

OWNER'S MANUAL

Air System

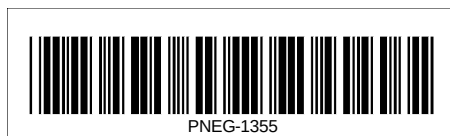
4" - 700 Bu/Hr

5" - 1200 Bu/Hr

5" - 1700 Bu/Hr

Pneumatic Grain Conveying

PNEG-1355



Date: 07-17-06

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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

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

NOTE

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

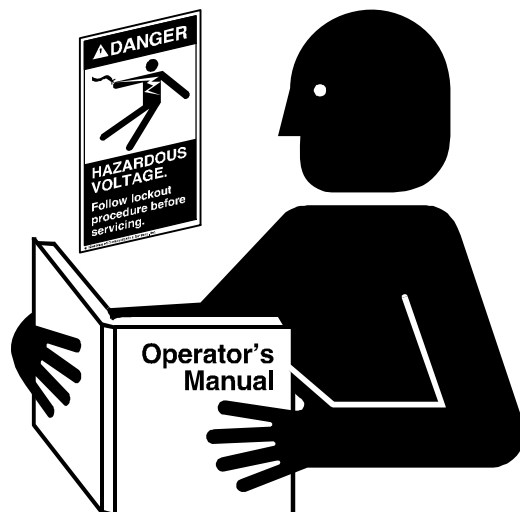
FOLLOW SAFETY INSTRUCTIONS

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.

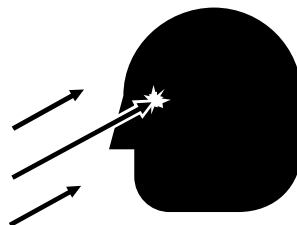


STAY CLEAR OF MOVING PARTS AND AIR VALVES.

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 Debris



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.



PRACTICE SAFE MAINTENANCE

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

Never lubricate, service, or adjust machine while it is in operation. Stop and lock out power source before making adjustments, cleaning, or maintaining equipment.

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

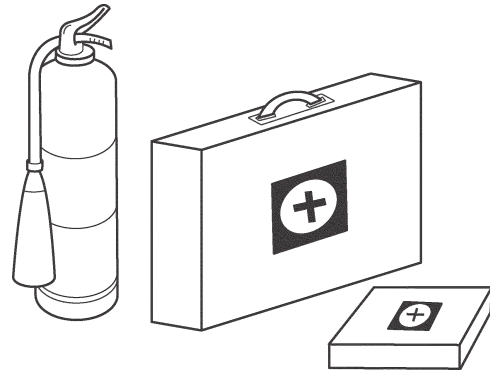


PREPARE FOR EMERGENCIES

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.



WEAR PROTECTIVE CLOTHING

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

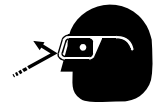
Safety glasses should be worn at all times to protect eyes from debris.

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

A respirator may be needed to help prevent breathing potentially toxic fumes and dust.

Wear hard hat and steel toe boots to help protect your head and toes from falling debris.

Eye Protection



Gloves



Steel Toe Boots



Respirator



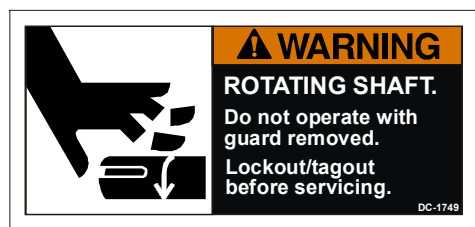
Hard Hat



DECAL PLACEMENT

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.

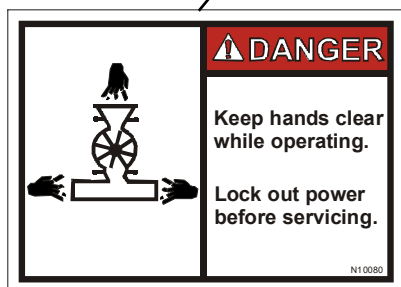
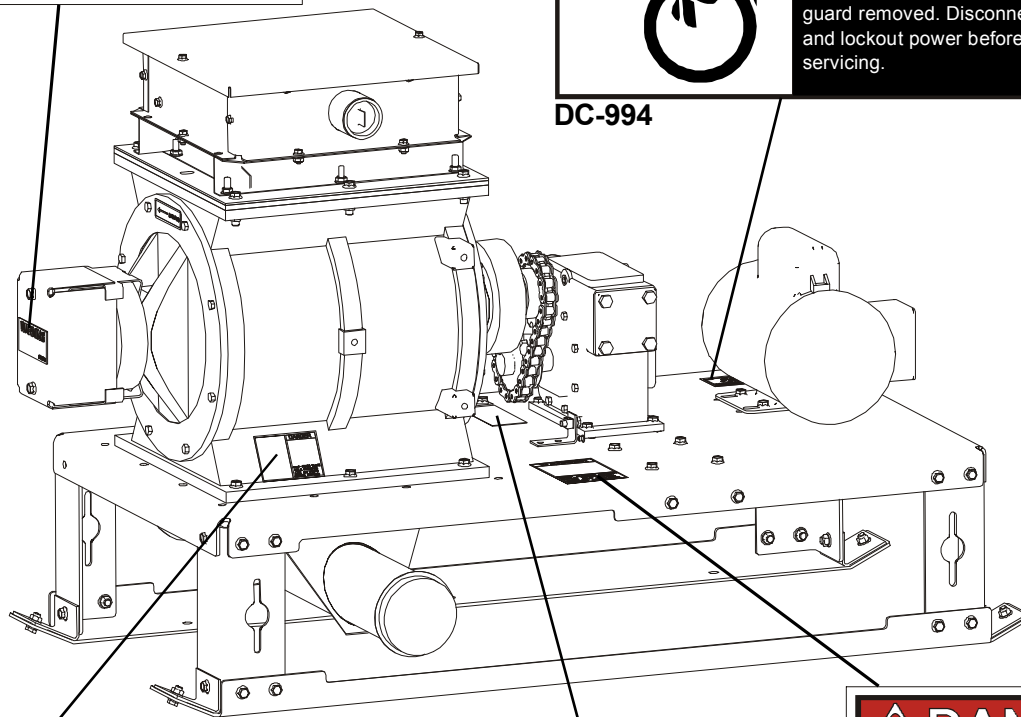
For decal replacements contact GSI at: 1004 E. Illinois Street
Assumption, IL 62510
Ph: 217-226-4421



DC-1749



DC-994



N10080

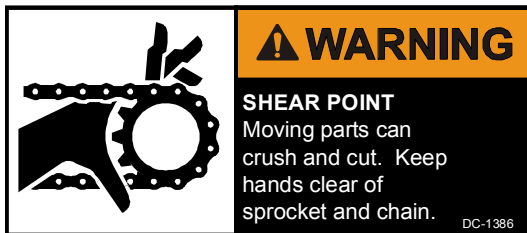


DC-1382



N10090

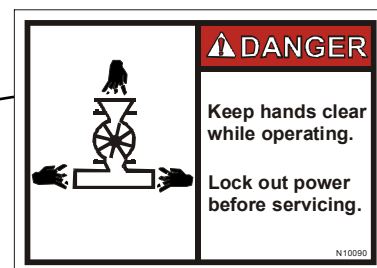
DECAL PLACEMENT



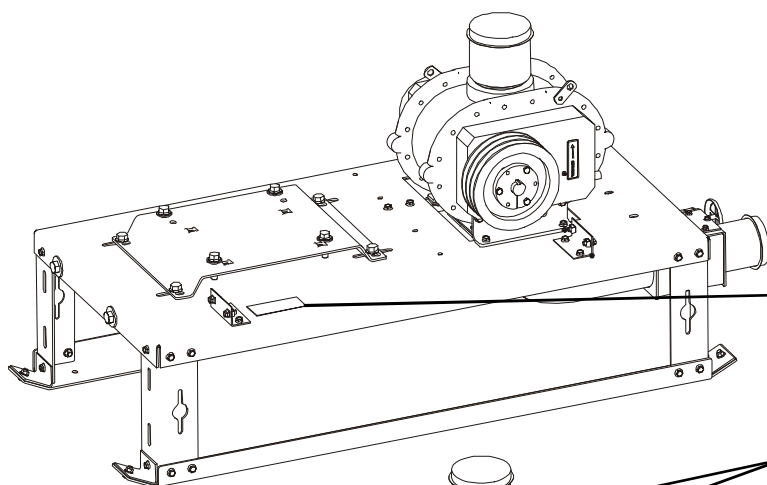
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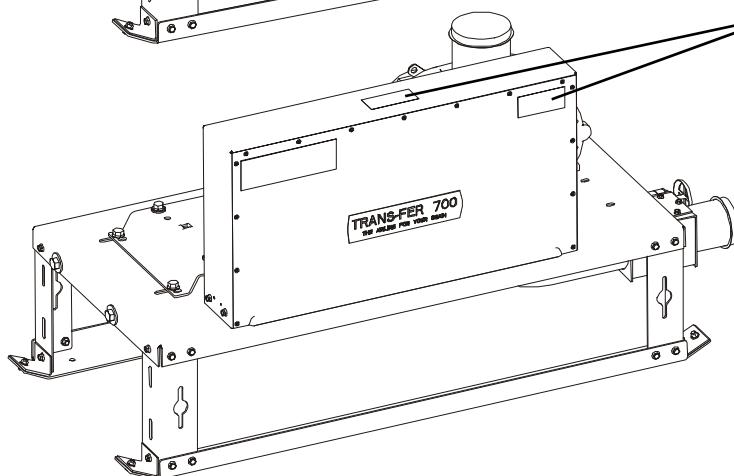
DC-995



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DC-994



DC-995

MAINTENANCE SCHEDULE

Initial Start-Up 1. Roots-Flo Blower 2. Roots Blower 3. Air Lock Gearbox 4. Air Filter 5. V-belts 6. Chain 7. Tubing System	*2004 & Later Production - Use MS5389. Older units use non-detergent 50W. - Oil level with middle of sight glass (DMC #MS5389 synth. oil.) - Oil level to check plug.* - Oil level to check plug (SAE90) - Installed properly - Tensioned and aligned - Tensioned and aligned - All couplers tight. All tubing connections have good fit. Tubing laid out straight. Elbows fitting properly.
After First 10 Hours and Daily 1. Air Filter 2. V-belts 3. Tubing	- Check for excessive dust build-up - Check tension alignment - Check all connections for leaks and signs of separating
Weekly 1. Roots Blower (Prior to 2004) 2. Chain 3. Blowers & Gearbox	- Grease bearings until grease comes out of relief fitting (Shell Darina NLGI Grade #2) - Oil - Check oil levels.
1500 Hours (Synthetic Oil) 500 Hours (Standard Oil) 1. Roots-Flo and Duraflow 2. Roots Blower (Prior to 2004) 3. Roots Blower-2004 & Later	- Drain oil and replace with 1.5 Qts. of DMC #MS5389 synthetic oil. (Fill to middle of sight glass.) - Drain oil and replace with 1 Qt. of Part No. MS-5389 or STD50W Non-Detergent Oil. (Fill to oil level plug) - Replace with 1.5 Qts. of Part No. MS5389. Add oil to both ends of blower. (Fill to middle of both sight glasses.)
EXTENDED SHUT DOWN Disconnect Main Power to Unit 1. Blower 2. Airlock 3. Chain	- 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 - Coat interior with oil, while rotating by hand, to prevent rust. Re-install weather cover. - Oil chain to prevent rust

AIR SYSTEM CAPACITIES

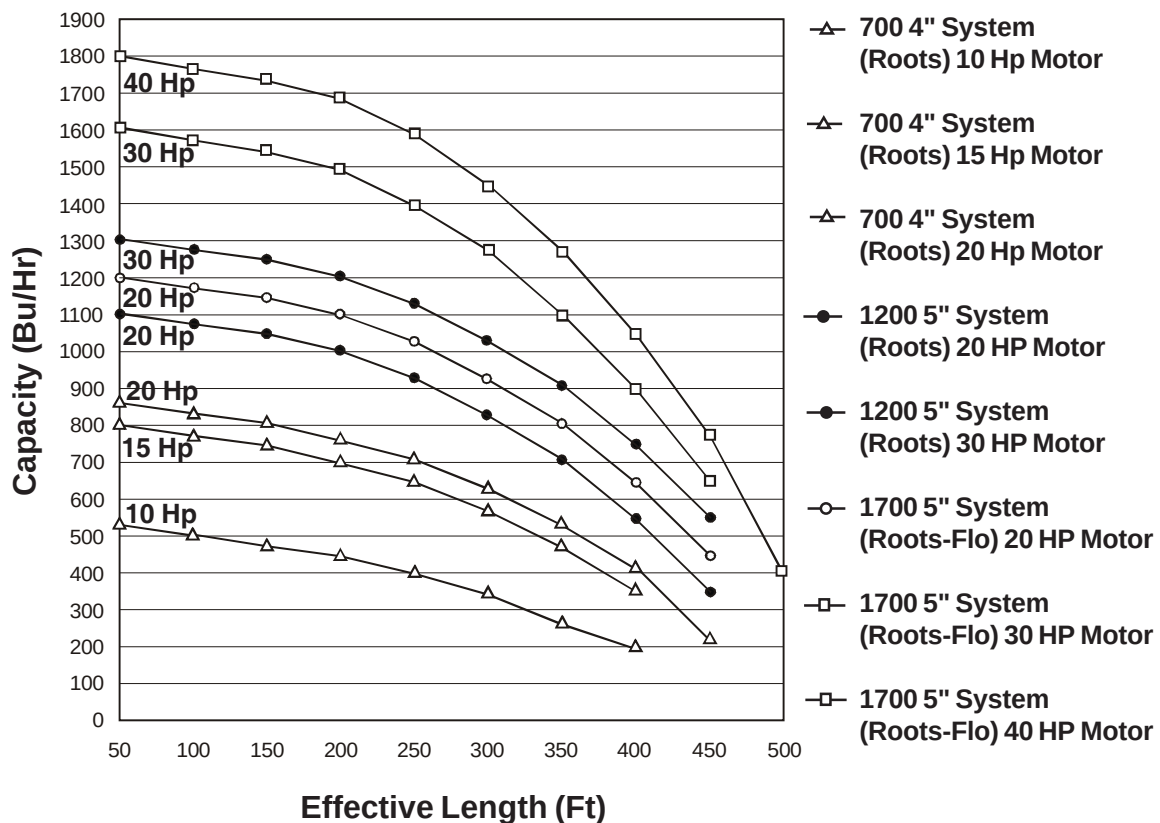
(Dry Shelled Corn)

Effective Length (Feet)	700 Bu/Hr 4" System (Roots)			1200 Bu/Hr 5" System (Roots)		1700 Bu/Hr 5" System (Roots-Flo)		
	10 HP	15 HP	20 HP	20 HP	30 HP	20 HP	30 HP	40 HP
	Motor	Motor	Motor	Motor	Motor	Motor	Motor	Motor
50	525	800	850	1100	1300	1200	1600	1800
100	500	775	825	1075	1275	1175	1575	1775
150	475	750	800	1050	1250	1150	1550	1750
200	450	700	750	1000	1200	1100	1500	1700
250	400	650	700	925	1125	1025	1400	1600
300	350	575	625	825	1025	925	1275	1450
350	275	475	525	700	900	800	1100	1275
400	200	350	400	550	750	650	900	1050
450	-	-	225	350	550	450	650	775
500	-	-	-	-	-	-	-	400

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

(4" & 5" Systems)



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.
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 13.

NOTE

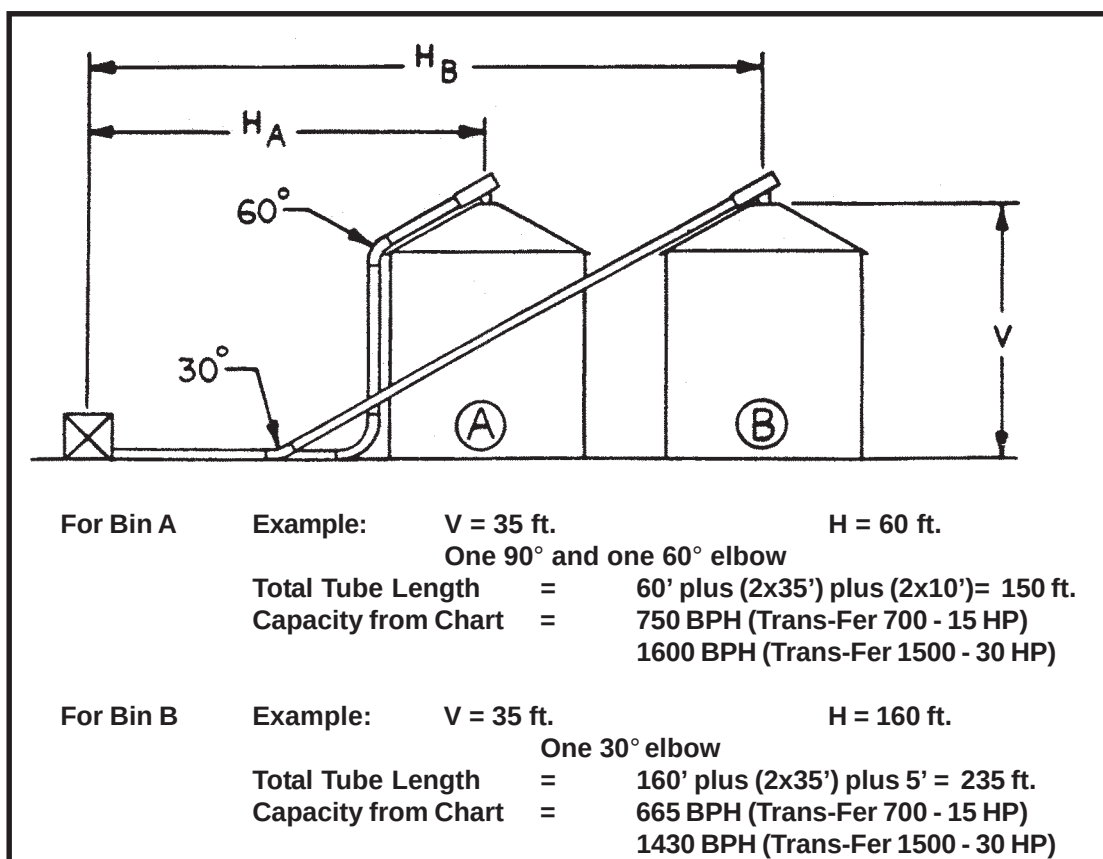
A MINIMUM OF EIGHT (8) FEET BETWEEN ELBOWS IS REQUIRED FOR PROPER OPERATION.

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 three bolts on the coupler evenly or until the coupler flanges butt together. (See Page 62).
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.

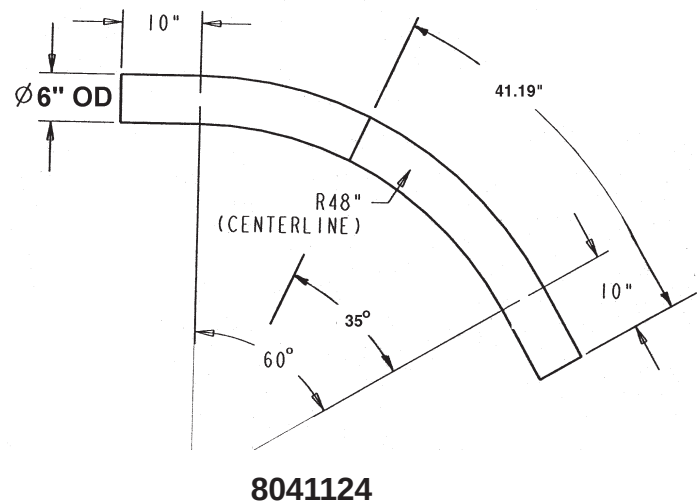
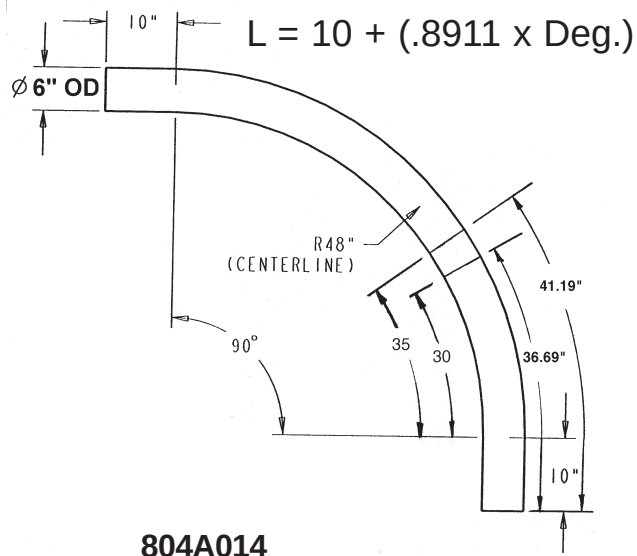
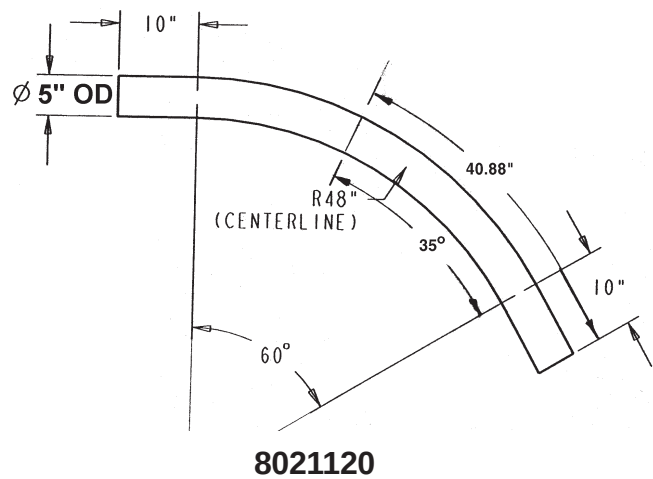
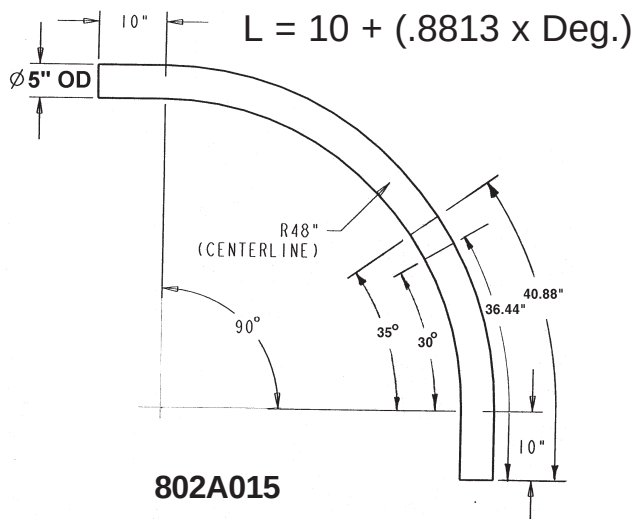
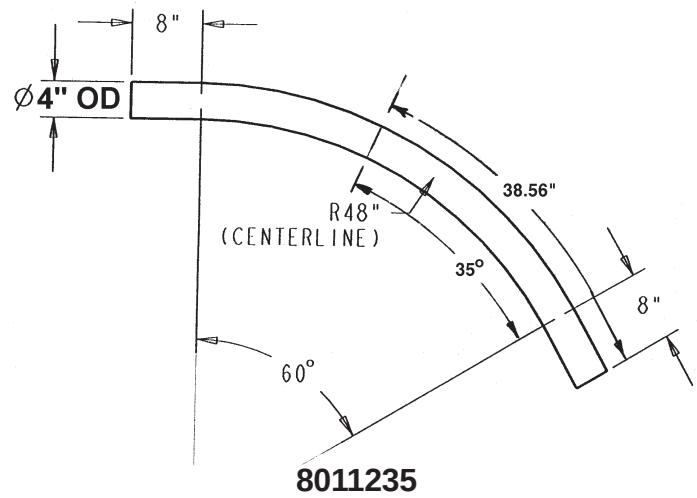
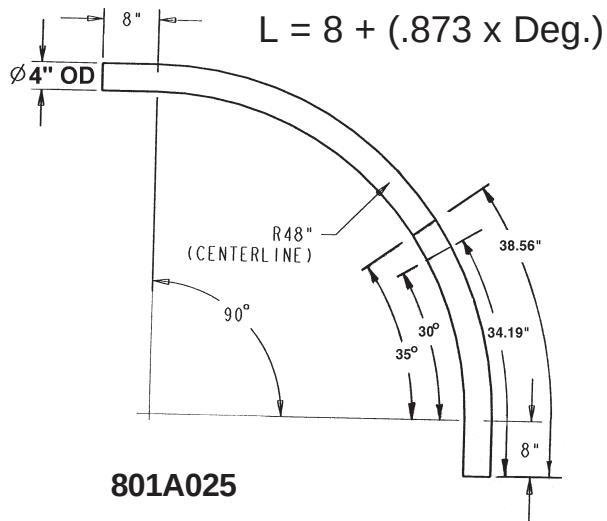
AIR SYSTEM INSTALLATION (Continued)

