IPSO - LSG n.v.

Instruction manual
Spare parts list
DR250

Technical specifications
Installation instructions
Operating instructions

Maintenance

IPSO

Nieuwstraat 146 - B-8560 Wevelgem (België)
Tel. 056/41 20 54 - Fax 056/41 86 74

D0303
2/07

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 vapors or liquids in the vicinity of this or any other appliance.

- WHAT TO DO IF YOU SMELL GAS

- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Clear the room, building or area of all occupants.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

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

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

WARNING: 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 or tilting 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** parts may be used.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

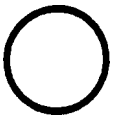
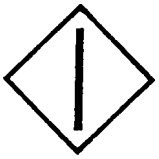
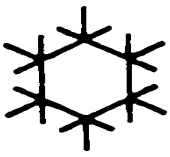
ATTENTION: L'ACHETEUR DOIT PLACER L'AVERTISSEMENT SUIVANT DANS UN ENDROIT CLAIR ET VISIBLE:

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

TABLE OF CONTENTS

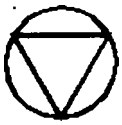
	PAGE
Model Numbers & Company Address	1
Important Notices	2-4
Dryer Warranty	5
Table of Contents	6
Warnings, Cautionary Notes and Symbols	7-8
Unpacking and General Installation	9-11
Assembling Dryer Sections, Non-Tilting	12-14
Assembling Dryer Sections, 1 Way Tilting	15-19
Dryer Specifications	20-23
Gas Pipe Size Chart	24
Gas Piping Installation	25-26
Steam Pipe Installation	27-28
Dryer Installation with Multiple Exhaust	29-30
Dryer Installation with Separate Exhaust	31
Exhaust and Venting	32
Minimum Makeup Air Requirements	33
Link Belts	34
Rules for Safe Operation of Your Dryer	35-36
Basic Control Operation	37
Service Savers	38-39
Troubleshooting Charts	40-43
Direct Spark Ignition Operation	44-45
General Maintenance	46-47
Basket Alignment	48-49
Guide Wheel Alignment	50-51
Air Switch Adjustment	52
Top Section	53-54
Bottom Section	55-56
Guide Wheels	57-59
Loading Door Switches	60
Loading Door - Left	61
Loading Door - Right	62
DMP Control Assembly, Non-tilting	63
DMP Control Assembly, one way tilting	64
PROHC Control Panel Assembly	65
DMP Sensor Assembly	66
PRO Sensor Assembly	67
PROHC Sensor Assembly	68
Basket Drive Assembly	69
Fan Assembly, Gas	70
Fan Assembly, Steam	71
Ram Ignition Assembly	72
Motor Control Assembly	73
Electrical Connection Box	74
Pneumatic Box	75
Cylinder/Fittings/Hardware	76
Steam Bonnet Assembly	77
Gas Bonnet Assembly	78
Air Switch Assembly	79
Spare Parts	80
Fire Detection and Suppression System	81-88

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

Symbol	Description
	**NOTE!**
	**Hot! Do Not Touch** **Heib! Nicht Beruhren** **Haute temperature! Ne pas toucher** **Caliente! no tocar** **Heet! Niet Aanraken**
	**dangerous voltage** **tension dangereuse** **Gafahrliche elektrische Spannung** **tension peligrosa**
	**on** **marche** **Ein** **conectado**
	**off** **arrêt** **Aus** **desconectado**
	**start** **demarrage** **Start** **arranque de un movimiento**
	**emission of heat in general** **êmission de chaleur en general** **Warmeabgabe allgemein** **emisión de calor**
	**cooling** **refroidissement** **Kuhlen** **enfriamiento**

SYMBOLS

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

Symbol	Description
	**rotation in two directions** **rotation dans les deux sens** **Drehbewigung in zwei Richtungen** **movimiento rotativo en los dos sentidos**
	**direction of rotation** **sens de mouvement continu de rotation** **Drehbewegung in Pfeilrichtung** **movimiento giratorio o rotatorio** **en el sentido de la flecha**
	**End of Cycle**
	**caution** **attention** **Achtung** **atencion; precaucion**

UNPACKING

This dryer is packed in a large (heavy-duty) protective wooden crates.

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

Upon determining permanent location of a unit, care should be taken in movement and placement of equipment. Follow instructions for assembling.

See outline clearance diagrams for correct dimensions.

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

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

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

GENERAL INSTALLATION (ALL DRYERS)

IMPORTANT

Before installing or operating this dryer, thoroughly read the owner's manual for correct instructions concerning electric connections, exhaust ducting, gas piping, steam connections, make-up air, etc.

IMPORTANT
Read the warnings in this manual.

IMPORTANT
Do not install this dryer in an area where it will be exposed to water and/or weather.

IMPORTANT
Failure to follow these instructions and warnings may create a safety hazard and may affect the warranty.

IMPORTANT
Follow all local codes.

IMPORTANT
If you have any installation questions, consult the factory Service Department.

GENERAL INSTALLATION (ALL DRYERS)

Position dryer for the least amount of exhaust piping and elbows, and allow free access to the rear of dryer for future servicing of belts, pulleys and motors. Installation clearance from all combustable material for gas dryers is 18" ceiling clearance, 24" rear clearance, and 0" side clearance.

Before operating dryer, open basket door and remove manual(s), and air regulator. Read the instruction tags, owner's manual, warnings, etc.

GENERAL

The dryer is so designed that when an operator opens the dryer door, the basket and exhaust fan stop. Hot, dry air is properly and effectively moved through the basket and exhausted through a lint trap to the venting and eventually to the atmosphere. The lint accumulates in the collector and should be removed as needed, minimum once daily.

IMPORTANT

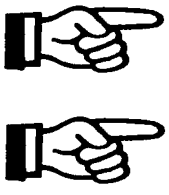
Provide adequate clearance for air openings into the combustion chamber.

IMPORTANT

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.

REPLACEMENT PARTS

WARNING Unit is heavy!



NOTE

The gas 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.*

ELECTRICAL CONNECTIONS (ALL DRYERS)

Dryers must be electrically grounded by a separate green ground 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.***

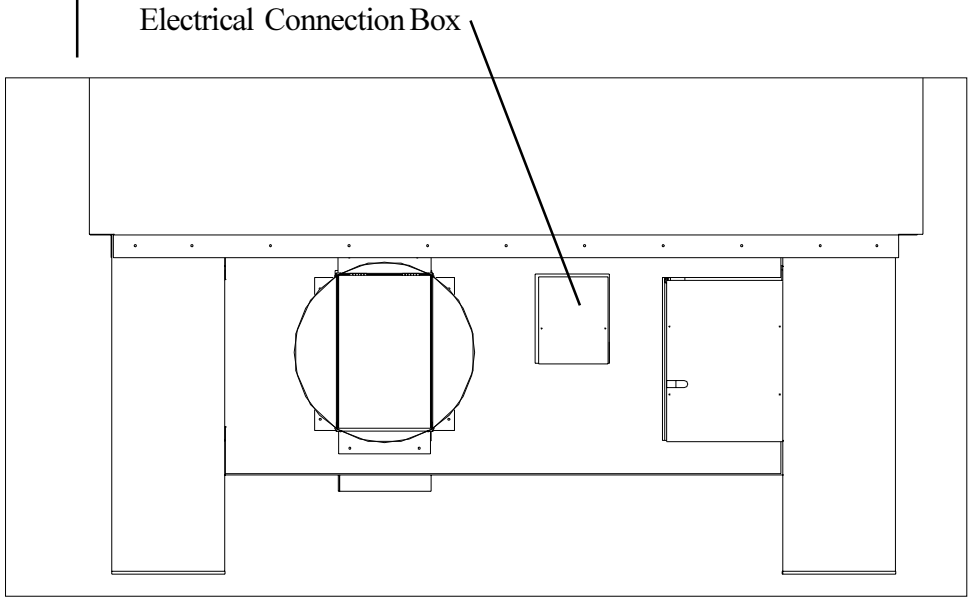
See wiring diagram furnished with dryer. Wiring diagram is located in basket of dryer.

All panels must be in position before operation of dryer.

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

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

(ILLUSTRATION) ELECTRICAL CONNECTION BOX LOCATION



STEP 1: Uncrate both sections of dryers.

STEP 2: Mount lower section to floor. Customer should have mounting bolts to hold dryer down and in place.

STEP 3: Lay a 3" x 4" diagonally across top of bottom section. The boards should be at lease 24" long. This is to allow for space when the top section is put on top of the lower section.

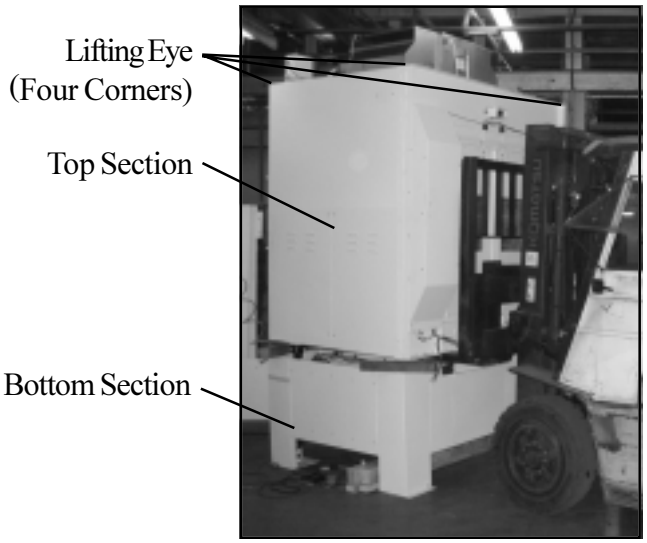


Figure-2A

STEP 4. On each corner of the top section lifting eyes have been provided. When using lifting eyes a spreader bar must be used. **Damage to lifting eyes will occur if a spreader bar is not used.** An alternative to the lifting eyes is a forklift. Put the top section on top of the bottom section. Square up the two sections with each other using the outside edge. The front edge should be even between the two sections. Make sure the top section is stable before going to the next step.

STEP 5: Remove cover below loading doors on top section. You should see two blocks welded on each section with two tapped holes per block (See Figure-2D). These are you hinge mounting blocks.

STEP 6: Remove cover below loading doors on top section. You should see two blocks welded on each section with two tapped holes per block (See Figure-2D). These are you hinge mounting blocks.

STEP 7: Put the hinges on the front of the dryer using two Hex Hd. ½-13 x 2 ½" long bolts (Tux503) per hinge on the top section only.

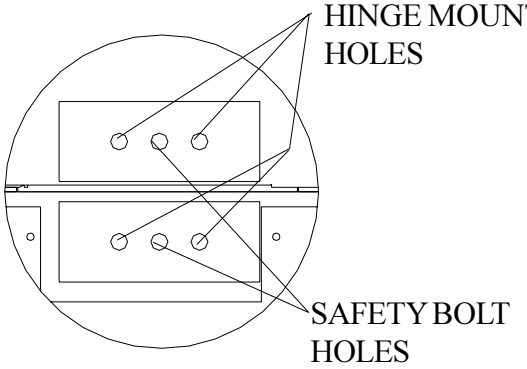


Figure-2D

STEP 8: Using a large C-clamp and a piece of ¼" flat bar, line up the sides of the dryer for attaching the two front hinges. On the side of the dryer in which the top section is out past the bottom place the C-clamp through the opening on the bottom section. Bring the clamp up placing the top tube in the center of the clamp and far toward the top as possible. Place the piece of flat bar on the side of the dryer equally between the top and bottom section under the C-Clamp. Tighten down the C-Clamp until the sections are even or the tapped holes in the hinge mounting block and holes in the hinges match up on the bottom section of the dryer. Finish mounting the hinge to the bottom section using two Hex Hd. ½-13 x 2 ½" long bolts (Tux503) per hinge. Now you need to put a Hex Hd. ½-13 x 3" long safety bolt in the remaining hole in the hinge. The hole should be all the way through the hinge and the tubing in the both sections of the dryer. Use a lock washer and nut and tighten down securely. Check all hinge bolts for tightness before going to the next step.

STEP 9: Put the non tilting plates on the rear of the dryer using two Hex Hd. ½-13 x 3" long bolts (Tux503) per set of holes in top of the bottom section only.The holes should be all the way through the tubing in the both sections of the dryer. Use a lock washer and nut and tighten down securely. Repeat alignment process of step eight if necessary. Use two Hex Hd. ½-13 x 3" long bolts (Tux503) in the set of holes left in the non tilting plate. Use a lock washer and nut and tighten down securely. Caution: There should be four non tilting plates per dryer. Two in the front and two in the rear. **If you have a tilting model then you should not be using these plates.**

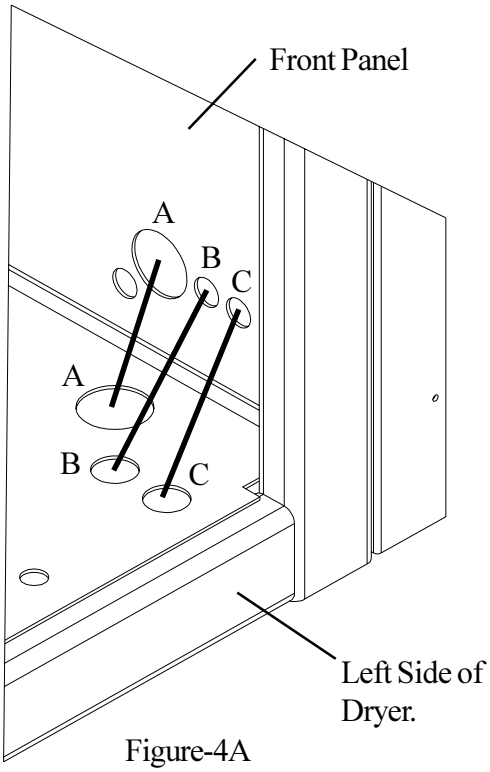


Figure-4A

STEP10: Open side access doors on top section. The side covers on the bottom section should already be off. Look in side of bottom section toward the bottom of the top section. There should be three different wires tie together at the front corner of dryer. Take tie off of wires. Two of the wires are in flexible cable and you need to remove nuts before running wires. Run Lower Section 24V wires with plug through hole "A" in bottom of top section and front panel (See Figure-4A & 4B). Run fan wires (labeled F1-F3) through hole "B" in bottom of top section and front panel (See Figure-4A & 4B). Put the flexible cable nut back on wires and tighten down against front panel. Run 24V High Power wires (labeled L1-L3) through hole "C" in bottom of top section and front panel (See Figure-4A & 4B). Put the flexible cable nut back on wires and tighten down against front panel.

A Lower Section 24 Volt wires with plug.
B Fan motor wires.
C 24 Volt high power wires.

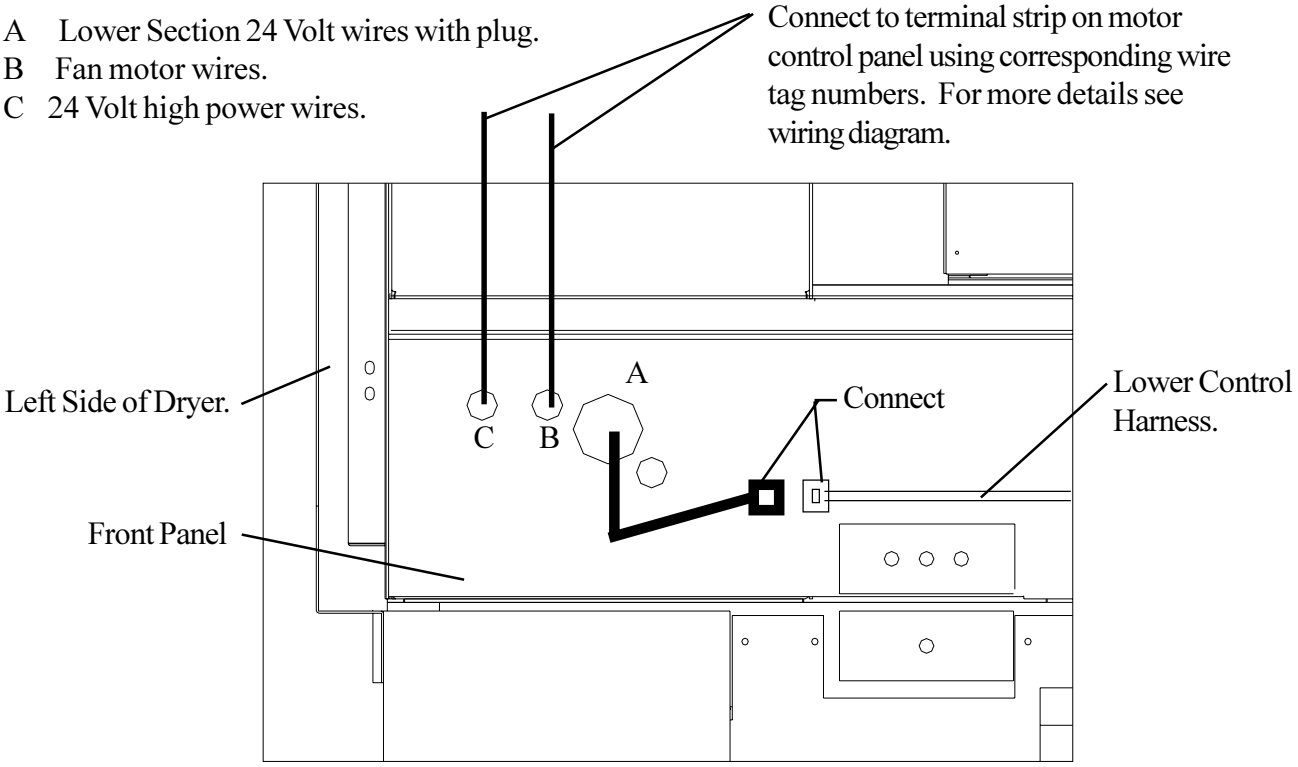


Figure-4B

STEP 11: Connect Lower Section 24V wires with plug (labeled F1-F3) into Lower Control Harness which runs across the front of the dryer (See Figure-4B). Connect Fan Motor wires into terminal strip in right control box on front of dryer using corresponding numbers on wire tags (See Figure-4B). Connect Run 24V High Power wires (labeled L1-L3) into terminal strip in right control box on front of dryer using corresponding numbers on wire tags (See Figure-4B).

STEP 12: Close access doors on top section and put lower front panel cover back on. Put on side covers on bottom section.

STEP 13: For all ducting and power connections see appropriate section of manual.

STEP 14: Remove air regulator from basket. Put air regulator on pneumatic connection and then hook up air (See Figure-6A).

STEP 15: Hook up flexible hose from steam or gas source to manifold on bonnet depending on which model of dryer you have.

STEP 16: Hook up 3/8" flexible water line to the pipe connection on the top of the dryer for the FDS system.

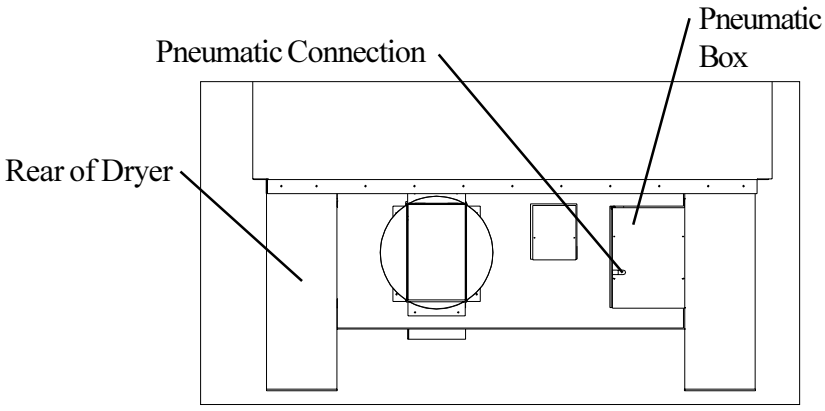


Figure-6A

STEP 1: Uncrate both sections of dryers. **IMPORTANT: The serial numbers on both the bottom and top section should match.**

STEP 2: Mount lower section to floor. Customer should have mounting bolts to hold dryer down and in place.

STEP 3: Lay a 3" x 4" diagonally across top of bottom section. The boards should be at lease 24" long. This is to allow for space when the top section is put on top of the lower section.

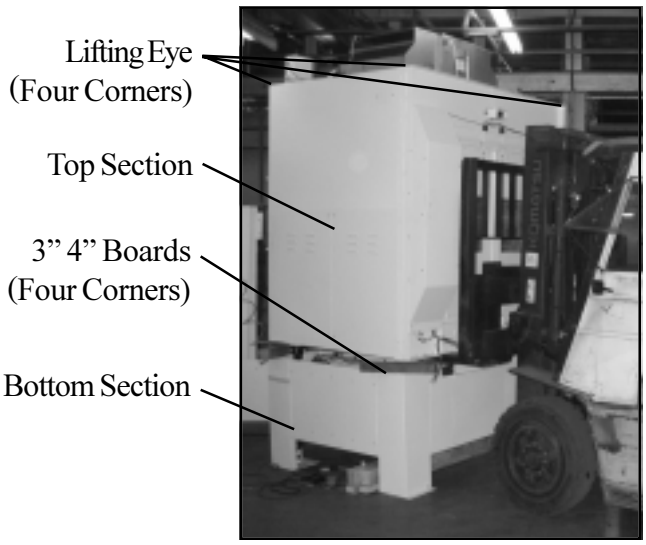


Figure-2A

STEP 4. On each corner of the top section lifting eyes have been provided. When using lifting eyes a spreader bar must be used. **Damage to lifting eyes will occur if a spreader bar is not used.** An alternative to the lifting eyes is a forklift. Put the top section on top of the bottom section onto 3" x 4" boards (See figure-2A). Square up the two sections with each other using the outside edge. The front edge should be even between the two sections. Make sure the "3 x 4" boards are safely between and the top section is stable before going to the next step.

STEP 5: Remove side covers on lower section for access to mount cylinders and hook up electrical connections.

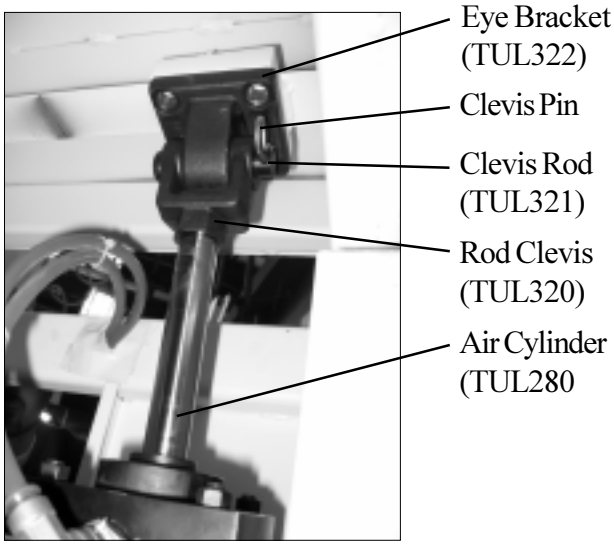


Figure-2B

STEP 6: Disconnect hoses from cylinder at quick connection, **Caution: Make sure the hoses are connected back in the same order. If the hoses are reversed, than the dryer will not tilt properly.** Put clevis rod through eye bracket and cylinder rod. Put pin through clevis rod to prevent pin from working loose. Pull cylinder rod out until it touches the bottom of top section. (See Figure-2B). Use 1/2" bolts, lock washers, and cut washers to mount eye bracket to bottom section (See Figure-2C). Repeat this step on other side.

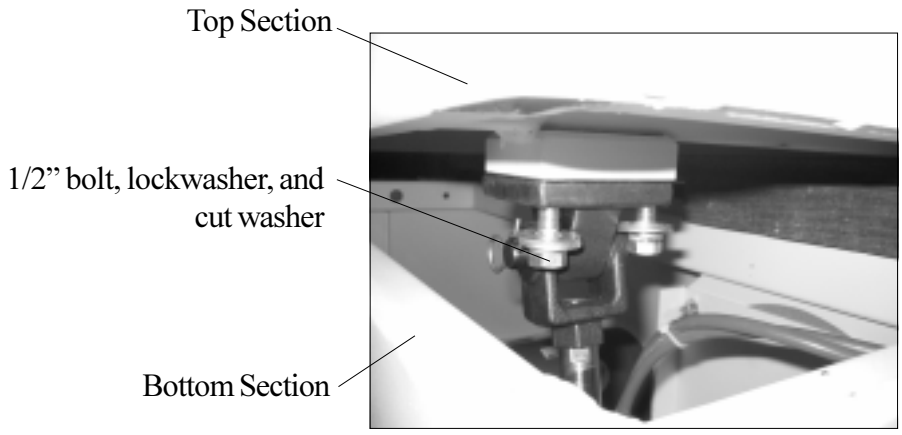


Figure-2C

STEP 7: Lift top section up using lifting eyes and spreader bar. Remove 3" x 4" wood pieces from each corner. Put top section down on bottom section. **All cylinders should be attached before going to the next step.** An alternate to using the lifting eyes would be to take a floor jack and put on the floor inside of the bottom section. Cut a piece a 3" x 4" piece of wood that is will fit between the bottom of the top section and sit on top of the jack. Carefully jack up the top section until you have enough clearance to pull out the piece of wood. Start with the back and then go to the front. **Caution: If you jack the dryer section to high it may tilt. All cylinders should be attached before going to the next step.** Remove jack from bottom section before going to next step.

STEP 8: Remove cover below loading doors on top section. You should see two blocks welded on each section with two tapped holes per block (See Figure-2D). These are you hinge mounting blocks.

STEP 9: Put the hinges on the front of the dryer using two Hex Hd. ½-13 x 2 ½" long bolts (Tux503) per hinge on the top section only.

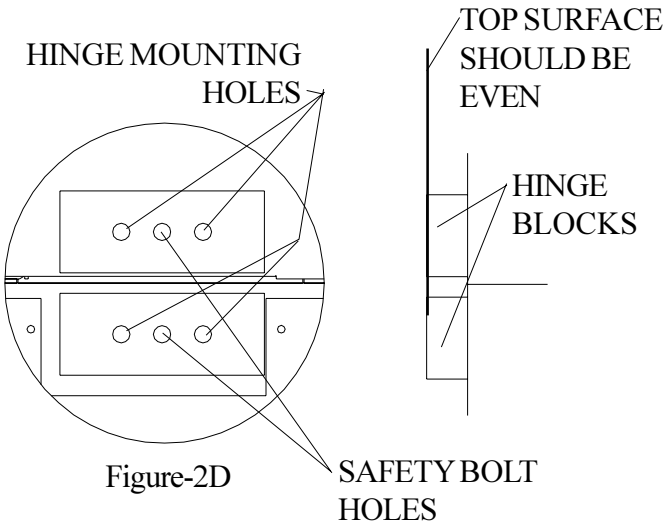
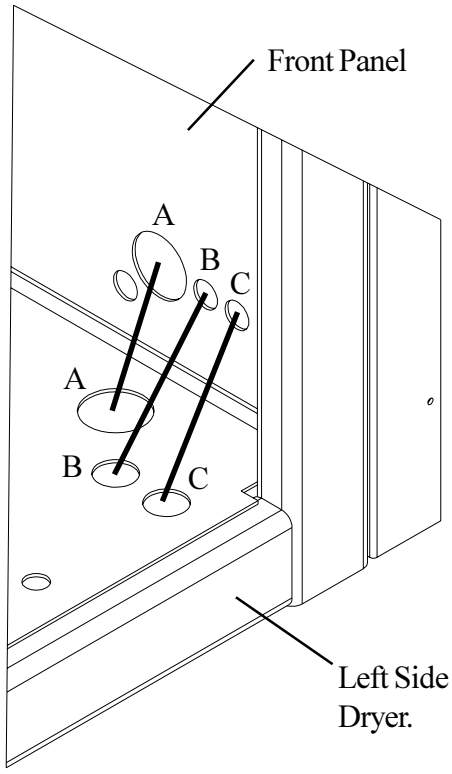


Figure-2D

STEP 10: Using a large C-clamp and a piece of ¼" flat bar, line up the sides of the dryer for attaching the two front hinges. On the side of the dryer in which the top section is out past the bottom place the C-clamp through the opening on the bottom section. Bring the clamp up placing the top tube in the center of the clamp and far toward the top as possible. Place the piece of flat bar on the side of the dryer equally between the top and bottom section under the C-Clamp. Tighten down the C-Clamp until the sections are even or the tapped holes in the hinge mounting block and holes in the hinges match up on the bottom section of the dryer. **The front surface of the hinges should be even before bolting on hinge. If surface is uneven, damage to the hinge will occur (see Figure 2D).** Finish mounting the hinge to the bottom section using two Hex Hd. ½-13 x 2 ½" long bolts (Tux503) per hinge. Now you need to put a Hex Hd. ½-13 x 3" long safety bolt in the remaining hole in the hinge. The hole should be all the way through the hinge and the tubing in the both sections of the dryer. Use a lock washer and nut and tighten down securely. Check all hinge bolts for tightness before going to the next step.

STEP 11: Open side access doors on top section. The side covers on the bottom section should already be off. Look in side of bottom section toward the bottom of the top section. There should be three different wires tie together at the front corner of dryer. Take tie off of wires. Two of the wires are in flexible cable and you need to remove nuts before running wires. Run Lower Section 24V wires with plug through hole "A" in bottom of top section and front panel (See Figure-4A & 4B). Run fan wires (labeled F1-F3) through hole "B" in bottom of top section and front panel (See Figure-4A & 4B). Put the flexible cable nut back on wires and tighten down against front panel. Run 24V High Power wires (labeled L1-L3) through hole "C" in bottom of top section and front panel (See Figure-4A & 4B). Put the flexible cable nut back on wires and tighten down against front panel.



A Lower Section 24 Volt wires with plug.

B Fan motor wires.

C 24 Volt high power wires.

Figure-4A

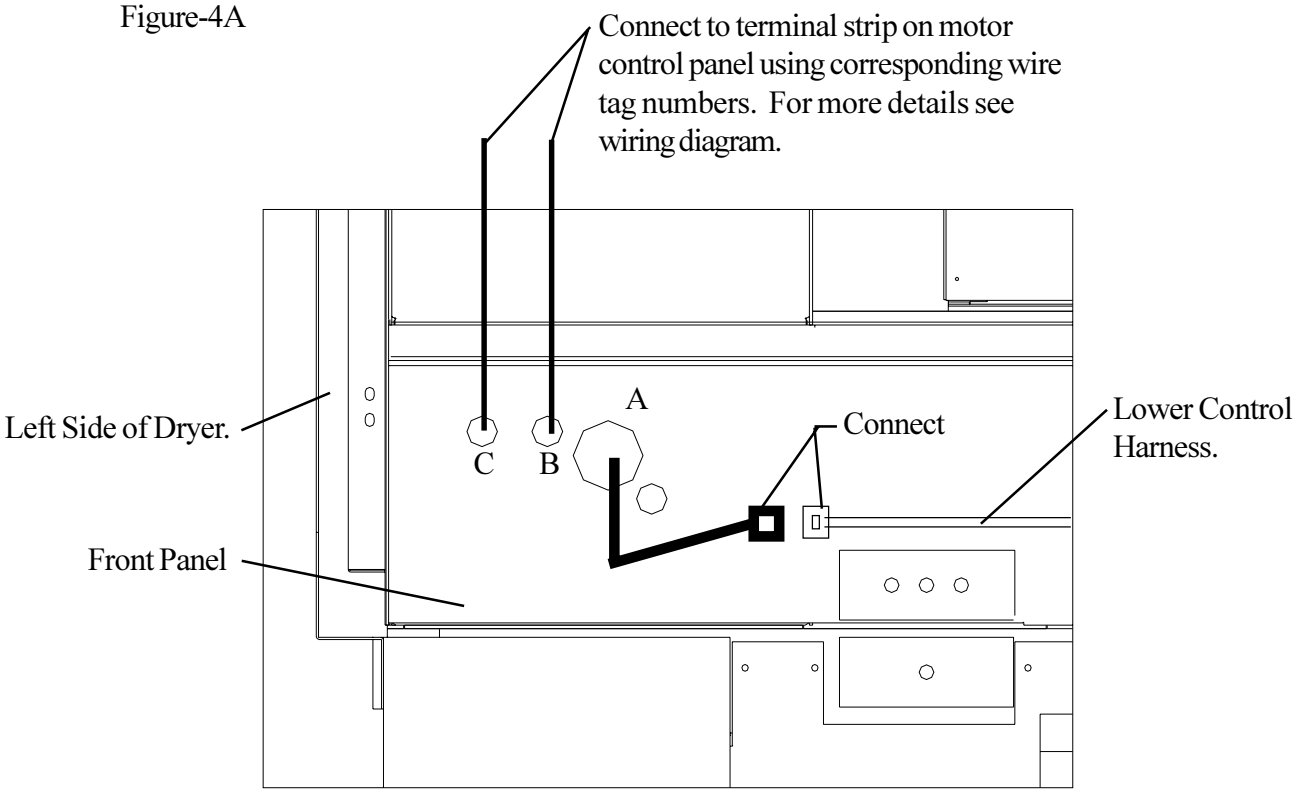


Figure-4B

STEP 12: Connect Lower Section 24V wires with plug (labeled F1-F3) into Lower Control Harness which runs across the front of the dryer (See Figure-4B). Connect Fan Motor wires into terminal strip in right control box on front of dryer using corresponding numbers on wire tags (See Figure-4B). Connect Run 24V High Power wires (labeled L1-L3) into terminal strip in right control box on front of dryer using corresponding numbers on wire tags (See Figure-4B).

STEP 13: Close access doors on top section and put lower front panel cover back on. Put on side covers on bottom section starting the bottom row of screws only.

STEP 14: There are three tilting covers that need to be put in place before operating the dryer. Put the left side tilting cover on the dryer first. The end of the cover that has the angled point goes toward the front of the dryer. When you are holding the left tilting cover the bent flange on the bottom should be bent away from you. Put the tilting cover on the dryer as shown in Figure-5A & 5B. The front edge of the tilting cover should be even with the front of the dryer's frame. You will need to align: the slots in the tilting cover; the

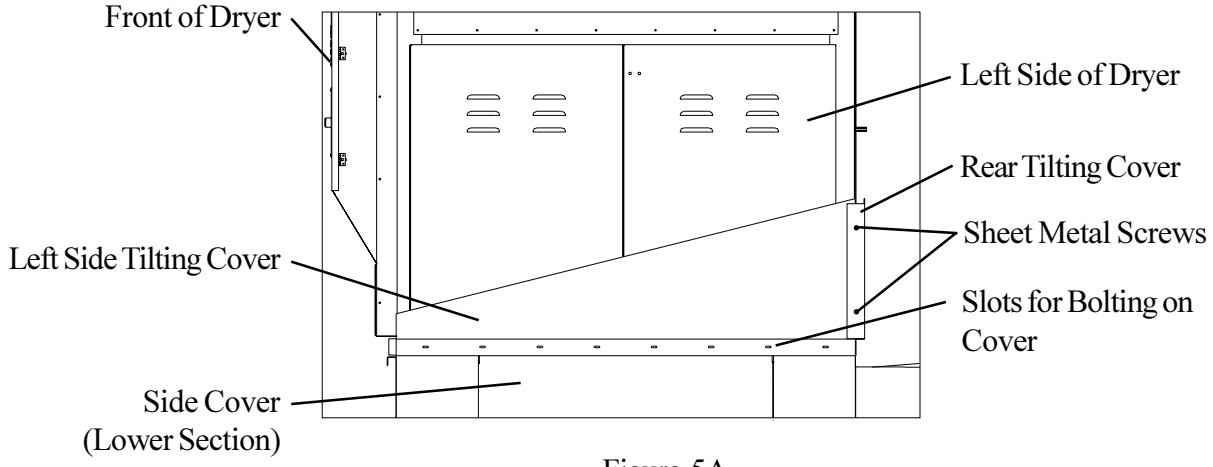


Figure-5A

holes in the lower side cover; and the tapped holes in the dryer frame when bolting on the tilting cover. The remaining slots in the can be attached using sheet metal screws.

