IPSO - LSG n.v.

Instruction manual
Spare parts list
DR250

Technical specifications
Installation instructions
Operating instructions

Maintenance

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

IPSO

D0441
July 2006

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.

IPSO DRYER WARRANTY

The IPSO Manufacturing Company (IPSO) warrants all new equipment (and the original parts thereof) to be free from defects in material or workmanship for a period of three (3) years from the date of sale thereof to an original purchaser for use, except as hereinafter provided. With respect to non-durable parts normally requiring replacement in less than three (3) years due to normal wear and tear, and with respect to all new repair or replacement parts for IPSO equipment for which the three (3) year warranty period has expired, or for all new repair or replacement parts for equipment other than IPSO equipment, the warranty period is limited to ninety (90) days from date of sale. The warranty period on each new replacement part furnished by IPSO in fulfillment of the warranty on new equipment or parts shall be for the unexpired portion of the original warranty period on the part replaced.

With respect to electric motors, coin meters and other accessories furnished with the new equipment, but not manufactured by IPSO, the warranty is limited to that provided by the respective manufacturer.

IPSO's total liability arising out of the manufacture and sale of new equipment and parts, whether under the warranty or caused by IPSO's negligence or otherwise, shall be limited to IPSO repairing or replacing, at its option, any defective equipment or part returned f.o.b. IPSO's factory, transportation prepaid, within the applicable warranty period and found by IPSO to have been defective, and in no event shall IPSO be liable for damages of any kind, whether for any injury to persons or property or for any special or consequential damages. The liability of IPSO does not include furnishing (or paying for) any labor such as that required to service, remove or install; to diagnose troubles; to adjust, remove or replace defective equipment or a part; nor does it include any responsibility for transportation expense which is involved therein.

The warranty of IPSO is contingent upon installation and use of its equipment under normal operating conditions. The warranty is void on equipment or parts; that have been subjected to misuse, accident, or negligent damage; operated under loads, pressures, speeds, electrical connections, plumbing, or conditions other than those specified by IPSO; operated or repaired with other than genuine IPSO replacement parts; damaged by fire, flood, vandalism, or such other causes beyond the control of IPSO; altered or repaired in any way that effects the reliability or detracts from its performance, or; which have had the identification plate, or serial number, altered, defaced, or removed.

No defective equipment or part may be returned to IPSO for repair or replacement without prior written authorization from IPSO. Charges for unauthorized repairs will not be accepted or paid by IPSO.

IPSO MAKES NO OTHER EXPRESSED OR IMPLIED WARRANTY, STATUTORY OR OTHERWISE, CONCERNING THE EQUIPMENT OR PARTS INCLUDING, WITHOUT LIMITATION, A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, OR A WARRANTY OF MERCHANTABILITY. THE WARRANTIES GIVEN ABOVE ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. IPSO NEITHER ASSUMES, NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT, ANY OTHER WARRANTY OR LIABILITY IN CONNECTION WITH THE MANUFACTURE, USE OR SALE OF ITS EQUIPMENT OR PARTS.

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

IDENTIFICATION NAMEPLATE

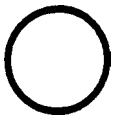
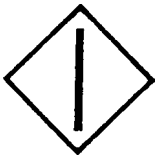
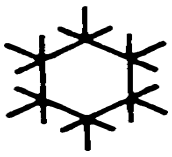
The identification nameplate is located on the rear wall of the dryer. It contains the dryer serial number, product number, model number, electrical specifications and other important data that may be needed when servicing and ordering parts, wiring diagrams, etc. Do not remove this nameplate.

TABLE OF CONTENTS

TABLE OF CONTENTS

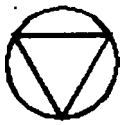
SYMBOLS

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

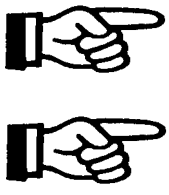
Provide adequate clearance for air openings into the combustion chamber.

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.***

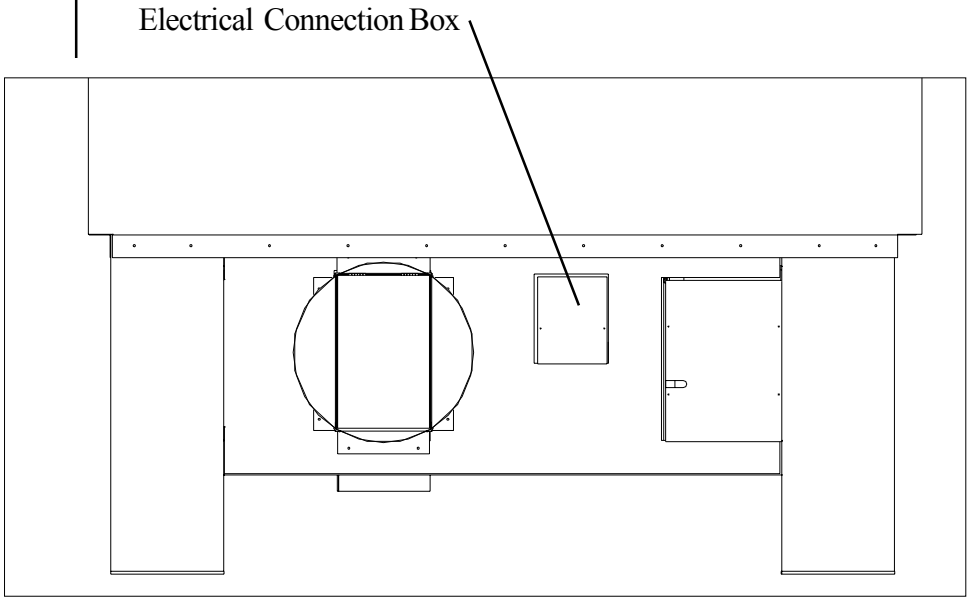
See wiring diagram furnished with dryer. Wiring diagram is located in basket of dryer.

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.

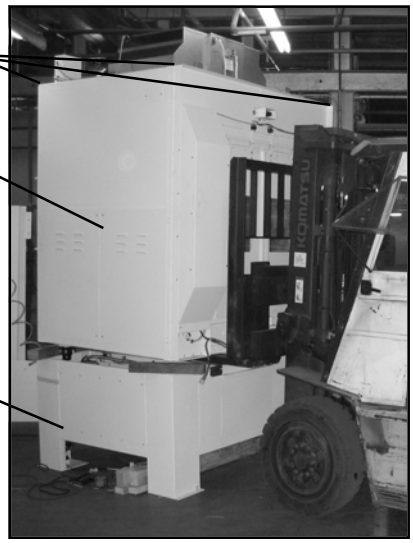


Figure-2A

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.

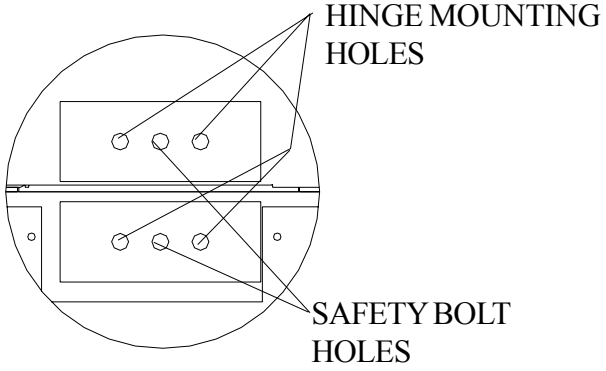


Figure-2D

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.**

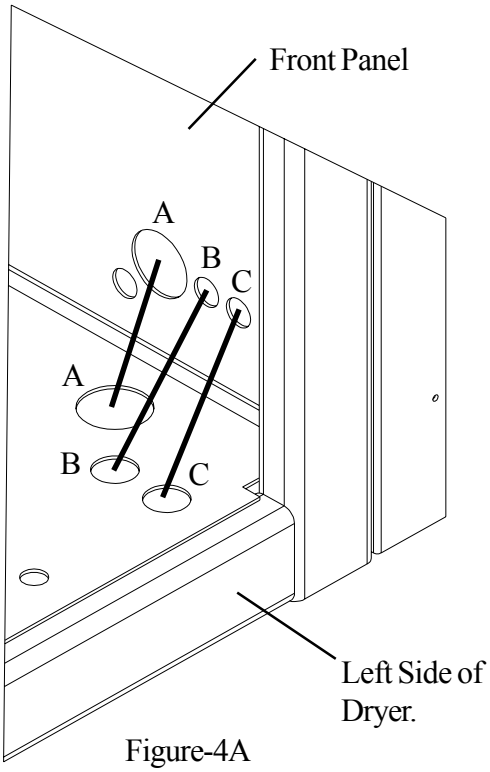


Figure-4A

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.

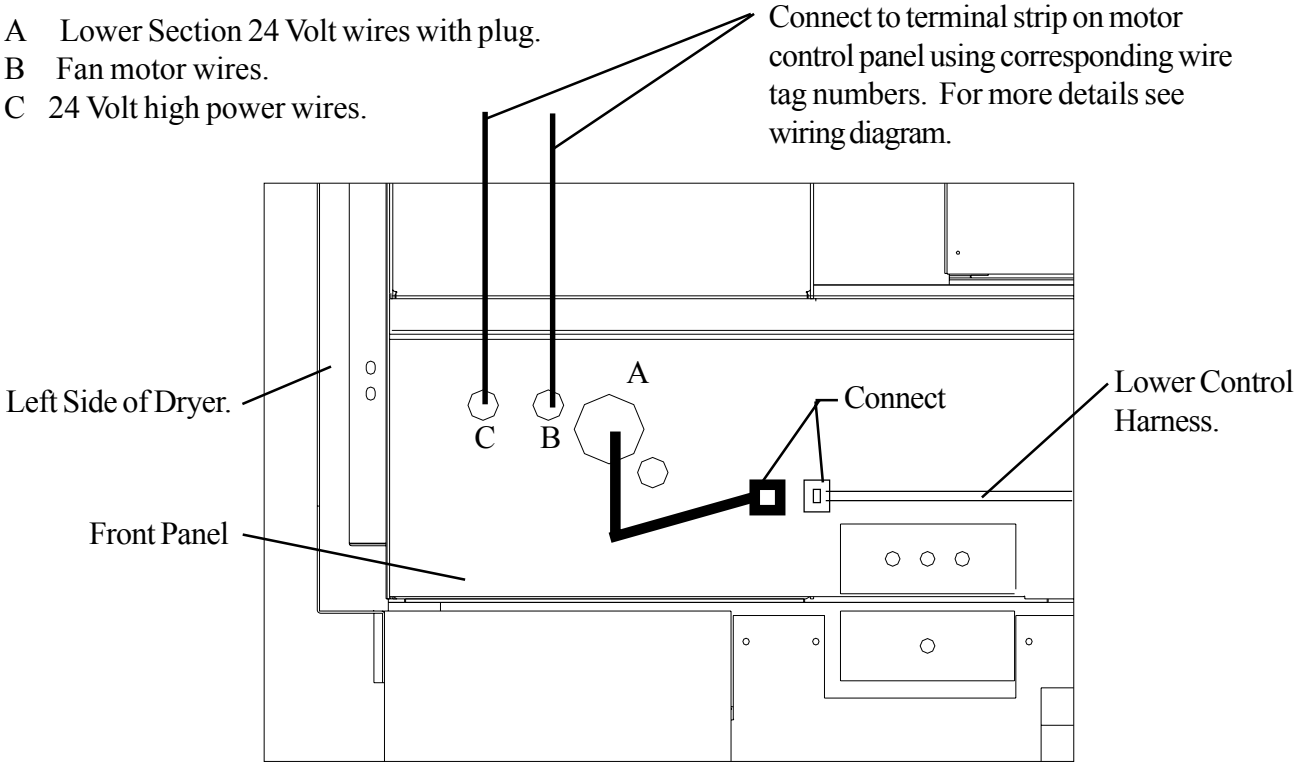


Figure-4B

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.

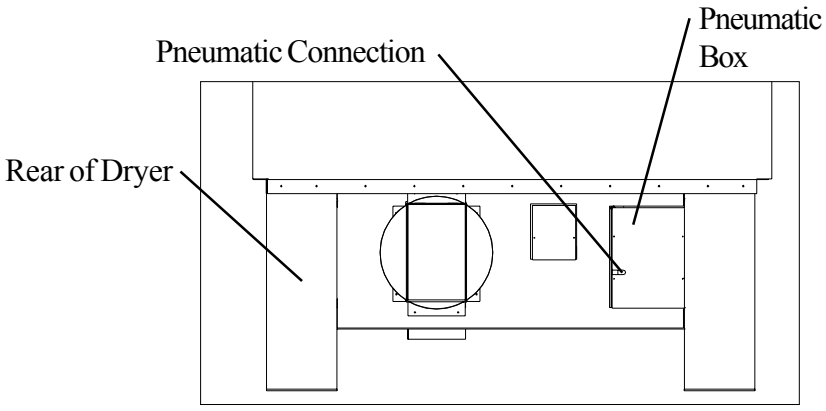


Figure-6A

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 at each corner. 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.

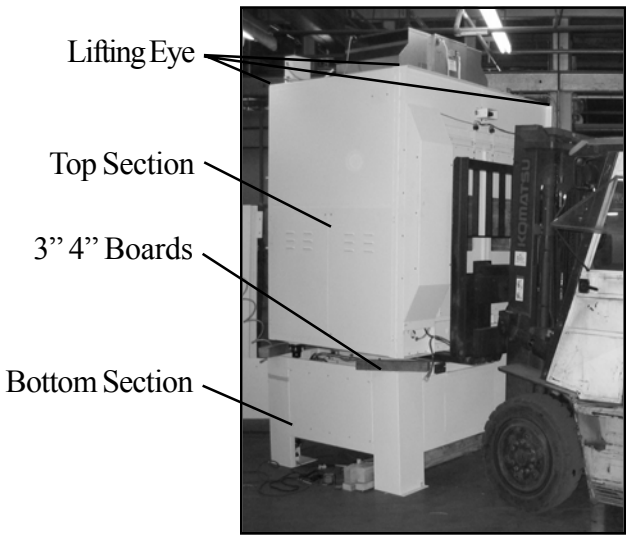


Figure-2A

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.

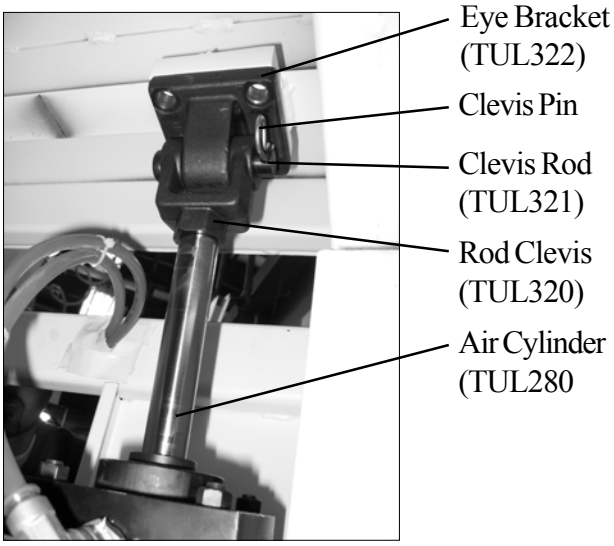


Figure-2B

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.

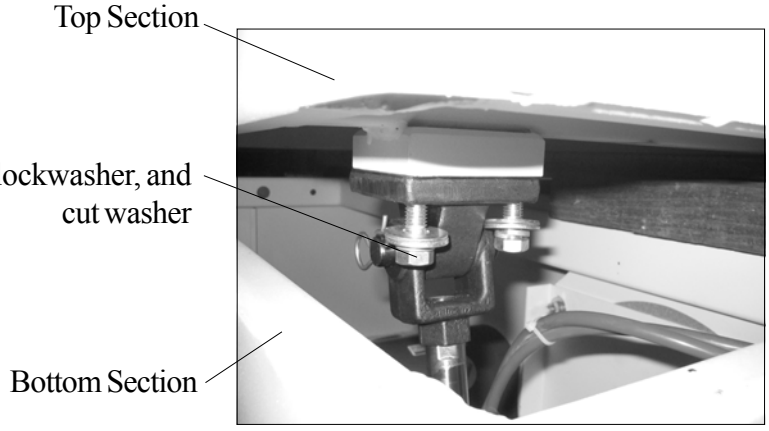


Figure-2C

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) and lock washer (TUL558) per hinge on the top section only.

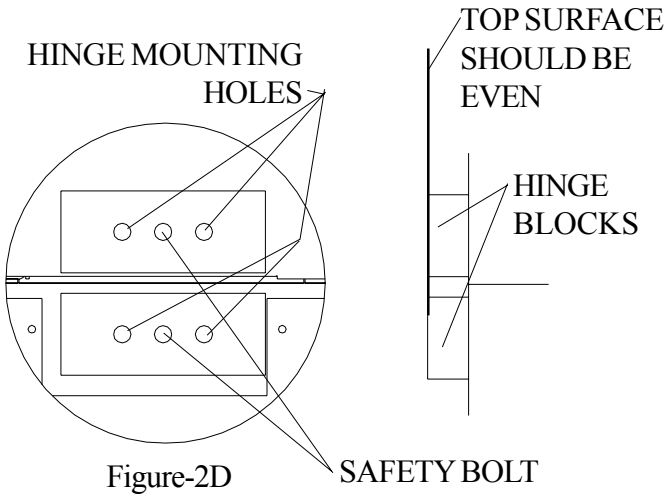
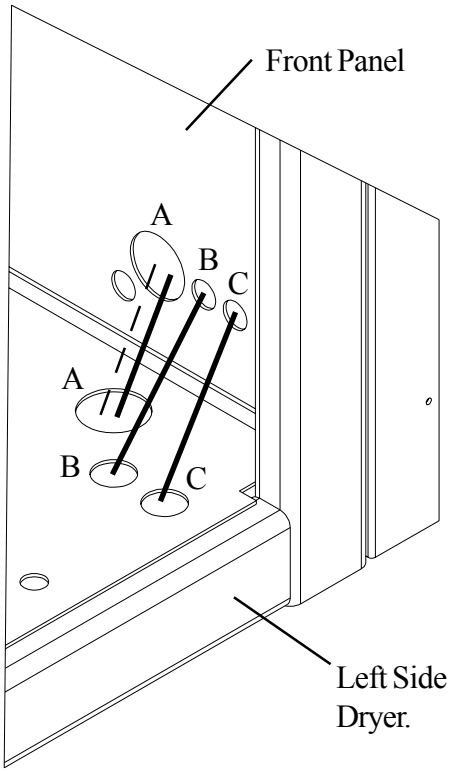


Figure-2D

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) and lock washer (TUL558) 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.
Pneumatic tubing for Automatic doors (Option).

B Fan motor wires.

C 24 Volt high power wires.

Figure-4A

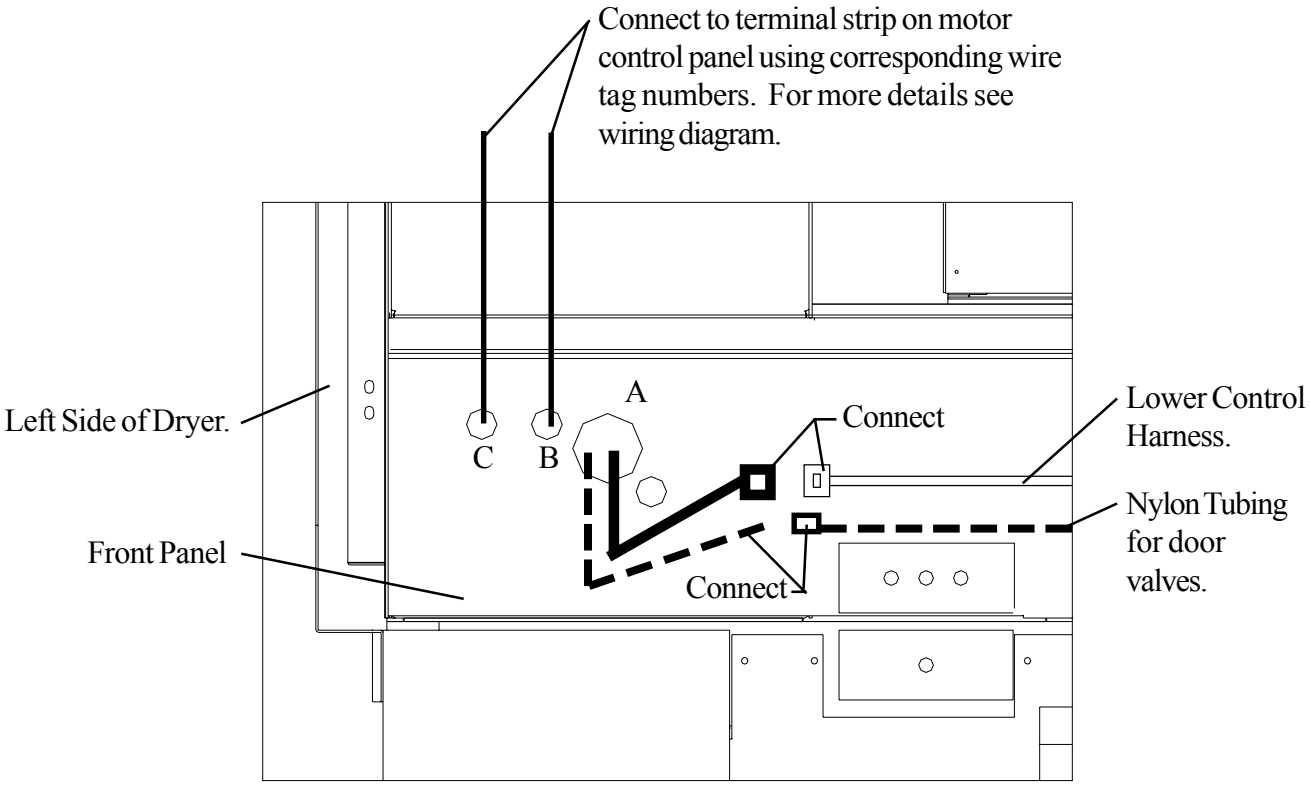


Figure-8B

STEP 11A: On dryers with automatic doors you will need to take the ¼" nylon tube, that is bundle with the wires in the previous step, and run it through hole "A" in bottom of top section and front panel (See Figure-4A & 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 12A: On dryers with automatic doors you will need to take the ¼" nylon tube which you ran through hole "A" in the front panel and connect it to the ¼" nylon tube that runs across the front of the dryer, using the straight fitting on it (See Figure-4B).

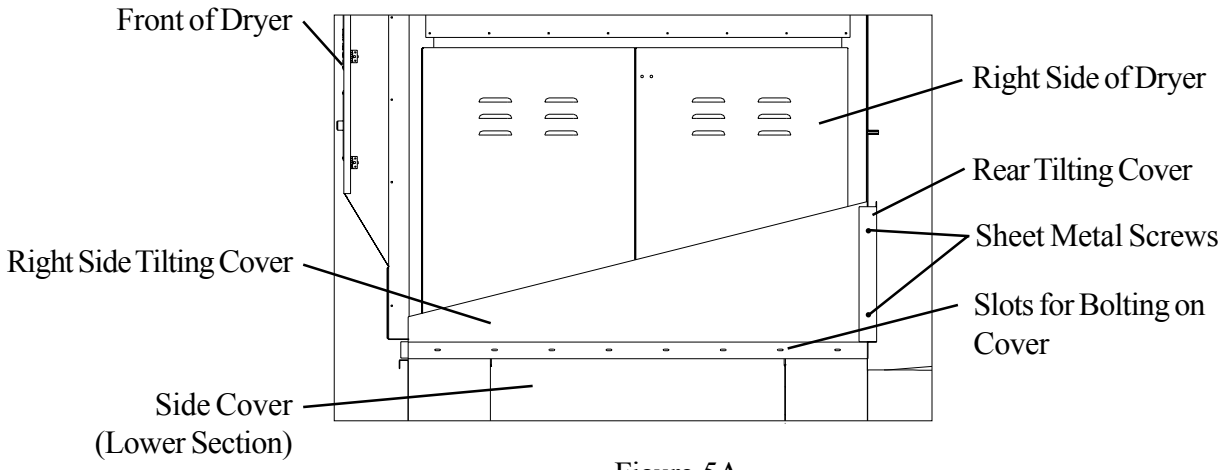


Figure-5A

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 right 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 right 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 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 cover can be attached using sheet metal screws.

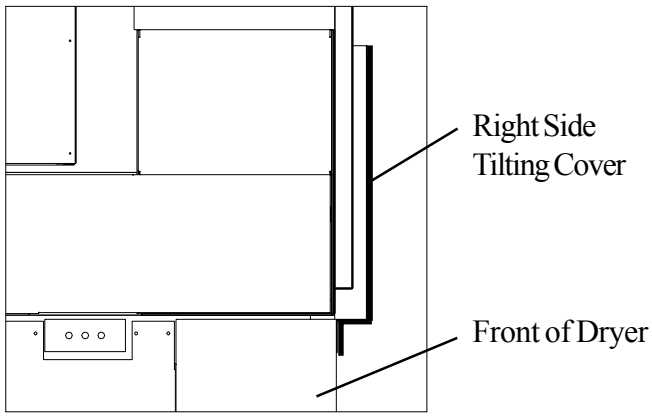


Figure-5B

STEP 15: Repeat step 14 using the left 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.

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.

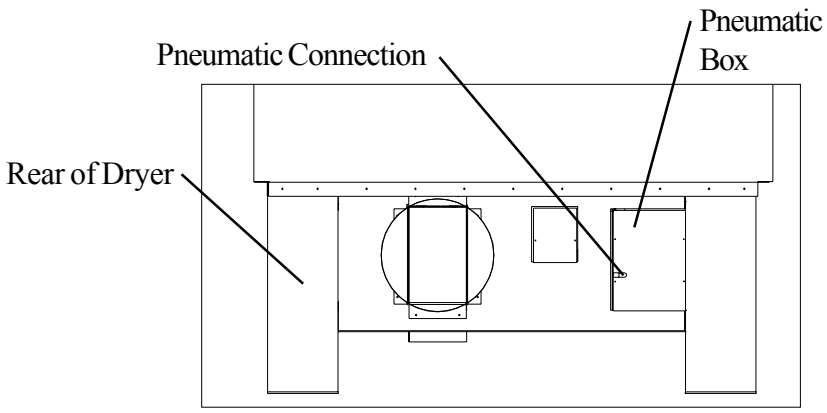


Figure-6A

STEP 1: Uncrate both sections of dryers. The center section of the dryer is attached to the bottom section at the factory. **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/center section at each corner. 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.

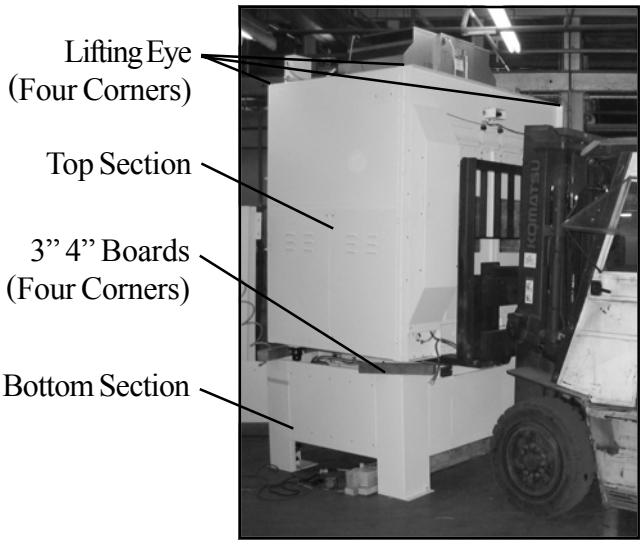


Figure-2A

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.

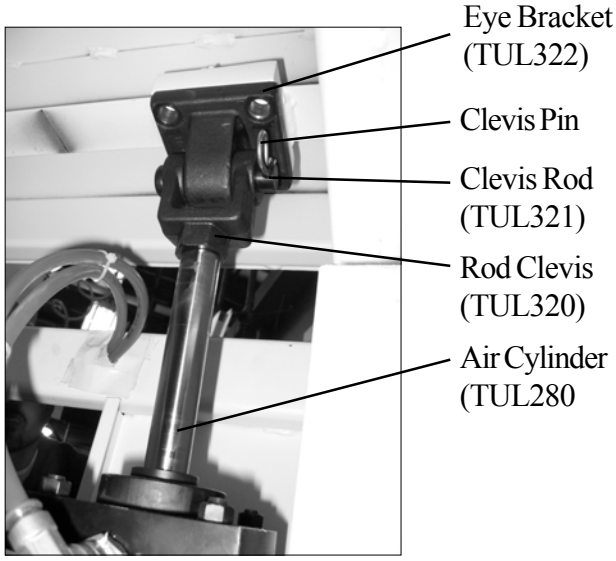


Figure-2B

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 for the other three cylinders.

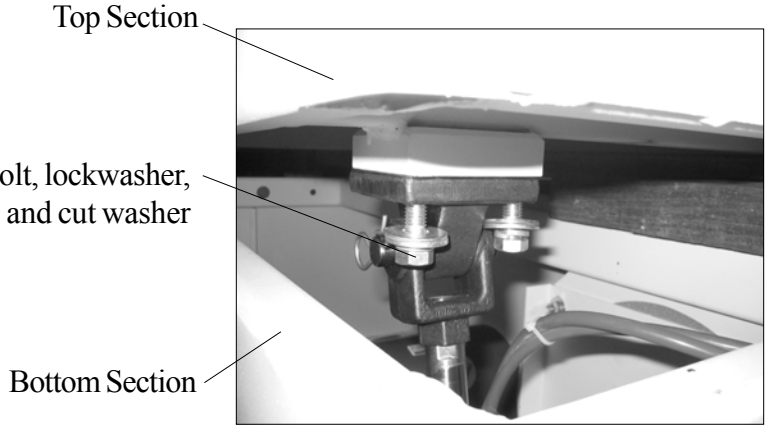


Figure-2C

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/center 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.

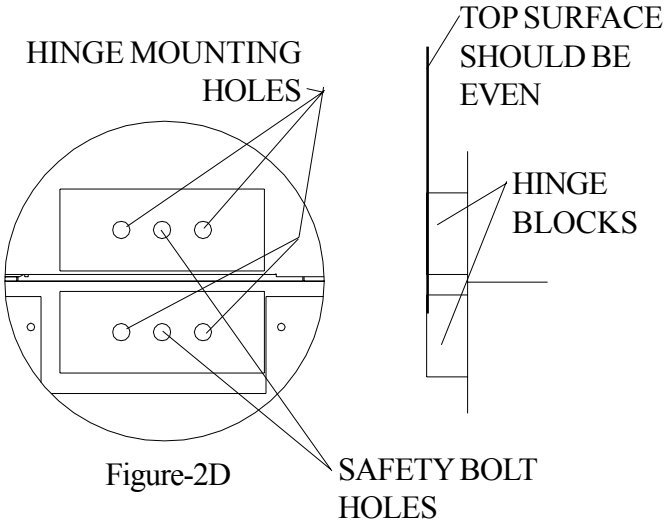
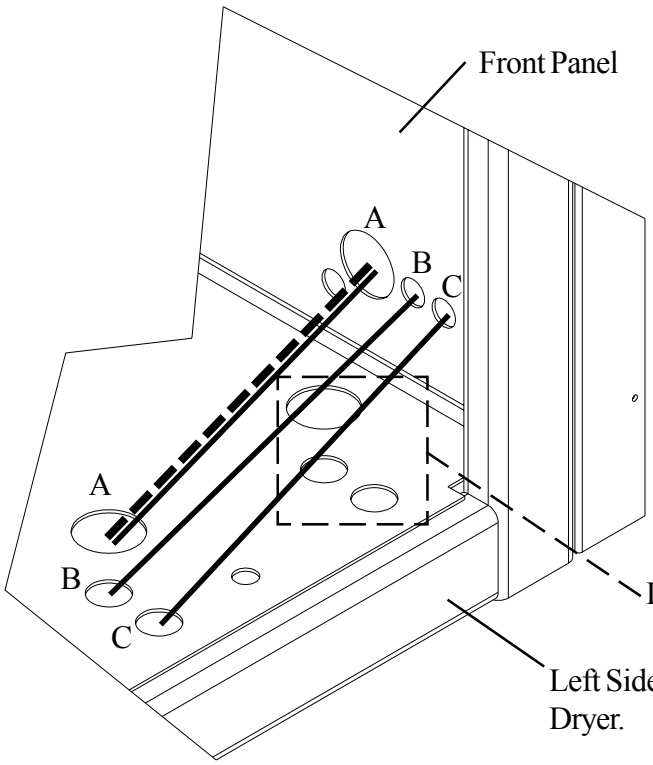


Figure-2D

STEP 9: Put the hinges on the rear of the dryer using two Hex Hd. ½-13 x 2 ½" long bolts (Tux503) and lock washer (TUL558) per hinge on the top section only.

