevations up to 2,000 ft.(609.6 m). For higher elevations, ratings should be reduced 4% for each 1,000 ft. (304.8 m) above sea level.

ELECTRICALLY HEATED DRYERS

Heater Input	30 Kilowatts per Hour
Drying Time (Approximate)	12 lbs. (5.44 kg) dryweight (Indian Head Cloth) 80% Moisture retention- 12 Minutes

NOTE: For further specifications on the electric heating unit, see page 65-66.

GAS ENERGY-SAVER DRYER SPECIFICATIONS

Basket Capacity	50 lbs. (22.68 kg) dryweight
Floor Space	75" (190.5 cm) High x 53-1/2" (135.89 cm)Deep x 37-7/8" (96.22 cm) Wide
Basket Size	36" (91.44 cm) Diameter x 30" (76.2 cm) Deep
Exhaust Duct*	6" (15.24 cm) Diameter
Exhaust Air Pressure	Max. 0.3" (0.76 cm) Static Pressure
Motor Size	See chart on Page 10
Basket R.P.M	Reversing- 42-3.2 Reversals per minute Non-Reversing - 42
Maximum Air Displacement	450 C.F.M (12.74 M^3/ Min.)
Recommended Operating Range	300-350 C.F.M (8-5-9.7 M^3/Min.)
B.T.U. Input**	104,000 BTU/ Hour
Gas Supply	1/2" (1.27 cm) Pipe Connection
Drying Time (Approximate)	10 lbs. (4.54 kg) dry weight(Indian Head Cloth) 100% moisture retention- 10 Minutes
Net Weight (Approximate)	640 lbs. (290.3 kg) Model W/Single Motor 690 lbs.(312.98 kg) Model W/Double Motor
Domestic Shipping Weight (Approximate)	705 lbs. (319.78 kg) Model W/Single Motor 755 lbs.(342.46 kg) Model W /Double Motor
Export Shipping Weight (Approximate)	1180 lbs.(535.24 kg) Model W/Single Motor 1230 lbs.(557.92 kg) Model W/Double Motor

* For high altitude installation, remove the 5" I.D. exhaust ring.

** Input ratings as shown are for elevations up to 2,000 ft.(609.6 m). For higher elevations, ratings should be reduced 4% for each 1,000 ft.(304.8 m) above sea level.
Gas burners are set at the factory at 3.5" regulated pressure (Natural Gas only).
Models can be equipped for use with natural gas or liquid petroleum gases)L.P.)

Electrical wiring to dryer must conform to local electrical code requirements.

STEAM HEATED SPECIFICATIONS

Maximum Air Displacement	800 C.F.M. (22.65 M^3/Minute)
Recommended Operating Range	630-730 C.F.M. (17.84-20.67 M^3/Minute)
Steam Supply Connection	3/4" (1.91 cm)
Steam Return Connection	3/4" (1.91 cm)
Operating Steam Pressure	Low Pressure - 7-15 PSIG (0.5 - 1 Bar) Maximum High Pressure - 100 PSIG (6.9 Bar)
Drying Time (approximate)	25 lbs. (11.34 kg) dryweight (Indian Head) 80% moisture retention - 30 minutes low pressure, 22 minutes high pressure
Steam Consumption	2.7 B.H.P. - 90 lbs. (40.7 kg) / Hour with normal load - Low pressure 3.4 B.H.P. - 117.3 lbs. (53.21 kg) / Hour with normal load-High pressure
Net Weight (approximate)	640 lbs. (290.3 kg) Single Motor 705 lbs. (319.78 kg) Single Motor 755 lbs. (342.46 kg) Doubie Motor
Export Shipping Weight - 1 box	1182 lbs. (535.24 kg) Single Motor 1230 lbs. (557.92 kg) Double Motor
Export Shipping Dimensions	83"(210.82 cm) Long x 45"(114.3 cm) Wide x 55"(139.7 cm) High

MOTOR NUMBER LIST FOR 50 LB. DOUBLE MOTOR MODELS

Motor No.	Voltage	Hz.	Ph.	H.P.	Basket or Fan	Motor Amps
MTR210	115/208-230	60	1	1/2	Basket	5.6/2.8
MTR213	208-230/460	60	3	1/2	Basket	1.9/.96
MTR138	120	50	1	1/2	Basket	7.8
MTRI39	240	50	1	1/2	Basket	4.1
MTRI87	240/415	50	3	1/2	Basket	1.9/1.1
MTRIII	575	60	3	1/2	Basket	.77
MTR273	220/380	50	3	1/2	Basket	1.8/1.1
MTR273	220/380	60	3	1/2	Basket	1.7/1.0
MTR273	200/346	50	3	1/2	Basket	1.8/1.1
MTRI87	220/380	60	3	1/3	Fan	1.5/.80
MTRI87	200/346	50	3	1/3	Fan	1.5/.80
MTR209	115/208-230	60	1	1/3	Fan	5.2/2.6
MTR17	110-220	50	1	1/3	Fan	4.8/2.4
MTRI84	240/415	50	3	1/3	Fan	1.6/.9
MTR218	208/230/460	60	3	1/3	Fan	1.7/.85
MTR101	575	60	3	1	Fan	1.7
MTRI87	220/380	50	3	1/3	Fan	1.6/.90

MOTOR NUMBER LIST FOR 50 LB. SINGLE MOTOR MODELS

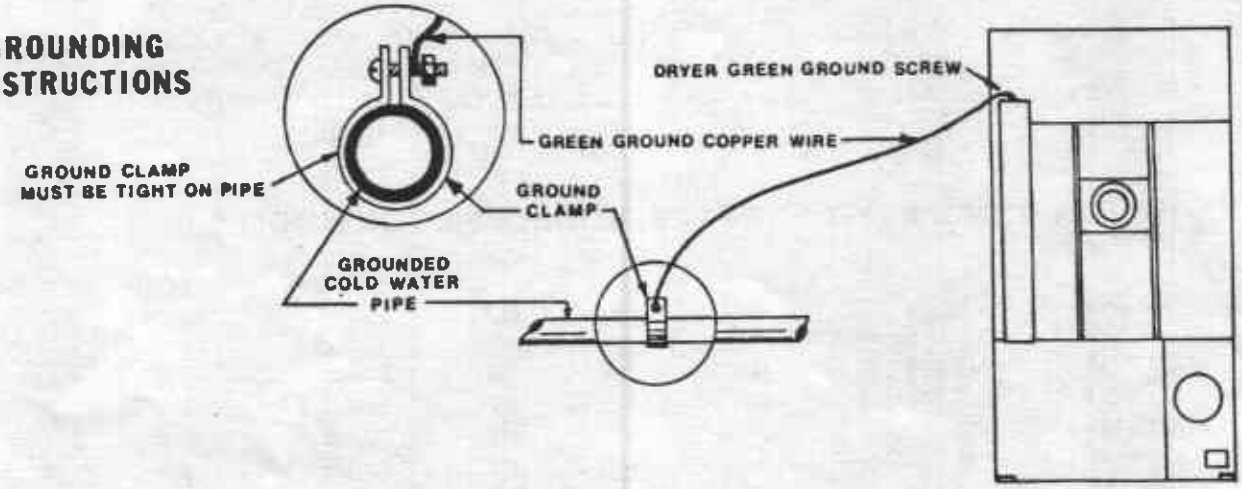
MTR202	115/208-230	60	1	3/4	Basket & Fan	7.2/3.6
MTR126	120	50	1	3/4	Basket & Fan	12.0
MTRI27	240	50	1	3/4	Basket & Fan	6.0
MTR211	208-230/460	60	3	3/4	Basket & Fan	2.6/1.3
MTR186	240/415	50	3	3/4	Basket & Fan	2.4/1.4
MTR249	220/380	50	3	3/4	Basket & Fan	2.9/1.7
MTR249	220/380	60	3	3/4	Basket & Fan	2.8/1.6
MTR249	200/346	50	3	3/4	Basket & Fan	2.6/1.5

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 No. 70-1987.

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).

GROUNDING INSTRUCTIONS



GAS PIPE SIZE FOR 1000 BTU NATURAL GAS AT 7" W.C. PRESSURE

In figuring total length of pipe, make allowance for tees and elbows.

TOTAL BTU/HR (for L.P. gas correct total BTU/HR below by multiplying by .6)	25 Ft.	50 Ft.	75 Ft.	100 Ft.	125 Ft.	150 Ft.
60,000	3/4	3/4	3/4	3/4	3/4	3/4
80,000	3/4	3/4	3/4	1	1	1
100,000	3/4	3/4	1	1	1	1
120,000	3/4	1	1	1	1	1
140,000	3/4	1	1	1	1	1¼
160,000	3/4	1	1	1¼	1¼	1¼
180,000	1	1	1	1¼	1¼	1¼
200,000	1	1	1¼	1¼	1¼	1½
300,000	1	1¼	1¼	1½	1½	1½
400,000	1¼	1¼	1½	1½	1½	2
500,000	1¼	1½	1½	2	2	2
600,000	1½	1½	2	2	2	2
700,000	1½	2	2	2	2	2½
800,000	1½	2	2	2	2½	2½
900,000	2	2	2	2½	2½	2½
1,000,000	2	2	2	2½	2½	2½
1,100,000	2	2	2½	2½	2½	2½
1,200,000	2	2	2½	2½	2½	2½
1,300,000	2	2½	2½	2½	2½	3
1,400,000	2	2½	2½	2½	3	3
1,500,000	2	2½	2½	2½	3	3
1,600,000	2	2½	2½	3	3	3
1,700,000	2	2½	2½	3	3	3
1,800,000	2½	2½	3	3	3	3
1,900,000	2½	2½	3	3	3	3
2,000,000	2½	2½	3	3	3	3½
2,200,000	2½	3	3	3	3½	3½
2,400,000	2½	3	3	3	3½	3½
2,600,000	2½	3	3	3½	3½	3½
2,800,000	2½	3	3	3½	3½	3½
3,000,000	2½	3	3½	3½	3½	4
3,200,000	3	3	3½	3½	3½	4
3,400,000	3	3½	3½	3½	4	4
3,600,000	3	3½	3½	3½	4	4
3,800,000	3	3½	3½	4	4	4
4,000,000	3	3½	3½	4	4	4

GAS PIPING INSTALLATION

The installation must conform with local codes or, in the absence of local codes, with the National Fuel Gas Code as ANSI Z223.1-1987.

Check gas rating plate for type of gas to equip the dryer.

Check for altitude elevation of the dryer.

Check utilities for proper installation of gas supply line and gas pressure.

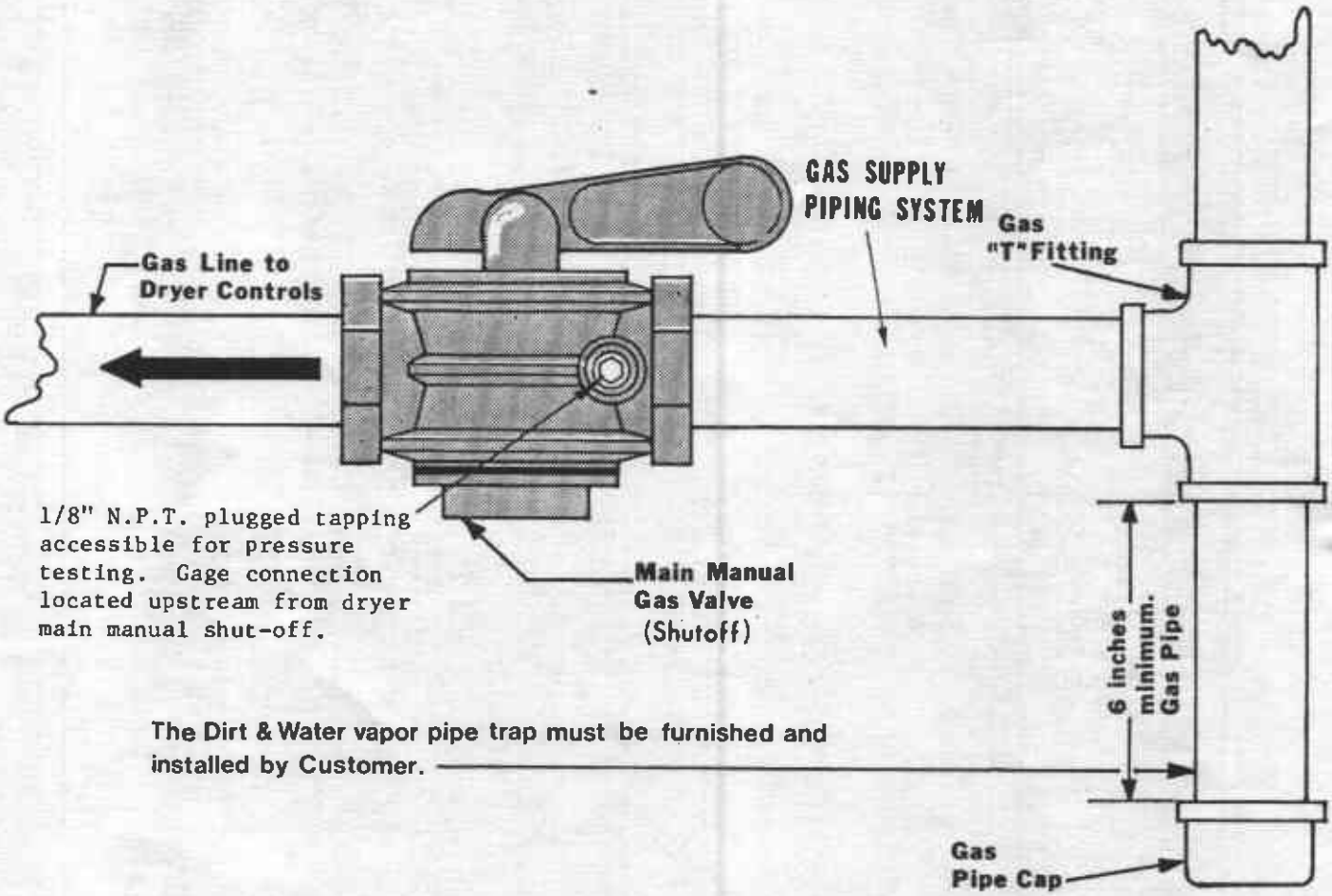
Natural Gas Only

Check the gas pressure inlet supply to dryer, 11 inches W. C. Pressure maximum.

Check the manifold pressure, 3.5 inches W.C. Pressure inside the dryer.

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

GAS PIPING INSTALLATION



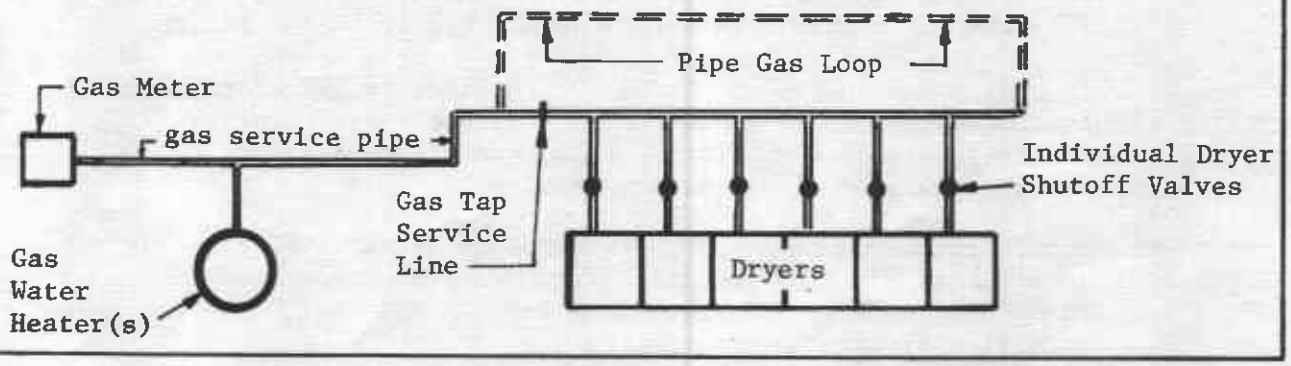
The dryer and it's individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of ½ psig.

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 ½ psig.

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 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

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 (A.G.A.) 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.

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 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" 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 (w/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.

PIPING RECOMMENDATIONS

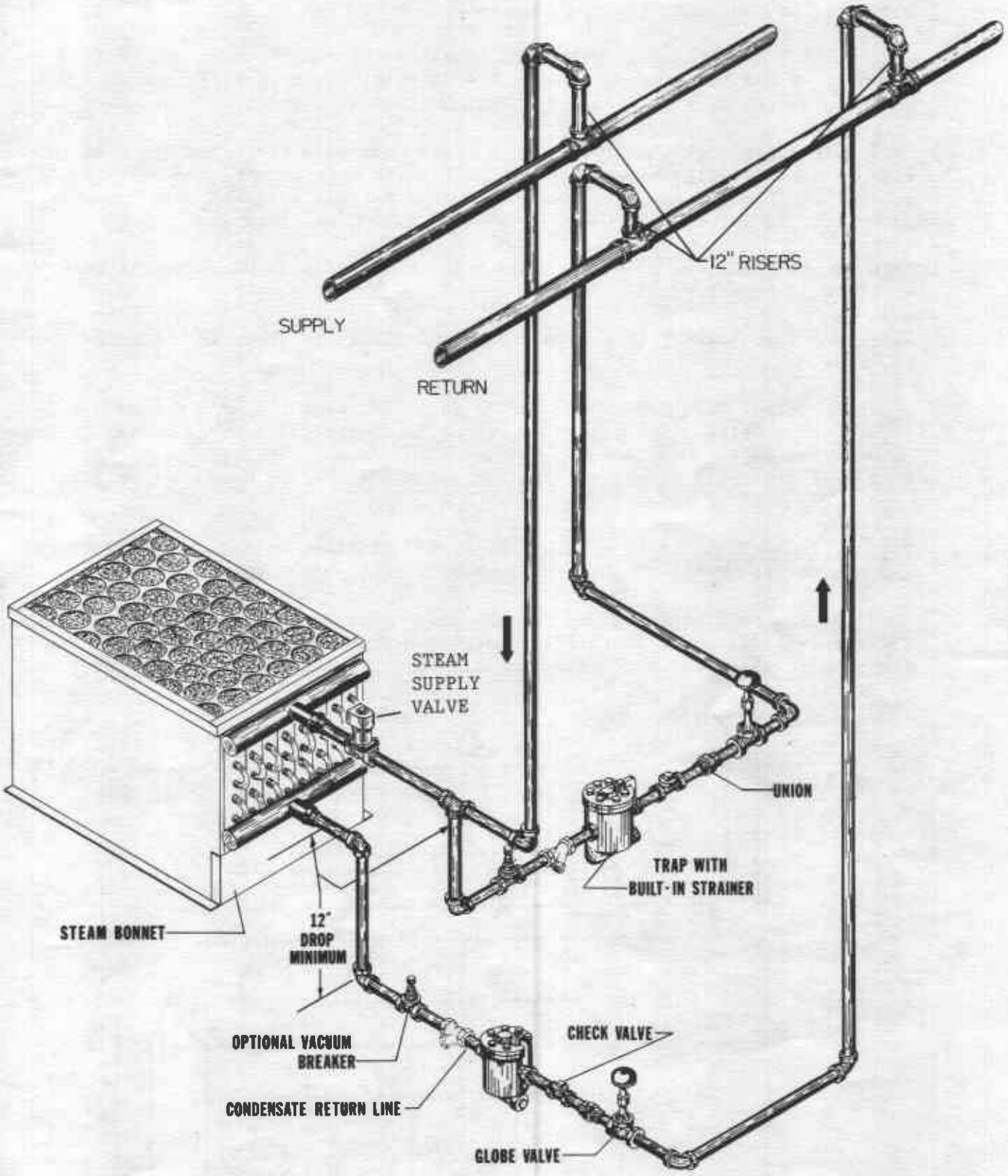
1. Trap each dryer individually. Always keep the trap clean and in good working condition.

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 PIPING INSTALLATION ILLUSTRATION



DRYER INSTALLATION WITH MULTIPLE EXHAUST

For Exhaust Duct more than 14 ft. and 2 elbows equivalent and more than 0.3 in. static pressure.

1. Make-Up air from outside building may enter enclosure from top or side walls. Area of opening should be equal to 4 - 6 times the sum of dryer duct areas. Provide 1 sq. ft. for each 6 in. diameter; 2 sq. ft. for each 8 in. diameter; and 4 sq. ft. for each 12 in. diameter.

2. Use constant diameter duct with area equal to the sum of dryer duct areas. Example: 6 - 8 in. diameter duct = 1 - 19.6 in. diameter duct in area. Use 20 in. 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 B.T.U./hr. for each cubic foot per minute (CFM) used. Example: 110 lb. dryer, 2000 CFM = 50,000 B.T.U./hr. loss.

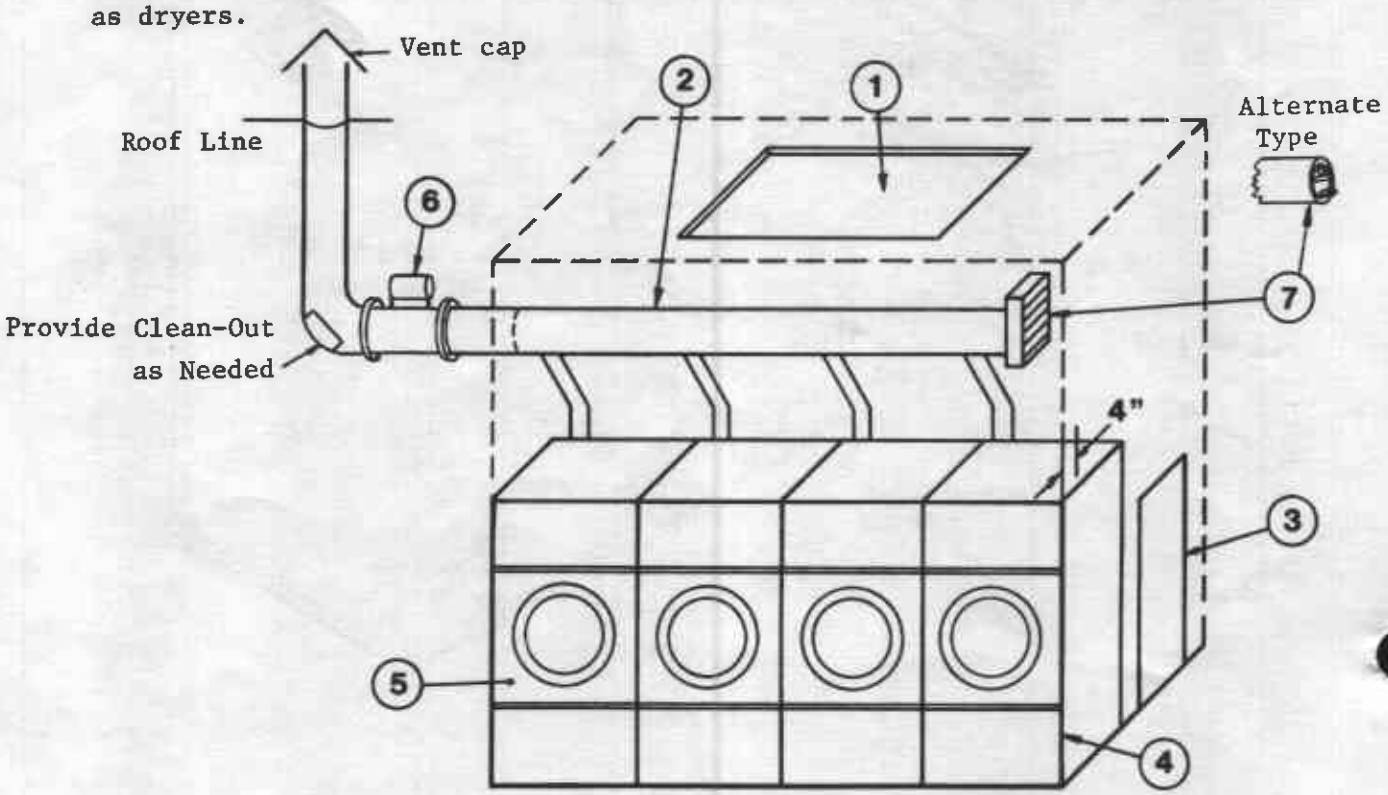
4. Zero inches clearance to combustible material allowed on sides and at points within 4 inches of front on top.