STEP 15: Repeat step 14 using the right tilting cover.

STEP 16: Put on the rear tilting cover. The flange with the slots goes down and the end flanges go on the outside of the side tilting valences (See Figure-5A). Attach the rear tilting cover using sheet metal screws through the slots on the bottom of cover. Attach the ends of the rear tilting cover to side covers using sheet metal screws.

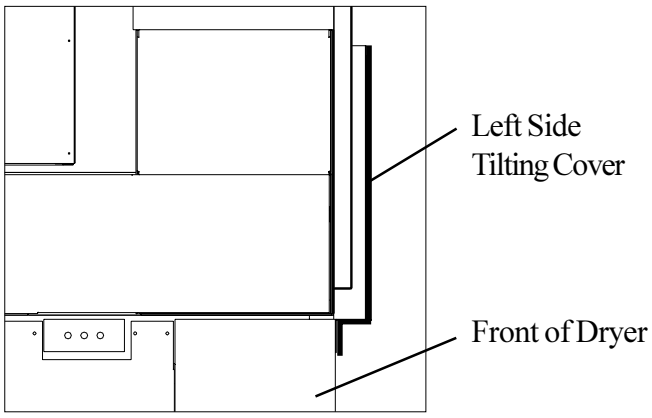


Figure-5B

STEP 17: For all ducting and power connections see appropriate section of manual.

STEP 18: Remove air regulator from basket. Put air regulator on pneumatic connection and then hook up air (See Figure-6A).

STEP 19: Hook up flexible hose from steam or gas source to manifold on bonnet depending on which model of dryer you have.

STEP 20: Hook up 3/8" flexible water line to the pipe connection on the top of the dryer for the FDS system.

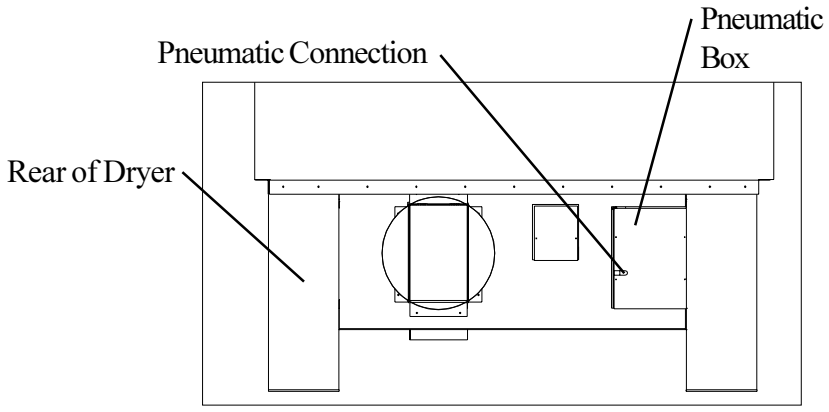
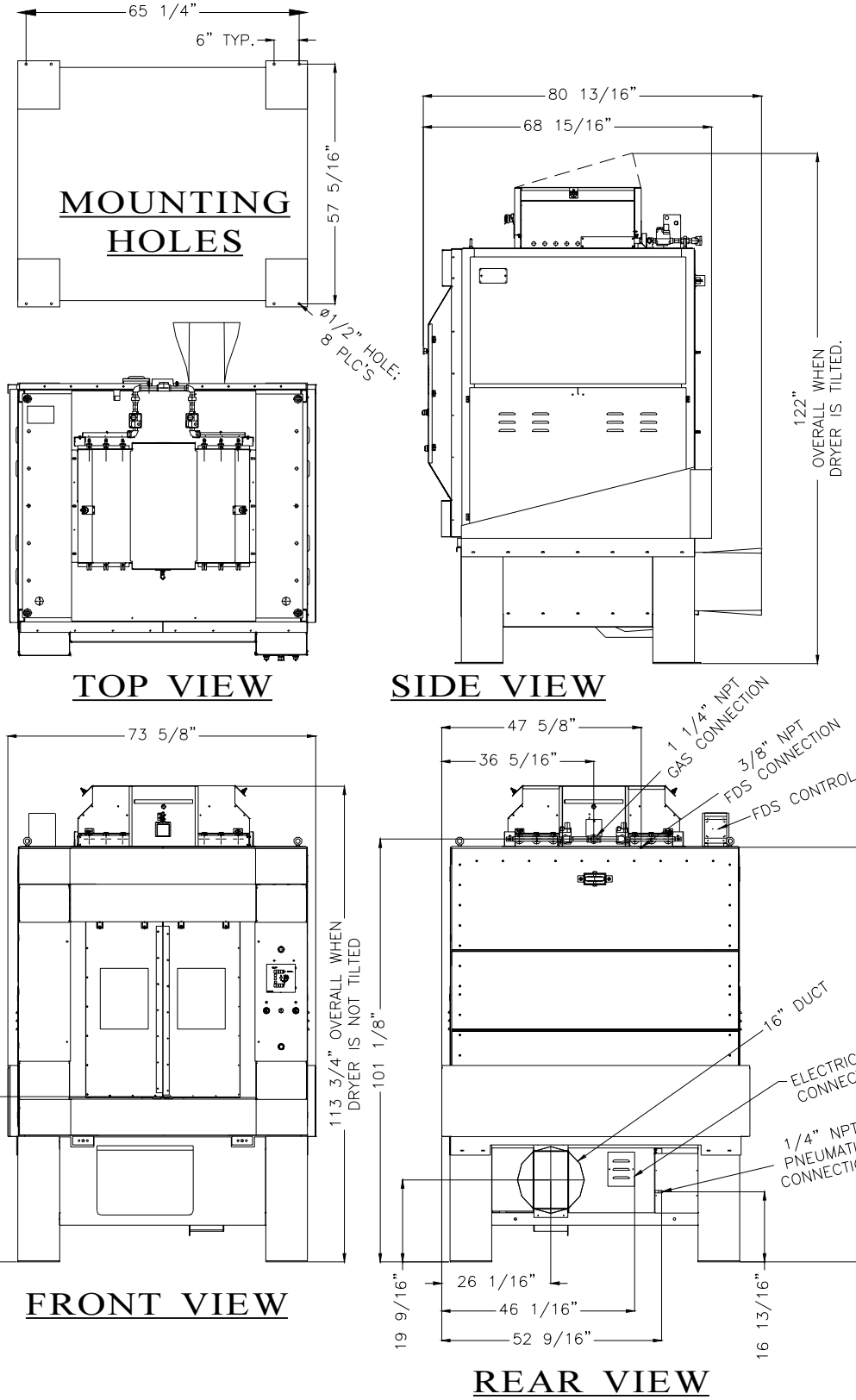


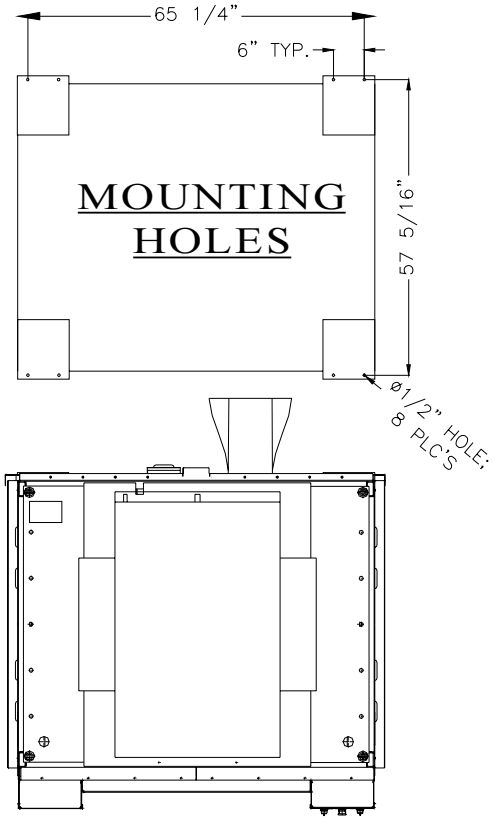
Figure-6A



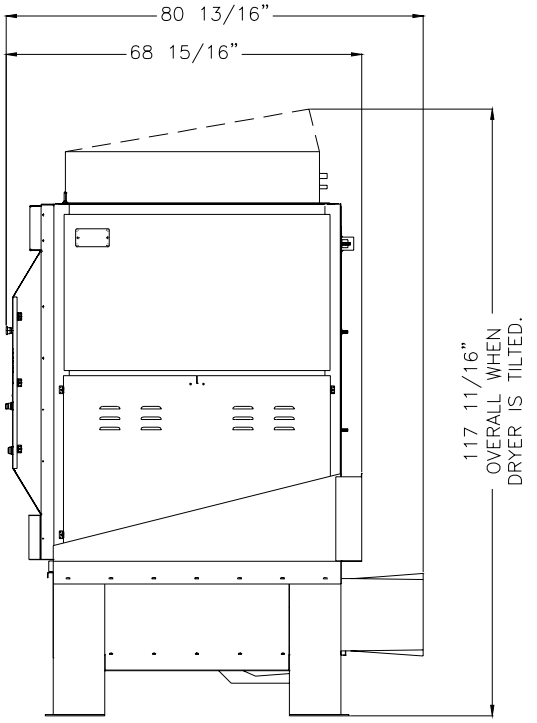
ALL DIMENSIONS ARE +/- 1/4" (6.4 MM) AND ARE SUBJECT TO CHANGE WITHOUT NOTICE

* Gas and water connection to be made with flexable hose.

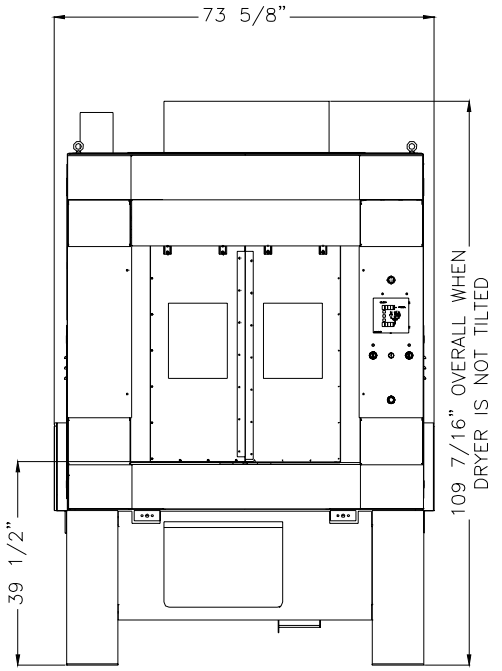
* Steam and water connection to be made with flexable hose.



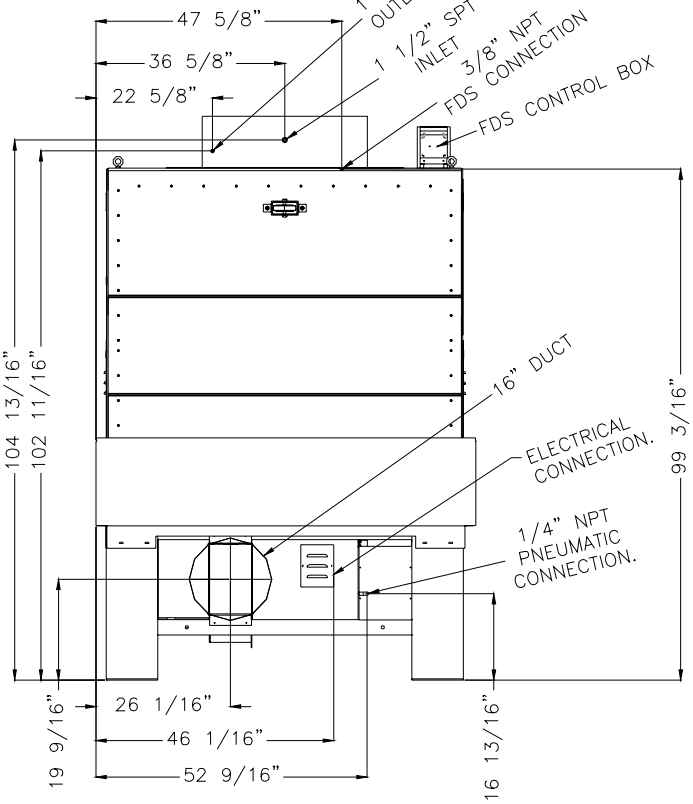
TOP VIEW



SIDE VIEW



FRONT VIEW



REAR VIEW

ALL DIMENSIONS ARE +/- 1/4" (6.4 MM) AND ARE SUBJECT TO CHANGE WITHOUT NOTICE

GENERAL SPECIFICATIONS FOR 250 lb. GAS HEATED DRYERS

Basket Capacity ..... 250 lb (113.4 kg) Dryweight

Electrical Specifications 208-240/60/3, 480/60/3, 220-380/50/3

Gas Connection ..... 1 1/4" SPT Flexable Hose

FDS Water Connection ..... 3/8" Flexable Hose

Motor Size: Basket ..... 3 Hp (2.2 kW)

Motor Size: Fan ..... 7 1/2 Hp (5.6 kW)

Floor Space ..... 113 5/8" H x 74 3/4" W x 80 7/8" D
..... (2886 x 1899 x 2054 mm)

Door Opening ..... 32-1/4" (819.2 mm)

Basket ..... 57" dia. x 54 5/8" deep
..... (1447.8 x 1387.5 mm)

Basket RPM: Reversing ..... 29 rpm

Non-Reversing ..... 29 rpm

Exhaust Duct ..... 16" (406.4 mm) dia.

Maximum Air Displacement
Gas ..... 5,000 cfm (8495 m^3/h)

Recomm. Oper. Range ..... 4,800 - 5,500 cfm (8155 - 9345 m^3/h)

Gas Net Weight ..... 2935 lb (1331 kg)

Gas Shipping Weight ..... 3742 lb (1697 kg)

Shipping Dimensions
If using a 20 ft. container the bonnet will be shipped seperate from top section.

Top ..... 92" H x 76" W x 72" D
(2337 x 1930 x 1829 mm)

Bottom ..... 36" H x 72" W x 62" D
(914 x 1829 x 1575 mm)

Crating Volume
Top ..... 291 ft^3 (8.2 m^3)
Bottom ..... 93 ft^3 (2.6 m^3)

Gas Supply ..... 1 1/4" (DN32) pipe connection
(1 1/4" SPT)

Input Rating ..... 700,000 Btu/h
(176,400 kcal/h)

Recommended Make-up Air ..... 6.67 sq. ft. (960 sq. in.,
6194 sq. cm)

GENERAL SPECIFICATIONS FOR 250 lb. STEAM HEATED DRYERS

Basket Capacity ..... 250 lb (113.4 kg) Dryweight

Electrical Specifications 208-240/60/3, 480/60/3, 220-380/50/3

Steam Connection
Inlet ..... 1 1/2"SPT Flexable Hose
Outlet ..... 1" SPT Flexable Hose

FDS Water Connection ..... 3/8" Flexable Hose

Motor Size: Basket ..... 3 Hp (2.2 kW)

Motor Size: Fan ..... 15 Hp (11.2 kW)

Floor Space ..... 113 5/8" H x 74 3/4" W x 80 7/8" D
..... (2886 x 1899 x 2054 mm)

Door Opening ..... 32-1/4" (819.2 mm)

Basket ..... 57" dia. x 54 5/8" deep
..... (1447.8 x 1387.5 mm)

Basket RPM: Reversing ..... 29 rpm

Non-Reversing ..... 29 rpm

Exhaust Duct ..... 16" (406.4 mm) dia.

Maximum Air Displacement
Steam ..... 5,500 cfm (9345 m^3/h)

Recomm. Oper. Range ..... 4,800 - 5,500 cfm (8155 - 9345 m^3/h)

Steam Net Weight ..... 3,235 lb (1467 kg)

Steam Shipping Weight ..... 4,042 lb (1833 kg)

Shipping Dimensions
Top ..... 85" H x 76" W x 72" D
(2159 x 1930 x 1829 mm)

Bottom ..... 36" H x 72" W x 62" D
(914 x 1829 x 1575 mm)

Crating Volume
Top ..... 291 ft^3 (8.2 m^3)
Bottom ..... 93 ft^3 (2.6 m^3)

Steam Supply ..... 1 1/2 SPT" (DN38) pipe connection

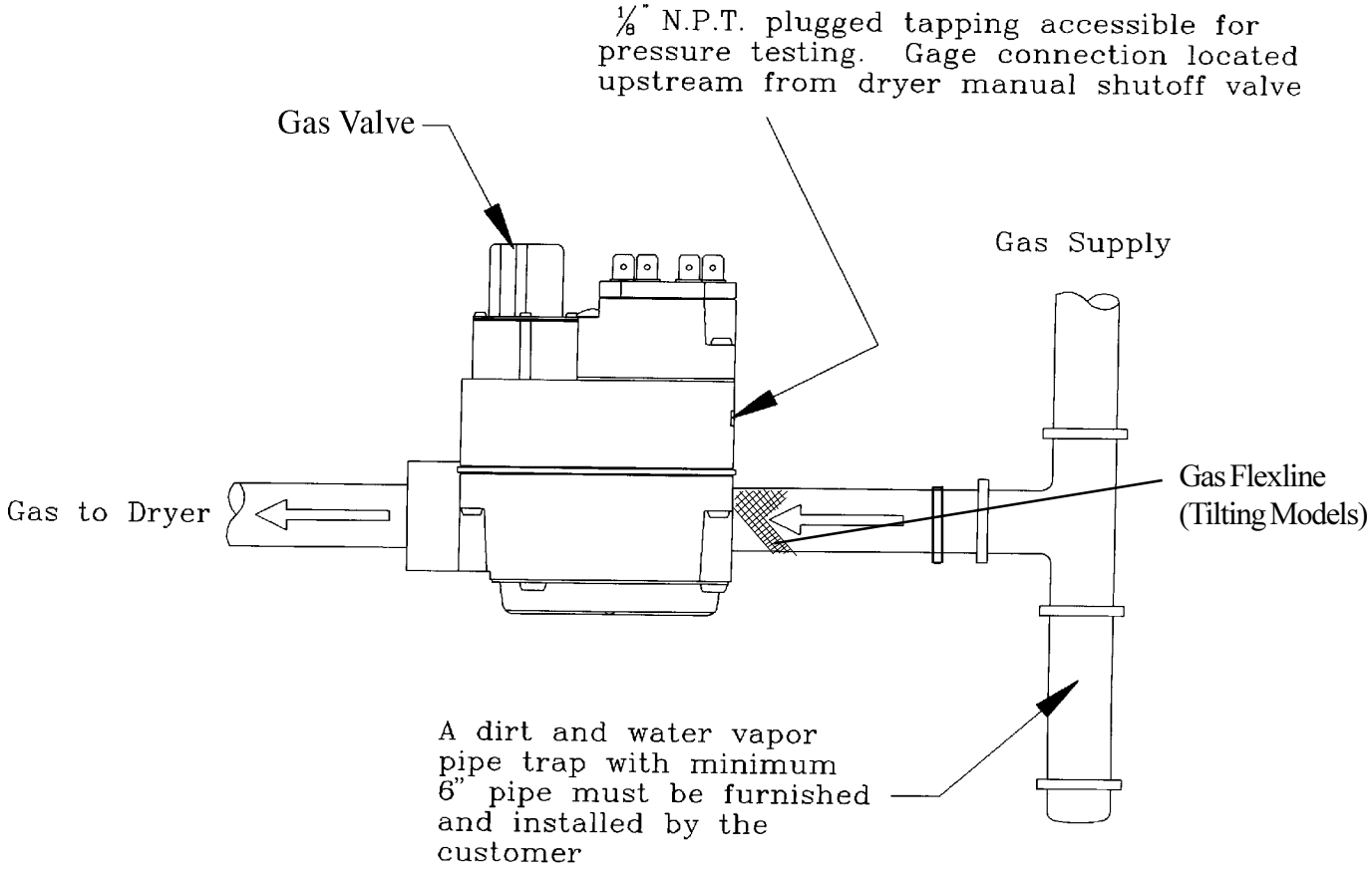
Input Rating ..... 21 BHP
(177,171 kcal/h)

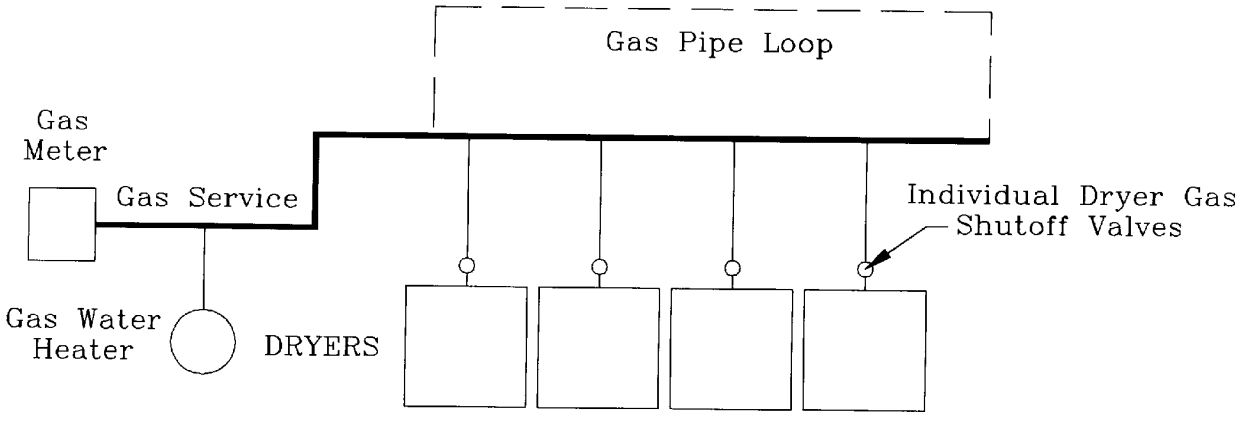
Recommended Make-up Air ..... 6.67 sq. ft. (960 sq. in.,
6194 sq. cm)

GAS PIPE SIZE CHART

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

GAS PIPING INSTALLATION (ILLUSTRATION)





GAS 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 psi (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 greater than 1/2 psi (3.5 kPa).

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

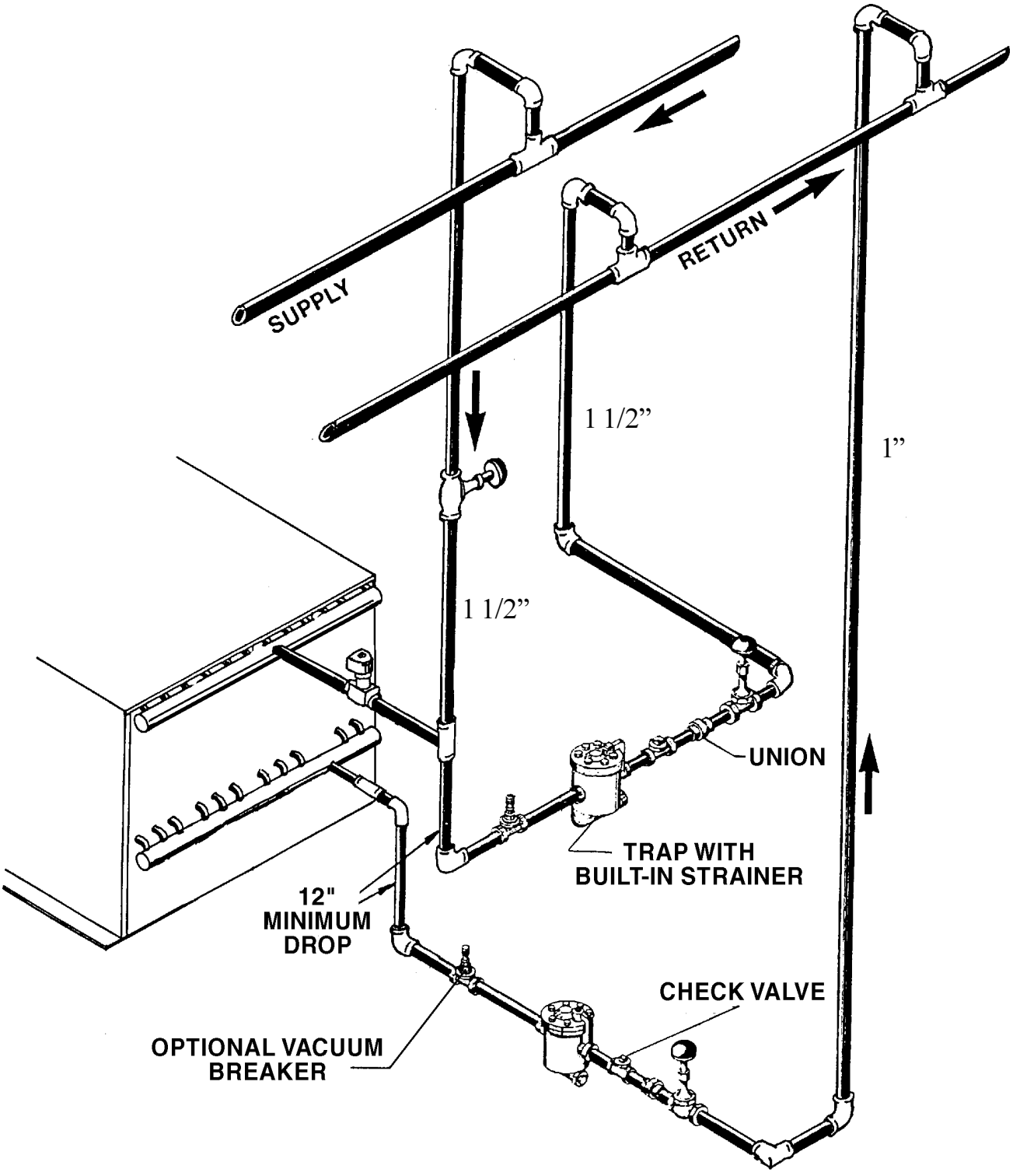
NATURAL GAS ONLY

NATURAL GAS ONLY: Check the gas pressure inlet supply to the dryer, 11 inches WC pressure maximum. Check the manifold pressure, 3.5 inches WC pressure inside the dryer.

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

Specific gas pipe size should be obtained from your supplier or refer to the Gas Pipe Size Chart in this manual.

STEAM PIPING INSTALLATION (ILLUSTRATION)



STEAM PIPING INSTALLATION INSTRUCTIONS

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

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

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

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

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

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

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

PIPING RECOMMENDATIONS

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

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

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

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

DRYER INSTALLATION WITH MULTIPLE EXHAUST

For Exhaust Duct more than 14 feet and 2 elbows equivalent and more than 0.6 inches static pressure.

(See illustration on previous page.)

1. Make-up air from outside building may enter enclosure from top or side walls. For area of make-up air opening refer to "Minimum Dryer Make-up Air Requirments" chart at end of manual.

2. Use constant diameter duct with area equal to the sum of dryer duct areas.

   EXAMPLE: 6-8 inches diameter duct = (1) 19.6 inches diameter duct in area. Use 20 inches diameter duct or diameter to match tube-axial fan.

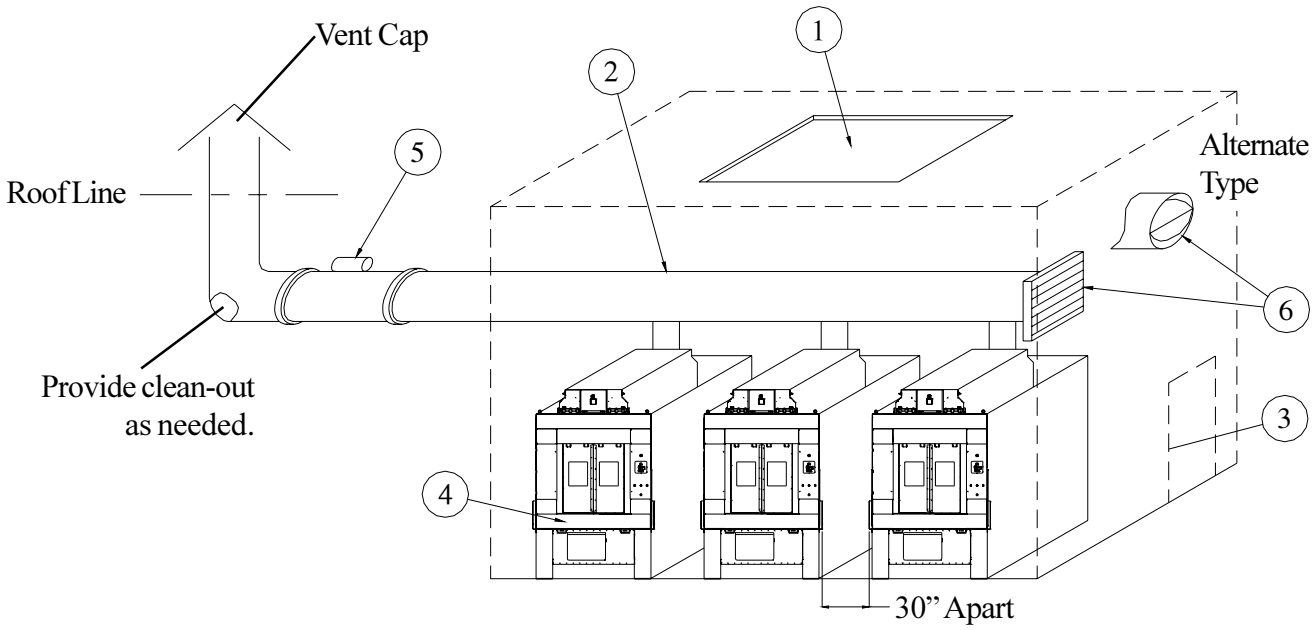
3. Enclosure (plenum) with service door. This separates the dryer air from room comfort air. If dryers use room air instead of outside air, the heat loss can be another 25 Btu/h for each cubic foot per minute (cfm) used.

4. Heat loss into laundry room from dryer fronts *only* is about 60 Btu/h per square foot.

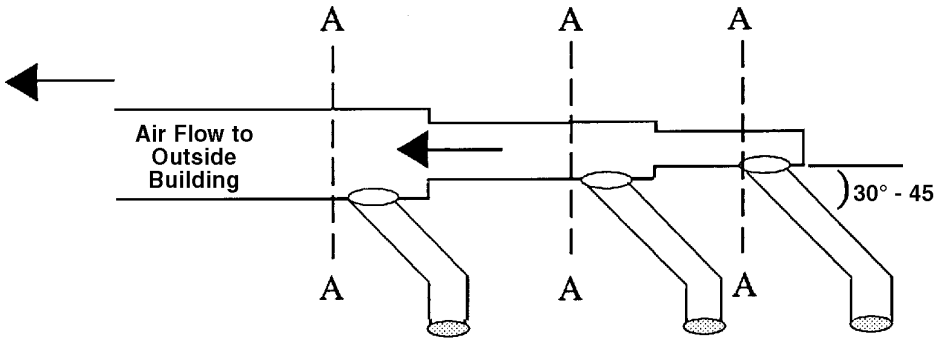
5. Flange mounted, belt driven tube-axial fan. Fan must be run when one or more dryers are running. *See suggested Automatic Electrical Control Wiring Diagram on next page.* Must meet local electrical codes. Fan air flow (cfm) is equal to sum of dryer air flows, but static pressure (SP) is dependent on length of pipe and number of elbows.

6. 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.**



For Exhaust Duct less than 14 feet and 2 elbows equivalent and less than 0.6 inches static pressure.



DRYER EXHAUSTS

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

MODELS: HD20, HD30, HD30SL, HD30ST, HD50, & HD75

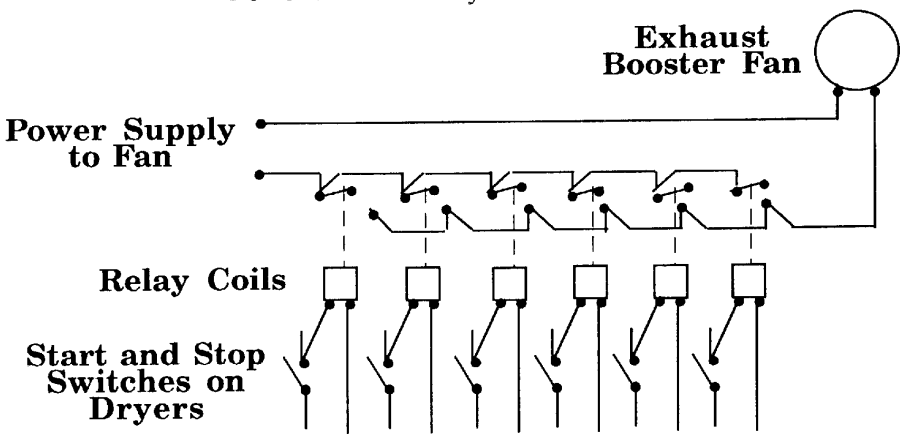
No. of Dryers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Duct Diameter (in inches)	8	12	14	16	18	20	22	23	24	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
(in cm)	20	30	25	41	46	51	56	58	61	66	68	71	73	76	78	81	84	86	89	91	94	97	99	100

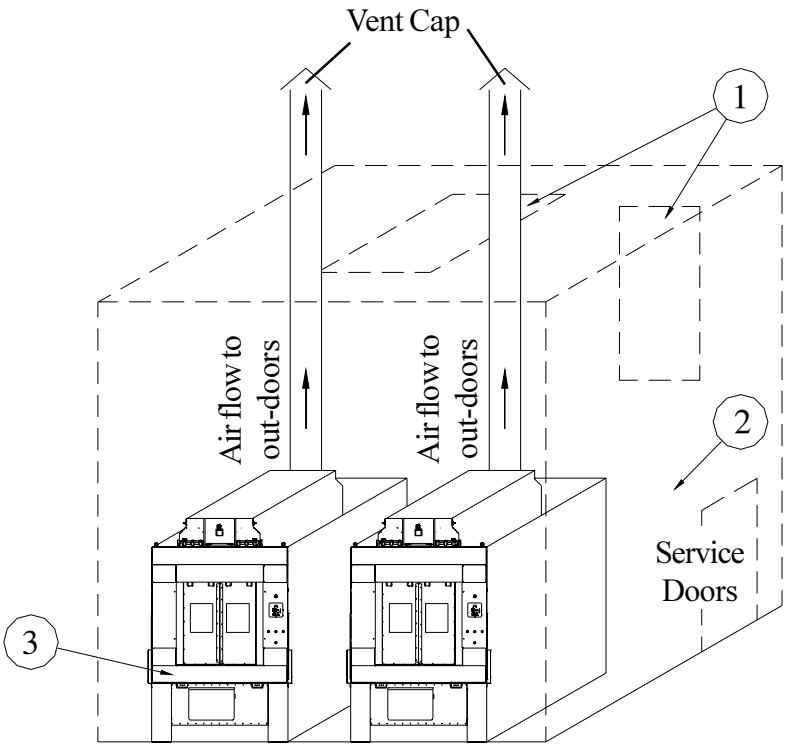
MODELS: HD110, HD125, HD150, & HD170

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

AUTOMATIC ELECTRICAL CONTROL FOR EXHAUST FAN

For one or more dryers to start fan.





DRYER INSTALLATION WITH SEPARATE EXHAUST (PREFERRED)

For ductwork less than 14 feet and 2 elbows equivalent and less than 0.6 inches static pressure.

NEVER exhaust the dryer into a chimney.

NEVER install wire mesh screen over the exhaust or makeup air area.