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 17 and 23 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)



ELBOW ANGLE MEASUREMENTS



AIR SYSTEM SET-UP PROCEDURES

1. The air filter extension tube and housing are connected to the blower inlet by a compression coupler. 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 Image 1-3)

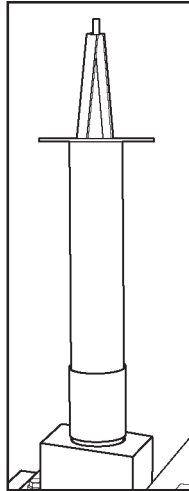


Image 1

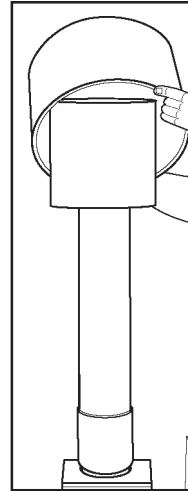


Image 2

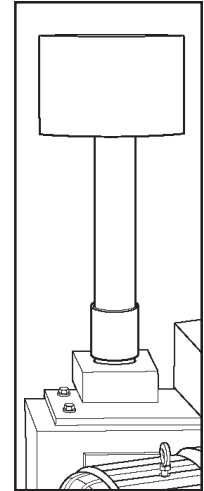


Image 3

3. Check the motor name plate for the correct motor frame size. Remove the hardware shipped in the Motor Mounting Plate. Locate the motor on the mounting plate using the hole pattern, which aligns with the motor base. Bolt the motor securely to the mounting plate with the supplied hardware that was previously removed. Loosen the (4) 1/2" flange head bolts, which secure the motor Mounting Plate to the blower base. (See Image 4)

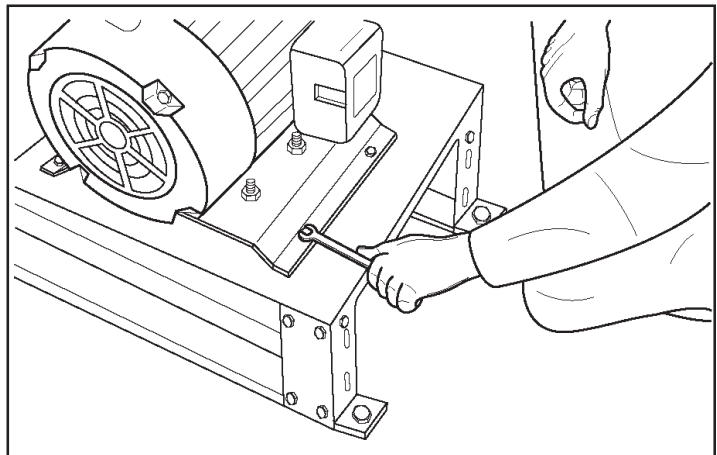


Image 4

4. Place the specified pulley onto the motor and align it with the blower pulley. (See Image 5)

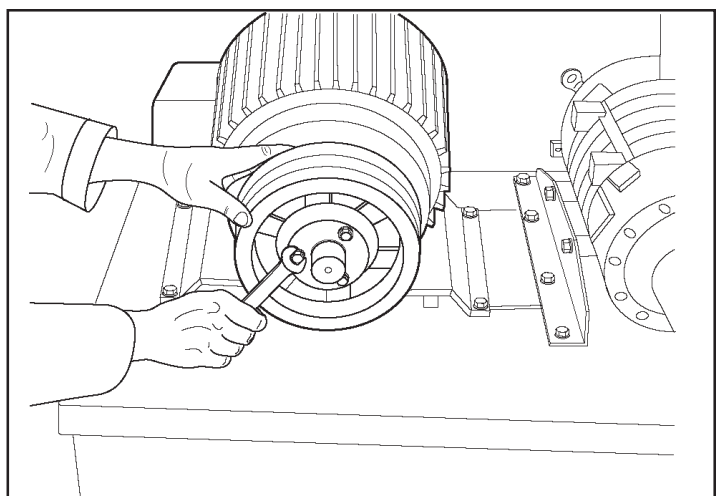


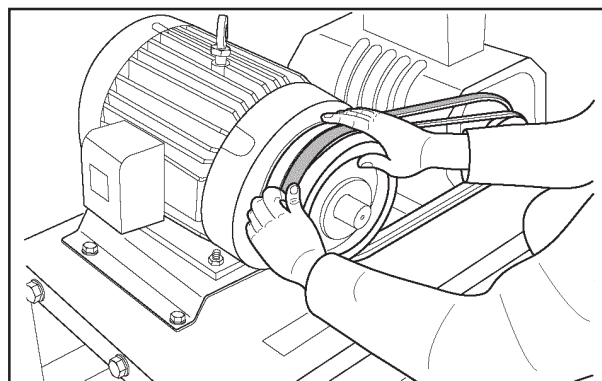
Image 5

AIR SYSTEM SET-UP PROCEDURES (Continued)

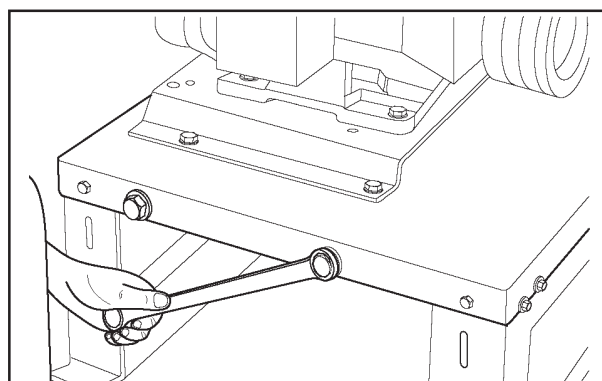
5. Place the matching set of V-belts on the pulleys. (See Image 6). Tighten the belts by evenly turning the cap screws clockwise. Belts should have 3/8" deflection at ten pounds pressure per belt. (Image 7)

CAUTION

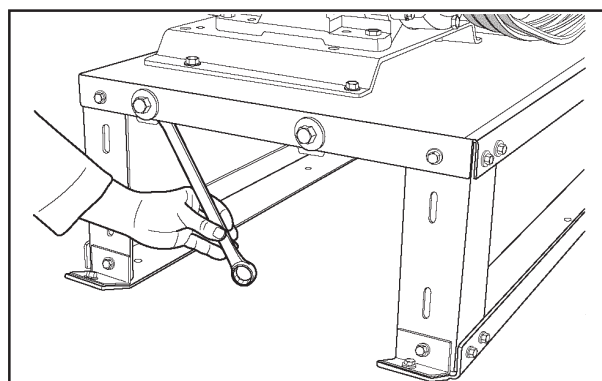
Too much tension on belts will cause blower damage.

**Image 6**

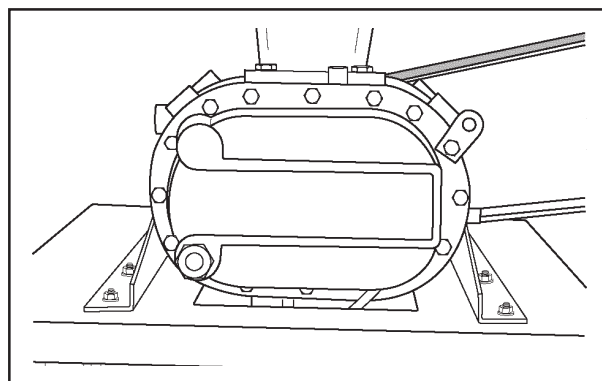
6. Keeping the motor in proper alignment is necessary and can be accomplished by using an open-end wrench to turn the nut on the take-up bolt closest to the rear of the motor. This nut is located behind the flange of the blower base. Adjust if necessary. Tighten the (4) flange head bolts that secure the motor mounting plate to the blower base. Re-Install Drive Shield. (See Image 8)

**Image 7****CAUTION**

Rotate the motor by hand and listen for any rubbing or knocking by either the motor or the blower. When the motor is wired, it must be checked for CCW rotation.

**Image 8**

7. The oil level should be at the center of the sight glass on the blower. Add part number MS5389 or equivalent (Mobile Oil SHC 630 or Grainger #6Y778) if required. DO NOT OPERATE BLOWER UNTIL CORRECT OIL LEVEL IS INDICATED! The 4" roots blower has sight glasses on both ends. Be sure oil levels are indicated on both sight glasses. (See Image 9)

**Image 9**

AIR SYSTEM SET-UP PROCEDURES (Continued)

8. Using four (4) 5/16" x 3/4" flange head bolts, mount the motor to the airlock deck. Place the specified pulley on to the motor shaft and align to pulley on gearbox. (See Image 10)
9. Next, place the A-24 belt onto the pulleys. (See Image 11) Tighten the belt to its proper tension of 3/8" deflection at ten pounds of pressure by pulling motor away from gearbox. Tighten the four 5/16" flange bolts on the motor base. Replace the belt shield.
10. 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 Image 12)
11. Remove 1/4" pipe plug in gate valve pipe. Install gauge assembly and attach air hose. (See Image 13)

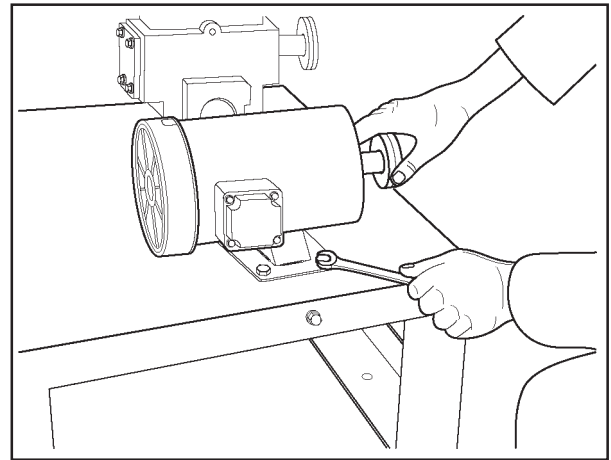


Image 10

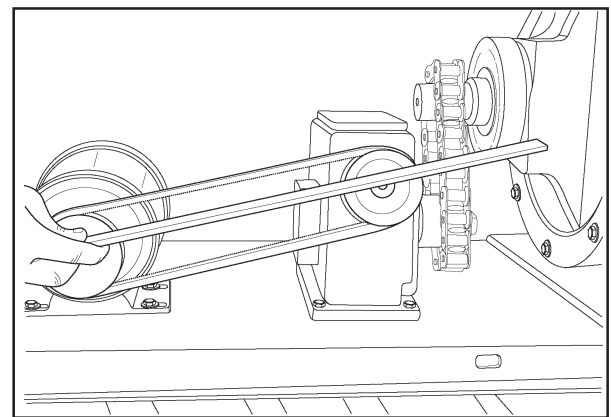


Image 11

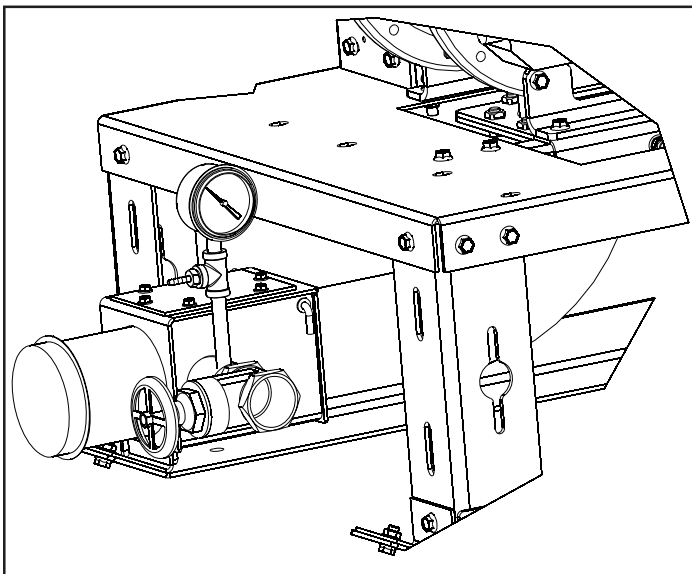


Image 13

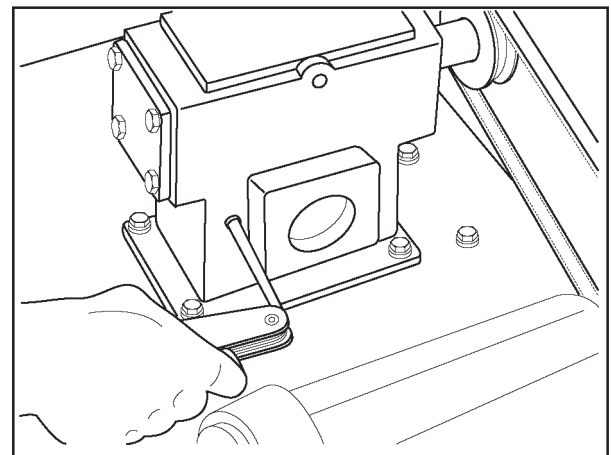
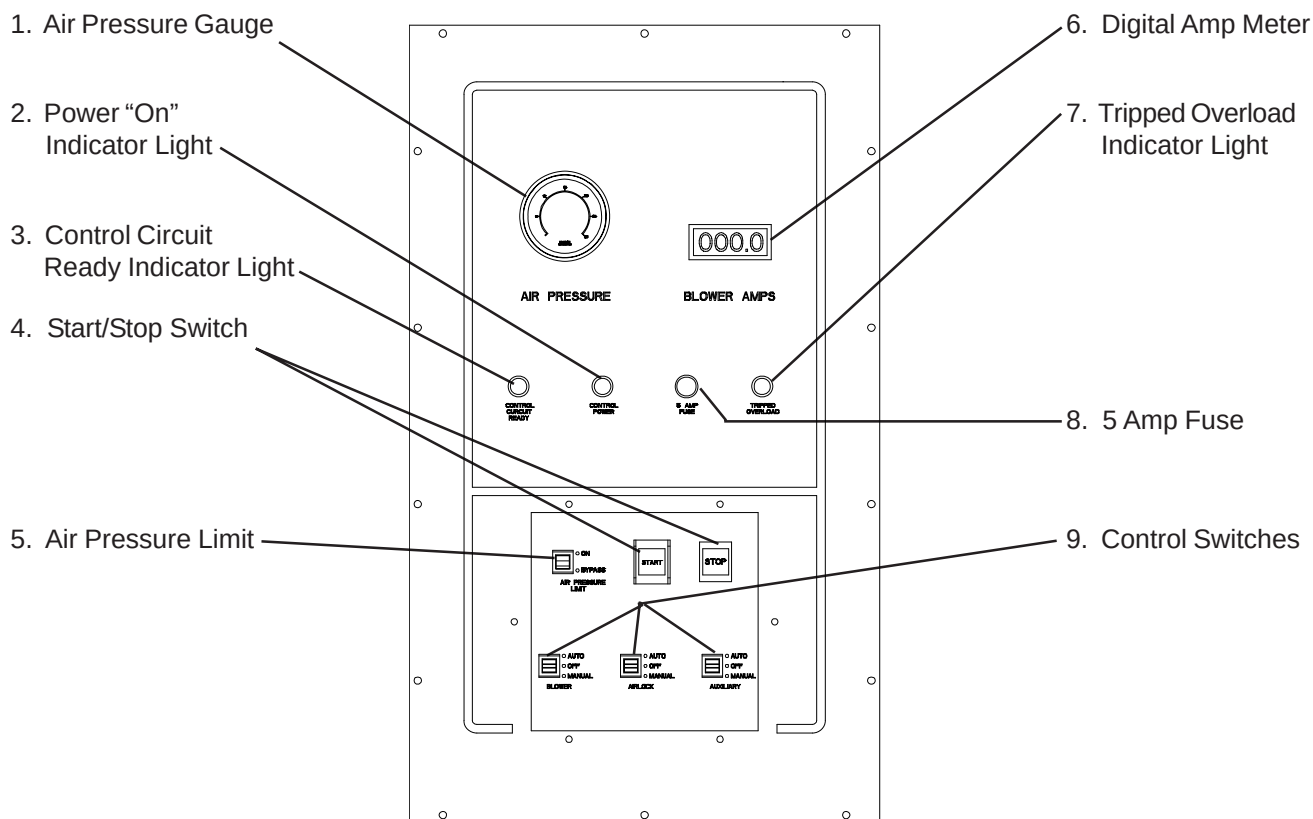


Image 12

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

AIR SYSTEM CONTROL BOX DEFINITIONS



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 on page 19.
8. 5 Amp Fuse: A five (5) amp fuse protects the electrical components in the control box.

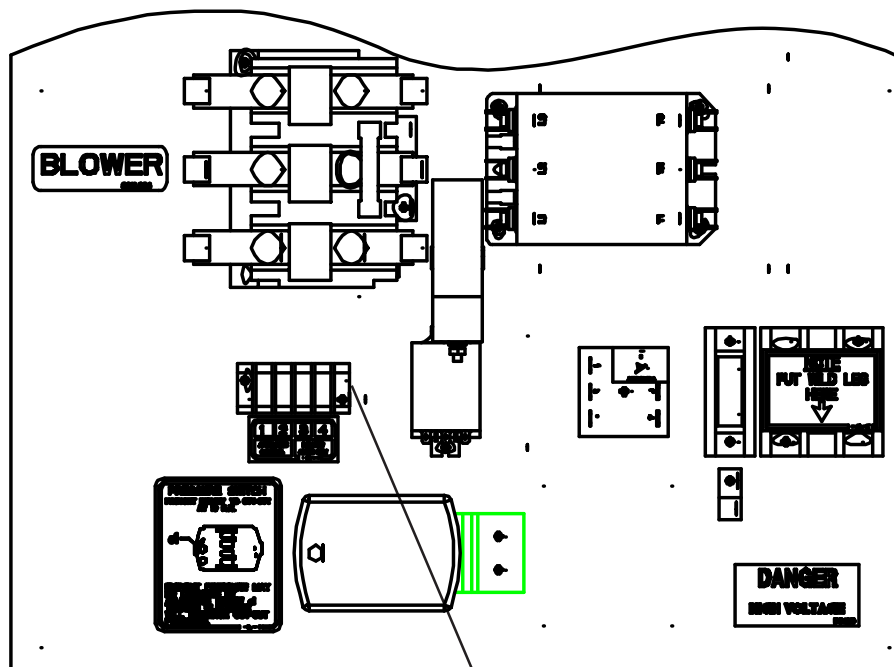
AIR SYSTEM CONTROL BOX DEFINITIONS (Continued)

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.

⚠ WARNING

No voltage should be supplied to terminals one (1) and two (2).
See the diagram on pages 20-24 and drawing below.

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 20-24 and the Drawing on page 29.