5. Heat loss into laundry room from dryer fronts only is about 60 B.T.U./hr. per sq. ft.

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) is equal to sum of dryer air flows, but static pressure (S.P.) is dependent on length of pipe and number of elbows.

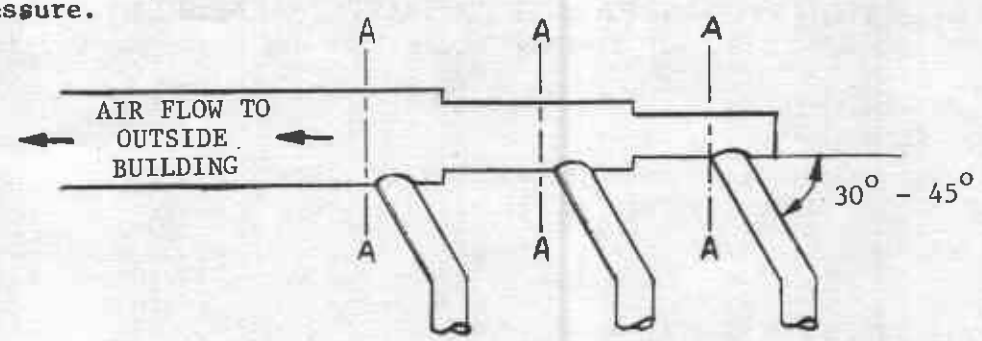
7. Barometric By-Pass Damper - adjust to closed flutter position with all dryers and exhaust fan running. Must be located within enclosure.

CAUTION: No two installations are the same. For assistance, consult factory (502) 587-1292. 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.



DRYER INSTALLATION WITH MULTIPLE EXHAUST

For Exhaust Duct less than 14 ft. and two elbows equivalent and less than 0.3 in. static pressure.



DRYER EXHAUST

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

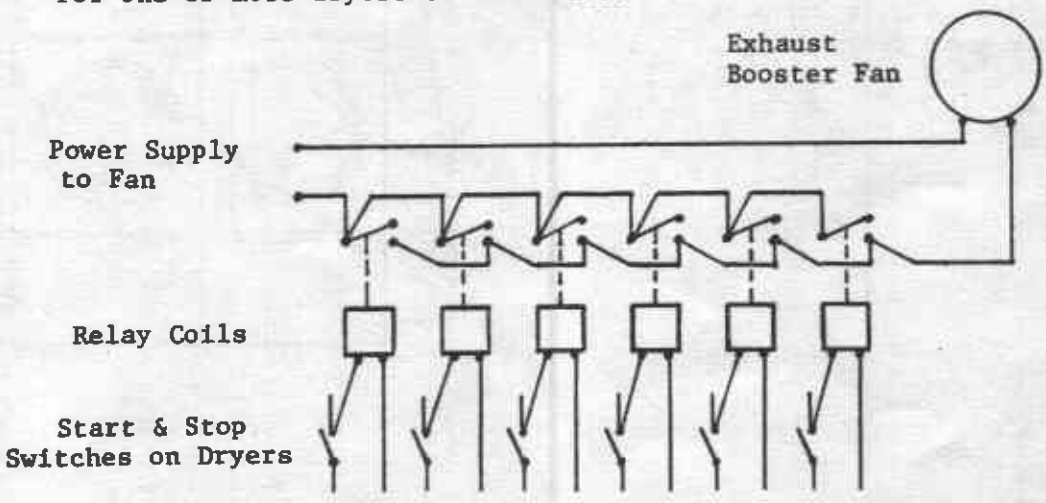
NO. OF DRYERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
DUCT DIAMETER in inches	6	9	11	12	14	15	16	17	18	19	20	21	22	23	23	24	25	26	26	27	28	28	29	30

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

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

AUTOMATIC ELECTRICAL CONTROL FOR EXHAUST FAN

For one or more dryers to start fan.



DRYER INSTALLATION WITH SEPARATE EXHAUST (PREFERRED)

For ductwork less than 14 ft. and 2 elbows equivalent and less than 0.3 in. static pressure.

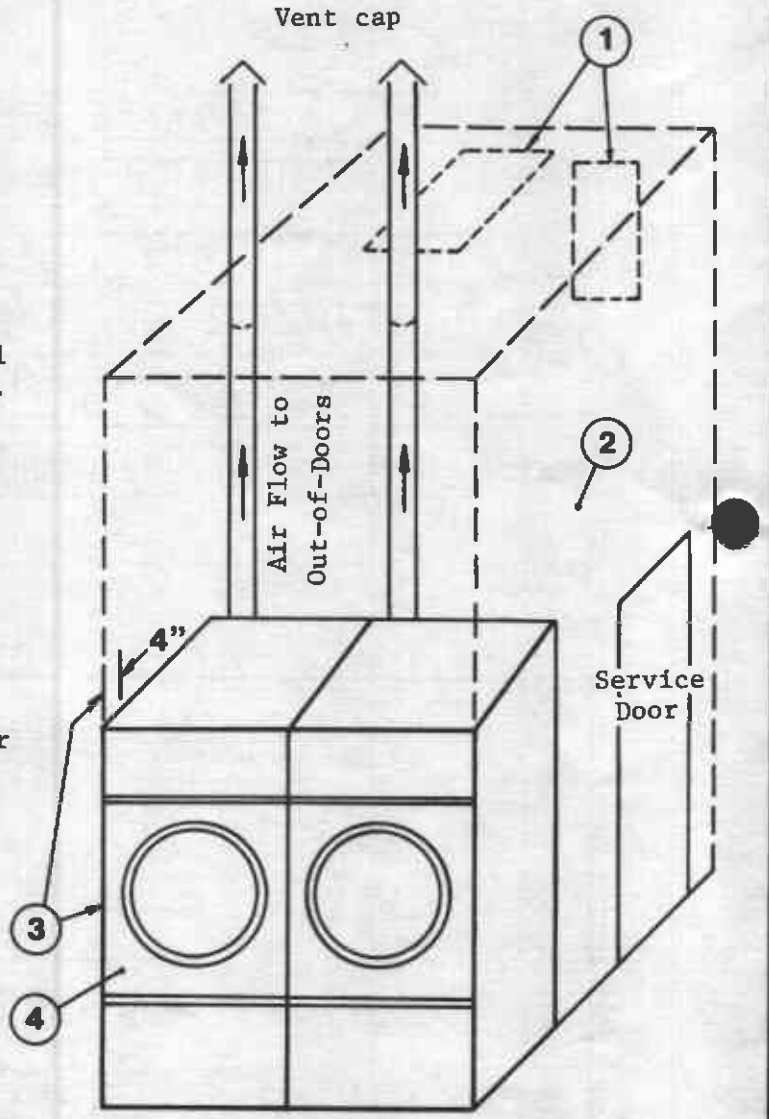
Never exhaust the dryer into a chimney.
Never install wire mesh screen over the exhaust or make-up air area.
Never exhaust into a wall, ceiling, or concealed space.

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 sq. ft. for each 6 in. diameter; 2 sq. ft. for each 8 in. diameter; and 4 sq. ft. for each 12 in. 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 B.T.U./hr. for each cubic foot per minute (CFM) used. Example: a 110 lb. dryer with 2000 CFM = heat loss of 50,000 B.T.U. /hr.

3. Zero inches clearance to combustible material allowed on sides and at points within 4 inches of front on top.

4. Heat loss into laundry room from dryer front panels is about 60 B.T.U./hr. per square foot.



DRYER AIRFLOW 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 to 6 times the combined areas of the air outlet) and an exhaust duct size and length which allows flow through the dryer with no more than 0.3 inches water column static pressure in the exhaust duct.

Energy-saving dryer models require less inlet air area and smaller exhaust ducts than the regular dryers because there is about half as much air flow through the dryer. However, the importance of the proper inlet air area and the correct exhaust duct size is twice as important on energy saving models. The huge savings of an energy-saver dryer is offset only by the attention required to provide the proper air flow. Once this proper air flow is provided, it lasts for the life of the installation.

CISSELL WILL PROVIDE FREE ENGINEERING ADVICE FOR ANY SPECIFIED INSTALLATION.

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 of straight duct and maximum of two 90 degree bends.
2. Use 45 deg. and 30 deg. elbows wherever possible.
3. Exhaust each dryer separately.
4. Use 2 feet 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 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" dia. exhaust req. 1 sq. ft. make-up air
   8" dia. exhaust req. 2 sq. ft. make-up air
   12" dia. exhaust req. 4 sq. ft. make-up air
2. Use barometric shutters in the inlet air opening to control air when dryers are not running.

Other Recommendations

To assure compliance, consult local building code requirements.

FOR HELP, consult Cissell Engineering on tough installations.

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

OPERATING INSTRUCTIONS

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

Step 2. A. Timer Models - Turn timer knob to the desired drying time. See fig. 1

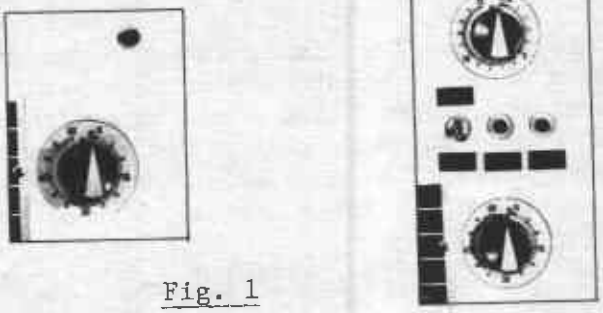
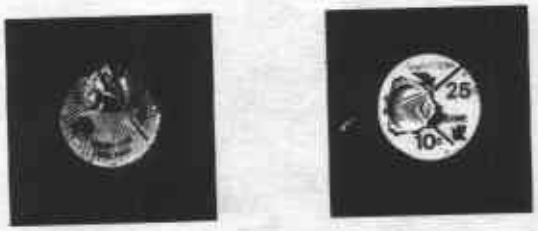


Fig. 1

B. Coin Meter Models - Insert proper coin in correct slot. Turn knob completely until it stops for desired drying time.



1. INSERT PROPER COIN IN CORRECT SLOT.
2. MUST, FULL TURN KNOB CLOCKWISE.
3. FULL TURN KNOB AFTER EACH COIN IS INSERTED.

Step 3. Temperature Selector - Select temperature per type of load being dried in the dryer.
High heat - mixed and heavy fabrics - 185° exhaust temperature
Normal - cottons and linens - 185° exhaust temperature
Permanent Press - poly knit synthetic-blends-light weight fabrics. 150° exhaust temperature
Low Heat - delicate-sheer fabrics-easy to dry- 135° exhaust temperature.

Step 4. Turn switch to "on" position if dryer is equipped with "on-off" switch.

STEP 5. Push in "Push to Start" button until the dryer starts running and then release button.

What is happening after step 5:

1. The fan motor will operate.
2. The clothes tumbler will revolve.
3. The heat energy (gas-electric-steam) will be energized.
4. The heated air will mix with the water washed clothes to evaporate the moisture from the garments.
5. The thermostats will function at a safe temperature at the end of the drying cycle.
6. The heat will be shut off and the motor will continue to run to cool the dry load to a desired handling temperature.

IMPORTANT: If tumbler door is opened during the drying cycle, it stops the fan motor and the heated energy is shut off. To restart the dryer, close the door and press in the "Push to Start" button for approximately three seconds.

IMPORTANT: The light will stay on until the therm-o-cool thermostat cools below 135°F. before the contacts open to shut off dryer. This is only on "Therm-O-Cool" models.

IMPORTANT: On coin meter models only, see the label for information.

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

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

IMPORTANT: This is a commercial dryer. It has keys to open the lower lint area panel and the upper control and burner area panel. This is equipped for the user's safety.

COOL-DOWN: Cissell Dryers with one timer are furnished with Therm-O-Cool which reduces heat in the basket through temperature control, rather than by time. Time limit of this cool-down is flexible--requiring whatever period is necessary to reduce the load to a satisfactory cool state.

Cool-down immediately follows the drying cycle, to minimize wrinkling and reduce heat in the basket for more comfortable unloading.

Cissell coin-meter and double timer dryer models have a timed cool-down.

1. The coin-meter cool-down period is controlled internally.
2. The two timer model permits operator/customer to set cool-down manually to a predetermined period ranging from 0 to 15 minutes.

OPERATION - TWO TIMER MODEL

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

STEP 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. See Fig. 1.

STEP 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. See Fig. 1.

STEP 4 Temperature Selector - Select temperature per type of load being dried in the dryer.
High Heat - Mixed and heavy fabrics - 180°F. exhaust temperature.
Normal - Cottons and linens 170°F. exhaust temperature.
Permanent Press Heat - Poly knit synthetic-blends-light weight fabrics, 155°F. exhaust temperature.
Low Heat - Delicate-sheer fabrics-easy to dry, 140°F. exhaust temperature.

STEP 5 Turn switch to "on" position if dryer is equipped with "on-off" switch. See Fig. 1.

STEP 6 Press in "Push to Start" button (approximately 2 seconds) until the dryer starts running and then release button.

What is happening to the drying operation?

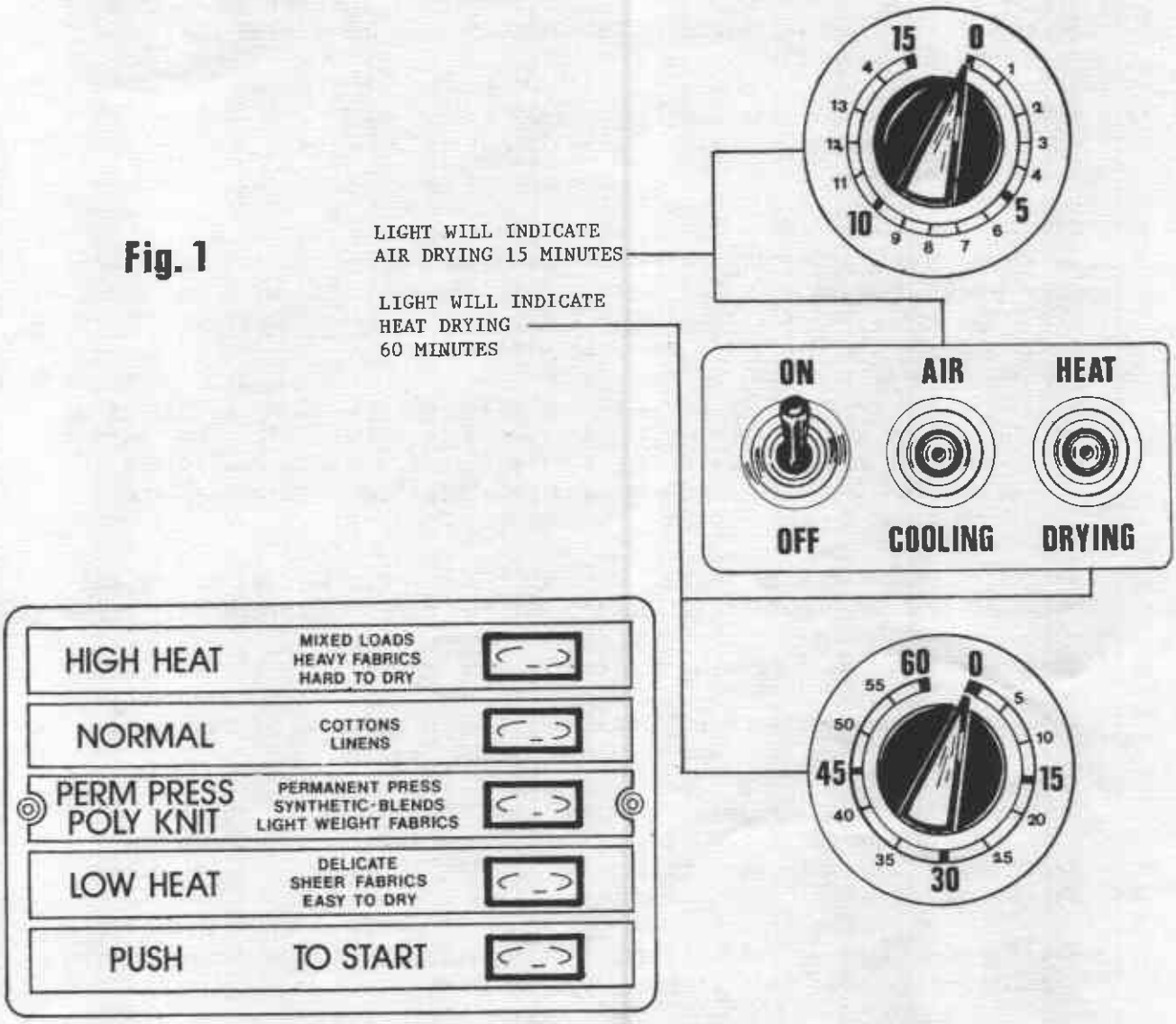
1. The fan motor will operate.
2. The clothes tumbler will revolve.
3. The heat energy will be energized.
4. The heated air will mix with the water washed clothes to evaporate the moisture from the garments.
5. The thermostats will function at a safe temperature at the end of the drying cycle.
6. The heat will be shut off and the motor will continue to run to cool the dry load to a desired handling temperature.

STEP 7 At the end of the cool-down cycle the clothes load is dry.

STEP 8 To shut the dryer off and the electricity off from the dryer, turn the "On & Off" switch to "Off" position. This switch is a safety switch to immediately stop the dryer's operation.

CONTROL PANEL - TWO TIMER MODEL

Fig. 1



Important: This is a commercial dryer. It has keys to open the lower lint area panel and the upper control and burner area panel. This is equipped for the user's safety.

RULES FOR SAFE OPERATION

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:
   a. Never use drycleaning solvents: gasoline, kerosene, or other flammable liquids in the dryer. Fire and explosion will occur.
   b. Never put fabrics treated with these liquids into the dryer.
   c. Never use these liquids near the dryer.
   d. Always keep the lint screen clean.
   e. 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 shutdown instructions and wiring diagrams are located on the rear wall of the dryer cabinet.

ENERGY SAVING TIPS:

1. Install dryer so that you can use short, straight venting. Turns elbows and long vent tubing tend to increase drying time. Longer dry 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 your dryer as soon as it stops. This saves having to re-start your dryer to remove wrinkles.

SERVICE SAVERS:

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:

1. Is the door completely closed?
2. Are the controls set to a drying position and not to off?
3. Did you push the start control?
4. Has a fuse blown or a circuit breaker tripped? Are fuses tight?
5. Check for low voltage.

DRYER WON'T HEAT:

1. Is the dryer set for a heat rather than an air only position?
2. Is the gas valve 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.)
4. Venting, air switch closing and make-up air for each drying.

GAS DRYER IGNITION:

Refer to page 36 "Instructions for the Direct Ignition System Operation." Check to see if the manual gas valve is open. Then reset the dryer controls. If dryer still fails to heat, call for service. All panels, covers, and doors must be in place and closed before starting dryer.

VERY IMPORTANT:

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

TROUBLE-SHOOTING CHARTS

TROUBLE	CAUSE	REMEDY
Motors 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 clock wise 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 (plus or minus) 10% of voltage shown on motor rating plate--it 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 manual for recommended make up air openings.
	Poor housekeeping	Clean lint accumulation on and around motors.
Basket motor will not run	Loading door open	Close door.
	Door switch out of adjustment	Adjust switch by removing cover and bend actuator lever to clear switch button 3/8" with cover in place.
	Defective door switch	Replace switch.
	Defective basket motor contactor	Replace contactor.

TROUBLE	CAUSE	REMEDY
Basket 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.
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.
	Silicon carbide igniter will not glow - red	Broken or defective igniter--replace. Check for 120 volts to igniter.
	Light red silicon carbide igniter	Check for 3.5 minimum amperage. Low amperage not hot enough. Low Voltage
	Defective igniter time delay relay	Replace relay.
	Lint door open	Close lint door.
	Defective gas valve	Replace coil assembly.
	Gas turned off	Turn manual gas valve "on."

TROUBLE	CAUSE	REMEDY
Dryer runs but no heat		
	Defective door switch	Replace door switch.
	Silicon carbide igniter not igniting gas	Must be 3/16 to 5/16 above burner, Replace radiant sensor
	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 column) 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.
	Air switch out of adjustment	See air switch adjustment sheet in service manual.
	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.

TROUBLE	CAUSE	REMEDY
Dryer runs but no heat	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.
	Gas pressure too high	Check rating plate for correct gas pressure.
	Orifice too large	Send to factory for correct orifices.
	Restricted or blocked exhaust	Clean exhaust.
Main burner cycling on and off	Radiant sensor	Replace
Low gas flame 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.
	Lint accumulated	Remove lint.
	Exhaust duct dampers	Must be full open or replace.
	Gas pressure too high	Adjust gas pressure as specified on rating plate.
	Partially restricted or inadequately sized exhaust system	Check installation sheet in service manual for recommended sizes. Check for and remove obstructions or lint build up from duct work. Never use smaller size exhaust duct. Always use larger size exhaust duct.
	Defective thermostat	Replace thermostat.

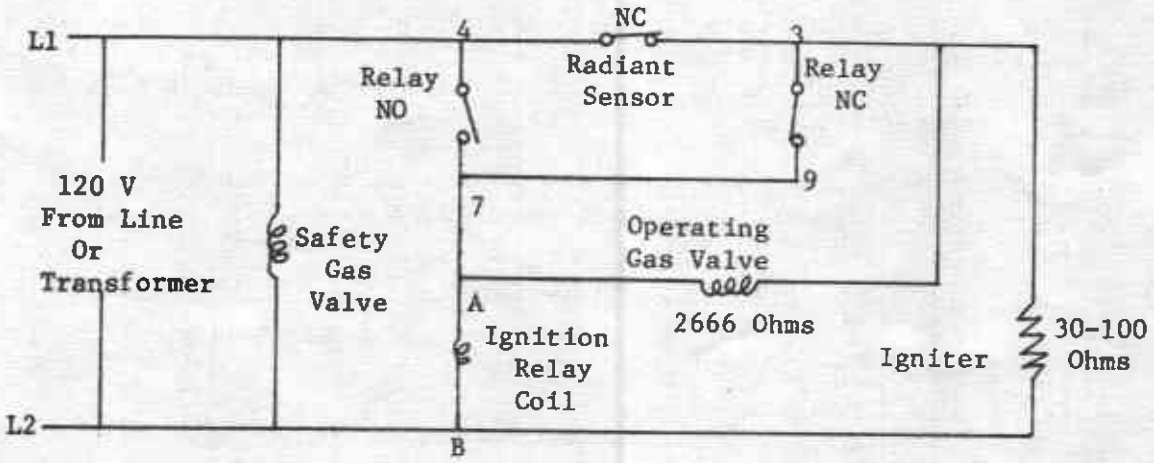
TROUBLE	CAUSE	REMEDY
Dryer does not stop at end of time period (6)	Defective timer	Replace timer.
Dryer runs no steam to coils	Valve closed	Check all valves in steam supply and return--make sure they are open.
	Steam trap blocked	Remove and clean. Replace if defective.
	Solenoid valve	On dryers using 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 in structions.
	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.
Basket does not reverse	Reversing timer	Check timer to see if operating.
	Reversing timer	Adjust timer (See Furnas control sheet)

OPERATION OF THE SILICON CARBIDE IGNITION SYSTEM

Power to the ignition system is 120 volts. It is rated voltage or on higher voltage machines the 120 volts is from a transformer. The ignition system is powered through a timer or coin meter and a thermostat which calls for heat.

The two gas valves are plumbed into a single gas line and both must open before the gas can flow into the burners.

The following diagrams are line to line schematics of the ignition system. The numbers 4, 7, 3, 9, and letters A and B are terminals on the ignition relay which serves as a terminal board for the system.