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

1. Make-up air opening from outside the building may enter the enclosure from the top or side walls. The area of the opening should be equal to 4 to 6 times the sum of the dryer duct areas. Provide 1 square foot for each 6 inches diameter; 2 square feet for each 8 inches diameter; and 4 square feet for each 12 inches diameter.

2. Enclosure (plenum) with service door. This separates the dryer air from the room comfort air. If dryers use room air instead of outside air, additional heat loss can be another 25 Btu/h for each cubic foot per minute (cfm) used.

3. Heat loss into laundry room from dryer front panels is about 60 Btu/h per square foot.

DRYER AIR FLOW INSTALLATION

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

In summary, there must be the proper size out-of-doors inlet air opening (4-6 times the combined areas of the air outlet) and an exhaust duct, size and length of which allows flow through the dryer with no more than 0.6 inches water column static pressure in the exhaust duct.

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

FOR BEST DRYING

FOR BEST DRYING:

1. Exhaust duct maximum length 14 feet of straight duct and maximum to two 90º bends.
2. Use 45º and 30º 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 0.6 inches water column 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 diameter exhaust requires 2 square feet make-up air.

   12 inches diameter exhaust requires 4 square feet 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.

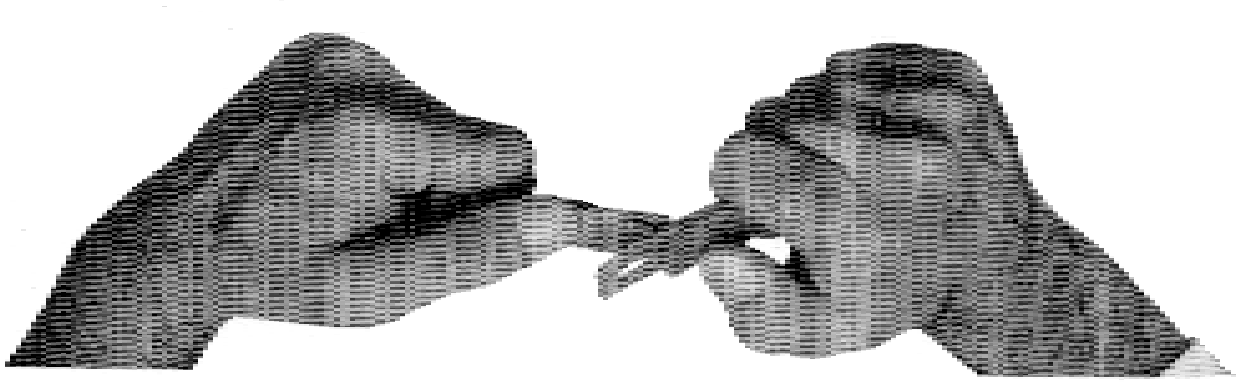
SUGGESTED MINIMUM DRYER MAKE-UP AIR REQUIREMENTS

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
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
HD30ST	30	13.6	450	765	6	153	87	561
HD50.1	50	22.7	850	1445	8	203	164	1058
HD75.1	75	34	1000	1700	8	203	192	1240
HD75ST	75	34	1000	1700	12	305	192	1240
HD80.1	80	36.3	1000	1700	10	254	192	1240
HD110	110	50	2200	3740	12	305	422	2723
HD110 E/S	110	50	850	1445	8	203	163	1052
HD125	125	56.7	2000	3400	12	305	384	2477
HD150	150	68	2250	3825	12	305	432	2787
HD175	175	79.4	2780	4726	12	305	534	3445
HD190	190	86.2	3000	5100	12	305	576	3716
HD250	250	113.4	5000	8495	16	406	960	6194

Notes:

1) The Model HD 30 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 HD 75 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 HD 30 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.

The Fan Assembly is rated at 0.6” W.C. back pressure.



- Link Belts are adjustable for belt length.

* Please take links out to tighten fan belt. This may need to be done after dryer has been running for several days.

* If fan seems to be vibrating excessively, this may be an indication that the fan belt needs to be tightened.

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 flammible 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 (or the lint drawer) as a step stool.

6. Read and follow manufacturer's instructions on packages of laundry and cleaning aids. Heed any warnings or precautions.

7. **Never** tumble fiberglass materials in the dryer unless the labels say they are machine dryable. Glass fibers break and can remain in the dryer and could cause skin irriatation if they become mixed into other fabrics.

8. Never disable the dryer door switches, lint drawer switch, sail switch, or level switch.

9. **Reference** - Lighting and shutdown instructions and wiring diagrams are located on the rear wall of the dryer cabinet.

NOTE:
It is best to run a properly sized load 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 processes.

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.

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.

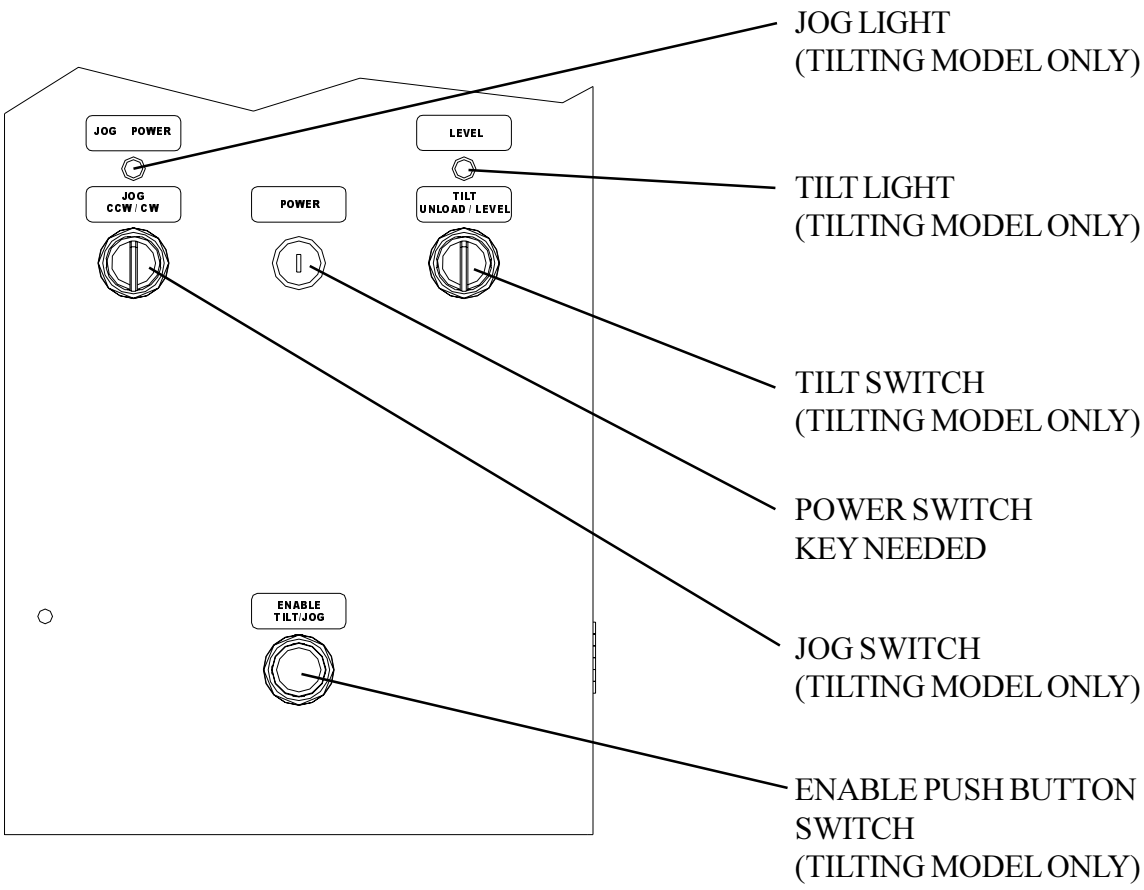
5. Don't open the dryer door while drying. You let warm air escape from the dryer into the room.

6. Unload your dryer as soon as it stops. This saves having to re-start your dryer to remove wrinkles.

ABOVE 2,000 FEET

ELEVATIONS ABOVE 2,000 FEET

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



POWER SWITCH: Turns on Power to Dryer.

TILT SWITCH: Press and hold in "Enable" button. Turn "Tilt" switch toward selection. Hold in "Enable button the entire time you are using "Tilt" switch. Level light will come on when dryer is completely level.

JOG SWITCH: Press and hold in "Enable" button. Turn "Jog" switch toward selection. Hold in "Enable button the entire time you are using "Jog" switch. Jog light must be on for basket to Jog.

ENABLE SWITCH: Must be press in and held while using "Tilt" and "Jog" switch. This is a safety feature that requires two hand control operation.

LEVEL LIGHT: Lights up when dryer is in level position. Dryer must be level in order to dry clothes.

JOG LIGHT: Lights up when dryer is in tilt mode and "Enable" switch is pushed. Dryer must be in tilt mode in order to jog the basket.

TROUBLE SHOOTING

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

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

DRYER WON'T START

1. Are the doors completely closed?
2. Is the lint drawer closed?
3. Did you push the **"start"** button?
4. Is the top section of dryer level?
5. Has a fuse blown or a circuit breaker tripped?
6. Are the fuses tight?
7. Check for low voltage.

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 gas shut off valve on the main gas line turned on?
3. Check for low or intermittant gas pressure.

DRYER WON'T TILT FOR UNLOADING CLOTHES.

1. Are doors completely open?
2. Is the lint door closed?
3. Is there air pressure?
4: Is the air regulator unclogged?
5: Are you holding in the "Enable" button?

DRYER WON'T JOG FOR UNLOADING CLOTHES.

1. Are doors completely open?
2. Is the lint door closed?
3. Is the dryer tilted?
4. Are you holding in the "Enable" button?

CLOTHES ARE NOT SATISFACTORILY DRY.

1. *Timed cycle* - Did you allow enough heating time before the cool-down part of the cycle?
2. Is the lint screen blocked?
3. Is the exhaust duct to the outside clean and not blocked? *(A blocked exhaust will cause slow drying and other problems.)*
4. *(For Moisture Control models)* Was the moisture level setting incorrect? *(Too high?)*

TOUBLE SHOOTING (CONTINUED)

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

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. The ignition module ground wire must be securely grounded to the machine (both sides on gas unit).

TROUBLESHOOTING CHART

TROUBLE	CAUSE	REMEDY
No power to controls	Fuse or circuit breaker	Reset or replace.
	Bad transformer	Check transformer. Replace if defective.
	Motor overload tripped.	Reset or replace.
	E-stop button engaged.	Disengage or replace.
	Key power switch not turned on.	Turn on. Replace if defective.
Power to controls but dryer will not start.	Loading door or lint drawer opened.	Close doors. Replace switch if defective.
	Bad lint drawer relay	Replace if defective.
	Level switch not engaged.	Lower top section untill it is level. Replace if defective.
	Bad level relay (ProHc only)	Replace if defective.
	Air switch is closed.	Check adjustment. Replace if defective.
Fan or basket motor will not start	Partial power	Check fuses or circuit breakers. Make sure all three lines have power.
	Incorrect power.	Check power source: voltage, phase, and frequency must be the same as specified on electrical rating plate.
	Loose wiring connections.	Check wire connections in electrical box on rear of dryer and the motor contactor.
	Defective motor contactor	Check coils and contacts.
Fan or basket motor tripping on thermal overload.	Low voltage.	Check voltage at motor teminals. 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.
	Poor housekeeping.	Clean lint accumulation on and around motors. Motors should not be covered with or filled with lint.
Basket will not reverse.	Defective reversing contactor	Push in contactor trip button. If motor reverses, check voltage going to contactor coil. If present, replace contactor. If no voltage problem is before motor contactor.
	Defective DMP or ProHc control	Check that control has been set to reversing. Check for 24VAC output from the control board to the basket motor reversing contactor. If control is outputing 24VAC in one direction, but not the other, replace the board.

TROUBLE	CAUSE	REMEDY
Basket motor runs, but basket will not revolve.	V-Belt broken.	Replace V-Belt.
	V-Belt loose.	Adjust belt tension.
	Motor Pulley loose.	Tighten Set Screw.
	Basket overloaded.	Remove load.
	Gear box bad.	Replace if defective.
Dryer noisy or vibrating.	Not leveled.	Check manual for proper leveling procedures.
	Fan out of balance.	Accidental damage to the fan blade can change the dynamic balance. Damaged fans should be replaced.
	Basket rubbing.	Adjust basket clearance.
	V-Belt sheaves.	Tighten Set Screws; make sure sheaves are in proper alignment.
	Belt.	Adjust belt tension.
	Foreign objects.	Occasionally screws, nails, etc., will hang in the basket perforations and drag against the sweep sheets surrounding the basket. Such foreign objects should be removed immediately.
Dryer runs but no heat. NOTE: This dryer has two ignition systems, valves, etc. Be sure to check both systems.	Spark igniter not sparking.	May be broken or defective high voltage lead. Module not receiving correct input to ignite. See pages 35-36 for Direct Spark Ignition process. Make sure ignition module ground wire is securely grounded to the machine (both sides).
	Defective gas valve.	Check continuity across unplugged valve. If defective, replace coil assembly.
	Gas turned off.	Turn manual gas valve "ON".
	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 to obtain proper orifices.

TROUBLE	CAUSE	REMEDY
Dryer runs, but no heat (continued).	Air switch not operating.	Clean out lint compartment daily. Check back draft damper for foreign objects, lint accumulation or other causes that may prevent damper from opening. Check duct work for lint build-up. Check installation sheet to insure that duct work and make-up air openings are adequately sized. Check exhaust outlet. If a screen has been improperly installed on the outlet, it may be clogged with lint or frozen over in Winter. Never install a screen on the exhaust outlet. Vacuum within dryer drops to .09 inches of water column, or less, for normal operation of dryer, vacuum reading (in inches of water column) should range between .15 and .3 inches. Vacuum reading can be made with a vacuum U-gauge by removing a sheet metal screw in the back panel or right panel at front bottom corner 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 of manual.
	Air switch defective.	Check continuity across contacts, opened and closed. If defective, replace switch with power off.
	Defective bonnet thermostat(s).	Check continuity across thermostat. Limiting or safety thermostats are normally closed. If open, replace thermostat.
	Defective basket safety thermostat.	See above.
Main burners burning improperly.	Dirt in burner.	Blow out.
	Gas pressure too high.	Check rating plate for correct gas pressure.
	Orifice to large.	Send to factory for correct orifices.
	Restricted or blocked exhaust.	Clean Exhaust.
	Incorrect or poor gas mixture.	Check with gas supplier for correct specifications of gas used; must match rating plate.
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 when dryer is in operation or replace.
	Gas pressure to high.	Adjust gas pressure as specified on rating plate.

TROUBLE	CAUSE	REMEDY
Dryer too hot. (continued)	Partially restricted or inadequately sized exhaust system.	Check installation sheet in service section of manual for recommended sizes. Check for and remove obstructions or lint build-up from duct work. Never use smaller size exhaust duct. Always use larger size exhaust duct.
	Defective tempature sensor.	Replace if defective.
	DMP or ProHc defective control.	Replace control.
Dryer will not tilt.	Loading Doors not open.	Open doors completely.
	Lint drawer is open.	Close lint door.
	No air pressure.	Connect air. Make sure air regulator is unclogged.
	Low air pressure.	Adjust air regulator to a higher pressure. Recommended air pressure is 80psi.
	Water in air line	Drain air filter.
	Not pressing in “Engage” button.	Press in “Enable” button and hold while operation “Tilt/Level” switch.
	Bad open door switch	Check switch. Replace if defective.
	Bad “Enable” or “Tilt/Level” switch.	Check switches. Replace if defective.
	Air valve not operating	Check plug connections. Check valve for water. Replace valve if defective.
	Flow control mufflers closed	Open flow control mufflers to proper adjustment.
Basket will not jog	Dryer is not tilted.	Tilt dryer.
	Loading doors not open.	Open doors completely.
	Lint drawer open.	Close lint drawer.
	Not pressing in “Engage” button.	Press in “Enable” button and hold while operation “Tilt/Level” switch.

DIRECT SPARK IGNITION OPERATION

NOTE: Some models are equipped with a dual ignition system. The dual ignition system contains two direct spark ignition modules in parallel. Each module has its own flame sense circuit and acts independently of the other. If either bonnet limit thermostat opens because of high heat or flame impingement, the entire ignition system will shut down.

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

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

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

4. Recovery from safety lockout requires one of the following:
   a. A manual reset by opening and closing the loading door.
   b. After one hour if the control thermostat is still calling for heat, the module will automatically reset and the trial for ignition period will start over. The push-to-start button must be pushed to start the process going again.

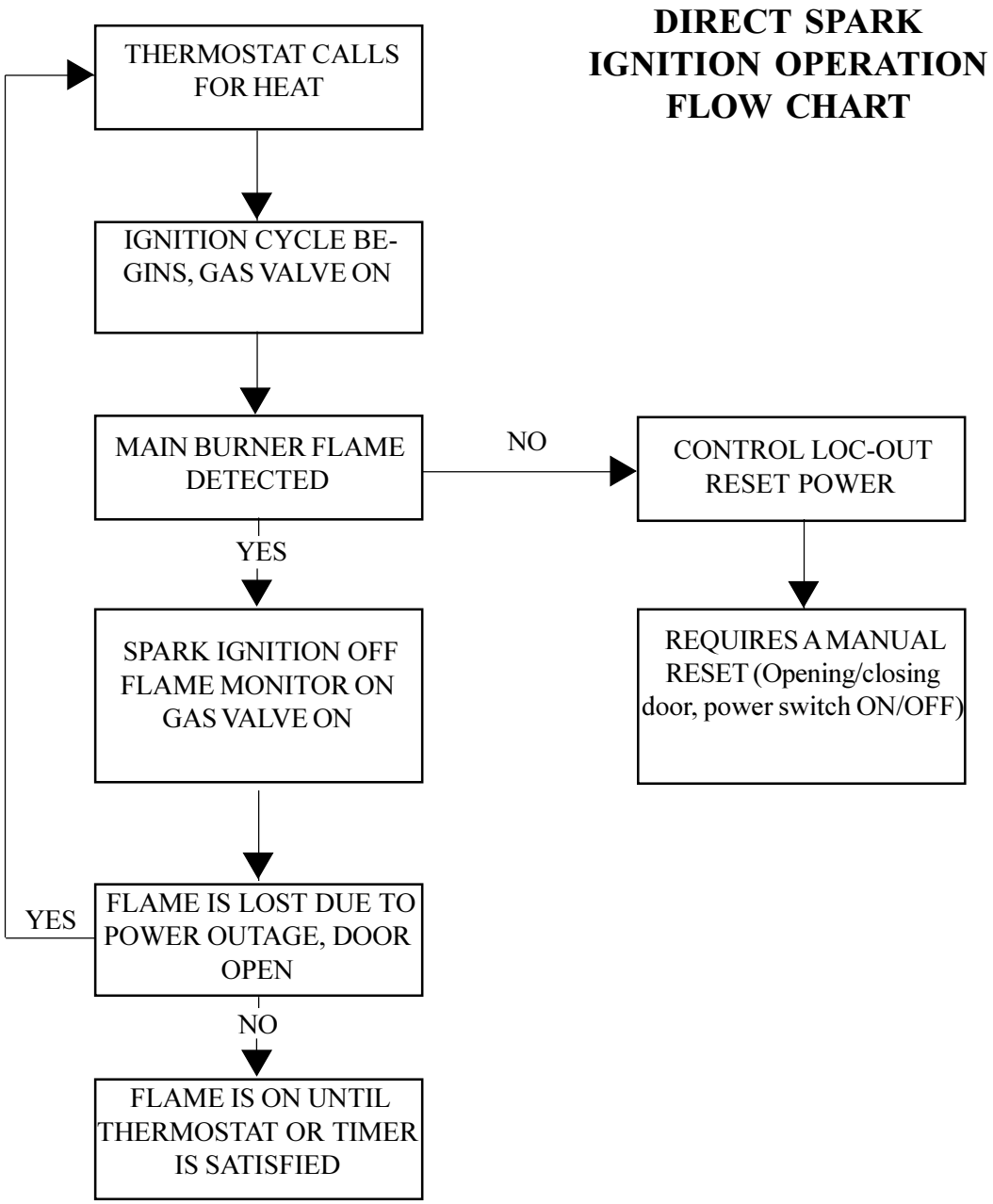
5. Opening the loading door will cause the flame to extinguish. Closing the door and starting the dryer will restart the trial for ignition period.

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.

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

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



MAINTENANCE

MAINTENANCE

1. **CLEAN LINT SCREEN DAILY.** Remove lint before starting day's operation. A clean lint screen will increase the efficiency of the dryer, as the moisture-laden air will be exhausted more quickly.

2. **CLEAN BASKET AND SWEEPSHEETS.** Clean periodically and/or as often as required. The basket and sweep sheets are easily accessible by removing the back covers of the dryer.

3. **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. Increase tension of basket motor belt by loosening the nuts on the torque arm on the transmission. Adjust accordingly and retighten nuts. The fan belt is adjusted by removing links in the belt.

4. **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.

5. **GAS BURNERS.** Keep burners clean. Check and clean often.

6. **GAS PRESSURE.** Gas pressure should be checked periodically per specifications on separate page.

7. **EXHAUST SYSTEM.** Periodically check and clean.

MAINTENANCE

MAINTENANCE (continued)

8. **VOLTAGE.** Voltage should be checked periodically per rating plate located on rear wall of dryer.

9. **COMBUSTION (MAKE-UP) AND VENTILATING AIR.** The flow should not be obstructed.

10. **DRYER AREA.** Keep dryer area clean of lint and free from combustible materials, gasoline, and other flammable liquids/ vapors.

DRIVE PULLEYS AND BELTS

DRIVE PULLEYS AND BELTS

Before placing the dryer into operation, ensure that the drive belts and pulleys are in good condition and have sufficient belt tension.

Check belt tension after dryer is in operation 2-3 weeks. Tighten as necessary.

Check belt tensions and belt & pulley condition every 3-6 months.

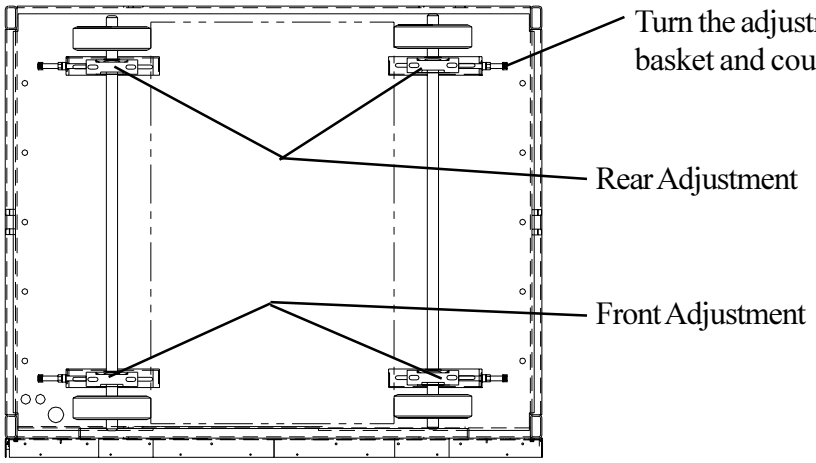


FIGURE -1A

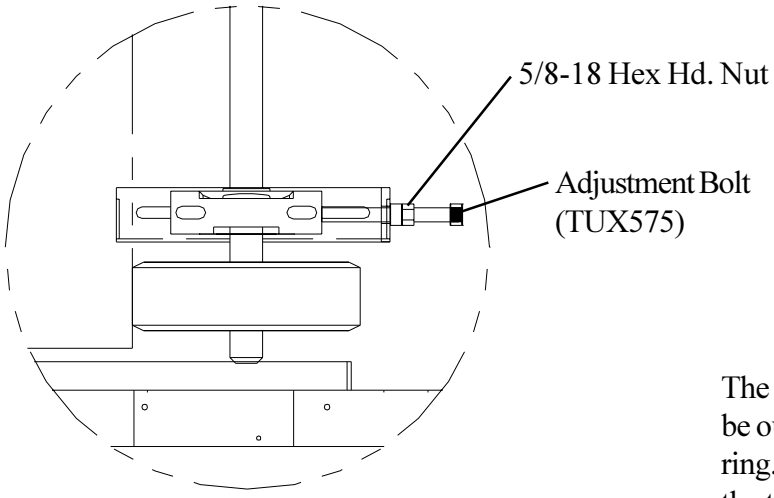


FIGURE -1B

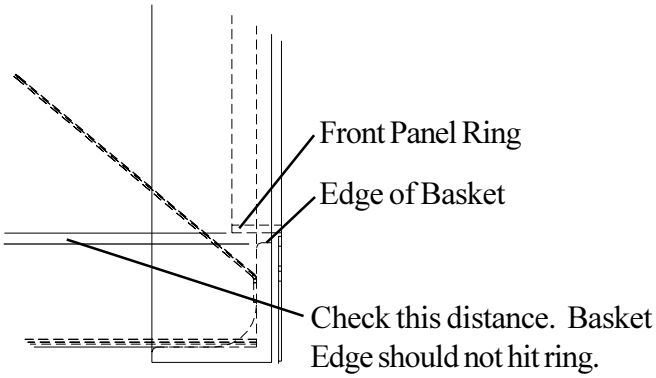


FIGURE -1C

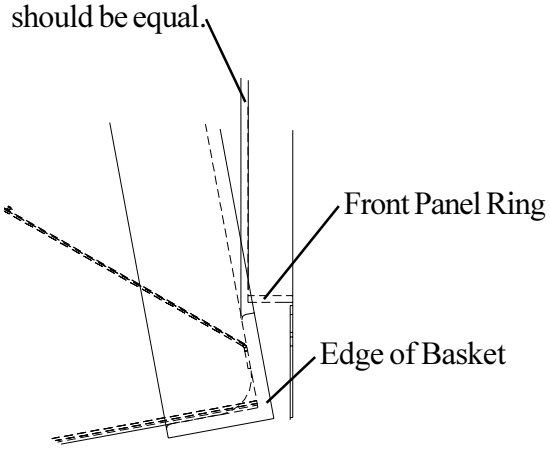


FIGURE -1D

BASKET ALIGNMENT DIRECTIONS

STEP 1:

Open access doors on side of dryer. Open siding doors on front of dryer.

STEP 2:

Look inside in front of dryer and look at the front of the basket. There is an 1/8" thick ring welded to the front panel that is even with the bottom of the door opening. Determine if the distance between the basket and the ring is equal going around the circumference of the basket (See figure 1-C).

STEP 3:

Loosen all four 5/8-18 hex hd nuts (See figure 1B).

STEP 4:

Turn adjustment bolts (part Tux575 in Figure-1B) clockwise or counter clockwise depending on which way the basket needs to be adjusted. Turn the bolt clockwise to adjust the basket higher, and counterclockwise to lower the basket. If the basket edge and the front panel ring are touching on one side then you need to turn the adjustment bolts on the opposite side clockwise. If the basket is touching the front panel ring at the bottom then you need to the adjustment bolts clockwise on both sides of the dryer. This will bring the basket up equally on both sides. If the basket is touching the front panel ring at the top then you need to adjust the front adjustment bolts by turning them counter-clockwise. This will lower the basket evenly on both sides. After you have finished this step you may want to turn the basket to look for any touching of the basket and the front panel ring. **Guide wheels must be on dryer before turning basket**.

STEP 5:

Adjust level of basket between back and front of dryer. Look inside in front of dryer and look at the front of the basket. If the basket edge is past or closer to the front panel ring at the bottom than the top you need to adjust the rear adjustment bolts (See Figure-1D). If the basket ring is out past the top of the front panel ring then you need to turn the rear adjustment bolts counter-clockwise to lower the rear of the basket. If the basket ring is out past the bottom of the front panel ring then you need to turn the rear adjustment bolts clockwise to raise the rear of the basket.

STEP 6:

Tighten all four 5/8-18 hex hd nuts (See figure 1B).

STEP 7:

Go to Guide wheel alignment directions. After completing the adjustment go to next step.

STEP 8:

Start Dryer and listen for any grinding or banging noise from the basket hitting the dryer. If you hear noise then you are finished. If you hear and noises than go back to step 4.

GUIDE WHEEL ADJUSTMENT DIRECTIONS

STEP 1: Open loading doors on front of dryer. Start alignment with guide wheel below loading door at front of dryer.

STEP 2: Check alignment of the inside of basket ring and the front panel ring. The front panel ring edge should be even or slightly past the inside of basket ring (See Figure-3A). If guide wheel adjustment is fine than go back to *Basket Alignment Directions*. If the inside of the basket ring is past the end of the front panel ring then the guide wheel assembly is in to far and needs to have a spacer(s) removed. If the edge of the front panel ring is past the inside of the basket ring more than a quarter of an inch the basket may be to close to the front panel. The guide wheel needs a spacer(s) added. **If the inside of the basket ring is to far out past the front panel ring, garments could get caught between the basket and the front panel.**

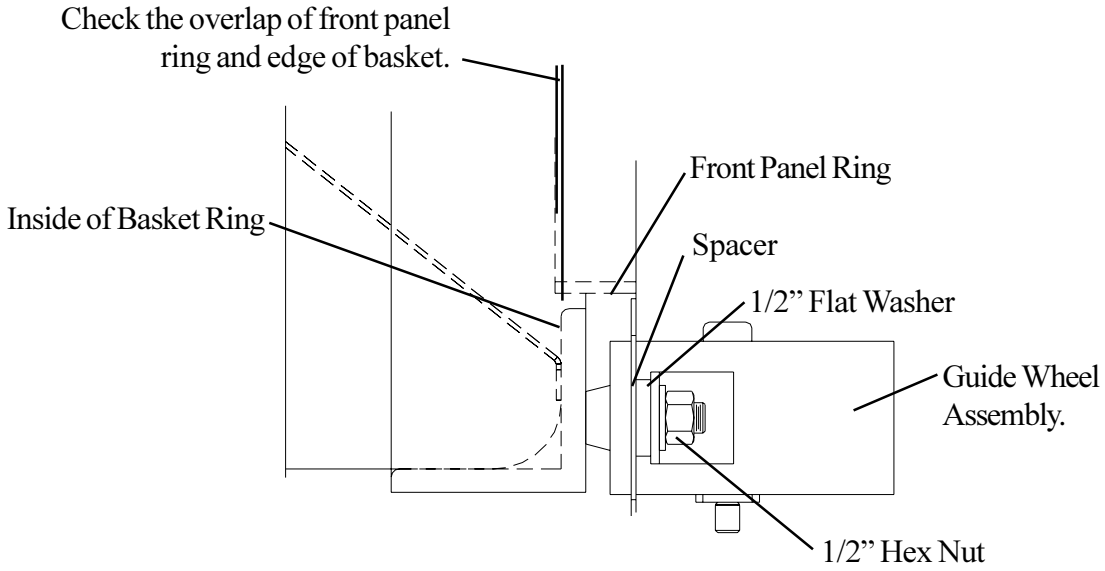


FIGURE -3A

STEP 3: Adding a spacer.
Loosen the two nuts holding the guide wheel assembly down. Remove nuts, washers, and guide wheel assembly from front panel studs. If there is already a spacer then another one. A spacer is a ½" flat washer. If there is no spacer than add a spacer between the front panel and the tabs on the guide wheel assembly. Add spacer(s) in sets of two. One for each side of guide wheel assembly. Put on flat washer and nut back on and tighten assembly back in place.

STEP 4: Removing a spacer.
Loosen the two nuts holding the guide wheel assembly down. Remove nuts, washers, and guide wheel assembly from front panel studs. Remove spacer(s) between the front panel and the tabs on the guide wheel assembly. Remove spacer(s) in sets of two. One for each side of guide wheel assembly. Put on flat washer and nut back on and tighten assembly back in place.

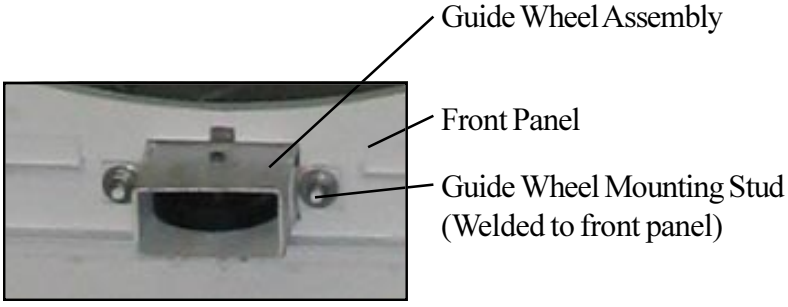


FIGURE -3B

STEP 5: Aligning Back Guide Wheel Assembly

To align back wheel guide assembly you basically adjust the wheel to hold the basket against the front guide wheels and lock the basket in place. Loosen the two nuts holding the guide wheel assembly down. Remove nuts, washers, and guide wheel assembly from front panel studs. Put the guide wheel assembly in place and against the basket. Look at the gap between the back covers and the flange on the rear guide wheel assembly to see how much spacer you will need. Remove rear guide assembly and add spacers between rear covers and flanges on rear guide wheel assembly. Put on flat washer and nut back on and tighten assembly back in place. There should be no or little pressure on the wheel after it is tighten down. **If the rear wheel assembly is adjusted to press against the basket hard it will cause excess were on the guide wheels.**

STEP 6: Go back to Basket Alignment Directions. When dryer is running the guide wheels should turn only 60%. **If the wheels are running 100% of the time than the rear wheel adjustment is to hard and you need to repeat step five.**

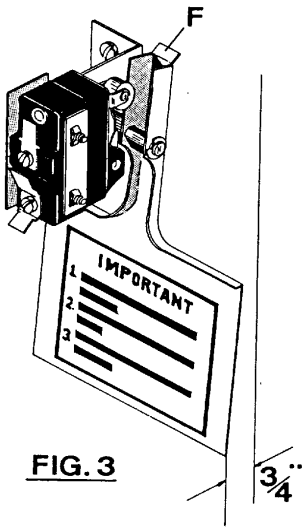


FIG. 3

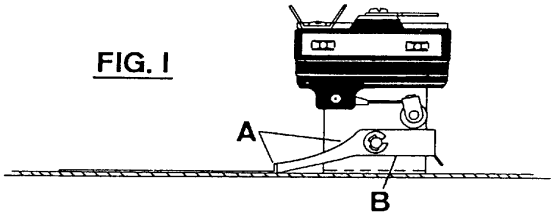


FIG. 1

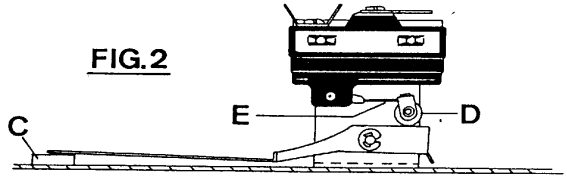


FIG. 2

AIR SWITCH ADJUSTMENT

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

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

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

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

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

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

Setting menu

Structure of setting menu

The setting menu is subdivided in three submenus.

Technical menu.

A dryer can be configurated according it's 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.

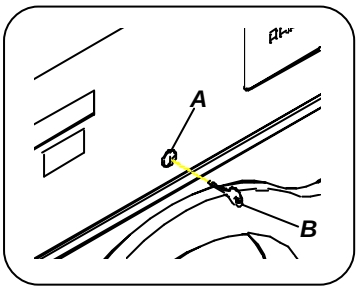
Programmation menu.

To program the programs.

Display menu.

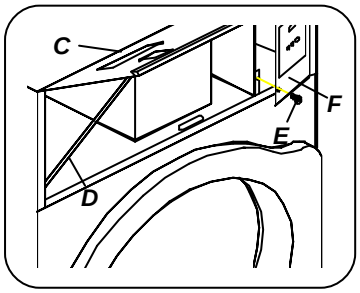
To recall data such as supplied labour time of a dryer.

