



AUTOMATIC GRAIN DRYER

**Axial Fan/Centrifugal Fan
QuadraTouch Pro™ Dryer Control System**



OWNER'S OPERATION MANUAL

Sukup Manufacturing Co.

1555 255th Street, Box 677

Sheffield, Iowa, USA 50475-0677

Phone: 641-892-4222

Fax: 641-892-4629

Website: www.sukup.com

E-mail: info@sukup.com



Thank you for purchasing Sukup equipment. At Sukup Manufacturing Co., we strive to provide our customers with the best products available. It's important to us that you get the best value for your money. That means producing top-quality products that will provide you with many years of satisfied ownership.

We back our products with experienced staff and the best customer service in the industry. Our dedicated employees have done their best to ensure that your Sukup equipment will meet your needs. With proper installation and use, it will serve you for many years.

If for some reason you experience difficulties with your Sukup equipment, your authorized Sukup dealer can provide you with the help you need. If you need assistance beyond what your dealer can provide, you can always contact your regional Sukup Distribution Center or our headquarters in Sheffield, Iowa, USA.

Thank you again for your purchase. We wish you many years of profitable, safe use of your Sukup equipment.

Steve, Emily, Matt, Andy, Nick,
Charles, Jonathan, Andrew and
The Entire Sukup Family

Sukup Manufacturing Co.
Sheffield, Iowa, USA

Automatic Grain Dryer Owner's Operation Manual

This manual covers installation and operation of axial-fan dryers and centrifugal-fan dryers. It is comprised of several tabbed sections. The first provides safety information and identifies components of dryer. Others provide instructions for installation, operation, service and maintenance of dryer, and troubleshooting. Please read entire manual thoroughly before installation or operation. Check with dealer before each drying season for important updates.

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Preliminary Information

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08/22/2024	– Updated guidance on electrical wire clearances.....	8
	Added statements on location & appearance of heater & control boxes	15, 17 & 31
	Updated photo showing pipe train components of axial-fan LP-fueled dryer	17
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**Sukup Manufacturing Co.**

PO Box 677 Sheffield, IA USA 50475

Phone: 641-892-4222 Fax: 641-892-4629

E-mail: Info@sukup.com Visit us at: www.sukup.com

MIXED-FLOW & CROSS-FLOW DRYER LIMITED WARRANTY

SUKUP MANUFACTURING CO. (Sukup) warrants to original retail purchaser that within time limits set forth, new equipment shall be free from defects in material and workmanship. A part will not be considered defective if it substantially fulfills performance specifications, including, but not limited to, parts with cosmetic (appearance) issues that will not affect life of product. Should any part prove defective within warranty period, part will be replaced or repaired without charge F.O.B. Sukup Manufacturing Co., Sheffield, Iowa USA or Distribution Centers - Arcola, Illinois; Aurora, Nebraska; Cameron, Missouri; Defiance, Ohio; Jonesboro, Arkansas; Watertown, South Dakota. To claim warranty, a copy of original invoice is required.

THE FOREGOING LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE AND OF ANY OTHER TYPE, WHETHER EXPRESS OR IMPLIED. Sukup neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said part, and will not be liable for incidental or consequential damages. THE REMEDIES STATED HEREIN SHALL BE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THIS LIMITED WARRANTY.

Sukup reserves the right to change specifications, add improvements or discontinue manufacture of any of its equipment without notice or obligation to purchasers of its equipment. This warranty gives you specific legal rights. You may also have other rights which vary according to state or province.

WARRANTY EXCLUSIONS - Labor, transportation, or any cost related to a service call is not provided by Sukup. This Limited Warranty does not apply to damage resulting from misuse, neglect, normal wear, accident or improper installation or maintenance. ITEMS NOT MANUFACTURED BY SUKUP (e.g., belts, motors) ARE COVERED UNDER WARRANTIES OF THEIR RESPECTIVE MANUFACTURERS AND ARE EXCLUDED FROM COVERAGE UNDER THE SUKUP WARRANTY. SUKUP MANUFACTURING CO. MAKES NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Upon taking delivery of product, purchaser (dealer and/or end user) assumes responsibility for proper storage of all materials. Proper storage includes dry, temperature and humidity-controlled facilities that eliminate the potential of moisture, including condensation, from causing white rust and/or corrosion of any sort. Warranty does not extend to defects, damage or cosmetic (appearance) issues caused by improper storage or handling.

GRAIN DRYER WARRANTY PERIOD - Sukup warrants mixed-flow and cross-flow grain dryers (single module and stacked units) for a period of two years (24 months) from date of purchase.

REPLACEMENT PARTS WARRANTY PERIOD - Sukup warrants replacement parts (e.g., belts, sensors, rotating contacts, gearmotors, switches) purchased from Sukup for one (1) full drying season following purchase.

ELECTRIC MOTOR WARRANTY - Manufacturers of electric motors warranty them for at least 1 year from installation date or 2 years from motor manufacture date. Process for repairing or replacing motor depends on motor manufacturer and horsepower. Contact motor manufacturer for terms. If motor warranty is refused, use the following procedure: Have motor repair shop fill out the warranty report form as if they were providing warranty service. State on report reason for refusal. Send report, motor nameplate, and proof of purchase date (invoice from Sukup and invoice for your customer) to Sukup. Sukup will attempt to obtain warranty from motor manufacturer. Any credit obtained will be passed on. Warranty may also be obtained by returning motor to Sukup Manufacturing Co. or Distribution Center with prior authorization.

NOTE: Sukup will not be responsible for unauthorized motor replacement or repair. Labor for removal of motor not included.

WARRANTY CERTIFICATION - Warranty must be registered within one month of product shipment from Sukup facility or customer pickup from the facility to certify warranty coverage. See QR code at front of product manual for details.

UNAPPROVED PARTS OR MODIFICATION - All obligations of Sukup under this warranty are terminated if equipment is modified or altered in any way not approved by Sukup or if parts that do not conform to specifications of original parts are used.

Purchaser must adhere to applicable safety regulations and federal, state and local codes in the location, installation, and use of this product. Sukup assumes no responsibility for property damages or personal injuries.

7/10/23



Read manual before installing or using product. Failure to follow instructions and safety precautions in manual can result in death or serious injury. Keep manual in a safe location for future reference.



On safety decals and throughout this manual, this symbol and the signal words Danger, Warning, Caution and Notice draw your attention to important instructions regarding safety. They indicate potential hazards and levels of intensity.



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.



NOTICE alerts you to practices unrelated to personal injury, such as messages related to property damage.

IMPORTANT: To prevent death or serious injury to you or your family, it is essential that safety decals are clearly visible, in good condition, and applied to the appropriate equipment.

FOLLOW MANUAL & SAFETY DECAL MESSAGES

Carefully read this manual and all safety decals on your equipment. Safety decals must be kept in good condition. Replace missing or damaged safety decals free of charge by contacting Sukup Manufacturing Co. by mail at PO Box 677, Sheffield, Iowa USA 50475; by phone at 641-892-4222; or by email at info@sukup.com.



It is the responsibility of the owner/operator to know what specific requirements, precautions, and work hazards exist. It is also the responsibility of the owner/operator to inform anyone operating or working in the area of this equipment of hazards and safety precautions that need to be taken to avoid personal injury or death. Always keep children away from bins and vehicles with flowing grain.

Make no unauthorized modifications to machine. Modifications may endanger function and/or safety of unit. Keep unit in good working condition. Keep shields in place. Replace worn or missing shields free of charge by contacting Sukup Manufacturing Co.



WARNING: PREVENT EXPLOSION OR FIRE

- Carefully review operator's manual
- Keep dryer clean inside and out, as fines may cause a fire
- Check for gas leaks by spraying soapy solution on piping and joints
- Run fan at least half a minute before starting heater
- NEVER start heater if you smell gas or hear a hissing sound
- NEVER run heater with inspection door open



Failure to heed these warnings could cause death or serious injury.

ANALYZE ARC FLASH/SHOCK HAZARD. Installations of equipment containing switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers are subject to National Electrical Code (NEC) and National Fire Protection Association (NFPA), and enforced under Occupational Safety and Health Administration (OSHA) regulations. These installations must be analyzed for arc flash and shock hazard. Additional requirements under these standards include:



- Facility needs to have written electrical safety program.*
- Equipment shall be FIELD MARKED with a label containing available incident energy and/or required Personal Protective Equipment (PPE) level.
This labeling requirement is employer's responsibility and not that of equipment manufacturer or installer.
- All persons working on or near affected equipment must be properly trained.
- Proper tools and equipment must be provided by installer, operator or employer.

*Be sure to update your facility's safety program. See the most recent edition of NFPA 70E, Standard for Electrical Safety in the Workplace.

USE PROPER LOCKOUT PROCEDURES. Facility management needs to proactively train employees to ensure use of proper lockout procedures while working on dryer. Management also needs to inspect this unit for any covers or guards not in proper place. It is everyone's responsibility to report any missing grates, guards, equipment failures or failures to lock out. Make certain that no cover is removed unless power is locked out.

NOTE: Refer to OSHA's typical minimal lockout procedures (29CFR 1910.147 App A).

Basic Safety Rules

1. Learn how to use controls and operate equipment.
2. Do not let anyone operate unit without thorough training of basic operating and safety procedures. **Always follow a proper lockout procedure.**
3. Periodically check all mechanical and electrical components. Keep unit in good working condition.
4. Handle equipment and parts with care. **Wear protective clothing** to avoid injury from sharp metal edges.
5. Wear Personal Protective Equipment (PPE) such as safety glasses, gloves, hardhat, steel-toe boots, ear protection and dust mask as required by local, state and national regulations.

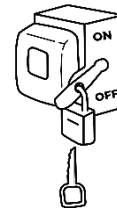
Good housekeeping practices and correct safety procedures will help protect lives, jobs, property and profits.

Please contact Sukup Manufacturing Co. with any specific safety questions about dryer or its use!



To avoid electric shock or electrocution, all equipment must be properly wired and grounded according to electrical codes. Have unit wired by qualified electrician.

Have an electrician install a main power disconnect switch capable of being locked only in OFF position. Mark disconnect clearly as to equipment it operates. Always lock out main power disconnect switch whenever equipment is not in use.



WARNING: When servicing equipment, never enter bin unless all power is locked out and another person is present. Always LOCK OUT all power and always check with voltage meter before servicing.

Failure to do so could result in death or serious injury.

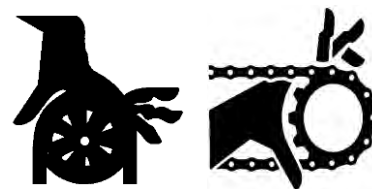
Owners/operators are responsible for developing site-specific Lockout/Tagout procedures based on equipment at their work site. See OSHA's typical minimal lockout procedures (29CFR 1910.147 App A) at www.osha.gov to establish a written plan for your work site.



WARNING: KEEP CLEAR OF ALL MOVING PARTS.

Keep people (ESPECIALLY YOUTH) away from equipment, particularly during operation.

Keep away from all moving parts. Keep all shields and screen guards in place. **SHUT OFF AND LOCK OUT** all power before servicing.



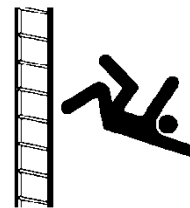
Failure to follow precautions above could result in death or serious injury.



WARNING: METAL IS SLIPPERY WHEN WET

Inspect ladder carefully before use. Never climb deteriorated, damaged or improperly assembled ladder components. Maintain secure hand and foothold when climbing. Never carry items while climbing. Use safety harness and safety line as required by safety regulations.

Failure to heed these precautions could result in death or serious injury.



CAUTION: Metal edges are sharp. To avoid injury, wear protective clothing and handle equipment and parts with care. Failure to do so may result in minor or moderate injury.

PERSONAL PROTECTIVE EQUIPMENT

Owners/Operators are responsible for developing site-specific personal protective equipment standards.

These include, but are not limited to personal protective equipment for eyes, face, head, and extremities, as well as protective clothing and respiratory devices.

For a complete listing of OSHA's personal protective equipment standards go to www.osha.gov (29CFR 1910.132).



WARNING

TRANSPORTING THIS EQUIPMENT ON PUBLIC ROADS REQUIRES PRECAUTIONARY MEASURES IN ORDER TO PREVENT AN ACCIDENT.

IMPORTANT: Trucker-transporter must provide approved safety chain when towing dryer.

If road travel is required, it is essential that safety measures are taken.

The following list offers helpful information, but it is best to consult state and local regulations to ensure complete compliance.

- Read and understand operator's manual
- Use required emblems or lights
- Travel at a reasonable and safe speed. Reduce speed and/or use lower gear on rough ground or slopes.
- Stop gradually
- Have extended rear angle mirrors on vehicles
- Signal and check behind you when turning
- Use safety chain when towing dryer
- Read safety procedures before moving units

Always strive to prevent accidents! Watch out for other vehicles. Use good judgment when transporting.

CHECK FOR OTHER VEHICLES WHEN TURNING

Be aware that two-thirds of roadway farm accidents occur while turning.

- Use mirrors
- Be sure to have clear visibility
- Use signal lights

DO NOT TRANSPORT UNIT IF VISIBILITY IS IMPAIRED

These conditions may include, but are not limited to:

- Hills or curves that obstruct vision
- Poor weather
- Darkness

FAILURE TO FOLLOW SAFETY GUIDELINES COULD CAUSE AN ACCIDENT RESULTING IN DEATH OR SERIOUS INJURY.

Grain Bin Safety

Owners/operators are responsible for developing site-specific confined space entry procedures. OSHA's confined space entry procedures (29CFR 1910.146) can be found at www.osha.gov.

If you must enter bin for repair or maintenance:

- Use a safety harness, safety line and respirator
- Station another person outside of bin
- Avoid the center of the bin
- Wear appropriate personal protective equipment
- Keep clear of all augers and moving parts



DANGER: Never enter bin unless all power is locked out and another person is present.

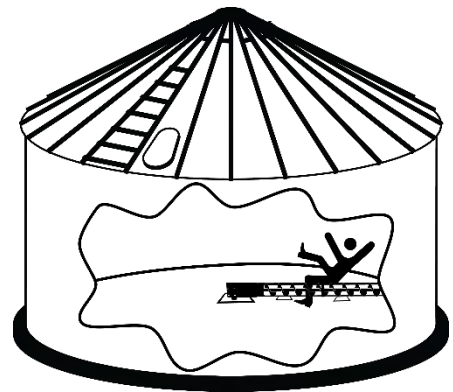


**Unload equipment
can kill or
dismember!**

**NEVER enter bin when sweep is
running!**

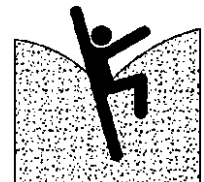
When bin is nearly empty, sweep will travel at an increasingly fast speed. Keep away from sweep and sumps to avoid entanglement.

Failure to follow these precautions will result in death or serious injury.



DANGER: Flowing grain may trap and suffocate. If you enter a bin of flowing grain you can be completely submerged in grain in about 8 seconds.

Failure to heed this warning will result in death or serious injury.



EMERGENCIES - KNOW WHAT TO DO

Have emergency numbers and written directions to work site readily available in case of emergency. An area for emergency information to be recorded is provided below.

Ambulance • Fire • Police: 9-1-1

Farm rescue team: _____

Local EMS team: _____

Address of work site: _____

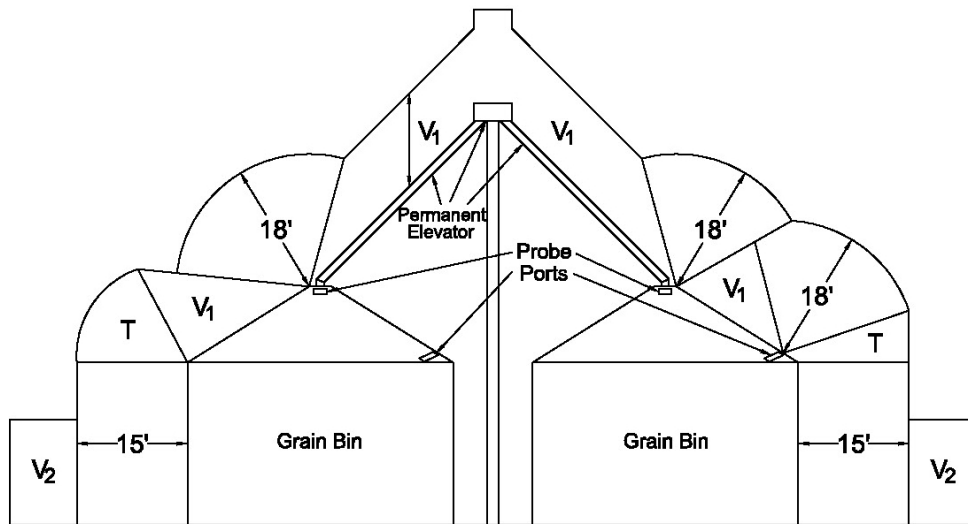
Directions to work site: _____

Electrical Wire Clearances

Your local electric utility may be able to help plan a safe environment for people working around grain bins. State codes may vary regarding specific clearances for electrical lines around grain bins. Be certain your local electric utility is in accordance with your state's regulations. **To prevent overhead safety issues, bury electrical lines.**

American National Standards Institute (ANSI) provides safety recommendations for grain bins in ANSI C2 2017 "National Electrical Safety Code" Rule 234F. Drawing below shows clearances for bins and grain handling equipment.

NOTE: An electric utility may refuse to provide service to any grain bin built near an existing electric line that does not provide clearance required by NESC.



V_1 = Vertical clearance above a building

V_2 = Vertical clearance above land

T = Transition clearance

AUTOMATIC GRAIN DRYER DECALS

To prevent death or serious injury to people involved in operation of this equipment, it is essential that these safety decals be mounted on dryer. Check that all are in place according to the decal placement drawing and are legible when dryer is installed.

IMPORTANT: If a suggested location is not clearly visible, place decal in a more visible spot. Never cover up another safety decal.

Make sure location for decal is free from grease, oil and dirt. Remove backing from decal and place in proper position. Replace missing or damaged safety decals or shields free of charge by contacting Sukup Manufacturing Co. by mail at Box 677, Sheffield, Iowa 50475 USA; by phone at 641-892-4222; or by e-mail at info@sukup.com. Please specify item number when ordering.

1. Decal L0281 – WARNING: To avoid serious



injury or death, follow general safety regulations.

2. Decal L02741 – WARNING: Keep away from



any electrical lines, especially when moving unit.

3. Decal L0234 – WARNING: Do not allow rear door to close with someone inside; lock out



power; do not bypass interlock switch.

4. Decal L0166 – WARNING: Keep guards and



screens in place. Disconnect electricity. Check fan blade.

5. Decal L0271 – DANGER: Shield missing, do not operate!



6. Decal L0284 – WARNING: Keep away from all moving parts.



7. Decal L0285 – WARNING: Not intended for use on public roads. If road travel is required:



8. Decal L02831 – WARNING: Lower and secure



parking stands before unhitching unit.

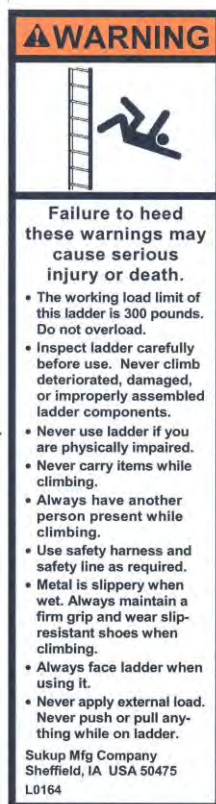
9. Decal L03061 – **DANGER**: Keep away when auger is running! Entanglement will cause serious injury or death!



10. Decal L0520 – **CAUTION**: Failure to keep unit clean may cause fire and serious injury or death.



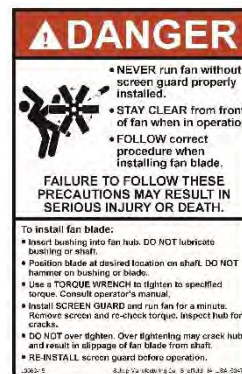
11. Decal L0164 – **WARNING**: Ladder safety – falling from heights hazard. Overall precautions for ladder safety.



12. Decal L0512 – **WARNING**: Use safety chain when towing unit to eliminate detachment hazard.



13. Decal L0062 – **DANGER**: Never run fan without screen guard; Stay clear from front of fan; Follow correct procedure when installing fan blade.



14. Decal L0165 – **WARNING**: Disconnect Electricity; Bleed gas; etc.



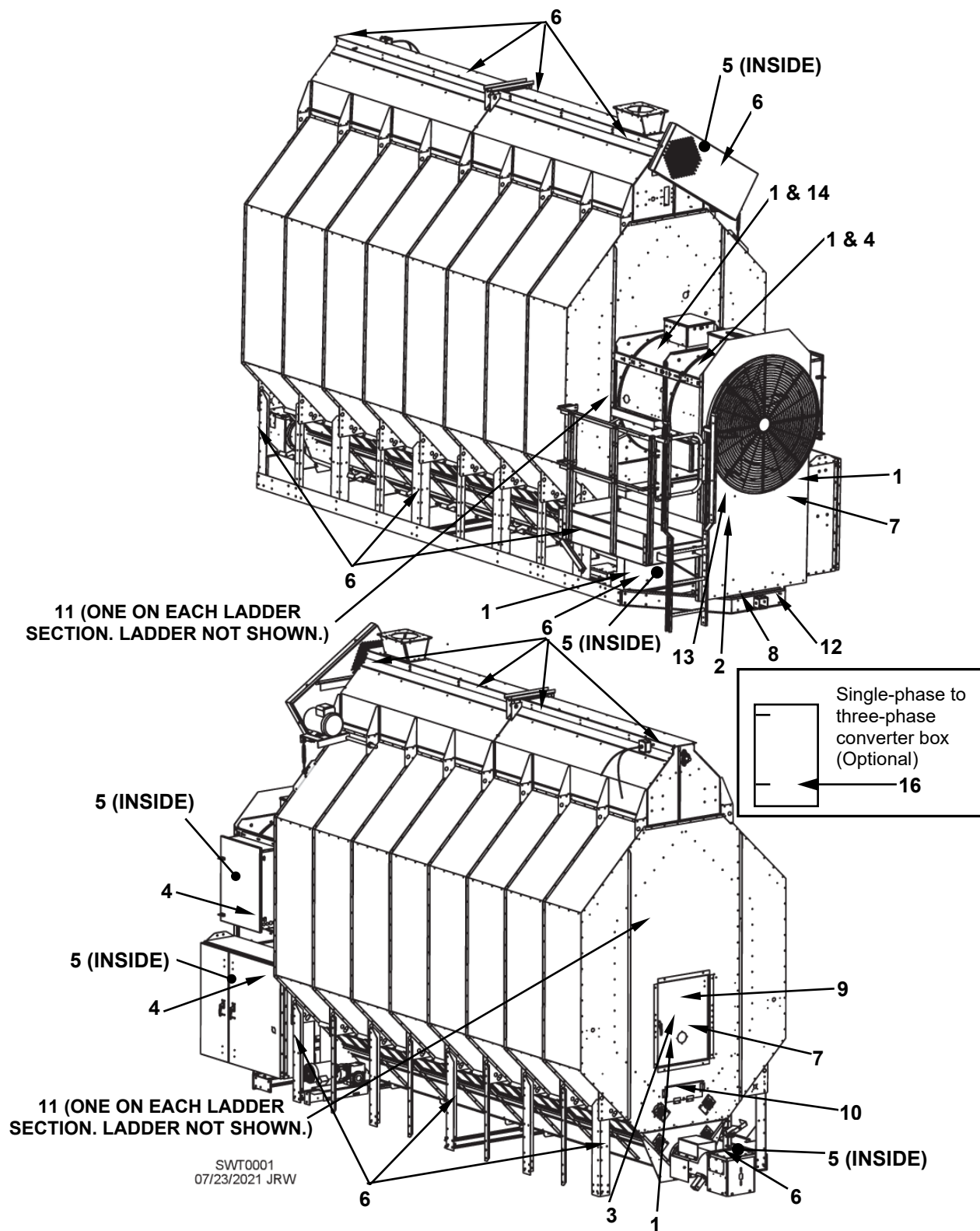
15. Decal L0204 – **DANGER**: Do not operate with service door removed.



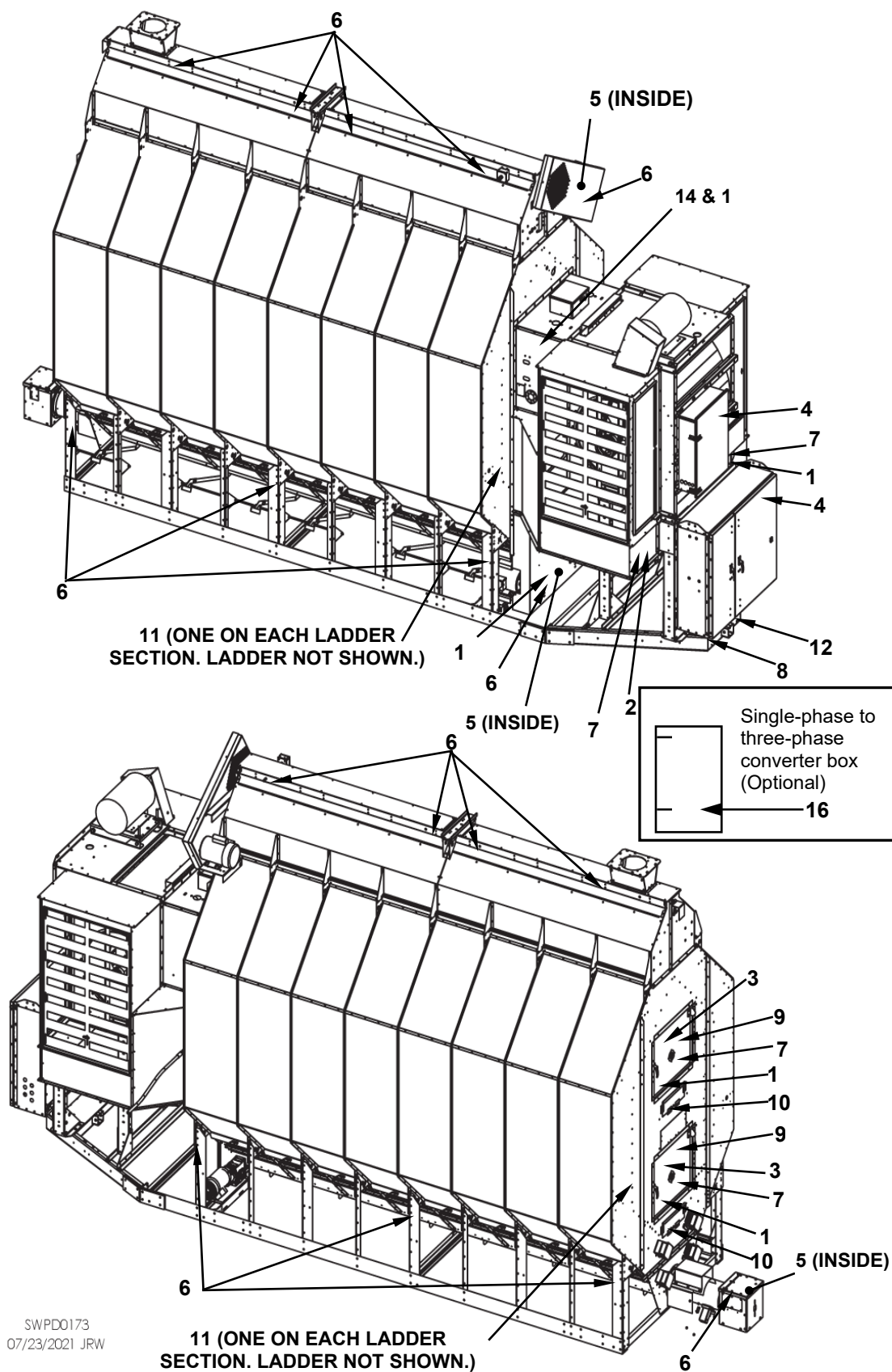
16. L0163 - **DANGER**: Do not open! Severe shock hazard. Mounted on single-phase DC power box.



AXIAL-FAN GRAIN DRYER SAFETY DECAL PLACEMENT



CENTRIFUGAL-FAN GRAIN DRYER SAFETY DECAL PLACEMENT



SWPD0173
07/23/2021 JRW

Emergency Shutdown Locations

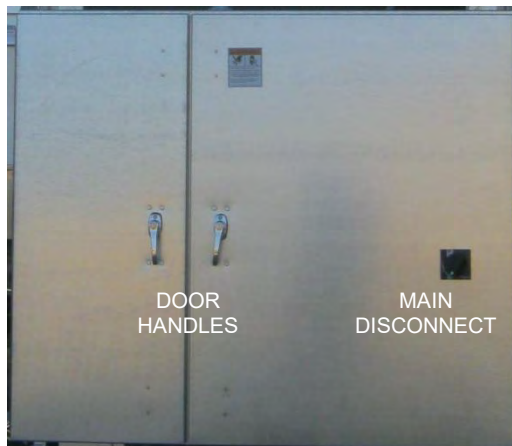


Image 1 – Power distribution box

Power distribution box is located at front of dryer. It contains all main power distribution components, with higher voltage ($\geq 110V$) on right and lower voltage on left. Door handles secure doors and can be locked. Main Disconnect switch prevents opening of power box while power is present in system.



WARNING: High voltage will still be present on bottom terminals of main switch in power distribution box even if Main Disconnect is in “Off” position. To remove this voltage from power box, shut off main breaker ahead of dryer. Failure to follow this procedure could cause electrocution or shock resulting in death or serious injury.



Image 2 – Main Disconnect

Image 2 shows Main Disconnect in “Off” position. Power is not present in system except as noted in warning above.

IMPORTANT: Turn switch off when dryer is not in use. This will cut power to programmable logic control (PLC) and other components, protecting them from potential damage in case of a power surge.

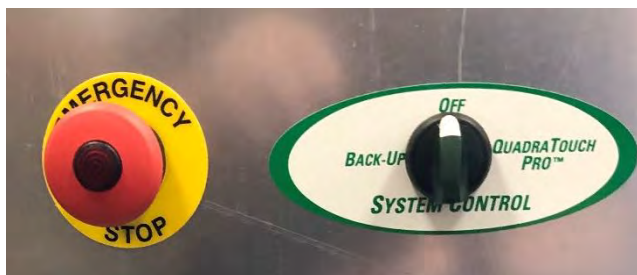


Image 3 – Emergency Stop & System Control switches

Emergency Stop switch is located on side of power box. See Image 3. During operation, switch is pulled out and red knob is illuminated. Pressing Emergency Stop switch or switching Main Disconnect to “Off” position will shut off power to control systems. Power will still be present inside main power box as noted in warning above.

System Control switch is used to select between Back-Up (using green control boards in main power box) or QuadraTouch Pro (using touch screen) operation of dryer. Turning System Control switch to “Off” will shut down power to both control systems. Power will still be present inside main power box as noted in warning above.

Axial-Fan Dryer Component Identification

Images 4 and 5 identify components on front (left) and back (right) of a single-fan dryer.



Image 4 – Front of single-fan axial dryer

1. Main power box (Backup controls are inside)
2. Emergency Stop & System Control switches
3. Auxiliary equipment power box
4. Column over-temp capillary
5. Air switch, plenum high limit switch
6. RTD (plenum thermometer) box



Image 5 – Back of single-fan axial dryer

7. Wet bin (in transport position)
8. Rear door switch
9. Plenum access door w/ viewing port
10. Column over-temp switch
11. Meter roll proximity switch
12. Rear junction box
13. Unload auger proximity switch
14. Discharge chute switch
15. Discharge moisture sensor (Bottom of discharge tube)

Centrifugal-Fan Dryer Component Identification

Images 6 and 7 identify components on front (left) and back (right) of dryer.



Image 6 – Front of centrifugal-fan dryer

1. Main power box (E-Stop & System Control Switch are on left side of box; backup controls are inside)
2. Drive-chain access door
3. Auxiliary equipment power box
4. Heater box (Location may differ depending on date of dryer manufacture.)
5. Fan motor
6. Air inlet louvers



Image 7 – Back of centrifugal dryer

7. Wet bin (in transport position)
8. Plenum access door with viewing port
9. Rear door switch
10. Column over-temp switch
11. Rear junction box
12. Meter roll proximity switch
13. Discharge chute switch
14. Unload auger proximity switch
15. Access ladder
16. Discharge moisture sensor (Bottom of discharge tube)

Power Box Component Identification

Image 8 identifies components in main power box on a two-fan dryer. There will be a separate starter protector and fan contactor for each fan on dryer.

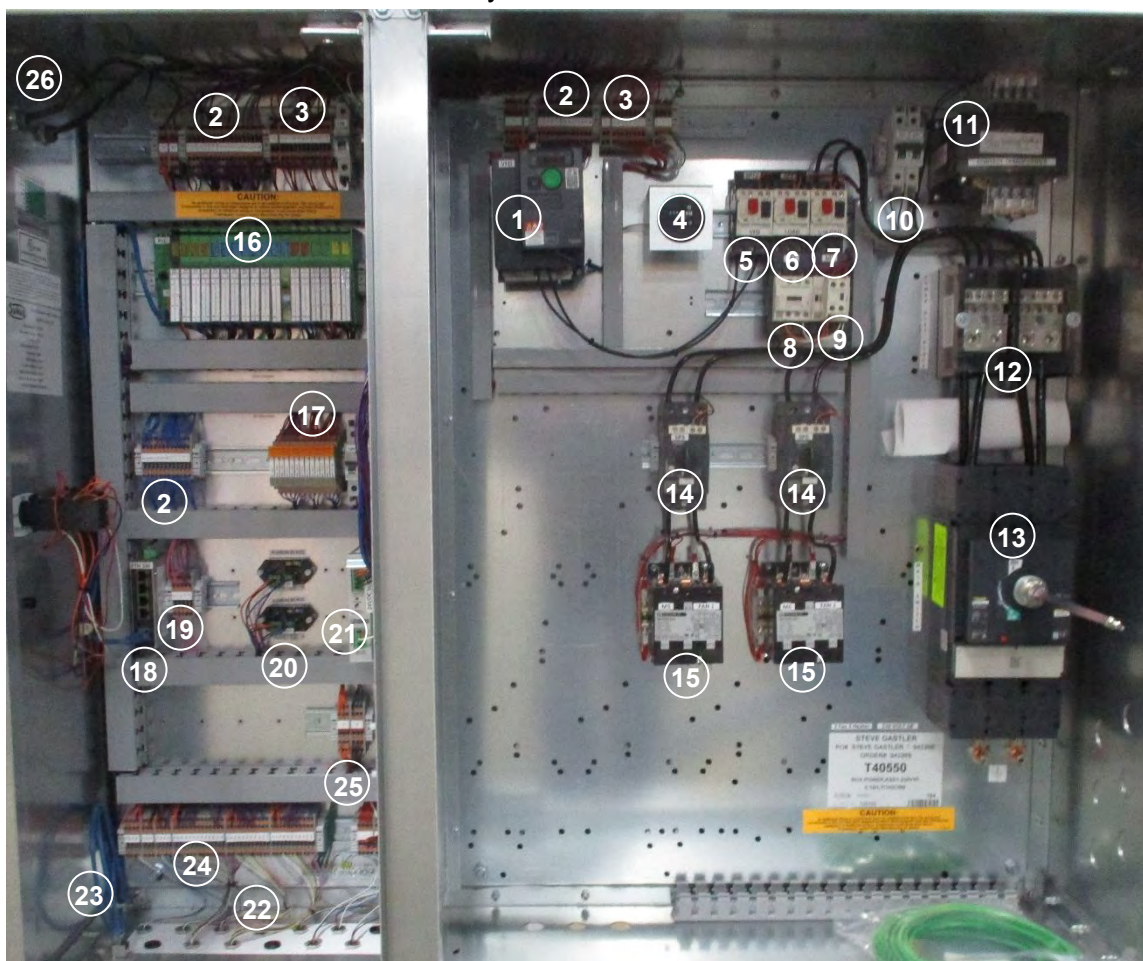


Image 8 – Power box components for two-fan dryer (prior to main switch wiring)

- | | |
|------------------------------|--------------------------------------|
| 1. Variable frequency drive | 14. Fan starter protector |
| 2. DC feed-through terminals | 15. Fan contactor |
| 3. AC feed-through terminals | 16. Programmable logic control (PLC) |
| 4. Hour meter | 17. 24VDC relays |
| 5. VFD starter protector | 18. Ethernet switch |
| 6. Load starter protector | 19. RTD terminals |
| 7. Unload starter protector | 20. RTD transmitters |
| 8. Load contactor | 21. 24VDC power supply |
| 9. Unload contactor | 22. Bulkheads for M12 cables |
| 10. Circuit breaker | 23. Ethernet cable |
| 11. Control transformer | 24. Input/output DC terminals |
| 12. Power distribution block | 25. Input/output AC terminals |
| 13. Main switch | 26. Auxiliary power box connections |

IMPORTANT: During initial setup or after relocation of dryer, ALL main power box wiring connections should be inspected. Wires are tightened at factory, but connections should be checked after transport and retightened as needed.

NOTICE: Low-voltage components (left side) are separated from high-voltage (right side) in power box to minimize electromagnetic interference on left side. Always maintain high/low voltage and AC/DC separation and practice good wire maintenance.

Axial-Fan Dryer Pipe Train Component Identification



WARNING: Check pipe train before each use to ensure components are properly connected and in good working order. Fuel leak could result in fire or explosion causing death or serious injury.

Image 9 identifies components of a propane-fueled single-fan axial dryer. There is a separate pipe train for each heater on dryer.

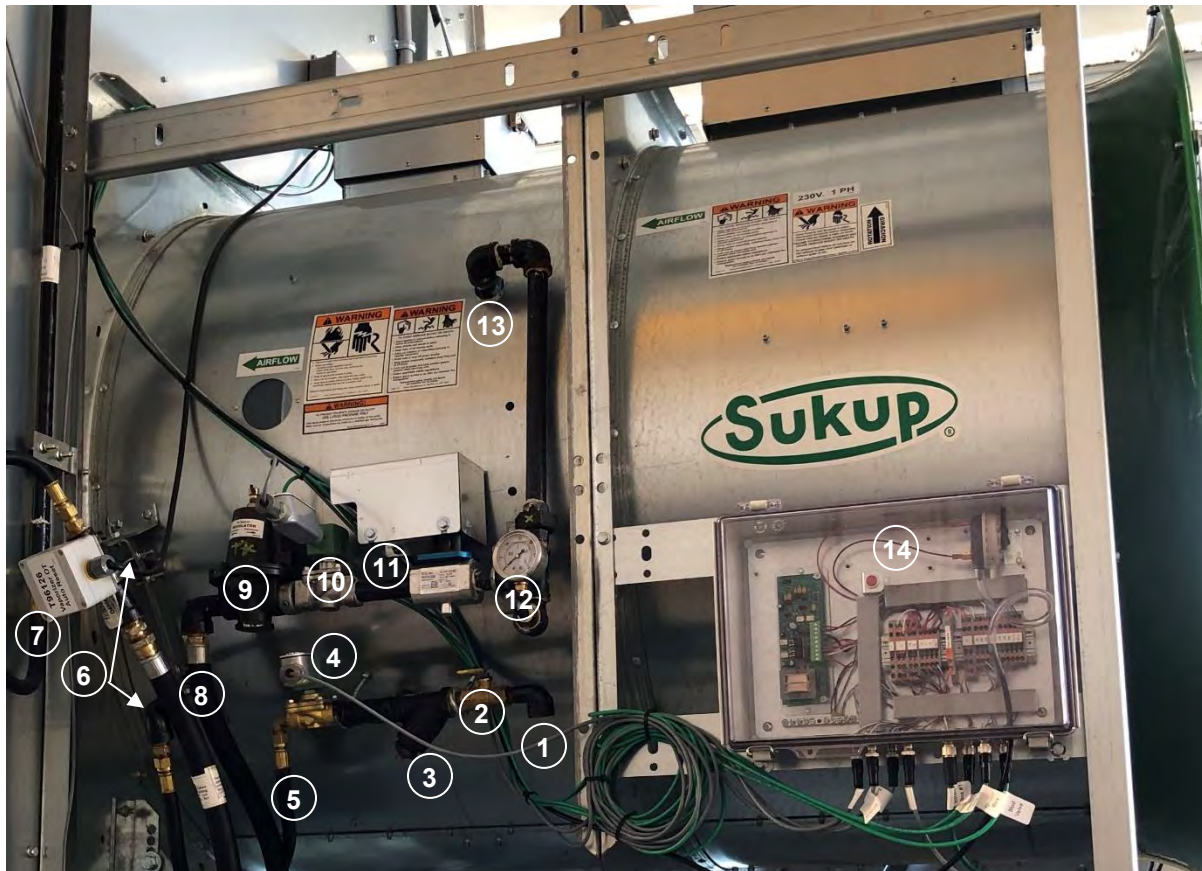


Image 9 – Pipe train components on propane-fueled axial-fan dryer

- | | |
|--|--|
| 1. LP inlet | 8. Vapor hose |
| 2. Shut-off valve | 9. Regulator |
| 3. Wye strainer | 10. Vapor solenoid valve |
| 4. Liquid solenoid valve | 11. Electronic actuator & butterfly valve |
| 5. Liquid propane hose | 12. Vapor pressure gauge |
| 6. LP vaporizer inlet (lower) & outlet (upper) | 13. Orifice pipe |
| 7. Vapor over-temp switch | 14. Heater box (Appearance may differ depending on date of dryer manufacture.) |

Component Identification

Image 10 identifies components of a natural gas-fueled single-fan axial dryer. There is a separate pipe train for each heater on dryer.



Image 10 – Pipe train components on natural gas-fueled axial-fan dryer

- | | |
|------------------------|---|
| 1. NG inlet | 5. Electronic actuator & butterfly valve |
| 2. Shut-off valve | 6. Orifice pipe |
| 3. Solenoid valve body | 7. Pressure gauge |
| 4. Solenoid valves | 8. Heater box (Appearance may differ depending on date of dryer manufacture.) |

Centrifugal-Fan Dryer Pipe Train Component Identification

Image 11 identifies components of liquid pipe train (1-6) and vapor pipe train (8-13). There is a separate pipe train for each heater on dryer. There is a main gas valve for all natural gas-fueled dryers and for LP-fueled dryers with two or more fans.



WARNING: Check pipe train before each use to ensure components are properly connected and in good working order. Fuel leak could result in fire or explosion causing death or serious injury.



Image 11 – Pipe train components on propane-fueled centrifugal-fan dryer

- | | |
|--|---|
| 1. LP inlet | 8. Vapor hose |
| 2. Shut-off valve | 9. Vapor over-temp switch location. |
| 3. Wye strainer | 10. Regulator |
| 4. High-pressure pop-off valve | 11. Vapor solenoid valve |
| 5. Liquid solenoid valve | 12. Electronic actuator & butterfly valve |
| 6. Liquid propane hose | 13. Pressure gauge |
| 7. LP vaporizer inlet (lower) & outlet (upper) | |

Component Identification

Image 12 identifies components of a natural gas-fueled centrifugal-fan dryer. There is a separate pipe train for each heater on dryer.



Image 12 – Pipe train components on natural gas-fueled centrifugal-fan dryer

- | | |
|------------------------|--|
| 1. NG inlet | 5. Electronic actuator & butterfly valve |
| 2. Shut-off valve | 6. Pressure gauge |
| 3. Solenoid valve body | 7. Orifice pipe |
| 4. Solenoid valves | 8. Heater box |

Axial-Fan Dryer Heater Component Identification

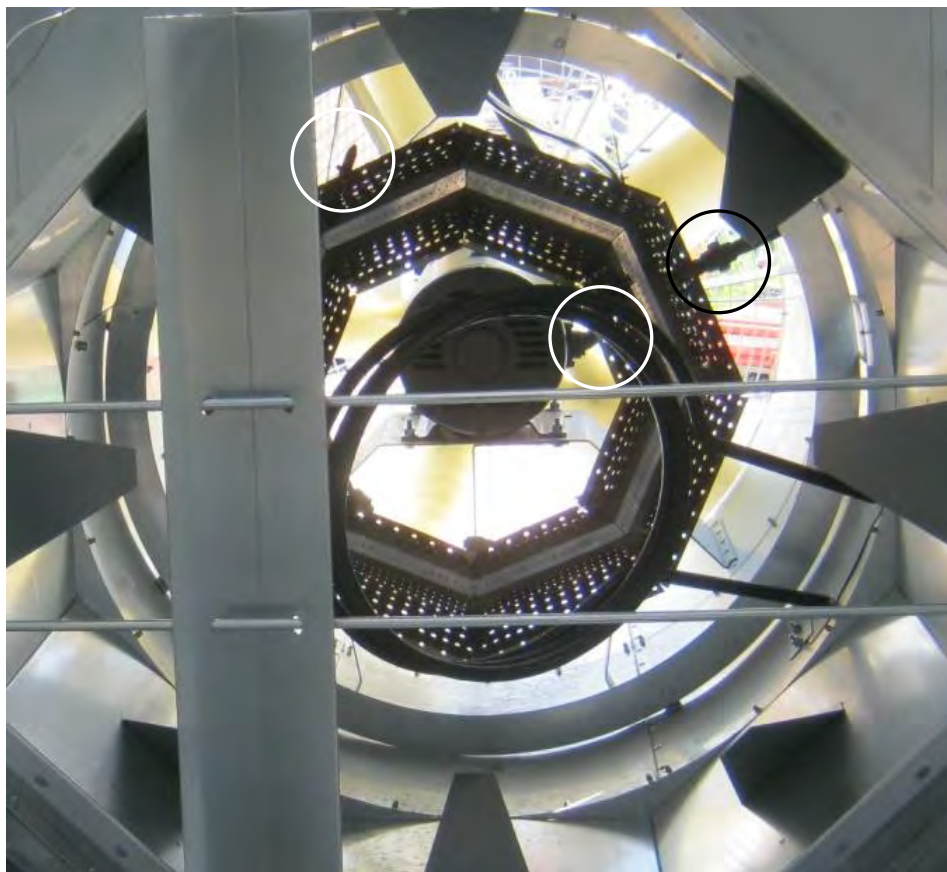


Image 13 – Burner, vaporizer coil and flame sensor rod

Image 13 shows octagon burner and vaporizer coil in axial-fan dryer. Also shown are flame sensor rod, spark plug/igniter and orifice location, all circled, and vane for side-to-side air flow/temperature adjustment.

NOTE: 28" fan uses a hexagon burner. Flame sensor rod, spark plug/igniter and orifice locations are all similar to parts circled in Image 13.

Centrifugal-Fan Dryer Heater Component Identification

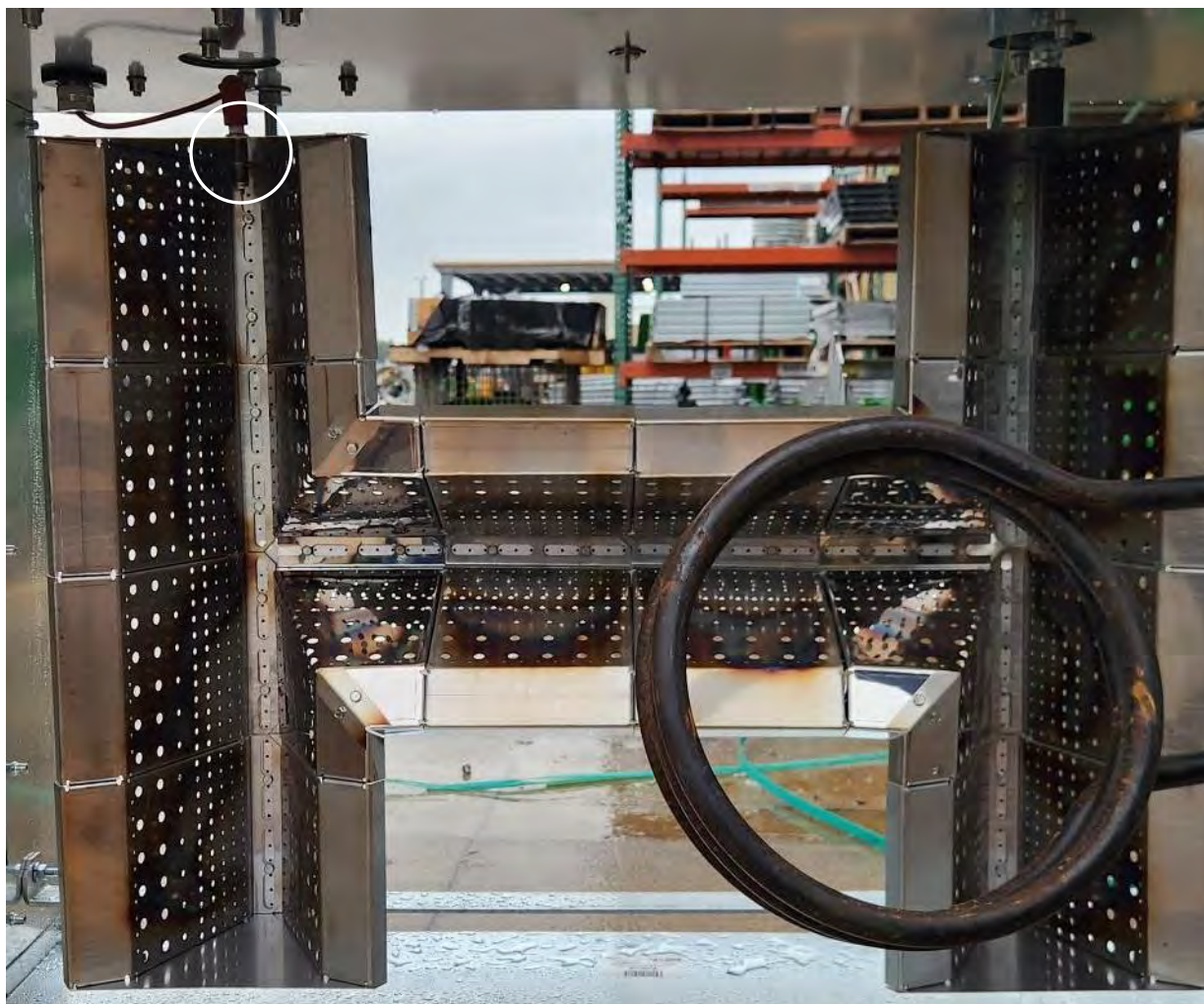


Image 14 – Burner, vaporizer coil & spark plug (circled) before burner installation

Image 14 shows H burner in centrifugal-fan dryer. Vaporizer coil and spark plug/igniter (circled) are shown. **NOTE:** Spark plug may be in different location depending on burner.

See Parts/Assemblies section for drawing of orifice plate used to restrict flow and build pressure.

Heater Component Identification

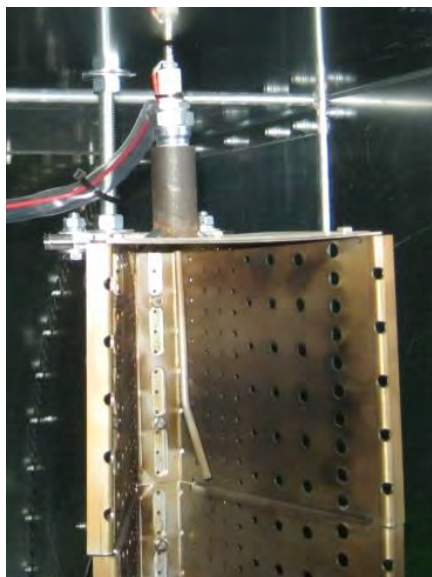


Image 15 – Flame sensor on H burner

Image 15 shows flame sensor in H burner on centrifugal-fan dryer.



Image 16 – Plenum RTD (silver) and over-temp capillary (copper)

Image 16 shows plenum RTD (Resistance Temperature Detector) aluminum tube and plenum over-temp capillary (copper).

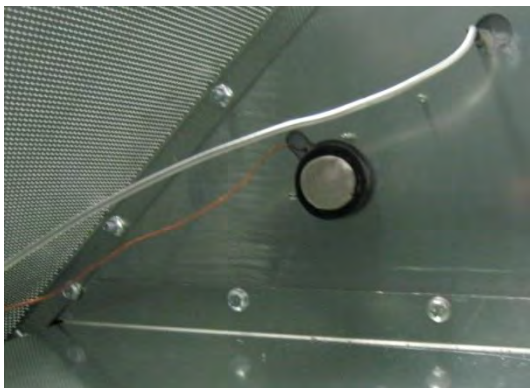


Image 17 – Plenum RTD (thermometer) tube & static air pressure switch screen

Image 17 shows plenum RTD tube and static air pressure switch screen. Locations may vary depending on type of dryer.

Door Switch, Unload Auger Proximity Switch & Moisture Sensor



Image 18 – Rear door switch

Image 18 shows rear door switch. There is one for each door.



Image 19 – Unload auger proximity switch

Image 19 shows unload auger proximity switch (at right in box) and rotating target.

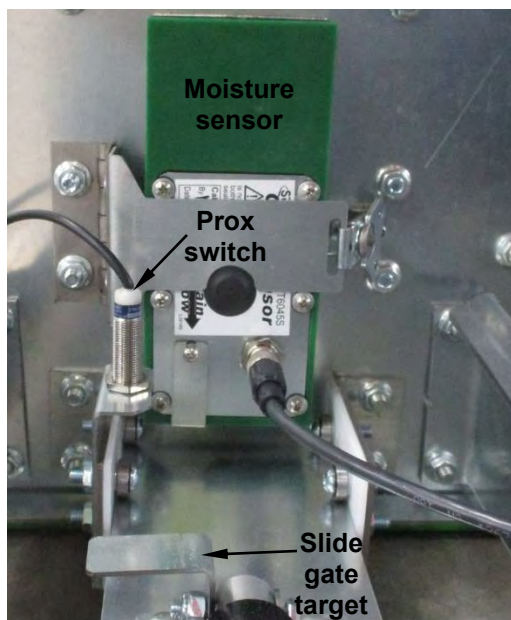


Image 20 – Proximity switch & moisture sensor in optional static sample box

Image 20 shows proximity switch and discharge moisture sensor in optional static sample box.

