

Instruction manual Spare parts list

DR150 - steam, gas heating

**Technical specifications
Installation instructions
Operating instructions
Maintenance**



IPSO

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IMPORTANT NOTICES—PLEASE READ

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



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

- Do not store or use gasoline or other flammable liquids or vapors in the vicinity of this or any other appliance.
- WHAT TO DO IF YOU SMELL GAS
 - Do not try to light any appliances.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Clear the room, building, or area of all occupants.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach the gas supplier, call the fire department.

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



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



WARNING: Wear Safety Shoes to prevent injuries.



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



FOR YOUR SAFETY

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



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



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



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



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



WARNING: Do not operate without guards in place.



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



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



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



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



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



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



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



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



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



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

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

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

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

— **QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:**

- Ne pas tenter d'allumer d'appareil.
- Ne touchez a aucun interrupteur. Ne pas vous servir des telephones se trouvant dans le batiment ou vous vous trouvez.
- Evacuez la piece, le batiment ou la zone.
- Appelez immediatement votre fournisseur de gaz depuis un voisin. Suivez les instructions du fournisseur.
- Si vous ne pouvez rejoindre le fournisseur de gaz, appelez le service des incendies.

— l'installation et l'entretien doivent etre assures par un installateur ou un service d'entretien qualifie ou par le fournisseur de gaz.

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

POUR VOTRE SECURITE

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

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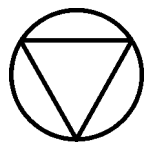
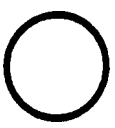
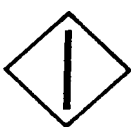
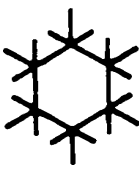
150 LB. LAUNDRY DRYER

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SYMBOLS

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

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

Unpacking/General Installation (All Dryers)

UNPACKING

This dryer is packed in a large wooden crate.

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

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

See outline clearance diagrams for correct dimensions.

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

Leveling: Use spirit level on top of dryer. The use of shims are acceptable for this procedure.

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

GENERAL INSTALLATION (ALL DRYERS)

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

IMPORTANT

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

IMPORTANT

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

IMPORTANT

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

General Installation (All Dryers)

GENERAL

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

IMPORTANT

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

REPLACEMENT PARTS

IMPORTANT

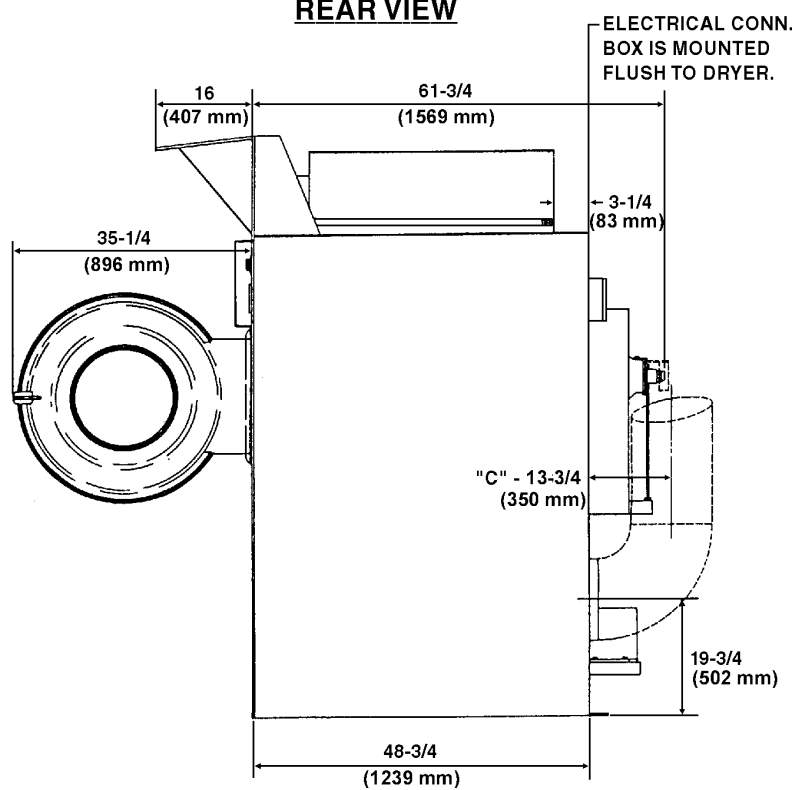
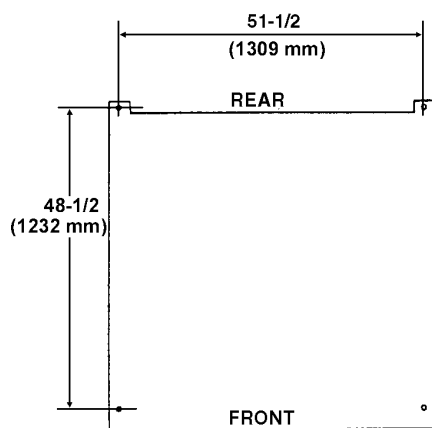
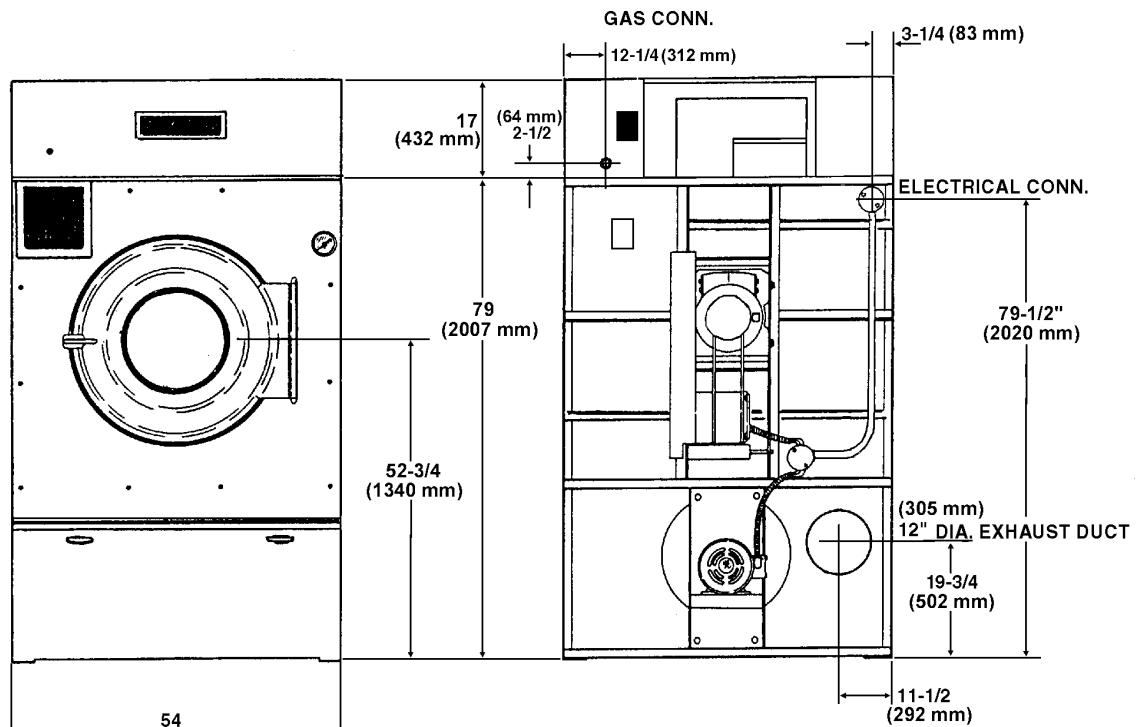
Provide adequate clearance for air openings into the combustion chamber.

PROCEDURE FOR DISASSEMBLING THE TOP OF THE DRYER

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

1. Unscrew two (2) front cover panel hold-down screws and open the front cover panel. If wires enclosed are not color coded or numbered, mark wires before disconnecting. Refer to the wiring diagram.
2. Disconnect the wire plugs in the right and left control boxes. Unscrew the two (2) hold-down bolts from the bottom of the boxes and one screw from the outside rear of the boxes. Remove the two (2) screws that hold the conduit plate to the boxes. Remove the boxes and the top brace as one assembly.
3. Unscrew the six (6) bolts that hold down the heating unit.
4. Remove the air switch box on the rear of the dryer and disconnect the two (2) wires and the box from the rear of the dryer. Leave the air switch fastened to the dryer rear wall.
5. To re-assemble, reverse this procedure.

150 lb. - Gas Fired Dryer (Illustration)



150 lb. Dryers - Specifications

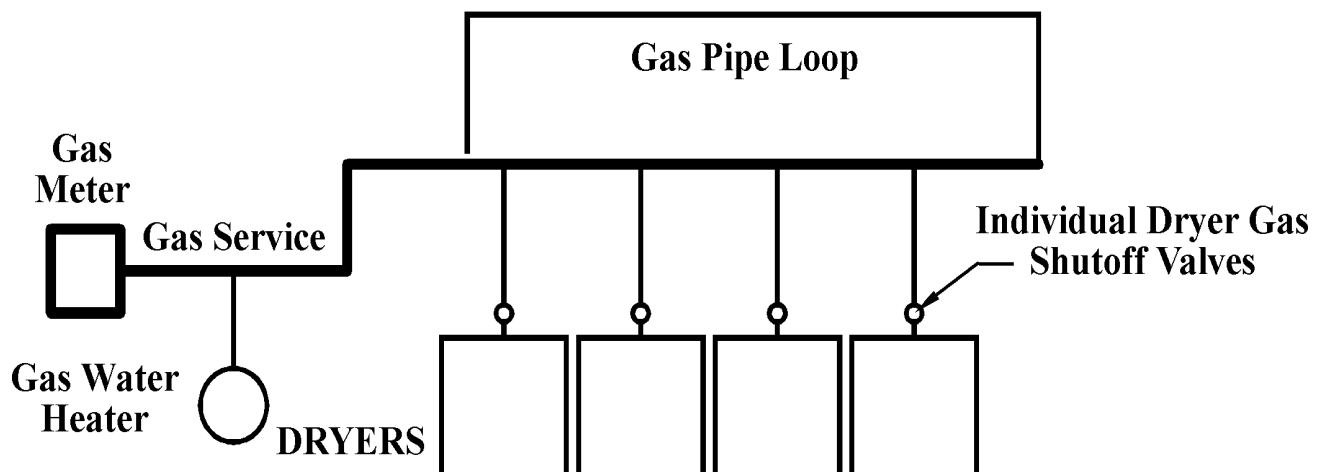
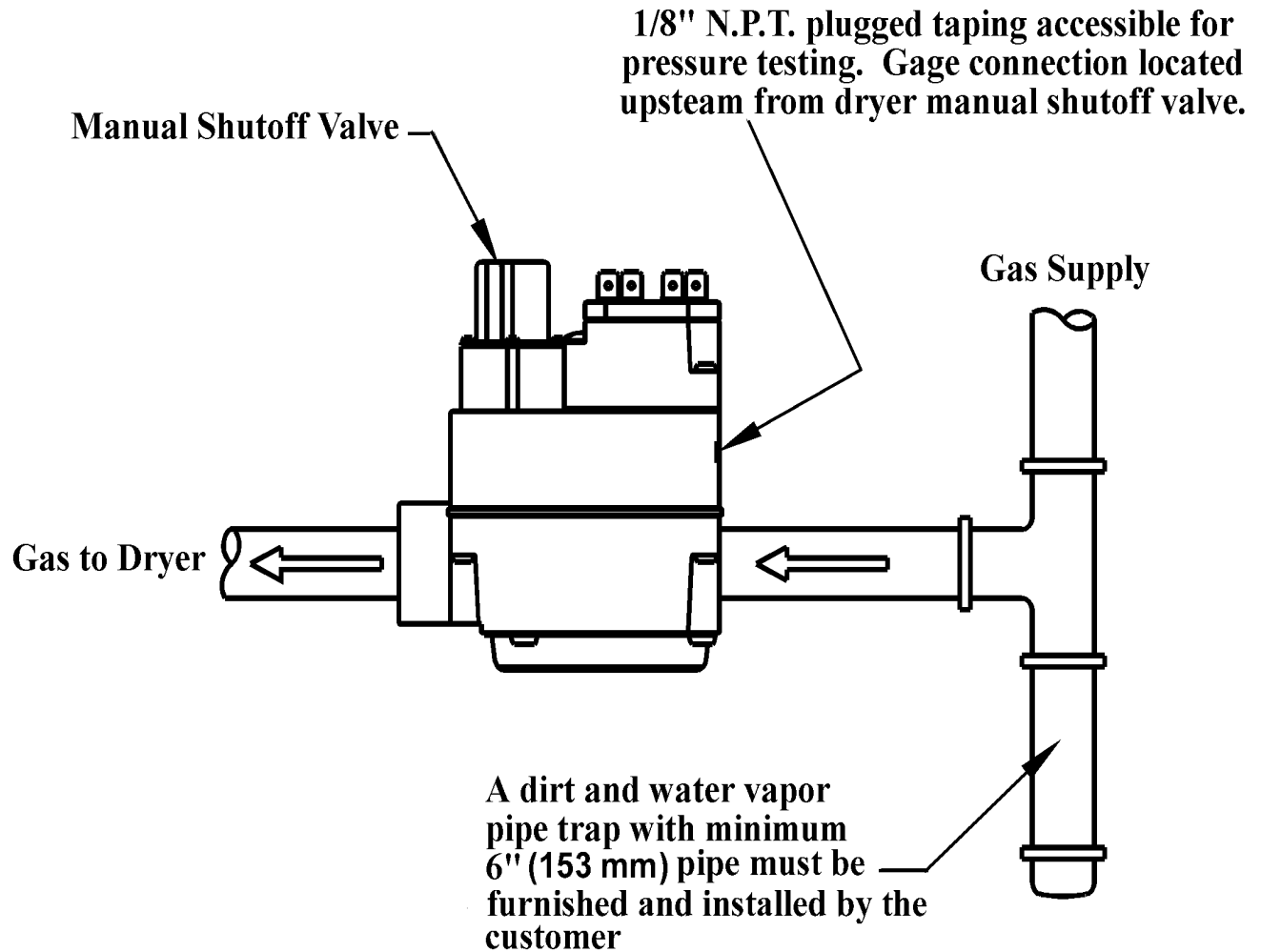
GENERAL SPECIFICATIONS FOR 150 lb. DRYERS

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

Gas Pipe Size Chart

TOTAL BTU/HR (for LP Gas correct total Btu/h below by multiplying by .6)	TOTAL KCAL HOUR	GAS PIPE SIZE FOR 1000 Btu (252 kcal/h) NATURAL GAS AT 7" w. c. (17.5 bar) PRESSURE					
		In figuring total length of pipe, make allowance for tees and elbows.					
		(25 ft.) 7,62 m	(50 ft.) 15,24 m	(75 ft.) 22,86 m	(100 ft.) 30,48 m	(125 ft.) 38,1 m	(150 ft.) 45,72 m
60,000	15000	3/4	3/4	3/4	3/4	3/4	3/4
80,000	20000	3/4	3/4	3/4	1	1	1
100,000	25200	3/4	3/4	1	1	1	1
120,000	30200	3/4	1	1	1	1	1
140,000	35200	3/4	1	1	1	1	1 1/4
160,000	40300	3/4	1	1	1 1/4	1 1/4	1 1/4
180,000	45300	1	1	1	1 1/4	1 1/4	1 1/4
200,000	50400	1	1	1 1/4	1 1/4	1 1/4	1 1/2
300,000	75600	1	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2
400,000	100800	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	2
500,000	126000	1 1/4	1 1/2	1 1/2	2	2	2
600,000	151200	1 1/2	1 1/2	2	2	2	2
700,000	176400	1 1/2	2	2	2	2	2 1/2
800,000	202000	1 1/2	2	2	2	2 1/2	2 1/2
900,000	230000	2	2	2	2 1/2	2 1/2	2 1/2
1,000,000	250000	2	2	2	2 1/2	2 1/2	2 1/2
1,100,000	270000	2	2	2 1/2	2 1/2	2 1/2	2 1/2
1,200,000	300000	2	2	2 1/2	2 1/2	2 1/2	2 1/2
1,300,000	330000	2	2 1/2	2 1/2	2 1/2	2 1/2	3
1,400,000	350000	2	2 1/2	2 1/2	2 1/2	3	3
1,500,000	380000	2	2 1/2	2 1/2	2 1/2	3	3
1,600,000	400000	2	2 1/2	2 1/2	3	3	3
1,700,000	430000	2	2 1/2	2 1/2	3	3	3
1,800,000	450000	2 1/2	2 1/2	3	3	3	3
1,900,000	480000	2 1/2	2 1/2	3	3	3	3
2,000,000	504000	2 1/2	2 1/2	3	3	3	3 1/2
2,200,000	550000	2 1/2	3	3	3	3 1/2	3 1/2
2,400,000	605000	2 1/2	3	3	3	3 1/2	3 1/2
2,600,000	650000	2 1/2	3	3	3 1/2	3 1/2	3 1/2
2,800,000	705000	2 1/2	3	3	3 1/2	3 1/2	3 1/2
3,000,000	750000	2 1/2	3	3 1/2	3 1/2	3 1/2	4
3,200,000	806000	3	3	3 1/2	3 1/2	3 1/2	4
3,400,000	850000	3	3 1/2	3 1/2	3 1/2	4	4
3,600,000	907000	3	3 1/2	3 1/2	3 1/2	4	4
3,800,000	960000	3	3 1/2	3 1/2	4	4	4
4,000,000	1000000	3	3 1/2	3 1/2	4	4	4

Gas Piping Installation (Illustration)



Gas Piping Installation

STEAM PIPING INSTALLATION

1. Gas service installation must conform with local codes, or in the absence of local codes with the *National Fuel Gas Code, ANSI Z223.1* or the *CAN/CGA-B149, Installation Codes*.
2. Check Rating Plate located on rear wall of dryer, for type of gas to equip the dryer and the altitude (elevation).
3. Check with the gas supplier for the gas pressure and the proper gas supply line installation.



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

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



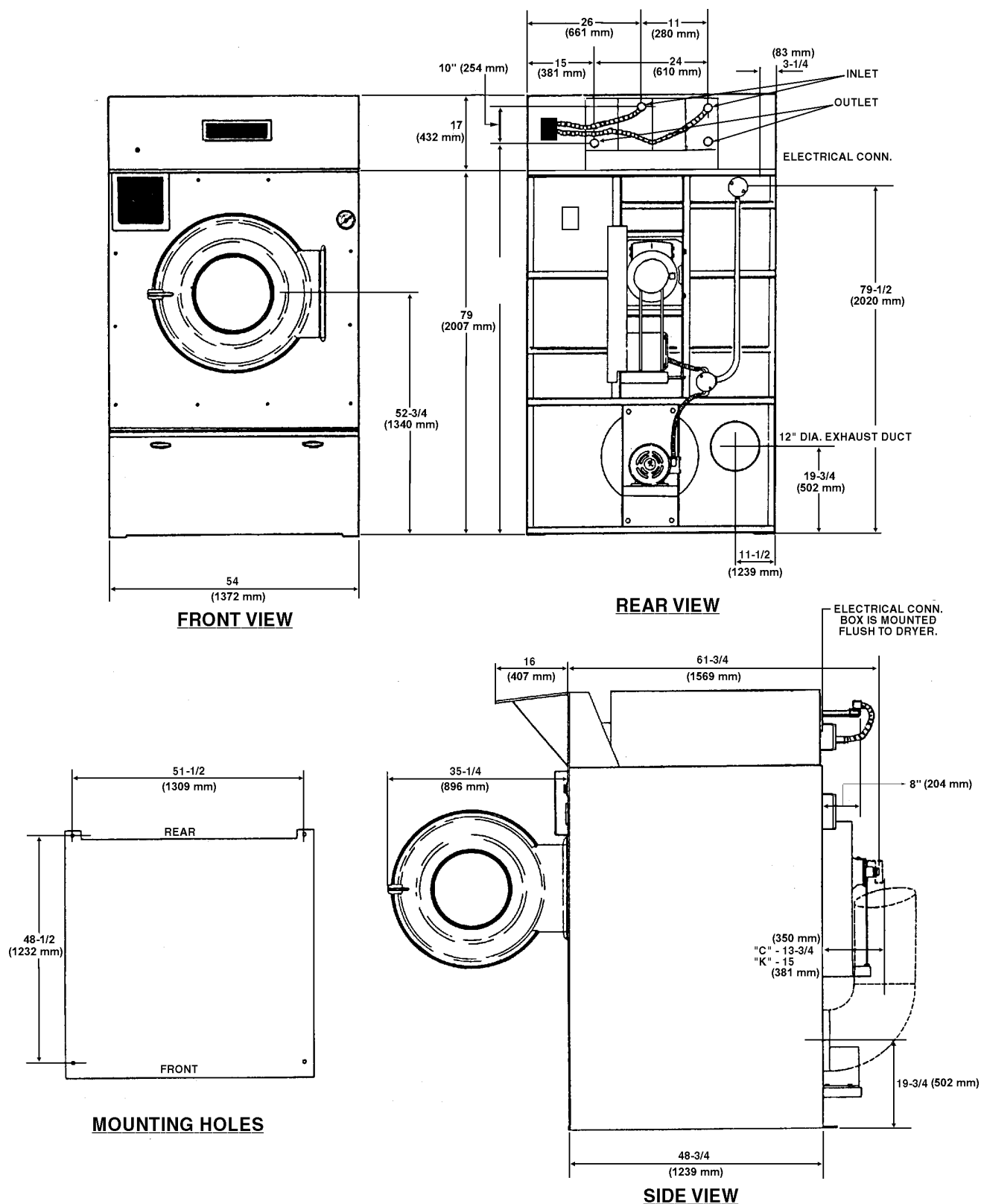
CAUTION: Low gas pressure and intermittent gas will cause gas ignition problems. This will cause inadequate drying of the clothes load.

NATURAL & LP GASES: Check the gas pressure inlet supply to the dryer, 14" w. c. (34.9 bar) pressure maximum. Check the manifold pressure, 3.5" w. c. (8.8 bar) for natural gas and 11" w. c. (27.4 bar) for LP gas.



CAUTION: Gas loop piping must be installed as shown on the following page, to maintain equal pressure for all dryers connected to a single gas service. Install other gas appliances upstream from the loop.

150 lb. Steam Heated Models (Illustration)



150 lb. Steam Heated Laundry Dryers - Specifications

GENERAL SPECIFICATIONS FOR 150 lb. LAUNDRY DRYERS (STEAM HEATED)	Operating Steam Pressure	100 psig (6.9 bar) Maximum
	Boiler HP	12.5 HP (9.33 kW)
	Heat Capacity	8 Coil
	Steam Coils	(4) 6"(153 mm) x 10 1/4" (261 mm) x 40 1/2"(1029 mm)
	Steam Supply Connection	3/4" (20 mm)
	Steam Return Connection	3/4" (20 mm)
	Trap Connection	(2) 3/4" (20 mm)
	Maximum Air Displacement	2250 cfm (63.7 m ³ /h)
LIST OF MOTORS USED - 150 lb. LAUNDRY DRYERS		

<u>Motor No.</u>	<u>Voltage</u>	<u>Hz</u>	<u>Phase</u>	<u>HP</u>	<u>kW</u>	<u>Amps</u>	<u>BASKET or FAN</u>
*MTR304	200-240/460-480	60	3	1 1/2	1.12	4.8/2.4	Fan or Basket
MTR100	575	60	3	1 1/2	1.12	2.0	Fan or Basket
*MTR304	240/415	50	3	1 1/2	1.12	4.8/2.4	Fan or Basket
*MTR304	220/380	50/60	3	1 1/2	1.12	4.8/2.4	Fan or Basket

*All MTR30X series motors have internal overload protection. In case of a trip, the overloads are resettable from a button located on the main body of the motor.

TOTAL CONTROLS	Total controls on dryer are 1 to 3 amperes.
INPUT RATINGS	*Input ratings as shown are for elevations up to 2000 ft. (610 m). For high elevations, ratings should be reduced 4% for each 1000 ft. (305 m) above sea level.
ELECTRICAL WIRING	Electrical wiring to dryer must conform to local electrical code requirements.

150 lb. Steam Heated Laundry Dryers - Specifications

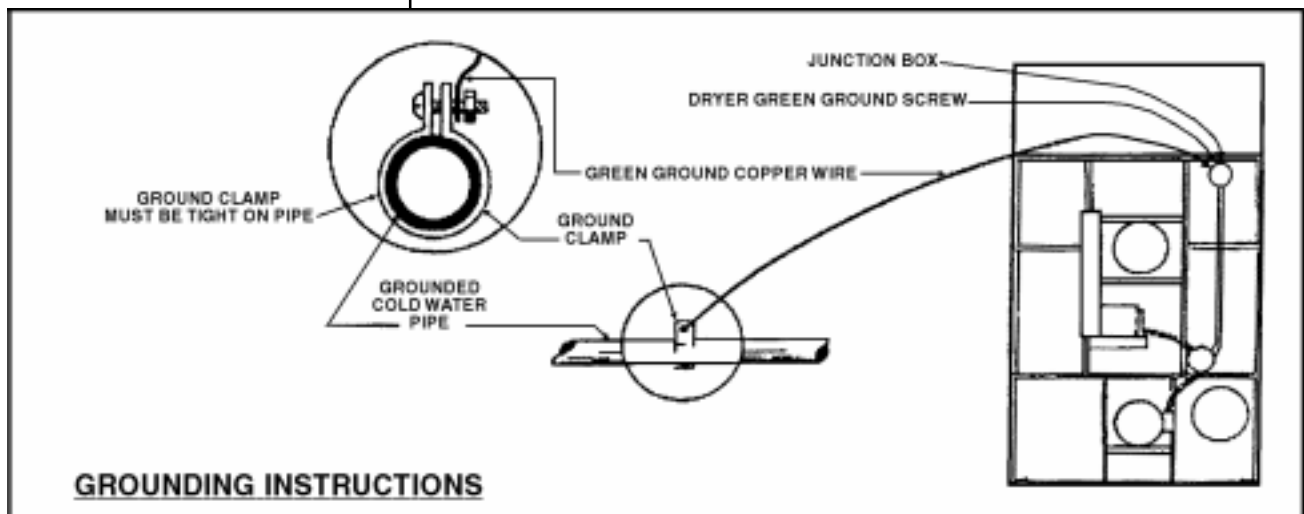
ELECTRICAL CONNECTIONS - ALL DRYERS

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

See wiring diagram furnished with dryer. Your dryer is completely wired at the factory and it is only necessary for the electrician to connect the power leads to the wire connectors with the Service Connection Box on the rear of the dryer. Do not connect the dryer to any voltage or current other than that specified on the Dryer Rating Plate. (Wiring diagrams are located on rear wall of dryer.)

All panels must be in position before operation of dryer.

(ILLUSTRATION) GROUNDING INSTRUCTIONS



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

***Steam Dryers - Option Installation Instructions
(When The Steam Bonnet Is Shipped Separate)***

**STEAM DRYERS -OPTION
INSTALLATION
INSTRUCTIONS**

1. The dryer comes in two wood crates:

 A - Very large crate

 B - Smaller crate
2. Open Crate A and lift dryer off the skid and set in place.
3. Open Crate B. It contains two assemblies:

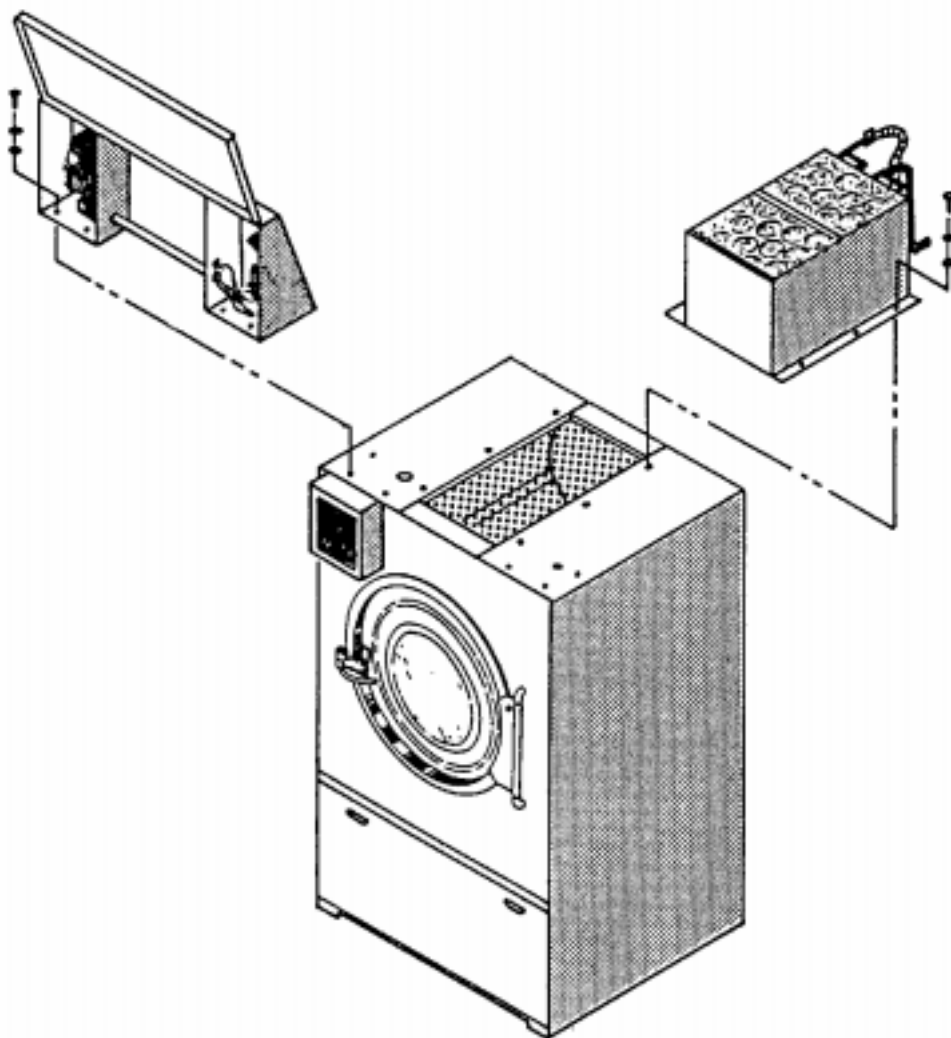
 I - Control Box Assembly

 II - Steam Bonnet Assembly
4. Place II - Steam Bonnet Assembly on top of the dryer and slide piped end to rear of dryer. Bolt to top with six 3/8" (10 mm) bolts, flat washers and lockwashers provided. Attach Solenoid Conduits (2) to the Right Front Control Box. Then connect the wires as per diagram on the rear wall of dryer.
5. Place I - Control Box Assembly on top front of the dryer and bolt in place with six 3/8" (10 mm) bolts, flat washers and lockwashers. Snap the electrical connections together.
6. Proceed with steam piping, electrical services and duct work, as specified in technical manual.

