

# Air System Pneumatic Grain Conveying

6" - 2100 Bu/Hr

Owner's Manual

PNEG-1564

Date: 10-16-08

GSI GROUP



PNEG-1564



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# 1. SAFETY

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## Safety Guidelines

This manual contains information that is important for you, the owner/operator, to know and understand. This information relates to protecting **personal safety** and **preventing equipment problems**. It is the responsibility of the owner/operator to inform anyone operating or working in the area of this equipment of these safety guidelines. To help you recognize this information, we use the symbols that are defined below. Please read the manual and pay attention to these sections. Failure to read this manual and its safety instructions is a misuse of the equipment and may lead to serious injury or death.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



**DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



**CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.



**NOTE** indicates information about the equipment that you should pay special attention to.

## Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machinery in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your dealer.



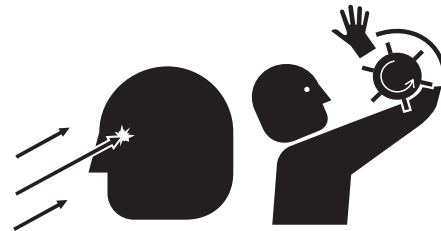
**Read and Understand Manual**

## Stay Clear of Moving Parts and Air Valves

Keep hands and feet away from moving parts. Be sure all people are clear of the equipment before start-up. Wear close fitting clothing.

Keep all shields and covers in place at all times.

Stay clear of air blast for valve. Always wear safety glasses to protect your eyes.



**Flying**

**Rotating Parts**

## Install and Use equipment Properly

Ground all electrical equipment as well as the bin itself.

Disconnect all power before servicing or opening control box, adjusting, lubricating the equipment, or opening the control box inner panel.

All electrical hook-ups should be in accordance with local and National Electrical Code.

If three phase power is used, identify wild leg and wire according to electrical diagram.

Never use plastic tubing for any lines carrying grain.



**Electric Shock Hazard**

# 1. SAFETY

## Practice Safe Maintenance

Always lockout power source before servicing equipment.

Understand service procedures before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is in operation. Keep hands, feet, and clothing from rotating parts.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any build up of grease, oil, or debris.



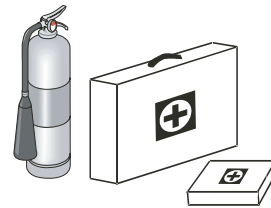
**Maintain Equipment and Work Area**

## Prepare for Emergencies

Be prepared if fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



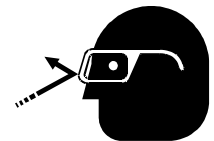
**Keep Emergency Equipment Quickly Accessible**

## Wear Protective Clothing

Wear close fitting clothing and safety equipment appropriate to the job.

Safety glasses should be worn at all times to protect eyes from debris.

### Eye Protection



Wear gloves to protect your hands from sharp edges on plastic or steel parts.

### Gloves



Wear steel toe boots to help protect your toes from falling debris.

### Steel Toe Boots



A respirator may be needed if a hog house has poor ventilation. Waste fumes can be toxic.

### Respirator



Remove all jewelry.

Tuck in any loose or dangling shoe strings.

Long hair should be tied up and back.

Wear hard hat to help protect your head.

### Hard Hat



### Decal Placement

#### Airlock

Install safety decals on components as shown in the decal section. Always insure that safety decals are in a place, easily readable, and in good condition. If a decal cannot be easily read for any reason or has been painted over, replace it immediately. Contact your dealer or the manufacturer to order a replacement decal free of charge.

For decal replacements contact GSI at:

1004 E. Illinois Street  
Assumption, IL 62510  
Ph: (217)-226-4421

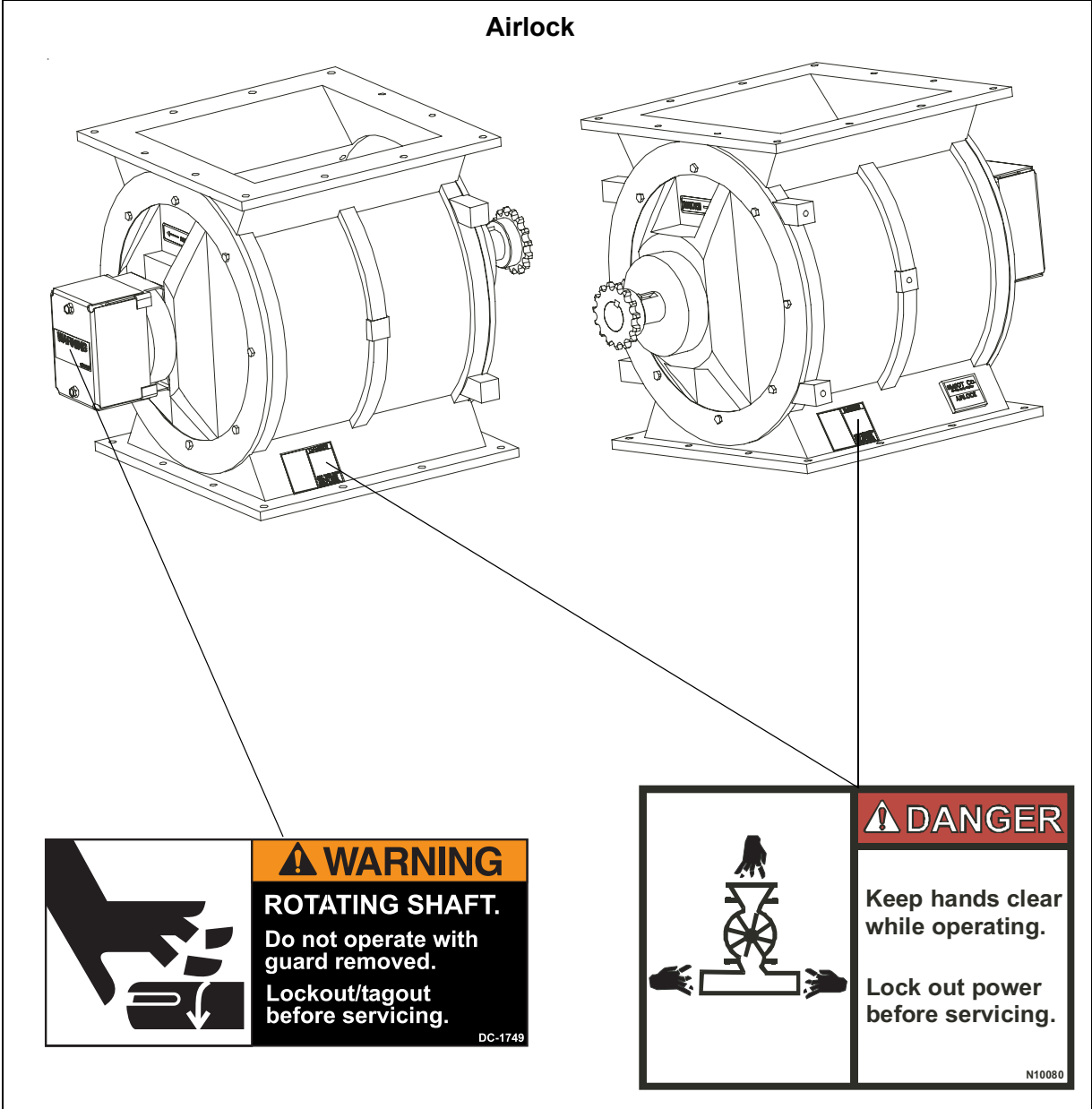


Figure 2A

## 2. DECALS

### Airlock Base

For decal replacements contact GSI at:

1004 E. Illinois Street  
Assumption, IL 62510  
Ph: (217)-226-4421

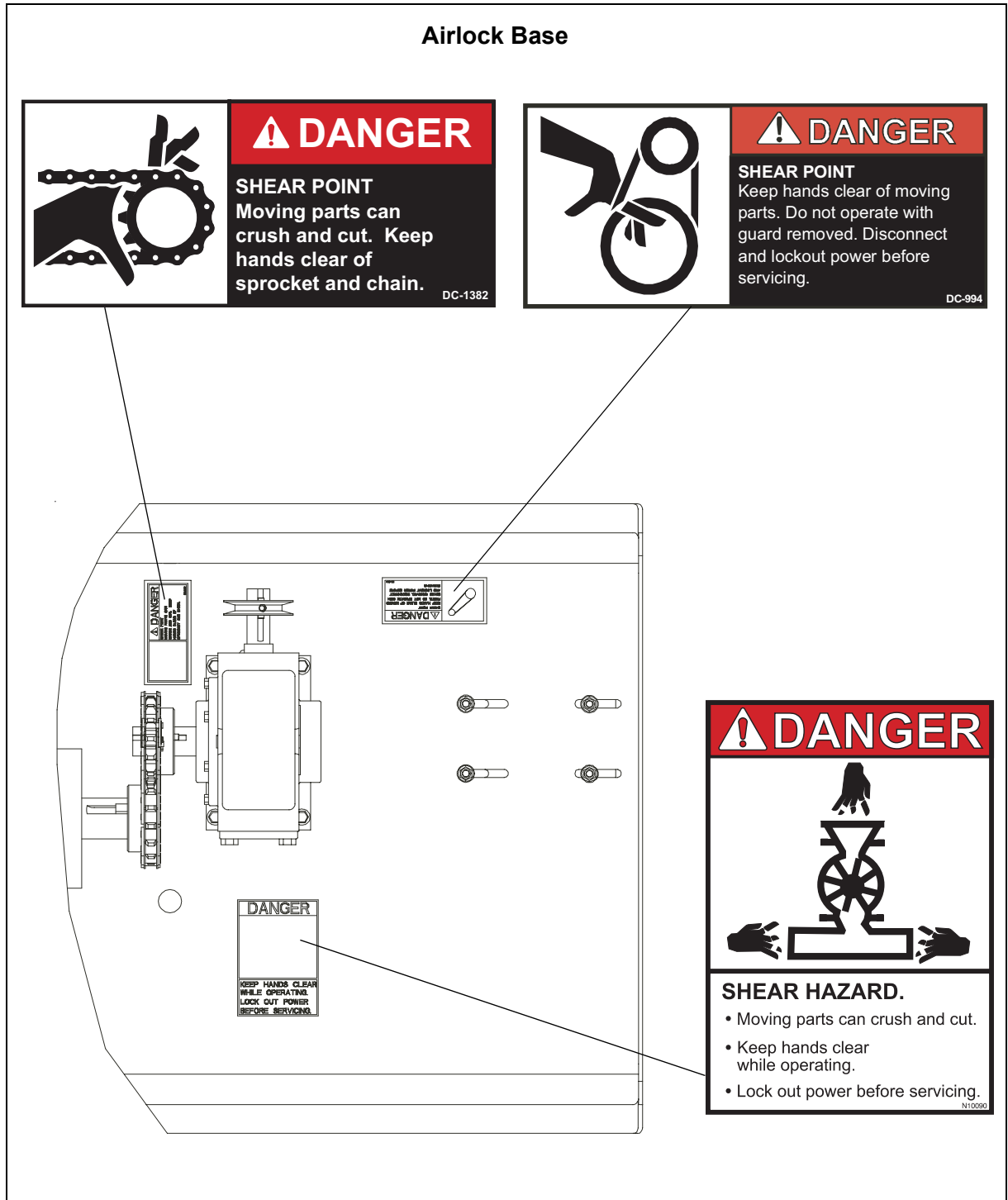


Figure 2B



**Blower Base and Guard**

For decal replacements contact GSI at:

1004 E. Illinois Street  
Assumption, IL 62510  
Ph: (217)-226-4421

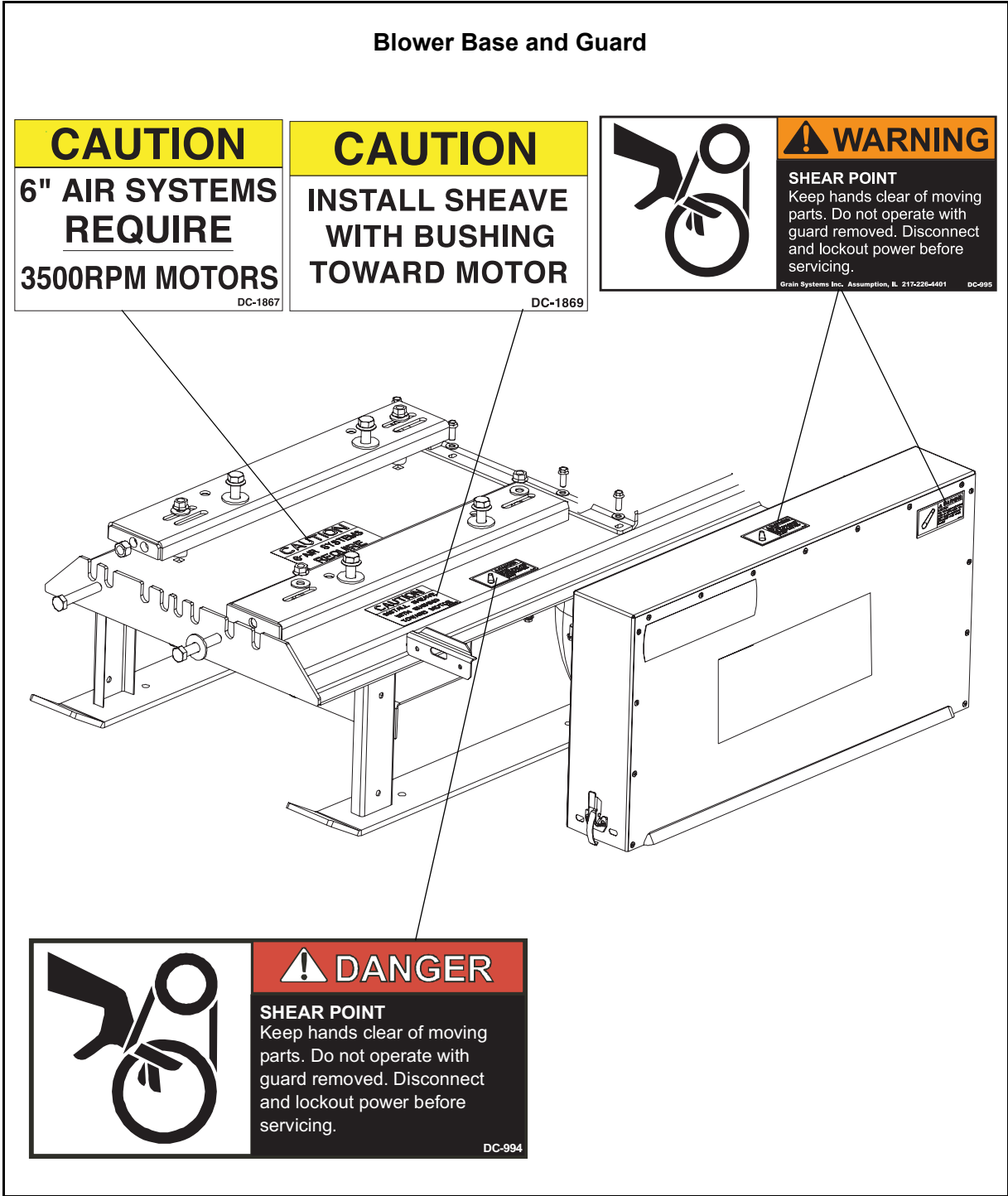


Figure 2C

## 2. DECALS

### Airlock Guard

For decal replacements contact GSI at:

1004 E. Illinois Street  
Assumption, IL 62510  
Ph: (217)-226-4421

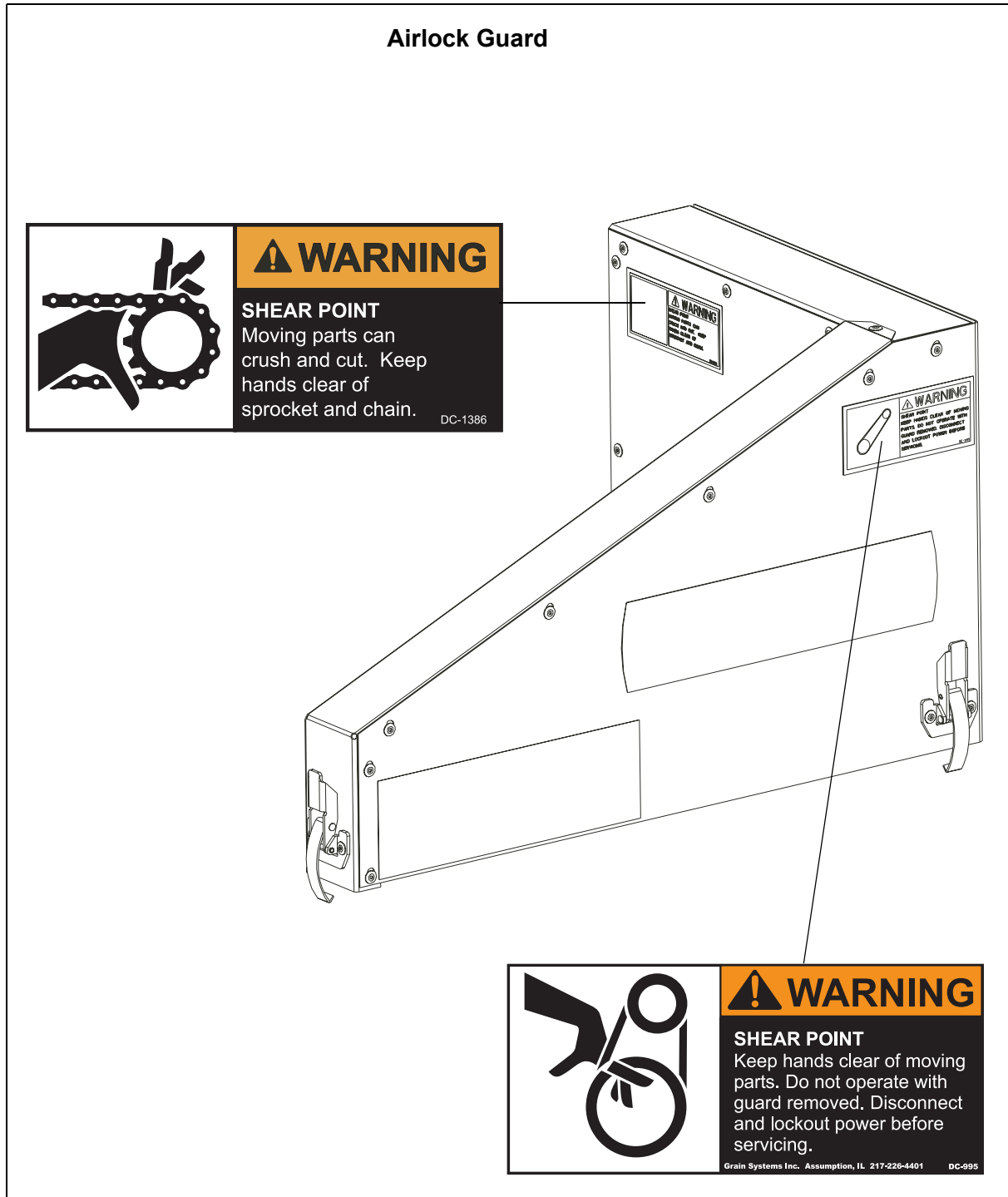


Figure 2D

## Maintenance Schedule

<b>Initial Start-Up</b>	
<ol style="list-style-type: none"> <li>1. Roots-Flo Blower</li> <li>2. Air Lock Gearbox</li> <li>3. Air Filter</li> <li>4. V-belts</li> <li>5. Chain</li> <li>6. Tubing System</li> </ol>	<ol style="list-style-type: none"> <li>1. Oil level with middle of sight glass (DMC #MS5389 synth. oil)</li> <li>2. Oil level to check plug (SAE90)</li> <li>3. Installed properly</li> <li>4. Tensioned and aligned</li> <li>5. Tensioned and aligned</li> <li>6. All couplers tight. All tubing connections have good fit. Tubing laid out straight. Elbows fitting properly</li> </ol>
<b>After First 10 Hours and Daily</b>	
<ol style="list-style-type: none"> <li>1. Air Filter</li> <li>2. V-belts</li> <li>3. Tubing</li> </ol>	<ol style="list-style-type: none"> <li>1. Check for excessive dust build-up</li> <li>2. Check tension alignment</li> <li>3. Check all connections for leaks and signs of separating</li> </ol>
<b>Weekly</b>	
<ol style="list-style-type: none"> <li>1. Chain</li> <li>2. Blowers &amp; Gearbox</li> </ol>	<ol style="list-style-type: none"> <li>1. Oil</li> <li>2. Check oil levels</li> </ol>
<b>1500 Hours (Synthetic Oil)</b>	
<ol style="list-style-type: none"> <li>1. Roots-Flo and Duraflow</li> </ol>	<ol style="list-style-type: none"> <li>1. Drain oil and replace with 1.5 Qts. of DMC #MS5389 synthetic oil. (Fill to middle of sight glass)</li> </ol>
<b>Extended Shut Down</b>	
Disconnect Main Power Unit  <ol style="list-style-type: none"> <li>1. Blower</li> <li>2. Airlock</li> <li>3. Chain</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove inlet assembly and spray oil on lobes while rotating by hand, to prevent rust. Keep hands and objects out of blower. Re-install inlet assembly</li> <li>2. Coat interior with oil, while rotating by hand, to prevent rust. Re-install weather cover</li> <li>3. Oil chain to prevent rust</li> </ol>

# 4. AIR SYSTEM

## Air System Capacities

(Dry Shelled Corn)

Effective Length (Feet)	2100 Bu/Hr 6" System (Roots-Flo)			
	40 HP Motor	50 HP Motor	60 HP Motor	75 HP Motor
50	1900	2200	2350	2500
100	1875	2175	2325	2475
150	1850	2150	2300	2450
200	1800	2100	2100	2400
250	1700	2000	2150	2300
300	1550	1850	2000	2150
350	1375	1675	1825	1975
400	1150	1450	1600	1750
450	875	1175	1325	1475
500	500	800	950	1100

Effective tube length is determined by adding the horizontal length, twice the vertical height and 10 feet for every elbow of 45° or greater. Add five feet for each elbow less than 45°. Use the horizontal run and add the vertical rise of inclined systems to calculate the effective length.