Moisture Sensor & Fill Switches



Image 21 – Discharge moisture sensor location

Image 21 shows location of discharge moisture sensor (behind rain shield). Sensor is mounted on bottom of discharge chute. On dryer with drag conveyor unload, sensor will be in a static sample box. See Image 20.



Image 22 – Paddle switch box

Image 22 shows paddle switch box. It is placed on opposite end of dryer from fill hopper on auger-fill dryer.



Image 23 – Paddle switch box on gravity fill dryer

Image 23 shows paddle switch box on gravity-fill dryer.

Cleanouts



Image 24 – Outer grain column cleanout door



Image 25 – Inner grain column cleanout door



Image 26 – Unload auger cleanout door handle



Image 27 – Plenum cleanout/blowout door

Image 24 shows outer grain column cleanout door. Hardware used to lock door closed is circled.

Image 25 shows inner grain column cleanout door.

Image 26 shows handle for unload auger cleanout door.

Image 27 shows partially open rear door for plenum cleanout/blowout.

Unload Auger, Meter Roll Motor & Proximity Switch

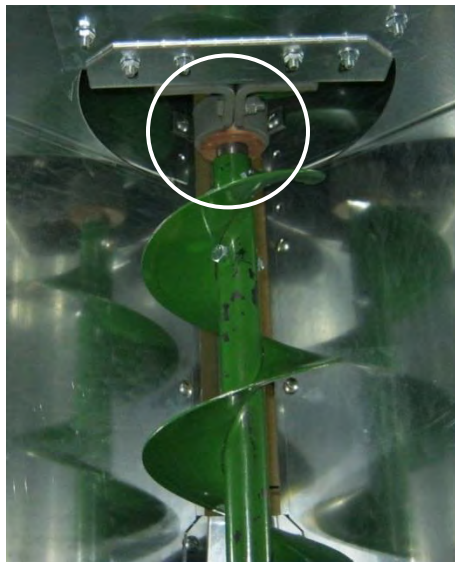


Image 28 – Unload auger

Image 28 shows unload auger with hanger bearing (circled). Auger will not be present on dryer with drag conveyor unload.



Image 29 – Meter roll motor

Image 29 shows meter roll motor with gear reducer.



Image 30 – Meter roll proximity switch

Image 30 shows meter roll proximity switch.

Service Doors



Image 31 – Unload auger/meter roll drive service door

Image 31 shows unload auger/meter roll drive service door. It is located at lower front of dryer. Behind are belts for unload auger and chains for meter rolls.



Image 32 – Unload auger service door

Image 32 shows unload auger rear service door. It is located at rear of dryer and also serves as a step (note traction tape) for accessing plenum door(s).

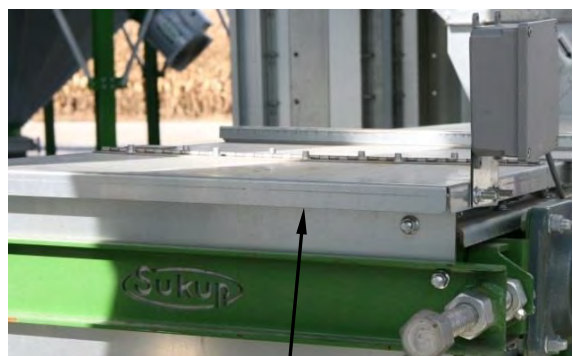


Image 33 – Conveyor tail section door

Image 33 shows drag conveyor tail section service door.

Centrifugal-Fan Dryer Lower Plenum Vacuum-Cool Door



Image 33 – Vacuum door closed



Image 34 – Vacuum door open



**Image 35 – Vacuum-cool door opener
handle attachment location**

Image 33 shows lower plenum vacuum-cool door in closed position. Image 34 shows it in open position. Door must be open when vacuum-cool mode is used, and closed in full-heat mode.

Image 35 shows location (circled) on outside of dryer for attachment of handle to open lower plenum vacuum-cool inlet door.

Centrifugal-Fan Dryer Vacuum-Cool, Cleanout & Plenum Divider Doors



Image 36 – Cleanout door under vacuum-cool duct

Image 36 shows cleanout door under vacuum-cool duct.



Image 37 – Plenum divider door

Image 37 shows plenum divider door in place (for heat-cool mode). Remove door for operation in full-heat mode.



Image 38 – Plenum divider door by burner

Image 38 shows plenum divider door that is closest to burner. It is propped open for use of dryer in full-heat mode. Close door for operation in heat-cool mode.

Centrifugal-Fan Dryer Control Boxes, Inlet Louvers & Inlet Doors



Image 39 – Control boxes above heater housing

Image 39 shows:

1. Plenum RTD box.
2. Static air pressure switch hose, plenum high limit switch (both inside Box 2).
3. Heater housing high-limit switch (manual reset) location.

NOTE: Appearances & locations may vary depending on date of dryer manufacture.



Image 40 – Air inlet louvers

Image 40 shows centrifugal-fan air inlet louvers in open (full-heat) position.



Image 41 – Inlet door

Image 41 shows inlet door. There is one on each side of fan. Both doors should be open when dryer is running in full-heat mode.

QuadraTouch Pro Controller



Image 42 – QuadraTouch Pro control box

QuadraTouch Pro controller (Image 42) should be mounted away from dryer and connected by shielded, direct-bury Ethernet cable.

Main power switch is near bottom right corner. When turned on, switch will illuminate. Panel will boot up shortly and connect with PLC in main power box.

To communicate with dryer, dryer must be powered up and System Control switch on main power box should point to QuadraTouch Pro.

Back of QuadraTouch Pro panel is accessible by removing screws on bottom corners of hinged panel. See Image 42.

Installation Guide

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08/22/2024	– Updated guidelines for fastening dryer to foundation	4



Pre-Installation Requirements

Location

Numerous factors need to be taken into consideration when determining where to install dryer. Important things to consider when selecting site are:

1. Wet grain supply
2. Dry grain discharge
3. Location of storage bins
4. Other grain handling equipment
5. Maintaining a minimum of 3 feet clearance from other structures on side of dryer and 5 feet minimum clearance from other structures at fan inlet.
6. Minimizing handling distances of load and unload systems
7. Locating dryer and storage bins in a well-drained area
8. Electrical requirements



WARNING: Do not install dryer inside a building or other area where fuel installation regulations and/or electrical codes and/or insurance requirements do not allow.



WARNING: Do not operate dryer in an area where combustible material can be drawn into fan (3 feet minimum clearance), or where load section can contact power line.



Failure to heed these warnings could result in death or serious injury.

Foundation

See Automatic Grain Dryers Technical Data section, L24135, for foundation requirements.

Gas & Electric Hookup

Initial gas and electric hookups should be performed only by qualified gas and electrical service technicians in accordance with all applicable local, state and national code requirements. See Automatic Grain Dryers Technical Data section, L24135, for electrical usage information and see Appendix B of this manual for electrical requirements.

See Automatic Grain Dryers Technical Data section, L24135, for fuel system information.

DO NOT use a pressure regulator at LP supply tank.

Open LP inlet shut-off valve slowly to prevent inadvertent closing of excess flow valves.

Anchor Bolts for Single-Module Dryers

See Pages 2-5 through 2-7 for support leg locations for axial-fan dryers.

See Pages 2-8 and 2-9 for support leg locations for centrifugal-fan dryers.

Sukup Manufacturing Co. recommends using Hilti KB-TZ anchors.

Table 2-1 shows number of anchors by dryer length. All anchor bolts are 1/2" x 5-1/2".

DRYER LENGTH	ANCHOR QTY.	ANCHOR PART #
8'	10	J07781
12'	10	J07781
16'	14	J07781
20'	18	J07781
24'	18	J07781
28'	22	J07781

Table 2-1 – Anchor bolts by dryer length

Total includes two anchors for front leg.

Follow Hilti installation instructions provided with anchors.

Anchor Bolts for Stacked Dryers

See Stacked Dryer Manual, L0551-L0552, for support leg and anchor bolt locations for stacked dryers.

Single-Point Column Temperature Sensors

See Assembly Instructions L19876 for installation of single-point column temperature sensors (Standard on stacked dryers; optional on single-module dryers).

Dryer Set-up/Supports

NOTICE: Wheel transport kit is for transport only and is NOT to be used when operating dryer. Dryer MUST be mounted and supported in an approved manner. See Fig. 2-1.

Dryer must be mounted a minimum of 16 inches above surface to allow for cleanout.

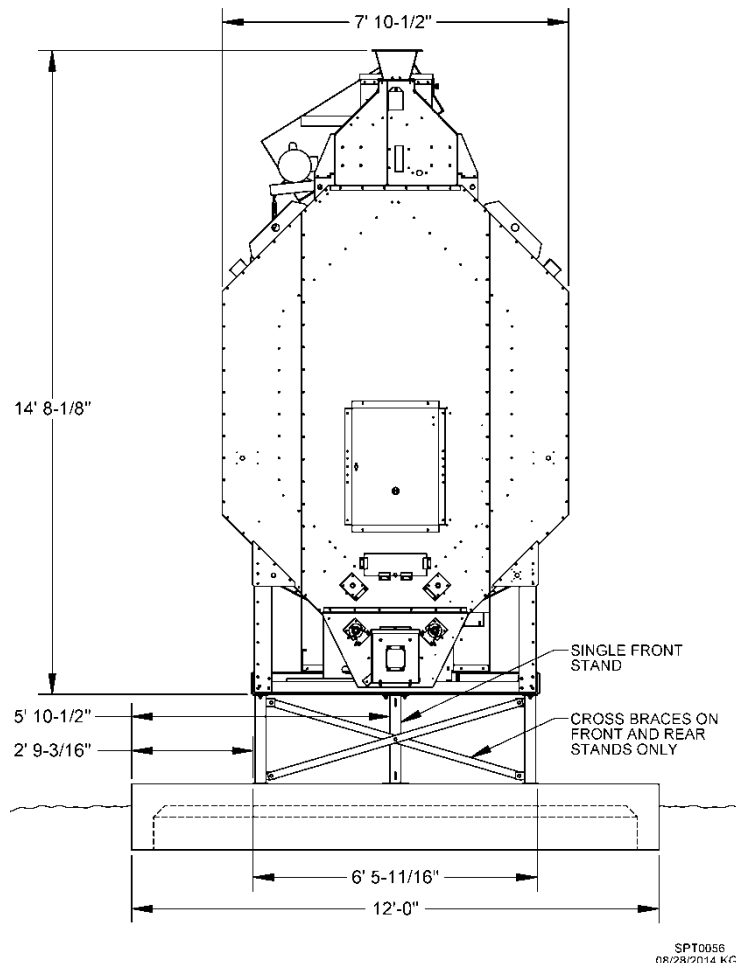


Fig. 2-1 - Cross support braces and rear stand

If dryer is not mounted using Sukup Manufacturing Co. supports, these guidelines must be followed:

- Supports under grain columns must be at least every 6 feet
- Support under front hitch
- Fasten dryer to foundation using brackets or turnbuckles

Dryer legs are available from Sukup Manufacturing Co. in 2', 3', 4' and 6' lengths. Support kits come with necessary hardware to attach legs to dryer frame. Customer must supply hardware to attach to concrete pad (Required minimum sizes are 1/2" or 5/8" hardware).

Optional dryer ladder extensions are available from Sukup Manufacturing Co. in 33-inch (B5083) and 44-inch (B5084) lengths.

Contact Sukup dealer to order supports and/or extra ladder extensions.

See L2051 to install pipe train access platform on axial-fan dryer.

Support Leg Locations & Dimensions for Axial-Fan Dryers

Drawings on this and following pages show support leg locations and dimensions for 8', 12', 16', 20', 24' & 28' axial dryers.

Fig. 2-2 – Leg locations & dimensions for 8' axial dryer

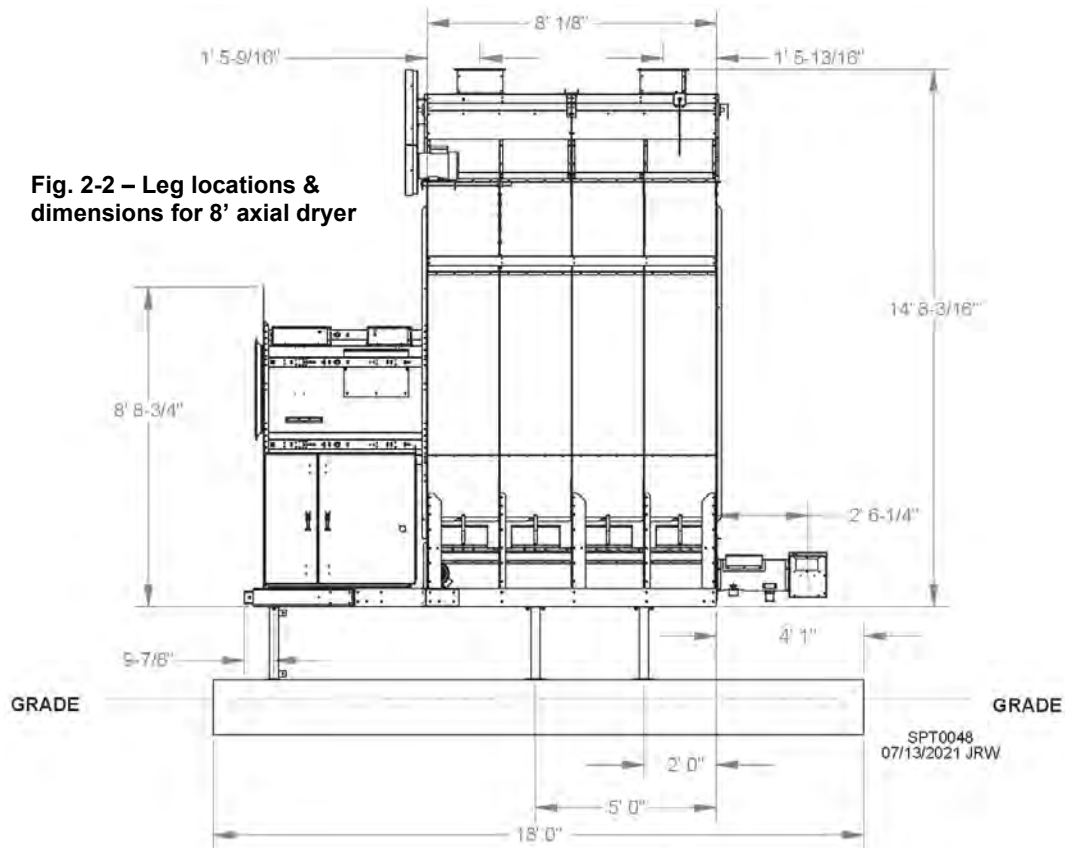
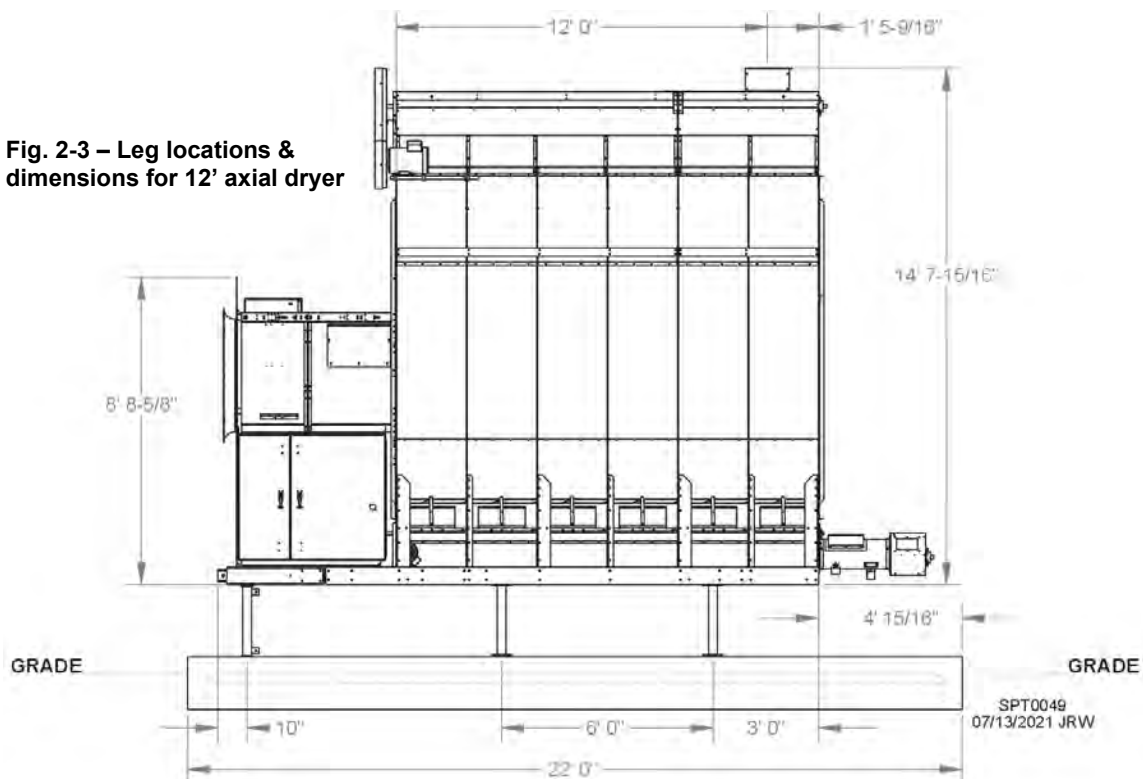


Fig. 2-3 – Leg locations & dimensions for 12' axial dryer



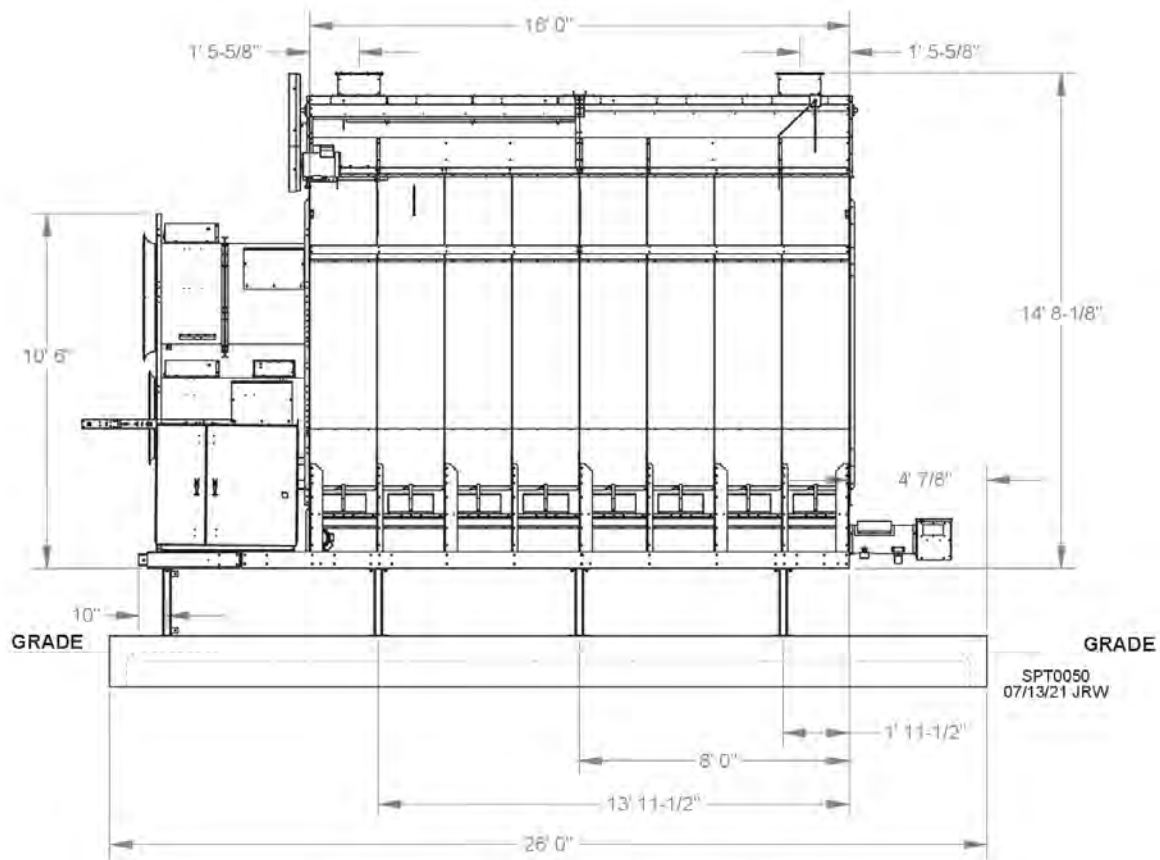


Fig. 2-4 – Leg locations & dimensions for 16' axial dryer

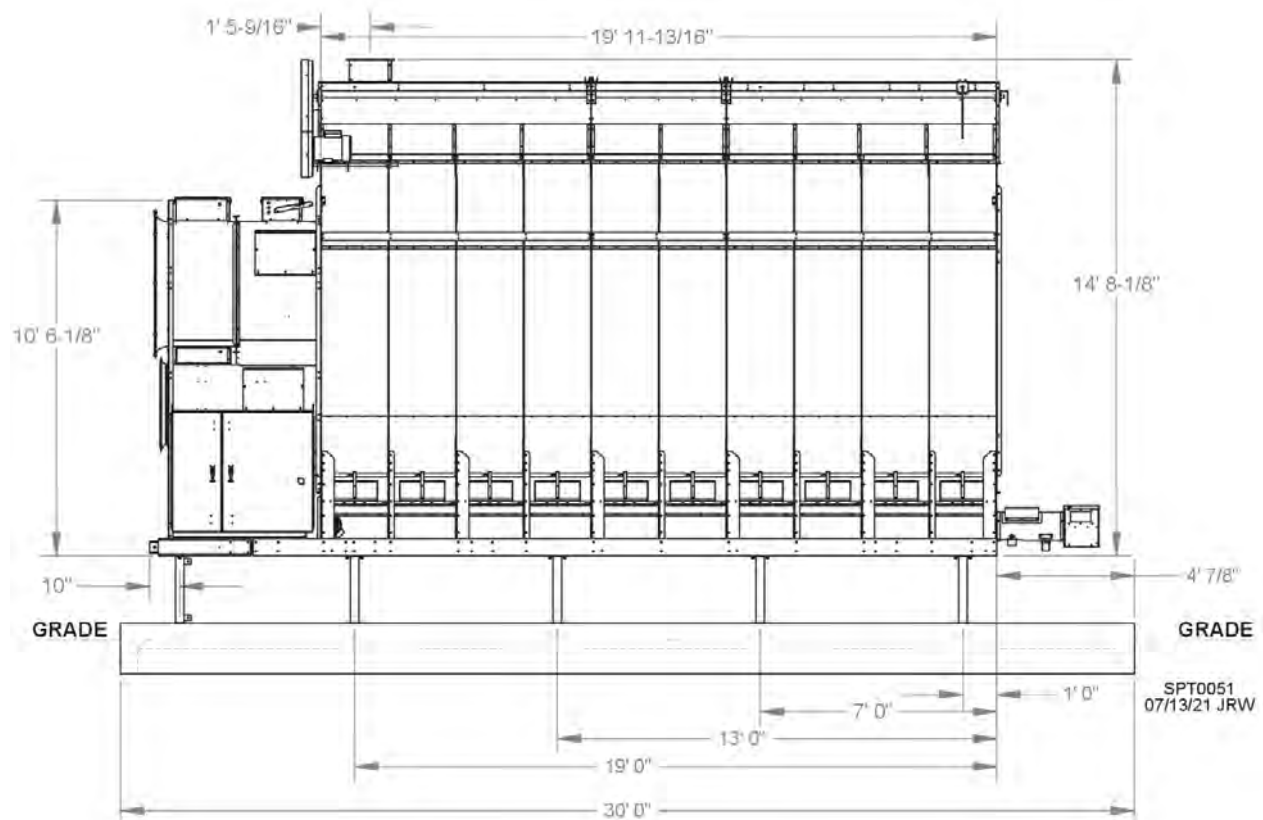


Fig. 2-5 – Leg locations & dimensions for 20' axial dryer

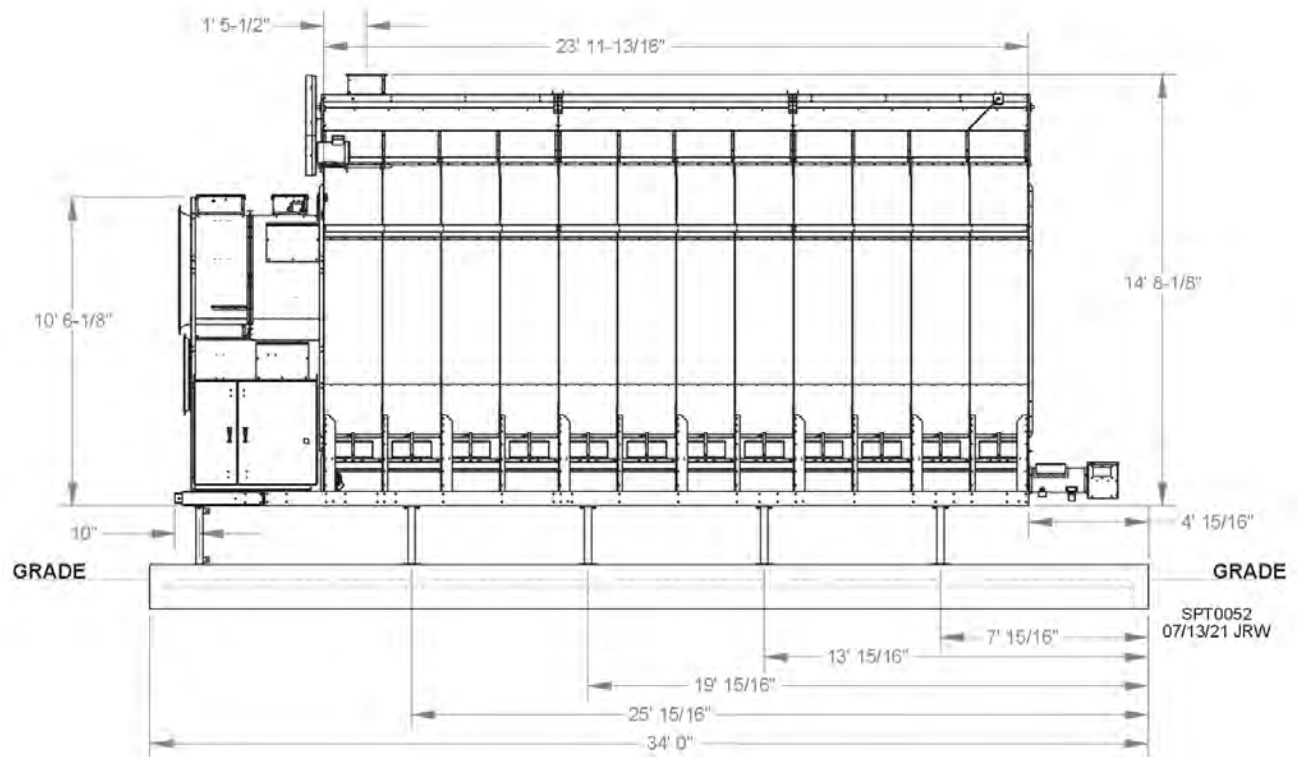


Fig. 2-6 – Leg locations & dimensions for 24' axial dryer

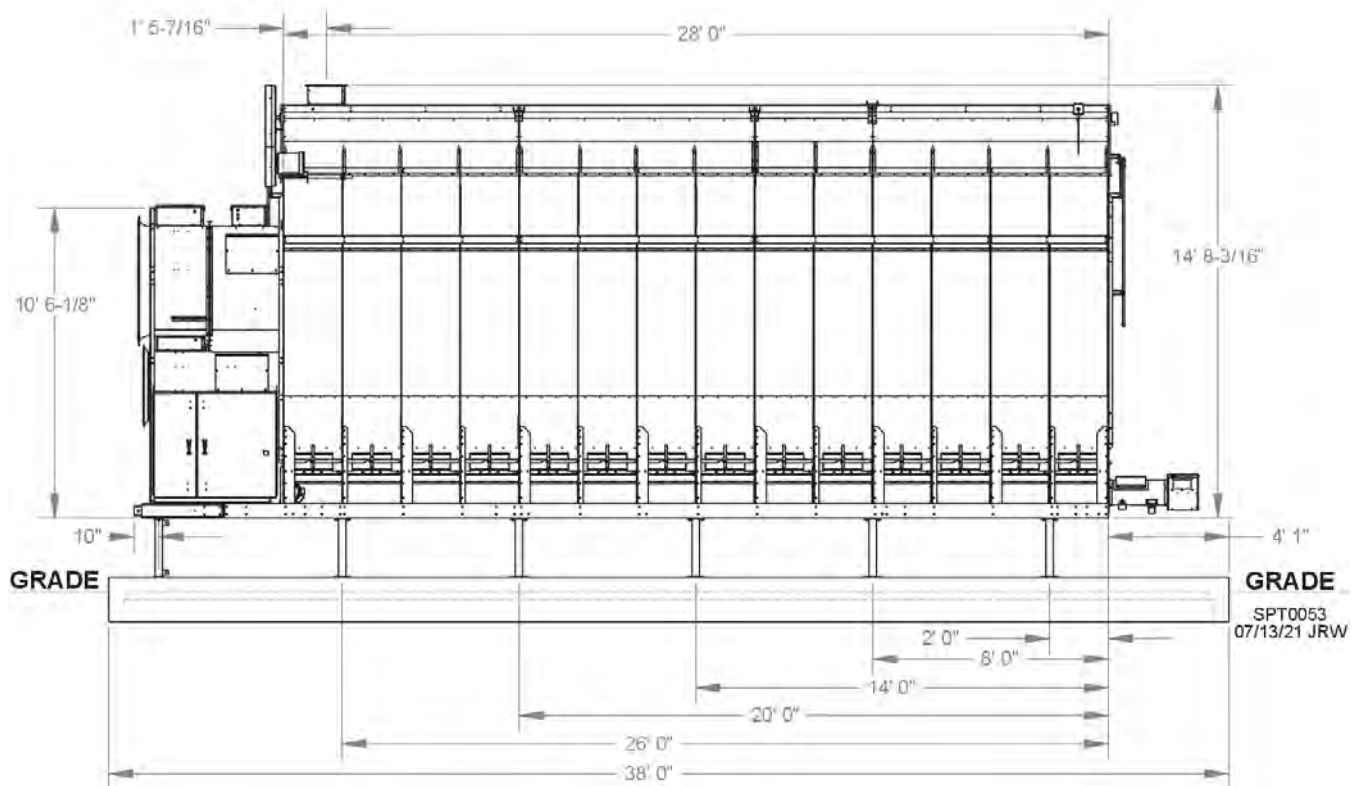


Fig. 2-7 – Leg locations & dimensions for 28' axial dryer

Support Leg Locations & Dimensions for Centrifugal-Fan Dryers

Drawings on this and next page show support leg locations and dimensions for 16, 20 and 24-foot centrifugal dryers.

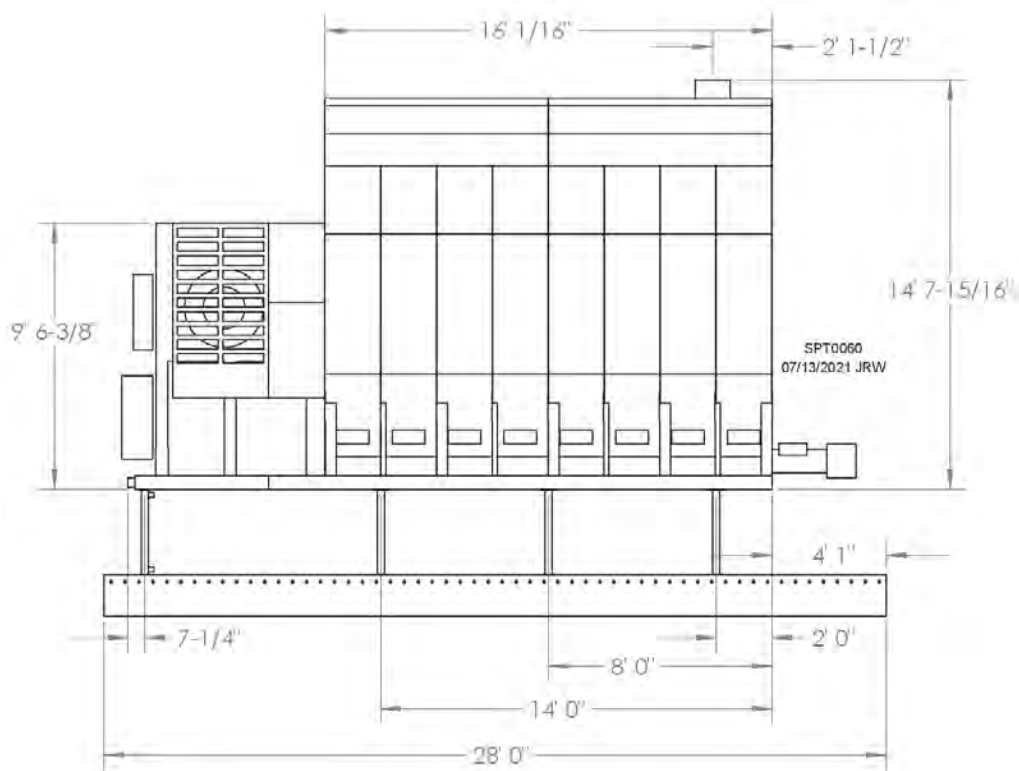


Fig. 2-8 – Support leg locations & dimensions for 16' centrifugal dryer

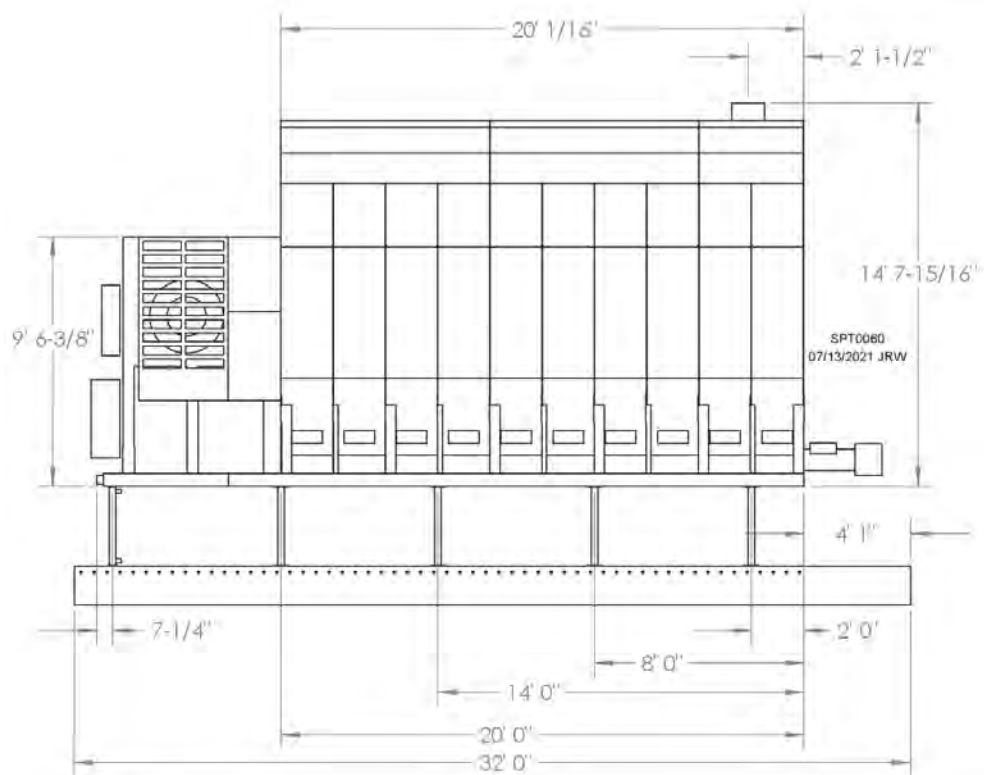


Fig. 2-9 - Support leg locations & dimensions for 20' centrifugal dryer

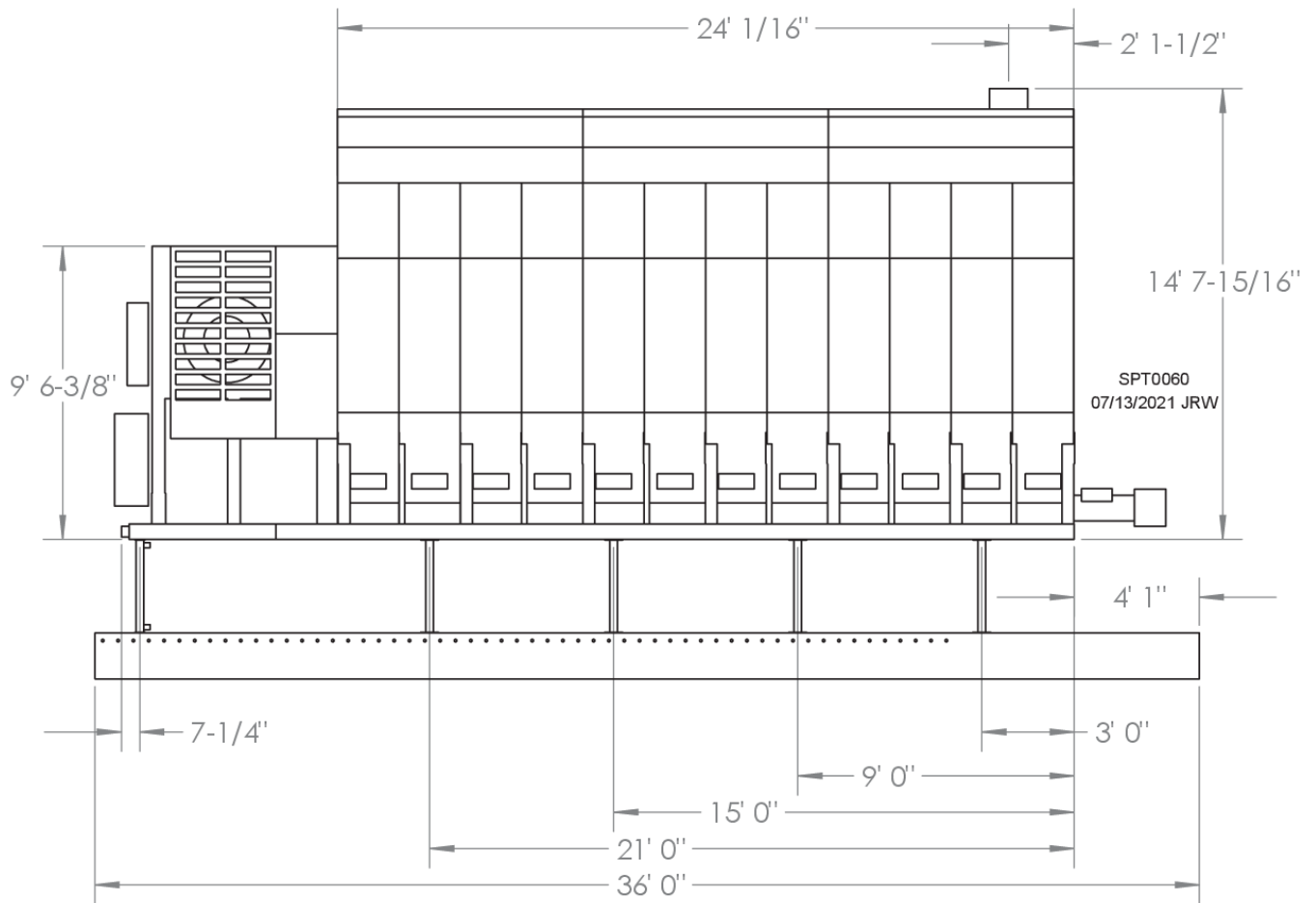
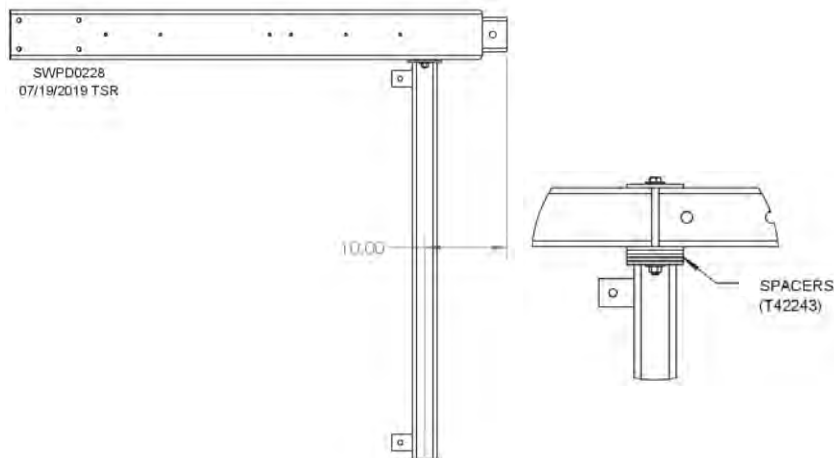


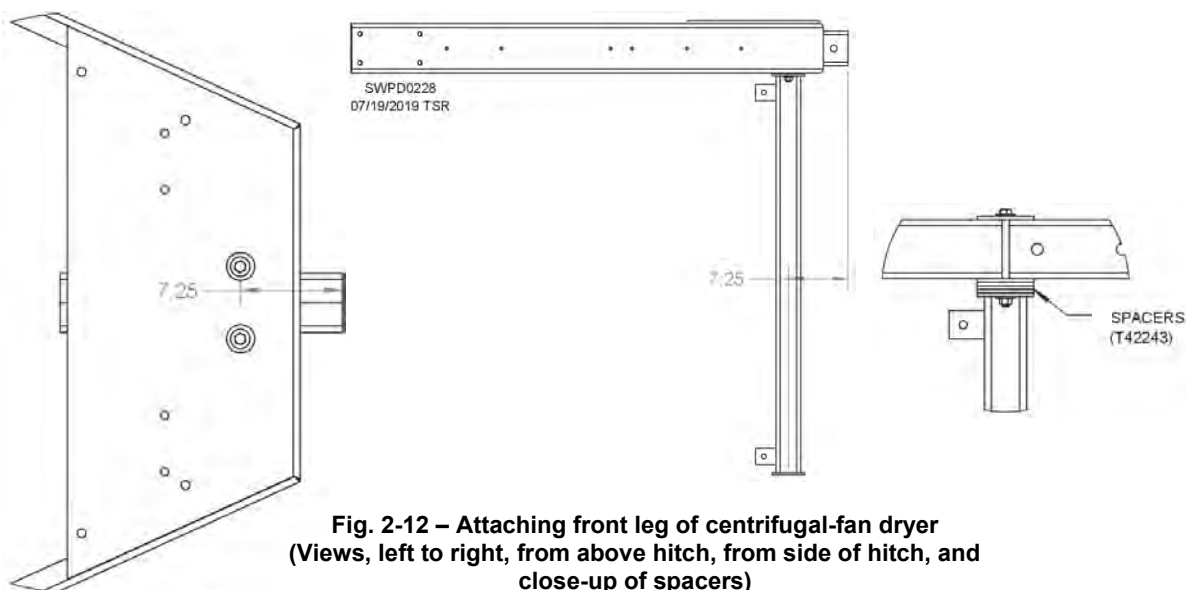
Fig. 2-10 – Support leg locations & dimensions for 24' centrifugal dryer

Front Support Leg Installation

Attach support leg to front of dryer using 1/2" hardware and spacers (T42243) as needed to ensure dryer is level. On axial-fan dryer, center of leg should be 10" from end of tongue. See Fig. 2-11. On centrifugal-fan dryer, center of leg should be 7-1/4" from end of tongue. See Fig. 2-12. In both cases, use one spacer above hitch and others as needed below, between leg and hitch tongue to ensure dryer is level.



**Fig. 2-11 – Attaching front leg of axial-fan dryer
(View from side of hitch and close-up of spacers)**



**Fig. 2-12 – Attaching front leg of centrifugal-fan dryer
(Views, left to right, from above hitch, from side of hitch, and
close-up of spacers)**

Lift Bracket Locations for Axial Dryers

⚠ WARNING: Do not station a crew member at a location where he/she could be struck by a module that is being lowered into place. Wind can blow modules lifted by crane, potentially striking or crushing a person. Failure to follow this precaution could result in death or serious injury.

Drawings on this and following pages show proper lift bracket locations for 8', 12', 16', 20', 24' and 28' axial dryers. Lift ONLY with Sukup lift bracket or equivalent.

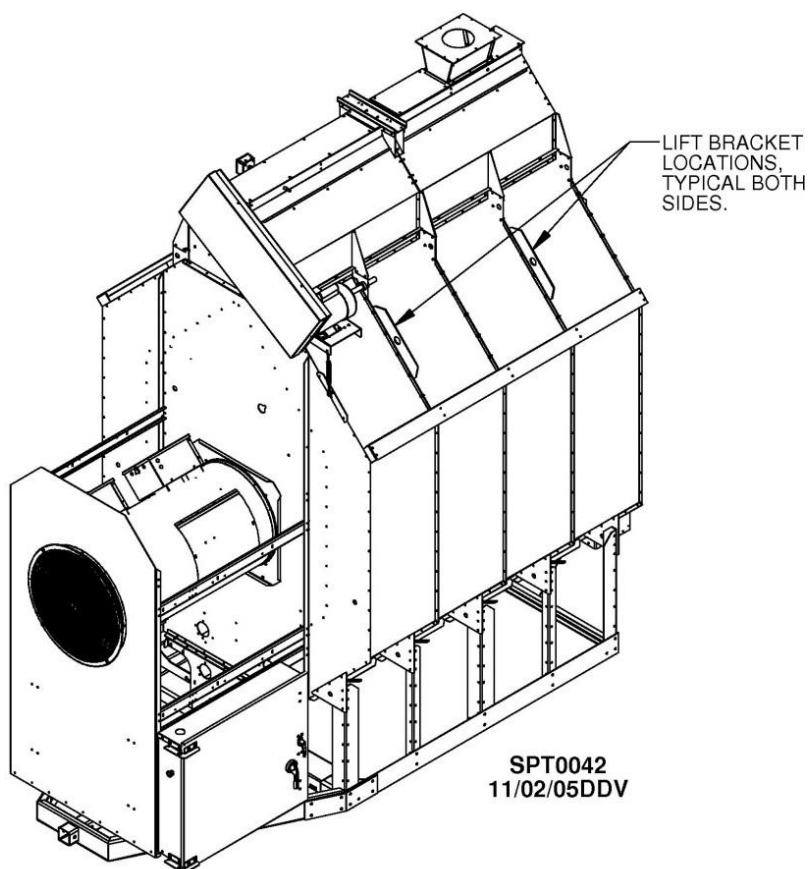


Fig. 2-13 – Lift bracket locations for 8' axial dryer
(Approx. dryer weight: 7,000 lbs.)

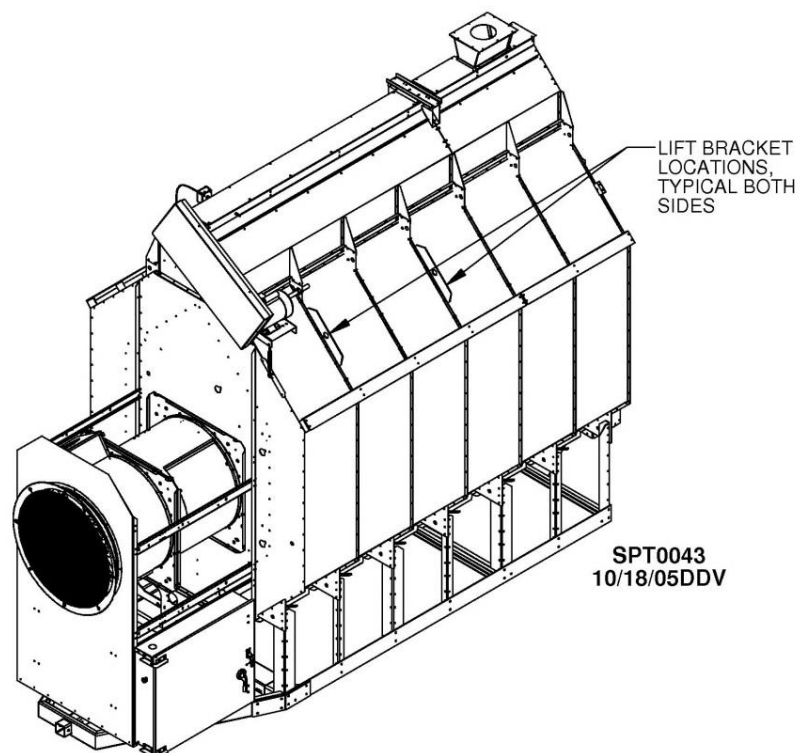


Fig. 2-14 – Lift bracket locations for 12' axial dryer
(Approx. dryer weight: 8,000 lbs.)

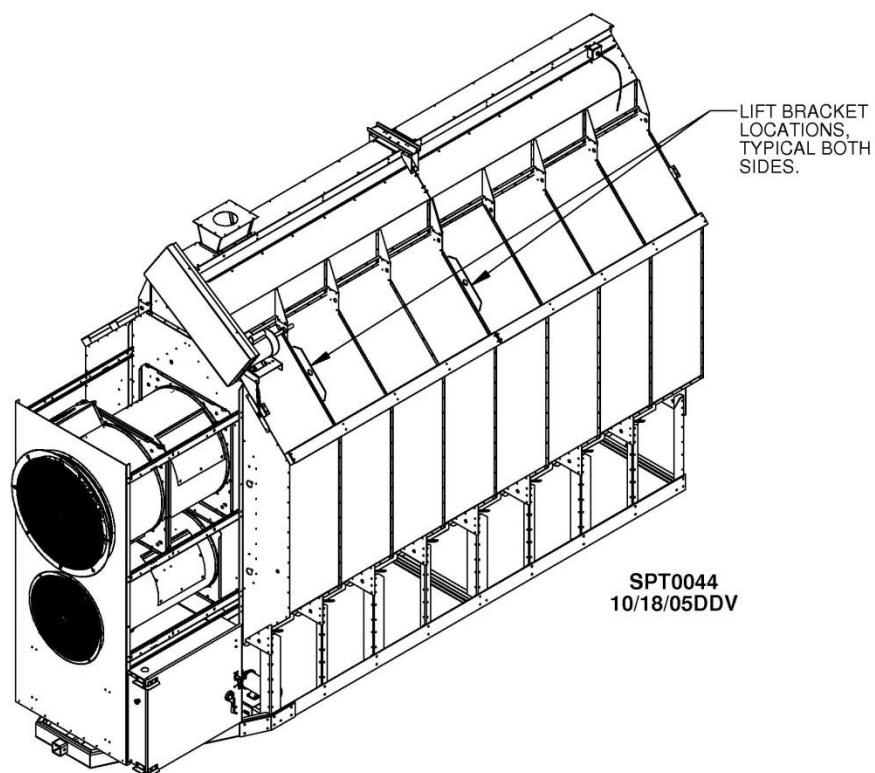


Fig. 2-15 – Lift bracket locations for 16' axial dryer
(Approx. dryer weight: 9,000 lbs.)

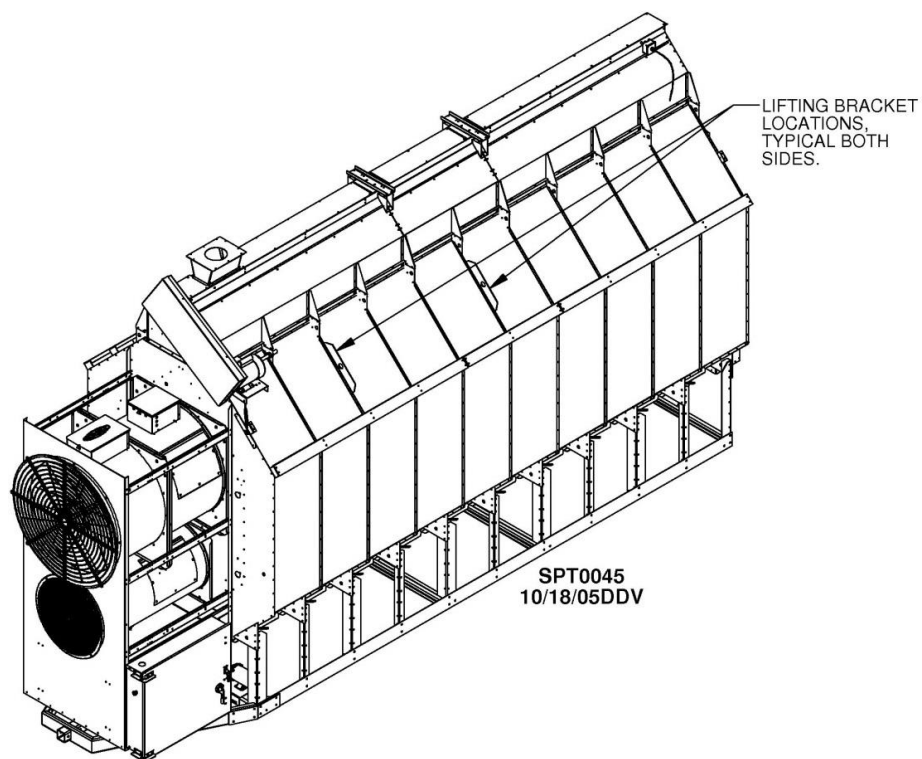


Fig. 2-16 – Lift bracket locations for 20' axial dryer
(Approx. dryer weight: 12,000 lbs.)