I - Control Box Assembly and II - Steam Bonnet Assembly (Illustration)
(When The Steam Bonnet Is Shipped Seperate)

I - Control Box Assembly

II - Steam Bonnet Assembly



Steam Piping - Installation Instructions

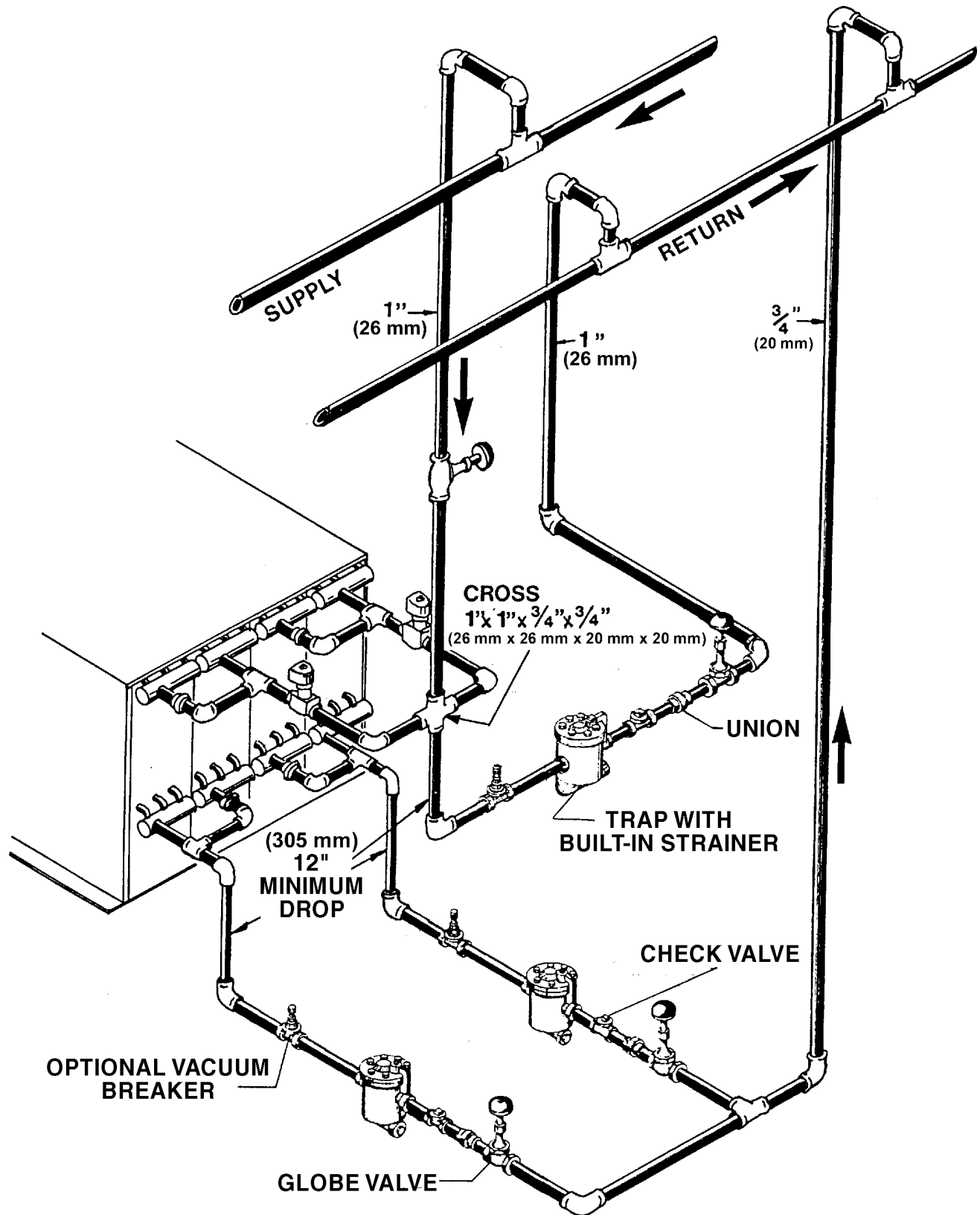
STEAM PIPING - INSTALLATION INSTRUCTIONS

1. Set and anchor dryer in position. Machine should be level assure proper steam circulation.
2. To prevent condensate draining from headers to dryer, piping should have a minimum 12" (305 mm) above respective header. Do not make steam connection to header with a horizontal or downwardly facing tee or elbow.
3. Whenever possible, horizontal runs of steam lines must drain, by gravity, to respective steam header. Water pockets, or an improperly drained steam header will provide wet steam, causing improper operation of dryer. If pockets or improper drainage cannot be eliminated, install a by-pass trap to drain condensate from the low point in the steam supply header to the return.
4. In both steam supply and steam return line, it is recommended that each have a 3/4" (20 mm) union and 3/4" (20 mm) globe valve. This will enable you to disconnect the steam connections and service the dryer while your plant is in operation.
5. Before connecting trap and check valve to dryer, open globe valve in steam supply line and allow steam to flow through dryer to flush out any dirt and scale from dryer. This will assure proper operation of trap when connected.
6. After flushing system, install bucket trap (with built-in strainer) and check valve. For successful operation of dryer, install trap 18" (458 mm) below coil and as near to the dryer as possible. Inspect trap carefully for inlet and outlet markings and install according to trap manufacturer's instructions. If steam is gravity returned to boiler, omit trap but install check valve in return line near dryer.
7. Install union and globe valve in return line and make final pipe connections to return header.

PIPING RECOMMENDATIONS

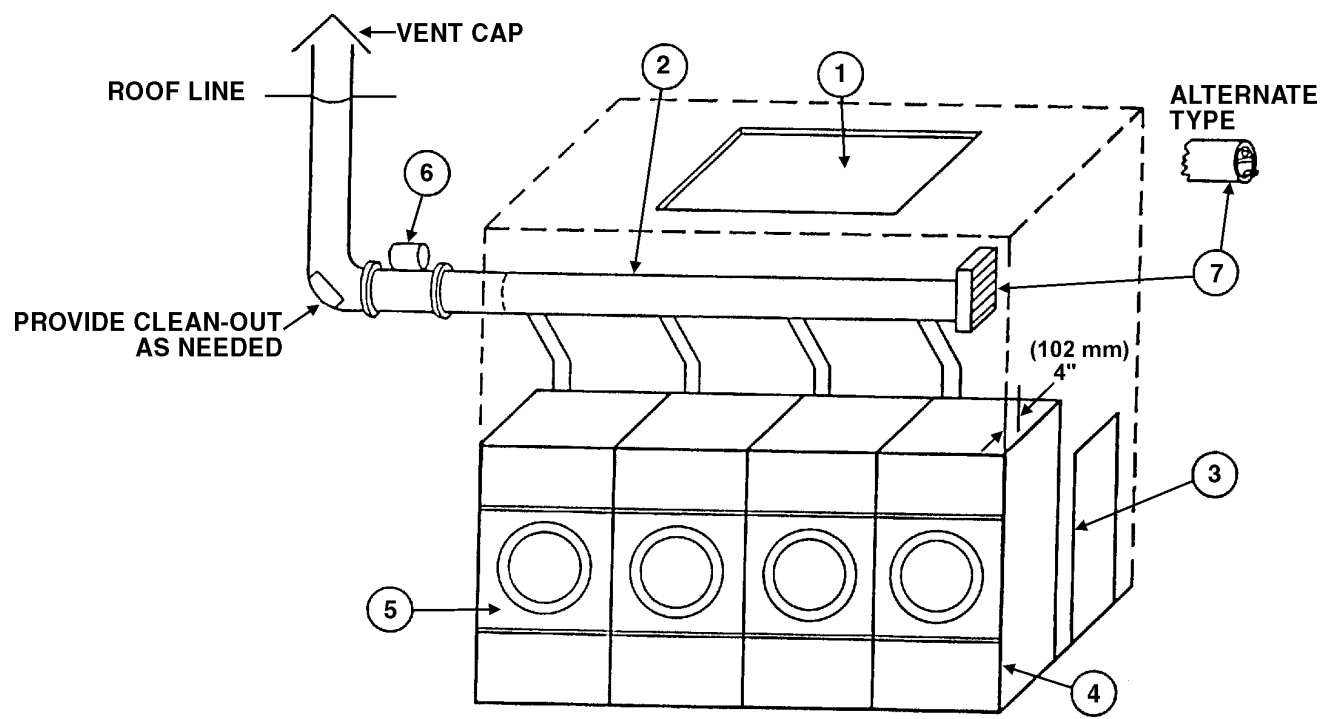
1. Trap each dryer individually. Always keep the trap clean and in good working condition.
2. When dryer is on the end of a line of equipment, extend header at least 4 feet (2 m) beyond dryer. Install globe valve, union, check valve and by-pass trap at end of line. If gravity return to boiler, omit trap.
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)



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

Dryer Installation with Multiple Exhaust (Illustration)



Dryer Installation with Multiple Exhaust

DRYER INSTALLATION WITH MULTIPLE EXHAUST

For Exhaust Duct more than 14 feet (5 m) and 2 elbows equivalent and more than 0.3 inches (8 mm) static pressure. (See illustration on previous page.)

1. Make-up air from outside building may enter enclosure from top or side walls. (See *Dryer Make-up Air Requirements Chart*)
2. Use constant diameter duct with area equal to the sum of dryer duct areas.

EXAMPLE: 6-8 inch (153-204 mm) diameter duct = 1-19.6 inch (26-498 mm) diameter duct in area. Use 20 inch (508 mm) diameter duct or diameter to match tube-axial fan.

EXAMPLE

3. Enclosure (plenum) with service door. This separates the dryer air from room comfort air. If dryers use room air instead of outside air, the heat loss can be another 25 Btu/h (6.3 kcal/h) for each cubic foot per minute (cfm) used.
4. Zero inches clearance to combustible material allowed on sides and at points within 4 inches (102 mm) of front on top.
5. Heat loss into laundry room from dryer fronts *only* is about 60 Btu/h (16 kcal/h) per square foot.
6. Flange mounted, belt driven tube-axial fan. **Fan must be 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 (sp) is dependent on length of pipe and number of elbows.
7. **Barometric Bypass Damper** - Adjust to *closed flutter position* with all dryers and exhaust fan running. **Must be located with enclosure.**

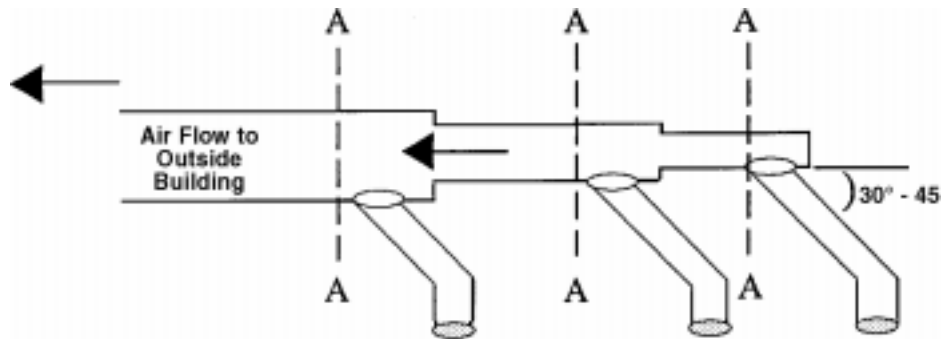


CAUTION

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

Dryer Installation with Multiple Exhaust

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



DRYER EXHAUSTS

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

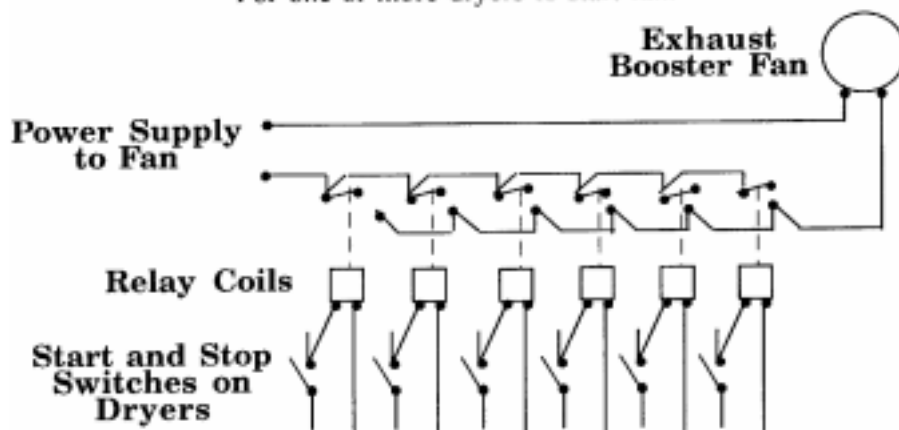
MODELS: HD150

No. of Dryers
Duct Diameter
(in inches)
(in CM)

1	2	3	4	5	6	7	8	9	10	11	12
12	17	21	24	27	30	32	34	36	38	40	42
30	43	53	61	68	76	81	86	91	97	100	106

AUTOMATIC ELECTRICAL CONTROL FOR EXHAUST FAN

For one or more dryers to start fan.



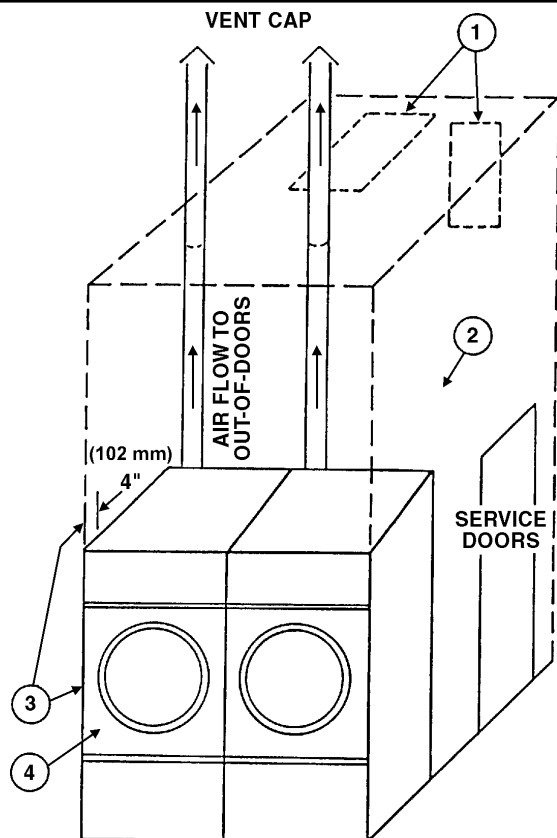
Suggested Minimum Dryer Make-up Air Requirements

Dryer Model	Dryer Pocket Capacity		Maximum Air Flow Rate per Pocket		Duct Size For Service Connection		Required Make-up Air Area per Pocket	
	lb	kg	cfm	m3/h	inch	mm	sq. inch	cm2
HD30 ST	30	13.6	450	765	6	153	87	561
HD75 ST	75	34	1000	1700	12	305	192	1240
HD110.1	110	50	2200	3740	12	305	422	2723
HD110.1 E/S	110	50	850	1445	8	203	163	1052
HD125.1	125	56.7	2000	3400	12	305	384	2477
HD150.1	150	68	2250	3825	12	305	432	2787
HD175.1	175	79.4	2780	4726	12	305	534	3445
HD190.1	190	86.2	3000	5100	12	305	576	3716
HD20.1	20	9.1	450	765	6	153	87	561
HD30SL	30	13.6	600	1020	8	203	116	748
HD30.1	30	13.6	625	1063	8	203	120	774
HD50.1	50	22.7	850	1445	8	203	164	1058
HD75.1	75	34	1000	1700	8	203	192	1240
HD80.1	80	36.3	1000	1700	10	254	192	1240

Notes:

- 1) The Model HD30 ST has 2 pockets per dryer, each pocket has the above listed characteristics; each pocket is exhausted separately with a 6" (153mm) duct.
- 2) The Model HD75 ST has 2 pockets per dryer, each pocket has the above listed characteristics; both pockets have one 8" (203mm) exhaust manifolded into one 12" (305mm) exhaust duct for exhaust connection.
- 3) For the HD30 ST and the HD75 ST Models, the Required Make-up Air Area shown in the table should be doubled since it is shown per pocket,only.

Dryer Installation with Separate Exhaust (Preferred)



DRYER INSTALLATION WITH SEPARATE EXHAUST (PREFERRED)

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

NEVER exhaust the dryer into a chimney.

NEVER install wire mesh screen over the exhaust or make-up air area.

NEVER exhaust into a wall, ceiling, or concealed space.

1. Make-Up Air opening from outside the building may enter the enclosure from the top or side walls. (*See Dryer Make-up Air Requirements Chart*)
2. Enclosure (plenum) with service door. This separates the dryer air from the room comfort air. If dryers use room air instead of outside air, additional heat loss can be another 25 Btu/h (6.3 kcal/h) for each cubic foot per minute (cfm) used.
3. Zero inches clearance to combustible material allowed on sides and at points within 4 inches (102 mm) of front on top.
4. Heat loss into laundry room from dryer front panels is about 60 Btu/h (16 kcal/h) per square foot.

Exhaust and Venting

DRYER AIR FLOW INSTALLATION

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

In summary, there must be the proper size out-of-doors inlet air opening (4-6 times the combined areas of the air outlet) and an exhaust duct, with appropriate size and length, to allow air flow through the dryer with no more than 0.3" w. c. (.75 mbar) static pressure in the exhaust duct.

In some instances, special fans are required to supply make-up air, and/or boost exhaust fans are required for both regular and energy savings models.

FOR BEST DRYING

FOR BEST DRYING:

1. Exhaust duct maximum length 14 feet (5 m) of straight duct and maximum to two 90° bends.
2. Use 45° and 30° elbows wherever possible.
3. **Exhaust each dryer separately.**
4. **Do not** install wire mesh or other restrictions in the exhaust duct.
5. Use clean-outs in the exhaust duct and clean periodically when needed.
6. **Never** exceed 0.3 inches w. c. (.75 mbar) static pressure in the exhaust duct.
7. Inside surface of the duct **must be smooth.**
8. Recommend pop rivets for duct assembly.

FOR BEST DRYING

FOR BEST DRYING:

1. Provide opening to the out-of-doors in accordance with the following:

For each dryer -

8 inches (204 mm) diameter exhaust requires 2 square feet (.1858 m²) make-up air.

12 inches (305 mm) diameter exhaust requires 4 square feet (.3716 m²) make-up air.

2. Use barometric shutters in the inlet air opening to control air when dryers are not running.

OTHER RECOMMENDATIONS

OTHER RECOMMENDATIONS

To assure compliance, consult local building code requirements.

TROUBLESHOOTING

TROUBLESHOOTING

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

Rules for Safe Operation of your Dryer

RULES FOR SAFE OPERATION OF YOUR DRYER

RULES

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 dry cleaning 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;** a full lint screen may be a fire hazard.
 - e. **Never use heat to dry items that contain plastic, foam, or sponge rubber, or rags coated with wax or paint.** 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 the 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 could remain in the dryer causing 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.
9. **The dryer must not be installed or stored in an area where it will be exposed to water and/or weather.**

Rules for Safe Operation of your Dryer



CAUTION

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

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

NOTE

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

ENERGY SAVING TIPS

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 lightweight fabrics separately from heavy fabrics. You'll use less energy and get more even drying results by drying fabrics of similar weight together.
4. Clean the lint screen after each load. A clean lint screen helps give faster, more economical drying.
5. Don't 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.

ABOVE 2,000 FEET (610 m)

ELEVATIONS ABOVE 2,000 FEET (610 m)

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

Setting menu

Structure of setting menu

The setting menu is subdivided in three submenus.

Technical menu.

A dryer can be configured according to its own technical characteristics.

For example, is it a dryer with reversing of the drum, is the dryer equipped with a residual moisture measuring system etc...

This menu is programmed by the manufacturer and does usually not have to be modified.

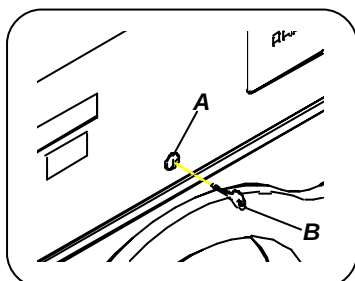
Programmation menu.

To program the programs.

Display menu.

To recall data such as supplied labour time of a dryer.

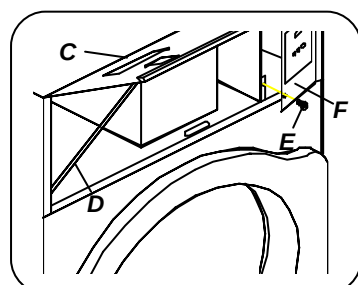
Selection of setting menu



In order to select the setting menu, the switch at the back of the printplate has to be pulled.

To reach the switch :

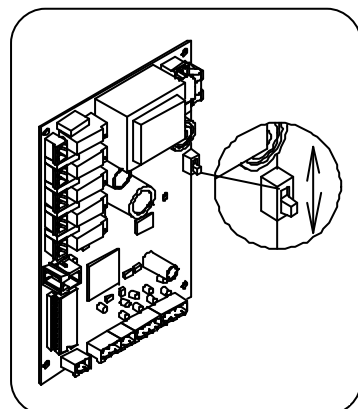
- Turn the lock (A) with the delivered key (B) 90° anticlockwise.



- Open the top frontpanel (C) and put the support (D) at the left side under this panel in the provided clamp.

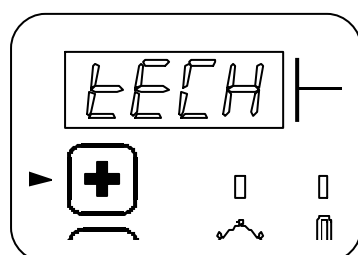
- Remove the screw (E) in the operating door (F).

- Then open this door.



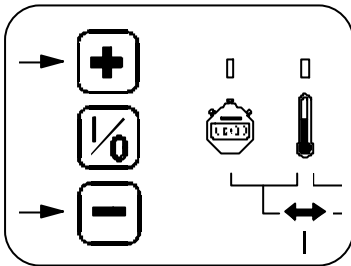
Behind this, at the backside of the printplate you find the switch.

By pulling the switch downwards, you reach the **setting menu**.



When pulling the selection switch in the upper position, “**IPSO**” appears and afterwards “**TECH**” on the upper display.

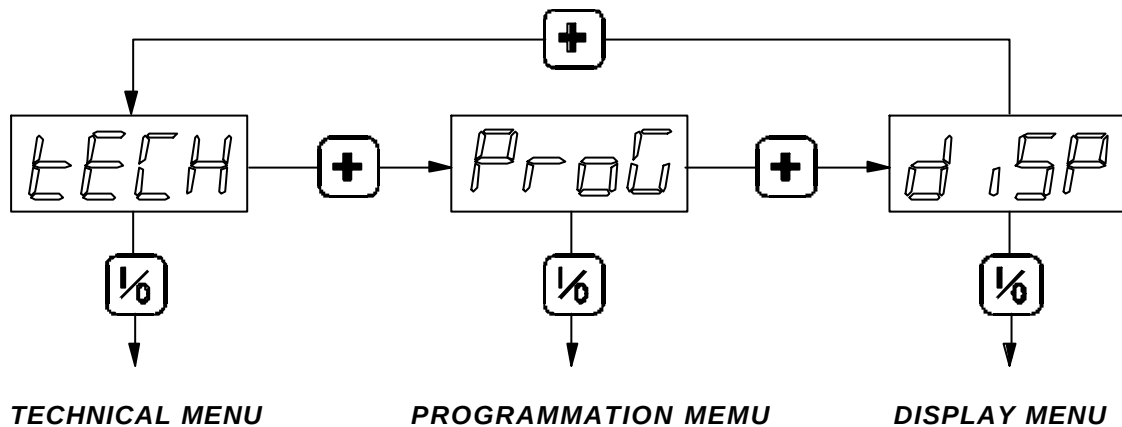
Selection of submenus



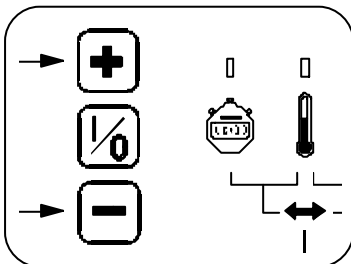
Selection of submenus or programming of parameters in these submenus is done by means of the three push buttons in front of the operating panel. Select with the “+” button one of the submenus and then push the middle button in order to confirm the selection.

XX

If necessary, change this value (default 5 seconds) by means of the + or - button between 5 and 99 seconds.



Remark



Operation of the push buttons.

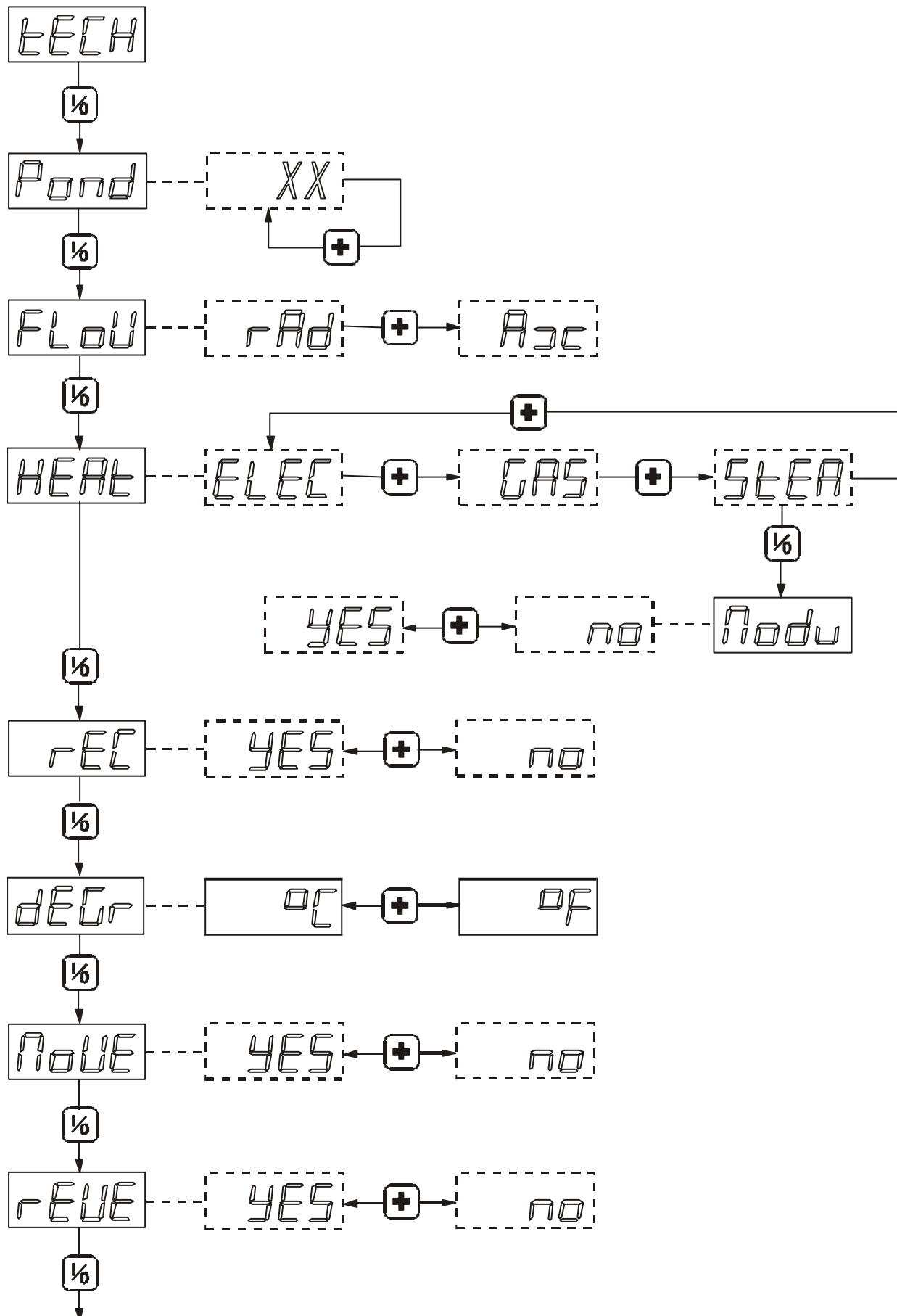
Only when a button is pushed and released afterwards, the action is done.