Steps 10 & 11: Automatic Control and Remote Shut-Down Control

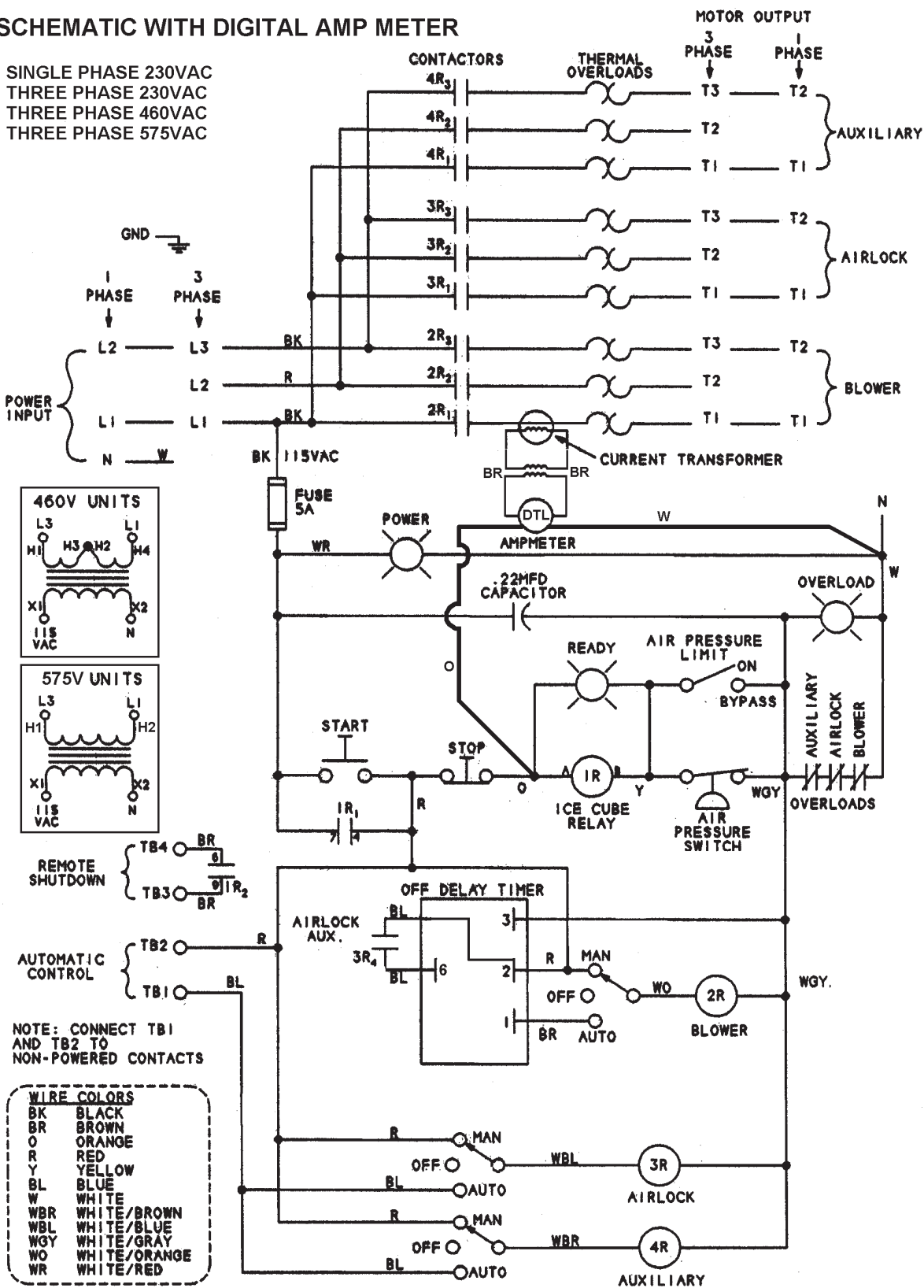
AIR SYSTEM CONTROL BOX -- THERMAL UNIT CHART

SINGLE MOTOR	1EL0861 #B 3.00 THERMAL UNIT	1EL0859 #B 4.15 THERMAL UNIT	1EL0769 #B 6.90 THERMAL UNIT	1EL0767 #B 9.10 THERMAL UNIT	1EL0763 #B 11.5 THERMAL UNIT	1EL0761 #B 14 THERMAL UNIT	1EL0795 #CC 20.9 THERMAL UNIT	1EL0796 #CC 26.3 THERMAL UNIT	1EL0797 #CC 33.3 THERMAL UNIT	1EL0788 #CC 39.6 THERMAL UNIT	1EL0793 #CC 54.5 THERMAL UNIT	1EL0790 #CC 64.3 THERMAL UNIT	1EL0794 #CC 68.5 THERMAL UNIT	1EL0804 #CC 74.6 THERMAL UNIT	1EL0791 #CC 112 THERMAL UNIT	1EL0812 #CC 156 THERMAL UNIT
4" 700 10HP, 230V, 1PH					3	3						3				
4" 700 10HP, 230V, 3PH			3							3						
4" 700 10HP, 440V, 3PH	3	3					3									
4" 700 15HP, 230V, 1PH					3	3								3		
4" 700 15HP, 230V, 3PH			3								3					
4" 700 15HP, 440V, 3PH	3	3						3								
4" 700 20HP, 230V, 3PH			3										3			
4" 700 20HP, 440V, 3PH	3	3							3							
5" 1200 20HP, 230V, 3PH			3										3			
5" 1200 20HP, 440V, 3 PH	3	3							3							
5" 1200 30HP, 230V, 3PH			3												3	
5" 1200 30HP, 440V, 3PH	3	3									3					
5" 1700 20HP, 230V, 3PH			3										3			
5" 1700 20HP, 440V, 3PH	3	3							3							
5" 1700 30HP, 230V, 3PH			3												3	
5" 1700 30HP, 440V, 30PH	3	3									3					
5" 1700 40HP, 230V, 3PH			3													3
5" 1700 40HP, 440V, 3PH	3	3											3			
DUAL MOTOR																
2 X 7.5 HP 230V, 1 PH					3	3				6						
2 x 10 HP 230V, 1 PH					3	3						6				
2 x 15 HP 230V, 1 PH					3	3								6		

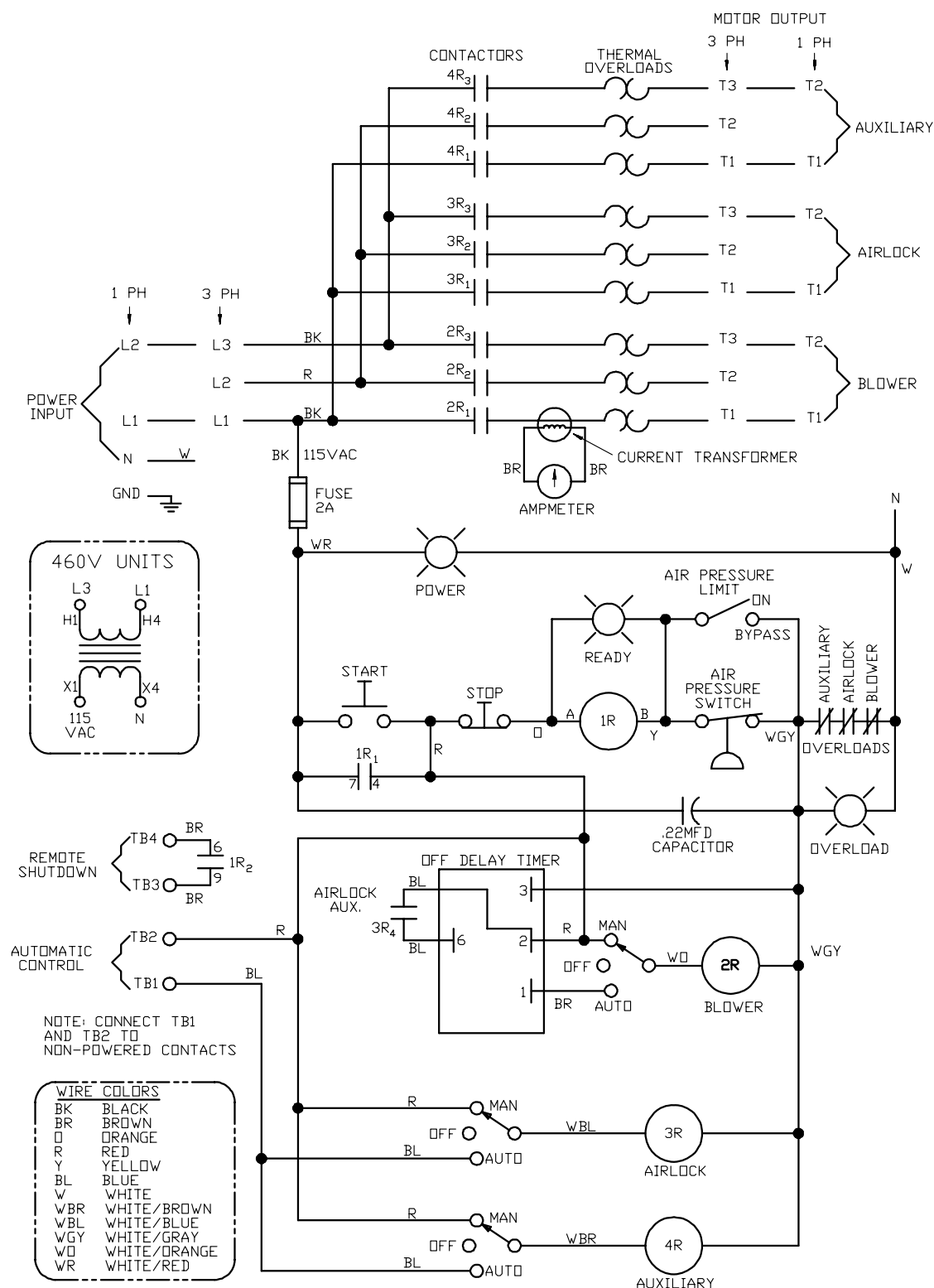
STANDARD SCHEMATIC WITH DIGITAL AMP METER

SCHEMATIC WITH DIGITAL AMP METER

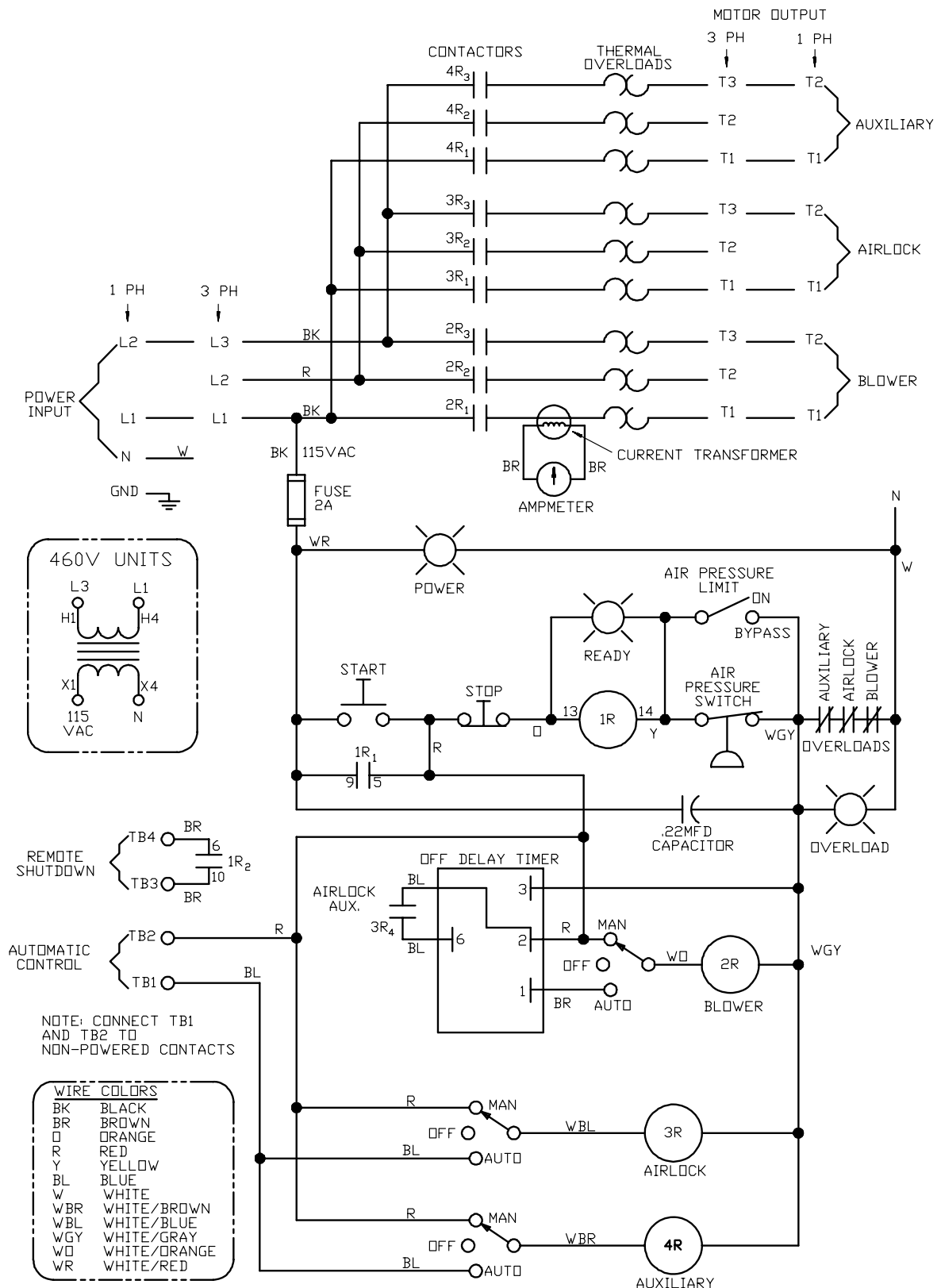
SINGLE PHASE 230VAC
THREE PHASE 230VAC
THREE PHASE 460VAC
THREE PHASE 575VAC



STANDARD SCHEMATIC WITH ANALOG AMP METER USING 2EL0273 CONTROL RELAY



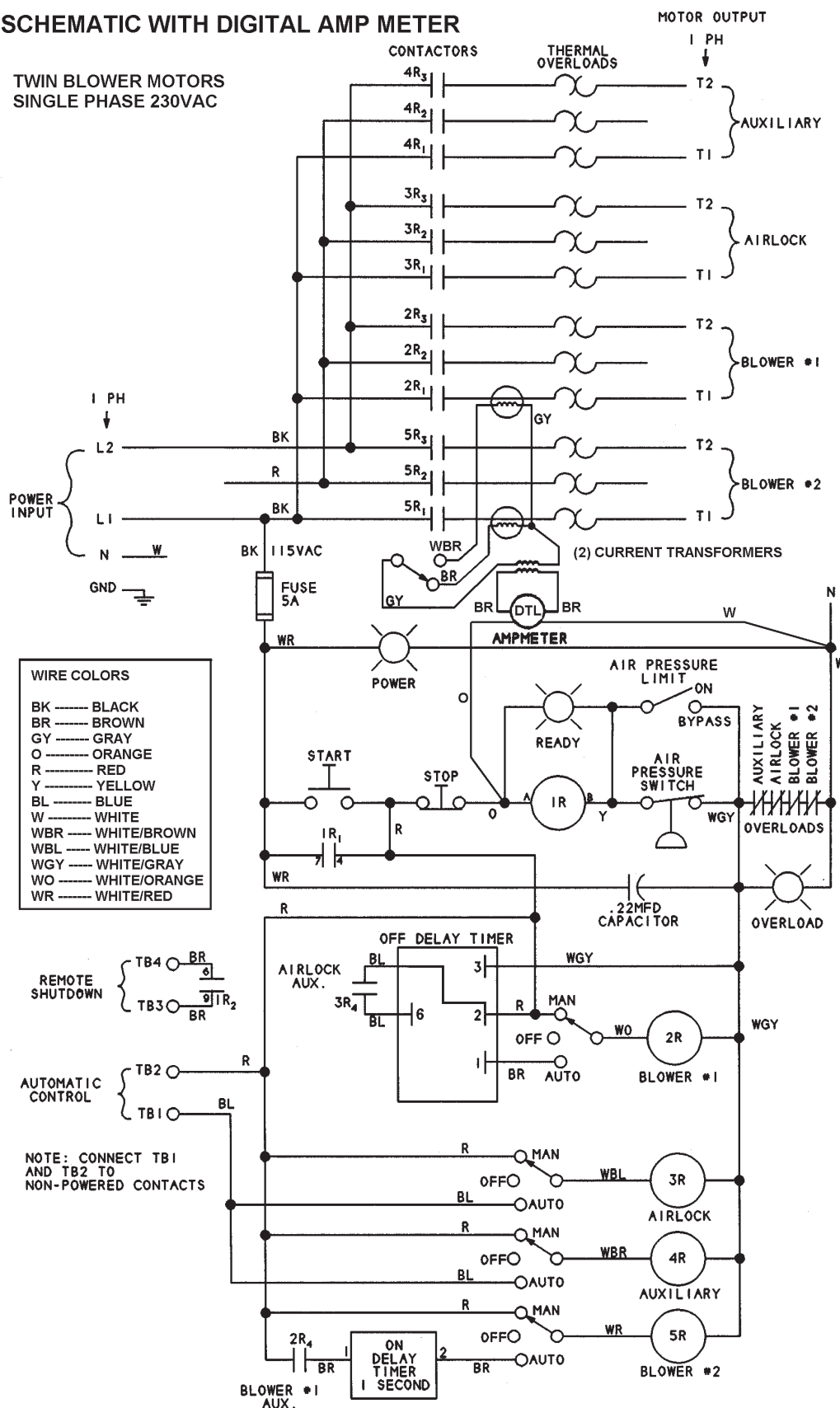
SCHEMATIC WITH ANALOG AMP METER USING HF-7203 CONTROL RELAY



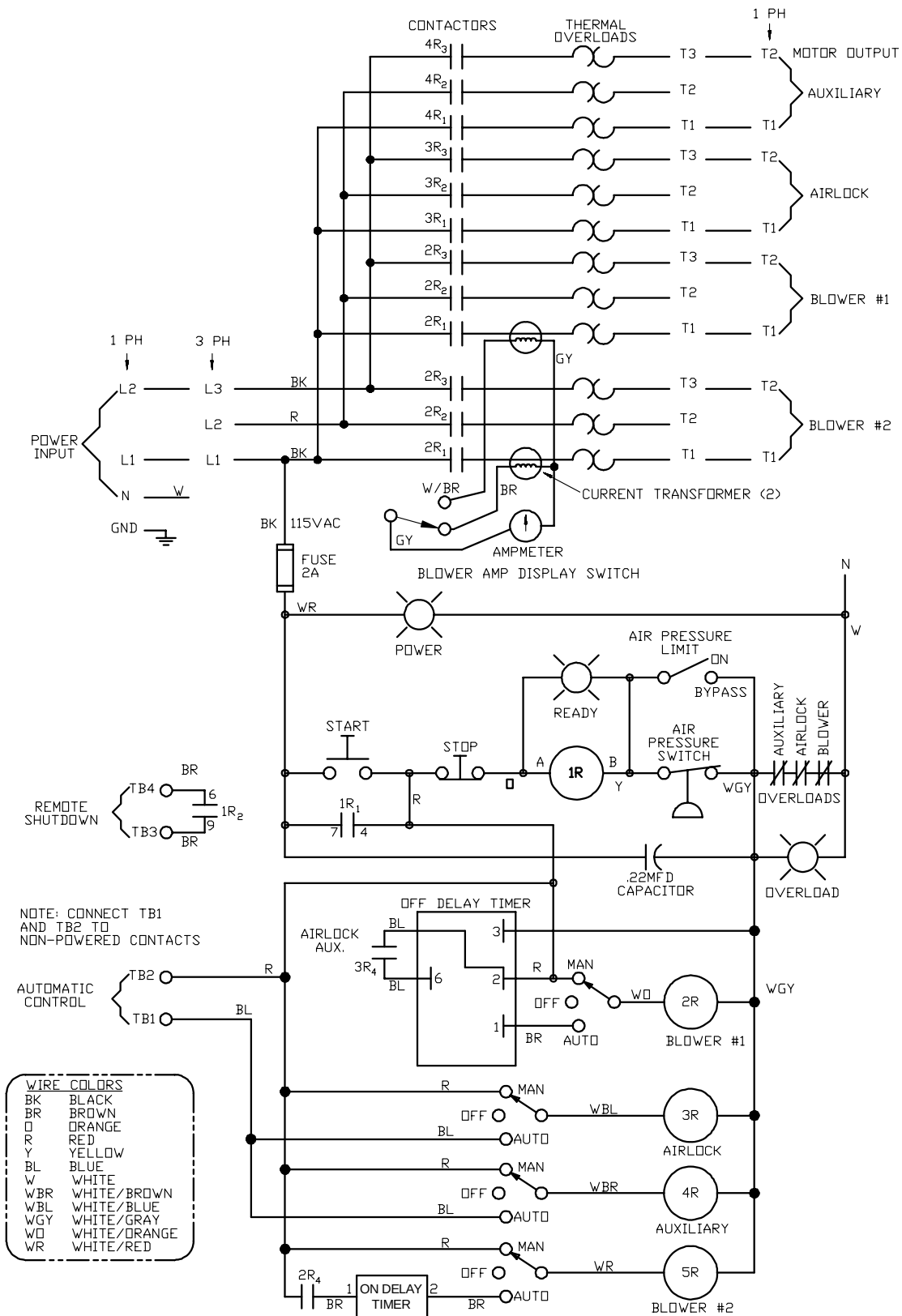
TWIN SCHEMATIC WITH DIGITAL AMP METER

SCHEMATIC WITH DIGITAL AMP METER

TWIN BLOWER MOTORS
SINGLE PHASE 230VAC



TWIN SCHEMATIC WITH ANALOG AMP METER USING 2EL0273 CONTROL RELAY



PNEG-1355 4" & 5" Air Systems



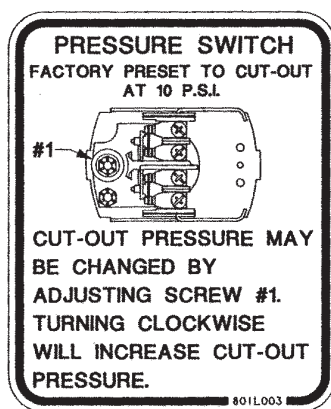
CONTROL BOX OPERATIONAL PROCEDURES

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

1. Place the Blower, Airlock and Auxiliary Control Switches in the "Off" position.
2. Place the Air Pressure Limit Control Switch in the "On" position (unit will stop when the air pressure reaches 10 PSI).
3. Turn on the power to the Air Systems Control Box. The power light should come on.
4. Push the Start button; the Control Circuit Ready Light should come on.
5. Place the Blower, Airlock and Auxiliary Switch in the "Auto" position.
6. 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.
7. 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".
8. Pushing the Stop button will immediately stop all air system functions as well as any equipment tied to terminals three (3) and four (4).

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

1. Place the Blower, Airlock and Auxiliary Control Switches in the "Off" position.
2. Place the Air Pressure Limit Control Switch in the "On" position (unit will stop when the air pressure reaches 10 PSI).
3. Turn on the power to the Air System Control Box; the power light should come on.
4. Push the Start button. The Control Circuit Ready Light should come on.
5. 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.
6. 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).



Drawing 2

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.

CAUTION

Do not stand next to the exhausted air.

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.

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 p.s.i. 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) p.s.i. NOTE: If the pressure limit is set below five (5) p.s.i., the switch may not reset and allow the air transfer to run. See Drawing 2 on page 26.
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.
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.
 - d) TYPICAL RUNNING CONDITIONS ARE:
A 4" system running full with 15 HP will have a system pressure of 4-5 psi.
A 5" system running full with 30 HP will have a system pressure of 5-6 psi.
A 5" system running full with 40 HP will have a system pressure of 6-7 psi.