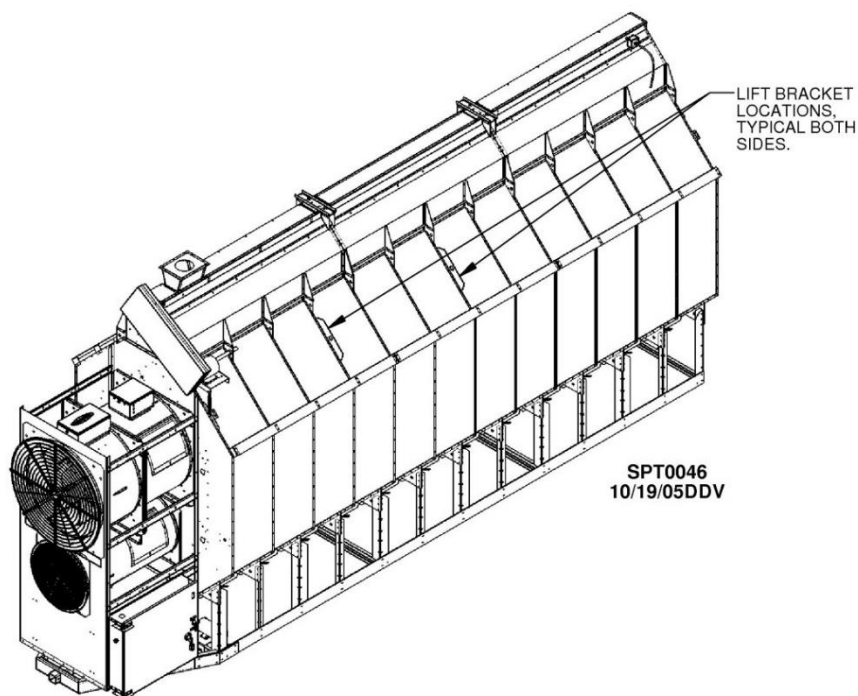


Fig. 2-17 – Lift bracket locations for 24' axial dryer
(Approx. dryer weight: 14,000 lbs.)

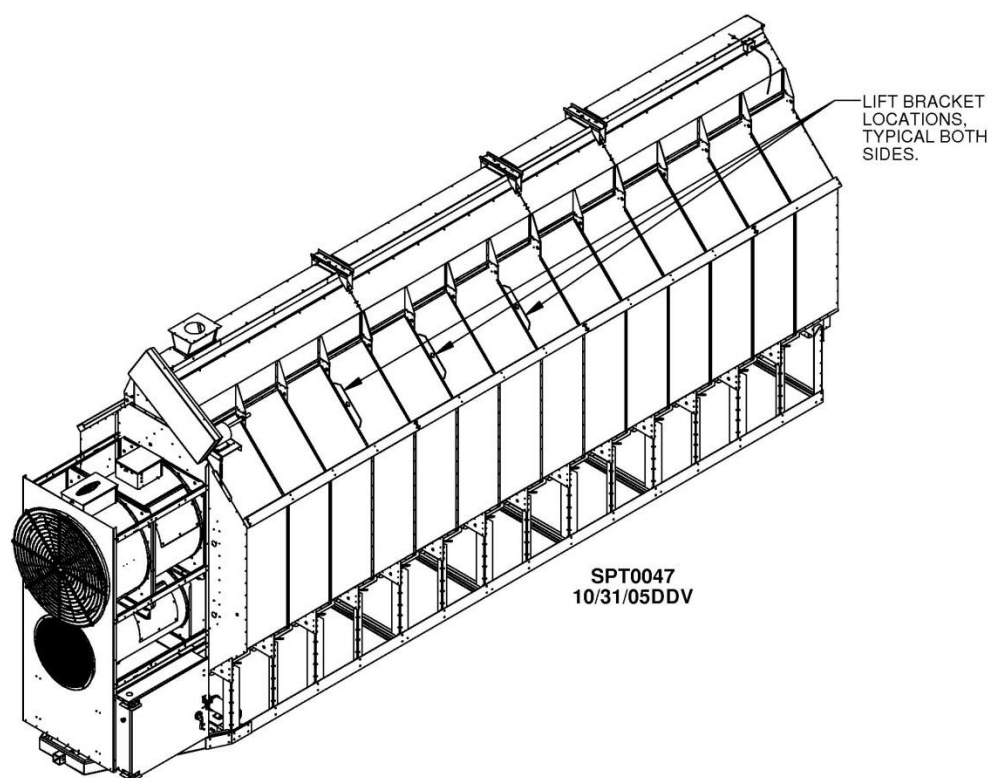


Fig. 2-18 – Lift bracket locations for 28' axial dryer
(Approx. dryer weight: 16,000 lbs.)

Lift Bracket Locations for Centrifugal Dryers

⚠ WARNING: Do not station a crew member at a location where he/she could be struck by a module that is being lowered into place. Wind can blow modules lifted by crane, potentially striking or crushing a person. Failure to follow this precaution could result in death or serious injury.

Drawings on this and following page show proper lift bracket locations for 16', 20' and 24' centrifugal dryers. Lift ONLY with Sukup lift bracket or equivalent.

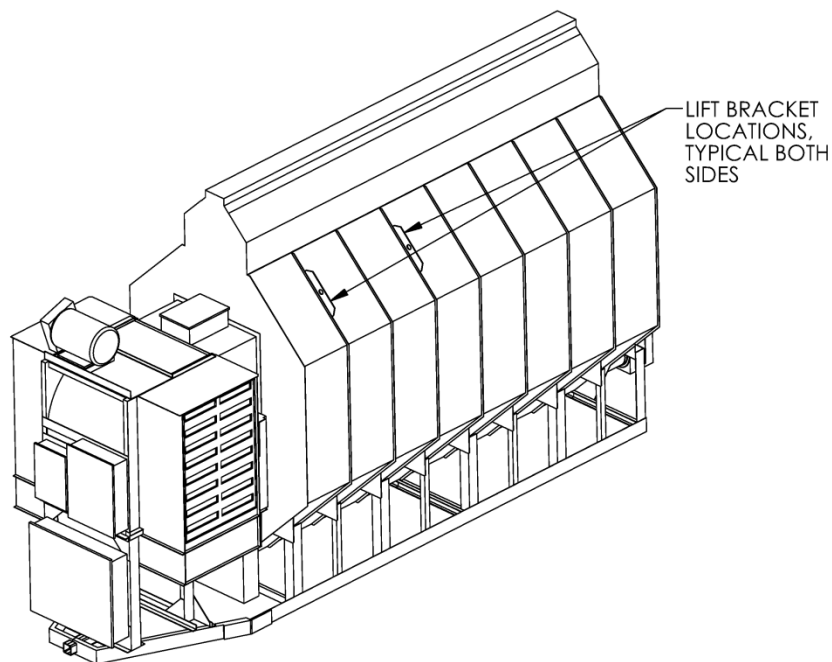


Fig. 2-19 – Lift bracket locations for 16' centrifugal dryer
(Approx. dryer weight: 12,000 lbs.)

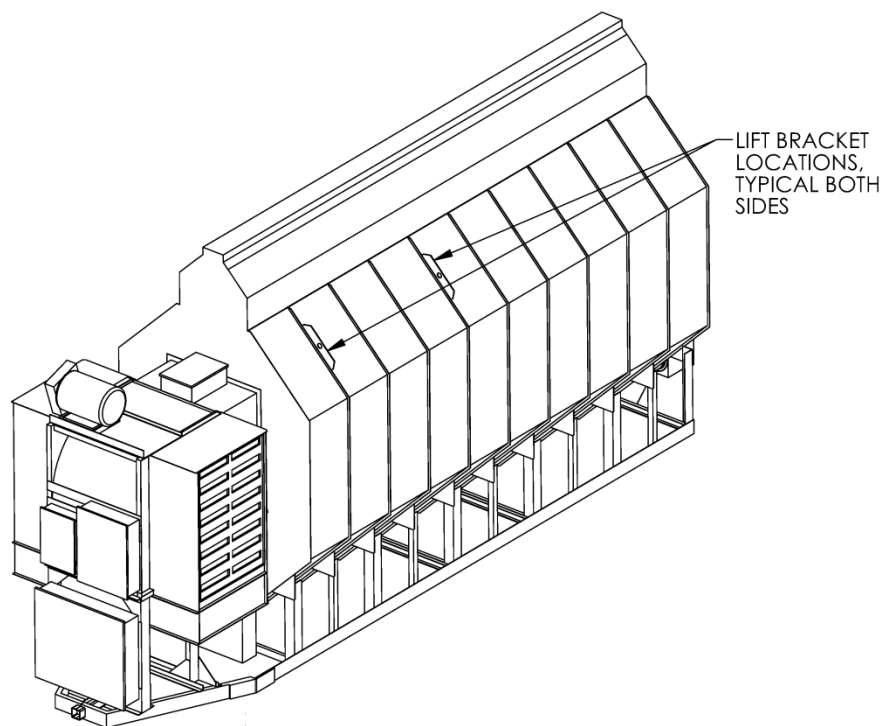
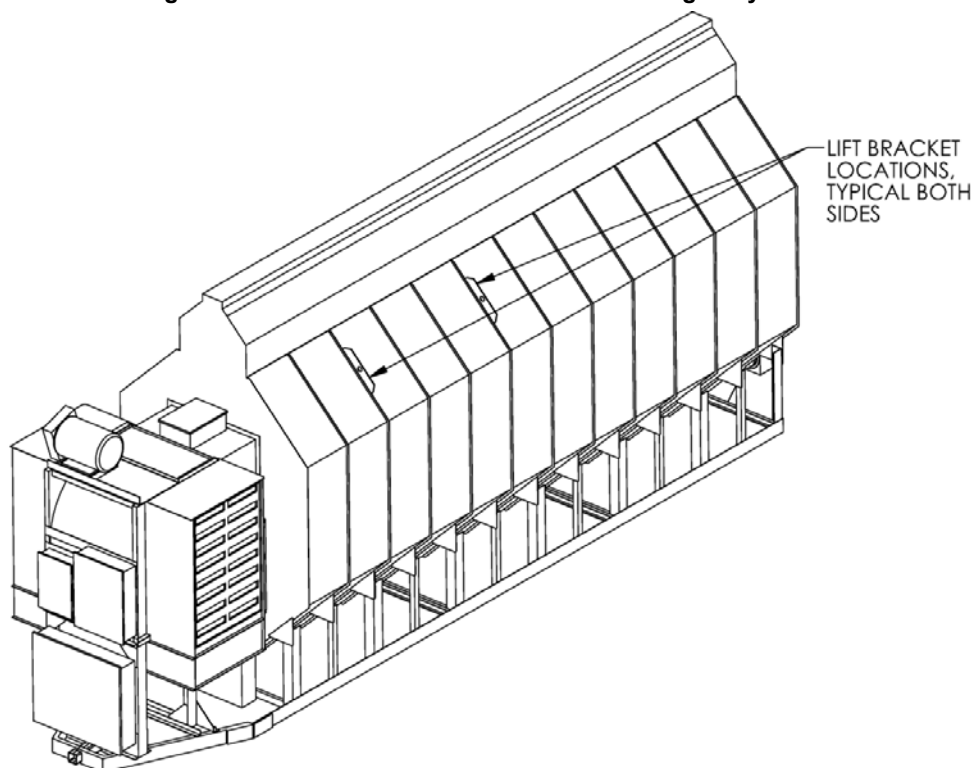


Fig. 2-20 – Lift bracket locations for 20' centrifugal dryer



(Approx. dryer weight: 13,000 lbs.)

Fig. 2-21 – Lift bracket locations for 24' centrifugal dryer

Wet Bin Assembly

NOTE: If dryer has gravity fill wet bin instead of auger fill, assemble as shown in Parts Assemblies section and attach to top of dryer using 5/16" bolts.

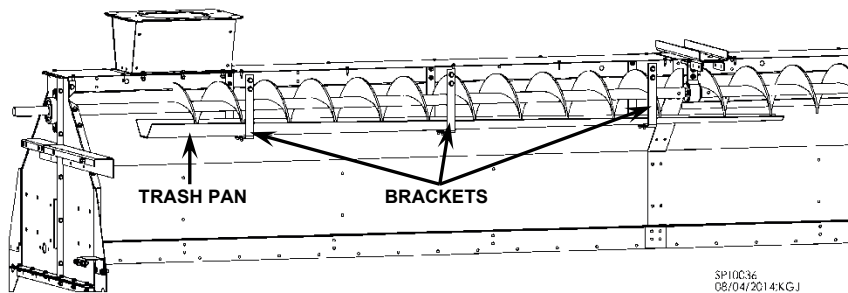


Fig. 2-22 – Trash pan & bracket installation

1. Bolt trash pan brackets into wet bin on filling end of dryer. Bolt trash pan to trash pan brackets. See Fig. 2-22.
2. Position the half of the wet bin without the auger into upright position. Pivot the side with the auger into upright position. Bolt wet bin together at end plate seams, side seams, pivot seams, and top hanger support.
3. Attach fill auger paddle switch assembly. Locate holes for paddle switch in wet bin on end opposite of filling end. See Fig. 2-23.

NOTICE: Holes are pre-punched for mounting paddle switch at either end. Remove desired plastic plugs. Leave plugs in end not being used.

NOTICE: Any open bolt holes in wet bin should be filled with bolts and secured with nuts to prevent grain leakage.

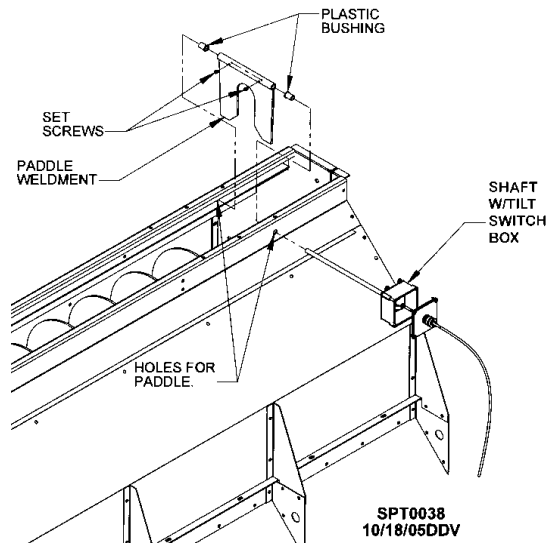


Fig. 2-23 – Paddle switch installation

NOTE: Paddle switch must be placed on end of dryer opposite of fill hopper.

4. Slide a plastic bushing on each side of wet bin from inside out. Slide shaft with tilt switch box through bushing on one side of wet bin. Position paddle weldment inside of wet bin and slide shaft through pipe of paddle weldment. Slide shaft through bushing on other side of wet bin. Tighten setscrews of paddle weldment onto shaft, making sure paddle and box on shaft are square and paddle can pivot freely. See Fig. 2-23.

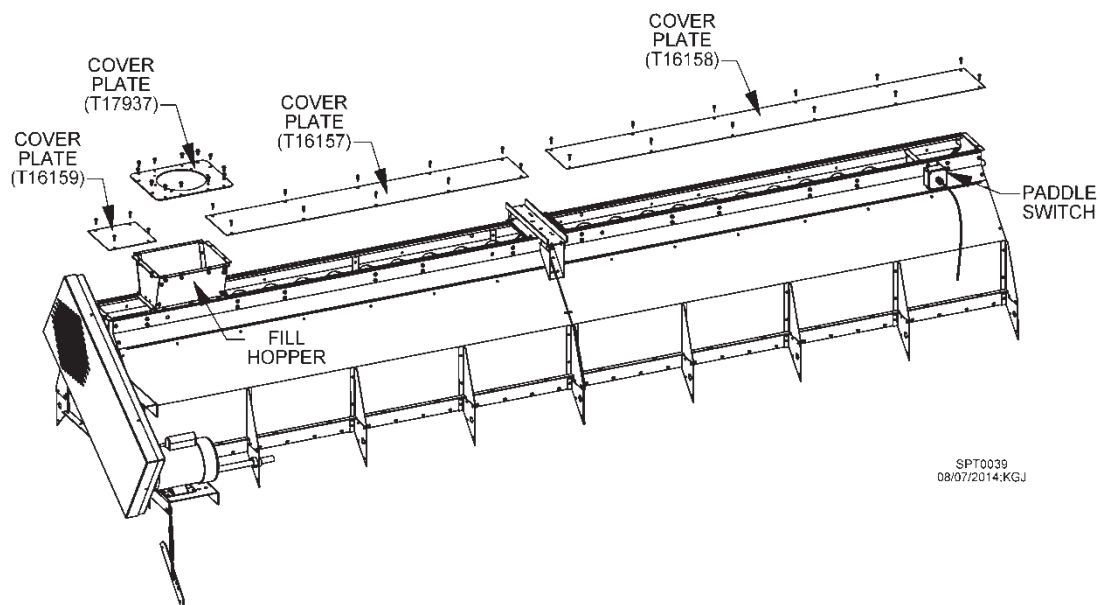


Fig. 2-24 – Fill hopper installation at front of wet bin (16' dryer shown)

5. Bolt fill hopper to top of wet bin on filling end of dryer. Place cover plates on top and attach with 1/4 x 1" self-drilling screws. See Fig. 2-24 for front-fill and Fig. 2-25 for rear-fill dryer.

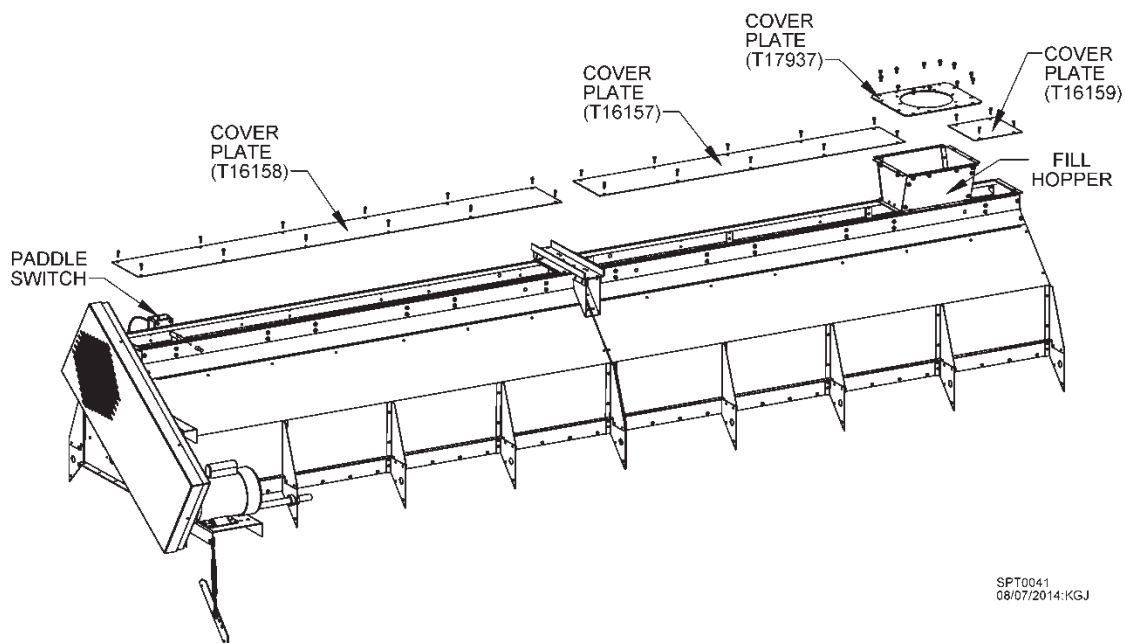


Fig. 2-25 – Fill hopper installation at rear of wet bin (16' dryer shown)

Top Load Auger Motor and Shields

Fig. 2-26 shows components of top load auger drive assembly. Follow steps 1-12 to assemble.

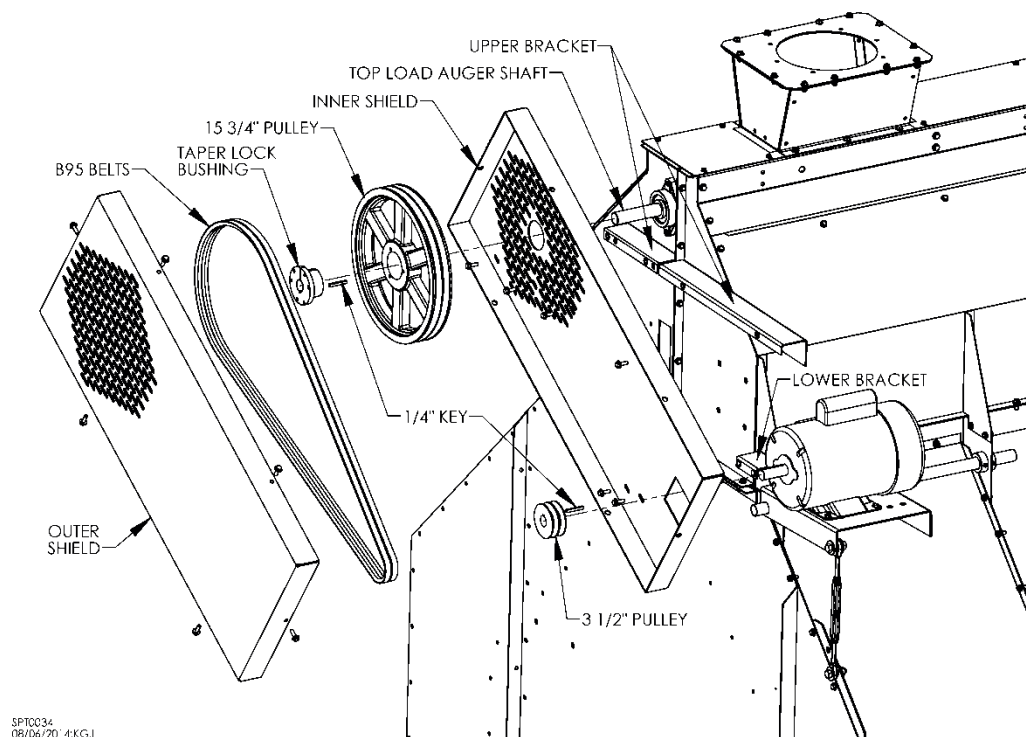


Fig. 2-26 – Top load auger components

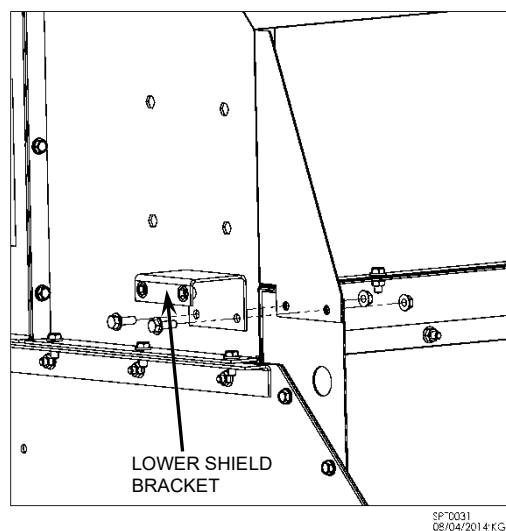


Fig. 2-27 – Lower shield bracket installation

1. Bolt lower shield bracket to end of dryer using 5/16 x 1" bolts and 5/16 nuts. See Fig. 2-27.

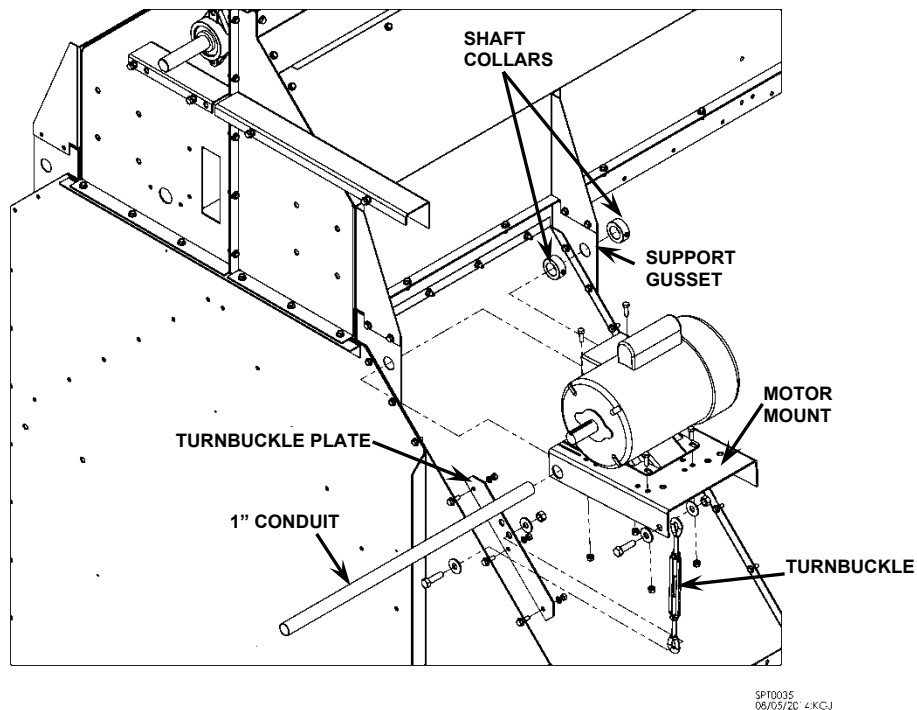


Fig. 2-28 - Motor mount components

2. Align motor mount conduit holes with holes in support gussets. Slide a 1" conduit tube through gussets and motor mount as shown in Fig. 2-28.
3. Position shaft collars on each side of gusset as shown in Fig. 2-28.
4. Tighten shaft collars on each side of gusset as shown in Image 2-1. Make sure motor mount can pivot.

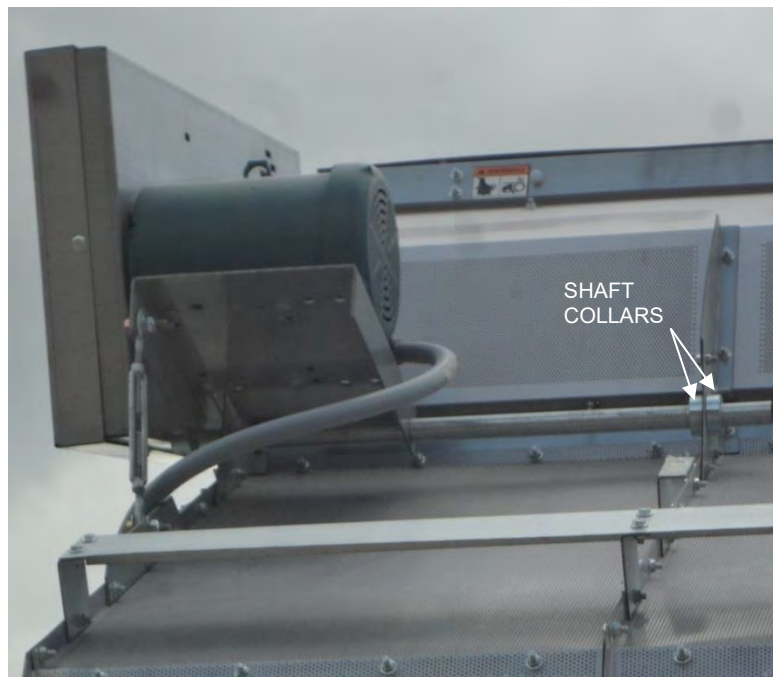


Image 2-1 – Shaft collars installed

5. Bolt turnbuckle plate to side of dryer. See Fig. 2-28.
6. Bolt turnbuckle to motor mount and to turnbuckle plate as shown in Fig. 2-28 and Image 2-1 using 1/2 x 1-3/4" bolts, 1/2" flat washers and 1/2" lock nuts.
7. Bolt motor to motor mount using 5/16 x 1" bolts and 5/16" nuts and washers. See Fig. 2-28.
8. Bolt inner shield to upper and lower brackets using 5/16" bolts, washers and nuts. See Fig. 2-26.
9. Attach a 3-1/2" O.D. pulley to motor shaft with a key and attach 15-3/4" O.D. pulley to top load auger with a taper lock bushing. See Fig. 2-26. Use straight edge to align pulleys. Attach two B95 belts between auger pulley and motor pulley. Tighten turnbuckle to tighten belts. **Tension belts so it takes about 6 lbs. pressure to deflect belt 1/2" at center of belt span.**
10. Final assembly should appear as in Fig. 2-29 (shown without front shield).

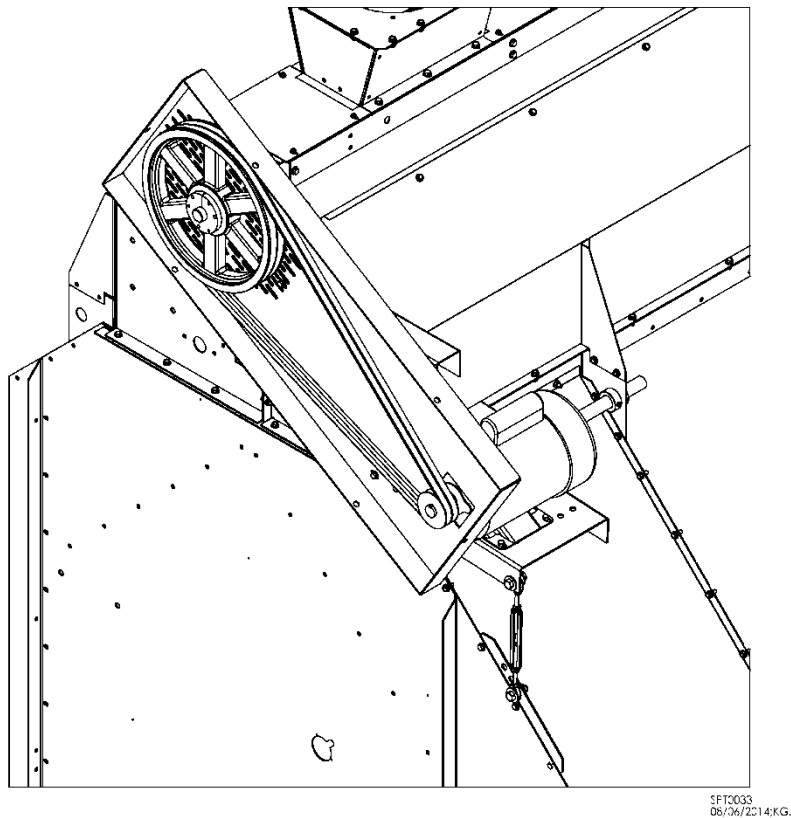
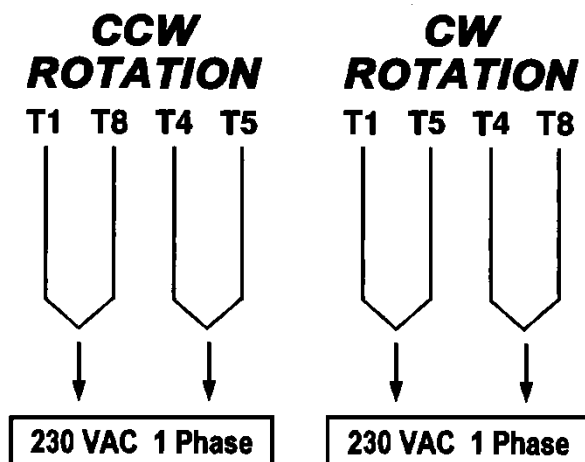


Fig. 2-29 – Final assembly (without front shield)

11. Slide outer shield around inner shield and attach with six (6) 5/16 x 1" bolts. See Fig. 2-26.
12. Check and retighten all fasteners.

Wiring Load Auger Motor



NOTE: The thermal overload device used in this motor has been disconnected. The over-current protection for motor is located in the power box.

L0903

NOTE: Not applicable to dryers using gravity fill.

Overload circuit is intentionally disconnected in motor because overload protection (starter protector) is located in power box on dryer. A sticker, L0903, is attached to motor showing how to make wiring connections. See Fig. 2-30.

Fig. 2-30 – Sticker L0903

QuadraTouch Pro Controller



Image 2-2 – QuadraTouch Pro controller

Design of QuadraTouch Pro controller allows for easy installation. However, there are a few things to keep in mind when choosing an installation location:

1. QuadraTouch Pro controller will need its own 100 – 240VAC power source. Choose a location where electricity can be easily accessed. At 120VAC, unit pulls less than 1A. Using an appropriate extension cord is acceptable as long as standard electrical codes are followed.

2. Shielded Ethernet cable ordered with dryer is available in four (4) lengths:

Cable Length	Part #
50'	J8720
100'	J8721
150'	J8722
200'	J8723

Table 2-2– Ethernet cable lengths & part numbers

Cable length determines how far away controller can be mounted from dryer. Standard length is 50 feet.

3. Although QuadraTouch Pro controller is contained in a sealed enclosure, it's a good idea to mount controller in a shed or other shelter.

NOTE: QuadraTouch Pro controller has an operating temperature of 10°F to 135°F and a storage temperature of -4°F to 150°F. Outdoor placement is acceptable in most locations, but controller must not be left where temperature may be outside of storage range above. Cover of controller must be closed when unit is not in use.

4. QuadraTouch Pro controller comes with molded mounting brackets. These allow controller to be mounted directly onto wall or bench using four (4) screws.

NOTICE: If location where controller is mounted is not heated, unit must be taken into a temperature-controlled environment when not in use.

Ground Rod Requirements



Image 2-3 – Wires clamped to ground rod

A grounding kit (T18529) is supplied with each dryer. It includes a clamp (J5723), two terminal rings (J3808), and two green grounding wires. Kit can be found in main power box. An 8' long grounding rod (J5722) can be found in back of dryer.

Proper grounding will provide added safety in case of any short or lightning strike. Installation of ground rod and ground wires must conform to National Electrical Code Handbook procedures.

Dryer should be grounded at two locations; one at main power box and the other near discharge moisture sensor.

Crimp a terminal ring onto one end of each grounding wire. Attach one wire to back of main power box as shown in Image 2-4.



Image 2-4 – Grounding at main power box

Location of other grounding wire will depend on unload system. If dryer has auger unload, bolt grounding wire to discharge tube as shown in Image 2-5. If dryer has a static sample box, attach grounding wire using existing hardware to left of moisture sensor. See Image 2-6.

Pound entire rod into ground within 8 feet of dryer, even if rod must be at an angle. Clamp ends of wires to rod as shown in Image 2-3.



Image 2-5 – Grounding at discharge tube

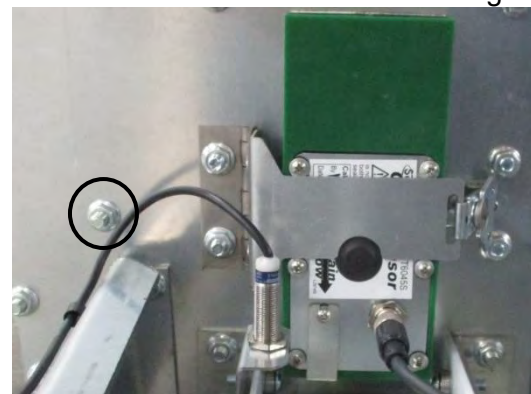


Image 2-6 – Grounding at sample box



WARNING: Make sure no utilities are buried under ground. Contact with buried electrical wire could result in death or serious injury.

NOTE: Ground rod at power pole will **not** provide sufficient grounding for dryer.

IMPORTANT: Ground rod must be installed to validate dryer warranty.

Operation

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09/19/2024	– Updated references to location of grain drying rate tables	4 & 8
08/22/2024	– Removed references to Software Manual (Software found at mysukup.com)	2-3
	Added reference to Tools menu of software for discharge moisture sensor calibration	3
	Removed references to discontinued Grain Transfer mode of operation	4

Make sure to go through Dryer Startup procedures in Appendix E before seasonal operation.

Gas and electrical installations must be done by qualified personnel to ensure quality operation.

Introduction

Sukup Grain Dryers are equipped with several advanced features to ensure an effective and hassle-free drying season. However, it's important to understand some of the key features and operating procedures before starting operation.

There are many different ways to run a Sukup Grain Dryer. QuadraTouch Pro control system is easy to use, with a menu-driven interface. It guides the operator through each mode of operation with simple, clear instructions.

NOTE: Grain variety, maturity level, cleanliness, weather conditions and operation can all affect performance and/or capacity of dryer. To the extent possible, be aware of different varieties of grain being fed into dryer, as no two varieties dry identically.

DISCLAIMER: In addition to general capacity ratings and disclaimers, drying capacity of centrifugal dryer may decrease significantly from values in product literature as air intake louvers increase vacuum pressure. Adjust louvers to achieve optimal levels of grain temperature and moisture content.

General Dryer Operation

This section briefly describes normal dryer operations.

IMPORTANT: Before starting dryer, refer to Dryer Startup section in Appendix E.

Continuous Flow

Continuous Flow operation requires creating a gradient of moisture from top of dryer to bottom and is accomplished by three main functions: Initial Dry, Stabilization, and Continuous Flow. Before drying begins, user must enter moisture of incoming grain and desired moisture of outgoing grain into QuadraTouch Pro controller. These moistures are used to calculate the time necessary to perform initial dry at 160°F. No grain is unloaded from dryer when in Initial Dry mode.

After Initial Dry phase is complete, user will set desired plenum drying temperatures. Controller then calculates a meter roll speed corresponding to plenum drying temperatures entered. Dryer then performs a stabilization routine. During Stabilization, a gradient of moisture is established in dryer by drying and unloading one full load of grain without adjusting meter roll speed.

After Stabilization, dryer enters its Continuous Flow mode. During this phase, dryer adjusts meter roll speed for variances seen in average output moisture compared to desired output moisture.

NOTE: Initial Dry and Stabilization times are based on corn ONLY.

Calibrating Optional Incoming Moisture Sensor

If dryer has an incoming moisture sensor, enter temperature of incoming grain on QuadraTouch Pro touch screen. Follow directions on touch screen to calibrate.

Calibrating Discharge Moisture Sensor

IMPORTANT: Calibrating discharge moisture sensor to desired output moisture will help ensure proper drying of grain. It works best to calibrate sensor when actual grain moisture is as close to desired target moisture as possible. For instance, if 16% corn is desired, sensor should be calibrated when actual grain moisture is 16%.

It may be necessary to do an initial calibration when actual grain moisture is wetter or dryer than desired target, then another calibration when grain is at or near target moisture. Do this by running dryer in Continuous Flow for 30 minutes (or after Stabilization period) and then taking a sample from spout and checking it with an external moisture sensor known to be accurate. If readout is more than half a percentage point different than what dryer is showing (for instance, 17.5% moisture vs. 16.5%), dryer's sensor must be recalibrated. See Tools menu in QuadraTouch Pro software found at link below.

<https://support.mysukup.com/Home/ProductSelection?PLID=2>

Take samples and check dryer's moisture sensor a few times a day. If it's off by .5% or more, put unload on pause, remove sensor from dryer and check for any dust or debris buildup on sensor or metal tube around sensor. Replace sensor and resume unloading. Check moisture again. If it's still off by .5% or more, calibrate sensor again.

During Continuous Flow mode, QuadraTouch Pro controller plots a data point every minute of average discharge moisture, plenum temperature, and meter roll speed. Each of these graphs can be accessed while dryer is running.

When wet bin is empty or user is ready to dry final batch of season, user simply enters Final Dry function and follows instructions on control panel screen.

When resuming a drying operation after dryer has run out of grain or has been shut down, it is often desirable to run with settings as before the shutdown. Therefore, quick methods of restarting dryer have been developed. Restarting dryer with or without stabilization, depending upon the particular situation, can be accomplished by following a short series of steps displayed on control screen during normal startup.

Automatic Batch

Automatic Batch is a standard feature of the Sukup Automatic Grain Dryer. Batch operations enable operators to dry grain in a manner they have become accustomed to; enable them to dry extremely wet grain; allow single-fan dryers to be operated in a heat/cool manner; and make it possible to dry grains that require a low plenum temperature.

Two controlling operations of Automatic Batch drying have been developed. The first method dries batches according to time entries. Operator enters times into control panel for when dryer will heat, cool, and unload grain. During unload, dryer calculates the average moisture of each batch. Operator can then adjust time entries according to desired output moisture, or have the control system automatically recalculate the time. The second method of operation requires purchasing the temperature control option. Operator enters a desired grain temperature value into control panel. When grain temperature in column reaches the set temperature, the dryer proceeds to cool the grain, if necessary, and then unload it. The set variables may be changed to operator's choosing at any time during Automatic Batch operation. New settings take effect on next batch.

Manual Operation using QuadraTouch Pro

Manual operation using QuadraTouch Pro serves many purposes. If operator wants complete control of dryer, Manual Operation fulfills this need. After pressing Start on main screen, user can select Manual Operation to run dryer as desired. User can turn on fan(s), heater(s), load and unload motors. **Dryer uses paddle switches to automatically load dryer during manual operation while user has control of meter roll speeds and plenum temperature.**

Final Dry

In Final Dry mode, dry time and unload time are set by operator to finish drying grain. Temperature is based on previous settings. When wet bin is empty and dryer can no longer be filled with wet grain, Final Dry is used to dry last batch of grain through drying system. Dryer will heat the last batch and then shut fans and heaters off and unload the grain.

Dry Fire

Dry Fire mode provides a way to run dryer when there is no grain. It is recommended this mode be used to test dryer at start of **EVERY SEASON**. Dry Fire allows use of burner without need for air switch to confirm air pressure. This mode is NOT to be used for drying grain; only as a means of inspecting pipe train for leaks and component integrity and confirming overall heater operation.

Operation

Follow instructions below if dryer is equipped with four single-point column temperature sensors (Optional on single-module dryers; standard on stacked).

1. Run dryer in Manual mode at unload speed from applicable Drying Rate table found at <https://support.mysukup.com/Home/Item?IID=150> or based on past experience.
2. When four-point average temperature of columns is within about 3°F to 5°F of target temp (likely 110°F to 130°F), switch to Automatic, Temp-Based mode and run for about an hour.
3. Enter target temp based on past experience or an educated estimate (120°F is a good place to start).
4. Change unload Multiplier or Gain setting to 100. Change Deadband settings to 0 and 0.
5. As dryer settles in on target temp, take moisture samples and increase or decrease target temp as needed in 30- to 60-minute increments (2°F temp changes recommended). If grain is too dry, decrease temperature setpoint. If grain is too wet, increase column setpoint.

Vaporizer Coil Adjustment (LP Models Only)



CAUTION: If vaporizer is not adjusted correctly, piping could be hot. Ensure proper adjustment to avoid burn resulting in minor or moderate injury.



Image 3-1 – Vaporizer bracket on axial-fan dryer

NOTE: Instructions are same for axial and centrifugal dryers.

Select Dry Fire mode using touch screen to operate fan and heater when there is no grain in dryer. After dryer has been allowed to run and plenum temperature has stabilized, vaporizer outlet (top) should be warm but not hot to touch.



Fault Condition Vapor Over-Temp

If vapor side of pipe train is hot, or if dryer has shut down due to a Vapor Over-Temp fault, vaporizer may need to be moved away from flame. To move vaporizer, loosen pivot bracket bolts (circled in Images 3-1 & 3-2). Move vaporizer coil away from flame as necessary. Retighten bolts and recheck temperature at vaporizer outlet. Repeat adjustment process as needed.



Image 3-2 – Vaporizer bkt. on centrifugal-fan dryer

U-bolts that hold vaporizer to adjustment bracket can also be loosened and vaporizer can be moved in or out.

Viewing hole is provided to watch vaporizer adjustment.

If vaporizer is freezing up, loosen bolts as described above and move vaporizer toward flame instead of away from it.

Tighten all hardware after adjustment.

Adjusting Louvers & Doors on Centrifugal-Fan Dryer

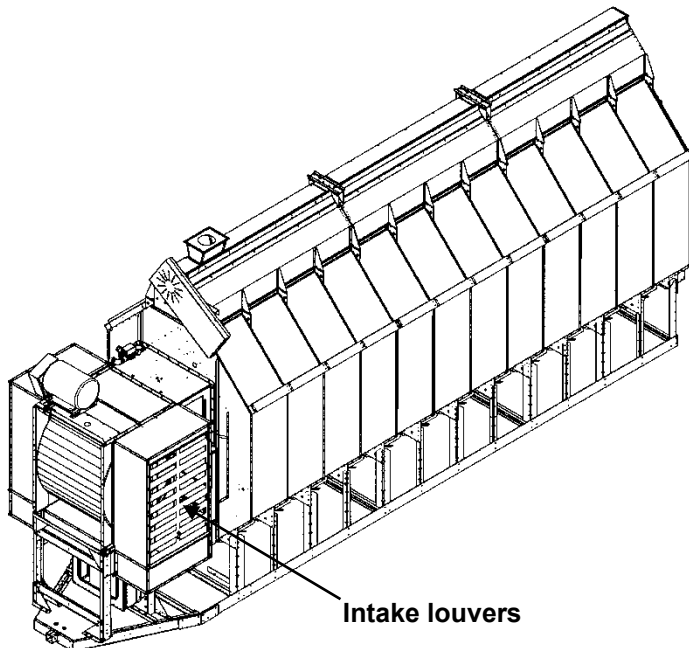


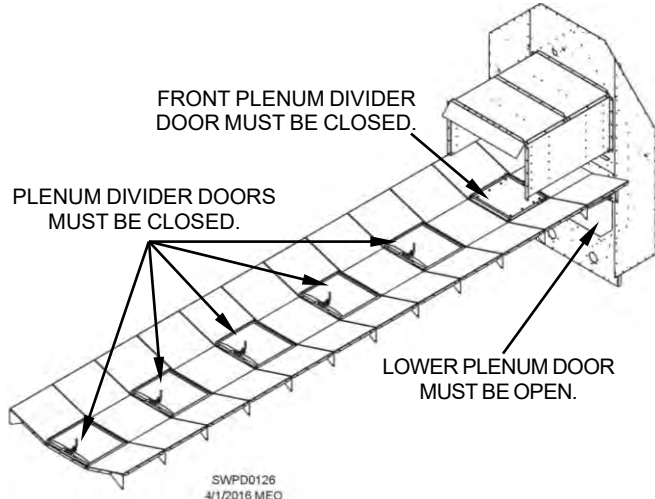
Image 3-3 – Adjustable louvers

Suction-Cool Mode

Louver slots should be narrow to create more suction in bottom cooling plenum, but slots should not be fully closed. Start with a 3/4" to 1" opening and adjust from there. Closing louvers more will increase efficiency and pull more heated air into fan, but will decrease capacity. Opening louvers more will increase capacity, but will decrease efficiency. Less heated air will be pulled into fan.

All plenum divider doors must be closed as shown below and lower plenum door must be open.

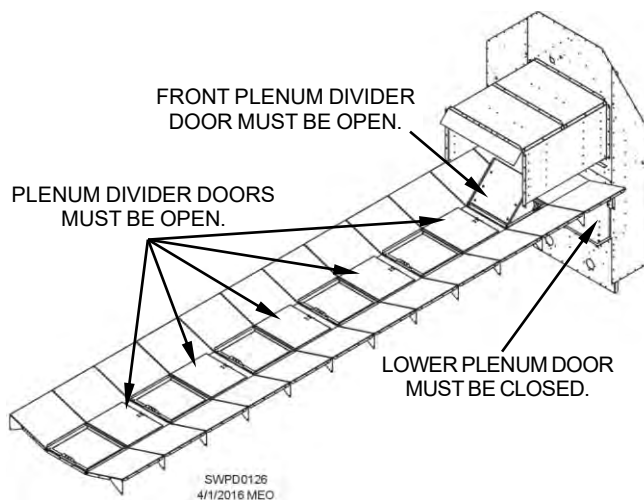
See additional instructions on next page.



Full-Heat Mode

Louvers should be fully open as shown in Image 3-3. Plenum divider doors shown below should be open and lower plenum door must be closed.

See additional instructions on next page.



Intake doors must be open during operation in Full-Heat mode. Use spring pins to hold doors open. See Images 3-4 and 3-5. Doors should be closed when operating in Suction-Cool mode.



Image 3-4 – Intake door



Image 3-5 – Spring pin on intake door

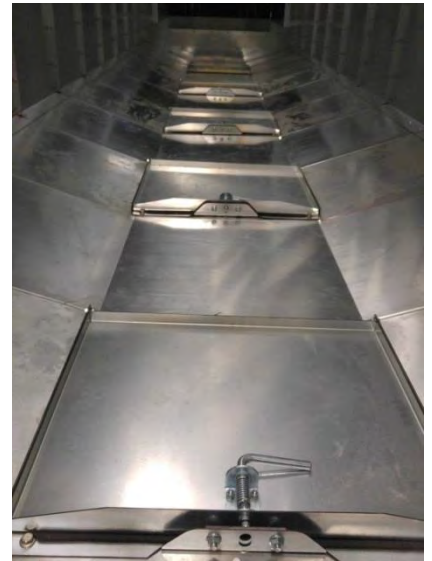


Image 3-6 – Plenum divider doors

Open hinged cleanout door under vacuum-cool duct if running in Full-Heat mode. See photo in Component Identification section. Door should be closed if running in Suction-Cool mode.

Close plenum divider doors for operation in Suction-Cool mode. See Image 3-6. Doors must be opened if operating in Full-Heat mode.

Use vacuum pressure gauge (Image 3-7) to aid in adjusting airflow rates and plenum pressures. When drying corn, pressure in heat plenum is commonly around 2" W.C. and negative pressure in cooling plenum is normally around 1.5" to 2" W.C. A good starting point for the louvers is normally 3/4" to 1" open. Louvers can be adjusted from there to achieve desired operating conditions.



Image 3-7 – Vacuum pressure gauge

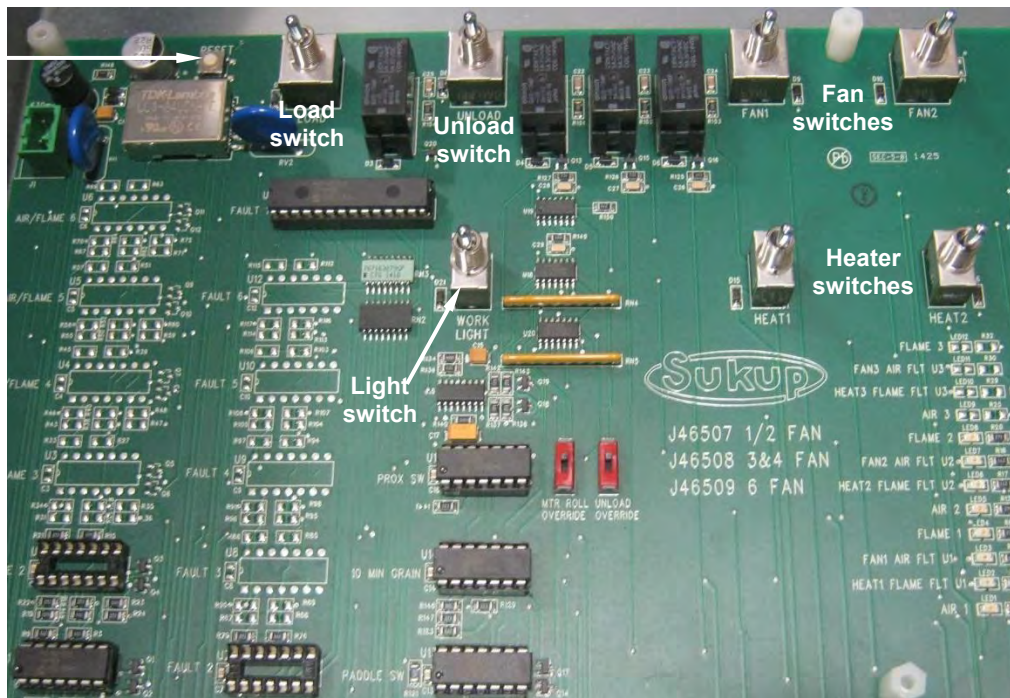
Slowing Fan Speed

See Service Bulletin L1973 for instructions to decrease speed of fan with Variable Frequency Drive. Contact dealer to obtain.

Backup Operation Controls

Images 3-8 and 3-9 show backup controls found in Main Power Box. Appearance may differ depending on dryer model.

Reset button
(All toggle switches must be off to reset)



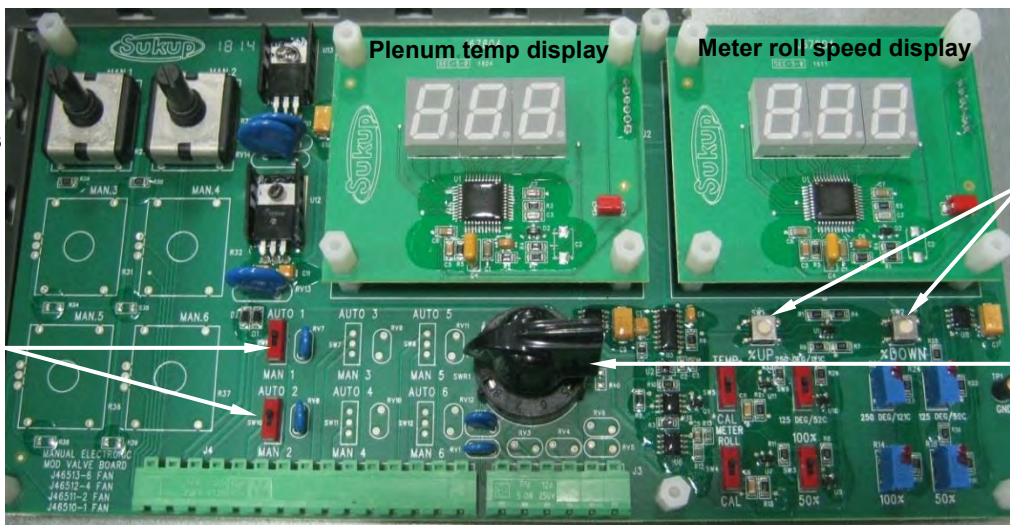
Fans & heaters are numbered like floors of a building, with #1 being lowest

Fault indicator lights

Image 3-8 – Backup operation control board

Heater modulating valve controls

Push Auto/Man switches down for Backup operation



Meter roll speed controls (left for faster, right for slower)

Plenum temp readout switch (only on dryers w/ 2 or more fans)

Image 3-9 – Backup electronic mod valve control board

To operate in Backup mode, turn System Control Switch on main power box to Backup. See applicable Drying Rate table found at <https://support.mysukup.com/Home/Item?IID=150> for approximate meter roll speed and plenum temperature based on amount of moisture to be removed.