Extremely hard or long pressing the buttons is totally useless. A light or short push gives a correct operation.

Return to selection or programming.

With the following action, it is always possible to return to the previous step of selection or to programming.

- Push the middle button and keep it pressed.
- Then push (while the middle button is still pressed) shortly the lower button.
- Next release the middle button and the previous step is shown.



Technical menu

TECH

Press the middle button to continue.

Pond

The lower display shows the drum capacity of the dryer.

If necessary, select another value with the upper button.

Press the middle button to continue.

Flow

To program whether the dryer operates with radial or axial airflow in the drum.

- **rAd**: Radial current of air means that the air flows from the top to the bottom of the drum.

- **Ax**: Axial current of air means that the air flows from the back to the front of the drum.

If necessary, change this programming with the upper button.

Press the middle button to continue.

HEAt

The lower display shows the kind of heating system that is built in.

- **ELEC**: electric heating.

- **GAS**: gas heating

- **STEa**: steam heating

Modu

If the machine is steam heated (StEA), you continue to "Modu" (modulation) and select whether the heating should work modulating (pulsing) or not.

If necessary, change this programming with the upper button.

Press the middle button to continue.

rEC

Now the lower display shows (with YES or no) whether the dryer is equipped with heat reclaimer.

If necessary, change this programming with the upper button.

Press the middle button to continue.

dEGr

The lower display shows whether the temperature indication will be in °C or °F.

If necessary, change this programming with the upper button.

Press the middle button to continue.

MoVE

The lower display shows (with YES or no) whether the rotating detection is built in.

If necessary, change this programming with the upper button.

Press the middle button to continue.

rEVE

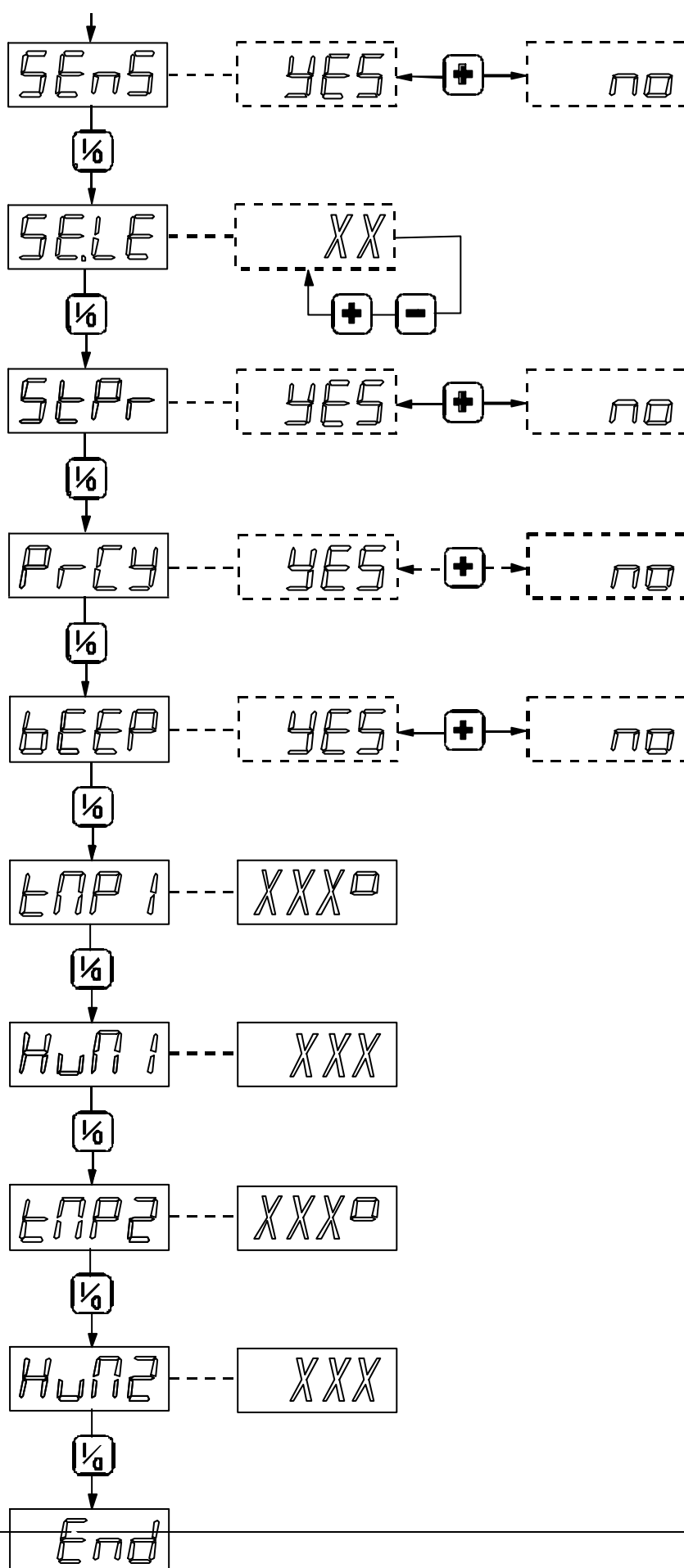
Now the lower display (**YES or no**) shows whether the dryer can operate reversing (left-right movement).

If necessary, change this programming with the upper button.

Press the middle button to continue.



When "no" was selected, you proceed to "**bEEP**"



SEnS

Now it is shown on the bottom display (**YES** or **no**) whether the dryer is equipped with a residual moisture system with humidity sensors.

Change this setting, if necessary, with the top button.

Press the middle button to continue.



If “no” was selected, then the display switches immediately to “**bEEP**”

SE.LE

The bottom display indicates the calibration of the humidity sensors (**Sensor level**). This is normally set at 5. If the drying results are continuously too dry or too humid, then this value can be changed between 0 and 10. The lower this factor is set, the dryer are the drying results. Is this value higher, then the drying results are more humid.



If this factor is changed, then this will automatically have an influence on all drying programmes with residual moisture control. It is normally not necessary to change this factor. It is only meant to give the technicians the possibility to optimize the drying results when the dryer is used in rather unusual environments.

Change this setting, if necessary, with the top button.

Press the middle button to continue.

St.Pr

Now the bottom display indicates (**YES** or **no**) whether the standard programmes (31-40) should be shown.

Change this setting, if necessary, with the top button.

Press the middle button to continue.

Pr.CY

Here the bottom display indicates (**YES** or **no**) whether the cycle contact needs to be programmable. If yes, then the cycle contact will during the cycle close and open again alternately (pulsating function). If “**no**” is selected, then the contact will be closed during the entire drying cycle.

Change this setting, if necessary, with the top button.

Press the middle button to continue.

bEEP

The bottom display indicates (**YES** or **no**) whether a buzzer will sound at the end of the cycle.

Change this setting, if necessary, with the top button.

Press the middle button to continue.

tMP.1

The bottom display indicates the temperature inside the cylinder. This is meant as a test of the temperature sensor.

Press the middle button to continue.



If “no” was selected with “**SEnS**”, then the display will automatically go on to “**End**”

HuM.1

The bottom display now indicates the humidity inside the cylinder. This is meant as a test of the humidity sensor.

Press the middle button to continue.

tMP.2

The bottom display now indicates the temperature in the room. This is meant as a test of the temperature sensor.

Press the middle button to continue.

HuM.2

The bottom display now indicates the humidity in the room. This is meant as a test of the humidity sensor.

Press the middle button to continue.

End

This is the end of the technical menu

Press the middle button to continue.

Now the display shows IPSO for a while and then goes back to the beginning of the technical menu.

Programming menu

Structure

With the "PRO", 2 **variable** and 3 **fixed programs** can be preprogrammed.

The variable programs "MANU " and "Auto "

At the start, the user will have to program himself some data such as drying temperature, drying time or residual moisture and cooldown time.

The fixed programs "1- 30 "

The user will be able to start these programs immediately after the selection. They can be built up in different parts. This way, for example, the temperature can be programmed higher at the start of a program in order to obtain a quicker drying - and decreased at the end, to avoid shrinking.

Remark :

If the residual moisture control system is not used, then there is only 1 variable programme available.

The programmes can be programmed according to 2 kinds of drying systems.

Manual drying system

Drying by means of setting the drying time.

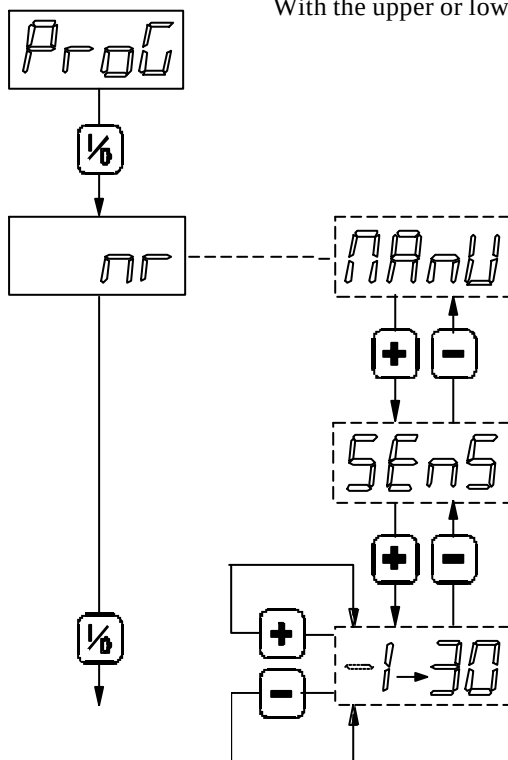
Automatic drying system

Drying by means of setting the residual moisture of the linen.

Remark :

If the residual moisture control system is not used, then it is not possible to use the automatic drying system.

Selection of the programs



Press the middle button.

"nr" appears on the upper display while the lower display shows the name or number of the program to be programmed.

With the upper or lower button you have to select now :

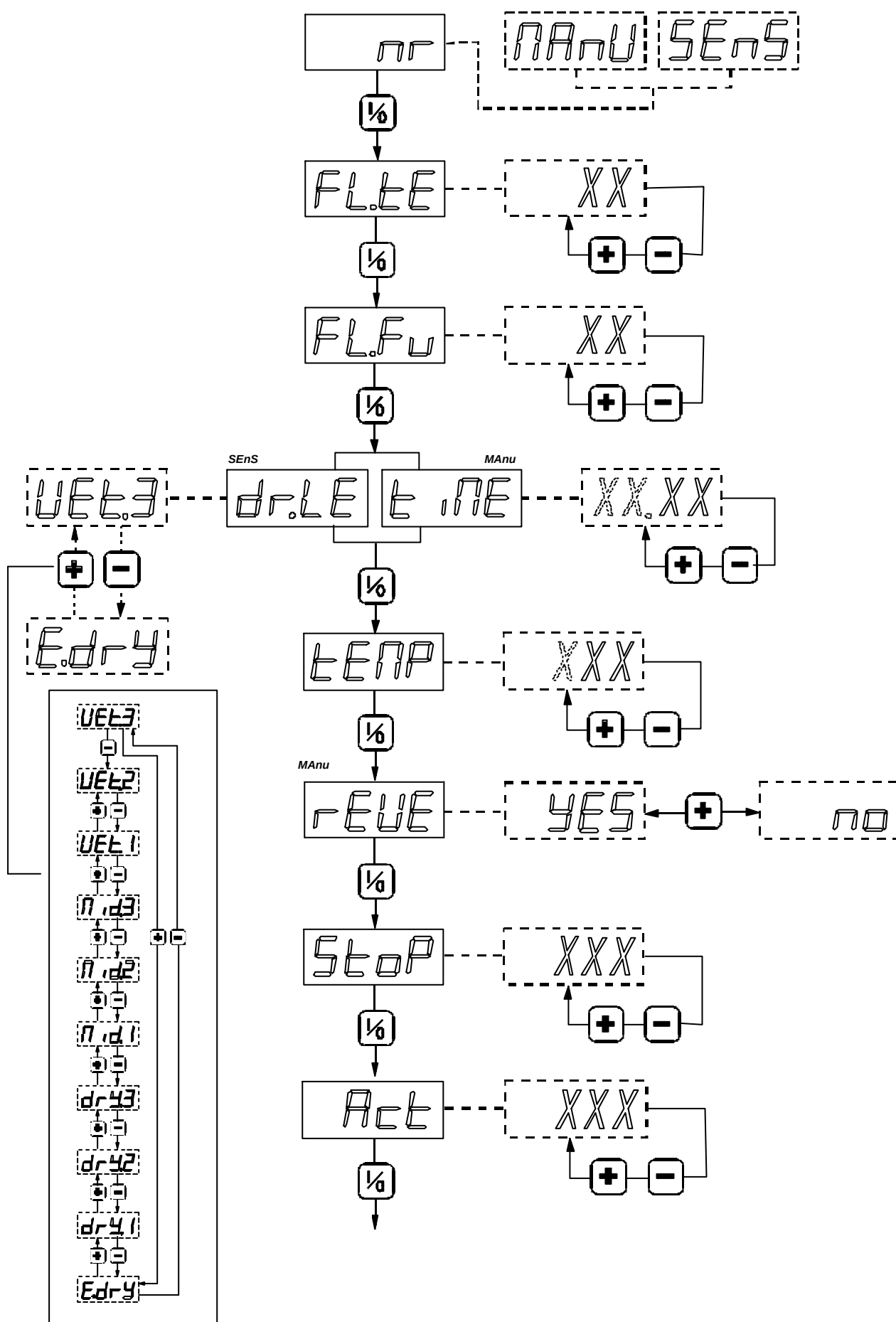
MANU: This is the **variable** program for **manual** drying.

SEnS: This is the variable programme for **automatic drying**. This programme is not shown if the humidity sensors are not connected.

1-30: These are the **fixed** programs.

When a program was **not programmed**, a - sign is placed before this program number.

Confirm the selection with the middle button.



Programming of variable programs

Manu or SEns

Press the middle button

FL.tE (flash temperature - default 5)

On the lower display appears how many seconds the temperature indication during the drying cycle has to appear.

The combination of parameters **FL.tE** and **FL.FU** (see further) will result in an alternate indication of the remaining drying time or residual moisture and temperature.

If necessary, change this programming with the upper or lower button (from 0 to 60 seconds) and confirm afterwards with the middle button.

FL.Fu (flash function - default 10)

On the lower display appears how many seconds the remaining drying time during the drying cycle has to appear.

If necessary, change this programming with the upper or lower button (from 0 to 60 seconds) and confirm afterwards with the middle



If one of these programmations was equal to "0", this indication will not appear.

tiME (time - default 30) or dr.LE (dry.level default drY1)

The bottom display shows **the drying time** for the variable manual programme, or **the residual moisture level** of the linen for the automatic variable programme. This value can be changed by the user (see operating instructions).

Change this setting, if necessary, by means of the top or bottom button and confirm with the middle button.

The drying time can be set between 1 and 99 minutes. The residual moisture level can be selected between 10 different levels. The level "Wet 3" stands for the most humid drying result, the level "E.drY" (extra dry) for the driest drying result. Inbetween it is possible to select 8 other levels (Wet2, Wet1, Mid3, Mid2, Mid1, drY3, drY2, drY1).

tEMP (temperature - default 40 of 104)

On the lower display appears the drying temperature. This value can be changed by the user (see operating instructions)..

If necessary, change this programming with the upper or lower button (0° to 92 °C - 32 to 198 °F) and confirm afterwards with the middle button.

rEVE (reversing - default YES)

By means of the top button, you can select **"YES"** or **"no"** to program whether the drum has to be reversing during the dry time of this cycle.

Confirm the programming afterwards with the middle button.



When in the setting menu at **"rEVE"**, no was programmed, this parameter will not be given and you will go to **"CY.on"** or **"C.tiM"**.

During the programming of the automatic program, this parameter will not be given and you will go to **"StoP"**.

When **"no"** is selected, you go immediately to **"CY.on"** or **"C.tiM"**.

StoP (stoptime - default 5)

On the lower display appears the time that the drum has to stand still during a left-right action.

If necessary, change this programming with the upper or lower button (5 to 10 seconds) and confirm afterwards with the middle button.

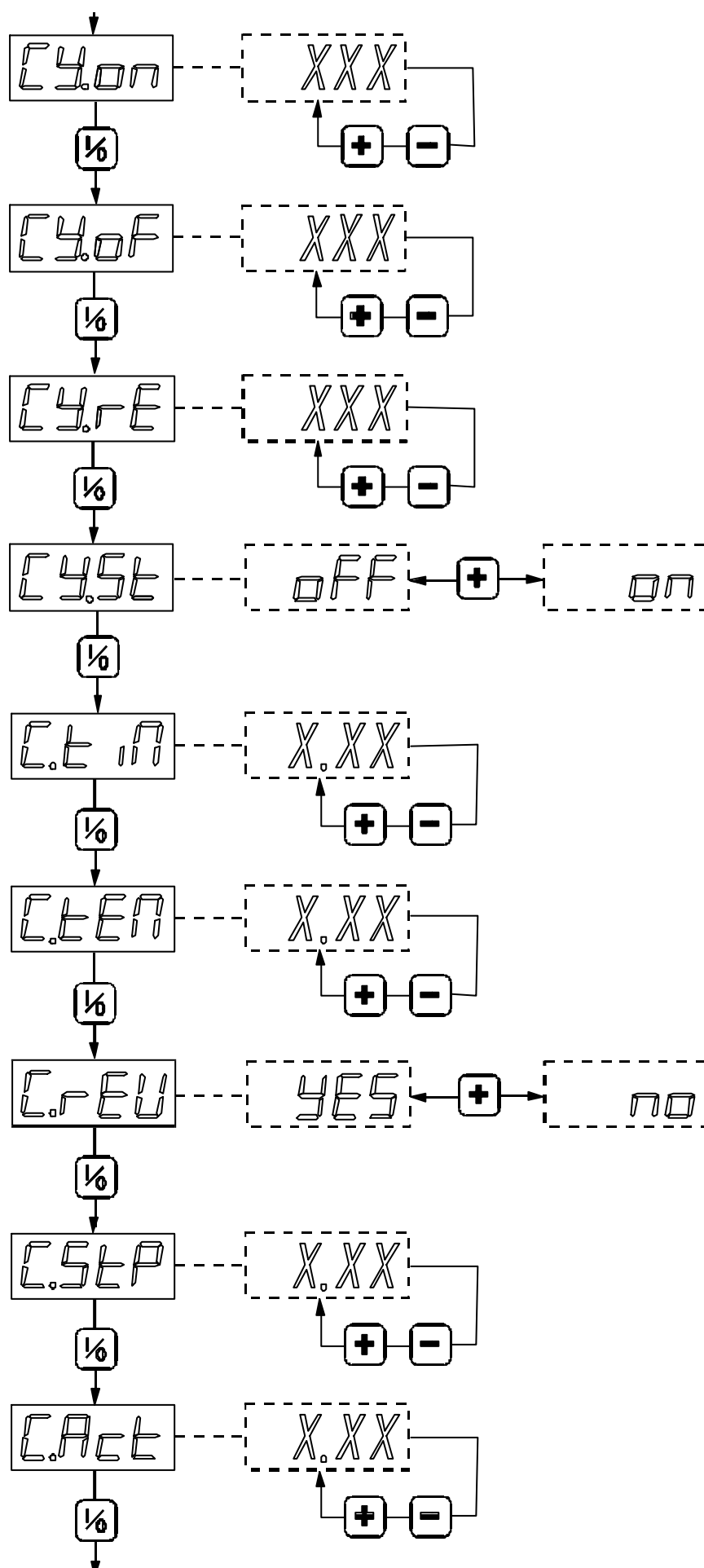
Act (actiontime - default 30)

On the lower display appears the time that the drum has to turn left or right.

If necessary, change this programming with the upper or lower button (5 to 120 seconds) and confirm afterwards with the middle button.



If **"no"** was selected in the technical menu with **"Pr.CY"**, you proceed automatically to **"CY.on"** or **"C.tiM"**.



CY.on (Cycle on)

Here the pulsating function of the cycle contact can be programmed.

The bottom display shows the time during which the cycle contact needs to be closed.

Change this setting when necessary by means of the top or bottom button (0 to 24000 seconds) and then confirm by means of the middle button.



If “0” is selected, you proceed immediately to “**C.tiM**”.

CY.of (Cycle off)

The bottom display shows the time during which the cycle contact (during pulsating function) needs to be opened.

Change this setting when necessary by means of the top or bottom button (5 to 2400 seconds) and then confirm by means of the middle button.



This parameter is not shown when “0” was selected with “Cy.on”.

CY.rE (Cycle repeat)

The bottom display shows how many times the contact needs to close and open.

Change this setting when necessary by means of the top or bottom button (1 to 99 pulses) and then confirm by means of the middle button.

CY.St (Cycle start)

The bottom display shows how the pulsating function of the cycle contact will start.

OFF : the cycle contact will first remain open during the time chosen with (**CY.of**).

On : the cycle contact will first remain closed during the time chosen with (**CY.on**)

Change this setting when necessary by means of the top or bottom button (**on-off** pulses) and then confirm by means of the middle button.

C.tiM (cooltime - default 2)

On the lower display appears the cooltime. This value can be changed by the user (see operating instructions).

If necessary, change this programming with the upper or lower button (1 to 30 minutes) and confirm afterwards with the middle button

C.tEM (temperature - default 30 or 86)

On the lower display appears the cool down temperature. This value can be changed by the user (see operating instructions).

If necessary, change this value with the upper or lower button (30 to 40 °C - 86 to 105 °F) and confirm afterwards with the middle button.

C.rEV (cool reverse - default YES)

With the middle button, you can select “**YES**” or “**no**” to program whether the drum has to turn left/right or not during the cool down time of this program.



When in *the setting menu* at “**rEVE**”, **no** was programmed, this parameter will not be given and you will go to “**G.tiM**”.

During the programming of the *automatic program*, this parameter will not be given and you will go to “**C.StoP**”.

When “**no**” is selected, you go directly to “**G.tiM**”.

C.StP (cool stoptime - default 5)

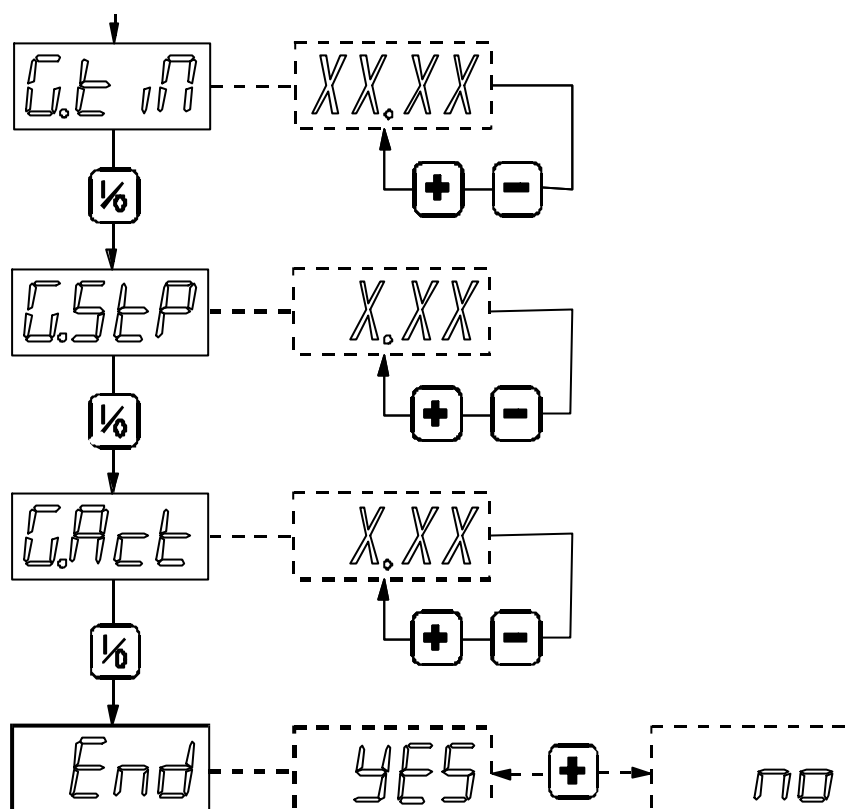
On the lower display appears the time that the drum has to stand still between a left-right action during the cool down time.

If necessary, change this programming with the upper or lower button (5 to 120 seconds) and confirm afterwards with the middle button.

C.Act (cool actiontime - default 30)

On the lower display appears the time that the drum has to turn left or right during the cool down time.

If necessary, change this programming with the upper or lower button (5 to 120 seconds) and confirm afterwards with the middle button.



G.tiM (Guard time - default 30)

On the lower display appears the guard time (anti-crease time). During this time (when cool down time is over) by moving the drum shortly now and then, creasing of the linen can be avoided.

If necessary, change this programming with the upper or lower button (0 to 99 minutes) and confirm afterwards with the middle button.

G.STP (Guard stoptime - default 120)

On the lower display appears the time that the drum has to stand still between the drum actions during the anti-crease time.

If necessary, change this programming with the upper or lower button (5 to 240 seconds) and confirm afterwards with the middle button.

G.Act (Guard actiontime - default 5)

On the lower display appears the time that the drum has to be activated during the anti-crease time.

If necessary, change this programming with the upper or lower button (5 to 240 seconds) and confirm afterwards with the middle button.



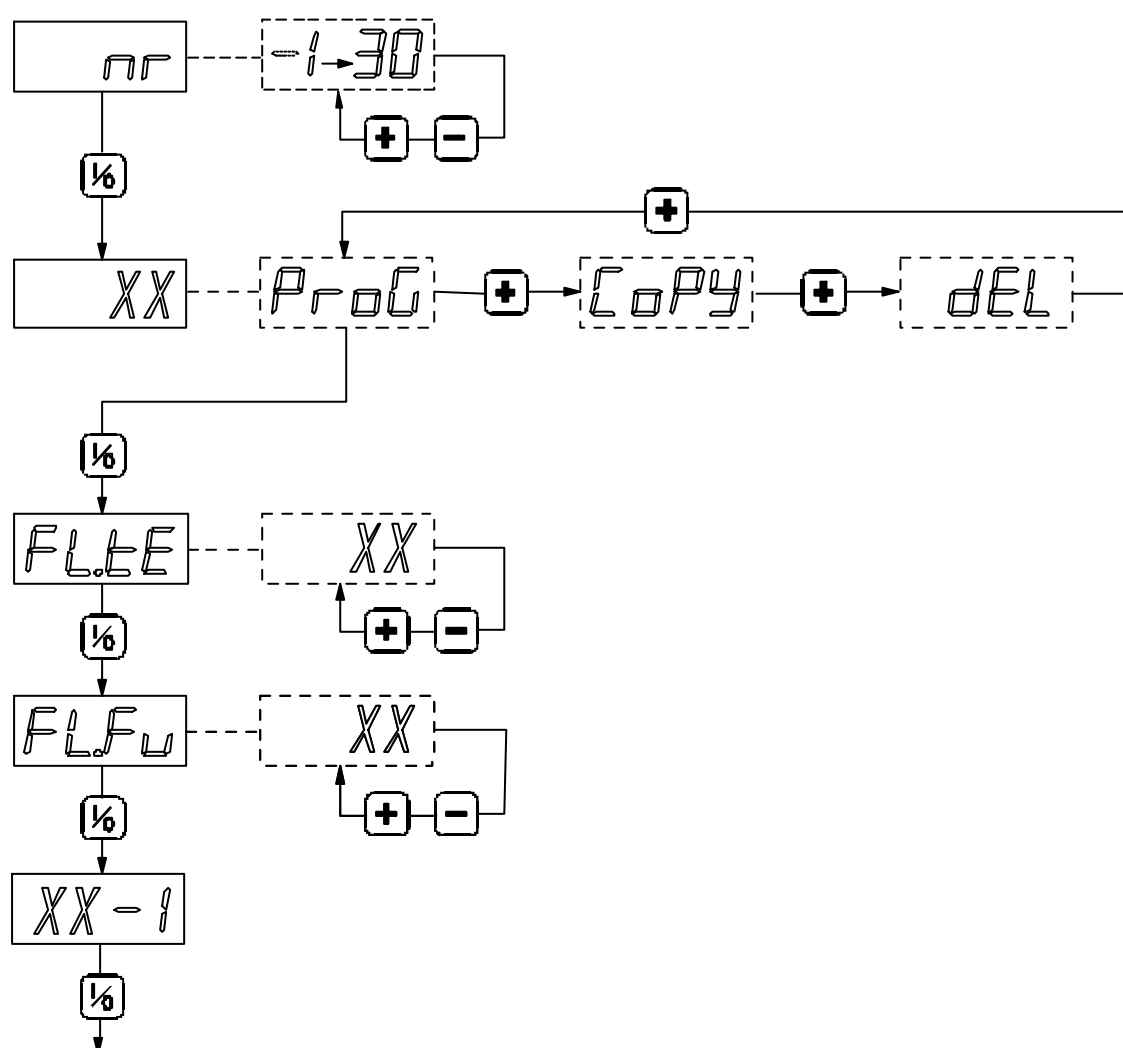
When in *the setting menu* at “rEVE”, “YES” was programmed, this action time will be executed left and right alternately

End

The programming of the variable manual program has ended here.

On the lower display appears **YES**. By pushing the **middle button**, you leave the programming menu.

Select by means of the upper button **no** to program another program and confirm with the middle button.