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 rear 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 center 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 center section using two Hex Hd. ½-13 x 2 ½" long bolts (Tux503) and lock washer (TUL558) 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-8A & 8B). Run fan wires (labeled F1-F3) through hole "B" in bottom of top section and front panel (See Figure-8A & 8B). 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-8A & 8B). Put the flexible cable nut back on wires and tighten down against front panel. Wiring should not be placed where it can catch anything on cylinder, etc when the dryer is being tilted in either direction.



A Lower Section 24 Volt wires with plug.
Pnuematic tubing for Automatic doors (Option).

B Fan motor wires.

C 24 Volt high power wires.

Figure-8A

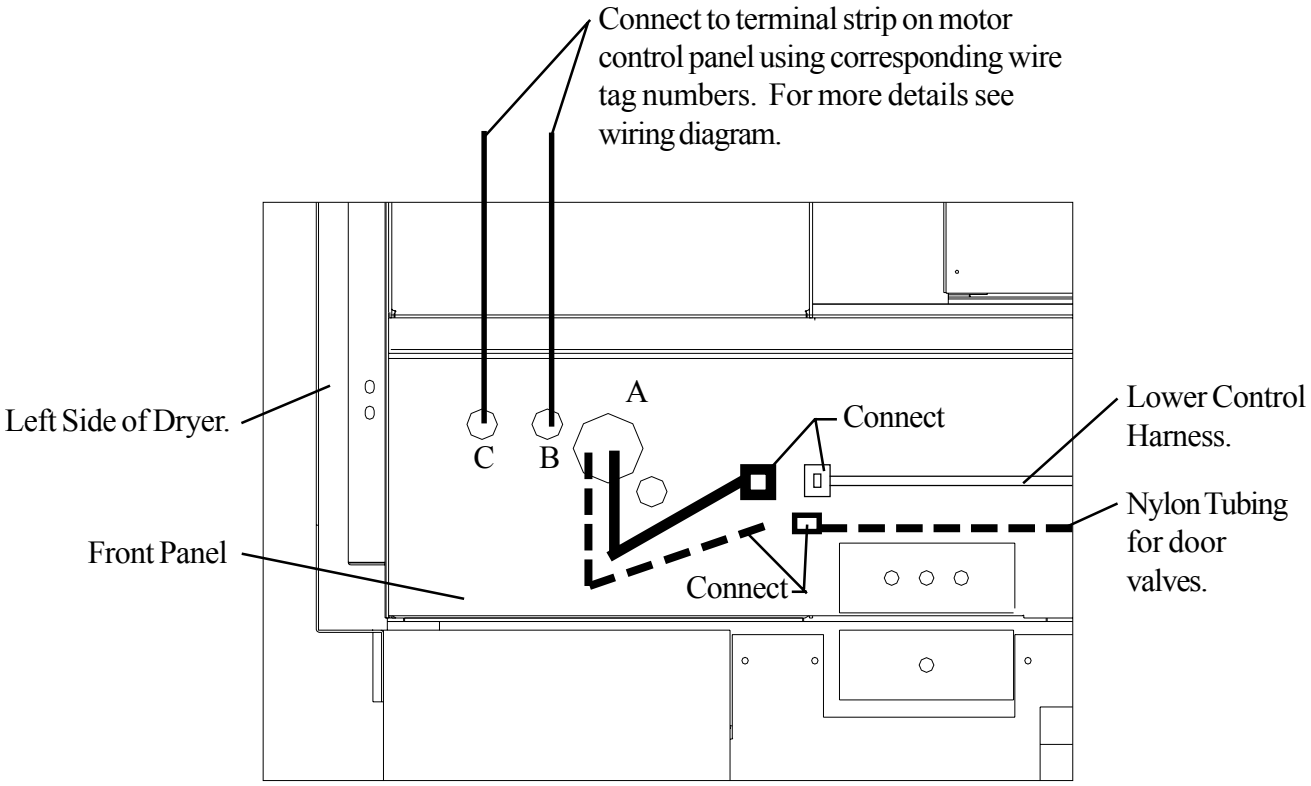


Figure-8B

STEP 11A: On dryers with automatic doors you will need to take the ¼" nylon tube, that is bundle with the wires in the previous step, and run it through hole "A" in bottom of top section and front panel (See Figure-8A & 8B).

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-8B). Connect Fan Motor wires into terminal strip in right control box on front of dryer using corresponding numbers on wire tags (See Figure-8B). 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-8B).

STEP 12A: On dryers with automatic doors you will need to take the ¼" nylon tube which you ran through hole "A" in the front panel and connect it to the ¼" nylon tube that runs across the front of the dryer, using the straight fitting on it (See Figure-8B).

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.

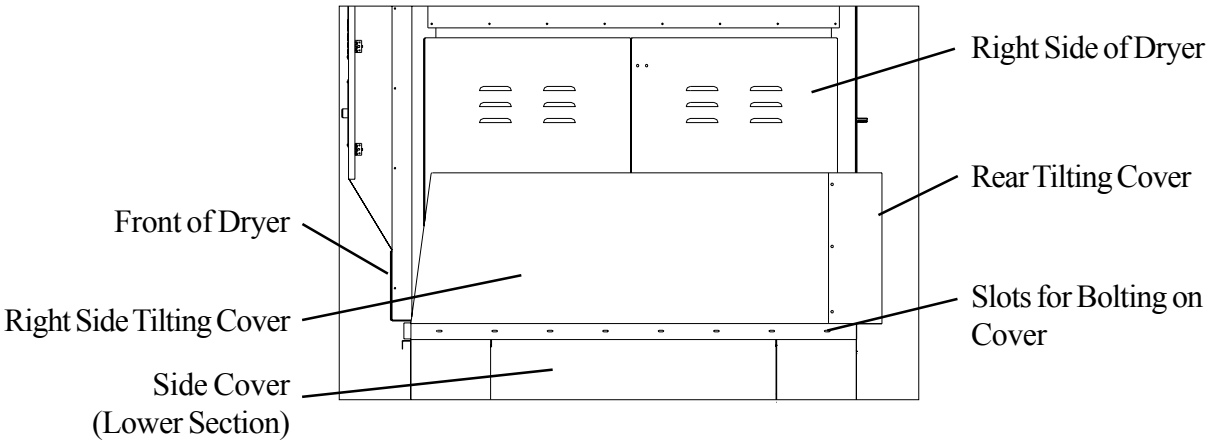


Figure-7A

STEP 14: There are five tilting covers that need to be put in place before operating the dryer. Put the right side tilting cover on the dryer first. The end of the cover that has an angle cut goes toward the front of the dryer. When you are holding the right tilting cover the bent flange on the bottom should be bent away from you. The stiffener at the top of the guard should not be visible. Put the tilting cover on the dryer as shown in Figure-7A & 7B. 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 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 cover can be attached using sheet metal screws.

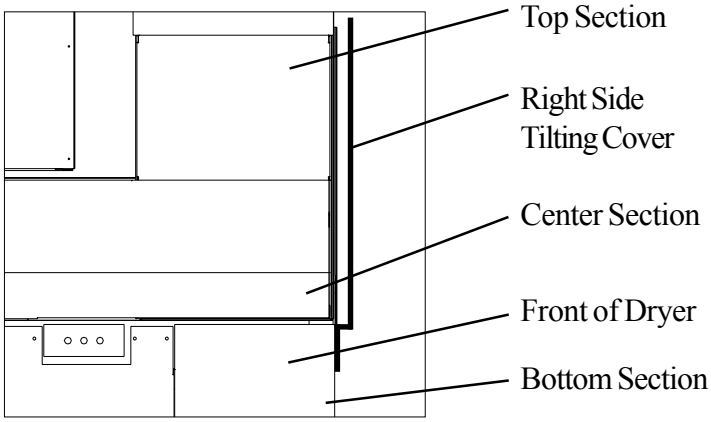


Figure-7B

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

STEP 16: Put on the rear tilting cover. The flange with the hinges welded on it goes down and the end flanges go on the outside of the side tilting valences (See Figure-7A). Attach the rear tilting cover using sheet metal screws through the slots located in the hinges on the bottom of cover. The nylon rub plates on the rear cover should be touching the outside of the side covers when the rear cover is pivoted up in position. Attach the "S" (PAN455) hook in the hole in the stiffener in the rear cover on the right side. Attach another "S" hook in the hole of the stiffener of the side cover on the right side. Connect two extension springs (PAN454) between the two "S" hooks. Repeat the process for the left side.

STEP 17: Remove lower front panel cover in front of dryer (See Figure-9A). Take the front tilting guard with the opening toward the bottom and the flanges toward the dryer. Pivot hinges where they are straight with guards. Tilt guard to allow for hinges to be attached to bottom surface of front panel by aligning the weld nuts in the hinges with slots in the front panel. Use a #8-23 screw, lock washer, and flat washer to attach guard. The nylon rub plates on the front cover should be touching the outside of the side covers when the front cover is in position. The guard should swing freely after it is attached.

STEP 18: Put the lint drawer guard cover on the front guard cover. While holding the cover using the handle, the tabs should be at the top toward the front guard, line up the tabs on the lint drawer guard with the slots above the opening in the bottom of the front guard. The magnets in the front guard should hold the lint drawer cover in place. Put the lower front panel cover back on dryer.

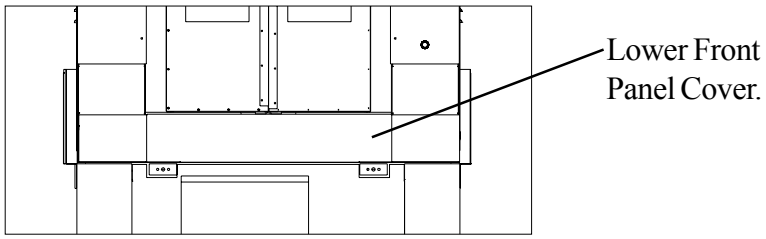


Figure-9A

STEP 19: For all ducting and power connections see appropriate section of manual.

STEP 20: Remove air regulator from basket. Put air regulator on pneumatic connection and then hook up air (See Figure-6A).

STEP 21: Hook up flexible hose from steam or gas source to manifold on bonnet depending on which model of dryer you have.

STEP 22: Hook up 3/8" flexible water line to the pipe connection on the top of the dryer for the FDS system.

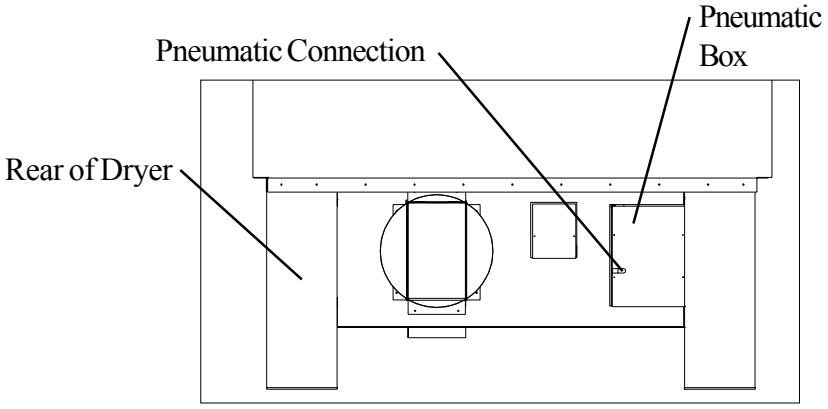
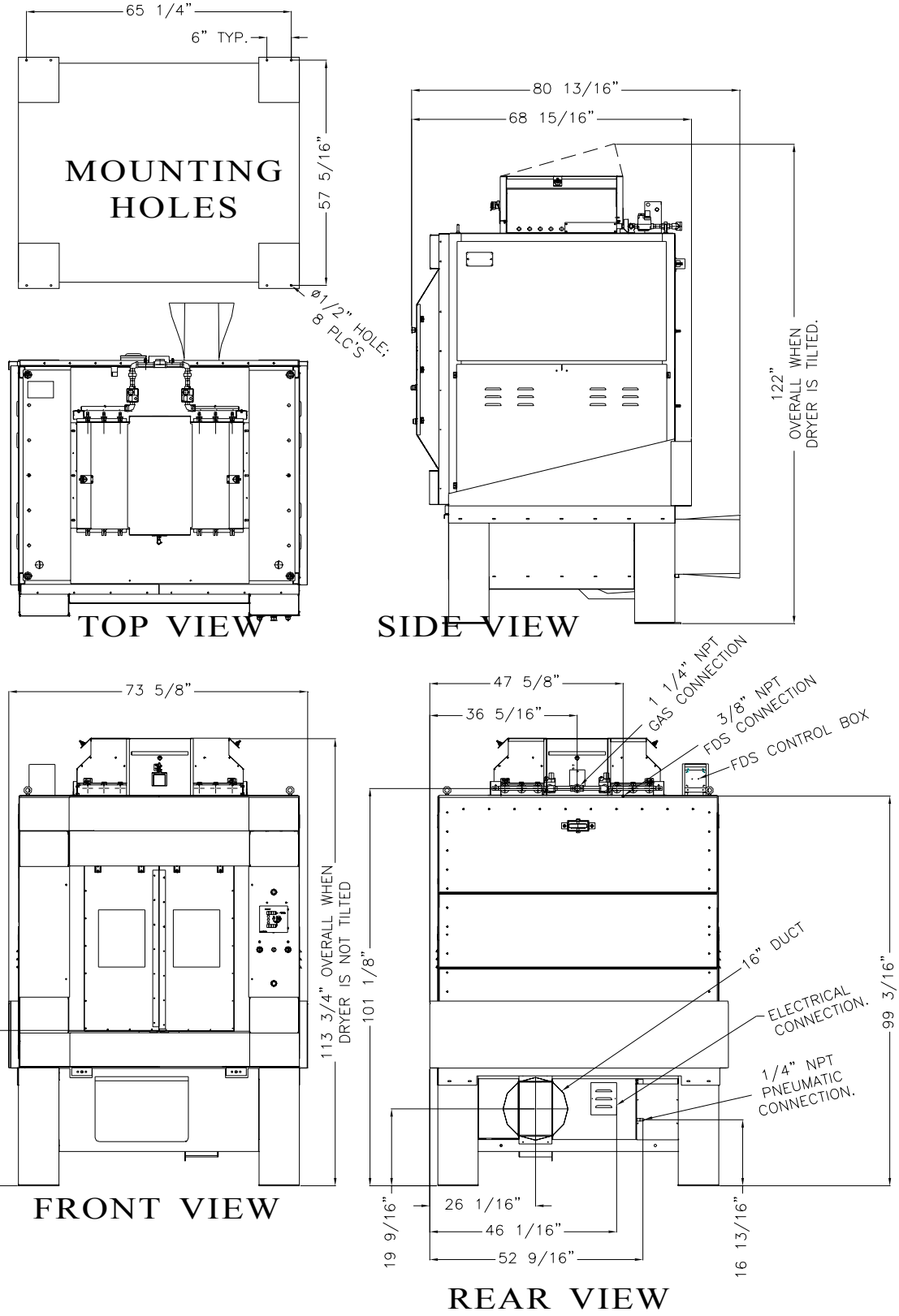


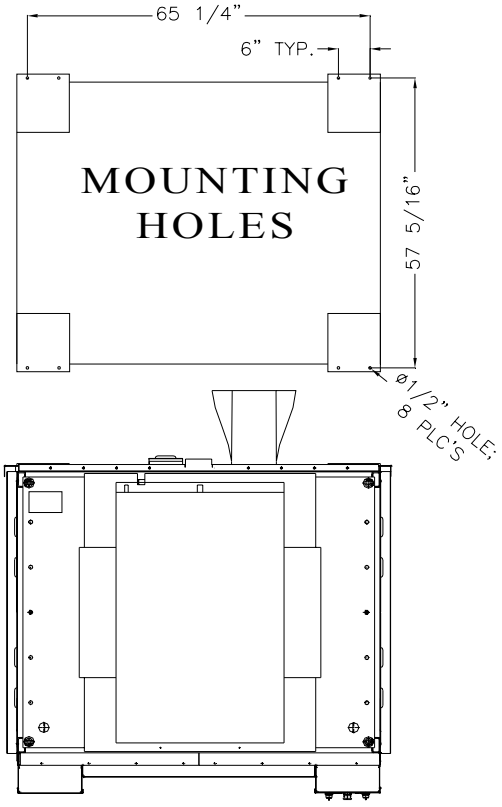
Figure-6A



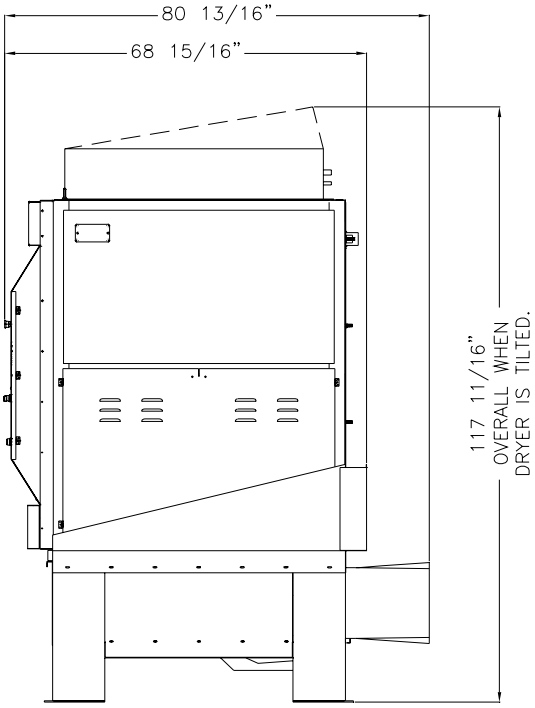
ALL DIMENSIONS ARE +/- 1/4" (6.4 MM) AND ARE SUBJECT TO CHANGE WITHOUT NOTICE

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

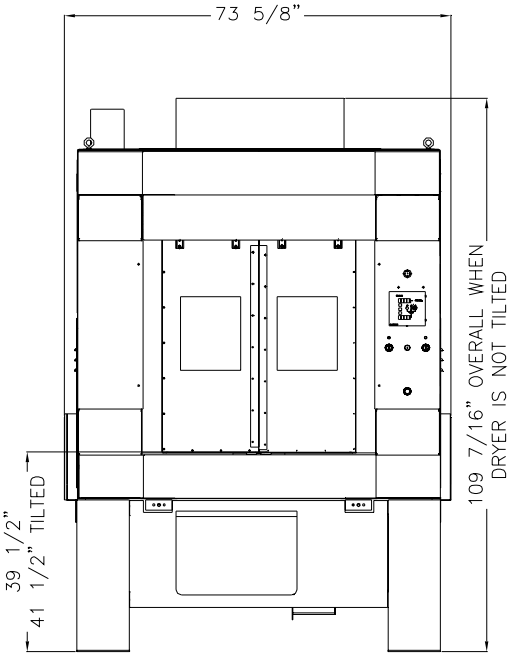
*** Steam and water connection to be made with flexable hose.**



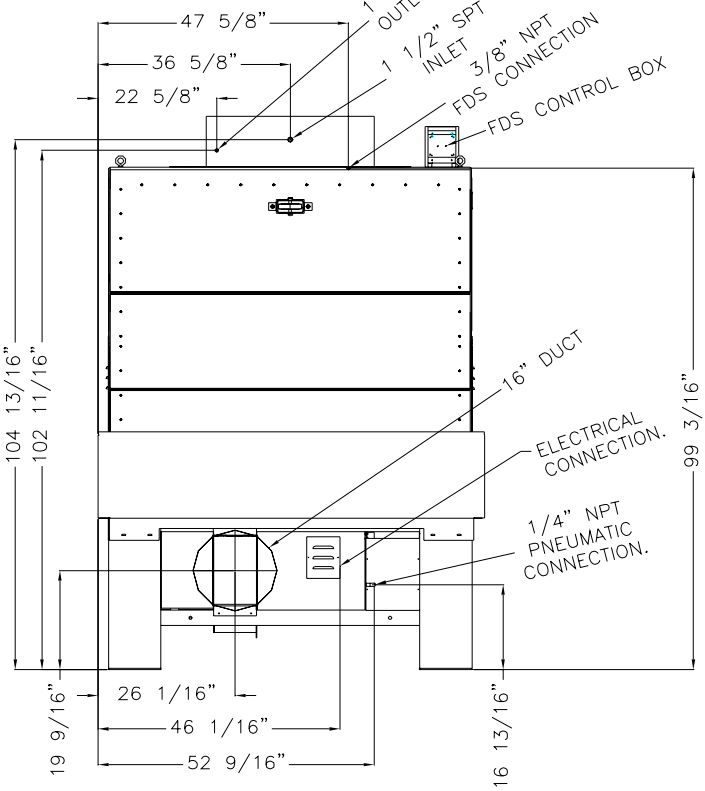
TOP VIEW



SIDE VIEW



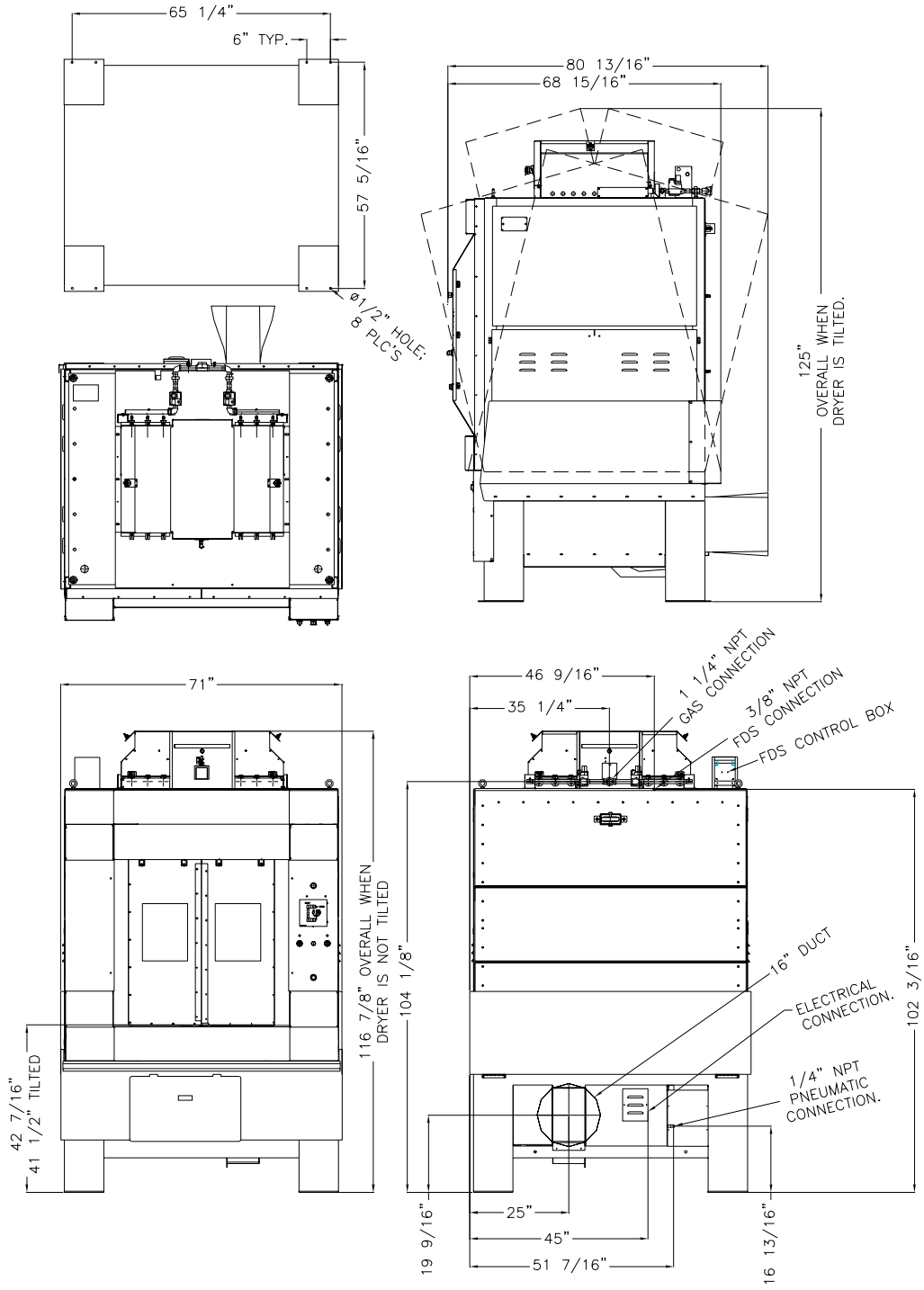
FRONT VIEW



REAR VIEW

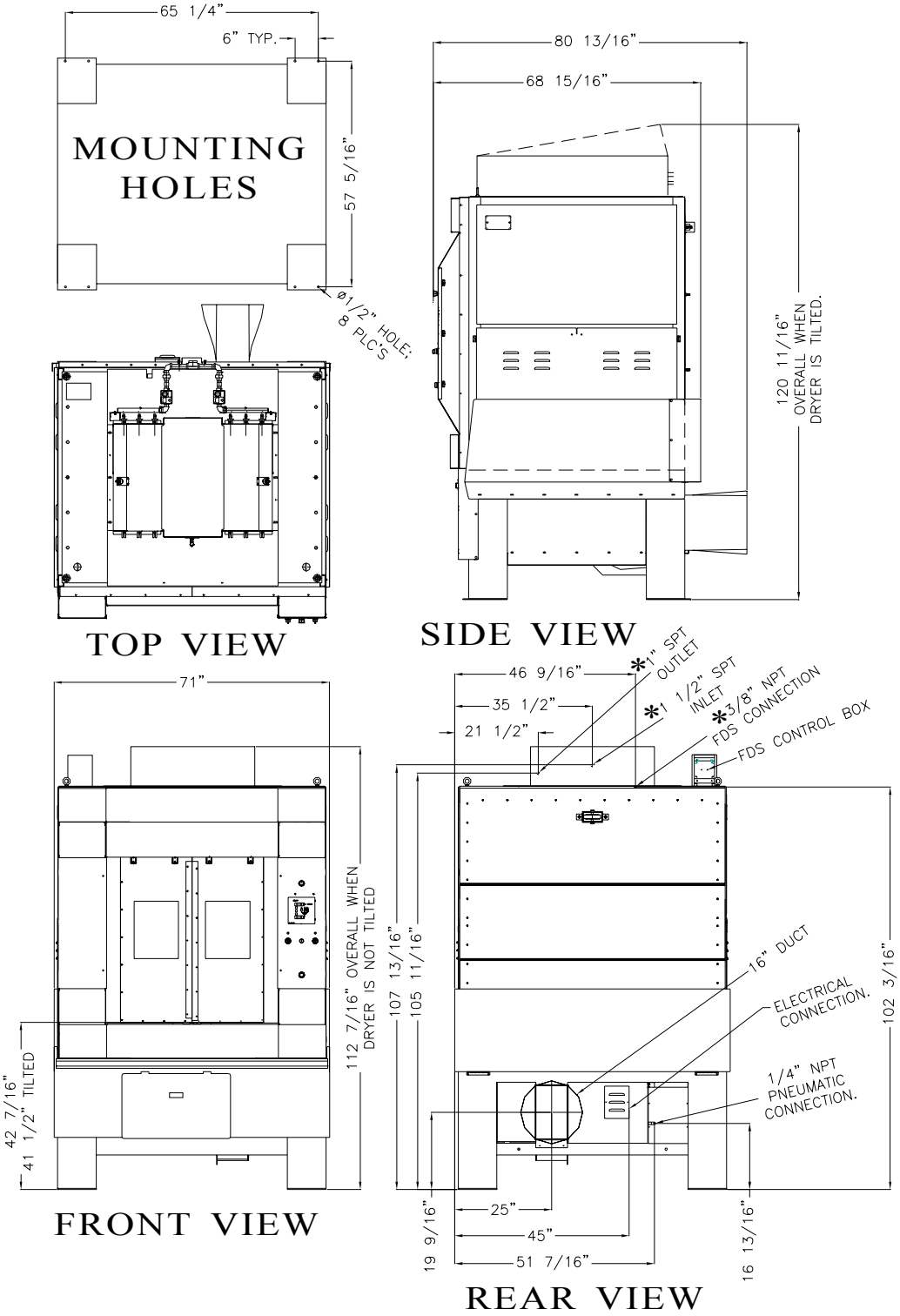
ALL DIMENSIONS ARE +/- 1/4" (6.4 MM) AND ARE SUBJECT TO CHANGE WITHOUT NOTICE

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



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

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



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
Pressure ..... 100 psi max

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

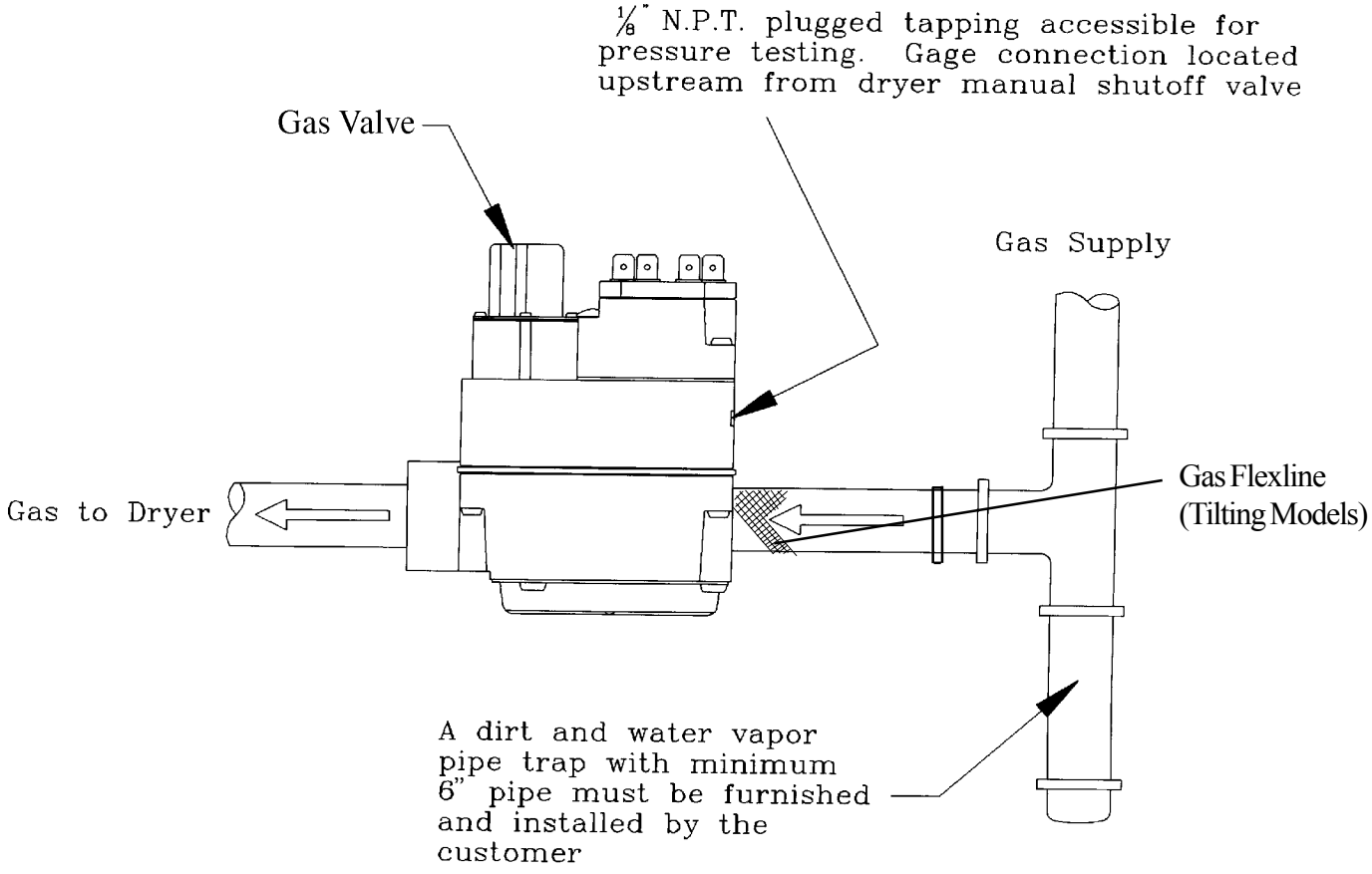
Input Rating ..... 21 BHP
(177,171 kcal/h)

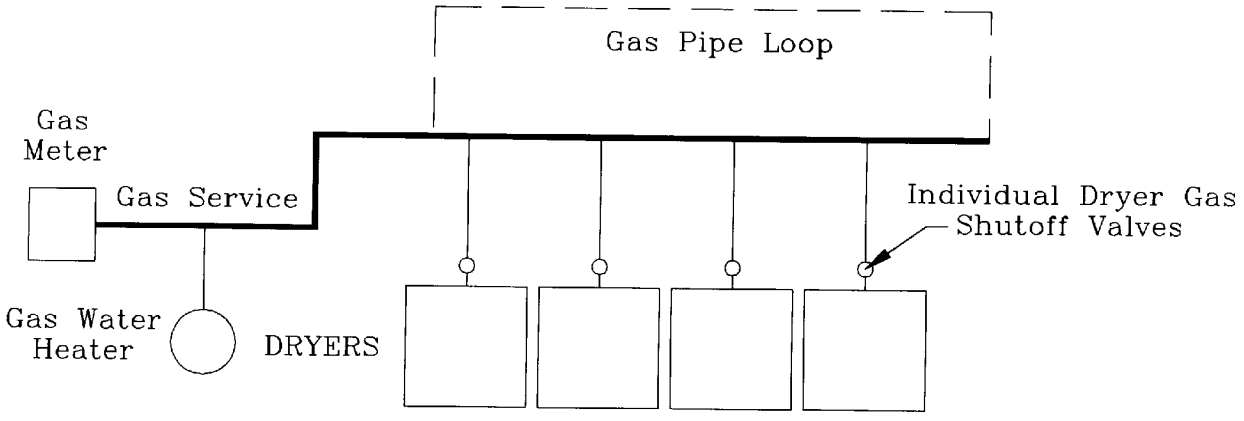
Recommended Make-up Air ..... 6.67 sq. ft. (960 sq. in.,
6194 sq. cm)

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.