NOTE: Discharge moisture sensor will not function in Backup mode. Moisture of grain will need to be checked by alternate means.

If a fault light comes on, see Troubleshooting section to fix fault. To reset Backup control board, make sure all toggle switches are turned down, then press white Reset button.

IMPORTANT: Push Auto/Man switches back up to run dryer using QuadraTouch Pro.

Service & Maintenance

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08/22/2024	– Updated photos of paddle switch T16262 & heater housing high-limit switch J5772	4 & 9
	Updated vapor OT switch removal & installation instructions	6
	Updated air pressure switch photos	12 & 16

Sensor Removal and Installation

Discharge Moisture Sensor (T6045S)



Image 4-1 – Discharge moisture sensor location on auger-unload dryer

This sensor is used to monitor grain moisture as it exits dryer. Sensor is located under discharge tube as shown in Image 4-1 on dryers with auger unload. See Image 4-2 for location of sensor on dryer with static sample box.

Removal:

1. Remove rain shield if applicable.
3. Disconnect cable from sensor.
2. Release sensor retaining clamp and remove sensor.

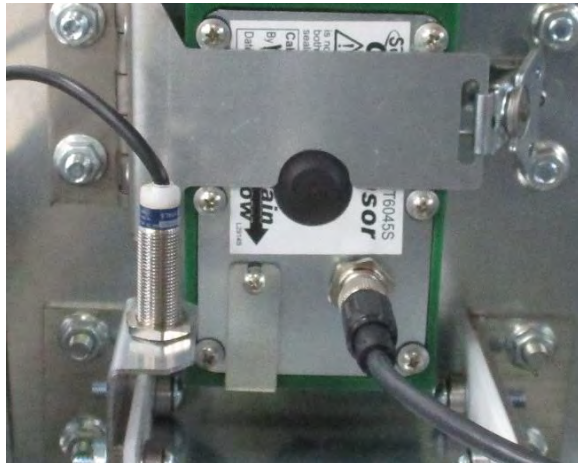


Image 4-2 – Discharge moisture sensor in static sample box under conveyor unload

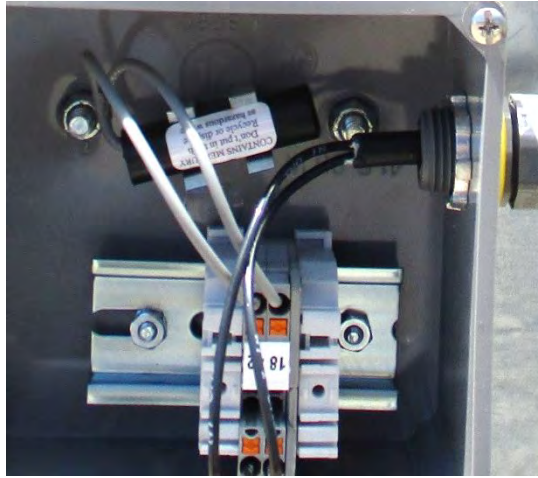
Installation:

1. Remove protective caps from cable and sensor.
2. Finger-tighten cable to quick-connect coupler on new sensor.
3. Place new sensor into retaining clamp. Secure sensor by tightening clamp.



Image 4-3 – Cable connector capped

Grain Discharge Chute Switch (T16278)



This device is used to detect a take-away system malfunction. If discharge box overflows and lid is pushed up, a signal will be sent to stop dryer.

NOTE: If dryer has a drag conveyor unload system, it will also have a grain discharge chute switch. See Image 4-6.

Removal and installation are same for both types of discharge chute switch.

Image 4-4 – Grain discharge chute switch

Removal:

1. Turn off power at main power box.
2. Locate grain discharge chute switch box. See Image 4-5 or 4-6.
3. Remove cover of switch box.
4. Disconnect tilt switch J4441 wires from terminals.
5. Remove switch from retaining clip.

Installation:

1. Insert new J4441 switch into retaining clip. **IMPORTANT:** Switch must be installed as shown in Image 4-4, with wires coming from left side so switch will function properly.
2. Connect wires from switch to circuits 18 and 42. See Image 4-4.
3. Reinstall switch box cover. See Page 18 to calibrate.



Image 4-5 – Grain discharge chute switch on auger unload system



Image 4-6 – Grain discharge chute switch on drag conveyor unload system

Paddle Switch

This device is used to detect when dryer is full of or needs grain. Style of switch depends on type of fill section.

Paddle Switch T16244 for Dryer with Auger Fill



Image 4-7 – Paddle switch T16244

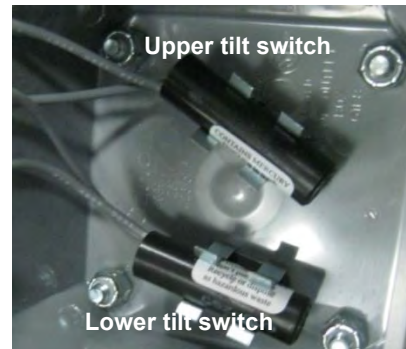


Image 4-8 – J4441 tilt switches

Removal of J4441 tilt switches in Paddle Switch T16244 or T162621:

1. Turn power off at main power box.
2. Remove cover of paddle switch box.
3. For either upper or lower tilt switch, disconnect both wires from switch.
4. Remove switch from retaining clip.

Installation of J4441 tilt switches in Paddle Switch T16244 or T162621:

1. Insert new tilt switch into retaining clip. **IMPORTANT:** Switches must be installed as shown in Image 4-8. Switch wires must emerge from left of switch. If not installed properly, switch will not function correctly.
2. Connect wires in following manner: All 18's together; 44 (lower switch) to 44; 53 (upper switch) to 53.
3. Reinstall switch box cover.

Paddle Switch T162621 for Gravity Fill Section



Image 4-9 – Paddle switch T162621 on gravity-fill section

Unload Auger Proximity Switch (J4493)

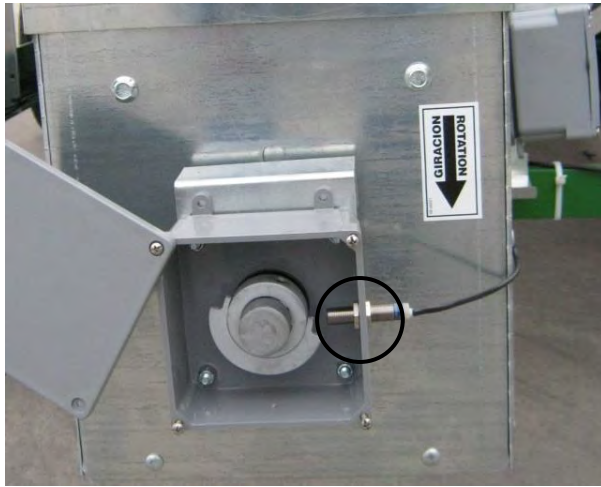


Image 4-10 – Unload auger proximity switch

This device monitors rotation of unload auger, if dryer is so equipped. If unload auger stops turning, a fault message will appear on touch screen and dryer will stop.

Removal:

1. Turn power off at main power box.
2. Locate unload auger proximity switch on grain discharge box. See Image 4-10.
3. Remove switch box cover.
4. Loosen and remove lock nut inside of box and remove proximity switch.

5. Follow wiring to junction box and disconnect proximity switch wires after noting connections.

Installation:

1. Remove lock nut closest to end of new switch. Slide switch into hole in switch box and loosely secure with lock nut just removed. See Image 4-10.
2. Adjust gap between proximity switch and rotating target. **IMPORTANT:** Gap between tip of switch and rotating target must be no more than 1/8" and no less than 1/16". Tighten lock nuts.
3. Route prox switch cable to junction box in same manner as before and connect switch wires in same way as wires from switch that was removed.
4. Turn power on at main power box and turn System Control switch to QuadraTouch Pro. Go to Start Menu on touch screen and select Manual Operation. Touch Unload button. Unload auger should now be turning. If installation was NOT successful, a fault message will appear on touch screen and unload auger will shut down. Correct as needed.
5. Reinstall box covers.

NOTE: If dryer has drag conveyor unload system, proximity switch will be in static sample box. See Page 4-14.

Vapor Over-Temperature Switch (T96126)



Image 4-11 – Vapor over-temp switch (shown on axial-fan dryer)

This device monitors vapor temperature after it exits vaporizer coil. If temperature exceeds 140°F, a fault message will appear on touch screen and dryer will stop.

Removal:

1. Turn off power at main power box.
2. Locate vapor over-temperature switch on heater pipe train. See Image 4-11.
3. Loosen clamps that hold switch in place.
4. Remove switch.
5. Follow switch cable to heater box and disconnect.

Installation:

1. Put new over-temperature switch in same position as old switch. Secure by tightening clamp screws. Be careful not to over-tighten.
2. Route cable from new switch to heater box and attach to Vapor OT port on bottom of box.

Rear Door Switch (J44872)



Image 4-12 – Rear door switch

If door is open, dryer will not run.

Removal:

1. Turn power off at main power box.
2. Locate door switch at back of dryer.
3. Loosen cable connector.
4. Remove four small screws holding cover plate to switch. There will be two wires, both black, on normally open (NO) set of contacts (13 and 14).
5. Remove both wires.
6. Remove two small bolts and two nuts holding door switch in place.
7. Remove switch.

Installation:

1. With cable connector loosened, insert wires into new switch.
2. Connect both wires to normally open set of contacts (13 and 14). (It doesn't matter which wire goes to which terminal as long as both are connected.)
3. Put cover plate back on switch.
4. Bolt new switch to dryer in same place as old one.
5. Make sure end of switch depresses when door is closed. Adjust if necessary.

Grain Column Over-Temperature Switch (J4532 - 16', J4533 - 24', J4534 - 28')

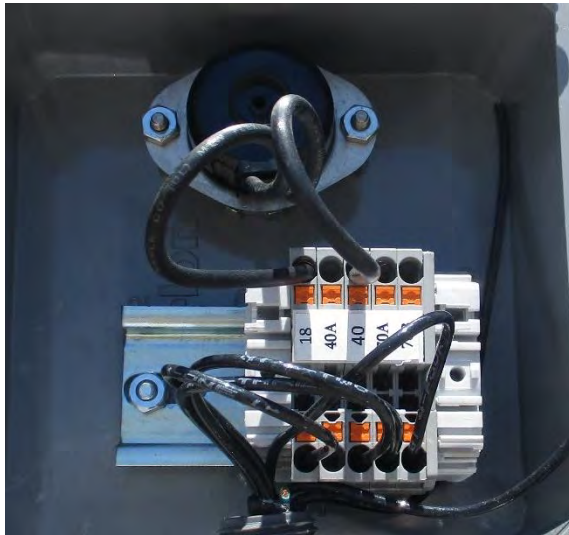


Image 4-13 – Grain column over-temp switch

There is one on each side of dryer. Copper capillary connected to switch runs through a conduit to monitor temperature in grain columns. If temperature exceeds 240°F, dryer will stop. Boxes containing switches are located on back of dryer.

Procedures for removing and replacing are identical for both switches.

Removal:

1. Remove switch box cover.
2. Remove switch wires from terminals.
3. Remove fasteners holding switch in box. See Image 4-13.
4. Before removing switch and attached copper capillary, go to box on opposite end of dryer and uncoil any excess capillary.
5. Remove switch and copper capillary from back of dryer, coiling capillary for easy handling.

Installation:

1. Install new switch by carefully feeding small copper capillary into conduit inside of switch box. Be careful not to kink capillary.
2. Attach switch to box using previously removed fasteners.
3. Reconnect wires. On right side of dryer (as viewed from rear), one wire will plug into circuit 18 and other to 40 as shown in Image 4-13. On left side, one wire from switch goes to 18 and the other to 41.
4. Reinstall switch box cover.
5. Coil up excess capillary and leave in front box, then reinstall box cover.

Heater Housing High-Limit Switch (J5772)



Image 4-14 – Heater housing high-limit switch

Heater housing high-limit switch is located inside of a box on top of heater housing. Switch monitors temperature of heater housing. Switch will turn off dryer if temperature in heater housing exceeds 200°F.

NOTE: Switch box may look different depending on dryer model & date of manufacture. Replacement instructions are same.

Removal:

1. Disconnect power to dryer.
2. Open box cover.
3. Locate heater housing high-limit switch.
4. Remove wires from switch by pulling on crimped connectors.
5. Remove both hold-down screws.
6. Remove switch.

Installation:

1. Position new switch and secure with two screws.
2. Attach crimped connectors to tabs on switch. There should be a purple X03 on one side and an orange 18 on other side of heater housing high-limit switch.
3. Reinstall box cover.

Plenum Temperature Sensor RTD (Resistance Temperature Detector) J5645 - 12', J5642 - 16', J5646 - 20', J5643 - 24', J5648 - 28'



Image 4-15 – Plenum temperature sensor RTD

This sensor monitors temperature in plenum. If temperature exceeds a value set by user, a fault message will appear on touch screen and dryer will stop. Image 4-15 shows inside of box and Image 4-16 shows transmitter in main power box.

Removal:

1. Turn off power at main power box.
2. Locate sensor box near heater.
3. Open box and disconnect sensor wires after noting connections.
4. Remove cable from sensor box.
5. Remove self-drilling screws holding sensor box to dryer. Remove box.
6. Remove sensor tube (silver) from clips holding it (and copper capillary) to inside wall of plenum.
7. Pull RTD tube out. Coil for ease of removal.



Image 4-16 – Plenum temperature sensor (RTD) transmitter in main power box.

Installation:

1. Uncoil new sensor tube carefully. Any kinks will damage it.
2. Feed tube into plenum.
3. Attach tube to inside wall of plenum in same manner as previous tube was attached.
4. Ensure plenum over-temperature capillary is held by same clips in plenum as new RTD tube.
5. Attach new RTD sensor box to dryer.
6. Connect cable to box and attach wires to sensor in same way previous sensor wires were connected.
7. Attach lid to sensor box.

Meter Roll Proximity Switch (J4493)

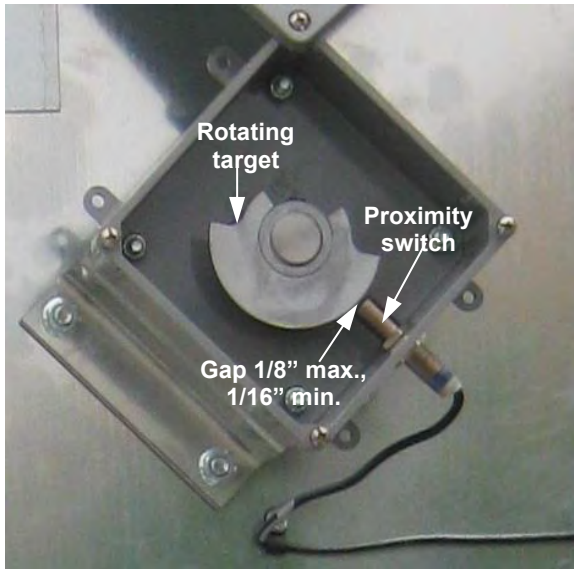


Image 4-17 – Meter roll proximity switch

This device monitors rotation of meter rolls. During operation, light on proximity switch and input 93 on PLC will flash to indicate rotation. Light may flash slowly due to slow rotation of meter rolls. **NOTE:** If rotating target must be replaced, use fresh anti-seize compound on new one.

Removal:

1. Remove cover to meter roll switch box at rear of dryer. See Image 4-17.
2. Remove lock nut (inside box) on prox switch.
3. Remove switch.
4. Remove cover of right rear junction box and disconnect prox switch wires after noting connections.

Installation:

1. Install new proximity switch by reversing steps used to remove old one. **NOTICE:** Adjustment of proximity switch is critical. Gap between tip of switch and rotating target must be no more than 1/8" and no less than 1/16". See Image 4-17. Damage to proximity switch may occur if it comes into contact with rotating target. Tighten lock nuts.
2. Reinstall box covers.

Static Air Pressure Switch (T58623)

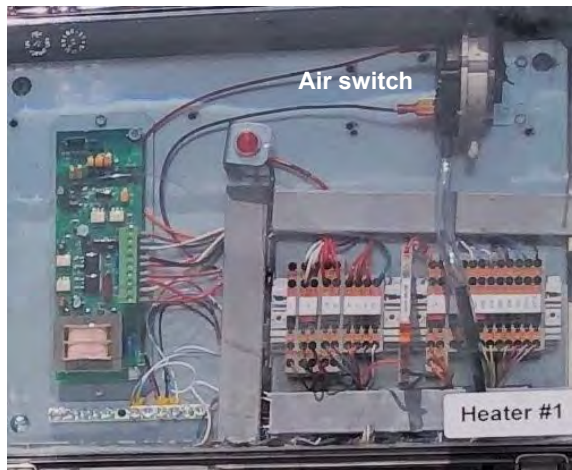


Image 4-18 – Static air pressure switch

Static air pressure switch ensures there is enough air pressure in plenum to dry grain properly and to use heater safely.

Removal:

1. Locate heater box (near pipe train).
2. Disconnect switch wires and hose.
3. Remove air switch.

Installation:

1. New switch comes pre-calibrated and ready for installation. See Page 4-16.
2. Install new switch by reversing steps used to remove old one.
3. Replace heater box cover.

Plenum Over-Temperature Switch (J6795 - 16', J6796 - 24', & J67961 - 28')

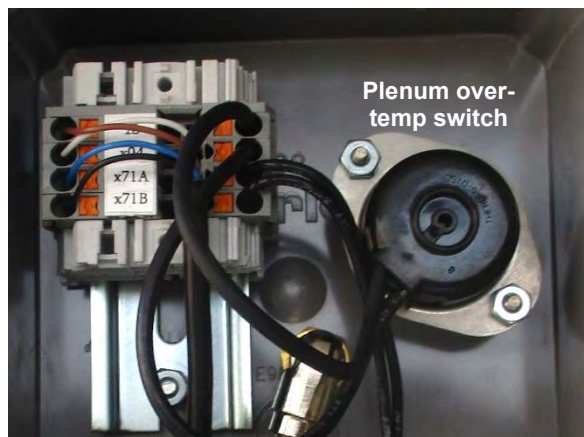


Image 4-19 – Plenum over-temperature switch

Plenum over-temperature switch trips when temperature in plenum rises above 325°F.

Removal:

1. Locate switch box on front of dryer.
2. Remove switch box cover and disconnect switch wires from terminals.
3. Remove sensor capillary (copper) from clips holding it to inside wall of plenum. Leave plenum RTD tube (silver) in clips.
4. Remove switch from box and pull out copper capillary.

NOTE: Uncoil end of capillary to ease removal.

Installation:

1. Uncoil capillary from new switch carefully to avoid kinks.
2. Feed new capillary through switch box and into plenum.
3. Clip capillary to inside wall of plenum along with silver RTD tube.
4. Attach switch wires in same manner as old switch.
5. Replace switch box cover.

Static Sample Box Proximity Switch (J4493) & Actuator (J8260)

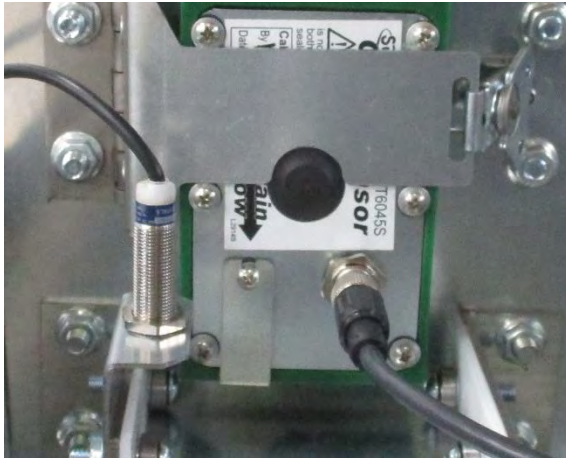


Image 4-20 – Static sample box proximity switch

Static sample box proximity switch is used to monitor function of actuator that opens and closes slide gate. Sample box serves as discharge chute of dryer with drag conveyor unloading system.

Removal of Proximity Switch:

1. Turn off power at main power box.
2. Loosen and remove lower lock nut and remove switch from mounting bracket.
3. Follow wire to junction box and disconnect switch wires after noting connections.

Installation:

Install new proximity switch by reversing steps used to remove old one.

NOTICE: Adjustment of proximity switch is critical. Gap between tip of switch and slide gate target (see Image 4-21) must be no more than 1/8" and no less than 1/16" when target is directly underneath switch. Damage to proximity switch may occur if it comes into contact with slide gate target (shown in Image 4-21). Tighten lock nuts on switch after adjusting gap.

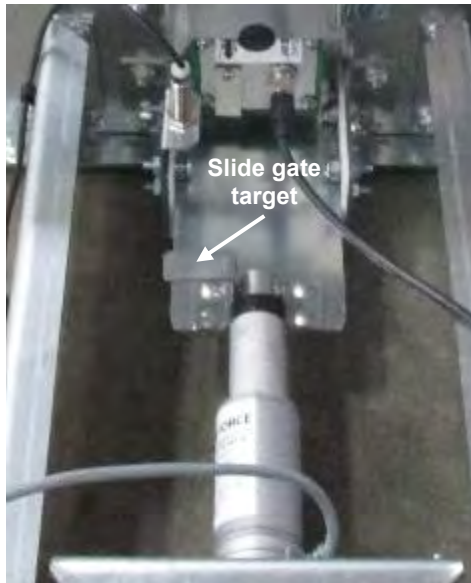


Image 4-21– Actuator for static sample box slide gate

Removal of Actuator:

1. Turn off power at main power box.
2. Follow actuator wire to junction box and disconnect actuator wires.
3. Remove hardware holding actuator to slide gate and mounting frame.

Installation:

1. Ensure that gate slides back and forth freely.
2. Install new actuator by reversing steps used to remove old one.

NOTE: If dryer has auger unload system, see Page 4-5.

Single-Point Grain Temperature Sensor (TM91320)



Image 4-22 – Single-point grain temp sensor

Stacked dryers have four single-point grain temperature sensors. They are optional on single-module dryers. Readings from the four sensors, which are spread out equidistantly on dryer, are averaged and then fed into dryer control system to help improve performance.

Removal:

1. Remove cover and disconnect wires after noting connections.
2. Unscrew sensor from holder.

Installation:

1. Screw in new sensor (shown in Image 4-22).
2. Connect wires as they were in old sensor.

Component Calibration

Static Air Pressure Switch (T58623)

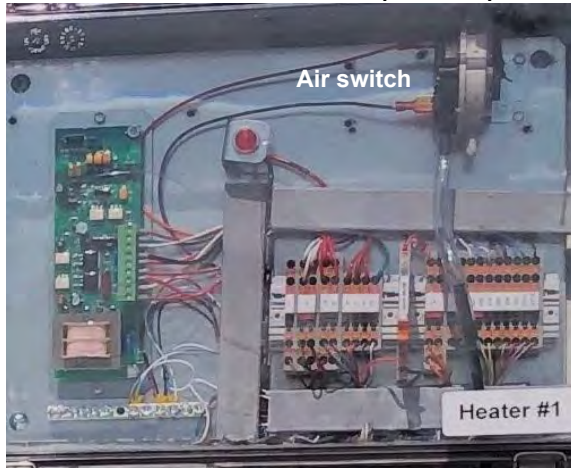


Image 4-23 – Static air pressure switch

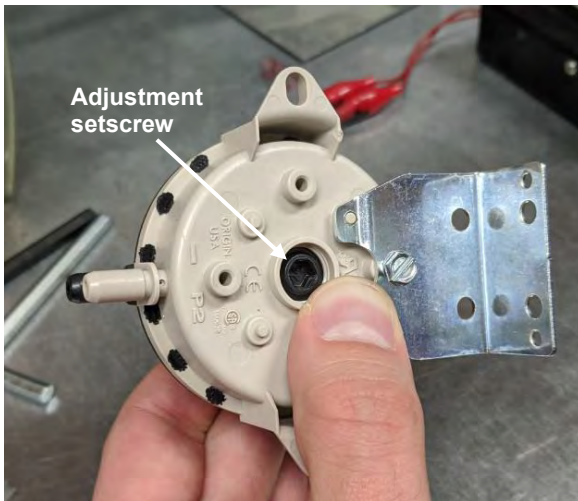


Image 4-24 – Adjustment setscrew

Follow these instructions if it is necessary to adjust static air pressure switch:

1. Find switch in heater box (near pipe train).
2. Use hex wrench to turn adjustment screw on air switch clockwise until end of adjustment range is reached, then back off one-quarter turn counterclockwise. This sets the switch to roughly .8-.9 inches water column. Setting doesn't need to be exact.
3. Test switch operation by turning fan off and on while watching for air switch signal to change. Go to PLC Inputs/Outputs Diagnostics page on touch screen: Tools → Diagnostic Tools Menu → PLC Inputs/Outputs Diagnostics. Individual fan inputs/outputs appear in pop-up windows by pressing corresponding buttons.

NOTE: Dryer does not need to be full of grain.

Meter Roll Proximity Switch (J4493)

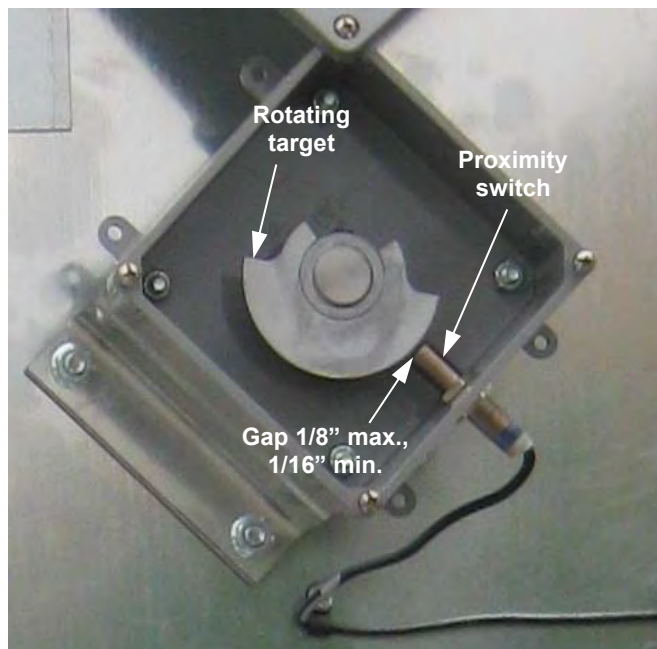


Image 4-25 – Meter roll proximity switch

1. Locate proximity switch on back of dryer. See Image 4-25. Proximity switch and rotating target are inside of box.
2. To calibrate proximity switch, loosen lock nuts on switch.
3. Adjust switch so tip is no more than 1/8" and no less than 1/16" from target. See Image 4-25. This distance is important for reliable sensing.
4. After switch is in place, tighten lock nuts and replace cover on box.

IMPORTANT: Ensure target will not contact end of proximity switch during operation.

Grain Discharge Chute Switch Adjustment

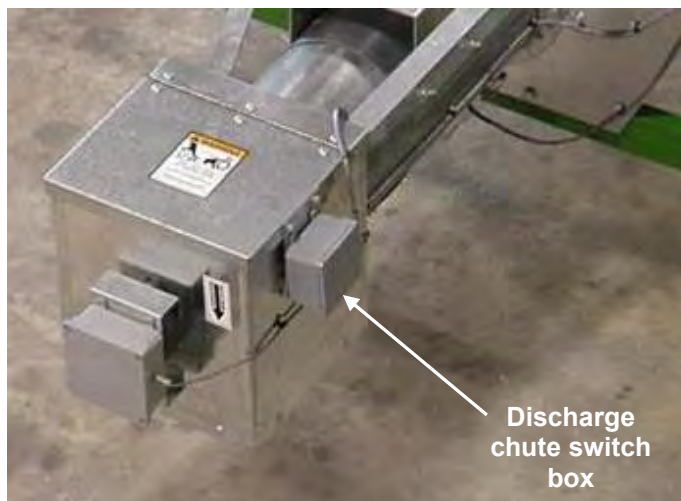


Image 4-26 – Discharge chute switch box

1. Locate box on discharge chute at rear of dryer. See Image 4-26. Open discharge chute lid.
2. Attached to lid is a bracket holding discharge chute switch box. Loosen screw holding box in place. See Image 4-27.
3. Adjust box so that when discharge chute lid is opened 2" to 3", a fault occurs. Once position has been found, tighten screw to hold box in place.

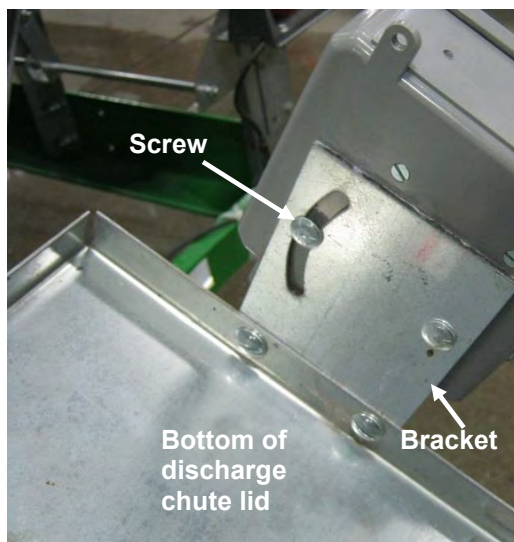


Image 4-27 – Screw and metal bracket

NOTE: Dryer with drag conveyor unload will have a similar switch mounted to lid. Use same process as above to calibrate.

Paddle Switch T16244 for Auger Load or T162621 for Gravity Load



Image 4-28 – Paddle switch box T16244 on auger-load section

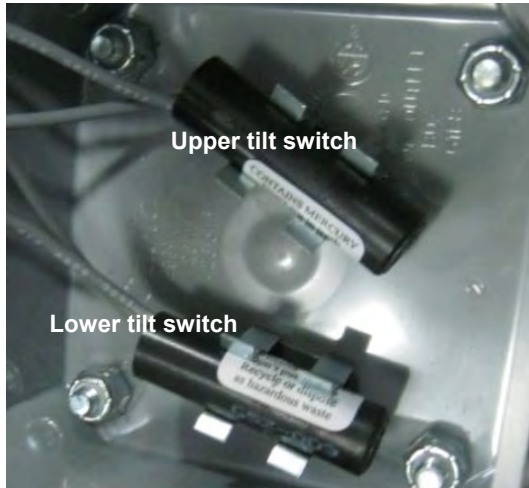


Image 4-29 – Tilt switches (J4441)

1. Find paddle switch box near top of dryer. Image 4-28 shows switch box T16244 for dryer with auger load system. Image 4-9 shows switch box T162621 for dryer with gravity load system. Image 4-29 shows tilt switches inside of both boxes.
2. Ensure upper and lower tilt switches are secure inside of box and positioned with wires exiting from left. Wire 53 connects to upper switch. Wire 44 connects to lower switch. Clips in box are positioned at factory to hold switches at appropriate operating levels.
3. Make sure arrow on top of box is pointed in direction of grain flow. When paddle inside of wet bin hangs straight down, top of box should be level. Paddle and switch box can be mounted on either end of dryer, but cannot be on end at which dryer is being filled.
4. To adjust T16244 or T162621, loosen setscrew in shaft collar on backside of box.
5. Turn box until top is level when paddle hangs straight down.
6. Retighten setscrew.

Adjusting Meter Roll Flow Gates

Flow gates in columns of axial and centrifugal dryers are factory-set as shown in Fig. 4-1 and Table 4-1.

Sukup Manufacturing Co. is not responsible for damage resulting from improper adjustment of flow gates.

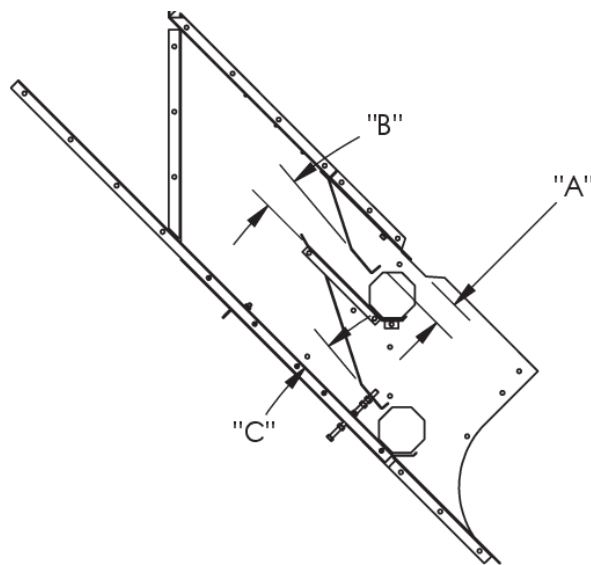


Fig 4-1 – Flow gates in axial & centrifugal dryers

DRYER LENGTH	COLUMN	DIM. A	DIM. C
8'	Front 3	2"	1-3/4"
	Rear 1	1-3/4"	2"
10'	Front 4	2"	1-3/4"
	Rear 1	1-3/4"	2"
12'	Front 4	2"	1-3/4"
	Rear 2	1-3/4"	2"
16'	Front 6	2"	1-3/4"
	Rear 2	1-3/4"	2"
20'	Front 7	2"	1-3/4"
	Rear 3	1-3/4"	2"
24'	Front 9	2"	1-3/4"
	Rear 3	1-3/4"	2"
28'	Front 11	2"	1-3/4"
	Rear 3	1-3/4"	2"

Table 4-1 – Flow gate settings for axial & centrifugal dryers

NOTE: One full turn of adjustment bolt changes flow gate opening 1/16". Outer flow gate adjustment bolt turns clockwise to open outer flow gate. Inner flow gate adjustment bolt turns counterclockwise to open inner flow gate.

NOTICE: If Dim. A reaches 3-1/4" or Dim C reaches 3-1/8", a free-flow condition may occur. It must be avoided as it will impair dryer operation.

Reinstall cleanout/access doors after adjustments are made.

NOTE: If dryer has small-grain flow control gates, see Assembly Instructions L1896.

Axial Fan Blade Replacement & Maintenance

Follow these instructions when replacing fan blades on dryer or maintaining blades at start of drying season. Sukup axial-fan dryers use Trantorque GT keyless bushings, which offer flexible and easy installation while providing exceptional holding power. To ensure a Trantorque GT unit performs as specified, it must be installed properly.



DANGER: Failure to properly tighten blades may cause death or serious injury:

- **USE TORQUE WRENCH** with settings capable of attaining correct torque specifications.
- **DO NOT** over-tighten. It may cause hub to crack and threads to strip.
- **NEVER** run fan without screen guard properly installed.
- **DO NOT** stand in front of fan when running.

1. Insert Trantorque GT unit into fan hub, making sure mating hub is flush against shoulder at hex flats. See Fig. 4-2.

NOTICE: Do not lubricate Trantorque GT bushing or shaft. Use of any lubricant on contact surfaces could result in bushing failure and will void all warranties.

2. Hand-tighten nut (clockwise) until assembly becomes snug on shaft. **NOTICE:** Do not hammer or use any type of impact to force Trantorque GT assembly along shaft.

IMPORTANT: Shaft must fully engage gripping area of Trantorque GT unit.

3. Using a torque wrench, tighten nut to proper installation torque. See Table 4-2 for required torque. Hex flats on outer ring are provided for counter-torque, eliminating need to hold component or shaft while applying installation torque.

NOTICE: Over-tightening nut could damage Trantorque GT unit and/or mounted component, resulting in slippage of fan blade from shaft.

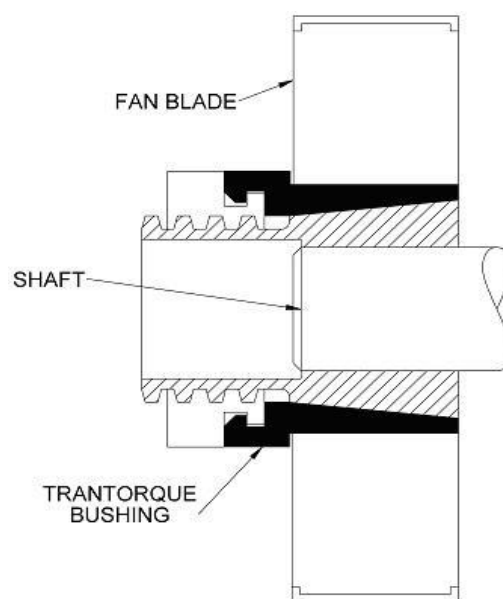


Fig. 4-2 – Attaching fan blade with Trantorque GT bushing

NOTE: At full installation torque, assembly will have moved approximately 1/16" axially along shaft away from nut. If axial position is critical, it may be necessary to loosen nut and reposition assembly.

4. Install screen guard and run fan for a minute. Remove screen and re-check torque. Inspect hub for cracks.



DANGER: Make sure screen guard is in place before operation. Contact with spinning blades will cause death or serious injury.

PART #	FAN SIZE	HP	BORE SIZE	NUT SIZE	TORQUE
J0436	28"	15	1-1/8"	1-3/4"	165 FT-LBS
J0437	28"	20	1-3/8"	2"	190 FT-LBS
J0437	38"	10	1-3/8"	2"	190 FT-LBS
J0435	38"	15	1-5/8"	2-1/4"	230 FT-LBS
J0435	38"	20	1-5/8"	2-1/4"	230 FT-LBS
J0435	44"	15	1-5/8"	2-1/4"	230 FT-LBS
J04371	44"	30	1-7/8"	2-1/2"	400 FT-LBS
J04372	44"	40	2-1/8"	2-3/4"	440 FT-LBS

Table 4-2 – Required torque for Trantorque bushings

Preventive Maintenance

Preventive maintenance is very important. It can help ensure dryer will perform well throughout drying season. Maintenance steps presented here are minimum procedures to be performed.

IMPORTANT: See Appendix F – Parts/Assemblies for part numbers.



WARNING: When using ladder attached to dryer, make sure ladder is dry before climbing. Ladder may be slippery when wet. Falling from ladder could cause death or serious injury.

All bolts used to keep enclosures locked **MUST** be tightened after dryer maintenance to prevent undesired access.

Check and retighten all fasteners



WARNING: Lock out electrical power before removing any safety shields. Contact with moving parts could cause death or serious injury.

Physical Inspection

1. Remove fan inlet screens. Check for foreign material on fan blades. Ensure fan rotates freely.
2. Check ventilation openings in motors for any blockage. Pay close attention to inside of fan hubs. Reinstall fan inlet screens.



DANGER: NEVER run fan without screen guard securely attached to fan housing! Contact with spinning fan will cause death or serious injury.

3. Check wiring of fan and heater. Look for loose connections, bare wires or rodent damage. Check flame rod wire and spark plug wire for damage or short to ground.

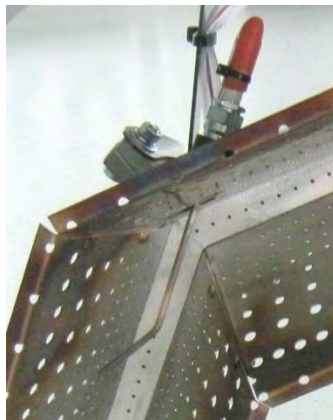


Image 4-30 – Flame rod
(shown on octagon burner)



Image 4-31 – Spark plug
(shown on H burner)

4. Examine flame rod (J5747) for cracked porcelain insulation and verify it is not touching metal burner. See Image 4-30.
5. Examine spark plug (J5739) for proper gap. See Image 4-31. Clean electrodes if required. Gap should be 1/8". Spark plug and flame rod should be examined periodically during drying season.

6. Remove gas strainer as shown in Fig. 4-3 and clean it.

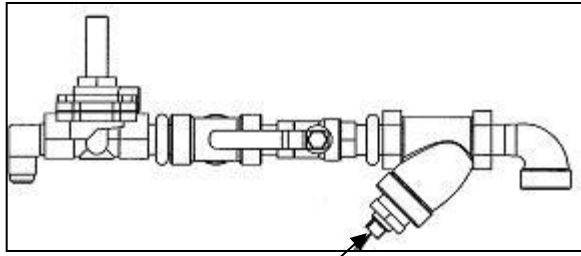
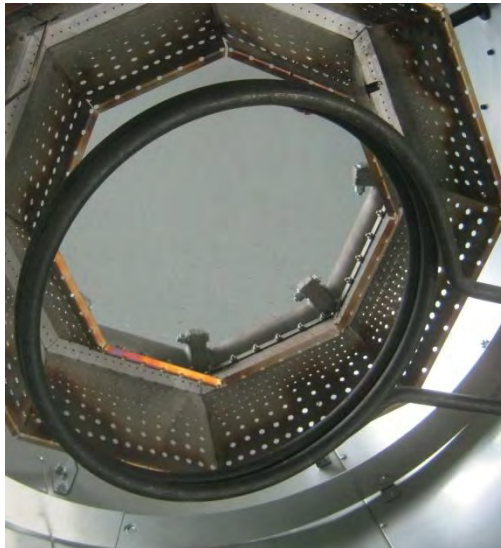


Fig. 4-3 – Remove gas strainer/filter at hex nut

7. Inspect all pipe train components for physical integrity. See Pipe Train Component Identification pages elsewhere in this manual.
8. Inspect all pipe train connections for tightness and leaks. Spraying soapy water on connections and looking for bubbles is a good way to detect leaks.
9. Check vaporizer coil yearly. See Image 4-32 or 4-33. Vaporizer coil should be replaced every five (5) years.



Images 4-32 & 4-33 – Vaporizer coil (shown on octagon burner, left, and on H burner, right)



WARNING: One drop of liquid propane will expand 270 times as it converts to vapor. It is very dangerous to have vaporizer coil develop a leak during heater operation. Gas leak could cause explosion or fire resulting in death or serious injury.

10. Check bearings. Load and unload auger bearings (J0010), centrifugal fan bearings (J0048) and, if so equipped, drag conveyor bearings (J00722) are factory greased. They are sealed bearings. It is critical that they not be over-greased or seal could be blown. If it appears grease is needed, use a small amount of lithium complex grease such as Shell Alvania RL2 that is rated for an operating temperature range of -10° to $+260^{\circ}$. Use no more than 0.15 ounce for J0010 bearings and no more than 0.18 ounce for J0048 and J00722 bearings.

Daily Maintenance Requirements

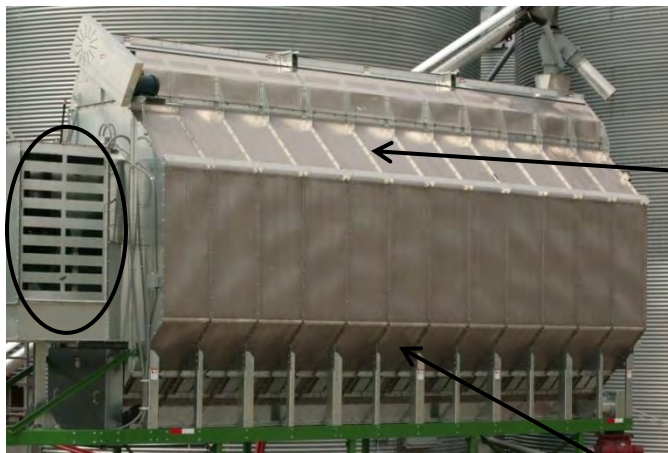


Image 4-34– Fan inlet, top exhaust slope and lower grain column slope (centrifugal dryer shown)

This assumes 24-hour per day operation during harvest.

1. Clean foreign material from fan air inlets.
2. Sweep off perforated exhaust slope where fines may have accumulated. Pay attention to area directly under wet holding portion of dryer, where excessive amounts of fines and foreign material can accumulate.
3. Inspect for even grain movement in all grain columns. If grain in one column is not moving or is moving slower than grain in other columns, check for obstructions in flow gate area or columns.
4. **Turn off dryer** and close rear access door(s). Be sure that tip of each door switch is depressed. See Page 4-7 for close-up of rear door switch.



Image 4-35 – Rear access doors & switches



Image 4-36– Rear cleanout door

5. Open rear cleanout door(s). See Image 4-36. Sweep all fines and debris from front of plenum(s) to rear. Exit dryer and close rear access doors.
6. Run fan in Dry Fire mode until no more debris comes out of rear cleanout door(s).
7. Turn fan off.
8. Close rear cleanout door(s).
9. If dryer has a discharge tube, sweep fines/debris off of screen. See Image 4-37.

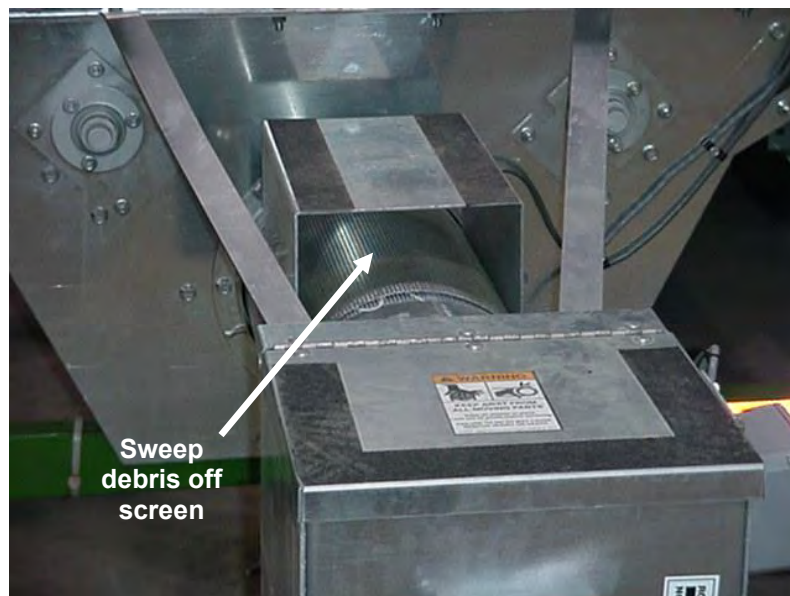


Image 4-37 – Grain discharge chute screen



Image 4-38 – Discharge moisture sensor location

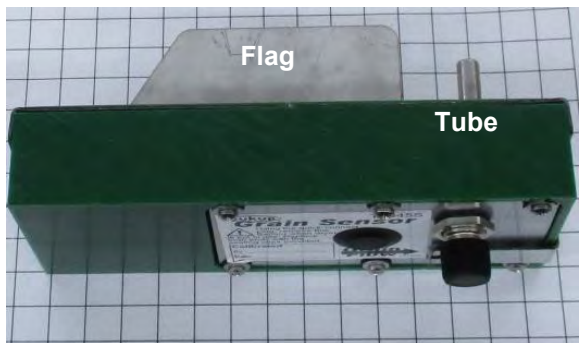


Image 4-39 – Moisture sensor flag & tube



Image 4-40 – RTD temperature sensor wire

10. Remove discharge moisture sensor located under discharge tube as shown in Image 4-38. Clean sensor flag and tube. See Image 4-39. Reinstall moisture sensor.

NOTE: See Image 4-2 for location of discharge moisture sensor on dryer with conveyor unload. Clean as described above. Also clean incoming moisture sensor if dryer is so equipped.

11. Inspect RTD temperature sensor tube (silver) shown in Image 4-40. Clean if necessary.
12. Restart dryer via touch screen using Automatic or Manual control.

Semi-Weekly Maintenance Requirements

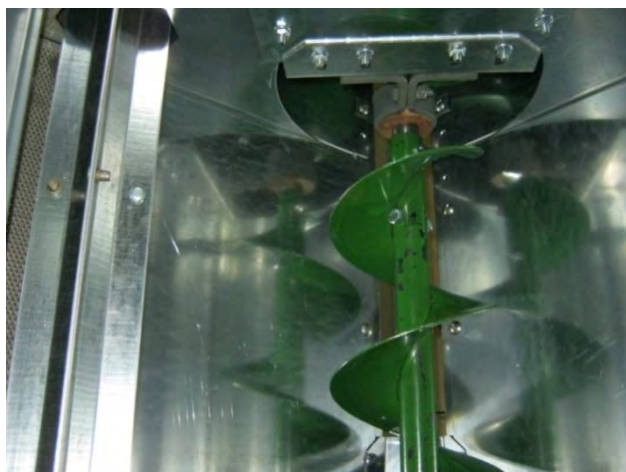


Image 4-41 – Unload auger

1. Perform all steps of daily maintenance requirements as listed in previous section except Step 12, restarting dryer.
2. Remove floor plates and open outside access/cleanout doors. Inspect unload auger area for obstructions, fines and debris. Clean as necessary. Replace floor plates and close outside access/cleanout doors. See Images 4-41 and 4-42.



Image 4-42 – Unload auger outside access/cleanout door handle

NOTE: If dryer has conveyor unload instead of auger, open cleanout door by removing four bolts shown in Image 4-43. A pry bar may also be needed to open door. Clean as needed and replace door.



Image 4-43 – Drag conveyor cleanout door
Remove bolts to open



Image 4-44 – Inner grain column cleanout door

3. Open inner and outer grain column cleanout doors and remove debris. Close doors. See Images 4-44 and 4-45.



Image 4-45 – Outer grain column cleanout door

IMPORTANT: After cleaning, lock outer cleanout doors shut using fasteners on handles. See Image 4-45.



Image 4-46 – Vacuum-cool duct cleanout door (only on centrifugal-fan dryer)

4. Remove plenum divider door (not shown), if applicable, and clean out any debris. Replace door.
5. On centrifugal-fan dryer, remove vacuum-cool duct door and clean out any debris. Replace door. See Image 4-46.
6. Restart dryer via touch screen using Automatic or Manual control.

Weekly Maintenance Requirements

1. Unload grain from dryer by performing Final Dry in Automatic mode.
2. Perform all steps from Daily and Semi-weekly requirements except for restarting dryer.
3. Thoroughly inspect grain columns for accumulated debris or fines. Remove if found.
4. Check tension of drive belts. See next page.
5. Restart dryer via touch screen using Automatic controls (Initial Load, Initial Dry).

End-of-Season Maintenance Requirements

1. After dryer is unloaded for last time of season, open all access doors and panels. Thoroughly clean entire dryer by sweeping and using compressed air. Power washing may be required after dirty drying season. Clean wet bin trash pan if dryer has auger load.

NOTICE: Do not blow compressed air into air pressure switch hose. Damage to switch may occur.

2. Perform all steps listed under Preventive Maintenance.

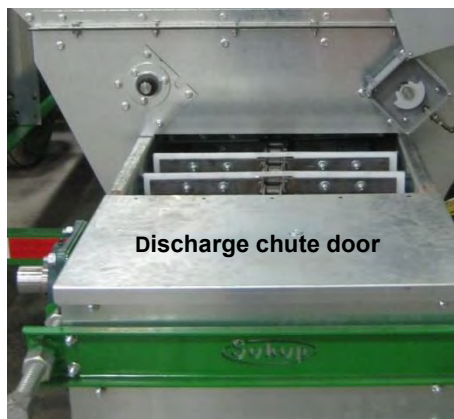


Image 4-47 – Cleanout panel (removed) and discharge chute door on conveyor

3. Leave unload cleanout doors open for water drainage.
4. Lock out electrical power.

NOTE: If dryer has conveyor unload, open cleanout panel and discharge chute door and remove debris. See Image 4-47.

5. Install a cover on each axial fan inlet screen to keep debris from entering fan.

NOTICE: Never place obstacle in way of fan to stop rotation.

6. Remove moisture sensor(s) from dryer and store in a cool, dry place. Be sure to cap both coupler fittings as shown in Images 4-48 and 4-49.

NOTICE: Sensor could be damaged by water if left on dryer.



Image 4-48 – Moisture sensor cable capped



Image 4-49 – Cable connector capped

7. Ensure that cover of QuadraTouch Pro console is closed. Remove Ethernet cable, disconnect from power, and store control unit indoors during offseason.

Adjusting V-Belt Tension

Follow these steps to tension belt.

1. Measure span length. See Fig. 4-4.
2. At center of span, apply enough force to deflect belt $1/64$ " for every 1" of belt span. If span is 32", deflection amount should be $32/64$ ", or $1/2$ ".
3. Use Table 3 to determine pounds of force to apply to gauge proper deflection per belt.