Programming of the fixed programs

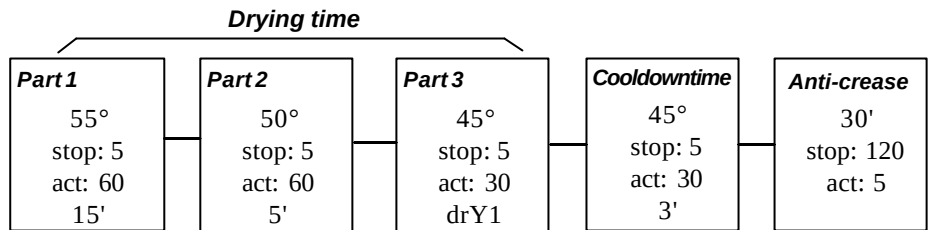
The drying time of these programs can be built up in different subdivisions (max. 9). This way, it is possible to for example in the beginning of a drying time work with a higher temperature - in order to achieve a quicker drying - while to the end, this temperature - to avoid shrinking of the linen - will be decreased.

These programs can be built up manual, automatic or in combination of these two drying systems.

Remark

When no residual moisture measuring system is used, only manual drying system is possible.

Example :
Drying program 50 ° :



1-30

On the lower display a program number is mentioned. Select a program number by means of the upper or lower button.

Confirm your selection with the middle button.



If a “- sign” appears before the number, this means that this program number does not contain a program, and you go immediately to “FL.tE”.

XX

On the upper display, the selected program number is given.

“ProG” appears on the lower display. Now by pressing the upper button, you can possibly select out of “CoPY” or “dEL”.

ProG: To program a program.

CoPY: To copy a program to another program number. So, the program can be used as basis and this can save a lot of programming time (see further copying a program)

dEL: To delete a program (see further deleting a program).

Press the middle button to confirm your selection.

FL.tE (flash temperature - default 5)

On the upper display appears how many seconds the temperature indication has to be mentioned during the drying cycle.

The combination of the parameters **FL.tE** and **FL.FU** (see further) will result in an alternate indication of the residual drying time or residual moisture and the temperature.

If necessary, change this programming with the upper or lower button (0 to 60 seconds) and confirm afterwards with the middle button.

FL.Fu (flash function - default 10)

On the lower display appears how many seconds the residual drying time during the drying cycle has to be mentioned.

If necessary, change this programming with the upper or lower button (0 to 60 seconds) and confirm afterwards with the middle button.



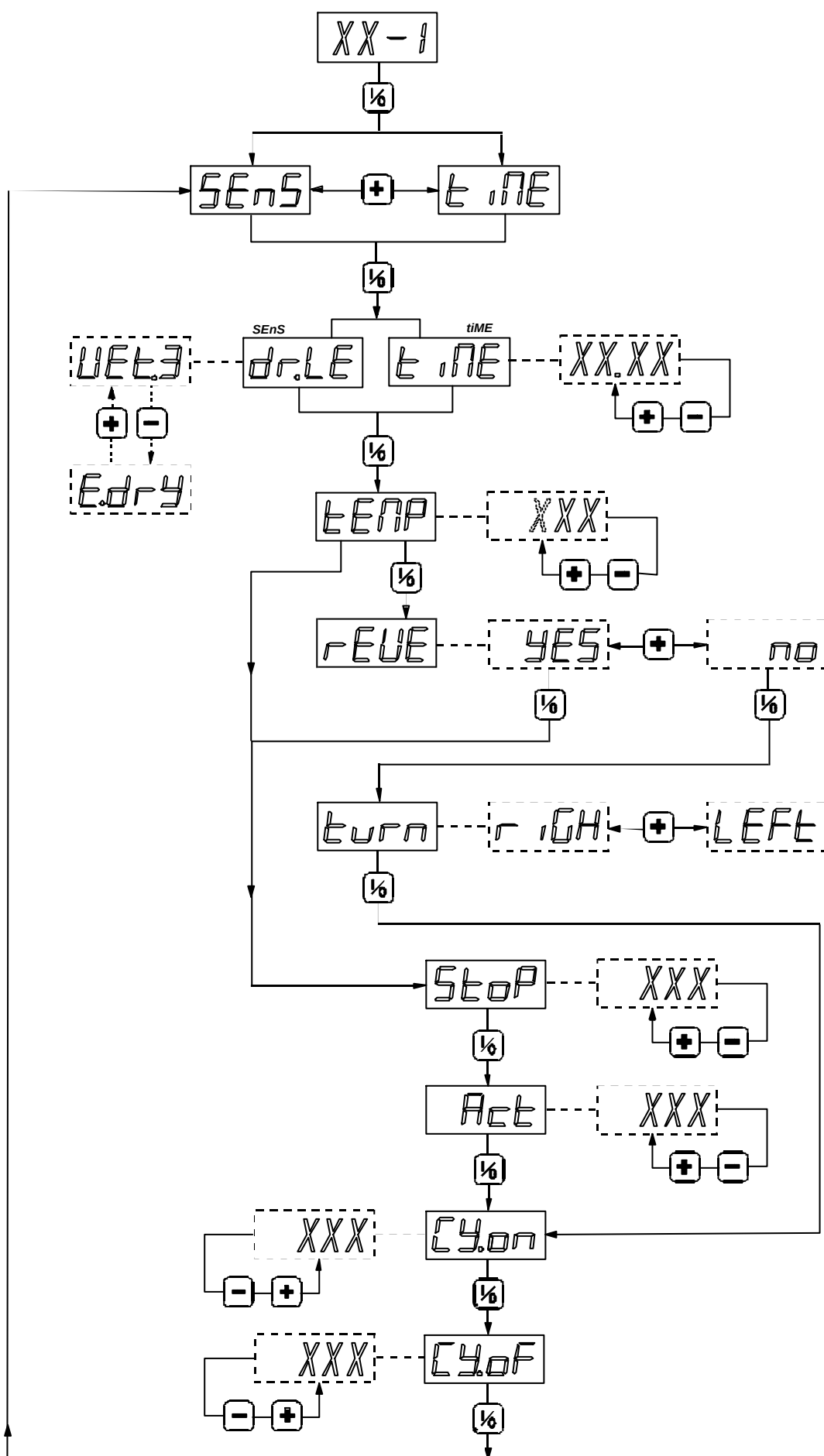
If one of these programming is equal to “0”, this indication will not be given.

Now, the first program subdivision has to be programmed.

XX-1

The program number and afterwards the first subdivision number is mentioned.

Press the middle button.



XX-1**TIME of SENs**

By means of the top button you can select between :

TIME : drying by setting the drying time.

SenS : drying by setting the residual moisture of the linen.

Confirm this selection by means of the middle button.

The bottom display now shows the drying time or the programmed residual moisture level of the linen.

Change this drying time (between 1 and 99 minutes) - or select one of the 10 residual moisture levels (Wet3, Wet2, Wet1, Mid3, Mid2, Mid1, drY3, drY2 drY1 or E.drY) by means of the top or bottom button.

Then confirm the setting by means of the middle button.

tEMP (temperature - default 40 of 104)

On the lower display appears the drying temperature for this subdivision.

If necessary, change this programming with the upper or lower button (0 - 92 ° C - 32 to 198 ° F) and confirm afterwards with the middle button.

rEVE (reversing - default YES)

By means of the top button, you can select **"YES"** or **"no"** to program whether the drum has to be reversing during this subdivision and confirm the programming afterwards with the middle button.



When in the setting menu at **"rEVE"**, no was programmed, this parameter will not be given and you will go **"CY.on"** **or to the end of this subdivision**.

During the programming of a subdivision with residual moisture measuring, this parameter will not be given and you will go to **"StoP"**.

When **"no"** is selected, you go to **"turn"**.

When **"YES"** is selected, you go to **"StoP"**..

StoP (stoptime - default 5)

On the lower display appears the time that the drum has to stand still during left-right action.

If necessary, change this programming with the upper or lower button (5 to 10 seconds) and confirm afterwards with the middle button.

Act (actiontime - default 30)

On the lower display appears the time that the drum has to turn left or right.

If necessary, change this programming with the upper or lower button (5 to 120 seconds) and confirm afterwards with the middle button. You will go to **"CY.on"** or **"XX-1"**.

turn

By means of the upper button you have to select the direction of rotation of the drum

right: right (clockwise)

left: left (anticlockwise)

Confirm the programming afterwards with the middle button and you go to **"CY.on"** or **"XX-1"**.

CY.on (Cycle on)(default 0)

Here the pulsating function of the cycle contact can be programmed.

The bottom display shows the time during which the cycle contact needs to be closed.

Change this setting when necessary by means of the top or bottom button (0 to 2400 seconds) and then confirm by means of the middle button.



If **"0"** is selected, you proceed immediately to **"XX-1"**.

If **"no"** was selected in the technical menu with **"Pr.CY"**, you proceed automatically to **"XX-1"** and this parameter is not shown.

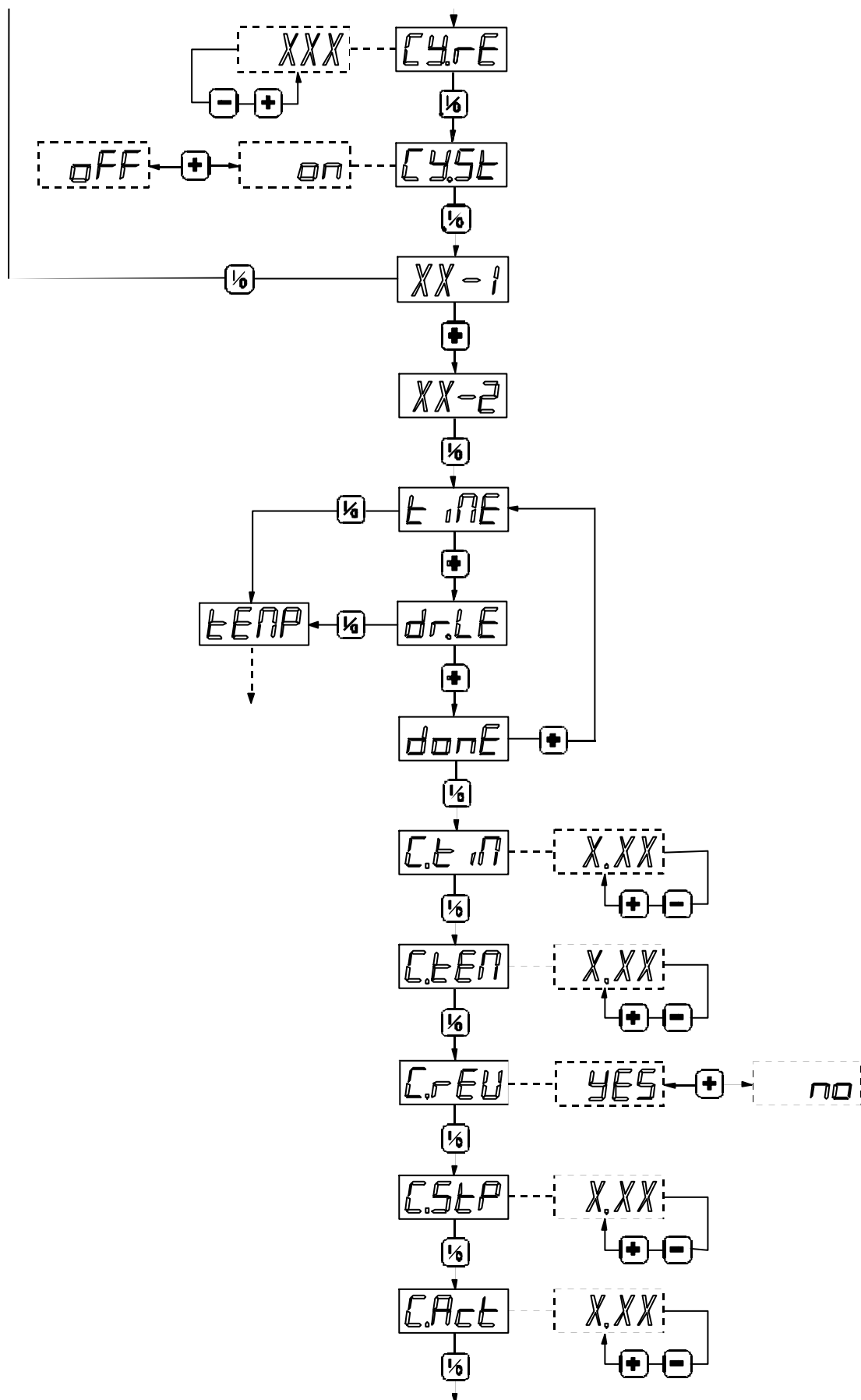
CY.of (Cycle off)(default 5)

The bottom display shows the time during which the cycle contact (during pulsating function) needs to be opened.

Change this setting when necessary by means of the top or bottom button (5 to 2400 seconds) and then confirm by means of the middle button.



This parameter is not shown when **"0"** was selected with **"Cy.on"**.



CY.rE (Cycle repeat)(default : 1)

The bottom display shows how many times the contact needs to close and open.

Change this setting when necessary by means of the top or bottom button (1 to 99 pulses) and then confirm by means of the middle button.

CY.St (Cycle start)

The bottom display shows how the pulsating function of the cycle contact will start.

OFF : the cycle contact will first remain open during the time chosen with (CY.of).

On : the cycle contact will first remain closed during the time chosen with (CY.on)

Change this setting when necessary by means of the top or bottom button (**on-off** pulses) and then confirm by means of the middle button.

XX-1

Now you return to the subdivision number.

By pressing the middle button, earlier adjusted programs can be controlled or changed.

By pressing the upper button, you will go to the next subdivision of the drying cycle.

XX-2

This is the second subdivision number. Press the middle button. Now you can :

- program a next part in the same way.

Therefore, select "**tiME**" or "**PERC**" with the upper button and confirm afterwards with the middle button (transition to "**tEMP**").

- the drying cycle is closed and you go to **the cool down time**.

Therefore select with the upper button "**donE**" and confirm afterwards with the middle button.



The drying cycle has always - also when a program has to contain only one part - to be closed by an extra part, where "**donE**" is selected.

A drying period can contain maximum 9 parts.

C.tiM (cooltime - default 2)

On the lower display appears the cooldown time. This value can be changed by the user (see operating instructions).

If necessary, change this programming with the upper or lower button (1 to 30 minutes) and confirm afterwards with the middle button.

C.tEM (temperature - default 30 of 86)

On the lower display appears the cool down temperature. This value can be changed by the user (see operating instructions).

If necessary, change this programming with the upper or lower button (1 to 30 minutes) and confirm afterwards with the middle button.

C.rEVE (cool reverse - default YES)

With the middle button you can select "**YES**" or "**no**" to let the drum be reversing or not during the cool down period of this program.



When in the **setting menu** at "**rEVE**", **no** was programmed, this parameter is not be mentioned and you will go to "**G.tiM**".

During the programming of the automatic program, this parameter is not mentioned and you will go to "**C.StoP**".

When "**no**" is selected, you go immediately to "**G.tiM**".

C.StP (cool stoptime - default 5)

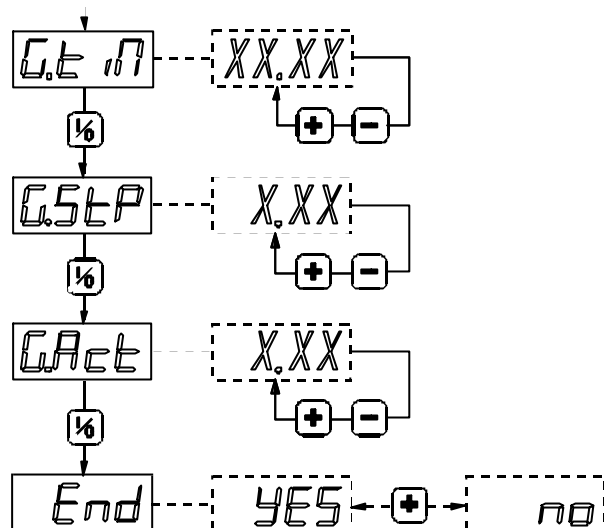
On the lower display appears the time that the drum has to stand still between a left-right action during the cool down period.

If necessary, change this programming with the upper or lower button (5 to 120 seconds) and confirm afterwards with the middle button.

C.Act (cool actiontime - default 30)

On the lower display appears the time that the drum has to turn left-right action during the cool down period.

If necessary, change this programming with the upper or lower button (5 to 120 seconds) and confirm afterwards with the middle button.



G.tim (Guard time - default 30)

On the lower display appears the guard time (anti-crease time). During this time (when cool down time is over) by moving the drum shortly now and then, creasing of the linen can be avoided.

If necessary, change this programming with the upper or lower button (0 to 99 minutes) and confirm afterwards with the middle button.

G.STP (Guard stoptime - default 120)

On the lower display appears the time that the drum has to stand still between the drum actions during the anti-crease time.

If necessary, change this programming with the upper or lower button (5 to 240 seconds) and confirm afterwards with the middle button.

G.Act (Guard actiontime - default 5)

On the lower display appears the time that the drum has to stand still between the drum actions during the anti-crease time.

If necessary, change this programming with the upper or lower button (5 to 240 seconds) and confirm afterwards with the middle button.



When in the setting menu at “rEVE”, “YES” was programmed, this action time will be executed left and right alternately

End

The programming of the variable manual program has ended here.

On the lower display appears **YES**. By pushing the middle button, you **leave the programming menu**.

Select by means of the upper button **no** to program another program and confirm with the middle button.

Copying a programme

Copying a programme and using it as a base for a new programme can save you a lot of time. Then it is also possible to change the copied programme.

Follow the same procedure as when programming the fixed programmes to get into the copying menu.

Select the number of a programme which will be used as the base for a new programme by pressing the top or bottom button. Keep pressing the middle and top button during 5 seconds.

The bottom display shows **"ProG"**.

Press the top button so many times until the bottom display shows **"CoPY"** instead of **"ProG"** or **"dEL"** and confirm this selection by means of the middle button.

Select the base programme by means of the top and bottom button. Then confirm the selection by means of the middle button.

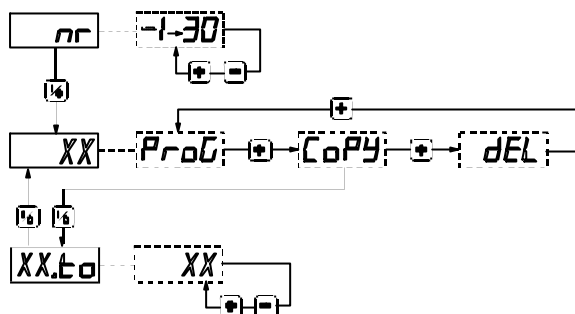
"to" appears on the upper display. The bottom display shows the destination number.

Select the desired destination number by means of the top and bottom button.

If a programme number is selected, which does not yet contain a programme, a **"- dash"** is placed before the number. If a number contains a programme already, then this number is displayed **blinking**.

Then confirm the selection by means of the middle button.

The programme is now being copied and you get automatically to the new programme. This programme can now be changed.



Deleting a programme

If a programme is no longer desired, it can be deleted.

Follow the same procedure as when programming the fixed programmes to get into the deleting menu.

Select the number of a programme which must be deleted, by pressing the top or bottom button.

Keep pressing the middle and top button during 5 seconds.

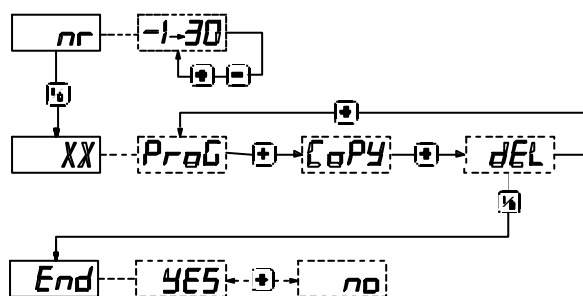
"ProG" appears on the bottom display.

Press the top button so many times until the bottom display shows **"dEL"** instead of **"ProG"** or **"CoPY"** and confirm this selection by means of the middle button.

Select by means of the top or bottom button the programme that needs to be deleted.

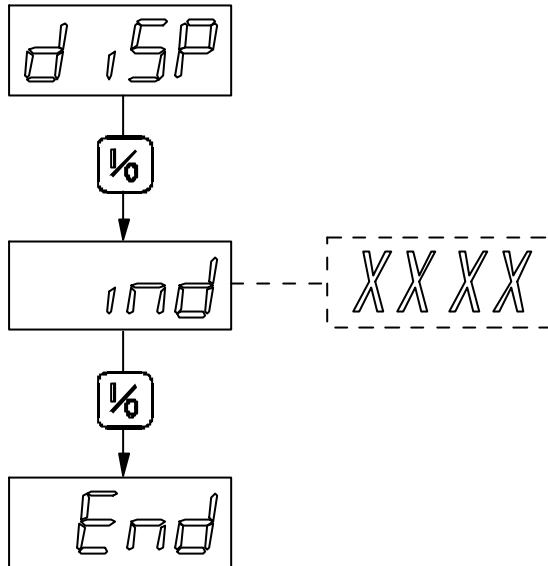
Then confirm the selection by means of the middle button.

The programme is now being deleted.



Display menu

Some data regarding the dryer can be recalled here.



DISP

The upper display shows “**disp**” (display).
Press the middle button to continue.

Ind

The upper display shows “**ind**”. This is the “**maintenance index**”.
The lower display shows the **number of hours that the dryer has already operated**.
After the dryer was activated for “9999” hours, it restarts from “0”.

Press the middle button to continue.

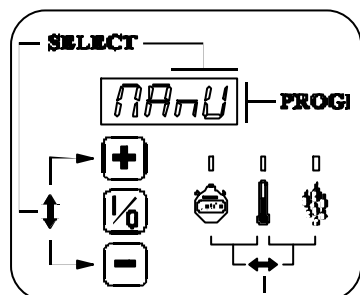
END

The upper display shows **END**. This is the end of the display menu.

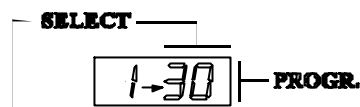
Press the middle button to continue.

Operating instructions

Selecting a program



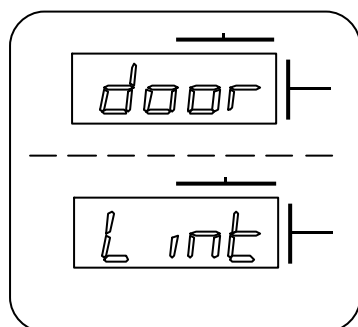
The program number is mentioned on the upper display. Press the **upper** or **lower** button to select the wished program.



It is only possible to select the programme numbers which contain a programme.

It is also possible to select the standard programmes (31 to 40) (see further: standard programmes), provided that **"YES"** was selected in the technical menu for **"St.Pr"**.

Loading of the drum



Open the door and load the drum.

When the door is opened, **"door"** and **"Lint"** appears alternately on the upper display.

Disentangle the linen as good as possible so that it does not accumulate during the drying. That way, an equal drying will be obtained. Overloading of the drum can also lead to bad dry results.



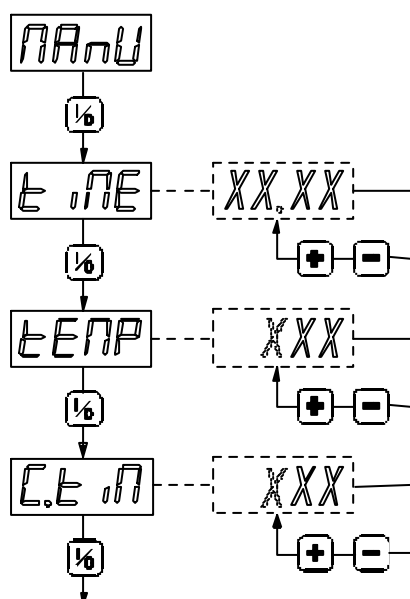
Do not dry linen, which does not resist the drying temperature.

Linen treated with inflammable products, has to be aired sufficiently before putting it into the drum.

Starting the program

The start procedure is different according to the kind of program.

Variable manual program



MANU

Press the middle button.

tIME

The lower display shows the **drying time** for a variable manual program.

If necessary, change this programming with the upper or lower button (1 to 99 minutes) and confirm afterwards with the middle button.

tEMP

The lower display shows the **drying temperature**.

If necessary, change this temperature with the upper or lower button (0 - 92 °C - 32 to 198 °F) and confirm afterwards with the middle button.

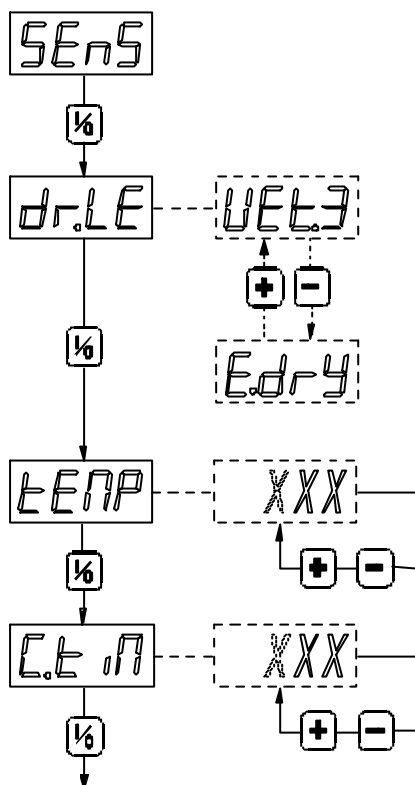
C.tiM

The lower display shows the **cool down time**.

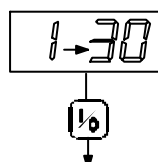
If necessary, change this programming with the upper or lower button (1 to 30 minutes) and confirm afterwards with the middle button.

The program is started now.

Variable automatic program



Fixed program



SEnS

Press the middle button.

dr.LE

The residual moisture level of the linen appears on the bottom display. Select one of the 10 residual moisture levels (WEt3, WEt2, WEt1, Mid3, Mid2, Mid1, drY3, drY2, drY1 or E.drY) by means of the top or bottom button and then confirm by means of the middle button.

tEMP

The drying temperature appears on the bottom display. Change this temperature if necessary by means of the top or bottom button (0 to 92°C - 32 to 198°F) and then confirm by means of the middle button.

C.tiMr

The cool down time appears on the bottom display. Change this setting if necessary by means of the top or the bottom button (1 to 30 minutes) and then confirm by means of the middle button.

The programme is now being started.

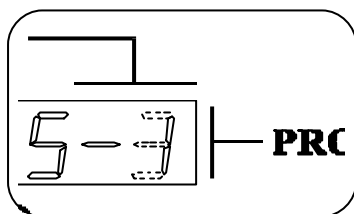
1.....30

Press the middle button and the programme will start immediately.



The standard programmes (31 to 40) can be started in the same way (see further : standard programmes).

Program course

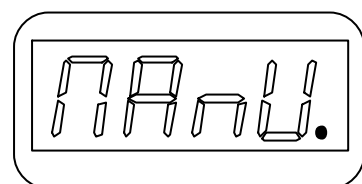


Program number

On the upper display, the **program number or name** (MAnU - Auto) is always mentioned.

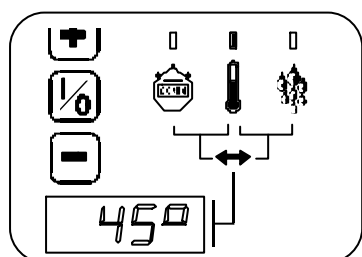
If the drying time of a program consists of several subdivisions, next to the program number, you will find the **number of the subdivision**, where the program is actually situated at that moment. Alternately with this, every **5 seconds**, during **1 second** the number of the **last subdivision** is mentioned. So the user is being informed how many divisions still have to be completed.

.example : program "5" is in subdivision "1" and the drying time consists of "3" subdivisions.



Heating activated

When the heating is activated, the decimal point in the right upper display lights up.

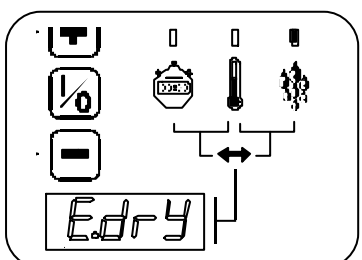
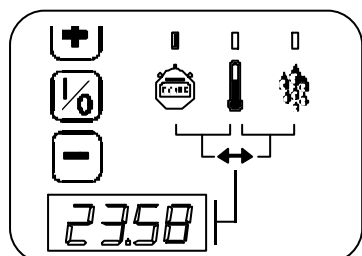


Display of the remaining drying time, temperature, residual moisture level

During the drying period the bottom display shows alternately the temperature with either **the remaining drying time** or **the residual moisture level** of the linen.

The relation of alternation has been determined in the programming menu (see "FL.tE-FL.FU").

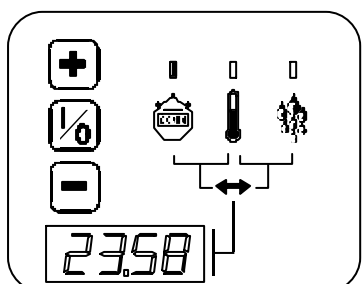
- During the display of **the temperature**, the **middle led** will light up.
- During the display of **the remaining drying time**, the **left led** will light up. This time is counted down by second.
- During the display of **the residual moisture level**, the **right led** will light up.



Remark :

When a drying period was built up out of several segments, then the remaining drying time will be displayed **per segment**, and thus not for the total programme.

If "0" was put in for "FL.tE-FL.FU" in the programming menu, then nothing will appear on the display.

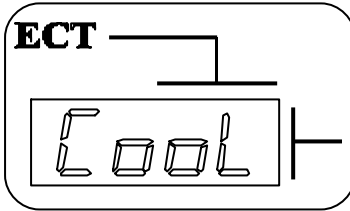


Changing the residual drying time

During the program or subdivision of the program, the residual drying time can be shortened or lengthened. Press therefore the lower or upper button.