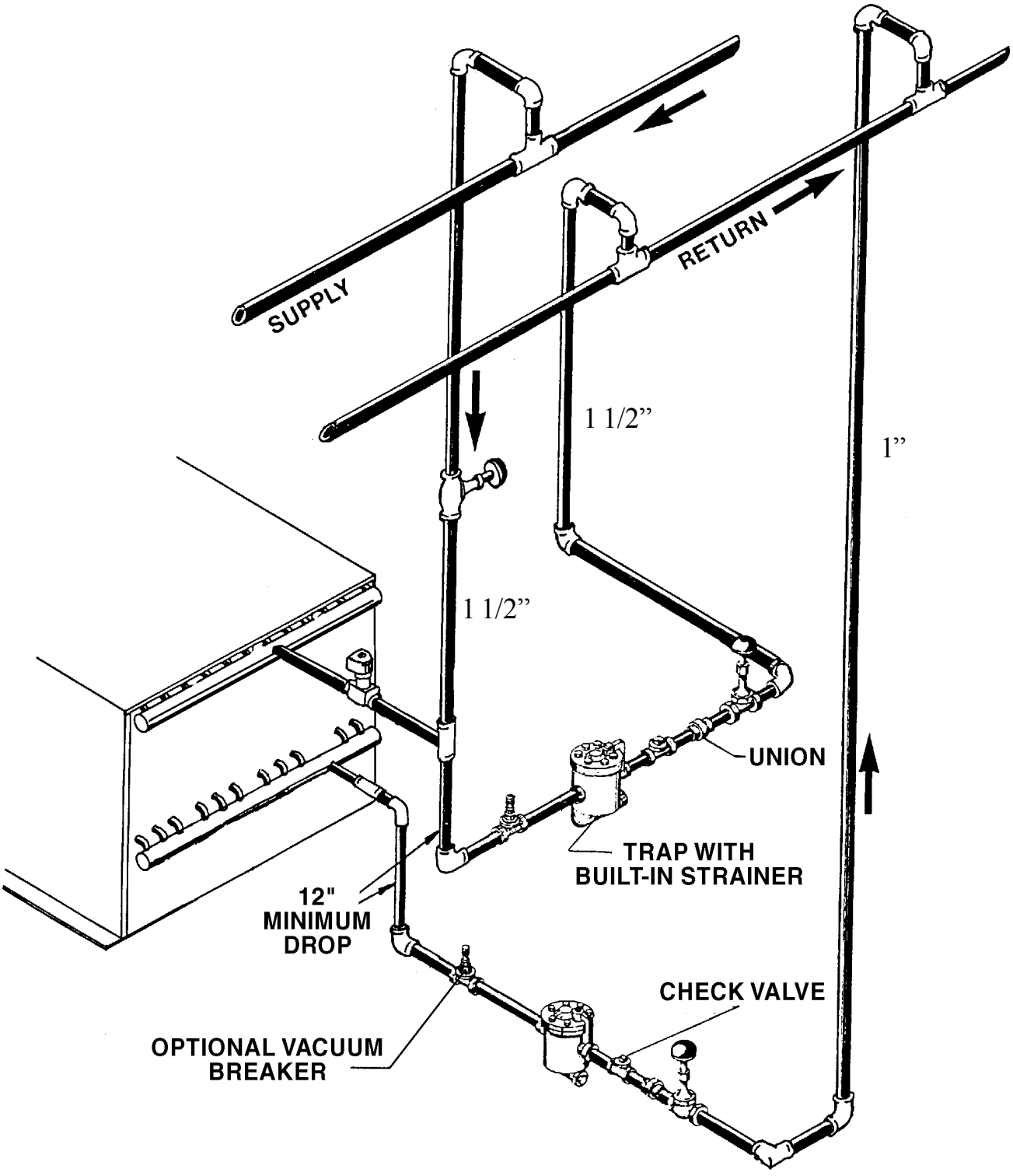
NATURAL GAS ONLY

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.

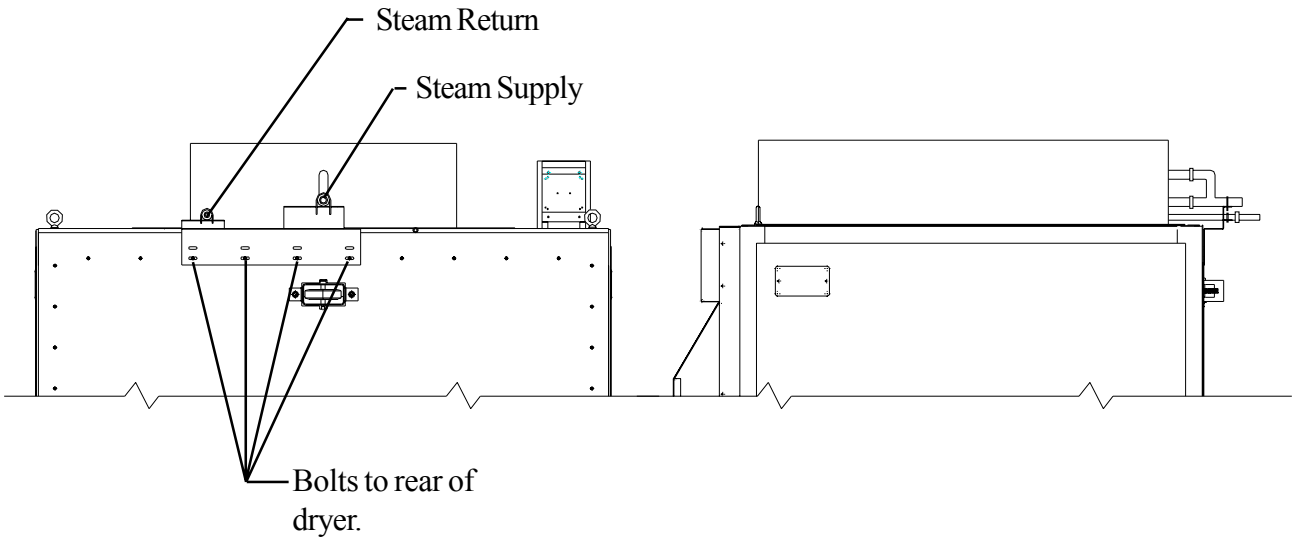
2. When dryer is on the end of a line of equipment, extend header at least 4 feet beyond dryer. Install globe valve, union, check valve and by-pass trap at end of line. If gravity return to boiler, omit trap.

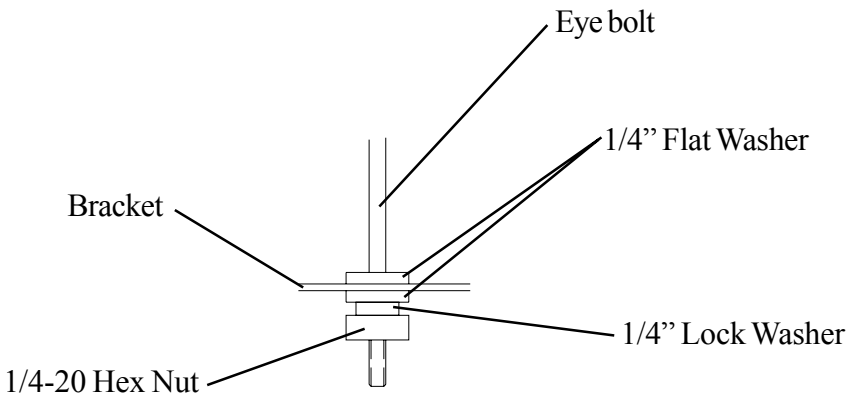
3. Insulate steam supply and return line for safety of operator and safety while servicing dryer.

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

BONNET SUPPORT BRACKET

1. Make sure bonnet support bracket is securely mounted to rear of dryer.
2. The bonnet inlet and outlet connections should be securely fastened to top of bracket using the provided U-bolts. There should be no movement between the bracket and the steam coil. This bracket must be used on all tilting steam dryers.
3. Connect your steam supply and return. You must use flexable hoses on all tilting dryers.





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.

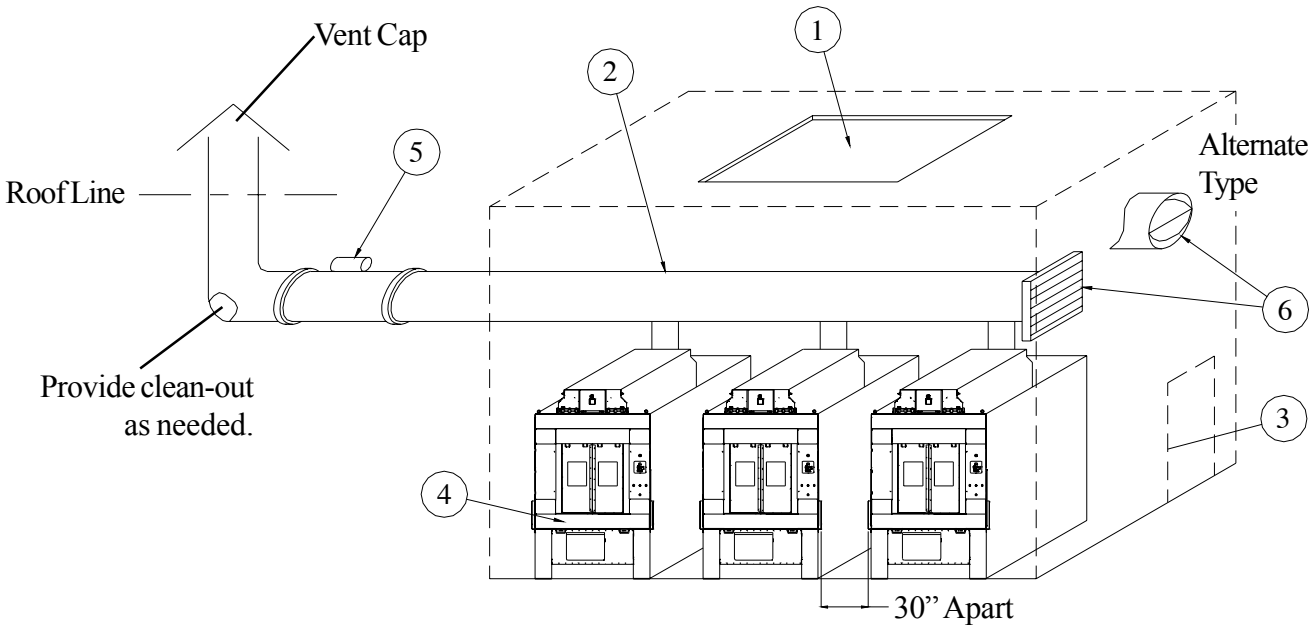
3. Enclosure (plenum) with service door. This separates the dryer air from room comfort air. If dryers use room air instead of outside air, the heat loss can be another 25 Btu/h for each cubic foot per minute (cfm) used.

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.

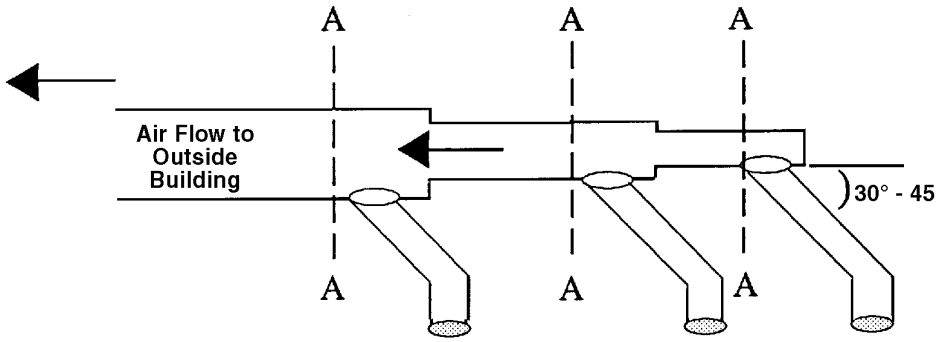
6. Barometric Bypass Damper - Adjust to *closed flutter position* with all dryers and exhaust fan running. Must be located with enclosure.

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.**



DRYER INSTALLATION WITH MULTIPLE EXHAUST

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

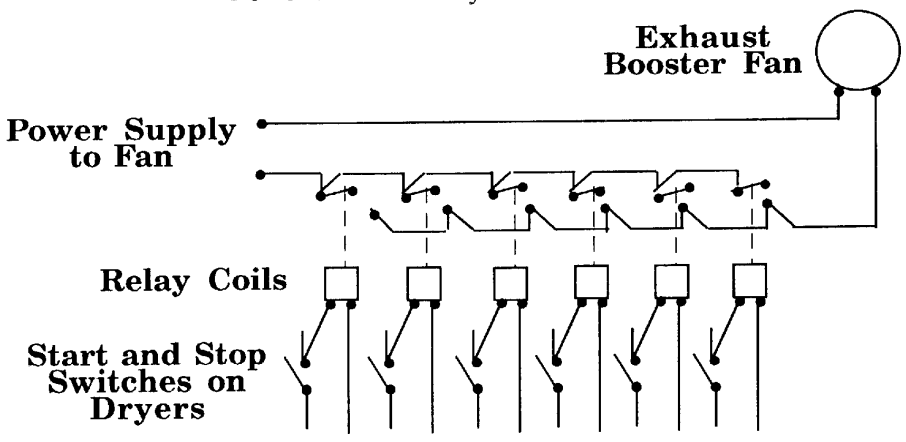
No. of Dryers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Duct Diameter (in inches)	8	12	14	16	18	20	22	23	24	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
(in cm)	20	30	25	41	46	51	56	58	61	66	68	71	73	76	78	81	84	86	89	91	94	97	99	100

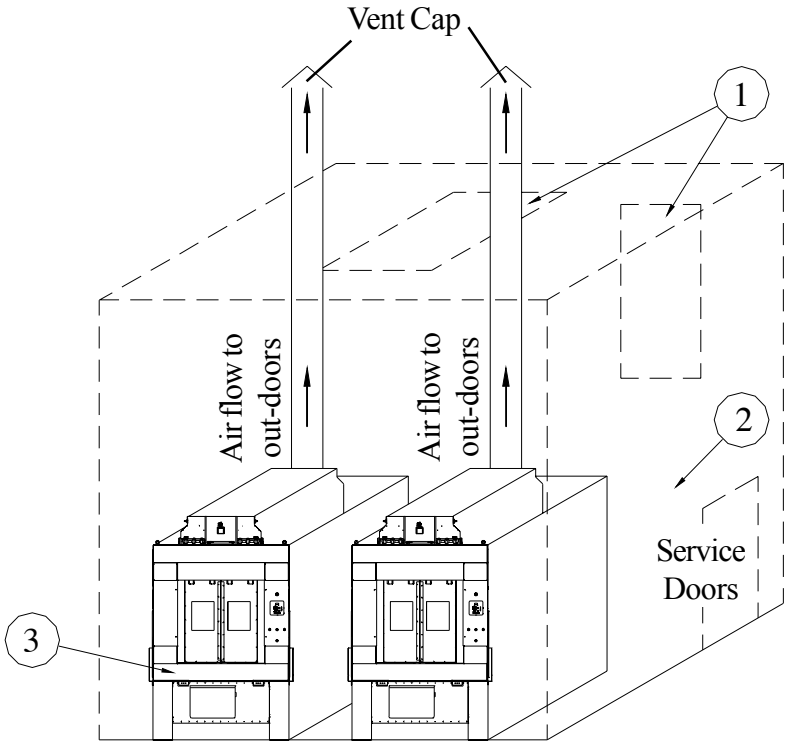
MODELS: HD75ST, HD110, HD125, HD150, & HD170

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.

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.

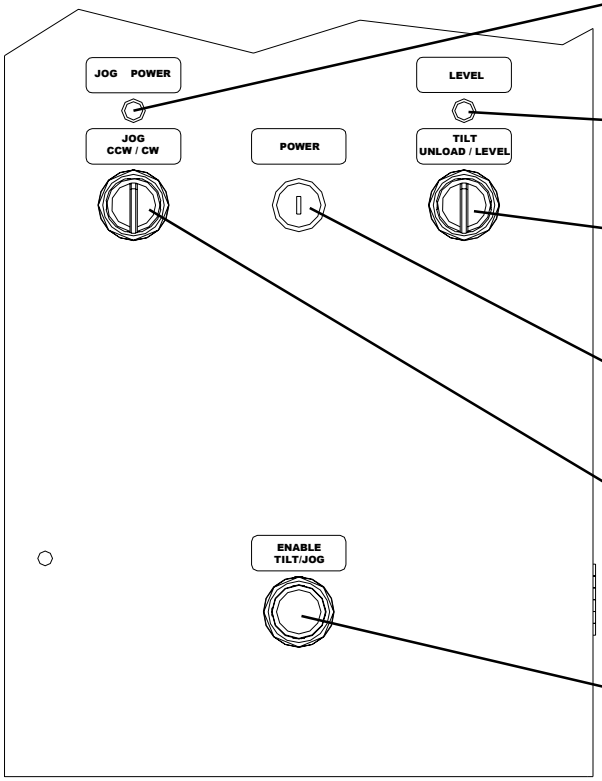
5. Don't open the dryer door while drying. You let warm air escape from the dryer into the room.

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.



JOG POWER LIGHT
(TILTING MODEL ONLY)

LEVEL LIGHT
(TILTING MODEL ONLY)

SELECTOR SWITCH
(TILTING MODELS OR
MODELS WITH AUTO-
MATIC DOORS)

POWER SWITCH
KEY NEEDED

JOG SWITCH
(TILTING MODEL ONLY)

ENABLE PUSH BUTTON
SWITCH
(TILTING MODELS OR
MODELS WITH AUTOMATIC
DOORS)

POWER SWITCH: Turns on Power to Dryer.

SELECTOR SWITCH: Press and hold in "Enable" button. Turn "Selector" switch toward selection. Hold in "Enable button the entire time you are using "Selector" switch. Level light will come on when dryer is completely level. For models with automatic doors the "Enable" button must be held in until doors are completely closed.

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 "Selector" and "Jog" switch. Also use "Enable" button when closing automatic doors. 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).

INVERTER LIGHT BLINKING

Reset by turning power off and than back on to dryer at breaker box. If inverter will not reset, then replace.

DOORS RUBBING IN TRACK.

Clean all forign objects out of door track.

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 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 motor will not run.	Inverter tripped and light(s) are blinking.	Reset by turning power off and then back on to dryer at breaker box. If inverter will not reset, then replace.
Inverter continues to trip.	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.

TROUBLE	CAUSE	REMEDY
Basket will not reverse.	Defective reversing relay.	Replace if defective.
	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.
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.

TROUBLE	CAUSE	REMEDY
Automatic doors will not open.	Bad DR (door) relay.	Replace Relay.
	Bad Dry/Tilt switch/contact block.	Replace Switch and/ or switch contact block.
	Bad pneumatic door valve.	Replace valve.
Automatic doors will not close.	Dry/Tilt switch must be in dry position.	Put Dry/Tilt switch in Dry position.
	Enable button is not pressed in.	Press in Enable button while operating Dry/Tilt switch to close doors. Hold until doors are closed.
	Dryer not level.	Level Dryer.
	Bad DR (door) relay.	Replace relay.
	Bad Dry/Tilt switch/contact block.	Replace switch and/ or switch contact block.
	Bad pneumatic door valve.	Replace valve.
	Bad Enable switch/contact block.	Replace switch and/ or switch contact block.
	Bad Level switch(s).	Replace Level switch(s).
	Bad Level relay(s) DL, RL, or FL.	Replace Relays.
Automatic doors will not stay closed.	Left or Right door closed switches bad or out of adjustment.	Replace or adjust switches.
	Bad door DC (door closed) relay.	Replace if defective.
Doors rubbing in lower track.	Foreign objects in door track.	Clean lower door track.
	Door(s) out of adjustment.	Adjust door height or alignment.
Dryer tilting to fast or slow.	Flow control muffler(s) need to be adjusted.	Adjust flow control muffler(s) in rear pneumatic box.

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.

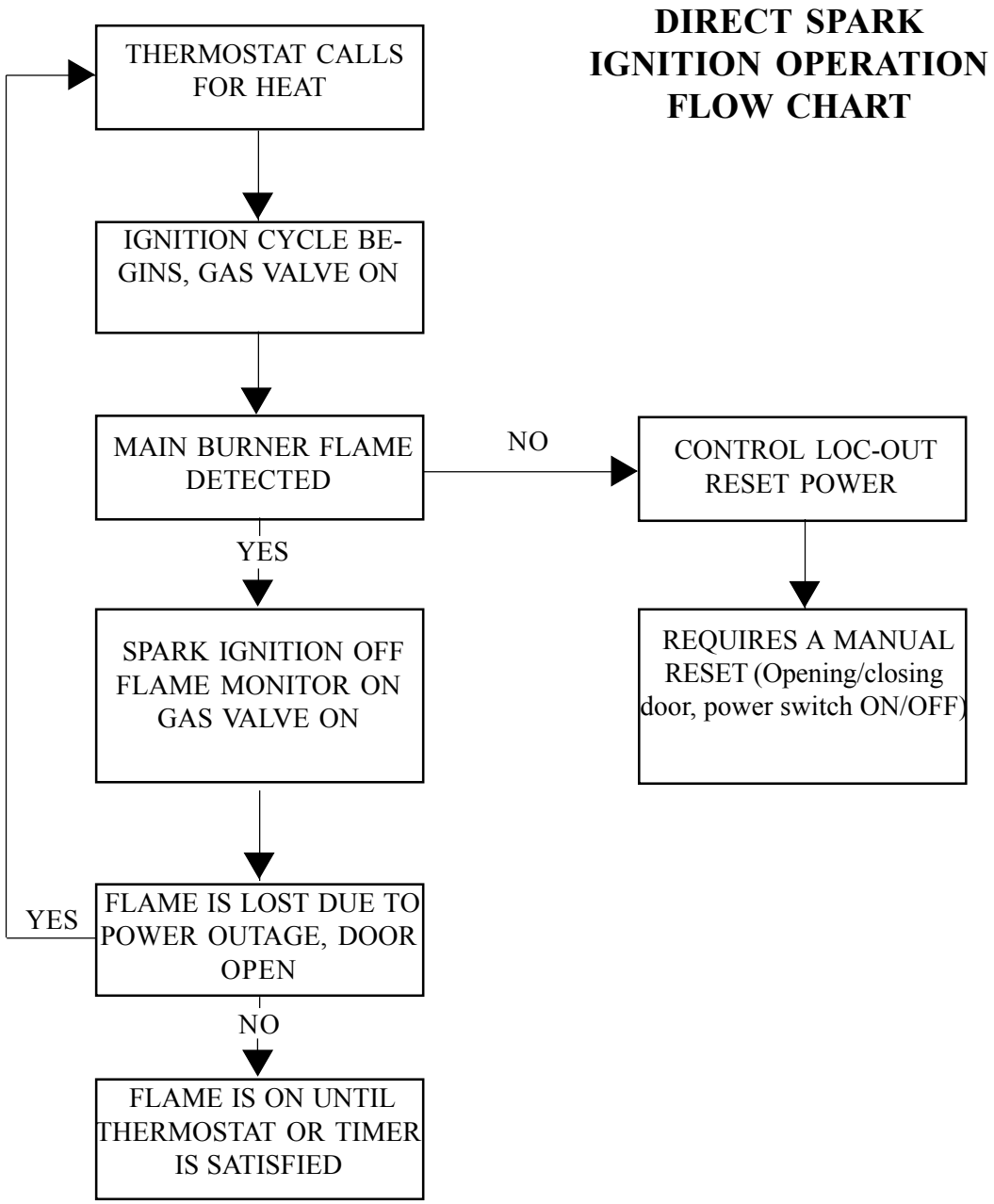
5. Opening the loading door will cause the flame to extinguish. Closing the door and starting the dryer will restart the trial for ignition period.

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)



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

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.

11. **AIR FILTER**. Check air filter and remove water if needed.

12. **LOWER DOOR TRACK**. Clean lower door track daily.

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.

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.**

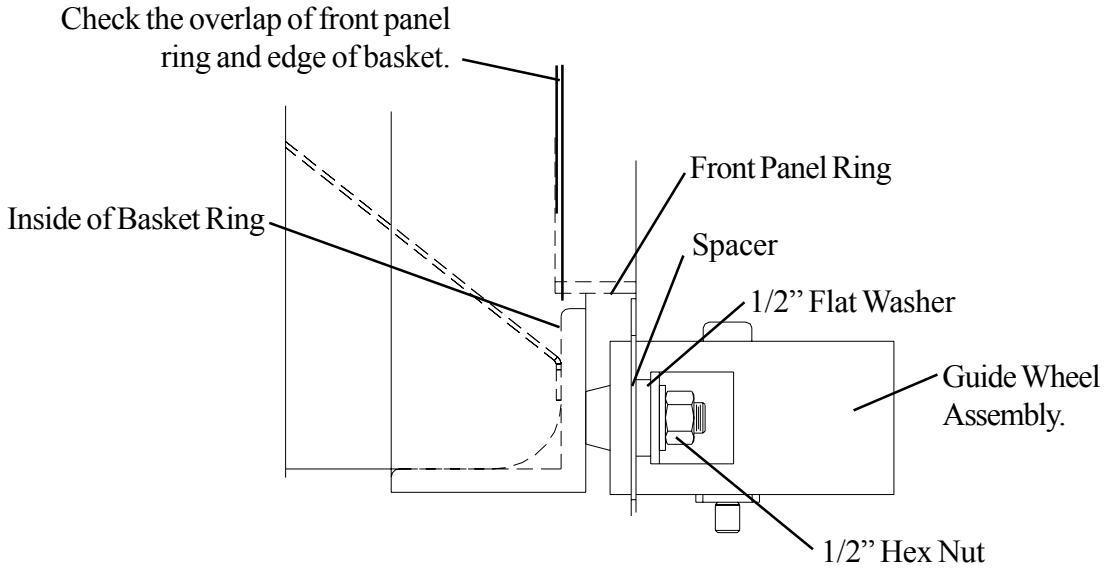


FIGURE -3A

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.

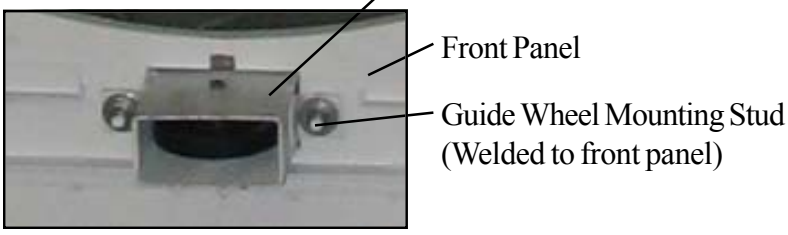


FIGURE -3B

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.**

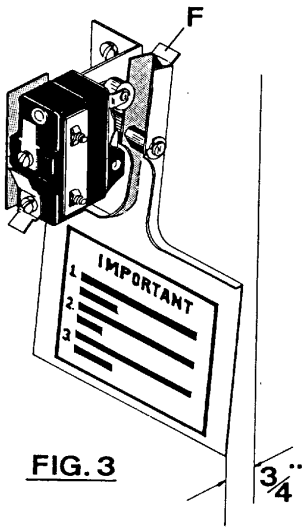


FIG. 3

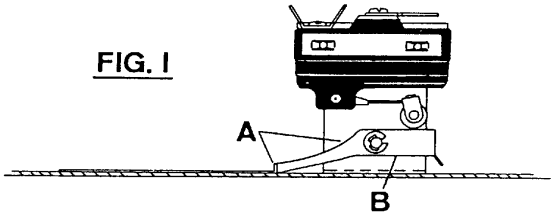


FIG. 1

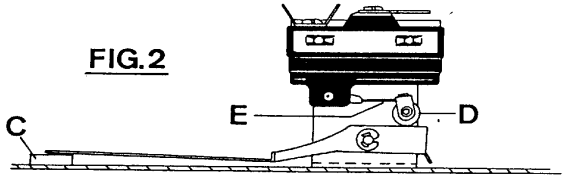


FIG. 2

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".

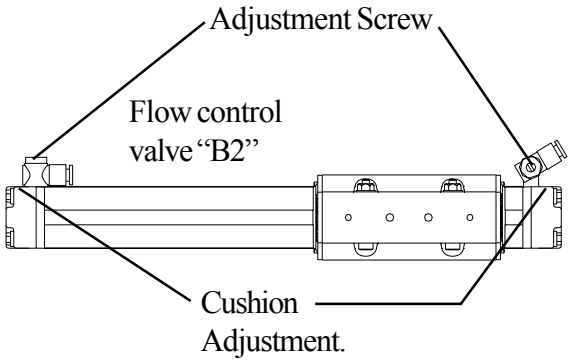
4. Maximum opening of air switch must be no greater than 3/4" (figure 3). Bend tab "F" in or out to maintain this dimension.

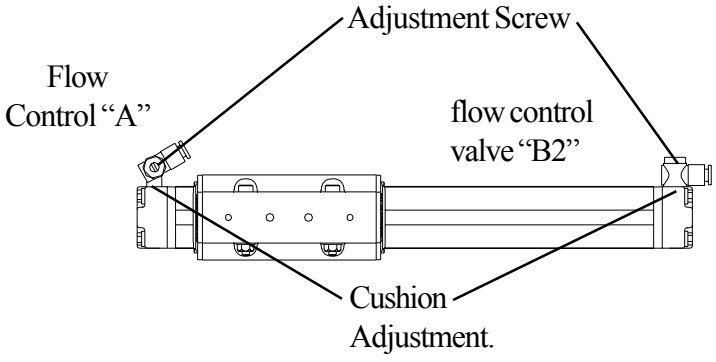
5. Re-install air switch assembly on rear of dryer.

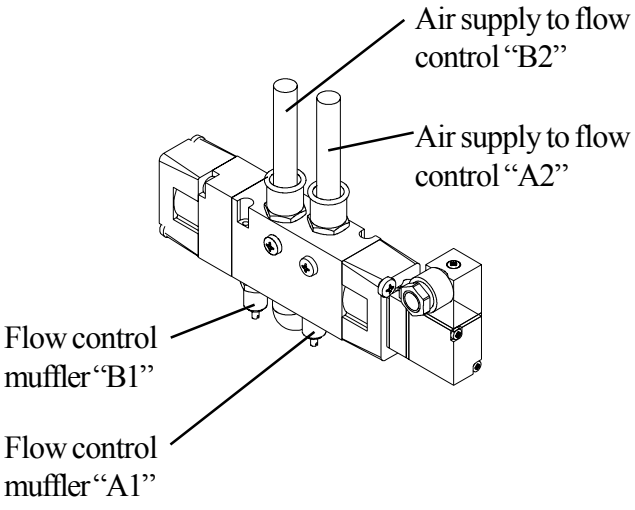
6. Re-check operation of air blade. Switch must close before air blade engages face of opening and re-open before stop "F" engages.

Check to make sure there is 80lb of air feeding the cylinders. If not, check air line for problem. Doors are preadjusted at factory. Do not leave or put any forign objects, body parts, etc between the doors while adjusting, opening or closing the doors. This could cause severe injury or worse.

DOORS OPEN TO FAST OR SLOW.	Adjust flow control muffler "B1" on door pneumatic valve to adjust speed. Open valve more to allow more air to exhaust to speed the door up. Close valve more to allow less air to exhaust to slow door down.
DOORS CLOSE TO FAST OR SLOW.	Adjust flow control muffler "A1" on door pneumatic valve to adjust speed. Open valve more to allow more air to exhaust to speed the door up. Close valve more to allow less air to exhaust to slow door down.
ONE DOOR CLOSES FASTER THAN THE OTHER ONE.	Adjust flow control valve on door cylinder by turning adjustment screw. Turn clockwise to decrease airflow and counter-clockwise in increase. To increase/ decrease the speed of a door opening, adjust "B2". To increase/decrease the speed of a closing, adjust "A2".
AT THE END OF THE CYLINDER STROKE THE DOOR STOPS ABRUPTLY.	Adjust cushion setting on door cylinder. This will slow the door down at the end of the stroke. Turn set screw clockwise to increase the cushion on the end of the cylinder that is stopping abruptly.