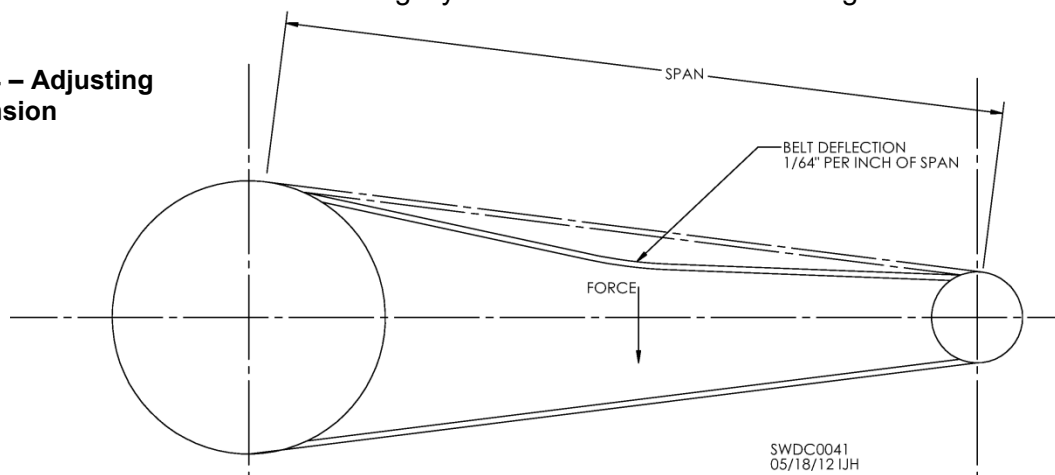
Belt Cross Section	Smallest Pulley Diameter Range	RPM Range	Belt Deflection Setting			
			Deflection = $1/64$ of belt span			
			Uncogged Single V-Belts & Uncogged Banded V-Belts		Cogged V-Belts & Cogged Banded V-Belts	
			Used Belt	New Belt	Used Belt	New Belt
B, BX	3.4 – 4.2"	860 – 2,500	---	---	4.8	7.2
		2,501 – 4,000	---	---	4.1	6.2
	4.4 – 5.6"	860 – 2,500	5.2	7.9	7.1	10.5
		2,501 – 4,000	4.5	6.6	7.1	9.1
	5.8 – 8.6"	860 – 2,500	6.2	9.4	8.4	12.4
		2,501 – 4,000	6.0	6.8	7.3	10.7

Table 3 – Belt deflection settings, in pounds, for Bestorq belts

Sukup products use belts made by Bestorq. Sukup recommends using a Bestorq tension meter to measure belt deflection. Go to www.bestorq.com or call (402) 423-3077 for more information.

After adjusting tension to desired level by adjusting motor mount, remove any foreign material from inside of belt guard. Check that all fasteners are tightly secured. Close and latch belt guard.

Fig. 4-4 – Adjusting belt tension



IMPORTANT: Check and adjust belt tension after first five (5) and 24 hours of operation, then during weekly maintenance.

Drag Conveyor Maintenance



WARNING: Lock out power before performing any maintenance or service inspections. Contact with moving chain and/or paddles could cause death or serious injury.

Regularly scheduled maintenance can greatly increase life of equipment and reduce downtime. A good maintenance program includes general cleaning and upkeep and regular lubrication and inspection. Check conveyor immediately if any unusual noise or vibration is observed. Following is a list of things to check regularly.

1. Inspect conveyor for loose bolts, missing or damaged paddles, overall chain condition, and electrical connections, etc. Any bent or broken paddles should be straightened or replaced.
2. Check chain for tightness after 10, 30 and 100 hours of operation, and every 200 hours thereafter. Remove links as needed if chain cannot be adjusted to proper tightness. Tighten chain by adjusting take-ups on tail section. Take-ups should be adjusted in small increments to ensure tail sprocket is kept square. Chain tension is correct when deflection is approximately 1/2" at a point midway between rollers. See Fig. 4-5. **NOTE:** On conveyor with slide rail returns, it should be possible to lift chain slightly when sufficiently tightened. Making sure chain is properly tensioned will improve longevity of conveyor.

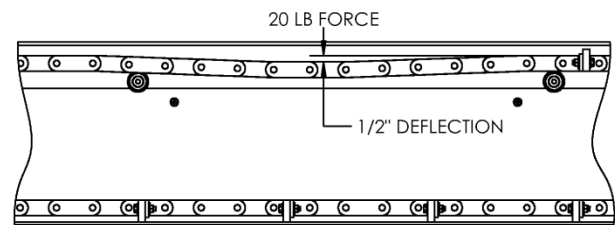


Fig. 4-5 – Tensioning conveyor chain

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3. Bearings are greased at factory and do not need to be greased prior to start-up. Grease all bearings every 800 to 1000 hours after start-up. Do so while unit is running. Use only enough grease until you can see fresh grease at seals. If you cannot lubricate bearings while unit is running, do it immediately upon shutdown while bearing is still warm. Do not grease a cold bearing.
4. Be certain to maintain speed reducer as specified by manufacturer. Follow manufacturer's instructions for regular oil level inspection and oil changes.
5. Check belt drive tension after first five (5) and 24 hours of operation, then at least twice yearly. See previous page. Check pulleys for alignment and to see they are securely tightened.
6. Oil motor every 1000 hours or once yearly if equipped with oil holes, or grease unit if zerks are present.
7. Check all safety decals and replace all that are missing or deteriorated.
8. Check and retighten all fasteners.

Extended Shutdowns

If dryer will not be used for more than one month, follow these steps:

1. Remove all foreign material from conveyor and check that surface coatings are in good condition.
2. Lubricate and protect all bearings and drives according to manufacturer's instructions.
3. Rotate gear reducer occasionally during shutdown according to manufacturer's instructions.
4. Coat all exposed metal surfaces with rust-inhibiting oil according to manufacturer's instructions.

Chain & Sprocket Inspection

Chain

Check periodically for these potential chain and/or sprocket problems. Remedy by realigning or replacing chain, depending on severity of problem, or by replacing sprocket.

1. Chain stretching – 81X chain has stretched 3% (e.g., from 40' to 41.2'). Replace chain.
2. Stiff joints – Chain rollers can get packed with debris, leading to failure of rivets. Clean or replace chain.
3. Sidebar wear – Chain is sliding in trough. Realign chain.
4. Sidebar wear – Inside of links wearing from sprocket teeth. Realign chain.
5. Bushing wear – Bushings are worn or gouged – not polished -- where sprocket tooth touches. Check sprocket and replace if necessary.
6. Attachment wear – Attachments are gouged or bent from hanging up in conveyor. Realign or replace chain.
7. Rivet wear – Heads or tails of rivets worn from rubbing sides of trough. Realign or replace chain.
8. Roller wear – Inner diameters of rollers are worn from chain slack and wobble. Realign or replace chain.

Sprockets

1. Worn teeth – Worn teeth will over-stress chain, causing it to snap in and out of sprocket and possibly hang up when exiting. Replace sprocket.
2. Build-up in pockets – Material packed into pockets of sprocket will cause chain to stretch. Remove material.
3. Teeth scrubbed on sides – Indicates misalignment of sprockets or shaft. Chain could also be worn to point where it won't track properly. Realign or replace chain.
4. Chain rides high on teeth – Chain is elongated and close to needing replacement.
5. Chain bow too tight – Indicates material packed in pockets or flanges too large. Remove material and/or replace chain.
6. Noise – Chain should make a clicking sound (metal on metal) against sprocket. If chain snaps against sprocket, check for issues 1 through 5.

Troubleshooting Guide

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<u>DATE</u>	<u>REVISION</u>	<u>PAGE</u>
08/22/2024	– Updated references throughout to M12 Cable Service Guide L1986	
	Minor editing to improve clarity	2-5, 8-11, 13, 17, 19 & 21
	Updated photo of paddle switch T162621	3
	Updated photo of air pressure switch/heater box	11 & 19
	Added notes on appearances & locations of switch boxes	12
	Added QR code for more information on fixing a communication error	16

Fault Troubleshooting

Grain Discharge Chute Switch



Image 5-1 – Grain discharge chute tilt switch

Tilt switch in grain discharge chute switch box detects discharge chute opening during operation. This fault usually indicates a problem with take-away system and will stop dryer.



Fault Condition

Discharge Chute is Open

All dryer models use wire # 42

1. Is discharge chute open? Remove any obstructions and close door.

2. Is switch box out of adjustment? This can be determined by watching input light 42 on PLC. Adjust angle of switch box after placing door at desired height for fault to occur (2" to 3"). PLC input light turns off when a fault occurs.
3. If unable to adjust switch box and turn on PLC input light, use a voltmeter to determine if tilt switch is malfunctioning.
4. At discharge chute, find switch box fastened to lid. See Image 5-2 or 5-3. This box contains the tilt switch. Remove cover and locate the two wires coming from switch. Check for 24VDC from circuit 18 to ground.
5. If 24VDC is found on circuit 18, check for voltage on circuit 42. If 24VDC is not present, it may be necessary to tilt switch to allow mercury inside to touch contact. If unable to detect 24VDC on circuit 42, switch must be replaced.
6. If 24VDC is present on circuit 42, but PLC input light is still off, go to main power box and check terminal 42 for 24VDC. If unable to detect 24VDC on terminal 42, check connections between discharge chute switch and power box.
7. If 24VDC was present on terminal 42 in power box, check PLC input where 42 goes into PLC. If 24VDC is present on input on PLC but light is OFF, then PLC is malfunctioning.



Image 5-2 – Grain discharge chute switch box on auger unload



Image 5-3 – Grain discharge chute switch box on drag conveyor unload

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

Paddle Switches

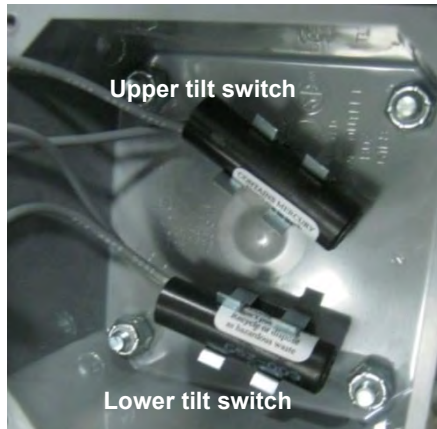


Image 5-4 – Inside of paddle switch box

Paddle switches are used to indicate when dryer is running low or is out of grain. A fault will be displayed when this occurs. Style of switch will depend on fill system. Dryer with auger fill has paddle switch shown in Image 5-5. Dryer with gravity-fill has paddle switch shown in Image 5-6. Image 5-4 shows inside of paddle switch box.



Fault Condition

Message depends on fail type

All dryer models use circuits 44 & 53

1. Is wet bin out of grain? If this is last load of season, press Reset and Start → Final Dry.
2. Has an auxiliary load malfunctioned? Repair cause of load failure and press Reset.
3. If wet grain is available and load auxiliaries are functioning, is paddle bound up? If so, free paddle and repair cause.
4. Are both PLC input lights off? (Both lights should be off when dryer is calling for grain – paddle down.) Are both PLC input lights on? (Both lights should be on when dryer is full – paddle up.) Remove cover from paddle switch box and check tilt switches for proper placement in their respective holders. See Image 5-4.
5. Check PLC input lights (44-Lower tilt switch; 53-Upper tilt switch) while someone moves paddle from down position to up position. If either PLC input light does not turn on, check for 24VDC on wire 18 to ground. (Touch black probe from meter to dryer frame.)
6. If 24VDC is detected on circuit 18, check for 24VDC on other wire going to switch. With paddle in up position, 24VDC should be detected on circuits 44 and 53. If not, replace respective switch and recheck for voltage.
7. If paddle is in up position and 24VDC is present on both switches, but one or both PLC input lights are off, check voltage on respective terminals in main power box. If 24VDC is not detected on respective terminal, check wiring connections between paddle switch box and terminals in main power box.
8. If 24VDC is detected at terminal in main power box and PLC input lights are not on, PLC may be malfunctioning.



Image 5-5 – Paddle switch T16244 on auger-fill section



Image 5-6 – Paddle switch T162621 on gravity-fill section

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

Unload Auger Proximity Switch



Image 5-7 – Unload auger proximity switch

Unload auger proximity switch is located on discharge box on end of unload auger. This device monitors unload auger and will give a fault message and stop dryer if unload auger stops turning. Tip of switch should be between 1/16" and 1/8" from rotating target.



Fault Condition

Unload Prox Failure

All dryer models use circuit 96

1. Visually inspect auger for problems.
 - a. Are belts tight and in good condition?
 - b. Does motor smell or feel hot?
 - c. Is a Motor Overload fault being displayed along with Unload Auger fault? If so, do not restart unload motor until a definite cause for overload has been determined. After repairing cause of fault, reset motor overload. Then press RESET on touch screen.
2. If no fault is being displayed, go to Manual in QuadraTouch Pro and turn on Unload and check for rotation.
 - a. While auger is rotating, check PLC input light. It should be flashing at a regular rate, indicating rotation.
 - b. If PLC input light is not flashing, check auger for rotation. If auger is not rotating, find cause and repair it.
3. If rotating, look at back of switch. A small light should be flashing on and off.
4. If light on switch is not flashing, follow wires to junction box and remove cover.
 - a. Locate brown, black and blue wires coming from unload auger switch. Check for 24VDC on circuit 18 (brown), with respect to circuit 96 (blue).
 - b. If 24VDC is not found on 18, go to main power box and check for 24VDC on terminal 18.
 - c. If 24VDC is not found on circuit 18 in main power box, check for 24VDC on topside of PLC.
5. If possible, position target over switch so switch will be in ON position.
 - a. Check for 24VDC on black output wire (circuit 96). If light is on but 24VDC is not found on circuit 96, switch is malfunctioning.
 - b. If 24VDC is found on circuit 96, go to PLC in power box and check PLC input light. This light should be on when switch light is on.
 - c. If 24VDC is found on circuit 96 but PLC input light is not on, check for 24VDC on power box terminal. If 24VDC is not found, check wiring connections between junction box and power box.

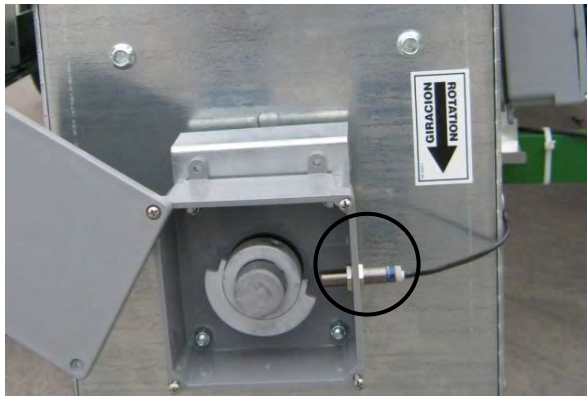


Image 5-8 – Unload auger prox. switch

NOTE: There is a similar switch on dryer with drag conveyor unload. See Static Sample Box Proximity Switch troubleshooting page.

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

Vapor Over-Temperature Switch



Image 5-9 – Vapor over-temp switch (shown on axial-fan dryer)

On an LP dryer, vapor over-temp switch is located on pipe train for heater. Its purpose is to detect gas that is overheated and could damage heater components. Fault message will appear and dryer will shut down if vapor temp gets above 60°C (140°F). Vapor pipe should be warm but not too hot to touch.



Fault Condition

Vapor Over-Temp

- 6th switch uses circuit 602
- 5th switch uses circuit 502
- 4th switch uses circuit 402
- 3rd switch uses circuit 302
- 2nd switch uses circuit 202
- 1st switch (bottom) uses circuit 102

1. Check fuel supply. Is tank low on fuel? If so, fill tank.
2. Is there an air inlet obstruction? Clean debris from fan grill.
3. Check to see if vaporizer coil is too close to flame. Adjust coil as needed. See instructions in Operation section.
4. Has vaporizer coil had sufficient time to cool down? Switch will automatically reset when vapor has cooled down.
5. Is PLC input light on? After device has cooled down and reset, PLC input light should be on. If not, follow wires to heater box and check for 24VDC on terminal 18.
6. If 24VDC is not found on terminal 18, go to main power box and check for 24VDC on terminal. If 24VDC is found on terminal 18 in main power box, check wiring connections from heater box to power box.
7. With 24VDC being found on circuit 18 for vapor O/T switch, and after switch has cooled to ambient temperature, check for 24VDC on X02 circuit coming from O/T switch.
 - a. If 24VDC is NOT found on X02 circuit, O/T switch must be replaced.
 - b. If 24VDC is found on X02 circuit serving O/T switch, go to main power box and check for 24VDC on respective terminal.
 - c. If 24VDC is NOT found on power box terminal, check wiring connections between power box and heater box.
 - d. If 24VDC is found on input terminal, input light is NOT on, and fault message is still being displayed (after switch has reset), then PLC is malfunctioning.

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

Rear Door Switch



Image 5-12 – Rear door switch

Rear door switch is located to right of each rear door on dryer. Switch is used to keep dryer from running when a door is open and someone may be in plenum of dryer.



Fault Condition

Rear Door is Open

All dryer models use circuit 36

1. Check rear doors to be sure no one is inside and doors are closed.
2. If all doors are closed, check that PLC input light is on.
3. If light is not on, go to junction box on back of dryer that contains wires from switches. Remove cover and check for 24VDC on input wire.

NOTE: Circuit 18 serves push-button door switch. If there is more than one plenum, switches are connected in series (36, 36A, 36B & 36C) in DS junction box and route back to PLC.

3. If 24VDC is not present on PLC input wire, check that 24VDC is present on terminal 18.
 - a. If 24VDC is present on input wire, but PLC input light is not on, check for 24VDC returning from all switches.
 - b. If 24VDC is not returned from door switches, check voltage on wire coming from each switch.
4. If 24VDC is returned from last switch, check for 24VDC on power box terminal 36.
 - a. If 24VDC is not found on power box terminal 36, check wiring connections between junction box and main power box.
 - b. If 24VDC is found on power box terminal 36, check input 36 on PLC for 24VDC.
5. If 24VDC is present on PLC input terminal 36 but input light is not on and there is a rear door fault message, PLC is malfunctioning.



Image 5-11 – Door switches & wiring junction box

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

Grain Column Over-Temperature Switch



Image 5-12 – Grain column over-temp switch

1. Check all grain columns for obstructions that would prevent grain from flowing through column. If an obstruction is found, do not restart dryer until it has been cleared.

NOTE: To check for an obstruction, go to Manual operation in QuadraTouch Pro and turn unload on. Run unload long enough for grain level in columns to drop at least 1 foot. Observe grain level in each column. Any column with an obstruction will be readily visible. Remove obstruction.

2. If no obstruction is found and grain is flowing freely through each column, plenum temperature may need to be reduced.
3. If column temperature has cooled down and RESET button has been pressed on touch screen and fault message is still displayed, remove switch box cover and check for 24VDC on terminal 18.
4. At this point, 24VDC should be present on circuit 18 at O/T switch. Check for 24VDC on other circuit (40 or 41) from switch.
 - a. If 24VDC is NOT detected, O/T switch is defective.
 - b. If 24VDC is found on wire coming from O/T switch but PLC input light is NOT on, note number of wire and go to main power box and check for 24VDC on terminal 40/41.
 - c. If 24VDC is NOT found on 40/41 in power box, check wiring connections between switch box and power box.
 - d. If 24VDC is detected on 40/41 in power box, go to PLC and check for 24VDC on input terminal.
 - e. If 24VDC is detected on PLC input terminal, and input light is not on and fault message is still displayed (after pressing RESET on touch screen), then PLC is malfunctioning.

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

There are two grain column over-temperature switches on dryer. Each has a sensor in a conduit running horizontally through grain columns. These sensors monitor temperature in grain columns. Switch will turn dryer off if columns reach 240°F. Switch boxes are shown on left and right sides of Image 5-11 on previous page. Multiple switches on same side of a stacked dryer will be wired in series.



Fault Condition

Right Column Over-Temp

All dryer units use circuit 40 for right side



Fault Condition

Left Column Over-Temp

All dryer units use circuit 41 for left side

Heater Housing High-Limit Switch



Image 5-13 – Heater housing high-limit switch

Heater housing high-limit switch is located in a box mounted above heater. Switch trips when heater reaches a temperature considered too high for drying grain. Image 5-13 shows switch. See Image 5-19 or 5-20 for location.



Fault Condition

Heater Housing Over-Temp

- 6th switch uses circuit 603
- 5th switch uses circuit 503
- 4th switch uses circuit 403
- 3rd switch uses circuit 303
- 2nd switch uses circuit 203
- 1st switch (bottom) uses circuit 103

1. Check for proper fan operation and airflow.
 - a. Check ignition harness for burned wires. Replace as needed.
 - b. Check for plugged fan inlet and remove any debris.
- c. Remove cover from box of faulted heater high-limit switch and push red reset button at center of switch.
- d. Go to Manual in QuadraTouch Pro and turn on fan. Ensure fan is running at proper speed.
- e. Turn burner switch to ON and observe burner for proper operation.
2. After allowing time to cool, push red reset button on high-limit switch so it latches.
 - a. If red button will not latch, high-limit switch is defective.
 - b. If red button will latch but fault remains after RESET is pressed on touch screen, check voltage.
3. Locate wires attached to high-limit switch. Check for 24VDC on wire 18.
 - a. If 24VDC is not present on 18, go to respective X03 circuit in main power box and check for 24VDC on terminal 18.
 - b. If 24VDC is present on terminal 18, check wiring connections between high-limit switch box and main power box.
4. At this point, 24VDC should be present on circuit 18 at high-limit switch in box.
 - a. Check for 24VDC on circuit X03 at high-limit switch. With red reset button latched in, 24VDC should be present.
 - b. If 24VDC is not found, high-limit switch is defective.
 - c. If 24VDC is found but PLC input light is not on, take note of wire number and go to main power box and check for 24VDC on respective X03 circuit.
 - d. If 24VDC is not found on respective X03 circuit, check wiring connections between switch and main power box.
 - e. If 24VDC is found on respective X03 circuit in power box, go to PLC input terminal and check for 24VDC.
 - f. If 24VDC is NOT found on PLC input terminal, check wiring connections from PLC input terminal to respective X03 circuit in main power box.
 - g. If 24VDC is found on PLC input terminal but input light is NOT on, and fault message is still displayed after pressing RESET on touch screen, PLC is malfunctioning.

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

Meter Roll Proximity Switch



Image 5-14 – Meter roll proximity switch

Meter roll proximity switch is located in box at unload end of dryer. Image 5-14 shows switch. Image 5-15 shows location. Switch monitors meter rolls for rotation. If rolls stop turning, a fault message will appear and dryer will shut down.



Fault Condition

Meter Roll Prox Failure

All dryer models use circuit 93

1. Go to Start Menu and select Manual Operation.
2. Set Meter Roll speed to 15%.
3. Touch Unload button.
4. Observe meter rolls drive chain.
 - a. If chain is moving, check to see if meter rolls are turning.
 - b. If meter rolls are not turning, check for a broken chain.
5. If meter rolls are turning, see if light on meter roll switch is turning on and off.
 - a. Check PLC input to see if light is turning on and off.
 - b. After determining which meter roll input signal is missing, remove cover from box housing proximity switch. See Image 5-15. Make sure end of switch is between 1/16" and 1/8" from rotating target when target passes switch head. If not, adjust before proceeding. Turn unload off when meter roll target is positioned above proximity switch head. Light on proximity switch should now be on.
 - c. If light is not on, follow wire from proximity switch to junction box. Remove junction box cover.
 - d. Check for 24VDC on circuit 18.
 - e. If 24VDC is not found on circuit 18, go to power box and check for 24VDC on terminal 18.
 - f. If 24VDC is found on power box terminal, check wiring connections between junction box and power box.
6. At this point, 24VDC should be present on circuit 18 in junction box on back of dryer (brown wire). This voltage is referenced to ground (blue wire).
7. Light on proximity switch should be on and 24VDC should be present on output (black wire). If not, switch is defective.
8. If 24VDC is found on output (black) wire, go to power box and check PLC input light. It should be on when switch light is on.
 - a. If 24VDC is found on black wire but PLC input light is not on, go to power box and check for 24VDC on circuit 93.
 - b. If 24VDC is not found in power box on circuit 93, check wiring connections between junction box and power box.
 - c. If 24VDC is found in power box on circuit 93, go to PLC and check for 24VDC on PLC input terminal.
 - d. If 24VDC is found on PLC input terminal but light is not ON, PLC is malfunctioning.



Image 5-15 – Meter roll proximity switch

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

Static Sample Box Proximity Switch



Image 5-16 – Sample box proximity switch

Proximity switch in static sample box under drag conveyor discharge monitors movement of a slide gate. If gate stops moving, a fault message will appear and dryer will shut down.



Fault Condition

Sample Box Prox Switch Failure

All dryer models use circuit 66

1. Check PLC input for light turning on and off.
2. Turn unload OFF. If slide gate is closed, light on proximity switch should be on.
3. If light is not on, follow wire from proximity switch to junction box. Remove junction box cover.
4. Check for 24VDC on circuit 18. If 24VDC is not found, go to main power box and check for 24VDC on terminal 18. If 24VDC is found on main power box terminal 18, check wiring connections between junction box and main power box.
5. At this point, 24VDC should be present on circuit 18 in junction box on back of dryer (brown wire). This voltage is referenced to ground (blue wire).
6. Make sure switch head is between 1/16" and 1/8" from gate target.
7. Light on back of proximity switch should be on and 24VDC should be present on output (black wire, circuit 66). If not, switch is defective.
8. If 24VDC is found on output wire (circuit 66), go to power box and check PLC input light. It should be on when switch light is on.
 - a. If 24VDC is found on black wire (circuit 66) but PLC input light is not on, take note of wire number and go to power box terminal 66 and check for 24VDC.
 - b. If 24VDC is NOT found on power box terminal 66, check wiring connections between junction box and power box.
 - c. If 24VDC is found on power box terminal 66, go to PLC and check for 24VDC on PLC input terminal.
 - d. If 24VDC is found on PLC input terminal but light is not ON, PLC is malfunctioning.

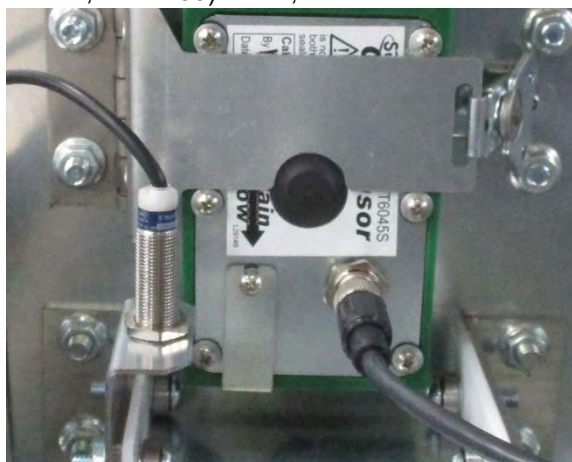


Image 5-17 – Static sample box proximity switch

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

Static Air Pressure Switch

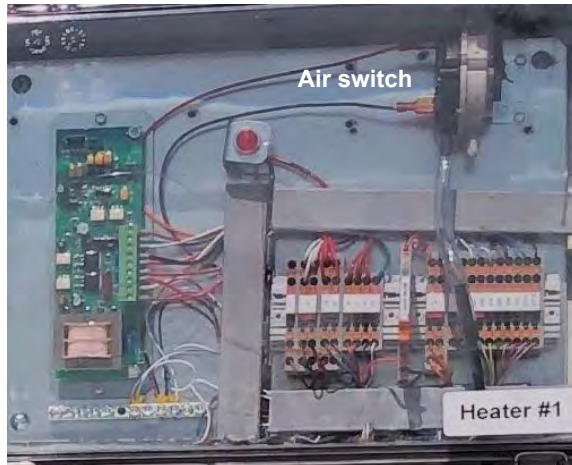


Image 5-18 – Static air pressure switch

Static air pressure switch monitors air pressure in plenum. See Image 5-18 for location of switch in heater box. Switch will shut down dryer if there is not enough air pressure.



Fault Condition

No Static Air Pressure

- 6th switch uses circuit 605
- 5th switch uses circuit 505
- 4th switch uses circuit 405
- 3rd switch uses circuit 305
- 2nd switch uses circuit 205
- 1st switch (bottom) uses circuit 105

1. Ensure that hose fits tightly to black port on air switch. White port is not used.
2. Ensure switch wiring is securely connected in heater box and elsewhere.
3. Using Manual Operation in QuadraTouch Pro, turn fan on. Check it for proper operation and airflow.
4. If a fault message appears, air switch may be defective or need to be adjusted.
 - a. With fan turned on, check PLC input light. It should be on.
 - b. If input light is NOT on, use a hex wrench to turn adjustment setscrew clockwise until input light turns on.
 - c. Once input light is on, turn fan off and observe PLC input light. It should turn off as fan slows down.
 - d. If light remains on after fan slows, turn adjustment setscrew counterclockwise slowly until input light turns off.
 - e. While watching PLC input, turn fan on and then off, ensuring input light is turning on and off with fan.
5. If fan is on and PLC input light is off for respective X05 circuit:
 - a. Ensure switch is wired to be normally open (NO): Wires attached to 1 (Common) & 2 (NO).
 - b. Ensure air line is not plugged, kinked or damaged. Repair or replace as needed.
 - c. Ensure that circuit 18 supplying power to switch has 24VDC.
 - d. If 24VDC is present on circuit 18, check for 24VDC on respective X05 circuit starting at switch and working to main power box. Look for location where 24VDC disappears. Repair as needed.
6. If fan is off and PLC light is on for respective X05 circuit, follow steps 5.a, 5.b, & 5.c, then check circuit for location where 24VDC first appears. Repair as needed.
7. If all connections are good, either air switch is defective and should be replaced, or PLC is malfunctioning.
8. Replace switch, making sure to mount it in same position as old switch. Switch MUST be mounted vertically. Attach wires and hose, then double-check all connections.
9. After replacing switch, follow previous instructions to check for fault message.
10. If 24VDC is found on PLC input terminal but input light is not on and fault message is still displayed after pressing RESET, PLC is malfunctioning.

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.



Image 5-19 – Locations on axial dryer of plenum temp sensor RTD, air switch hose, plenum over-temp switch & heater housing high-limit switch

Image 5-19 shows locations on axial-fan dryer of:

1. Plenum temp sensor RTD.
2. Air switch hose & plenum over-temp switch.
3. Heater housing high-limit switch.

NOTE: Appearances & locations may vary depending on date of manufacture.

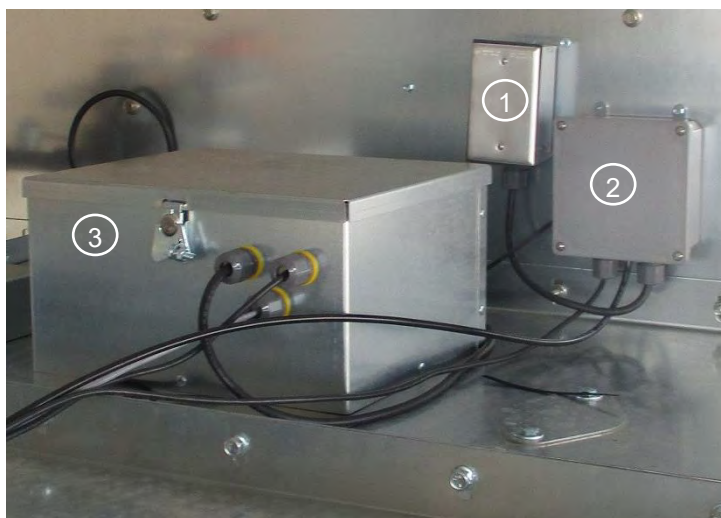


Image 5-20 – Locations on centrifugal dryer of plenum temp sensor RTD, air switch hose, plenum over-temp switch & heater housing high-limit switch

Image 5-20 shows locations on centrifugal-fan dryer of:

1. Plenum temp sensor RTD.
2. Air switch hose & plenum over-temp switch.
3. Heater housing high-limit switch.

NOTE: Appearances & locations may vary depending on date of manufacture.

Plenum Over-Temperature Switch



Image 5-21 – Plenum over-temp switch

Plenum over-temp switch capillary runs through plenum of dryer. Its purpose is to protect plenum from overheating. See previous page for location of switch. Follow instructions below if fault message appears.



Fault Condition

Plenum Over-Temp

- 6th switch uses circuit 604
- 5th switch uses circuit 504
- 4th switch uses circuit 404
- 3rd switch uses circuit 304
- 2nd switch uses circuit 204
- 1st switch (bottom) uses circuit 104

1. Check fan for obstruction and remove if found.
2. With dryer turned off, open door and inspect plenum for any problems.
3. After plenum has cooled down, press RESET on QuadraTouch Pro screen and fault should clear. **NOTE:** Switch will reset automatically when temperature drops to an acceptable level.
4. If fault has not cleared, remove cover from box containing plenum O/T switch and check for 24VDC on circuit 18.
5. If 24VDC is NOT detected, check connection with terminal 18 in main power box.
6. Check for 24VDC on other side of switch.
 - a. If O/T switch has cooled down and 24VDC is NOT found on respective X04 circuit, then switch is defective.
 - b. If 24VDC is found on respective X04 circuit, go to PLC and check input light. If input light is ON, press RESET on touch screen and fault should clear.
 - c. If input light is not on, take note of number of wire coming out of O/T switch. Go to power box and check for 24VDC on respective X04 circuit.
 - d. If 24VDC is NOT found on respective X04 circuit in power box, check wiring connections between switch box and power box.
 - e. If 24VDC is found on respective X04 circuit in power box, check for 24VDC on PLC input terminal.
 - f. If 24VDC is found on PLC terminal and input light is OFF and fault message is still displayed, PLC is malfunctioning.

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

Discharge Moisture Sensor



Image 5-22 – Discharge moisture sensor

Discharge moisture sensor is found under discharge chute or in static sample box at rear of dryer. It senses moisture and temperature of grain as it is discharged from dryer.



Fault Condition Moisture Sensor Not Found

Follow steps below if “Moisture Sensor Not Found” message appears.

1. In main power box, find cable used by moisture sensor. Wire colors are brown, blue, black and white.
2. Remove moisture sensor. Check for DC voltage between black and white wires. It should be between 8.7 and 9.0VDC. If voltage is out of range, sensor is out of calibration. Replace sensor or send to Sukup Manufacturing Co. for recalibration.
3. To check temperature monitoring function of sensor, measure between blue and white wires. Sensor output is 10mv/°F, so if ambient temperature is 70°F, output voltage will be .7VDC. If voltage is off by more than 20 degrees F, sensor is out of calibration. Replace sensor or send to Sukup Manufacturing Co. for recalibration.



Image 5-23 – Discharge moisture sensor location

If dryer has a static sample box at discharge (drag conveyor or retrofit) find discharge moisture as shown in Image 5-24.

NOTE: If dryer has optional incoming moisture sensor on wet bin and malfunction is suspected, remove sensor and remove its wires from nearby junction box. Check for DC voltage between black and white wires. It should be between 8.7 and 9.0VDC. If voltage is out of range, sensor is out of calibration. Replace sensor or send to Sukup Manufacturing Co. for recalibration.

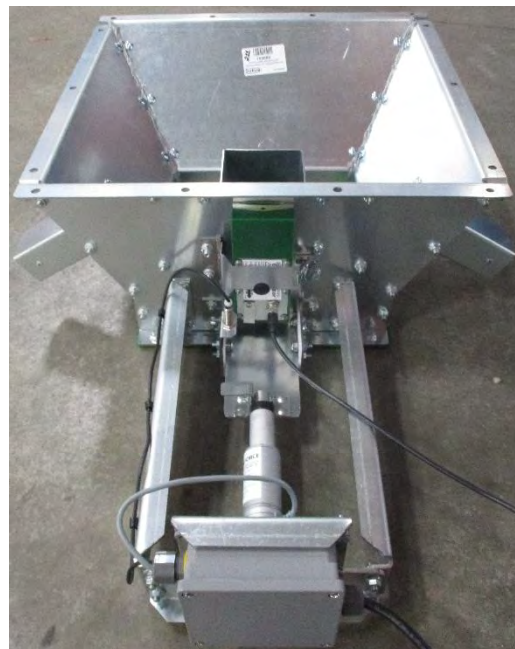


Image 5-24 – Discharge moisture sensor on static sample box (shown removed from drag conveyor)

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

Single-Point Grain Sensor RTD (Resistance Temperature Detector)



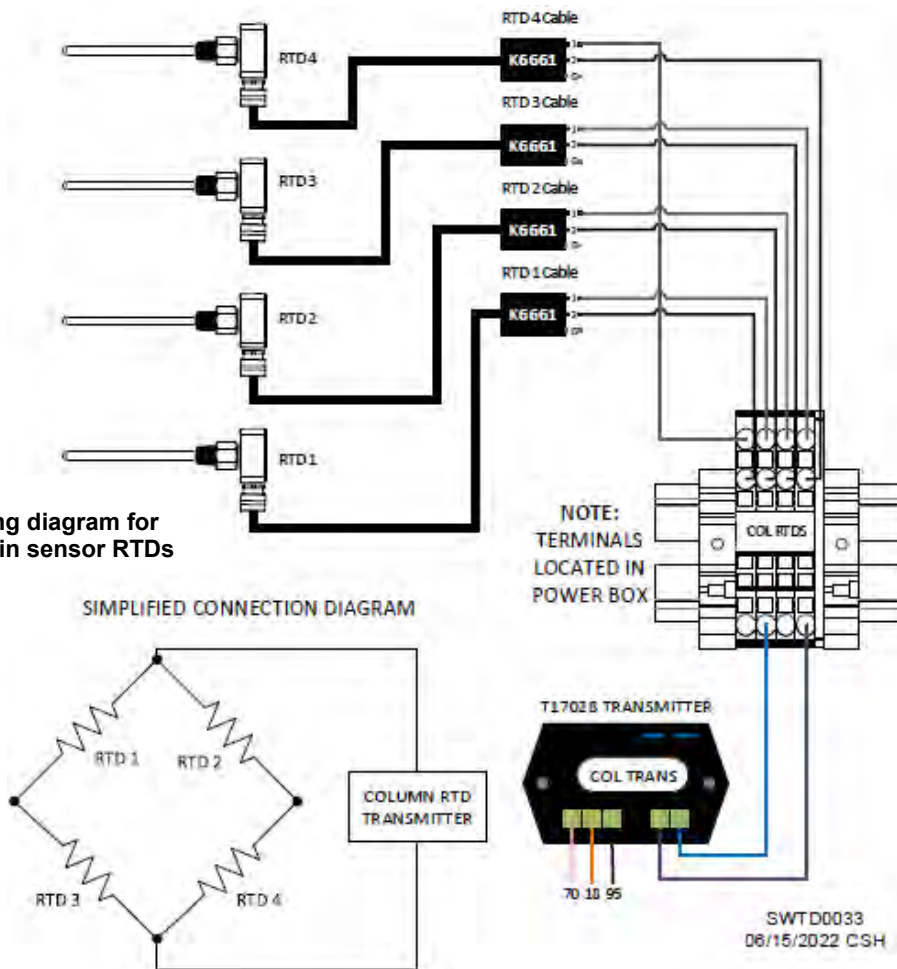
Image 5-25 – Single-point grain sensor RTD

Four single-point grain sensor RTDs (See Image 5-25) are used to monitor grain temperatures in columns of stacked dryer (optional on single-module). They are spread out equidistantly to provide average temperature readings to operating system, helping to improve dryer performance. Follow steps below if malfunction is suspected.

1. In main power box, disconnect RTDs in sequence from terminal block. See Fig. 5-1.
2. Test resistance of each RTD with an Ohm meter. Compare to applicable value in table on Page 18. If reading corresponds to applicable value, RTD is OK.
3. If an RTD is outside of range, it is likely defective and may need to be replaced. (One bad RTD in circuit will cause reading to be incorrect.)
4. If an RTD is suspected of being defective, remove cover from sensor and ensure wires are securely connected. Use Ohm meter to test resistance between leads. If connections are tight and resistance is out of range, replace sensor.

NOTE: If blue and purple transmitter wires are removed from terminal block, resistance can be checked across entire bridge at those points to see if it is within range. If it is, and transmitter is still out of range, transmitter may be faulty. Voltage between terminals 70 and 95 of transmitter should be between .75 and 4.5. If voltage on PLC doesn't match voltage found at transmitter, check all connections between PLC and transmitter terminals.

Fig. 5-1 – Wiring diagram for single-point grain sensor RTDs



QuadraTouch Pro Controller

If connection between QuadraTouch Pro panel and PLC is lost, Communication Error screen will appear.

Fixing a Communication Error

Make sure touch-screen and PLC are both on.

- On main power box, make sure E-Stop is pulled out and illuminated RED, and that System Control Switch points to QuadraTouch Pro. Make sure PLC lights are on.
- Check link lights on Ethernet ports of both QuadraTouch Pro console and PLC. To check on console, loosen thumb screws below touch-screen and lift screen. Ethernet cable should be plugged into the "X2 ETH" port.
- If link light on either the X2 ETH port or PLC is illuminated, Ethernet cable should be good.
- If one of the Ethernet couplers is bad, both link lights will be off.
- If link light is lit on one device (PLC or console) but not the other, use a cable known to be good and connect the device with no lit link light to a laptop computer. If no light illuminates, Ethernet port on checked device (PLC or console) is likely bad.

Checking Communications Settings on QuadraTouch Pro

- Ensure that Ethernet cable connecting dryer to QuadraTouch Pro console is plugged into port "X2 ETH" and that link lights on PLC and console are both on.
- If another cable is plugged into "X3 ETH," unplug it and reconnect after the communication error has been resolved.
- Go to Tools → Connectivity Tools Menu → Network Repair Utility → Start Network Repair. This will reset the touch-screen console's Ethernet ports to factory settings.
- After process is complete, press RESET to return to main page.

For more information, scan QR code below.



Device Troubleshooting

Plenum Temperature Sensor RTD and Transmitter

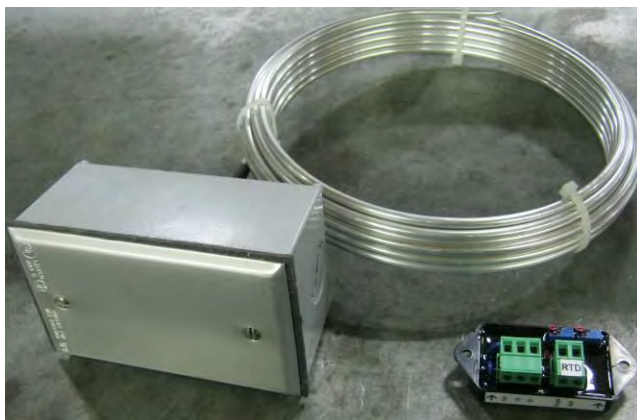


Image 5-26 – Plenum temperature sensor RTD and transmitter

Plenum temperature sensor consists of RTD (Resistance Temperature Detector) and transmitter. See Image 5-19 or 5-20 for location of RTD.

RTD measures average resistance over length of tube.

RTD is used with a transmitter that converts resistance into a 1 to 5 VDC signal. This voltage is then fed into PLC and displayed on QuadraTouch Pro screen.

If RTD is in question, a voltage and resistance comparison can be made to determine if unit is defective.

1. Begin by locating RTD transmitter. It is mounted in main power box. A white label should be attached to bottom of transmitter. Two small terminal blocks are located on transmitter. See Image 5-26.

IMPORTANT: Above two-pin terminal block are two small adjustment screws. NEVER adjust either of these screws. If moved, transmitter will not work correctly until a factory calibration is performed.

2. Remove two wires coming from RTD (blue and purple) and take a resistance reading between wires. Resistance of RTD is directly related to temperature of RTD. **NOTE:** This reading should be taken with dryer cooled down and at ambient temperature.
 - a. If reading shows infinite (open) resistance, RTD is defective.
 - b. Compare resistance reading to table on next page to determine if resistance is reasonable. If resistance compares to ambient temperature around dryer, and voltage on output wire is close to ambient temperature, then transmitter and RTD are functioning correctly.
3. On three-pin terminal block, check for 24VDC on terminals 18 and 95.
 - a. If 24VDC is not present, check for voltage in terminals where other ends of wires are plugged in.
 - b. If 24VDC is present at transmitter terminals 18 and 95, use terminals marked Pink and 95 to check output voltage. Voltage between 1.0VDC and 5.0VDC should be found.
 - i. If 24VDC is present on terminals 18 and 95 but voltage is not found between terminals marked Pink and 95, transmitter is defective.
 - ii. If voltage is detected, use table on next page to determine if resistance is close to temperature shown. If not, RTD sensor is defective and must be replaced.

TEMPERATURE (°F)	RESISTANCE (1,000 OHM) OF PLENUM RTD	RESISTANCE (100 OHM) OF SINGLE- POINT COLUMN RTD	VOLTAGE
10	952	95.2	1.16
15	963	96.3	1.24
20	974	97.4	1.32
25	984	98.4	1.40
30	995	99.5	1.48
35	1006	100.6	1.56
40	1017	101.7	1.64
45	1028	102.8	1.72
50	1039	103.9	1.80
55	1049	104.9	1.88
60	1060	106.0	1.96
65	1071	107.1	2.04
70	1082	108.2	2.12
75	1093	109.3	2.20
80	1103	110.3	2.28
85	1114	111.4	2.36
90	1125	112.5	2.44
95	1136	113.6	2.52
100	1146	114.6	2.60
105	1157	115.7	2.68
110	1168	116.8	2.76
115	1178	117.8	2.84
120	1189	118.9	2.92
125	1200	120.0	3.00
130	1211	121.1	3.08
135	1221	122.1	3.16
140	1232	123.2	3.24
145	1243	124.3	3.32
150	1253	125.3	3.40
155	1264	126.4	3.48
160	1275	127.5	3.56
165	1285	128.5	3.64
170	1296	129.6	3.72
175	1306	130.6	3.80
180	1317	131.7	3.88
185	1328	132.8	3.96
190	1338	133.8	4.04
195	1349	134.9	4.12
200	1359	135.9	4.20
205	1370	137.0	4.28
210	1380	138.0	4.36
215	1391	139.1	4.44
220	1402	140.2	4.52
225	1412	141.2	4.60
230	1422	142.2	4.68
235	1433	143.3	4.76
240	1443	144.3	4.84
245	1454	145.4	4.92
250	1464	146.4	5.00

Table 5-1

Heater Box

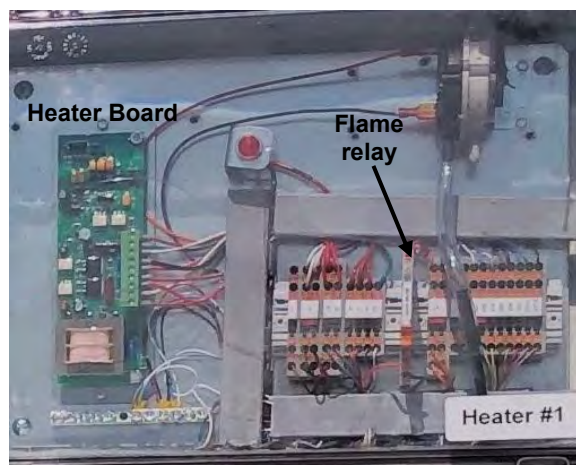


Image 5-27 – Static air pressure switch in heater box

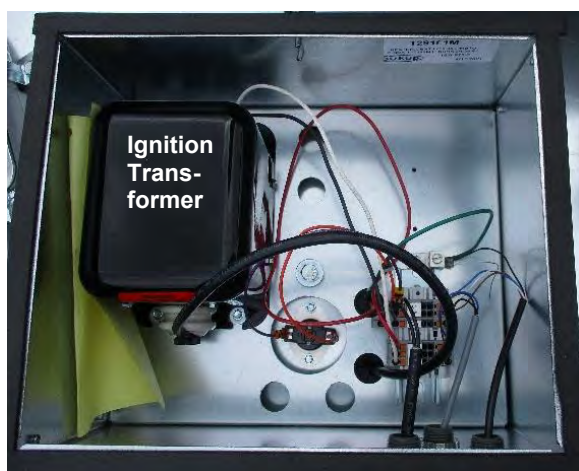


Image 5-28 – Ignition box

Heater Ignition Sequence

1. When heat is called for, 24VDC outputs on PLC are energized, sending a signal to relays:
 K4A – Heater 1 (lowest heater)
 K9A – Heater 2
 K12A – Heater 3
 K14A – Heater 4
 K16A – Heater 5
 K18A – Heater 6
2. Relay sends 120VAC to respective heater box and 24VDC to PLC indicating heat is on.
3. 120VAC goes through breaker CB9 for heater 1, CB10 for heater 2, CB11 for heater 3, CB12 for heater 4, CB13 for heater 5, and CB14 for heater 6. Then 120VAC is sent to each respective heater board, going through wire 112 for heater 1, wire 212 for heater 2, wire 312 for heater 3, wire 412 for heater 4, wire 512 for heater 5, and wire 612 for heater 6.
4. Once 120VAC is present at heater board, a 17-second purge begins. See Table 5-2.
5. After purge is complete, 120VAC is sent out on wire 10 to liquid solenoid valve, vapor solenoid valve and flame relay. Ignition transformer is also energized from wire 9 for 10 seconds, and red light in heater box is turned on. Gas flows through solenoid valves, butterfly valve, and into burner.
6. After ignition transformer has shut off, gas remains on for an extra 5 seconds. If a flame has not been detected by this time, heater board shuts gas off and goes into a lockout condition. Power must be cycled off and back on to re-try ignition sequence.

NOTE: During ignition attempt, and as long as flame is sensed, flame relay in heater box is energized, sending a 24VDC signal to PLC.

Flame relay input to PLC is wire 106 for heater 1, wire 206 for heater 2, wire 306 for heater 3, wire 406 for heater 4, wire 506 for heater 5, and 606 for heater 6.

NOTE: Depending on date of manufacture and dryer model, heater box may look different, but has same components and functionality.

NOTE: For more on signal routing, see M12 Cable Service Guide L1986.

Table 5-2 on next page shows timing sequence for standard Sukup circuit board J57193. Dryers used in Canada will have a different circuit board. See Table 5-3 on next page for timing of sequence using Fenwal board.

NOTE: Regardless of circuit board used, if flame is not detected during trial for ignition (spark), it will attempt ignition again starting with purge. Ignition will be attempted up to three times, after which board locks out.

[illegible]

Table 5-2 – Sukup standard circuit board timing sequence

Table 5-3 shows timing sequence for Fenwal circuit board.

Purge Time	16 Seconds																			
Spark													6 Seconds							
Gas Valves																	4 Seconds			
Trial for Ignition																	4 Seconds			
Seconds	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Table 5-3 – Fenwal circuit board timing sequence

Electronic Modulating Valve

Overview

A plenum RTD and transmitter are required. Transmitter generates a 1 to 5 VDC signal that is sent to PLC.

A Belimo actuator is connected to a butterfly valve that opens or closes to control temperature of plenum. Belimo actuator requires a 24VDC power source and accepts a 2VDC to 10VDC control signal. Signal comes from PLC or backup system (via EMOV board in main power box).

Troubleshooting modulating valve requires a familiarity with software being used to control the valve. See Image 5-29 and Steps 1-8 for setting mod valve position.

Setting EMOV

1. Press Settings → Fan/Heat Settings → EMOV Settings.
2. Write down values displayed for each valve.
3. Reset both numbers for each valve to 25% and select Done.
4. Press BACK or RESET to return to main screen.
5. Press Start → Dry Fire and select FAN and HEAT for each fan available.
6. Upon heater ignition, verify that each heater is operating at a pressure of 4 to 5 PSI. If pressure is less than 4 PSI, or exceeds 5 PSI, loosen nuts on U-bolt that connects actuator to butterfly valve shaft and rotate valve shaft until gas pressure reading is between 4 and 5 PSI.
7. When finished adjusting all valves, press Reset to turn off all fans and heaters and return to main screen.
8. Set EMOV Min and Max values back to settings written down in Step 2.

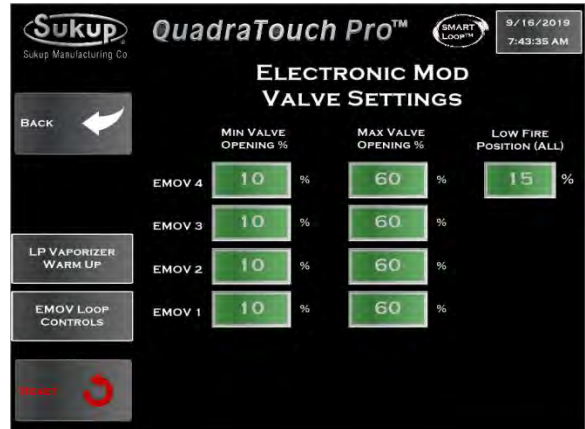


Image 5-29 – Setting EMOV Min & Max openings

Troubleshooting

The first step in troubleshooting an EMOV problem is to determine whether the problem is with just one heater or with all heaters.

If problem is with all heaters, check for 24VDC coming from power supply. This is the supply voltage to all Belimo actuators.

If 24VDC is present, check voltage on each actuator's signal wire. If actuator is not receiving a 2VDC to 10VDC reference signal, go to main power box.

1. Measure DC voltage on power box terminals, (between Ground & 95) and signal wire going to that actuator (161, 261, 361, 461, 561 or 661). Low-fire position of EMOV is factory defaulted at 4.0VDC. This opens valve 25%. Terminals 161, 261, etc., should all have 4.0VDC (if the low fire position is set to 25%) when burners are off. If so, PLC is operating correctly. Check connections between power box terminals and actuators. If there is 0VDC on terminals 161, 261, etc., there may be a problem with PLC or its yellow analog output card.
2. If burner fires and EMOV does not open, it's likely there is a problem with flame sense circuit on heater board. FLAME ON signal (106, 206, etc.) tells PLC to start controlling plenum temperature by adjusting EMOV. If this signal doesn't come back from heater box, valve will not operate.
3. If a reference voltage of 2VDC to 10VDC is present at valve, but valve did not open or close, reconfirm there is 24VDC to valve. If 24VDC is present, press black clutch-release button and check that valve shaft spins freely by hand. If it does not, butterfly valve is likely defective. If shaft does spin freely, actuator is probably defective. If U-bolt that connects actuator to butterfly valve shaft is loose, it needs to be tightened.