Remark :

If this time is normally not mentioned, it will be mentioned during the pushing (plus 3 seconds afterwards).

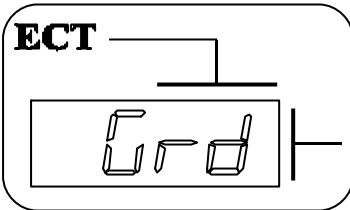


End of the drying time : transition to cool down time

When a drying time is over (drying time over or % final residual moisture achieved), the cool down time starts automatically.

On the upper display “Cool” is mentioned.

During the cool down time, the lower display shows alternately the *cool down temperature* and the *residual cool down time*.



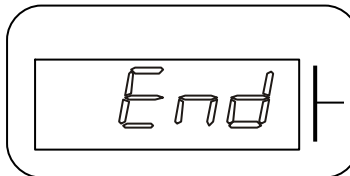
End of cool down time : transition to anti-crease time

When the *cool down time is over*, or when the *cool down temperature is reached*, the anti-crease time starts automatically.

The drum makes here a short action (eg. 5 sec) and a long stop (eg. 2 minutes) in order to prevent creasing of the linen. During the rotation of the drum, the **buzzer is activated**.

On the upper display appears “Grd”.

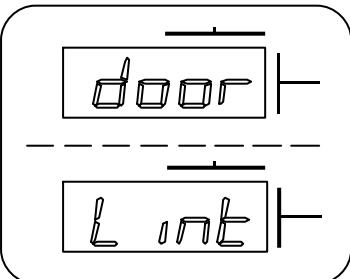
On the lower display, the programmed anti-crease time is counted per second.



End of the drying program

When the anti-crease time is over, the program stops automatically and “End” appears on the lower display.

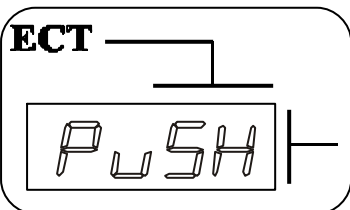
Manual interfering



Opening of the door or filterdoor during the program

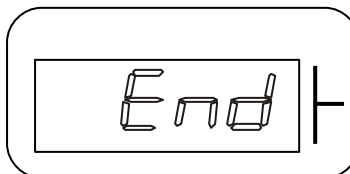
When during a program the door is opened, everything stops and on the upper display, “door” and “Lint” appears alternately.

The *residual drying and cool down time* is still counting on the lower display.



When *during a drying or cool down time* the door is closed again, “Push” is mentioned alternately with the program number (or “Cool”).

This is a way to let you know that you have to push the **middle button** again to activate the program again.



— Remark : —

If the door is opened during the anti-crease time, the lower display shows “End” and the program stops **immediately**.

Standard programmes

The Pro/HC is equipped with 10 standard programmes. Those programmes can be started directly but cannot be changed. It is however possible **to copy them** to a programme number between 1 and 30 and **can then be changed**.

This way they can be used as a base for another programme which allows you to save quite some time and programming work.

— Remark : —

The standard programmes can only be used if **“YES”** was put in for **“St.Pr”** in the technical menu.

These drying programmes are executed in a left - right action of 55 seconds with 5 seconds stop.

After the cooldown period there is an anti-wrinkle time of 30 minutes (120 seconds of stop and 5 seconds action).

Dryer with residual moisture control

Number	Temp	Level or drying time	Cool down time
31	75°	Dry1	10
32	75°	Mid1	10
33	60°	Dry1	5
34	60°	Mid1	5
35	45°	Dry1	3
36	45°	Mid1	3
37	40°	45'	2
38	40°	30'	2
39	35°	30'	2
40	0°	30'	0

Dryer without residual moisture control

If the dryer is not equipped with the reversing option, then all programmes are executed in a right movement.

Number	Temp	Level or drying time	Cool down time
31	75°	45'	10
32	75°	30'	10
33	60°	45'	5
34	60°	30'	5
35	45°	45'	3
36	45°	30'	3
37	40°	45'	2
38	40°	30'	2
39	35°	30'	2
40	0°	30'	0

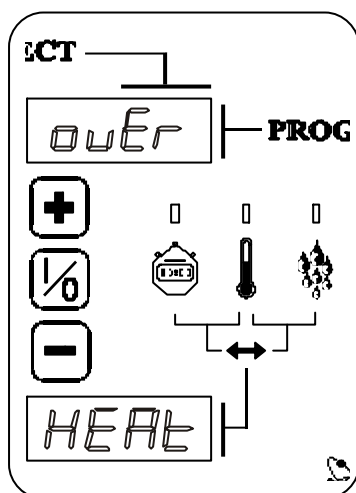
Technical remarks

Gas circuit break

For a gas heated dryer, the electronic ignition will only try to ignite once during 10 seconds. If this does not work and the flame detection does not detect a flame (eg. at gas power failure) the ignition relay goes in safety. When the drying cycle is **restarted**, a new ignition will take place.

Error messages

Electronic temperature protections



Over HEAt

When a temperature **lower or equal to 4°C (39°F)** or **higher or equal to 120°C (248°F)** is detected, the electronic temperature protection will be activated.

During the operation :

Temperature higher than **120 °C (248 °F)**:

Every action is interrupted. The buzzer is activated and **“over-HEAt”** appears blinking on the displays.

Temperature lower than 4°C (39 °F) (90 seconds after the start) :

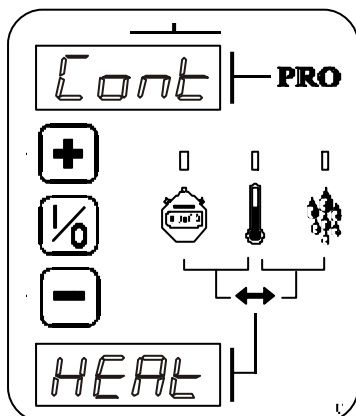
The heating is interrupted but the cycle will be completed totally. At the end, **“over-HEAt”** appears blinking and the buzzer is activated..

During break :

The sale switch needs to move freely. **When this sale switch is blocked, there is a serious fire risk.** **“over-HEAt”** is mentioned blinking when a temperature higher or lower than **120 °C** is measured.



When **“over-HEAt”** appears, no drying cycle can be started any longer. Therefore the dryer has to be placed without electrical power for a while.



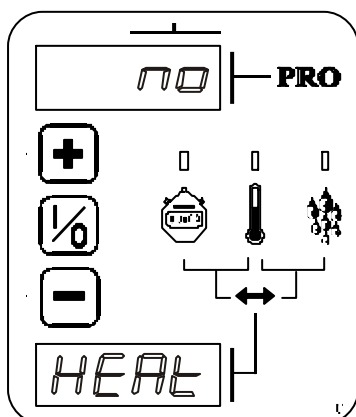
Cont-HEAt

When the heating is not activated, and nevertheless a reaction coupling of the heating contactor is detected, **“cont-HEAt”** appears blinking and the buzzer is activated.

This error can be the result of a heating contractor, which is unwanted mechanically blocked.



Disconnect all current, steam or gas supply as soon as possible.

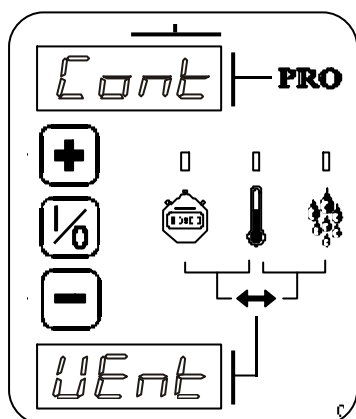


no-HEAt

If 9 seconds after the heating is activated, no feed back is detected, everything is stopped, **“no-HEAt”** appears blinking and the buzzer is activated.

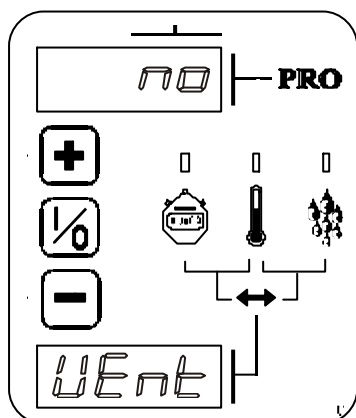
When the door is opened, the error message disappears and **“Push”** is mentioned. Now you have to restart.

This error message can be the result of a strongly filthy filter (see further draft flap and maintenance).



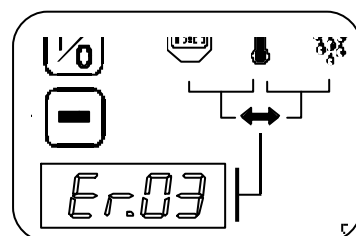
ContHEat

The sail switch at the back of the machine (see further “Sail switch”) must be open before the cycle can be started, otherwise “ContHEat” appears on the display and the cycle cannot be started.



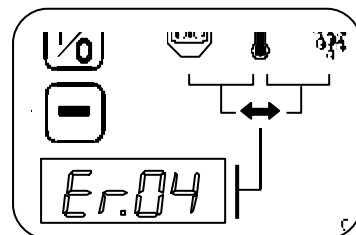
noVEnt

If the sail switch at the back of the machine (see further “Sail switch”) opens during the cycle, the error message “no VEnt” appears on the display.



Er. 03

If the humidity sensor *under the drum* is defective, **Er.03** (Error 03) will appear on the bottom display.



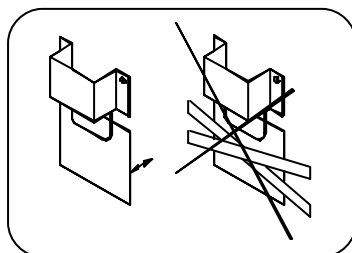
Er.04

If the humidity sensor *at the back of the burner* is defective, **Er.04** (Error 04) will appear on the bottom display.



When one of above mentioned errors occur, the cycle will be continued, but all segments in which the residual moisture is being checked, will be left out.

Sale switch

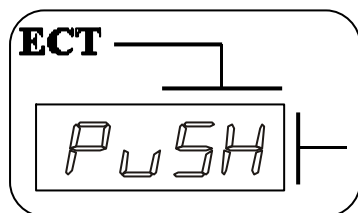


The sale switch is in the back and is a protection, which interrupts the heating, in case there's an insufficient air supply. This can be the result of an inadequate exhaust (see installation) or a dirty filter (see maintenance).



The sale switch needs to move freely. **When this sale switch is blocked, there's a serious fire risk.**

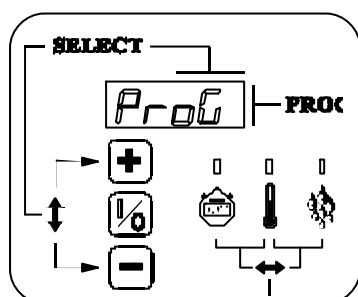
Power breakdown



When the power drops out during the program, the program can be continued when the power is back.

The upper display shows blinking **"PusH"**.
Press the middle button then.

Directly access to the programming menu



By pushing simultaneously the **upper and middle** button during **5 seconds**, you go **immediately to the programming menu**.

So it is not necessary to pull the switch at the back of the print plate as described in Chapter 5 : Selection of submenus.

Maintenance

Cleaning

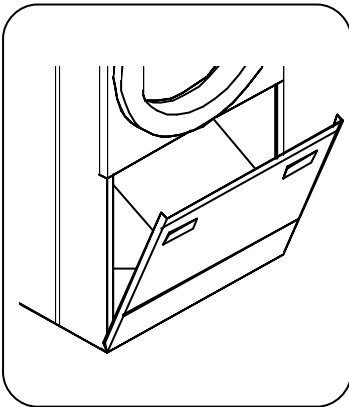
It is advisable to remove all dust particles in and around the dryer at fixed times. It is best to determine these fixed times by experience, as they differ from place to place.

The output of the dryer depends on a good air circulation. This airflow can be influenced by accumulation of dust particles.



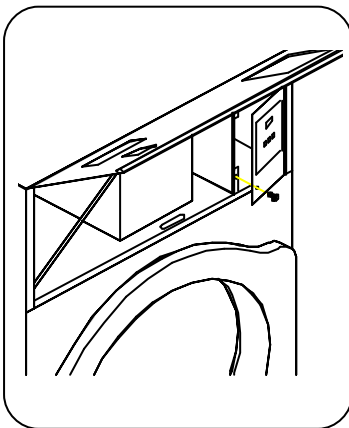
The dust particles of most fabrics are highly combustible. Accumulation of these dust particles means a potential fire risk.

Daily



Open the dust filter door and remove all the piled-up dust at the underside of the filter and inside the filter chamber.

Monthly



Remove all the dust out of the heating compartment and the burner. ***Dust, which enters into the burner, can combust.***



Gas- or steam heated dryers need to be cleaned 2 times a month.



Remove all dust from the temperature sensor and the safety thermostat.

If the dryer is equipped with humidity sensors, then they are mechanically protected by means of a perforated cover.

Those sensors are located ***inside under the cylinder and on top behind the burner.***

Remove the dust inside this cover very carefully by means of compressed air (or with a soft brush), but never with your hand. The sensors will inevitably be damaged when touched by hand.

Every 3 months

Remove all the dust and dirt of the motors, belts, etc.

Checking (after the installation and every 3 months)

Check if all safety devices still function such as overheat thermostat, safety switch, flame detection, door contacts etc.

Check the belt tension.

Repair and after-sales service

In case of important malfunctions and deficiencies, which you can't resolve yourself, don't hesitate to contact the technical service of your distributor.

Data distributor:

Name :

Adres:

Tel.:

Data dryer :

Type:

Date of installation :

Installed by:

Serial number :

Operation voltage and frequency :

Remarks :



The manufacturer reserves the right to change the contents of this instruction manual at all times and without previous notice.

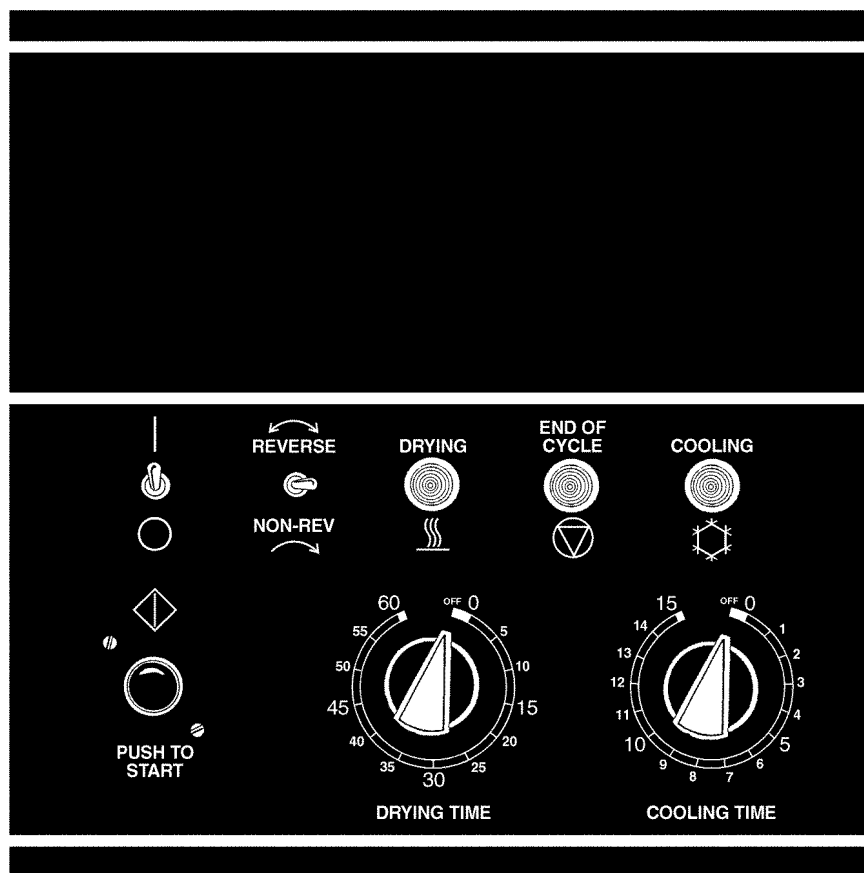


Fig. 1

Fig. 2 Temperature Selection

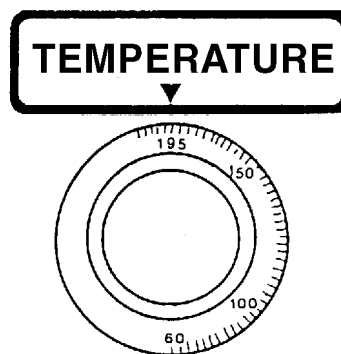
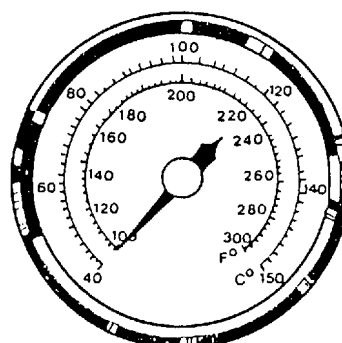


Fig. 3 Thermometer



Operating Instructions - Two Timer Models

OPERATING INSTRUCTIONS - TWO TIMER MODELS

1. After loading the dryer tumbler with water washed clothes load, proceed to close the loading door. For better drying, do not load dryer with combination of garments that twist.
2. Turn the 60-minute drying timer to the desired drying time. The drying cycle light will be on and indicate the drying. The light shuts off when drying time is complete. (See figure 1 on page 30.)
3. Turn the 15-minute cooling cycle timer to the desired cool down time. (**Note: Dryer will not start unless some cooling time is selected!**). 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 figure 1 on page 30.)
4. **Temperature Selector** - Select temperature per type of load being dried in the dryer. (See figure 2 on page 30.)
High Heat - Mixed and heavy fabrics, set dial to 195° F (91° C).
Normal - Cottons and linens, set dial to 170° F (77° C).
Permanent Press Heat - Poly knit synthetics, blends, lightweight fabrics, set dial to 150° F (66° C).
Low Heat - Delicate, sheer fabrics, easy-to-dry, set dial to 135° F (58° C).
5. **Thermometer** - Use this with your temperature selection. Teach yourself what temperature is too hot or too cold. (See figure 3 on page 30.)
6. Turn switch to "start" position. (See figure 1 on page 30.)
7. Close the dryer door, but the basket will not rotate until the **PUSH-TO-START BUTTON** is pressed. Press in the **PUSH-TO-START BUTTON** (approximately 2 seconds) until the dryer starts running and then release button. (See figure 1 on page 30.)

What is happening to the drying operation:

- a. The fan motor will operate.
 - b. The basket will rotate.
 - c. The heat source will be energized.
 - d. The heated air mix with the water washed clothes to evaporate the moisture from the garments.
 - e. The thermostats will function to maintain a safe temperature throughout the drying cycle.
 - f. The heat will be shut off and the motor will continue to run to cool the dry load to a desired handling temperature.
8. When the drying timer completes its time, then the cooling timer will be energized and the cooling light will be "On". When the cooling light will stay "On" and the "End-of-Cycle" light will be "On". The "End-of-Cycle" light will go off when the "Start/Stop" switch is turned to "Off" or "O". At the end of the cool-down cycle, the clothes load is dry.
 9. To shut the dryer "Off", move the "Start/Stop" switch to "Off" or "O" position. This switch is a safety switch to immediately stop the dryer's operation.

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

Service Savers

TROUBLESHOOTING

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

DRYER WON'T START

DRYER WON'T START

1. Is the door completely closed?
2. Are the controls set to the “**on**” position?
3. Did you push the “**start**” control?
4. Has a fuse blown or a circuit breaker tripped?
5. Are the fuses tight?
6. Check for low voltage.

DRYER WON'T HEAT

DRYER WON'T HEAT

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

CLOTHES ARE NOT SATISFACTORILY DRY

CLOTHES ARE NOT SATISFACTORILY DRY

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

GAS DRYER IGNITION

GAS DRYER IGNITION

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

VERY IMPORTANT

When calling the factory for service, always refer to the model number, product number and serial number (found on the rating plate of the dryer).

Troubleshooting Chart

TROUBLE	CAUSE	REMEDY
Dryer runs, but no heat.	Line fuse or heater circuit fuse blown to unit.	Replace fuse.
	Defective door switch.	Replace door switch.
	Air switch not operating.	Clean out lint compartment daily. Check back draft damper for foreign objects, lint accumulation or other causes that may prevent damper from opening. Check duct work for lint build-up. Check installation sheet to insure that duct work and make-up air openings are adequately sized. Check exhaust outlet. If a screen has been improperly installed on the outlet, it may be clogged with lint or frozen during winter. Never install a screen on the exhaust outlet. Vacuum within dryer drops to .09" w. c. (.225 mbar), or less, for normal operation of dryer, vacuum reading (in inches of water column) should range between .15 and .3 inches (.38 and .75 mbar). 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 section.
	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.

Troubleshooting Chart

TROUBLE	CAUSE	REMEDY
Dryer runs, but no heat (continued).	Defective relay.	Replace relay.
	Defective thermostat.	Replace thermostat.
	Defective safety overload thermostat.	Replace thermostat.
	Lint compartment door open.	Close door.
	Incorrect voltage.	Check for correct control voltage - 24V.
	No voltage.	Check power supply, check secondary voltage on transformer, check wiring and wiring diagram.
	Lint door OPEN.	CLOSE Lint Door.
	Defective Gas Valve.	Replace Valve Assembly.
	Gas turned OFF.	Turn Manual Gas Valve ON.
	Spark Igniter not igniting gas.	Check ground.
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.
Low gas flame or high gas flame.	Incorrect main burner orifices.	Replace orifices -- check factory for correct size.
Dryer too hot.	Incorrect main burner orifices.	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 section 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.

Troubleshooting Chart

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 clockwise to desired time setting.
	Loose wiring connections.	Check wire connections in electrical box on rear of dryer.
	Defective starting relay.	Check coils and contacts.
	Motor internal overloads have tripped (only on MTR30X series).	Reset the internal overloads on the motor by pressing the button located on the body of the motor.
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 -- if not, check with local power company for recommended corrective measures.
	Inadequate wiring.	Check with local power company to insure that wiring is adequately sized for load.
	Loose connections.	Check all electrical connections and tighten any loose connections.
	Inadequate air.	Check installation sheet in service section for recommended make-up air openings.
	Poor 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" (10 mm) with cover in place.
	Defective door switch.	Replace switch.
	Defective basket motor contactor.	Replace contactor.
Basket will not reverse.	Reversing timer.	Adjust timer (see page in Maintenance section).
		Check timer to see if working properly.

Troubleshooting Chart

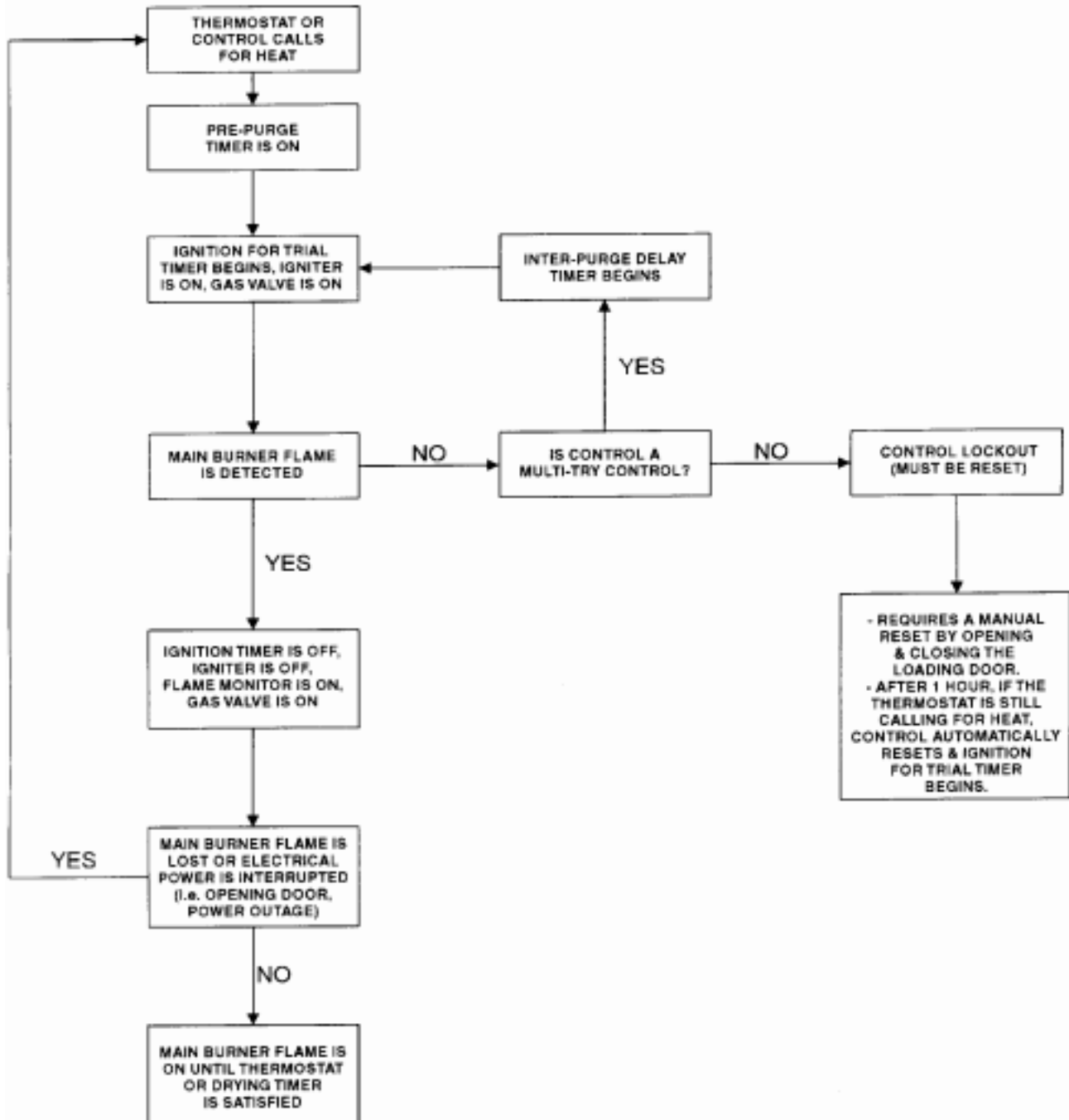
TROUBLE	CAUSE	REMEDY
Dryer does not stop at end of time period (6).	Defective timer.	Replace timer.
Dryer runs, but no steam to coils.	Valve closed.	Check all valves in steam supply and return -- make sure they are open.
	Steam trap blocked.	Remove and clean. Replace if defective.
	Solenoid valve.	On dryers using solenoid temperature control, check operation of solenoid valve by advancing thermostat.
	Thermostat.	On dryers using solenoid temperature control, thermostat controls operation of solenoid valve. If defective, replace thermostat.
	Check valve installed incorrectly.	Check for inlet and outlet marking on check valve, and invert if necessary.
	Strainer clogged.	Remove plug and blow down strainer or remove and clean thoroughly if heavily clogged.
Water in steam line.	Steam piping installed incorrectly.	Check piping per steam installation instructions.
	Trap not functioning.	Check trap for size and capacity. If dirty and sluggish, clean thoroughly or replace. Check return line for high back pressure, or another trap charging against the trap functioning improperly.
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.

Direct-Spark Ignition Operation

DIRECT SPARK IGNITION OPERATION

1. When a call for heat is received from the control supplying 24VAC to the Ignition Control Module, the pre-purge delay timer begins. This delay time allows any air/sediment to be ejected prior to burner ignition. Following the pre-purge delay period, the gas valve is energized and the spark ignitor sparks for the trial ignition period.
2. When a flame is detected during the trial for ignition period, the spark ignitor shuts off and the gas valve remains energized.
3. If no flame is detected by the Flame Sense Circuit, the Ignition Control Module will go into safety lockout. The valve will be turned off immediately. If the module has multiple retries and no flame is detected, the gas valve is de-energized and the module goes into an interpurge delay. After this delay, the module will attempt another trial for the ignition period. This will continue until the number of retries has been used up. At the time, the module will go into safety lockout.
4. Recovery from safety lockout requires one of the following:
 - a. A manual reset by opening and closing the loading door.
 - b. After one hour if the Control Thermostat is still calling for heat, the module will automatically reset and the trial for ignition period will start over.
5. Opening the loading door will cause the flame to extinguish. Closing the door and starting the dryer will restart the trial for ignition period.
6. Once the Control Thermostat has been satisfied and/or the Drying Timer has been timed out, the Ignition Control Module(s) will be de-energized, the gas valve(s) will be de-energized and the flames will extinguish.
7. The machine will continue to run in a cooldown mode without heat. This process will cool the load to the touch and help to eliminate wrinkling.

DIRECT SPARK IGNITION OPERATION FLOWCHART



MAINTENANCE

MAINTENANCE

1. **CLEAN LINT TRAP DAILY.** Remove lint before starting day's operation. A clean lint trap will increase the efficiency of the dryer, as the moisture-laden air will be exhausted more quickly.
2. **CLEAN BASKET AND SWEEP SHEETS.** Clean periodically and/or as often as required. The basket and sweep sheets are easily accessible by removing the front panel of the dryer.
3. **GEAR REDUCER.** Maintain the correct oil level. See separate page on Gear Reducer Operation and Maintenance, for detailed information.
4. **PULLEYS AND BELTS.** Keep belts clean. Oil and dirt will shorten the useful life of the belt. Never allow a belt to run against the belt guard. Check periodically for alignment. Pulley shafts must be parallel and the grooves must be aligned. Check and re-tighten pulley set screws periodically. Check belt tension periodically. Lower motor to increase tension by adjusting the nuts fastening the motor plate to the rod connected to the Gear Reducer.
5. **ELECTRIC MOTORS.** Keep motors clean and dry. Motors having ball bearings are packed with sufficient grease for approximately five years of normal operation. After five years, the bearings and housing should be cleaned thoroughly. Repack each bearing and the cavity in back of the bearing on-third full with Chevron Grease No. SR1-2.