### Capacity Chart

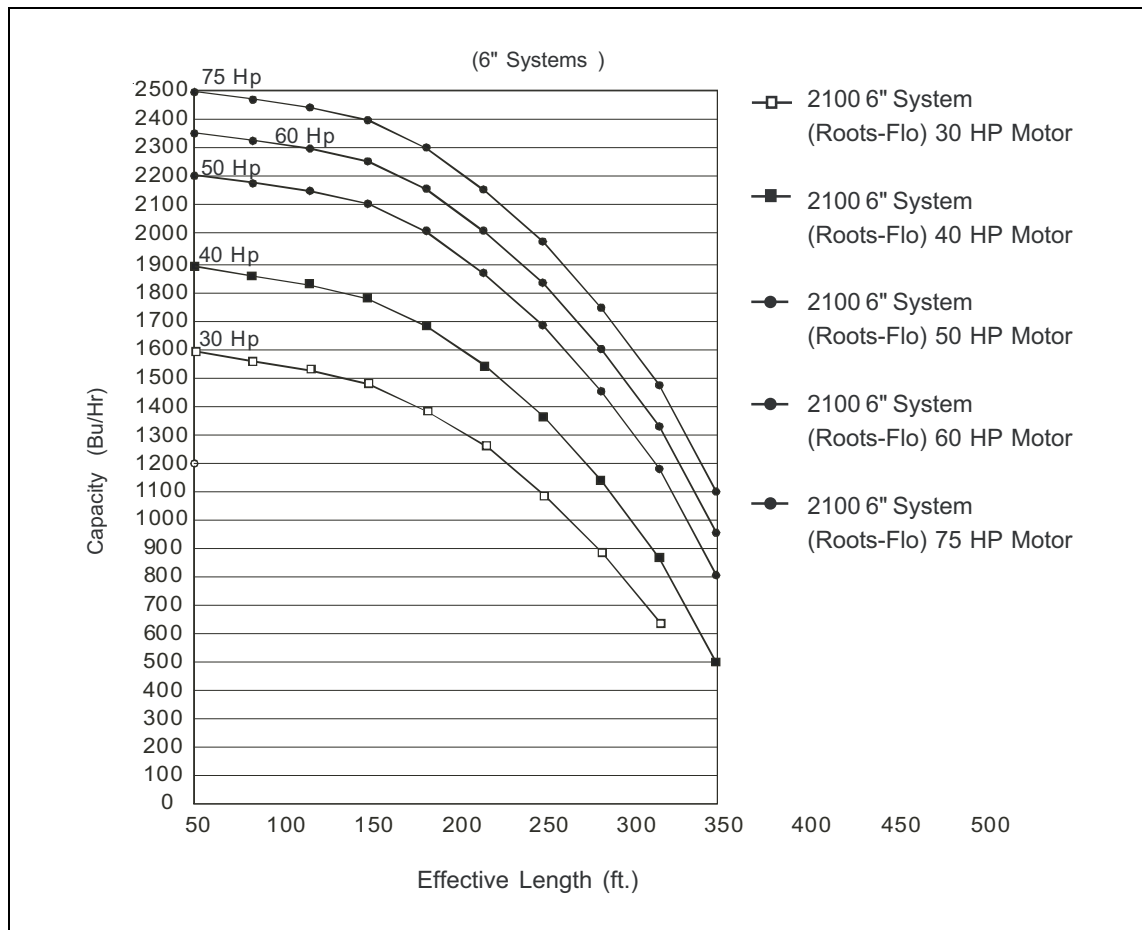


Figure 4A

### Air System Installation Instructions

1. Determine the most convenient location for the airlock and blower. Take into consideration the direction of the prevailing winds. It is important to locate the blower in as clean an environment as possible. This greatly reduces the maintenance requirements on the air filter system. When the distance between the airlock and blower is over 10 feet, it is best to use galvanized pipe with short flex hose on the ends to couple the units together to keep airflow restrictions to a minimum.
2. The noise level of the blower unit can be reduced by placing the unit behind a wall, barrier, or in a small building. If this is done, make sure that the building has adequate ventilation for both air intake and cooling of the blower and motor.
3. The grain discharge chute on the airlock is assembled at the factory so that grain movement is at 90° to the length of the skid. This orientation can be changed by removing the mounting hardware at the base of the airlock and rotating the discharge chute to the preferred direction. Be sure to keep the gasket in place between the skid and the discharge chute. Note that the airlock itself is sealed to the skid surface and does not need to be moved to redirect the discharge chute.

---

**Note: A minimum of 10 feet is needed between the airlock discharge and the first elbow in the system.**

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4. Determine the best routing of the galvanized steel pipe from the airlock to the storage areas. Use galvanized elbows for changing the grain direction. This will give better performance and longer life than flexhose.
5. Bolt the tube mounting brackets to the desired location using at least two (2) mounting brackets on the vertical wall and two (2) on the roof of the grain bin. The mounting brackets can be formed to match existing hole patterns in the bin.
6. Determine the number and degree of arc required in the elbows. The 90° and 60° elbows are standard - different lengths of arc can be cut from these standard elbows.  
(See Page 16).

---

**Note: A minimum of eight (8) feet between elbows is required for proper operation.**

---

7. Cut the steel tubing to the required length and fasten it together with compression couplings. The ends must be cut square to fit properly. Make sure that the stainless steel gasket protecting sleeve is placed over the joint before tightening the coupler. Tighten the bolts on the coupler evenly or until the coupler flanges butt together. (See Page 58).
8. The steel tubing can be laid underground, on top of the ground or placed on blocks. If placed on blocks, the tubing must be supported every 15 feet. If placed underground, the tube should enter and exit the ground at a 45° angle and be coated with a protective tar to prevent corrosion.
9. Measure the distance between the airlock and blower. Use flex hose or a combination of flex hose and galvanized tubing to connect the units together. Note that the grain discharge chute on the airlock is tapered and that grain can discharge in either direction.

## 4. AIR SYSTEM

10. Install all tubing required to transfer grain to your storage areas.
11. To attach the deadhead deflector to the tubing, simply slide the deadhead deflector onto the tubing and tighten the clamp provided. Flexible galvanized tubing can be attached to the deadhead down spout if needed. If a cyclone is used, an elbow and mounting brackets are needed.
12. Select a location to mount the electrical control box that is accessible and easily reached should shut down of unit be necessary. It should be close enough to the blower to run the 30 feet of rubber pressure hose between the blower and the control box. Otherwise, a longer length of hose must be ordered.
13. Before wiring or operating the Air System unit, read the control box description on [Pages 21 to 29](#) to understand the operation of the Air System control box. If the control box is to be wired to remote equipment, review the wiring diagrams for proper hook-up.

### Air System Capacities

(Dry Shelled Corn)

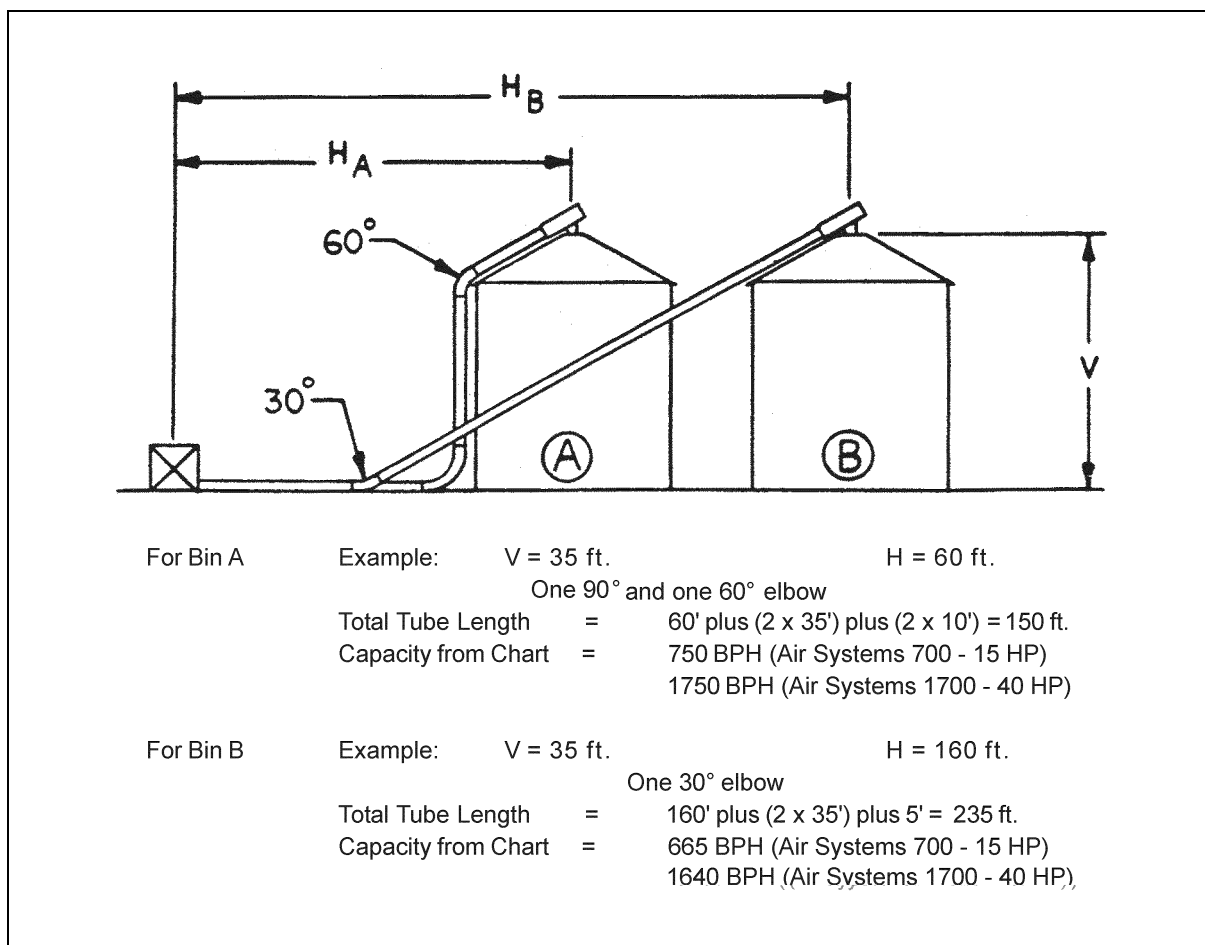


Figure 4B

## Air System Tubing Dimensions

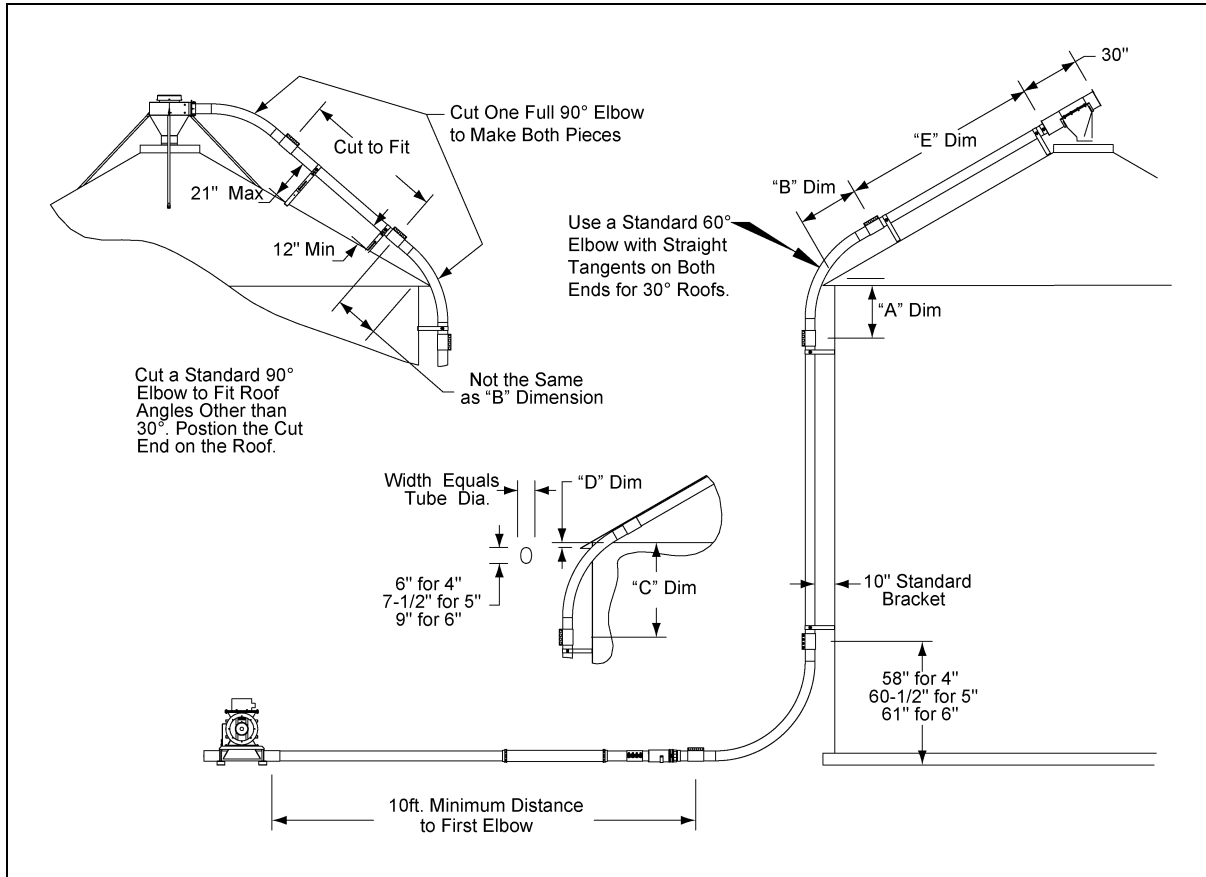


Figure 4C

System Size	Roof Angle	Reference Dimension													
		A	B	C	D	E*									
						18' Dia.	21' Dia.	24' Dia.	27' Dia.	30' Dia.	33' Dia.	36' Dia.	42' Dia.	48' Dia.	
4"	25	31"	23"	47-1/2"	5-3/4"	7' 1"	8' 9"	10' 5"	12' 1"	13' 9"	15' 5"	17' 1"	20' 5"	23' 9"	
	30	29"	29"	46"	3-1/2"	7' 1"	8' 9"	10' 5"	12' 1"	13' 9"	15' 5"	17' 1"	20' 5"	23' 9"	
	35	27"	19"	45"	2-1/2"	8' 6"	10' 2"	11' 10"	13' 6"	15' 2"	16' 10"	18' 6"	21' 10"	25' 2"	
5"	25	32-1/2"	22-1/2"	50"	4-1/2"	7'	8' 9"	10' 6"	12' 3"	14'	15' 9"	17' 6"	21'	24' 6"	
	30	30-1/2"	30-1/2"	49"	3-1/4"	6' 10"	8' 7"	10' 4"	12' 1"	13' 10"	15' 7"	17' 4"	20' 10"	24' 4"	
	35	28-1/2"	18-1/2"	48"	2-1/4"	8' 6"	10' 3"	12'	13' 9"	15' 6"	17' 3"	19'	22' 6"	26'	
6"	25	32-1/4"	22-1/4"	51"	4-1/2"	7' 3"	9' 1"	10' 11"	12' 9"	14' 7"	16' 5"	18' 3"	21' 11"	25' 7"	
	30	30-1/4"	30"	50"	3"	7' 1"	8' 11"	10' 9"	12' 7"	14' 5"	16' 3"	18' 1"	21' 9"	25' 5"	
	35	28-1/4"	18"	49"	2"	8' 8"	10' 6"	12' 4"	14' 2"	16'	17' 10"	19' 9"	22' 4"	27'	

\* Add 10" to E dimension if roof elbow has been cut from a 90° Elbow.

## 4. AIR SYSTEM

### Elbow Angle Measurements

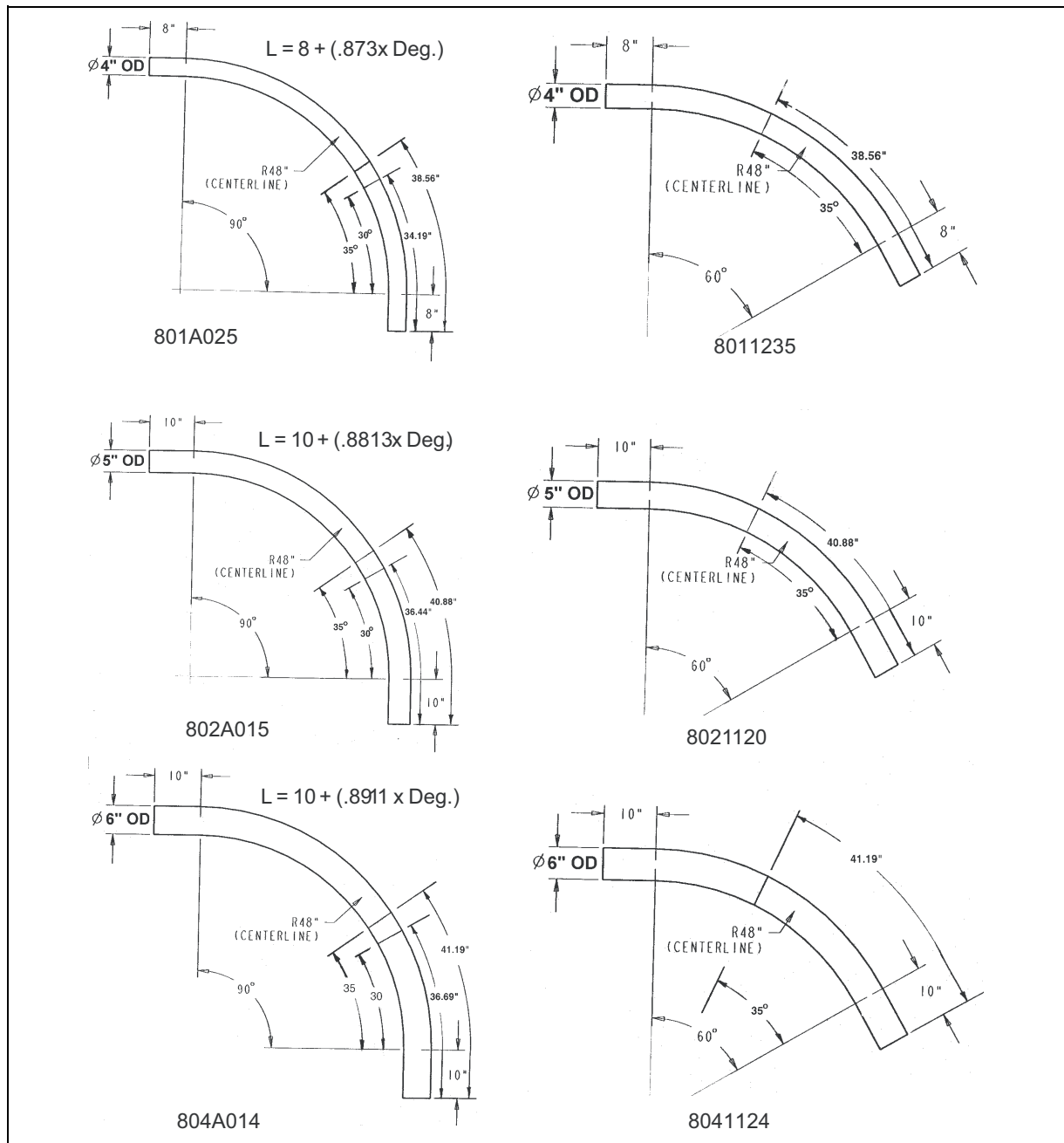


Figure 4D

### Air System Set-Up Procedure

1. The air filter extension tube and housing are connected to the blower inlet by a compression coupler (See Figure 4E, Figure 4F and Figure 4G). For extended filter life, if the pneumatic system is being operated in extremely dirty conditions, a longer extension tube can be used between the blower inlet and the air filter. BE SURE the air filter is positioned so that routine inspection and service can be performed.
2. Place the air filter element with pre-filter on the base and cover with the filter canister using the 3/8" wing nut and washer. The wing nut does not need to be more than finger tight (See Figure 4F and Figure 4G).