Automatic Grain Dryer

QuadraTouch Pro Dryer Control System

Appendices

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Appendix A

Specifications

<u>DATE</u>	<u>REVISION</u>	<u>PAGE</u>
08/22/2024 – Updated specifications tables		A-2 – A-7
	Removed outdated drying rate tables (See Operation section for link to new tables)	

Specifications

Specifications for axial and centrifugal dryers are provided in tables on this and following pages. Many factors, such as grain variety, maturity levels, grain cleanliness, weather conditions and operation/management, can affect the performance of your dryer and results may vary. This information is calculated and is not a guarantee of product specifications or performance. Based on these factors, Sukup specifications should only be used as estimates, and not as a warranty, express or implied, of how a particular Sukup unit will perform under your operating conditions. Because we are continually advancing Sukup products, changes may occur that may not be reflected in the specifications.

SINGLE AXIAL FAN/HEATER MODELS	Specifications	T8	T12	T16		T20	T24
	Total grain holding cap. (Approx.)	220 Bu.	330 Bu.	440 Bu.		550 Bu.	660 Bu.
	Grain column thickness & length	14" x 8'	14" x 12'	14" x 16'		14" x 20'	14" x 24'
	Grain column holding capacity	190 Bu.	285 Bu.	380 Bu.		475 Bu.	575 Bu.
	BTU/Hr. normal operating	up to 3 M	up to 5 M	up to 6 M		up to 10 M	up to 10 M
	Fan hp & dia.	15 hp, 28"	15 hp, 38"	15 hp, 44" 20 hp, 44"		30 hp, 44"	40 hp, 44"
	Load auger HP	3 hp	3 hp	3 hp		5 hp	7.5 hp
	Unload auger HP	3 hp	3 hp	3 hp		5 hp	5 hp
	Plenum	Single	Single	Single		Single	Single
	Transport height**	13'4"	13'4"	13'4"		13'4"	13'4"
	Installed height***	14'7"	14'7"	14'7"		14'7"	14'7"
	Installed length	17'	21'	25'		29'	33'
	Installed width	7'11"	7'11"	7'11"		7'11"	7'11"
	Weight w/wheels & wet holding bin	7000#	8200#	9700#		11,200#	12,300#
	Fuel Type	LP or NG	LP or NG	LP or NG		LP or NG	LP or NG
	230v, 1ph Min./Max. Amps*	122/250	122/250	122/250		195/400	260/600
	230v, 3ph Min./Max. Amps*	60/250	75/250		86/250	134/250	180/250
	460v, 3ph Min./Max. Amps*	30/100	37/100		43/100	68/100	90/250
	575v, 3ph Min./Max. Amps*	28/100	33/100		38/100	45/100	55/100
Est. Drying Capacities		Bushels/Hour*					
		T8	T12	T16		T20	T24
Full Heat - 20% - 15%		up to 340	up to 570	up to 650	up to 725	up to 925	up to 1050
Full Heat - 25% - 15%		up to 210	up to 350	up to 405	up to 450	up to 575	up to 660

*Bushels/Hour listed are wet bushels, No. 2 shelled yellow corn at listed moisture contents. Full-heat capacity estimates are for grain discharged hot at 17% moisture, resulting in about 15% moisture after steeping and cooling, and are estimates based on drying principles, field results and computer simulations.

**Transport height is with wet holding bin lowered on upper unit.

***Installed height is frame to fill hopper, less legs.

+Min. Amps = FLA of all motors. Max. Amps = main switch size. 208v, 3ph min. amp = 230v, 3ph min. amps x 1.15.

Single phase dryers with fans 20hp + use Sukup Single Phase to Three Phase Power Converter. Amps noted in italics.

See Appendix B for electrical requirements depending on fan, load and unload motor sizes.

DUAL AXIAL FAN/HEATER MODELS	Specifications	T202	T242	T163	T203	T243	T283
	Total grain holding cap. (Approx.)	550 Bu.	660 Bu.	440 Bu.	550 Bu.	660 Bu.	770 Bu.
	Grain column thickness & length	14" x 20'	14" x 24'	14" x 16'	14" x 20'	14" x 24'	14" x 28'
	Grain column holding capacity	475 Bu.	570 Bu.	380 Bu.	475 Bu.	570 Bu.	665 Bu.
	BTU/Hr. normal operating	up to 10 M	up to 10 M	up to 6 M	up to 10 M	up to 10 M	up to 11 M
	Fan hp & dia.						
	Top plenum	15 hp, 38"	20 hp, 38"	15 hp, 38"	15 hp, 44"	30 hp, 44"	30 hp, 44"
	Bottom plenum	15 hp, 38"	20 hp, 38"	15 hp, 28"	15 hp, 28"	15 hp, 28"	20 hp, 28"
	Load auger HP	5 hp	7.5 hp	3 hp	5 hp	7.5 hp	7.5 hp
	Unload auger HP	5 hp	5 hp	3 hp	5 hp	5 hp	7.5 hp
	Plenum	50/50 Split	50/50 Split	2/3-1/3 Split	2/3-1/3 Split	2/3-1/3 Split	2/3-1/3 Split
	Transport height**	13'4"	13'4"	13'4"	13'4"	13'4"	13'4"
	Installed height***	14'7"	14'7"	14'7"	14'7"	14'7"	14'7"
	Installed length	29'	33'	25'	29'	33'	37'3"
	Installed width	7'11"	7'11"	7'11"	7'11"	7'11"	7'11"
	Weight w/wheels & wet holding bin	11,200#	12,700#	9700#	11,200#	12,700#	14,200#
	Fuel Type	LP or NG	LP or NG	LP or NG	LP or NG	LP or NG	LP or NG
	230v, 1ph Min./Max. Amps†	200/400	242/600	170/400	190/400	245/600	275/600
	230v, 3ph Min./Max. Amps†	134/250	168/250	114/250	125/250	174/250	188/400
	460v, 3ph Min./Max. Amps†	63/100	78/250	57/100	63/100	87/250	94/250
	575v, 3ph Min./Max. Amps†	48/100	60/250	42/100	46/100	62/100	69/100
	Est. Drying Capacities	Bushels/Hour*					
		T202	T242	T163	T203	T243	T283
	Full Heat - 20% - 15%	up to 1000	up to 1180	up to 740	up to 970	up to 1025	up to 1200
	Full Heat - 25% - 15%	up to 620	up to 740	up to 450	up to 600	up to 710	up to 775
	Heat/Cool - 20% - 15%	up to 470	up to 570	up to 440	up to 580	up to 690	up to 775
	Heat/Cool - 25% - 15%	up to 300	up to 350	up to 280	up to 355	up to 435	up to 475

See Page A-2 for guide to table and footnotes.

See Appendix B for electrical requirements depending on fan, load and unload motor sizes.

TWO MODULE AXIAL FAN/HEATER MODELS	Specifications	T165	T165	T205	T206	T245	T246
	Total grain holding cap. (Approx.)	850 Bu.	850 Bu.	1050 Bu.	1050 Bu.	1250 Bu.	1250 Bu.
	Grain column thickness & length	14" x 16'	14" x 16'	14" x 20'	14" x 20'	14" x 24'	14" x 24'
	Grain column holding capacity	760 Bu.	760 Bu.	950 Bu.	950 Bu.	1140 Bu.	1140 Bu.
	BTU/Hr. normal operating	up to 13 M	up to 13 M	up to 16.5 M	up to 16.5 M	up to 20 M	up to 20 M
	Fan hp & diameter - top module	(1) 15hp, 44"	(1) 20hp, 44"	(1) 30hp, 44"	(2) 15hp, 38"	(1) 40hp, 44"	(2) 20hp, 38"
	- bottom module	(2) 10hp, 38"	(2) 10hp, 38"	(2) 15hp, 38"	(2) 15hp, 38"	(2) 20hp, 38"	(2) 20hp, 38"
	Load auger HP	3 hp	3 hp	5 hp	5 hp	7.5 hp	7.5 hp
	Unload auger HP	3 hp	3 hp	5 hp	5 hp	5 hp	5 hp
	Plenum - top module	Single	Single	Single	50/50	Single	50/50
	- bottom module	50/50	50/50	50/50	50/50	50/50	50/50
	Transport height**	13'4"	13'4"	13'4"	13'4"	13'4"	13'4"
	Installed height***	26'3"	26'3"	26'3"	26'3"	26'3"	26'3"
	Installed length	25'	25'	29'	29'	33'	33'
	Installed width (less catwalks)	8'6"	8'6"	8'6"	8'6"	8'6"	8'6"
	Weight w/wheels & wet holding bin	24,000#	24,000#	27,000#	27,000#	30,000#	30,000#
	Fuel type	LP or NG	LP or NG	LP or NG	LP or NG	LP or NG	LP or NG
	230v, 1ph Min./Max. Amps ⁺	238/400		293/600	436/600	317/600	436/600
	230v, 3ph Min./Max. Amps ⁺		173/250	222/400	268/400	246/400	268/400
	460v, 3ph Min./Max. Amps ⁺		87/250	112/250	134/250	123/250	134/250
	575v, 3ph Min./Max. Amps ⁺		48/100	82/250	89/250	98/250	109/250
	Est. Drying Capacities	Bushels/Hour*					
	Full Heat - 20% - 15%	up to 1440	up to 1600	up to 2020	up to 2020	up to 2450	up to 2450
	Full Heat - 25% - 15%	up to 900	up to 1000	up to 1250	up to 1250	up to 1525	up to 1525
	Heat/Cool - 20% - 15%	up to 970	up to 1080	up to 1380	up to 1380	up to 1670	up to 1670
	Heat/Cool - 25% - 15%	up to 610	up to 680	up to 860	up to 860	up to 1030	up to 1030

See Page A-2 for guide to table and footnotes.

See Appendix B for electrical requirements depending on fan, load and unload motor sizes.

THREE MODULE AXIAL FAN/HEATER MODELS	Specifications	T168	T208	T209	T248	T249
	Total grain holding cap. (Approx.)	1200 Bu.	1525 Bu.	1525 Bu.	1810 Bu.	1810 Bu.
	Grain column thickness & length	14" x 16'	14" x 20'	14" x 20'	14" x 24'	14" x 24'
	Grain column holding capacity	1140 Bu.	1450 Bu.	1450 Bu.	1720 Bu.	1720 Bu.
	BTU/Hr. normal operating	up to 20 M	up to 25 M	up to 25 M	up to 30 M	up to 30 M
	Fan hp & diameter - top module	(1) 20 hp, 44"	(1) 30 hp, 44"	(2) 15 hp, 38"	(1) 40 hp, 44"	(2) 20 hp, 38"
	- middle module	(1) 20 hp, 44"	(1) 30 hp, 44"	(2) 15 hp, 38"	(1) 40 hp, 44"	(2) 20 hp, 38"
	- bottom module	(2) 10hp, 38"	(2) 10 hp, 38"	(2) 15 hp, 38"	(2) 20 hp, 38"	(2) 20 hp, 38"
	Load auger HP	5 hp	7.5 hp	7.5 hp	7.5 hp	7.5 hp
	Unload auger HP	5 hp	7.5 hp	7.5 hp	7.5 hp	7.5 hp
	Plenum - top module	Single	Single	50/50	Single	50/50
	- middle module	Single	Single	50/50	Single	50/50
	- bottom module	50/50	50/50	50/50	50/50	50/50
	Transport height**	13'4"	13'4"	13'4"	13'4"	13'4"
	Installed height***	37'8"	37'8"	37'8"	37'8"	37'8"
	Installed length	25'	29'	29'	33'	33'
	Installed width (less catwalks)	8'6"	8'6"	8'6"	8'6"	8'6"
	Weight w/wheels & wet holding bin	33,000#	37,500#	37,500#	42,000#	42,000#
	Fuel type	LP or NG	LP or NG	LP or NG	LP or NG	LP or NG
	230v, 3ph Min./Max. Amps [†]	202/400	304/400	366/600	390/600	380/600
	460v, 3ph Min./Max. Amps [†]	101/250	152/250	183/250	195/250	190/250
	Est. Drying Capacities	Bushels/Hour*				
	Full Heat - 20% - 15%	up to 2380	up to 2950	up to 2950	up to 3600	up to 3600
	Full Heat - 25% - 15%	up to 1475	up to 1830	up to 1830	up to 2250	up to 2250
	Heat/Cool - 20% - 15%	up to 1460	up to 1810	up to 1810	up to 2225	up to 2225
	Heat/Cool - 25% - 15%	up to 915	up to 1125	up to 1125	up to 1380	up to 1380

See Page A-2 for guide to table and footnotes.

See Appendix B for electrical requirements depending on fan, load and unload motor sizes.

SINGLE CENTRIFUGAL FAN/HEATER MODELS	Specifications	TC16	TC20	TC24	TC163	TC203	TC243
	Total grain holding cap. (Approx.)	440 Bu.	550 Bu.	660 Bu.	440 Bu.	550 Bu.	660 Bu.
	Grain column thickness & length	14" x 16'	14" x 20'	14" x 24'	14" x 16'	14" x 20'	14" x 24'
	Grain column holding capacity	380 Bu.	475 Bu.	570 Bu.	380 Bu.	475 Bu.	570 Bu.
	BTU/Hr. normal operating	up to 6 M	up to 10 M	up to 10 M	up to 6 M	up to 10 M	up to 10 M
	Fan hp (dual inlet)	30 hp	40 hp	50 hp	30 hp	40 hp	50 hp
	Load auger HP	3 hp	5 hp	7.5 hp	3 hp	5 hp	7.5 hp
	Unload auger HP	3 hp	5 hp	5 hp	3 hp	5 hp	5 hp
	Plenum	Single	Single	Single	2/3 - 1/3	2/3 - 1/3	2/3 - 1/3
	Transport height**	13'4"	13'4"	13'4"	13'4"	13'4"	13'4"
	Installed height***	14'7"	14'7"	14'7"	14'7"	14'7"	14'7"
	Installed length	27'	31'	35'	27'	31'	35'
	Installed width	7'11"	7'11"	7'11"	7'11"	7'11"	7'11"
	Weight w/wheels & wet holding bin	9900#	11,500#	12,800#	10,000#	11,600#	12,900#
	Fuel type	LP or NG	LP or NG	LP or NG	LP or NG	LP or NG	LP or NG
	230v, 1ph Min./Max. Amps+	175/400	230/400	275/600	175/400	230/400	275/600
	230v, 3ph Min./Max. Amps+	100/250	140/250	160/250	100/250	140/250	160/400
	460v, 3ph Min./Max. Amps+	50/100	70/100	80/250	50/100	70/100	80/250
	575v, 3ph Min./Max. Amps+	40/100	56/100	65/100	43/100	56/100	65/100
	Est. Drying Capacities	Bushels/Hour*					
	Full Heat - 20% - 15%	up to 740	up to 970	up to 1025	up to 740	up to 970	up to 1025
	Full Heat - 25% - 15%	up to 450	up to 600	up to 710	up to 450	up to 600	up to 710
	Pressure Heat/Vacuum Cool - 20% - 15%				up to 395	up to 520	up to 620
	Pressure Heat/Vacuum Cool - 25% - 15%				up to 250	up to 320	up to 390

See Page A-2 for guide to table and footnotes.

See Appendix B for electrical requirements depending on fan, load and unload motor sizes.

TWO MODULE CENTRIFUGAL & HYBRID FAN/HEATER MODELS	Specifications	TC165	TC205	TC245	TH165	TH205	TH245
	Total grain holding cap. (Approx.)	850 Bu.	1050 Bu.	1250 Bu.	850 Bu.	1050 Bu.	1250 Bu.
	Grain column thickness & length	14" x 16'	14" x 20'	14" x 24'	14" x 16'	14" x 20'	14" x 24'
	Grain column holding capacity	760 Bu.	950 Bu.	1140 Bu.	760 Bu.	950 Bu.	1140 Bu.
	BTU/Hr. normal operating	up to 13 M	up to 16.5 M	up to 20 M	up to 13 M	up to 16.5 M	up to 20 M
	Fan hp and diameter - top module	30 hp	40 hp	50 hp	20 hp, 44" A	30 hp, 44" A	40 hp, 44" A
	- bottom module	30 hp	40 hp	50 hp	30 hp C	40 hp C	50 hp C
	Load auger HP	3 hp	5 hp	7.5 hp	3 hp	5 hp	7.5 hp
	Unload auger HP	3 hp	5 hp	5 hp	3 hp	5 hp	5 hp
	Plenum - top module	Single	Single	Single	Single	Single	Single
	- bottom module	50/50	50/50	50/50	50/50	50/50	50/50
	Transport height**	13'4"	13'4"	13'4"	13'4"	13'4"	13'4"
	Installed height***	26'3"	26'3"	26'3"	26'3"	26'3"	26'3"
	Installed length	27'	31'	35'	27'	31'	35'
	Installed width (less catwalks)	8'6"	8'6"	8'6"	8'6"	8'6"	8'6"
	Weight w/wheels & wet holding bin	24,000#	27,000#	30,000#	24,000#	27,000#	30,000#
	Fuel type	LP or NG	LP or NG	LP or NG	LP or NG	LP or NG	LP or NG
	230v, 1ph Min./Max. Amps+		390/600	470/800		280/600	340/600
	230v, 3ph Min./Max. Amps+	160/400	220/400	270/400	160/250	220/400	270/400
	460v, 3ph Min./Max. Amps+	80/250	114/250	133/250	80/250	110/250	135/250
	575v, 3ph Min./Max. Amps+	72/100	91/250	106/250	65/100	88/250	108/250
	Est. Drying Capacities	Bushels/Hour*					
	Full Heat - 20% - 15%	up to 1600	up to 2020	up to 2450	up to 1600	up to 2020	up to 2450
	Full Heat - 25% - 15%	up to 1000	up to 1250	up to 1525	up to 1000	up to 1250	up to 1525
	Press. Heat/Vac Cool - 20% - 15%	up to 970	up to 1240	up to 1500	up to 970	up to 1240	up to 1500
	Press. Heat/Vac Cool - 25% - 15%	up to 610	up to 775	up to 925	up to 610	up to 775	up to 925

See Page A-2 for guide to table and footnotes.

See Appendix B for electrical requirements depending on fan, load and unload motor sizes.

Appendix B

Electrical Requirements

Listed by Individual Control Panel
(Sticker Located on Inner Left Side of Power Box)
Motor Nameplate Information

Electrical Requirements

IMPORTANT: Grain Dryer power box contains a molded case disconnect switch for incoming power. **IT IS NOT A CIRCUIT BREAKER!** A service-rated, fused disconnect needs to be installed ahead of grain dryer power distribution box. This disconnect is not included with dryer and should be installed by a qualified electrician. **Grain dryer should be only device connected to this disconnect.**

Motor Rated Service Factor (SF) is included in all current specifications **for fan motors.** “Panel Amps” (A) shows total current required to **continuously** operate a dryer’s fan motor(s) load and unload motors and control circuitry.

Using Soft Starts: During fan startup, the Soft Start will limit fan motor(s) amp draw to 350% of nameplate full load amps (FLA). If this 350% inrush current cannot be provided by main transformer, motor may not get up to speed before a fault condition occurs, especially in cold weather. Changing Soft Start settings and timing may be required to start fan. Consult Sukup dealer before making any settings adjustments. If motors still will not start after adjustments, a larger transformer or a different starting method, variable frequency drive (VFD) may be needed.

Standard electrical safety practices and codes should be used. Refer to National Electrical Code (NEC) Handbook by National Fire Protection Association (NFPA).

All electrical work should be completed by a qualified electrician.

The following pages list each dryer’s control panel, containing motor information and overload (A) settings. Individual dryer panel number can be found on sticker located on inner left side of power box.

Pay close attention to listed “Panel Amps” and “Total Max Amps” values. Main disconnect switch wiring to power distribution block is sized to accommodate the “Total Max Amps” value.

IMPORTANT: Values in “Panel Amps” column do not include loads from auxiliary motors. Amps allotted for auxiliaries are listed in “4 Aux Amps” column.

NOTE: Auxiliary load and unload kits are available. See Appendix C for correct kit number.

If your panel number is not listed in following tables, contact Sukup Manufacturing Co.

Appendix B

Electrical Requirements

See following tables for electrical requirements based on electrical panel number. Panel number is found on white sticker inside of main power box.

NOTE: Panels list is updated often. Contact Sukup Manufacturing Co. for unlisted panel numbers.

230 Volt 1-Phase																				
Panel #	Start Method	Fan(s) HP	Fan Motor #1	Fan Motor #2	Fan Motor #3	Fan Motor #4	Load Motor #	Unload Motor #	Add'l Amps	Fan 1	Fan 2	Fan 3	Fan 4	Load Setting (A)	Unload Setting (A)	VFD Setting (A)	4 Aux Amps	Panel Amps	Main Switch Size (A)	Total Max Amps
T16680	LS	15	H5753	--	--	--	H2845	H2845	--	65.0	--	--	--	19.0	19.0	3.3	140	106	250	246
T16600X	LS	15	H5755	--	--	--	H2845	H2845	--	67.0	--	--	--	19.0	19.0	3.3	140	108	250	248
T40400	VFD	20, 20	H6800	H6800	--	--	H3675	H3675	89.6	55.2	55.2	--	--	20.5	20.5	3.3	140	244	400	384
T40602	LS	15, 15	H5753	H5755	--	--	H2845	H2845	--	65.0	67.0	--	--	19.0	19.0	3.3	140	173	400	313
T40618	LS	10, 10, 15	H5175	H5175	H5755	--	H2845	H2845	--	50.0	50.0	67.0	--	19.0	19.0	3.3	140	208	400	348
T40649	LS	15, 15 15, 15	H5755	H5755	H5755	H5755	H3675	H3675	--	67.0	67.0	67.0	67.0	20.5	20.5	3.3	140	260	400	400
T40650	LS	15, 15	H5755	H5755	--	--	H3675	H3675	--	67.0	67.0	--	--	20.5	20.5	3.3	140	178	400	318
T40680	VFD	20	H6800	--	--	--	H2845	H2845	44.8	55.2	--	--	--	19.0	19.0	3.3	140	141	400	281
T40686	VFD	50	H7205	--	--	--	H4900	H3675	132.0	138.0	--	--	--	33.6	20.5	3.3	140	260	400	400
T40687	VFD	30	H7125	--	--	--	H3675	H3675	57.2	82.8	--	--	--	20.5	20.5	3.3	140	184	400	324
T40689	VFD	40	H7175	--	--	--	H3675	H3675	100.0	120.0	--	--	--	20.5	20.5	3.3	140	260	400	400
T40695	VFD	15, 15, 30	H5755	H5755	H7125	--	H3675	H3675	57.2	67.0	67.0	82.8	--	20.5	20.5	3.3	140	260	400	400
T40698	VFD	15, 30	H5755	H7125	--	--	H3675	H3675	57.2	67.0	82.8	--	--	20.5	20.5	3.3	140	251	400	391
T41605	VFD	40, 30	H7175	H7125	--	--	H3675	H3675	100.0	120.0	82.8	--	--	20.5	20.5	3.3	140	260	400	400
T41606	VFD	50, 40	H7205	H7175	--	--	H4900	H3675	100.0	138.0	120.0	--	--	33.6	20.5	3.3	140	415	600	555
T41607	VFD	20, 30	H6758	H7125			H4900	H4900	100.0	55.0	82.8			33.6	33.6	3.3	140	308	600	448
T50689	VFD	40	H7175	--	--	--	H4900	H3675	100.0	120.0	--	--	--	33.6	20.5	3.3	140	260	400	400
T50698	VFD	40	H7175	--	--	--	H4900	H3675	100.0	120.0	--	--	--	33.6	20.5	3.3	140	260	400	400
T50699	VFD	20, 20	H6800	H6800	--	--	H4900	H3675	89.6	55.2	55.2	--	--	33.6	20.5	3.3	140	257	400	397
T50604	LS	15	H5755				H2845	H2845		67.0				19.0	19.0		140	105	250	245
T50606	VFD	30	H7125	--	--	--	H4900	H3675	57.2	82.8	--	--	--	33.6	20.5	3.3	140	197	400	337

Information is organized by panel number, which can be found on sticker on/in main power box.

NOTE: Fans on units with VFD use single-to-three-phase converter. All other motors on those units use single-phase.

Appendix B

230 Volt 3-Phase

Panel #	Start Method	Fan(s) HP	Fan Motor #1	Fan Motor #2	Fan Motor #3	Fan Motor #4	Load Motor #	Unload Motor #	Add'l Amps	Fan 1	Fan 2	Fan 3	Fan 4	Load Setting (A)	Unload Setting (A)	VFD Setting (A)	4 Aux Amps	Panel Amps	Main Switch Size (A)	Total Max Amps
T166011X	LS	20	H6800	--	--	--	H3345	H3345		56.0	--	--	--	8.2	8.2	3.3	120	76	250	196
T16677	LS	15	H5758	--	--	--	H3345	H3345		40.0	--	--	--	8.2	8.2	3.3	120	60	250	180
T20600X	LS	30	H7125	--	--	--	H4190	H4190		82.8	--	--	--	13.0	13.0	3.3	120	112	250	232
T24611X	LS	20, 30	H6758	H7125	--	--	H4910	H4910		56.0	82.8	--	--	19.2	19.2	3.3	120	181	400	301
T40600	LS	30	H7125	--	--	--	H3345	H3345		82.8	--	--	--	8.2	8.2	3.3	120	103	250	223
T40604	LS	15, 15	H5758	H6275	--	--	H3345	H3345		40.0	43.2	--	--	8.2	8.2	3.3	120	103	250	223
T40605	LS	15, 30	H5758	H7125	--	--	H4190	H4190		40.0	82.8	--	--	13.0	13.0	3.3	120	152	400	272
T40610	LS	20, 30	H6758	H7125	--	--	H4910	H4910		56.0	82.8	--	--	19.2	19.2	3.3	120	181	400	301
T40612	LS	50, 50	H7205	H7205	--	--	H4910	H4190		138.0	138.0	--	--	19.2	13.0	3.3	120	280	400	400
T40612X	LS	50, 50	H7205	H7205	--	--	H4910	H4190		138.0	138.0	--	--	19.2	13.0	3.3	120	280	400	400
T40613	LS	50	H7205	--	--	--	H4190	H4190		138.0	--	--	--	13.0	13.0	3.3	120	167	400	287
T40615	LS	40, 40	H7175	H7175	--	--	H4190	H4190		120.0	120.0	--	--	13.0	13.0	3.3	120	269	400	389
T40616	LS	20, 20	H6800	H6800	--	--	H4910	H4190		56.0	56.0	--	--	19.2	13.0	3.3	120	148	400	268
T40617	SS	50	H7205	--	--	--	H4190	H4190		138.0	--	--	--	13.0	13.0	3.3	120	167	400	287
T40620	LS	40	H7175	--	--	--	H4910	H4190		120.0	--	--	--	19.2	13.0	3.3	120	156	400	276
T40621	LS	30, 30	H7125	H7125	--	--	H3345	H3345		82.8	82.8	--	--	8.2	8.2	3.3	120	185	400	305
T40622	LS	20, 20, 40	H6800	H6800	H7175	--	H4910	H4190		56.0	56.0	120.0	--	19.2	13.0	3.3	120	268	400	388
T40627	LS	10, 10, 20	H5475	H5475	H6800	--	H3345	H3345		41.5	41.5	56.0	--	8.2	8.2	3.3	120	159	400	279
T40637	SS	50, 50	H7205	H7205	--	--	H4910	H4190		138.0	138.0	--	--	19.2	13.0	3.3	120	280	400	400
T40641	LS	15, 15, 30	H6275	H6275	H7125	--	H4190	H4190		43.2	43.2	82.8	--	13.0	13.0	3.3	120	199	400	319
T40642	LS	20, 20, 40, 40	H6800	H6800	H7175	H7175	H4910	H4910		56.0	56.0	120.0	120.0	19.2	19.2	3.3	120	280	400	400
T40645	SS	40	H7175	--	--	--	H4190	H4190		120.0	--	--	--	13.0	13.0	3.3	120	149	400	269
T40651	LS	15	H6275	--	--	--	H3345	H3345		43.2	--	--	--	8.2	8.2	3.3	120	63	250	183
T40654	LS	15, 15	H6275	H6275	--	--	H4190	H4190		43.2	43.2	--	--	13.0	13.0	3.3	120	116	250	236
T40655	LS	40	H7175	--	--	--	H4190	H4190		120.0	--	--	--	13.0	13.0	3.3	120	149	400	269
T40664	SS	40, 40	H7175	H7175	--	--	H4190	H4190		120.0	120.0	--	--	13.0	13.0	3.3	120	269	400	389
T40668	LS	30	H7125	--	--	--	H4190	H4190		82.8	--	--	--	13.0	13.0	3.3	120	112	250	232

Information is organized by panel number, which can be found on sticker on/in main power box.

Appendix B

230 Volt 3-Phase (continued)																				
Panel #	Start Method	Fan(s) HP	Fan Motor #1	Fan Motor #2	Fan Motor #3	Fan Motor #4	Load Motor #	Unload Motor #	Add'l Amps	Fan 1	Fan 2	Fan 3	Fan 4	Load Setting (A)	Unload Setting (A)	VFD Setting (A)	4 Aux Amps	Panel Amps	Main Switch Size (A)	Total Max Amps
T40675	SS	30, 30	H7125	H7125	--	--	H4190	H4190		82.8	82.8	--	--	13.0	13.0	3.3	120	195	400	315
T40681	SS	40, 30	H7175	H7125	--	--	H4190	H4190		120.0	82.8	--	--	13.0	13.0	3.3	120	232	400	352
T40683	LS	40, 40, 40	H7175	H7175	H7175	--	H4910	H4910		120.0	120.0	120.0	--	19.2	19.2	3.3	120	280	400	400
T40684	SS	30	H7125	--	--	--	H4910	H4910		82.8	--	--	--	19.2	19.2	3.3	120	125	250	245
T40697	SS	20, 30	H6800	H7125	--	--	H4910	H4910		55.2	82.8	--	--	19.2	19.2	3.3	120	180	400	300
T40697X	SS/LS	20, 30	H6800	H7125	--	--	H4910	H4910		55.2	82.8	--	--	19.2	19.2	3.3	120	180	400	300
T41600	SS	30, 20	H7125	H6800	--	--	H3345	H3345		82.8	55.2	--	--	8.2	8.2	3.3	120	158	400	278
T41601	LS	30, 20	H7125	H6800	--	--	H4190	H4190		82.8	56.0	--	--	13.0	13.0	3.3	120	168	400	288
T41602	SS	40, 30, 30	H7175	H7125	H7125	--	H4910	H4910		120.0	82.8	82.8	--	19.2	19.2	3.3	120	280	400	400
T41604	LS	50, 40	H7205	H7175	--	--	H4910	H4190		138.0	120.0	--	--	19.2	13.0	3.3	120	280	400	400
T41681	LS	40, 30	H7175	H7125	--	--	H4910	H4190		120.0	82.8	--	--	13.0	13.0	3.3	120	232	400	352
T50605	LS	30, 15	H7125	H6275	--	--	H4910	H4190		82.8	43.2	--	--	19.2	13.0	3.3	120	162	400	282
T50613	LS	50	H7205	--	--	--	H4910	H4190		138.0	--	--	--	19.2	13.0	3.3	120	174	400	294
T50617	SS	50	H7205	--	--	--	H4910	H4190		138.0	--	--	--	19.2	13.0	3.3	120	174	400	294
T50619	SS	50, 40, 40	H7205	H7175	H7175	--	H4910	H4190		138.0	120.0	120.0	--	19.2	13.0	3.3	120	280	400	400
T50620	LS	40, 30, 30	H7175	H7125	H7125	--	H4910	H4910		120.0	82.8	82.8	--	19.2	19.2	3.3	120	280	400	400
T50621	LS	20, 20, 20, 20	H6800	H6800	H6800	H6800	H4910	H4190		55.2	55.2	55.2	55.2	19.2	13.0	3.3	120	256	400	376
T50622	SS	20	H6800	--	--	--	H3345	H3345		55.2	--	--	--	8.2	8.2	3.3	120	75	250	195
T50623	SS	15, 15, 30	H6275	H6275	H7125	--	H4190	H4190		46.6	46.6	88.6	--	13.8	13.8	3.3	120	213	400	333
T50645	SS/LS	15, 15, 30	H6275	H6275	H7125	--	H4190	H4190		43.2	43.2	82.8	--	13.0	13.0	3.3	120	199	400	319
T50624	SS	50, 50	H7205	H7205	--	--	H4910	H4190		138	138	--	--	19.2	13.0	--	90	308	400	398
T44644	VFD	40	H7175	--	--	--	H4190	H4190		120	--	--	--	13.0	13.0	3.3	120	149	400	269
T44671	SS	50	H7205	--	--	--	H4910	H4910		149	--	--	--	20.4	20.4	3.3	120	193	400	313

Information is organized by panel number, which can be found on sticker on/in main power box.

Appendix B

380 Volt 3-Phase																				
Panel #	Start Method	Fan(s) HP	Fan Motor #1	Fan Motor #2	Fan Motor #3	Fan Motor #4	Load Motor #	Unload Motor #	Add'l Amps	Fan 1	Fan 2	Fan 3	Fan 4	Load Setting (A)	Unload Setting (A)	VFD Setting (A)	4 Aux Amps	Panel Amps	Main Switch Size (A)	Total Max Amps
T33601	SS	15, 15	L3003	L3003	--	--	L3036	L3036		19.0	19.0	--	--	6.5	6.5	3.3	80	54	250	134
T33601D	SS	15, 15	DanC15	DanC15	--	--	DanC3	DanC3		28.6	28.6	--	--	6.6	6.6	3.3	80	74	250	154
T33602D	SS	25, 30	DanC18.5	DanC30	--	--	DanC3	DanC3		34.1	55.1	--	--	6.6	6.6	3.3	80	106	250	186
T33603	SS	15	L3003	--	--	--	L3036	L3036		19.0	--	--	--	6.5	6.5	3.3	80	35	250	115
T33603D	SS	15	DanC15	--	--	--	L3036	L3036		28.6	--	--	--	6.5	6.5	3.3	80	45	250	125
T33604D	SS	25	DanC18.5	--	--	--	L3036	L3036		34.1	--	--	--	6.5	6.5	3.3	80	50	250	130
T33605	SS	20, 20	L3008	L3008	--	--	H4910	H4910		28.5	28.5	--	--	8.0	8.0	3.3	80	76	250	156
T33606	SS	30	L3022	--	--	--	H4910	H4910		52.5	--	--	--	8.0	8.0	3.3	80	72	250	152
T33609D	SS	30	DanC30	--	--	--	L3036	L3036		55.1	--	--	--	6.5	6.5	3.3	80	71	250	151
T33610	SS	40	L3078	--	--	--	H4910	H4910		61.0	--	--	--	8.0	8.0	3.3	80	80	250	160
T33611	SS	50	L3075	--	--	--	H4910	H4910		69.0	--	--	--	8.0	8.0	3.3	80	88	250	168
T33611D	SS	50	DanC60	--	--	--	H4910	H4910		80.0	--	--	--	8.0	8.0	3.3	80	99	250	179
T33612	SS	10, 10, 15, 15	L3005	L3005	L3003	L3003	H4910	H4910		15.0	15.0	19.0	19.0	8.0	8.0	3.3	80	87	250	167
T33614	SS	30	L3022	--	--	--	L3036	L3036		52.5	--	--	--	6.5	6.5	3.3	80	69	250	149
T33618	SS	25, 40	L3008	L3078	--	--	H4910	H4910		28.5	61.0	--	--	8.0	8.0	3.3	80	109	250	189
T33619	SS	25, 40	L3082	L3078	--	--	H5310	H5310		34.5	61.0	--	--	11.6	11.6	3.3	80	122	250	202
T33650	SS	30	L3022	--	--	--	H4910	H4910		52.5	--	--	--	8.0	8.0	3.3	80	72	250	152
T33680	SS	25, 25, 40	L3008	L3008	L3078		H4910	H4910		28.5	28.5	61.0		8.0	8.0	3.3	80	137	250	217
T40628	SS	10, 10, 15	L3005	L3005	L3008	--	L3036	L3036		15.0	15.0	28.5	--	6.5	6.5	3.3	80	75	250	155
T40629	SS	30, 30	L3022	L3022	--	--	L3036	L3036		52.5	52.5	--	--	6.5	6.5	3.3	80	121	250	201
T40630	SS	15, 15, 30	L3003	L3003	L3022	--	H4910	H4910		19.0	19.0	52.5	--	8.0	8.0	3.3	80	110	250	190
T40631	SS	20, 20, 50	L3072	L3072	L3075	--	H4910	H4910		35.6	35.6	69.0	--	8.0	8.0	3.3	80	160	250	240
T40631D	SS	25, 25, 50	DanC18.5	DanC18.5	DanC50	--	DanC3	DanC3		34.1	34.1	66.0	--	6.6	6.6	3.3	80	151	250	231
T40632D	SS	25, 25, 50, 50	DanC18.5	DanC18.5	DanC50	DanC50	DanC3	DanC3		34.1	34.1	66.0	66.0	6.6	6.6	3.3	80	217	400	297
T40632	SS	20, 20, 50, 50	L3072	L3072	L3075	L3075	L3007	L3007		35.6	35.6	69.0	69.0	11.6	11.6	3.3	80	236	400	316
T40633	SS	15, 15, 30, 30	L3003	L3003	L3022	L3022	L3007	L3007		19.0	19.0	52.5	52.5	11.6	11.6	3.3	80	170	250	250
T40634	SS	20, 20, 30	L3072	L3072	L3022	--	H4910	H4910		35.6	35.6	52.5	--	8.0	8.0	3.3	80	143	250	223
T40636D	SS	15, 15, 25	DanC15	DanC15	DanC18.5	--	DanC3	DanC3		28.6	28.6	34.1	--	6.6	6.6	3.3	80	108	250	188
T40671	SS	20, 20, 40, 40	L3072	L3072	L3078	L3078	L3007	L3007		35.6	35.6	61.0	61.0	11.6	11.6	3.3	80	220	400	300

Information is organized by panel number, which can be found on sticker on/in main power box.

Appendix B

380 Volt 3-Phase (continued)

Panel #	Start Method	Fan(s) HP	Fan Motor #1	Fan Motor #2	Fan Motor #3	Fan Motor #4	Load Motor #	Unload Motor #	Add'l Amps	Fan 1	Fan 2	Fan 3	Fan 4	Load Setting (A)	Unload Setting (A)	VFD Setting (A)	4 Aux Amps	Panel Amps	Main Switch Size (A)	Total Max Amps
T40682	SS	20, 20, 20, 20	L3072	L3072	L3072	L3072	H4910	H4910		35.6	35.6	35.6	35.6	8.0	8.0	3.3	81	162	250	243
T40688	SS	50, 50	L3075	L3075	--	--	DanC3	DanC3		69.0	69.0	--	--	6.6	6.6	3.3	81	155	250	236
T40688D	SS	50, 50	DanC60	DanC60	--	--	DanC3	DanC3		80.0	80.0	--	--	6.6	6.6	3.3	81	177	400	258
T40696	SS	50, 50, 50	L3075	L3075	L3075	--	L3007	L3007		69.0	69.0	69.0	--	11.6	11.6	3.3	80	234	400	314
T41688	SS	40, 40	L3078	L3078	--	--	H4910	H4910		61.0	61.0	--	--	8.0	8.0	--	81	138	250	219
T41689	SS	25, 25, 50	L3072	L3072	L3075	--	H4910	H4910		35.6	35.6	69.0	--	8.0	8.0	--	81	156	250	237
T41690	SS	20,20,40	L3008	L3008	L3078	--	H4910	H4910		28.5	28.5	61.0	--	8.0	8.0	--	81	134	250	215
T41691	SS	50, 50	H7207	H7207	--	--	H4910	H4910		77.1	77.1	--	--	8.0	8.0	3.3	81	173	400	254
T41692	SS	50, 50	H7207	H7207	--	--	H4910	H4910		77.1	77.1	--	--	8.0	8.0	--	81	170	400	251

Information is organized by panel number, which can be found on sticker on/in main power box.

Appendix B

460 Volt 3-Phase																				
Panel #	Start Method	Fan(s) HP	Fan Motor #1	Fan Motor #2	Fan Motor #3	Fan Motor #4	Load Motor #	Unload Motor #	Add'l Amps	Fan 1	Fan 2	Fan 3	Fan 4	Load Setting (A)	Unload Setting (A)	VFD Setting (A)	4 Aux Amps	Panel Amps	Main Switch Size (A)	Total Max Amps
T24609X	LS	15, 15	H6275	H6275	--	--	H3345	H3345		21.6	21.6	--	--	4.1	4.1	3.3	60	55	250	115
T33656	LS	40, 30	H7175	H7125	--	--	H4190	H4190		60.0	41.4	--	--	6.5	6.5	3.3	60	118	250	178
T33656X	SS	40, 30	H7175	H7125	--	--	H4190	H4190		60.0	41.4	--	--	6.5	6.5	3.3	60	118	250	178
T33657	LS	30, 20	H7125	H6758	--	--	H3345	H3345		41.4	27.5	--	--	4.1	4.1	3.3	60	80	250	140
T33658	SS	15, 15, 30	H6275	H6275	H7125	--	H4190	H4190		21.6	21.6	41.4	--	6.5	6.5	3.3	60	101	250	161
T33659	SS	50, 40	H7205	H7175	--	--	H4910	H4190		69.0	60.0	--	--	9.6	6.5	3.3	60	148	250	208
T33660	LS	50, 40	H7205	H7175	--	--	H4910	H4190		69.0	60.0	--	--	9.6	6.5	3.3	60	148	250	208
T33661	SS, LS	40, 30	H7175	H7125	--	--	H4190	H4190		60.0	41.4	--	--	6.5	6.5	3.3	60	118	250	178
T40601	LS	15, 30	H5758	H7125	--	--	H4190	H4190		20.0	41.4	--	--	6.5	6.5	3.3	60	78	250	138
T40603	LS	40	H7175	--	--	--	H4190	H4190		60.0	--	--	--	6.5	6.5	3.3	60	76	250	136
T40606	LS	30	H7125	--	--	--	H3345	H3345		41.4	--	--	--	4.1	4.1	3.3	60	53	250	113
T40607	LS	20, 30	H6758	H7125	--	--	H4910	H4910		27.5	41.4	--	--	9.6	9.6	3.3	60	91	250	151
T40609	SS	50, 50	H7205	H7205	--	--	H4910	H4190		69.0	69.0	--	--	9.6	6.5	3.3	60	157	250	217
T40623	LS	40, 40	H7175	H7175	--	--	H4190	H4190		60.0	60.0	--	--	6.5	6.5	3.3	60	136	250	196
T40625	LS	15, 15, 30	H6275	H6275	H7125	--	H4190	H4190		21.6	21.6	41.4	--	6.5	6.5	3.3	60	101	250	161
T40626	LS	20, 20, 40	H6800	H6800	H7175	--	H4910	H4190		27.6	27.6	60.0	--	9.6	6.5	3.3	60	135	250	195
T40635	LS	50	H7205	--	--	--	H4910	H4190		69.0	--	--	--	9.6	6.5	3.3	60	88	250	148
T40639	LS	20, 20	H6800	H6800	--	--	H4910	H4190		27.6	27.6	--	--	9.6	6.5	3.3	60	75	250	135
T40643	LS	10, 10, 20	H5475	H5475	H6800	--	H4190	H4190		20.8	20.8	27.6	--	6.5	6.5	3.3	60	85	250	145
T40646	LS	50, 50	H7205	H7205	--	--	H4910	H4190		69.0	69.0	--	--	9.6	6.5	3.3	60	157	250	217
T40648	LS	10, 10, 15	H5475	H5475	H6800	--	H4190	H4190		20.8	20.8	27.6	--	6.5	6.5	3.3	60	85	250	145
T40652	LS	15	H6275	--	--	--	H3345	H3345		21.6	--	--	--	4.1	4.1	3.3	60	33	250	93
T40653	LS	20	H6800	--	--	--	H3345	H3345		27.6	--	--	--	4.1	4.1	3.3	60	39	250	99
T40659	SS	40, 40	H7175	H7175	--	--	H4190	H4190		60.0	60.0	--	--	6.5	6.5	3.3	60	136	250	196
T40660	LS	30, 30	H7125	H7125	--	--	H3345	H3345		41.4	41.4	--	--	4.1	4.1	3.3	60	94	250	154
T40661	LS,LS,SS	20, 20, 40	H6800	H6800	H7175	--	H4910	H4190		27.6	27.6	60.0	--	9.6	6.5	3.3	60	135	250	195
T40662	LS	20, 20, 20, 20	H6800	H6800	H6800	H6800	H4910	H4190		27.6	27.6	27.6	27.6	9.6	6.5	3.3	60	130	250	190
T40665	LS	30	H7125	--	--	--	H4190	H4190		41.4	--	--	--	6.5	6.5	3.3	60	58	250	118
T40667	SS	50, 50, 50	H7205	H7205	H7205	--	H4910	H4910		69.0	69.0	69.0	--	9.6	9.6	3.3	60	230	400	290
T40670	LS	20, 20, 40, 40	H6800	H6800	H7175	H7175	H4910	H4910		27.6	27.6	60.0	60.0	9.6	9.6	3.3	60	198	400	258
T40673	SS	40	H7175	--	--	--	H4190	H4190		60.0	--	--	--	6.5	6.5	3.3	60	76	250	136

Information is organized by panel number, which can be found on sticker on/in main power box.

Appendix B

460 Volt 3-Phase (continued)																				
Panel #	Start Method	Fan(s) HP	Fan Motor #1	Fan Motor #2	Fan Motor #3	Fan Motor #4	Load Motor #	Unload Motor #	Add'l Amps	Fan 1	Fan 2	Fan 3	Fan 4	Load Setting (A)	Unload Setting (A)	VFD Setting (A)	4 Aux Amps	Panel Amps	Main Switch Size (A)	Total Max Amps
T40690	SS	50	H7205	--	--	--	H4910	H4190		69.0	--	--	--	9.6	6.5	3.3	60	88	250	148
T40690X	SS	50	H7205	--	--	--	H4910	H4190		69.0	--	--	--	9.6	6.5	3.3	60	88	250	148
T40699	SS	50, 40, 40	H7205	H7175	H7175	--	H4910	H4910		69.0	60.0	60.0	--	9.6	9.6	3.3	60	212	400	272
T50601	LS	30, 15	H7125	H6275	--	--	H4910	H4190		41.4	21.6	--	--	9.6	6.5	3.3	60	82	250	142
T50603	LS	40	H7175	--	--	--	H4910	H4190		60.0	--	--	--	9.6	6.5	3.3	60	79	250	139
T50639	LS	20, 20	H6800	H6800	--	--	H4910	H4190		27.6	27.6	--	--	9.6	6.5	3.3	60	75	250	135
T50640	LS	15, 20	H5758	H6275	--	--	H4190	H4190		20.0	21.6	--	--	6.5	6.5	3.3	60	58	250	118
T50641	SS	30, 20	H7125	H6800	--	--	H3345	H3345		41.4	27.6	--	--	4.1	4.1	3.3	60	81	250	141
T50641X	SS	30, 20	H7125	H6800	--	--	H4910	H4910		41.4	27.6	--	--	9.6	9.6	3.3	60	92	250	152
T50642	LS	20, 20	H6800	H6800	--	--	H4910	H4190		27.6	27.6	--	--	9.6	9.6	3.3	60	78	250	138
T50643	LS	20, 20, 40	H6800	H6800	H7175	--	H4190	H4190		27.6	27.6	60.0	--	9.6	9.6	3.3	60	138	250	198
T50644	LS	25	H7110	--	--	--	H4910	H4910		34.3	--	--	--	--	9.6	3.3	60	38	250	98
T50647	VFD	50	H7205	--	--	--	H4910	H4190		69.0	--	--	--	9.6	6.5	3.3	60	88	250	148
T44636	SS	30	H7125	--	--	--	H4190	H4190		41.4	--	--	--	6.5	6.5	3.3	60	58	250	118
T44669	SS/LS	30, 20	H7125	H6800	--	--	H4910	H4910		41.4	27.6	--	--	9.6	9.6	3.3	60	92	250	152
T44670	SS	20, 20, 40, 40	H6800	H6800	H7125	H7125	H4910	H4910		27.6	27.6	60.0	60.0	9.6	9.6	3.3	60	198	400	258

Information is organized by panel number, which can be found on sticker on/in main power box.

Appendix B

575 Volt 3-Phase																				
Panel #	Start Method	Fan(s) HP	Fan Motor #1	Fan Motor #2	Fan Motor #3	Fan Motor #4	Load Motor #	Unload Motor #	Add'l Amps	Fan 1	Fan 2	Fan 3	Fan 4	Load Setting (A)	Unload Setting (A)	VFD Setting (A)	4 Aux Amps	Panel Amps	Main Switch Size (A)	Total Max Amps
T33640	LS	40, 30	H7179	H7127	--	--	H4112	H4112		42.3	32.2	--	--	5.2	5.2	3.3	50	88	250	138
T40611	LS	30	H7127	--	--	--	H3352	H3352		32.2	--	--	--	3.0	3.0	3.3	50	42	250	92
T40614	LS	15	H5759	--	--	--	H3352	H3352		17.5	--	--	--	3.0	3.0	3.3	50	27	250	77
T40619	LS	15, 15	H5759	H5759	--	--	H4112	H4112		17.5	17.5	--	--	5.2	5.2	3.3	50	49	250	99
T40640	LS	15, 15	H5759	H5759	--	--	H4112	H4112		17.5	17.5	--	--	5.2	5.2	3.3	50	49	250	99
T40638	LS	20	H7050	--	--	--	H3352	H3352		22.1	--	--	--	3.0	3.0	3.3	50	31	250	81
T40672	LS	20, 20	H7050	H7050	--	--	H4952	H4112		22.1	22.1	--	--	8.5	5.2	3.3	50	61	250	111
T40679	LS	40	H7179	--	--	--	H4112	H4112		42.3	--	--	--	5.2	5.2	3.3	50	56	250	106
T40685	SS	40, 40	H7179	H7179	--	--	H4112	H4112		42.3	42.3	--	--	5.2	5.2	3.3	50	98	250	148
T40691	LS	50, 50	H7230	H7230	--	--	H4952	H4112		54.1	54.1	--	--	8.5	5.2	3.3	50	125	250	175
T40692	LS	50	H7230	--	--	--	H4952	H4112		54.1	--	--	--	8.5	5.2	3.3	50	71	250	121
T40693	LS	30, 30	H7127	H7127	--	--	H4112	H4112		32.2	32.2	--	--	5.2	5.2	3.3	50	78	250	128
T50679	LS	40	H7179	--	--	--	H4952	H4112		42.3	--	--	--	8.5	5.2	3.3	50	59	250	109
T41610	LS	30, 20	H7127	H7050	--	--	H3352	H3352		32.2	22.1	--	--	3.0	3.0	3.3	50	64	250	114
T41611	LS	15, 40	H5759	H7179	--	--	H4952	H4952		17.5	42.3	--	--	8.5	8.5	3.3	50	80	250	130
T41612	LS	30	H7127	--	--	--	H4112	H4112		32.2	--	--	--	5.2	5.2	3.3	50	46	250	96
T41613	LS	10, 10, 15	H5605	H5605	H5759	--	H3352	H3352		11.5	11.5	17.5	--	3.0	3.0	3.3	50	50	250	100
T44625	LS	50	H7230	--	--	--	H4952	H4112		54.1	--	--	--	8.5	5.2	3.3	50	71	250	121

Information is organized by panel number, which can be found on sticker on/in main power box.

Motor Nameplate Information

See tables below for motor nameplate information. **NOTE:** List is updated often. Contact Sukup Manufacturing Co. for unlisted motor numbers.

230V 1 PHASE MOTORS						
HP	Motor #	Service Factor (SF)	FLA	SFA	Enclosure	Frame
3	H2845	1.15	19	21.9	TEFC	184T
5	H3675	1.15	20.5	23.6	TEFC	184T
7.5	H4900	1.15	33.6	38.6	TEFC	215T
10	H5300	1.15	40	46	TEFC	215T
15	H6035	1	58	58	TEFC	256TZ
15	H5753	1	65	65	OPAO	215Z
17	H5755	1	62	62	OPAO	256TZ

208/230/460V 3 PHASE MOTORS										
HP	Motor #	Service Factor (SF)	208V FLA	208V SFA	230V FLA	230V SFA	460V FLA	460V SFA	Enclosure	Frame
3	H3345	1.15	8.6	9.9	7.8	9	3.9	4.5	TEFC	182T
5	H4190T	1.15	14.4	16.6	13	15	6.5	7.5	TEFC	184T
7.5	H4910T	1.15	21.7	24.9	19.6	22.5	9.8	11.3	TEFC	213T
10	H5475	1.25	28.8	36	26.8	33.5	13.4	16.8	ODP	215T
15	H5758	1	42.6	42.6	40	40	20	20	OPAO	215Z
15	H6275	1.15	40.5	46.6	37	42.6	18.5	21.3	ODP	254TZ
20	H6800	1.15	55	63.3	51	58.7	25.5	29.3	ODP	256TZ
30	H7125	1.15	78	89.7	71	81.7	35.5	40.8	ODP	286TZ
40	H7175	1.15	104	119.6	96	110.4	48	60	ODP	324T
50	H7205	1.15	129	148.4	118	135.7	59	67.9	ODP	326T

575V 3 PHASE MOTORS						
HP	Motor #	Service Factor (SF)	FLA	SFA	Enclosure	Frame
3	H3352	1.15	3.2	3.7	TEFC	182T
5	H4112	1.15	5	5.8	TEFC	184T
7.5	H4952	1.15	7.6	8.7	TEFC	213T
15	H5759	1	17.5	17.5	OPEN	215Z
15	H6100	1.15	14.5	16.7	TEFC	254T
20	H7050	1.15	19	21.9	TEFC	256T
30	H7127	1.15	28	32.2	TEFC	286T
40	H7179	1.15	36.8	42.3	TEFC	324T
50	H7230	1.15	46	52.9	TEFC	326T
60	H7262	1.15	55	63.3	TEFC	364T
75	H7503	1.15	68.7	79	TEFC	365T
100	H7509	1.15	89.6	103	TEFC	405T
3	H3352	1.15	3.2	3.7	TEFC	182T

06/28/2021 CSH

Appendix C

Optional Dryer Accessories

Auxiliary Motors
Creating MySukup.com Account
Personalized Sign

<u>DATE</u>	<u>REVISION</u>	<u>PAGE</u>
08/22/2024	Updated auxiliary motors installation instructions.....	C-2 – C-3
	Updated Step 1 for connecting dryer or site to new mySukup.com account.....	C-5
	Updated troubleshooting Step 1	C-7

Auxiliary Motors

Motors for auxiliary equipment used with Sukup grain dryers should be wired to controls in auxiliary power box on dryer. Box is located near main power box and is equipped with three circuits; two are for auxiliary load equipment, such as conveyor and elevator that feed wet grain into dryer, and one is for auxiliary unload equipment, such as a take-away conveyor.