NEW NORTON SILICON CARBIDE IGNITION SYSTEM

Fig. 1 (Start of Cycle)

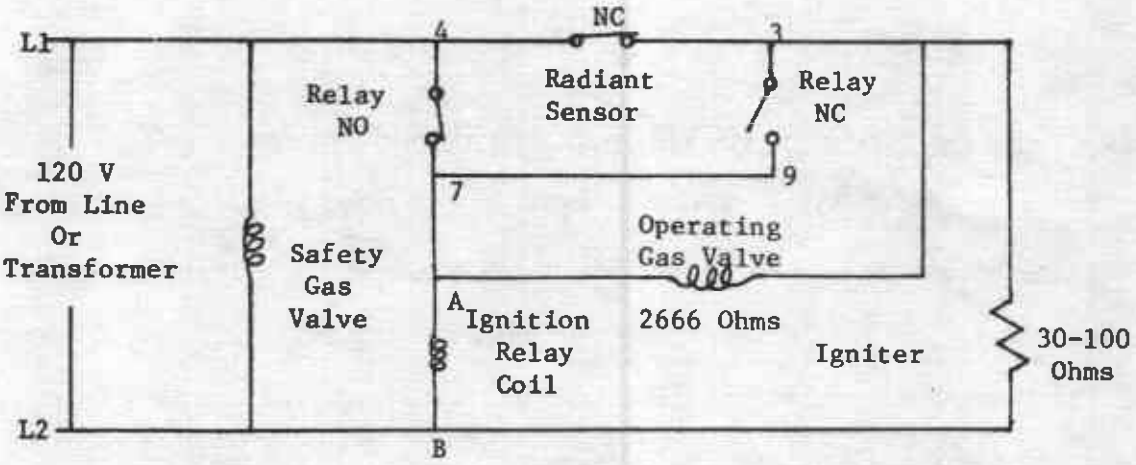
Step #1 (Start of Cycle), see Fig. 1

a. The safety gas valve is connected across the lines and opens immediately as soon as a need for heat is indicated by the thermostat.

b. The ignition relay coin is energized through the normally closed (NC) contacts of the radiant sensor and the NC contacts of the relay. Note! Fig. 1 shows the electrical circuit of the relay just before it is energized. Fig. 2 shows the circuit a moment later.

c. The igniter is energized through the NC contacts of the radiant sensor.

d. The operating gas valve is connected such that the same 120 volts is applied to both sides of the gas valve and the valve stays closed.



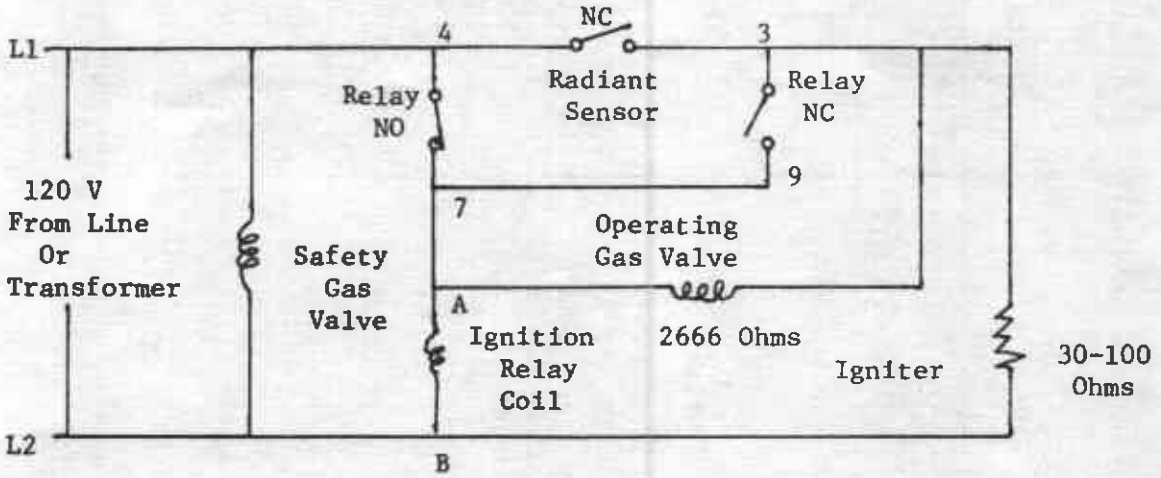
NEW NORTON SILICON CARBIDE IGNITION SYSTEM

Fig. 2 (An Instant Later)

Step #2 (A moment after Step #1), see Fig. 2

a. The ignition relay closes now and the relay coil stays energized by being powered through the normally open (NO) contacts of the ignition relay which close before the NC contacts open.

b. The operating gas valve still has the 120 volts applied to both sides of the gas valve and the valve stays closed.



NEW NORTON SILICON CARBIDE IGNITION SYSTEM

Fig. 3 (About 20 Seconds Later)

Step #3 (About 20 seconds after Step #2), see Fig. 3

a. The igniter glows red hot which causes the radiant sensor to open its NC contacts which de-energizes the igniter.

b. As the radiant sensor NC contacts open, the 120 volt to one side of the operating gas valve coil is removed and an electrical circuit is formed through the NO contacts of the inition relay,

through the gas valve and through the igniter; and the gas valve opens. The relatively low resistance of the igniter allows nearby full voltage to be applied to the operating gas valve and nearby zero voltage to the igniter and the igniter is de-energized for all practical purposes.

c. As the raw gas flows against the red hot igniter, ignition takes place. The radiant gas flame replaces the radiant glowing of the igniter and the radiant sensor NC contacts remain open.

The flame will burn until the thermostat opens the circuit or until the time on the timer or coin meter expires.

The following summarizes the ignition operation.

Start machine drying cycle. Carbide igniter will get red hot. Then gas valve will open. The gas burners are ignited by the carbide igniter. Igniter will shut off and burners will remain on during drying cycle.

Opening tumbler door will cause gas to extinquish. Shut door and gas will not light until flame sensor cools and normal ignition cycle begins.

Note! Push start switch after door is shut.

If gas does not light, then the sensor will cool down and restart the ignition cycle.

Safety Features

Power Interruptions During Burning of the Gas

Both gas valves are de-energized and the gas is shut off. The ignition relay is also de-energized and returns the contacts to the NO and NC positions. Even with resumption of power, the operating gas valve stays closed until the NC contacts of the radiant sensor close (about 30 seconds from time of power interruption). A normal ignition cycle begins at this time.

Burner Doesn't Light Because of Low Voltage of Low Gas Pressure

The operating gas valve will be energized for about 30 seconds and then the NC contacts of the radiant sensor will be closed. 120 volts is applied to both sides of the operating gas valve and it closes to shut off the gas. A normal ignition cycle begins at this time.

NORTON IGNITION SYSTEM

Test Procedure

1. Glow bar will glow red. If glow bar does not glow red, then check the following:
   a. Disconnect blow bar wiring from dryer. Test with separate 120 volt. Replace if it does not glow red.

   b. Also replace glow bar if cracked, broken or does not light burner in 25 seconds.

2. Unit must be wired correctly.
   a. Front gas valve must always be wired to "A" and "3" on the relay.

   b. Side or rear gas valve must be wired to "B" and "4" on the relay.

3. Rear or side gas valve must open (click) when dryer is energized.

4. Front gas valve will open and gas will flow to burners after 12 to 25 seconds, when glow bar is glowing red. Red glow bar will light gas from burners.

5. Glow bar will go out when flame is burning.
   a. If both gas valves do not open (click), then replace.

   b. If unit does not operate correctly, then replace the relay.

   c. If glow bar does not shut off, then replace radiant sensor. Also if the radiant glas is broken, replace.

Parts In Norton Ignition System Unit:

6. Norton Glow Bar
   Ignition Radiant Sensor
   Ignition Relays
   Two Gas Valves
   Wiring Diagram

7. Open and close loading door after gas is burning and glow bar is shut off. Gas should not flow when door is reclosed until radiant sensor has cooled and glow bar recycles.

TROUBLESHOOTING ON EACH NORTON IGNITION PART

A. Glow bar
   1. No glow bar red: Check voltage (120 volt).
      Cracked or broken, replace.
      Check wiring TWL679 Must be connected to No. "B". and No. "3" on relay.

B. Radiant Sensor
   1. No glow bar red: Contacts failed open position, replace.
      Sensor N.C. (cold position).
      Sensor open (hot position).
      Glass broken, replace.

   2. Fails to open after 25 seconds: Low voltage on glow bar.
      Not in correct location.
      Glass broken, replace.
      Failure of contacts to open, replace.

C. Relay (Igniter)

1. Front gas valve does not turn on: Relay is wired incorrectly - see TWL679.
   Relay solenoid not operating.
   Relay contacts not operating correctly.

2. Relay contacts should make before break - when the relay coil is energized, the contacts "4 & 7" should close before contacts "3 & 9" open.

D. Gas Valve

1. If valve does not open when 120V is applied to it, then replace the coil assembly.

2. The two gas valves must be wired correctly TWL679. Front gas valve wires connected to "A and 3" on relay. Side or rear gas valve wires connected to "B and 4" on relay.

INSTRUCTIONS FOR THE DIRECT IGNITION SYSTEM OPERATION

1. Turn on manual gas valve, handle should be parallel with gas line.

2. Start machine's drying cycle. Carbide igniter will get red hot, then gas valve will open. The gas burners are ignited by the carbide igniter. Igniter will shut off and burners remain on during heat cycle.

3. Opening tumbler door will cause gas to extinguish. Shut door and gas will not flow until flame sensor cools and normal cycle begins.
   NOTE! Push start button after door is closed.

4. If gas does not light, the sensor will cool down and restart the ignition cycle.

5. To shut off dryer, turn off manual gas valve. Handle should be at right angle to pipe. Turn off main electrical supply switch.

6. A five minute complete shutoff period prior to reignition attempts should initial attempts fail.

CAUTION: Check all Norton Igniters with 120V before installing on dryer.

TROUBLE ANALYSIS FOR ENERGY SAVER DRYERS AND THE ELECTRONIC SILICON CARBIDE GAS IGNITION SYSTEM

CAUTION: Problems with the electronic silicon carbide ignition can also be the result of the following.

1. Exhaust air flow restriction. Exhaust pipe size must be larger than the exhaust opening. Refer to chart in manual.

2. Dryer inlet air is a must for each unit. It must be 4 to 6 times the combined areas of the dryer exhaust outlet. Refer to chart in manual.

3. All dryer panels must be in place and on machine for proper operation.

4. Gas pressure must be 7-9½ inches W.C. for natural gas and 11 inches W.C. for propane or butane (bottled) gases.

5. Refer to chart for correct gas pipe sizes and lengths. The 3/4 inch gas pipe must be the minimum gas supply pipe for the dryer and over 50 ft., 1 inch pipe size.

6. Main burner orifices must be correct size, they are calculated with the following information:

   (A) Your locality heating value of gas, B.T.U./cu. ft.
   (B) Local specific gravity of gas.
   (C) Gas manifold pressure inches of water column.
      (1) 3.5 inches water column pressure for natural gas
      (2) 11 inches water column pressure for propane or butane gases.
   (D) Gas input rate per each burner orifice.

7. Voltage must be the identical as on the electrical rating plate. Prevent low voltage; it causes longer drying operation.

8. Back draft damper must swing full open to prevent air flow restrictions. (Check for full open operation every 6 months). Non-operative or erratic operation of exhaust dampers will cause air flow switches to shut off gas and will result in longer drying time.

The above should be checked and corrected before attempting to trouble shoot the electronic silicon carbide gas ignition system.

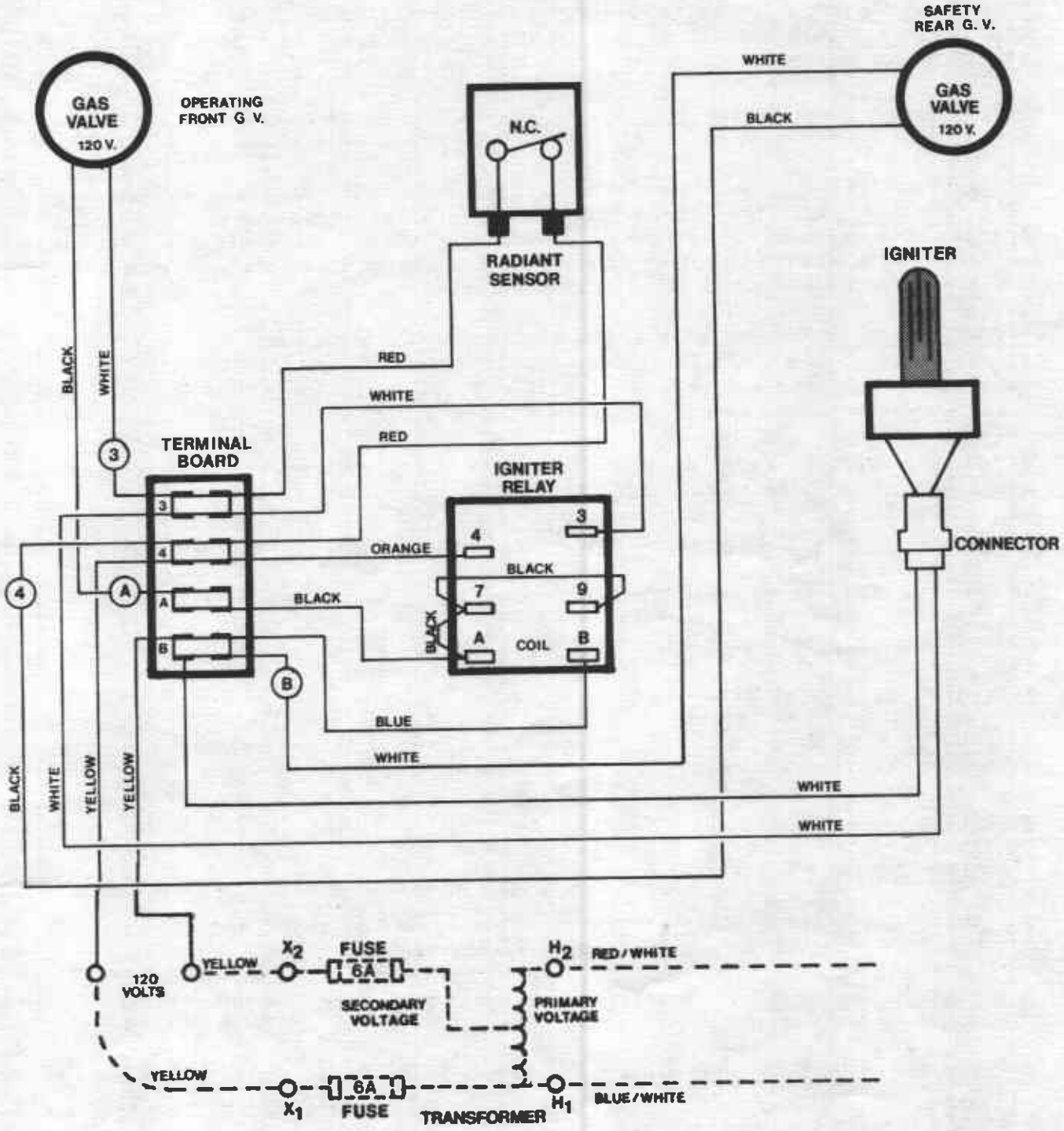
cissell

831 SO. FIRST ST. LOUISVILLE, KY. 40203

WIRING DIAGRAM

NORTON SILICON CARBIDE GAS IGNITION SYSTEM
120 VOLTS; 50/60 HZ; 1 PHASE
GAS DRYERS

TWL 679*



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 periodically as often as needed. The basket and sweep sheets within the dryer are easily accessible by removing the front panel of the dryer.

3. Gas burners, steam coils, electric coils. Check periodically and keep 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 overgrease.

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. SRI-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.

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 overgrease.

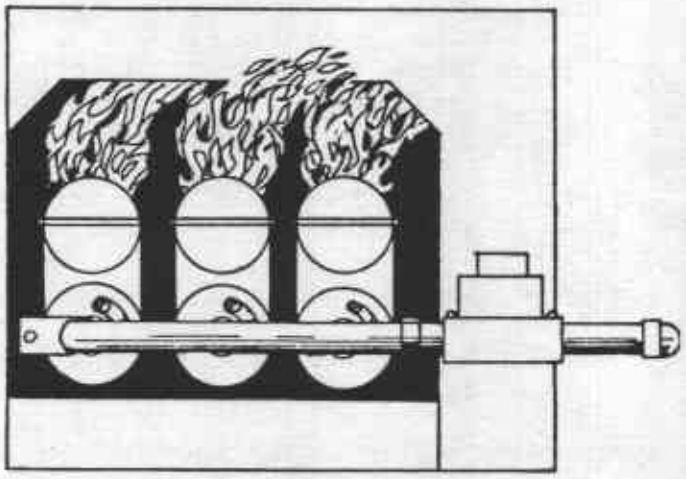
13. Steam Heating Units Keep steam coils clean. Check periodically and clean as often as required. Remove lint and dirt accumulation from coil fins to avoid decreasing their efficiency.

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

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

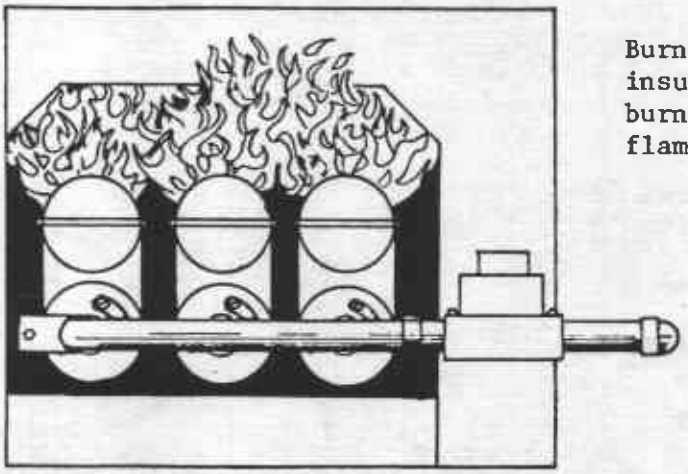
TYPE OF GAS	BURNER AIR INLET SHUTTERS ADJUSTMENT
Natural gas	1/2 Open
Liquid Petroleum	1/4 Open
Manufactured gas	1/16 Open



RIGHT

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.

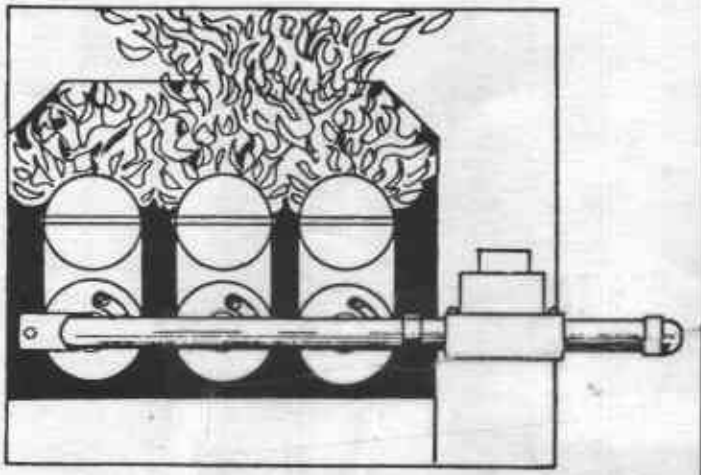


Burners Air Inlet Shutters are adjusted insufficient, air is admitted through the burner. Flame pattern is straight up and flame is yellow.

WRONG
NEED TO ADJUST SHUTTER

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 a exhaust fan.

WRONG
NEED TO PROVIDE CORRECT AIRFLOW THROUGH THE DRYER



REPLACING BEARINGS AND COLLARS

Step 1: Remove belt guard, V-Belt, 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 if off the shaft.

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

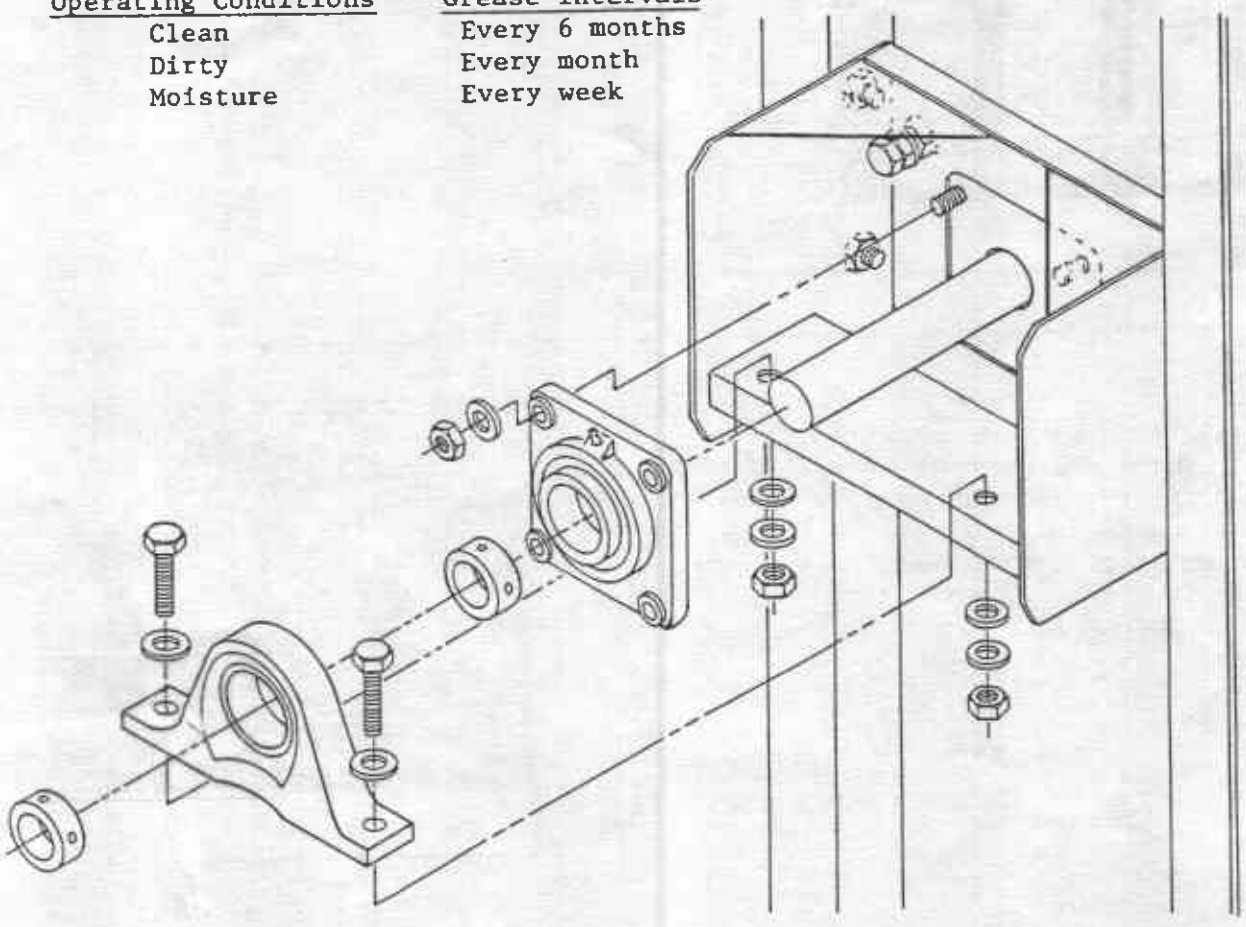
Step 5: Remove the four nuts and washers holding the flange basket bearing and take it off the dryer.

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.