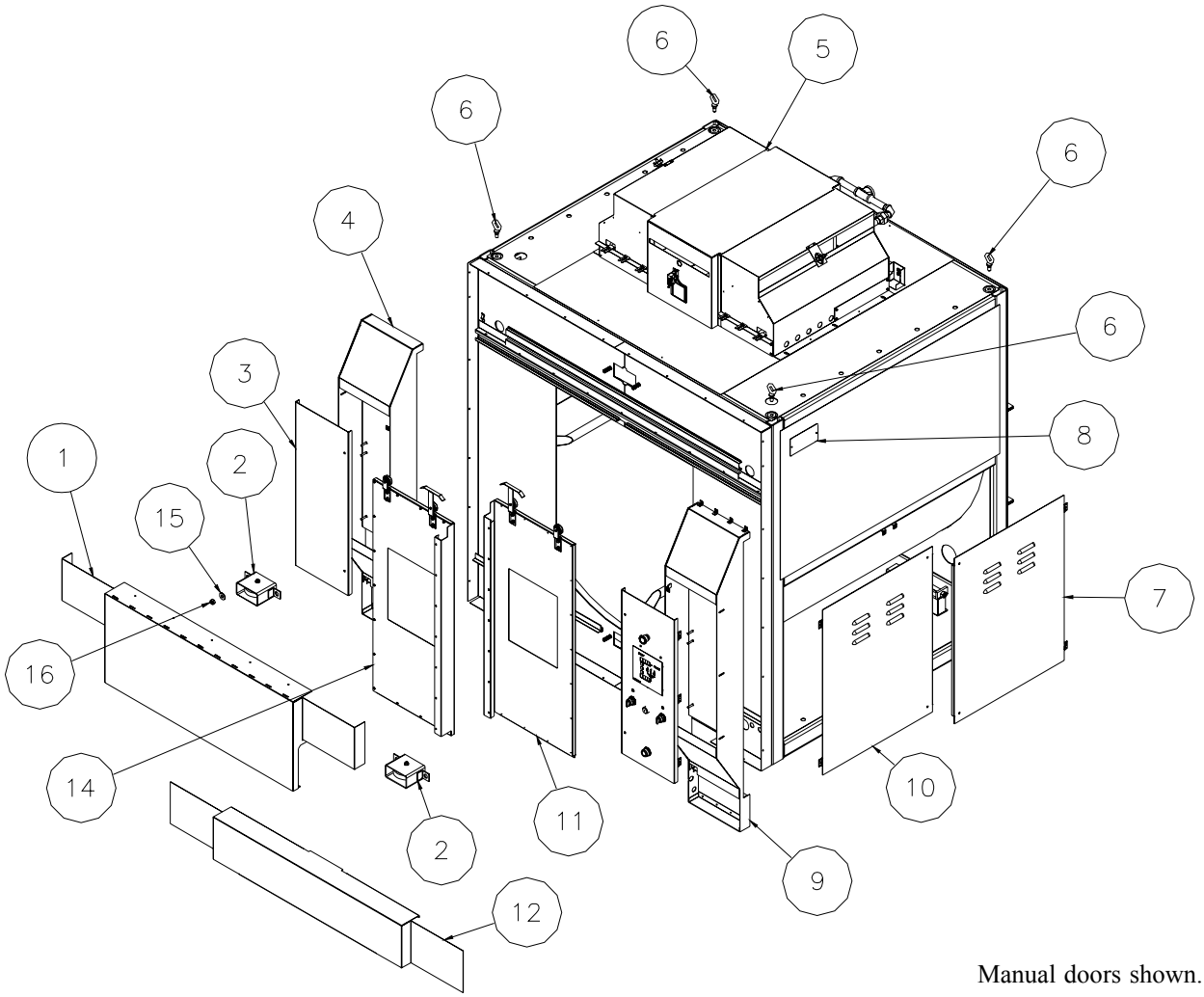






TOP SECTION

NON - TILTING, 1 WAY TILTING, & 2 WAY TILTING

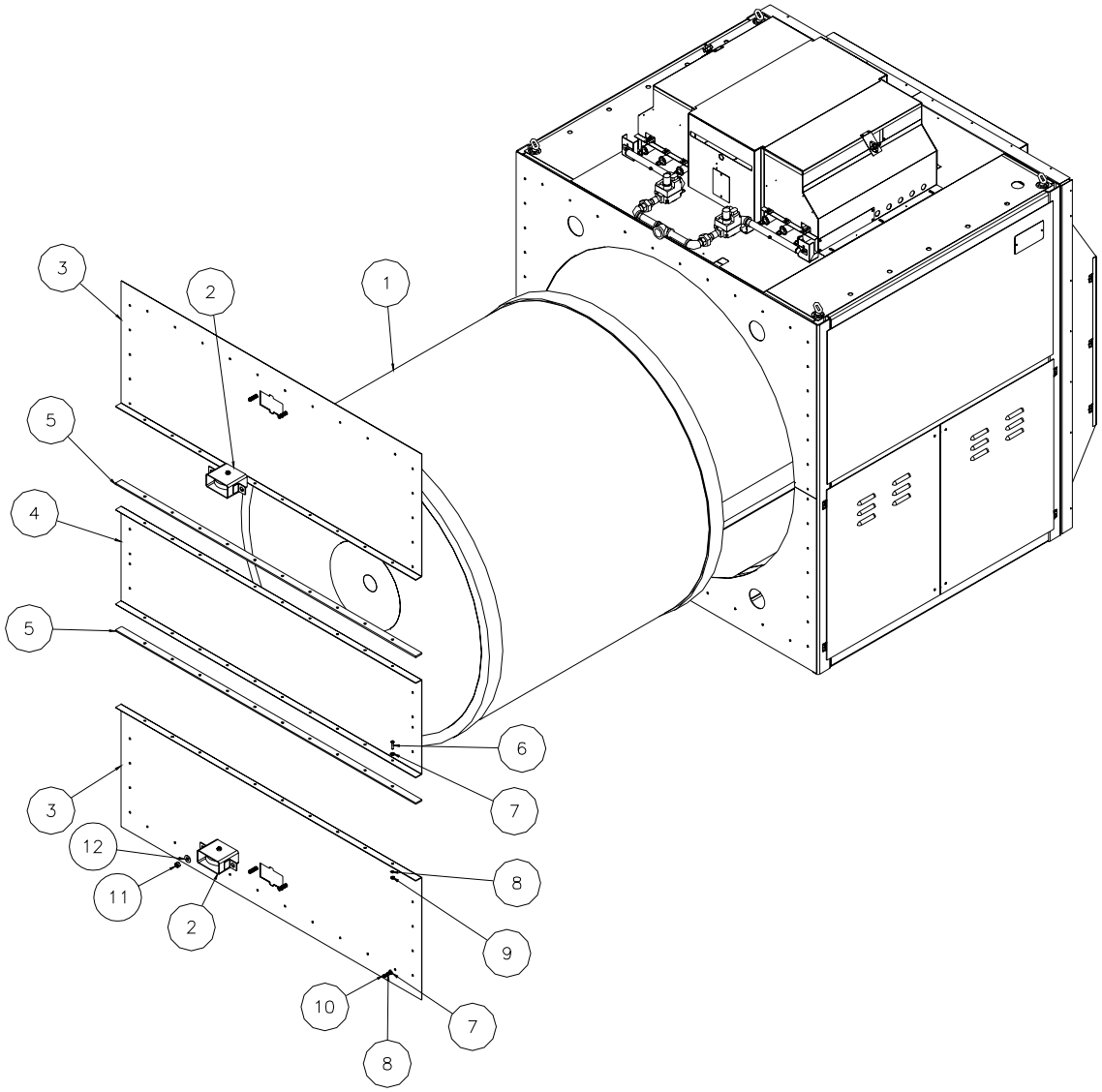


Manual doors shown.

REF. No.	Part No.	Description	Ref. No.	Part No.	Description
1	TUL421	Cover, front panel, upper	15	TU2883	Washer, flat 1/2”
2	TUL157	Basket guide wheel, front	16	TUX504	Nut, 1/2-13
3	TUL238	Control box lid, left			
4	TUL514	Control box W/a, left			
5	TUL266	Gas bonnet assembly			
6	TUL125	Eye bolt			
7	TUL318	Access door, right			
8	TU1552	Cover plate			
9	TUL492	Control box W/a, right			
10	TUL319	Access door, left			
11	TUL177	Loading door, right (Manual)			
	TUL449	Loading door, right (Auto doors)			
12	TUL214	Cover, front panel, lower			
14	TUL176	Loading door, left (Manual)			
	TUL448	Loading door, left (Auto doors)			

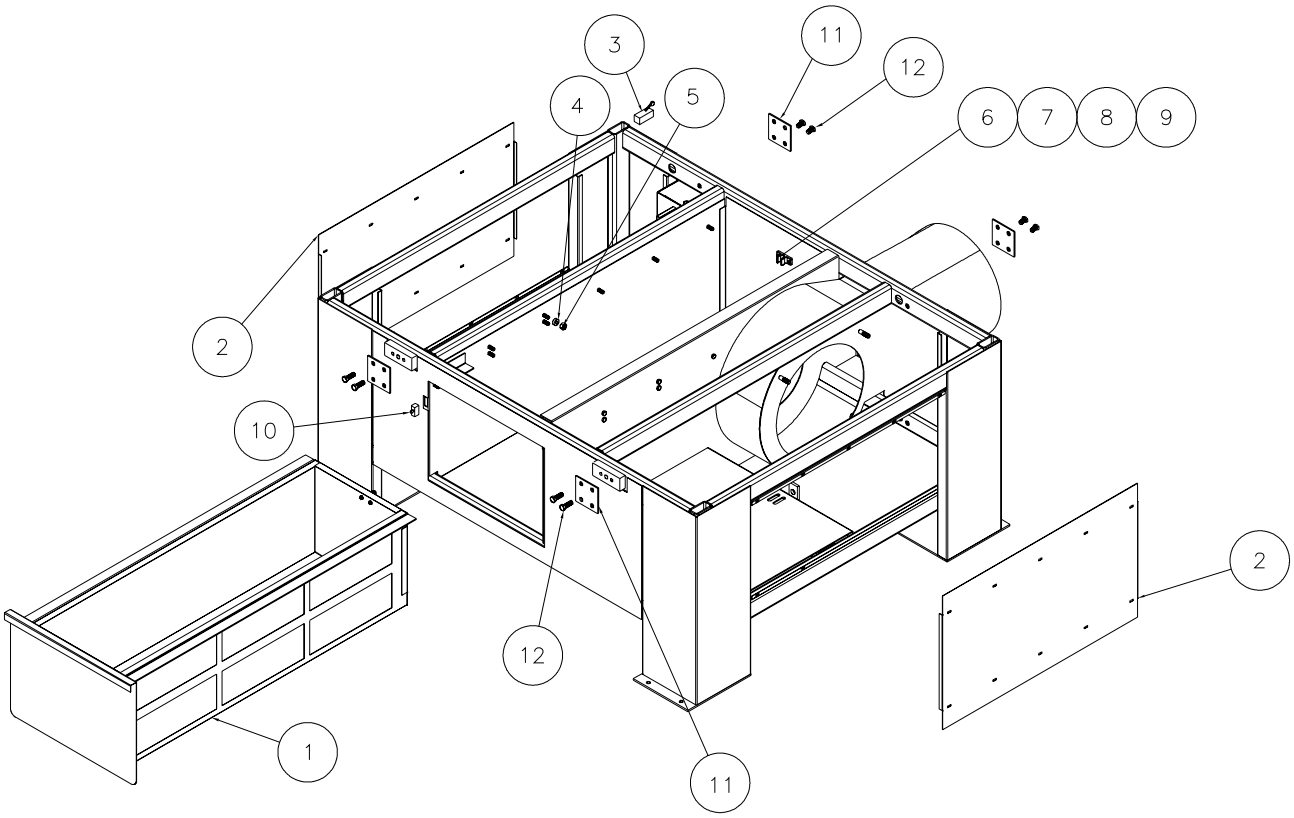
TOP SECTION

NON - TILTING, 1 WAY TILTING, & 2 WAY TILTING



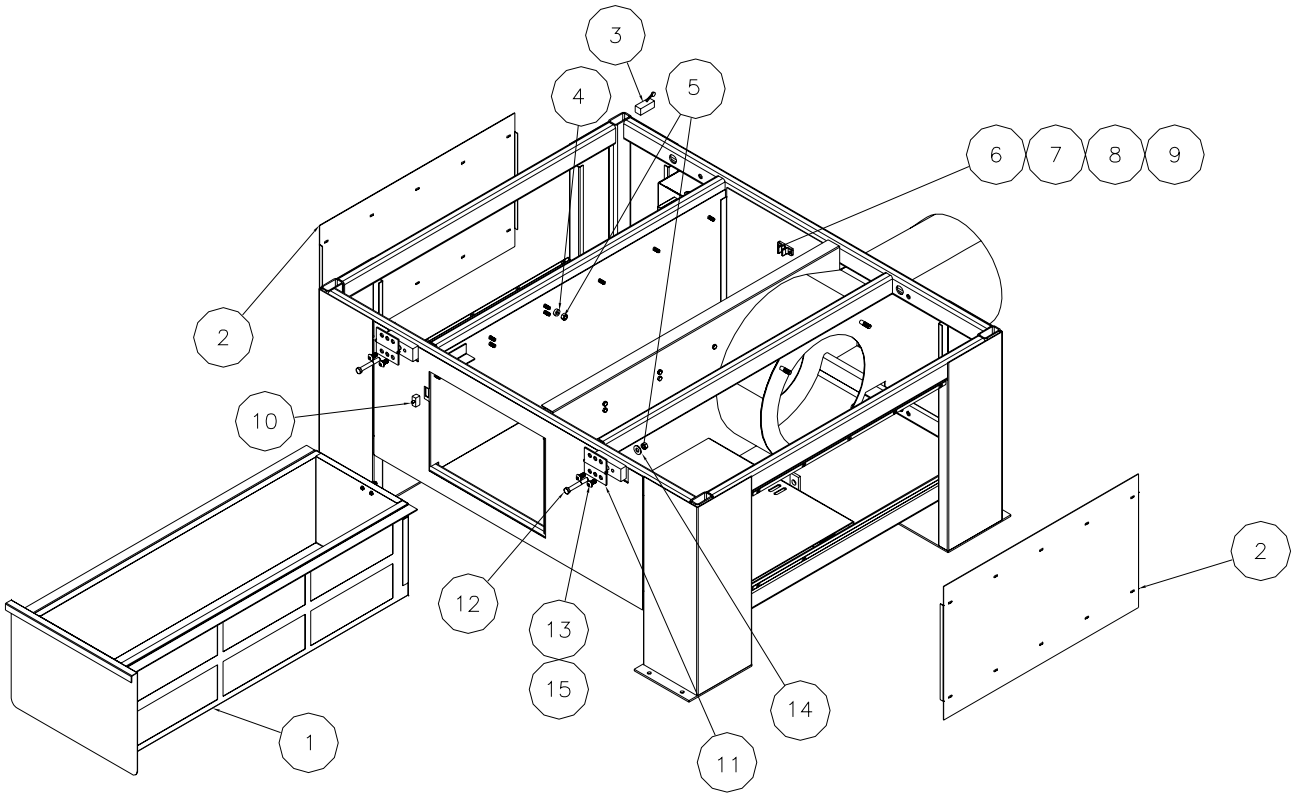
Ref. No.	Part No.	Description
1	TUL120	Basket
2	TUL317	Basket guide wheel, rear
3	TUL208	Cover, rear, upper/bottom
4	TUL209	Cover, rear, middle
5	TUL224	Spacer, rear cover
6	FB189	Bolt, Hex Hd. 1/4-20 x 1" lg.
7	TU2847	Washer, Flat 1/4"
8	TU2846	Washer, Lock 1/4"
9	TU4934	Nut, 1/4-20
10	CB36	Bolt, Hex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

BOTTOM SECTION
NON-TILTING



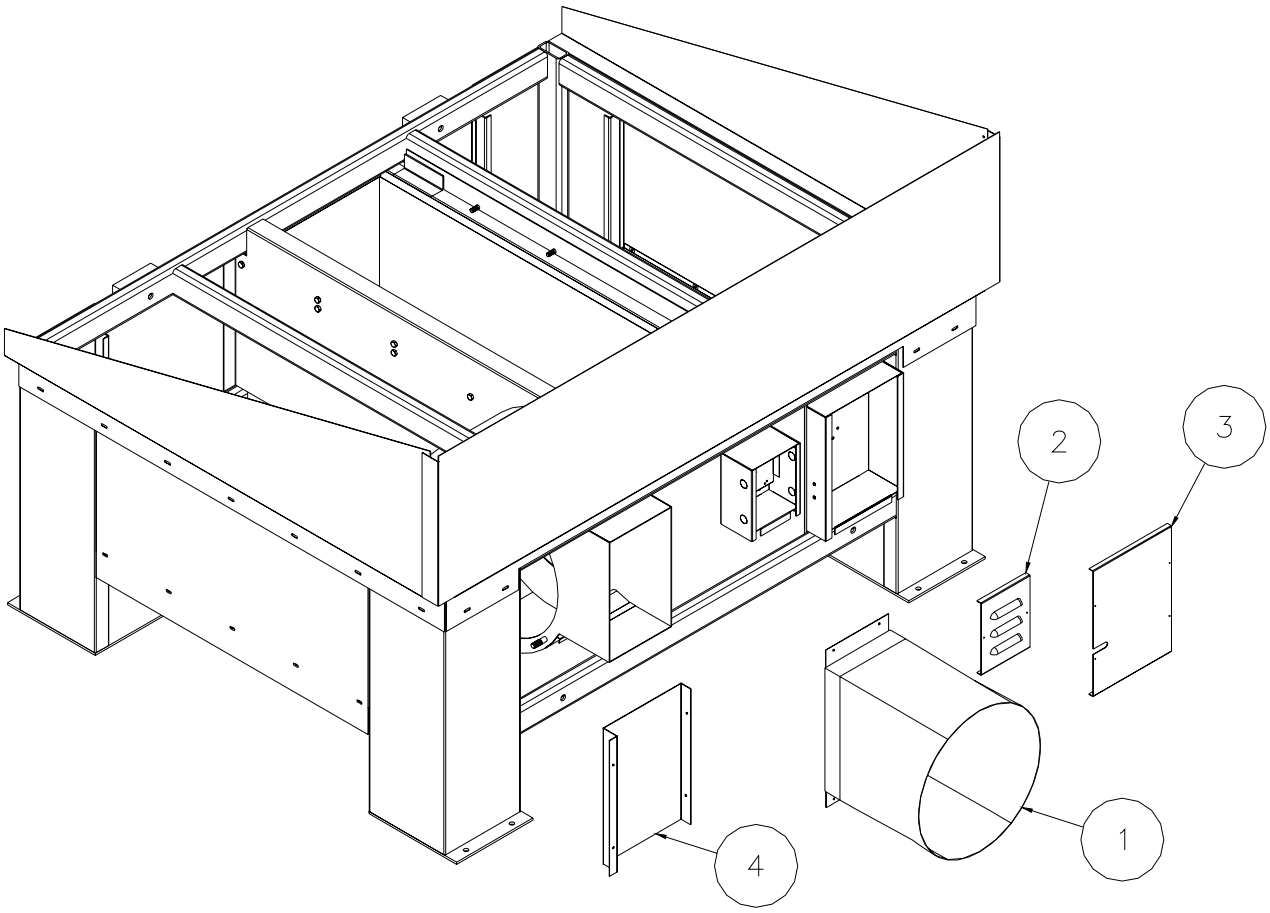
Ref. No.	Part No.	Description
1	TUL175	Drawer, Lint
2	TUL203	Cover, Side
3	TUL275	Switch, level
4	SFD119	Bearing, 7/8" OD.
5	TUX504	Nut, 1/2-13
6	TU15744	Door holder, nylon, (Set)
7	F725	Machine Screw, #10-24
8	TU4820	Washer, Flat 3/16"
9	FB185	Nut, #10-24
10	EA-11621-0	Switch, lint drawer
11	TUL362	Non-Tilting plate
12	TUX503	Bolt, Hex Hd. 1/2-13 x 2 1/2" Lg.

BOTTOM SECTION
1 WAY AND 2 WAY TILTING

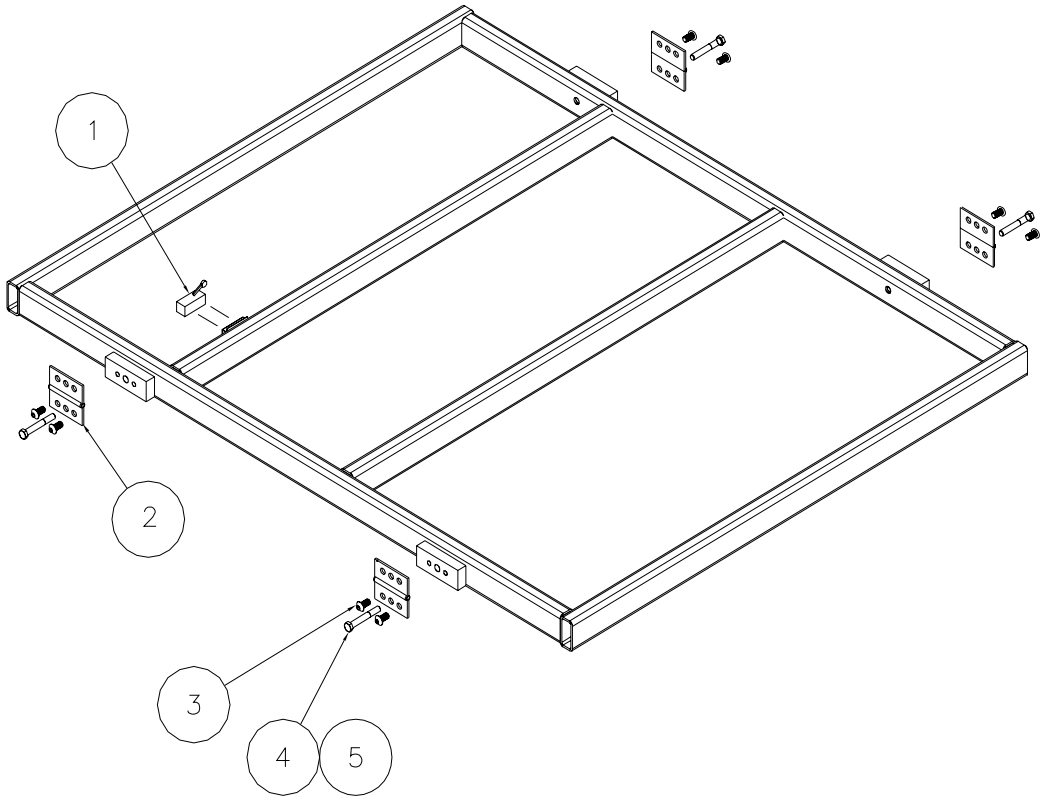


Ref. No.	Part No.	Description
1	TUL175	Drawer, Lint
2	TUL203	Cover, Side
3	TUL275	Switch, level
4	SFD119	Bearing, 7/8" OD.
5	TUX504	Nut, 1/2-13
6	TU15744	Door holder, nylon, (Set)
7	F725	Machine Screw, #10-24
8	TU4820	Washer, Flat 3/16"
9	FB185	Nut, #10-24
10	EA-11621-0	Switch, lint drawer
11	TUL454	Hinge
12	TUL458	Bolt, Socket Hd. 1/2-13 x 4" lg.
13	TUL459	Bolt, Socket Hd 1/2-13 x 1 5/8" lg.
14	TU2883	Washer, Flat 1/2-13
15	TUL558	Washer, Lock, 1/2"

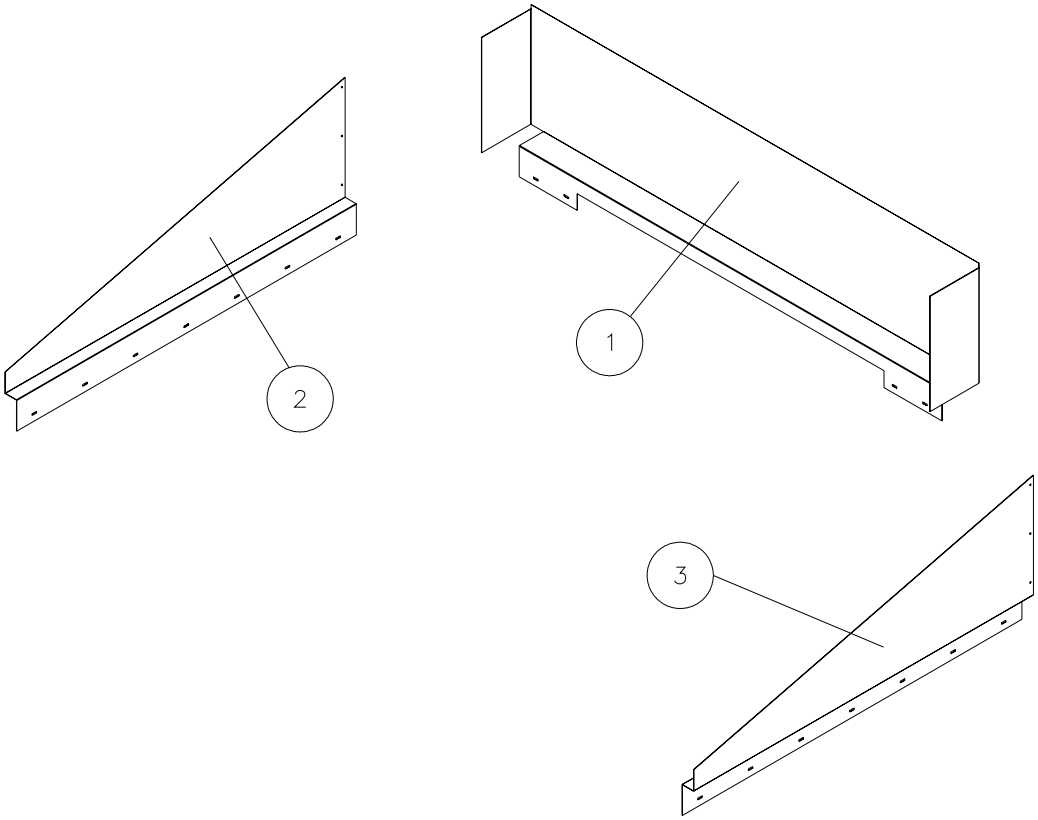
BOTTOM SECTION



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

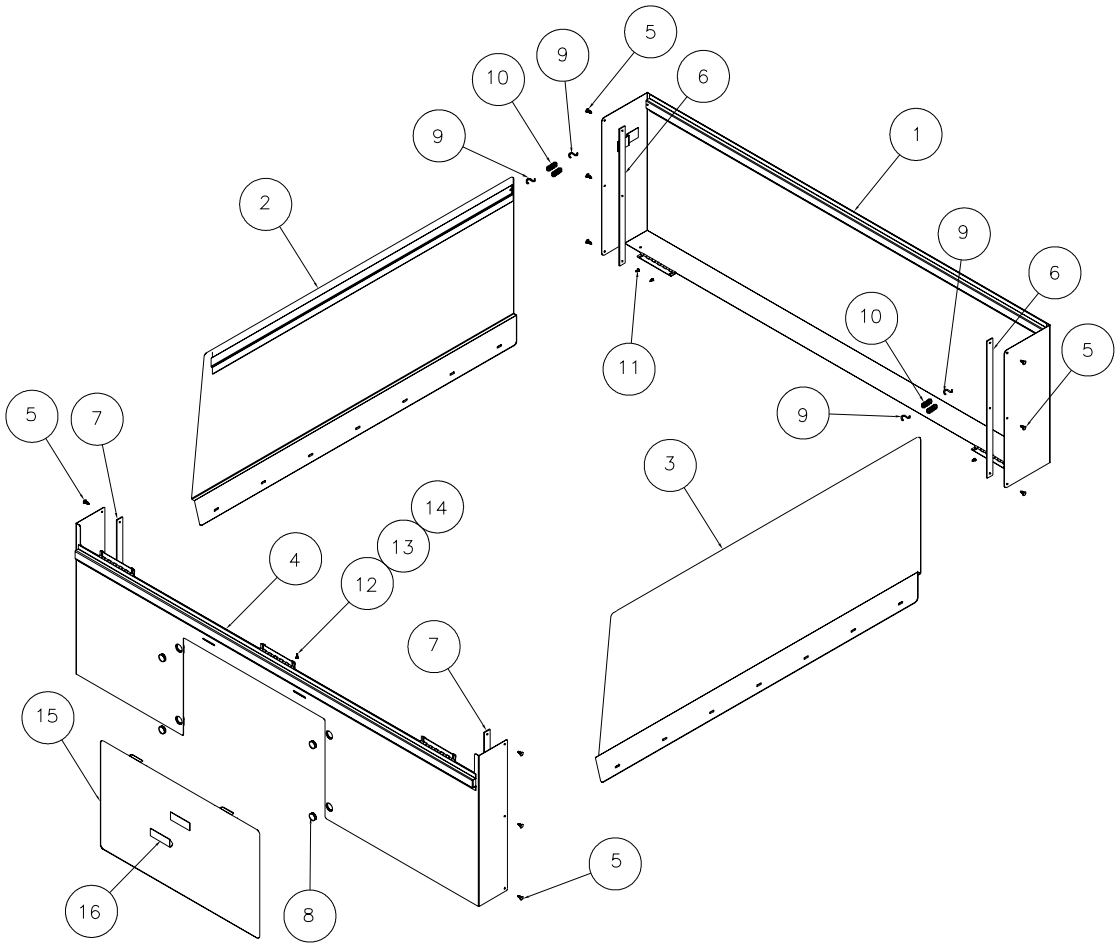


Ref. No.	Part No.	Description
1	TUL275	Switch, level
2	TUL454	Hinge
3	TUL459	Bolt, Socket Hd 1/2-13 x 1 5/8" lg.
4	TUL458	Bolt, Socket Hd. 1/2-13 x 4" lg.