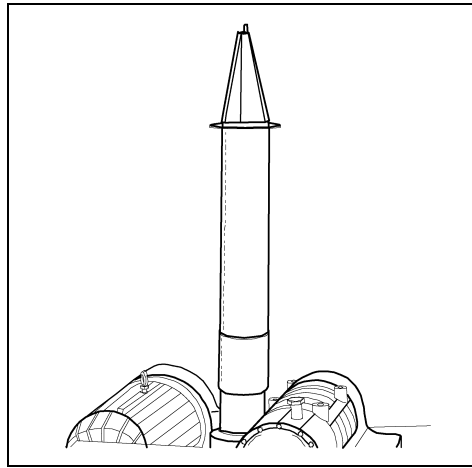


Figure 4E

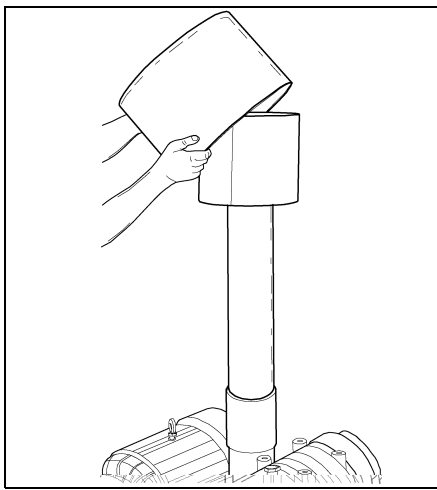


Figure 4F

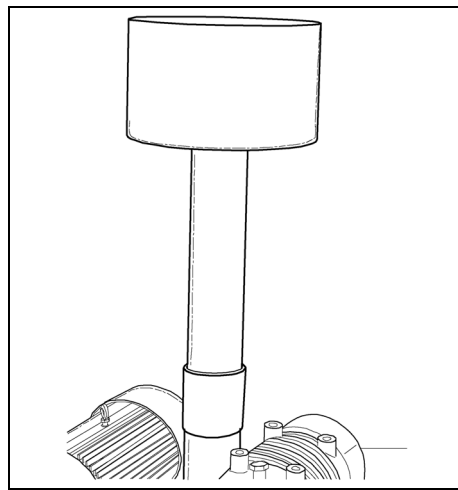


Figure 4G

3. Check the motor name plate for the correct motor frame size. Then refer to the Drawing on [Page 20](#) to determine proper mounting holes and spacing of the motor mount channel. The spacing of the motor mount channels is changed by moving the channel to the proper notch cut into the main base of the blower platform. [See Figure 4H](#) and the Drawing [on Page 20](#). Finish by bolting the motor securely to the channels. Leave the four 1/2" carriage bolts loose, holding the channels to the main frame.
4. Place the pulley and taper lock bushing onto the motor and align it with the blower pulley. ([See Figure 4I](#)). Install the bushing on the inside of the sheave toward the motor.

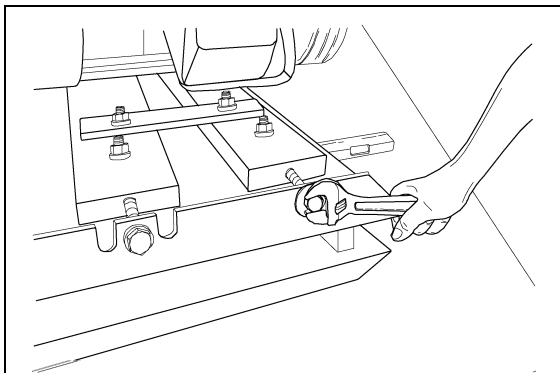


Figure 4H

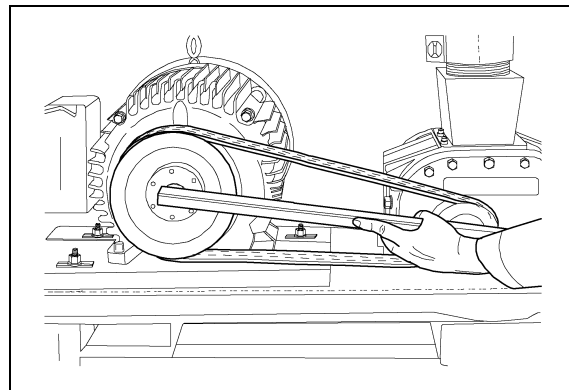


Figure 4I

## 4. AIR SYSTEM

5. Place the matching set of V-belts on the pulleys. Tighten the belts by evenly turning the cap screws clockwise. Belts should have  $\frac{3}{8}$ " deflection at ten pounds pressure per belt. (See [Figure 4H](#)).
6. Keeping the motor in proper alignment is necessary and can be accomplished by using an open end wrench to turn the nut on the opposite motor mount channel, moving the channel either direction until proper alignment is achieved. Squaring up the motor can change the tension of the belts. Recheck alignment and tension. Finish [Step 4](#) by tightening the four  $\frac{1}{2}$ " bolts left loose earlier. (See [Figure 4J](#) and [Figure 4K](#)).

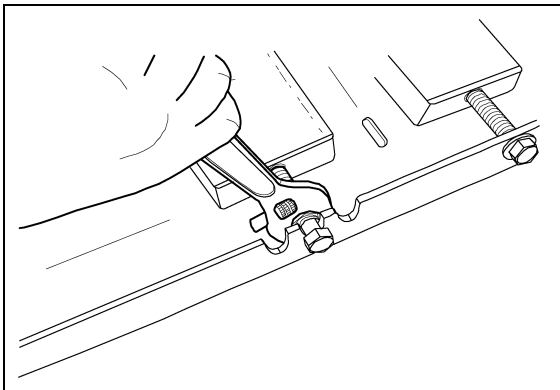


Figure 4J

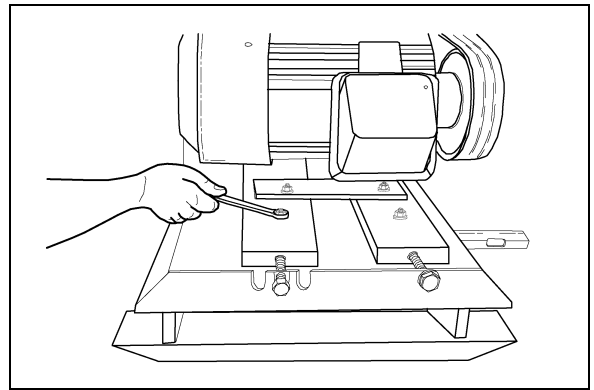


Figure 4K

7. Check the oil level of the blower. The oil level should be at the center of the sight glass. Add part number #MS5389, if required, through the breather plug on top of the blower case. (See [Figure 4L](#)). See the Maintenance Schedule on [Pages 11](#) for the frequency of oil changes.
8. Using four (4)  $\frac{5}{16}$ " x 1" carriage bolts, washers, and nuts, mount the motor to the airlock deck. Place the  $3\text{-}\frac{1}{4}$ " OD A-Groove Pulley on to the motor shaft and align to pulley on reducer. (See [Figure 4M](#)).

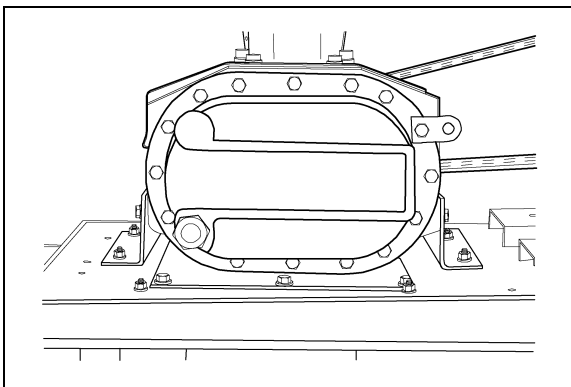


Figure 4L

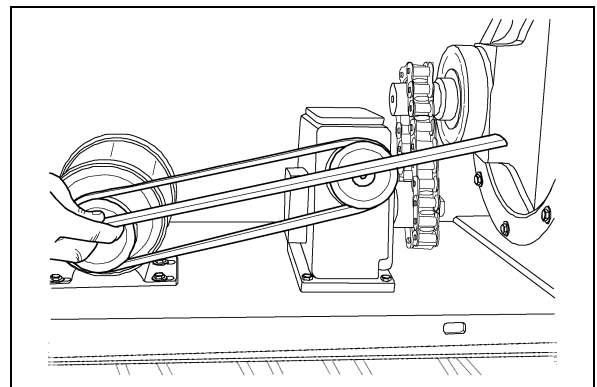


Figure 4M

## 4. AIR SYSTEM

- Next, place the A-31 belt onto the pulleys. Tighten the belt to its proper tension of 3/8" deflection at ten pounds of pressure by turning the 3/8" cap screw as shown in [\(See Figure 4N\)](#). Tighten the four 5/16" nuts on the motor base. Replace the belt shield.
- Check the oil level in the gearbox by removing the plug and noting if the oil is at this level. Add SAE 80-90 gear lubricant if required. [\(See Figure 4O\)](#).

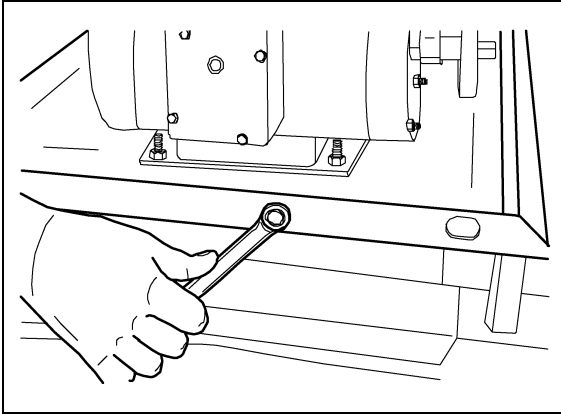


Figure 4N

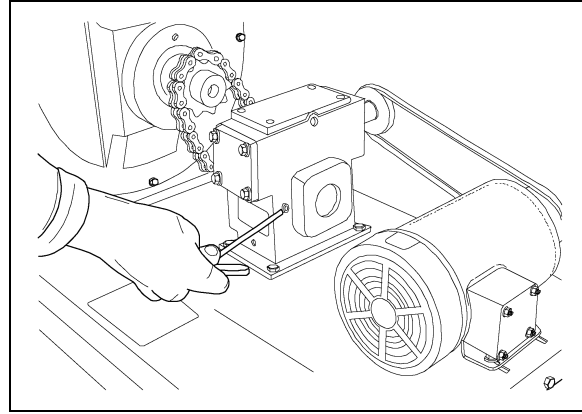


Figure 4O

- Remove 1/4" pipe plug in gate valve pipe. Install gauge assembly and attach air hose. [\(See Figure 4P\)](#).

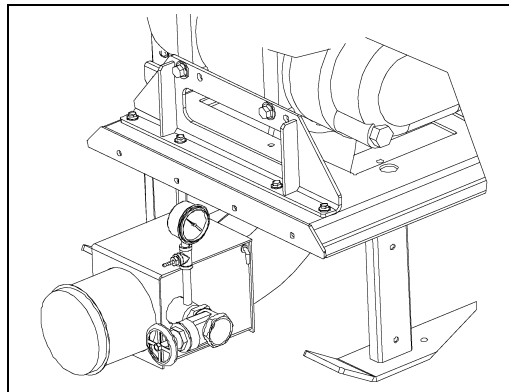


Figure 4P

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**Note: THE SET-UP OF THE PNEUMATIC AIR SYSTEM IS NOW COMPLETE.**

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## 4. AIR SYSTEM

### 6" Air System 2100 Motor Mounting Locations

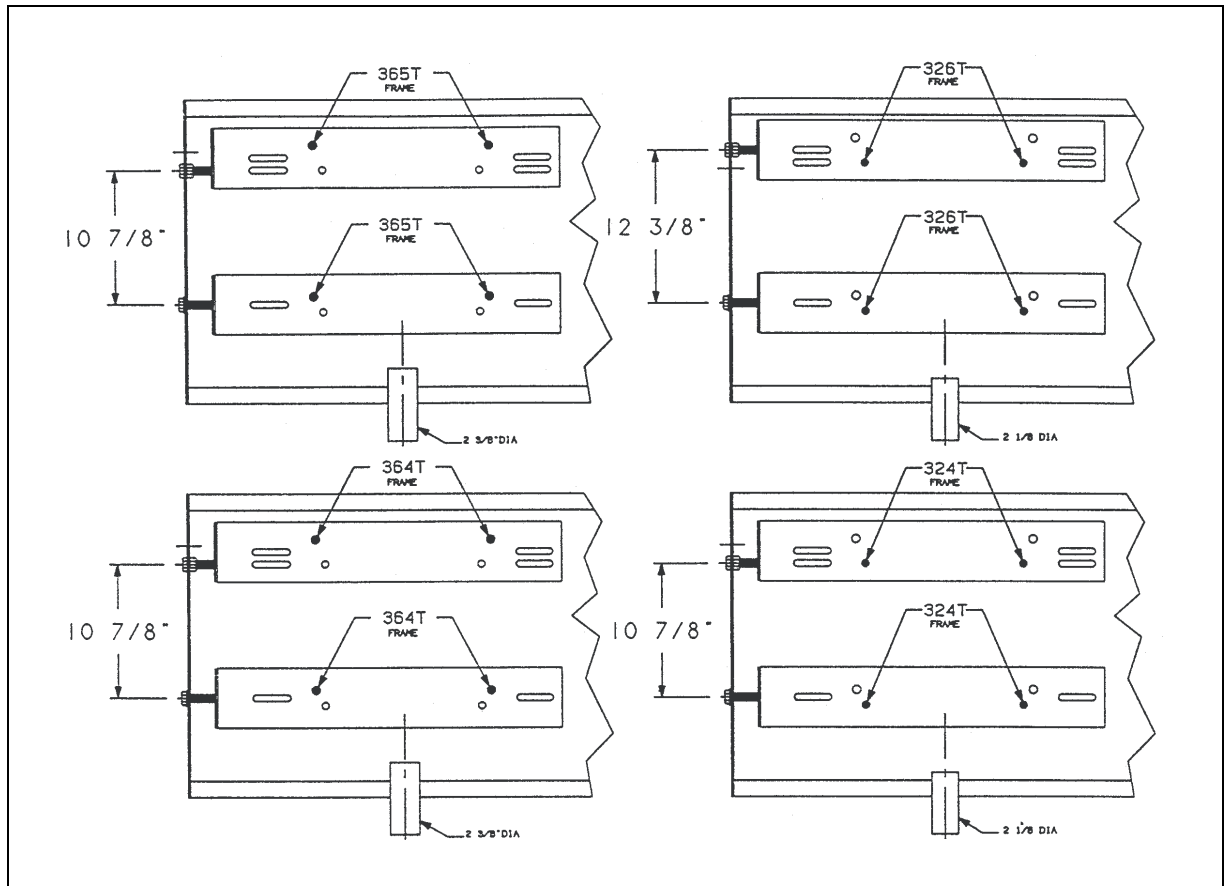


Figure 4Q

#### 6" Air Systems Motor Chart

Motor Part #	Horse power	Frame Size	Shaft Dia.	Voltage	Phase
CH-5582	40	324TS	1-7/8	230/440	3
CH-5583	50	326TS	1-7/8	230/440	3
6000-3-3500	60	364TS	1-7/8	230/440	3
7500-3-3500	75	365TS	1-7/8	230/440	3

*Note: Motor rotation is counter-clockwise as viewed from the shaft end.*

## ⚠ CAUTION ⚠

Be sure to install motor sheave so bushing is on the inside towards the motor.

## Air System Control Box Definitions

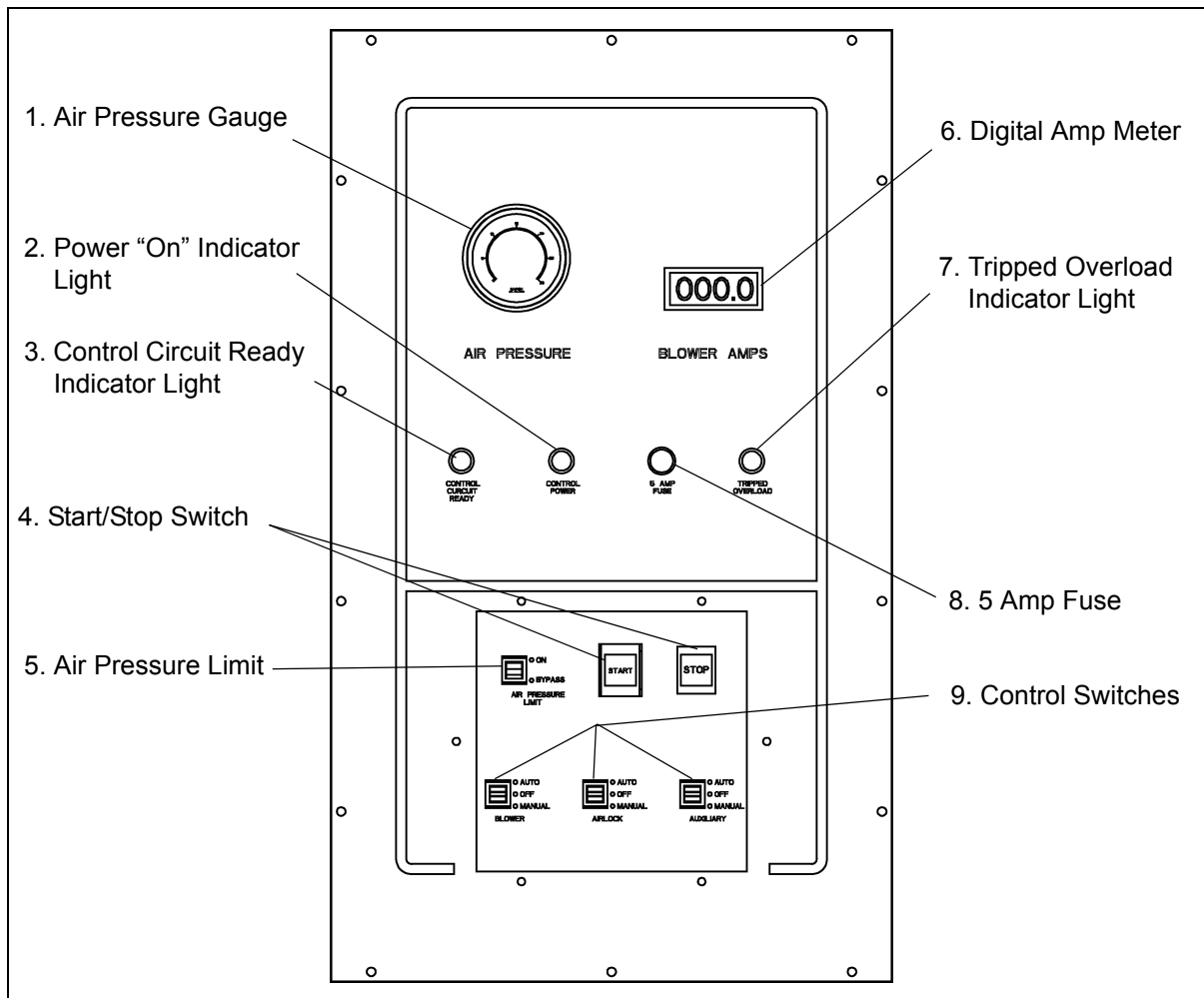


Figure 4R

### Control Overview

The redesigned control box for air systems now incorporates short circuit protection for each motor branch circuit. This is provided with circuit breakers which are the same as used in the portable dryers. In addition, the contactors and overloads are now IEC style controls (portable dryer parts also). This removes the need for separate thermal heater strips for the overloads. Be aware that the power connections to the new style box are different. The incoming power still enters at the lower right bottom of the box. The output power for the motors and remote control connections now exit the hinge side of the box.

## ⚠ CAUTION ⚠

Confirm that the overloads are set to the values shown on the "Overload Set Chart" (See Page 24) before operating the system.

## 4. AIR SYSTEM

---

The remaining operations are the same as the previous control box design.