AIR SYSTEM OPERATION GUIDELINES (Continued)

7. OPERATION OF TWIN MOTOR TRANSFER OPTION

The Twin Motor Option allows an air system to use two single phase motors to provide extra power when 3 phase electricity is not available.

NOTE: Twin Drive capacities are approximately 80% of Single Drive Units.

The Twin Motor Control box is different from the standard control box because it has an additional magnetic contactor and an “On-Delay” timer for stagger starting the second motor to minimize voltage drop during the starting operation. It also has a selection switch to display the amperage of each motor.

It is important to use two motors of similar model and size because it is normal for motors to run at slightly different amperages and for one to be more heavily loaded than the other. Using similar motors will minimize this condition.

Check the amperage of each motor periodically by using the selection switch on the control panel. Leave the switch in position to monitor the motor with the highest amperage. It is important to periodically check both motor amperages to insure that they are sharing the load. For example, if the belts for one motor would start to slip, then the other motor would take on the additional load and become overloaded.

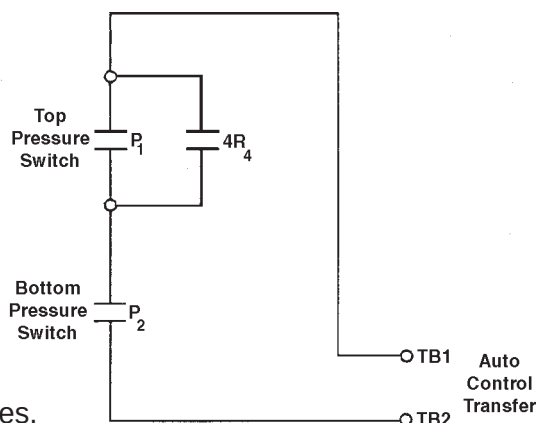
8. RECOMMENDATIONS FOR OFF-SEASON STORAGE

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.

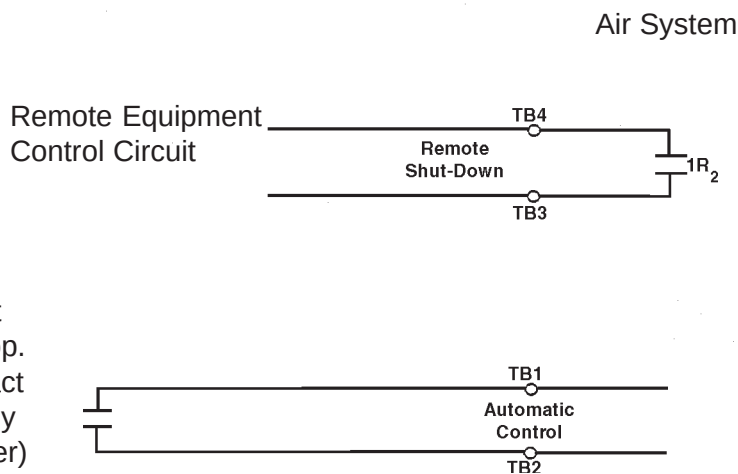
WIRING FOR A SURGE TANK HOOKED TO A TRANS-FER

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 4R4 being closed. When P2 opens, the unit will stop.



P1 and P2 are Pressure Switches.
4R4 is an Auxiliary Switch (2EL0655)
attached to the Top Contactor 4R4.

HOW TO HOOK UP AIR SYSTEM TO REMOTE EQUIPMENT

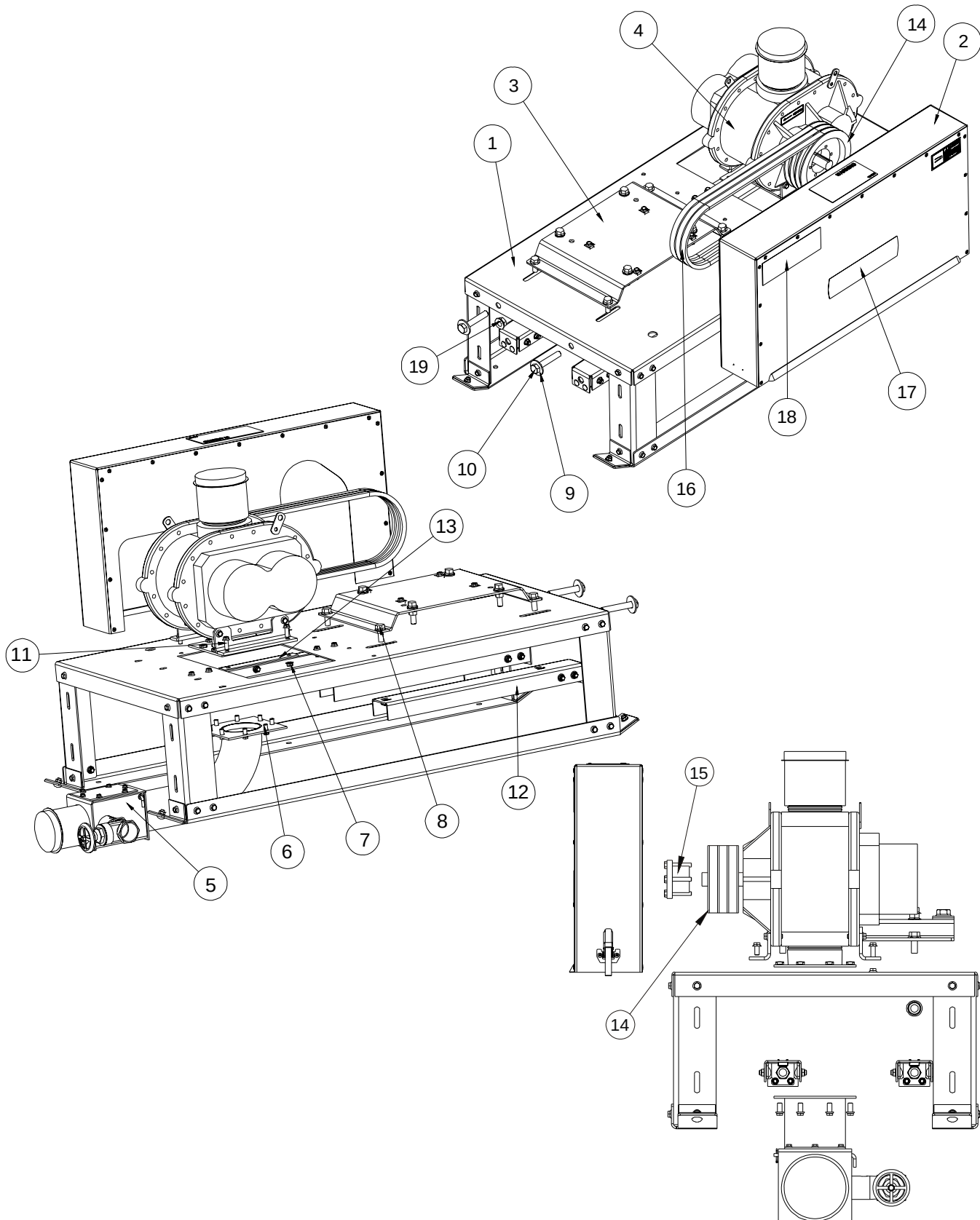


Any contact that closes upon start and opens on stop.
(Note: This contact must not have any external AC Power)

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

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.

4" (700) & 5" (1200) STANDARD BLOWER PARTS

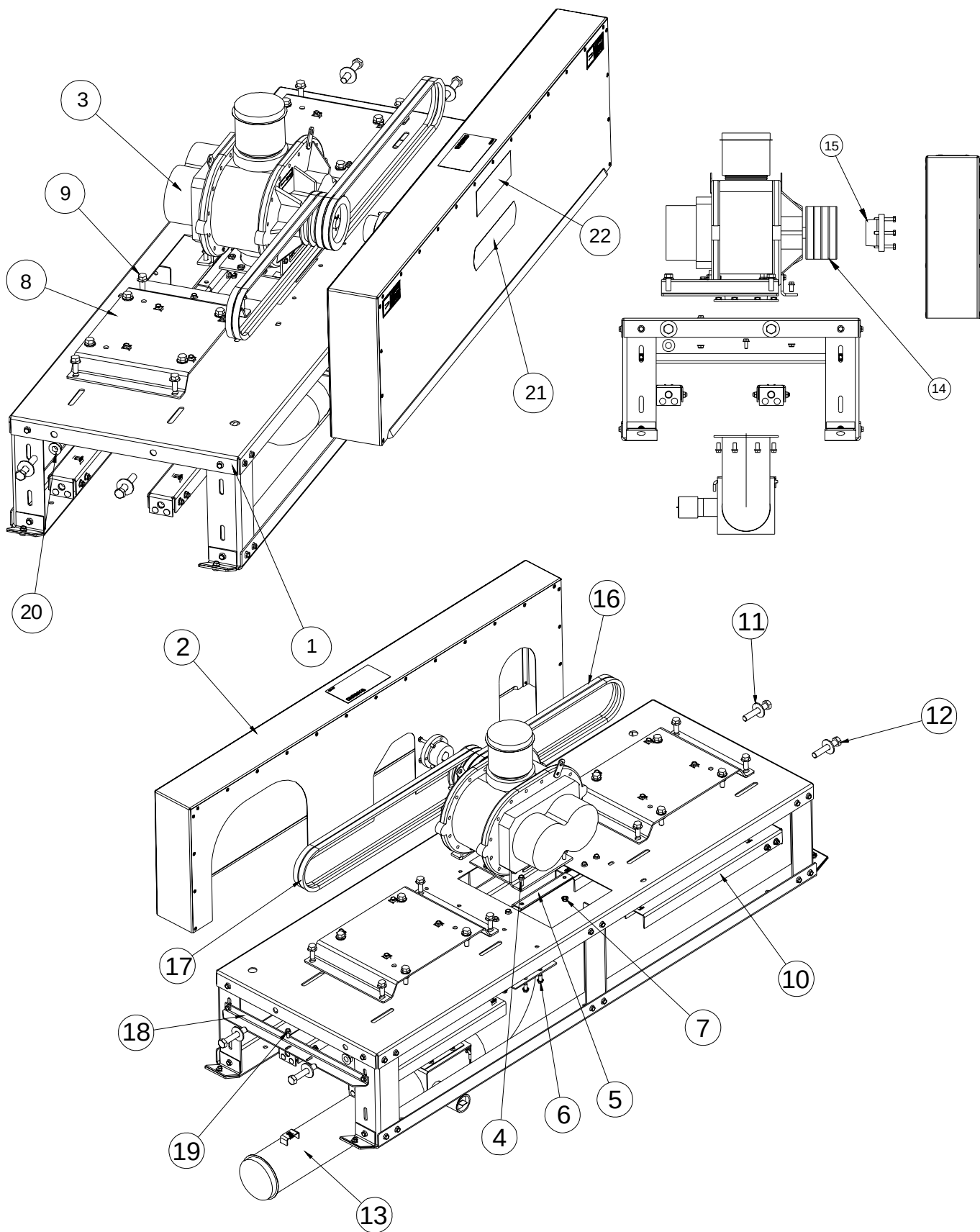


4" (700) & 5" (1200) STANDARD BLOWER PARTS

4" (700) AND 5" (1200) STD BLOWER PARTS

ITEM	PART NO.	DESCRIPTION	4" QTY	5" QTY
1	AS-0003	BLOWER BASE ASY 4" & 5"	1	1
2	AS-0108	DRV GUARD ASY-4"& 5"STD BLOWER	1	1
3	AS-0047	MOTOR MTG PLATE ASY-4" AIR SYS	1	-
3	AS-0058	MOTOR MTG PLATE ASY-5" AIR SYS	-	1
4	8011266	BLOWER SUB-ASY-4" & 5" STD DMC	1	1
4	8011266F	BLOWER SUB-ASY-4" & 5" STD FFI	1	1
5	AS-0088-D	BLOWER OUTLET ELBOW ASY - 4" DMC	1	-
5	AS-0088-F	BLOWER OUTLET ELBOW ASY - 4" FFI	1	-
5	AS-0092-D	BLOWER OUTLET ELBOW ASY - 5" DMC	-	1
5	AS-0092-F	BLOWER OUTLET ELBOW ASY - 5" FFI	-	1
6	S-9067	BOLT FLNGS 3/8-16x3/4 ZN GR5	14	14
7	S-968	NUT FLANGWZ 3/8-16 ZN GR5	8	8
8	S-9062	BOLT FLNGS 1/2-13x1-1/4 ZN GR5	4	4
9	S-858	WASHER FLAT 5/8 USS ZN	2	2
10	2FH1043	BOLT 5/8-11x3-1/2 HHTB GR2 PLT	2	2
11	S-9065	BOLT FLNGS 3/8-16 X 1 ZN GR5	2	2
12	AS-0025	MOTOR ADJUST RAIL ASY	2	2
13	AS-0042	BLOWER SUPPT/SHIM ASY-4" & 5"	1	1
14	PT0664	PULLEY QD 7.75OD x SK BUSH 3AB	1	-
14	PT0602	PULLEY-(SOLID)5.50"ODxSD 3AB	-	1
15	PT0772	BUSHING-QD STYLE SK,1-1/8"BORE	1	-
15	PT0794	BUSHING - SD X 1-1/8BORE	-	1
16	MHC00028	BELT-V BX60	3	-
16	PT1179	BELT-V BX58	-	3
17	801L001	LOGO DECAL- TRANSFER 700	1	-
17	8027012	LOGO DECAL- TRANSFER 1200	-	1
17	420-1443-1	LOGO DECAL - FFI	1	1
18	DC-1330	LOGO DECAL- DMC 2-7/8 X 9	1	1
19	S-9259	NUT FLANGWZ 5/8-11 ZN	1	1
-	PT1132	GATE VALVE - 1-1/2"NPT	1	1
MOTORS & DRIVE PARTS (NOT SHOWN)				
	PT0666	PULLEY QD 8.95OD x SK BUSH 3AB	X	X
	MHC60010-1	MOTOR 10HP 1PH 1800RPM	X	X
	1000-3	MOTOR 10HP 3PH 1800RPM	X	X
	PT0778	BUSHING SK 1-3/8" BORE QD STYLE	X	X
	CH-5753	MOTOR 15HP 1PH 1800RPM ODP	X	X
	3EL5069	MOTOR 15HP 1PH 1800RPM TEFC	X	X
	1500-3	MOTOR 15HP 3PH 1800RPM	X	X
	2000-3	MOTOR 20HP 3PH 1800RPM	X	X
	GC03810	BUSHING SK 1-5/8" BORE QD STYLE	X	X
	3000-3	MOTOR 30HP 3PH 1800RPM	-	X
	CE-00617	BUSHING SK 1-7/8" BORE QD STYLE	-	X

4" & 5" TWIN BLOWER PARTS

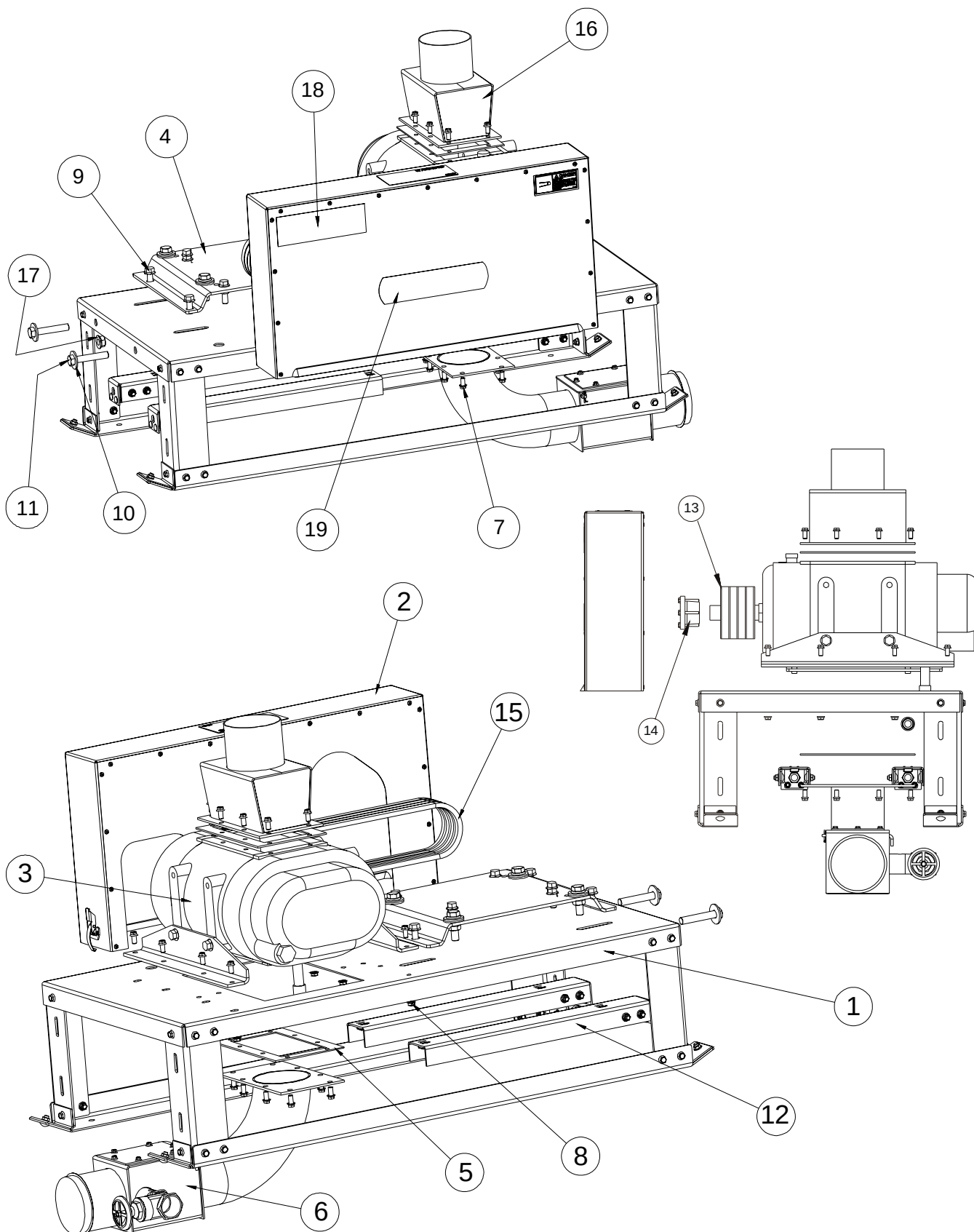


4" & 5" TWIN BLOWER PARTS

4" (700) AND 5" (1200) TWIN BLOWER PARTS

ITEM	PART NO.	DESCRIPTION	4" QTY	5" QTY
1	AS-0007	BLOWER BASE ASY 4" & 5" TWIN	1	1
2	AS-0110	DRV GUARD ASY-4"& 5" TWIN BLOWER	1	1
3	8011266	BLOWER SUB-ASY-4" & 5" STD DMC	1	1
3	8011266F	BLOWER SUB-ASY-4" & 5" STD FFI	1	1
4	S-9065	BOLT FLNGS 3/8-16 X 1 ZN GR5	2	2
5	AS-0042	BLOWER SUPPT/SHIM ASY-4" & 5"	1	1
6	S-9067	BOLT FLNGS 3/8-16x3/4 ZN GR5	16	16
7	S-968	NUT FLANGWZ 3/8-16 ZN GR5	10	10
8	AS-0047	MOTOR MTG PLATE ASY-4" AIR SYS	2	2
9	S-9062	BOLT FLNGS 1/2-13x1-1/4 ZN GR5	8	8
10	AS-0025	MOTOR ADJUST RAIL ASY	4	4
11	S-858	WASHER FLAT 5/8 USS ZN	4	4
12	2FH1043	BOLT 5/8-11x3-1/2 HHTB GR2 PLT	4	4
13	AS-0048-D	ELBOW ASY-BLOWER 4"STD TWIN DMC	1	-
13	AS-0048-F	ELBOW ASY-BLOWER 4"STD TWIN FFI	1	-
13	AS-0054-D	ELBOW ASY-BLOWER 5"STD TWIN DMC	-	1
13	AS-0054-F	ELBOW ASY-BLOWER 5"STD TWIN FFI	-	1
14	PT0742	PULLEY QD 7.75OD x SK BUSH 4AB	1	-
14	PT0741	PULLEY-5.50ODxSD BSH 4AB	-	1
15	PT0772	BUSHING-QD STYLE SK,1-1/8"BORE	1	-
15	PT0794	BUSHING - SD X 1-1/8BORE	-	1
16	MHC00028	BELT-V BX60	-	2
16	MHC00743	BELT-V BX65	2	-
17	MHC00020	BELT-V BX68	2	-
17	MHC00743	BELT-V BX65	-	2
18	AS-0085	SUPPORT ANGLE-BLOWER OUTLET TW	1	1
19	S-6606	BOLT FLNGS 5/16-18X3/4 ZN GR5	1	1
20	S-9259	NUT FLANGWZ 5/8-11 ZN	2	2
21	8027012	LOGO DECAL - TRANSFER 1200	1	1
21	420-1443-1	LOGO DECAL - FFI	1	1
22	DC-1330	LOGO DECAL- DMC 2-7/8 X 9	1	1
-	AS-0112	AIR SYS-GATE VALVE ASY - TWIN	1	1
MOTORS & DRIVE PARTS (NOT SHOWN)				
	PT0749	PULLEY QD 8.95OD x SK BUSH 2AB	X	X
	002-1054-2	MOTOR 7.5HP 1PH 1800RPM	X	-
	PT0772	BUSHING SK 1-1/8" BORE QD STYLE	X	-
	MHC60010-1	MOTOR 10HP 1PH 1800RPM	X	X
	PT0778	BUSHING SK 1-3/8" BORE QD STYLE	X	X
	CH-5753	MOTOR 15HP 1PH 1800RPM ODP	-	X
	3EL5069	MOTOR 15HP 1PH 1800RPM TEFC	-	X
	GC03810	BUSHING SK 1-5/8" BORE QD STYLE	-	X