Motors having wool packed sleeve bearings are oiled at the factory for one year of normal operation. After one year, add annually one-half teaspoon of electric motor oil or S.A.E.#10 to each bearing. For 24 hour per day operation, add one teaspoon of oil annually.

If motors overheat, check voltage and wiring. Low voltage, inadequate wiring, and loose connections are the main cause of motor failure.

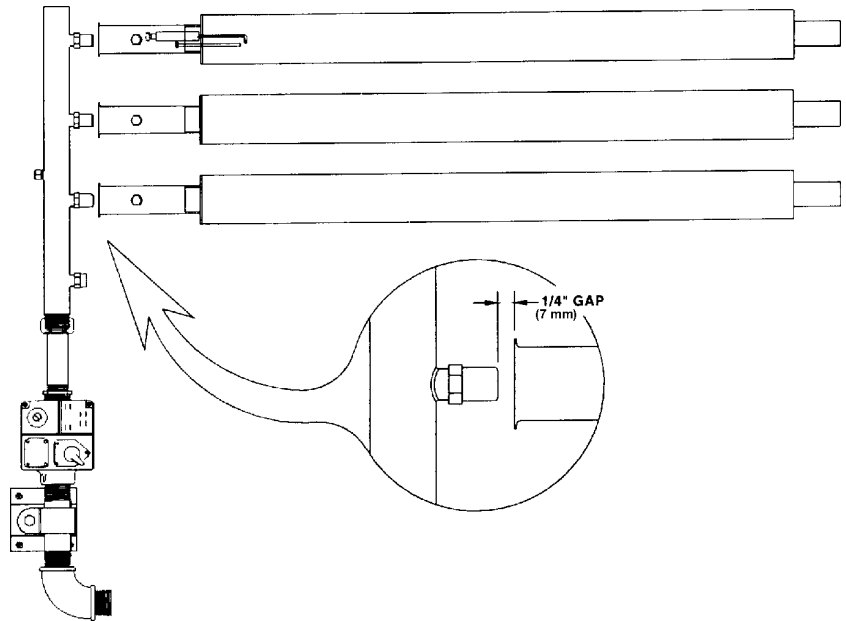
Maintenance—General

MAINTENANCE

MAINTENANCE (continued)

6. **STEAM HEATED UNITS.** Keep steam coils clean. Check periodically and clean often, as required. Remove lint and dirt build-up from fins. Dirty fins decrease the efficiency of steam heated units.
7. **GAS BURNERS.** Keep burners clean. Check and clean often.
8. **GAS PRESSURE.** Gas pressure should be checked periodically per specifications on separate page.
9. **EXHAUST SYSTEM.** Periodically check and clean.
10. **VOLTAGE.** Voltage should be checked periodically per rating plate located on rear wall of dryer.
11. **COMBUSTION (MAKE-UP) AND VENTILATING AIR.** The flow should not be obstructed.
12. **DRYER AREA.** Keep dryer area clean of lint and free from combustible materials, gasoline, and other flammable liquids/vapors

**BURNER AIR INLET
ADJUSTMENT**



CAUTION

Please insure that there is a 1/4" (7 mm) gap between the orifice and burner opening.

Basket Alignment for 150 lb. Dryers (Illustrations)

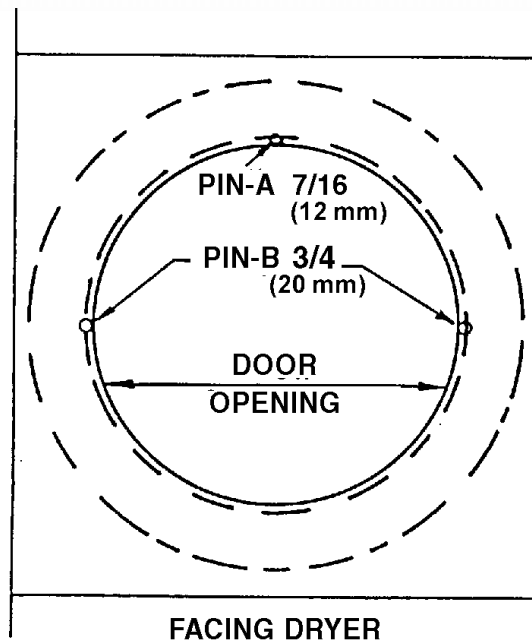
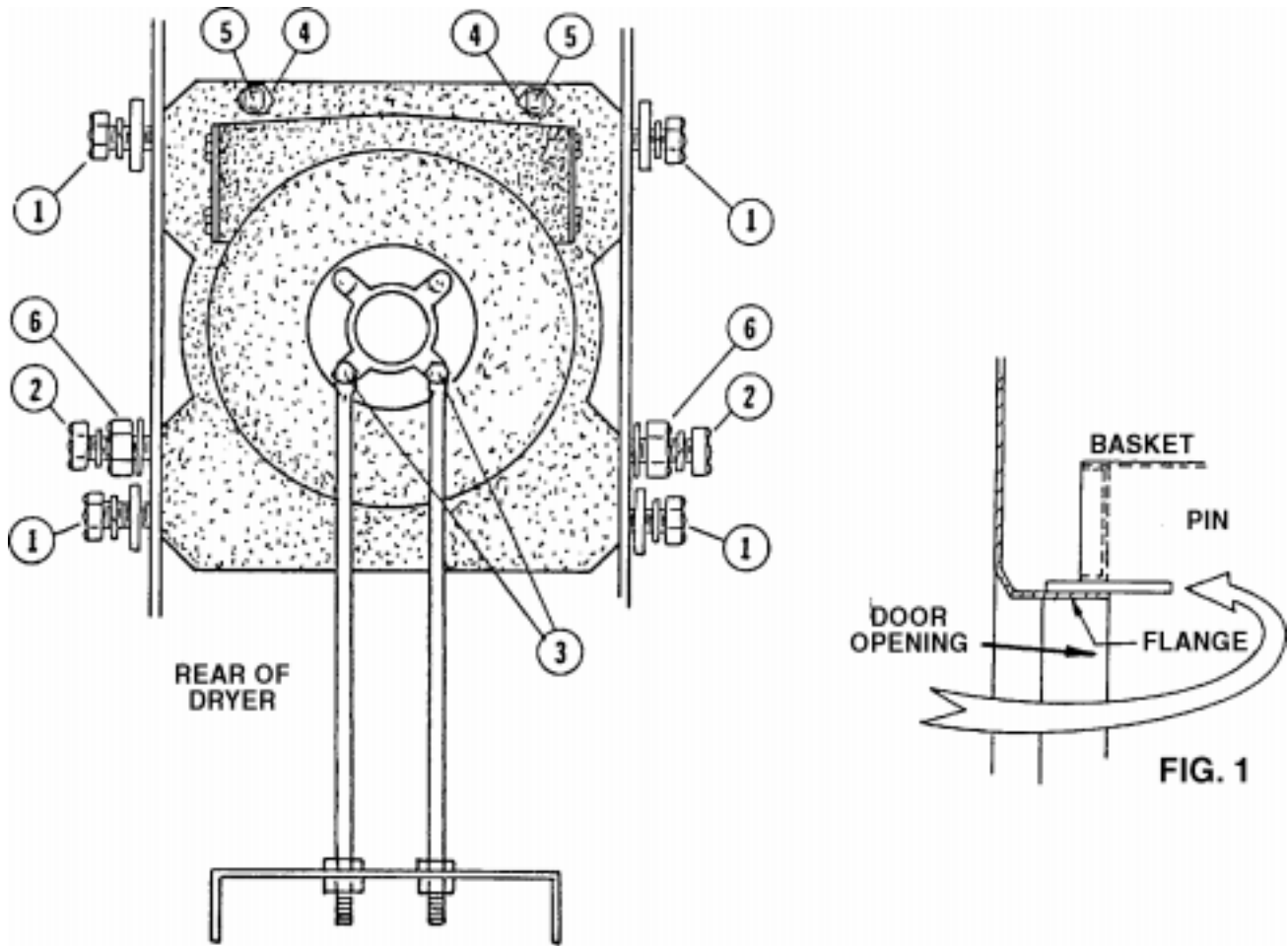


FIG. 2

Basket Alignment for 150 lb. Dryers

INSTRUCTIONS FOR ALIGNING BASKETS ON 150 LB. DRYERS

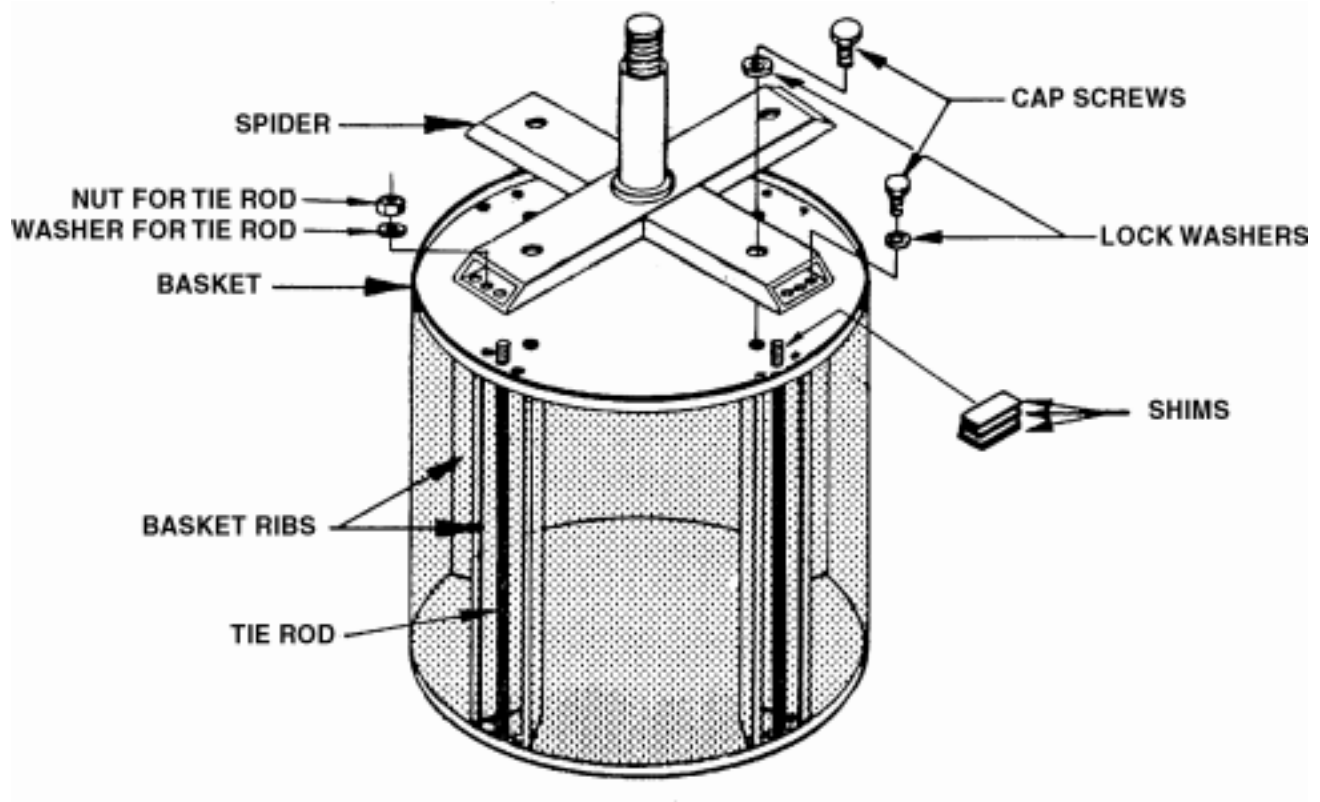
INSTRUCTIONS

1. Loosen bolts number one (1) through five (5).
2. Place pin "A" in position shown in figures 1 and 2.
3. Check pins "B" at position shown in figures 1 and 2 for equal clearance.
4. If pin "B" clearance is unequal, adjust at nut #6.
5. When clearance at pin "B" is correct, tighten bolts #1 in the following order, as viewed from rear of dryer, top right, bottom left, top left and bottom right.
6. Tighten bolts #5 until flush against back of dryer. Tighten lock nut #4 to secure bolt #5 in position.
7. Tighten bolts #2 and #3.
8. Remove pin "A" and check for proper clearance at points "A" and "B". If clearance is incorrect, repeat the above steps.

NOTE

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

Shimming the Basket and Spider Assembly (Illustration)

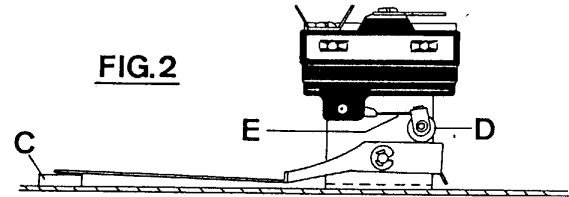
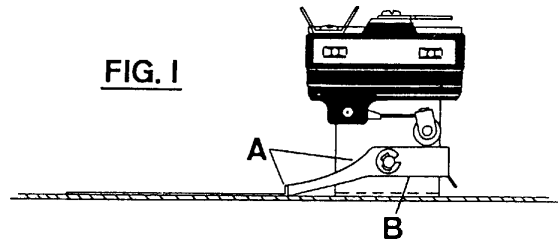
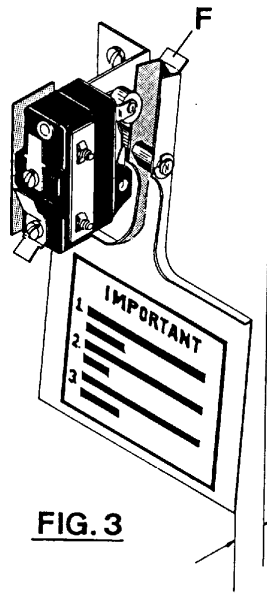


Shimming the Basket and Spider Assembly

INSTRUCTIONS FOR SHIMMING THE BASKET AND SPIDER ASSEMBLY

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

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



AIRSWITCH ADJUSTMENT

1. Shut off current; disconnect leads and remove air switch.
2. Lay air switch assembly on flat surface. Adjust air blade at "A" (figure 1) so that air blade lays flat and surface "B" is parallel to the flat surface.
3. Place 3/8" x 5/8" (10 mm x 16 mm) spacer bar or equivalent "C" (figure 2) under air blade in position shown; hold switch mounting bracket firmly and adjust switch actuator "D" with needle nose pliers at "E" by twisting actuator right or left, whichever is needed, so that switch closes when end of air blade engages bar "C".
4. Maximum opening of air switch must be no greater than 3/4" (20 mm) (figure 3). Bend tab "F" in or out to maintain this dimension.
5. Re-install air switch assembly on rear of dryer.
6. Re-check operation of air blade. Switch must close before air blade engages face of opening and re-open before stop "F" engages.

**INSTRUCTIONS FOR
DRYERS WITH
REVERSING
CONTROL TIMER**

Instructions

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

CAUTION

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

Adjustment of Reversing Timer Dwell Time

CAUTION

Dryer power supply must be shut off before adjusting timer.

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

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

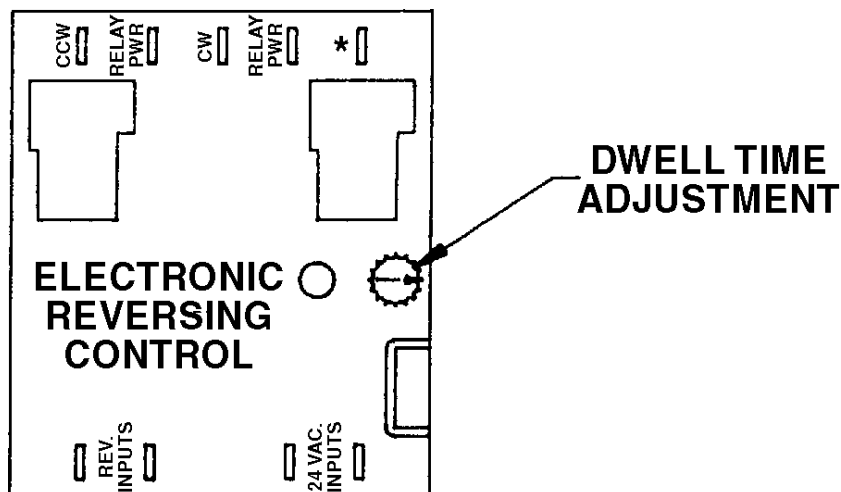
Recommended dwell time for the basket to stop completely is 5 to 7 seconds. Minimum basket stopping time is 4 seconds.

NOTE

Select non-reversing or reversing before starting dryer.

NOTE

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



**INSTRUCTIONS FOR
DRYERS WITHOUT
REVERSING
CONTROL
FAN AND BASKET
ROTATION**

Instructions

NOTE

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

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

Basket rotates counter-clockwise as viewed from front of tumbler.

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

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

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

Large Gear Reducer Maintenance

LARGE GEAR REDUCER MAINTENANCE

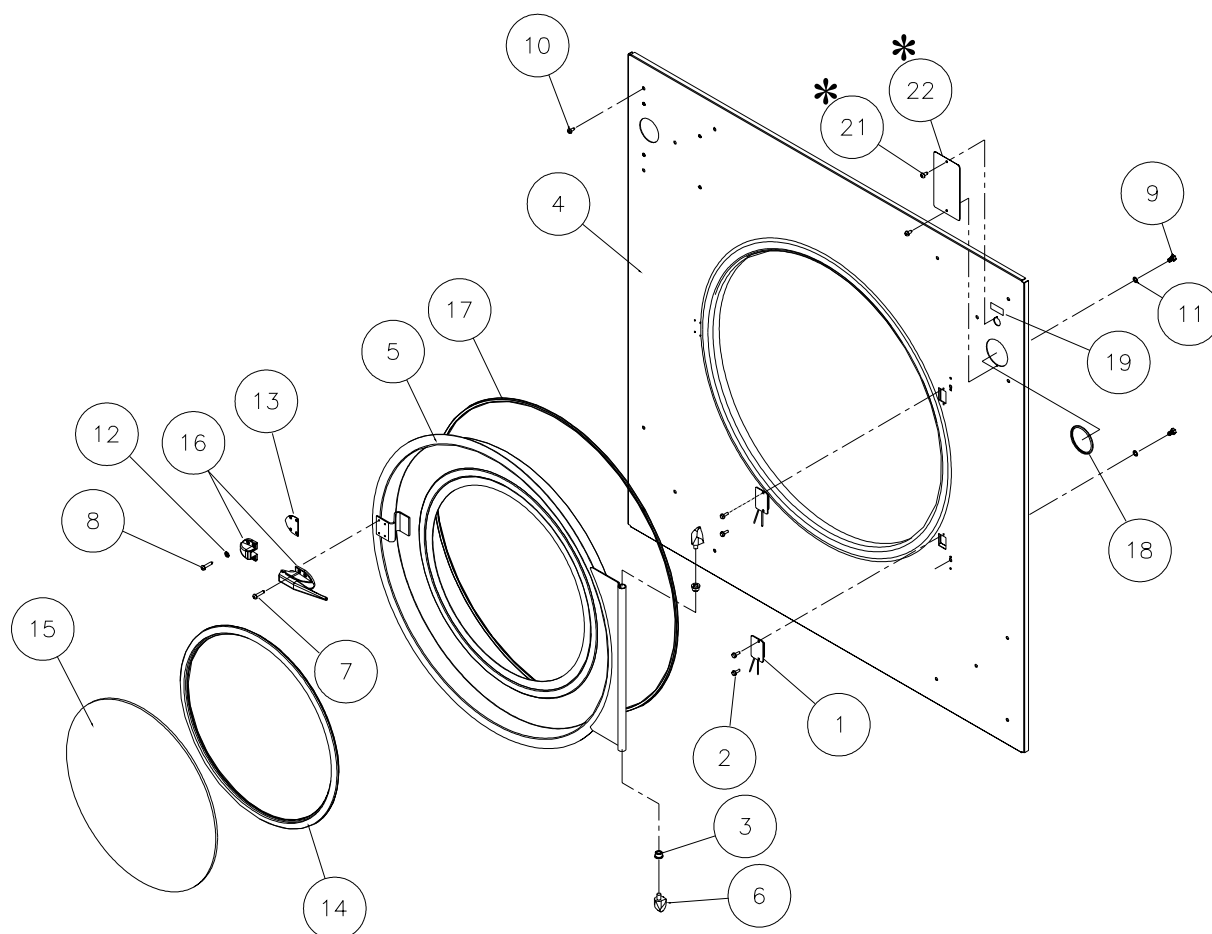
LARGE GEAR REDUCER MAINTENANCE

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

If oil must be added, remove the vent plug at the top of the gear reducer and add as needed.

CHANGE OIL ONCE EVERY 6 MONTHS.

TU15449 - Time/Temp. Front panel assembly

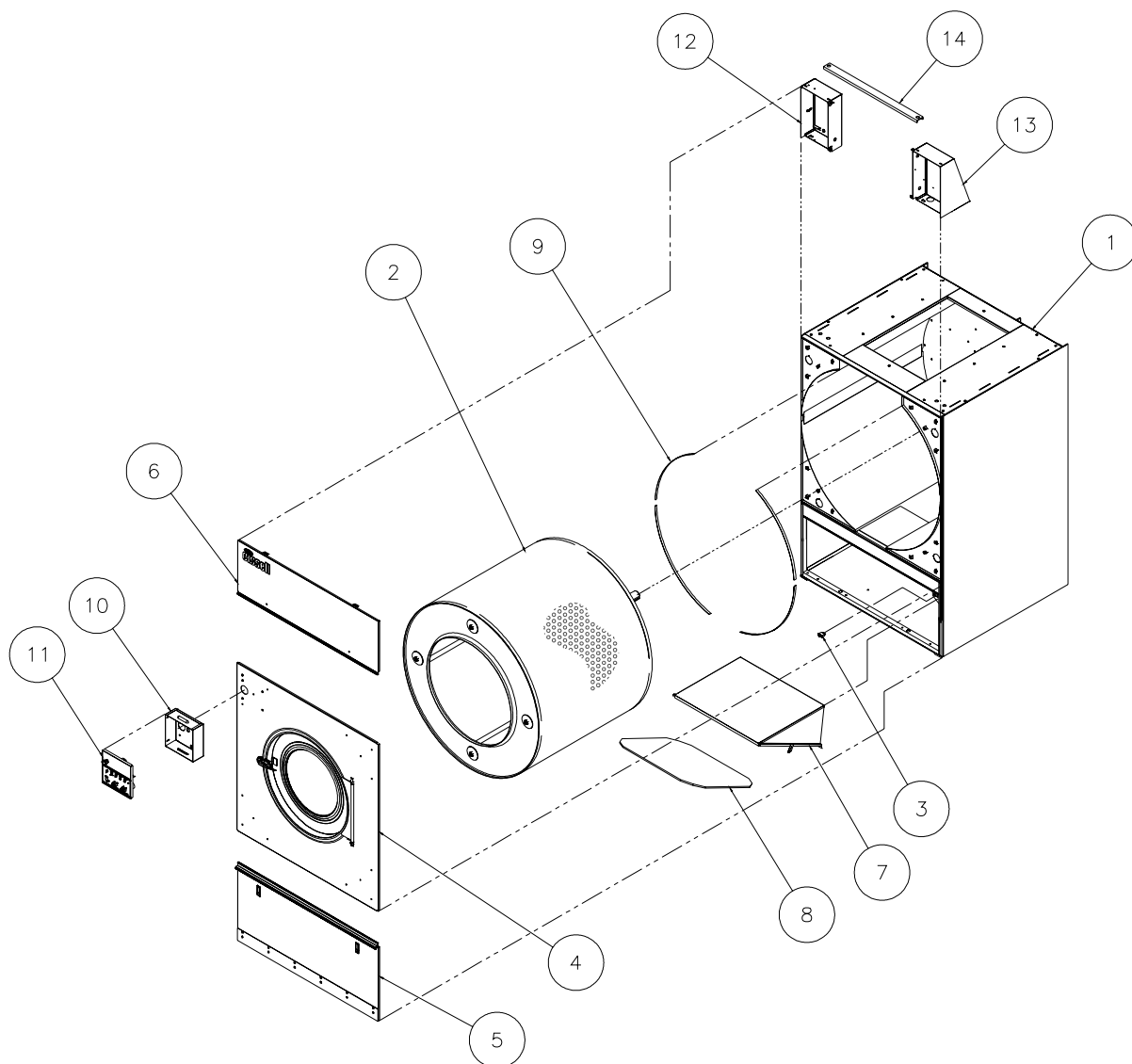


* Cover plate used for DMP and PRO HC.

Ref. No.	Part No.	Description
1	EA-00652-0	Reed Switch
2	SB-00975-0	#6-32 Screw
3	PIF172	Hinge post bearing
4	TU15448	Front panel (Specify color)
5	TU14483	Loading door (Specify color)
6	TU2236	Hinge post
7	TU2686	#8-32 Pan Hd. screw
8	TU2687	#8 Ph. Hd. screw
9	TU2836	5/16-18 H.H. screw
10	TU3209	#14 Pan Hd. screw
11	TU3212	5/16 Lock washer
12	TU3785	#8 E.T. Cup washer

Ref. No.	Part No.	Description
13	TU5503	Door latch spacer
14	TU15966	Gasket
15	TU15107	Door glass - 20 1/4"
16	TUA2319H	Door latch w/keeper
17	TU5288	Door gasket
18	TU2641	Thermometer gasket
19	TU5458	Temperature label
20	TU6030	Thermostat asm.(see detail)
*21	TU7733	#8 X 1/2 Lg. Screw
*22	TU15525	Cover plate (Specify color)

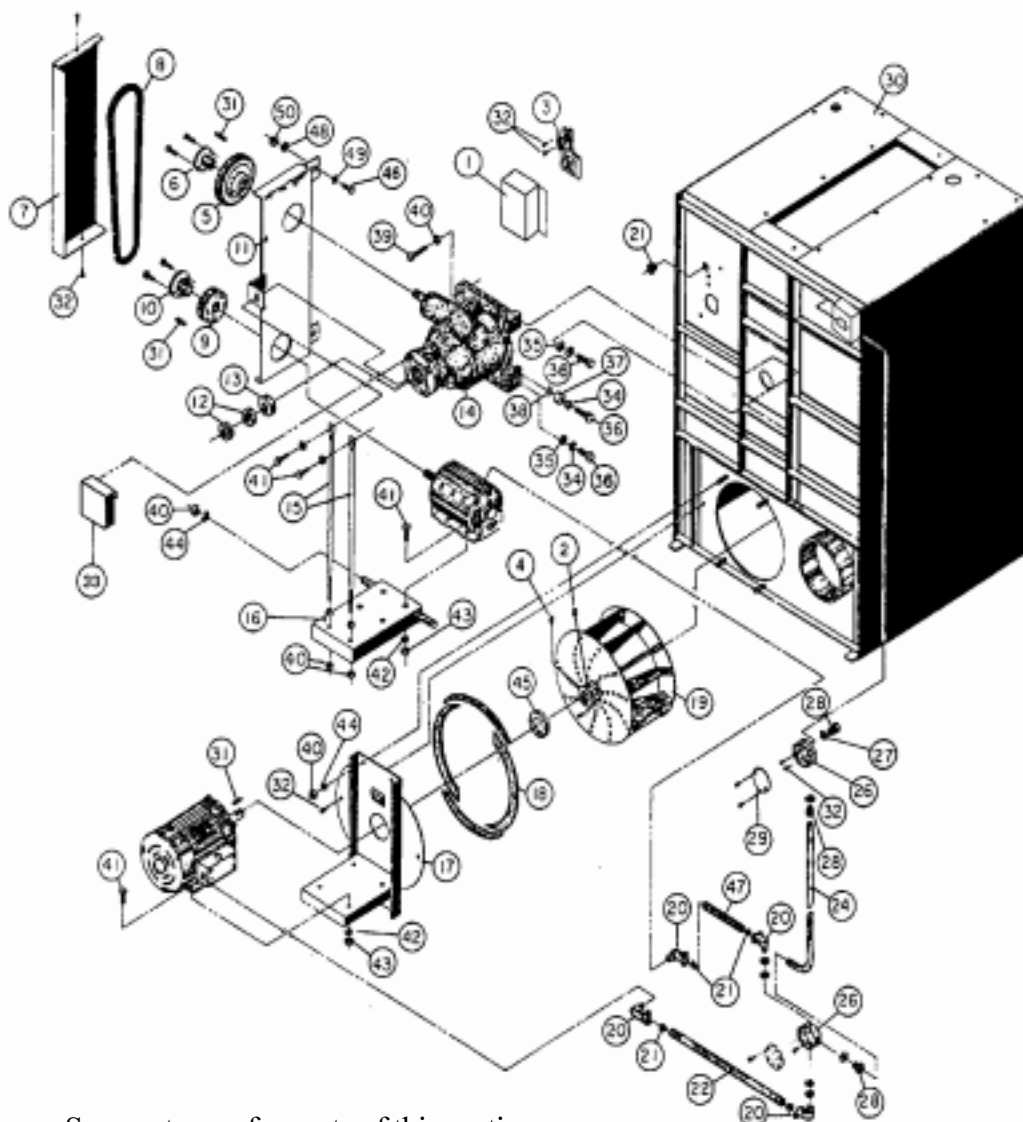
Parts—150 lb. Dryer (Front of Dryer)