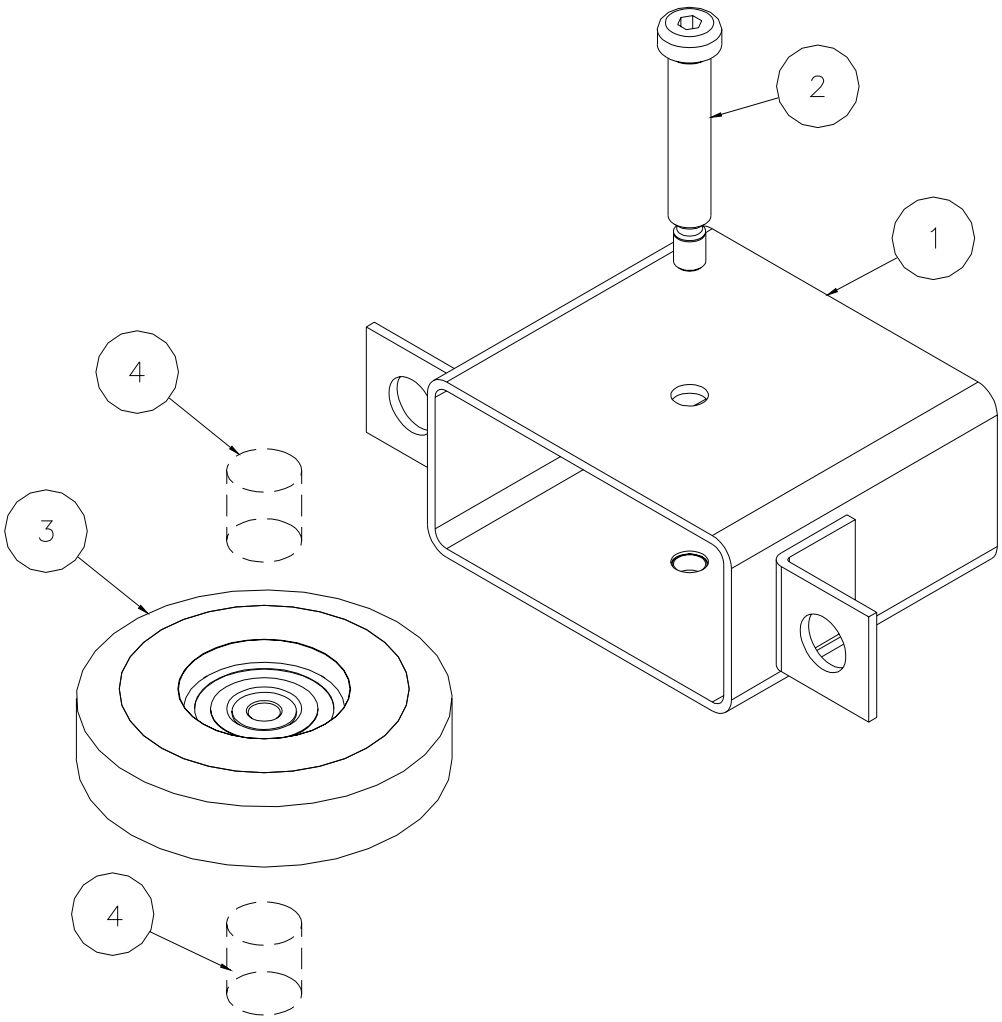
Ref. No.	Part No.	Description
1	TUL254	Guard, Tilting, Rear
2	TUL252	Guard, Tilting, Left
3	TUL251	Guard, Tilting, Right

GUARDS
2 WAY- TILTING



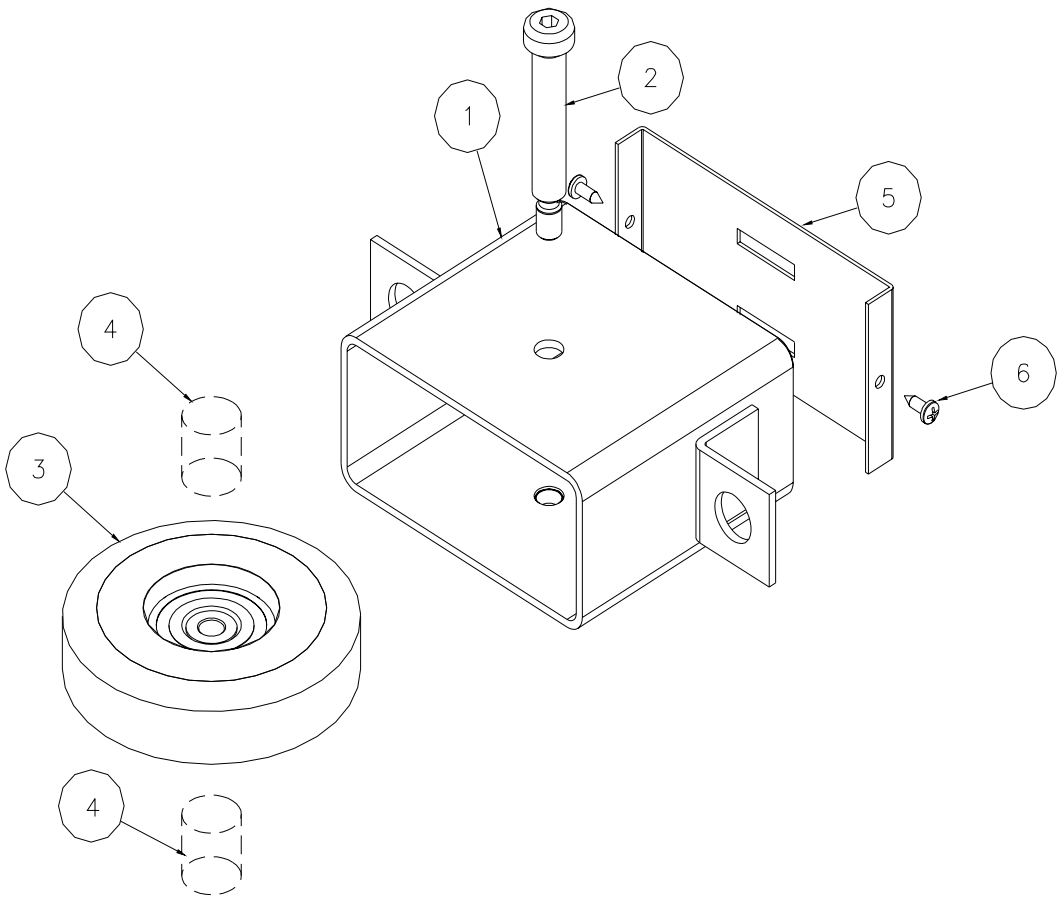
Ref. No.	Part No.	Description
	TUL506	Tilting Guard Assembly, 2-way, Right
	TUL507	Tilting Guard Assembly, 2-way, Left
	TUL508	Tilting Guard Assembly, 2-way, Rear
	TUL509	Tilting Guard Assembly, 2-way, Front
1	TUL418	Guard W/a, Tilting, Rear
2	TUL507	Guard, Tilting, Left
3	TUL508	Guard, Tilting, Right
4	TUL411	Guard W/a, Tilting, Front
5	SB-00949-0	Fastener, Snap, Nylon
6	TUL512	Rub Plate, Nylon, Rear
7	TUL513	Rub Plate, Nylon, Front
8	TU15536	Magnet
9	J17	S-Hook
10	PAN454	Spring
11	TU9231	Screw, Pan Hd., #10
12	AT383	Screw, Truss Head, #8
13	M271	Washer, Interal, #8
14	TU4820	Washer, Flat, 3/16”
15	TUL412	Cover, Lint Drawer
16	TUD0250	Handle, Pocket

GUIDE WHEEL ASSEMBLY - FRONT

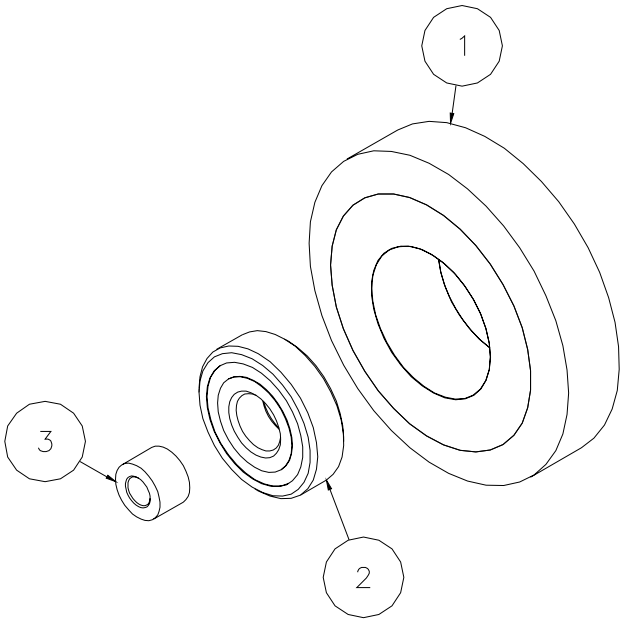


Ref. No.	Part No.	Description
TUL157	Asm, Basket Guide Wheel, Front	
1	TUL136	Retaining Wheel Tube, Front
2	TUL158	Bolt, Shoulder
3	TUL312	Asm, Guide Wheel
4	TUL159	Spring

GUIDE WHEEL ASSEMBLY - REAR

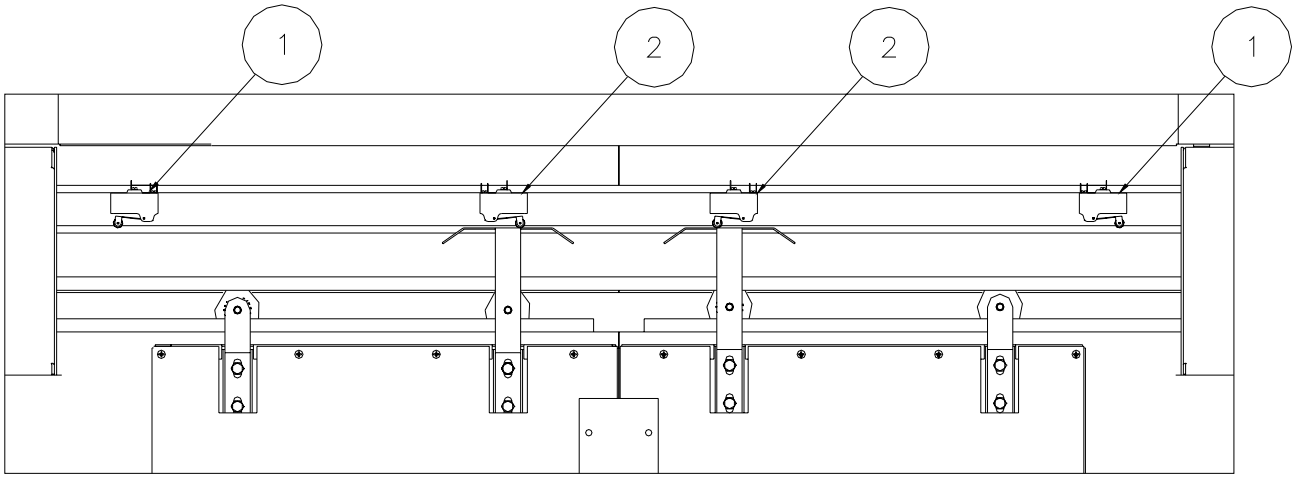


Ref. No.	Part No.	Description
TUL317	Asm, Basket Guide Wheel, Front	
1	TUL313	Retaining Wheel Tube, Rear
2	TUL158	Bolt, Shoulder
3	TUL312	Asm, Guide Wheel
4	TUL159	Spring
5	TUL309	Guide wheel cover
6	TU7733	Screw



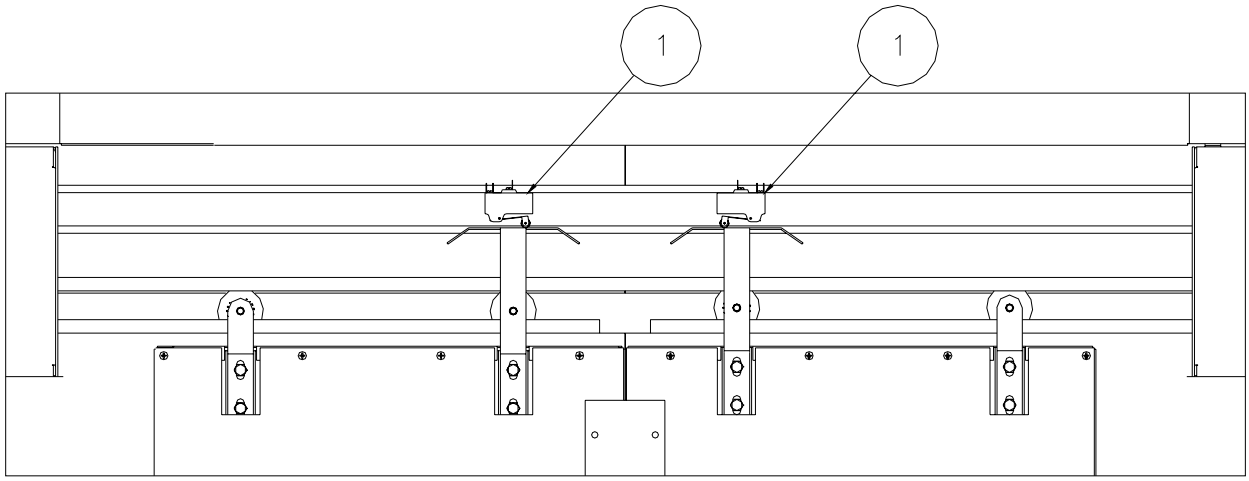
Ref. No.	Part No.	Description
TUL312	Asm, Guide Wheel	
1	TUL156	Wheel, Guide
2	TUL314	Bearing
3	TUL316	Bearing, Bronze, 1/2" Lg.

TILTING



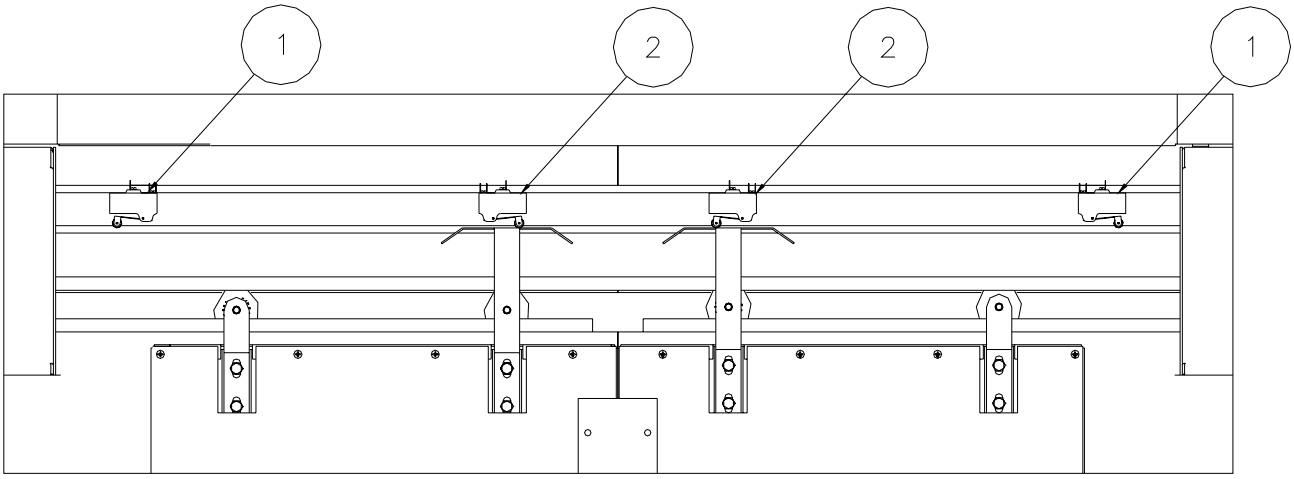
Ref. No.	Part No.	Description
1	TU14482	Switch, Door
2	TU14482	Switch, Door (Dmp Control)
	TUL279	Switch, Door (Pro/ProHc Control)

NON-TILTING

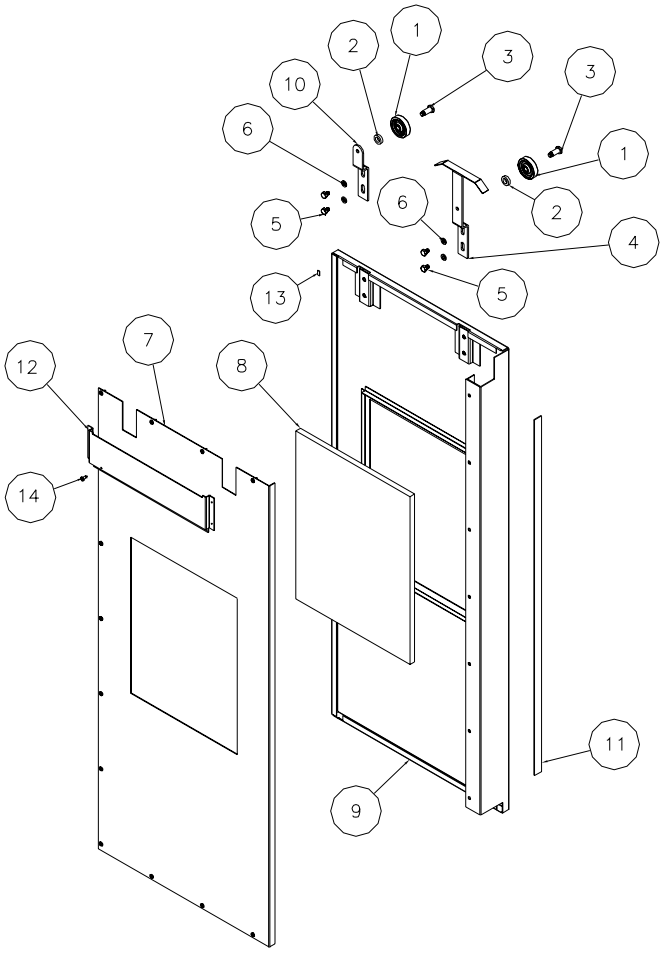


Ref. No.	Part No.	Description
1	TU14482	Switch, Door

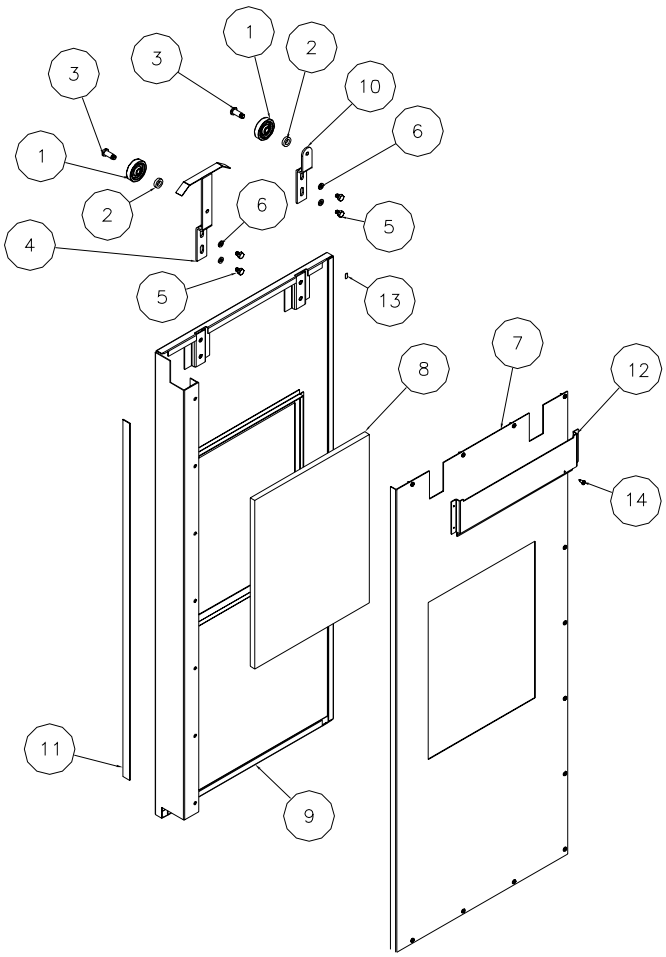
TILTING & NON TILTING



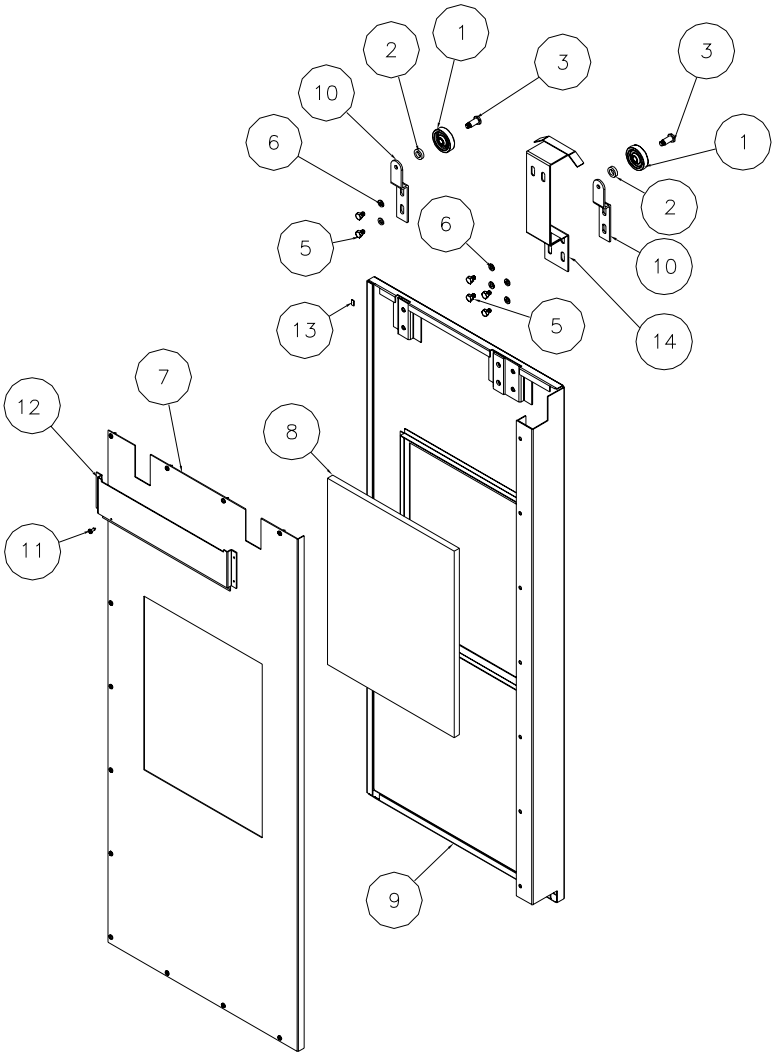
Ref. No.	Part No.	Description
1	TU14482	Switch, Door
2	TU14482	Switch, Door (Dmp Control)
	TUL279	Switch, Door (Pro/ProHc Control)



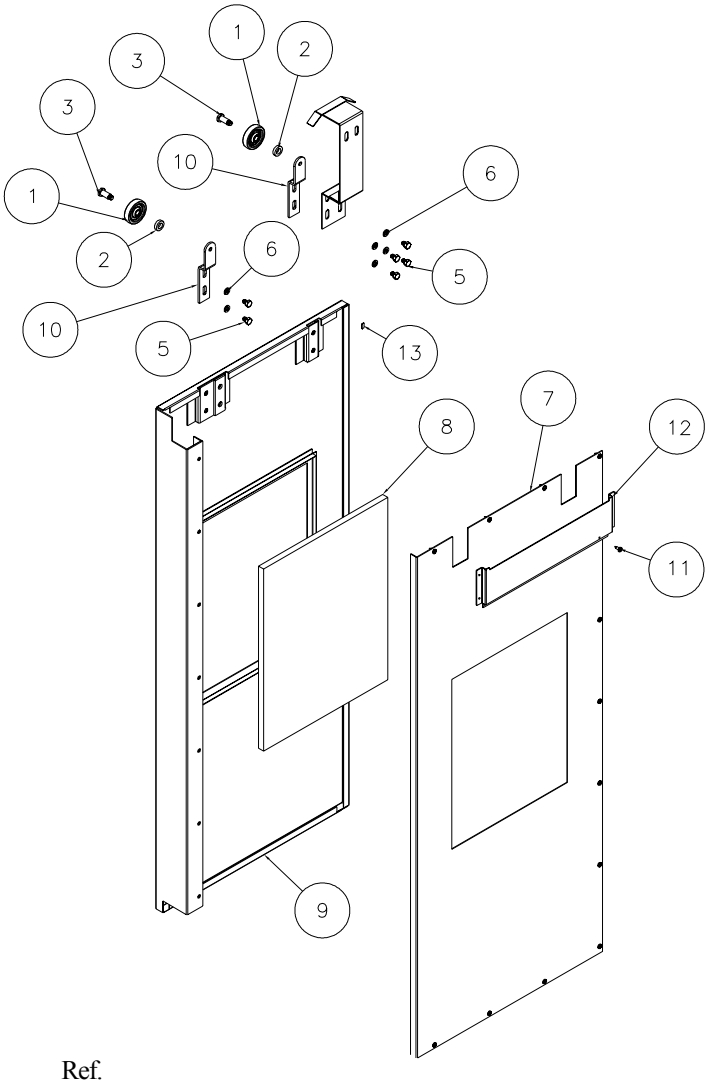
Ref. No.	Part No.	Description
TUL176	Asm, Loading Door, Left, Manual	
1	TUL345	Asm, Roller, Door
2	SB-00845-0	Flat Washer, 5/16”
3	C1723	Screw, Shoulder
4	TUL195	Door Bracket, Frt
5	F859	Screw, Cap Hex Hd. 1/4-20
6	SB-00848-0	Washer, Lock 1/4”
7	TUL401	Door Cover, Left
8	TUL335	Glass, Door, Loading
9	TUL180	Loading Door, Left
10	TUL184	Door Bracket, Back
11	LB55	Screw, Sht. Mtl., #14
12	TUL402	Cover, Bolt
13	FG344	Clip, Fast
14	TUL336	Tape, Magnetic



Ref. No.	Part No.	Description
TUL177	Asm, Loading Door, Right, Manual	
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	TUL400	Door Cover, Right
8	TUL335	Glass, Door, Loading
9	TUL181	Loading Door, Right
10	TUL184	Door Bracket, Back
11	LB55	Screw, Sht. Mtl., #14
12	TUL402	Cover, Bolt
13	FG344	Clip, Fast
14	TUL336	Tape, Magnetic

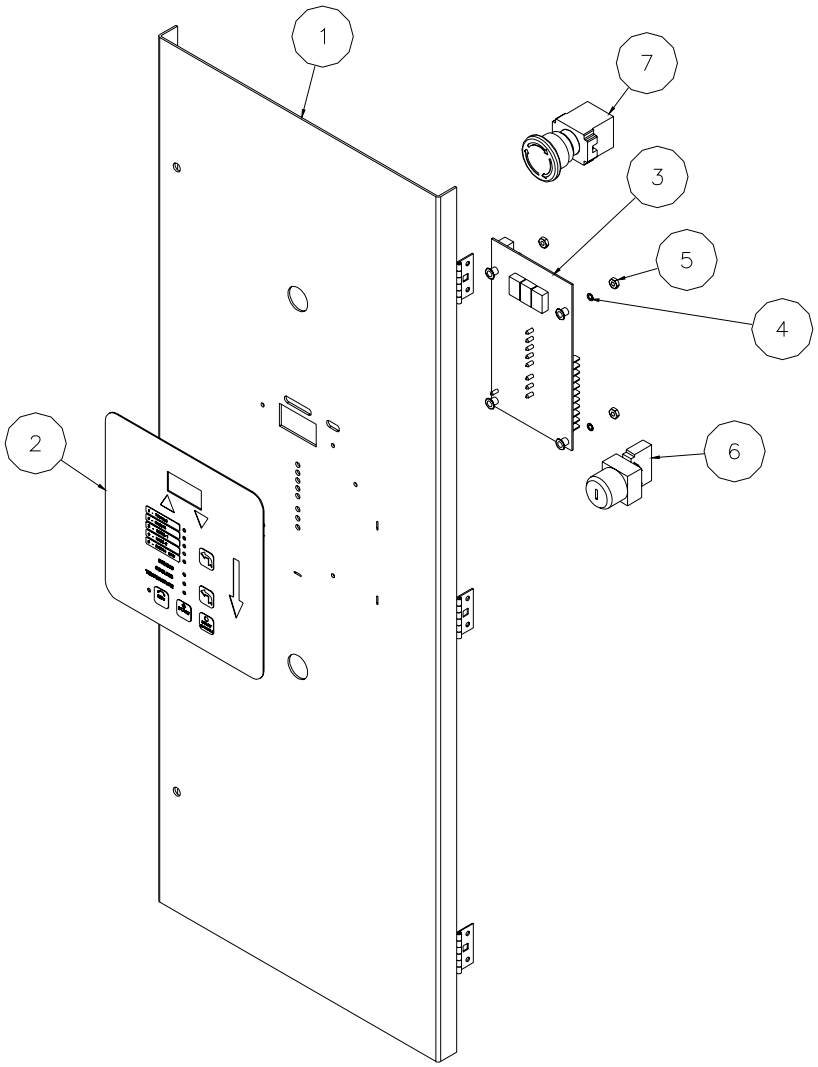


Ref. No.	Part No.	Description
TUL448	Asm, Loading Door, Left, Automatic	
1	TUL345	Asm, Roller, Door
2	SB-00845-0	Flat Washer, 5/16”
3	C1723	Screw, Shoulder
5	F859	Screw, Cap Hex Hd. 1/4-20
6	SB-00848-0	Washer, Lock 1/4”
7	TUL401	Door Cover, Left
8	TUL335	Glass, Door, Loading
9	TUL398	Loading Door, Left
10	TUL184	Door Bracket, Back
11	LB55	Screw, Sht. Mtl., #14
12	TUL402	Cover, Bolt
13	FG344	Clip, Fast
14	TUL396	Bracket, Cylinder Mounting



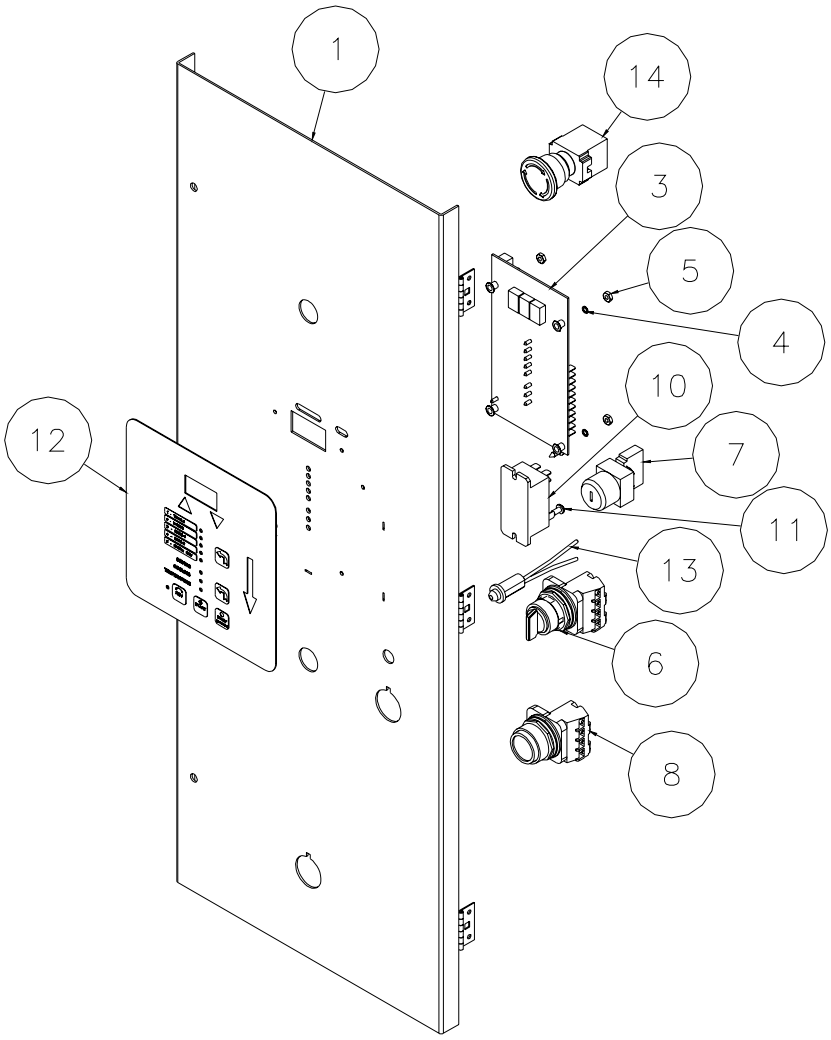
Ref. No.	Part No.	Description
TUL449	Asm, Loading Door, Right, Automatic	
1	TUL345	Asm, Roller, Door
2	SB-00845-0	Flat Washer, 5/16”
3	C1723	Screw, Shoulder
5	F859	Screw, Cap Hex Hd. 1/4-20
6	SB-00848-0	Washer, Lock 1/4”
7	TUL400	Door Cover, Right
8	TUL335	Glass, Door, Loading
9	TUL397	Loading Door, Right
10	TUL184	Door Bracket, Back
11	LB55	Screw, Sht. Mtl., #14
12	TUL402	Cover, Bolt
13	FG344	Clip, Fast
14	TUL396	Bracket, Cylinder Mounting

DMP CONTROL PANEL ASSEMBLY - NON TILTING



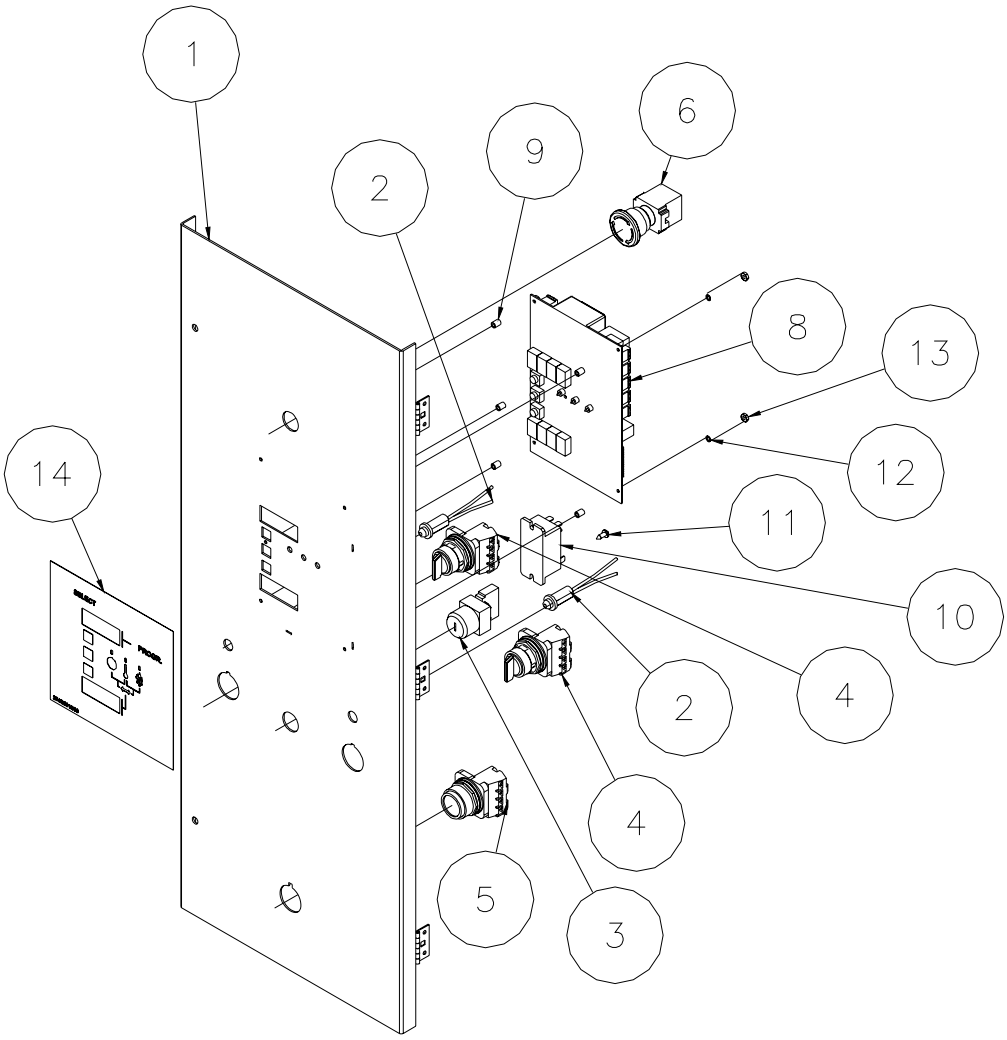
Ref. No.	Part No.	Description
TUL359	Asm, Control Door, Right, DMP	
1	TUL358	Door
2	TU15184	Overlay, OPL DMP
3	TU14404	Board, DMP
4	M270	Washer, Lock #6
5	TU3400	Nut, #6-32
6	TUL272	Switch, Key Power
7	TU14435	Emergency Stop Button