Selection of setting menu

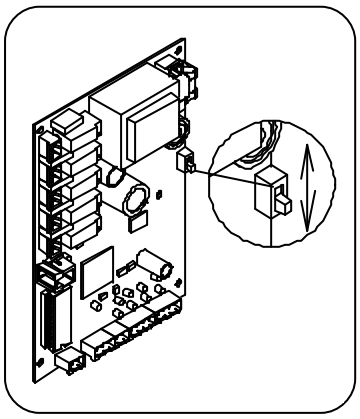


In order to select the setting menu, the switch at the back of the printplate has to be pulled.

To reach the switch :
- Turn the lock (A) with the delivered key (B) 90°anticlockwise.

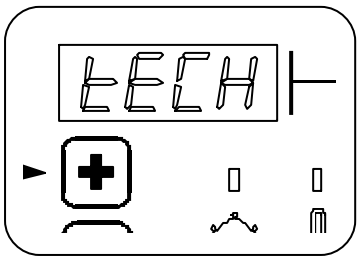


- Open the top frontpanel (C) and put the support (D) at the left side under this panel in the provided clamp.
- Remove the screw (E) in the operating door (F).
- Then open this door.



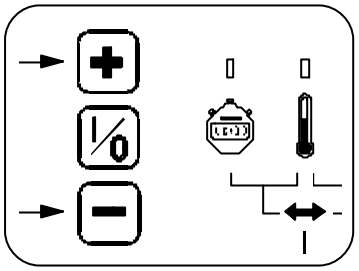
Behind this, at the backside of the printplate you find the switch.

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.

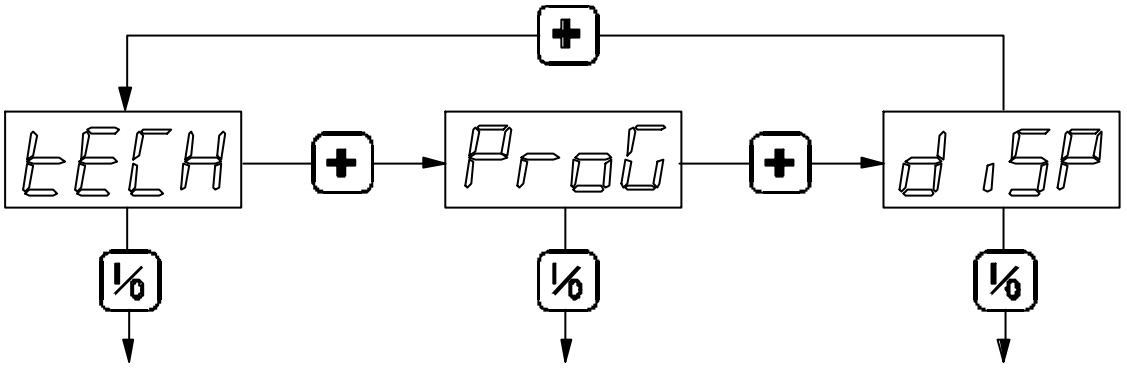
Selection of submenus



Selection of submenus or programmation 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.

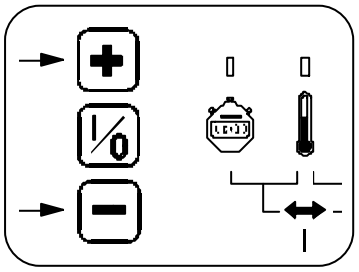
XX

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



TECHNICAL MENU ***PROGRAMMATION MEMU*** ***DISPLAY MENU***

Remark



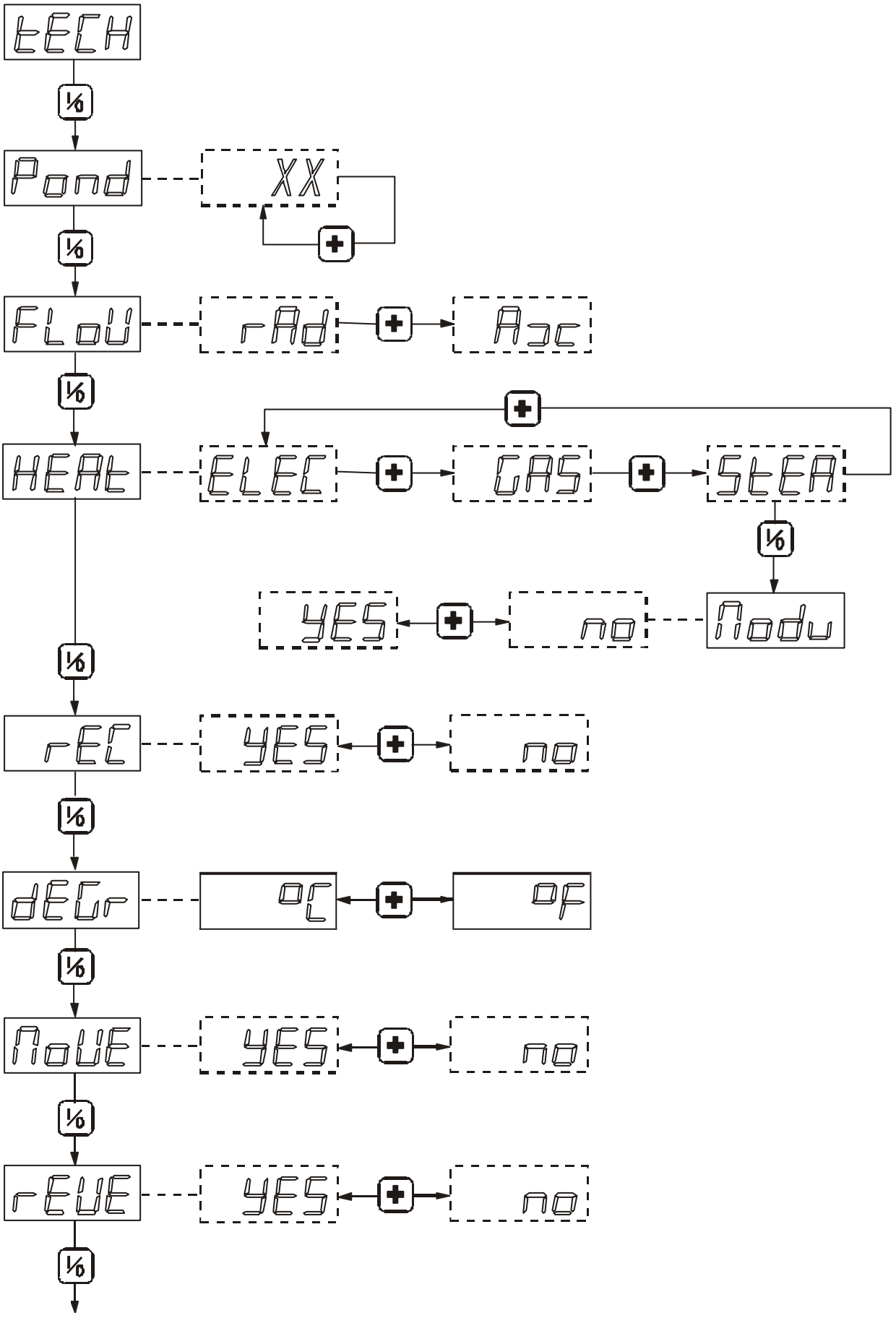
Operation of the push buttons.

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 programmation.

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

- 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.


tECH
Pond
XX
FLoU
rAd
Asc
HEAt
ELEC
GAS
StEA
YES
no
Modu
rEC
YES
no
dEGr
°C
°F
MoUE
YES
no
rEUE
YES
no

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 programmation 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 programmation 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 programmation 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 programmation 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.

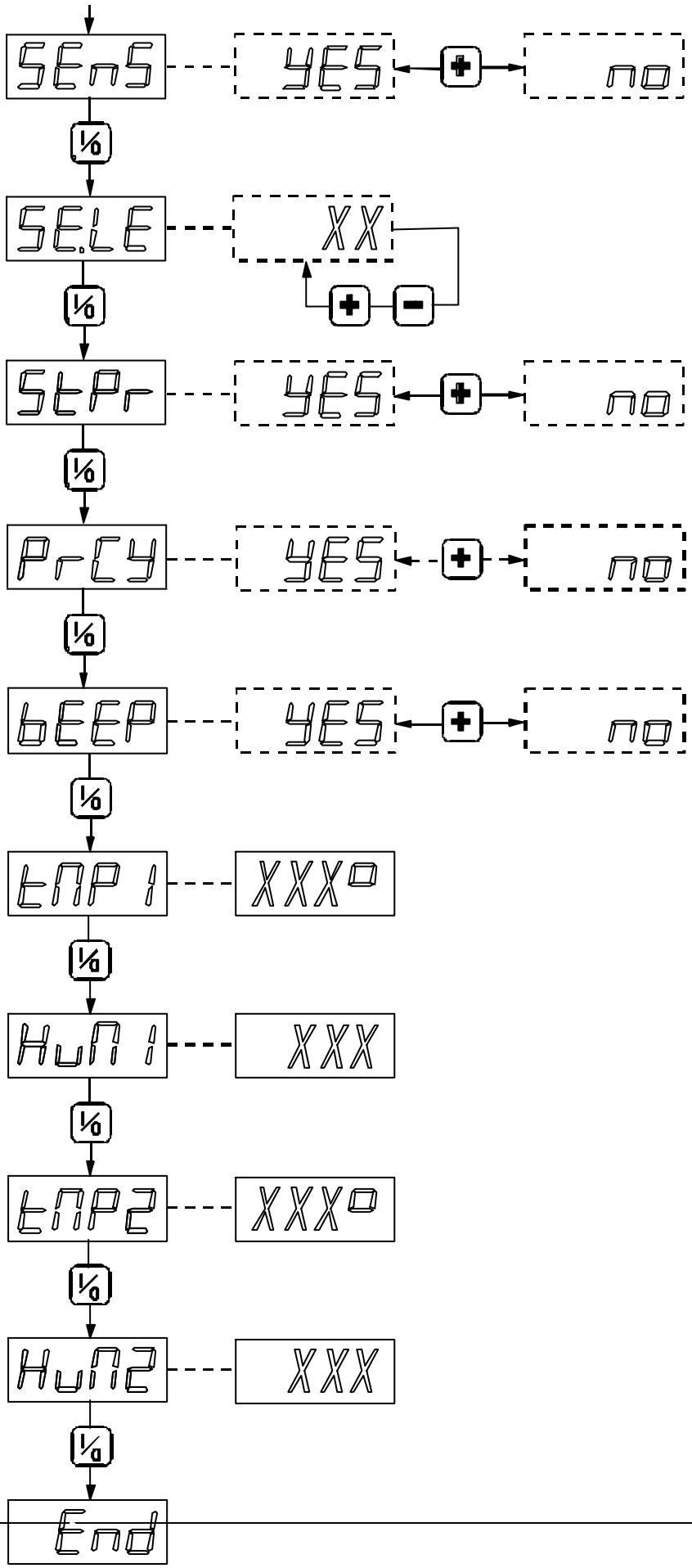
If necessary, change this programmation with the upper button.
Press the middle button to continue.

rEVE

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

If necessary, change this programmation with the upper button.
Press the middle button to continue.

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


SEnS
YES
no
SELE
XX
StPr
YES
no
PrCY
YES
no
bEEP
YES
no
tMP 1
XXX°
HuM 1
XXX
tMP2
XXX°
HuM2
XXX
End

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.

Programmation 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

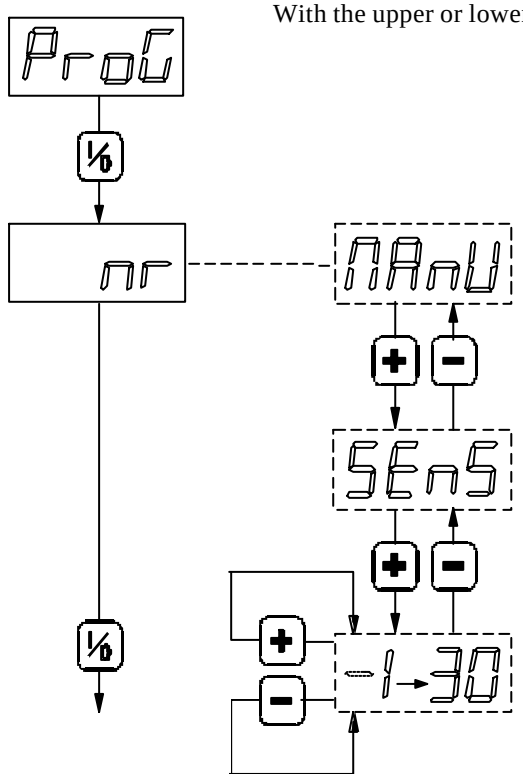
Drying by means of setting the residual moisture of the linen.

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

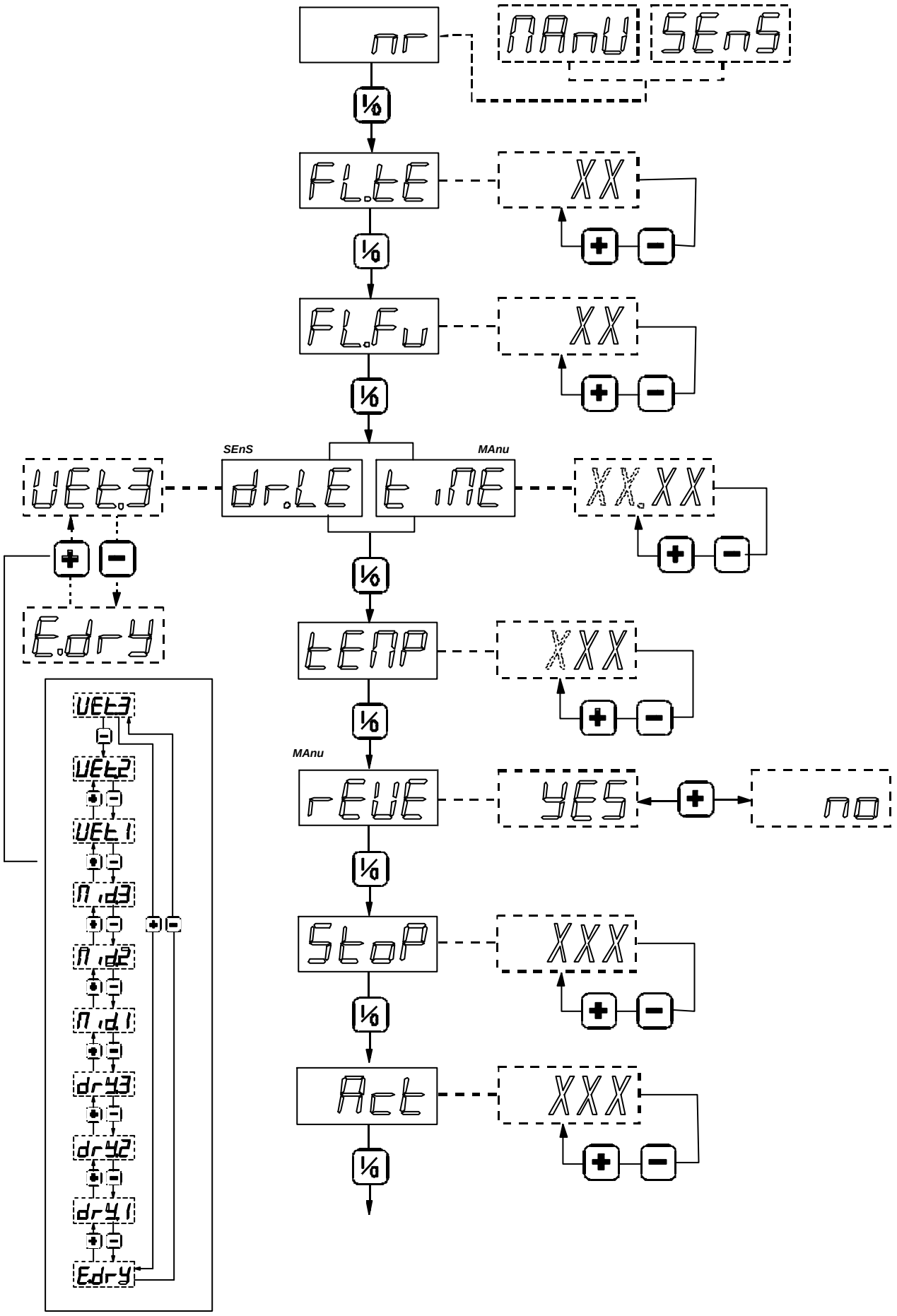
Press the middle button.
" ***nr*** " appears on the upper display while the lower display shows the name or number of the program to be programmed.
With the upper or lower button you have to select now :



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.


nr
MAnU
SEnS
FL.tE
XX
FL.Fu
XX
SEnS
MAnu
UEt3
dr.tE
t .mE
XX.XX
E.dr4
tEMP
XXX
MAnu
rEUE
YES
no
StoP
XXX
Act
XXX
UEt3
UEt2
UEt1
n.d3
n.d2
n.d1
dr43
dr42
dr41
E.dr4

Programmation 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 programmation 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 programmation 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 dryest 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 programmation 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 programmation 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 programmation 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.

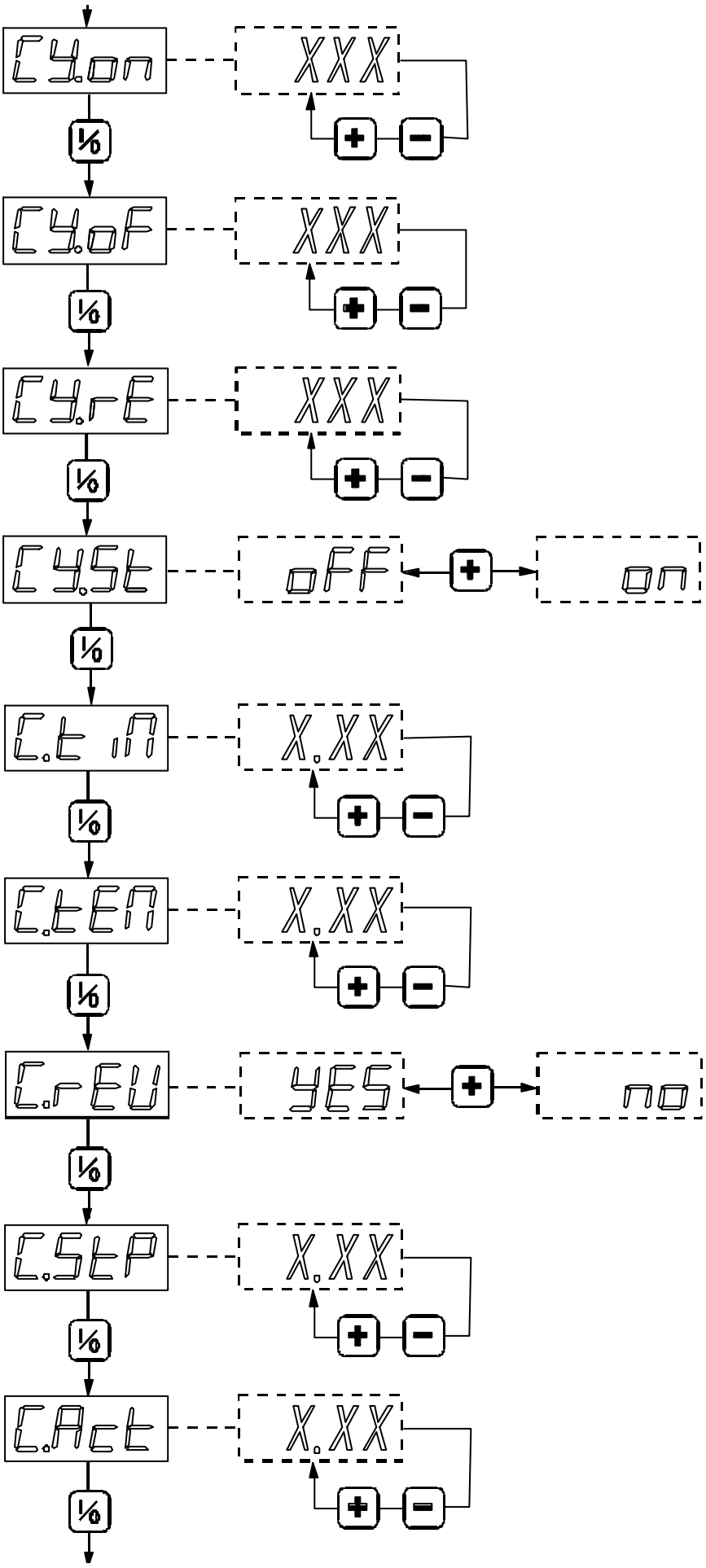
If necessary, change this programmation with the upper or lower button (5 to 10 seconds) and confirm afterwards with the middle button.

Act (actiontime - default 30)

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

If necessary, change this programmation 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.tEM”***.


Cy.on
XXX
Cy.oF
XXX
Cy.rE
XXX
CySt
oFF
on
C.t in
X.XX
C.tEn
X.XX
C.rEU
YES
no
C.StP
X.XX
C.Act
X.XX

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 programmation 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 uper 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 programmation 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)

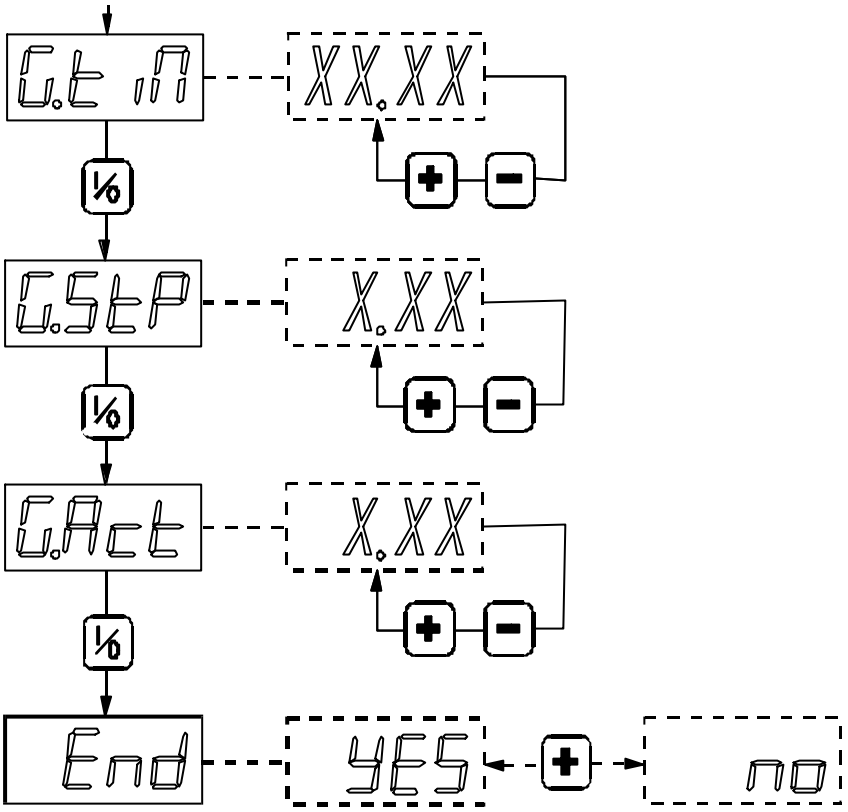
On the lower display appears the time that the drum has to stand still between a left-right action during the cool down time.

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


G.t in
XX.XX
G.StP
X.XX
G.Act
X.XX
End
YES
no

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 programmation 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 programmation with the upper or lower button (5 to 240 seconds) and confirm afterwards with the middle button.

G.Act (Guard actiontime - default 5)

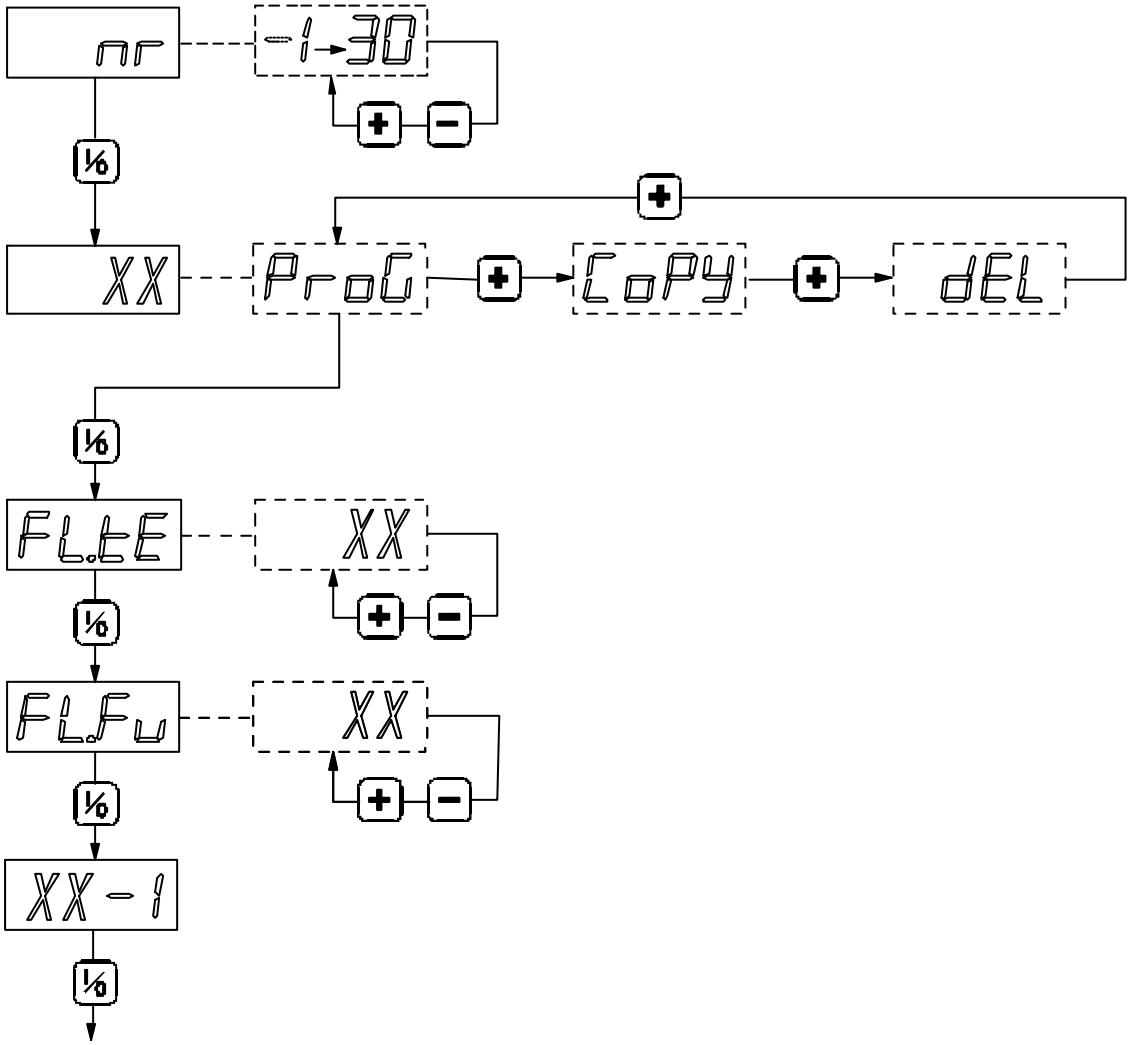
On the lower display appears the time that the drum has to be activated during the anti-crease time.

If necessary, change this programmation 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 programmation of the variable manual program has ended here.
On the lower display appears ***YES***. By pushing the ***middle button, you leave the programmation menu***.
Select by means of the upper button ***no*** to program another program and confirm with the middle button.


nr
-1→30
XX
ProG
CoPy
dEL
FLtE
XX
FLFu
XX
XX-1

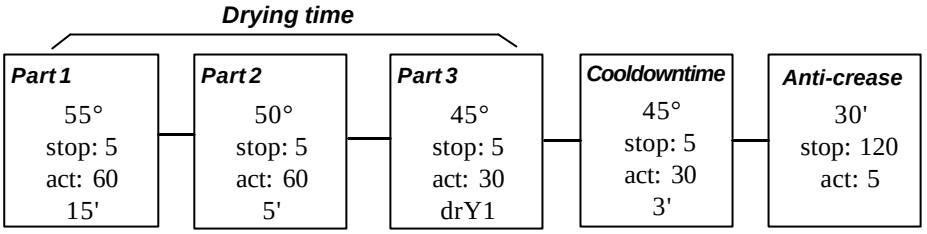
Programmation of the fixed programs

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 programmation 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 programmation 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.

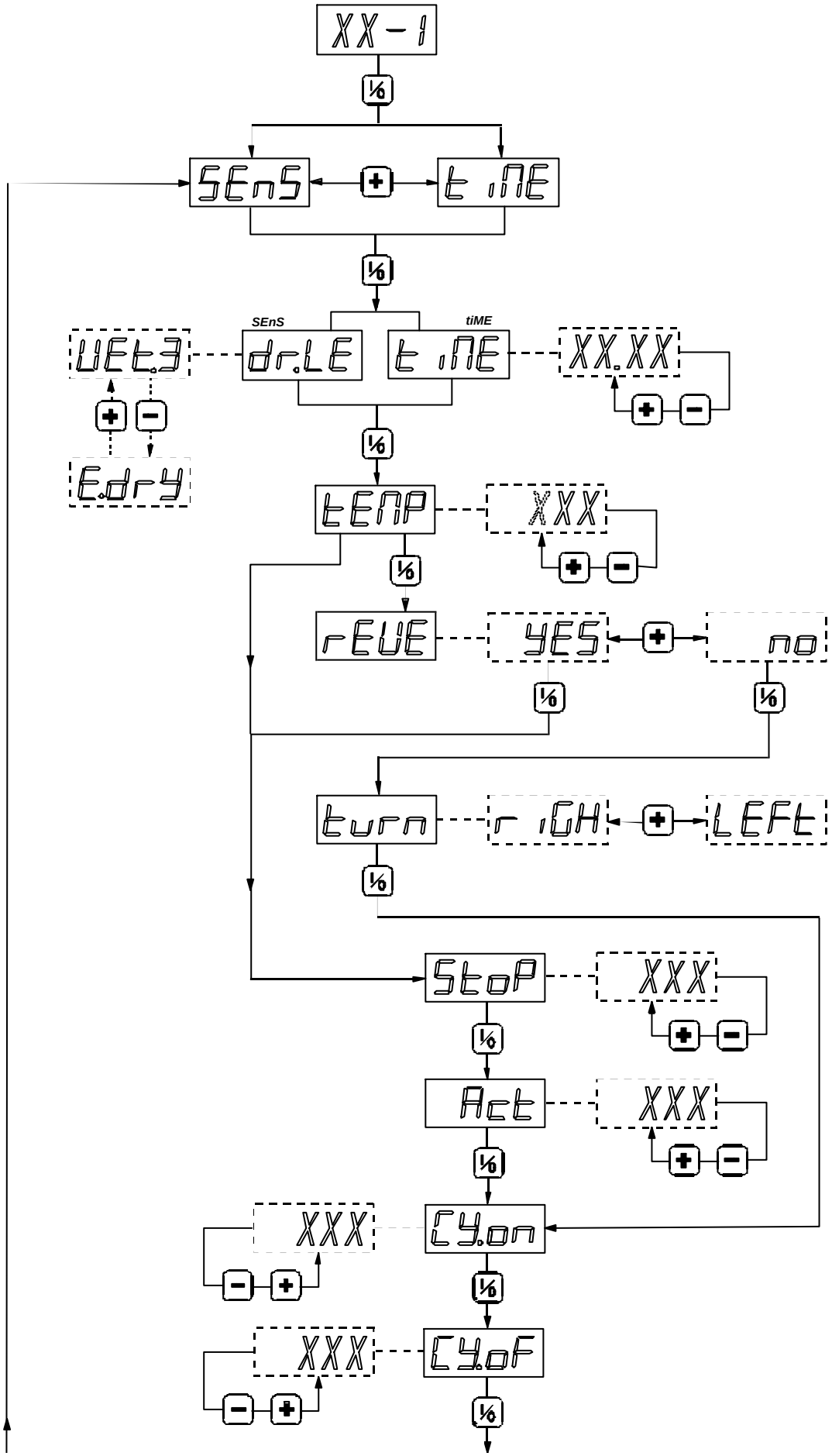
If necessary, change this programmation with the upper or lower button (0 to 60 seconds) and confirm afterwards with the middle button.

⚠ If one of these programmation 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
SEnS
tiME
SEnS
tiME
dr.LE
XX.XX
YES
no
XXX
rIGH
LEFt
XXX
XXX
XXX

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 programmation 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 programmation 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 programmation 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 programmation 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 programmation 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
righ: right (clockwise)
left: left (anticlockwise)

Confirm the programmation 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.

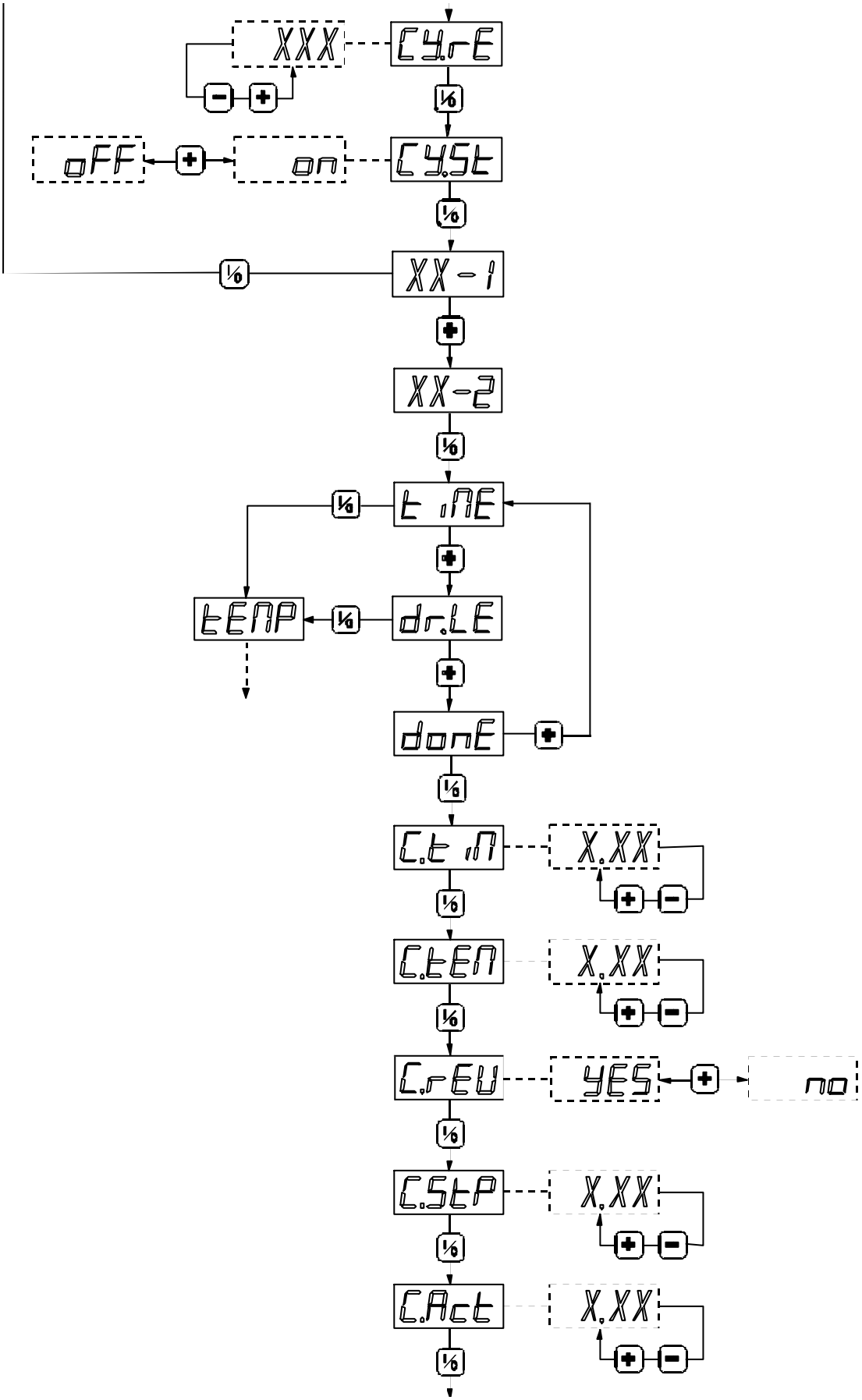
Change this setting when necessary by means of the top or bottom button (0 to 2400 seconds) and then confirm by means of the middle button.