5" (1700) HI-CAPACITY BLOWER PARTS

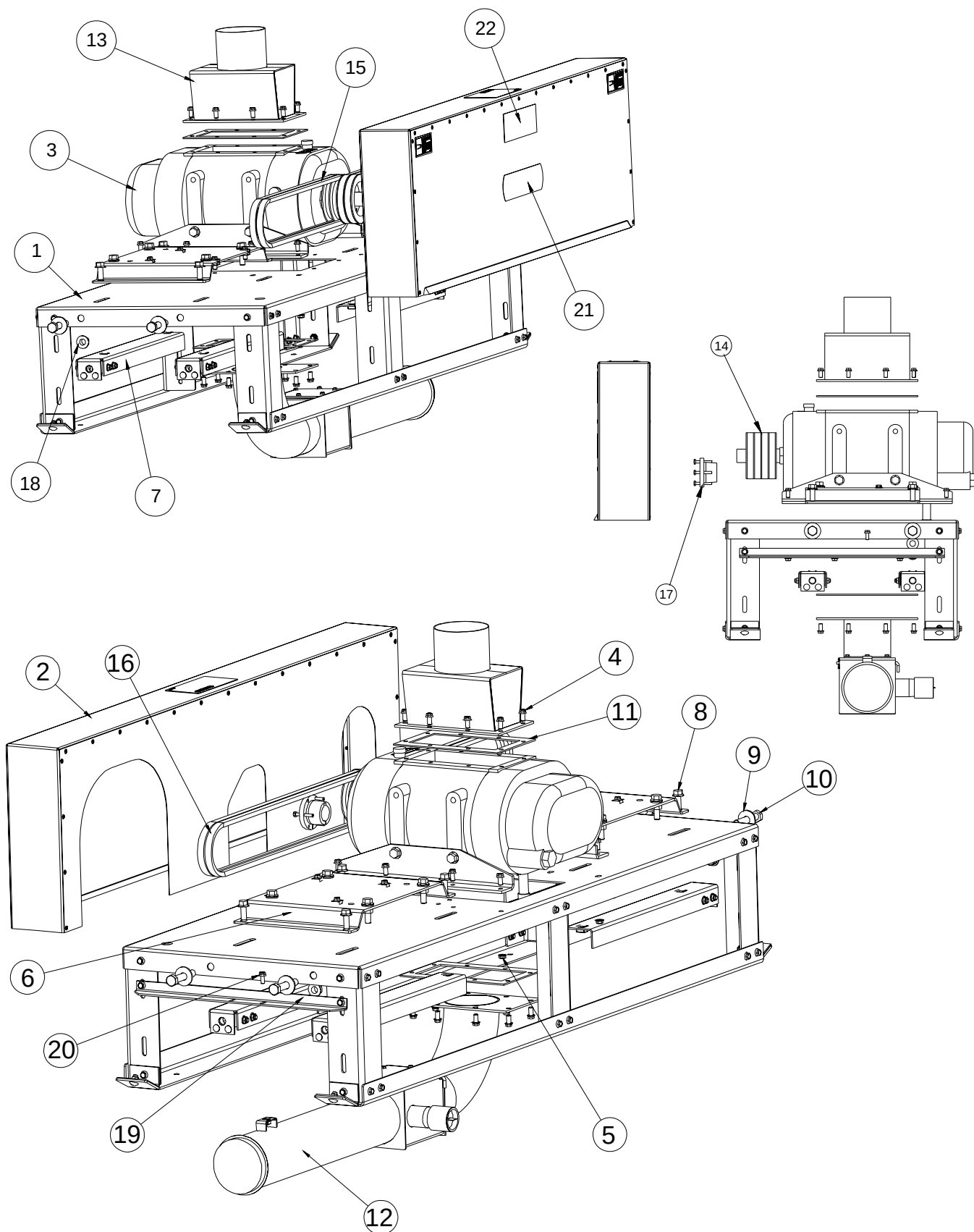


5" (1700) HI-CAPACITY BLOWER PARTS

5" (1700) HI-CAPACITY BLOWER PARTS

ITEM	PART NO.	DESCRIPTION	QTY
1	AS-0003	BLOWER BASE ASY 4" & 5"	1
2	AS-0108	DRV GUARD ASY-4"& 5"STD BLOWER	1
3	CA-1059	BLOWER SUB-ASY - 5" HICAP DMC	1
3	CA-1059F	BLOWER SUB-ASY - 5" HICAP FFI	1
4	AS-0058	MOTOR MTG PLATE ASY-5" AIR SYS	1
5	802B006	BLOWER GASKET - 5" HI CAPACITY	2
6	AS-0094-D	BLOWER OUTLET ELB ASY-5" HICAP DMC	1
6	AS-0094-F	BLOWER OUTLET ELB ASY-5" HICAP FFI	1
7	S-9067	BOLT FLNGS 3/8-16x3/4 ZN GR5	24
8	S-968	NUT FLANGWZ 3/8-16 ZN GR5	8
9	S-9062	BOLT FLNGS 1/2-13x1-1/4 ZN GR5	4
10	S-858	WASHER FLAT 5/8 USS ZN	2
11	2FH1043	BOLT 5/8-11x3-1/2 HHTB GR2 PLT	2
12	AS-0025	MOTOR ADJUST RAIL ASY	2
13	PT0736	PULLEY-4.95"ODxSD BSH 4AB	1
14	GC06682	BUSHING SD X 1-7/16" BORE	1
15	MHC00028	BELT-V BX60	4
16	8021130-RD	BLOWER INLET - 5"HI - RED	1
16	8021130-OR	BLOWER INLET - 5"HI - ORANGE	1
17	S-9259	NUT FLANGWZ 5/8-11 ZN	1
18	DC-1330	LOGO DECAL- DMC 2-7/8 X 9	1
19	420-1443-1	LOGO DECAL - FFI	1
19	8027011	LOGO DECAL- TRANSFER 1700	1
-	PT1132	GATE VALVE - 1-1/2"NPT	1
MOTORS & DRIVE PARTS (NOT SHOWN)			
	PT0737	PULLEY QD 8.95OD x SK BUSH 4AB	X
	2000-3	MOTOR 20HP 3PH 1800RPM	X
	GC03810	BUSHING SK 1-5/8" BORE QD STYLE	X
	3000-3	MOTOR 30HP 3PH 1800RPM	X
	CE-00617	BUSHING SK 1-7/8" BORE QD STYLE	X
	4000-3	MOTOR 40HP 3PH 1800RPM	X
	PT0784	BUSHING SK 2-1/8" BORE QD STYLE	X

5" (1700) TWIN HI-CAPACITY BLOWER PARTS

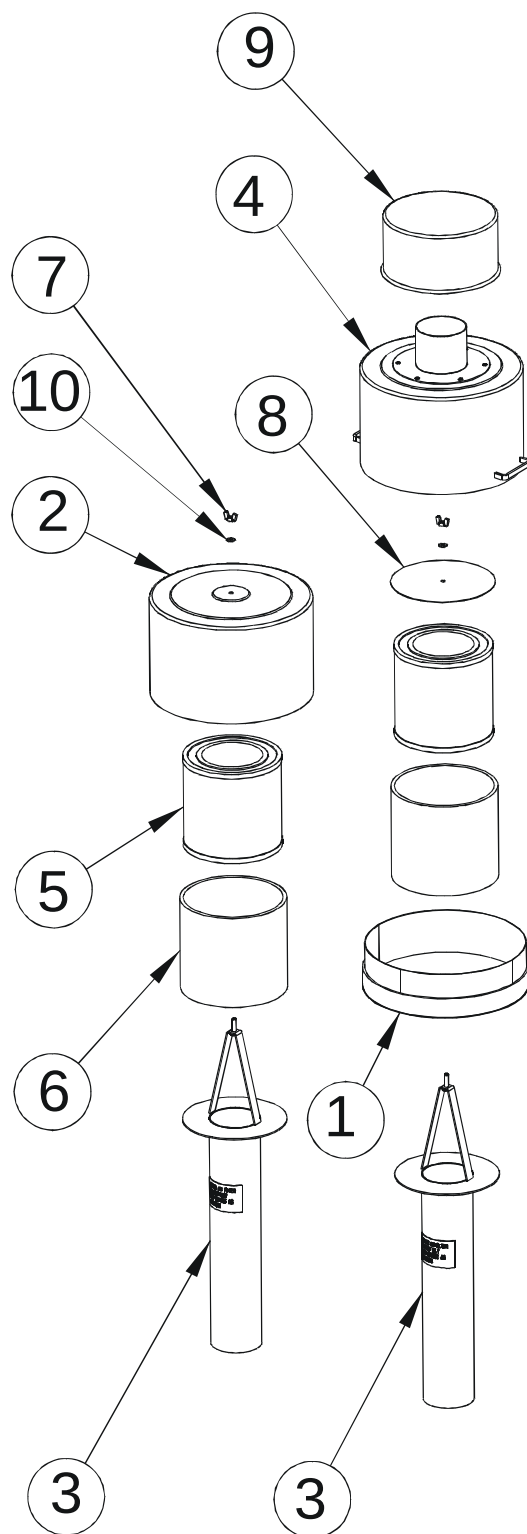


5" (1700) TWIN HI-CAPACITY BLOWER PARTS

5" (1700) TWIN HI-CAPACITY BLOWER PARTS

ITEM	PART NO.	DESCRIPTION	QTY
1	AS-0007	BLOWER BASE ASY 4" & 5" TWIN	1
2	AS-0110	DRV GUARD ASY-4"& 5"TWN BLOWER	1
3	CA-1059	BLOWER SUB-ASY - 5" HICAP DMC	1
3	CA-1059F	BLOWER SUB-ASY - 5" HICAP FFI	1
4	S-9067	BOLT FLNGS 3/8-16x3/4 ZN GR5	26
5	S-968	NUT FLANGWZ 3/8-16 ZN GR5	10
6	AS-0047	MOTOR MTG PLATE ASY-4" AIR SYS	2
7	AS-0025	MOTOR ADJUST RAIL ASY	4
8	S-9062	BOLT FLNGS 1/2-13x1-1/4 ZN GR5	8
9	S-858	WASHER FLAT 5/8 USS ZN	4
10	2FH1043	BOLT 5/8-11x3-1/2 HHTB GR2 PLT	4
11	802B006	BLOWER GASKET - 5" HI CAPACITY	2
12	AS-0051-D	ELBOW ASY-BLOWER OUT 5"HI TWIN DMC	1
12	AS-0051-F	ELBOW ASY-BLOWER OUT 5"HI TWIN FFI	1
13	8021130-RD	BLOWER INLET - 5"HI - RED	1
13	8021130-OR	BLOWER INLET - 5"HI - ORANGE	1
14	PT0736	PULLEY-4.95"ODxSD BSH 4AB	1
15	MHC00028	BELT-V BX60	2
16	MHC00743	BELT-V BX65	2
17	GC06682	BUSHING SD X 1-7/16" BORE	1
18	S-9259	NUT FLANGWZ 5/8-11 ZN	2
19	AS-0085	SUPPORT ANGLE-BLOWER OUTLET TWIN	1
20	S-6606	BOLT FLNGS 5/16-18X3/4 ZN GR5	1
21	8027011	LOGO DECAL- TRANSFER 1700	1
21	420-1443-1	LOGO DECAL - FFI	1
22	DC-1330	LOGO DECAL- DMC 2-7/8 X 9	1
-	AS-0112	AIR SYS-GATE VALVE ASY - TWIN	1
MOTOR & DRIVE PARTS (NOT SHOWN)			
	PT0749	PULLEY QD 8.95OD x SK BUSH 2AB	X
	MHC60010-1	MOTOR 10HP 1PH 1800RPM	X
	PT0778	BUSHING SK 1-3/8" BORE QD STYLE	X
	CH-5753	MOTOR 15HP 1PH 1800RPM ODP	X
	3EL5069	MOTOR 15HP 1PH 1800RPM TEFC	X
	GC03810	BUSHING SK 1-5/8" BORE QD STYLE	X

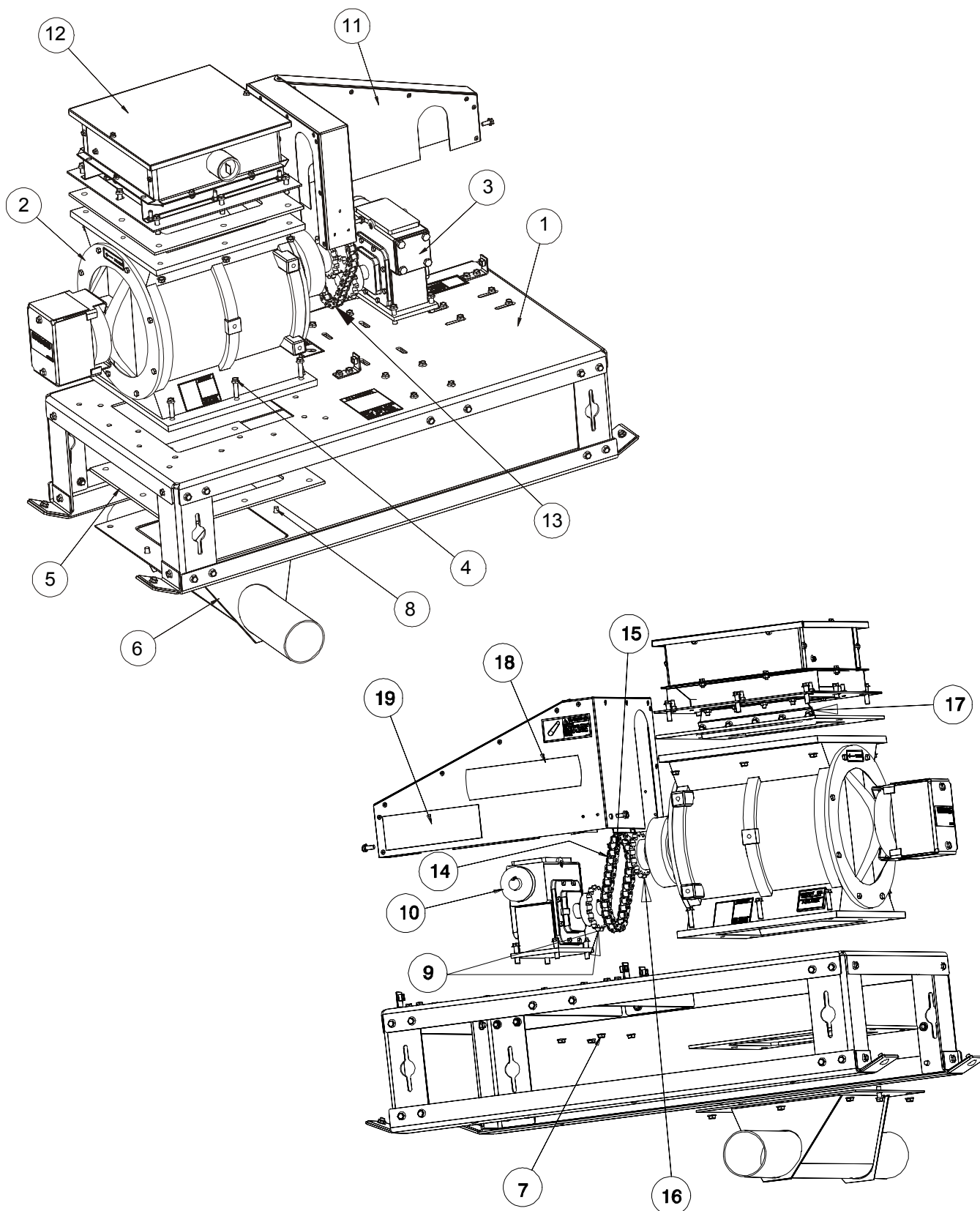
4" & 5" BLOWER FILTERS



4" & 5" BLOWER FILTERS

INDEX	PART #	DESCRIPTION	QTY.
1	8021224-RD	Base-Prefilter, 5" Weldment - DMC	1
1	8021224-OR	Base-Prefilter, 5" Weldment - FFI	1
2	801A104-RD	Canister- Air Filter - 16" - Red	1
2	801A104-OR	Canister- Air Filter - 16" - Orange	1
3	802A072-D	Filter Base - 5 Assembly - DMC	1
3	802A072-F	Filter Base - 5 Assembly - FFI	1
4	8021219-D	Filter Canister - w/Inlet - Assembly Precleaner - DMC	1
4	8021219-F	Filter Canister - w/Inlet - Assembly Precleaner - FFI	1
5	801A154	Filter - Inner, 10 Micron (Part of 801A152)	1
6	801A156	Filter - Outer, (Pre-Foam) (Part of 801A152)	1
7	S-1451	Nut-Wing, 3/8"-16 UNC Plated	1
8	8021228	Plate - Filter Top Precleaner (4" & 5" Air Systems)	1
9	MS5466	Precleaner - 5" Inlet Centrifugal (350-700 CFM)	1
10	S-248	Washer - Flat, Standard 3/8", Pltd.	1

4" & 5" AIRLOCK PARTS

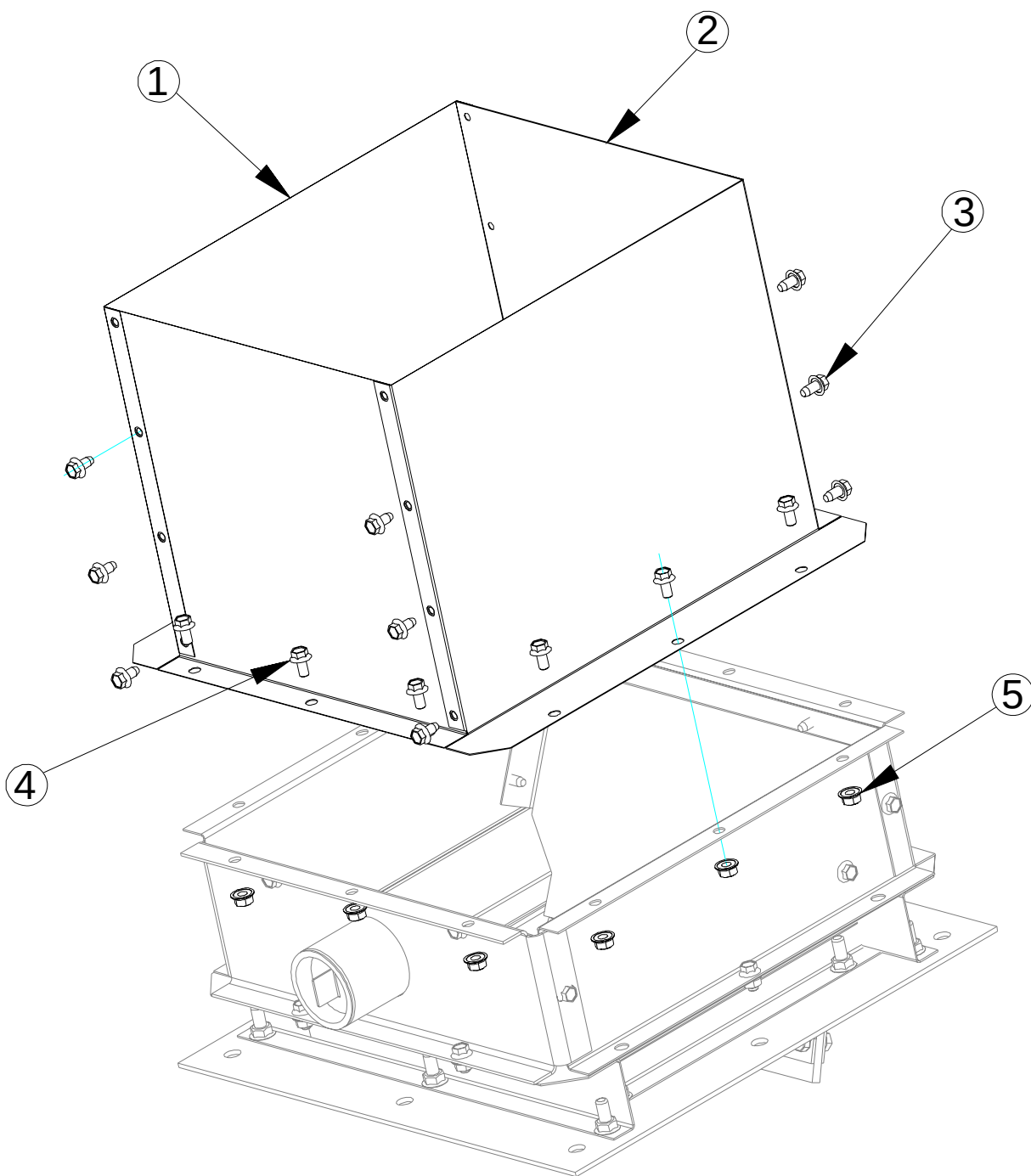


4" & 5" AIRLOCK PARTS

4" AND 5" AIRLOCK PARTS

ITEM	PART NO.	DESCRIPTION	4" QTY	5" QTY
1	AS-0011	AIRLOCK BASE ASY - 4" & 5"	1	1
2	AS-0060	AIRLOCK SUB-ASY-4" SYSTEM DMC	1	-
2	AS-0062	AIRLOCK SUB-ASY-5" SYSTEM DMC	-	1
2	AS-0060F	AIRLOCK SUB-ASY-4" SYSTEM FFI	1	-
2	AS-0062F	AIRLOCK SUB-ASY-5" SYSTEM FFI	-	1
3	AS-0114	GEARBOX ASSEMBLY - DMC	1	1
3	AS-0114F	GEARBOX ASSEMBLY - FFI	1	1
4	S-9064	BOLT FLNG 3/8-16x1-1/2 ZN GR5	16	20
5	801C008	GASKET - 4" AIRLOCK	2	-
5	802C008	GASKET - 5" AIRLOCK	-	2
6	AS-0037-RD	AIRLOCK HOPPER WELD - 4" RED	1	-
6	AS-0037-OR	AIRLOCK HOPPER WELD - 4" ORANGE	1	-
6	AS-0034-RD	AIRLOCK HOPPER WELD - 5" RED	-	1
6	AS-0034-OR	AIRLOCK HOPPER WELD - 5" ORANGE	-	1
7	S-968	NUT FLANGWZ 3/8-16 ZN GR5	16	20
8	S-9065	BOLT FLNGS 3/8-16 X 1 ZN GR5	4	8
9	PT1106	SPROCKET- (HUB TYPE)1-1/4"ID	1	1
10	PT0622	PULLEY-(FLAT)3."x1."ID-1A	1	1
11	AS-0109	AIRLOCK BELT GUARD ASY - Prior 8/05	1	1
11	AS-0124	AIRLOCK BELT GUARD ASY - 8/05	1	1
12	AS-0070	INLET ASY - 4" AIRLOCK	1	-
12	AS-0072	INLET ASY - 5" AIRLOCK	-	1
13	801A205	CHAIN-ROLLER(4" AIRLOCK)	1	-
13	801A148	CHAIN-ROLLER(5" AIRLOCK)	-	1
14	PT1051	LINK- CONNECTING, #60 3/4PITCH	1	1
15	PT1054	LINK- OFFSET, #60 3/4PITCH	1	1
16	PT1083	SPROCKET HUB 15T 1.5"ID #60	1	-
16	PT1107	SPROCKET- (HUB TYPE)1-3/4"ID	-	1
17	8011293	AIRLOCK WIPER-SHEAR PROTECT 4"	1	-
17	8021209	AIRLOCK WIPER-SHEAR PROTECT 5"	-	1
18	801L001	LOGO DECAL- TRANSFER 700	1	-
18	8027013	LOGO DECAL - 5" TRANSFER	-	1
18	420-1507-3	LOGO DECAL - FFI	1	1
19	DC-1330	LOGO DECAL- DMC 2-7/8 X 9	1	1
20	AS-0117	AIR SYS-ALK SHAFT GUARD ASY	1	1
MOTORS & DRIVE PARTS (NOT SHOWN)				
	100-1	MOTOR 1HP 1PH 56 TEFC 5/8 SHAFT	X	X
	002-1087-2	MOTOR 1HP 3PH 56 TEFC 5/8 SHAFT	X	X
	PT0483	BELT-V A31 - Prior 8/05	X	X
	AS-0212	BELT-V A24 - 8/05	X	X
	PT0618	PULLEY 3.25"OD x .62"ID - 1A	X	X
	PT0558	PULLEY 4.44"OD x .62"ID - 1A	-	5" (1700)