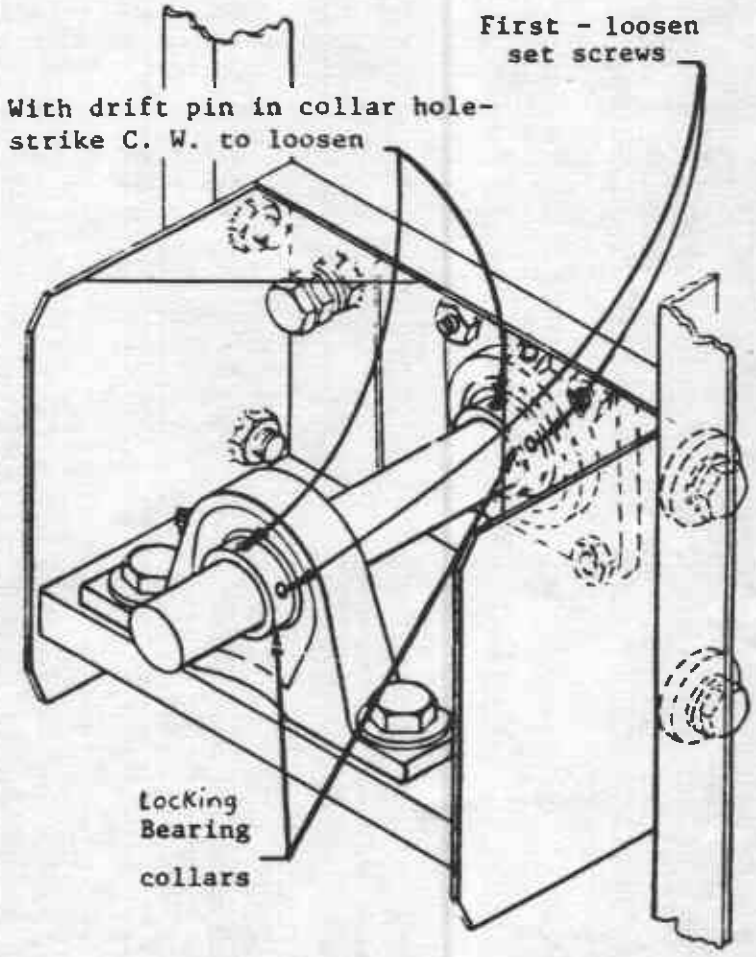
Step 7: Lubrication Guide - Grease bearings at regular intervals shown below. Use #42-032-6015 Lubriplate #310 1 lb. can or 14.5 oz. tube, Lubriplate #930-2 Multi-purpose grease #10098.

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



INSTRUCTIONS TO REMOVE ECCENTRIC LOCKING BEARING COLLARS



Rear View of Dryer

TU13147

BASKET ALIGNMENT - DOUBLE MOTOR MODEL

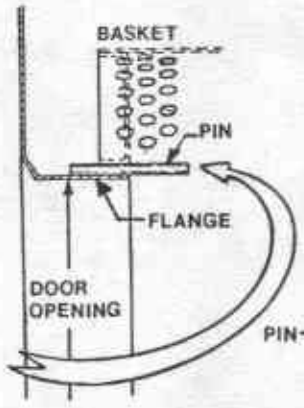
1. Loosen the 4 gear reducer mounting bolts (1, 2, 3 & 4) on rear of dryer, and 2 adjusting bolts #5, on gear reducer housing. (Fig. 3).

2. 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 Figure 1 and Figure 2. Check the two "B" pins for equal clearance.

3. With the pins in position, tighten the two No. 5 bolts until flush against back of dryer. Retighten gear reducer mounting bolts in the numerical order indicated in Figure 3. Tighten lock nuts No. 6 to secure bolts No. 5 in position. Then remove pins.

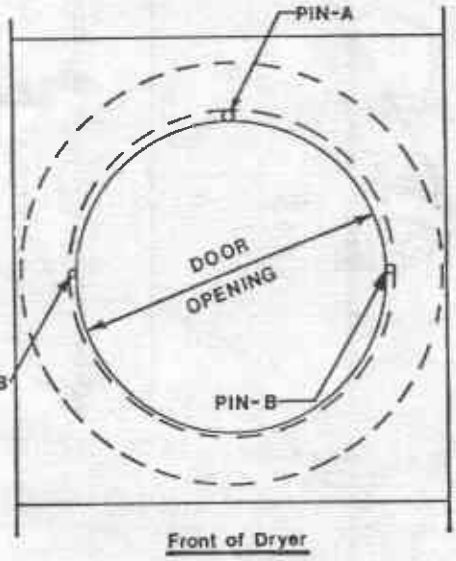
4. Check the space between basket and door opening at "A" pin and "B" pin positions (Figure 2). If the gap is not approximately the same on both sides, repeat steps 1, 2 & 3.

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



Right Side of Dryer

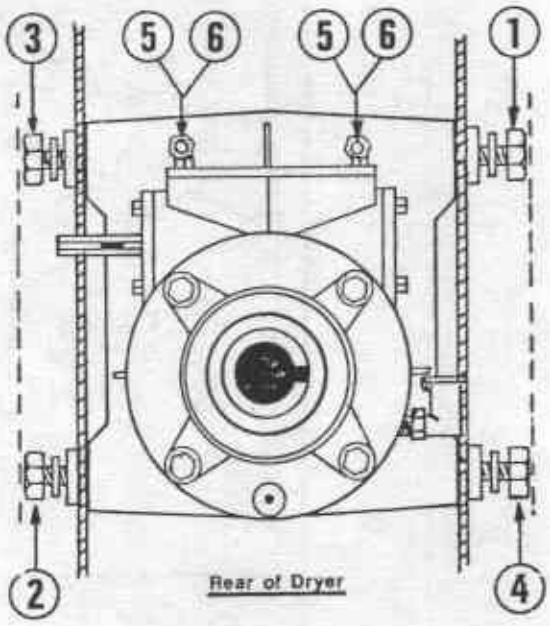
Fig.1



Front of Dryer

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

Fig.2



Rear of Dryer

Fig.3

BASKET ALIGNMENT - SINGLE MOTOR MODEL

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 Fig. 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 Figs. 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".

Step 6 Remove the aligning pins and if alignment is O. K., 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.

FIG. 1

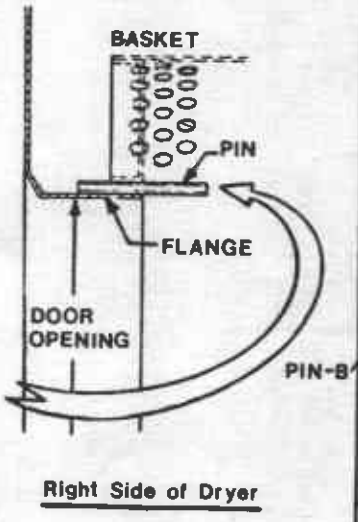
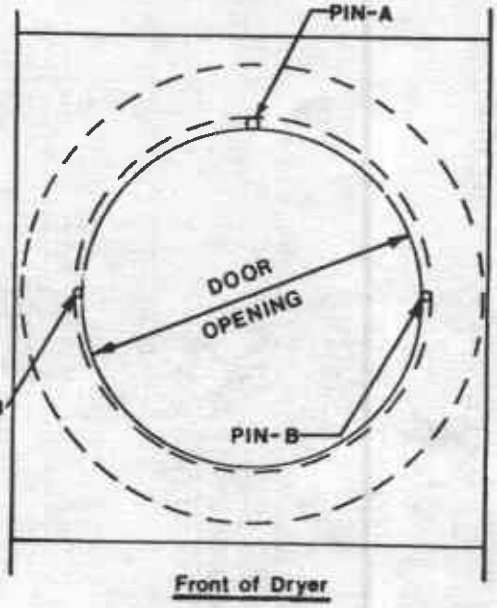
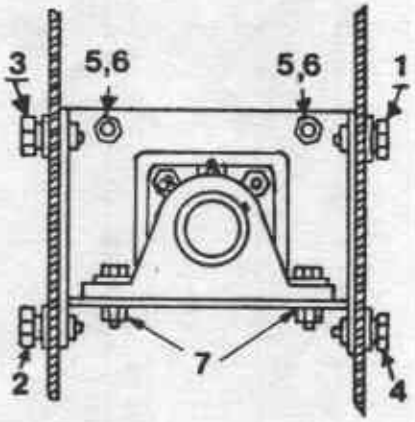


FIG. 2



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

FIG. 3



SHIMMING THE BASKET

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

A. Align the basket per instructions.

B. Rotate the basket to determine where the most out of round point is or 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).

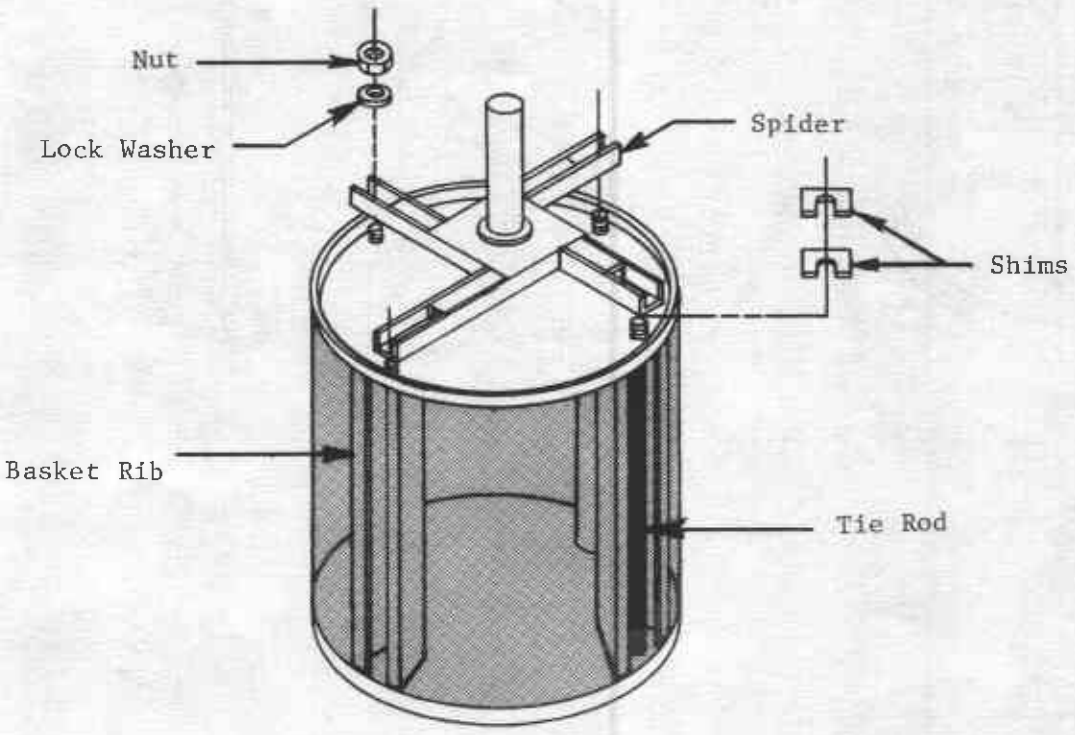
E. With the basket on the floor, spider up, place one or two shims between the spider leg and the back of the basket at the position marked on the rib. See illustration.

F. Install the spider and basket assembly and re-check cylinder.

G. If the basket is still out of round at this point, steps B through F must be repeated.

H. Upon completion of the shimming process, re-alignment of the 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

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

2. Lay air switch assembly on flat surface. Adjust air blade at "A" (fig. 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" (fig. 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" (fig.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.

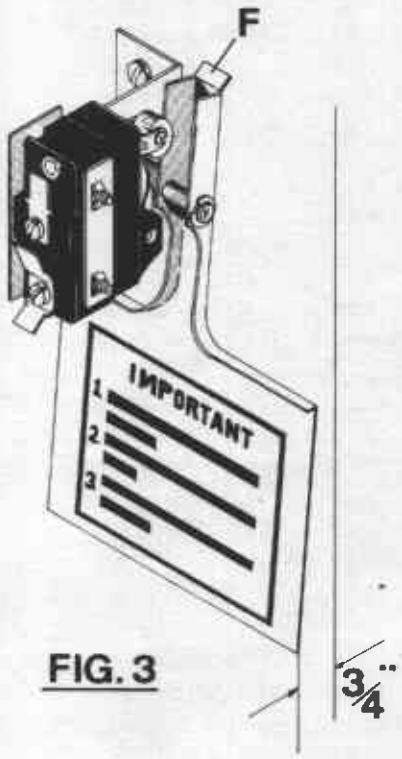


FIG. 3

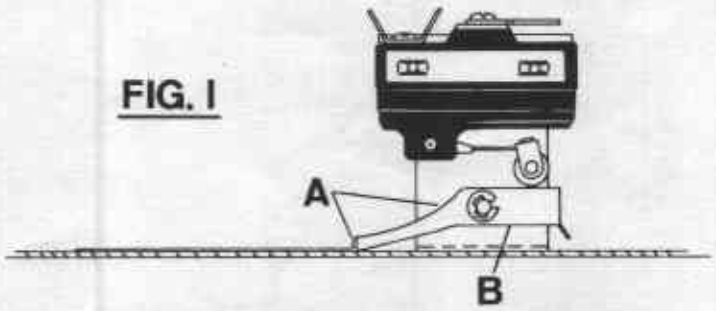


FIG. 1

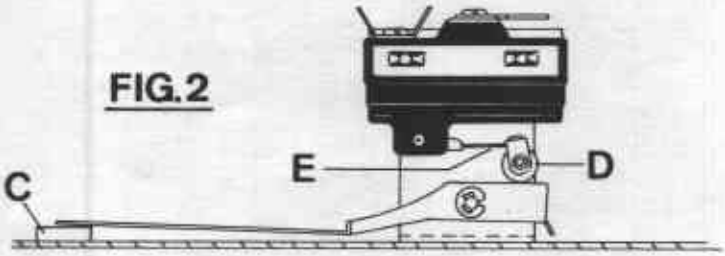
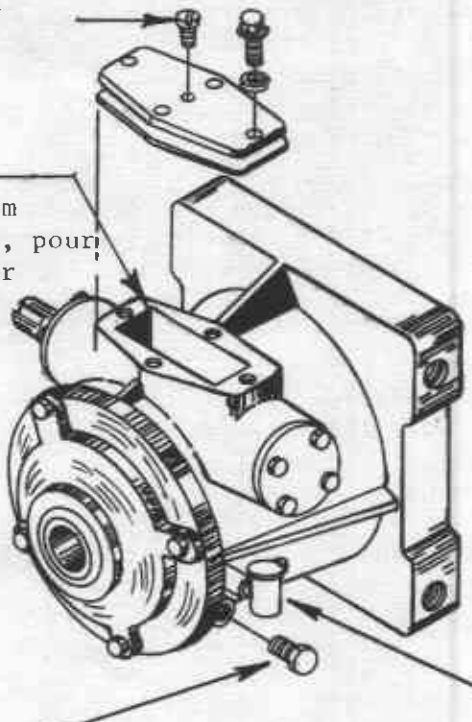


FIG. 2

GEAR REDUCER INFORMATION

Vent: Important
Remove this screw before placing machine in operation



Oil Fill:
Remove worm gear cover, pour oil in gear reducer to oil level. (one-half depth of oil cup)

TU3465
Transmission Oil

Drain Plug

Oil Level Cup

Oil level one-half depth of cup. Do not overflow. Remove cork from oil level cup.

Before placing the dryer into operation, remove screw from vent in oil fill atop each gear reducer case. Remove the cork from the oil level inspection cup. If the oil level is correct, the oil level inspection cup will be half filled with oil. If not, add oil. Oil may be added to the gear reducer by removing the worm gear cover in the top rear of the gear reducer case. Do not operate a gear reducer unless the drain plug is tight, and the vent screw removed.

Each gear reducer is filled with one pint of Cissell TU3465 transmission oil before leaving the factory. Change oil once every six months.

The Large Timken Bearings, which support the worm gear and basket load, must operate in a preloaded condition, that is the worm gear must not have end play. The gear reducer is assembled at the factory to provide a 5-8 inch lb. pre-load on the bearings.

The Small Timken Bearings, which carry the worm must operate in a pre-loaded condition, that is, the worm must not have end play. The gear reducer is assembled at the factory to provide a 2-4 inch lb. pre-load on these bearings.

Total torque 8-10 inch lb. on shaft for both gears.

REMOVAL AND INSTALLATION OF GEAR REDUCER SEALS

NOTE: On original equipment, the Cissell Gear Reducer is equipped with a Garlock Shaft Seal. If this seal requires replacement, it cannot be replaced with the same type of seal since the original seal would have seated in on the shaft. It must be replaced with a TU2166.

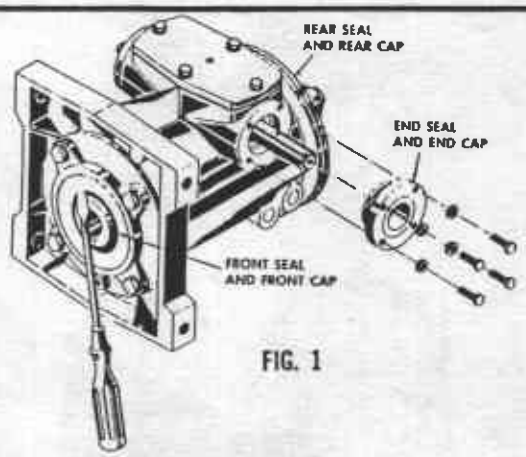


FIG. 1

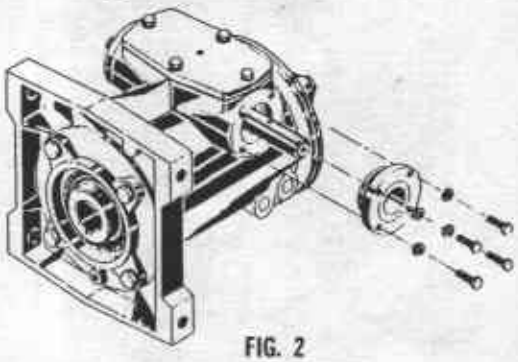


FIG. 2

FIG. 3

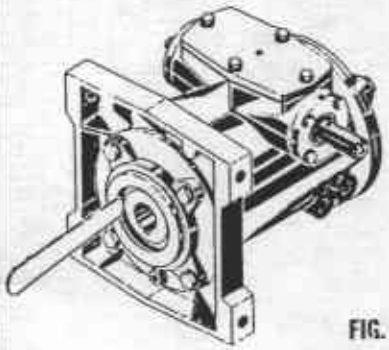


FIG. 4

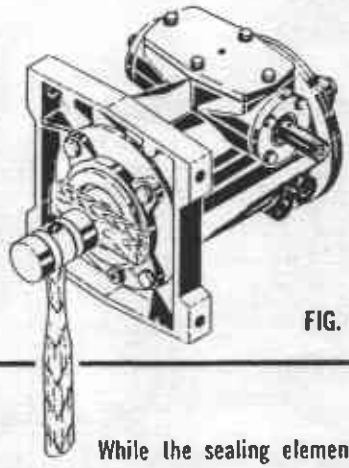


FIG. 5

CAUTION

Drain oil before removing seals; replace with NEW oil after installing new seals (See Cissell Gear Reducer Sheet).

Remove Gear Reducer from rear of dryer before removing seals.

TO REMOVE EXISTING FRONT AND REAR SEALS from front and rear caps on Gear Reducer (Fig. 1):

Slip end of screwdriver under seal (front seal illustrated); using end of Gear Shaft as a fulcrum, force seal out. Repeat operation at several different places until seals are removed from gear shaft.

TO REMOVE EXISTING END SEAL and END CAP from Gear Reducer (Fig. 1):

Remove four cap screws and slip end cap and seal from worm gear. Tap seal out of cap from inside.

Clean inside of front, rear, and end caps. Spread permatex evenly over area to receive seal. Clean outside end of large and small gear shafts. Spread vasoline evenly over area to receive seal, (Fig. 2).

Spread permatex evenly over outside rim area, (Fig. 3) of seal. Spread vasoline evenly over inside rim area of seal.

TO INSTALL NEW FRONT AND REAR SEALS:

Hold front (and rear) seal tightly in place over gear shaft with rubber seal in. Run edge of thin, dull instrument (such as wooden spatula, illustrated against front seal, Fig. 4) carefully around rubber wiping edge of seal and chamfer end of gear shaft so that seal is evenly installed all around gear shaft. DO NOT INJURE RUBBER WIPING EDGE.

TO INSTALL NEW END SEAL:

Slip seal in end cap. Hold cap and seal tightly in place over small shaft with rubber seal in. Run edge of wooden spatula carefully around rubber wiping edge of end seal and chamfer end of small shaft so that seal is evenly installed all around edge of shaft. DO NOT INJURE RUBBER WIPING EDGE.

AFTER SEALS ARE EVENLY INSTALLED ALL AROUND EDGES OF SHAFTS:

Place block of wood over front and rear seals and tap all around with a plastic faced mallet, (Fig. 5) until seal is flush into recess of front (or rear) cap.

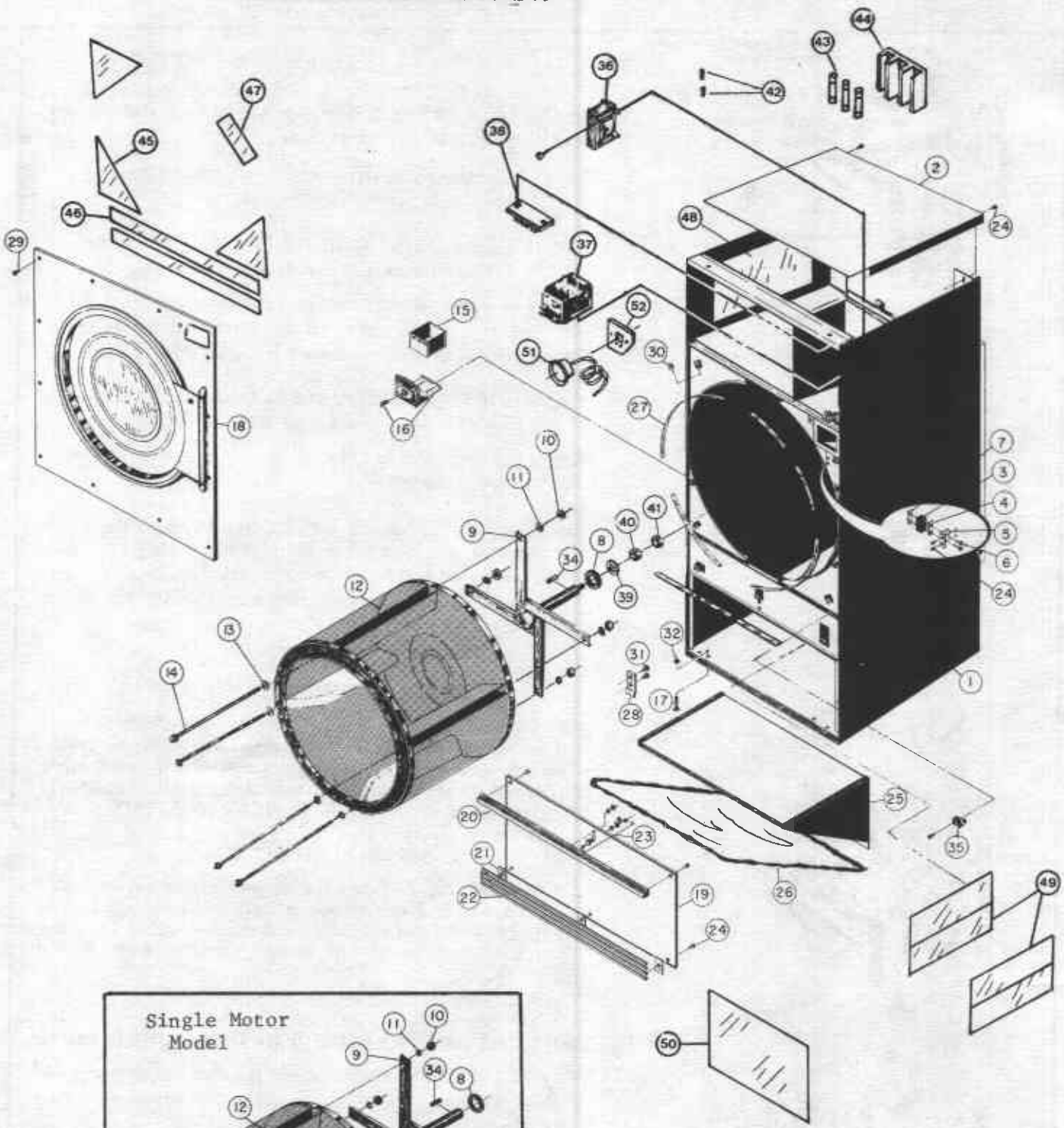
Slip end seal and cap into position and tighten four bolts; then with a block of wood over end seal, gently tap with plastic faced mallet, until seal is flush into recess of end cap.