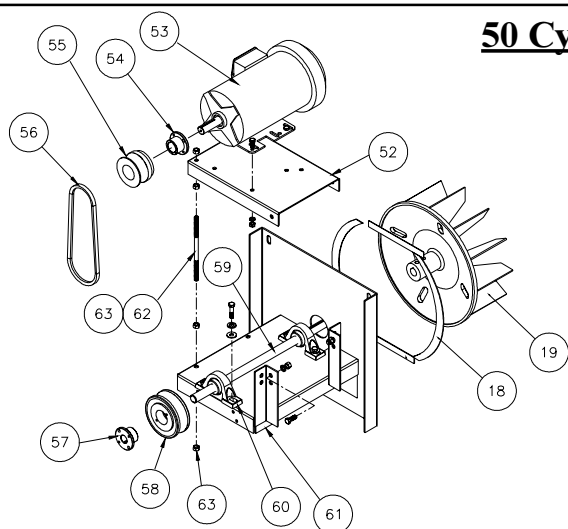
Ref. No.	Part No.	Description
1	TU13803	Jacket (Specify color)
2	TU9608	Basket and Spider Assembly (Galvanized)
	TUS9608	Basket and Spider Assembly (Stainless Steel)
3	EA-11621-0	Lint Door Switch
4	TU15449	Time/Temp. Front Panel Asm. (Specify color)
5	TU14638	Lint Door Assembly
6	TU14631	Burner Access Door Asm. (Specify color)
7	TU10345	Lint Trap Hood
8	K121	Frame Lint Screen (only)
	K368	Screen (only)
9	430146179	Gasket
10	TU5203	Control Box (Specify color)
11	*****	Control Panel Asm. (See Details)
12	TU15456	Left Hand Control Box Asm. (Specify color)
13	TU15455	Right Hand Control Box Asm. (Specify color)
14	TU5674	Control Box Brace

150 lb. Dryer (Rear of Dryer) (Illustration)

MODEL: L50CD42 GAS, STEAM



See next page for parts of this section



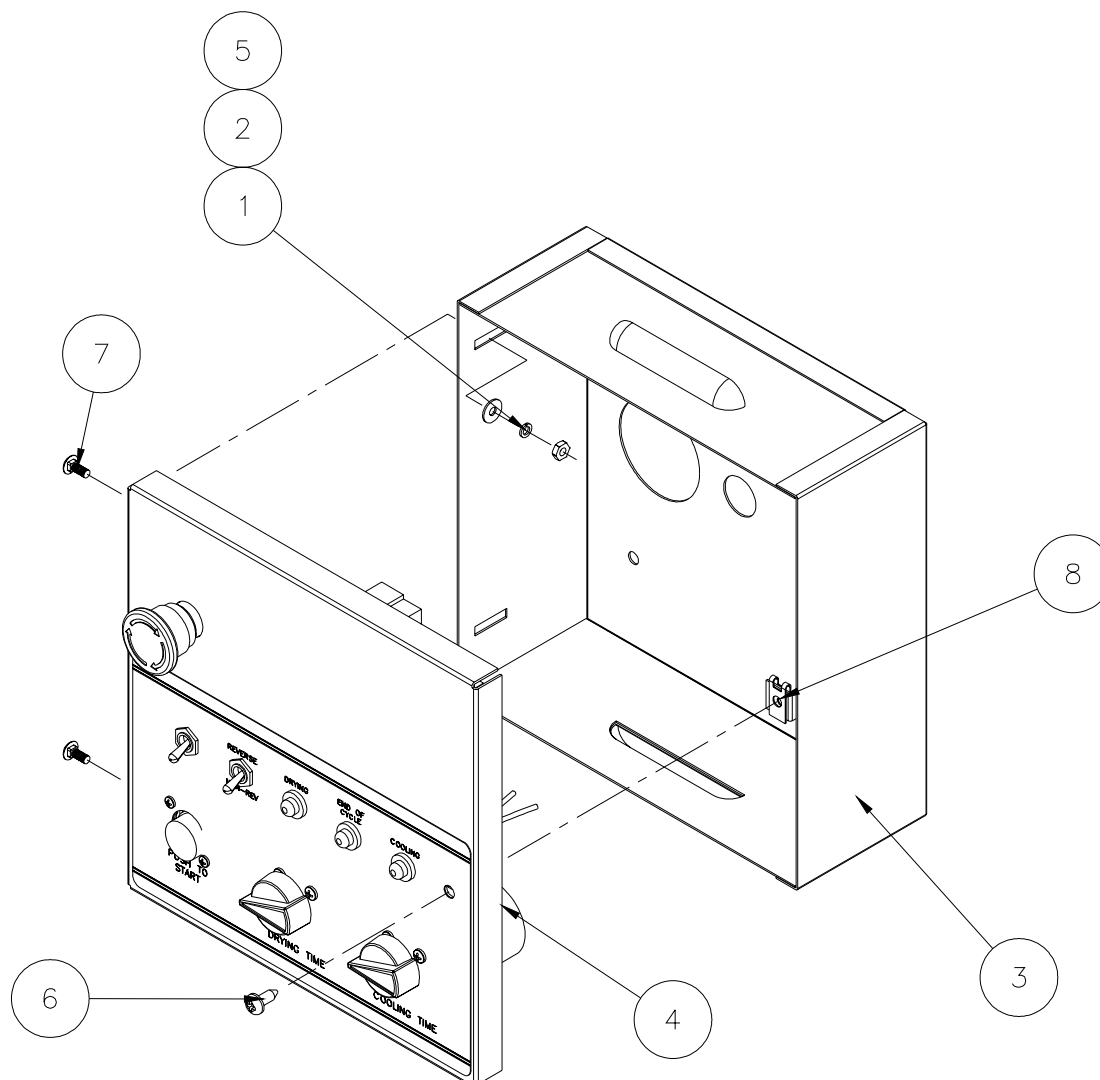
50 Cycle

52	TU4706	Plate, MTR. Mount
53	MTR	Motor (See Chart)
54	TU2007	Bushing, Sheave 7/8"
55	TU2009	Sheave 39H
56	TU3393	Belt, V
57	TU3807	Bushing, Sheave 3/4"
58	TU2008	Sheave, 46H
59	TU1693	Shaft, Jack 3/4"
60	SB138	Bearing, Pillow Block 3/4"
61	TU5659	Mount, Motor

Parts—150 lb. Dryer (Rear of Dryer)

MODELS:		HD150.1	Gas, Steam
1	TUX415	Air Switch Cover	27 TU7130 1/2" Straight Connector (2 each)
2	TU4967	Allen Head Set Screw	28 TU7131 3/4" Straight Connector (2 each)
3	TU8206	Air Switch Assembly	29 SB170 Junction Box Cover (2)
4	AT304	Square Head Set Screw	30 TU9422 Jacket Welded Assembly
5	TU9663	Gear Sheave (50/60 Hz.)	31 TU4684 Key (2 each)
6	TU3807	Sheave Bushing	32 TU7733 #8 - 18 x 1/2" Self Tap Screw (Pkg. of 6)
7	TU14092	Rear Guard Cover Plate	33 TU7517 Shaft Cover "C" Only
8	TU2363	"V" Belt 5L500	34 TU2831 1/2" Split Lockwasher (Pkg. of 6)
9	TU9751	Motor Sheave—60 Hz.	35 TU1851 1/2" Flat Washer
	TU6081	Motor Sheave—50 Hz.	36 TU2195 1/2" - 13 x 1 3/4" Hex Head Cap Screw (Pkg. of 6)
10	TU2007	Sheave Bushing	37 TU455 Cam Adjustment Nut
11	TU9615	Inside Belt Guard	38 TU3575 7/8" I.T. Lockwasher
12	TU470	1 - 3/8" - 12 Hex Nut	39 TU5312 3/8" - 16 x 3" Sq. Hd. Set Screw
13	TU6633	Basket Shaft Washer	40 TU4787 3/8" - 16 Hex Nut (Pkg. of 6)
14	TM200	Gear Reducer	41 TU5439 5/16" - 18 x 3/4" Hex Hd. Cap Screw (Pkg. of 6)
15	TU5328	Belt Adjusting Rod	42 TU2814 5/16" Split Lockwasher (Pkg. of 6)
16	TU4626	Basket Motor Mount Weldment	43 C249 5/16" - 18 Hex Nut (Pkg. of 6)
17	TU5658	Motor and Fan Mount Weldment (60 Hz.)	44 VSB134 3/8" Split Lockwasher (Pkg. of 6)
18	TU2473	Gasket Set	45 TU108 Felt Seal
19	TU403	Fan Wheel with Set Screw (60 Hz.)	46 FB189 1/4" - 20 x 1" Hex Head Screw
20	TU4791	90° Elbow Connector	47 CFB1000 1/2" Greenfield Cable—10" L
21	TU2372	Snap Bushing	48 TU2846 1/4" Split Lockwasher (Pkg. of 6)
22	CFB2100	1/2" Greenfield Cable - 21" Long	49 TU2847 1/4" Flat Washer (Pkg. of 6)
23	TU6026	Top Motor Conduit	50 TU4934 1/4" - 20 x 7/16" Hex Nut (Pkg. of 6)
24	TU13834	Back Motor Conduit	
25	TU6028	Power Lead Conduit	
26	500300644	Junction Boxes (2)	

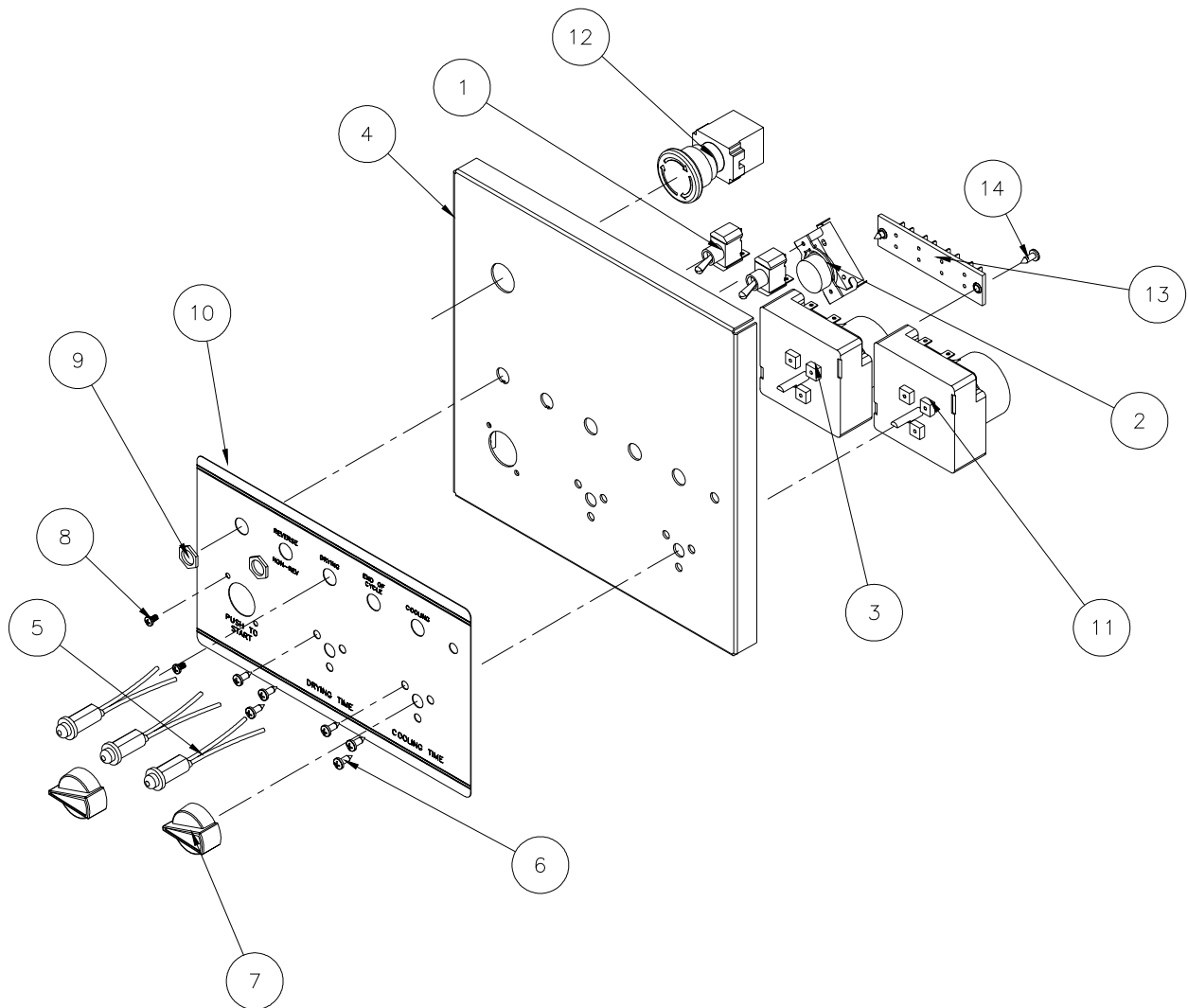
2 Timer Control Box Assembly (Non-Reversing)



TU15408 - Non-Reversing

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	FG187	#10 Lock Washer	8	TU7848	Tinnerman Clip
2	P104	1/4" Brass Washer			
3	TU13621	Control Box weld Assembly			
4	TU15407	Control Panel Assembly			
5	TU2842	#10-32 Hex Nut			
6	TU3209	#14 Sheet Metal Screw			
7	TU3479	#10-32 Truss HD. Screw			

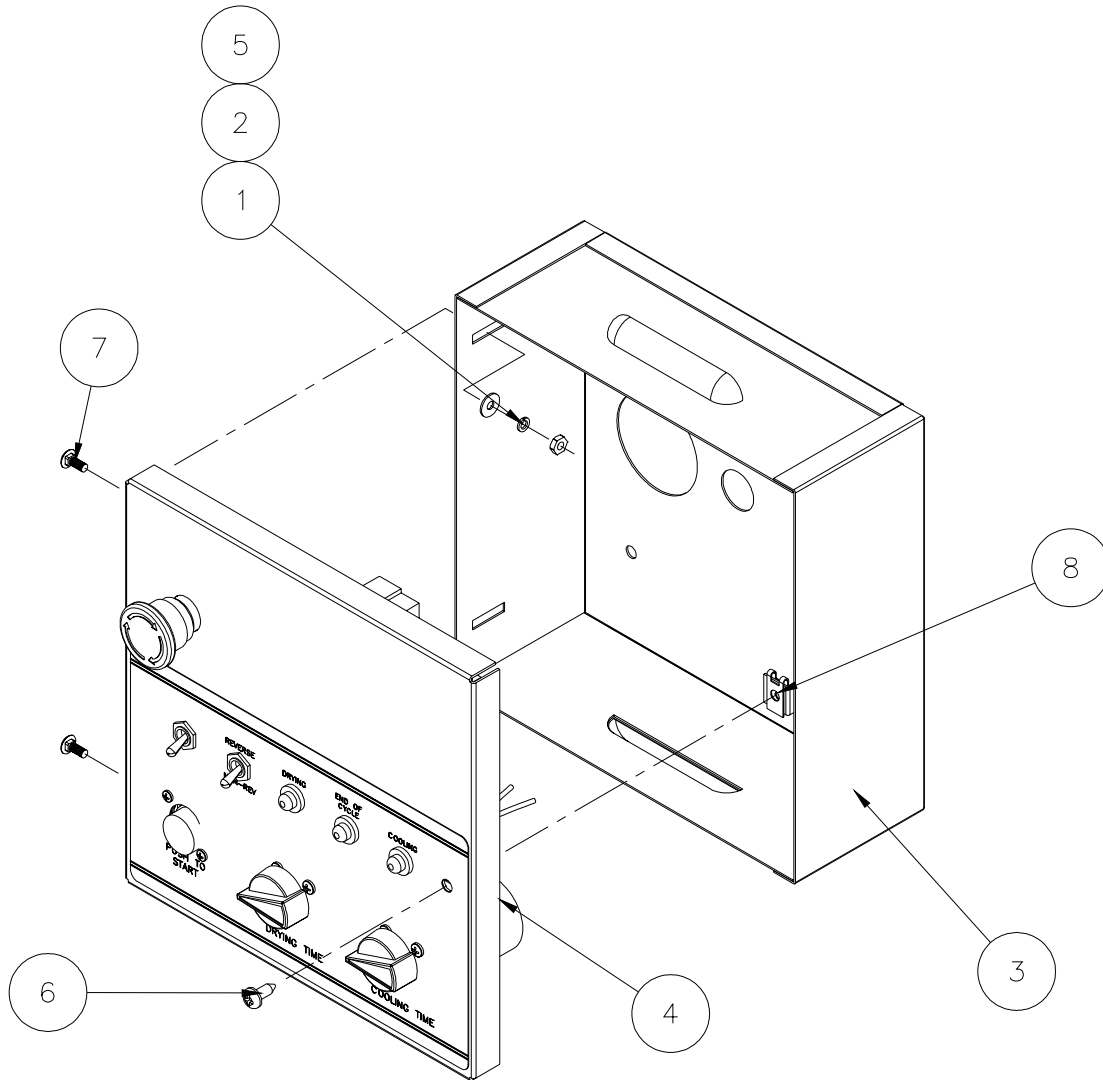
2 Timer Control Panel Assembly (Non-Reversing)



TU15407 - Non-Reversing

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	FG147	Toggle Switch (2 each)	8	ET208	#6 - 32 x 1/4" Binding Head Screw (2 each)
2	TU9028	Push Button Switch	9	TU3805	Hex Nut (2 each)
3	TU12932	Timer (0-60 Minutes)	10	TU15406	Nameplate, Non-Reversing, 2-Timer
4	TU13620	Control Panel Weldment	11	TU12933	Timer (0-15 Minutes)
5	TUT316	24V LED Light (3 each)	12	TU14435	Emergency Stop
6	TU7733	#8 - 18 x 1/2" Self-Drill Screw (8 each)	13	TU8629	Terminal Board
7	TU2555	Knob Assembly (2 each)	14	TU7733	#8-18 x 1/2" Self-Drilling Screw

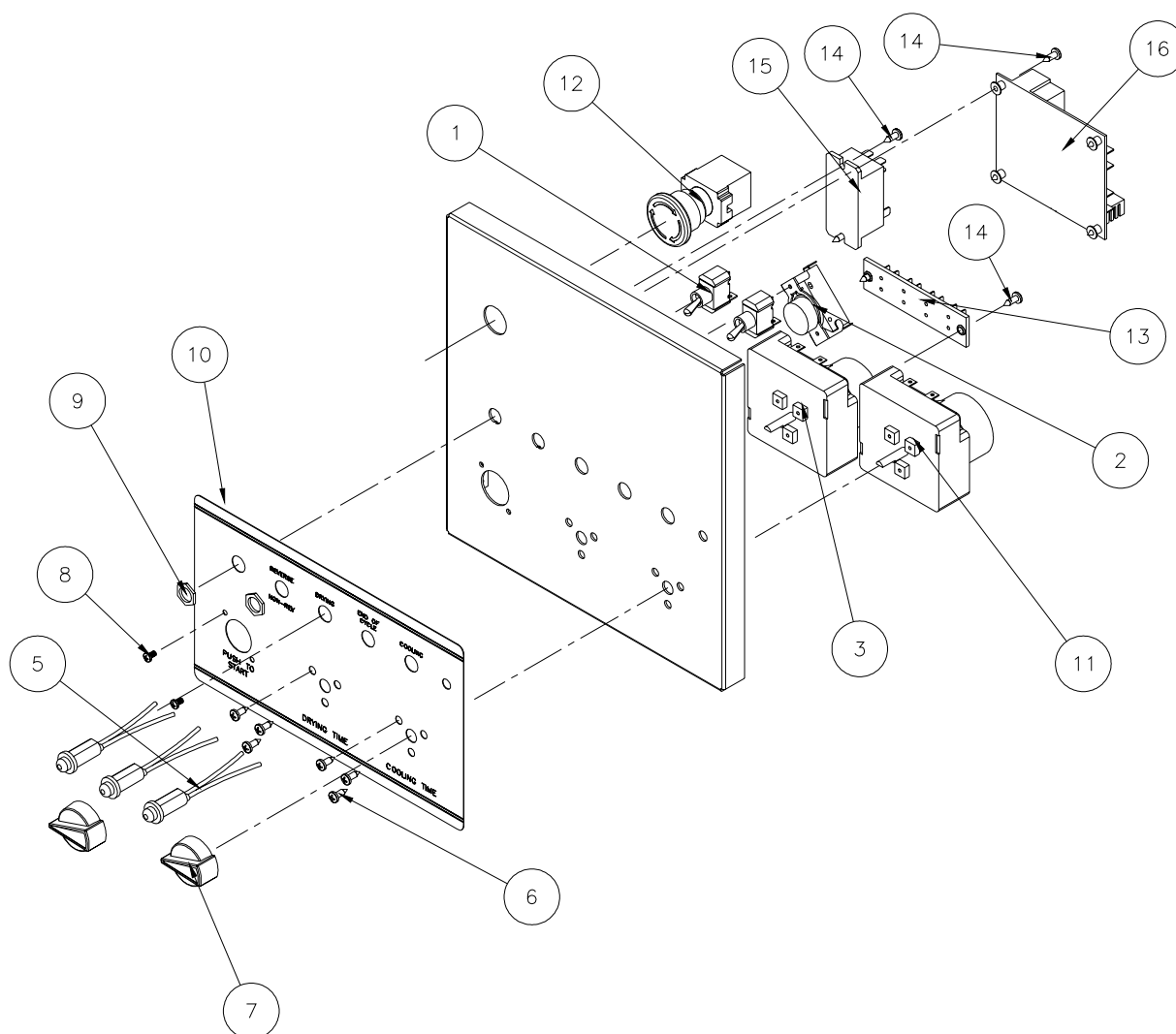
2 Timer Control Box Assembly (Reversing)



TU13859 - Reversing

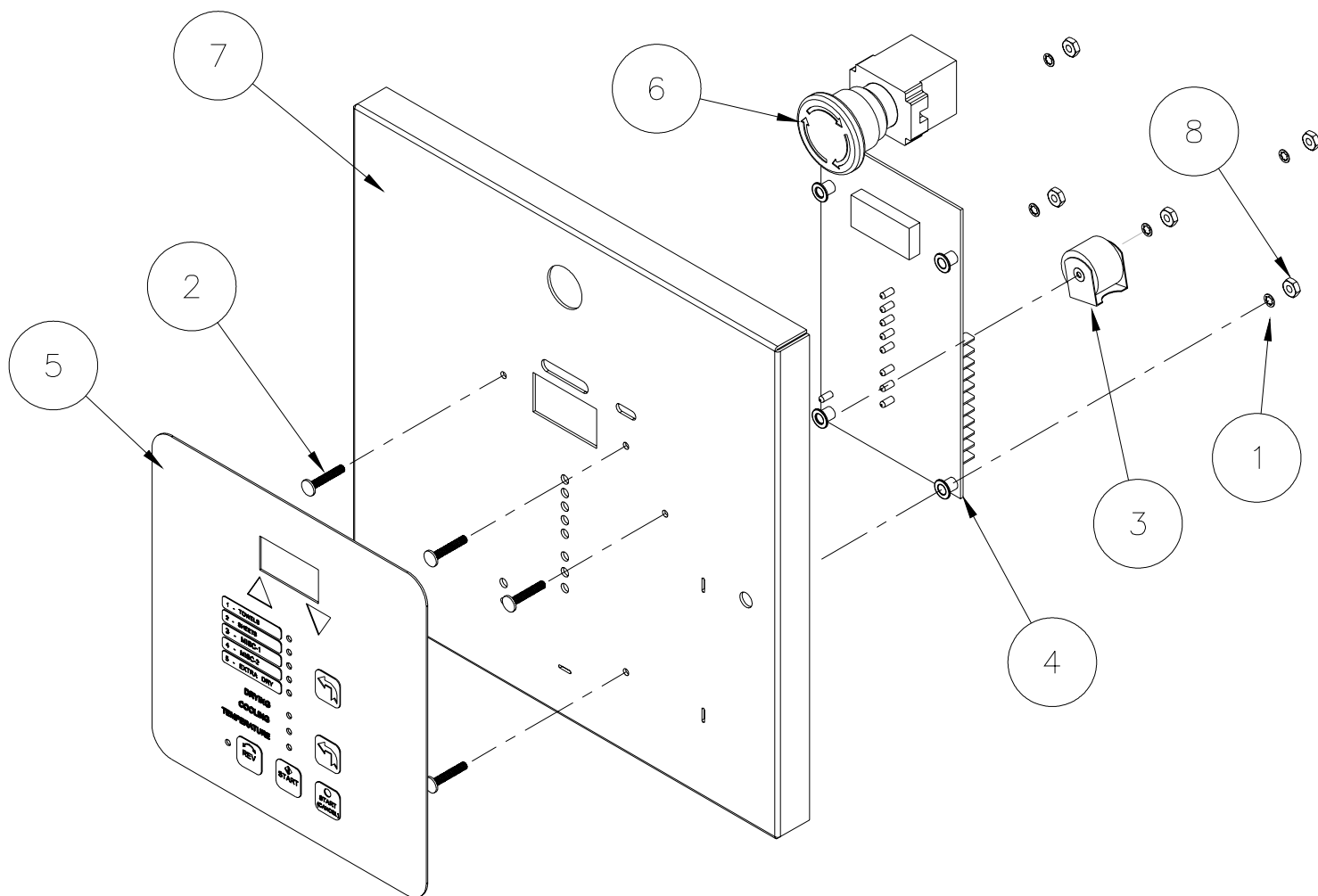
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	FG187	#10 Lock Washer	8	TU7848	Tinnerman Clip
2	P104	1/4" Brass Washer			
3	TU13621	Control Box weld Assembly			
4	TU15111	Control Panel Assembly			
5	TU2842	#10-32 Hex Nut			
6	TU3209	#14 Sheet Metal Screw			
7	TU3479	#10-32 Truss HD. Screw			

2 Timer Control Panel Assembly (Reversing)



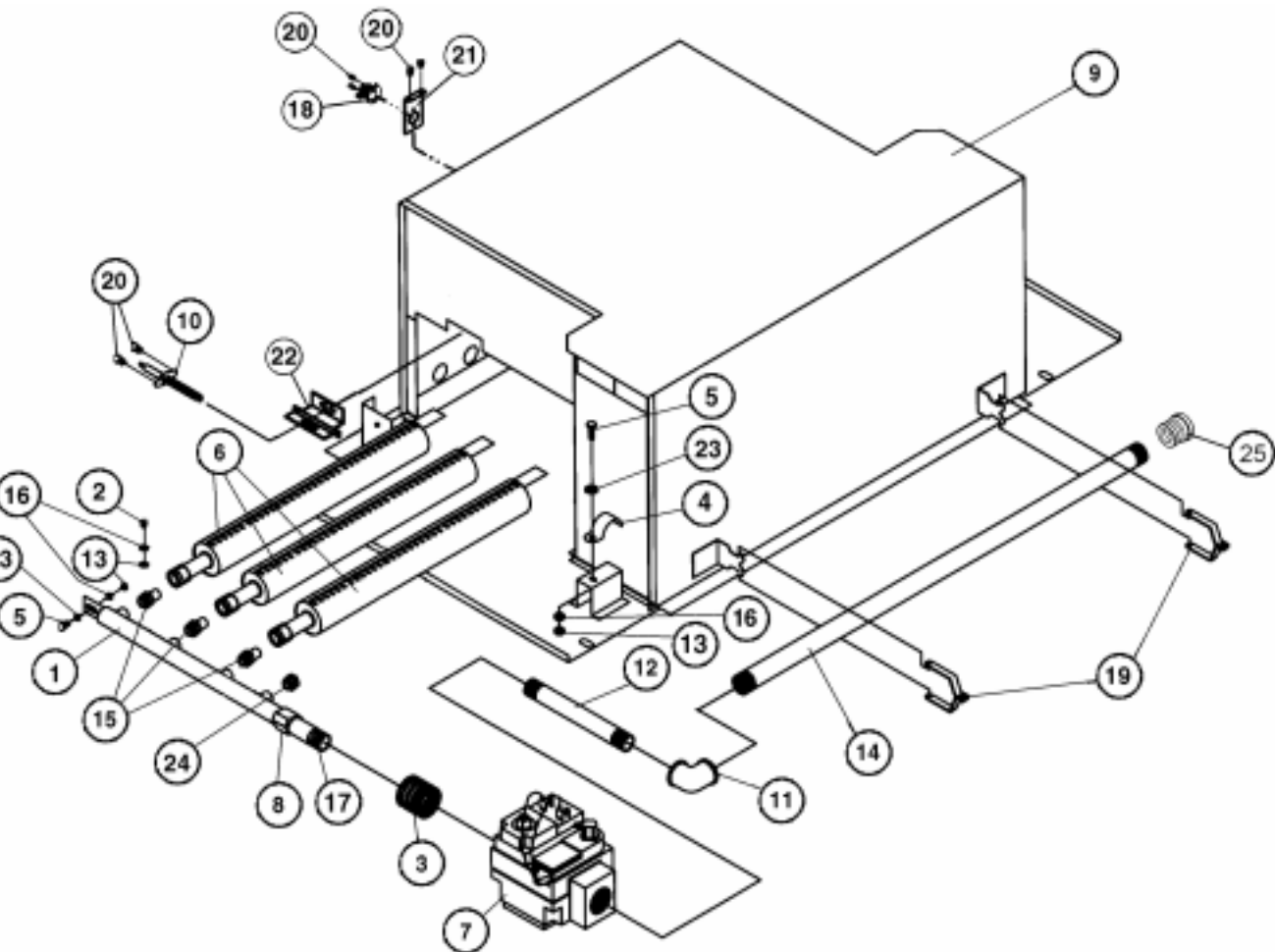
TU15111 - Reversing

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	FG147	Toggle Switch (2 each)	9	TU3805	Hex Nut (2 each)
2	TU9028	Push Button Switch	10	TU13825	Nameplate, Reversing, 2-Timer
3	TU12932	Timer (0-60 Minutes)	11	TU12933	Timer (0-15 Minutes)
4	TU13620	Control Panel Weldment	12	TU14435	Emergency Stop
5	TUT316	24V LED Light (3 each)	13	TU8629	Terminal Board
6	TU7733	#8 - 18 x 1/2" Self-Drill Screw (8 each)	14	TU7733	#8-18 x 1/2" Self-Drilling Screw
7	TU2555	Knob Assembly (2 each)	15	F1300	24V Relay
8	ET208	#6 - 32 x 1/4" Binding Head Screw (2 each)	16	TU12874	Reversing Board