⚠ 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".


CYCLE
XXX
CYCST
on
oFF
XX-1
XX-2
TIME
TEMP
dr.LE
donE
C.tIM
X.XX
C.tEM
X.XX
C.rEV
YES
no
C.StP
X.XX
C.Act
X.XX

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 programmation 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 programmation 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 programmation 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)

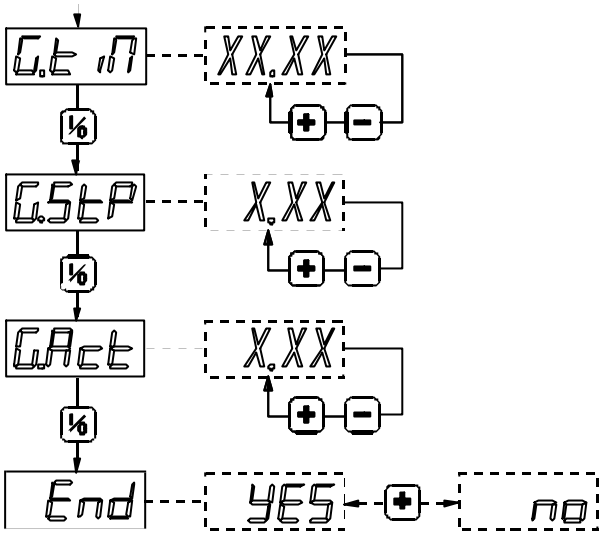
On the lower display appears the time that the drum has to stand still between a left-right action during the cool down period.

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


G.t n1
XX.XX
G.StP
X.XX
G.Act
X.XX
End
YES
no

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 programmation 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 programmation 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.

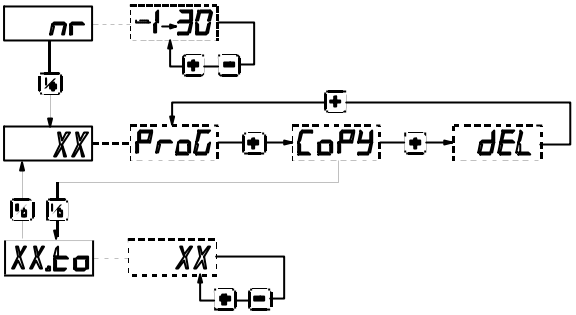
If necessary, change this programmation with the upper or lower button (5 to 240 seconds) and confirm afterwards with the middle button.

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

End

The programmation of the variable manual program has ended here.
On the lower display appears ***YES***. By pushing the middle button, you ***leave the programmation 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.

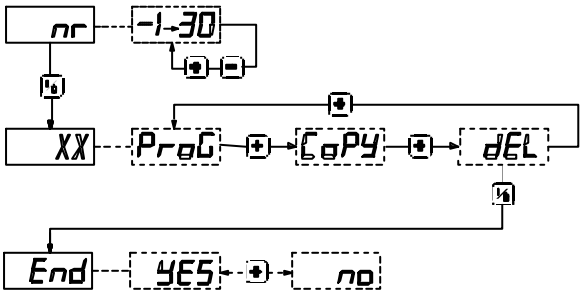
Select the number of a programme which will be used as the base for a new programme by pressing the top or bottom button.
Keep pressing the middle and top button during 5 seconds.

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 containes 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.

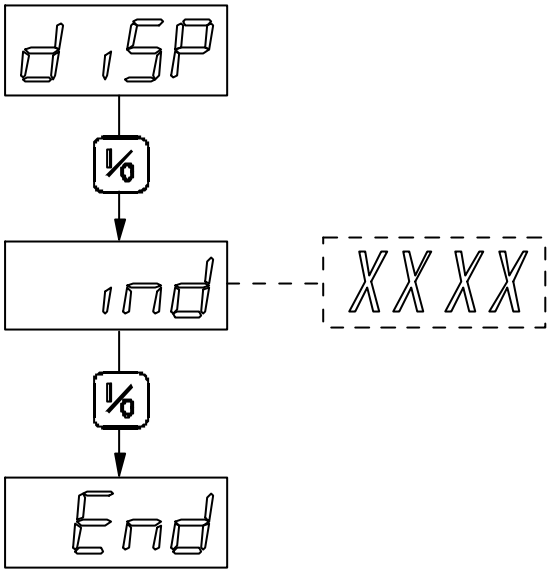
Select the number of a programme which must be deleted, by pressing the top or bottom button.
Keep pressing the middle and top button during 5 seconds.

"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 buttom 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

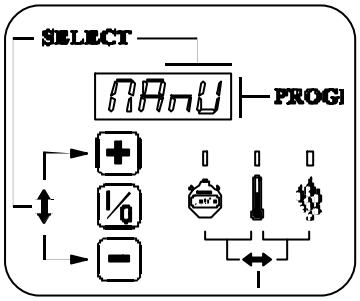
The upper display shows ***END***. This is the end of the display menu.

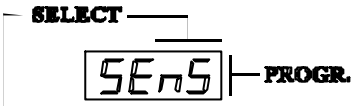
Press the middle button to continue.

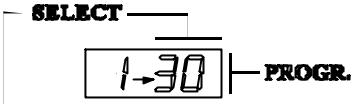
Operating instructions

Selecting a program

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

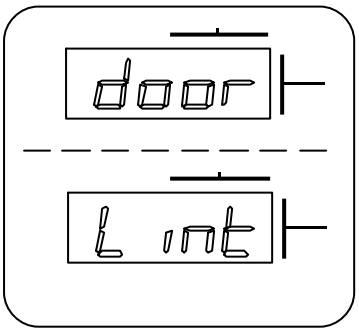






It is only possible to select the programme numbers which contain a programme.
It is also possible to select the standard programmes (31 to 40) (see further: standard programmes), provided that ***"YES"*** was selected in the technical menu for ***"St.Pr"***.

Loading of the drum



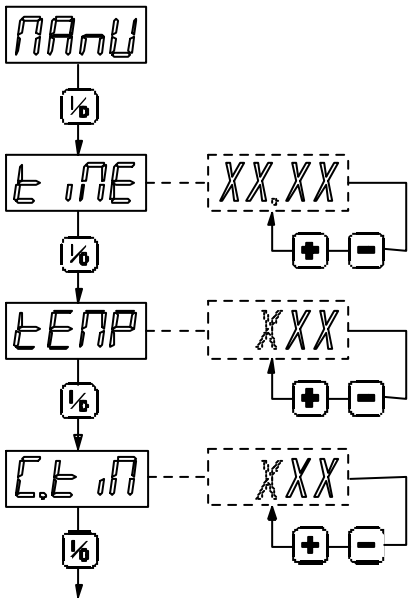
Open the door and load the drum.
When the door is opened, ***"door"*** and ***"Lint"*** appears alternately on the upper display.
Disentangle the linen as good as possible so that it does not accumulate during the drying. That way, an equal drying will be obtained. Overloading of the drum can also lead 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 programmation 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.

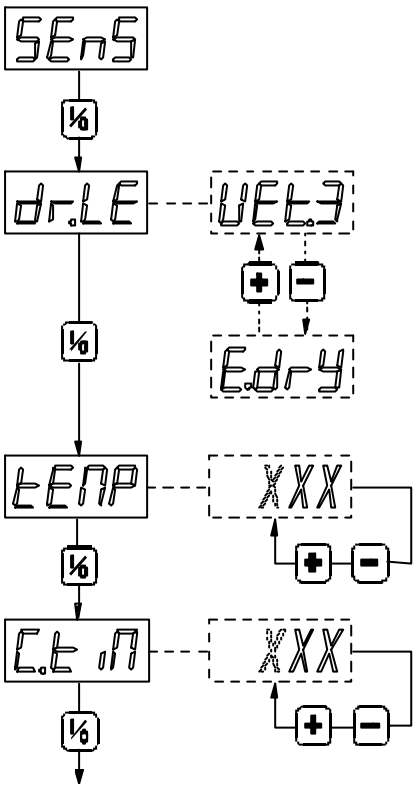
C.tiM

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

If necessary, change this programmation 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



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

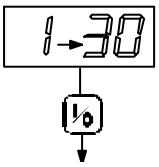
The drying temperature appears on the bottom display.
Change this temperature if necessary by means of the top or bottom button (0 to 92°C - 32 to 198°F) and then confirm by means of the middle button.

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.

Fixed program

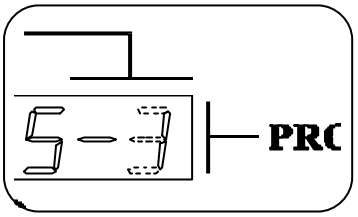


1.....30

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).

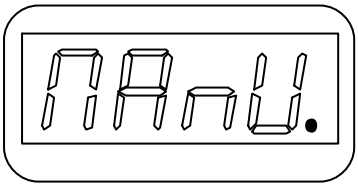
Program course



Program number

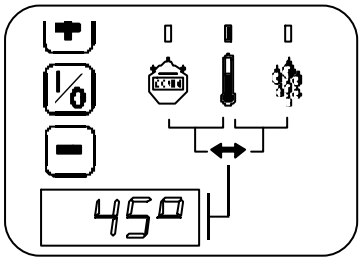
On the upper display, the ***program number or name*** (MAnU - Auto) is always mentioned.
If the drying time of a program consists of several subdivisions, next to the program number, you will find the ***number of the subdivision***, where the program is actually situated at that moment. Alternately 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.

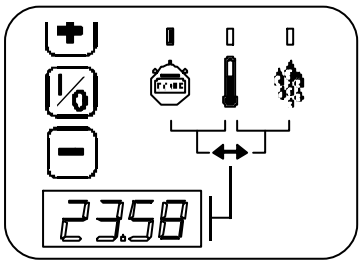
.example : program "5" is in subdivision "1" and the drying time consists of "3" subdivions.



Heating activated

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

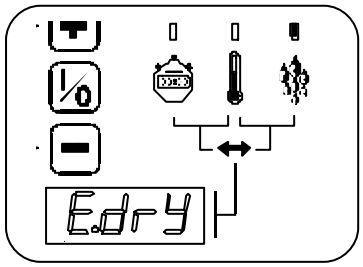




Display of the remaining drying time, temperature, residual moisture level

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"***).

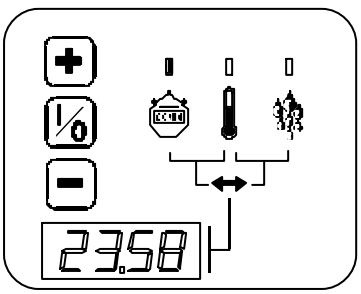
- During the display of ***the temperature***, the ***middle led*** will light up.
- Druing the display of ***the remaining drying time***, the ***left led*** will light up. This time is counted down by second.
- During the display of ***the residual moisture*** level, the ***right led*** will light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

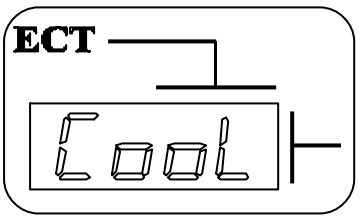


Changing the residual drying time

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).

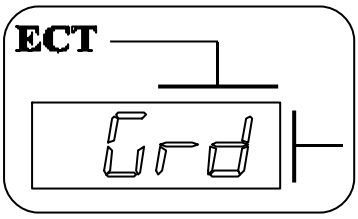


End of the drying time : transition to cool down time

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

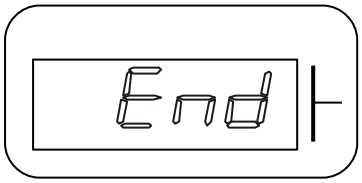
On the upper display ***"CooL"*** is mentioned.

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

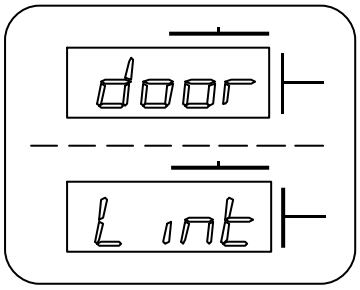
When the ***cool down time is over***, or when the ***cool down temperature is reached***, the anti-crease time starts automatically.
The drum makes here a short action (eg. 5 sec) and a long stop (eg. 2 minutes) in order to prevent creasing of the linen. During the rotation of the drum, the ***buzzer 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.

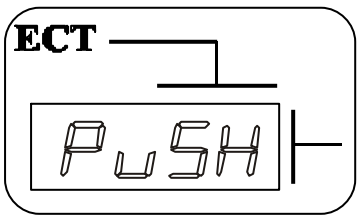
Manual interfering



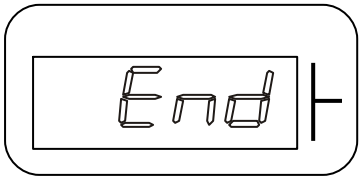
Opening of the door or filterdoor during the program

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 change***d.
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

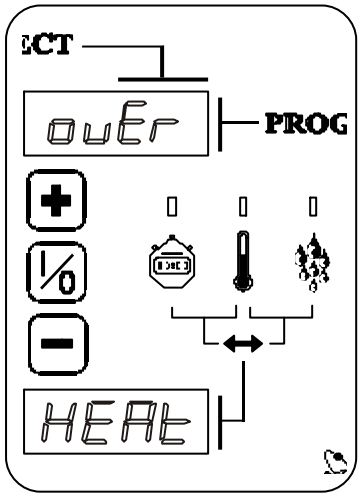
Technical remarks

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.

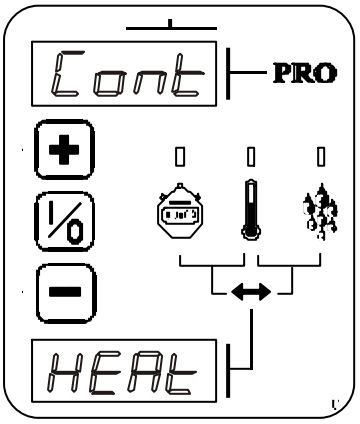
During the operation :

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's a serious fire risk.***
"over-Heat" is mentioned blinking when a temperature higher or lower than ***120 ° C*** is measured.



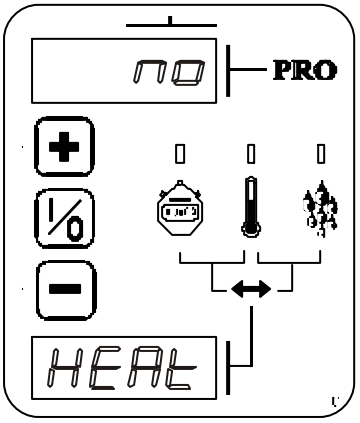
When ***"over-HEAt"*** appears, no drying cycle can be started any longer. Therefore the dryer has to be placed without electrical power for a while.

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.

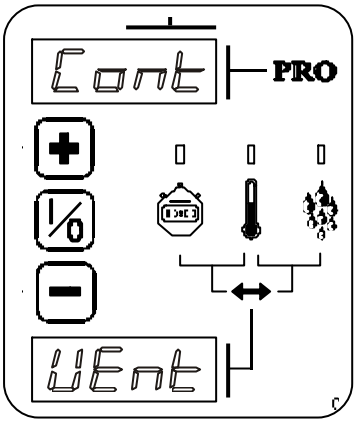


no-HEAt

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.

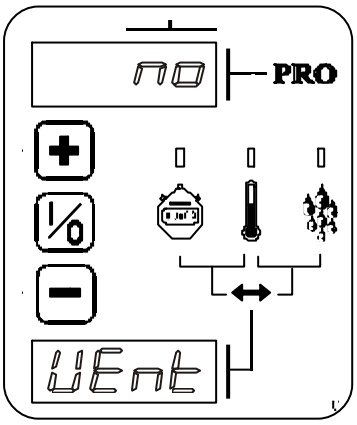
When the door is opened, the error message disappears and ***"Push"*** is mentioned. Now you have to restart.

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



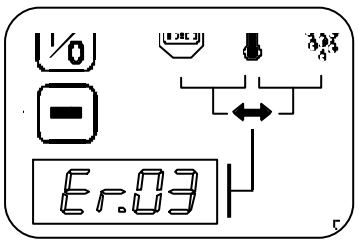
ContHEAt

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.



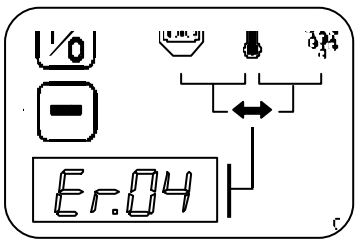
noVEnt

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

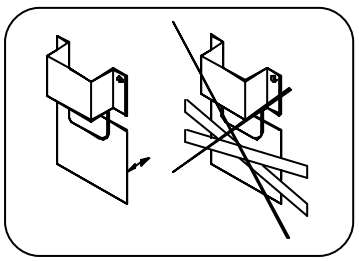


Er.04

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.

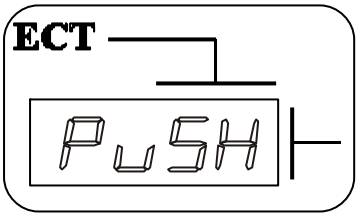
Sale switch



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.***

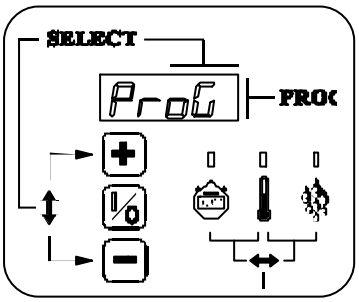
Power breakdown



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 programmation menu



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

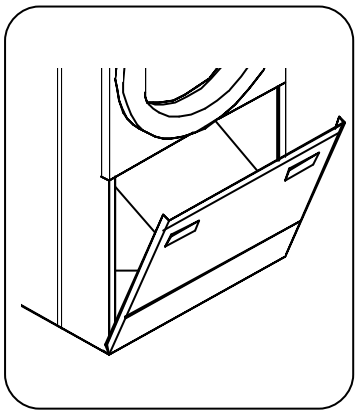
It is advisable to remove all dust particles in and around the dryer at fixed times. It is best to determine these fixed times by experience, as they differ from place to place.

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.

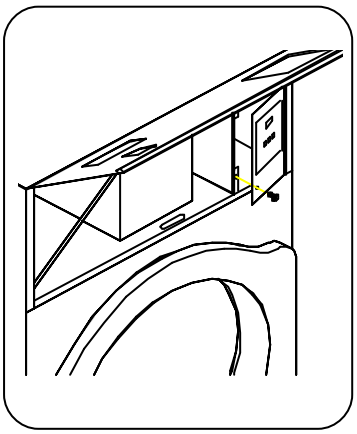
Daily

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 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, sale 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: .....

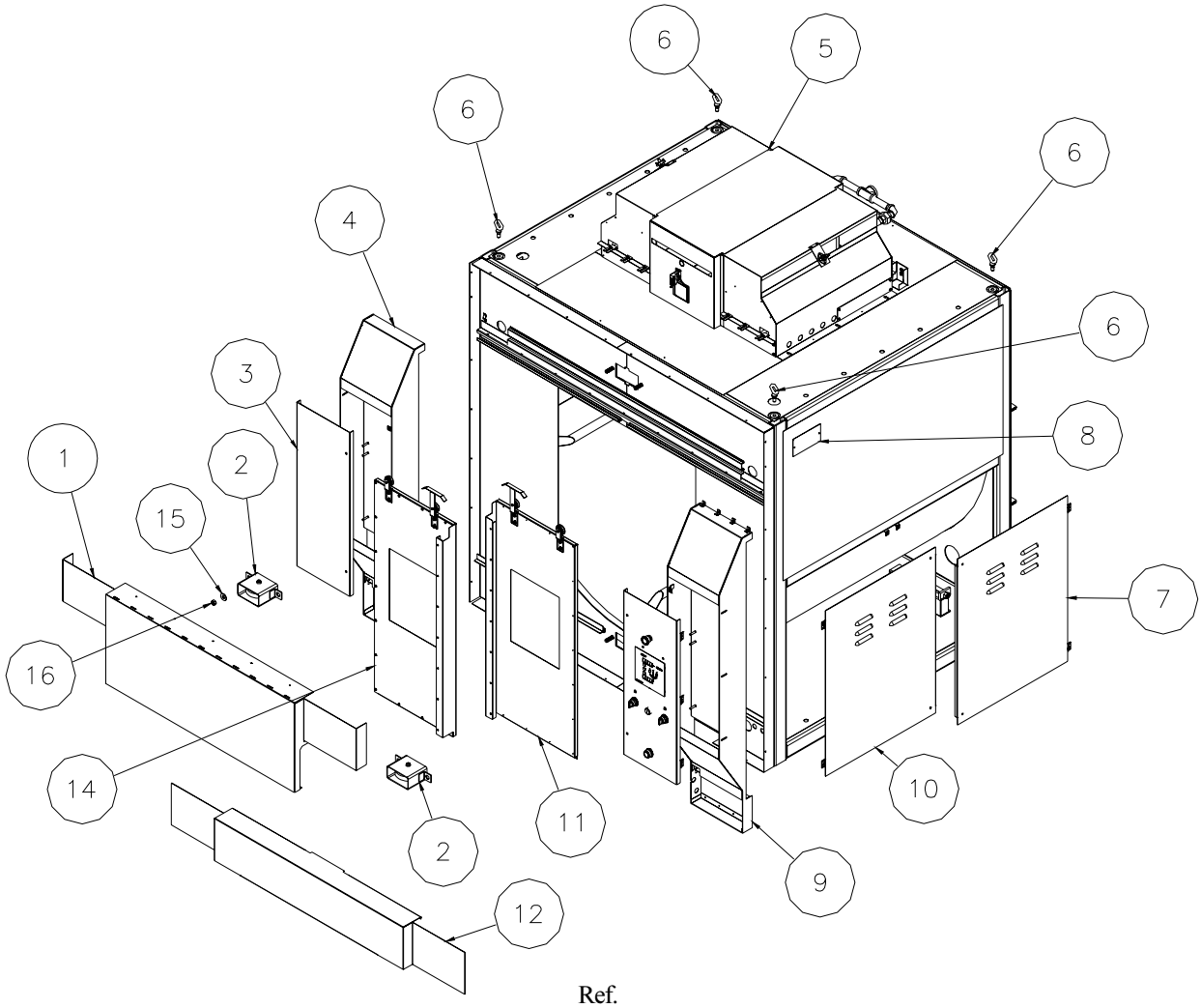
Serial number : .....

Operation voltage and frequency : .....

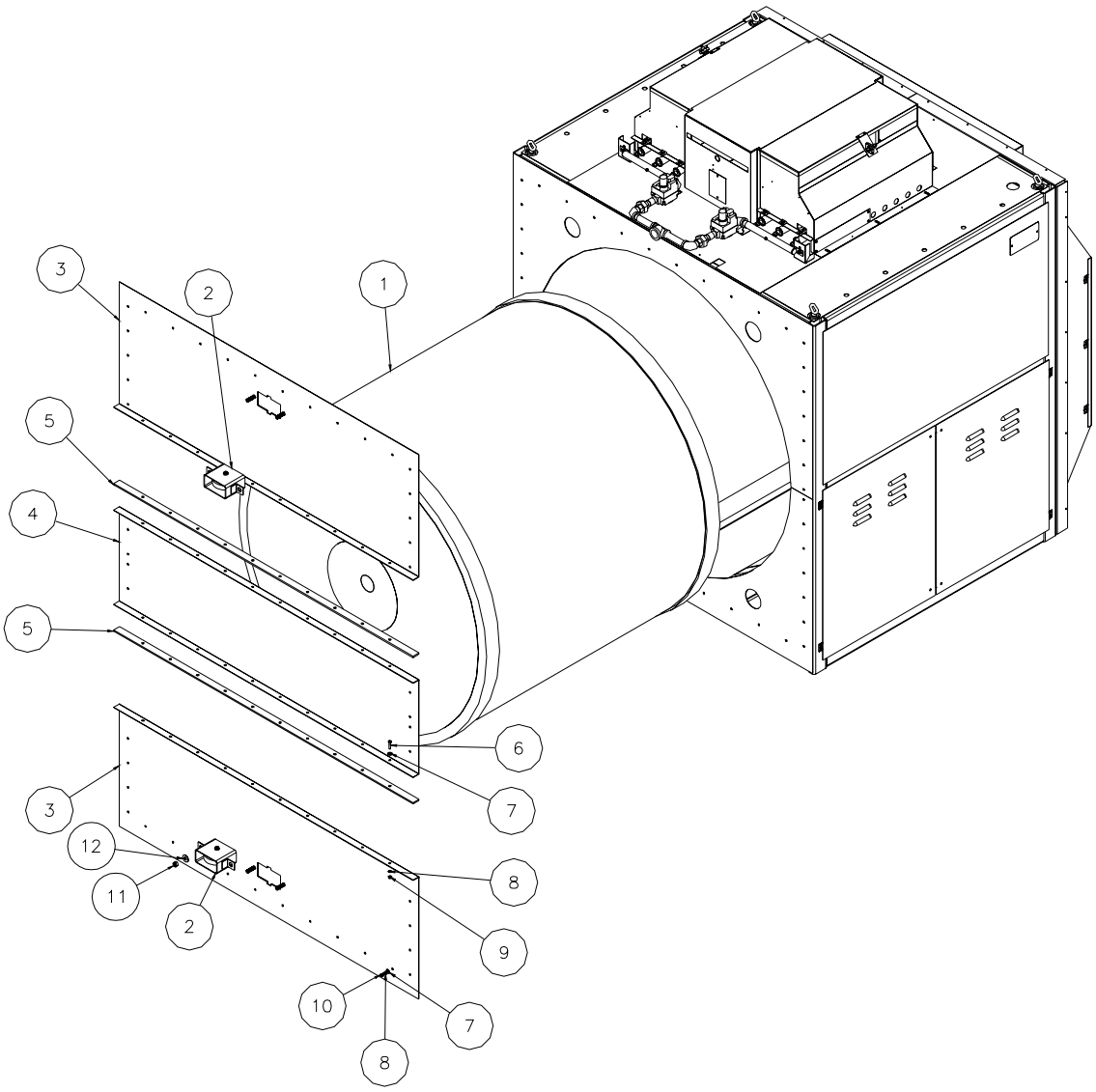
Remarks : .....

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

TOP SECTION

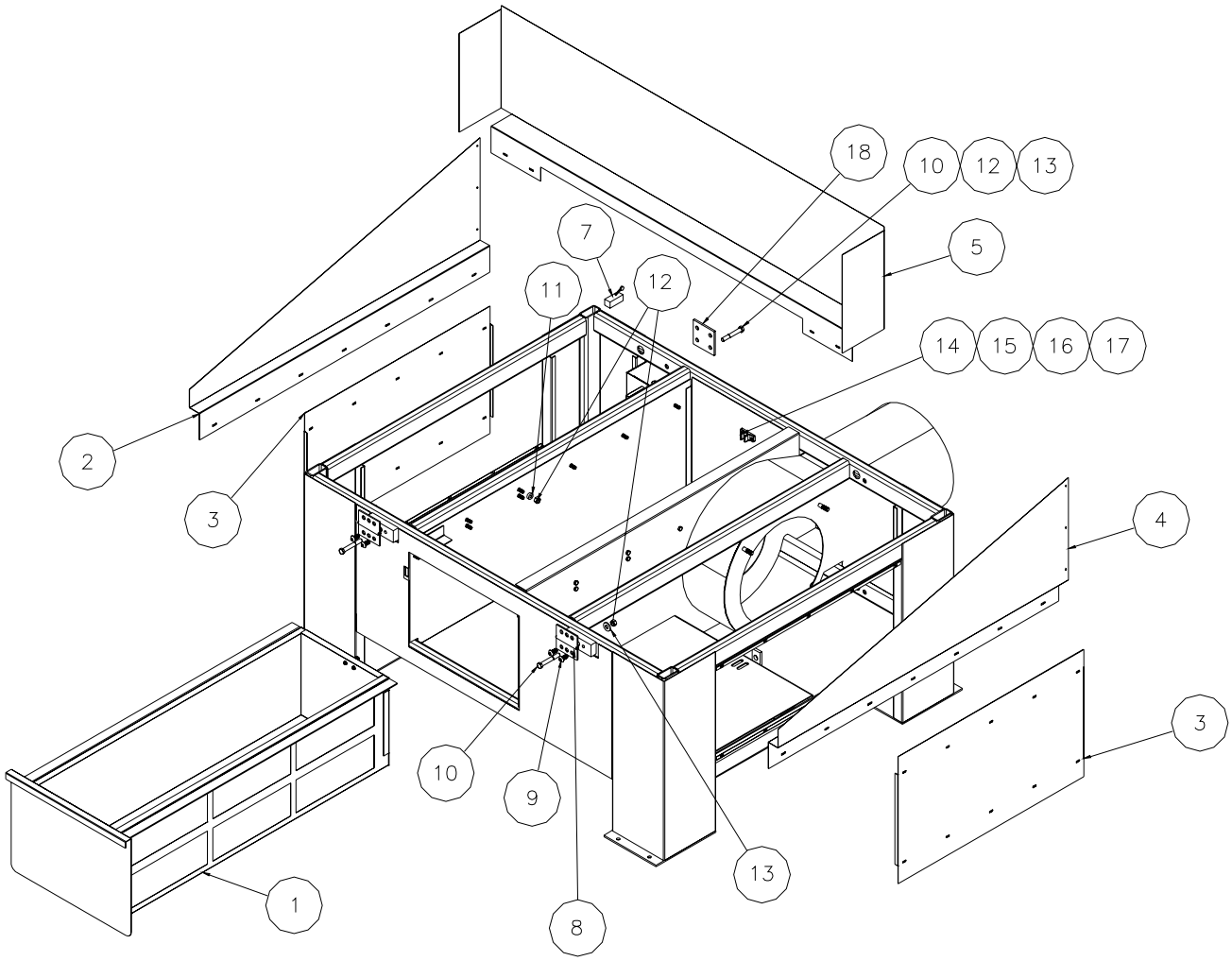


Ref. No.	Part No.	Description
1	TUL421	Cover, front panel, upper
2	TUL157	Basket guide wheel, front
3	TUL238	Control box lid, left
4	TUL206	Control box W/a, left
5	TUL266	Gas bonnet assembly
6	TUL125	Eye bolt
7	TUL318	Access door, right
8	TU15525	Cover plate
9	TUL243	Control box W/a, right
10	TUL319	Access door, left
11	TUL177	Loading door, right
12	TUL214	Cover, front panel, lower
14	TUL176	Loading door, left
15	TU2883	Washer, flat 1/2”
16	TUX504	Nut, 1/2-13

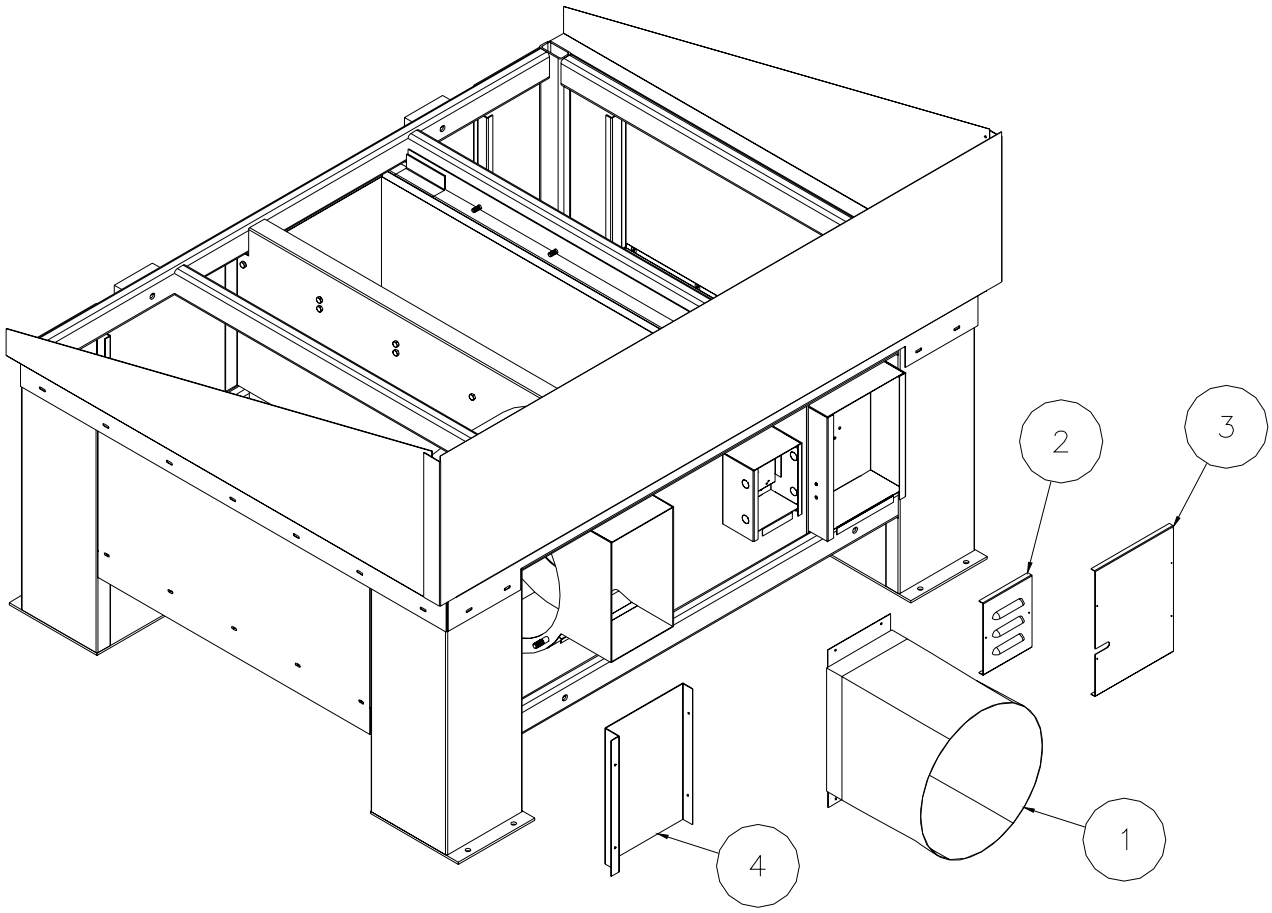


Ref. No.	Part No.	Description
1	TUL120	Basket
2	TUL317	Basket guide wheel, rear
3	TUL208	Cover, rear, upper/bottom
4	TUL209	Cover, rear, middle
5	TUL224	Spacer, rear cover
6	FB189	Bolt, Hex Hd. 1/4-20 x 1" lg.
7	TU2847	Washer, Flat 1/4"
8	TU2846	Washer, Lock 1/4"
9	TU4934	Nut, 1/4-20
10	CB36	Bolt, Hex Hd. 1/4-20 x 1/2" lg.
11	TUX504	Nut, 1/2-13
12	TU2883	Washer, flat 1/2"