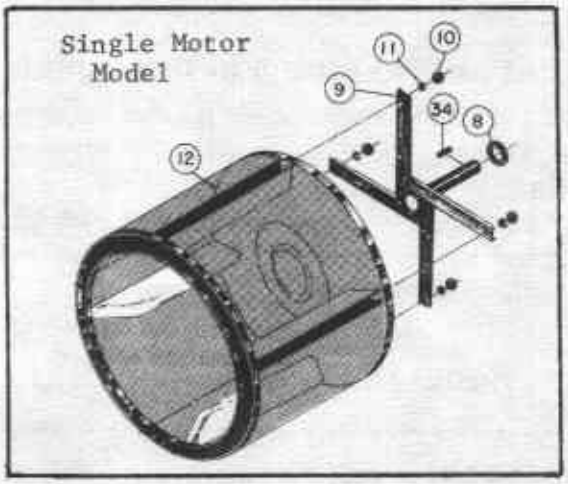
REINSTALL GEAR REDUCER ON REAR OF DRYER

IMPORTANT

While the sealing element or packing ring in a seal is not fragile, care must be taken to prevent damage to the wiping edge during mounting. Do not apply pressure to, nor hammer directly on, the sealing ring or spring: make sure that all mounting tools contact only the metal case of the seal.

FRONT EXPLODED VIEW





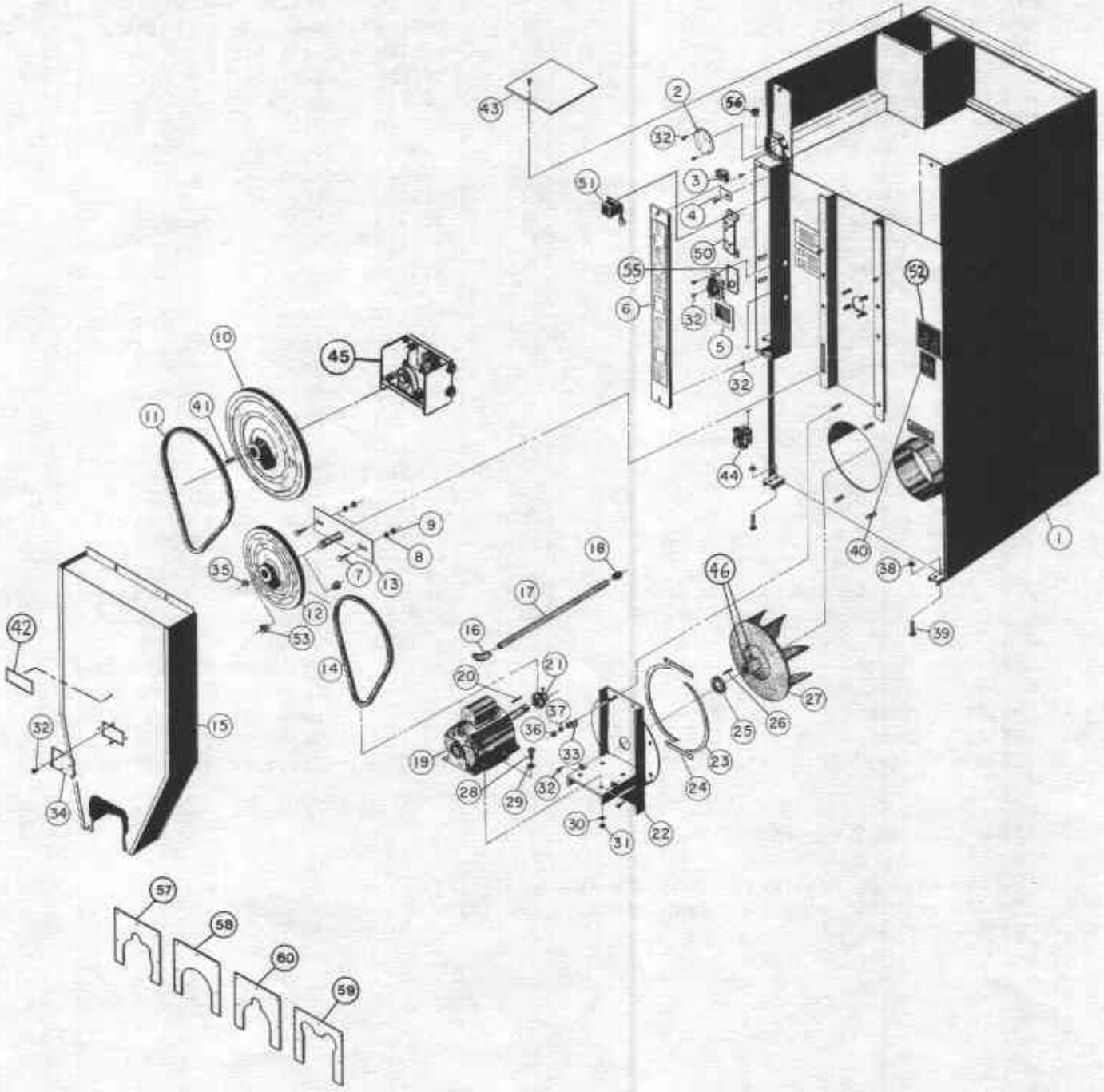
Grease to be applied to all bearing shafts. #42-032-6015 Grease Lubriplate #310- 1 lb. can OR 14.5 Oz. Tubes- Lubriplate No. 930-2 Multipurpose Grease #10098.

FRONT EXPLODED VIEW

Ref. No.	Part No.	Description
1	TU10897	Jacket Welded Assy. (For Coin Vault)
	TU10898	Jacket Welded Assy. (For Time & Temp.)
2	TU2621	Solid Top (Gas)
3	TU1979	Door Switch
4	TU1770	Insulator
5	TU2373	Door Switch Mounting Bracket
6	TU3219	#6x1" Sheet Metal Screw
7	TU1771	#6 Tinnerman Twin Nut
8	TU108	Felt Seal
9	TU7183	Spider Welded Assy. Single Motor Models
	TU5231	Spider Welded Assy. Double Motor Models
10	TU2882	½"-20 Hex Nut
11	TU2831	½" Split Lock Washer
12	TU6822	Basket Weldment
13	TU2883	½" Cut Washer
14	TU2313	Tie Rod
	TU5490	Shim (3 req'd) See Instructions Shimming
15	CM35	Coin Box
16	CM61	Coin Vault Lock Assy.
17	TU3211	3/8"-16x2½ Leveling Bolt
18	TU5810	Front Panel & Door Assy (For Coin Vault)
	TU6056	Front Panel & Door Assy. (For Time & Temperature)
19	TU5566	Lint Door Welded Assy.
20	TU7473	Handle
21	TU2710	Trim HOlder
22	TU2385	Trim
23	TUB1867	Lock & Key
24	TU7733	#8x½" Self Drill Screw
25	TU8368	Lint Trap Frame Asm. Only
26	TU5261	Self-Cleaning Lint Screen Assembly
	TU10362	Self Cleaning Lint Screen Only
	TU5225	Lint Screen Frame Only
27	TU5876	Sweep Sheet Gaskets
28	TU3206	Lock Plate
29	TU2878	#10 x 5/8" S.M.S.
30	TU2877	#10 Speed Nut
31	TU1978	#14 x 3/4" S.M.S.
32	TU4937	3/8"-16 Jam Nut
33	TU2420	S. N. Plate
34	TU5887	Key
35	TU3240	185°F Thermostat Mounted to Fan Housing
36	TU8737	Transformer 208 or 230V. w/Fuses
37	TU8599	Relay 120V. (Igniter)
38	TU8629	Terminal Board (Igniter)
39	TU2493	Flat Washer**
40	TU3537	Full Nut**
41	TU3536	Jam Nut**
42	TU8738	Fuses
43	TU10065	Fuses
44	TU7505	Fuse Holder
45	TU7735	Insulation (3 ea.)*
46	TU8107	Insulation (2 ea.)*
47	TU8108	Insulation (1 ea.)*
48	TU7793	Insulation (1 ea.)*
49	TU8152	Insulation (4 ea.)*
50	TU8153	Insulation (1 ea.)*
51	TU3593	Thermometer (Optional)
	TU3816	Lens Repl. (Texas Gage Only)
	TU8475	Lens Repl. (Marshaltown Inst. Only)
52	TU6766	Thermometer Mtg. Plate

*Used only on Energy-Saver Models Only
**Double Motor Models Only
TU5808 Lint Door assembly consists of 19-24
TU8380 Self-cleaning lint trap assembly consists of 25-26.

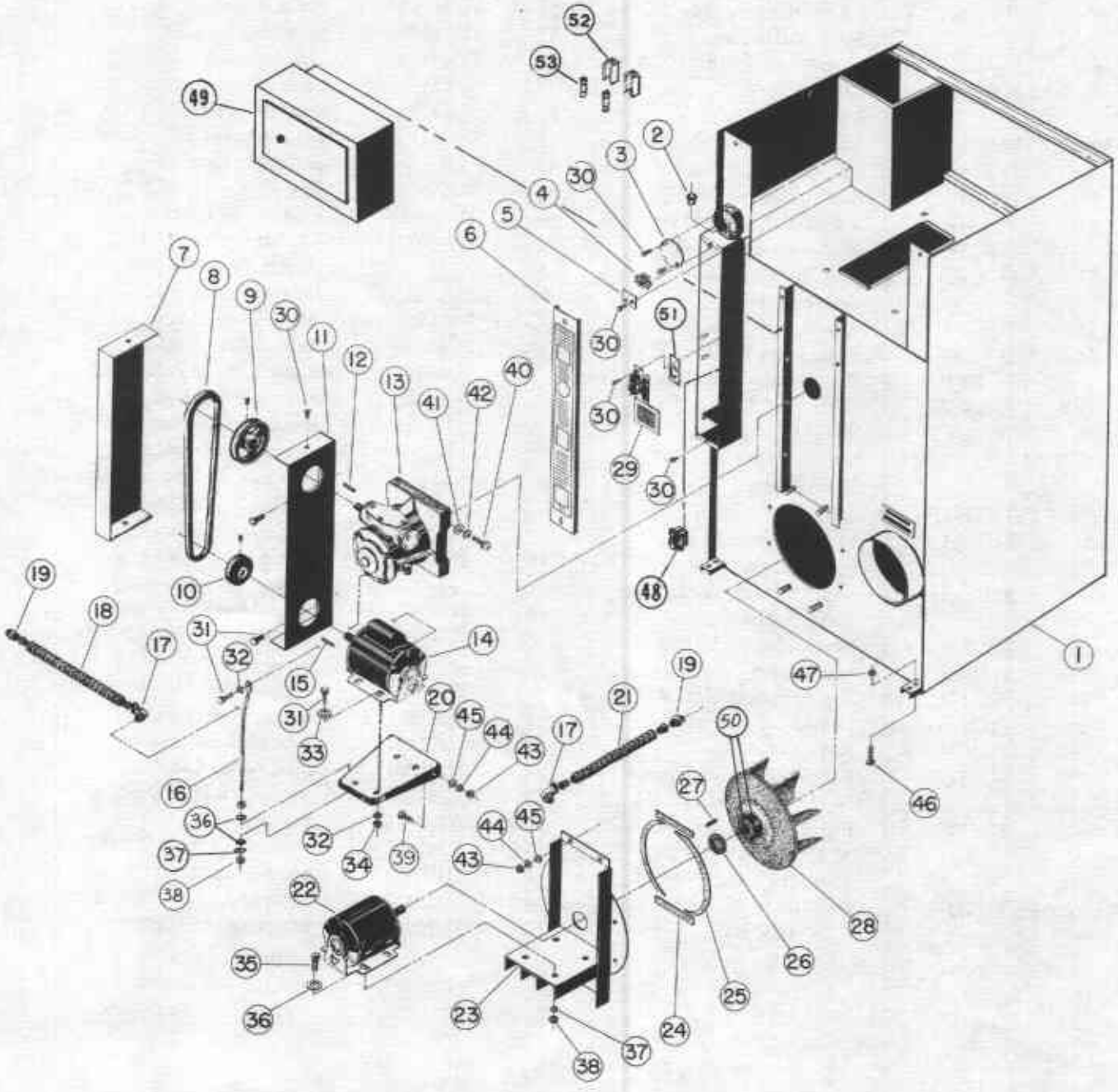
REAR EXPLODED VIEW - SINGLE MOTOR MODEL



50 LB. DRYER SINGLE MOTOR MODEL - REAR VIEW

Ref. No.	Part No.	Description
1	TU10897	Jacket W/A-Coin Meter
	TU10898	Jacket W/A-2 Timer
2	SBI70	Junction Box Cover
3	M155	Wire Harness Clamp
4	TU2726	Strain Relief Plate
5	TU8206	Air Switch Assembly See Separate Page
6	TU5890	Control Box Cover
7	TU12576	Carriage Bolt- 3/8" - 16 x 1"
8	VSB134	3/8" Split Lockwasher
9	TU3188	3/8" Hex Nut Nylok
10	TU5446	Basket Sheave-50/60 Hz.
11	TU5447	V-Belt-4L660-50/60 Hz.
12	TU5217	Idler Sheave-50/60 Hz.
13	TU12803	Idler Bracket With Grease Fitting
14	TU6725	V-Belt (50/60 Hz.)
15	TU12798	Rear Guard W/Cover Plate
16	TU4791	Right Angle Connector
17	504641292	Cable - 42" Long
18	TU4790	Straight Connector
19	----	Specify Motor No.,Voltage, Phase & Hz.
20	TU5241	Key
21	TU7603	Motor Sheave, 60 Hz., W/Set Screw
	TU12802	Motor Sheave, 50 Hz., W/Set Screw
22	TU5849	Motor Mount - 50/60 Hz.
23	TU2473	Side Gasket
24	TU2474	Top & Bottom Gasket
25	TU2476	Felt Seal
26	TU4684	Key
27	TU5874	Fan Wheel W/Set Screws 60 Hz. Gas Models
	TU8740	Fan Wheel W/Set Screws 50 Hz. Gas Models and 50/60 Hz. Steam, Electric
28	TU5439	Hex Hd. Screw - 5/16"-18 x 3/4"
29	VSBI30	Cut Washer - 5/16"
30	TU2814	Split Lockwasher - 5/16"
31	C249	Hex Nut - 5/16"
32	TU7733	Self-Drilling Screw
33	TU6484	Cable Strap
34	TU11707	Cover Plate
35	TU3247	Retaining Ring
36	TU4787	Hex Nut - 3/8"
37	VSBI34	Lockwasher - 3/8"
38	TU4937	Jam Nut - 3/8"
39	TU3211	Leveling Bolt-3/8"-16 x 2-1/2"
40	F1116	Serial No. Plate
41	TU5887	Key
42	TU10418	Lubrication Label
43	TU10651	Mechanism Box Cover (Steam Dryer Only)
44	TU1984	Relay-120V. 2 Pole
	TU1985	Relay-240V. 2 Pole
	TU3495	Relay-240V. 3 Pole
	TU3496	Relay-120V. 3 Pole
	TU10795	Relay-480V.4 Pole (Gas)
	TU10669	Relay-480V.4 Pole (for Steam or Electric)
45	-----	Cast Iron Bearings and Bracket Assembly - See separate page for parts breakdown.
46	TU3282	Round Set Screw Only
	F819	Square Set Screw Only
50	TU6220	Relay Mounting Plate
51	TU4659	Transformer-380/440/550V., 50/60 Hz.
	TU4660	Transformer-240/480V./60Hz.
52	TU6783	Rating Plate (Electric)
53	TU7184	Bronze Bushing (2 ea.)
54	TU9600	Idler Pulley Label
55	TU9180	Air Switch Plate
56	TU2372	Bushing-7/8"
57	TU11662	Motor Adapter (MTR202)
58	TU10359	Motor Adapter- 3 Ph.Only
59	TU10360	Motor Adapter- G.E.,1 Ph.
60	TU10361	Motor Adapter (Emerson, 1 ph. only)

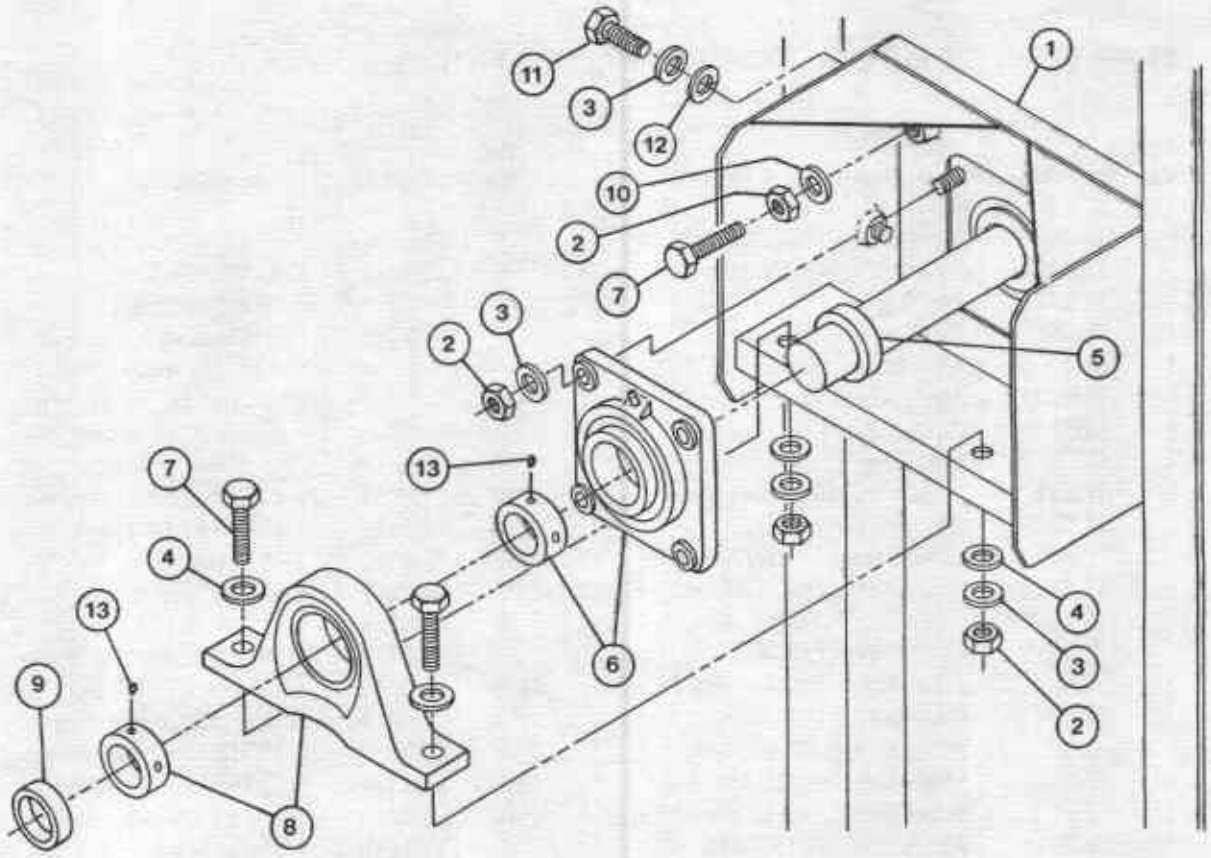
REAR EXPLODED VIEW - DOUBLE MOTOR MODEL



REAR VIEW OF DRYER - DOUBLE MOTOR MODEL

Ref. No.	Part No.	Description
I	TU10897	Jacket (Coin Meter Model)
	TU10898	Jacket (2 Timer Model)
2	TU2372	Bushing
3	SBI70	Junction Box Cover
4	M155	Wire Harness Clamp
5	TU2726	Strain Relief Plate
6	TU5890	Control Box Cover
7	TU3857	Belt Guard Cover
8	TU2317	V-Belt 46-380 - 50/60 Hz.
9	TU2323	Gear Sheave (AK-51) w/Set Screw, 60 Hz, Non-Rev.
	TU6722	Gear Sheave (AK-51H) w/Set Screw, 60 Hz., Rev.
	TU2211	Gear Sheave (AK-46) w/Set Screw, 50 Hz., Non-Rev.
	510101040	Gear Sheave (AK-46H) w/Set Screw, 50 Hz., Rev.
10	F1034	Motor Sheave (AK-34) w/Set Screw, 60 Hz., Non-Rev.
	TU7334	Motor Sheave (AK-34H) w/Set Screw, 60 Hz., Rev.
	TU1952	Motor Sheave (AK-39) w/Set Screw, 50 llz., Non-Rev.
	510101041	Motor Sheave (AK-39H) w/Set Screw, 50 Hz., Rev-
11	TU5254	Belt Guard Mounting
12	TU5241	Shaft Key
13	TM100	Small Gear Reducer
14	See Pg 10	Basket Motor
15	TU5241	Key
16	TU8608	Belt Adjusting Rod
17	TU4791	Right Angle Connector
18	504641292	1/2" Greenfield Cable- (Specify 17" Long)
19	TU4790	Straight Connector
20	TU33	Motor Drive Bracket
21	504641292	1/2" Greenfield Cable- (Specify 29" Long)
22	See Pg 10	Fan Motor
23	TU2376	Motor Mount (50/60 Hz.)
24	TU2474	Top and Bottom Gasket
25	TU2473	Side Gasket
26	TU2476	Felt Seal

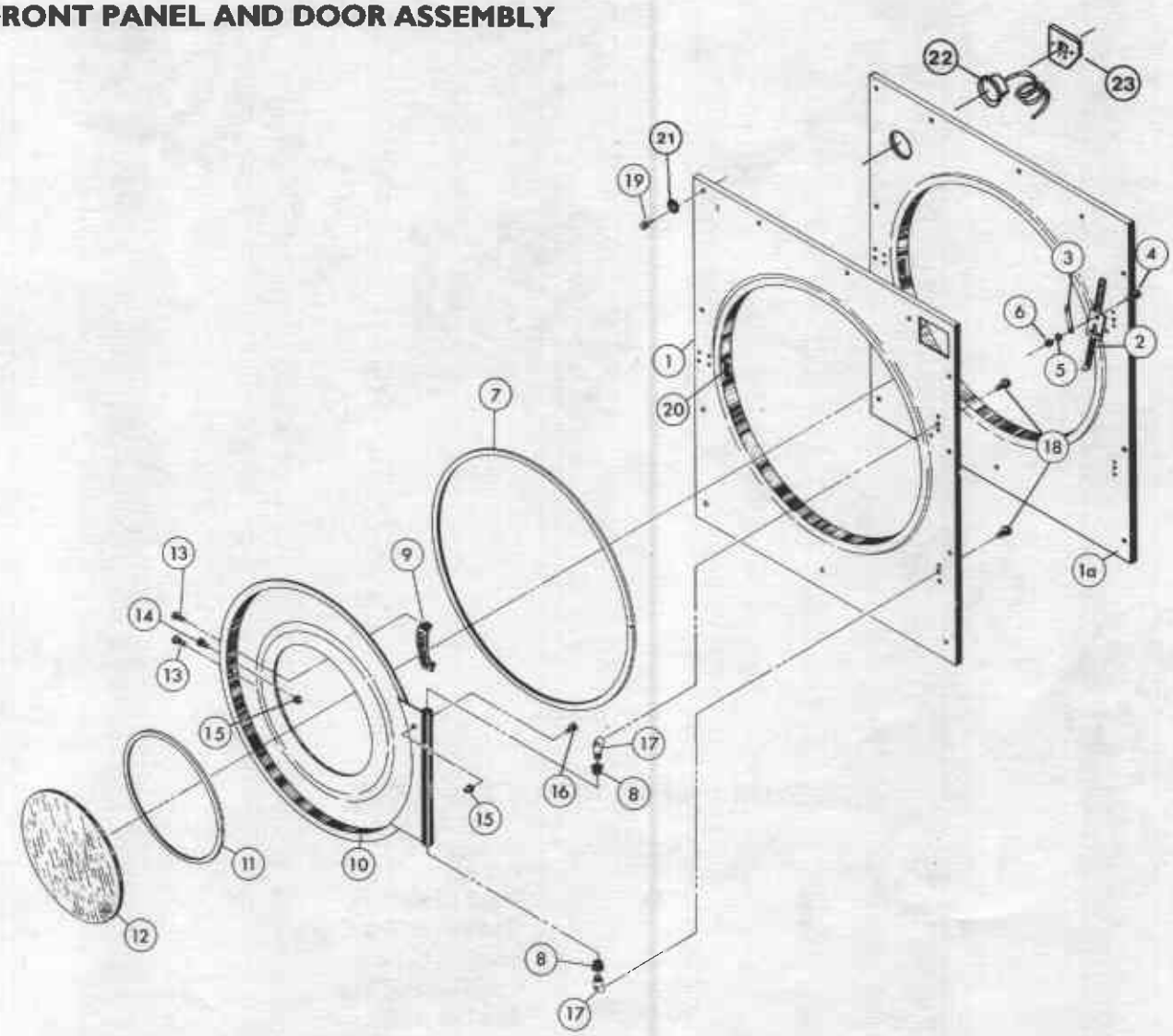
Ref. No.	Part No.	Description
27	TU4684	Key
28	TU5874	Fan Wheel w/Set Screws 60 Hz. Gas Models
	TU8740	Fan Wheel w/Set Screws 50 Hz. Gas Models and 50/60 Hz. Steam, Electric
29	TU8206	Air Switch Assembly (See Separate Page)
30	TU7733	8 x 1/2" Self Drill Screw
31	RC344	1/4" - 20 x 3/4" Cap Screw
32	TU2846	1/4" Lockwasher
33	TU2847	1/4" Cut Washer
34	TU4934	1/4" - 20 Hex Nut
35	TU5439	5/16"-18 x 3/4" Cap Screw
36	VSB130	5/16" Flat Cut Washer
37	TU2814	5/16" Split Lockwasher
38	C249	5/16"-18 Hex Nut
39	TU3124	3/8"-16 x 3/4" Cap Screw
40	RC347	1/2"-13 x 1/4" Cap Screw
41	TU1851	1/2" Cut Washer
42	TU2831	1/2" Lockwasher
43	TU4787	3/8" - 16 Hex Nut
44	VSBI34	3/8" Lockwasher
45	IB140	3/8" Cut Washer
46	TU3211	3/8"-16 x 2-1/2" Level. Bolts
47	TU4937	3/8"-16 x 3/4" Cap Screw
48	TU1984	Relay-120V., 50/60 Cy., (2 Pole)
	TU1985	Relay-240V., 50/60 Cy., (2-Pole)
	TU3495	Relay 208/240V., 50-60 Cy., (3-Pole)
	TU3496	Relay-120V., 50/60 Cy., (3-Pole)
49	See Pg 67	Reversing Control Box (3 Ph. only)
50	TU3282	Round Set Screw Only
	F819	Square Set Screw Only
51	TU9180	Air Switch Plate
52	TU7505	Fuse Holder (2)
53	TU8279	Fuse (2)
54	TU10640	Power Connection Label