DMP CONTROL PANEL ASSEMBLY - 1 WAY TILTING



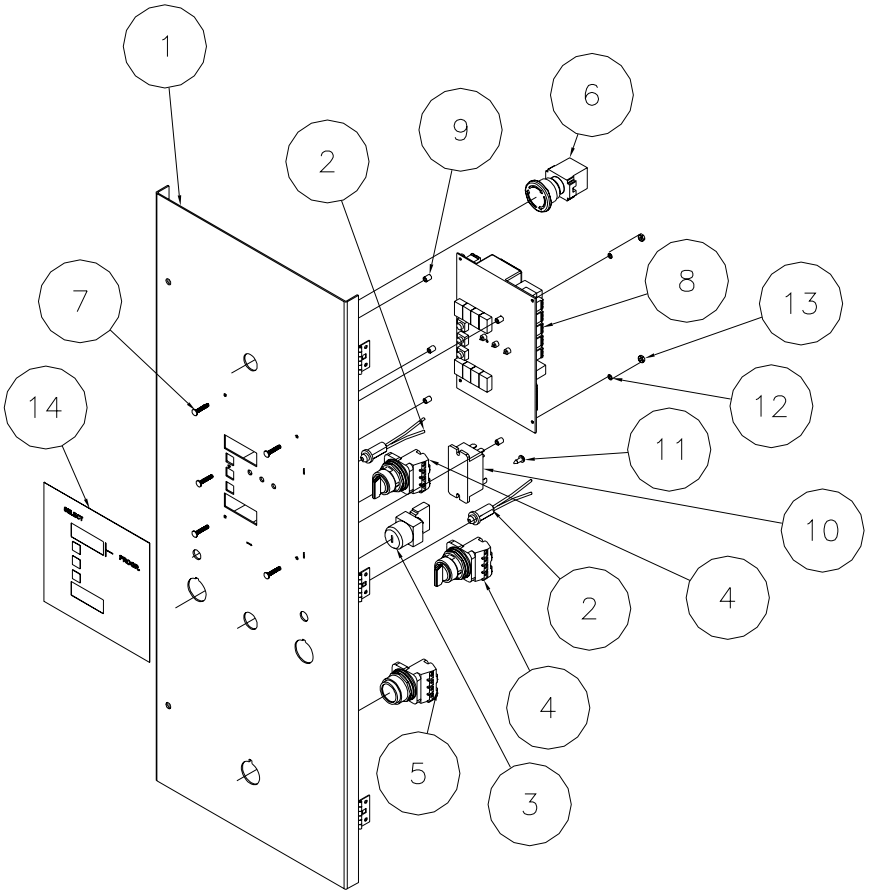
Ref. No.	Part No.	Description
TUL287	Asm, Control Door, Right, DMP	
1	TUL242	Door
2	TU12253	Stud, Self Clinch
3	TU14404	Board, DMP
4	M270	Washer, Lock #6
5	TU3400	Nut, #6-32
6	TUL273	Switch, Three Position
7	TUL272	Switch, Key Power
8	TUL274	Switch, Push Button
10	F1300	Relay
11	TU7733	Screw, #8
12	TU15184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

PROHC CONTROL PANEL ASSEMBLY- 1 WAY TILTING

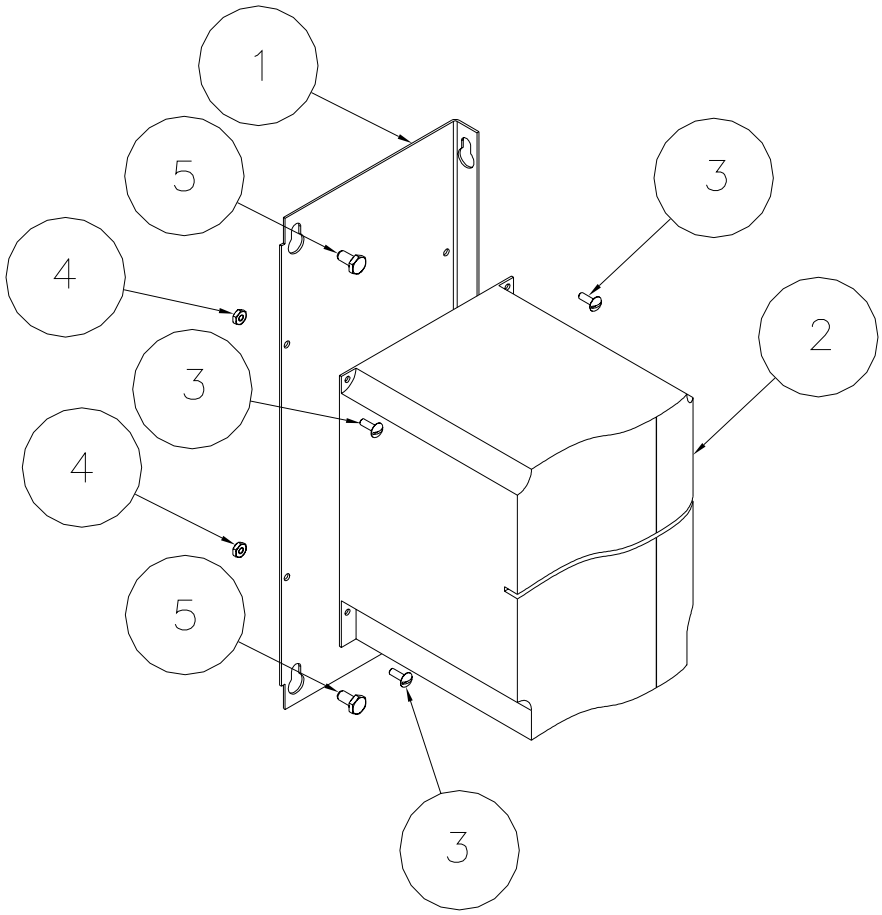


Ref. No.	Part No.	Description
TUL288	Asm, Control Door, Right, ProHc	
1	TUL329	Door
2	TUT316	Light, LED
3	TUL272	Switch, Key Power
4	TUL273	Switch, Three Position
5	TUL274	Switch, Push Button
6	TU14435	Emergency Stop Button
8	254/00070/00	PCboad, Professional/HC-plugs
9	TU14701	Spacer, Nylon
10	F1300	Relay
11	TU7733	Screw, #8
12	M270	Washer, Lock #6
13	TU3400	Nut, #6-32
14	254/00018/00	Overlay

PRO CONTROL PANEL ASSEMBLY- 1 WAY TILTING

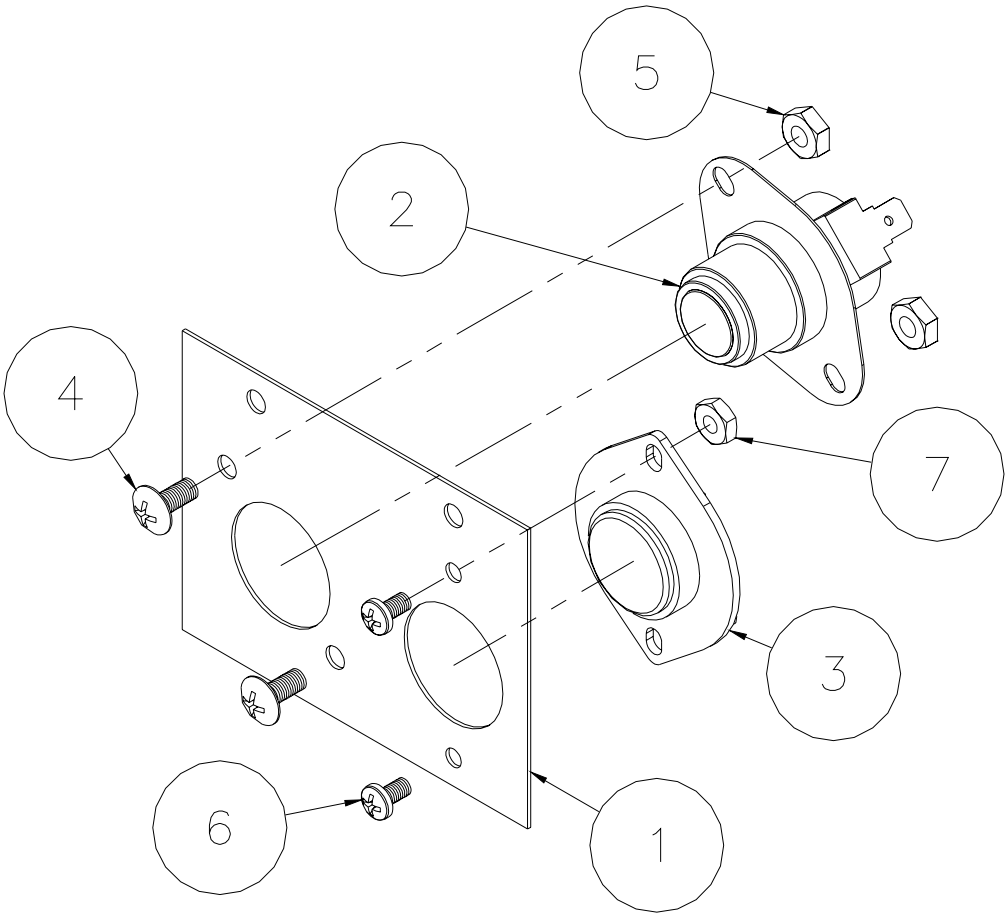


Ref. No.	Part No.	Description
TUL498	Asm, Control Door, Right, Pro	
1	TUL329	Door
2	TUT316	Light, LED
3	TUL272	Switch, Key Power
4	TUL273	Switch, Three Position
5	TUL274	Switch, Push Button
6	TU14435	Emergency Stop Button
8	254/00070/00	PCboad, Professional/HC-plugs
9	TU14701	Spacer, Nylon
10	F1300	Relay
11	TU7733	Screw, #8
12	M270	Washer, Lock #6
13	TU3400	Nut, #6-32
14	254/00039/00	Overlay

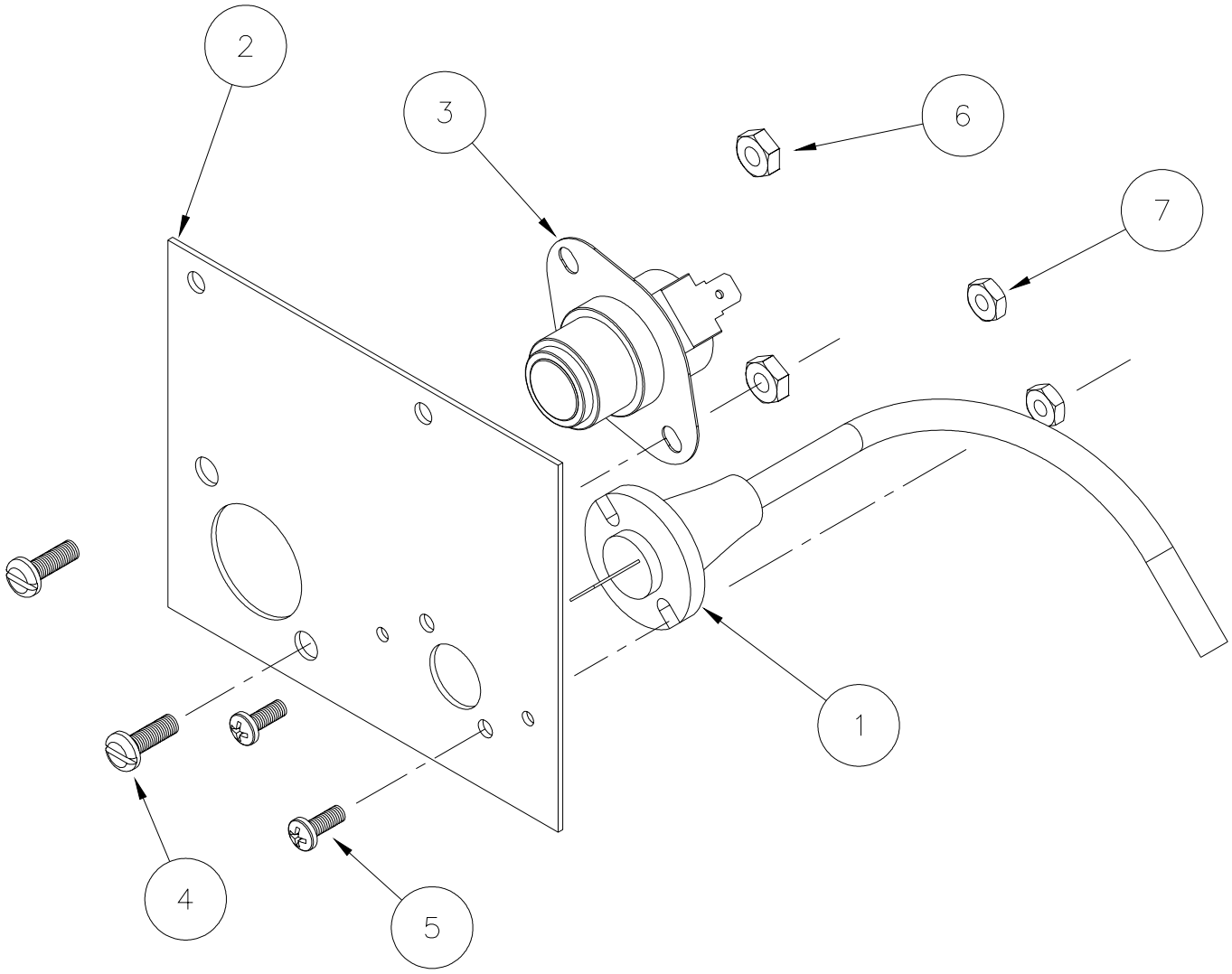


Ref. No.	Part No.	Description
1	TUL538	Mounting Bracket
2	TUL536	Inverter, 3 Hp, 200-240V
	TUL537	Inverter, 4 Hp, 380-480V
3	AT383	Screw, Machine, #8-32
4	SB-00810-0	Nut, #8-32
5	CB36	Screw, Hex Hd., 1/4-20

DMP THERMOSTAT ASSEMBLY

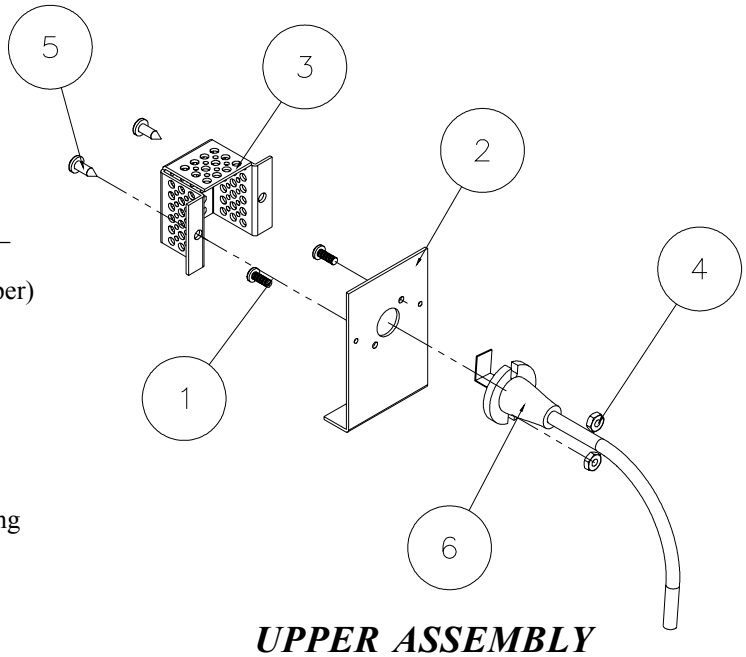


Ref. No.	Part No.	Description
TU15538		DMP Thermostat Assembly
1	TU15537	Bracket
2	EA-00411-0	Switch - 220 degrees
3	TU11991	Thermistor
4	M262	Screw, #8-32
5	TU3266	Nut, hex brass #8-32
6	TU3624	Screw, #6-32
7	TU3400	Nut, hex brass #6-32



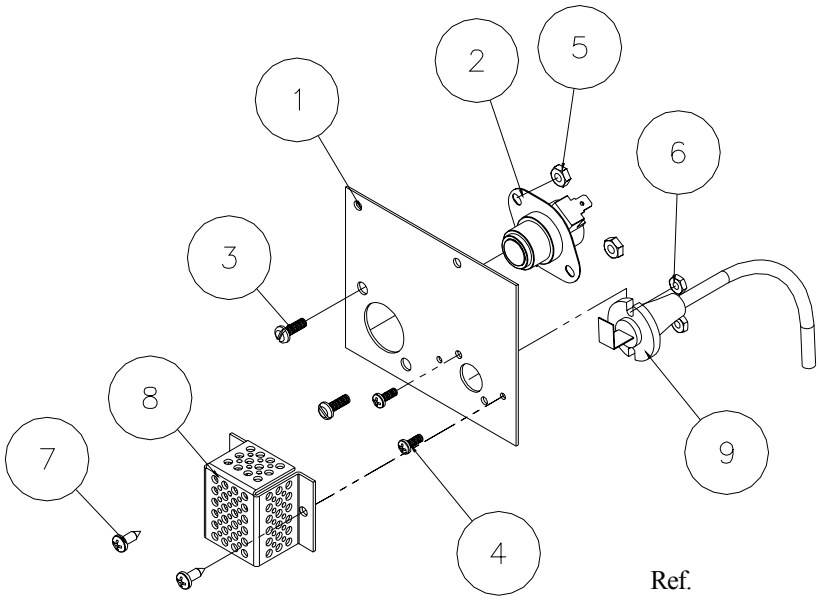
Ref. No.	Part No.	Description
	TU15464 - Sensor Assembly	
1	254/00072/10	Heat Thermostat
2	CA-23067-0	Thermostat #AR594
3	EA-00411-0	Switch, 220 Degrees
4	SB-00828-0	Screw, Mach. P.H. #8-32 X 1/2
5	SB-00952-0	Screw, P.H. #6-32 x 3/8
6	TU3266	Nut, Hex #8-32
7	TU3400	Nut, Hex #6-32

PROHC SENSOR ASSEMBLY - UPPER AND LOWER



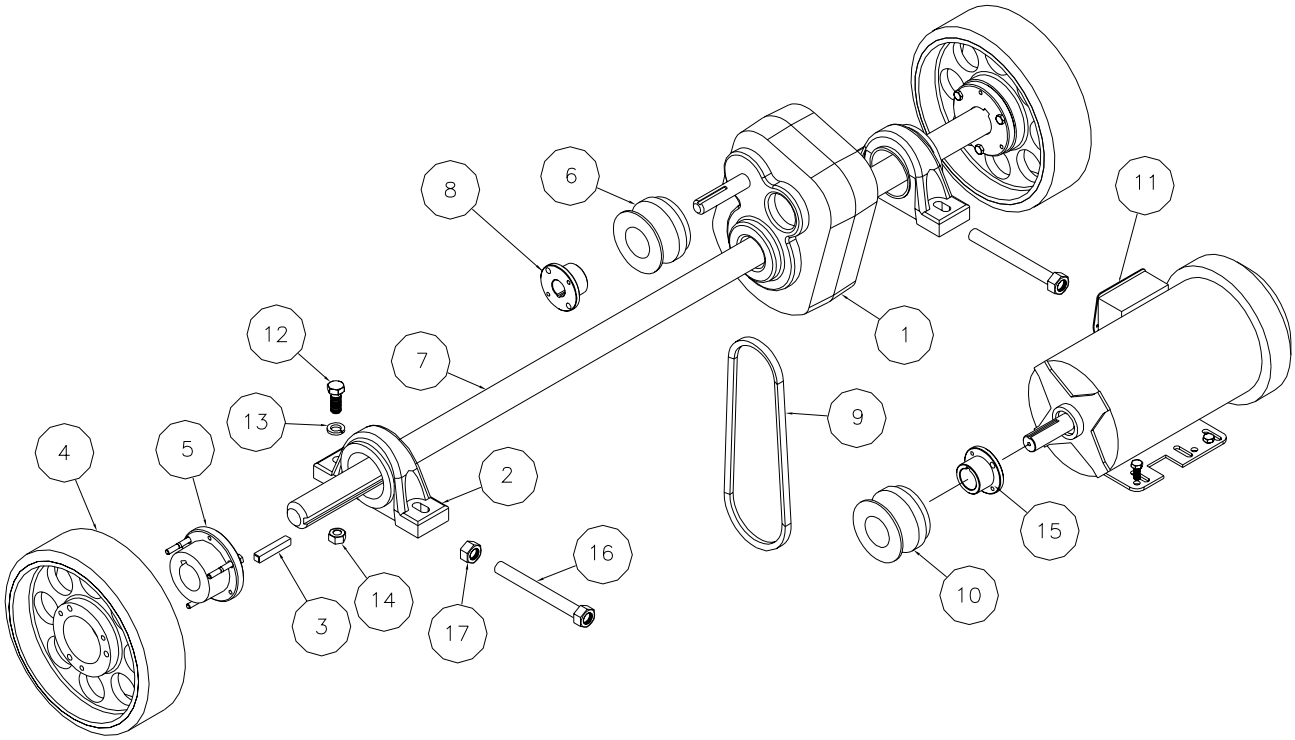
UPPER ASSEMBLY

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



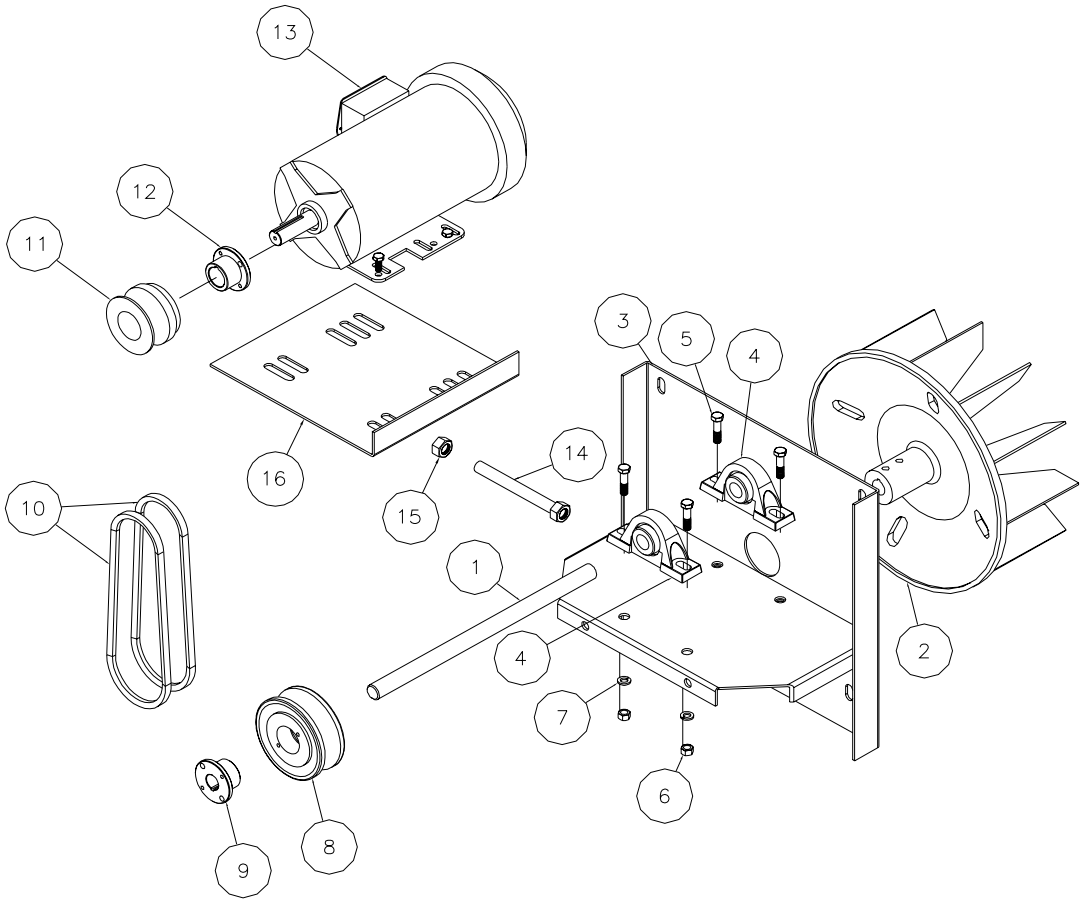
LOWER ASSEMBLY

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



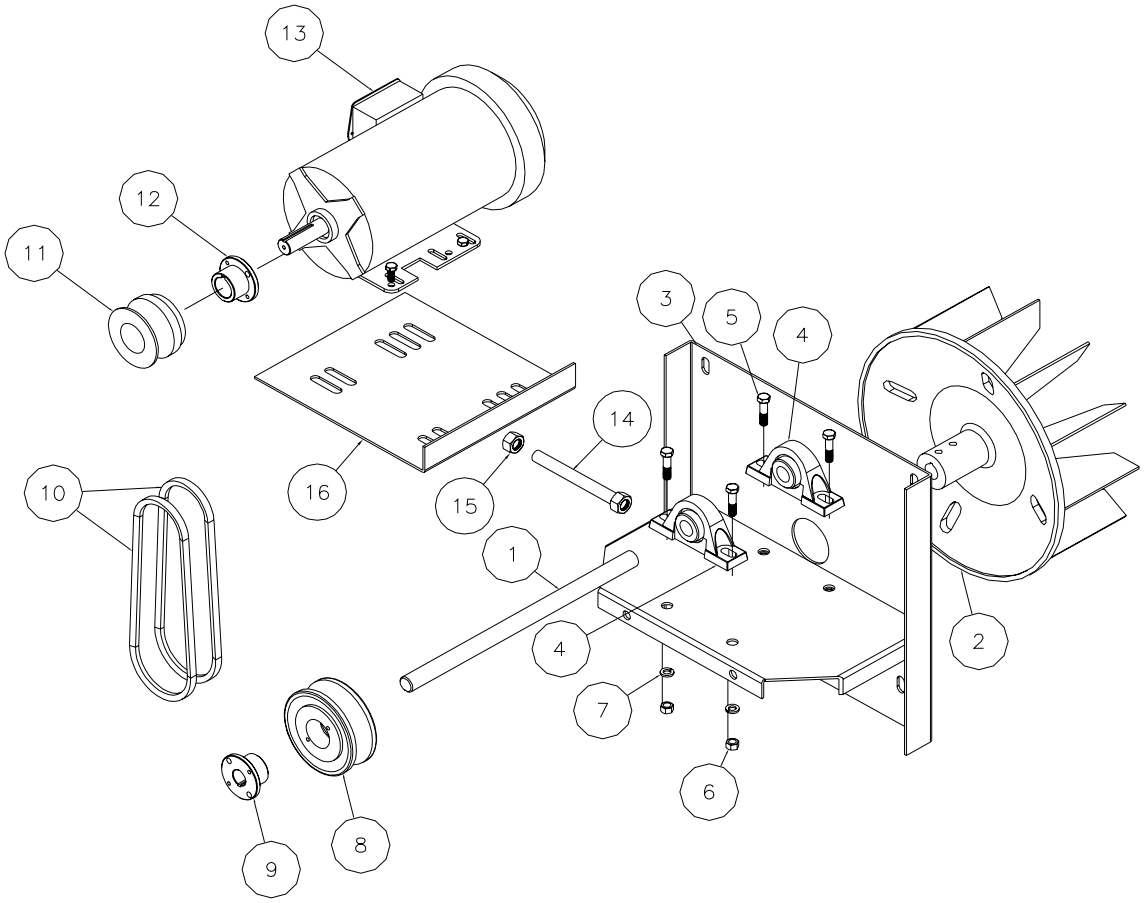
Ref. No.	Part No.	Description
1	TUL182	Gear Box W/ Torque Arm
2	TU13334	Bearing, Pillow Block, 1 7/16”
3	TU14973	Key 3/8 Sq. X 2 1/4" Lg.
	TUL365	Key, 3/8” Sq. x 5 3/4” Lg. (Rotation Sensor)
4	TUL109	Wheel, Basket, 10” dia.
5	TUX461	Bushing, 1 7/16” -H
6	TU8445	Sheave, MAL39
7	TUL128	Shaft, Drive, Basket
	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



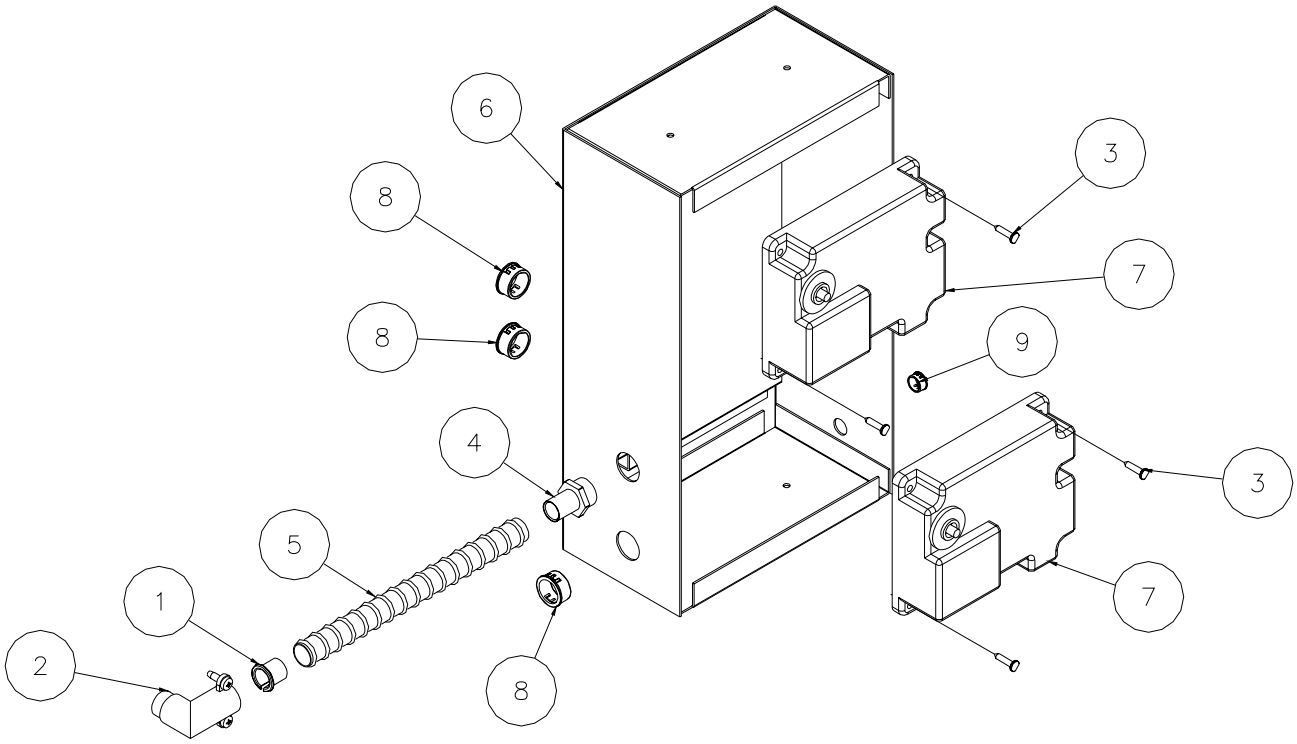
Ref. No.	Part No.	Description
1	TUL213	Shaft, Fan Idler
2	TUX220	Fan
3	TUL154	Fan Mount
4	TUX429	Pillow Block Bearing, 7/8”
5	OP380	Screw, Cap Hex Hd. 3/8-16
6	TU4787	Nut, Hex 3/8-16”
7	VSB134	Washer, Split, 3/8”
8	TUX342	Sheave, 2MB39L (50 Hz)
	TUX595	Sheave, 2MB44L (60 Hz)
9	TU2007	Bushing, 7/8”-H
10	TUL528	Belt, Fan, BX45
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
16	TU394	Tension Plate, Motor