1. **Air Pressure Gauge:** This gauge indicates the system air pressure.
2. **Power-On Indicator Light:** This lamp will light up when power is supplied to the control box.
3. **Control Circuit Ready Indicator Light:** This lamp will light up when the start button has been pushed and all control circuits are completed. When lit and in the automatic mode, the air system will run whenever it receives a signal to start.
4. **Start-Stop Switch:** The start button must be pushed before any part of the Air System can be run. Pushing the stop button will immediately stop all functions.
5. **Air Pressure Limit Control Switch:** When in the “On” position, this switch will allow the air pressure switch to immediately shut down the air system whenever the air pressure exceeds preset conditions.
6. **Amp Meter:** The Amp meter measures the current flow to the blower motor.
7. **Tripped Overload Indicator Light:** This lamp will light up when any of the motor thermal overloads in the control box has tripped. The overloads for all three circuits (Aux, Airlock, and Blower) must have thermal overloads installed to operate the system. See Thermal Unit chart Drawing on [Page 24](#).
8. **5 Amp Fuse:** A five (5) Amp fuse protects the electrical components in the control box.
9. **Control Switches:** The operation of the blower, airlock and auxiliary equipment of the air system is controlled by placing these switches in the “Auto”, “Manual” or “Off” position.
10. **Automatic Control Terminals:** When the air system is ready to run (i.e., the control ready light is on), the system can then be started and run by completing the circuit between terminals one (1) and two (2). The blower, airlock or auxiliary equipment will not run in the automatic mode unless terminals one (1) and two (2) are connected. For example, a closing set of contacts in a dryer control box would complete the circuit between terminals one (1) and two (2) and automatically start the air system. ([See Figure 4S](#)).

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### **WARNING**

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**No voltage should be supplied to terminals one (1) and two (2). See the diagram on [Page 25](#).**

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11. **Remote Shut-Down Control:** A remote piece of equipment can be caused to shutdown with the air system by putting terminals three (3) and four (4) in series with the control circuit of the remote equipment. This circuit has a maximum current rating of 10 Amps. The circuit between terminals three (3) and four (4) is closed whenever the control circuit ready light is on, regardless of the position of the control switches. (“AUTO”, “OFF” or “ON”) See the Diagram on [Page 25](#) and [Page 29](#).

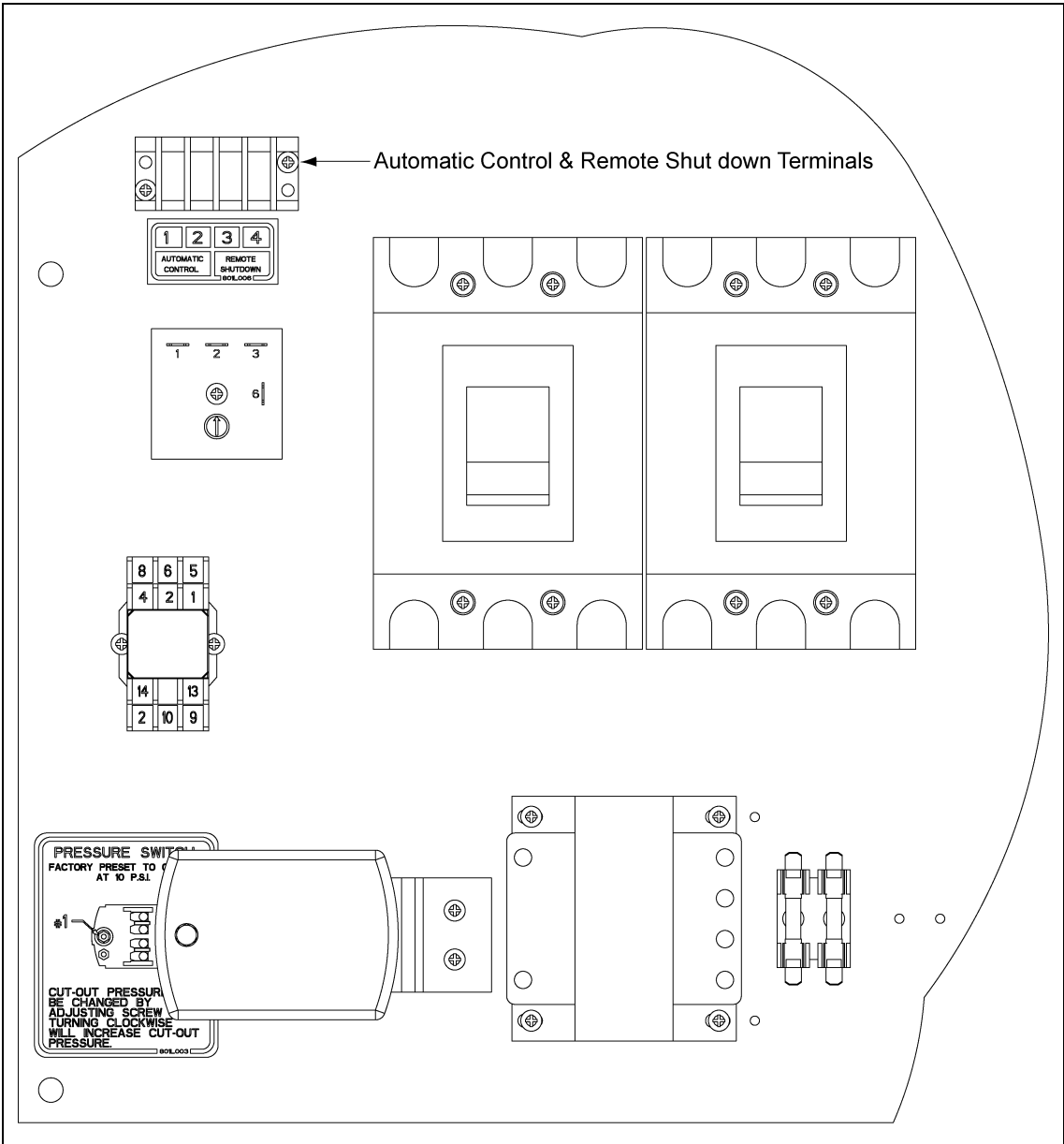


Figure 4S Auto Remote

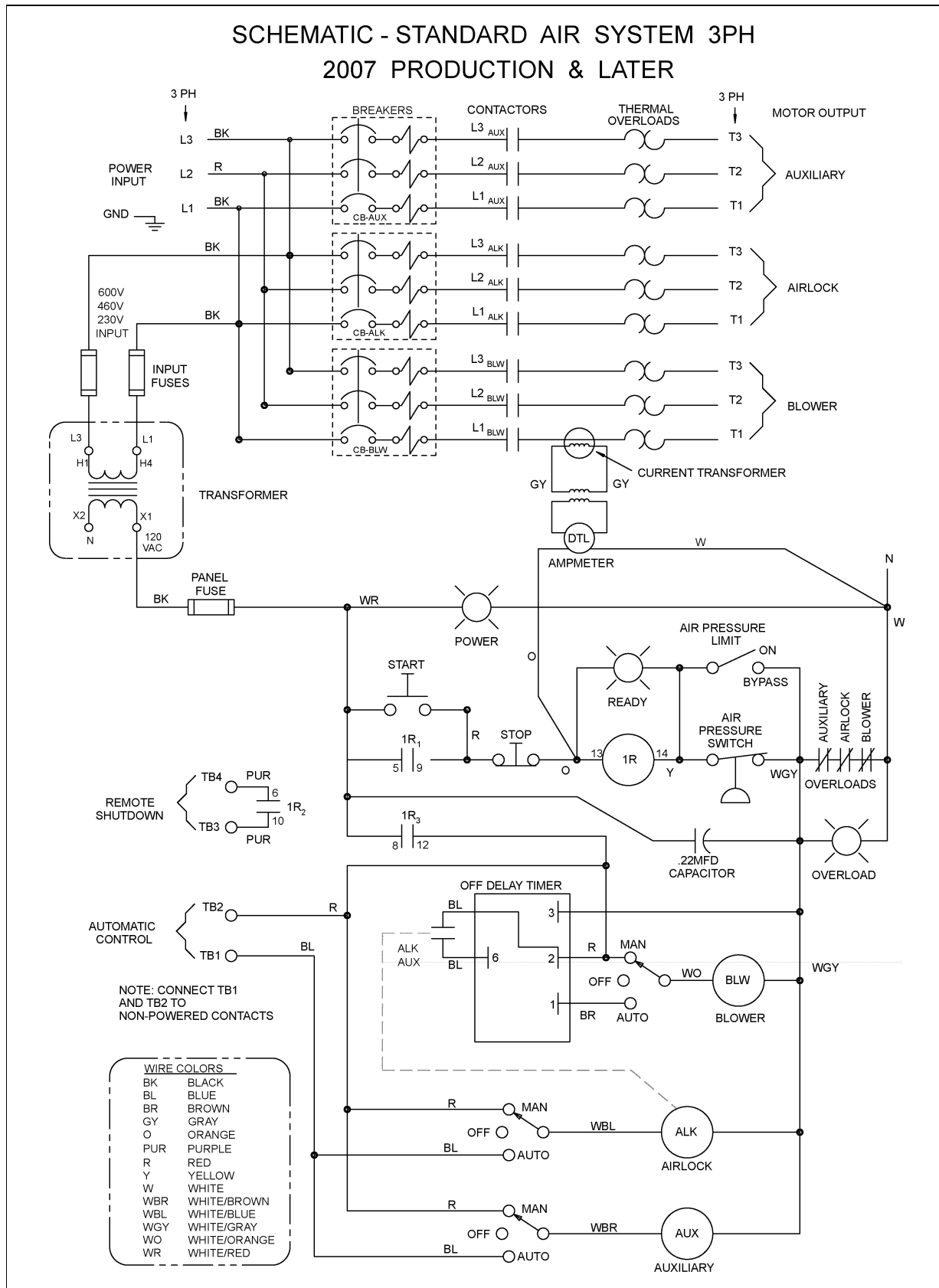
## 5. THERMAL UNIT CHART

### 6" OverLoad Set Chart

Single Motor	D03-0471 Airlock O/L Relay 2.5 - 4.1 AMPS	D03-0472 Auxiliary O/L Relay 4.0 - 6.3 AMPS	056-2276-6 Blower O/L Relay 90 - 150 Amps	056-2244-4 Blower O/L Relay 132 - 220 AMPS	D03-0541 Airlock O/L Relay 1.3 - 1.9 AMPS	D03-0543 Auxiliary O/L Relay 1.8 - 2.7 AMPS	D03-0483 Blower O/L Relay 42 - 55 AMPS	D03-0484 Blower O/L Relay 54 - 65 AMPS	D03-0485 Blower O/L Relay 64 - 82 AMPS	D03-0486 Blower O/L Relay 78 - 97 AMPS
6" 40 HP 230V - 3PH	3.7	4.8	95							
6" 40 HP 460V - 3PH					1.7	2.1	51			
6" 40 HP 575V - 3PH					1.4	1.8	42			
6" 50 HP 230V - 3PH	3.7	4.8	112							
6" 50 HP 460V - 3PH					1.7	2.1		55		
6" 50 HP 575V - 3PH					1.4	1.8	45			
6" 60 HP 230V - 3PH	3.7	4.8		132						
6" 60 HP 460V - 3PH					1.7	2.1			66	
6" 60 HP 575V - 3PH					1.4	1.8		54		
6" 75 HP 230V - 3PH	3.7	4.8		166						
6" 75 HP 460V - 3PH					1.7	2.1				83
6" 75 HP 575V - 3PH					1.4	1.8			68	



## Schematic - 230V/460V/575V-3PH



## 7. OPERATION AND MANAGEMENT

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### Control Box Operational Procedures

#### **Automatic operation using the Automatic Controller Unit tied to terminals one (1) and two (2).**

1. Switch all circuit breakers to the "ON" position.
2. Place the Blower, Airlock and Auxiliary Control Switches in the "OFF" position.
3. Place the Air Pressure Limit Control Switch in the "ON" position (unit will stop when the air pressure reaches 10 PSI).
4. Turn ON the power to the Air Systems Control Box. The power light should come ON.
5. Push the Start button; the Control Circuit Ready Light should come ON.
6. Place the Blower, Airlock and Auxiliary Switch in the "AUTO" position.
7. The complete air system will now run when the Automatic Controller completes the circuit between terminals one (1) and two (2). When this circuit is broken, the airlock and auxiliary equipment will stop immediately, but the blower will continue to run for an additional 15 seconds to clear the tubing in the system.
8. The airlock, auxiliary equipment, and blower will run when the control switches are placed in the "manual" mode. The airlock, auxiliary equipment and blower will stop immediately when switched "OFF".
9. Pushing the Stop button will immediately stop all air system functions as well as any equipment tied to terminals three (3) and four (4).

#### **Operation of the air system WITHOUT an Automatic Controller tied to terminals one (1) and two (2).**

1. Switch all circuit breakers to the "ON" position
2. Place the Blower, Airlock and Auxiliary Control Switches in the "OFF" position.
3. Place the Air Pressure Limit Control Switch in the "ON" position (unit will stop when the air pressure reaches 10 PSI).
4. Turn ON the power to the Air System Control Box; the power light should come ON.
5. Push the Start button. The Control Circuit Ready Light should come ON.
6. The blower, airlock and auxiliary equipment can now be run by placing them in the "manual" position. The airlock, auxiliary equipment and blower will stop immediately when switched OFF.
7. Pushing the stop button will immediately stop all air system functions as well as any remote equipment tied to terminals three (3) and four (4).

## 7. OPERATION AND MANAGEMENT

### Air System Operation Guidelines

1. Be aware of the quality of grain that is entering and leaving the air system. Grain damage can occur with any pneumatic system unless care is taken to adjust the velocity of the grain. This can be done by opening or closing the outlet gate valve on the blower outlet of the air system. Opening the valve will let air out of the tubing system which will slow the velocity of the air and grain in the tubing system. A recommended procedure is to open the valve slowly until the line pressure begins to surge and then to close it by 1/2 turn. This will provide the slowest possible grain velocity for any tubing system. This procedure for adjusting the air velocity should be repeated for each different tubing layout and capacity change.
2. If the tubing system should become plugged, place the air pressure limit switch to the "OFF" position, switch the airlock and auxiliary equipment to "OFF" and the blower to "Manual". Note the opening of the outlet gate valve, then open it completely so all the air is exhausted when the blower is started. Push the start button and the blower will start. Slowly close the outlet gate valve until the grain starts moving and clears the tube. Adjust the valve as explained in [Step 1](#). It should be the same as noted before adjusting. Operate the airlock and auxiliary equipment in "Manual" until all grain is out of the system.

### **⚠ CAUTION ⚠**

**Do not stand next to the exhausted air.**

3. The air pressure limit switch should always be in the "ON" position during routine operation to provide protection to the blower against overload conditions. The air pressure limit is set at the factory to shut down the system at 10 psi. If adjustment is needed, rotate the adjusting screw counterclockwise to lower the pressure limit, or clockwise to increase the pressure limit. A one-half (1/2) turn of the screw will change the pressure limit one (1) psi.

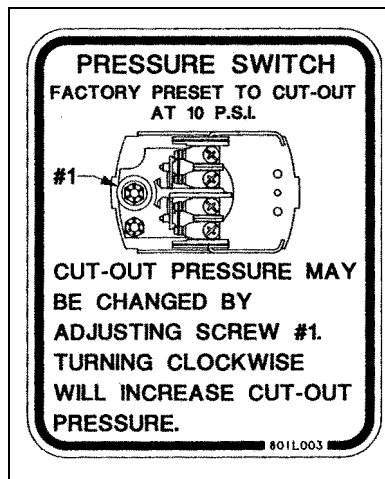


Figure 7A

**Note: If the pressure limit is set below five (5) psi, the switch may not reset and allow the air transfer to run. (See Figure 7A).**

4. The air filter element should be inspected daily and cleaned when required. Both the poly foam pre-filter and the filter element can be cleaned by blowing air through them or washing them with mild detergent and water. A restricted air filter will cause a system to become plugged. It should always be inspected whenever plugging occurs.

## 7. OPERATION AND MANAGEMENT

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5. The airlock is provided with a housing that incorporates grain shear protection to prevent grain damage.

### 6. GUIDELINES FOR OPERATION OF AIR SYSTEMS

- a. Grain in a pneumatic air system running at full capacity will move at about 60% of the air speed. A system operating at low capacities will move grain at 80-90% of the air speed.
- b. Decreasing the amount of air in the system (opening the hand gate valve) will cause the grain to move slower and also cause the air pressure to rise. (Essentially, the grain is causing the air to “pile up”).
- c. Increasing the air in a system (closing the gate valve) will increase the grain velocity and lower the pressure.

### 7. RECOMMENDATIONS FOR OFF-SEASON STORAGE

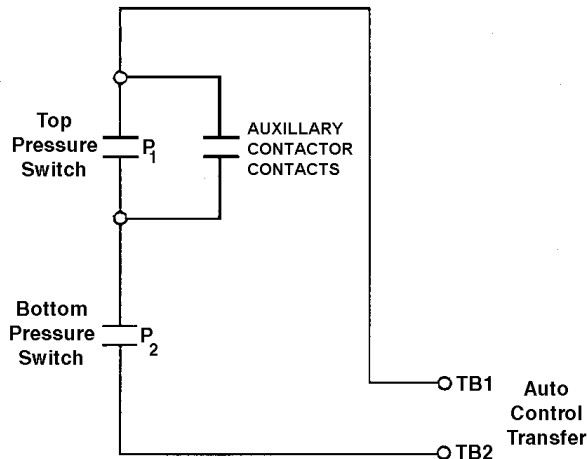
The blower and airlock have precision machined components and must be protected to prevent corrosion and rust from forming on the blower lobes and airlock vanes. These parts should be coated with motor oil after each drying season. (Spray lubricants such as WD-40 do not usually provide adequate protection).

Both the airlock and blower assemblies should be carefully protected from the weather and the piping system disconnected from the blower and airlock. Remove the transition connection to the airlock inlet and re-install the weather cover shipped with the airlock. This is important to prevent condensation from collecting in the airlock and blower.

## WIRING FOR A SURGE TANK HOOKED TO AN AIR SYSTEM

The Air System will start when both P1 and P2 are closed. As it empties, P1 will open but will not stop the unit due to Auxiliary Contacts being closed. When P2 opens, the unit will stop.

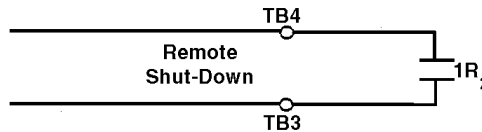
**Note: Be sure the auxiliary switch is in the "AUTO" position.**



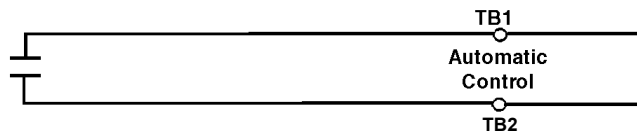
P1 and P2 are Pressure Switches.

## HOW TO HOOK UP AIR SYSTEM TO REMOTE EQUIPMENT

Remote Equipment Control Circuit



Any contact that closes upon start and opens on stop. (Note: This contact must not have any external AC Power)



With the above hook up, the Air System must be started before the remote equipment. If the Air System is manually turned off or shut down from high pressure or an overload, the remote equipment will also shut down.

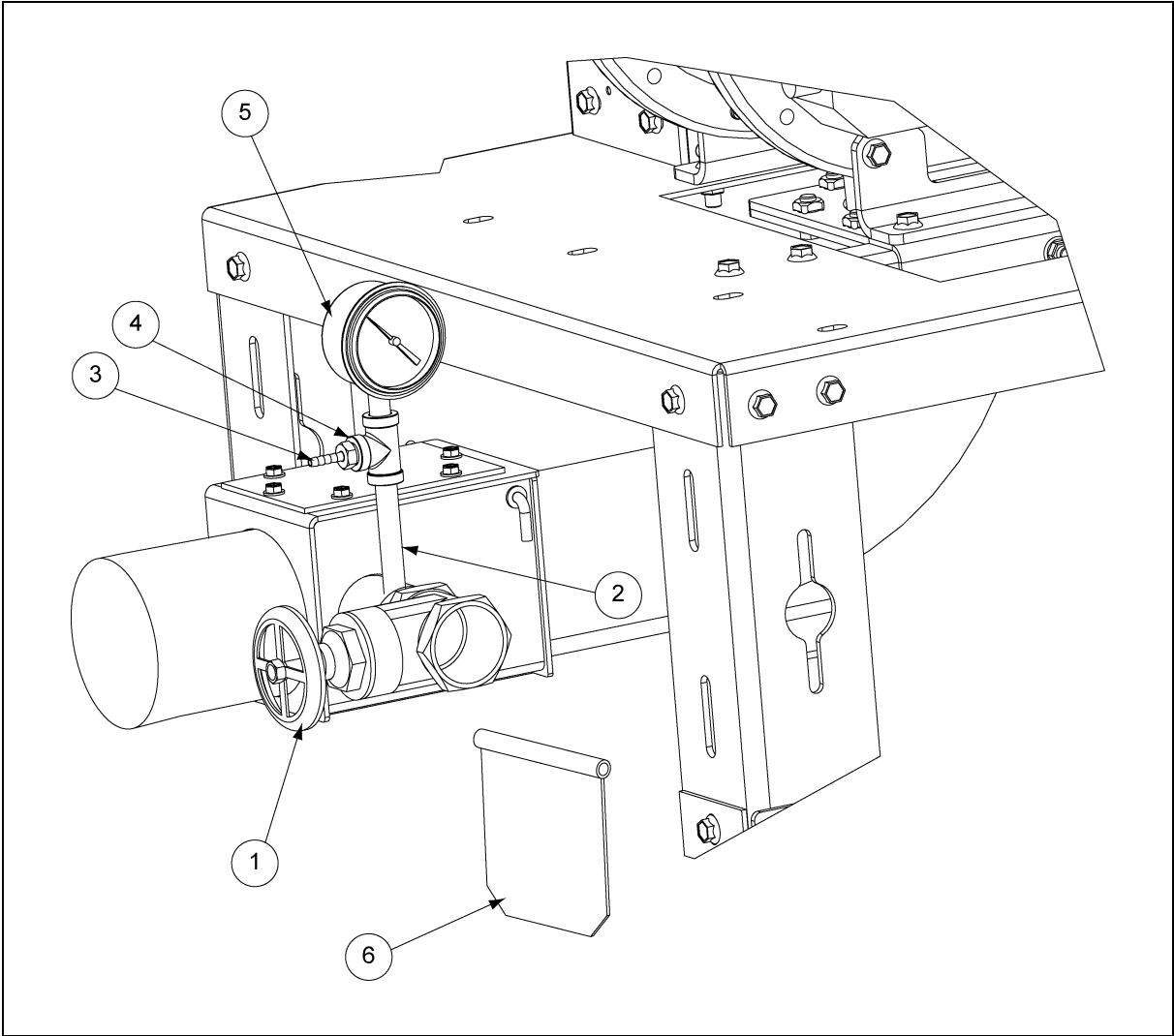
TB3 and TB4 will have a closed contact (1R2) as long as the air system has the "ready" indicator (located in the control box) on. The automatic control TB1 and TB2 requires a closed contact across them to start the air system unit.