When dryer's load system is turned on, there is a **factory-programmed delay of 5 seconds** between start of dryer's load motor and first upstream auxiliary device. After first auxiliary device has started, there is an **additional factory-programmed 5 second delay** before second auxiliary device is started. Delay settings can be adjusted using QuadraTouch Pro operating system. Circuit for auxiliary unload equipment is factory-programmed to start and stop device at **same time as unload system of dryer**.

Sukup grain dryers typically use paddle switches as grain level indicators. Paddle switch has two tilt switches in it. As paddle is raised by grain, the first (lower) tilt switch closes, indicating dryer is becoming full. When this happens, power for load auxiliary 2 turns off. When second (upper) tilt switch closes, dryer is completely full. Dryer then turns off power to its load system and load auxiliary 1 simultaneously. Dryer will not start load system again until both position switches are in their respective "off" positions.

IMPORTANT: Controls for auxiliary equipment should only be installed in auxiliary power box. **DO NOT** install them in main power box.

Instructions: Mount starter protector(s) to top DIN rail and contactor(s) directly below them. See Image 1. Starter protector and contractor at left are for auxiliary load device, while those at right are for auxiliary unload device. Terminals are factory-installed. Image 2 shows terminals wiring guide. See instructions below and diagram on Page C-4 to wire auxiliary controls.

NOTE: Starter protectors and contactors in auxiliary load and unload kits purchased from Sukup Manufacturing Co. will be factory-wired together.

IMPORTANT: Terminals 5 & 7, 8 & 9, and 14 & 15 are all dry contacts (i.e., there is no voltage present on them when dryer leaves factory). If auxiliary contactors use a 120VAC coil voltage, supply terminals 5 and 8 with 120VAC via a jumper wire from 1. Therefore, 7 and 9 will be coil voltages for Load Auxiliaries 1 and 2, respectively. The same goes for 14 (coil voltage) and 15 (unload contactor coil).

NOTE: If contactors were not purchased from Sukup Manufacturing Co. **AND** use a coil voltage other than 120VAC, **DO NOT** jumper 1 to 5, 8 or 14. Supply terminals 5, 8 or 14 with correct coil voltage.

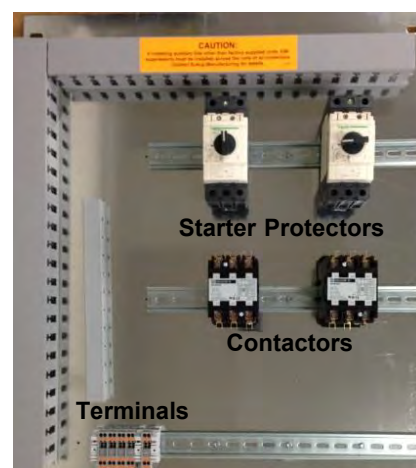


Image 1 – Auxiliary equipment power box (before wiring)

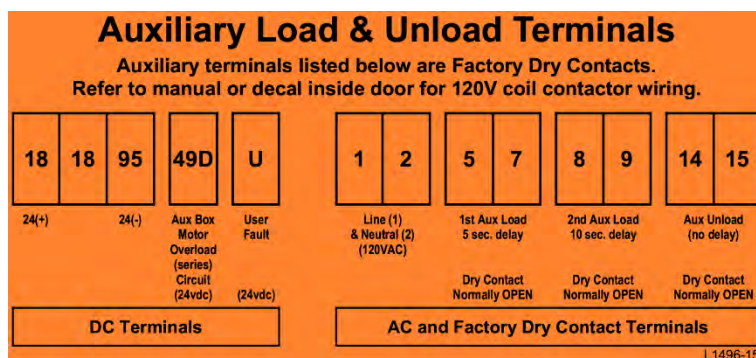


Image 2 – Wiring guide for auxiliary power box

Fault Protection Wiring

- Insert wire from terminal 18 into first motor overload contact (N/O - will be closed during normal operation)
- **All additional motor overload contacts are then wired in series.**
- Wire last motor overload contact to 49D. See wiring diagram on Page C-4 for reference.

Power Wiring

- Installed similar to those located in power box

IMPORTANT: If contactors are not purchased from Sukup Manufacturing, fault protection must be installed. Contact Sukup Manufacturing to purchase these components.

NOTE: On three-phase systems, wild leg should always be connected to center terminal of Main Disconnect Switch.

Auxiliary Load & Unload Kits

Use table below to confirm auxiliary controls kit based on motor horsepower, voltage and phase.

Auxiliary Load & Unload Kit Specifications

HP	Voltage	Phase	Nameplate FLA	Kit Part #	Starter Protector	Contactor	Wire Size	Minimum Amps	Maximum Amps
5	230	1	20.5	T4660	J5238 (17-23A)	J52462 (40A)	#10	17	23
7.5			33.6	T4662	J52423 (30-40A)	J52462 (40A)	#8	30	40
10			40.0	T4663	J52422 (37-50A)	J5247 (60A)	#6	37	50
15			58.0	T4664	J52421 (48-65A)	J5247 (60A)	#4	48	65
5	208/230	3	12.6	T4672	J5243 (13-18A)	J52302 (18A)	#10	13	18
7.5			18.6	T4673	J5238 (17-23A)	J52462 (40A)	#10	17	23
10			25.0	T4674	J52423 (24-32A)	J52462 (40A)	#8	24	32
15			37.0	T4676	J52422 (37-50A)	J5247 (60A)	#6	37	50
20			50.0	T4677	J52421 (48-65A)	J5247 (60A)	#4	48	65
5	460	3	6.3	T4670	J5236 (6-10A)	J52302 (18A)	#10	6	10
7.5			9.4	T4671	J5237 (9-14A)	J52302 (18A)	#10	9	14
10			12.5	T4672	J5243 (13-18A)	J52302 (18A)	#10	13	18
15			18.5	T4673	J5238 (17-23A)	J52462 (40A)	#10	17	23
20			25.0	T4674	J52423 (24-32A)	J52462 (40A)	#8	24	32
5	575	3	5.0	T4670	J5236 (6-10A)	J52302 (18A)	#10	6	10
7.5			7.6	T4670	J5236 (6-10A)	J52302 (18A)	#10	6	10
10			10.0	T4671	J5237 (9-14A)	J52302 (18A)	#10	9	14
15			14.5	T4672	J5243 (13-18A)	J52302 (18A)	#10	13	18
20			19.0	T4673	J5238 (17-23A)	J52462 (40A)	#10	17	23

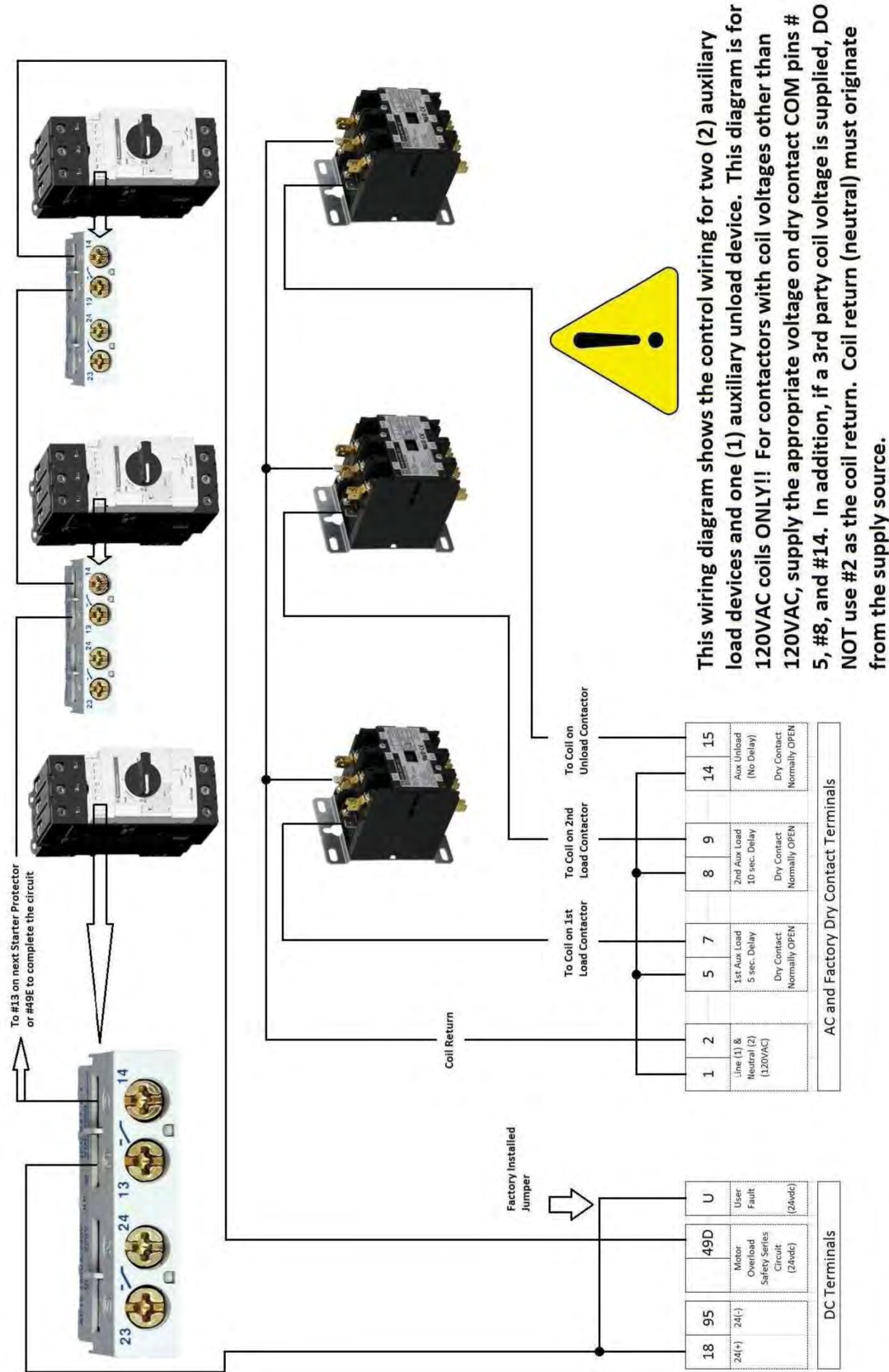
NOTICE: Most main switches and distribution blocks have been sized to handle up to four (4) 10 HP kits on dryer. See electrical load requirements for dryer to ensure that main switch and distribution block are sized adequately. If unsure, contact your dealer.

IMPORTANT: If additional auxiliaries are required, dealer is responsible for determining if dryer can handle additional load. If dryer is not able to handle extra load, auxiliary must have its own power source independent of dryer.

Temperature Compensated Overloads, 3-Phase Units

All Sukup dryers manufactured as three-phase units are equipped with temperature-compensated overloads. If auxiliary load and/or unload kits not purchased from Sukup Manufacturing Co., are to be installed, temperature-compensated units should be used.

Auxiliary Load and Unload Terminals



Creating/Managing MySukup.com Account & Connecting Devices

Follow instructions below to create and manage a MySukup.com account and connect devices to it. If you already have an account you can just log in to manage, even if you are the owner of another site. There is no reason to have two My Sukup accounts.

Internet Setup for QuadraTouch Pro Console or Master Site Controller:

1. Connect internet service to X3 Ethernet port on bottom of touch panel. See picture.

NOTE: Internet should not be hooked up to switch in main power box of dryer. If there is a cable running to switch in dryer power box and one to X3 port, it can cause issues with network repair utility.

2. If required, run Network Repair Utility and enable "Check for Internet" function. This fixes 99% of problems.
 - a. In rare instances, IT personnel may be needed to set up a custom configuration.



X3 Ethernet port (circled) in touch panel box

NOTE: Purchase and install Ethernet coupler, cap & housing (J8715) to ensure watertight connection of internet cable to touch panel box. Purchase 3' cable (J8717) to run from coupler to X3 port.

Connecting Dryer or Entire Site to New MySukup.com Account:

1. On the QuadraTouch Pro console (for Dryer-Only Site) or the Master Site Controller (if available):
 - a. Click Tools → Connectivity Tools → Remote Access Menu → Disabled to Enable Remote Access
 - b. Click "I Accept" to the GDPR Statement.
 - c. Share Device ID with your Sukup Dryer dealer, who will need it to order the service (found on Dealer Portal under Maintenance → Purchase Remote Web Access).

NOTES:

- If QuadraTouch Pro touchscreen console is connected to Internet, it may automatically download a Windows update and reboot, which will shut down the dryer. To prevent this, go to: Tools → Update Tools → Disable Windows Update.
- Imaging a touchscreen will re-enable Windows updates. To disable, unplug console from Internet. Perform imaging as described in Installation Instructions L1931. When imaging is complete, follow process above to disable updates. After disabling updates, reconnect Internet.
- Windows updates may be necessary to prevent problems such as computer viruses. If Windows updates are disabled during drying season, enable them and leave touchscreen on for a week prior to next drying season.

2. Open a web browser and go to <http://www.mysukup.com/>
 3. Click "Create an Account"
 - a. Read Terms and Conditions and check "I Accept".
 - b. After following directions to create an account, you will be sent a confirmation email.
 - c. Open email and click link provided.
 - d. Your account is now verified.
 4. Log in to your My Sukup account.
 5. On the right, click "Add New Site". It will ask for the Device ID and Device PIN (obtained in Step 1.c.)
 6. On the My Sukup website, enter Device ID and Device PIN in the fields provided.
 7. Confirm that you entered them correctly and accept the terms and conditions.
 8. Click "Finish".
 9. Congratulations! Your site is now connected to your My Sukup account.
- NOTE:** It might take up to two minutes to link the site with internet access.

Transferring Site to New Owner:

1. Open a web browser and go to <http://www.mysukup.com/>
 2. Log in as site owner.
 3. Find the site you wish to transfer.
 4. Next to site name there is a drop-down arrow. Click it and click on "Manage Users".
 5. Find the user you wish to make a site owner. If user is not listed, follow Add User instructions.
 6. Click "Edit Symbol" under Role. (Symbol is a pencil in a box.)
 7. Change Role to Site Owner.
 8. Click "Save Role".
 9. That user can then log in and remove you as the owner to complete the process.
- NOTE:** Sites can have more than one owner. They may have to logout/login to update permissions.

Adding User/Viewer to Your Site:

1. Open a web browser and go to <http://www.mysukup.com/>
 2. Log in as Site Owner.
 3. Find the site for which you wish to add a user.
 4. Next to site name there is a drop-down arrow. Click it and click on "Invite".
 5. Enter name and email address of the person you wish to add to the site.
- NOTE:** Person being added does not have to have a My Sukup account yet, but it is OK if he/she does.
6. Click "Send Invitation".
 7. The user will be added after the user creates an account (if needed) and logs in and clicks "I Accept" in their notifications.
- NOTE:** Invites will time out after 72 hours (three days).

Editing Permissions for a User:

1. Open a web browser and go to <http://www.mysukup.com/>
2. Log in as site owner.
3. Find the site for which you wish to edit a user permission.
4. Next to site name there is a drop-down arrow. Click it and click on "Manage Users".
5. Find the user whose role you wish to edit.
6. Click "Edit Symbol" under Role. (Symbol is a pencil in a box.)
7. Change permission.
8. Click "Save Role".
9. User permissions have been changed.

Removing a User from Site:

1. Open a web browser and go to <http://www.mysukup.com/>
2. Log in as site owner.
3. Find the site for which you wish to remove a user.
4. Next to site name there is a drop-down arrow. Click it and click on "Manage Users".
5. Find the user whose role you wish to edit.
6. Click "Remove Symbol" under Name. (Red box with person icon and an "x".)
7. Click "Yes, remove 'User Name'".
8. User has been removed from site.

Setting up Site Alerts:

1. Open a web browser and go to <http://www.mysukup.com/>
2. Log in.
3. In top right of the screen click person icon and click "Profile Settings".
4. Enter mobile phone number in field provided.
5. Select mobile carrier.
6. Enter your email address in Confirm Email field provided.
7. Click "Save."
8. Find site for which you wish to set up alerts.
9. Next to site name there is a drop-down arrow. Click it and click "Manage Site Alarm".
10. At top right, click on Site Alarm Settings.
11. Click "Set Site Alarm to Default".
12. Site alarms have been configured, you may customize as you see fit.

Troubleshooting

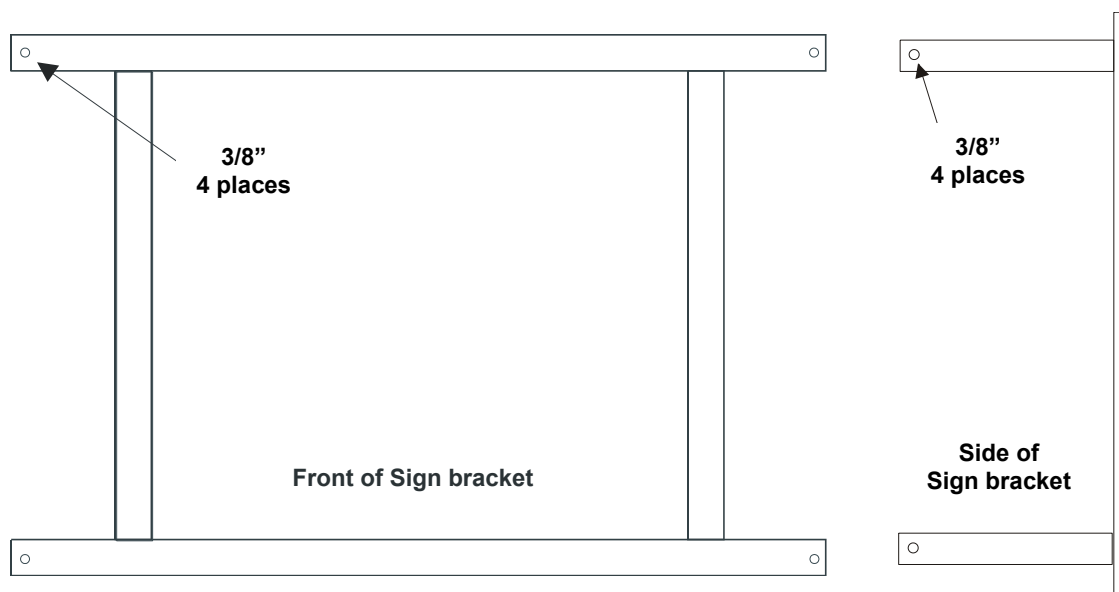
1. Make sure software is updated to latest version on both HMI and PLC. **Please don't call for help with mysukup.com before updating to latest version since update may solve problem.**
2. Go to Tools → Connectivity Tools → Get Public IP. If an IP address appears within 15 seconds and all lights below it are green, there is a good Internet connection to dryer. If no IP address appears, select Network Repair Utility under the Connectivity Tools menu and follow directions on screen. If you cannot get IP address and all lights below it are green, contact your IT professional.

3. On your mobile device, signed into your MySukup.com account, select Home button and refresh your Internet browser. You should see your Site Name. If it is in a green box, go to Step 4. If it is in a red box, perform Step 4 and then Step 5.
4. If your dryer site is shown in green on Home screen and was previously working but stopped, reboot router, wait 2 minutes and reboot touchscreen.
5. If dryer site is shown in red on Home screen, it is not linked to dryer.
 - a. On touchscreen, select Tools → Connectivity Tools Menu → Remote Access Menu. Make sure red box says Enabled, then click Setup MySukup Connection and see if it shows the Device ID or a Site ID. If Site ID, this means someone else has connected using the Device ID and blocked your access.
 - b. Click back and select Enable button to change it to Disable. Wait 10 seconds. This unlinks the dryer from the MySukup account. Then push Disable, change it back to Enable, click Setup MySukup Connection and wait 1 minute for it to connect.
 - c. If screen changes and shows a Site ID, then refresh browser on your device and see if site turns green on home screen. If not, repeat these steps until site on your device turns green, or until touchscreen stops showing a Site ID. Then do Repair/Replace on your site.

TROUBLESHOOTING NOTES:

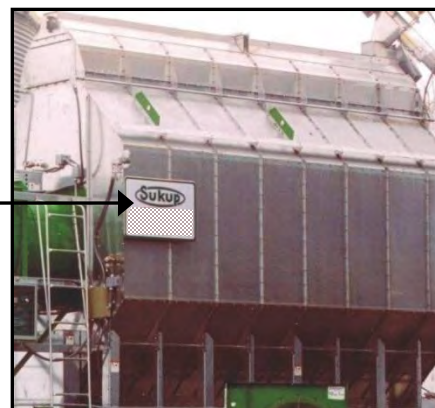
- When adding another person or account to a dryer, site owner must invite that person by going to HOME on MySukup, clicking on drop-down menu and selecting Invite. New user will get an email with a link to connect.
- If another user tried to add dryer to his or her MySukup account by clicking Add New Site and using the Device ID, it will disconnect the original site owner. In this case, original site owner must select Repair & Replace from drop-down menu on Home screen.

Personalized Sign



Sukup Manufacturing Co. provides a sign for portable dryers at no additional charge. Sign shows customer name or farm name and/or dealer name. Dealer will order sign if desired, furnishing appropriate information for printing.

Bracket shown above can be mounted to outside of dryer on any two-foot grain column section. Sign is then mounted to bracket. It can also be mounted under fan(s) on a sheet metal support.



Aspirator Assembly & Operation

See Assembly Instructions L0550 for installation and operation of aspirator.

Airlock Adapter Attachment

See Assembly Instructions L2074 for attachment of pneumatic system airlock using Kit N5570.

Appendix D

Soft Start, VFD & Power Converter Programming & Troubleshooting

**ATS22 Soft Start
Altivar 320 Variable Frequency Drive
Single- to Three-Phase VFD Power Converter**

<u>DATE</u>	<u>REVISION</u>	<u>PAGE</u>
08/22/2024	– Updated ATS22 soft start programming instructions & added factory reset instructions	D-2
	Updated Altivar 320 VFD programming instructions & added factory reset instructions	D-5
	Updated VFD power converter programming instructions	D-11 & D-12
	Added factory reset & troubleshooting instructions for Mitsubishi F800	D-16
	Added factory reset instructions for Altivar 630	D-17

Programming ATS22 Soft Start

See table to program ATS 22 Soft Start. See below for key to controls.

- Up/Down arrows – Use for navigation
- ENT – Press to enter setting
- ESC – Return to previous menu

MENU	MENU DESCRIPTION	SUB-MENU	SETTING
Conf	Configuration menu	Uln (Line voltage)	Motor voltage*
Conf	Configuration menu	In (Motor rated current)	FLA of motor
Conf	Configuration menu	LAC (Advanced mode)	on
Set	Settings menu	t90 (Initial voltage %)	50
Set	Settings menu	tLS (Max start time in sec)	50
Set	Settings menu	ACC (Acceleration time in sec)	15
Set	Settings menu	tHP (Motor thermal protection)	20
Adj**	Advanced adjustments	SSC (Start/Stop control)	off
IO**	Input-Output adjustments	r1	Tr Ip
IO**	Input-Output adjustments	r2	run
Pro**	Advanced protection	lth	Erun (only changed on Towers)

*If dryer voltage is 230V, set to 240. If 380V, set to 400. If 460V, set to 480. If 575V, set to 600.
Press ENT to set voltage.

**Menus only available after enabling Advanced Settings

Turn power off and then back on after programming.

Restoring Factory Defaults

Hold ESC and Up arrow at same time for 5 seconds. Display will show Util. Press ENT. Scroll to FCS. Press ENT. Display will show SurE. Press ENT again. Factory-default settings are now restored.

Troubleshooting ATS22 Soft Start

NOTE: The following pages are from Altistart 22 Soft Start User Manual, BBV51330, dated 09/2015. A complete copy can be found on Sukup website and at www.se.com

Diagnostics / Troubleshooting

Soft starter does not start, no trip code displayed

- No display:
 - check that the line supply is present on the control supply CL1/CL2,
 - check if a short circuit is not existing on the Modbus network cable (especially between RJ45 pin 7 and RJ45 pin3 or pin8. See pages [35](#) and [36](#)).
- Check that the code displayed does not correspond to the normal state of the soft starter (see page [46](#)).
- Check for the presence of the RUN/STOP commands (see page [37](#)).

Soft starter does not start, trip code displayed

- Trip code flashes on the display.
- Storing of the last 7 trips, visible with SoMove software workshop.
- The soft starter locks and the motor stop with to freewheel mode.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Read and understand the precautions in "Before you begin" chapter, before performing any procedure in this section.

Failure to follow these instructions will result in death or serious injury.

Trip code displayed	Name	Remedy
b P F	Bypass contactor detected fault	• Switch-off the soft starter and contact Schneider Electric services.
C F F	Invalid configuration on power-up	• Revert to the factory setting in the soft starter U L I L menu • Reconfigure the soft starter
E L F	External detected fault	• Clear the cause of the detected fault
G r d F	Ground leakage current detected fault	• Check the electrical insulation of the motor • Check the installation • Check the values of G r d d , G r d t parameters in P r D menu page 57
I n F	Internal detected fault	• Disconnect and reconnect the control supply. If the detected fault persists, contact Schneider Electric product support
O C F	Motor overcurrent	• Check the values of O I d and O I t parameters in P r D menu page 56
O H F	Over heat detected fault Low temperature detected fault	• Check the sizing of the soft starter in relation to the motor and the mechanical requirement • Check the operation of the fan (if the Altistart 22 used has one), ensuring that the air passage is not obstructed in any way and the heatsink is clean. Ensure that the mounting recommendations are observed • Wait for the Altistart 22 cooling before restarting, keeping the starter powered on
O L F	Overload motor	• Check the mechanism (wear, mechanical play, lubrication, blockages, etc.) • Check the sizing of the soft starter motor in relation to the mechanical requirement • Check the value of t H P parameter in S E t menu page 52 and I n parameter in c o n F menu page 50 • Wait for the motor to cool before restarting
O S F	Overvoltage	• Check U L n parameter in c o n F menu • Check the power supply circuit and voltage • Check O S d and O S t parameters in P r D menu
O t F	Motor Over Temperature • Motor thermal trip detected by the PTC probes	• Check the mechanism (wear, mechanical play, lubrication, blockages, etc.) • Check the sizing of the soft starter motor in relation to the mechanical requirement • Check the value of P t C setting in P r D menu page 59 • Wait for the motor to cool before restarting

Diagnostics / Troubleshooting

Trip code displayed	Name	Remedy
<i>PHbd</i>	Phase unbalance	- Check the line voltage. - Check the values of <i>Ubd</i>, <i>Ubt</i> parameters in <i>PrD</i> menu page 57.
<i>PHF</i>	Loss of a line phase	- Check the line voltage, the connection to the soft starter and any isolating devices located between the line and the soft starter (contactors, fuses, circuit breakers, etc.). - Check the motor connection and any isolating devices located between the soft starter and the motor (contactors, circuit breakers, etc.). - Check the motor state.
	Line frequency, out of tolerance This detected fault can be configured in <i>PrD</i> menu	- Check the line frequency. - Check the configuration of <i>PHL</i>.
<i>PIF</i>	Phase inversion Line phase inversion does not conform to the selection made by <i>PHr</i> in <i>PrD</i> menu	Invert two lines phases or set <i>PHr</i> = <i>OFF</i>.
<i>ErAP</i>	Trap code	Disconnect and reconnect the control supply. If the detected fault persists, contact Schneider Electric support.
<i>SCF</i>	Short circuit: short-circuit on soft starter output	- Switch-off the soft starter. - Check the motor connections and the motor insulation. - If connections and insulation are OK, contact Schneider Electric services.
<i>SLF</i>	Modbus Time Out	Serial link detected fault. Check the RS485 connection.
<i>SnbF</i>	Too many starts	The number of soft starts has exceeded the maximum allowed by <i>Snb</i> in <i>SLG</i> period. See <i>Snb</i> page 53.
<i>SSCr</i>	Shorted thyristor or wrong connection	- Switch-off the soft starter. - Check the motor connections and the motor insulation. - If connections and insulation are OK, contact Schneider Electric services.
<i>SEF</i>	Starting time detected fault Too long start time	- Check the mechanism (wear, mechanical play, lubrication, blockages, etc.) - Check that <i>ELs</i> (Max start time) is bigger than <i>ACC</i> (Acceleration time). See <i>SEs</i> menu page 51. - Check the sizing of the soft starter motor in relation to the mechanical requirement - Check ILt value : if the value is too low, the motor may not reach acceleration and full speed.
<i>tbS</i>	Too many starts	- Wait 5 minutes for frame size A. - Wait 15 minutes for frame sizes B, C, D and E. <i>tbS</i> appears after <i>SnbF</i> trip message, when trying to reset the soft starter before end of the timer.
<i>UCF</i>	Motor underload (undercurrent)	Check the values of <i>Uld</i> and <i>Ule</i> parameters in <i>PrD</i> menu page 57.
<i>USF</i>	Under voltage or no voltage	- Check <i>Uln</i>, <i>USD</i> and <i>USE</i> parameters in <i>PrD</i> menu - Check line voltage.

Remote keypad messages

Display	Message	Description
<i>InIt</i>		On initializing itself Microcontroller initializing. Communication configuration searching.
<i>CONE</i>	flashing	Communication interruption It has 50 ms time out. This message is shown after 20 times retrying.
<i>A - 17</i>	flashing	Key alarm - Key has been held consecutively more than 10 seconds. - Membrane switch disconnected. - Keypad waked up while a key is holding.
<i>CLr</i>	flashing	Confirm trip reset This is shown when : First time STOP key has been pressed while the soft starter has tripped in detected fault.
<i>dEUE</i>	flashing	Soft starter mismatch Soft starter type (brand) did not match with keypad type (brand).
<i>rONE</i>	flashing	ROM trip Keypad ROM detected fault.
<i>rANE</i>	flashing	RAM trip Keypad RAM detected fault.
<i>CPUE</i>	flashing	CPU trip Keypad CPU detected fault.

Programming Altivar 320 Variable Frequency Drive

See table below to program ATV 320 Variable Frequency Drive.

See below for key to controls.

- Green jog dial – Use for navigation by turning clockwise or counterclockwise. Press dial to make a selection or confirm information.
- ESC – Press to quit a menu or parameter or to clear value displayed in order to revert to value in memory.

MENU	SECONDARY MENU	SUB-MENU	SETTINGS MENU	SETTING
Conf	Full	Sin	unS (motor voltage)	230, 380, 460, 575
Conf	Full	drC	bFr (motor frequency)	50hz, 60hz
Settings below only for dryer with drag conveyor unload				
Conf	Full	i_o	r1→r1*	FLt
Conf	Full	i_o	r2→r2*	run

*r1 & r2 must each be selected twice

NOTE: On 460V dryer, if Altivar 320 is being installed for first time, meter roll motor must be rewired from 230V to 460V.

Restoring Factory Defaults

Navigate to Conf menu, FCS secondary menu, then Fry sub-menu. Select ALL so that hash marks to right of ALL move from Unit to Value. See images below. Press ESC once and then scroll to GFS. Select yes. Press/hold dial until LEDs stop flashing.



Troubleshooting Altivar 320 Variable Frequency Drive

NOTE: The following pages are from Altivar Machine ATV320 Variable Speed Drives Programming Manual, NVE41295, dated 09/2021. A complete copy can be found on Sukup website and at www.se.com

Error code

- If the display does not light up, check the power supply to the drive.
- The assignment of the Fast stop or Freewheel functions will help to prevent the drive starting if the corresponding logic inputs are not powered up. The ATV320 then displays **[Freewheel]** (r 5 t) in freewheel stop and **[Fast stop]** (F 5 t) in fast stop. This is normal since these functions are active at zero so that the drive will be stopped if there is a wire break.
- Check that the run command input is activated in accordance with the selected control mode ([2/3 wire control] (t t t) and [2 wire type] (t t t) parameters, page 93).
- If an input is assigned to the limit switch function and this input is at zero, the drive can only be started up by sending a command for the opposite direction (see page 236).
- If the reference channel or command channel is assigned to a communication bus, when the power supply is connected, the drive will display **[Freewheel]** (r 5 t) and remain in stop mode until the communication bus sends a command.

Code	Name / Description
d G t -	[DIAGNOSTICS] This menu can only be accessed with the graphic display terminal. It displays detected faults and their cause in plain text and can be used to carry out tests, see page 72.

Clearing the detected fault

In the event of a non resettable detected fault:

- Disconnect all power, including external control power that may be present.
- Lock all power disconnects in the open position.
- Wait 15 minutes to allow the DC bus capacitors to discharge (the drive LEDs are not indicators of the absence of DC bus voltage).
- Measure the voltage of the DC bus between the PA/+ and PC/- terminals to ensure that the voltage is less than 42 Vdc.
- If the DC bus capacitors do not discharge completely, contact your local Schneider Electric representative. Do not repair or operate the drive.
- Find and correct the detected fault.
- Restore power to the drive to confirm the detected fault has been rectified.

In the event of a resettable detected fault, the drive can be reset after the cause is cleared:

- By switching off the drive until the display disappears completely, then switching on again.
- Automatically in the scenarios described for the **[AUTOMATIC RESTART]** (R t r -) function, page 266.
- By means of a logic input or control bit assigned to the **[FAULT RESET]** (r 5 t -) function, page 265.
- By pressing the STOP/RESET key on the graphic display keypad if the active channel command is the HMI (see **[Cmd channel 1]** (t d l) page 164).

Fault detection codes which require a power reset after the detected fault is cleared

The cause of the detected fault must be removed before resetting by turning off and then back on.

R5F, *brF*, *Sof*, *SPF* and *LnF* detected faults can also be cleared remotely by means of a logic input or control bit ([**Fault reset**] (*r5F*) parameter, page 265).

Detected Fault	Name	Probable cause	Remedy
<i>RnF</i>	[Load slipping]	The difference between the output frequency and the speed feedback is not correct.	- Check the motor, gain and stability parameters. - Add a braking resistor. - Check the size of the motor/drive/load. - Check the encoder's mechanical coupling and its wiring. - Check the setting of parameters
<i>R5F</i>	[Angle Error]	This occurs during the phase-shift angle measurement, if the motor phase is disconnected or if the motor inductance is too high.	Check the motor phases and the maximum current allowed by the drive.
<i>brF</i>	[Brake control]	- Brake release current not reached. - Brake engage frequency threshold [Brake engage freq] (<i>bEn</i>) only regulated when brake logic control is assigned.	- Check the drive/motor connection. - Check the motor windings. - Check the [Brake release I FW] (<i>ibr</i>) and [Brake release I Rev] (<i>ird</i>) settings page 206. - Apply the recommended settings for [Brake engage freq] (<i>bEn</i>).
<i>brF</i>	[Brake feedback]	- The brake feedback contact does not match the brake logic control. - The brake does not stop the motor quickly enough (detected by measuring the speed on the "Pulse input" input).	- Check the feedback circuit and the brake logic control circuit. - Check the mechanical state of the brake. - Check the brake linings.
<i>CrFI</i>	[Precharge]	Charging relay control detected fault or charging resistor damaged.	- Turn the drive off and then turn on again. - Check the internal connections. - Contact Schneider Electric Product Support.
<i>EEFI</i>	[Control Eeprom]	Internal memory detected fault, control block.	- Check the environment (electromagnetic compatibility). - Turn off, reset, return to factory settings. - Contact Schneider Electric Product Support.
<i>EEF2</i>	[Power Eeprom]	Internal memory detected fault, power card.	
<i>CCFI</i>	[Out. contact. stuck]	The output contactor remains closed although the opening conditions have been met.	- Check the contactor and its wiring. - Check the feedback circuit.
<i>HdF</i>	[IGBT desaturation]	Short-circuit or grounding at the drive output.	Check the cables connecting the drive to the motor, and the motor insulation.
<i>ILF</i>	[Internal com. link]	Communication interruption between option card and drive.	- Check the environment (electromagnetic compatibility). - Check the connections. - Replace the option card. - Contact Schneider Electric Product Support.
<i>INF1</i>	[Rating error]	The power card is different from the card stored.	Check the reference of the power card.
<i>INF2</i>	[Incompatible PB]	The power card is incompatible with the control block.	Check the reference of the power card and its compatibility.
<i>INF3</i>	[Internal serial link]	Communication interruption between the internal cards.	- Check the internal connections. - Contact Schneider Electric Product Support.
<i>INF4</i>	[Internal-mftg zone]	Internal data inconsistent.	Recalibrate the drive (performed by Schneider Electric Product Support).
<i>INF5</i>	[Internal - fault option]	The option installed in the drive is not recognized.	- Check the reference and compatibility of the option. - Check that the option is well inserted into the ATV320.
<i>INF9</i>	[Internal- I measure]	The current measurements are incorrect.	- Replace the current sensors or the power card. - Contact Schneider Electric Product Support.
<i>INF8</i>	[Internal-mains circuit]	The input stage is not operating correctly.	Contact Schneider Electric Product Support.
<i>INFb</i>	[Internal- th. sensor]	The drive temperature sensor is not operating correctly.	- Replace the drive temperature sensor. - Contact Schneider Electric Product Support.

Detected Fault	Name	Probable cause	Remedy
INF	[Internal- CPU]	• Internal microprocessor detected fault.	• Turn off and reset. • Contact Schneider Electric Product Support.
SFFF	[Safety fault]	• Debounce time exceeded. • SS1 threshold exceeded. • Wrong configuration. • SLS type overspeed detected.	• Check the safety functions configuration. • Check the ATV320 Integrated safety Functions manual • Contact Schneider Electric Product Support.
SOF	[Overspeed]	• Instability or driving load too high. • If a downstream contactor is used, the contacts between the motor and the drive have not been closed before applying a Run command. • The overspeed threshold (corresponding to 110 % of [Max frequency] (LFr)) has been reached.	• Check the motor, gain and stability parameters. • Add a braking resistor. • Check the size of the motor/drive/load. • Check the parameters settings for the [FREQUENCY METER] (FqF-) function page 280, if it is configured. • Verify and close the contacts between the motor and the drive before applying a Run command. • Verify the consistency between [Max frequency] (LFr) and [High Speed] (HSP). It is recommended to have at least [Max frequency] (LFr) ≥ 110% * [High Speed] (HSP).
SPF	[Speed fdback loss]	• Signal on "Pulse input" missing, if the input is used for speed measurement. • Encoder feedback signal missing	• Check the wiring of the input cable and the detector used. • Check the configuration parameters of the encoder. • Check the wiring between the encoder and the drive. • Check the encoder.

Fault detection codes that can be cleared with the automatic restart function after the cause has disappeared

These detected faults can also be cleared by turning on and off or by means of a logic input or control bit ([Fault reset] (rSF) parameter page 265).

Detected Fault	Name	Probable cause	Remedy
ENF	[Com. network]	• Communication interruption on communication card.	• Check the environment (electromagnetic compatibility). • Check the wiring. • Check the time-out. • Replace the option card. • Contact Schneider Electric Product Support.
ENF	[CANopen com.]	• Communication interruption on the CANopen® bus.	• Check the communication bus. • Check the time-out. • Refer to the CANopen® User's manual.
EPFI	[External flt-LI/Bit]	• Event triggered by an external device, depending on user.	• Check the device which caused the triggering and reset.
EPF2	[External fault com.]	• Event triggered by a communication network.	• Check for the cause of the triggering and reset.
FbES	[FB stop flt.]	• Function blocks have been stopped while motor was running.	• Check [Stop FB Stop motor] (Fb5N) configuration.
FCF2	[Out. contact. open.]	• The output contactor remains open although the closing conditions have been met.	• Check the contactor and its wiring. • Check the feedback circuit.
LCF	[Input contactor]	• The drive is not turned on even though [Mains V. time out] (LLe) has elapsed.	• Check the contactor and its wiring. • Check the time-out. • Check the supply mains/contactor/drive connection.
LF F3	[AI3 4-20mA loss]	• Loss of the 4-20 mA reference on analog input AI3.	• Check the connection on the analog inputs.
ObF	[Overbraking]	• Braking too sudden or driving load. • Supply voltage too high.	• Increase the deceleration time. • Install a braking resistor if necessary. • Activate the [Dec ramp adapt.] (brA) function page 181, if it is compatible with the application. • Check the supply voltage.
OLF	[Overcurrent]	• Parameters in the [SETTINGS] (SE-) and [MOTOR CONTROL] (dr-) menus are not correct. • Inertia or load too high. • Mechanical locking.	• Check the parameters. • Check the size of the motor/drive/load. • Check the state of the mechanism. • Decrease [Current limitation] (CL-). • Increase the switching frequency.
OHF	[Drive overheat]	• Drive temperature too high.	• Check the motor load, the drive ventilation and the ambient temperature. Wait for the drive to cool down before restarting.
OLC	[Proc. overload flt]	• Process overload.	• Check and remove the cause of the overload. • Check the parameters of the [PROCESS OVERLOAD] (OLD-) function, page 286.
OLF	[Motor overload]	• Triggered by excessive motor current.	• Check the setting of the motor thermal protection, check the motor load. Wait for the motor to cool down before restarting.
OPFI	[1 output phase loss]	• Loss of one phase at drive output.	• Check the connections from the drive to the motor.

Detected Fault	Name	Probable cause	Remedy
o P F 2	[3 motor phase loss]	- Motor not connected or motor power too low. - Output contactor open. - Instantaneous instability in the motor current.	- Check the connections from the drive to the motor. - If an output contactor is being used, set [Output Phase Loss] (o P L) to [Output cut] (o R C), page 270. - Test on a low power motor or without a motor: In factory settings mode, motor phase loss detection is active [Output Phase Loss] (o P L) = [Yes] (Y E 5). To check the drive in a test or maintenance environment, without having to use a motor with the same rating as the drive (in particular for high power drives), deactivate motor phase loss detection [Output Phase Loss] (o P L) = [No] (n o), see instructions given page 270. - Check and optimize the following parameters: [IR compensation] (u F r) page 99, [Rated motor volt.] (u n 5) and [Rated mot. current] (n E r) page 94 and perform [Auto tuning] (t u n) page 95.
o S F	[Mains overvoltage]	- Supply voltage too high. - Disturbed mains supply.	Check the supply voltage.
o t F L	[LI6=PTC overheat]	Overheating of PTC probes detected on input LI6.	- Check the motor load and motor size. - Check the motor ventilation. - Wait for the motor to cool before restarting. - Check the type and state of the PTC probes.
P t F L	[LI6=PTC probe]	PTC probe on input LI6 open or short-circuited.	Check the PTC probe and the wiring between it and the motor/drive.
S C F 1	[Motor short circuit]	Short-circuit or grounding at the drive output.	- Check the cables connecting the drive to the motor, and the motor insulation. - Reduce the switching frequency. - Connect chokes in series with the motor. - Check the adjustment of speed loop and brake. - Increase the [Time to restart] (t E r), page 109. - Increase the switching frequency.
S C F 3	[Ground short circuit]	Significant earth leakage current at the drive output if several motors are connected in parallel.	- Check the cables connecting the drive to the motor, and the motor insulation. - Reduce the switching frequency. - Connect chokes in series with the motor. - Check the adjustment of speed loop and brake. - Increase the [Time to restart] (t E r), page 109. - Reduce the switching frequency.
S C F 4	[IGBT short circuit]	Power component detected fault.	Contact Schneider Electric Product Support.
S C F 5	[Motor short circuit]	Short-circuit at drive output.	- Check the cables connecting the drive to the motor, and the motor's insulation. - Contact Schneider Electric Product Support.
S L F 1	[Modbus com.]	Communication interruption on the Modbus bus.	- Check the communication bus. - Check the time-out. - Refer to the Modbus User's manual.
S L F 2	[PC com.]	Communication interruption with PC Software.	- Check the PC Software connecting cable. - Check the time-out.
S L F 3	[HMI com.]	Communication interruption with the graphic display terminal or remote display terminal.	- Check the terminal connection - Check the time-out.
S S F	[Torque/current lim]	Switch to torque or current limitation.	- Check if there are any mechanical problems. - Check the parameters of [TORQUE LIMITATION] (t o L -) page 228 and the parameters of the [TORQUE OR I LIM. DETECT.] (t i d -), page 278.
t J F	[IGBT overheat]	Drive overheated.	- Check the size of the load/motor/drive. - Reduce the switching frequency. - Wait for the motor to cool before restarting.
t n F	[Auto-tuning]	- Special motor or motor whose power is not suitable for the drive. - Motor not connected to the drive. - Motor not stopped	- Check that the motor/drive are compatible. - Check that the motor is present during auto-tuning. - If an output contactor is being used, close it during auto-tuning. - Check that the motor is stopped during tune operation.
u L F	[Proc. underload Flt]	Process underload.	- Check and remove the cause of the underload. - Check the parameters of the [PROCESS UNDERLOAD] (u L d -) function, page 284.

Fault detection codes that are cleared as soon as their cause disappears

Detected Fault	Name	Probable cause	Remedy
C F F	[Incorrect config.]	- Option card changed or removed. - Control block replaced by a control block configured on a drive with a different rating. - The current configuration is inconsistent.	- Check that there are no card errors. - In the event of the option card being changed/removed deliberately, see the remarks below. - Check that there are no card errors. - In the event of the control block being changed deliberately, see the remarks below. - Return to factory settings or retrieve the backup configuration, if it is valid (see page 89).
C F 1 C F 12	[Invalid config.]	Invalid configuration. The configuration loaded in the drive via the bus or communication network is inconsistent.	- Check the configuration loaded previously. - Load a compatible configuration.
C S F	[Ch. Sw. fault]	Switch to not valid channels.	Check the function parameters.
d L F	[Dynamic load fault]	Abnormal load variation.	- Check that the load is not blocked by an obstacle. - Removal of a run command causes a reset.
F b E	[FB fault]	Function blocks error.	See [FB Fault] (F b F E) for more details.
H C F	[Cards pairing]	The [CARDS PAIRING] (P P 1 -) function page 283 has been configured and a drive card has been changed.	- In the event of a card error, reinsert the original card. - Confirm the configuration by entering the [Pairing password] (P P 1) if the card was changed deliberately.
P H F	[Input phase loss]	- Drive incorrectly supplied or a fuse blown. - One phase missing. 3-phase ATV320 used on a single-phase supply mains. - Unbalanced load. This protection only operates with the drive on load.	- Check the power connection and the fuses. - Use a 3-phase supply mains. - Disable the detected fault by [Input phase loss] (P L) = [No] (n o) page 94.
u S F	[Undervoltage]	- Supply mains too low. - Transient voltage dip.	Check the voltage and the parameters of [UNDERVOLTAGE MGT] (u S b -), page 273.

Option card changed or removed

When an option card is removed or replaced by another, the drive locks in [Incorrect config.] (C F F) fault mode on power-up. If the card has been deliberately changed or removed, the detected fault can be cleared by pressing the ENT key twice, which causes the factory settings to be restored (see page 89) for the parameter groups affected by the card. These are as follows:

Card replaced by a card of the same type

- Communication cards: only the parameters that are specific to communication cards

Control block changed

When a control block is replaced by a control block configured on a drive with a different rating, the drive locks in [Incorrect config.] (C F F) fault mode on power-up. If the control block has been deliberately changed, the detected fault can be cleared by pressing the ENT key twice, which **causes all the factory settings to be restored.**

Fault detection codes displayed on the remote display terminal

Code	Name	Description
i n i t	[Initialization in progress]	The microcontroller is initializing. Search underway for communication configuration.
C o m . E (1)	[Communication error]	Time out detected fault (50 ms). This message is displayed after 20 attempts at communication.
A - 1 7 (1)	[Alarm button]	A key has been held down for more than 10 seconds. The keypad is disconnected. The keypad wakes up when a key is pressed.
C L r (1)	[Confirmation of detected fault reset]	This is displayed when the STOP key is pressed once if the active command channel is the remote display terminal.
d E u . E (1)	[Drive disparity]	The drive brand does not match that of the remote display terminal.
r o m . E (1)	[ROM anomaly]	The remote display terminal detects a ROM anomaly on the basis of checksum calculation.
r a m . E (1)	[RAM anomaly]	The remote display terminal detects a RAM anomaly.
C P u . E (1)	[Other detected faults]	Other detected faults.

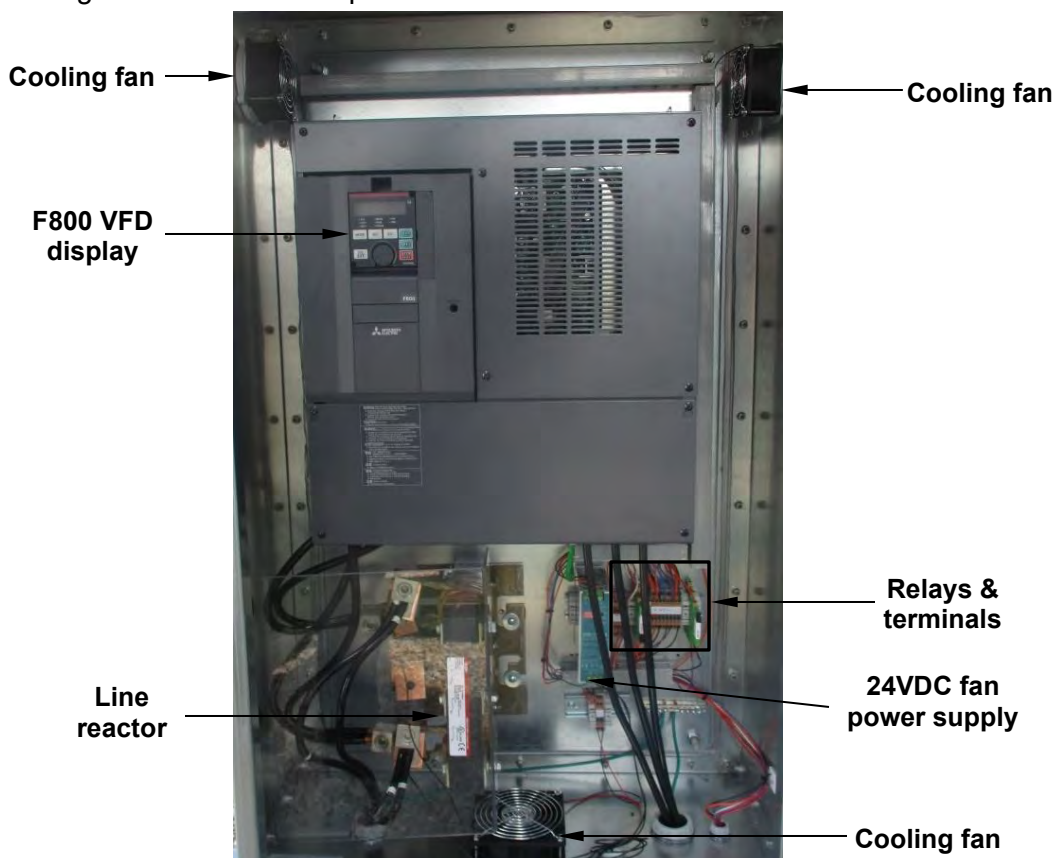
(1) Flashing

Single- to Three-Phase VFD Power Converter

Programming F800 Variable Frequency Drive

Use parameters on next page and follow Steps 1-8 on subsequent pages to program F800 VFD. Also see wiring diagram provided.

Image below shows components of box where F800 VFD is located.



WARNING: Disconnect power before servicing. Failure to do so could result in electrical shock causing death or serious injury.

See table below for specifications based on single-phase or three-phase power input.

Converter Power (HP)	3Ph FLA (Output)	3Ph SFA (VFD Overload)	1Ph FLA (Input)	3Ph Wire Size (Output)	1Ph Wire Size (Input)	Breaker Amperage Setting	Breaker Part #	VFD Part #	Line Reactor Part #
15	42	48.3	73	8	4	84	J68828	J68873	J68841
20	54	62.1	94	6	2	108	J68821	J68811	J68841
25	68	78.2	118	2	1/0	135	J68825	J68812	J68842
30	80	92.0	139	2	2/0	145	J68822	J68813	J68843
40	104	119.6	180	1	4/0	191	J68823	J68814	J68844
50	130	149.5	225	1/0	250 MCM	233	J68824	J68815	J68845
60	154	177.1	267	2/0	350 MCM or 1/0 PAR	275	J68824	J68816	J68846

NOTE: For axial-fan dryer, see amps listed on motor nameplate.

IMPORTANT: Before programming a new F800, ensure black jumper is installed as shown on Page D-16.