BOTTOM SECTION

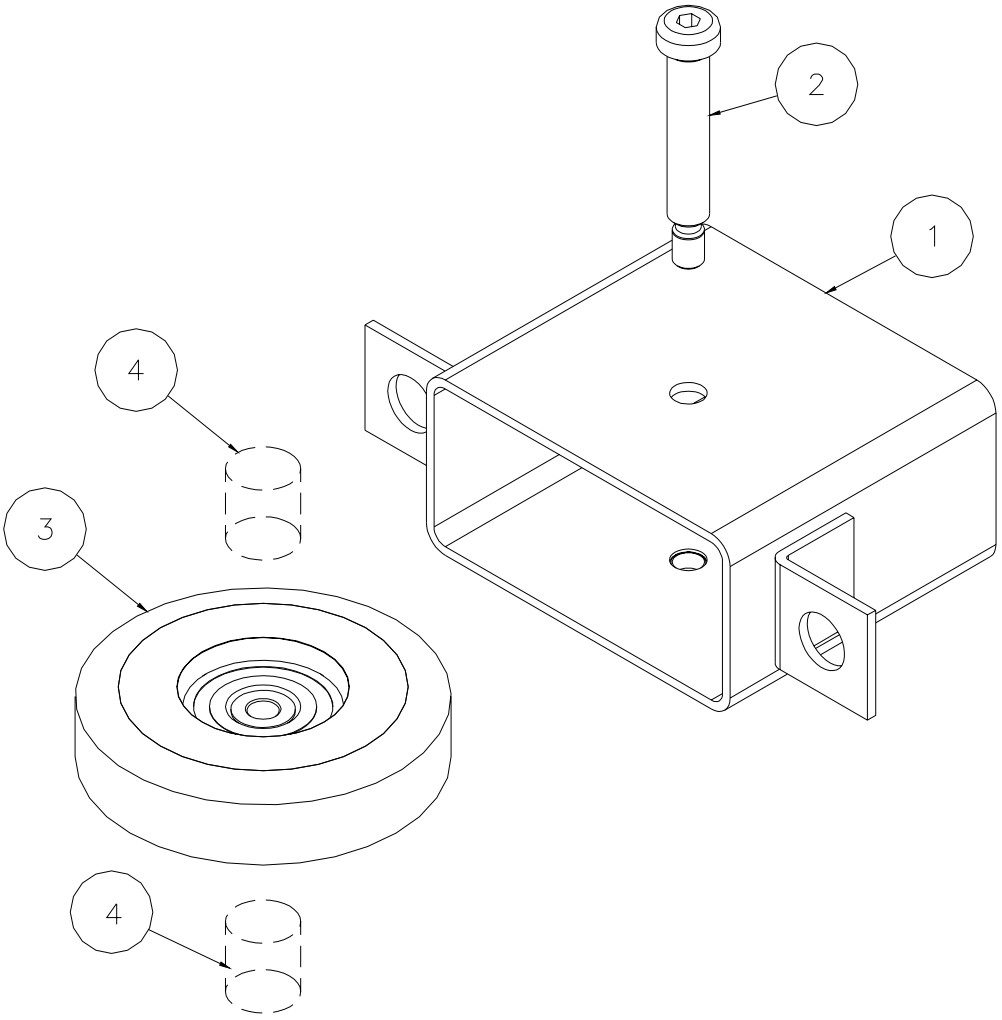


Ref. No.	Part No.	Description
1	TUL175	Drawer, Lint
2	TUL252	Cover, tilt, left
3	TUL203	Cover, Side
4	TUL251	Cover, tilt, right
5	TUL254	Cover, tilt, rear
6	EA-11621-0	Switch, lint drawer
7	TUL275	Switch, level
8	TUL454	Hinge
9	TUL458	Bolt, Socket Hd 1/2-13 x 1 5/8" lg.
10	TUL459	Bolt, Socket Hd. 1/2-13 x 4" lg.
11	SFD119	Bearing, 7/8" OD.
12	TUX504	Nut, 1/2-13
13	TU2883	Washer, Flat 1/2-13
14	TU15744	Door holder, nylon, (Set)
15	F725	Machine Screw, #10-24
16	TU4820	Washer, Flat 3/16"
17	FB185	Nut, #10-24
18	TUL362	Non-Tilting plate



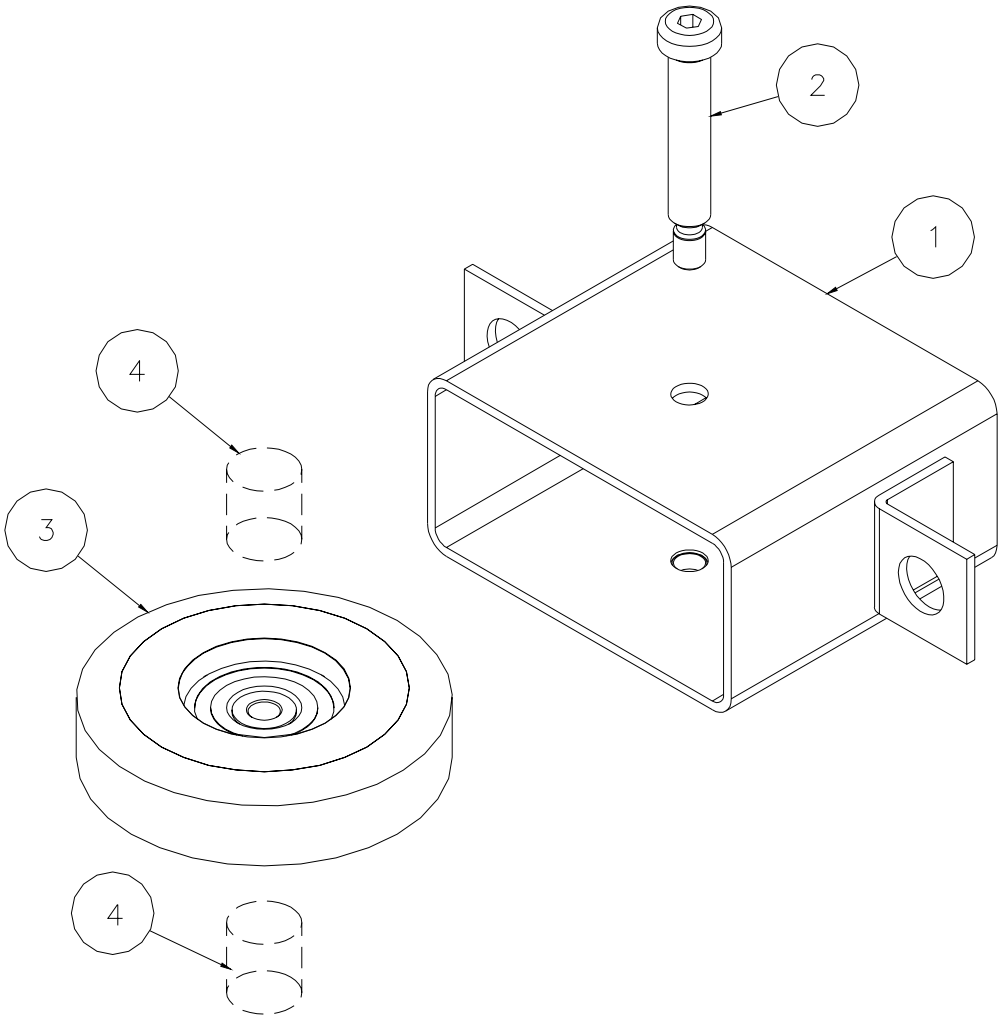
Ref. No.	Part No.	Description
1	TUL245	Duct exhaust
2	TUL222	Cover, elec./FDS box
3	TUL228	Cover, pneumatic box
4	TUL297	Cover, rear

GUIDE WHEEL ASSEMBLY - FRONT

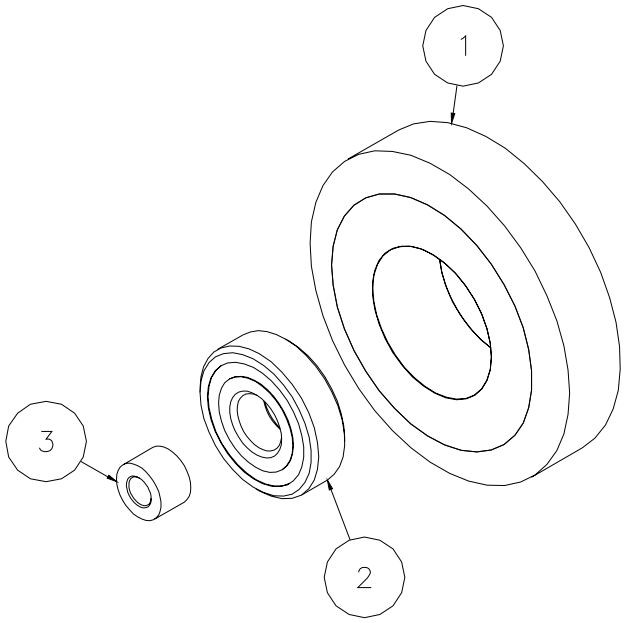


Ref. No.	Part No.	Description
TUL157	Asm, Basket Guide Wheel, Front	
1	TUL136	Retaining Wheel Tube, Front
2	TUL158	Bolt, Shoulder
3	TUL312	Asm, Guide Wheel
4	TUL159	Spring

GUIDE WHEEL ASSEMBLY - REAR

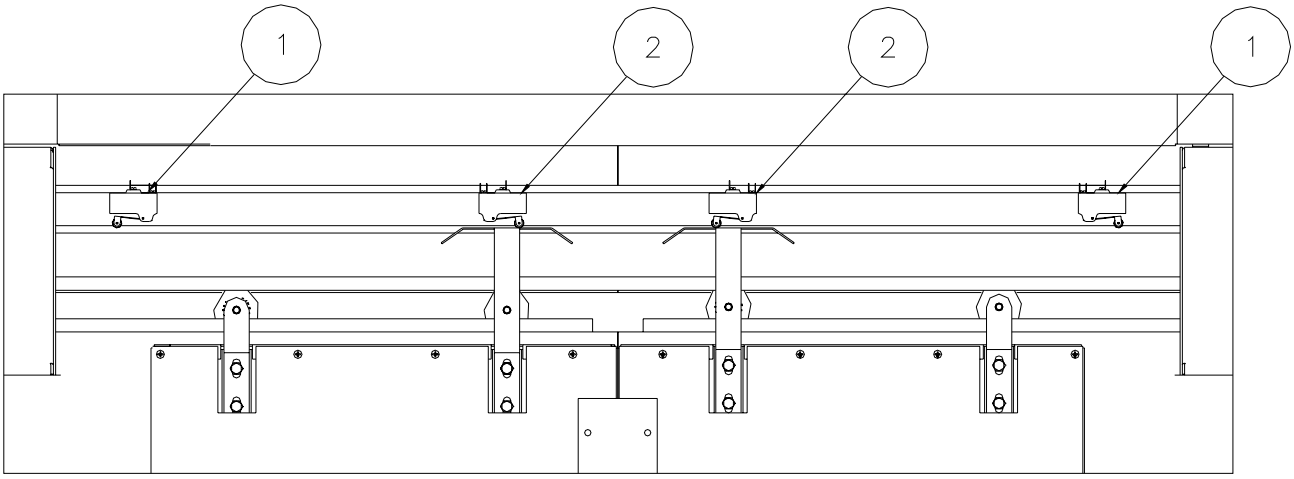


Ref. No.	Part No.	Description
TUL317	Asm, Basket Guide Wheel, Front	
1	TUL313	Retaining Wheel Tube, Rear
2	TUL158	Bolt, Shoulder
3	TUL312	Asm, Guide Wheel
4	TUL159	Spring



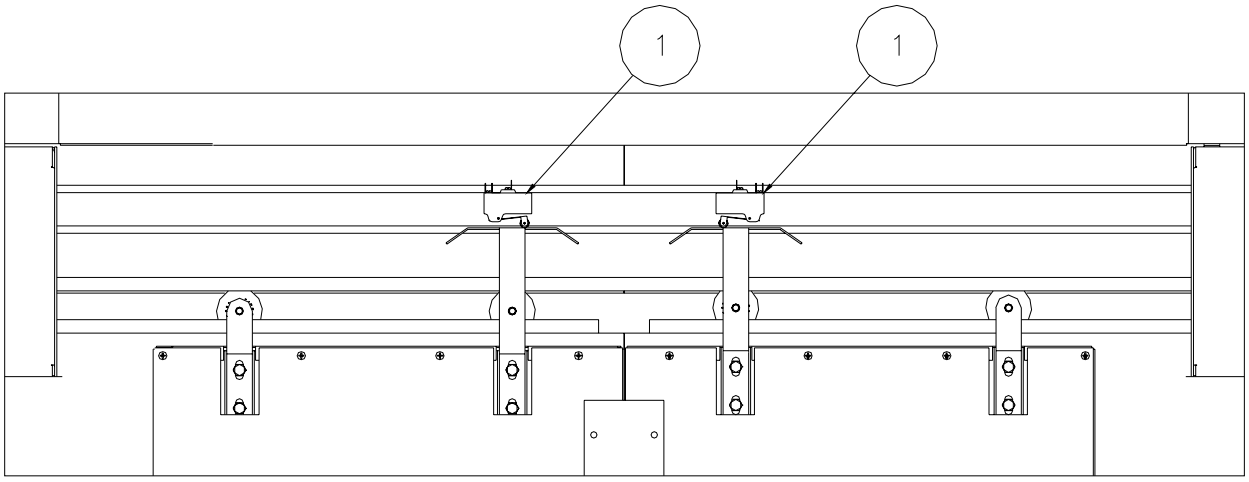
Ref. No.	Part No.	Description
TUL312	Asm, Guide Wheel	
1	TUL156	Wheel, Guide
2	TUL314	Bearing
3	TUL315	Bearing, Bronze, 1/2" Lg.

TILTING



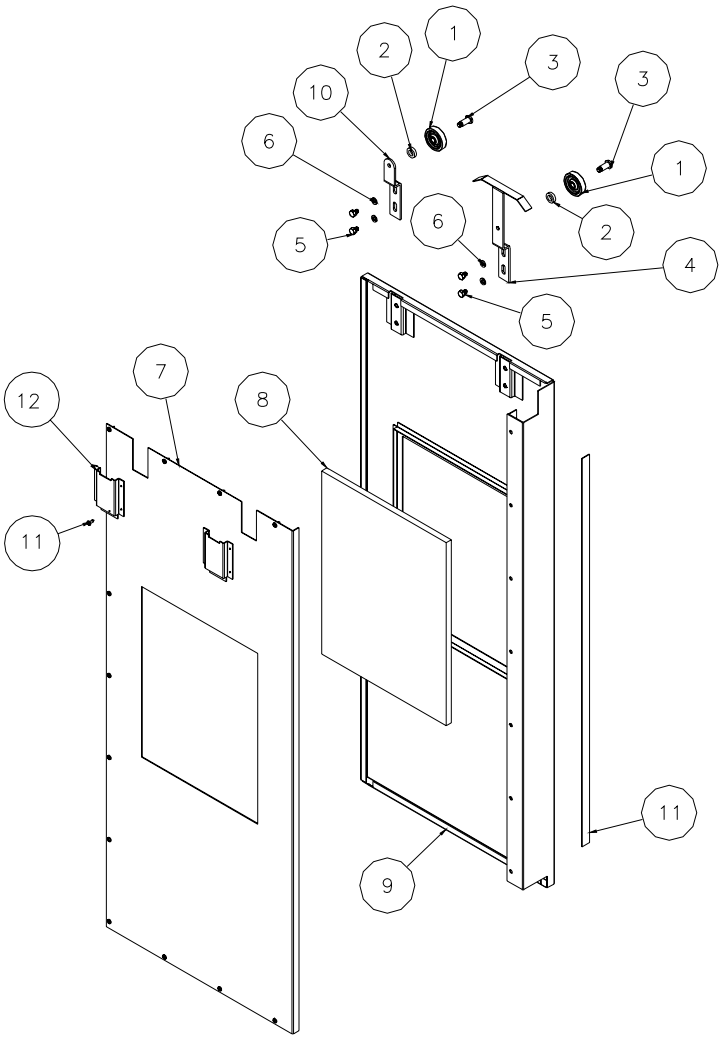
Ref. No.	Part No.	Description
1	TU14482	Switch, Door
2	TU14482	Switch, Door (Dmp Control)
	TUL279	Switch, Door (Pro/ProHc Control)

NON-TILTING

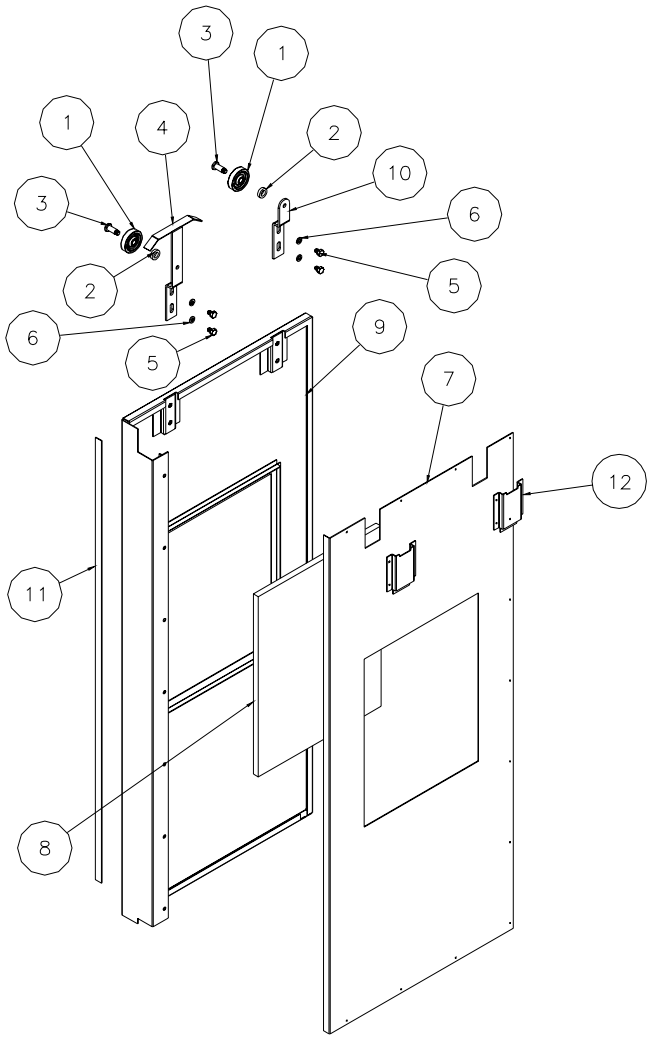


Ref. No.	Part No.	Description
1	TU14482	Switch, Door

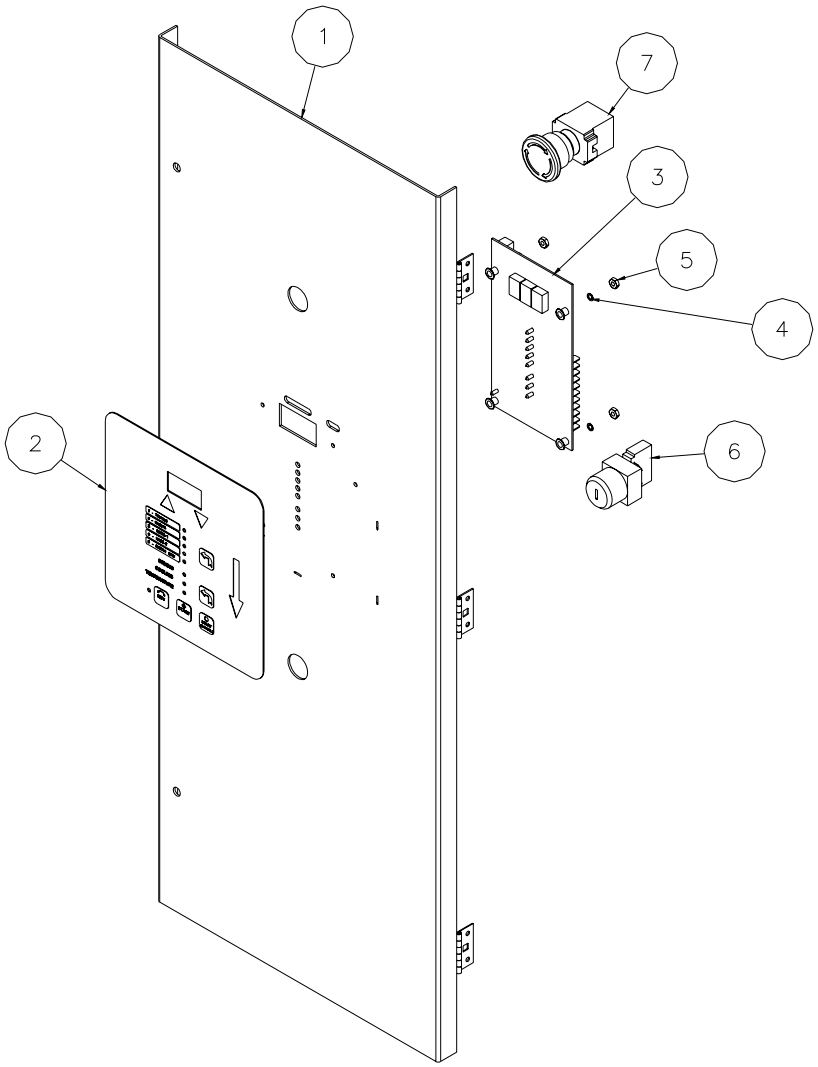
MANUAL LOADING DOOR - LEFT



Ref. No.	Part No.	Description
TUL176	Asm, Loading Door, Left, ProHc	
1	TUL345	Asm, Roller, Door
2	SB-00845-0	Flat Washer, 5/16”
3	C1723	Screw, Shoulder
4	TUL195	Door Bracket, Frt
5	F859	Screw, Cap Hex Hd. 1/4-20
6	SB-00848-0	Washer, Lock 1/4”
7	TUL179	Door Cover, Left
8	TUL335	Glass, Door, Loading
9	TUL180	Loading Door, Left
10	TUL184	Door Bracket, Back
11	TUL336	Tape, Magnetic
12	TUL304	Cover, Bolt

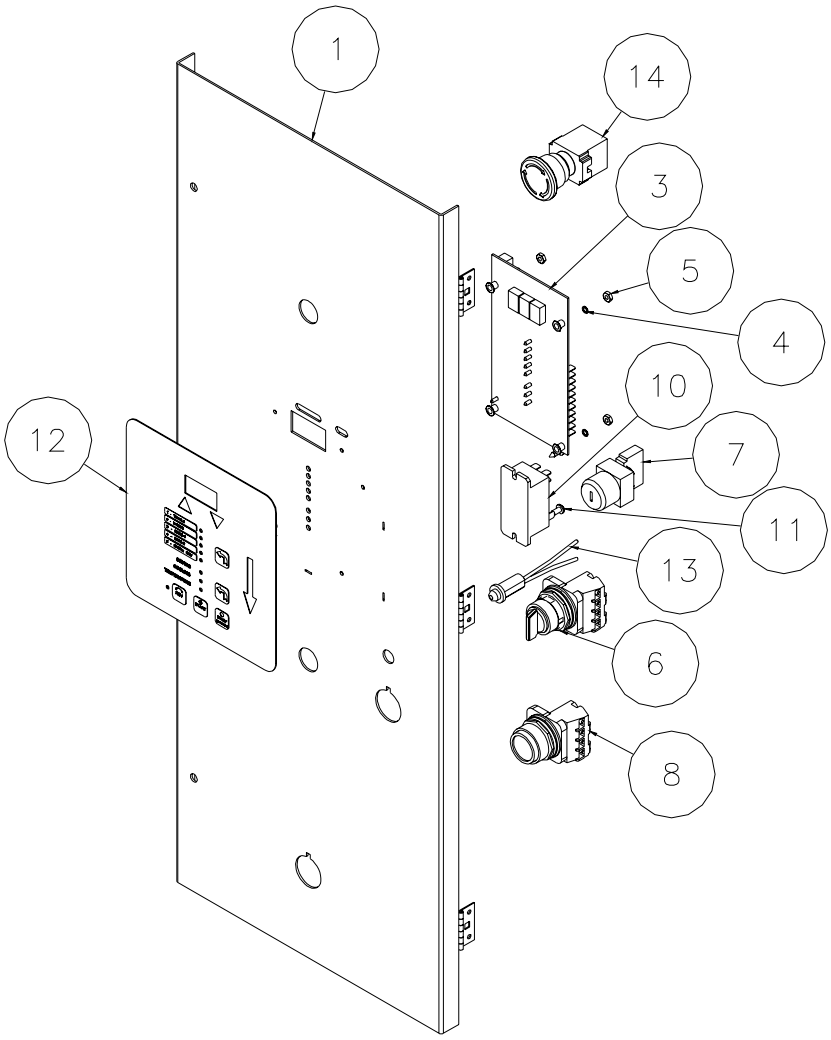


Ref. No.	Part No.	Description
TUL176	Asm, Loading Door, Left, ProHc	
1	TUL345	Asm, Roller, Door
2	SB-00845-0	Flat Washer, 5/16
3	C1723	Screw, Shoulder
4	TUL195	Door Bracket, Frt
5	F859	Screw, Cap Hex Hd. 1/4-20
6	SB-00848-0	Washer, Lock 1/4”
7	TUL199	Door Cover, Right
8	TUL335	Glass, Door, Loading
9	TUL181	Loading Door, Right
10	TUL184	Door Bracket, Back
11	TUL336	Tape, Magnetic
12	TUL304	Cover, Bolt



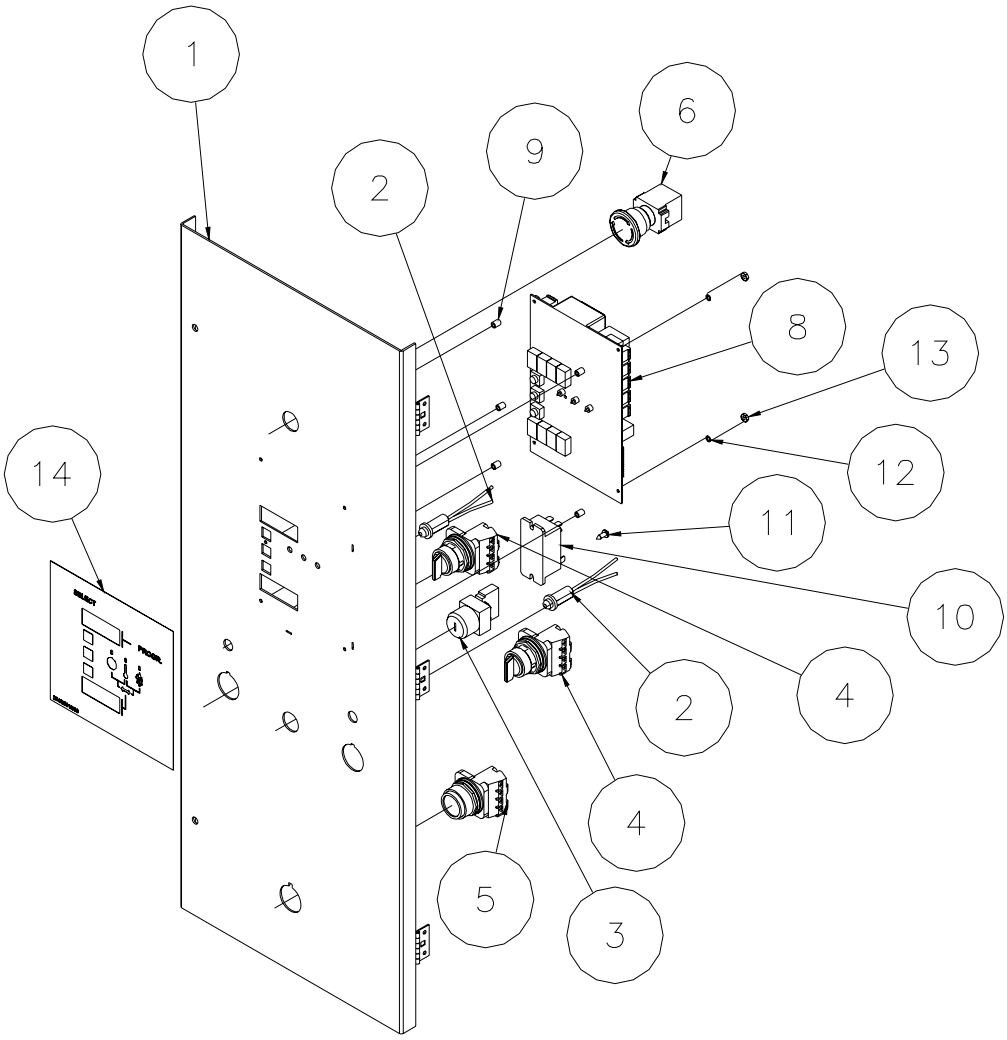
Ref. No.	Part No.	Description
TUL359	Asm, Control Door, Right, DMP	
1	TUL358	Door
2	TU15184	Overlay, OPL DMP
3	TU14404	Board, DMP
4	M270	Washer, Lock #6
5	TU3400	Nut, #6-32
6	TUL272	Switch, Key Power
7	TU14435	Emergency Stop Button

DMP CONTROL PANEL ASSEMBLY - TILTING



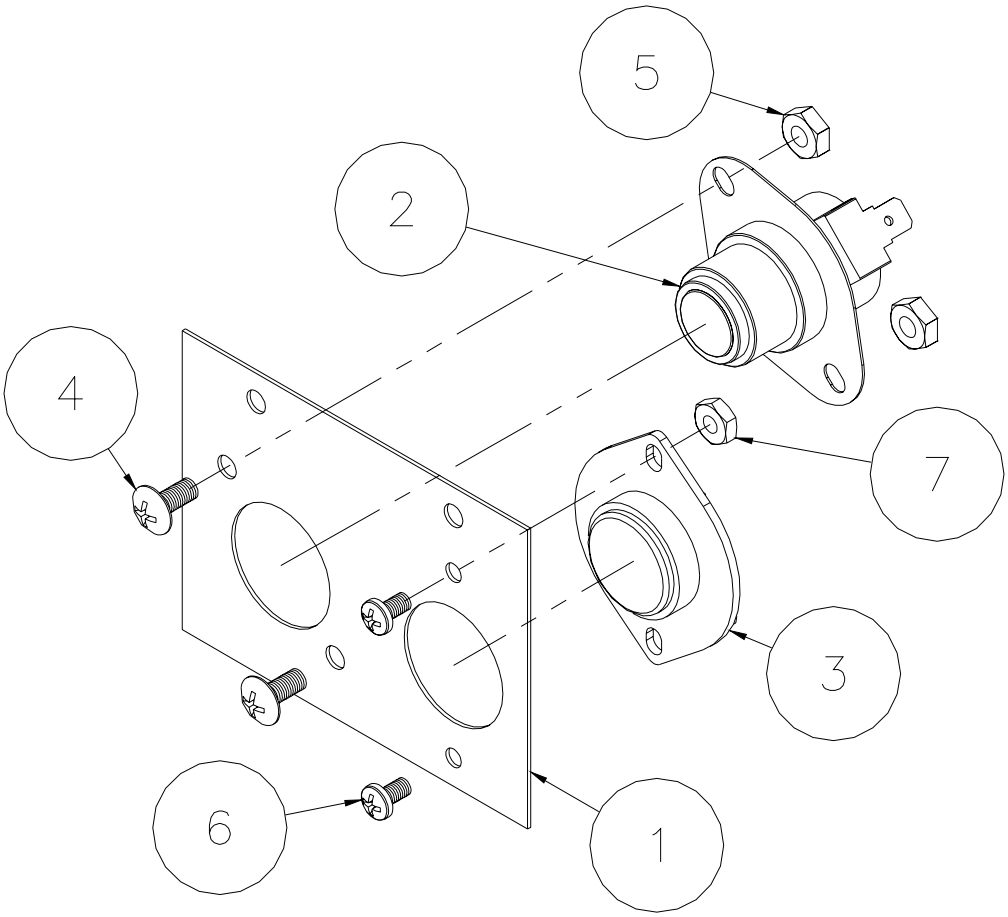
Ref. No.	Part No.	Description
TUL287	Asm, Control Door, Right, DMP	
1	TUL242	Door
2	TU12253	Stud, Self Clinch
3	TU14404	Board, DMP
4	M270	Washer, Lock #6
5	TU3400	Nut, #6-32
6	TUL273	Switch, Three Position
7	TUL272	Switch, Key Power
8	TUL274	Switch, Push Button
10	F1300	Relay
11	TU7733	Screw, #8
12	TU15184	Overlay, OPL DMP
13	TUT316	Light, LED
14	TU14435	Emergency Stop Button

PROHC CONTROL PANEL ASSEMBLY

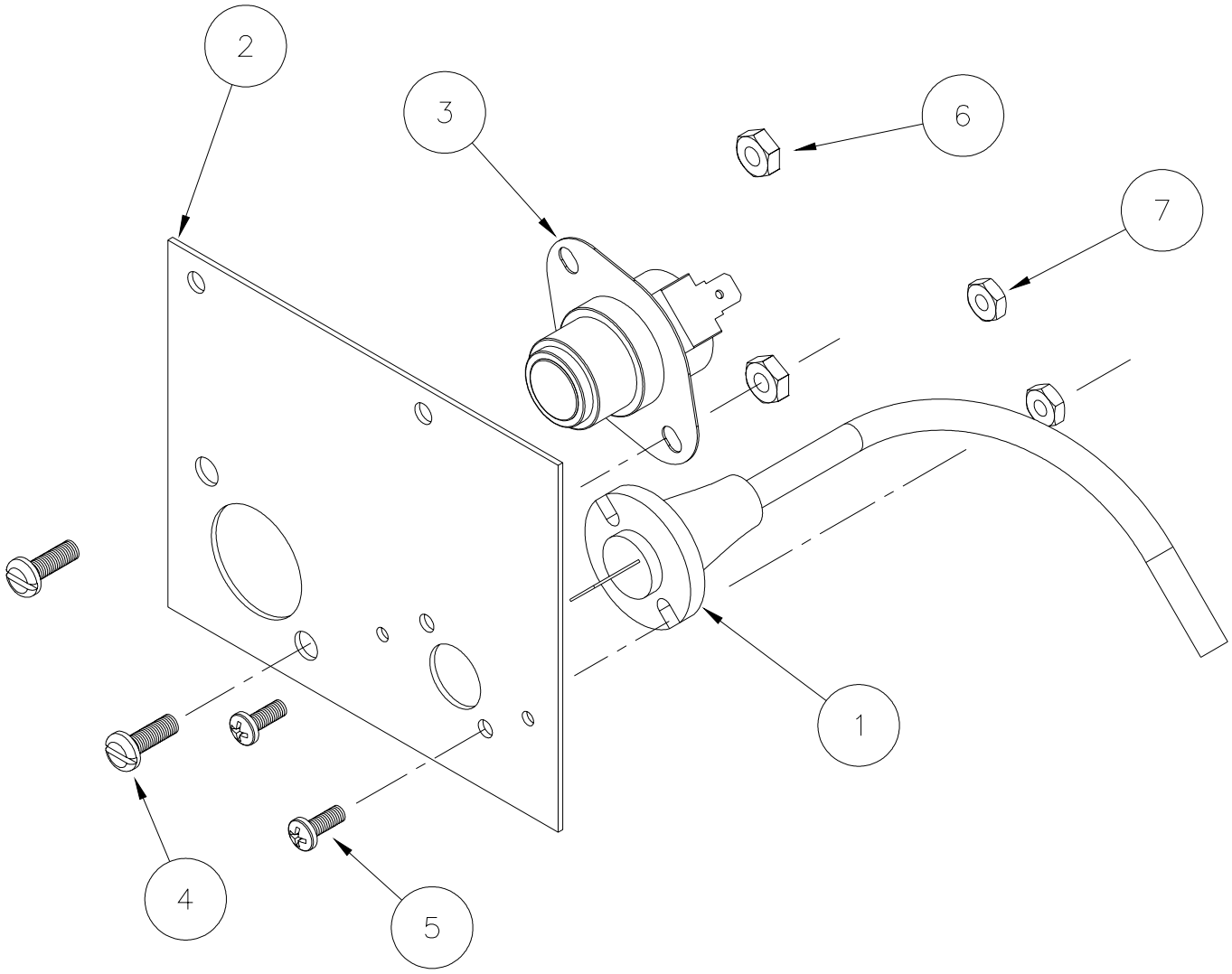


Ref. No.	Part No.	Description
TUL288	Asm, Control Door, Right, ProHc	
1	TUL329	Door
2	TUT316	Light, LED
3	TUL272	Switch, Key Power
4	TUL273	Switch, Three Position
5	TUL274	Switch, Push Button
6	TU14435	Emergency Stop Button
8	254/00070/00	PCboad, Professional/HC-plugs
9	TU14701	Spacer, Nylon
10	F1300	Relay
11	TU7733	Screw, #8
12	M270	Washer, Lock #6
13	TU3400	Nut, #6-32