FAN ASSEMBLY - STEAM

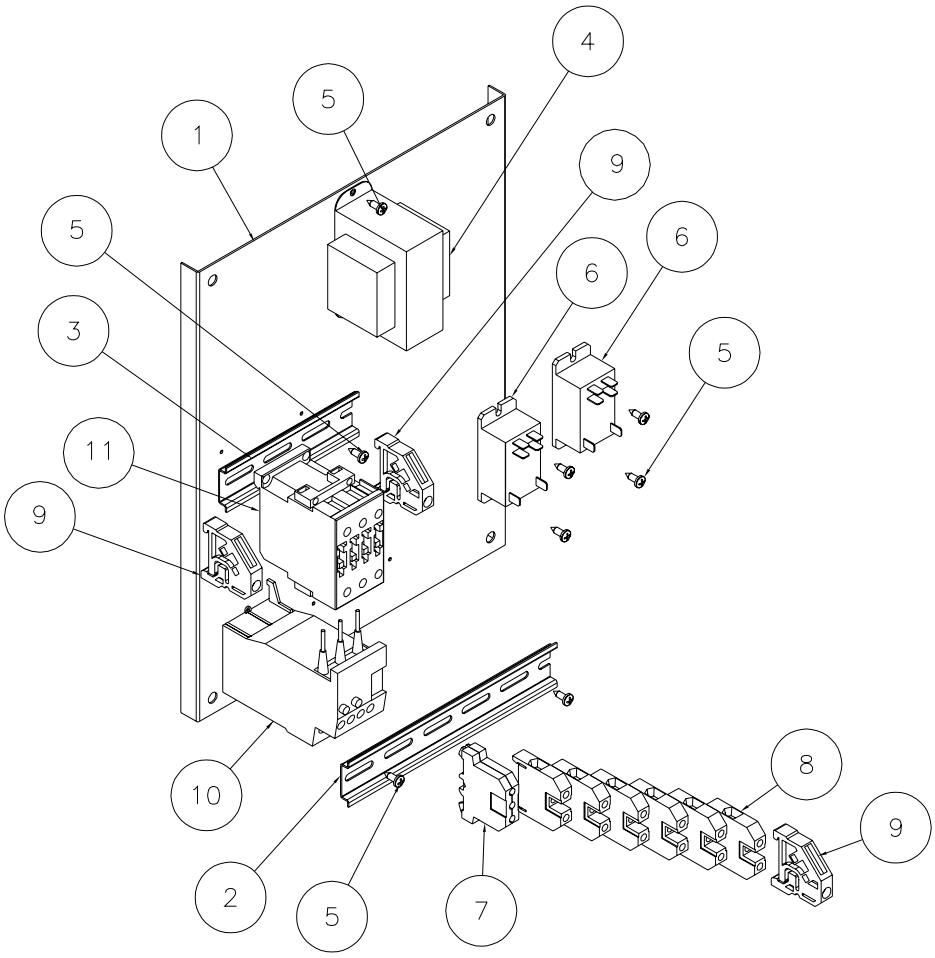


Ref. No.	Part No.	Description
1	TUL213	Shaft, Fan Idler
2	TUX220	Fan
3	TUL154	Fan Mount
4	TUX429	Pillow Block Bearing, 7/8”
5	OP380	Screw, Cap Hex Hd. 3/8-16
6	TU4787	Nut, Hex 3/8-16”
7	VSB134	Washer, Split, 3/8”
8	TU15769	Sheave, 2MB37L (50 Hz)
	TUX342	Sheave, 2MB39L (60 Hz)
9	TU2007	Bushing, 7/8”-H
10	TUL528	Belt, Fan, BX45
11	TUX221	Sheave, 2MBL33
12	TU15506	Bushing, 1 3/8” - L
13	MTR320M	Motor, 10 Hp
14	TUX575	Weldment, Rod Adjustment
15	TU2881	Nut, Hex 5/8-18
16	TUL394	Tension Plate, Motor

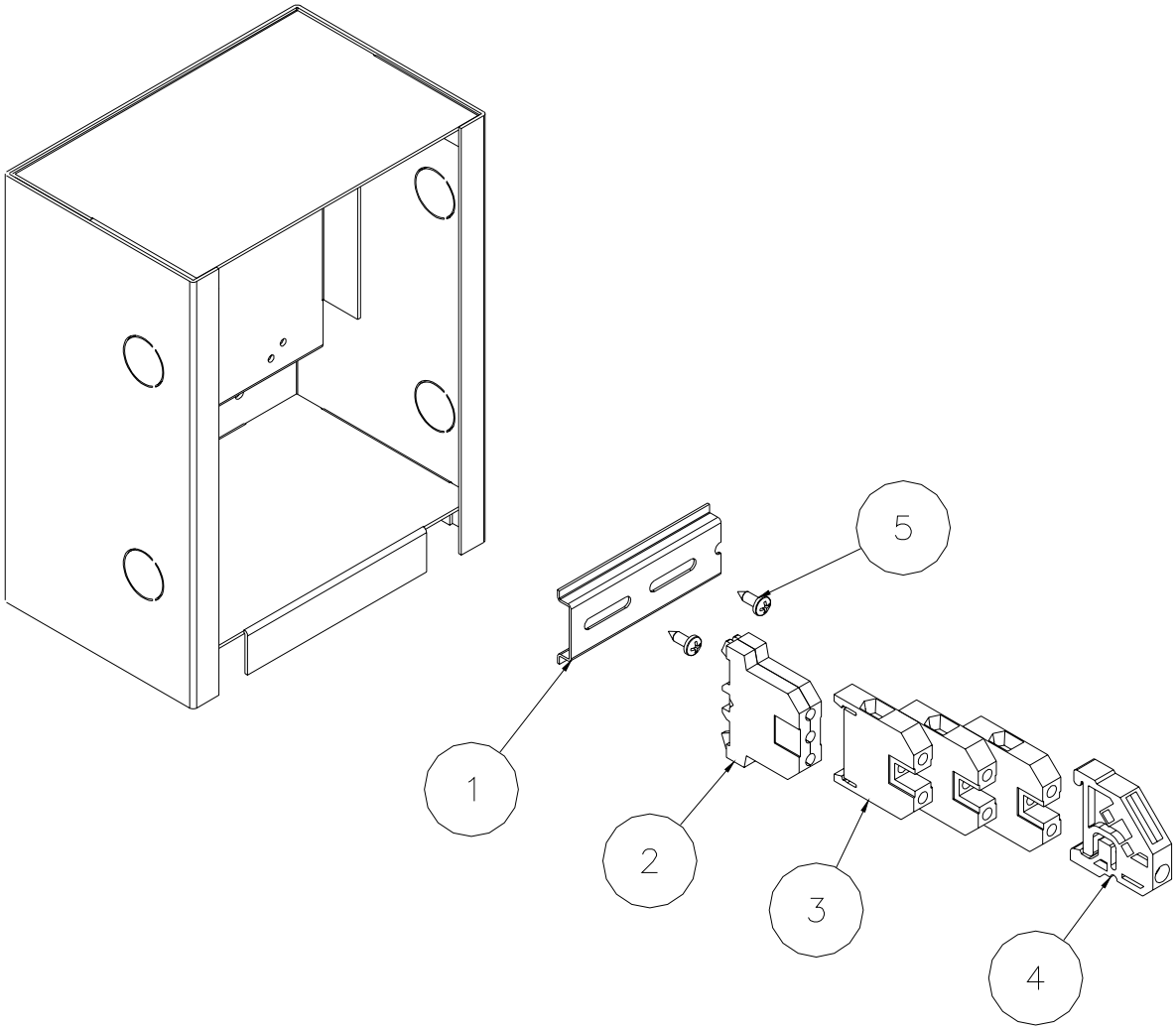
RAM IGNITION ASSEMBLY



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”



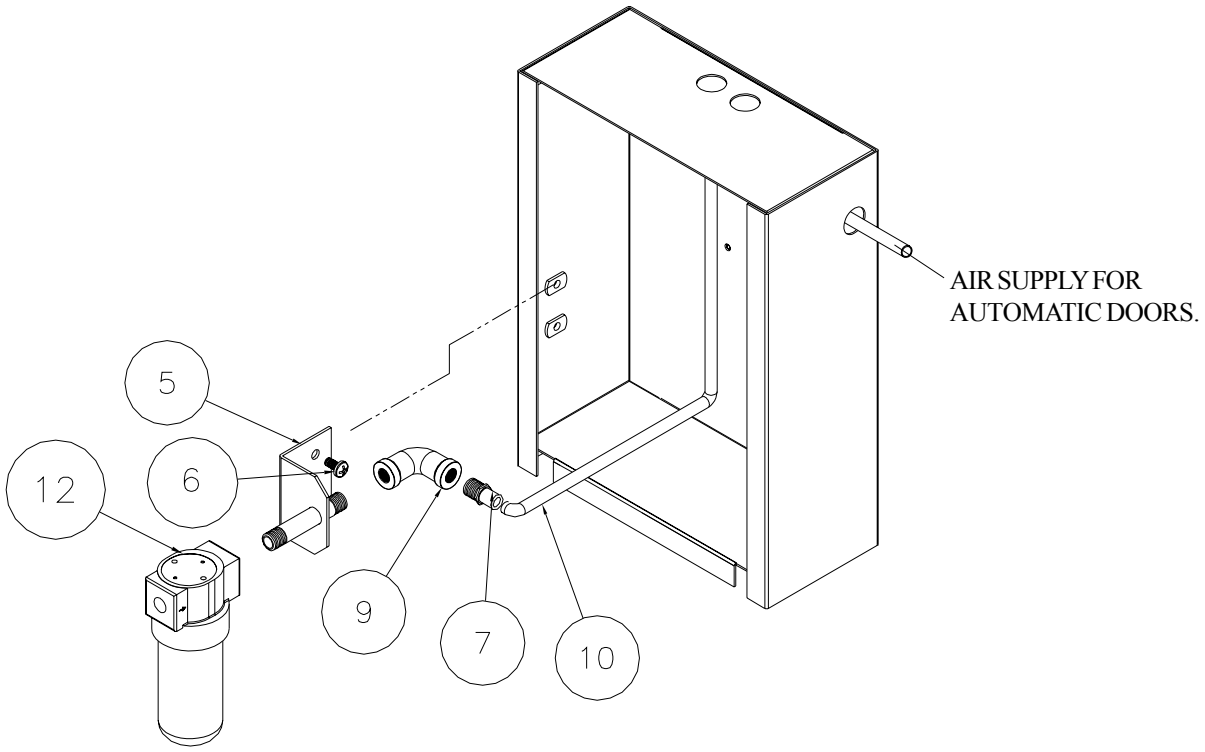
Ref. No.	Part No.	Description
1	TUL240	Subplate
2	TU14986	Din Rail, 4 1/2" Lg.
3	TUL289	Din Rail, 7 1/2" Lg.
4	TU13802	Transformer 240V/24V
	TU13514	Transformer 460V/24V
	TU13642	Transformer 575V/24V
5	TU7733	Screw, #8
6	F1300	Relay
7	TU15007	Terminal Block, Ground/End
8	TU14958	Terminal Block
9	TU14959	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



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

PNEUMATIC BOX

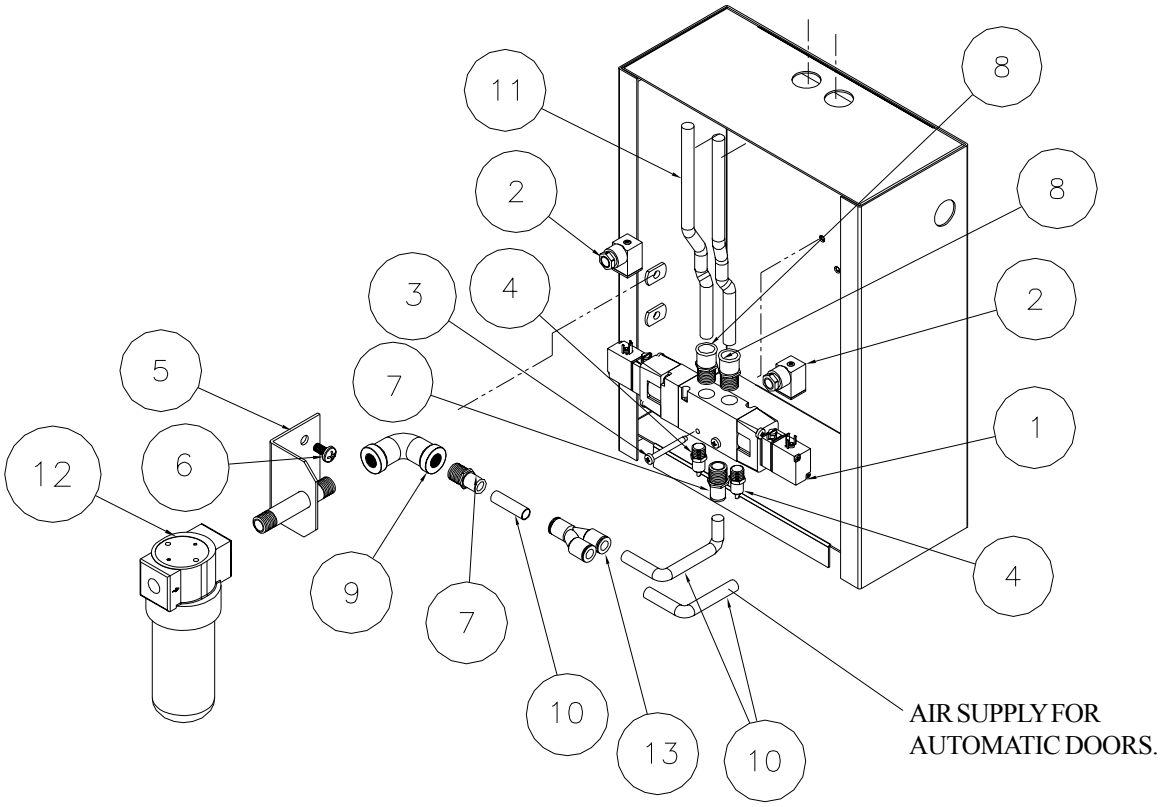
NON-TILTING W/AUTODOORS



Ref. No.	Part No.	Description
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"
9	TUL347	Elbow, 1/4"
10	136322018	Tubing, Nylon 1/4"
12	PT663	Air Filter, Inline

PNEUMATIC BOX

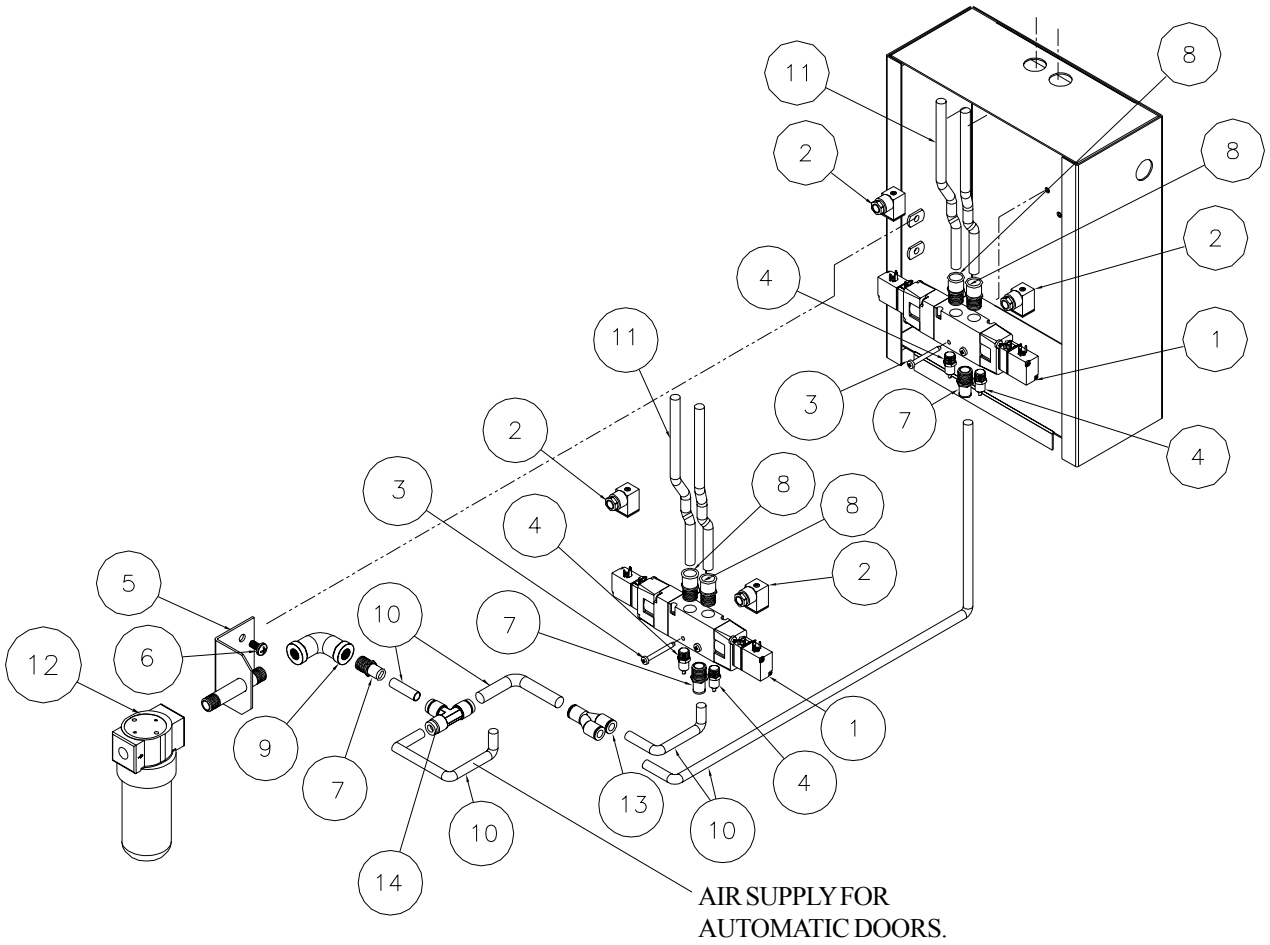
1WAY- TILTING W/MANUAL AND AUTOMATIC DOORS



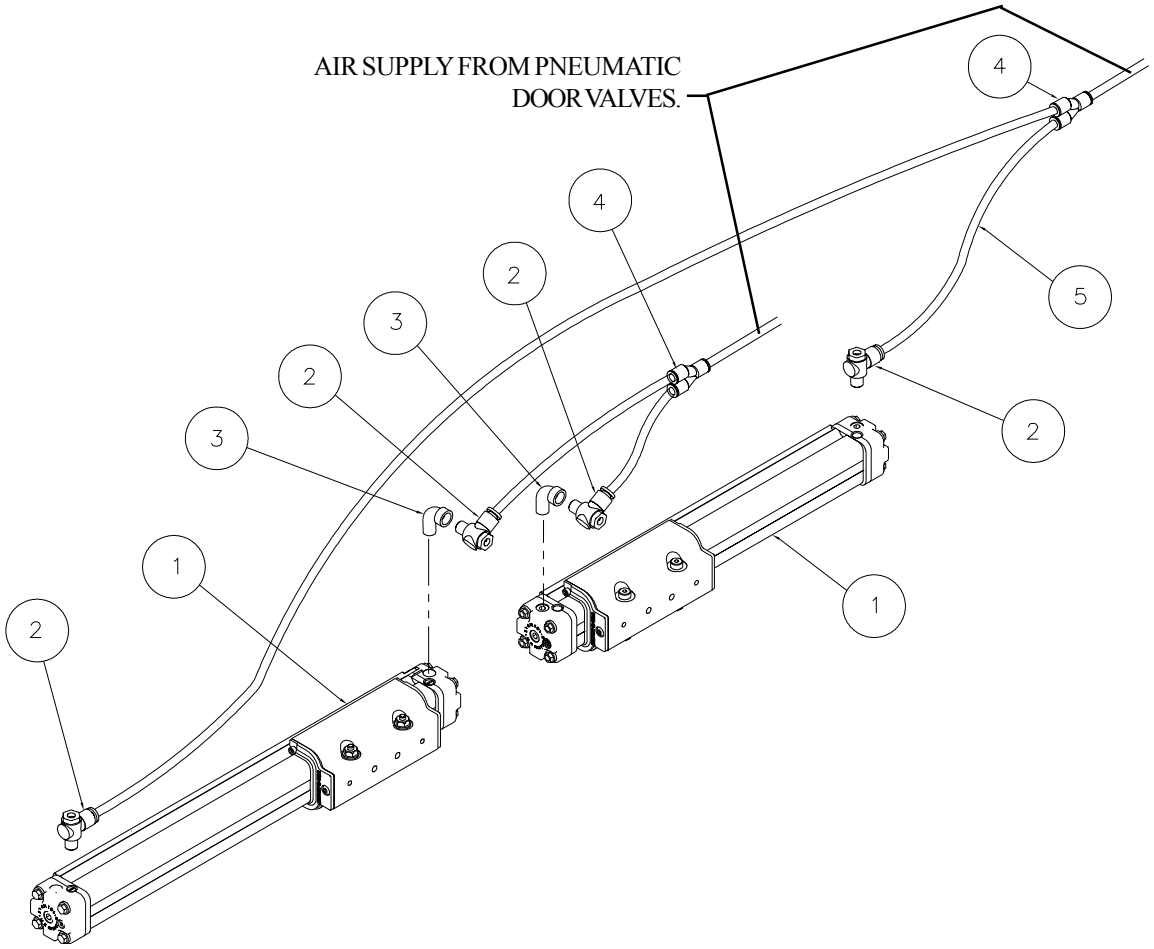
Ref. No.	Part No.	Description
1	PR910	Valve, 3 - Position
2	PR269	Plug, Female Elecric
3	TUL483	Screw, 1/4-20 x 2-3/4" Lg.
4	PR541	Flow, Control/ Filter
5	TUL327	W/A Regulator Bracket
6	SB-00921-0	Screw, 1/4-20 x 1/2" Lg. Round Hd.
7	PR418	Fitting, Straight 1/4" x 1/4"
8	PR407	Fitting, Straight 3/8" 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
13	TUL477	Fitting, "Y", 1/4" (For Auto door option.)

PNEUMATIC BOX

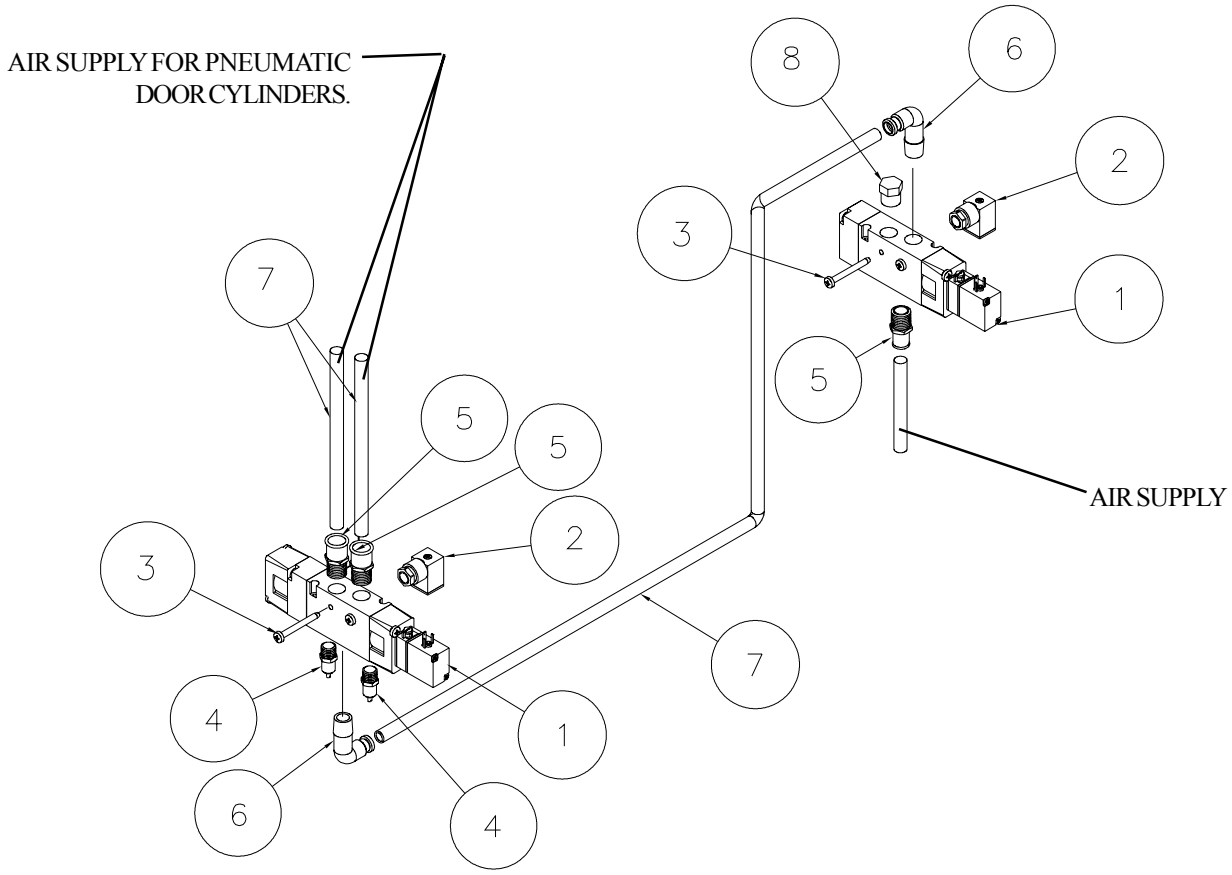
2WAY- TILTING W/AUTOMATIC DOORS



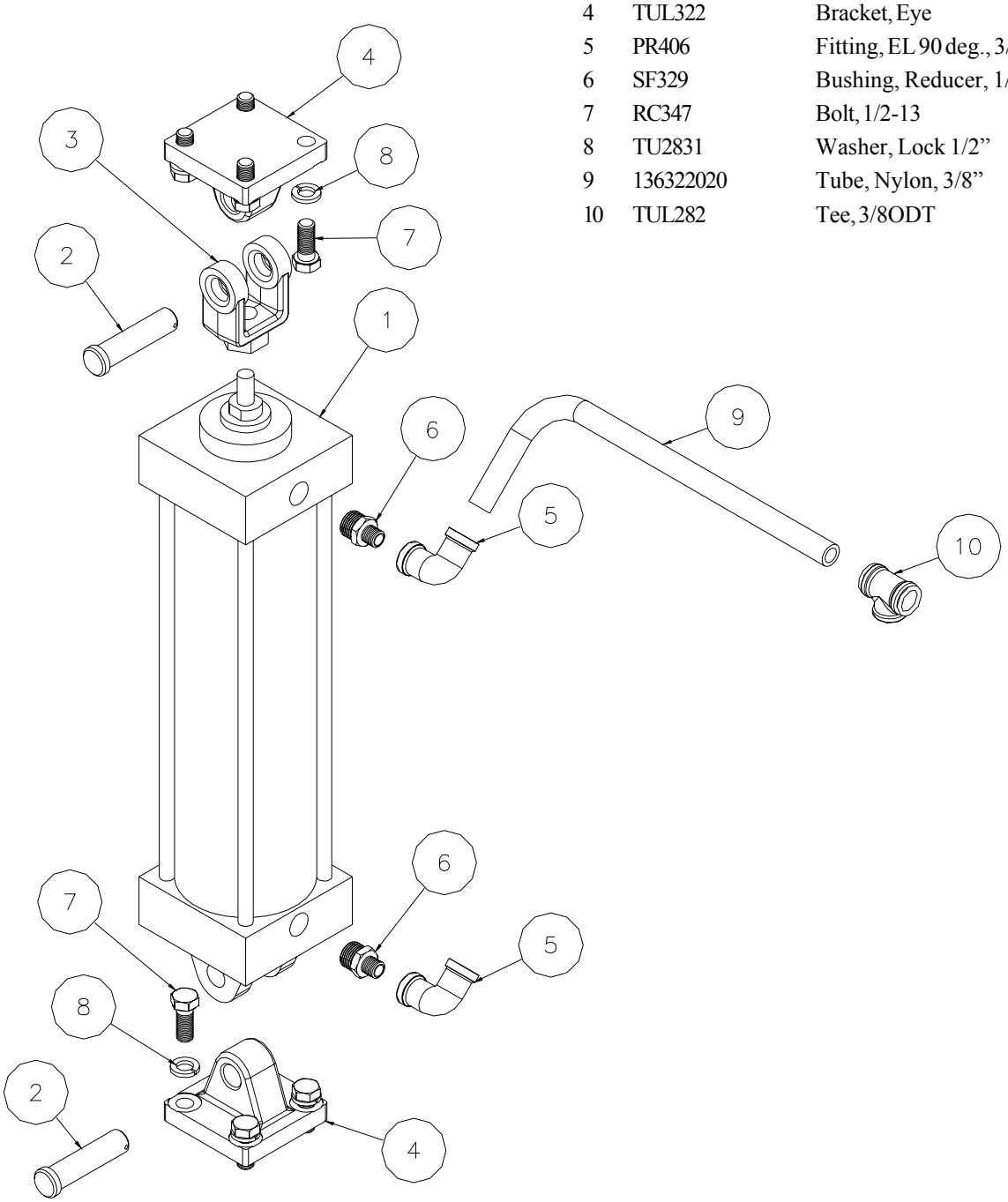
Ref. No.	Part No.	Description
1	PR910	Valve, 3 - Position
2	PR269	Plug, Female Elecric
3	TUL483	Screw, 1/4-20 x 2-3/4" Lg.
4	PR541	Flow, Control/ Filter
5	TUL327	W/A Regulator Bracket
6	SB-00921-0	Screw, 1/4-20 x 1/2" Lg. Round Hd.
7	PR418	Fitting, Straight 1/4" x 1/4"
8	PR407	Fitting, Straight 3/8" 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
13	TUL477	Fitting, "Y", 1/4"
14	PR409	Fitting, "T", 1/4" (For Auto door option.)