## **9. PARTS**

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- 1. Blower Outlet Parts**
- 2. 6" (2100) with 3500RPM Motors Blower Parts**
- 3. Blower Filter Parts**
- 4. 6" Airlock Parts**
- 5. Airlock Inlet Transition Assembly**
- 6. Inlet Tube Kit Parts**
- 7. Panel Module Assembly - Digital**
- 8. Switch Panel Assembly - Standard**
- 9. Control Box Enclosure Parts**
- 10. Control Panel Parts 40-50HP - 230V - 3PH**
- 11. Control Panel Parts 40-50HP 460-575V**
- 12. Control Panel Parts 60-70HP 230V - 3PH Airlock**
- 13. Control Panel Parts 60-70HP 230V - 3PH Blower**
- 14. Control Panel Parts 60-75HP 460-575V**

**Blower Outlet Parts**

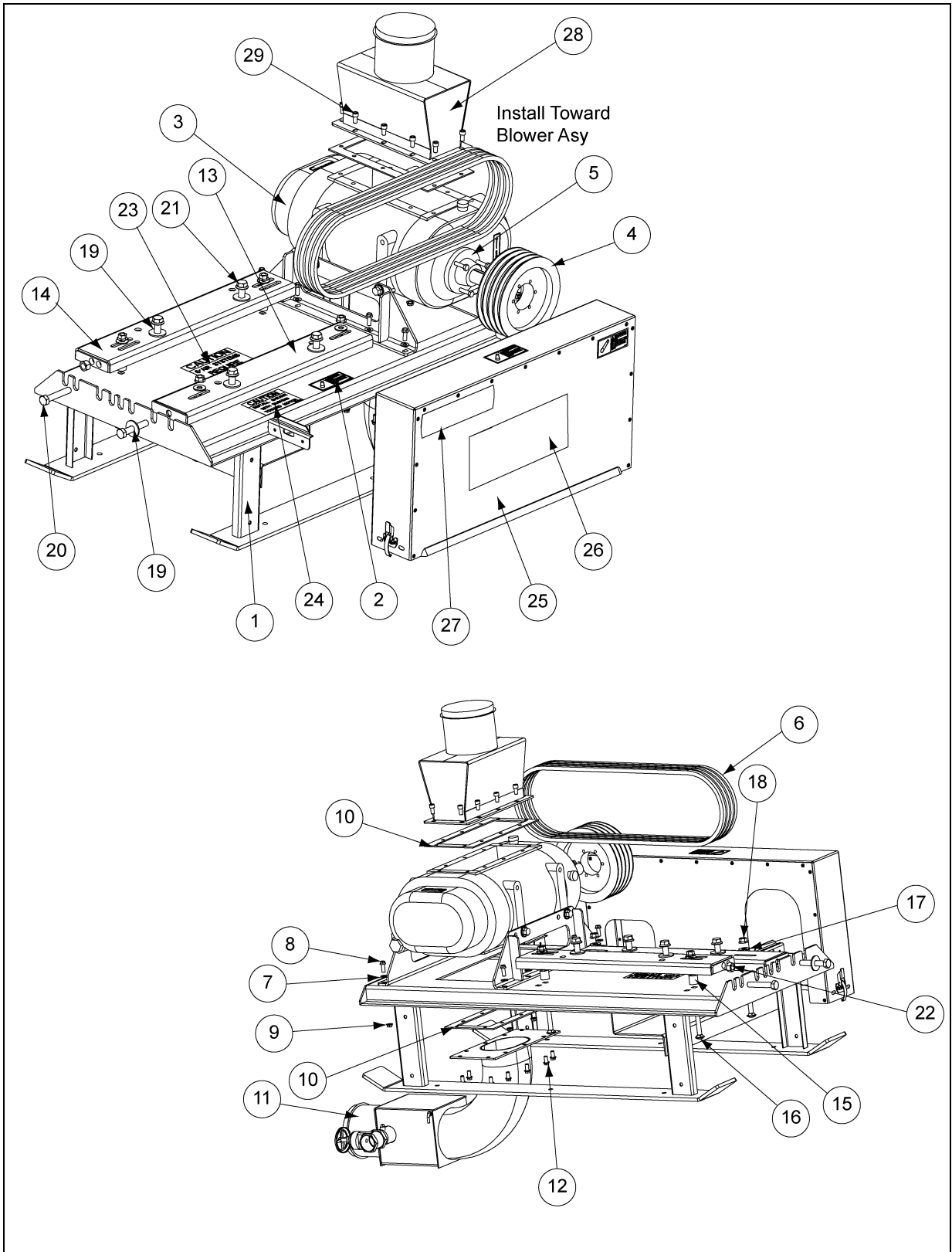


**Blower Outlet Parts**

Ref #	Part #	Description	4" Qty	5" Qty	6" Qty
1	PT1132	Gate Valve - 1-1/2" NPT	1	1	1
2	4FH0509	Pipe Nipple 1/4 NPT x 3 GALV SCH 40	1	1	1
3	4FH0971	Hose Barb 1/4 x 1/4 MPT Brass	1	1	1
4	4FH0581	Pipe Tee - 1/4 FPT GALV	1	1	1
5	PT1127	Gauge - Oil Filled 0-15 PSI	1	1	1
6	8021235	Check Valve Plate Weld - 4"	1	-	-
6	8021235	Check Valve Plate Weld - 5"	-	1	-
6	8041200	Check Valve Plate Weld - 6"	-	-	1

# 9. PARTS

## 6" (2100) with 3500RPM Motors Blower Parts





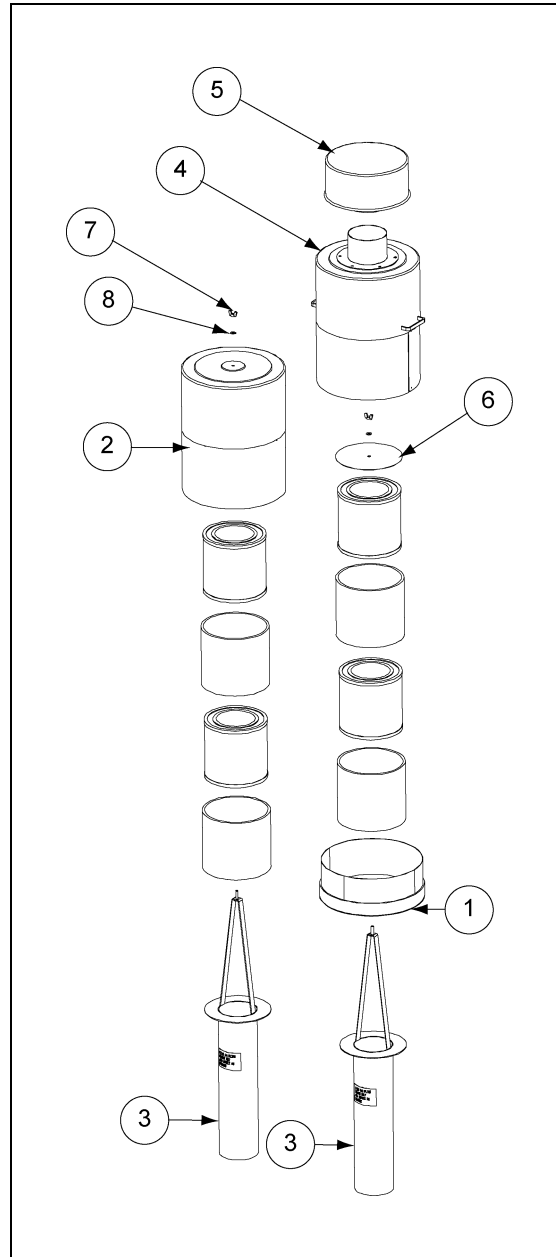
6" Blower Parts With 3500RPM Motors

Ref #	Part #	Description	Qty	Qty	Qty
	AS-0126	Air System - 6" Blower 40HP	X	-	-
	AS-0129	Air System - 6" Blower 50-60HP	-	X	-
	AS-0130	Air System - 6" Blower 75HP	-	-	X
1	AS-0207-RD	Blower Base Weld - 6" 3500 RPM RED	1AR	1AR	1AR
	AS-0207-OR	Blower Base Weld - 6" 3500 RPM ORG	1AR	1AR	1AR
2	DC-994	Decal - Danger Shear Point	1	1	1
3	AS-0118-D	Blower Sub - Asy 6" HICAP DMC	1AR	1AR	1AR
	AS-0118-F	Blower Sub - Asy 6" HICAP FFI	1AR	1AR	1AR
4	PT0737	Sheave 4GR B8.6 SK	1	-	-
	PT0671	Sheave 5GR B8.6 SF	-	1	-
	PT0672	Sheave 6GR B8.6 SF	-	-	1
5	GC06687	Bushing SK x 1-7/16" BORE	1	-	-
	GC07551	Bushing SF x 1-7/16" BORE	-	1	1
6	MHC00616	V-Belt B x 66	4	5	6
7	S-248	Washer Flat 3/8 USS ZN YDP GR2	8	8	8
8	S-9065	Bolt Flngs 3/8-16 x 1 ZN GR5	8	8	8
9	S-968	Nut Flangewz 3/8-16 ZN GR5	8	8	8
10	804A114	Gasket - 6" Roots-flo	2	2	2
11	8041165	Blower Outlet Elb Asy - 6"	1	1	1
12	S-9067	Bolt Flngs 3/8-16 x 3/4 ZN GR5	10	10	10
13	804A066-GY	Motor Adjust Rail - 6" RH Gray	1	1	1
14	804A068-GY	Motor Adjust Rail - 6" LH Gray	1	1	1
15	801A116-GY	Motor Mount Spacer - Gray	4	4	4
16	2FH0677	Bolt Carg 1/2-13 x 2-1/2 GR5 PLT	4	4	4
17	S-2120	Washer Flat 1/2 SAE	4	4	4
18	S-8506	Nut Flangewz 1/2-13 ZN	4	4	4
19	S-858	Washer Flat 5/8 USS ZN	5	5	5
20	2FH1043	Bolt 5/8-11 x 3-1/2 HHTB GR2 PLT	2	2	2
21	S-9264	Bolt Flngs 5/8-11 x 2 ZN GR5	4	4	4
22	S-4110	Nut Hex 5/8-11 ZN/YEL DI GR5	1	1	1
23	DC-1867	Caution - Requires 3500RPM Motor	1	1	1
24	DC-1869	Caution - Install Sheave	1	1	1
25	AS-0251	Blower Shield-Asy 6" Air Sys 3500RPM	1	1	1
26	4007001	Logo Decal - DMC 24 x 6-11/32	1AR	1AR	1AR
	420-1443-1	Decal - FFI 14.5 x 12	1AR	1AR	1AR
27	804L001	Decal - Transfer 2100	1AR	1AR	1AR
28	8041144-RD	Blower Inlet Weld - 6" RED	1AR	1AR	1AR
	8041144-OR	Blower Inlet Weld - 6" ORG	1AR	1AR	1AR
29	S-8898	Screw MS 3/8-16 x 3/4 SHCS	10	10	10

Motors & Drive Parts (Not Shown)					
Ref #	Part #	Description	Qty	Qty	Qty
	CH-5582	Motor 40HP 3PH 3500RPM	X	-	-
	CH-5583	Motor 50HP 3PH 3500RPM	-	X	-
	6000-3-3500	Motor 60HP 3PH 3500RPM	-	X	-
	7500-3-3500	Motor 75HP 3PH 3500RPM	-	-	X
	PT0737	Sheave 4GR B8.6 SK	X	-	-
	CE-00617	Bushing SK 1-7/8" BORE QD Style	X	-	-
	PT0671	Pulley 8.95" OD x SF Bush-5AB	-	X	-
	MHC01162	Bushing SF 1-7/8" BORE QD Style	-	X	X
	PT0672	Pulley 8.95"OD SF Bush-6AB	-	-	X

## 9. PARTS

### Blower Filter Parts



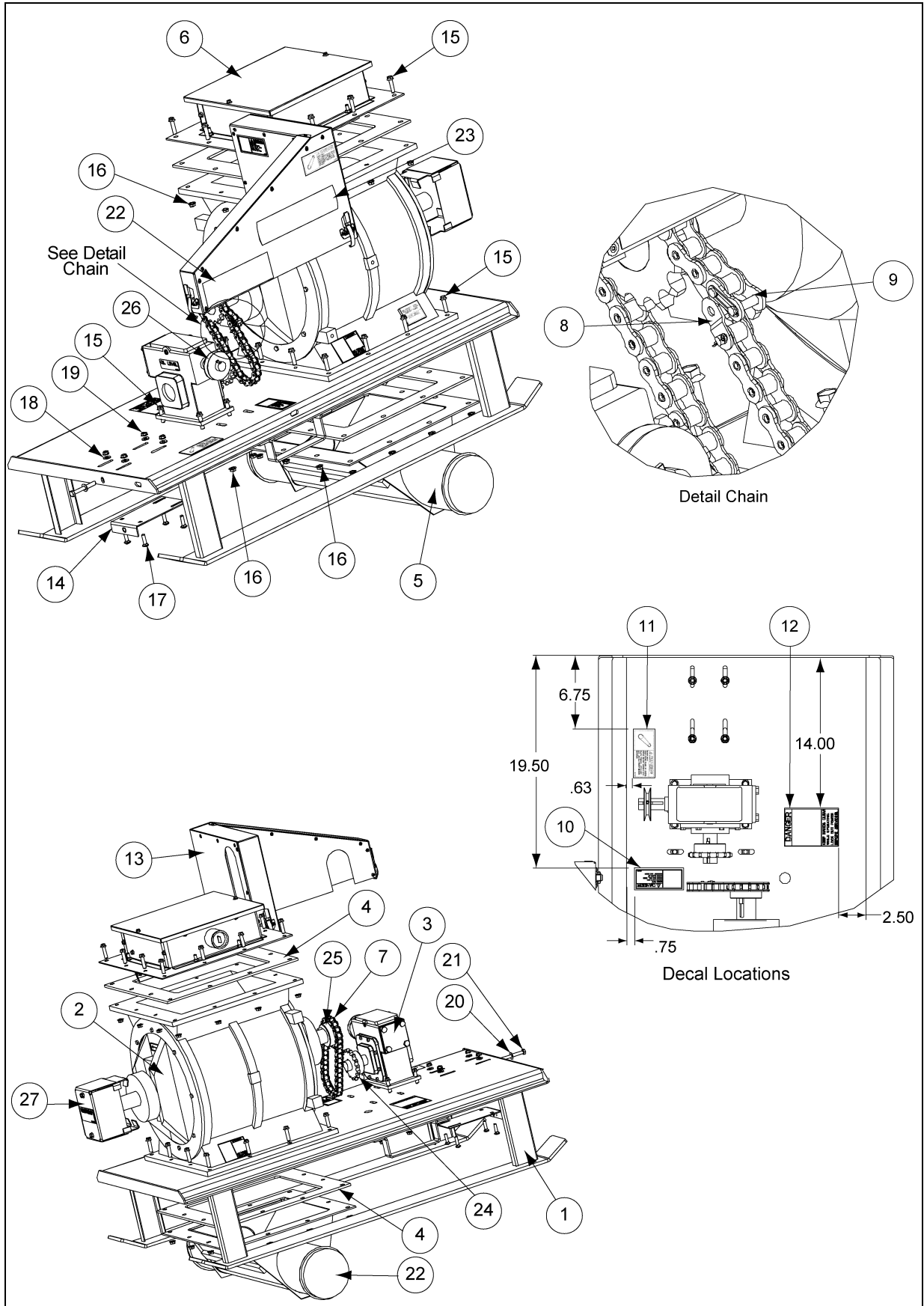
Ref #	Part #	Description	Qty
1	8041190-GY	Precleaner Base Weldment - 6" Painted Gray	1
2	804A086-GY	Air Filter Canister Weldment - 6" Painted Gray	1
3	804A110	Filter Base Assembly - 6"	1
4	8041187	Precleaner Canister Assembly - 6"	1
5	MS5467	Precleaner - 6" Inlet Centri #EX-60 (500-950 CFM)	1
6	8021228	Filter Top Plate - 4", 5", & 6" Precleaner	1
7	S-1451	Wing Nut - 3/8"-16 UNC Zinc Plated	1
8	S-248	Flat Washer - Standard 3/8" Zinc Plated	1

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# NOTES

# 9. PARTS

## 6" Airlock Parts



6" Airlock Parts

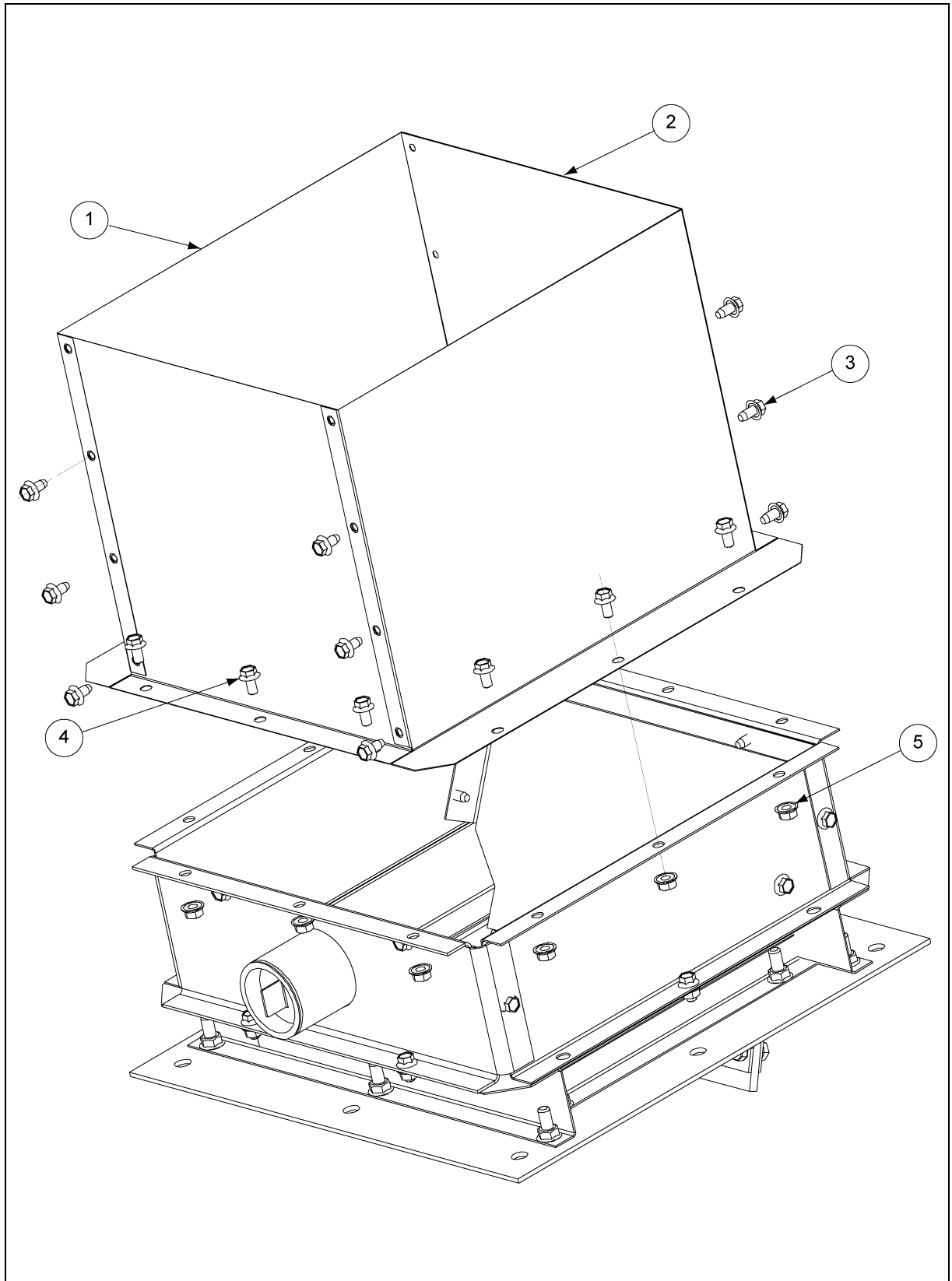
Ref #	Part #	Description	Qty
1	8041150-GY	Airlock Base Weld - 6" Grey	1
2	AS-0119	Airlock Sub - Asy- 6" System Grey	1
3	AS-0114	Air Sys - Alk Gearbox Asy-RED	1
4	804A113	Gasket - 6" Airlock	2
5	8041210-GY	Airlock Hopper Weld - 6" Grey	1
6	AS-0096	Airlock Inlet Asy - 6"	1
7	804A053	Roller Chain - 6" Airlock	1
8	PT1054	Link - Offset, #60 3/4 Pitch	1
9	KD-PRC6001	Link - Connecting, #60 3/4 Pitch	1
10	DC-1382	Decal - Chain Danger 1.75" x 4"	1
11	DC-994	Decal - Danger Shear Point	1
12	N10090	Decal - Caution Airlock	1
13	804A074	Shield Asy - 6" Airlock	1
14	8011342-GY	Airlock Mtr Adjust Plate Grey	1
15	S-9064	Bolt Flng 3/8-16 x 1-1/2 ZN GR5	28
16	S-968	Nut Flangewz 3/8-16 ZN GR5	28
17	S-8059	Bolt Carg 5/16-18 x 1 ZN GR2	4
18	S-845	Washer Flat 5/16 USS ZN YDP	4
19	S-3611	Nut Flangewz 5/16-18 ZN YDP	4
20	S-248	Washer Flat 3/8 USS ZN YDP GR2	1
21	S-8132	Bolt Hhtb 3/8-16 x 3 ZN GR2	1
22	DC-1330	Logo Decal - DMC 2-7/8 x 9	AR
23	804L001	Decal - Transfer 2100	AR
	420-1507-3	Logo Decal - FFI	AR
24	PT1106	Sprocket - Hub Type 1-1/4" ID	1
25	PT1107	Sprocket - Hub Type 1-3/4" ID	1
26	PT0622	Pulley - Flat 3.00 OD x 1.00 ID 1A	1
27	AS-0117	Airlock Shaft Guard Assembly	1