DMP THERMOSTAT ASSEMBLY

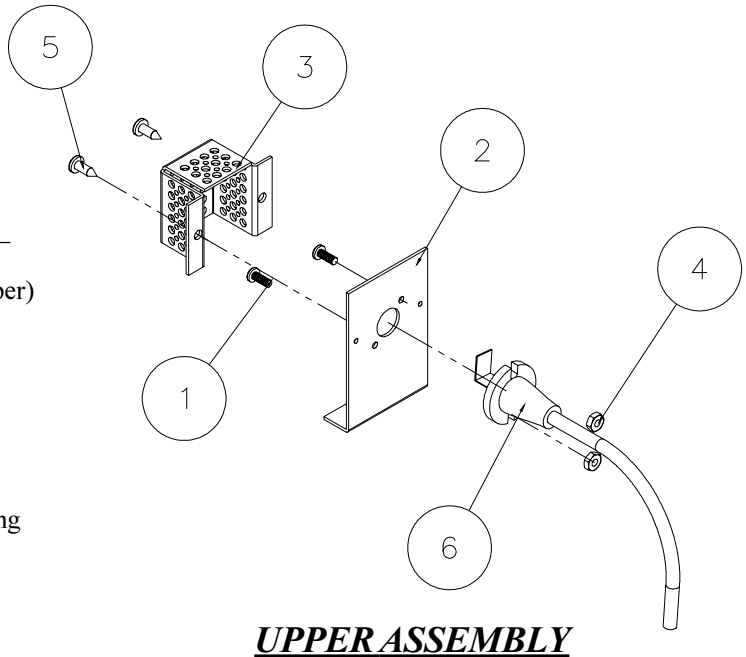


Ref. No.	Part No.	Description
TU15538		DMP Thermostat Assembly
1	TU15537	Bracket
2	EA-00411-0	Switch - 220 degrees
3	TU11991	Thermistor
4	M262	Screw, #8-32
5	TU3266	Nut, hex brass #8-32
6	TU3624	Screw, #6-32
7	TU3400	Nut, hex brass #6-32



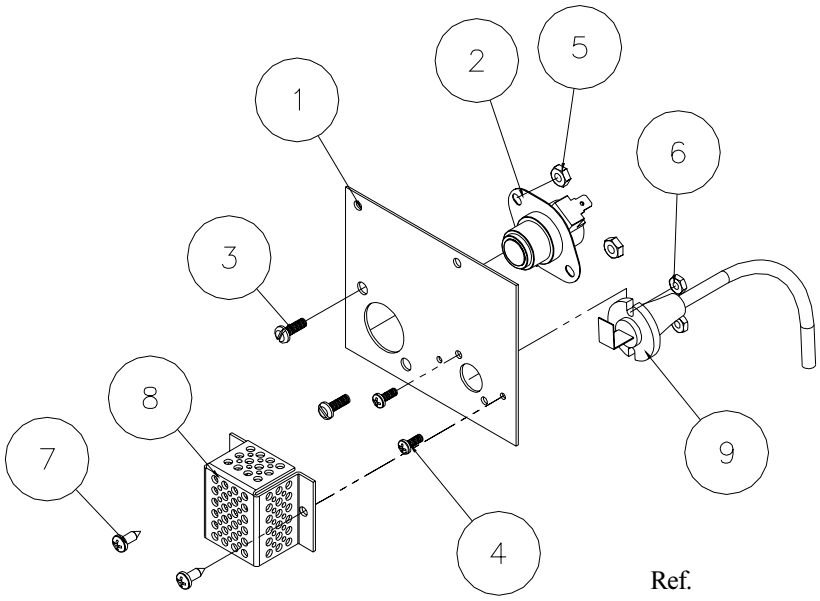
Ref. No.	Part No.	Description
	TU15464 - Sensor Assembly	
1	254/00072/10	Heat Thermostat
2	CA-23067-0	Thermostat #AR594
3	EA-00411-0	Switch, 220 Degrees
4	SB-00828-0	Screw, Mach. P.H. #8-32 X 1/2
5	SB-00952-0	Screw, P.H. #6-32 x 3/8
6	TU3266	Nut, Hex #8-32
7	TU3400	Nut, Hex #6-32

PROHC SENSOR ASSEMBLY - UPPER AND LOWER



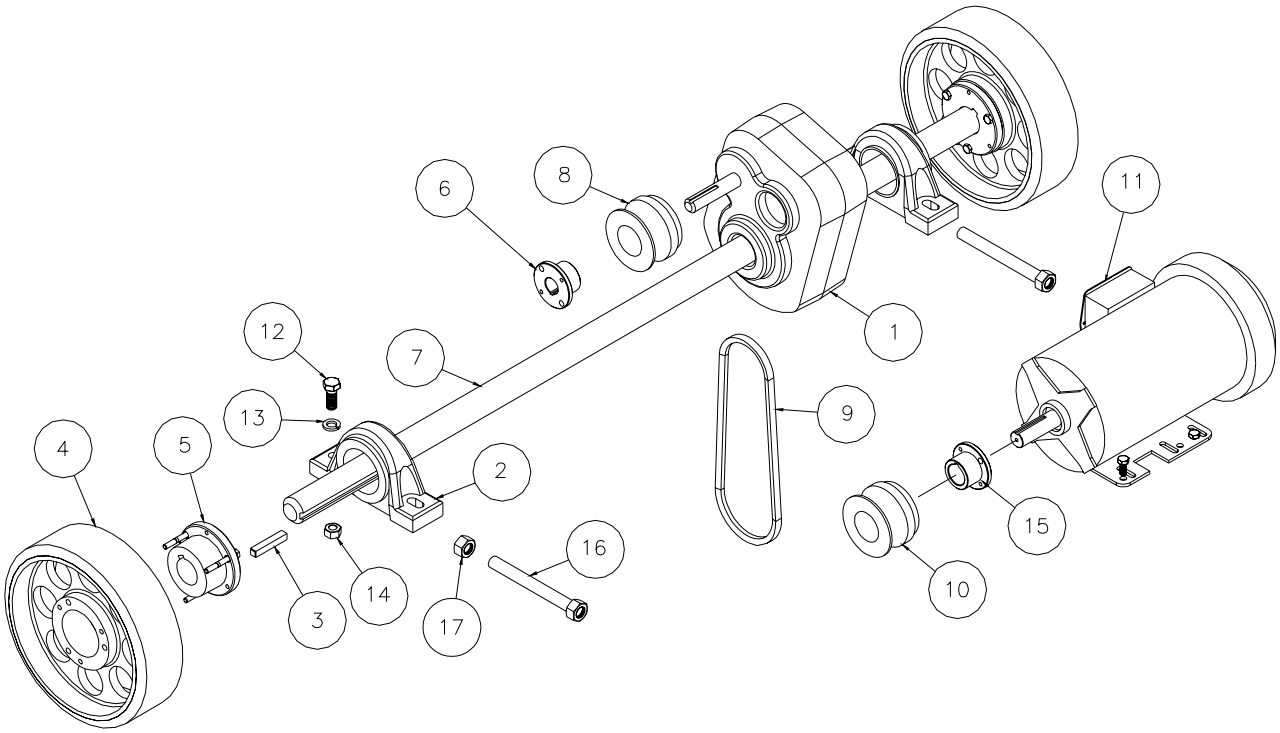
UPPER ASSEMBLY

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



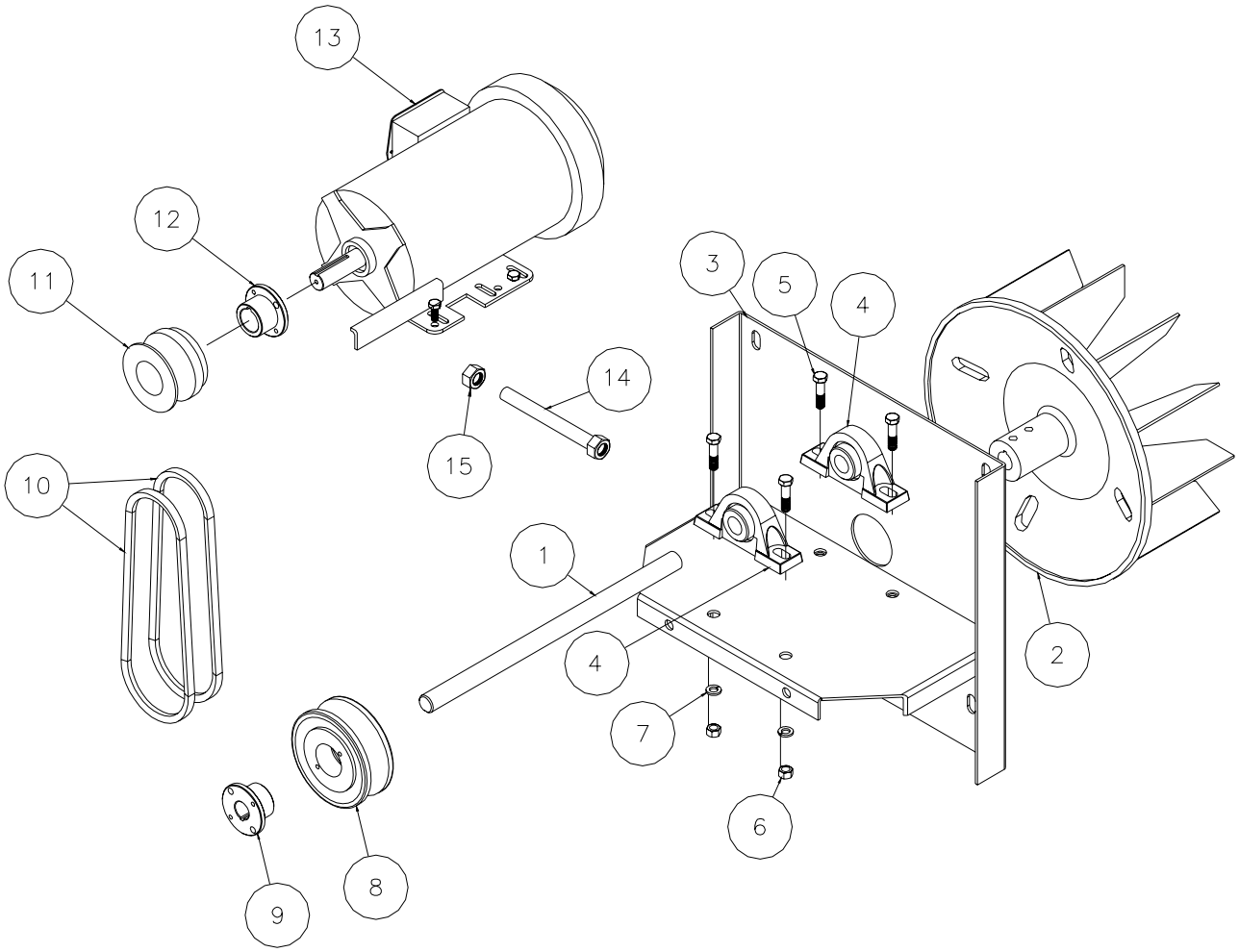
LOWER ASSEMBLY

Ref. No.	Part No.	Description
	TU15672	PROHC Sensor assembly (lower)
1	CA-13067-0	Bracket (sensor)
2	EA-00411-0	Switch, 220 degrees
3	SB-00828-0	Screw, machine #8-32x 1/2" long
4	SB-00952-0	Screw, #6-32x 3/8" long
5	TU3266	Nut, hex brass #8-32
6	TU3400	Nut, hex brass #6-32
7	TU7733	Screw, self drill #8-18x 1/2" long
8	TU14694	Cover, plate
9	254/00071/10	Humidity sensor



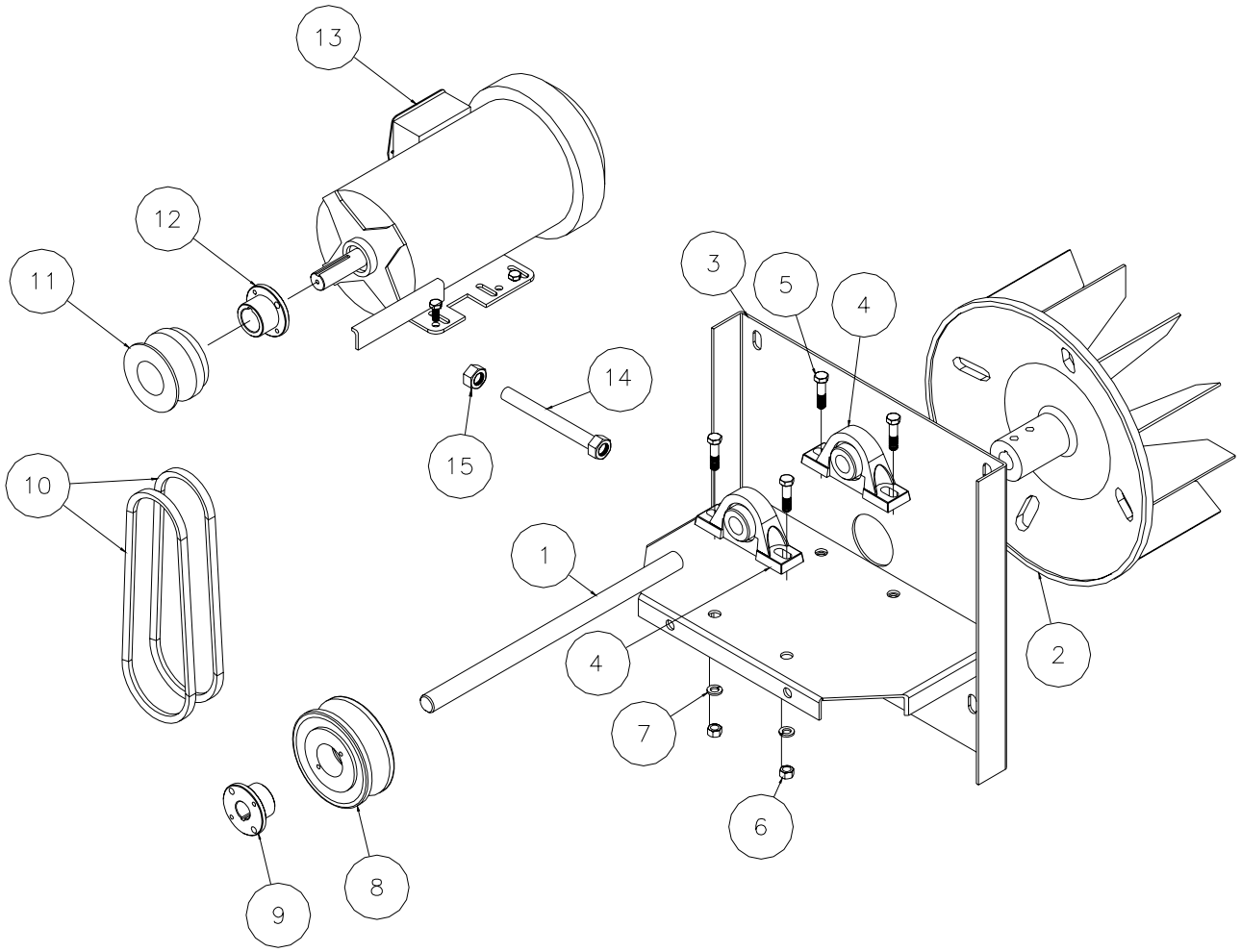
Ref. No.	Part No.	Description
1	TUL182	Gear Box W/ Torque Arm
2	TU13334	Bearing, Pillow Block, 1 7/16”
3	TU14973	Key 3/8 Sq. X 2 1/4" Lg.
	TUL365	Key, 3/8” Sq. x 5 3/4” Lg. (Rotation Sensor)
4	TUL109	Wheel, Basket, 10” dia.
5	TUX461	Bushing, 1 7/16” -H
6	TU8445	Sheave, MAL39
7	TUL128	Shaft, Drive, Basket
	TUL433	Shaft, Idler, Basket
8	TU3807	Bushing, 3/4” - H
9	TUL353	Belt
10	TUL354	Sheave, MAL32 (60 Hz)
	TU8445	Sheave, MAL39 (50 Hz)
11	MTR318	Motor, 3 Hp.
12	RC347	Bolt, 1/2-13
13	TU2831	Washer, Lock 1/2”
14	TUX504	Nut, 1/2-13
15	TU6723	Bushing, 1 1/8” - H
16	TUX575	Weldment, Adjustment Rod
17	TU2881	Nut, Hex 5/8-18

FAN ASSEMBLY - GAS



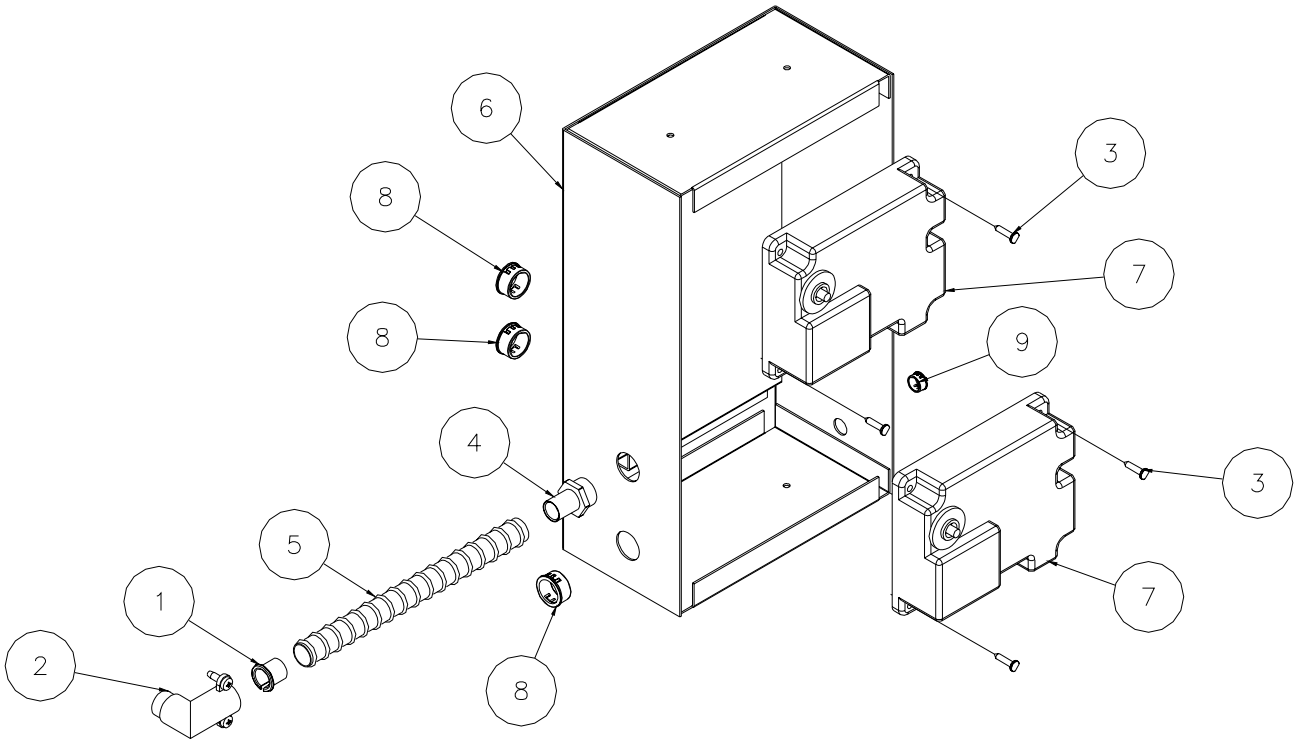
Ref. No.	Part No.	Description
1	TUL213	Shaft, Fan Idler
2	TUX220	Fan
3	TUL154	Fan Mount
4	TUX429	Pillow Block Bearing, 7/8”
5	OP380	Screw, Cap Hex Hd. 3/8-16
6	TU4787	Nut, Hex 3/8-16”
7	VSB134	Washer, Split, 3/8”
8	TUX342	Sheave, 2MB39L (50 Hz)
	TUX595	Sheave, 2MB44L (60 Hz)
9	TU2007	Bushing, 7/8”-H
10	TUL435	Belt, Fan (50 links)
11	TUX221	Sheave, 2MBL33
12	TU6723	Bushing, 1 1/8” - H
13	MTR319	Motor, 7 1/2 Hp
14	TUX575	Weldment, Rod Adjustment
15	TU2881	Nut, Hex 5/8-18

FAN ASSEMBLY - STEAM

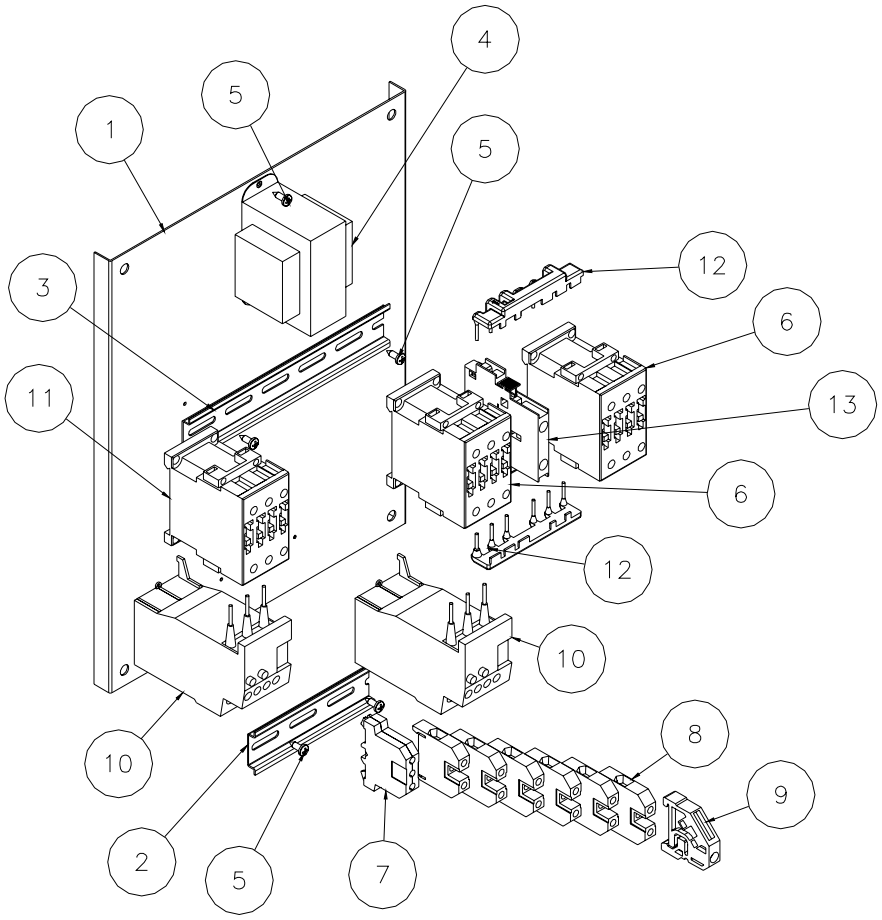


Ref. No.	Part No.	Description
1	TUL213	Shaft, Fan Idler
2	TUX220	Fan
3	TUL154	Fan Mount
4	TUX429	Pillow Block Bearing, 7/8"
5	OP380	Screw, Cap Hex Hd. 3/8-16
6	TU4787	Nut, Hex 3/8-16"
7	VSB134	Washer, Split, 3/8"
8	TU15769	Sheave, 2MB37L (50 Hz)
	TUX342	Sheave, 2MB39L (60 Hz)
9	TU2007	Bushing, 7/8"-H
10	TUL435	Belt, Fan (50 links)
11	TUX221	Sheave, 2MBL33
12	TU15155	Bushing, 1 3/8" - L
13	MTR320M	Motor, 10 Hp
14	TUX575	Weldment, Rod Adjustment
15	TU2881	Nut, Hex 5/8-18

RAM IGNITION ASSEMBLY

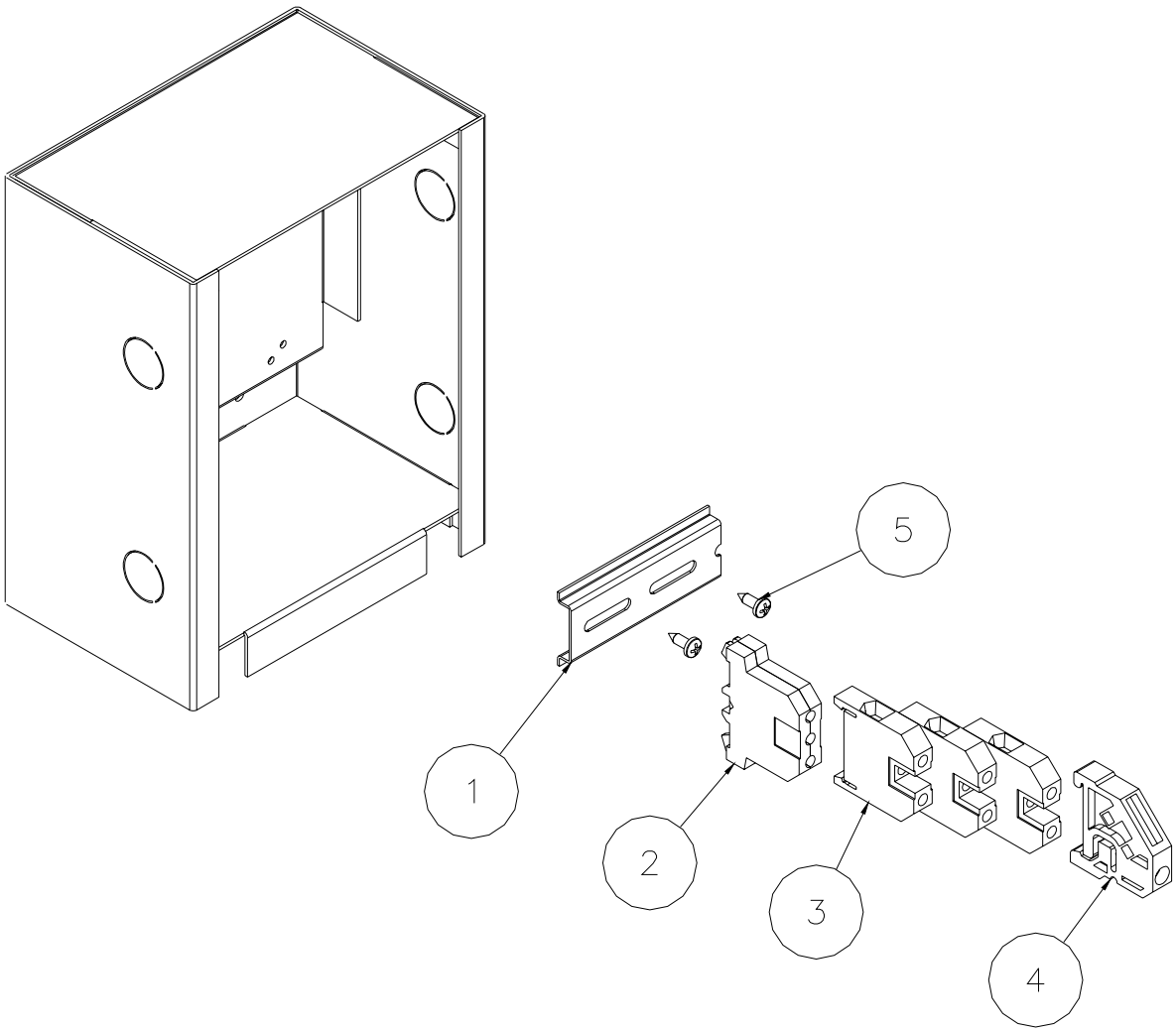


Ref. No.	Part No.	Description
TUL340	Asm, Ram Ingition Box	
1	TU5431	Bushing, Red Sleeve
2	TU4791	Connector, Angle, 1/2”
3	TU2793	Screw, #8
4	TU4790	Connector, Straight, 1/2”
5	CFB7200	Cable, Greenfield 1/2” x 72” Lg.
6	TUL291	Ram Ignition Box
7	GA-11007-0	Direct Spark Module, CE (50 Hz)
	GA-00765-0	Direct Spark Module, CE (60 Hz)
8	TU2372	Bushing, Heyco, 7/8”
9	TU10193	Bushing, Heyco, 1/2”

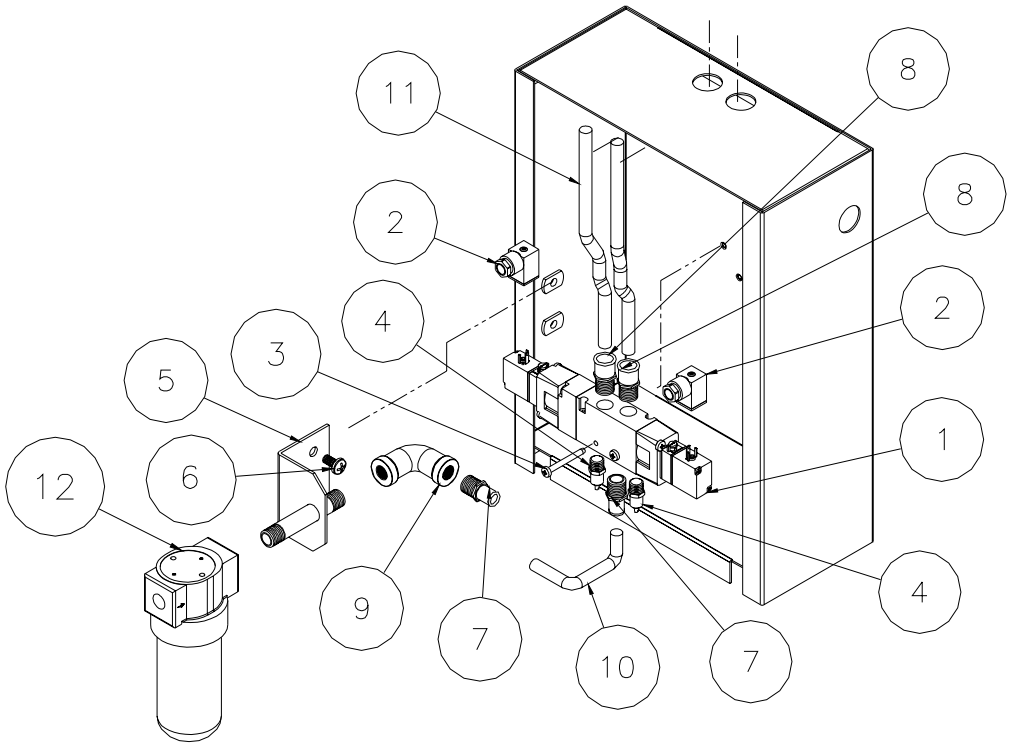


Ref. No.	Part No.	Description
1	TUL240	Subplate
2	TU14986	Din Rail, 4 1/2" Lg.
3	TUL289	Din Rail, 7 1/2" Lg.
4	TU13802	Transformer 240V/24V
	TU13514	Transformer 460V/24V
	TU13642	Transformer 575V/24V
5	TU7733	Screw, #8
6	TU14684	Contactor 17A, 24V
7	TU15007	Terminal Block, Ground/End
8	TU14958	Terminal Block
9	TU14959	Terminal Block, End Retainer
10	TU14707	Overload 14-20 Amp
	TUL277	Overload 7-10 Amp
	TU15593	Overload 5.5-8 Amp
11	TUL276	Contactor 25A, 24V
12	TUL278	Kit, Two Jumpers
13	TU14685	Switch, Auxiliary

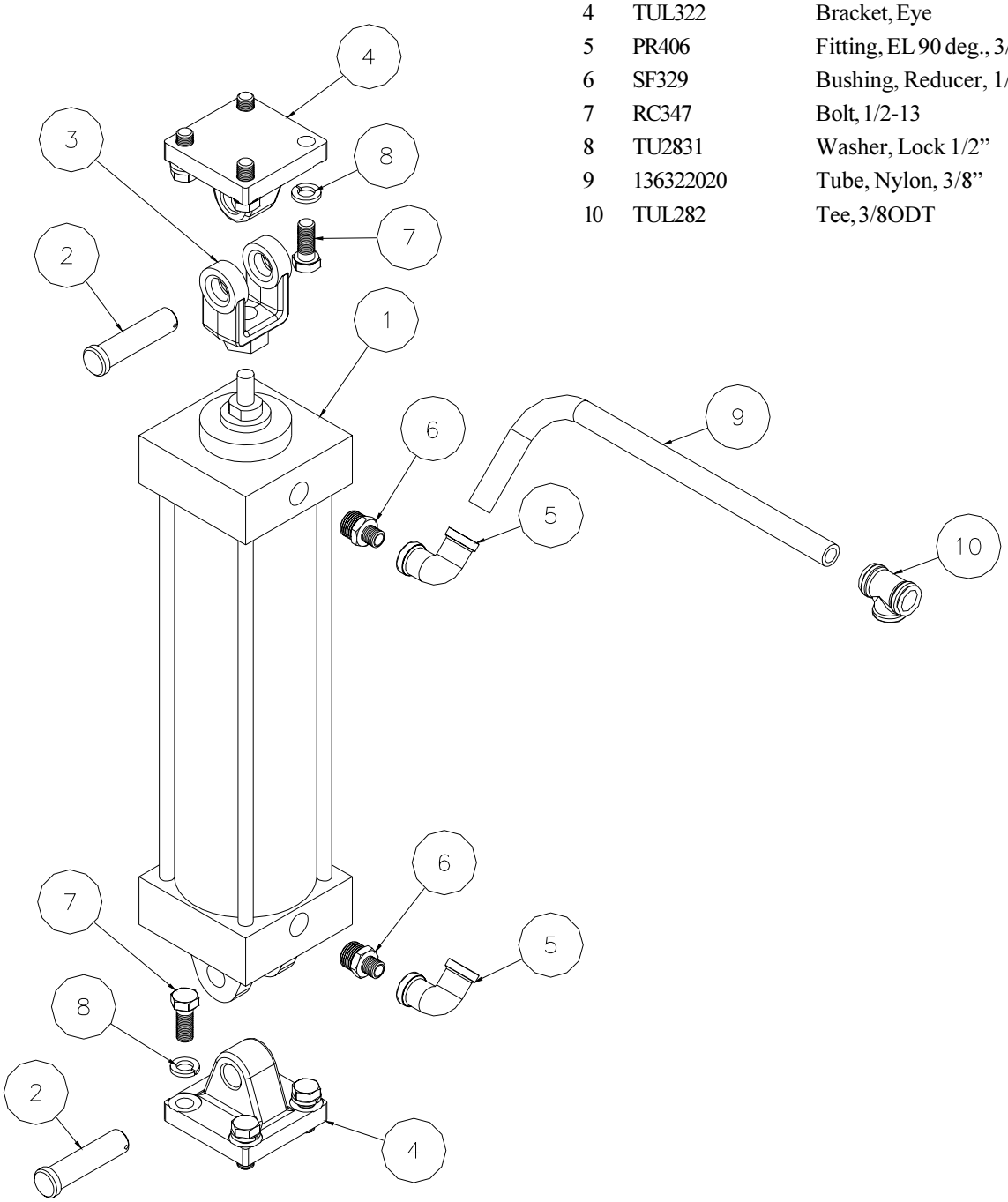
ELECTRICAL CONNECTION BOX



Ref. No.	Part No.	Description
1	TU14985	Rail, Din 3 1/4" Lg.
2	TU15007	Terminal Block, Ground
3	TU14958	Terminal Block
4	TU14959	Terminal Block, End Retainer
5	TU7733	Screw, #8-32