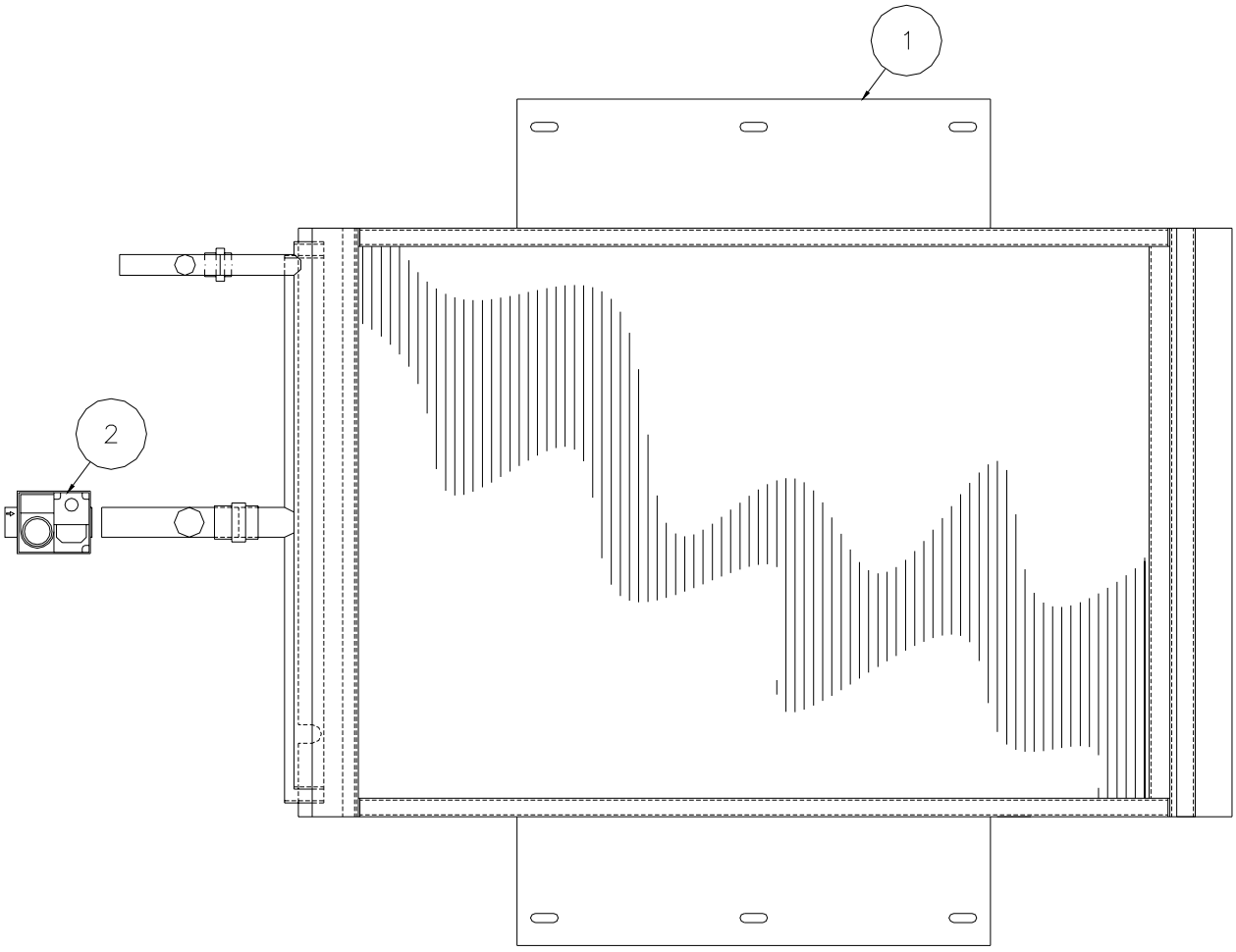
Ref. No.	Part No.	Description
1	TUL481	Cylinder, Cable
2	TUL480	Fitting, Check Valve, 1/8NPT-1/4 Tube
3	FG142	Elbow, Street, 1/8 NPT
4	TUL477	Fitting, "Y", 1/4 Tube
5	136322018	Tubing, 1/4 (Feet)



Ref. No.	Part No.	Description
1	PR698	Valve
2	PR269	Plug, Female Elecric
3	TUL483	Screw, 1/4-20 x 2-3/4" Lg.
4	PR541	Flow, Control/ Filter
5	PR418	Fitting, Straight, 1/4 NPT x 1/4 Tube
6	TUL479	Fitting, Elbow, 1/4 NPT-1/4Tube
7	136322018	Tubing, Nylon, 1/4
8	TU10946	Plug, 1/4 NPT

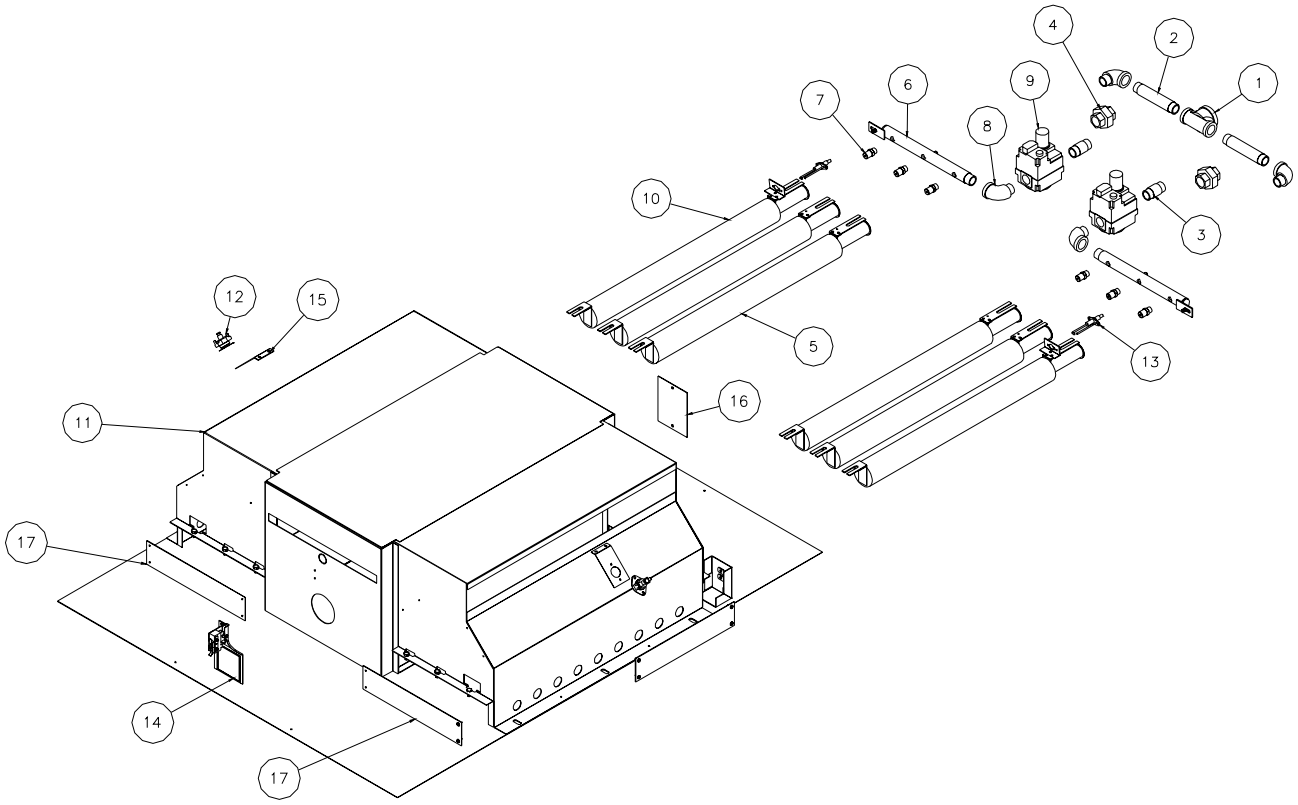


Ref. No.	Part No.	Description
1	TUL280	Cylinder, Air, 4" x 13.5" Stroke
2	TUL321	Pin, Clevis
3	TUL320	Rod, Clevis
4	TUL322	Bracket, Eye
5	PR406	Fitting, EL 90 deg., 3/8" x 3/8"
6	SF329	Bushing, Reducer, 1/2" to 3/8"
7	RC347	Bolt, 1/2-13
8	TU2831	Washer, Lock 1/2"
9	136322020	Tube, Nylon, 3/8"
10	TUL282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



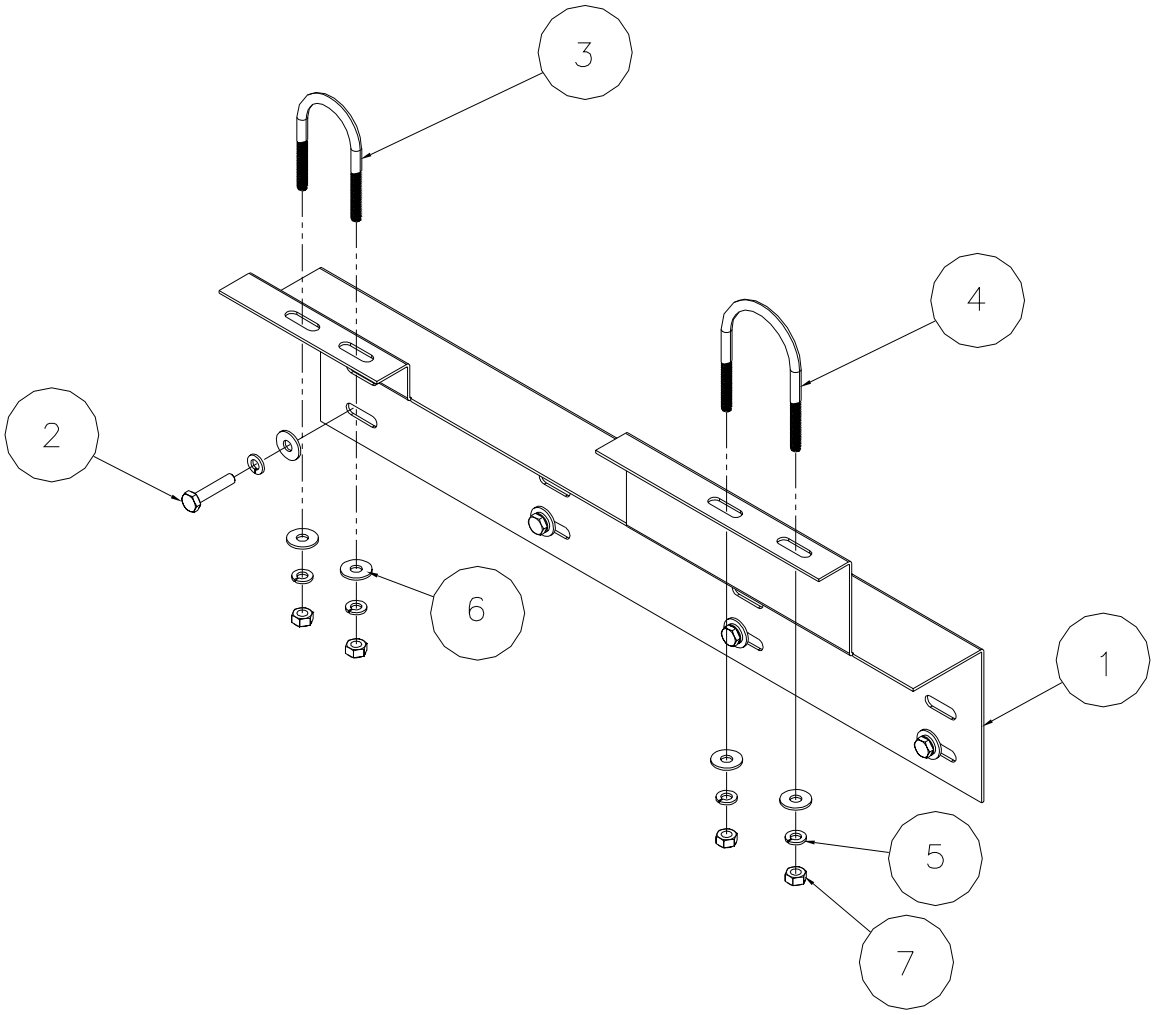
Ref. No.	Part No.	Description
TUL351	Steam bonnet, complete assembly	
1	TUL269	Bonnet, steam
	TUL363	Coil, replacement (one)
2	TUL356	Valve, steam, 1 1/2”
3	TUL331	Filter, Steam (two req’d)
-	TUL557	Unions, Supply and Return (set)

GAS BONNET ASSEMBLY



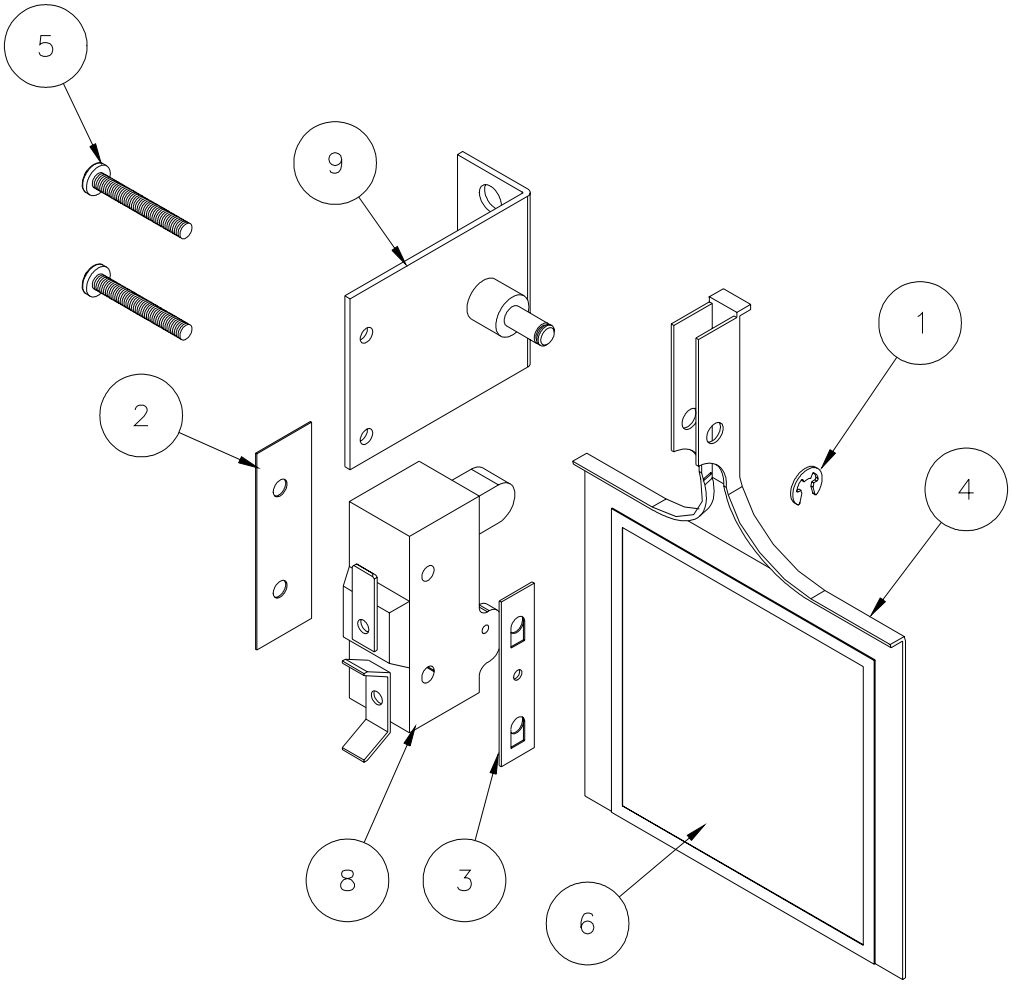
Ref. No.	Part No.	Description
	TUL266	Ass'y, Bonnet w/ Manifold, NG
	TUL428	Ass'y, Bonnet w/ Manifold, LP
1	390604123	Reducing Tee
2	TU4610	Nipple
3	TU4608	Nipple
4	TU4600	Union
5	TU14796	Burner
6	TU14463	Gas Manifold
7	TU3539	Orifice
8	TU4602	Elbow, Street
9	TUX352	Gas Valve (Natural Gas)
	TUX435	Gas 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

BONNET SUPPORT BRACKETS



Ref. No.	Part No.	Description
	TUL445	Ass'y, Gas Bonnet Support
	TUL446	Ass'y, Steam Bonnet Support

1	TUL441	Plate, Bonnet Support
2	FG189	Screw, Machine, 1/4-20 x 1"
3	TUL443	U-Bolt, 1" Pipe
4	TUL444	U-Bolt, 2" Pipe
5	TU2846	Washer, lock 1/4'
6	TU2847	Washer, Cut 1/4"
7	TU4934	Nut, Hex 1/4-20



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.	Description
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	Guide wheel
TUL159	Spring, guide wheel
TUL528	Belt, BX45
TUL273	Switch, three position, Monentary Wo/contact blocks
TUL274	Switch, push button, Enable W/contact blocks
TUL276	Contactor, fan
TU14684	Contactor, Basket (older models only).
TU13678	Thermostat, hi-limit
TUX613	Thermostat, FDS, 280 degrees, N.O.
EA-00411-0	Thermostat, FDS, 220 degrees, N.C.
TU11991	Thermistor
GA-00803-0	Lead suppression, hi voltage, safety
TUL275	Switch, 3 postion, Maintained Wo/ contact blocks
TUL533	Switch (Tilting model)
TUL526	Contact Block, (N.C.)
TUL527	Contact Block, (N.O.)
TUL547	Contact Block, (N.C.), (N.O.)
F1300	Relay
TU15823	Sensor, Pressure, FDS

FIRE DETECTION AND SUPPRESSION SYSTEM

Installation instructions
Operating instructions

TABLE OF CONTENTS

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.

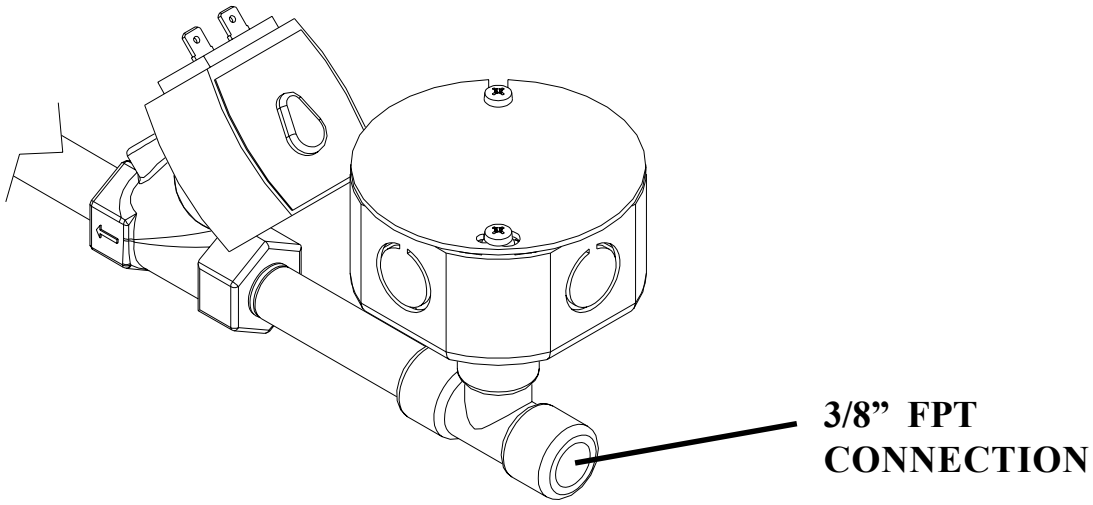
IMPORTANT: It is the installation or owners responsibilty to see that the necessary or required water, water pressure, pipe size, or connections are provided.

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

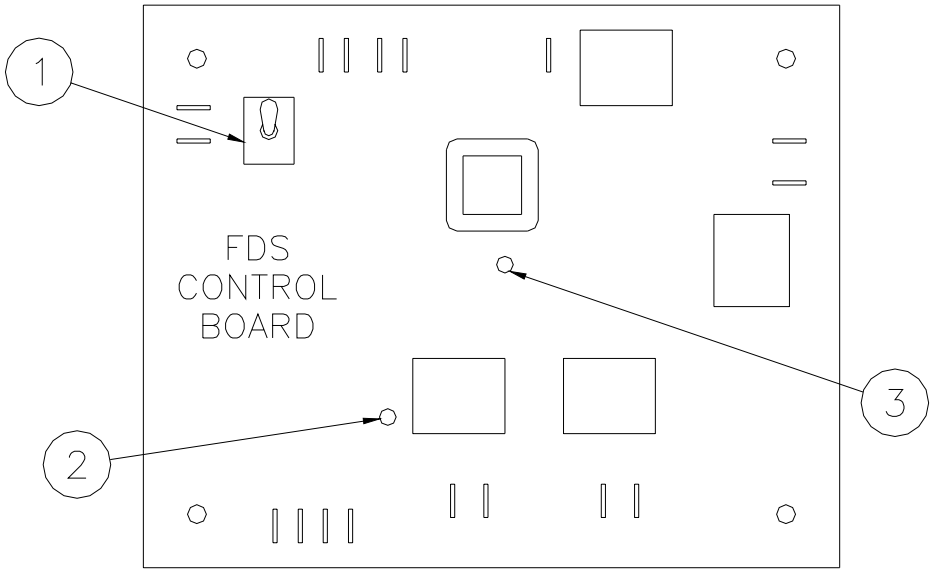
The FDS control detects a fire in a dryer basket when one of two thermostats reaches a set point. The FDS control then breaks power to the main dryer control. An alarm buzzer is activated and a water valve is opened. The water valve stays open until a predetermined volume of water is sprayed into the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

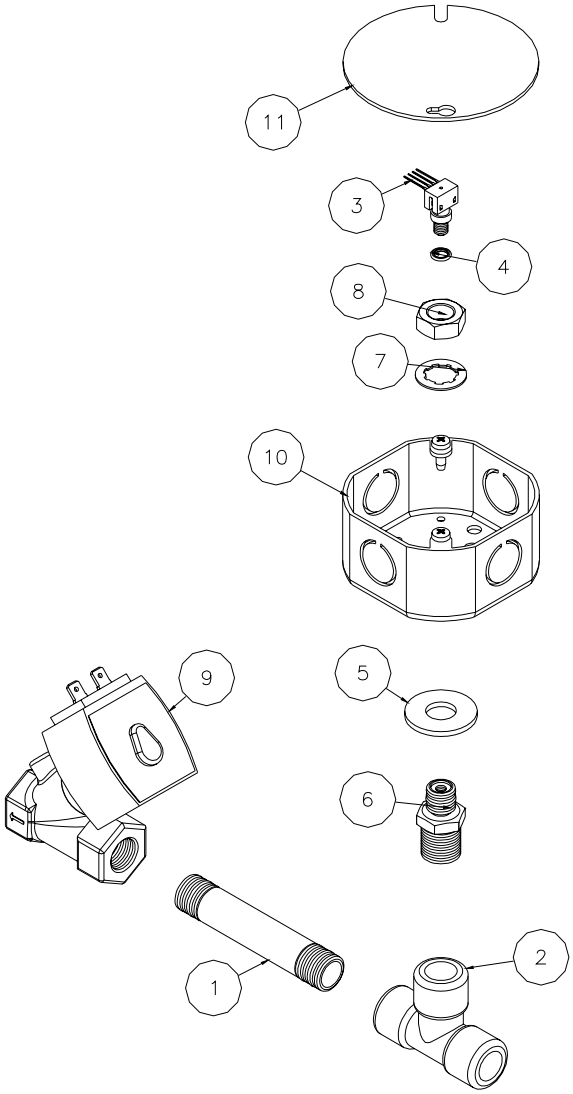
  Water valve opens (Two to six minutes approximately depending on water pressure).

  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.

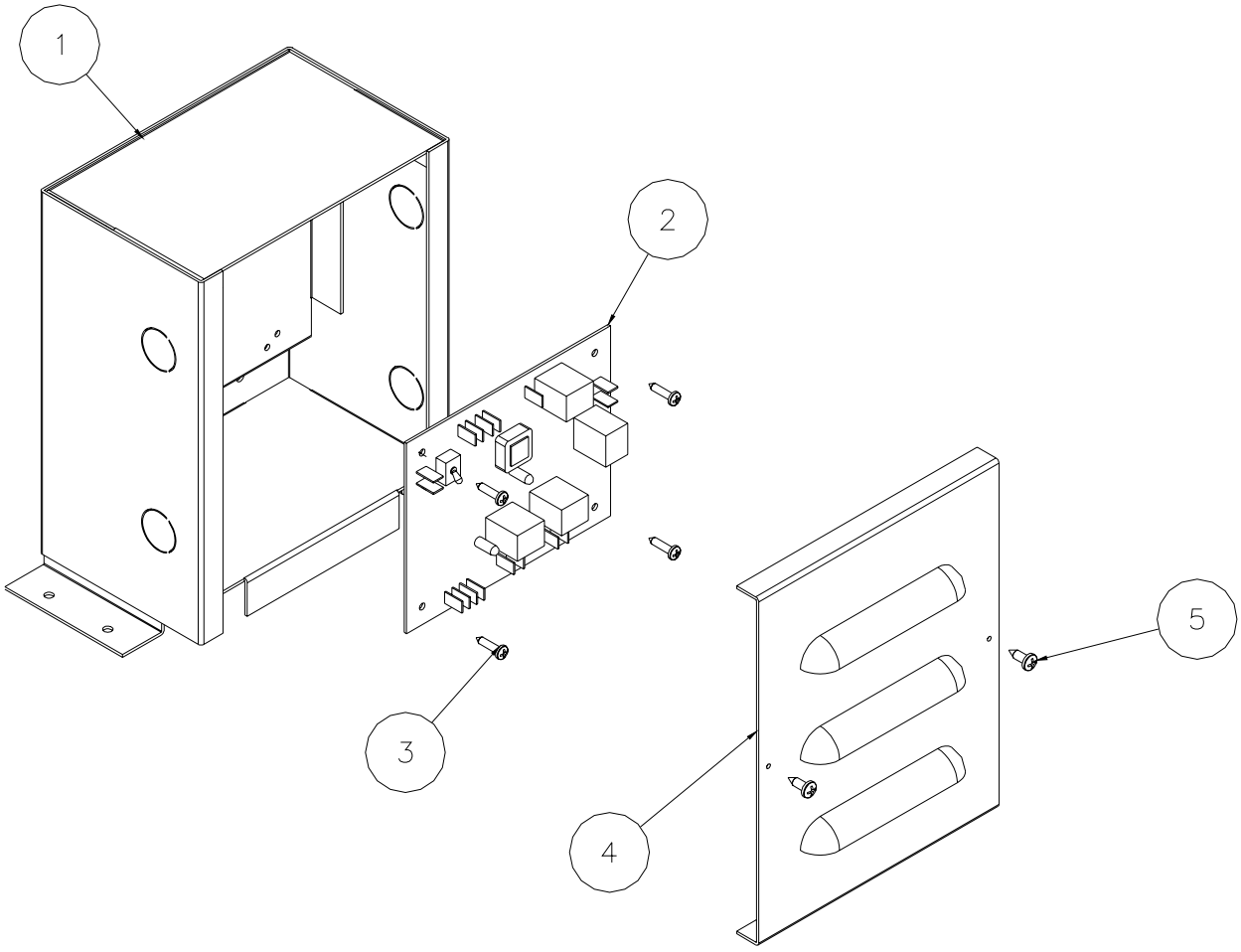
FDS can be reset by turning power off to the FDS board.

SENSOR ASSEMBLY



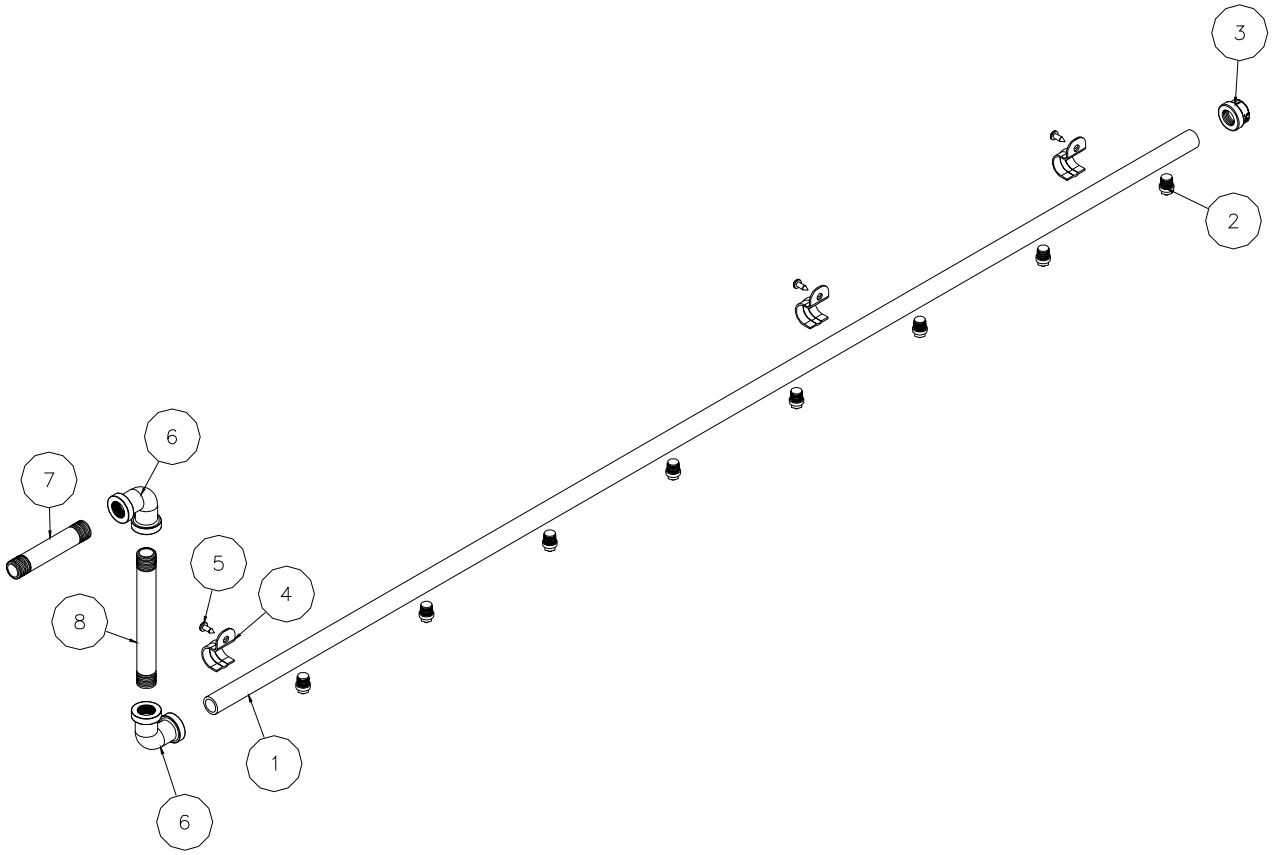
Ref. No.	Part No.	Description
1	390401246	Pipe Nipple, 3/8" x 3 1/2" Lg.
2	SF247	Tee, 3/8"
3	TU15823	Sensor, Pressure
4	TU15824	O-Ring
5	TU2883	Washer, 1/2" Flat, zinc
6	TUX606	Fitting
7	OP251	Washer, Int. Tooth 1/2"
8	OP235	Nut, Jam 1/2"
9	F1289	Valve, Solenoid
10	TUX605	Junction Box
11	TU2335	Cover, Junction Box

CONTROL BOX ASSEMBLY



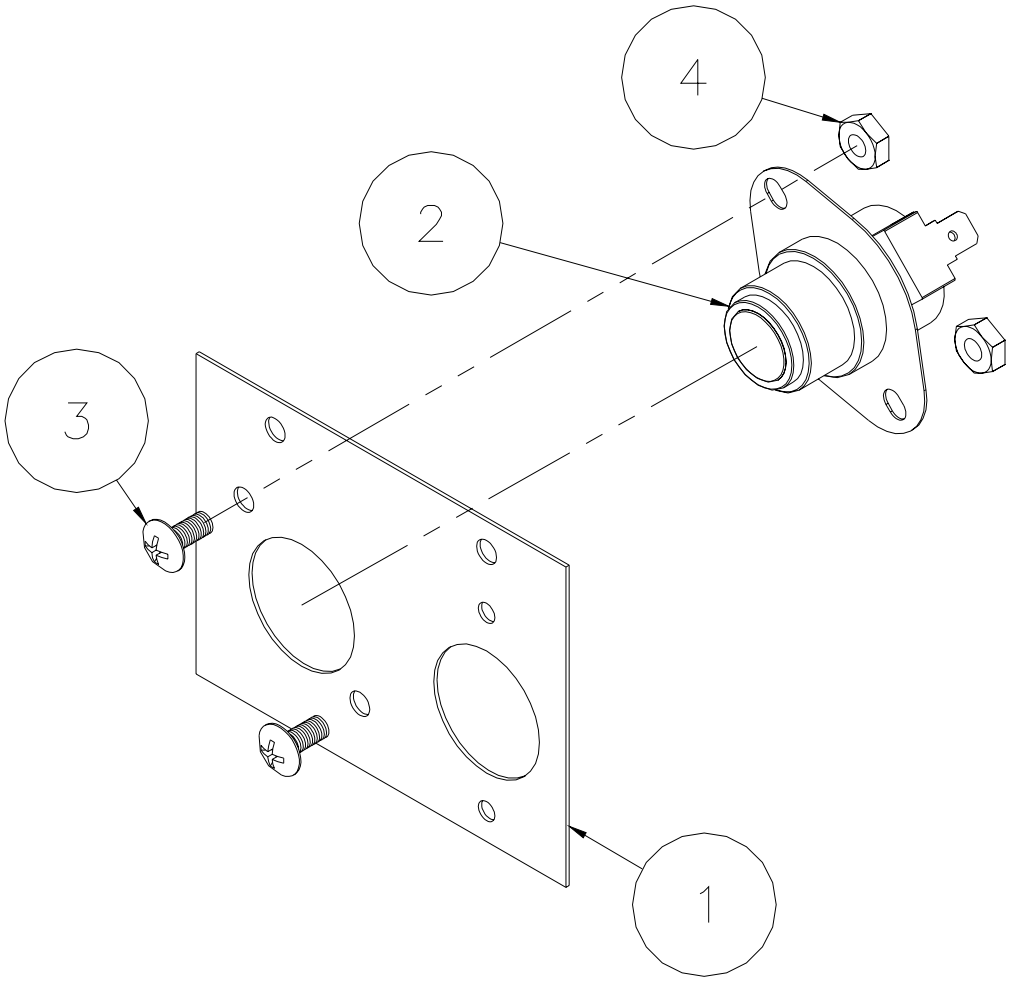
Ref. No.	Part No.	Description
1	TUL373	W/A, FDS Box
2	TU15814A	Board, FDS
3	F540	Screw, #6
4	TUL222	Cover, FDS Box
5	TU7733	Screw, #8

WATER MANIFOLD ASSEMBLY



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