BEARINGS AND RELATED PARTS

Ref.No	Part No.	Description
1	TU13147	Bearing Support Bracket
2	OP233	1/2" Hex Nut
3	TU2831	1/2" Lockwasher
4	TU2883	1/2" Flat Washer
5	TU10854	Spacer
6	TU10850	Flange Bearing w/Collar
7	TU2195	1/2" - 13 x 1-3/4" Cap Screw
8	TU10676	Pillow Block Bearing w/Collar
9	TU10177	Spacer
10	OP251	1/2" I.T. Lockwasher
11	RC347	1/2" - 13 x 1-1/4" Cap Screw
12	TU1851	1/2"x 1/4"Cut Washer
13	TU10644	3/8"- 16 x 1/2" Nylok Set Screw

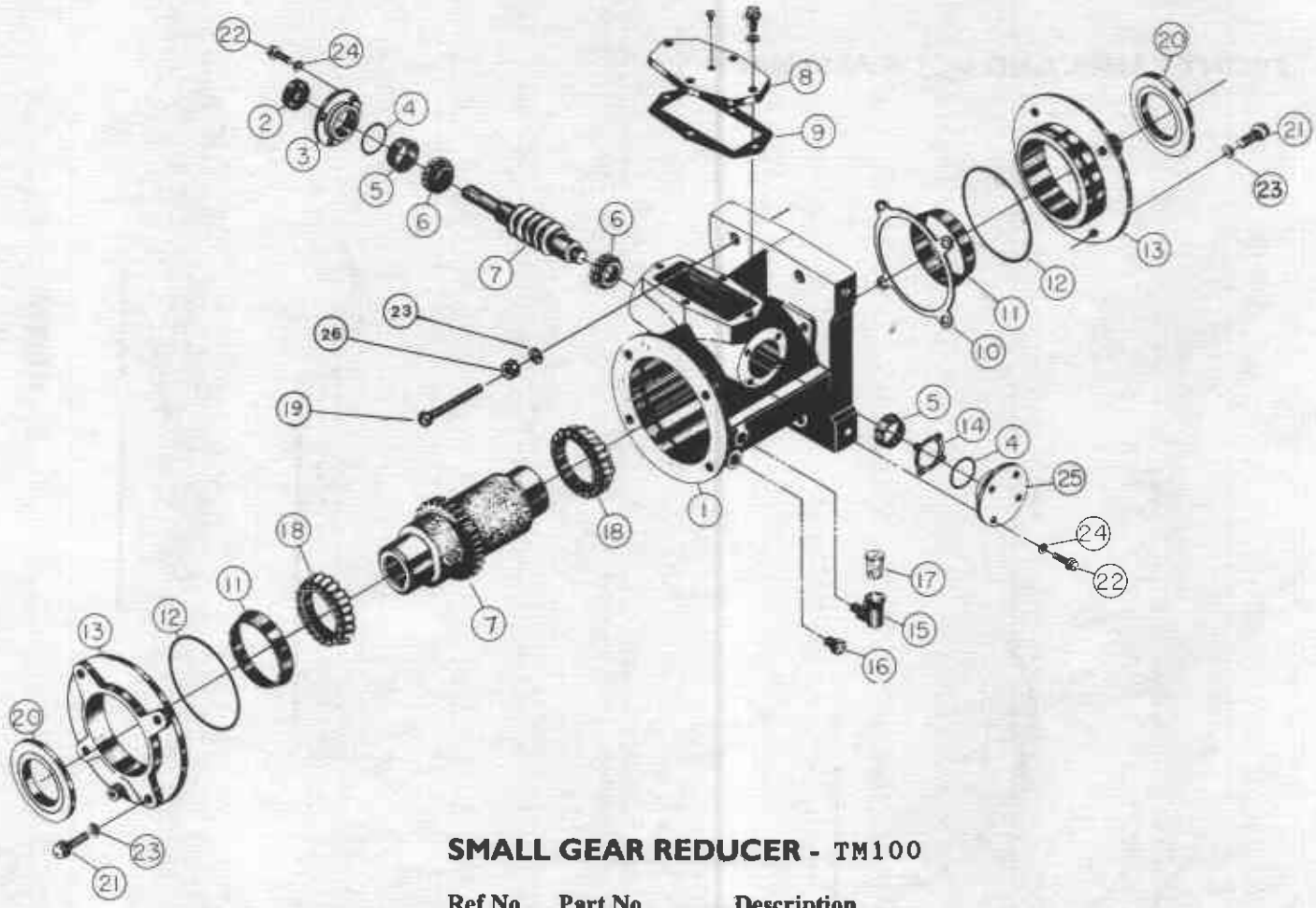
FRONT PANEL AND DOOR ASSEMBLY



TU5810 Front Panel and Door Assembly (Coin Vault)
TU6056 Front Panel and Door Assembly (Time & Temp)

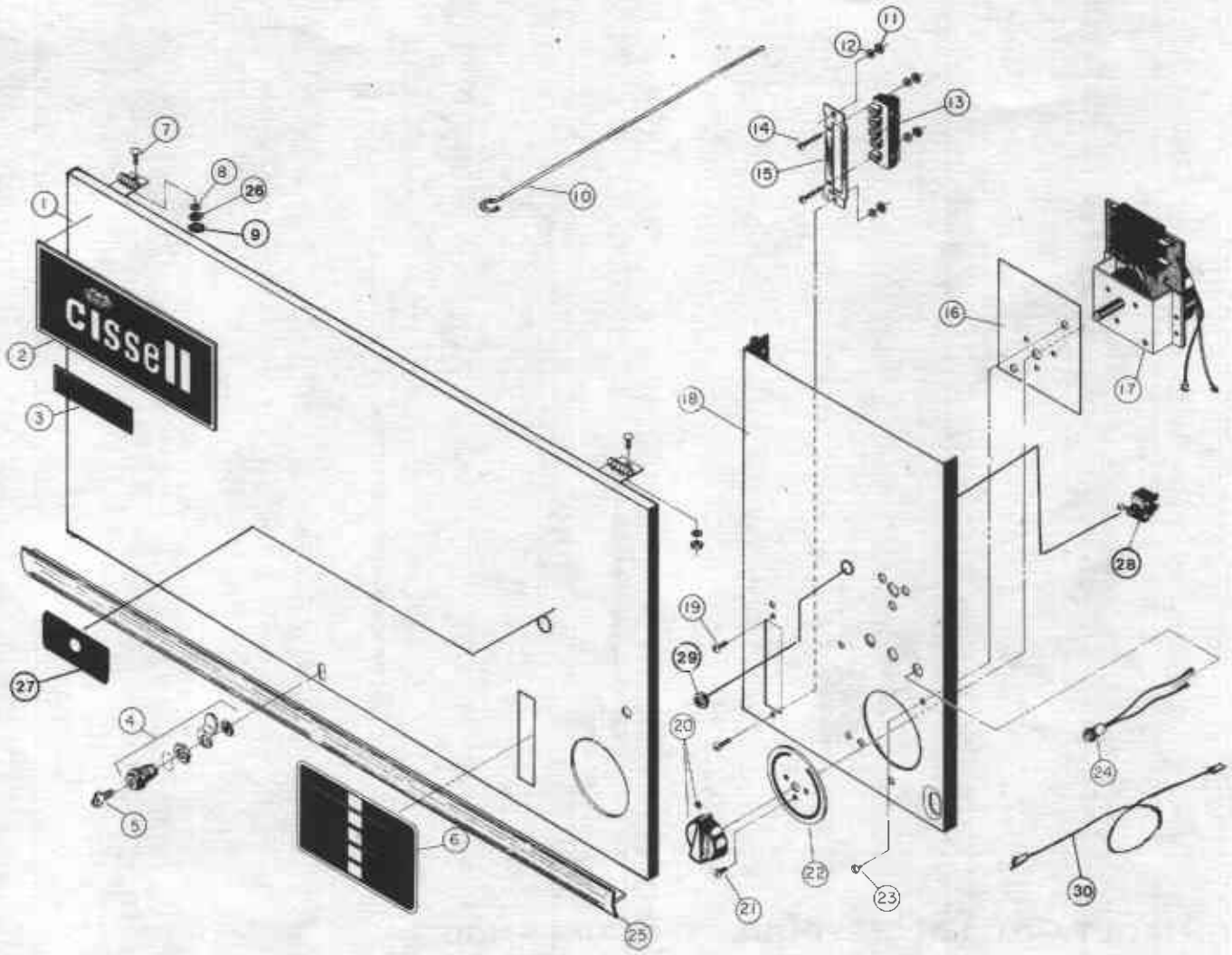
Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
1	TU10784	Front Panel (for Coin Vault)	13	TU3215	#10-32x3/8" Taptite Screw
1a	TU10785	Front Panel (for Time&Temp)	14	TU3163	Catch Pin
	TU10787	Front Panel (for Thermometer)	15	TU4840	#10-32 Hex Crown Nut
2	TU2194	Door Switch Actuator	16	TU4839	#10-32x3/8" Machine Screw
3	TU2105	Actuator Spring	17	TU2236	Hinge Posts
4	M262	#8-32 Truss Head Screw	18	TU2836	5/16"-18x½" Hex Head Cap Screw
5	FB187	#8 Split Lock Washer			
6	TU3266	#8-32 Hex Nut	19	TU2878	#10x5/8" Sheet Metal Screw
7	TU5288	Basket Door Seal	20	TU7456	Door Catch Asm. (w/rivets)
8	PIF172	Delrin Bearing	21	FB187	#10 Lock Washer
9	TU2874	Basket Door Handle	22	TU3593	Thermometer (Optional)
10	TU5859	Basket Door		TU3816	Lens Repl. (Texas Gage Only)
11	TU1692	Rubber Gasket		TU8475	Lens Repl. (Marshaltown Inst. Only)
12	TU217	Door Glass			
			23	TU6766	Thermometer Mtg. Plate

TU4827 Actuator Ass'y. consists of ref. no's. 2, 3, 4, 5 & 6.
TU5857 Basket Door Ass'y. consists of ref. no's. 7, 8, 9, 10, 11, 12, 13, 14, 15 & 16.



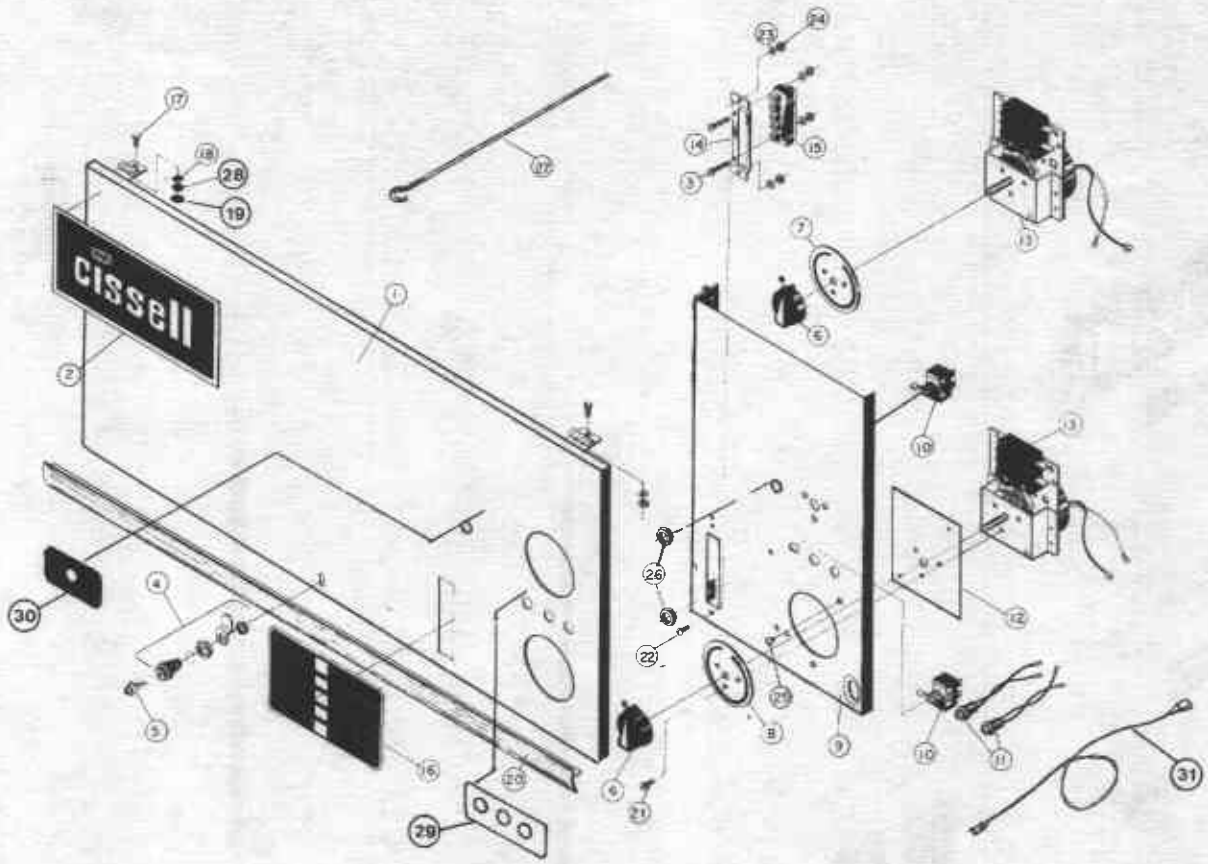
SMALL GEAR REDUCER - TM100

Ref.No.	Part No.	Description
I	TU8362	Housing
2	TU86	Small Klosure
3	TU25	Small Open End Cap
4	TU88	Small "O" Ring
5	TU91	Small Bearing Cup
6	TU90	Small Bearing Cone
7	TU12823	Worm & Worm Gear Set
8	TU8350	Worm Gear Cover Assembly
9	TU1796	Worm Gear Cover Gasket
10	TU1828	Large Shims (Set of 4) .005" and .007", 2 of each
11	TU93	Large Bearing Cup
12	TU1830	Large "O" Ring, 4-5/8"
13	TU26	Large End Cap
14	TU21	Small Shims (Set of 4)
15	TU70	Oil Cup
16	X170	1/4" Pipe Plug
17	TU9979	#8 Cork
18	TU92	Large Bearing Cone
19	TU8448	3/8" - 16 x 2-1/2" Screw
20	TU2166	Oil Seal Field Replacement
21	TU2623	Cap Screw 3/8" - 16" X 1-1/2"
22	TU2839	Cap Screw 1/4" - 20" X 7/8"
23	TU3243	3/8" Internal Tooth Lockwasher
24	RC349	1/4" Internal Tooth Lockwasher
25	TU24	Small Closed End Cap
26	TU4787	3/8"-16 Hex Nut



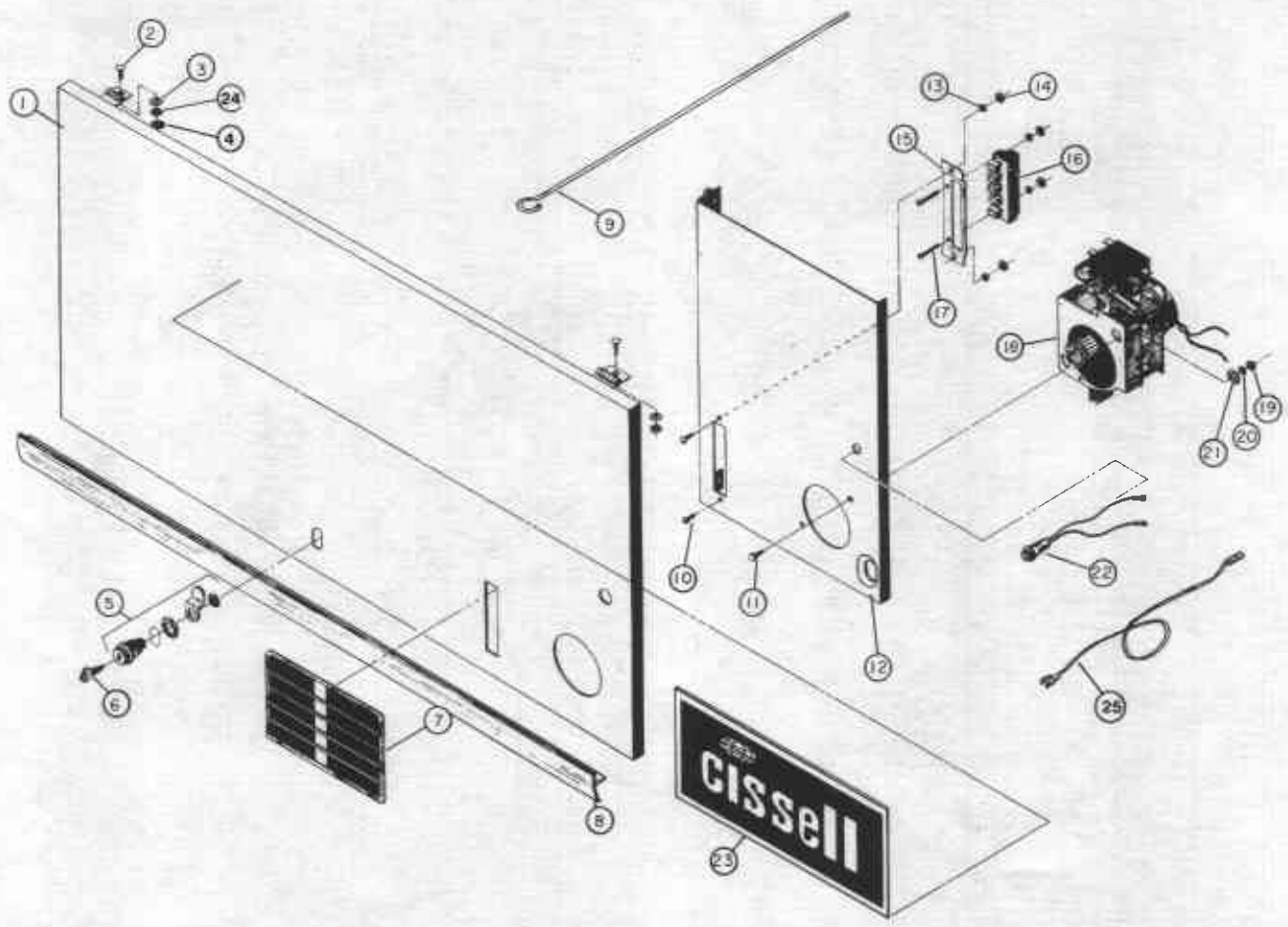
CONTROL PANEL & ACCESS DOOR - SINGLE TIMER MODEL

Ref. No.	Part No.	Description
1.	TU8127	Access Door W/A
	TU9365	Access Door W/A(Rev.Models)
2.	TU8013	Cissell Nameplate
3.	TU8014	Therm-O-Cool Nameplate
4.	TU4822	Lock #3186
5.	TU2844	Key JWC2
6.	TU8351	Push Button Control Plate
7.	TU3479	#10-32 x 7/16" Truss Head Screw
8.	P104	1/4" Cut Washer
9.	TU2842	#10-32 Hex Nut
10.	TU5739	Support Rod
11.	TU3400	#6-32 Hex Nut
12.	M270	#6 Int. Tooth Lock Washer
13.	TU5106	Push Button Switch
14.	SV136	#6-32 x 15/16" Round Head Screw
15.	TU5153	Push Button Plate
16.	TU6019	Timer Mounting Plate
17.	K186-TU6109	Timer 0-60,120V./60 Hz.
	K193- TU5842	Timer 0-60,240V./60 Hz.
	TU6083	Timer 0-60,240V./50 Hz.
18.	TU8393	Single Timer Control Panel Weldment
19.	TU3624	#6-32 x 1/4" Round Head Screw
20.	TU2555	Knob Complete
21.	TU3624	#6-32 X 1/4" Truss Head Screw
22.	TU5444	60 Minute Dial
23.	TU7241	#8 x 1/4" Sheet Metal Screw
24.	TU5421	Pilot Light 120V.
	TU5639	Pilot Light 240V.
25.	TU7983	Upper Front Trim
26.	FB187	#10 Lock Washer
27.	TU9382	Rev./Non-Rev. Label
28.	FG147	Toggle Switch
29.	TU3805	15/32"-32 Lock Nut
30	TU7937	Ground Wire