AIRLOCK INLET TRANSITION ASSEMBLY



AIRLOCK INLET TRANSITION ASSEMBLY

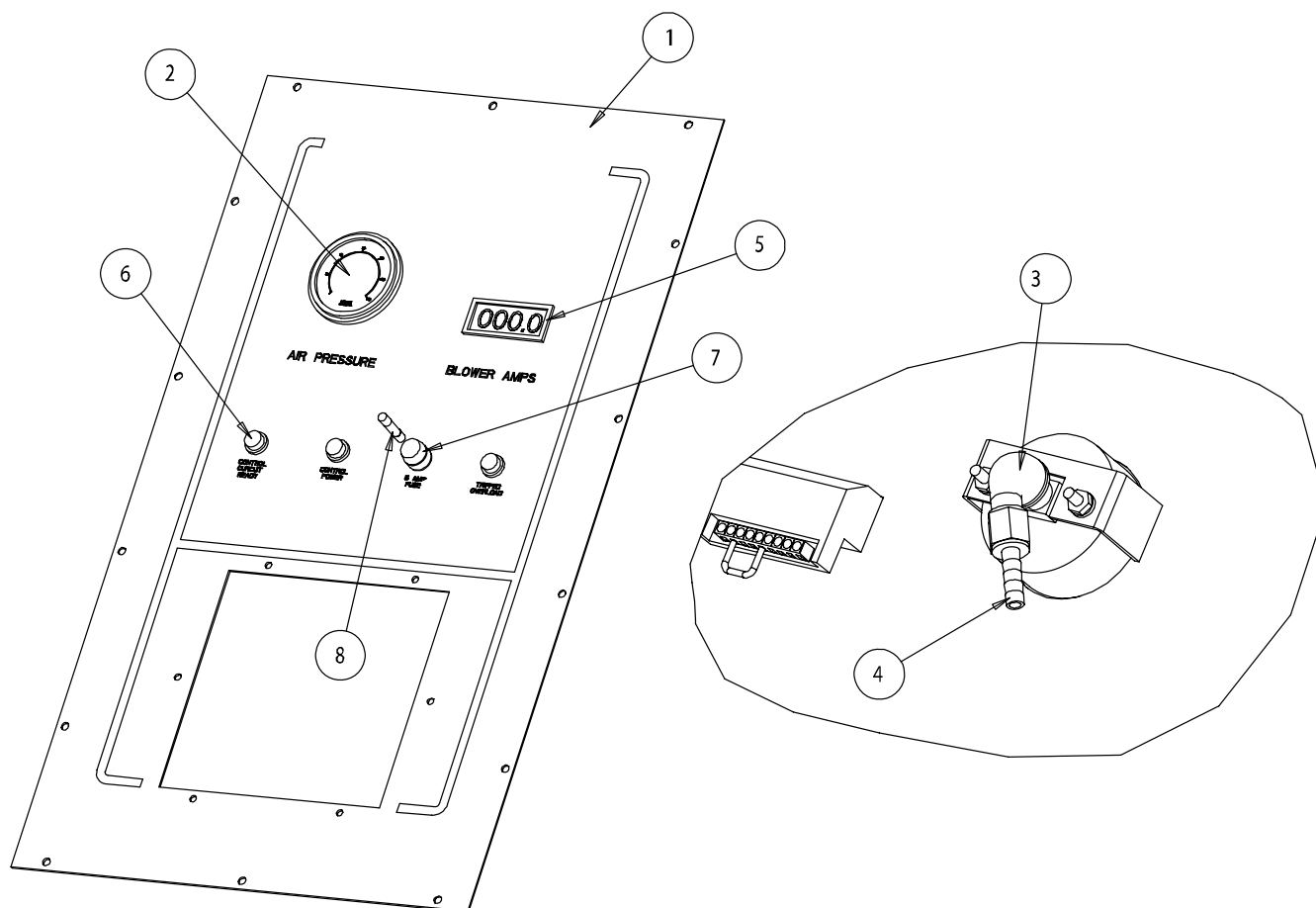
AIRLOCK INLET TRANSITION ASSEMBLY

ITEM	PART NO.	DESCRIPTION	QTY
1	AS-0077	AIRLOCK INLET TRANS - RH & LH	2
2	AS-0078	AIRLOCK TRANS - FRONT & BACK	2
3	S-9028	SCREW SMSAB 1/4-14X1/2 HWH ZN	12
4	S-8857	BOLT FLNGS 1/4-20x1/2 ZN GR5	10
5	S-7215	NUT FLANGWZ 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 (ITEM 2) 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.

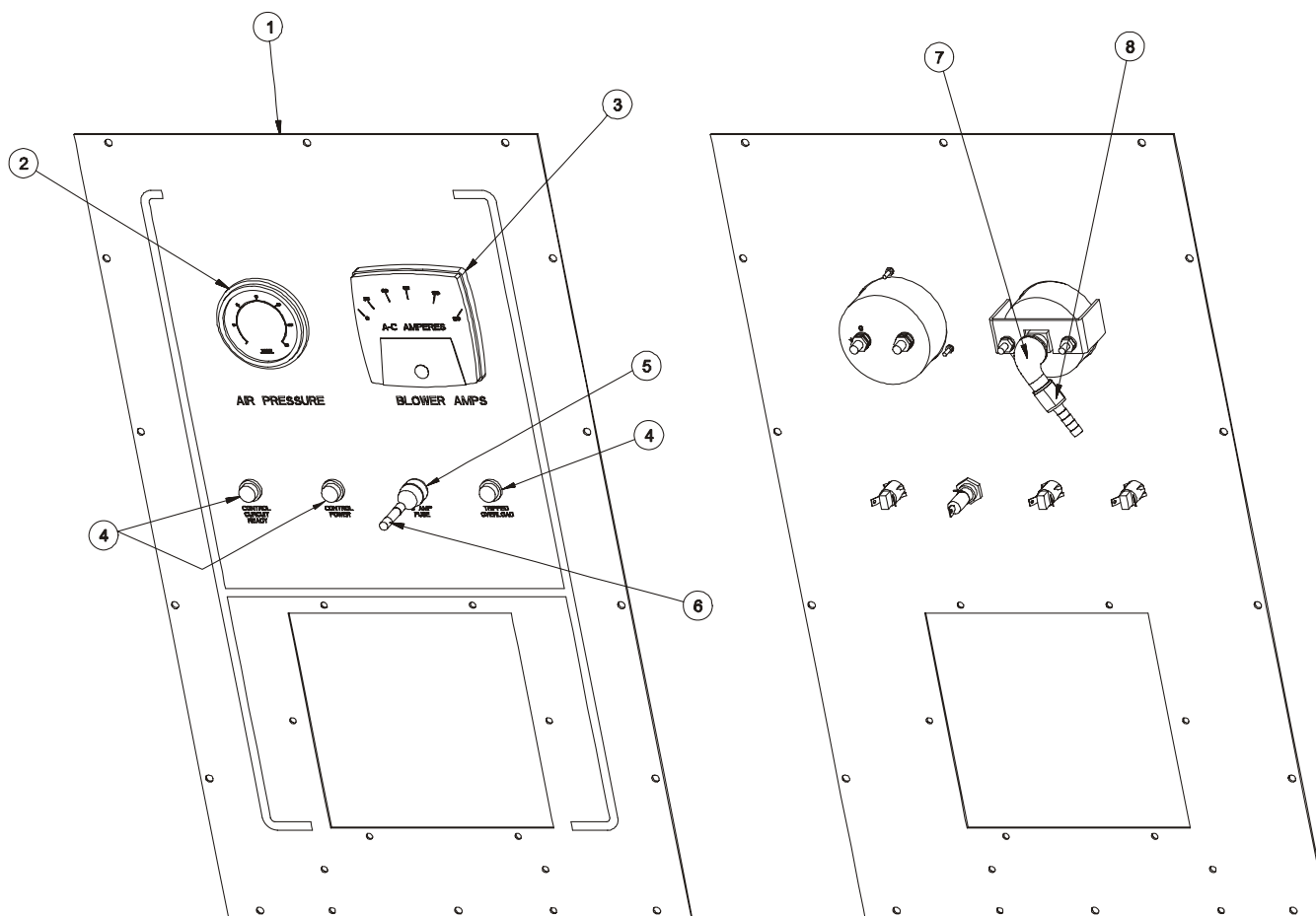
PANEL MODULE ASSEMBLY - DIGITAL



PANEL MODULE ASSEMBLY - DIGITAL

ITEM	PART NO.	DESCRIPTION	QTY
1	8015075D	PANEL-W/SILKSCREEN DIGIAMP DMC	1AR
1	8015121D	PANEL-W/SILKSCREEN DIGIAMP FFI	1AR
2	PT1125	GAUGE- (PRESSURE) 2-1/2" 15PSI	1
3	4FH0452	FIT-ELBOW, STREET (90) 1/4 NPT	1
4	4FH1122	FIT-HOSE BARB, 1/4X1/4 BRASS	1
5	AS-0211A	DIGITAL AMP METER ASY W/JUMPER	1
6	TFH-2021	LIGHT RED NEON NO LEADS 125VAC	3
7	1EL0826	FUSEHOLDER-PANMNT(CSA)30A 250V	1
8	1EL0754	FUSE- AGC5 250V 5AMP	1

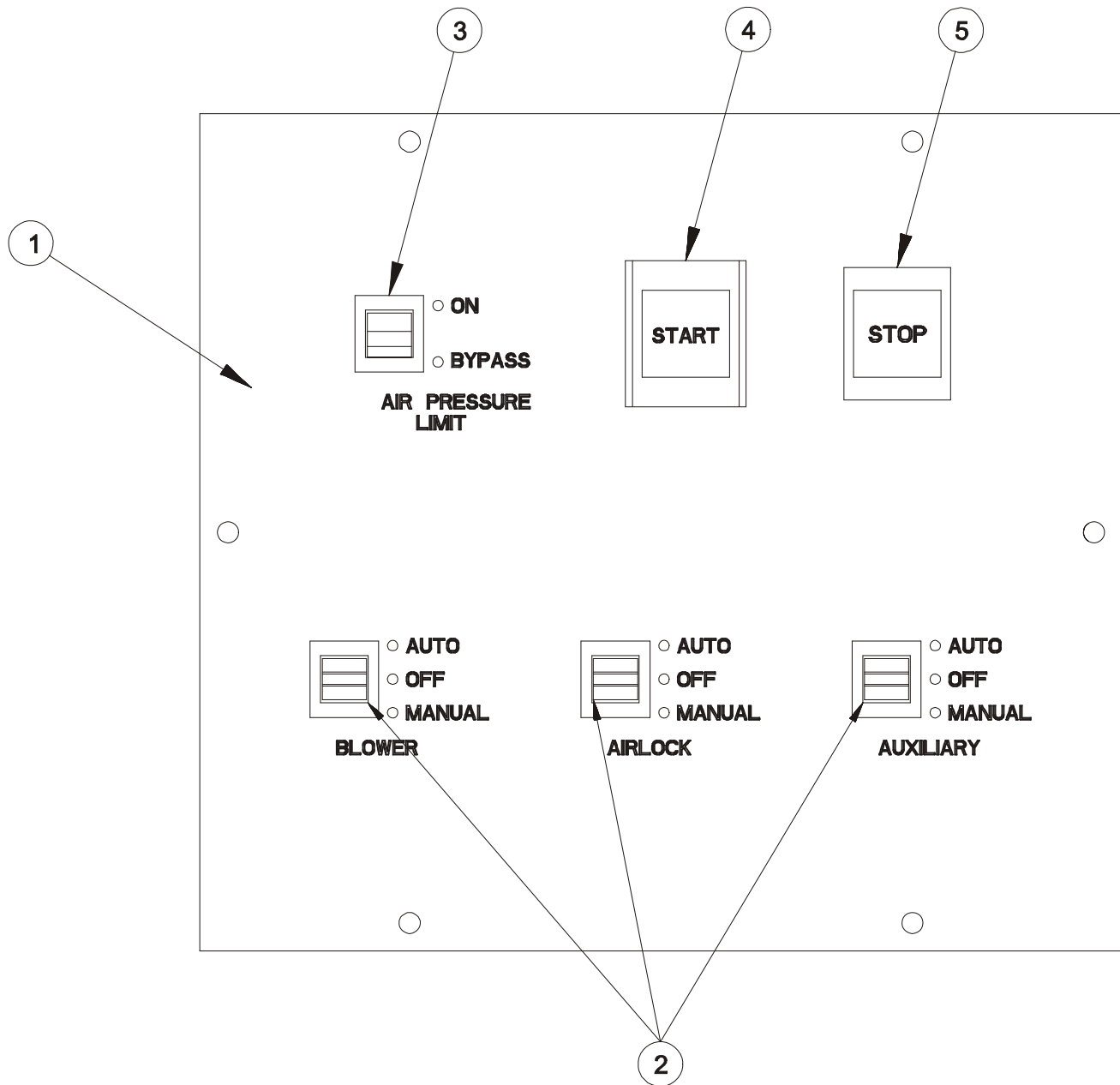
PANEL MODULE ASSEMBLY - ANALOG



PANEL MODULE ASSEMBLY - CSA

ITEM	PART NO.	DESCRIPTION	QTY
1	8015075	SINGLE MAIN PANEL DEADFRONT-DMC	1
1	8015121	SINGLE MAIN PANEL DEADFRONT-FFI	1
2	PT1125	GAUGE- (PRESSURE) 2-1/2" 15PSI	1
3	2EL0290	AMP METER PANEL 0-150 AMP	1
4	TFH-2021	LIGHT RED NEON SPADE TERM 125VAC	3
5	1EL0826	FUSEHOLDER-PANEL MOUNT 30A 250V	1
6	1EL0719	FUSE- AGC-2 250V 2AMP	1
7	4FH0452	FITTING-ELBOW - STREET(90) 1/4 NPT	1
8	4FH1122	FITTING-HOSE BARB 1/4 x 1/4 BRASS	1

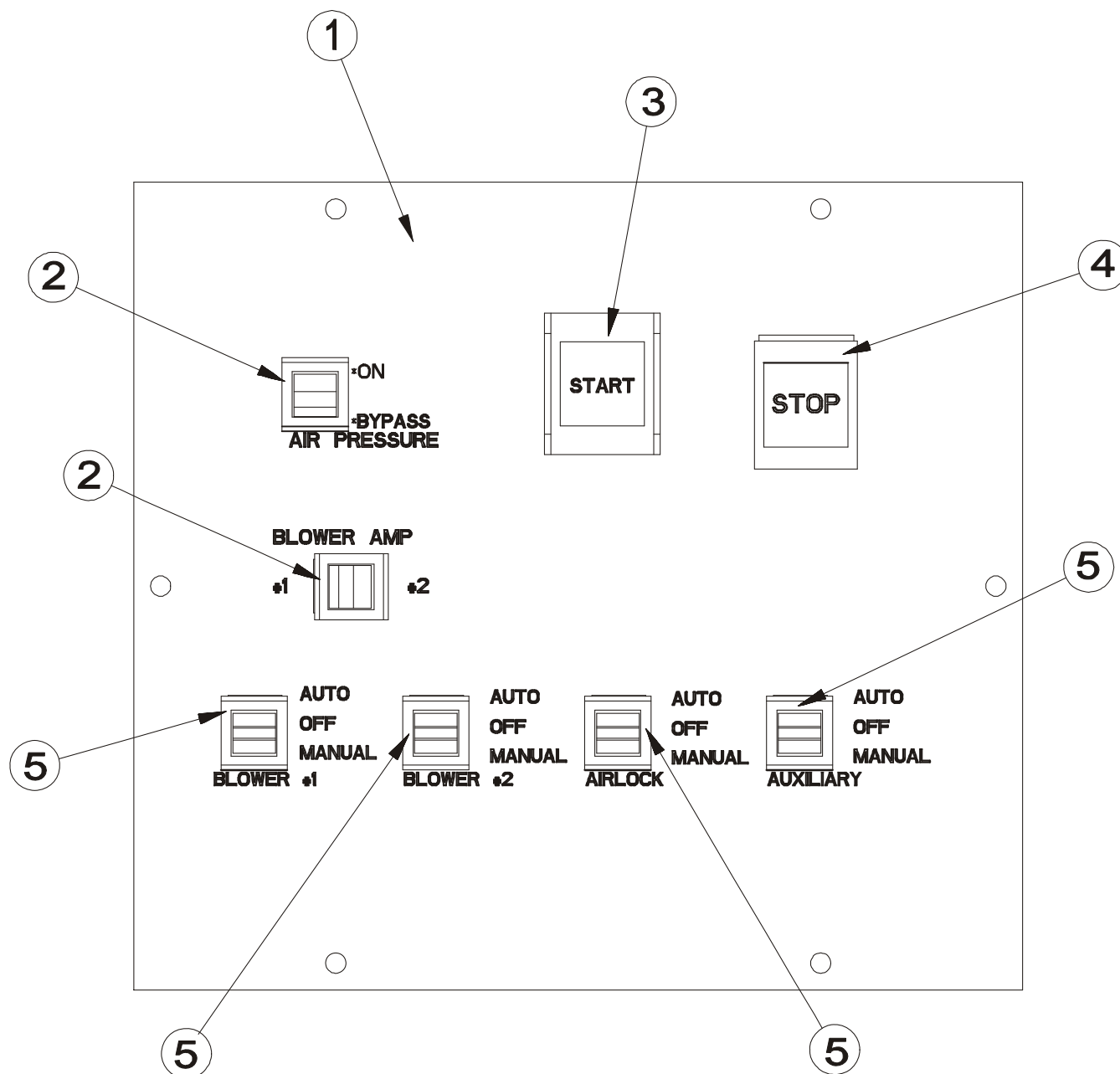
SWITCH PANEL ASSEMBLY - STANDARD



SWITCH PANEL ASSEMBLY - STANDARD

ITEM	PART NO.	DESCRIPTION	QTY
1	8015078	SWITCH PANEL - STANDARD	1
2	2EL0668	LEVER SWITCH - SPDT (ON-OFF-ON)	3
3	2EL0659	LEVER SWITCH - SPDT (ON-NONE-ON)	1
4	2EL0618	PUSHBUTTON SWITCH - SPST (START)	1
5	2EL0619	PUSHBUTTON SWITCH - SPST (STOP)	1

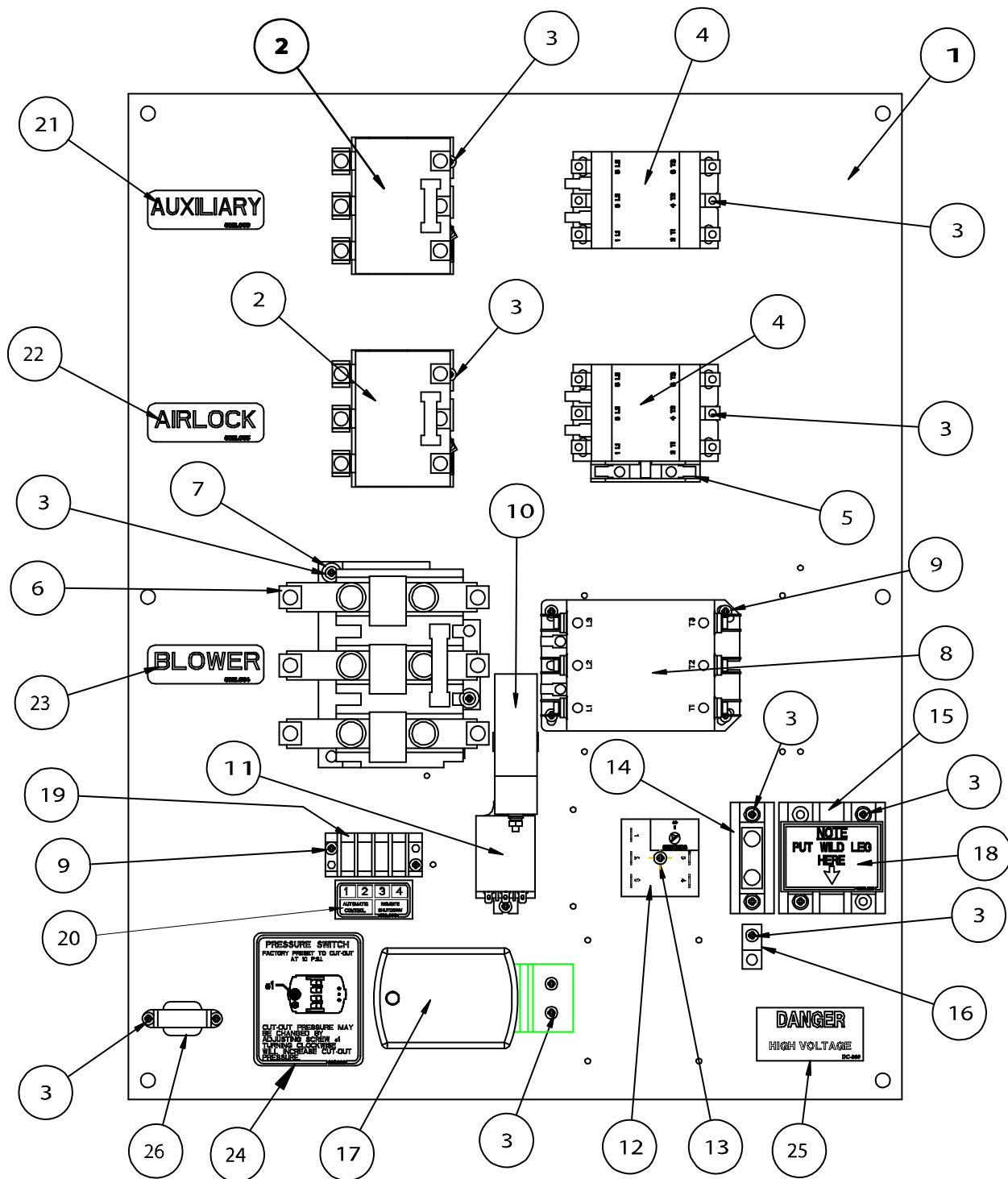
SWITCH PANEL ASSEMBLY - TWIN



SWITCH PANEL ASSEMBLY - TWIN

ITEM	PART NO.	DESCRIPTION	QTY
1	8015110	SWITCH PANEL - TWIN	1
2	2EL0659	LEVER SWITCH - SPDT (ON-NONE-ON)	2
3	2EL0618	PUSHBUTTON SWITCH - SPST (START)	1
4	2EL0619	PUSHBUTTON SWITCH - SPST (STOP)	1
5	2EL0668	LEVER SWITCH - SPDT (ON-OFF-ON)	4