Motors & Drive Parts (Not Shown)

Ref #	Part #	Description	Qty
	100-1	Motor 1HP 1PH 56 TEFC 5/8 Shaft	X
	002-1087-2	Motor 1HP 3PH 56 TEFC 5/8 Shaft	X
	PT0483	V-Belt/ A31	X
	PT0618	Pulley 3.25" OD x .62" ID - 1A	X

## 9. PARTS

### Airlock Inlet Transition Assembly



## Airlock Inlet Transition Assembly

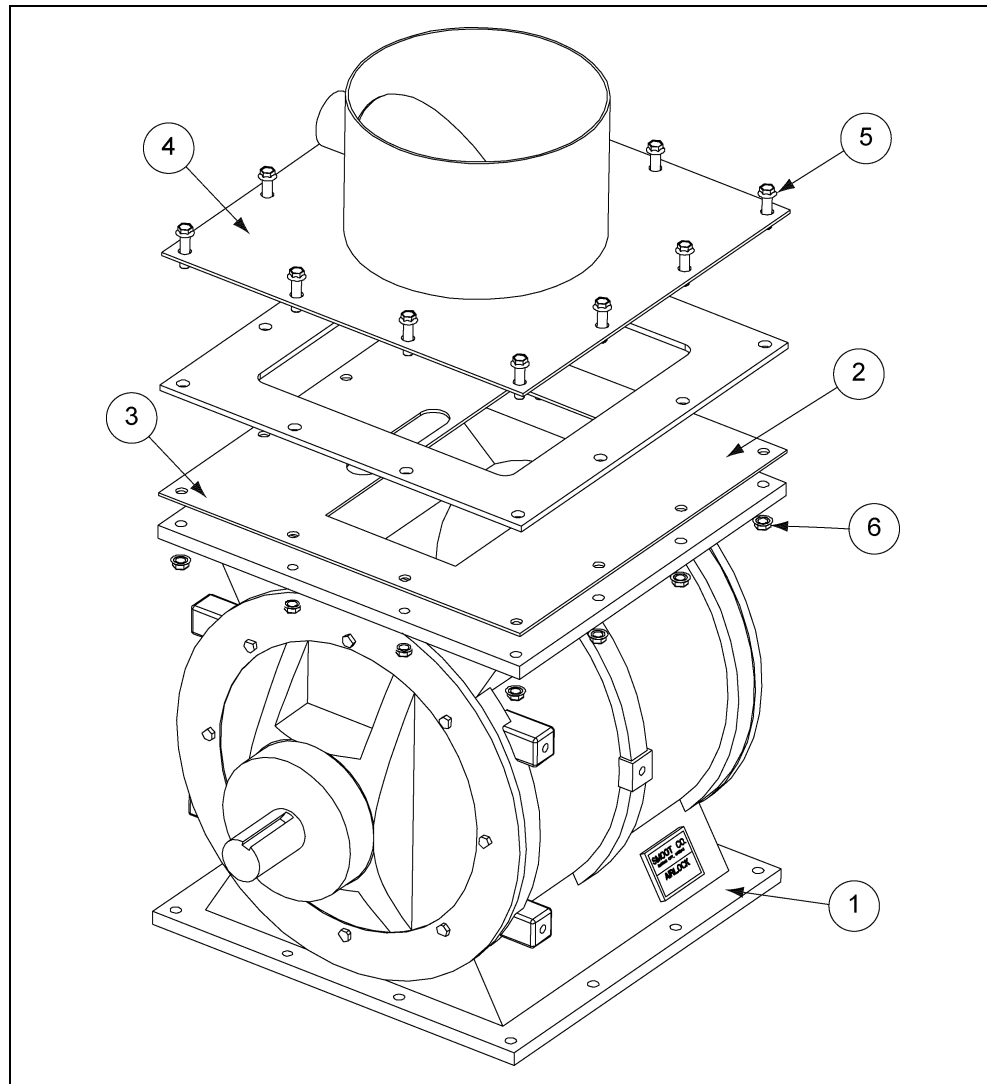
Ref #	Part #	Description	Qty
1	AS-0077	Airlock Inlet Trans - RH & LH	2
2	AS-0078	Airlock Trans - Front & Back	2
3	S-9028	Screw Smsab 1/4-14 x 1/2 HWH ZN	12
4	S-8857	Bolt Flngs 1/4-20 x 1/2 ZN GR5	10
5	S-7215	Nut Flangewz 1/4-20 Zinc	10

### Installation of Airlock Transition To Dryer Discharge

1. Remove the weather cover from the airlock inlet assembly.
2. Assemble (2) AS-0077 (item 1) and (2) AS-0078 together with S-9028 (Item 3) self-tapper screws as shown in the diagram.
3. Determine what direction the airlock grain line is to run. orient the transition assembly to correspond with the line direction. Attach the transition assembly to the airlock inlet using S-8857 (Item 4) and s-7215(Item 5).
4. Trim the top of the transition assembly to match the height of the dryer discharge.

## 9. PARTS

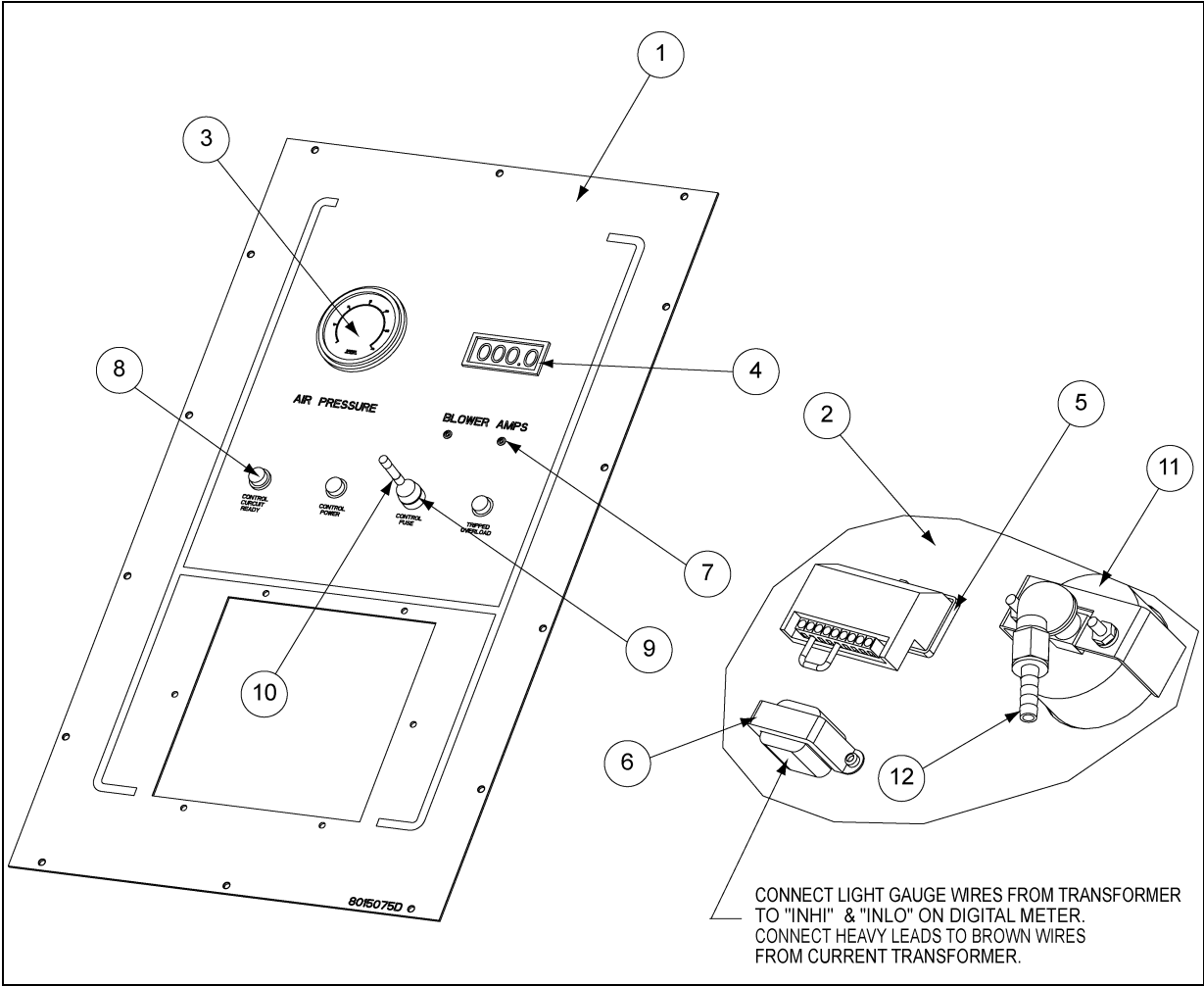
### Inlet Tube Kit Parts



Ref #	Part #	Description	Qty	Qty
	AS-0122	Tube Inlet Kit - 6" Alk 40 HP	X	
	AS-0123	Tube Inlet Kit - 6" Alk 50 - 75 HP		X
1	AS-0119	Airlock Sub - Asy 6" Sys Gray	REF	REF
2	8041176	Shear Bracket & Wiper Asy	1	-
	8041177	Shear Bracket & Wiper Asy	-	1
3	804A113	Gasket - 6" Airlock	1	1
4	804A044	Intake Spout - 6" Airlock 10"	1	-
	804A104	Intake Spout - 6" Airlock 12"	-	1
5	S-9064	Bolt Flng 3/8-16 x 1-1/2 ZN	12	12
6	S-968	Nut Flangewz 3/8-16 ZN GR5	12	12



Panel Module Assembly - Digital

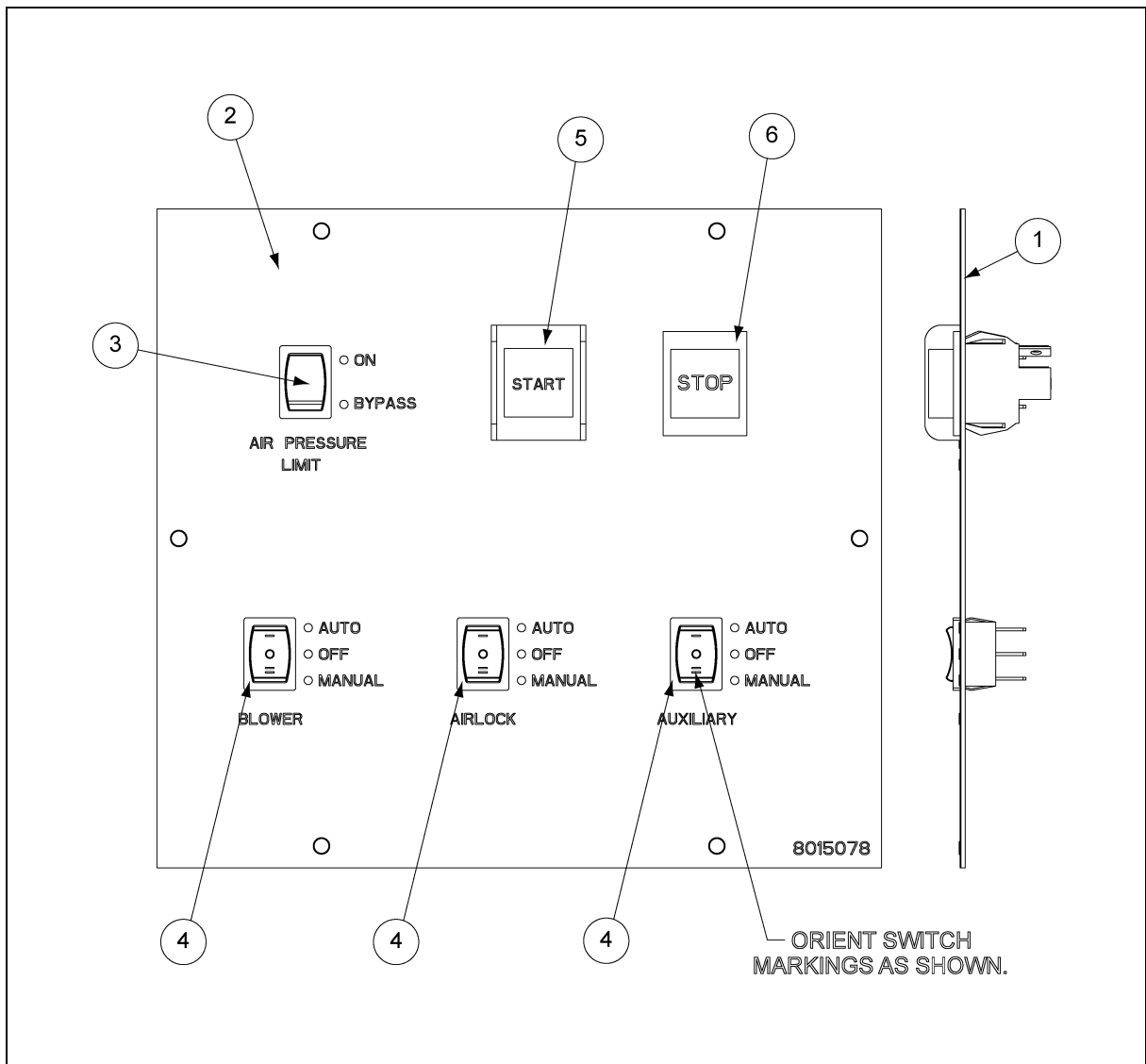


Panel Module Assembly - Digital

Ref #	Part #	Description	DMC Qty	FFI Qty
1	8015075D-DC	Decal - Transfer Panel w/Digiamp	1	-
1	8015121D-DC	Decal - Convey Air Panel w/Digiamp	-	1
2	8015076D	Module Control Panel - Digi Amp	1	1
3	PT1125	Gauge- (Pressure) 2-1/2"15 PSI	1	1
4	AS-0211A	Digital Amp Meter Asy w/Jumper	1	1
5	1EL2119	Wire Tie - Blk Nylon 15" Long	1	1
6	AS-0211T	5 Amp Limit Transformer - Included with as-0211A	1	1
7	3FH0525	Rivet-Pop1/8 STN Steel SSD44 BS	2	2
8	TFH-2021	Light Red Neon No Leads 125 VAC	3	3
9	1EL0826	Fuseholder-Panmnt (CSA) 30A 250V	1	1
10	1EL0754	Fuse- AGC5 250V 5 Amp	1	1
11	4FH0452	Fit-Elbow, Street (90) 1/4 NPT	1	1
12	4FH1122	Fit-Hose Barb, 1/4 x 1/4 Brass	1	1

## 9. PARTS

### Switch Panel Assembly - Standard



Switch Panel Assembly - Standard

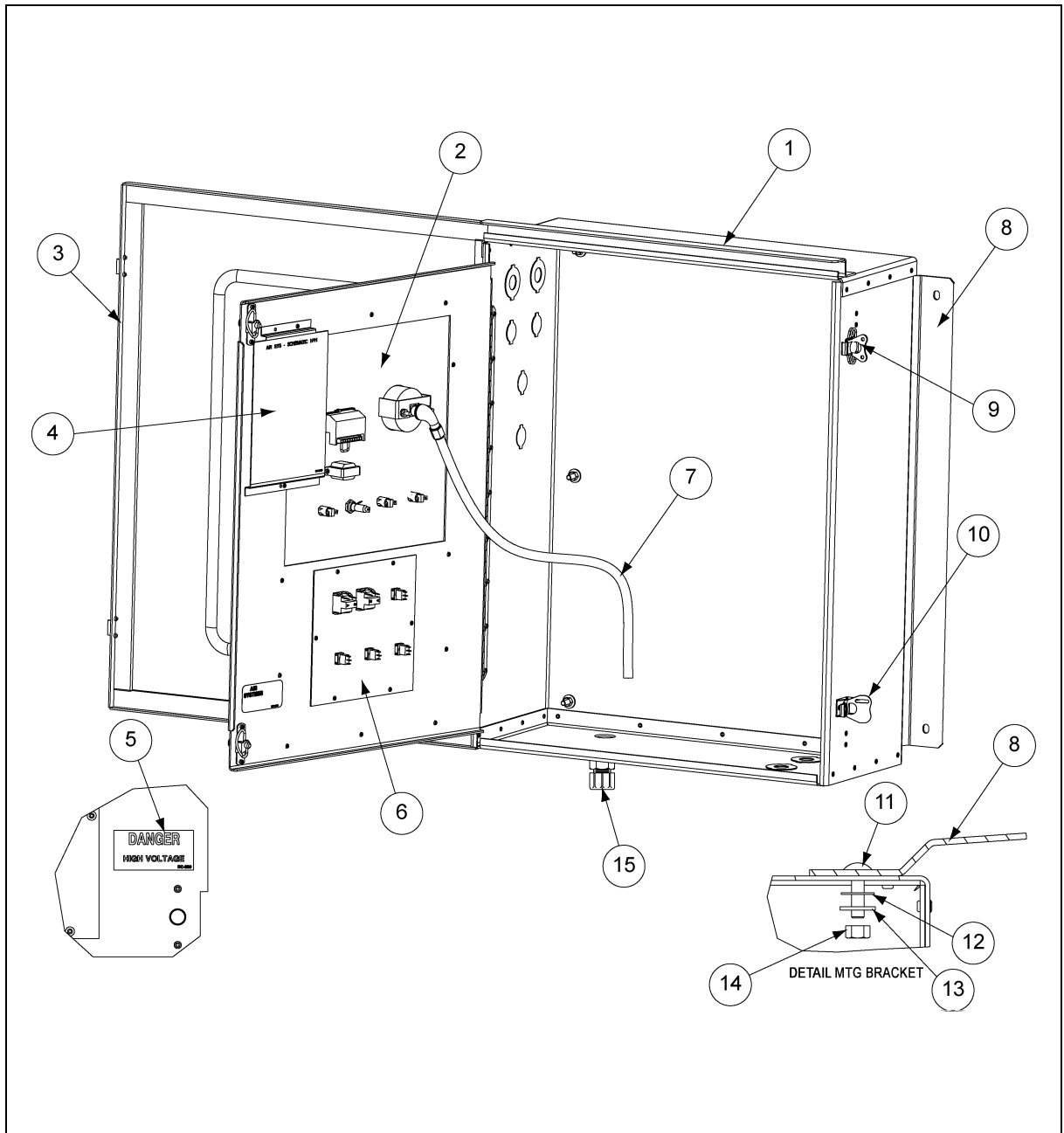
Ref #	Part #	Qty	Description
1	AS-0294	1	Switch Panel - Standard
2	8015078-DC	1	Decal - Standard Switch Panel
3	AS-0365	1	Rocker Switch - SPDT (ON-none-ON)
4	AS-0366	3	Rocker Switch - SPDT (ON-OFF-ON)
5	2EL0618	1	Pushbutton Switch - SPST (Start)
6	2EL0619	1	Pushbutton Switch - SPST (Stop)