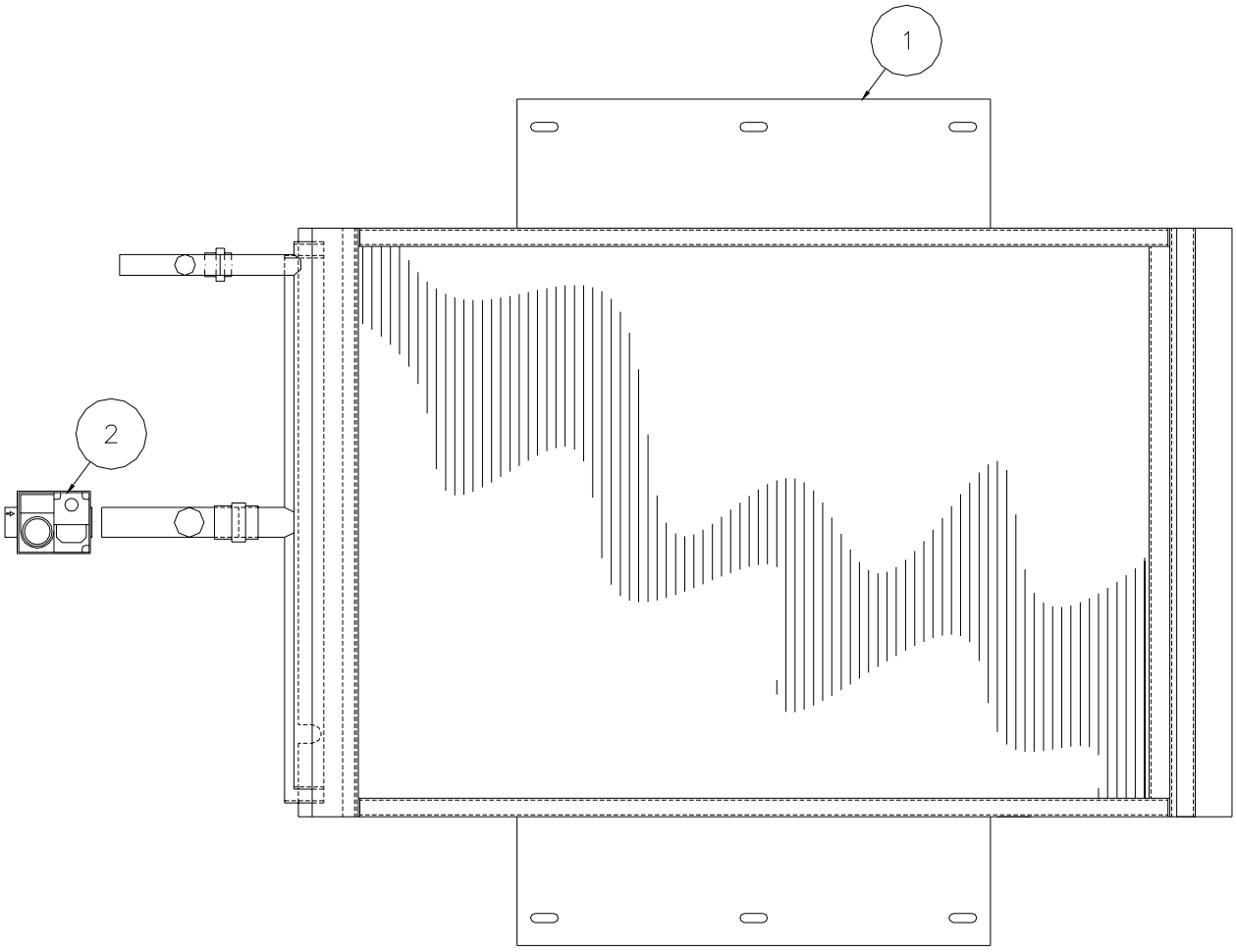


Ref. No.	Part No.	Description
1	PR910	Valve, 3 - Position
2	PR269	Plug, Female Elecric
3	TUL268	Screw, #8-32 x 1 1/2" Lg.
4	PR437	Flow, Control/ Filter
5	TUL327	W/A Regulator Bracket
6	SB-00921-0	Screw, 1/4-20 x 1/2" Lg. Round Hd.
7	PR418	Fitting, Straight 1/4" x 1/4"
8	PR407	Fitting, Straight 3/8" x 1/4"
9	TUL347	Elbow, 1/4"
10	136322018	Tubing, Nylon 1/4"
11	136322020	Tubing, Nylon 3/8"
12	PT663	Air Filter, Inline



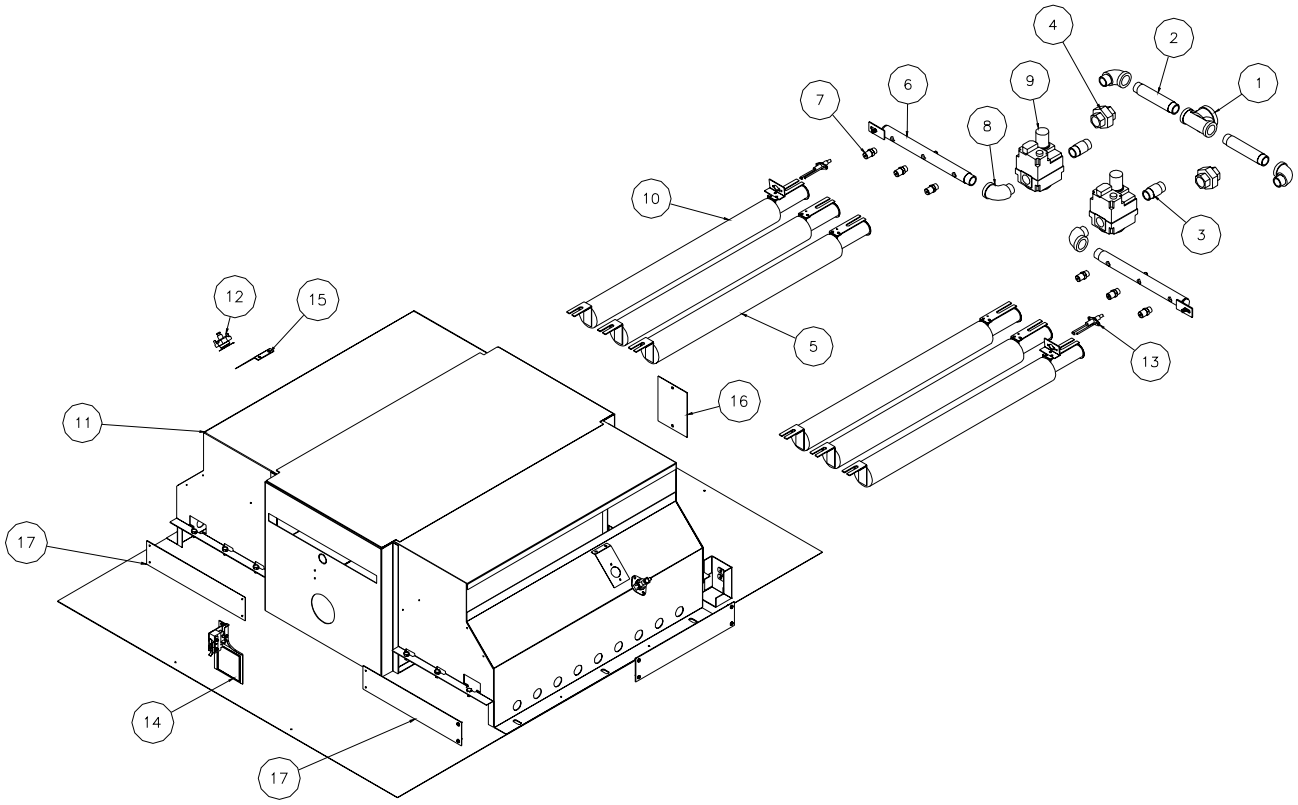
Ref. No.	Part No.	Description
1	TUL280	Cylinder, Air, 4" x 13.5" Stroke
2	TUL321	Pin, Clevis
3	TUL320	Rod, Clevis
4	TUL322	Bracket, Eye
5	PR406	Fitting, EL 90 deg., 3/8" x 3/8"
6	SF329	Bushing, Reducer, 1/2" to 3/8"
7	RC347	Bolt, 1/2-13
8	TU2831	Washer, Lock 1/2"
9	136322020	Tube, Nylon, 3/8"
10	TUL282	Tee, 3/8ODT

STEAM BONNET

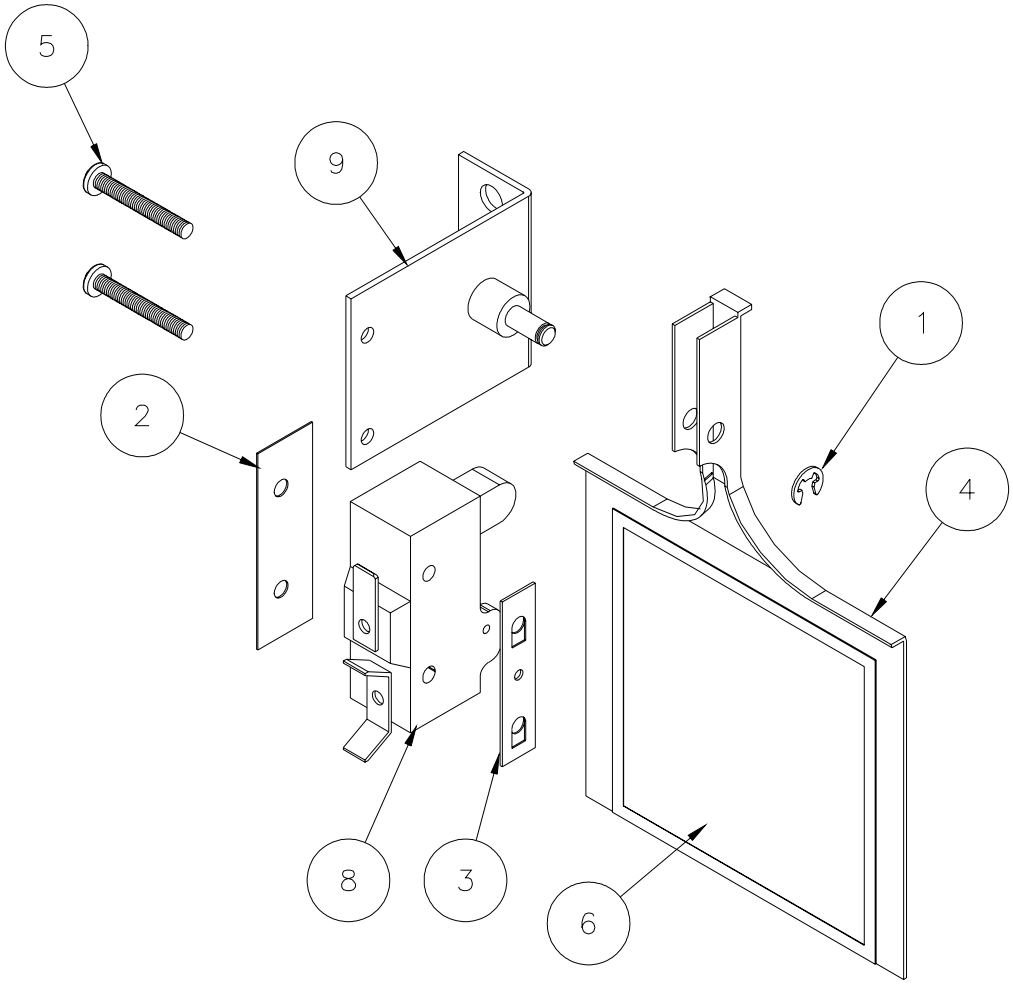


Ref. No.	Part No.	Description
TUL351	Steam bonnet, complete assembly	
1	TUL269	Bonnet, steam
	TUL363	Coil, replacement (one)
2	TUL356	Valve, steam, 1 1/2”

GAS BONNET ASSEMBLY



Ref. No.	Part No.	Description
	TUL266	Ass'y, Bonnet w/ Manifold, NG
	TUL428	Ass'y, Bonnet w/ Manifold, LP
1	390604123	Reducing Tee
2	TU4610	Nipple
3	TU4608	Nipple
4	TU4600	Union
5	TU14796	Burner
6	TU14463	Gas Manifold
7	TU3539	Orifice
8	TU4602	Elbow, Street
9	TUX352	Gas Valve (Natural Gas)
	TUX435	Gas Valve (LP Gas)
10	TU14797	Burner Ignition Ass'y
11	TUL262	Bonnet Housing
12	TU13678	Thermostat
13	GA-00764-0	Spark Ignition Assembly
14	TU8206	Air Switch
15	TUL310	Bracket, Thermostat
16	TU15671	Plate, Air Switch Cover
17	TUL308	Plate, Bonnet Cover



Ref. No.	Part No.	Descrip
1	F888	E-RING
2	TU1770	INSULATOR
3	TU1771	#6 TINNERMAN NUT
4	TU2463	ACTUATOR ARM
5	TU3219	#6 x 1 S.M.S.
6	TU3476	DECAL
7	TU7733	#8 x 1/2 S.M.S.
8	TU8155	MICRO SWITCH
9	TU8171	BRACKET ASM.

Part No.	Descrip
TU14482	Loading door switch
TUL279	Loading door switch (Pro/ProHc only)
GA-11007-0	Direct spark module (50 Hz)
GA-00765-0	Direct spark module (60 Hz)
EA-11621-0	Lint drawer switch
TUL312	Gudie wheel
TUL159	Spring, guide wheel
340624027	Belt, adjustable “B” link
TUL273	Switch, three position
TUL274	Switch, push button
TUL276	Contactor, fan
TU14684	Contactor, Basket
TU13678	Thermostat, hi-limit
TUX613	Switch, 280 degrees
EA-00411-0	Switch, 220 degrees
TU11991	Thermistor
GA-00803-0	Lead suppression, hi voltage

FIRE DETECTION AND SUPPRESSION SYSTEM

Installation instructions
Operating instructions

TABLE OF CONTENTS

	PAGE
Warranty	2
Installation	82
Features of FDS system & Board Description	83
Operation	84
Sensor Assembly	85
Control Box Assembly	86
Water Manifold Assembly	87
FDS Thermostat	88

INSTALLATION

Contact your local water company or the proper municipal authority for information regarding local codes.

IMPORTANT: It is your responsibility to have ALL plumbing connections made by a qualified professional to assure that the plumbing installation is adequate and conforms to local, state, and federal regulations or codes.

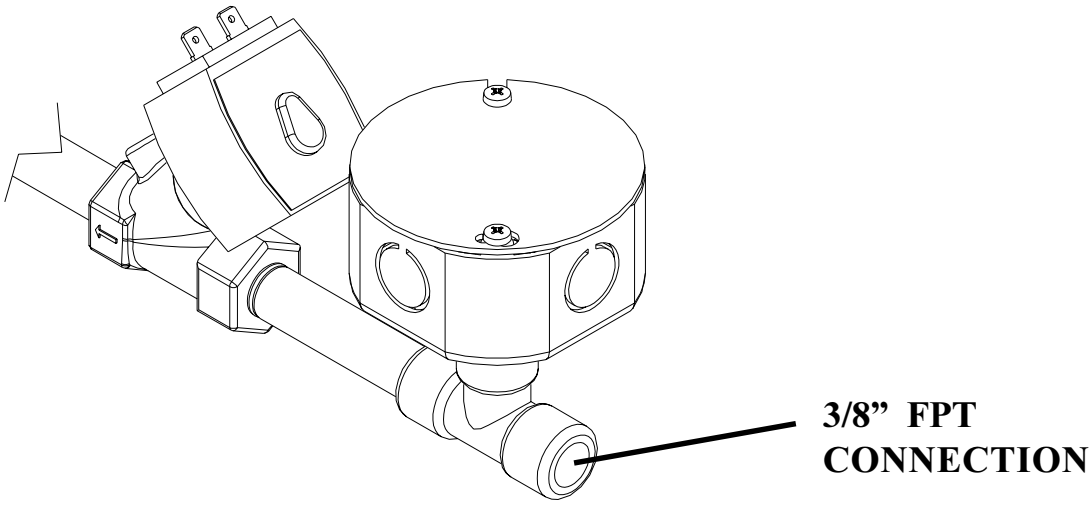
IMPORTANT: It is the installation or owners responsibilty to see that the necessary or required water, water pressure, pipe size, or connections are provided.

WARNING: Water must be supplied to FDS for the system to work properly.

The connection point to the FDS is a 3/8" FPT, the FDS must be supplied with a minimum water pipe the size of 3/8" and be provided with a minimum of 30 PSI (2.07 bars) and a maximum of 100 PSI (6.89 bars) of pressure.

If the rear area of the dryer, or the water supply is located in an area where it will be exposed to cold/freezing temperatures, provisions must be made to protect these water lines from freezing.

WARNING: If the water in the supply line, water solenoid valve, or pressure sensor freezes, the FDS will be INOPERATIVE.



FDS

Fire Detection and Suppression system

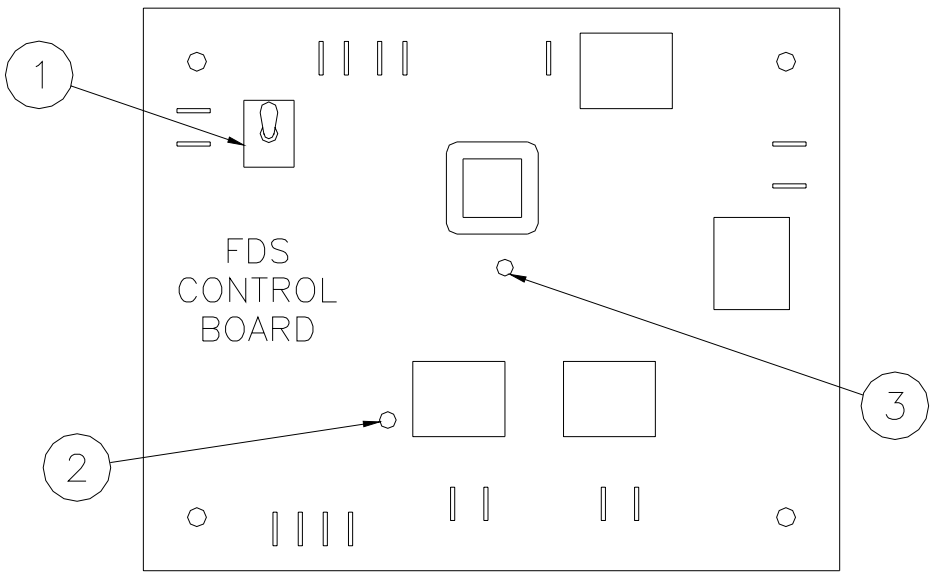
The FDS control detects a fire in a dryer basket when one of two thermostats reaches a set point. The FDS control then breaks power to the main dryer control. An alarm buzzer is activated and a water valve is opened. The water valve stays open until a predetermined volume of water is sprayed into the dryer basket. The alarm buzzer stays activated until the FDS control is reset.

CAUTION: This system is designed as an additional safety feature only. It does not prevent a fire nor does it guarantee to extinguish a fire.

FEATURES

1. Power Led
2. Water Pressure Led
3. Water Pressure Sensor
4. Low or No Pressure (Intermittent Buzzer)
5. Alarm (Buzzer on Continuously)

FDS BOARD DESCRIPTION



1. ON - OFF SWITCH	Turns the power on and off to the FDS Control Board.
2. POWER LED	Illuminated when FDS Control Board has power.
3. WATER PRESSURE LED	Illuminated when FDS Control Board sees water pressure above 10 psig.

FDS OPERATION

- MONITOR FOR FIRE (*STAND-BY*)

  Power and water pressure leds are illuminated.
  Buzzer off.
  Dryer main control has power.
  Water valve off.

- MONITOR FOR FIRE *(LOW OR NO WATER PRESSURE)*

  Power led is illuminated.
  Water pressure led off.
  Buzzer on intermittently.
  Dryer main control has power.
  Water valve off.

- FIRE DETECTED *(FDS THERMOSTAT(S) CLOSE)*

  Power and water pressure leds are illuminated.

  Buzzer on continuously.

  Power to main control disconnected.

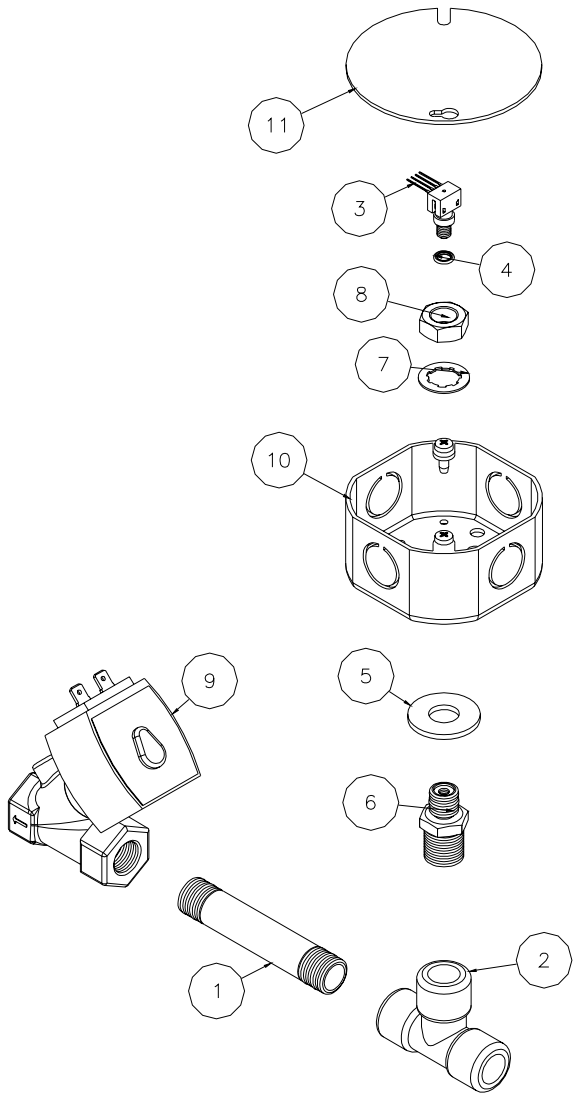
  Water valve opens (Two to six minutes approximately depending on water pressure).

  Water valve closes after predetermined volume of water has sprayed into basket.

CAUTION: Do not attempt operation of dryer following an activation of the FDS system and have the dryer inspected by a qualified installer, service technician, or gas supplier.

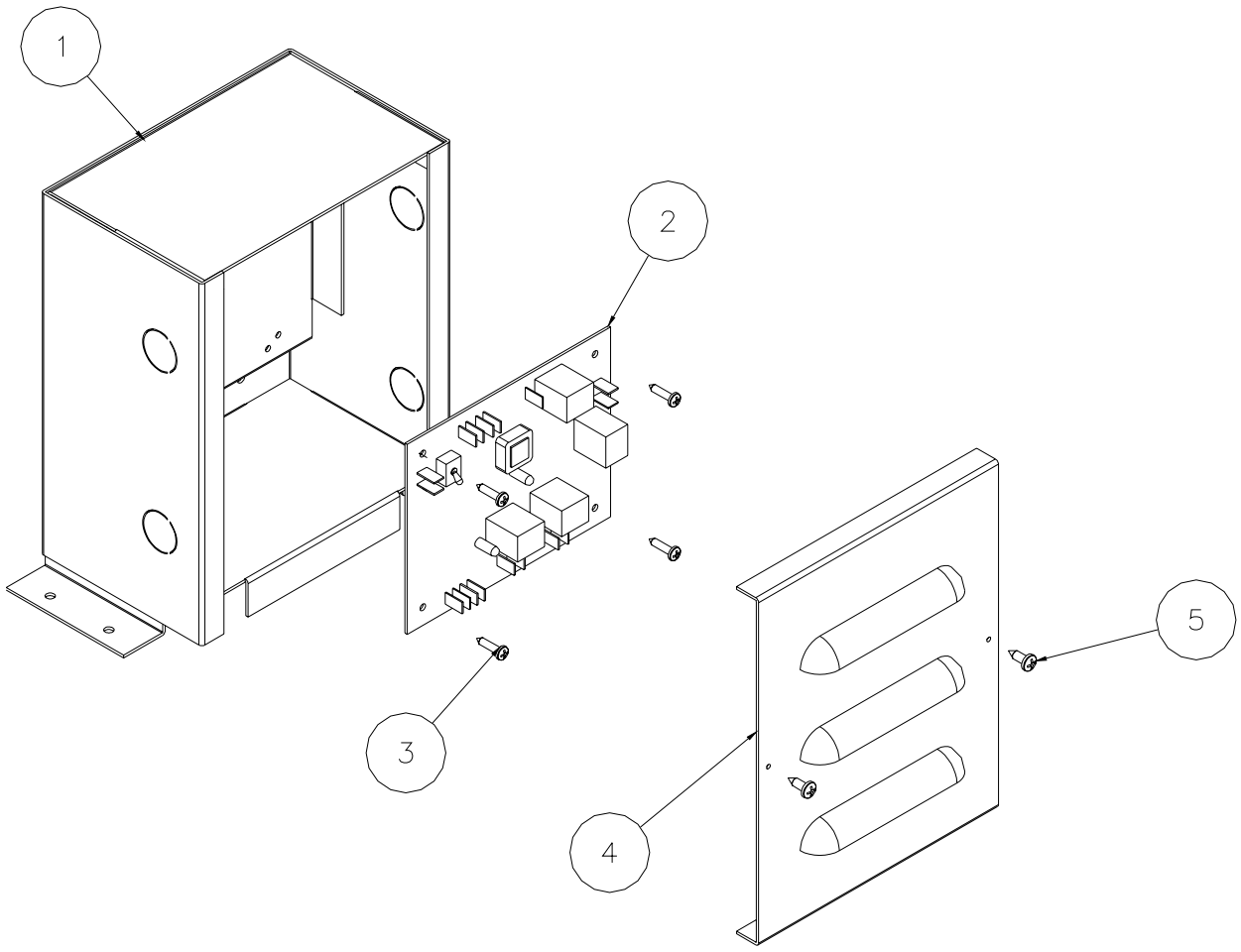
FDS can be reset by turning power off to the FDS board.

SENSOR ASSEMBLY



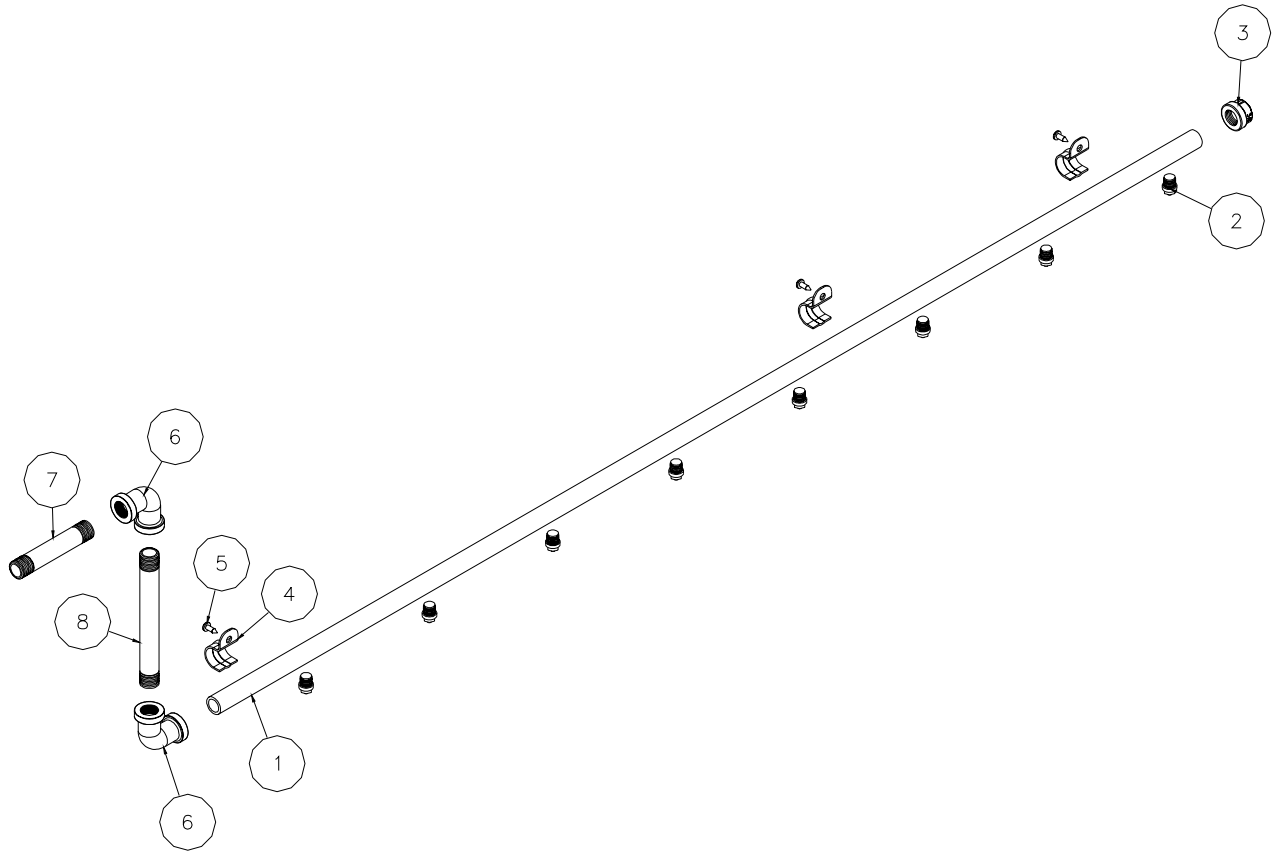
Ref. No.	Part No.	Description
1	390401246	Pipe Nipple, 3/8" x 3 1/2" Lg.
2	SF247	Tee, 3/8"
3	TU15823	Sensor, Pressure
4	TU15824	O-Ring
5	TU1580	Washer, 1/2" Flat
6	TUX606	Fitting
7	OP251	Washer, Int. Tooth 1/2"
8	OP235	Nut, Jam 1/2"
9	F1289	Valve, Solenoid
10	TUX605	Junction Box
11	TU2335	Cover, Junction Box

CONTROL BOX ASSEMBLY



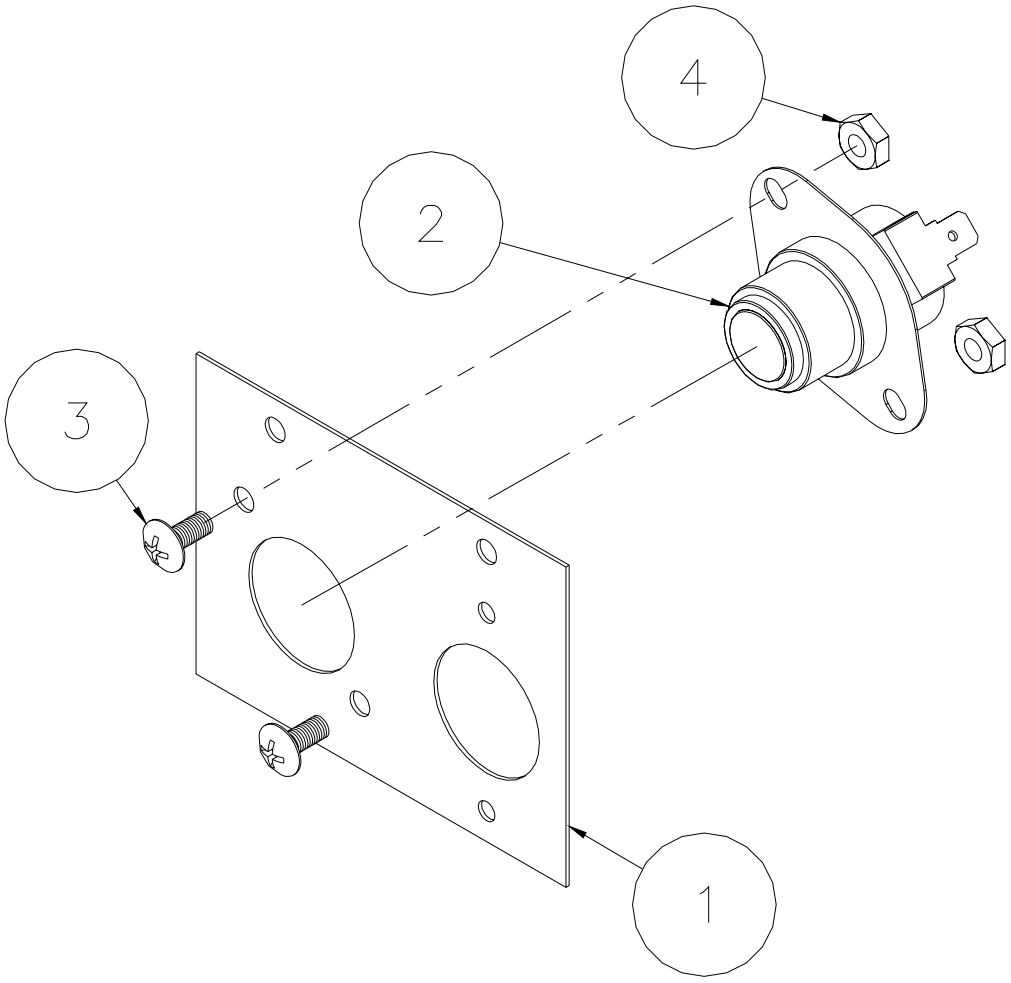
Ref. No.	Part No.	Description
1	TUL373	W/A, FDS Box
2	TU15814A	Board, FDS
3	F540	Screw, #6
4	TUL222	Cover, FDS Box
5	TU7733	Screw, #8

WATER MANIFOLD ASSEMBLY



Ref. No.	Part No.	Description
1	TUX609	Water Nozzle, Full Jet
2	TUL346	Water Manifold, 250# (8 Nozzles)
3	TUX608	End Cap, 3/8"
4	C332	Clamp
5	TU7733	Screw, #8
6	TU11702	Elbow, 3/8" Std.
7	TUL439	Nipple, Pipe, 3/8" x 5 1/2" Lg.
8	390401246	Nipple, Pipe, 3/8" x 3 1/2" Lg.

FDS THERMOSTAT



Ref. No.	Part No.	Description
TU15855		FDS Thermostat Assembly
1	TU15537	Bracket
2	TUX613	Switch - 280 degrees
3	M262	Screw, #8-32
4	TU3266	Nut, hex brass #8-32