STANDARD CONTROL PANEL ASSEMBLY - 230V 10-30HP

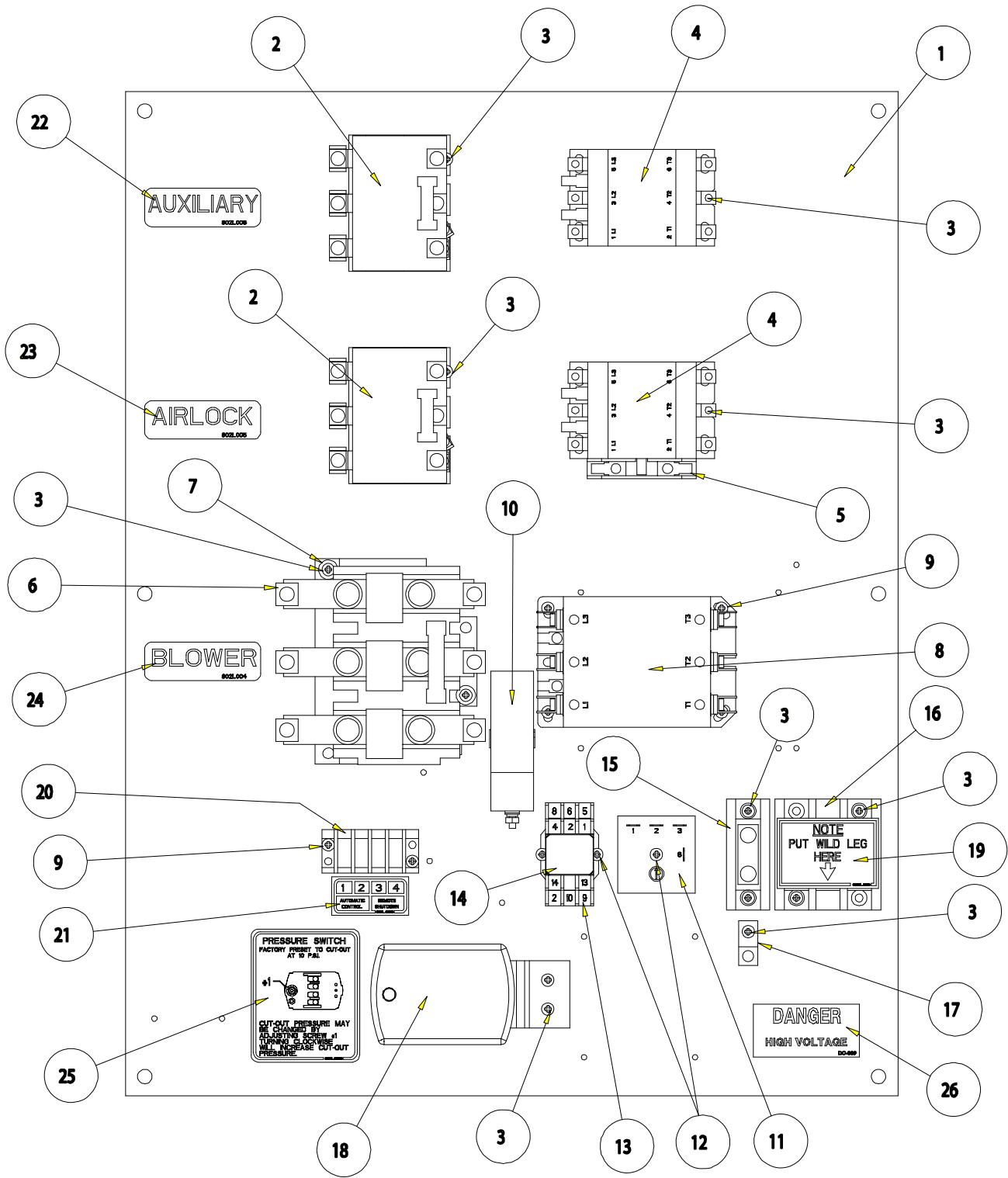


STANDARD CONTROL PANEL ASSEMBLY - 230V 10-30HP

STD CONTROL PANEL ASSEMBLY - 230V 10-30HP

ITEM	PART NO.	DESCRIPTION	Analog QTY	Digital QTY
1	8015079	AIR SYS-CONTROL PANEL (SNGL)	1	1
2	2EL0281	RELAY THRML OVELOAD 26AMP	2	2
3	S-1158	SCREW TCSF #8-32x1/2 PHP ZN	19	21
4	2EL0243	40A CONTACTOR - MAGNETIC(CSA)	2	2
5	2EL0648	CONTACT- AUXILIARY MOTOR CONTACTOR	1	1
6	2EL0282	RELAY- THRML OVERLD(CSA) 86AMP	1	1
7	S-3674	WASHER FLAT #10 SAE ZN	2	2
8	2EL0248	CONTACTOR- MAGNETIC(CSA) 90 AMP	1	1
9	S-6557	SCREW TCSF #8-32x3/4 PHP ZN	6	6
10	2EL0307	TRANSFORMER - CURRENT 150:5RATIO	1	-
10	2EL0368	TRANSFORMER - CURRENT 200:5RATIO	-	1
11	2EL0273	RELAY - 3PDT 5A 120V DELTRO	1	1
12	801E047	TIMER - OFF DELAY, 15 SEC ASY	1	1
13	S-7124	SCREW TCSF #8-32x1 PHP ZN	1	1
14	1EL0909	PWR DIST. BLK 175A 600V 1P	1	1
15	C-8018	TERMINAL BLOCK 185A 3POLE 1:4	1	1
16	E160-1137	LUG GROUND - #TA-2 (CSA)	1	1
17	801E018	HIGH PRESSURE SWITCH ASY	1	1
18	602L013	DECAL - WILD LEG	1	1
19	1773	TERMINAL BLOCK 4 POLE 2 ROW	1	1
20	801L006	DECAL - TERMINAL STRIP	1	1
21	802L006	DECAL - AUXILIARY	1	1
22	802L005	DECAL - AIRLOCK	1	1
23	802L004	DECAL - BLOWER	1	1
24	801L003	DECAL - PRESSURE SWITCH	1	1
25	DC-889	DECAL - DANGER HIGH VOLTAGE ALL PF	1	1
26	AS-0211T	5AMP LIMIT TRANSFORMER-DIGITAL AMP	-	1

STANDARD CONTROL PANEL ASSEMBLY - 230V 10-30HP USED IN 8015071 CONTROL BOX (CSA LISTED)



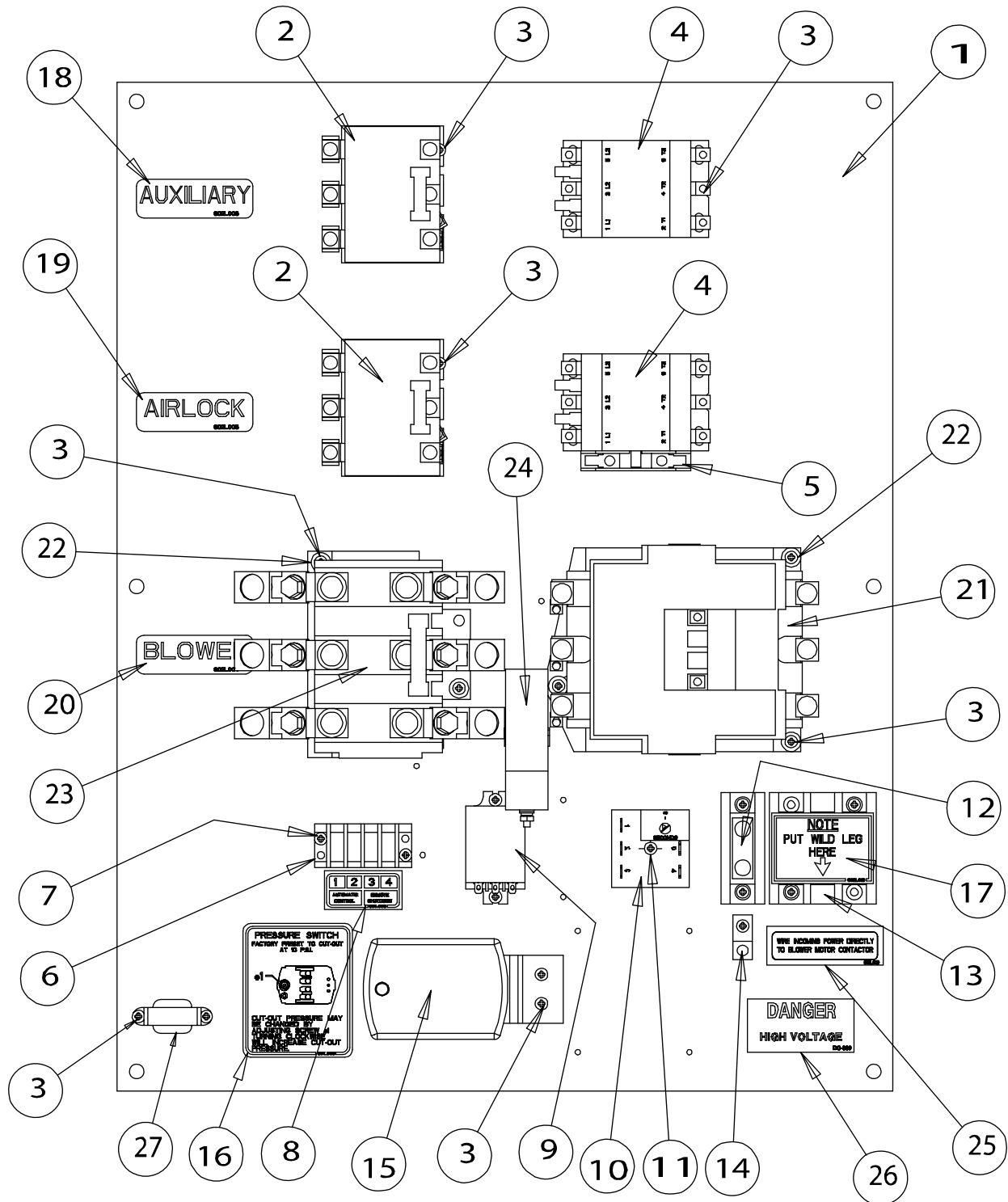
CSA CONTROL PANEL ASSEMBLY - 230V 10-30HP

STANDARD CONTROL PANEL ASSEMBLY - 230V 10-30HP USED IN 8015071 CONTROL BOX (CSA LISTED)

STD CONTROL PANEL ASSEMBLY - 230V 10-30HP USED IN 8015071 CONTROL BOX (CSA LISTED)

ITEM	PART NO.	DESCRIPTION	New CSA Design
1	8015079	AIR SYS-CONTROL PANEL (SNGL)	1
2	2EL0281	RELAY THRML OVELOAD 26AMP	2
3	S-1158	SCREW TCSF #8-32x1/2 PHP ZN	17
4	2EL0243	40A CONTACTOR - MAGNETIC(CSA)	2
5	2EL0648	CONTACT- AUXILIARY MOTOR CONTACTOR	1
6	2EL0282	RELAY- THRML OVERLD(CSA) 86AMP	1
7	S-3674	WASHER FLAT #10 SAE ZN	2
8	2EL0248	CONTACTOR- MAGNETIC(CSA) 90 AMP	1
9	S-6557	SCREW TCSF #8-32x3/4 PHP ZN	6
10	2EL0307	TRANSFORMER - CURRENT 150:5RATIO	1
11	801E047	TIMER - OFF DELAY, 15 SEC ASY	1
12	S-7124	SCREW TCSF #8-32x1 PHP ZN	3
13	7097555	RELAY BASE,3PDT,SMALL SQUARE	1
14	HF-7203	RELAY 3PDT 120V RH3B-U IDEC	1
15	1EL0909	PWR DIST. BLK 175A 600V 1P	1
16	C-8018	TERMINAL BLOCK 185A 3POLE 1:4	1
17	E160-1137	LUG GROUND - #TA-2 (CSA)	1
18	801E018	HIGH PRESSURE SWITCH ASY	1
19	602L013	DECAL - WILD LEG	1
20	1773	TERMINAL BLOCK 4 POLE 2 ROW	1
21	801L006	DECAL - TERMINAL STRIP	1
22	802L006	DECAL - AUXILIARY	1
23	802L005	DECAL - AIRLOCK	1
24	802L004	DECAL - BLOWER	1
25	801L003	DECAL - PRESSURE SWITCH	1
26	DC-889	DECAL - DANGER HIGH VOLTAGE ALL PF	1

STANDARD CONTROL PANEL ASSEMBLY - 230V 40HP

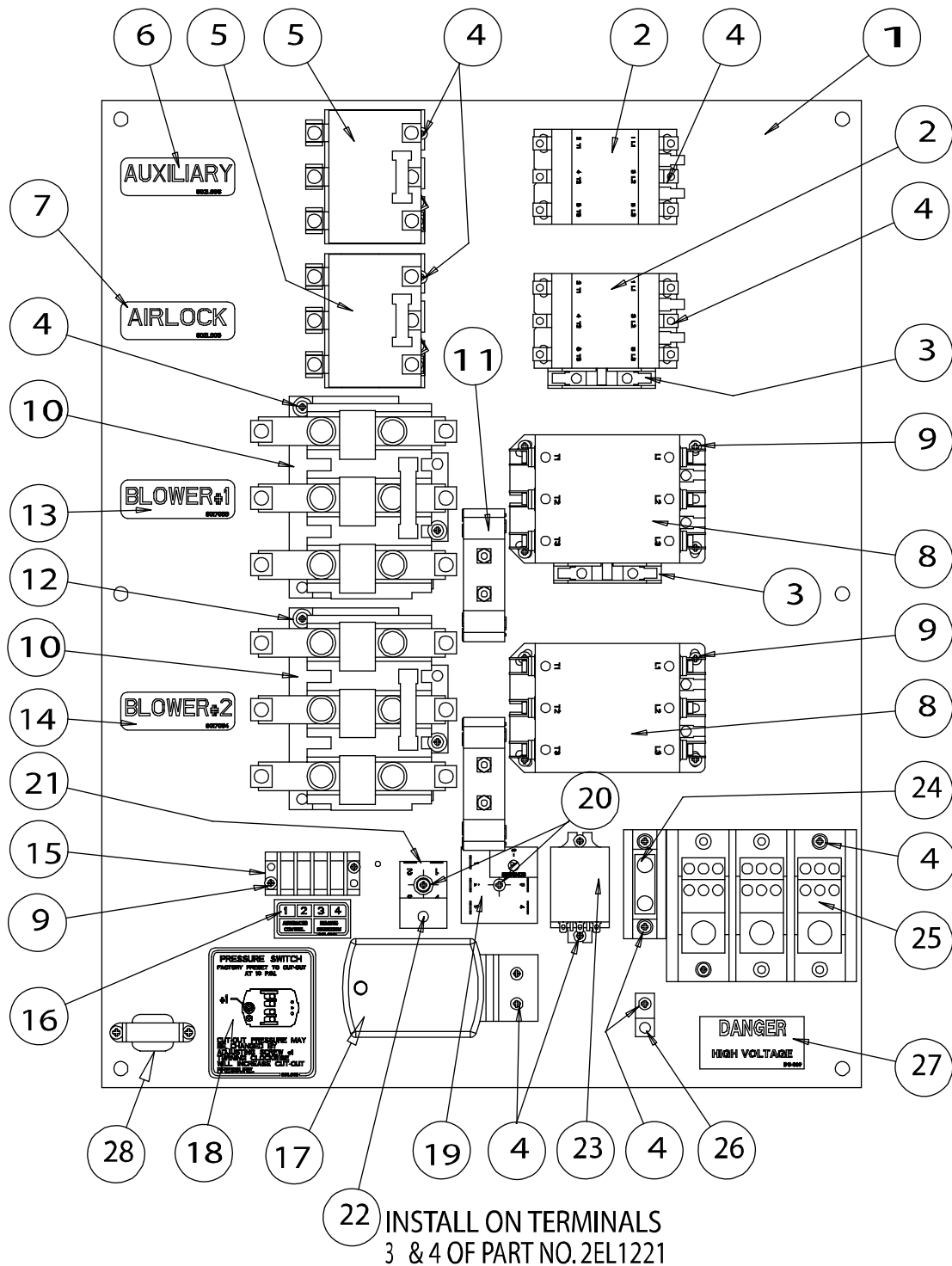


STANDARD CONTROL PANEL ASSEMBLY - 230V 40HP

STD CONTROL PANEL ASSEMBLY - 230V 40HP

ITEM	PART NO.	DESCRIPTION	Analog QTY	Digital QTY
1	8015079	AIR SYS - CONTROL PANEL (SNGL)	1	1
2	2EL0281	RELAY THRML OVELOAD 26AMP	2	2
3	S-1158	SCREW TCSF #8-32x1/2 PHP ZN	22	24
4	2EL0243	40A CONTACTOR - MAGNETIC(CSA)	2	2
5	2EL0648	CONTACT - AUXILIARY MOTOR CONTACTOR	1	1
6	1773	TERMINAL BLOCK 4 POLE 2 ROW	1	1
7	S-6557	SCREW TCSF #8-32x3/4 PHP ZN	2	2
8	801L006	DECAL - TERMINAL STRIP	1	1
9	2EL0273	RELAY - 3PDT 5A 120V DELTRO	1	1
10	801E047	TIMER - OFF DELAY, 15 SEC ASY	1	1
11	S-7124	SCREW TCSF #8-32x1 PHP ZN	1	1
12	1EL0909	PWR DIST. BLK 175A 600V 1P	1	1
13	C-8018	TERMINAL BLOCK 185A 3POLE 1:4	1	1
14	E160-1137	LUG GROUND - #TA-2 (CSA)	1	1
15	801E018	HIGH PRESSURE SWITCH ASY	1	1
16	801L003	DECAL - PRESSURE SWITCH	1	1
17	602L013	DECAL - WILD LEG	1	1
18	802L006	DECAL - AUXILIARY	1	1
19	802L005	DECAL - AIRLOCK	1	1
20	802L004	DECAL - BLOWER	1	1
21	2EL0249	CONTACTOR - 120AMP 120V COIL	1	1
22	S-3674	WASHER FLAT #10 SAE ZN	5	5
23	2EL0271	RELAY - OVERLOAD SIZE 4 133AMP	1	1
24	2EL0307	TRANSFORMER - CURRENT 150:5RATIO	1	-
24	2EL0368	TRANSFORMER - CURRENT 200:5RATIO	-	1
25	801L019	DECAL - WIRE INCOMING PWR	1	1
26	DC-889	DECAL - DANGER HIGH VOLTAGE ALL PF	1	1
27	AS-0211T	5AMP LIMIT TRANSFORMER-DIGITAL AMP	-	1