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# NOTES

# 9. PARTS

## Control Box Enclosure Parts

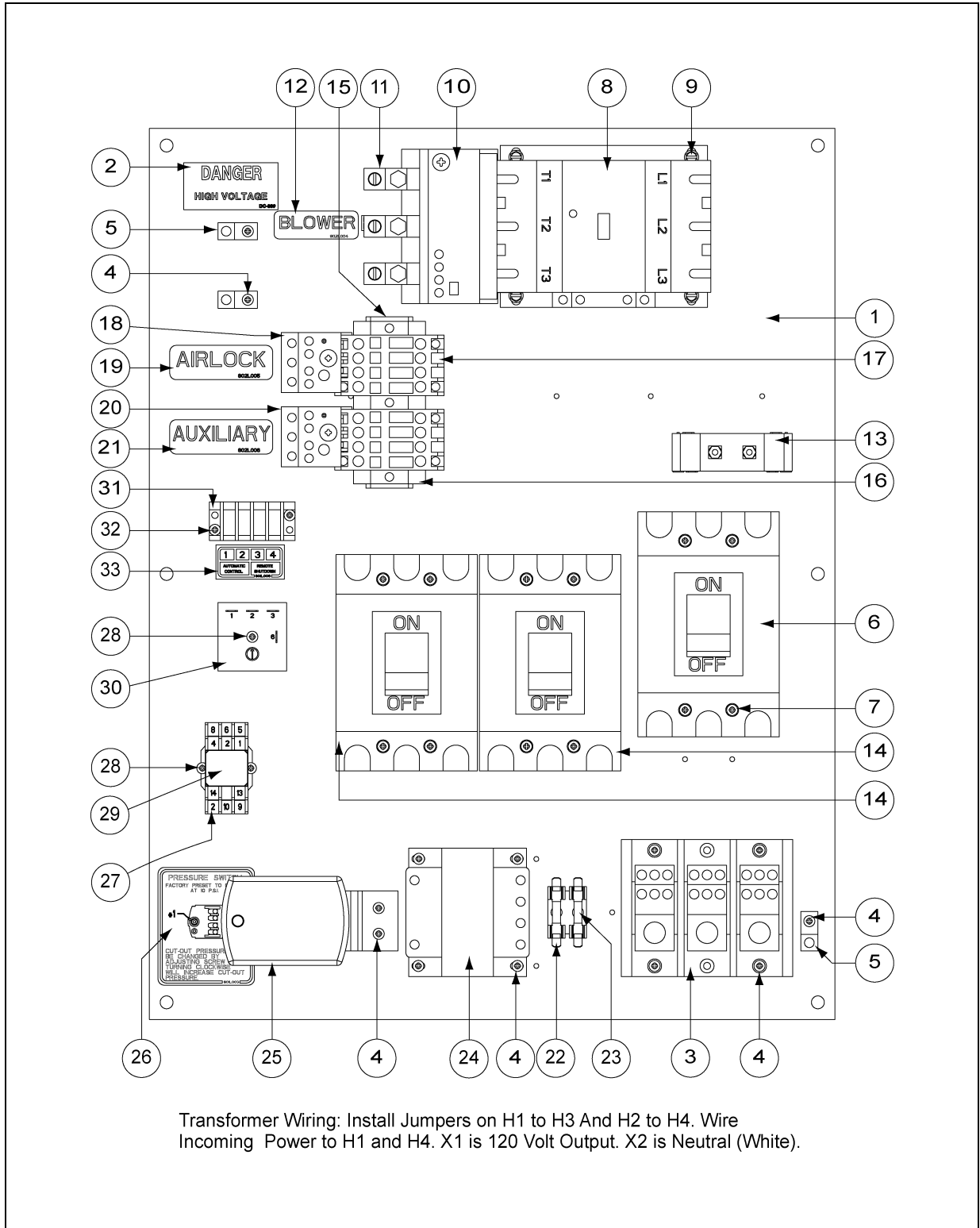


## Control Box Enclosure parts

Ref #	Part #	Std DMC 1PH Qty	Std FFI 1PH Qty	Std DMC 3PH Qty	Std FFI 3PH Qty	Twin DMC Qty	Twin FFI Qty	Description
1	AS-0260	1	1	1	1	1	1	Control Box - Sub-Asy Air Sys
2	AS-0326D	1	-	1	-	1	-	Panel Module Asy w/Digiamp DMC
2	AS-0326F	-	1	-	1	-	1	Panel Module Asy w/Digiamp FFI
3	8015080	1	-	1	-	1	-	Air Sys-Outer Door Asy DMC
3	8015135	-	1	-	1	-	1	Air Sys-Outer Door Asy FFI
4	DC-1893	1	1	-	-	-	-	Decal - Air Sys Schematic 1-Phase
4	DC-1894	-	-	1	1	-	-	Decal - Air Sys Schematic 3-Phase
4	DC-1895	-	-	-	-	1	1	Decal - Air Sys Schematic Twin
5	DC-889	1	1	1	1	1	1	Decal Danger High Voltage
6	AS-0363	1	1	1	1	-	-	Switch Panel Asy - Standard
6	AS-0364	-	-	-	-	1	1	Switch Panel Asy - Twin
7	AS-0345	1	1	1	1	1	1	Hose-1/4ID x 22" LG
8	5041023	2	2	2	2	2	2	Bracket- Mounting/Lg Box
9	3FH1213	1	1	1	1	1	1	Latch-3-10 Link Lock Sprg Load
10	3FH1217	1	1	1	1	1	1	Latch-No.3 Link Lock Steel
11	S-7463	6	6	6	6	6	6	Bolt, Carriage, 1/4-20 x 1 ZN GR2
12	3FH0852	6	6	6	6	6	6	Washer-Nylon .688 x .28 x .031
13	S-1430	6	6	6	6	6	6	1/4" Std W.I.Washer, GRD. 2, Zinc
14	S-1102	6	6	6	6	6	6	Nut, 1/4 x 20, GRD 2, Zinc Plated
15	AS-0209	1	1	1	1	1	1	Strain Relief - 3/4 NPT x .50-.63 Nylon

# 9. PARTS

## Control Panel Parts 40-50HP - 230V - 3PH

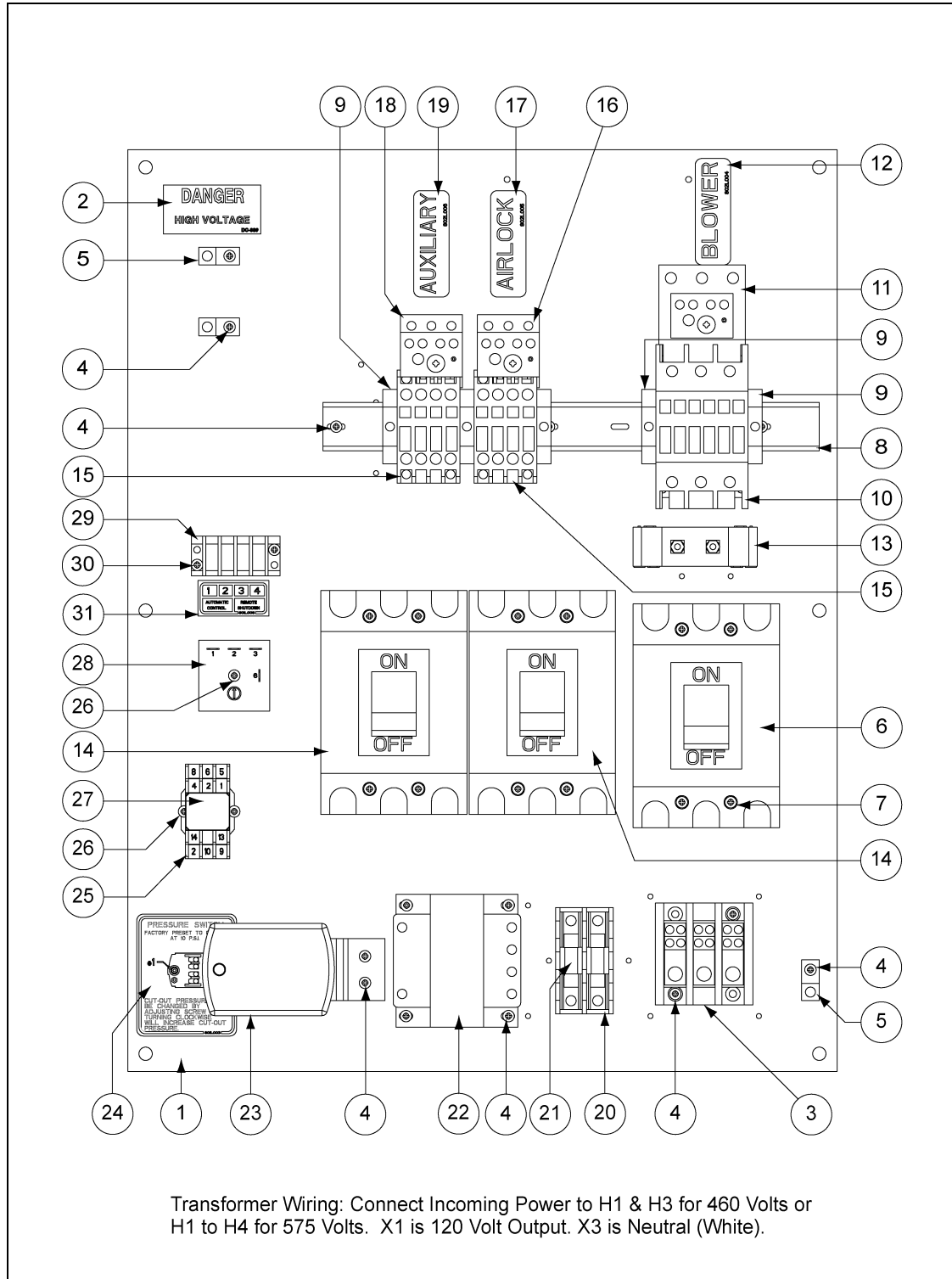


## Control Panel Parts 40-50HP - 230V - 3PH

Ref #	Part #	Description	40 HP Qty	50 HP Qty
1	AS-0279	Panel - Chassis 3 PH Air Sys	1	1
2	DC-889	DCL, Danger High Voltage All PF	1	1
3	1EL0912	Terminal Block 385 A 600V 3 Pole 1:6	1	1
4	S-1158	Screw TCSF #8 - 32 x 1/2 PHP ZN	17	17
5	E160-1137	Lug Ground, #TA-2 (CSA)	3	3
6	D01-0498	Breaker Main 175 AMP 3 Pole 240V	-	1
	D01-0500	Breaker Main 150 AMP 3 Pole 240V	1	-
7	S-9402	Screw TCSF #8 - 32 x 3 PHP ZN	12	12
8	056-2275-8	Contactactor 150 A 110V Coil IEC	1	1
9	S-8977	Screw TCSF #10-32 HWH ZN 3/4	4	4
10	056-2276-6	Overload Relay 90 - 150A	1	1
11	056-2072-9	Lug for 150A Contactactor	3	3
12	802L004	Decal - Blower	1	1
13	2EL0368	Transformer-Current 200:5 Ratio	1	1
14	D03-0380	Breaker MBC 15A 3P 240V	2	2
15	406-2093-2	Din Rail x 5.00 Long	1	1
16	D01-0533	Terminal - Entrelec End Stop	3	3
17	D03-0489	Contactactor IEC 3 Pole 13.8A	2	2
18	D03-0471	Overload Relay IEC 2.5-4.1A	1	1
19	802L005	Decal - Airlock	1	1
20	D03-0472	Overload Relay IEC 4.0-6.3A	1	1
21	802L006	Decal - Auxiliary	1	1
22	FH-1058	Fuse Block - Double .25 x 1.25	1	1
23	1EL0698	Fuse - MDL-1 250V 1 AMP 1/4 x 1-1/4	2	2
24	2EL0308	Transformer-460V - 120V .15KVA	1	1
25	801E018	High Pressure Switch Asy	1	1
26	801L003	Decal - Pressure Switch	1	1
27	7097555	Relay Base, 3PDT, Small Square	1	1
28	S-7124	Screw TCSF #8 - 32 x 1 PHP ZN	3	3
29	HF-7203	Relay 3PDT 120V Coil	1	1
30	801E047	Timer - OFF/Delay 1/2 to 60 Sec	1	1
31	1773	Terminal Block 4 Pole 2 Row	1	1
32	S-6557	Screw TCSF #8 - 32 x 3/4 PHP ZN	2	2
33	801L006	Decal - Terminal Strip	1	1

# 9. PARTS

## Control Panel Parts 40-50HP 460-575V



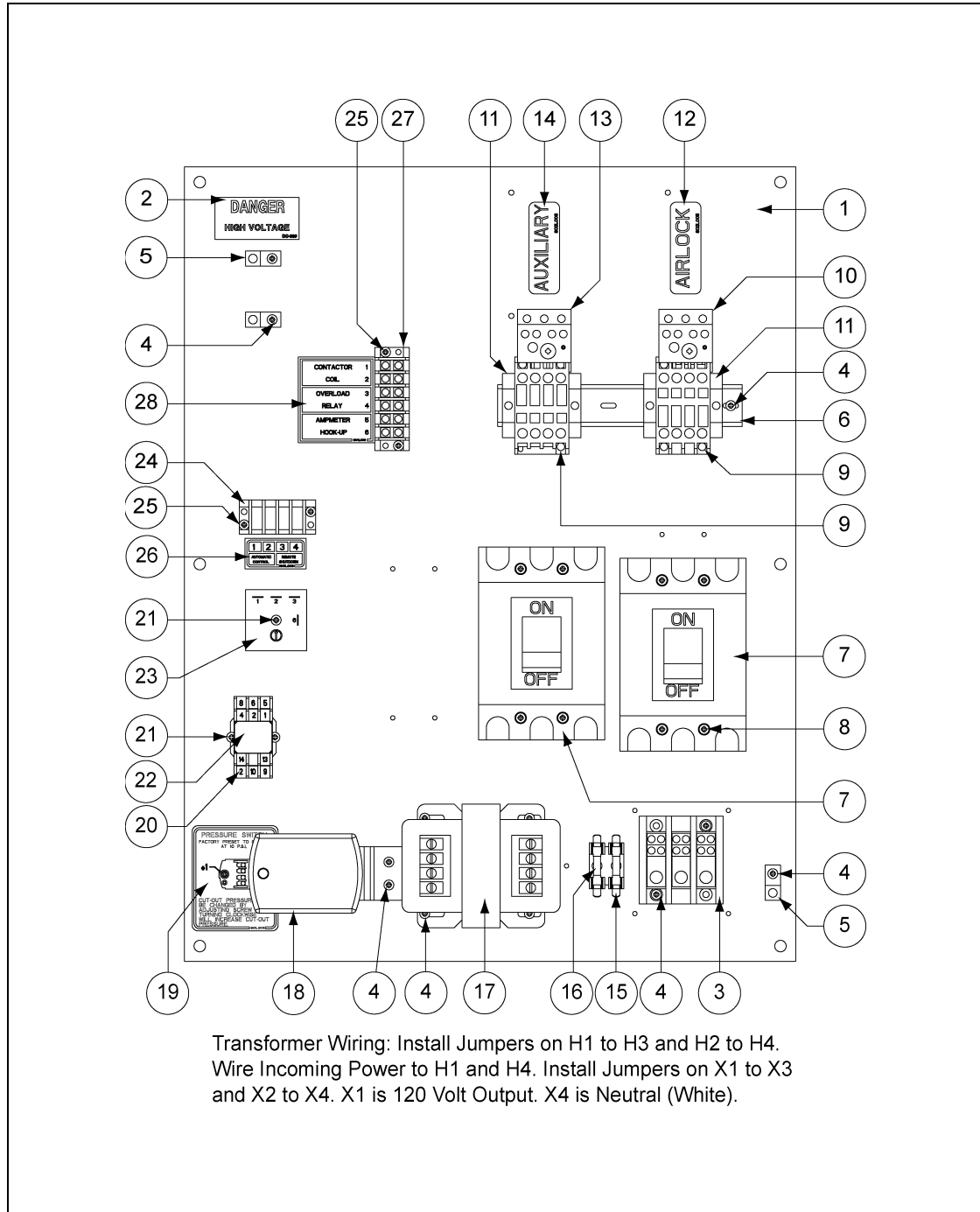


## Control Panel Parts 40-50HP 460-575V

Ref #	Part #	Description	40 HP 460/575 Qty	50 HP 460V Qty	50 HP 575V Qty
1	AS-0279	Panel - Chassis 3 PH Air Sys	1	1	1
2	DC-889	DCL, Danger High Voltage All PF	1	1	1
3	C-8018	Terminal Block 185A 3 Pole 1:4	1	1	1
4	S-1158	Screw TCSF #8 - 32 x 1/2 PHP ZN	16	16	16
5	E160-1137	Lug Ground, #TA-2 (CSA)	3	3	3
6	D03-0142	Breaker MBC 90A 3P 600V	1	-	-
	D03-0533	Breaker MBC 100A 3P 600V	-	1	1
7	S-9402	Screw TCSF #8 - 32 x 3 PHP ZN	12	12	12
8	406-2478-5	Din Rail x 14.00 Long	1	1	1
9	D01-0533	Terminal - Entrelec End Stop	5	5	5
10	D03-0495	Contactactor IEC 3 Pole 62A	1	-	-
	D03-0497	Contactactor IEC 3 Pole 80A	-	1	1
11	D03-0483	Overload Relay IEC 42-55A	1	-	1
	D03-0483	Overload Relay IEC 54-65A	-	1	-
12	802L004	Decal - Blower	1	1	1
13	2EL0368	Transformer - Current 200:5 Ratio	1	1	1
14	D03-0531	Breaker MBC 15A 3P 600V	2	2	2
15	D03-0488	Contactactor IEC 3 Pole 10 A	2	2	2
16	D03-0541	Overload IEC 1.3-1.9A	1	1	1
17	802L005	Decal - Airlock	1	1	1
18	D03-0543	Overload IEC 1.8-2.7A	1	1	1
19	802L006	Decal - Auxiliary	1	1	1
20	047-1011-7	Fuse Holder 30A 6V 2P (13/32 x 1-1/2)	1	1	1
21	050-1008-7	Fuse 5 A Class CC 600V (13/32 x 1-1/2)	2	2	2
22	AS-0304	Transformer - 460/575V - 120V .15KVA	1	1	1
23	801E018	High Pressure Switch Asy	1	1	1
24	801L003	Decal- Pressure Switch	1	1	1
25	7097555	Relay Base, 3PDT, Small Square	1	1	1
26	S-7124	Screw TCSF #8 - 32 x 1 PHP ZN	3	3	3
27	HF-7203	Relay 3PDT 120V Coil	1	1	1
28	801E047	Timer - OFF/Delay 1/2 TO 60 Sec	1	1	1
29	1773	Terminal Block 4 Pole 2 Row	1	1	1
30	S-6557	Screw TCSF #8 - 32 x 3/4 PHP ZN	2	2	2
31	801L006	Decal - Terminal Strip	1	1	1