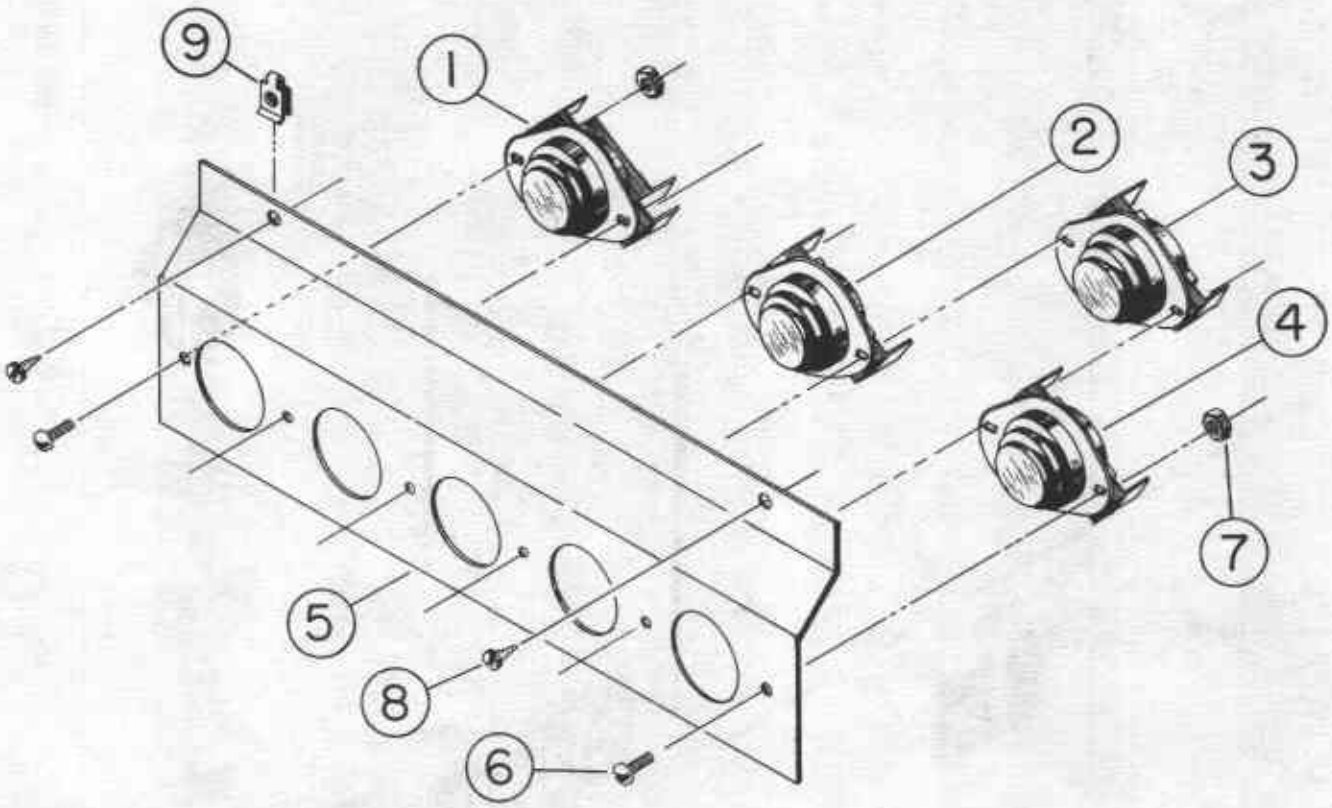
CONTROL PANEL & ACCESS DOOR - TWO TIMER MODEL

Ref.No.	Part No.	Description
1	TU8131	Access Door W/A
	TU9369	Access Door W/A (Rev. Models)
2	TU8013	Cissell Nameplate
3	SV136	#6-32 x 15/16" Round Head Screw
4	TU4822	Lock #3186
5	TU2844	Key JWC2
6	TU2555	Knob w/set screw
7	TU5445	Dial 0-15 Min.
8	TU5444	Dial 0-60 Min.
9	TU8393	Control Panel W/A
10	FG147	Toggle Switch
11	TU5421	Pilot Lamp 120 V.
	TU5639	Pilot Lamp 240 V.
12	TU6019	Timer Mounting Plate
13	TU6110	Timer 0-15,120V./60 Hz.
	TU6109	Timer 0-60,120V./60 Hz.
	TU5843	Timer 0-15,240V./60 Hz.
	TU5842	Timer 0-60,240V./60 Hz.
	TU6082	Timer 0-15,240V./50 Hz.
	TU6083	Timer 0-60,240V./50 Hz.
14	TU5153	Push Button Plate
15	TU5106	Push Button Switch
16	TU8351	Push Button Label
17	TU3479	#10-32 x 7/16" Truss Head Screw
18	P104	1/4" Cut Washer
19	TU2842	#10-32 Hex Nut
20	TU7983	Upper Front Trim
21	LB68	#8-32 x 3/8" Flat Head Screw
22	TU3624	#6-32 x 1/4" Round Head Screw
23	M270	#6 Internal Tooth Lock Washer
24	TU3400	#6-32 Hex Nut
25	TU7241	#8 x 1/4" S.M.Screw
26	TU3805	15/32"-32 Lock Nut
27	TU5739	Support Rod
28	FB187	#10 Lock Washer
29	TU8418	On/Off Label
30	TU9382	Rev./Non-Rev. Label
31	TU7937	Ground Wire



CONTROL PANEL & ACCESS DOOR - COIN METER MODEL

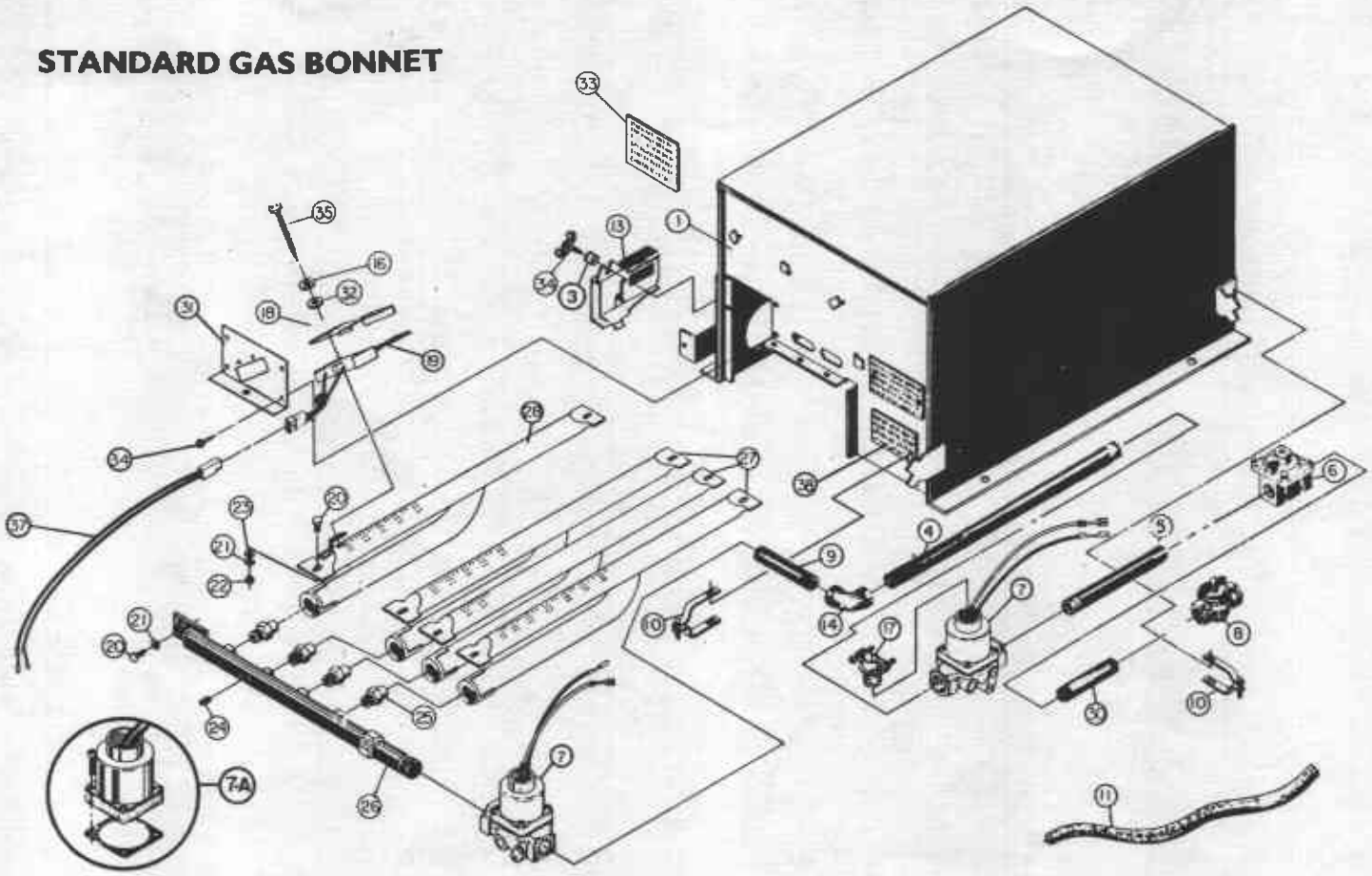
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	TU8127	Access Door Welded Assembly	13	M270	#8 Int. Tooth Lock Washer
2	TU3479	#10-32 x 7/16" Truss Head Screw	14	TU3400	#6-32 Hex Nut
3	P104	¼" Cut Washer	15	TU5153	Push Button Plate
4	TU2842	#10-32 Hex Nut	16	TU5106	Push Button Switch
5	TU4822	Lock #3186	17	SV136	#6-32 x 15/15" Round Head Screw
6	TU2844	Key JWC2	18		Coin Meter (Specify Voltage, Coin Denomination, and Single or Double Slot Coin Meter)
7	TU8351	Push Button Control Plate			
8	TU7983	Upper Front Trim			
9	TU5739	Support Rod			
10	TU3624	#6-32 x ¼" Machine Screw	19	TU3266	#8-32 Hex Nut
			20	FB187	#10 Lock Washer
11	TU4958	#8-32 x 3/8" Machine Screw	21	P104	¼" Cut Washer
			22	TU5421	Pilot Light 120V.
12	TU8393	Single Coin Meter Control Panel Weldment		TU5639	Pilot Light 240V.
			23	TU8013	Cissell Nameplate
			24	FB187	#10 Lock Washer
			25	TU7937	Ground Wire



THERMOSTAT ASSEMBLY

Ref. No.	Part No.	Description
1.	TU2045	Thermostat (Cool-Down) 1-Timer Models only
2.	TU3240	185 Degrees Fahrenheit Thermostat (High) Heat
3.	TU5150	150 Degrees Fahrenheit Thermostat (Medium) Heat
4.	TU7244	135 Degrees Fahrenheit Thermostat (Low) Heat
5.	TU5143	Mounting Bracket
6.	TU3624	#6-32 x 1/4" Round Head Machine Screw (6 req'd)
7.	TU3400	#6-32 Hex Nut
8.	TU7733	#8 x 1/2" Self-Drilling Screw
9.	TU6067	#8 Tinnerman Clip (2 req'd)

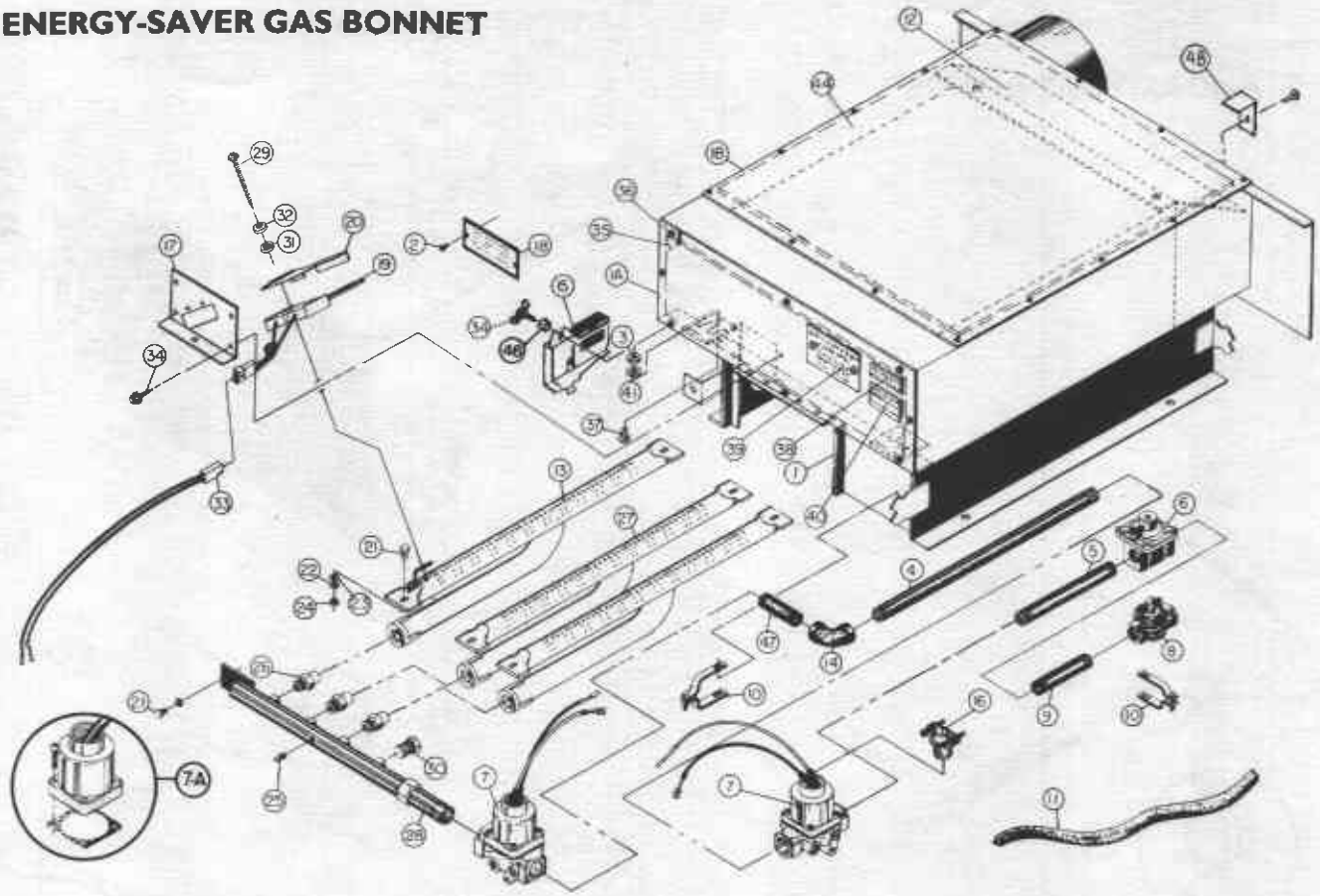
STANDARD GAS BONNET



STANDARD GAS BONNET - TU8674 (Natural Gas)
STANDARD GAS BONNET - TU8836 (L.P. Gas)

Ref. No.	Part No.	Description
1	TU8683	Bonnet
2	TU7733	#8-18½" Self Drill Screw
3	TU10286	Spacer
4	TU2724	½" Pipe Nipple 25"
5	OP308	½" Pipe Nipple-4" Long
6	TU9177	Regulator ½" x ½" (Natural Gas Only)
7	TU6557	Baso Gas Valve
7A	TU9208	Baso Gas Valve Coil
8	TU6321	Gas Cock ½" x ½"
9	390401012	Pipe Nipple ½" x 3½"
10	TU2226	Manifold Mounting Bracket
11	136067752	Fiberglass Tubing
12	TU6089	Pipe Bushing
13	TU8598	Radiant Sensor
14	390501053	½" Elbow
15	TU3266	#8-32 Hex Nut
16	M271	Brass Lock Washer
17	C1365	Connector T & B
18	TU9540	Heat Shield
19	TU8596	Norton Igniter
20	CB36	½"-20 x ½" Hex Head Screw
21	TU2846	¼" Split Lock Washer
22	TU4934	¼"-20 Hex Nut
23	TU2847	¼" Flat Washer
24	TU2224	1/8" Pipe Plug
25	TU3539	Gas Burner Orifice (Specify Size)
26	TU8288	Manifold Assembly
27	TU7840	Burner
28	TU8760	Burner, Ignition
29	TU8613	Norton Igniter Instructions
30	OP290	Nipple ½" x 2" (Natural Gas Only)
31	TU8690	Norton Igniter Plate
32	P104	¼" Cut Washer Brass
33	TU8645	Installation Instructions
34	TU10292	Wing Nut
35	TU3416	#8x1¼" Sheet Metal Screw
36	SV332	#8-32 x 3/8" Round Head Machine Screw
37	TU8605	Molex Connector
38	------	Gas Rating Plate

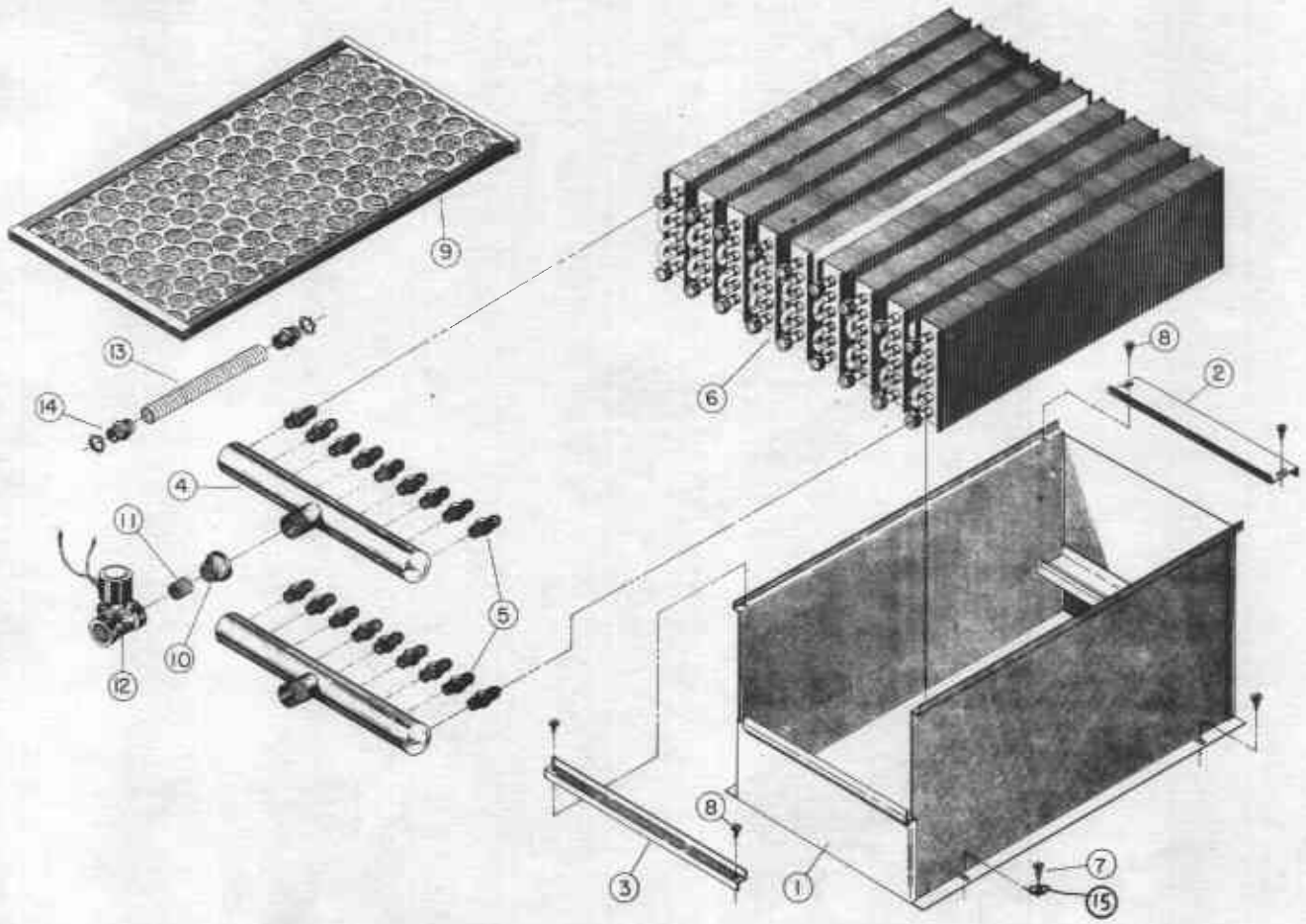
ENERGY-SAVER GAS BONNET



ENERGY-SAVER GAS BONNET - TU8698 (Natural Gas)
ENERGY-SAVER GAS BONNET - TU8837 (L.P. Gas)

Ref. No.	Part No.	Description
1	TU8697	"F" Bonnet
1A	TU8561	Front Plate Hinge
1B	TU7787	Top Panel
2	TU7733	#8x½" Self Drill Screw
3	TU2842	#10-32 Hex Nut
4	TU2724	Pipe Nipple ½" x 25"
5	OP308	½" Pipe Nipple-4" Long
6	TU7935	Regulator (Nat'l Gas Only)
7	TU6557	Baso Gas Valve
7A	TU9208	Baso Gas Valve Coil
8	TU6321	Gas Cock
9	OP290	Pipe Nipple ½" x 2" (Natural Gas Only)
10	TU2226	Manifold Mount. Bracket
11	136067752	Fiberglass Tubing
12	TU7294	Upper Rear Air Deflector
13	TU8760	Burner, Ignition
14	OP291	1/2" Street Elbow
15	TU8598	Radiant Sensor
16	C1365	Connector T&B (Gas Valve)
17	TU8690	Igniter Mounting Plate
18	TU7373	Clean Out Panel Nameplate
19	TU8596	Norton Igniter
20	TU9540	Heat Shield
21	CB36	¼"-20x½" Hex Head Screw
22	TU2846	¼" Split Lock Washer
23	TU2847	¼" Flat Washer

Ref. No.	Part No.	Description
24	TU4934	¼"-20 Hex Nut
25	TU2224	1/8" Pipe Plug
26	TU3539	Gas Burner Orifice (Specify Size)
27	TU7840	Burner
28	TU8288	Manifold Assembly
29	TU3416	#8x1¼" Sheet Metal Screw
30	TU10946	Plug
31	M271	Brass Lock Washer
32	P104	¼" Cut Washer Brass
33	TU8605	Molex Connector
34	TU10292	Wing Nut
35	TU2877	#10 Tinnerman Nut
36	TU2878	#10x5/8" Sheet Metal Screw
37	TU3479	#10-32x7/16" Truss Hd. Screw
38	TU8613	Norton Igniter Instructions
39		Gas Rating Plate
40	TU8645	Installation Instructions
41	P104	Cut Washer
42	TU3266	#8-32 Hex Nut
44	TU2853	Gasket
45	SV332	#8-32x3/8" Round Head Machine Screw
46	TU10286	Spacer
47	OP290	½" Pipe Nipple-2" Long
48	TU11181	Burner Locator Angle

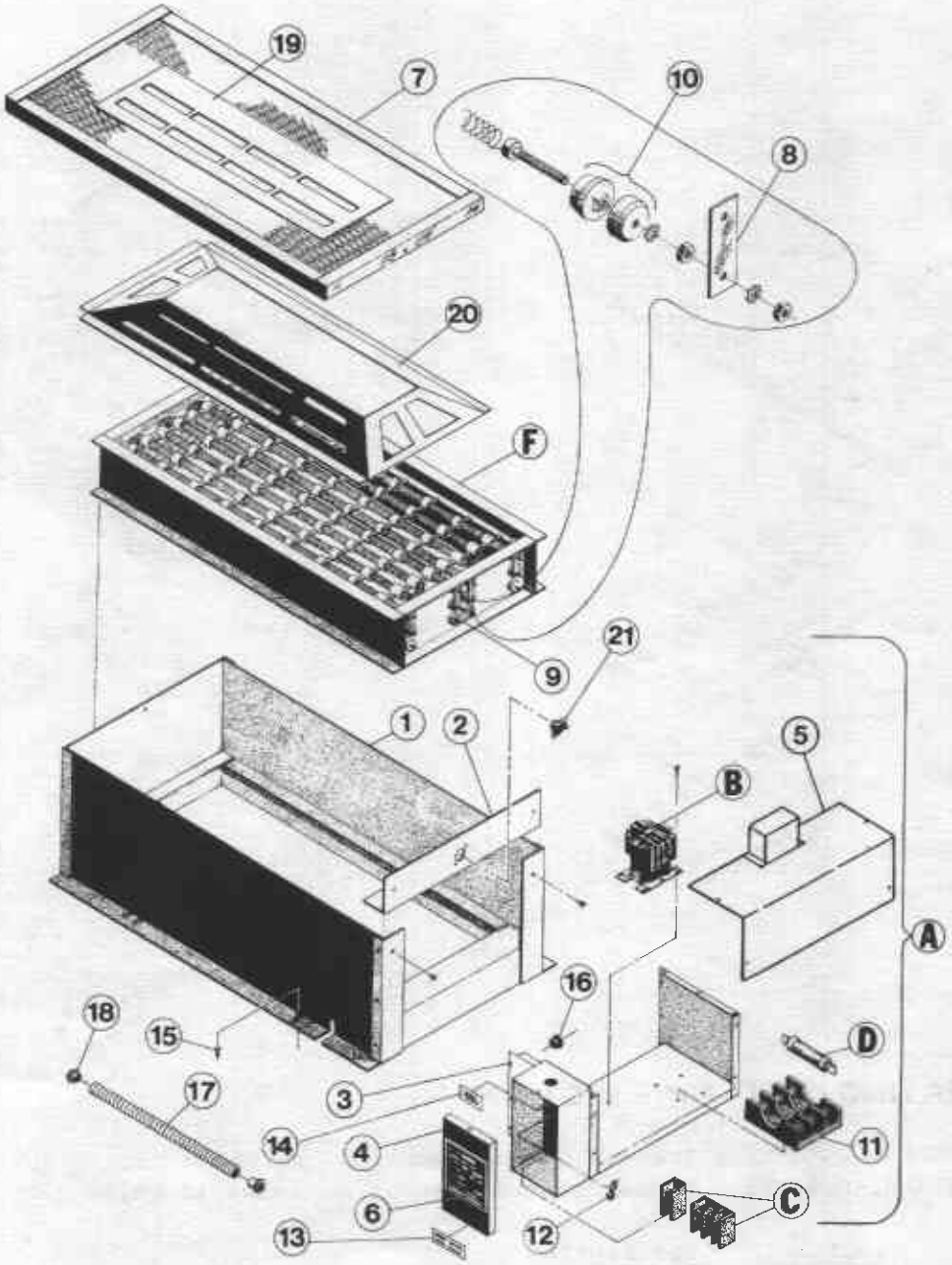


STEAM HEATING UNIT - NINE SECTION

TU7461-9 Section Steam Bonnet Assembly w/ solenoid valve 120V.
TU7462-9 Section Steam Bonnet Assembly w/ solenoid valve 240V.