TWIN CONTROL PANEL ASSEMBLY - 230V 7-15HP

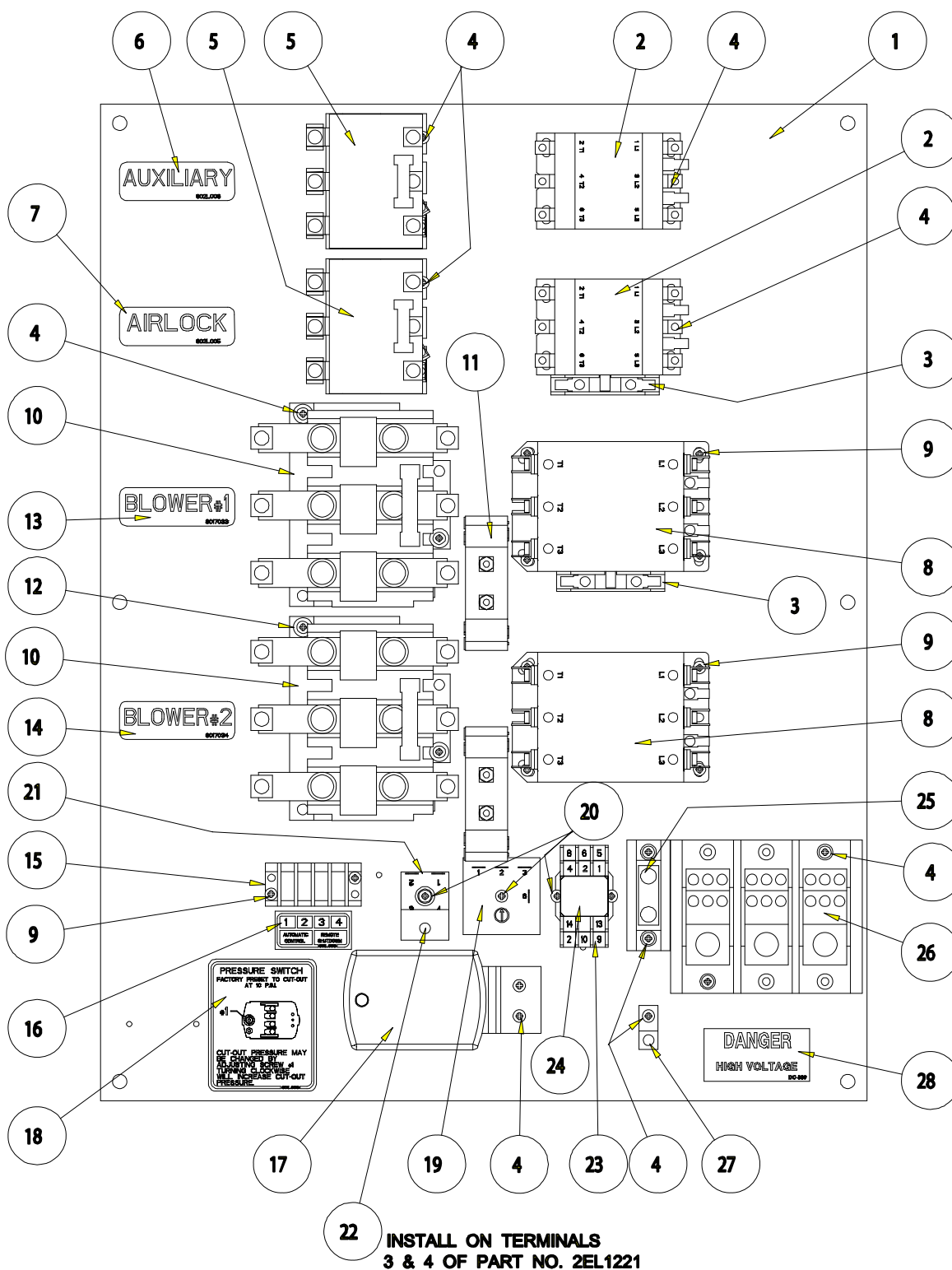


TWIN CONTROL PANEL ASSEMBLY - 230V 7-15HP

TWIN CONTROL PANEL ASSEMBLY - 230V 7-15HP

ITEM	PART NO.	DESCRIPTION	Analog QTY	Digital QTY
1	8015111	AIR SYS - CONTROL PANEL (TWIN)	1	1
2	2EL0243	40A CONTACTOR - MAGNETIC(CSA)	2	2
3	2EL0648	CONTACT - AUXILIARY MOTOR CONTACTOR	2	2
4	S-1158	SCREW TCSF #8-32x1/2 PHP ZN	21	23
5	2EL0281	RELAY THRML OVELOAD 26AMP	2	2
6	802L006	DECAL - AUXILIARY	1	1
7	802L005	DECAL - AIRLOCK	1	1
8	2EL0248	CONTACTOR - MAGNETIC(CSA) 90 AMP	2	2
9	S-6557	SCREW TCSF #8-32x3/4 PHP ZN	10	10
10	2EL0282	RELAY - THRML OVERLD(CSA) 86AMP	2	2
11	2EL0307	TRANSFORMER - CURRENT 150:5RATIO	2	-
11	2EL0368	TRANSFORMER - CURRENT 200:5RATIO	-	2
12	S-3674	WASHER FLAT #10 SAE ZN	4	4
13	8017033	DECAL - BLOWER #1	1	1
14	8017034	DECAL - BLOWER #2	1	1
15	1773	TERMINAL BLOCK 4 POLE 2 ROW	1	1
16	801L006	DECAL - TERMINAL STRIP	1	1
17	801E018	HIGH PRESSURE SWITCH ASY	1	1
18	801L003	DECAL- PRESSURE SWITCH	1	1
19	801E047	TIMER- OFF DELAY, 15 SEC ASY	1	1
20	S-7124	SCREW TCSF #8-32x1 PHP ZN	2	2
21	2EL1221	TIMER - .5 TO 60 SECONDS	1	1
22	2EL1223	TIMER - MODULE, .5-20 SEC	1	1
23	2EL0273	RELAY - 3PDT 5A 120V DELTRO	1	1
24	1EL0909	PWR DIST. BLK 175A 600V 1P	1	1
25	1EL0912	POWER DIST. BLK 3P 600VAC	1	1
26	E160-1137	LUG GROUND - #TA-2 (CSA)	1	1
27	DC-889	DECAL - DANGER HIGH VOLTAGE ALL PF	1	1
28	AS-0211T	5AMP LIMIT TRANSFORMER-DIGITAL AMP	-	1

TWIN CONTROL PANEL ASSEMBLY - 230V 7-15HP USED IN 8015114 CONTROL BOX (CSA LISTED)



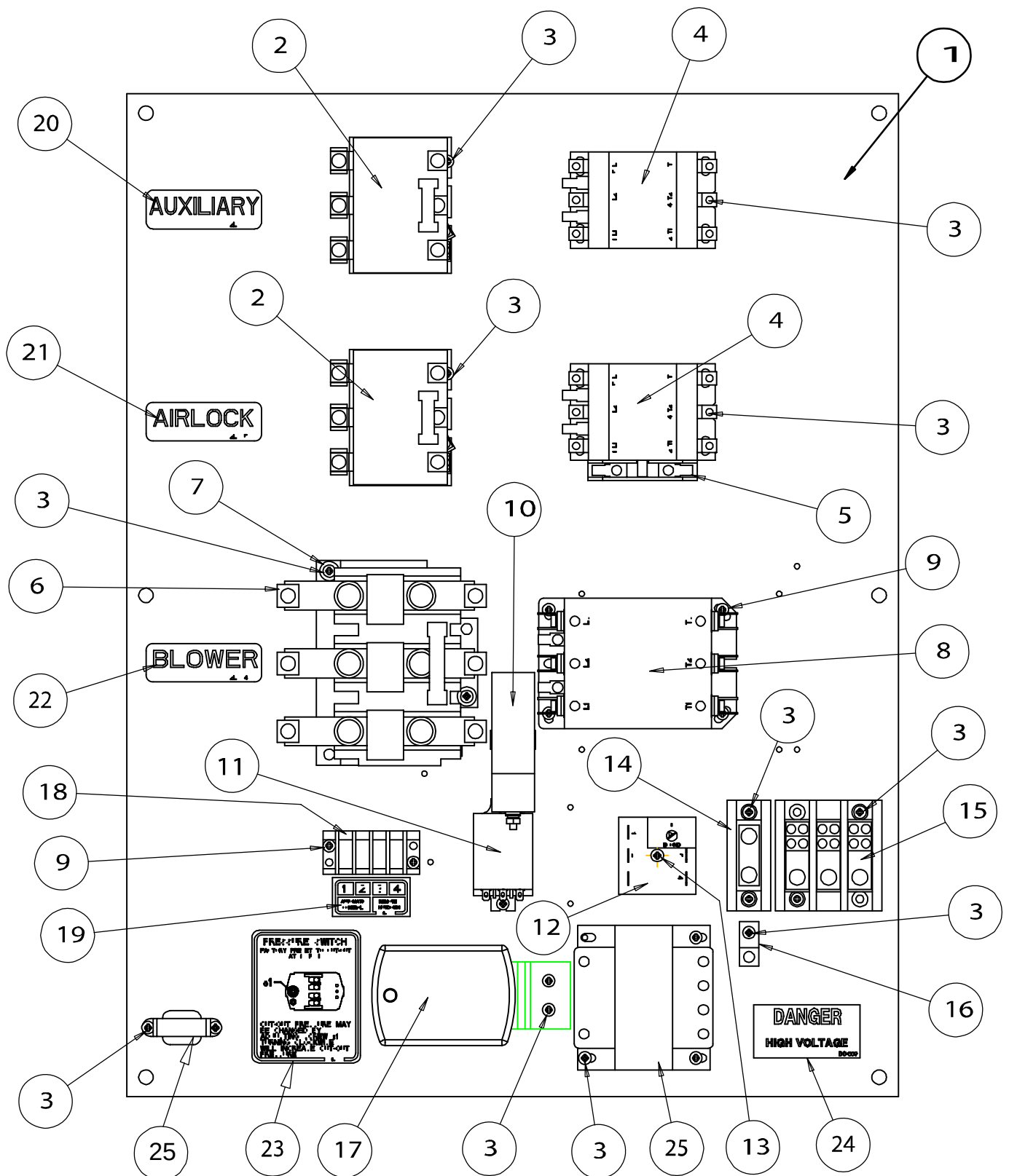
CSA TWIN CONTROL PANEL ASSEMBLY - 230V 7-15HP

TWIN CONTROL PANEL ASSEMBLY - 230V 7-15HP USED IN 8015114 CONTROL BOX (CSA LISTED)

TWIN CONTROL PANEL ASSEMBLY - 230V 7-15HP USED IN 8015114 CONTROL BOX (CSA LISTED)

ITEM	PART NO.	DESCRIPTION	New CSA Design QTY
1	8015111	AIR SYS - CONTROL PANEL (TWIN)	1
2	2EL0243	40A CONTACTOR - MAGNETIC(CSA)	2
3	2EL0648	CONTACT - AUXILIARY MOTOR CONTACTOR	2
4	S-1158	SCREW TCSF #8-32x1/2 PHP ZN	19
5	2EL0281	RELAY THRML OVELOAD 26AMP	2
6	802L006	DECAL - AUXILIARY	1
7	802L005	DECAL - AIRLOCK	1
8	2EL0248	CONTACTOR - MAGNETIC(CSA) 90 AMP	2
9	S-6557	SCREW TCSF #8-32x3/4 PHP ZN	10
10	2EL0282	RELAY - THRML OVERLD(CSA) 86AMP	2
11	2EL0307	TRANSFORMER - CURRENT 150:5RATIO	2
12	S-3674	WASHER FLAT #10 SAE ZN	4
13	8017033	DECAL - BLOWER #1	1
14	8017034	DECAL - BLOWER #2	1
15	1773	TERMINAL BLOCK 4 POLE 2 ROW	1
16	801L006	DECAL - TERMINAL STRIP	1
17	801E018	HIGH PRESSURE SWITCH ASY	1
18	801L003	DECAL- PRESSURE SWITCH	1
19	801E047	TIMER- OFF DELAY, 15 SEC ASY	1
20	S-7124	SCREW TCSF #8-32x1 PHP ZN	4
21	2EL1221	TIMER - .5 TO 60 SECONDS	1
22	2EL1223	TIMER - MODULE, .5-20 SEC	1
23	7097555	RELAY BASE, 3PDT, SMALL SQUARE	1
24	HF-7203	RELAY 3PDT 120V RH38-U IDEC	1
25	1EL0909	PWR DIST. BLK 175A 600V 1P	1
26	1EL0912	POWER DIST. BLK 3P 600VAC	1
27	E160-1137	LUG GROUND - #TA-2 (CSA)	1
28	DC-889	DECAL - DANGER HIGH VOLTAGE ALL PF	1

STANDARD CONTROL PANEL ASSEMBLY - 460V 10-40HP

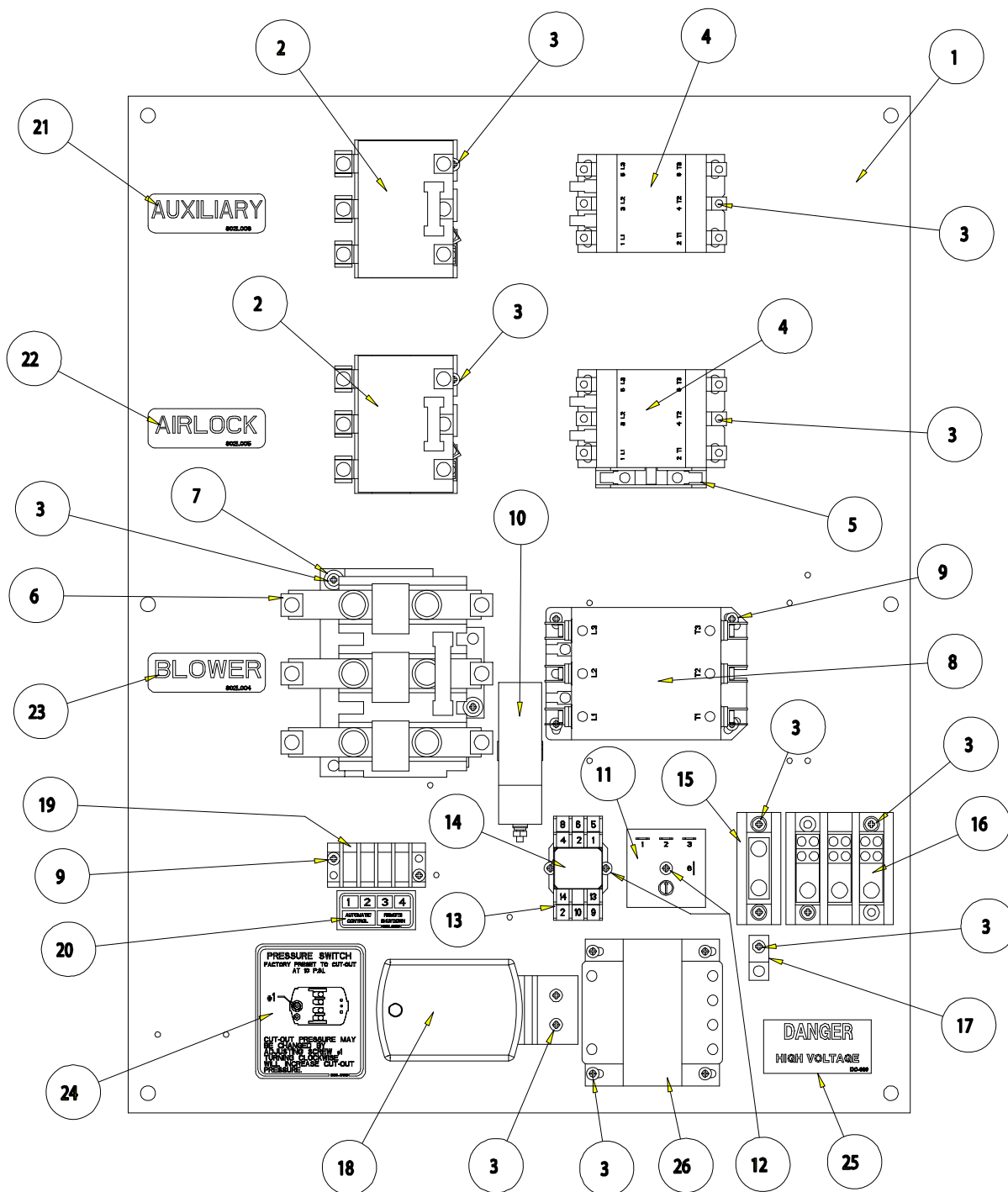


STANDARD CONTROL PANEL ASSEMBLY - 460V 10-40HP

STD CONTROL PANEL ASSEMBLY - 460V 10-40HP

ITEM	PART NO.	DESCRIPTION	Analog QTY	Digital QTY
1	8015079	AIR SYS-CONTROL PANEL (SNGL)	1	1
2	2EL0281	RELAY THRML OVELOAD 26AMP	2	2
3	S-1158	SCREW TCSF #8-32x1/2 PHP ZN	23	25
4	2EL0243	40A CONTACTOR - MAGNETIC(CSA)	2	2
5	2EL0648	CONTACT - AUXILIARY MOTOR CONTACTOR	1	1
6	2EL0282	RELAY - THRML OVERLD(CSA) 86AMP	1	1
7	S-3674	WASHER FLAT #10 SAE ZN	2	2
8	2EL0248	CONTACTOR - MAGNETIC(CSA) 90 AMP	1	1
9	S-6557	SCREW TCSF #8-32x3/4 PHP ZN	6	6
10	2EL0307	TRANSFORMER - CURRENT 150:5RATIO	1	-
10	2EL0307	TRANSFORMER - CURRENT 200:5RATIO	-	1
11	2EL0273	RELAY - 3PDT 5A 120V DELTRO	1	1
12	801E047	TIMER - OFF DELAY, 15 SEC ASY	1	1
13	S-7124	SCREW TCSF #8-32x1 PHP ZN	1	1
14	1EL0909	PWR DIST. BLK 175A 600V 1P	1	1
15	C-8018	TERMINAL BLOCK 185A 3POLE 1:4	1	1
16	E160-1137	LUG GROUND - #TA-2 (CSA)	1	1
17	801E018	HIGH PRESSURE SWITCH ASY	1	1
18	1773	TERMINAL BLOCK 4 POLE 2 ROW	1	1
19	801L006	DECAL - TERMINAL STRIP	1	1
20	802L006	DECAL - AUXILIARY	1	1
21	802L005	DECAL - AIRLOCK	1	1
22	802L004	DECAL - BLOWER	1	1
23	801L003	DECAL - PRESSURE SWITCH	1	1
24	DC-889	DECAL - DANGER HIGH VOLTAGE ALL PF	1	1
25	2EL0308	TRANSFORMER-460V - 120V .15KVA	1	1
26	AS-0211T	5AMP LIMIT TRANSFORMER-DIGITAL AMP	-	1

CONTROL PANEL ASSEMBLY - 460V 10-40HP USED IN 8015072 CONTROL BOX (CSA LISTED)



CSA CONTROL PANEL ASSEMBLY - 460V 10-40HP

CONTROL PANEL ASSEMBLY - 460V 10-40HP USED IN 8015072 CONTROL BOX (CSA LISTED)

CONTROL PANEL ASSEMBLY - 460V 10-40HP USED IN 8015072 CONTROL BOX (CSA LISTED)

ITEM	PART NO.	DESCRIPTION	New CSA Design QTY
1	8015079	AIR SYS-CONTROL PANEL (SNGL)	1
2	2EL0281	RELAY THRML OVELOAD 26AMP	2
3	S-1158	SCREW TCSF #8-32x1/2 PHP ZN	21
4	2EL0243	40A CONTACTOR - MAGNETIC(CSA)	2
5	2EL0648	CONTACT - AUXILIARY MOTOR CONTACTOR	1
6	2EL0282	RELAY - THRML OVERLD(CSA) 86AMP	1
7	S-3674	WASHER FLAT #10 SAE ZN	2
8	2EL0248	CONTACTOR - MAGNETIC(CSA) 90 AMP	1
9	S-6557	SCREW TCSF #8-32x3/4 PHP ZN	6
10	2EL0307	TRANSFORMER - CURRENT 150:5RATIO	1
11	801E047	TIMER - OFF DELAY, 15 SEC ASY	1
12	S-7124	SCREW TCSF #8-32x1 PHP ZN	3
13	7097555	RELAY BASE, 3PDT, SMALL SQUARE	1
14	HF-7203	RELAY 3PDT 120V RH3B-U IDEC	1
15	1EL0909	PWR DIST. BLK 175A 600V 1P	1
16	C-8018	TERMINAL BLOCK 185A 3POLE 1:4	1
17	E160-1137	LUG GROUND - #TA-2 (CSA)	1
18	801E018	HIGH PRESSURE SWITCH ASY	1
19	1773	TERMINAL BLOCK 4 POLE 2 ROW	1
20	801L006	DECAL - TERMINAL STRIP	1
21	802L006	DECAL - AUXILIARY	1
22	802L005	DECAL - AIRLOCK	1
23	802L004	DECAL - BLOWER	1
24	801L003	DECAL - PRESSURE SWITCH	1
25	DC-889	DECAL - DANGER HIGH VOLTAGE ALL PF	1
26	2EL0308	TRANSFORMER-460V - 120V .15KVA	1

TROUBLE SHOOTING

PROBLEM	SOLUTION
System Plugs Up	1. Check belt tension on air blower and tighten if loose. 2. Check air filter and clean out. Locate in a place where there is less dust. 3. Check tubing system for any obstructions. 4. Reduce feed-in rate. 5. Air pressure switch setting may be too low. 6. Outlet gate valve too far open.
Excessive Grain Damage	1. May be overfeeding airlock, causing vanes to shear off grain. Reduce feed rate. 2. Air velocity may be excessive. Slow air blower by changing pulleys or by opening gate valve. 3. Damage can occur if system is running at less than full capacity. Increase feed rate. 4. Rubber hose used to change grain direction, or used for extended lengths. 5. Airlock shear protector installed wrong.
Airlock Stops or is Noisy	1. A foreign object may have become lodged in the airlock vanes. 2. Check belt tension. 3. Check gearbox drive. 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. 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. CAUTION: The worm drive gearbox cannot be driven in reverse and can be damaged. Remove the airlock drive chain before attempting to turn the airlock by hand. 6. "U" cup packings on rotor too tight. (Contact factory)

ELECTRICAL TROUBLE SHOOTING

PROBLEM	SOLUTION
Unit will not start, "ready light" is not on.	1. Check AC power supply. 2. Check control box fuses. 3. Thermal overload tripped (overload indicator is on). 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. 5. Be sure "start" switch is pushed.
Unit will not start, the "ready light" is on.	1. Blower, airlock and auxiliary switches must be in either "Auto" or Manual" to operate. 2. The automatic control not wired correctly or not working. (Requires a closed contact across TB1 and TB2 to auto start).
Blower Motor Trips Thermal Overload	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. 2. Check heater sizes. 3. Check for loose connections and/or too small gauge wire. 4. Wrong voltage (either high or low). 5. Too much load due to obstructions, bad bearings or dry gears.
No Control Voltage	1. Control Fuse inside the control box is down. 2. Check main power for proper voltage.

HOW TO HANDLE HANDLING COUPLINGS

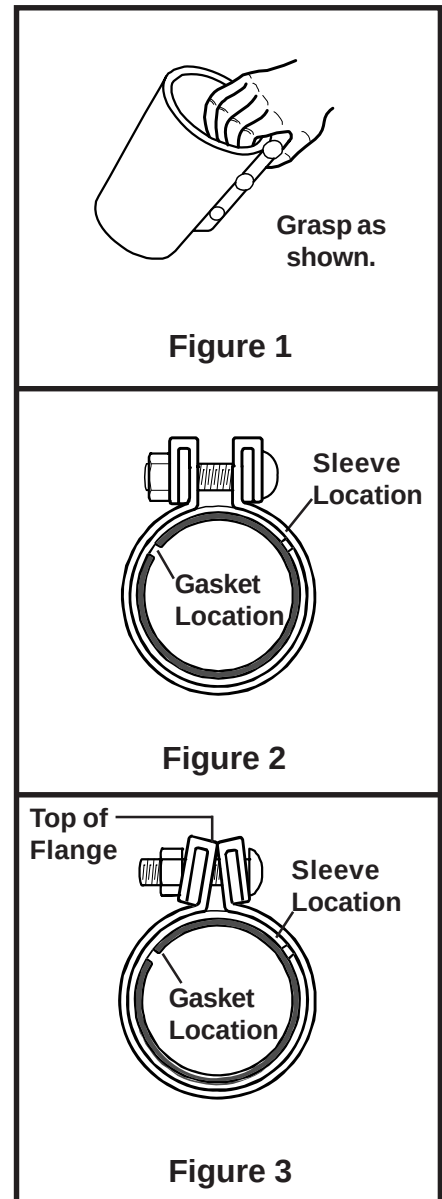
1. Couplings are shipped ready-to-install... do not disassemble. To prevent gasket from slipping out of proper position, always grasp coupling as shown in Figure 1. This will save time by maintaining proper position of gasket and sleeve in relation to shell and flange.

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 1 to keep gasket and sleeve (and gasket protector when used) in separate quadrants, as shown in Figure 2. 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 3. **DO NOT** attempt tightening bolts to flatten flange faces together, as this exceeds recommended limits.



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