# 9. PARTS

## Control Panel Parts 60-70HP 230V - 3PH Airlock

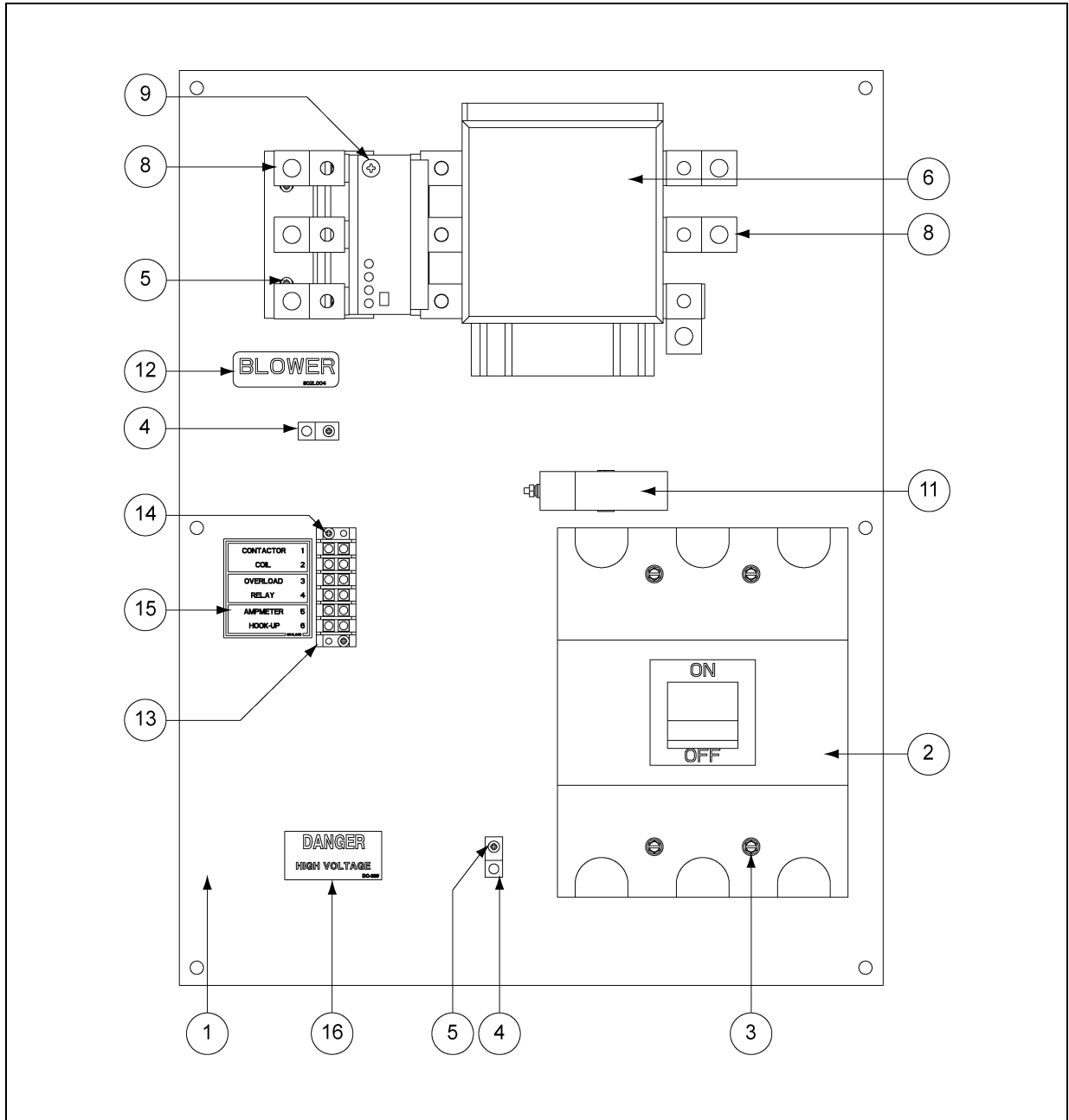


### Control Panel Parts 60-70HP 230V - 3PH Airlock

Ref #	Part #	Description	Qty
1	AS-0279	Panel - Chassis 3 PH Air Sys	1
2	DC-889	DCL, Danger High Voltage All PF	1
3	C-8018	Terminal Block 185A 3 Pole 1:4	1
4	S-1158	Screw TCSF #8 - 32 x 1/2 PHP ZN	15
5	E160-1137	Lug Ground, #TA-2 (CSA)	3
6	406-2119-5	Din Rail x 8.00 Long	1
7	D03-0380	Breaker MBC 15A 3P 240V	2
8	S-9402	Screw TCSF #8 - 32 x 3 PHP ZN	8
9	D03-0489	Contactactor IEC 3POLE 13.8A	2
10	D03-0471	Overload Relay IEC 2.5-4.1A	1
11	D01-0533	Terminal - Entrelec End Stop	4
12	802L005	Decal - Airlock	1
13	D03-0472	Overload Relay IEC 4.0-6.3A	1
14	802L006	Decal - Auxiliary	1
15	FH-1058	Fuse Block - Double .25 x 1.25	1
16	1EL0698	Fuse - MDL-1 250V 1 AMP 1/4 x 1-1/4	2
17	056-2187-5	Transformer .25KVA PRI-460/230	1
18	801E018	High Pressure Switch Asy	1
19	801L003	Decal- Pressure Switch	1
20	7097555	Relay Base, 3PDT, Small Square	1
21	S-7124	Screw TCSF #8 - 32 x 1 PHP ZN	3
22	HF-7203	Relay 3PDT 120V Coil	1
23	801E047	Timer - OFF/Delay 1/2 to 60 Sec	1
24	1773	Terminal Block 4 Pole 2 Row	1
25	S-6557	Screw TCSF #8 - 32 x 3/4 PHP ZN	4
26	801L006	Decal - Terminal Strip	1
27	1EL0877	Term BLK 6P 30 A 300V (CSA)	1
28	804L003	Decal - Terminal Block 6 POS	1

# 9. PARTS

## Control Panel Parts 60-70HP 230V - 3PH Blower

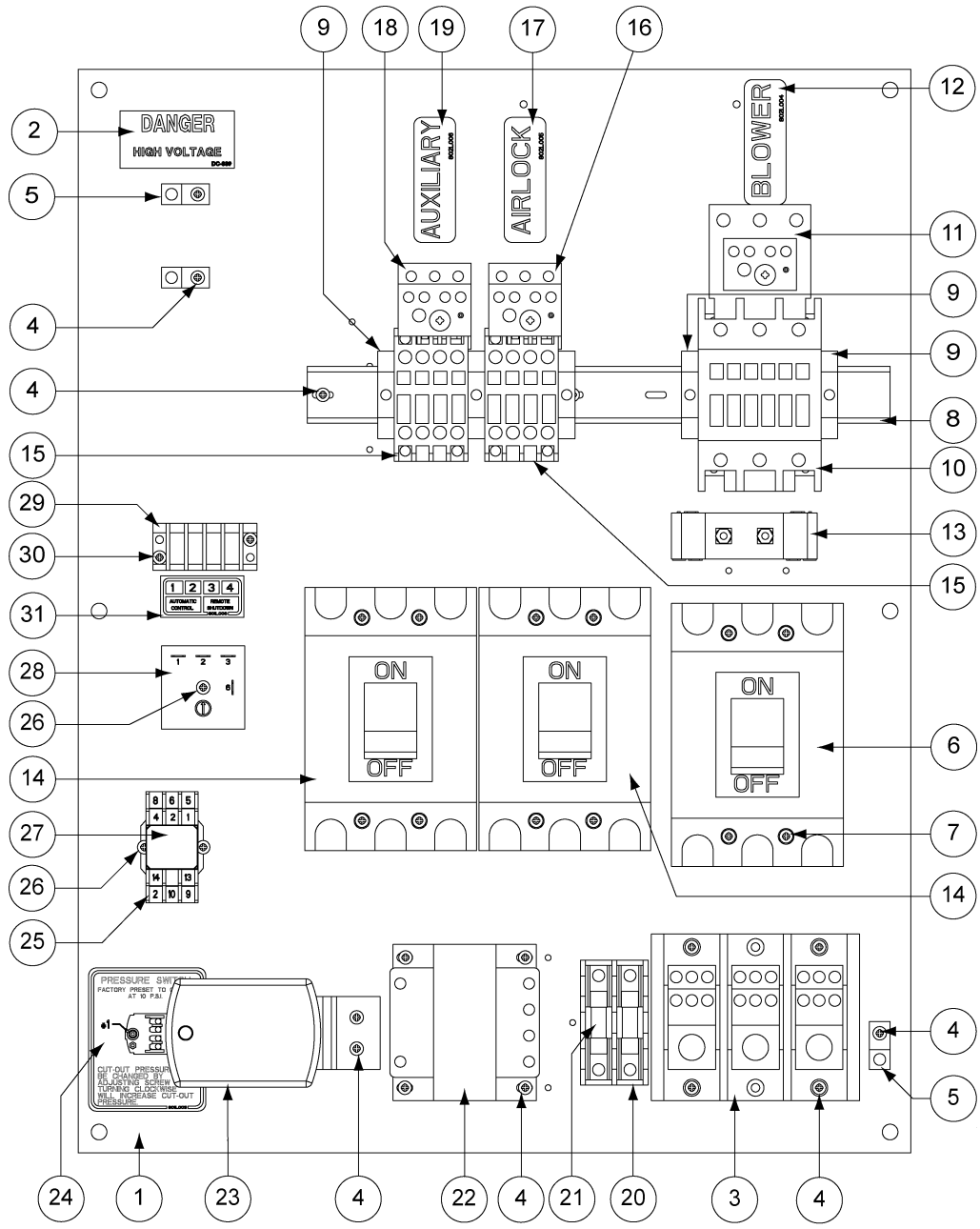


## Control Panel Parts 60-70HP 230V - 3PH Blower

Ref #	Part #	Description	Qty
1	AS-0284	Panel - Chassis 60/75 HP 230V - 3 Air Sys	1
2	D01-0475	Breaker Main 300 AMP 3 Pole 240V	1
3	S-7644	Screw TCSF #10 - 24 x 1-1/2 HWH ZN	4
4	E160-1137	Lug Ground, #TA-2 (CSA)	2
5	S-1158	Screw TCSF #8 - 32 x 1/2 PHP ZN	6
6	056-2092-7	Contactora 265A 230V - 3P IEC 110V Coil	1
7	2FH0542	Screw TCSF 1/4-20 x 1/2 HWHS ZNC	4
8	056-2071-1	Lug for 265A & 330A IEC Contactora	6
9	056-2244-4	Relay - O/L 132-220A ADJ IEC	1
10	AS-0372	Z Bracket - O/L Relay 60 & 75HP	1
11	2EL0368	Transformer - Current 200:5 Ratio	1
12	802L004	Decal - Blower	1
13	1EL0877	Term BLK 6P 30A 300V (CSA)	1
14	S-6557	Screw TCSF #8 - 32 x 3/4 PHP ZN	2
15	804L003	Decal - Terminal Block 6 Pos	1
16	DC-889	DCL, Danger High Voltage All PF	1

# 9. PARTS

## Control Panel Parts 60-75HP 460-575V



Transformer Wiring: Connect Incoming Power to H1 & H3 for 460 Volts or H1 to H4 for 575 Volts. X1 is 120 Volt Output. X3 is Neutral (White).

**Control Panel Parts 60-75HP 460-575V**

Ref #	Part #	Description	60 HP 460V Qty	75 HP 460V Qty	60 HP 575V Qty	75 HP 575V Qty
1	AS-0279	Panel - Chassis 3 PH Air Sys	1	1	1	1
2	DC-889	DCL, Danger High Voltage All PF	1	1	1	1
3	1EL0912	Terminal Block 385A 6V 3 Pole 1:6	1	1	1	1
4	S-1158	Screw TCSF #8 - 32 x 1/2 PHP ZN	18	18	18	18
5	E160-1137	Lug Ground, #TA-2 (CSA)	3	3	3	3
6	D03-0419	Breaker MBC 125A 3P 600V	1	-	1	-
	AS-0295	Breaker MBC 150A 3P 600V	-	1	-	1
7	S-9402	Screw TCSF #8 - 32 x 3 PHP ZN	12	12	12	12
8	406-2478-5	Din Rail x 14.00 Long	1	1	1	1
9	D01-0533	Terminal - Entrelec End Stop	5	5	5	5
10	D03-0497	Contactor IEC 3 Pole 82A	1	-	1	-
	D03-0498	Contactor IEC 3 Pole 96A	-	1	-	1
11	D03-0484	Overload Relay IEC 54-65A	-	-	1	-
	D03-0485	Overload Relay IEC 64-82A	1	-	-	1
	D03-0486	Overload Relay IEC 78-97A	-	1	-	-
12	802L004	Decal - Blower	1	1	1	1
13	2EL0368	Transformer-Current 200:5 Ratio	1	1	1	1
14	D03-0531	Breaker MBC 15A 3P 600V	2	2	2	2
15	D03-0488	Contactor IEC 3 Pole 10 A	2	2	2	2
16	D03-0541	Overload IEC 1.3-1.9A	1	1	1	1
17	802L005	Decal - Airlock	1	1	1	1
18	D03-0543	Overload IEC 1.8-2.7A	1	1	1	1
19	802L006	Decal - Auxiliary	1	1	1	1
20	047-1011-7	Fuse Holder 30A 6V 2P (13/32 x 1-1/2)	1	1	1	1
21	050-1008-7	Fuse 5A Class CC 600V (13/32 x 1-1/2)	2	2	2	2
22	AS-0304	Transformer - 460/575V - 120V .15KVA	1	1	1	1
23	801E018	High Pressure Switch Asy	1	1	1	1
24	801L003	Decal - Pressure Switch	1	1	1	1
25	7097555	Relay Base, 3PDT, Small Square	1	1	1	1
26	S-7124	Screw TCSF #8-32 x 1 PHP ZN	3	3	3	3
27	HF-7203	Relay 3PDT 120V Coil	1	1	1	1
28	801E047	Timer - OFF/Delay 1/2 TO 60 Sec	1	1	1	1
29	1773	Terminal Block 4 Pole 2 Row	1	1	1	1
30	S-6557	Screw TCSF #8 - 32 x 3/4 PHP ZN	2	2	2	2
31	801L006	Decal - Terminal Strip	1	1	1	1

## 10. TROUBLE SHOOTING

Problem	Solution
1. System Plugs Up	<ol style="list-style-type: none"> <li>1. Check belt tension on air blower and tighten if loose.</li> <li>2. Check air filter and clean out. Locate in a place where there is less dust.</li> <li>3. Check tubing system for any obstructions.</li> <li>4. Reduce feed-in rate.</li> <li>5. Air pressure switch setting may be too low.</li> <li>6. Outlet gate valve too far open.</li> </ol>
2. Excessive Grain Damage	<ol style="list-style-type: none"> <li>1. May be overfeeding airlock, causing vanes to shear off grain. Reduce feed rate.</li> <li>2. Air velocity may be excessive. Slow air blower by changing pulleys or by opening gate valve.</li> <li>3. Damage can occur if system is running at less than full capacity. Increase feed rate.</li> <li>4. Rubber hose used to change grain direction, or used for extended lengths.</li> <li>5. Airlock shear protector installed wrong.</li> </ol>
3. Airlock Stops or is Noisy	<ol style="list-style-type: none"> <li>1. A foreign object may have become lodged in the airlock vanes.</li> <li>2. Check belt tension.</li> <li>3. Check gearbox drive.</li> <li>4. The rotor vanes may be rubbing on the ends of the airlock. Check clearance at both ends of rotor and center in housing by loosening the set screws in the bearings on both ends of the rotor shaft and moving rotor. Tighten set screws after repositioning.</li> <li>5. The rotor vanes may have become rusted to the airlock housing. The airlock can be broken loose by using a pipe wrench on the exposed rotor shaft.</li> </ol> <p style="text-align: center;"><b>⚠ CAUTION ⚠</b></p> <p><b>The worm drive gearbox <u>cannot</u> be driven in reverse and can be damaged. Remove the airlock drive chain before attempting to turn the airlock by hand.</b></p> <ol style="list-style-type: none"> <li>6. "U" cup packings on rotor too tight. (Contact factory)</li> </ol>



## 10. TROUBLE SHOOTING

Problem	Solution
4. Unit will not start, "ready light" is not ON.	<ol style="list-style-type: none"><li>1. Check AC power supply.</li><li>2. Check control box fuses.</li><li>3. Thermal overload tripped (overload indicator is on).</li><li>4. Air pressure limit switch may be misadjusted (less than 5 PSI). If pressure switch is not reset, turn pressure adjustment clockwise until switch resets.</li><li>5. Be sure "start" switch is pushed.</li></ol>
5. Unit will not start, the "ready light" is ON.	<ol style="list-style-type: none"><li>1. Blower, airlock and auxiliary switches must be in either "Auto" or "Manual" to operate.</li><li>2. The automatic control not wired correctly or not working. (Requires a closed contact across TB1 and TB2 to auto start).</li></ol>
6. Blower Motor Trips Thermal Overload	<ol style="list-style-type: none"><li>1. Check current draw using Amp meter. The motor should not be pulling more current than the name plate specifies. Reduce feed rate if excessive.</li><li>2. Check overload Amp Settings.</li><li>3. Check for loose connections and/or too small gauge wire.</li><li>4. Wrong voltage (either high or low).</li><li>5. Too much load due to obstructions, bad bearings or dry gears.</li></ol>
7. No Control Voltage	<ol style="list-style-type: none"><li>1. Control Fuse inside the control box is down.</li><li>2. Check main power for proper voltage.</li><li>3. Check Transformer Fuses.</li></ol>

# 11. COUPLINGS

## How to Handle Handling Couplings

1. Couplings are shipped ready-to-install... do not disassemble. To prevent gasket from slipping out of proper position, always grasp coupling as shown in [Figure 11A](#). This will save time by maintaining proper position of gasket and sleeve in relation to shell and flange.

## Installing Couplings

1. Confirm pipe O.D. size you intend joining. Each compression coupling has been factory inspected for proper O.D. size before shipment.
2. Be sure outside surface of pipe is dry, and free of dirt, grease or external burrs. (Burr & jagged pipe ends can cut gasket; dirt & grease can cause coupling slippage.)
3. Grasp coupling as shown in [Figure 11A](#) to keep gasket and sleeve (and gasket protector when used) in separate quadrants, as shown in [Figure 11A](#). Be sure gasket teeth mesh and do not overlap.
4. Slide coupling over one pipe past end, then butt pipe ends (a small gap 1/16 maximum at butt joint will not reduce coupling performance). Slide coupling back until coupling and gasket protector are centered over joint. Use care when sliding coupling into place...avoid wrinkling of gasket or gasket protector.
5. The gasket protector provides a bleed path for static electricity.
6. Partially tighten bolts evenly as follows:

1/2 bolt size - 45 ft. lbs. torque

5/8 bolt size - 65 ft. lbs. torque

3/4 bolt size - 95 ft. lbs. torque

(Where SAE GR 5 5/8 bolts are specified tighten to 95 ft. lbs. For couplings with aluminum shell and inner sleeve do not exceed 40 ft. lbs.)

7. When properly and evenly tightened to the recommended torque the coupling installation is complete. The top edges of the flanges will touch and flanges appear as a vee when viewed from the end, as shown in [Figure 11A](#). **DO NOT** attempt tightening bolts to flatten flange faces together, as this exceeds recommended limits.

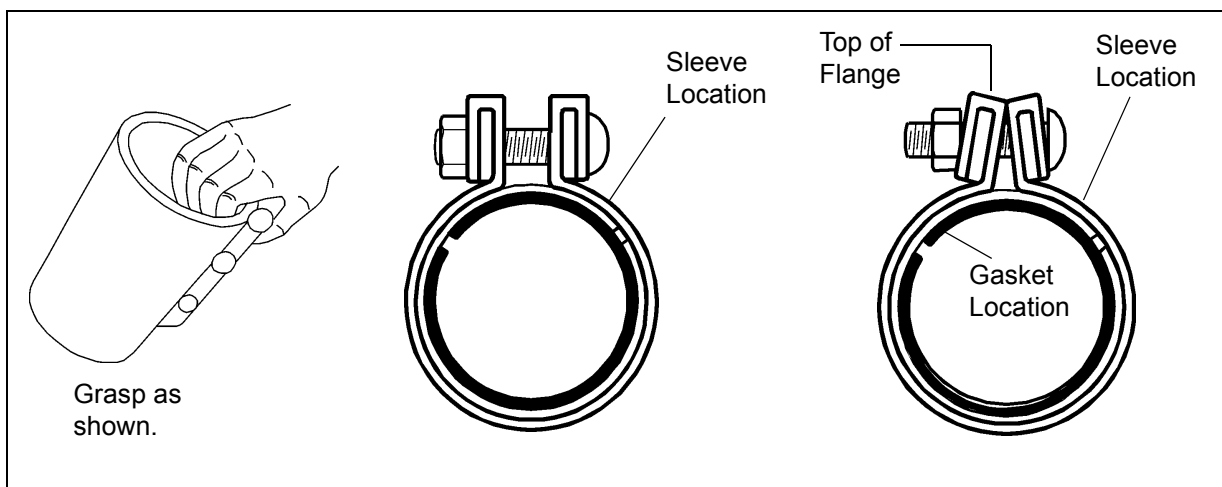


Figure 11A

## The GSI Group Limited Warranty

The GSI Group, Inc. ("GSI") warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user's sole remedy (and GSI's only obligation) is to repair or replace, at GSI's option and expense, products that in GSI's judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

### Warranty Extensions:

The Limited Warranty period is extended for the following products:

	Product	Warranty Period	
<b>AP Fans and Flooring</b>	Performer Series Direct Drive Fan Motor	3 Years	* Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 25% 5 to 7 years - end-user pays 50% 7 to 10 years - end-user pays 75%
	All Fiberglass Housings	Lifetime	
	All Fiberglass Propellers	Lifetime	
	Apex Flooring	10 Years *	
<b>Cumberland Feeding/Watering Systems</b>	Feeder System Pan Assemblies	5 Years **	** Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 50%
	Feed Tubes (1.75" and 2.00")	10 Years *	
	Centerless Augers	10 Years *	
	Watering Nipples	10 Years *	
<b>Grain Systems</b>	Grain Bin Structural Design	5 Years	
	Portable Dryers (Excluding Motors)	2 Years	

### Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH ABOVE. SPECIFICALLY, GSI MAKES NO FURTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) PRODUCT MANUFACTURED OR SOLD BY GSI OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

GSI shall not be liable for any direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. The sole and exclusive remedy is set forth in the Limited Warranty, which shall not exceed the amount paid for the product purchased. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor.

GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

This equipment shall be installed in accordance with the current installation codes and applicable regulations which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

G S I G R O U P



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