Ref. No.	Part No.	Description
1	TU2546	Housing
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 req'd.) 7-3/4" W x 1-5/8" H x 26" Long
7	TU3209	#14 x 5/8" Sheet Metal Screw
8	M263	#8 x 3/8" Sheet Metal Screw
9	TU2598	Air Filter 16" x 25" x 1" (Not Part of Assembly)
10	TU2735	1" x 3/4" Reducer
11	TU4608	3/4" x 2" Pipe Nipple
12*	TU6041	Solenoid Valve 120V., 50 or 60 Cycle
	TU5924	Solenoid Valve 240V., 50 or 60 Cycle
13	50-4641-292	Greenfield Cable, 1/2" (Specify 21" Long)
14	TU4790	1/2" Straight Connector (2 req'd.)

*	TU5939	208V. Coil
	TU7151	120V. Coil
	TU6763	240V. Coil
	TU10289	200V. Coil



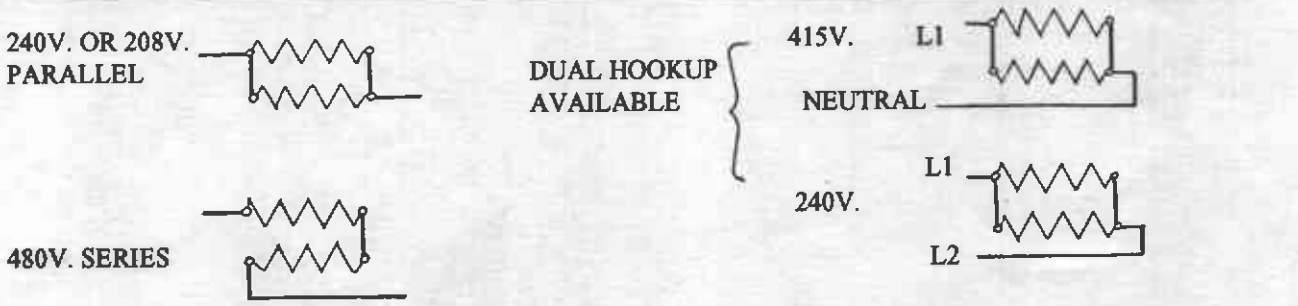
ELECTRIC HEATING UNIT

Ref. No.	Part No.	Description
1	TU3103	Bonnet Weldment
2	TU3102	Hold Down Plate
3	TU9205	Control Box Weldment
4	TU9207	Terminal Box Cover
5	TU12454	Top Cover
6	TU8518	Branch Circuit Label (Single Motor)
	TU8519	Branch Circuit Label (Double Motor)
7	TU3104	Air Inlet Cover
8	TU3767	Contact Strap(4 req'd)
9	TU3768	Contact Strap(1 req'd)
10	TU3253	Insulators
11	TU9141	Fuse Holder
12	TU7738	Grounding Lug
13	TU9254	High Voltage Label-415V.
14	TU9258(D-1A)	Grounding Label
15	TU3209	#14 x 5/8" S.M.S.
16	TU5958	Bushing (2 req'd)
17	504641292	½" Greenfield Cable 8" Long
18	TU4790	Straight Connector(2 req'd)
19	TU10420	Baffle Cover
20	TU10411	Air Baffle
21	TU7244	Thermostat - 135°
A	See next page	Control Box L/Wiring
B	"	Contactor
C	"	Terminal Block
D	"	Fuse
E	"	Bonnet W/Elements
F	"	Heater Elements

50 LB. ELECTRIC BONNET "UR" MODEL - 30 KW ELEMENTS ONLY

A	B	C	D	E	F
CONTROL BOX Less WIRING	CONTACTOR (COIL VOLTAGE)	TERMINAL BLOCK	FUSE 3 REQ.	BONNET With ELEMENTS	HEATER ELEMENT
TU9242 - 240V.	TU9170 - 240V. 60 AMP	TU9143	TU7476 60 AMP	TU7589- 30KW 208V. 3 PH.	HE10810, 240V., 40KW Used for 208V., 30KW
TU9243- 240V.	TU9169 - 240V. 50 AMP.	TU9143	TU7090 50 AMP.	TU7590- 30KW 240V. 3 PH.	HE11080, 240V., 30KW
TU10425 - 240V.	TU9169 - 240V. 50 AMP	TU9143* TU9142**	TU7090 50 AMP	TU10395- 30KW 240 or 415V.-3 PH	HE11080, 240V., 30KW
TU9245 - 480V.	TU9140 - 240V. 40 AMP	TU9143	TU7071 35 AMP	TU7590- 30KW 480V. 3 PH.	HE11080, 240V., 30KW Used for 480V., 30KW
TU9245 - 575V.	TU9140 - 240V. 40 AMP	TU9143	TU7071 35 AMP	TU8895 - 30KW 575V. 3 PH	HE11540, 287V., 30KW Used for 575V., 30KW

*3 POLE
**1 POLE(NEUTRAL)



ELECTRIC HEATING CIRCUIT - 50 LB. DRYERS, 30KW HEATING ELEMENTS
(with Single Phase Controls)

Rated Heater Input	Heater Amps, Motor Amps, Control Amps, Total Amps At Rated Voltage	Minimum Size Supply Wire Based on 60 deg.(C) (140F) Insulated Copper Conductor	Two Motor Circuit Phase	One Motor Circuit Phase	Circuit Minimum Conduit Trade Size	Heater Element Fuse Size
208V./3 PH./60 HZ.	89 AMPS	2 AWG	1 PH.	--	1-1/4	60
208V./3 PH/ 60 HZ.	87 AMPS	2 AWG	--	1 PH.	1-1/4	60
208V./3 PH./60 HZ.	87 AMPS	2 AWG	3 PH.	--	1-1/4	60
208V./3 PH./60 HZ.	86 AMPS	2 AWG	--	3 PH.	1-1/4	60
240V./3 PH./60 HZ.	78 AMPS	3 AWG	1 PH.	--	1-1/4	60
240V./3 PH./60 HZ.	76 AMPS	3 AWG	--	1 PH.	1-1/4	60
240V./3 PH./60 HZ.	76 AMPS	3 AWG	3 PH.	--	1-1/4	60
240V./3 PH./60 HZ.	75 AMPS	3 AWG	--	3 PH.	1-1/4	60
240/415V./3 PH./50 HZ.	76/44 AMPS	3/6 AWG	3 PH.	--	1-1/4	50
240/415V./3 PH./50 HZ.	75/43 AMPS	3/6 AWG	--	3 PH.	1-1/4	50
480V./3 PH./60 HZ.	38 AMPS	8 AWG	3 PH	--	1	35
480V./3 PH./60 HZ.	38 AMPS	8 AWG	--	3 PH.	1	35
575V./3 PH./60 HZ.	33.9 AMPS	8 AWG	3 PH.	--	1	35

REVERSING CONTROL BOX ASSEMBLY

TU9377 - 208/240/60/3 w/120V. Controls
TU9375 - 240/415/60/3 w/240V. Controls
TU9379 - 480/60/3 w/120V. Controls
TU9376 - 240/415/50/3 w/240V. Controls
TU9377 - 240/60/3 w/240V. Controls

Ref. No.	Part No.	Description
1	TU9374	Control Box Welded Assembly
2	TU6959	Mounting Panel Plate
3	------	Timer, See Separate Page
4	TU4659	Transformer (for TU9375 Only)
	TU4660	Transformer (for TU9377 and for TU9379 Only)
5	**TU6965	Contactor- 120V./60 Hz.
	***TU6963	Contactor- 208/240V./60 Hz.
	****TU8727	Contactor- 240V./50 Hz.
6	**TU7252	Rev. Contactor- 120V./60 Hz.
	***TU6964	Rev. Contactor- 208/240V./60 Hz.
	****TU8728	Rev. Contactor- 240V./50 Hz.
7	TU6774	Overload Unit (2 Req'd)
8	*TU267900	Overload Heater (Fan)
9	*TU267900	Overload Heater (Basket)
10	P274	1/4"-20 x 3/4" Truss Hd.Screw
11	TU6808	Reset Button Kit
12	TU6834	Box Cover Plate
13	M263	#8 x 3/8" Sheet Metal Screw
14	TU12864	Anti-Lock Switch w/screw
15	FBI89	1/4"-20 x 1'' Hex Bolt
16	TU4934	1/4"-20 Hex Nut
17	TU2846	1/4" Cut Washer
18	TU2847	1/4" Flat Washer

* To order Overload Heaters, refer to chart on next page.
** TU7281 - Contactor Coil Only.
*** TU7282 - Contactor Coil Only.
**** TU8689 - Contactor Coil Only.

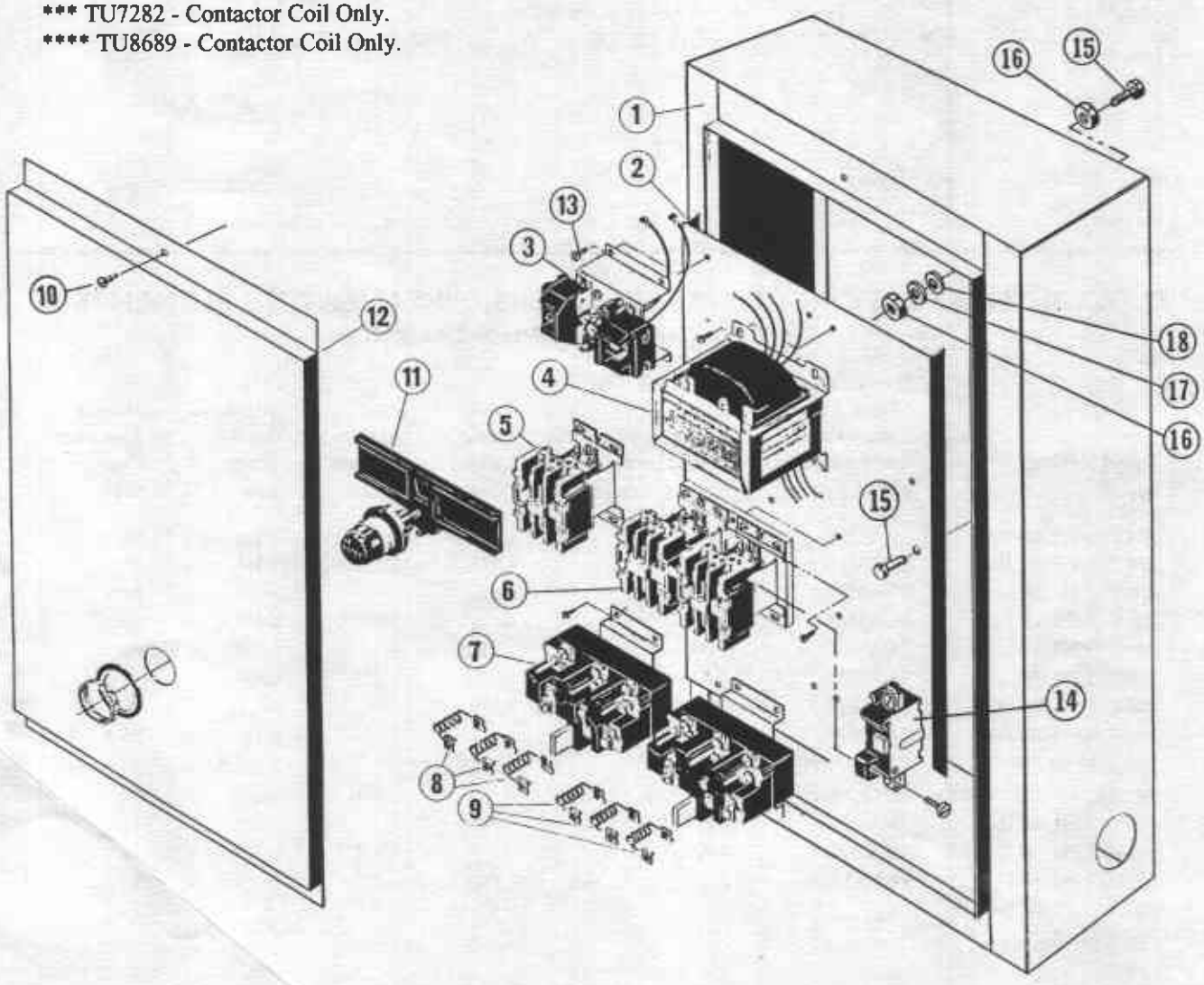


TABLE FOR ORDERING OVERLOAD HEATERS FOR OVERLOAD RELAYS

Properly sized overload heaters provide motor protection to the dryer. Improper heater size may allow the motor to be damaged, or could cause nuisance tripping.

Heater sizes are listed on the Overload Heater Table below. To use the table, refer to the motor rating plate and locate the Full Load Amps (FLA), the Service Factor (S.F.), and the Ambient Temperature(Amb.).

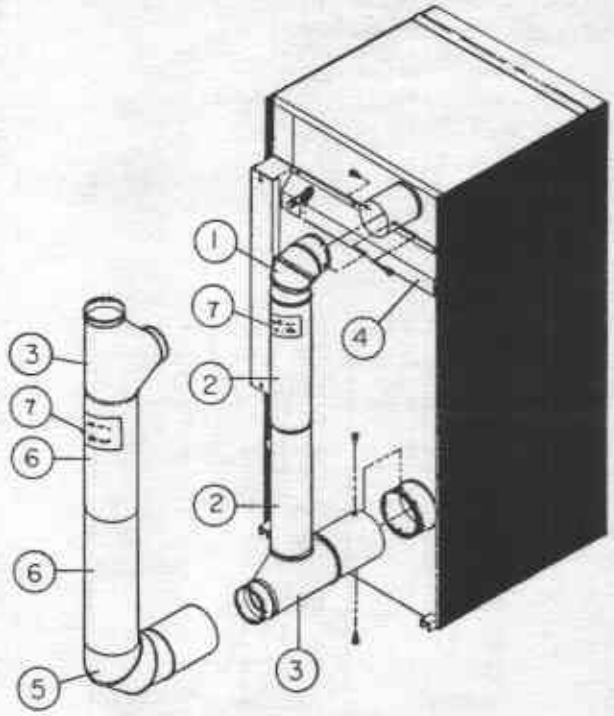
Example: Motor Rating Plate shows FLA = 3.8, S.F. =1.15, and 60 Deg.C Amb.
From the table, heater size is H-25. **Order part number "TU267900 - H25".**

CAUTION: Overload Relays do not provide protection from short circuits. Short circuit protection is provided by a device such as a breaker or wall disconnect.

OVERLOAD HEATER TABLE

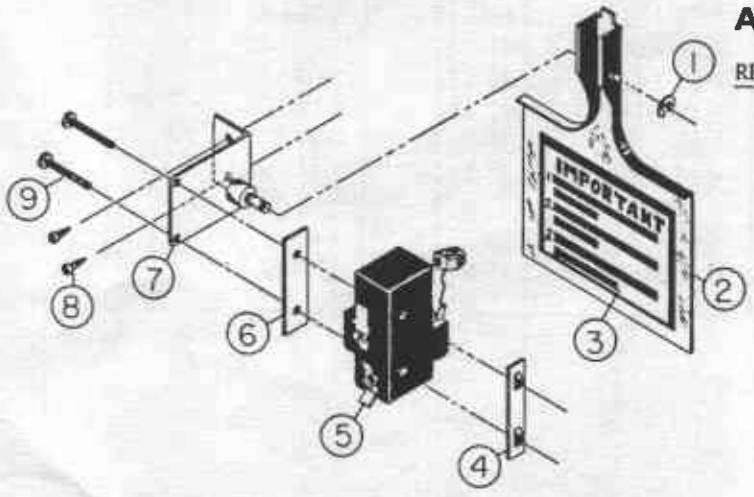
Motor Full Load Amps (FLA)

	S.F. = 1.00		S.F. = 1.15		S.F. GREATER Than 1.15
Heater Size	40 Deg. C Amb.	60 Deg. C Amb. or More	40 Deg. C Amb.	60 Deg. C Amb. or More	40. Deg C Amb. or More
H-6	.69- .76	.55- .60	.62- .68	.50- .54	.69- .74
H-7	.77- .82	.61- .66	.69- .74	.55- .59	.75- .83
H-8	.83- .92	.67- .74	.75- .83	.60- .66	.84- .93
H-9	.93-1.03	.75- .83	.84- .93	.67- .74	.94-1.02
H-10	1.03-1.13	.84- .91	.94-1.02	.75- .81	1.03-1.16
H-11	1.14-1.29	.92-1.03	1.03-1.16	.82- .93	1.17-1.31
H-12	1.30-1.46	1.04-1.16	1.17-1.31	.94-1.05	1.32-1.45
H-13	1.47-1.61	1.17-1.29	1.32-1.45	1.06-1.16	1.46-1.63
H-14	1.62-1.81	1.30-1.45	1.46-1.63	1.17-1.30	1.64-1.80
H-15	1.82-2.00	1.46-1.60	1.64-1.80	1.31-1.44	1.81-1.96
H-16	2.01-2.18	1.61-1.74	1.81-1.96	1.45-1.57	1.97-2.22
H-17	2.19-2.47	1.75-1.97	1.97-2.22	1.58-1.77	2.23-2.43
H-18	2.48-2.70	1.98-2.16	2.23-2.43	1.78-1.94	2.44-2.55
H-19	2.71-2.83	2.17-2.27	2.44-2.55	1.95-2.04	2.56-2.81
H-20	2.84-3.12	2.28-2.50	2.56-2.81	2.05-2.25	2.82-2.99
H-21	3.13-3.32	2.51-2.66	2.82-2.99	2.26-2.39	3.00-3.43
H-22	3.33-3.81	2.67-3.05	3.00-3.43	2.40-2.74	3.44-3.90
H-23	3.82-4.33	3.06-3.49	3.44-3.90	2.75-3.12	3.91-4.28
H-24	4.34-4.76	3.48-3.80	3.91-4.28	3.13-3.42	4.29-4.86
H-25	4.77-5.40	3.81-4.32	4.29-4.86	3.43-3.89	4.87-5.45
H-26	5.41-6.06	4.33-4.84	4.87-5.45	3.90-4.36	5.46-6.13
H-27	6.07-6.81	4.85-5.45	5.46-6.13	4.37-4.90	6.14-6.79
H-28	6.82-7.55	5.46-6.03	6.14-6.79	4.91-5.43	6.80-7.72
H-29	7.56-8.58	6.04-6.86	6.80-7.72	5.44-6.17	7.73-8.48
H-30	8.59-9.42	6.87-7.54	7.73-8.48	6.18-6.78	8.49-9.65
H-31	9.43-10.72	7.55-8.58	8.49-9.65	6.79-7.72	9.66-10.70
H-32	10.72-11.99	8.59-9.59	9.66-10.70	7.73-8.63	10.8-12.3



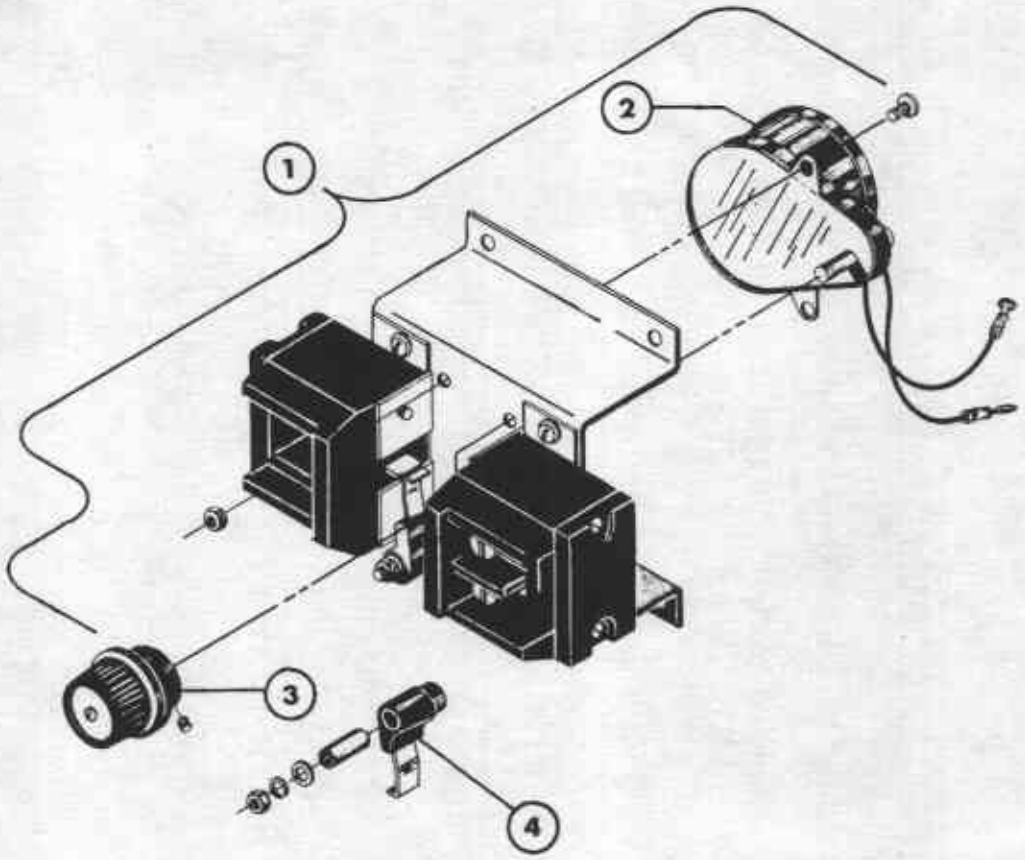
DUCT WORK PARTS

Ref. No.	Part No.	Description
1	TU8053	Duct Elbow
2	TU8055	Duct Long
3	TU8052	Duct Tee
4	TU8499	Rear Air Guide
5	TU7375	Extended Elbow
6	TU8177	Duct Short
7	TU8593	Installation Label



AIR SWITCH ASSEMBLY- TU8206

REF. NO.	PART NO.	DESCRIPTION
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	#8-18x1/2" Self-Drilling Screw
9	TU3219	#6x1" Round Hd. S.M.S.



REVERSING TIMER

REF. NO.	PART NO.	DESCRIPTION
1**	TU44131	Timer (Complete) 120 V., 60 Cy.
	TU44132	Timer (Complete) 240 V., 60 Cy.
	TU44133	Timer (Complete) 120 V., 50 Cy.
	TU44134	Timer (Complete) 240 V., 50 Cy.
2	TU17371	Timer Motor 120 V., 60 Cy.
	TU17372	Timer Motor 240 V., 60 Cy.
	TU17373	Timer Motor 120 V., 50 Cy.
	TU17374	Timer Motor 240 V., 50 Cy.
3	TU4424	Timer Cam
4	TU4426	Timer Lever
**	TU7502	Reversing Timer Complete Less Motor