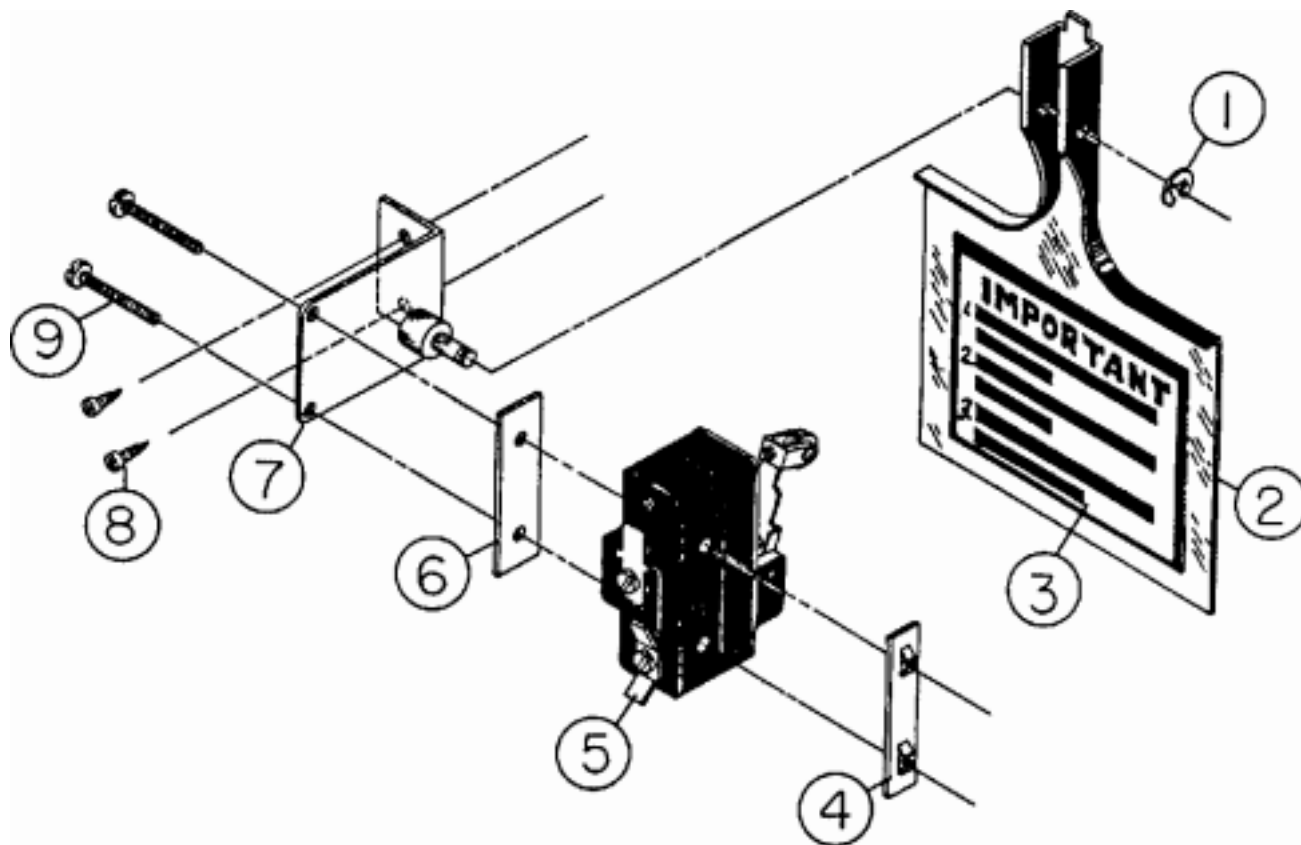
Ref.	Part No.	Description
1	ET208	Screw, Binding Head 6-32 X 1/4
2	FG147	Switch, toggle SPST 2 position
3	F1300	Relay, 24VAC
4	TUT316	Light, LED 24V W/1/4 Q.C.
5	TU12874	Timer, Solid State Reversing
6	TU12932	Timer, Model N407 0-60
7	TU12933	Timer, Model N407 0-15
8	TU13825	Nameplate

TU14030 - LP Gas Bonnet
TU13836 - Natural Gas Bonnet



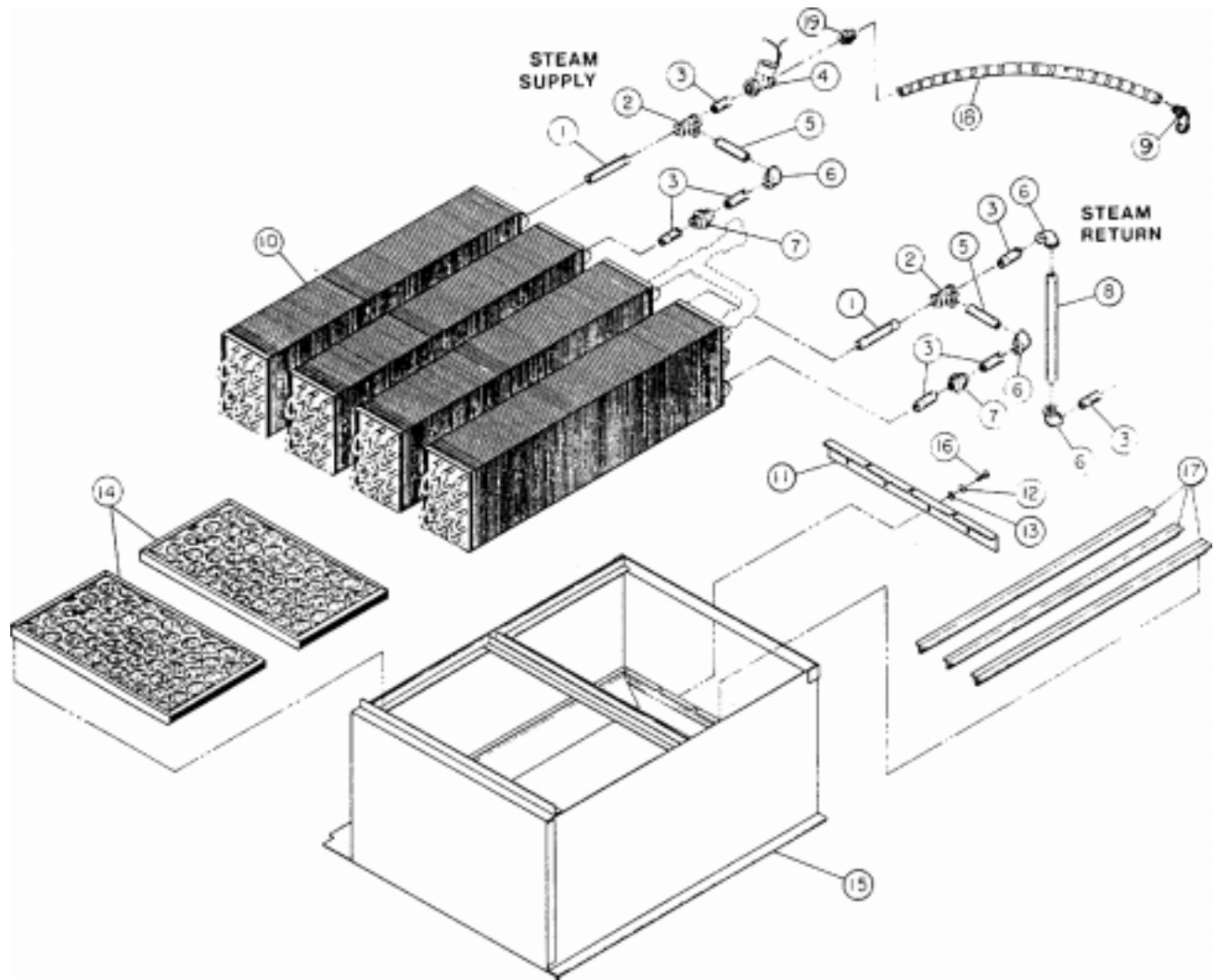
1	TU14058	Gas Manifold	13	TU4934	1/4" - 20 Hex Nut
2	CB36	1/4" - 20 x 1/2" Hex Head Screw	14	TU13823	3/4" x 36" Nipple
3	OP267	3/4" x 1/2" Steel Bushing	15	TU3539	Burner Orifice
4	PT196	3/4" Strap	16	TU2846	1/4" Lock Washer
5	RC344	1/4" - 20 x 3/4" Hex Head Screw	17	664946146	Pipe, Tail
6	TUX387	BSI Asm. Burner	18	TU13678	Thermostat, Man. Reset 300°
7	TUX352	3/4" Natural Gas Valve	19	TU2226	Manifold Mounting Bracket
	TUX435	3/4" LP Gas Valve	20	TU7733	#8 - 18 x 1/2" Self-Drill Screw
8	TU6862	Gas Manifold Nut	21	TU13695	Bonnet Thermostat Bracket
9	TU13613	Bonnet Assembly	22	TU13647	Electrode Mounting Bracket
10	GA-00764-0	Direct Spark Ignition Electrode	23	TU2847	1/4" Flat Washer
11	TU4605	3/4" Elbow	24	TU10946	Pipe Plug (Large)
12	TU4606	3/4" x 4" Nipple	25	TU2735	Reducer

**AIR SWITCH ASSEMBLY
TU8206**



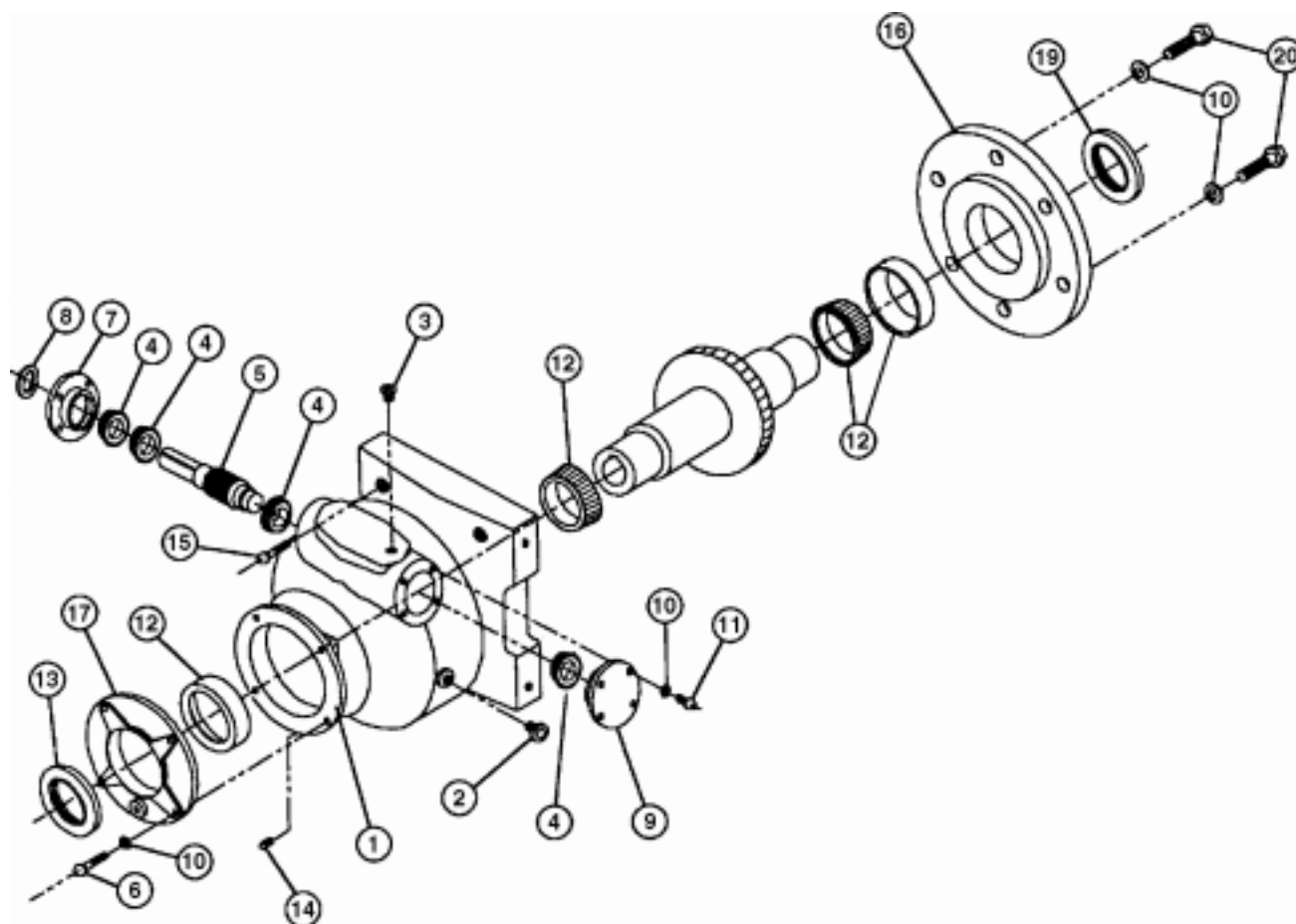
- | | | |
|---|--------|---|
| 1 | F888 | "E" Ring |
| 2 | TU2463 | Actuator Arm |
| 3 | TU3476 | Air Switch Decal |
| 4 | TU1771 | #6 Tinnerman Nut (Pkg. of 12) |
| 5 | TU8155 | Air Switch |
| 6 | TU1770 | Insulator |
| 7 | TU8171 | Air Switch Bracket |
| 8 | TU7733 | #8 - 18 x 1/2" Self Drilling Screw
(Pkg. of 6) |
| 9 | TU3219 | #6 x 1" Round Head S.M.S. |

Parts—150 lb. 24V Steam Bonnet Assembly—TU14027



1	TU4610	3/4" x 5" Pipe Nipple	13	TU2847	Flat Washer (Pkg. of 6)
2	TU4597	3/4" Tee	14	TU9953	Air Filter 20" x 24" x 1"
3	TU4608	3/4" x 2" Pipe Nipple	15	TU9873	Steam Bonnet Weldment
4	TU13517	*Steam Solenoid Valve 24V	16	CB36	1/4" - 20 x 1/2" Hex Bolt (Pkg. of 6)
5	TU4620	3/4" x 4 1/2" Pipe Nipple	17	TU9889	Coil Support Angle
6	TU4605	3/4" Elbow	18		1/2" Greenfield Cable: Right Side—72", CFB7600 Left Side—88", CFB8800
7	TU4600	3/4" Union	19	TU4790	Straight Connector
8	TU4599	3/4" x 18" Pipe Nipple			
9	TU4791	Angle 90° Connector			
10	TU1699	Steam Coils			
11	TU9890	Hold Down Bracket			
12	TU2846	1/4" Split Lockwasher (Pkg. of 6)			

Parts—TM200—Large Gear Reducer with Bronze Teeth

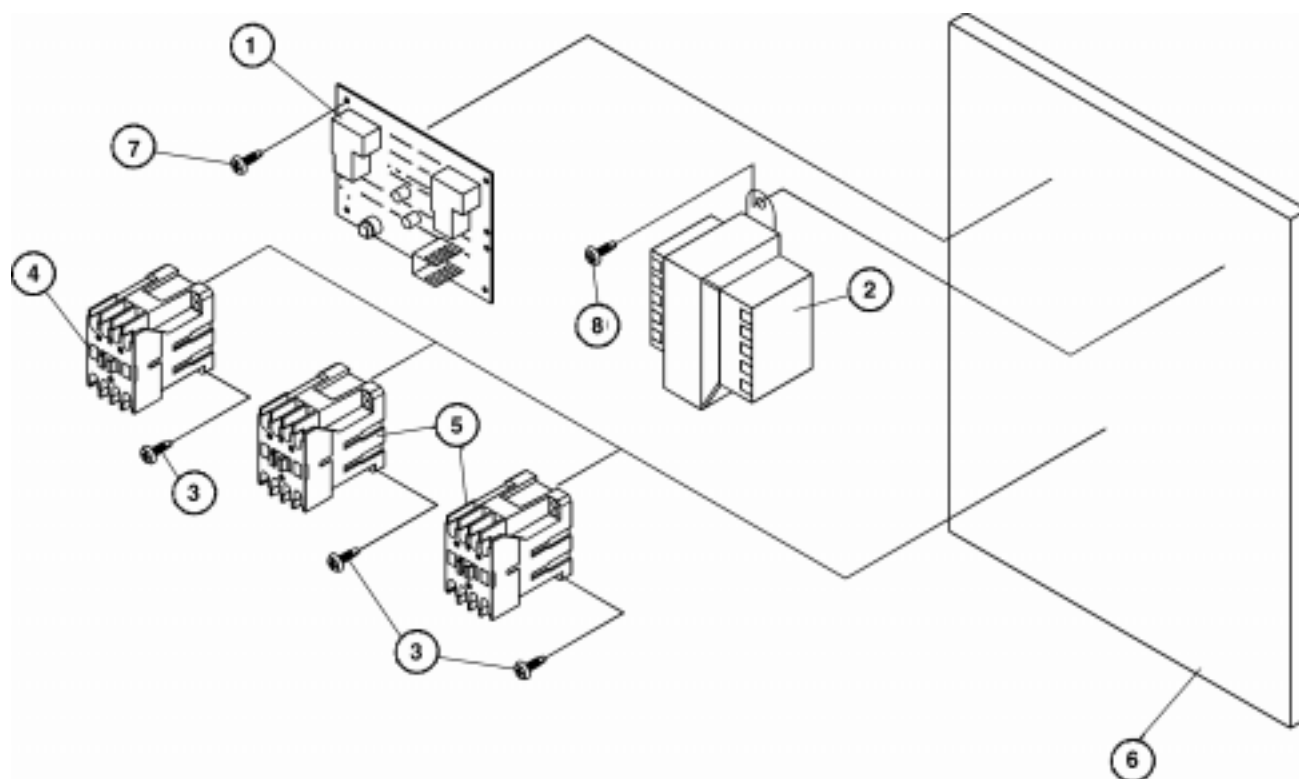


1	TM203	Housing	10	VSB134	3/8\" Split Lockwasher (Pkg. of 6)
2	K474	Oil Level Plug Kit	11	TU3246	3/8\" - 16 x 1\" Cap Screw (Pkg. of 6)
3	TM119	1/4\" Vent Plug	12	TM217	Large Bearing Cone & Cup
4	TM208	Small Bearing Cone & Cup	13	TM220	Large Klosure
5	TM225	Worm & Worm Gear	14	TM221	1/4\" Pipe Plug
6	IB139	3/8\" - 16 x 1 1/4\" Cap Screw	15	TU5312	3/8\" x 3\" Set Screw
7	TM205	Small Open End Cap	16	TM211	Large End Cap 10 1/2 Dia.
8	TM204	Small Klosure	17	TM212	Small End Cap 6 3/4 Dia.
9	TM218	Small Closed End Cap			

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

Not Illustrated—TU3465 one pint of Transmission Oil

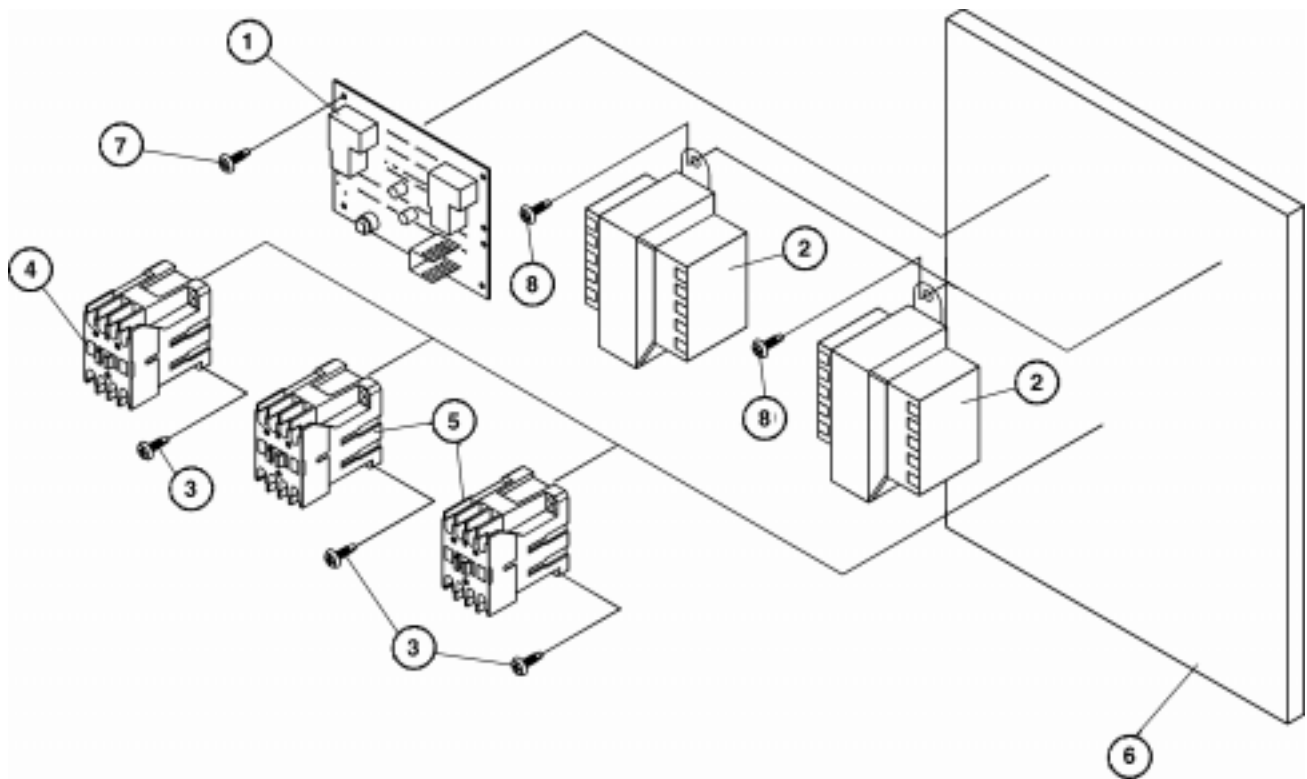
Reversing Control Panel Assembly (Gas)



TU14146	Reversing Control Panel 200-240V, 24V Controls
TU14147	Reversing Control Panel 460-480V, 24V Controls
TU14198	Reversing Control Panel 240/415V, 24V Controls
TU14149	Non-Reversing Control Panel 460-480V, 24V Controls
TU14148	Non-Reversing Control Panel 200-240V, 24V Controls
TU14199	Non-Reversing Control Panel 240/415V, 24V Controls

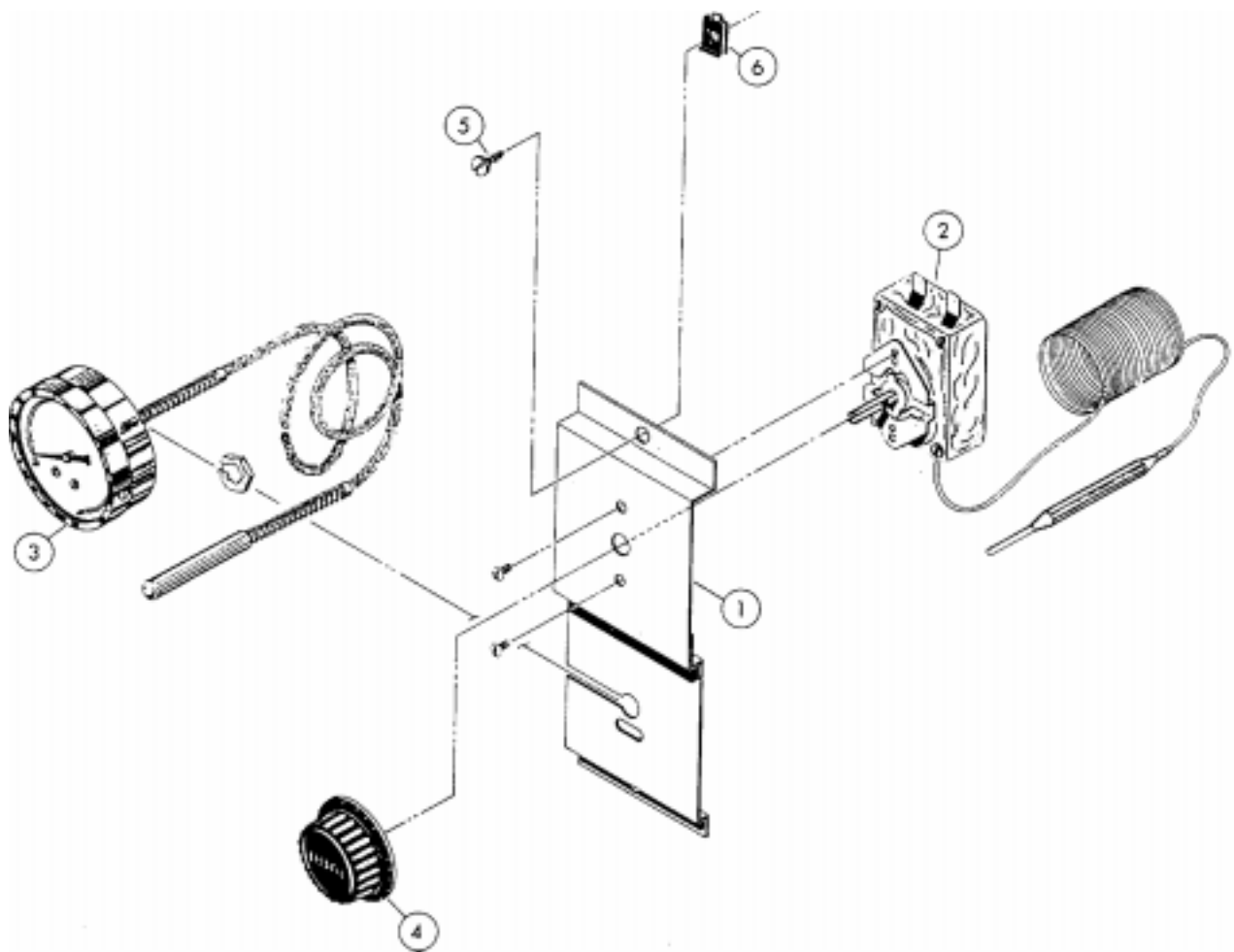
1	TU12874	Timer, Solid State Reversing
2	TU13480	Transformer 200-240V/24V w/Reset
	TU13514	Transformer, 480/24V w/Reset
3	F540	#6 x 5/8" Phillips Head Screw
4	TU13516	Contactor, 24V
5	TU13526	Contactor Assembly, 24V
6	TU14026	Motor Control Plate
7	TU2793	8 - 18 x 3/4" Self-Drill Screw (Pkg 6)
8	TU7733	8 - 18 x 1/2" Self-Drill Screw (Pkg 6)

Reversing Control Panel Assembly (Steam)



TU14150	Reversing Control Panel 200-240V, 24V Controls
TU14151	Reversing Control Panel 460-480V, 24V Controls
TU14197	Reversing Control Panel 240/415V, 24V Controls
TU14152	Non-Reversing Control Panel 200-240V, 24V Controls
TU14153	Non-Reversing Control Panel 460-480V, 24V Controls
TU14196	Non-Reversing Control Panel 240/415V, 24V Controls

1	TU12874	Timer, Solid State Reversing
2	TU13480	Transformer 200-240V/24V w/Reset
	TU13514	Transformer, 480/24V w/Reset
3	F540	#6 x 5/8" Phillips Head Screw
4	TU13516	Contactor, 24V
5	TU13526	Contactor Assembly, 24V
6	TU14026	Motor Control Plate
7	TU2793	8 - 18 x 3/4" Self-Drill Screw (Pkg 6)
8	TU7733	8 - 18 x 1/2" Self-Drill Screw (Pkg 6)



TU6030—"C" Model—Consists of Ref. No. 1, 2, 3

- | | | |
|---|---------|--|
| 1 | TU5530 | Mounting Bracket |
| 2 | TU1980 | Thermostat |
| 3 | TU3593 | Thermometer |
| | TU3816 | Lens Replacement (Texas Gage ONLY) |
| | TU8475 | Lens Replacement (Marshalltown Inst. ONLY) |
| | TU11193 | Lens Replacement (Weiss—consult factory) |
| | TU13213 | Lens Replacement (Weiss—consult factory) |
| 4 | TU490 | Thermostat Knob—Fahrenheit |
| | TU491 | Thermostat Knob—Centigrade |
| 5 | TU3209 | #14 x 5/8" S.M.S. (Pkg. of 6) |
| 6 | LB74 | #14 Tinnerman Clip (Pkg. of 6) |