Sukup Manufacturing Centrifugal Fan Mitsubishi F800 Series Programming Settings

Customer: Sukup
Job: Centrifugal Fan
PO: NA
VFD: F800

Date: 5/28/2019
Contact:
Programmer: Dan

Program Parameters in this order

Parameters	Name	Setting Range	Minimum Setting Increments	Initial Value	Customer Setting
P 77	Parameter write selection	0 to 2	1	0	2
This allows you to program in any mode and while it's running.					
P 1	Maximum frequency	0 to 120	0.01Hz	120	60
Drive will not exceed this speed.					
P 2	Minimum frequency	0 to 120	0.01Hz	0	60
Drive will not run below this speed except on start.					
P 7	Acceleration time	0 to 3600	0.1s	15	25
Time in seconds from 0 - 60 Hz.					
P 9	Electronic thermal O/L relay/Rated motor current	0 to 500	0.01A	31	*
Motor OL. Usually FLA x S.F.					
P 57	Restart coasting time	0,0.1 to 30,9999	0.1s	9999	2
Wait time for the inverter to perform a restart while rolling.					
P 162	Automatic restart after instantaneous power failure	0 to 3,10 to 13	1	0	13
Frequency search at every start (reduced impact restart)					
P 195	ABC1 terminal function selection	0 to 5,8,10 to 19,25,26,35,39,40 to 42,45 to 54,57,64	1	99	199
Fault Condition or Power Loss breaks the connection between Terminals A1 and C1. When powered up and no Fault, A1 and C1 are connected.					
P 196	ABC2 terminal function selection	0 to 5,8,10 to 19,25,26,35,39,40 to 42,45 to 54,57,64	1	9999	1
When the Drive is at speed, Terminals A1 and C1 are connected. When drive is not at speed, Terminals A1 and C1 are disconnected					
P 250	Stop selection	0 to 100,1000 to 1100,8888,9999	0.1s	9999	0
This causes the drive to coast to stop. It disables the deceleration timer.					
P 882	Regeneration avoidance operation selection	0 to 2	1	0	1
Helps prevent Over Voltage Faults caused by Regen from motor.					

***See 3Ph SFA column of table on previous page.**



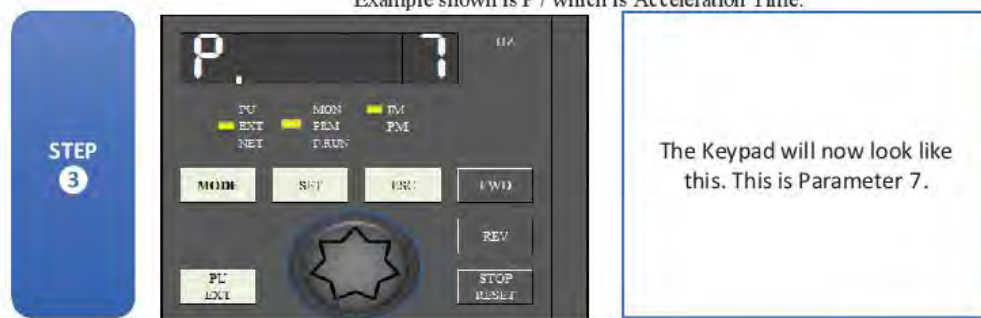
BEGIN BY PUSHING THE MODE BUTTON 1 TIME

MODE



TURN THE KNOB AND GO TO THE DESIRED PARAMETER

Example shown is P7 which is Acceleration Time.



NOW PRESS THE SET BUTTON TO GO INTO THE PARAMETER

SET



TURN THE KNOB TO MAKE YOUR CHANGE

STEP
5



The Keypad will now look like this. You have changed the Acceleration time to 30.0 seconds.

NOW PRESS THE SET BUTTON TO STORE YOUR CHANGE

SET

STEP
6




The Keypad will now be Flashing between the Parameter number and the New value you just entered. This is what you want to see.

TURN THE KNOB TO GO TO YOUR NEXT PARAMETER



STEP
7



The Keypad will now be displaying the next Parameter you want to change. As an example we are going to P77.

REPEAT STEPS 4 THRU 6 UNTILL YOU ARE DONE WITH ALL PARAMETER

STEP
8

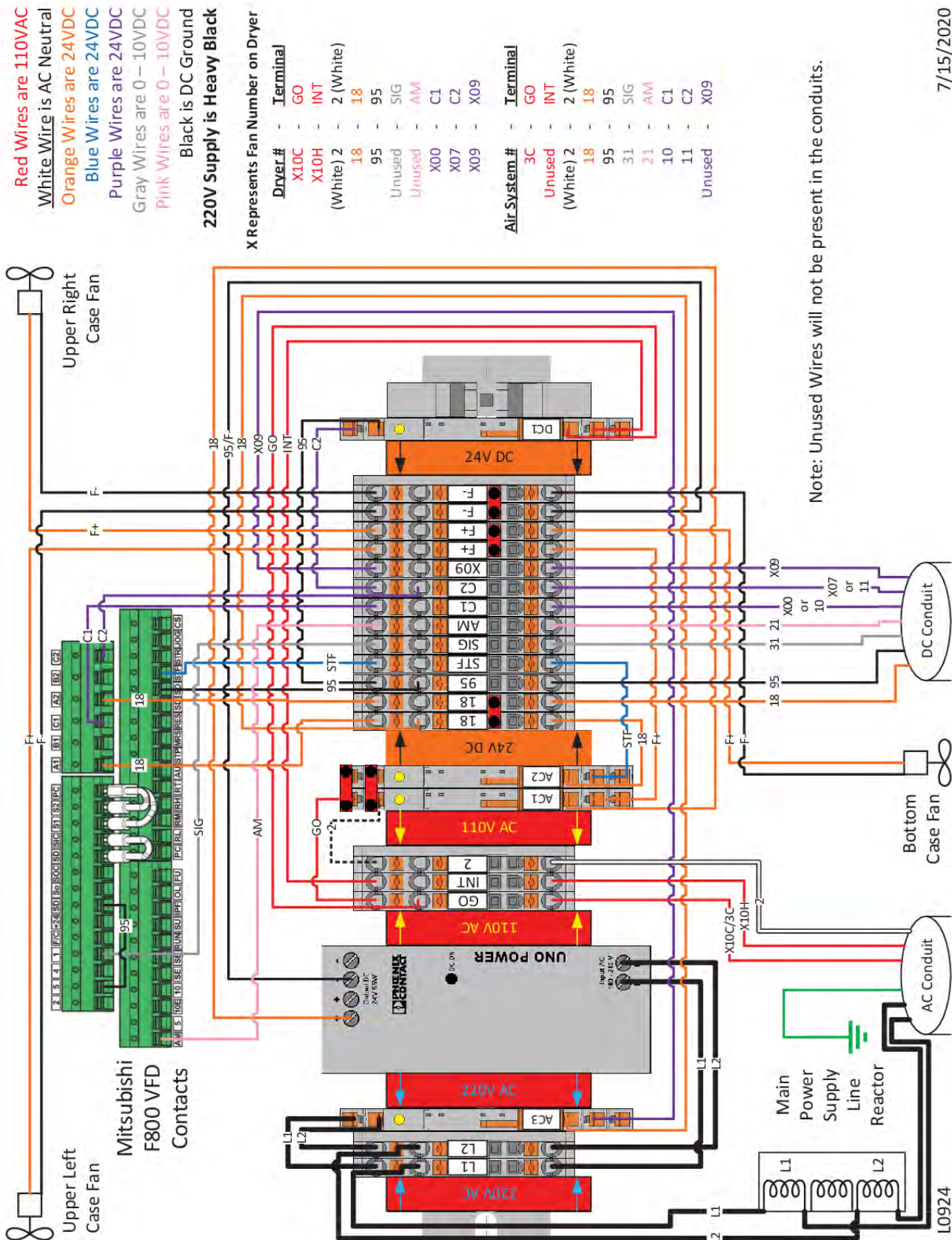
MODE

MODE

MODE



WHEN DONE PROGRAMMING, RETURN TO MAIN SCREEN BY PRESSING THE MODE BUTTON THREE TIMES



7/15/2020

Restoring Mitsubishi F800 to Factory Default Settings

Should need arise, follow directions below to restore factory default settings. (Control panel appearance may vary depending on date of manufacture.)

1. Turn on power to F800.
2. Change Operation mode to PU (Parameter Unit mode). This is normally done by pressing PU/EXT (shown at right). PU light will turn on.
3. Press MODE (multiple times may be necessary) until PR appears.
4. Turn dial COUNTERCLOCKWISE (or press DOWN) until "Pr.CL" appears for Parameter Clear, or "ALLC" appears for All Parameter Clear. Press SET. "0" (initial value) appears.
5. Turn dial (or press UP/DOWN) to change value to "1". Press SET to confirm setting. "1" and "Pr.CL" ("ALLC") are displayed alternately after parameters are cleared.

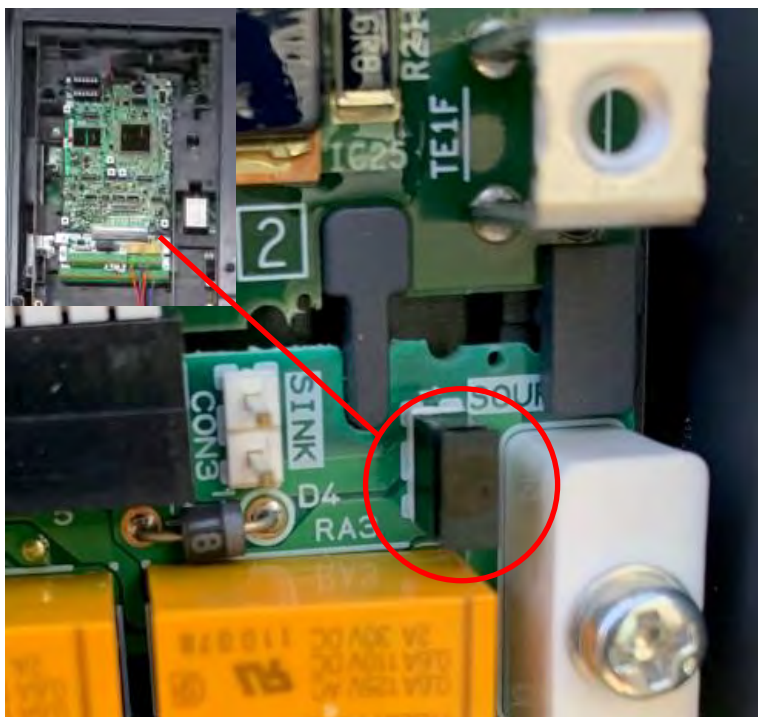
Factory settings have now been restored. Unit is ready for (re)programming.



Mitsubishi F800 control panel

NOTE: In rare instances, black jumper may be incorrectly installed on circuit board of F800. Follow instructions below to check/reposition.

1. Disconnect power to F800.
2. Remove control panel to access circuit board shown at right.
3. Ensure that hard black jumper is installed over SOURCE pins (not SINK pins) as shown in circle.
4. Reposition jumper if needed.
5. Replace control panel.
6. Reconnect power.



Hard black jumper (circled) over SOURCE pins

Troubleshooting Mitsubishi F800

Check that previously programmed settings are correct. A copy of Mitsubishi F800 Protective Functions chapter can be found on Sukup website at this location:

https://www.sukup.com/assets/general-docs/Mitsubishi_F800_Protective_Functions_6.pdf

Programming Altivar 630 VFD for Fan

1. Push OK button with directional arrows to get into menu system.
2. Navigate to [Simply Start] or [Complete settings] depending on parameter to be set.
3. Enter each setting by following applicable pathway shown below. Press OK after each entry.

PATHWAY	PARAMETER	SETTING
[Simply Start]	[Motor Standard]	60
[Simply Start]	[Nom Motor Voltage]	230, 460, 575*
[Simply Start]	[Nom Motor Current]	Motor FLA* Svc. Factor
[Simply Start]	[Acceleration]	10 (Axial), 25 (Cent.)
[Complete settings] [Input/Output] [Relay] [R1 configuration]	[R1 Assignment]	[Operating State Fault]
[Complete settings] [Input/Output] [Relay] [R2 configuration]	[R2 Assignment]	[Drive Running]
[Complete settings] [Input/Output] [Relay] [R3 configuration]	[R3 Assignment]	[Drive Running]
[Complete settings] [Motor parameters]	[Motor Control Type]	[U/F VC Energy Sav]
[Complete settings] [Generic functions] [Stop configuration]	[Type of Stop]	[Freewheel]

*Based on site & drive

For troubleshooting, check that settings shown above are correct. If not, reset them using these instructions. For more information see Diagnostics and Troubleshooting section of Altivar Process ATV600 Variable Speed Drives Programming Manual, EAV64318, dated 05/2019, available on Sukup website and at www.se.com

Restoring Factory Default Settings

Navigate to File Management→Factory Settings→Parameter Group. Select “all”, then press Escape once and navigate to Factory Settings and press Enter. After Warning appears, press Enter. Factory-default settings are now restored.

Appendix E

Dryer Startup

Actions Required to Start Dryer

<u>DATE</u>	<u>REVISION</u>	<u>PAGE</u>
08/22/2024	– Removed references to Software Manual (Software found at mysukup.com)	E-2
	Removed reference to discontinued Grain Transfer mode of operation	E-2

Dryer Startup

Following are minimum actions required to successfully start dryer.

IMPORTANT: Augers, fan(s) and heater(s) on dryer, along with auxiliary fill and take-away equipment, will start without warning during dryer operation. Use extreme caution around grain handling system.

1. Open power box and ensure that all internal breakers and starter protectors are turned on. Close door to power box, close latch, and turn Main Disconnect to "ON".
2. Pull Emergency Stop button out. It should illuminate red. If using QuadraTouch Pro controller, System Control Switch needs to be turned to "QuadraTouch Pro" position. If using Backup system, "Back-Up" needs to be selected. The System Control switch will illuminate when power has been applied.
3. Turn on QuadraTouch Pro control unit using rocker switch on bottom right of console. All faults must be cleared before dryer can start.
4. Press "Start" to choose an operation. Display will give options of selecting Continuous Flow, Manual Operation, Dry Fire, Final Dry and Auto Batch.

NOTE: Press "Reset" to abort dryer startup or to stop any operation in progress.

NOTE: Software is updated frequently, so steps may differ slightly from descriptions in this section.

Manual Operation (Check Motor Rotations)

1. Press "Start" and choose "Manual Operation".
2. Press "Load" to turn on load auger (if dryer is so equipped). Make sure load auger turns on (rotating in proper direction), followed by any auxiliary load devices controlled by dryer (K6 and K7 relays).
3. Press "Load" again to turn load system off.
4. Press "Unload" to turn on unload motor and meter rolls. Ensure unload motor rotates in proper direction and any auxiliary unload devices are also energized. Confirm metering rolls are turning.
5. Press "Unload" to turn off unload system.
6. Press "Fan 1" to turn Fan #1 on. Ensure fan motor rotates in proper direction.
7. Press "Fan 1" again to turn it off.
8. Repeat Steps 6 and 7 for any additional fans.

NOTE: If dryer has gravity-fill, verify in Step 2 that any auxiliary relays are also energized.

Dry Fire

Dry Fire mode of operation enables operator a means of running dryer when there is no grain. This provides a great way of testing dryer before seasonal operation. This mode is recommended **EVERY SEASON** before dryer is to be used.

To operate dryer in Dry Fire mode, ensure red emergency stop button is pulled out and main power is ON. Emergency stop button should illuminate red, indicating control power is available. In addition to main power switch and emergency stop button, there is a System Control Switch. This switch should be turned to QuadraTouch Pro when using touch screen controller. Switch will illuminate when in Back-Up or QuadraTouch Pro position.



CAUTION: Excessive noise is present while dryer is running. Use protection to avoid damage to ears. Failure to do so could result in minor or moderate injury.

- To access Dry Fire mode, press Start on main screen and select Dry Fire. A screen similar to the following will appear:



Fan Only

- Selecting “Fan 1” and pressing “Next” will energize fan(s) only. Static air pressure switch(es) are deactivated during Dry Fire mode. All other monitored safeties are operational at this time.

Fan & Heater

- Selecting “Fan 1” and “Heat 1” and pressing “Next” will apply power to fan and heater. Fan will come on, followed by heater after a 17-second purge delay. Static air pressure switch(es) are deactivated during Dry Fire mode. Flame sensor will still be active.

Appendix F

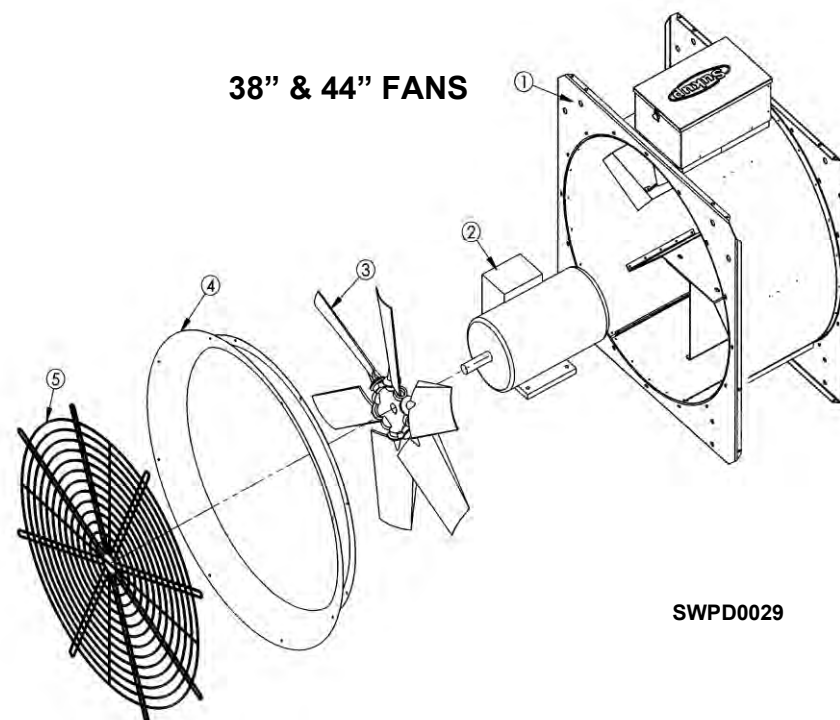
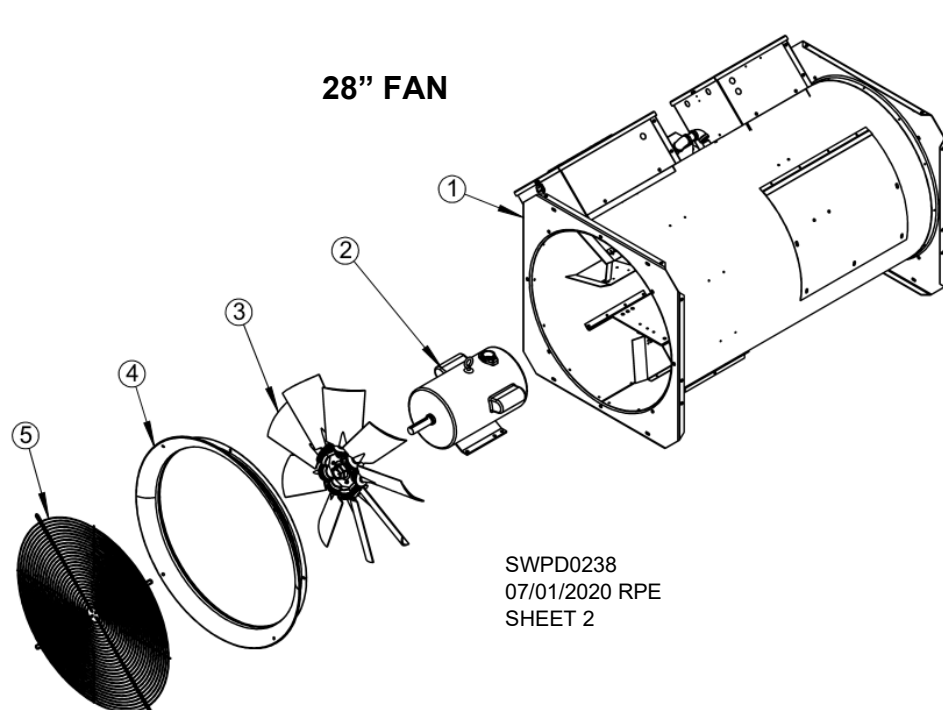
Axial Dryer Parts/Assemblies

<u>DATE</u>	<u>REVISION</u>	<u>PAGE</u>
08/22/2024	– Added reference to 18-tooth sprocket J16741 for stacked dryer	39

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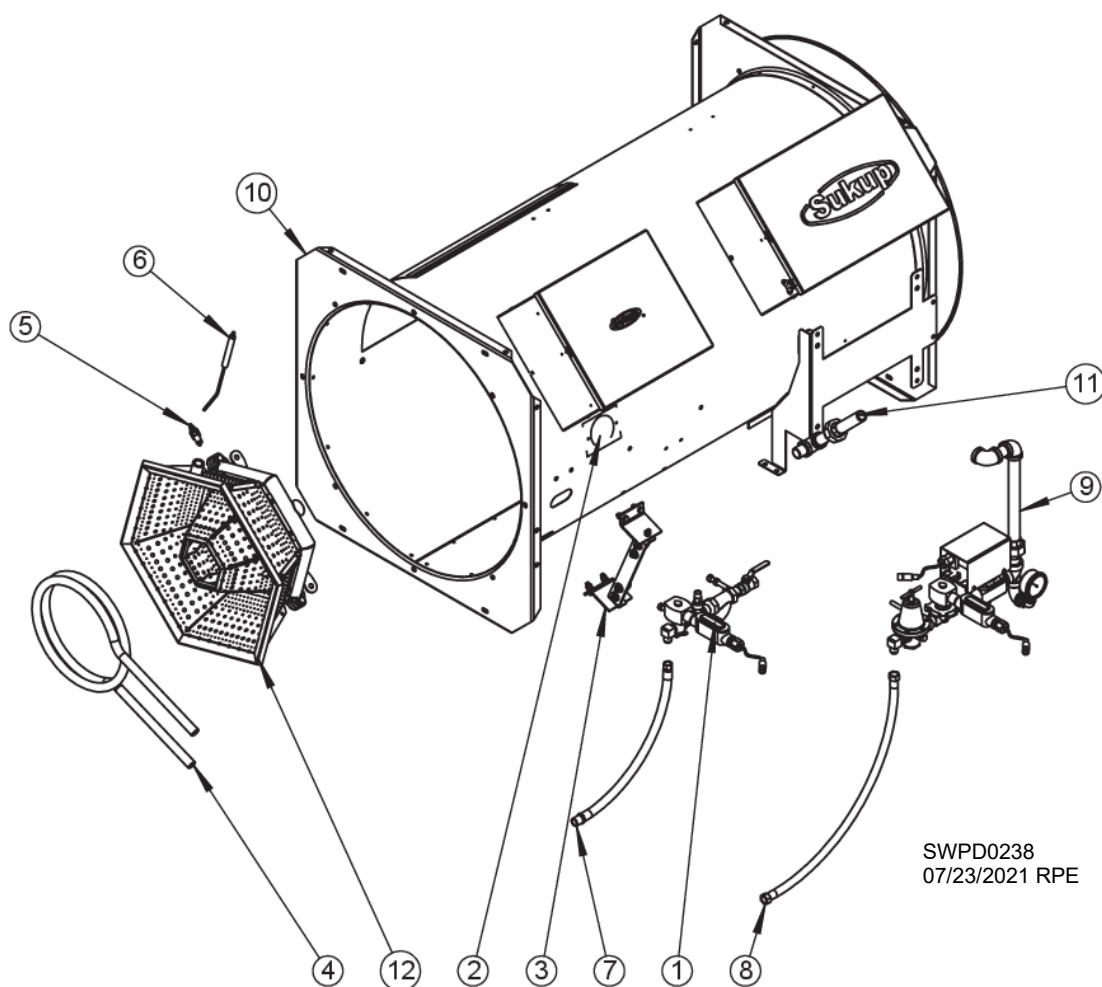
FAN PARTS	F-3
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AXIAL DRYER FAN PARTS



REF. #	DESCRIPTION	28" 15HP,1PH	28" 15HP,3PH	28" 20HP,3PH	38" 10HP,3PH	38" 15HP,1PH	38" 15HP,3PH	38" 20HP,3PH	44" 15HP,1PH	44" 15HP,3PH	44" 20HP,3PH	44" 30HP,3PH	44" 40HP,3PH
1	Housing	T28560	T28560	T28560	T12982	T12980	T12981	T12981	T16980	T16980	T16980	T20980	T24980
2	Motor	H5753	H5758	H6758	H5475	H5755	H6277	H6801	H5755	H6277	H6801	H7125	H7170
3	Blade only	J3062	J3062	J3063	J3060	J3051	J3051	J3049	J3070	J3070	J3071	J3067	J3068
	Trantorq, bushing only	J0436	J0436	J0436	J0437	J0435	J0435	J0435	J0435	J0435	J0435	J04371	J04372
	Blade w/trantorq bushing	J30621	J30621	J30631	J30601	T12175	T12175	T121752	J30701	J30701	J30711	J30671	J30681
4	Venturi	J3080	J3080	J3080	J3085	J3085	J3085	J3085	J3090	J3090	J3090	J3090	J3090
5	Inlet screen	D3824	D3824	D3824	J3132	J3132	J3132	J3132	J2957	J2957	J2957	J2957	J2957

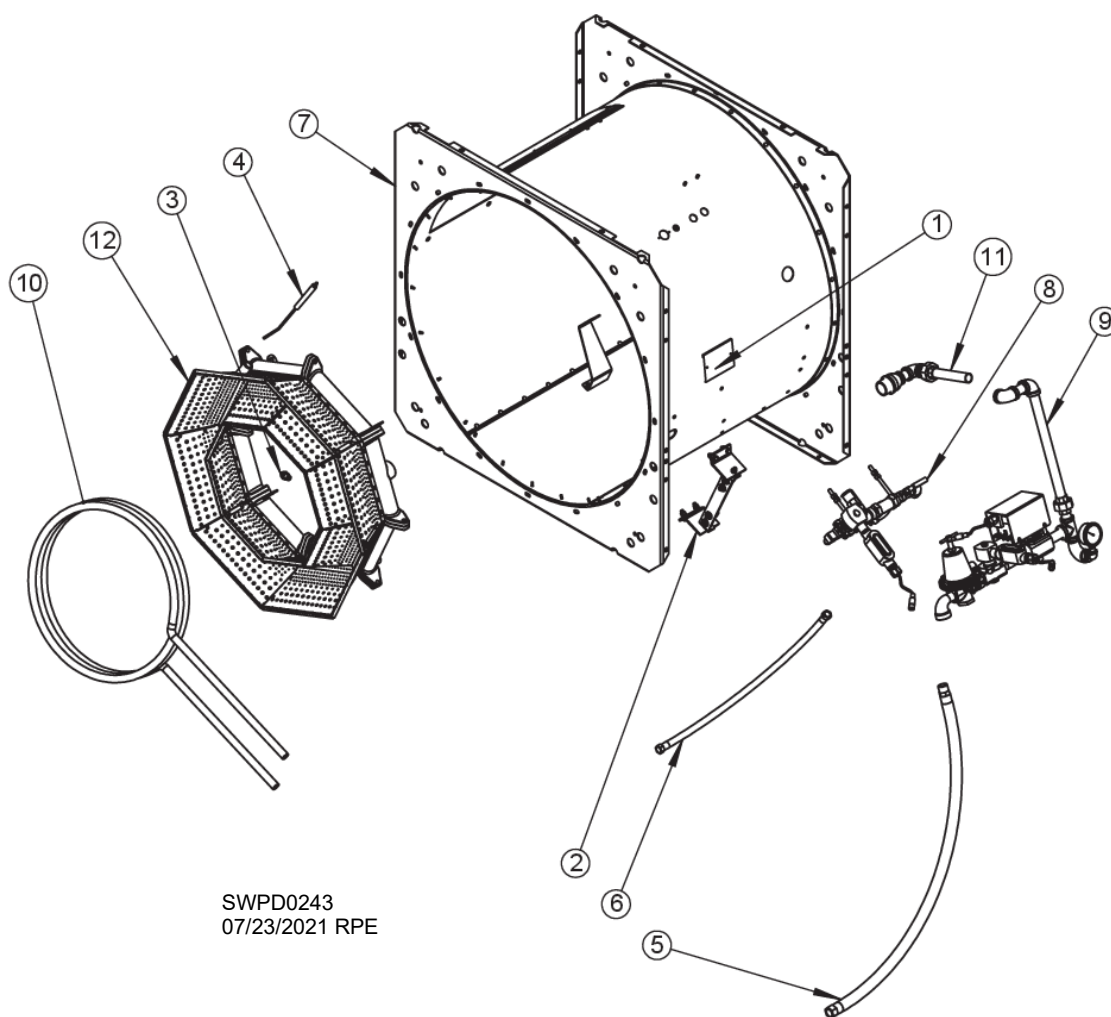
28" HEATER PARTS



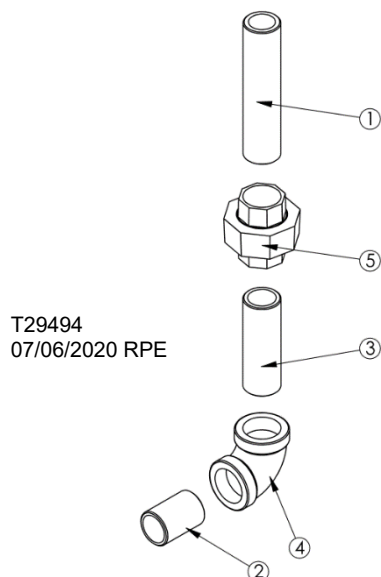
SWPD0238
07/23/2021 RPE

REF. #	DESCRIPTION	28" LP	28" NG
1	Pipe train, liquid	T96217M	----
2	Plexiglass	D6251	D6251
3	Vaporizer pivot bracket	D6321	----
4	Vaporizer	D70322	----
5	Spark plug	J5739	J5739
6	Flame sensor	J5747	J5747
7	Hose, liquid	J5929	----
8	Hose, vapor	J5938	----
9	Pipe train, 1/2"	T96218M	----
	Pipe train, 3/4"	----	T96219M
10	Housing	T28560	T28560
11	Pipe, entry	T29494	T29494
12	Burner	T29730	T29730

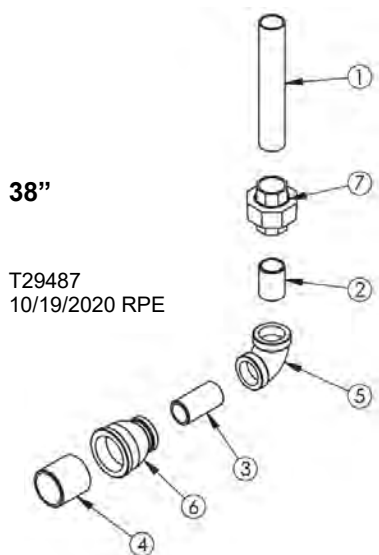
38" & 44" HEATER PARTS



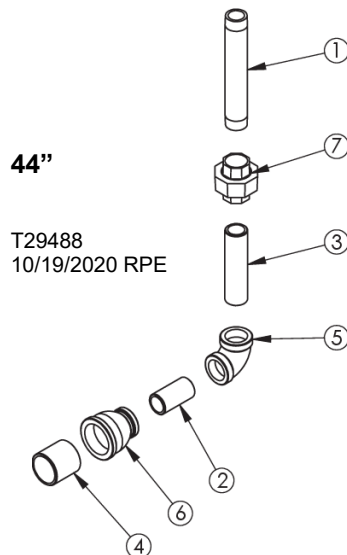
REF. #	DESCRIPTION	38" LP	38" NG	44" LP 15HP	44" NG 15HP	44" LP 30HP	44" NG 30HP	44" LP 40HP	44" NG 40HP
1	Plexiglass	D6251	D6251	D6251	D6251	D6251	D6251	D6251	D6251
2	Vaporizer pivot bracket	D6321	----	D6321	----	D6321	----	D6321	----
3	Spark plug	J5739	J5739	J5739	J5739	J5739	J5739	J5739	J5739
4	Flame sensor	J5747	J5747	J5747	J5747	J5747	J5747	J5747	J5747
5	Hose, vapor	J5928	----	J5928	----	J5928	----	J5928	----
6	Hose, liquid	J5938	----	J5938	----	J5938	----	J5938	----
7	Housing	T12995	T12995	T16995	T16995	T16995	T16995	T16995	T16995
8	Pipe train, liquid	T96214M	----	T96214M	----	T96214M	----	T96214M	----
9	Pipe train	T96215M	T96216M	T96215M	T96216M	T96215M	T96216M	T96215M	T96216M
10	Vaporizer	T16194	----	T16194	----	T16194	----	T16194	----
11	Pipe, entry	T29487	T29489	T29488	T29490	T29488	T29490	T29488	T29490
12	Burner	T29800	T29800	T29800	T29800	T29800	T29800	T29800	T29800

28" HEATER ENTRY PIPE, LP & NG

REF. #	DESCRIPTION	QTY.	PART #
1	Orifice pipe, 3/4 x 4-1/2"	1	D71220
2	Nipple, 3/4" x 1-1/2"	1	J24101
3	Nipple, 3/4" x 3"	1	J2423
4	Elbow, 3/4", 90 degree	1	J2525
5	Union, 3/4"	1	J2710

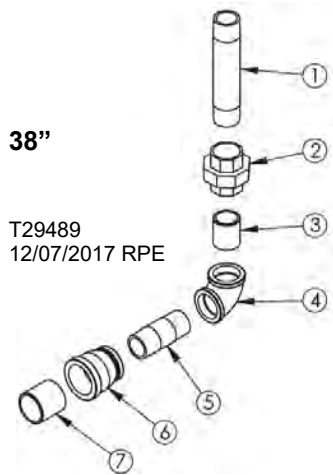
38" & 44" HEATER ENTRY PIPE, LP

REF. #	DESCRIPTION	QTY.	PART #
1	Orifice pipe, 3/4" x 6"	1	D7119
2	Nipple, 3/4" x close	1	J2410
3	Nipple, 3/4" x 2"	1	J2420
4	Nipple, 1-1/4" x close	1	J2500
5	Elbow, 3/4", 90 degree	1	J2525
6	Coupling, reducing, 1-1/4" x 3/4"	1	J2576
7	Union, 3/4"	1	J2710

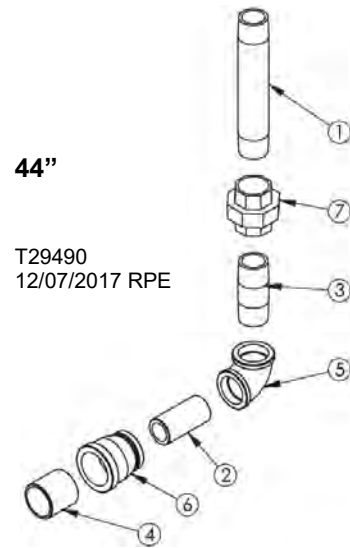


REF. #	DESCRIPTION	QTY.	PART #
1	Orifice pipe, 3/4" x 6-1/4"	1	D7124
2	Nipple, 3/4" x 2"	1	J2420
3	Nipple, 3/4" x 4"	1	J2424
4	Nipple, 1-1/4" x close	1	J2500
5	Elbow, 3/4", 90 degree	1	J2525
6	Coupling, reducing, 1-1/4" x 3/4"	1	J2576
7	Union, 3/4"	1	J2710

38" & 44" HEATER ENTRY PIPE, NG

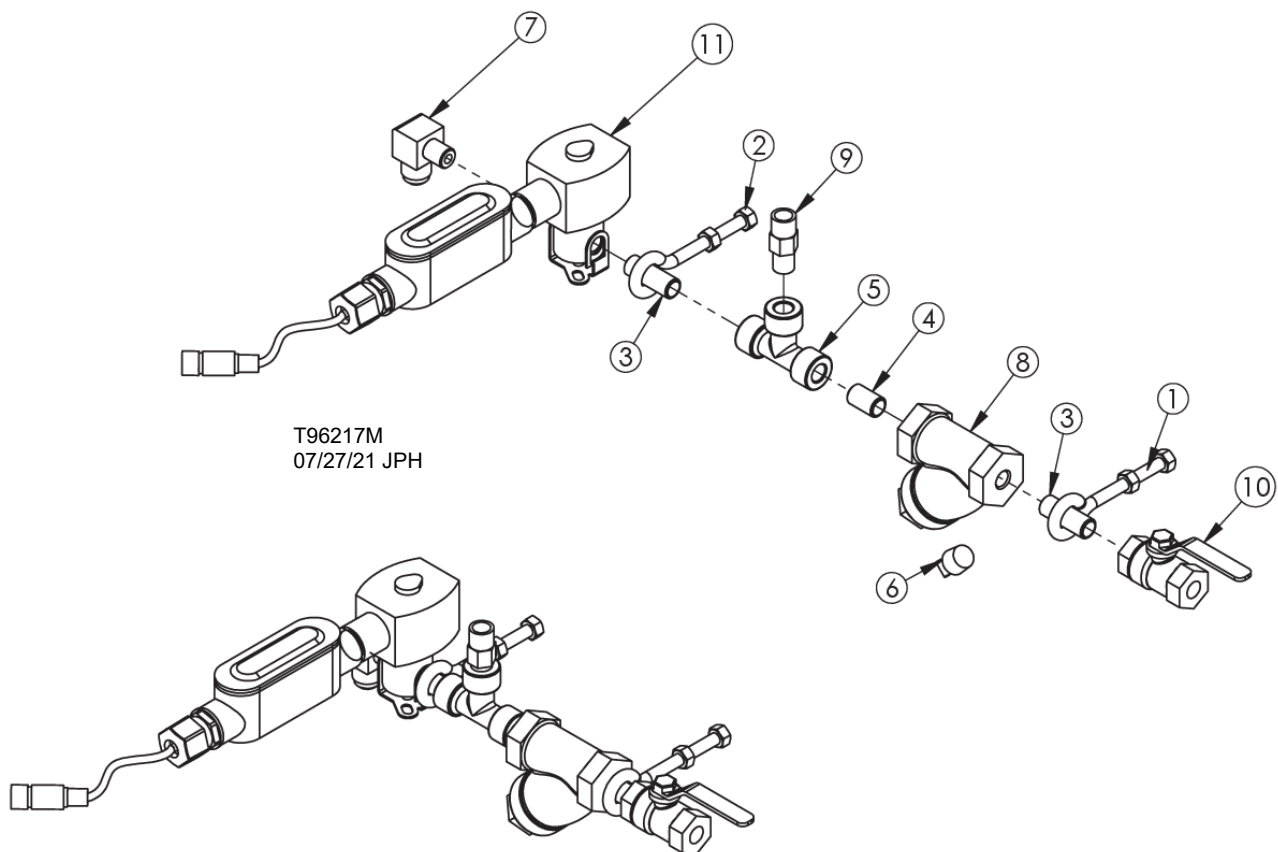


REF. #	DESCRIPTION	QTY.	PART #
1	Orifice pipe, 1" x 6"	1	D71191
2	Union, 1"	1	J2696
3	Nipple, 1" x close	1	J2417
4	Elbow, 1", 90 degree	1	J25251
5	Nipple, 1.3"	1	J24174
6	Coupling, reducing, 1-1/4" x 1"	1	J25761
7	Nipple, 1-1/4" x close	1	J2500



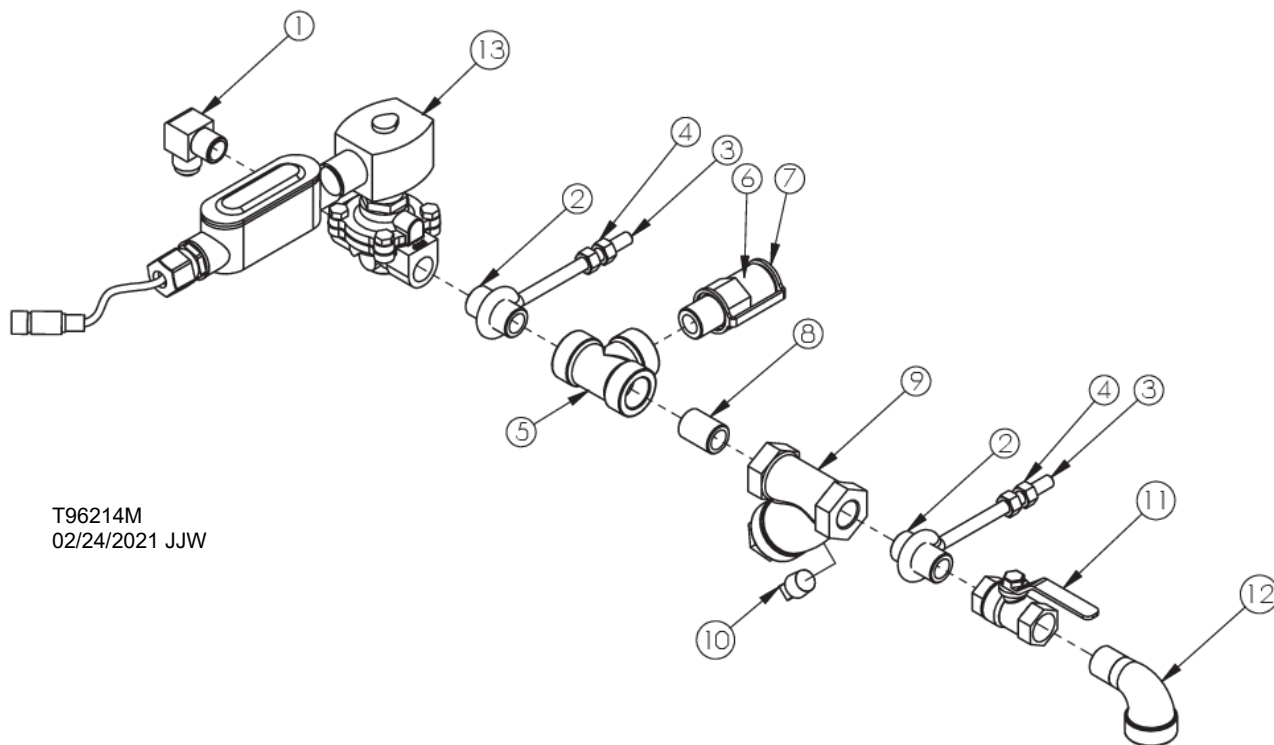
REF. #	DESCRIPTION	QTY.	PART #
1	Orifice pipe, 1" x 7"	1	D71194
2	Nipple, 1" x 2-1/2"	1	J24173
3	Nipple, 1" x 3"	1	J24174
4	Nipple, 1-1/4" x close	1	J2500
5	Elbow, 1", 90 degree	1	J25251
6	Coupling, reducing, 1-1/4" x 1"	1	J25761
7	Union, 1"	1	J2696

28" FAN HEATER 1/4" LP PIPE TRAIN T96217M



REF. #	DESCRIPTION	QTY.	PART #
1	EYEBOLT, 5/16 - 18 X 3", 5/8" ID	2	J0850
2	NUT, 5/16" - 18	4	J1002
3	NIPPLE, 1/4 X 1-1/2"	2	J2400
4	NIPPLE, 1/4"	1	J24003
5	TEE, PIPE, 1/4"	1	J2470
6	PLUG, 3/8"	1	J2610
7	ELBOW, 90°, 3/8", 1/4" MIP, BRASS	1	J2740
8	STRAINER, LIQUID, 1/4"	1	J5990
9	RELIEF VALVE, 1/4", 375PSI	1	J6050
10	BALL VALVE, 1/4" LP	1	J6080
11	SOLENOID ASSY., LIQ, 1/4"	1	T961541

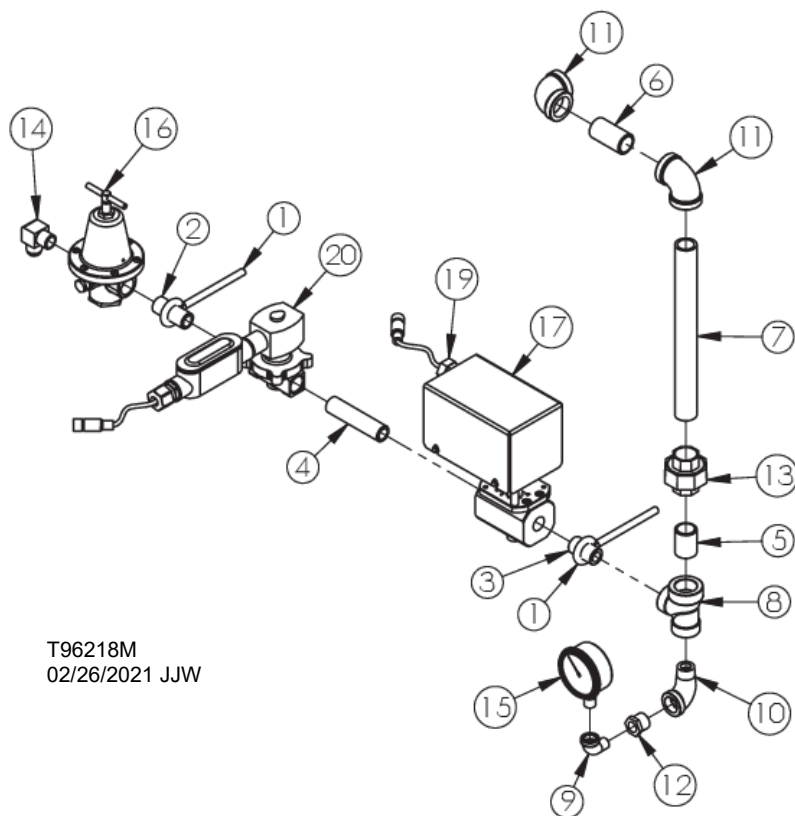
38" & 44" FAN HEATER 1/2" LP PIPE TRAIN T96214M



T96214M
02/24/2021 JJW

REF. #	DESCRIPTION	QTY.	PART #
1	ELBOW, 90°, 1/2 FLX 1/2 MIP, BRASS	1	J2745
2	NIPPLE, 1/2 X 1.5, SCH80, BLK	2	J2406
3	EYEBOLT, 3/8-16, 4.25, 1 ID EYE	2	J0860
4	NUT, 3/8-16, PLT, HEX	4	J1020
5	TEE, 1/2, SCH80, BLK	1	J2472
6	VALVE, 1/2", RELIEF, 3129K	1	J6170
7	RAIN CAP, 7545-40	1	J6200
8	NIPPLE, 1/2 X CL, SCH80, BLK	1	J2407
9	STRAINER, LIQ., 1/2"	1	J5992
10	PLUG, 3/8, PIPE, BLACK	1	J2610
11	VALVE, 1/2", BALL, ITT 1550	1	J6082
12	ELBOW, STREET, 90°, 1/2, SCH80, BLK	1	J2519
13	SOLENOID ASY, W/ M12, LIQ, 1/2"	1	T961512

28" FAN HEATER 1/2" LP PIPE TRAIN W / EMOV T96218M

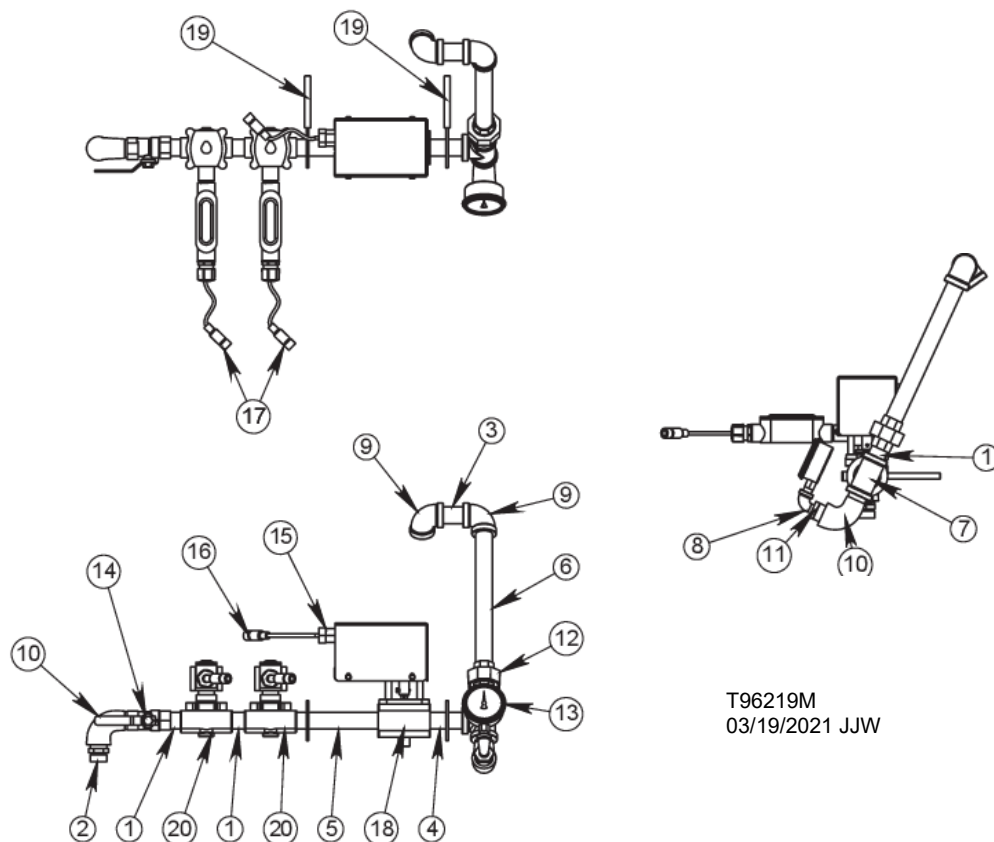


T96218M
02/26/2021 JJW

REF. #	DESCRIPTION	QTY.	PART #
1	EYEBOLT, 3/8-16, 4.25, 1 ID EYE	2	J0860
2	NIPPLE, 1/2X2, SCH40, BLK	1	J24061
3	NIPPLE, 1/2X1.5, SCH40, BLK	1	J24062
4	NIPPLE, 1/2X3.5, SCH40, BLK	1	J24083
5	NIPPLE, 3/4XCL, SCH40, BLK	1	J2410
6	NIPPLE, 3/4X2, SCH40, BLK	1	J2420
7	NIPPLE, 3/4X10, SCH80, BLK	1	J2429
8	TEE, RED, 3/4X1/2X1/2, SCH40, BLK	1	J2481
9	ELBOW, STREET, 90°, 1/4, SCH40, BLK	1	J2517
10	ELBOW, STREET, 90°, 1/2, SCH40, BLK	1	J2520
11	ELBOW, PIPE, 90°, 3/4, SCH40, BLK	2	J2525
12	BUSHING, REDUCING, 1/2X1/4, MAL	1	J2569
13	UNION, PIPE, 3/4, SCH40, BLK	1	J2710
14	ELBOW, 90°, 1/2FLX1/2MIP, BRASS	1	J2745
15	GAUGE, PRES, 0-30, LIQ, 1/4"BTM MT	1	J5960
16	REGULATOR, 1/2"X1584VN	1	J6110
17	VALVE, BUTTERFLY, 1/2", SCC, W/MNT	1	T161918NN
18	KIT, LP VAPOR OT, W/ SPLICE, AX	1	T96120*
19	KIT, ACTUATOR, BELIMO, 2M	1	T96148
20	SOLENOID ASY, W/ M12, VAP, 1/2"	1	T961551

*Not shown

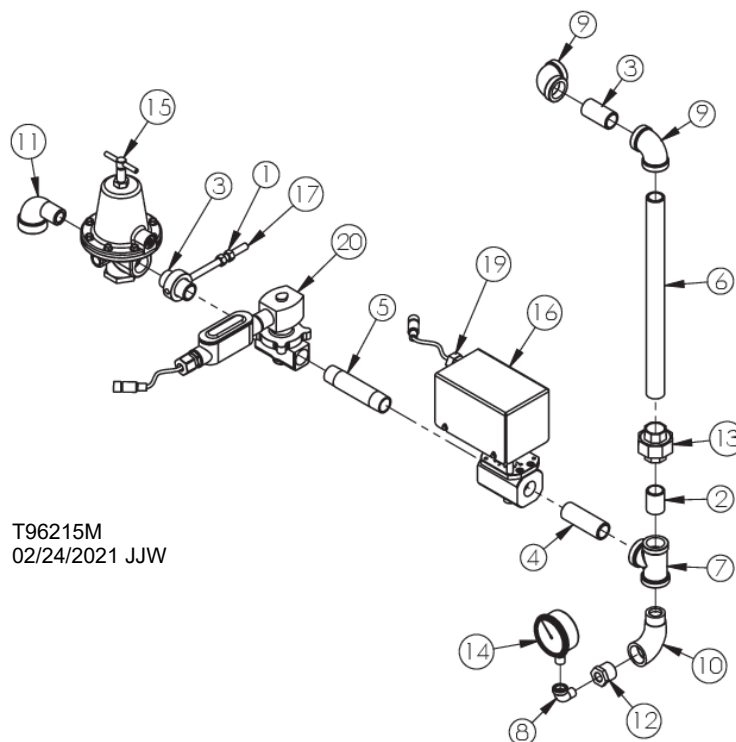
28" FAN HEATER 3/4" NG PIPE TRAIN W/ EMOV T96219M



T96219M
03/19/2021 JJW

REF. #	DESCRIPTION	QTY.	PART #
1	NIPPLE, 3/4XCL, SCH40, BLK	3	J2410
2	NIPPLE, 3/4BRASS, HEX, MALE UNION	1	J2416
3	NIPPLE, 3/4X2, SCH40, BLK	1	J2420
4	NIPPLE, 3/4X3, SCH40, BLK	1	J2423
5	NIPPLE, 3/4X6, SCH80, BLK	1	J2428
6	NIPPLE, 3/4X10, SCH80, BLK	1	J2429
7	TEE, PIPE, 3/4, SCH40, BLK	1	J2485
8	ELBOW, STREET, 90°, 1/4, SCH40, BLK	1	J2517
9	ELBOW, PIPE, 90°, 3/4, SCH40, BLK	2	J2525
10	ELBOW, STREET, 90°, 3/4, SCH40, BLK	2	J2530
11	BUSHING, REDUCING, 3/4X1/4, SCH40	1	J2570
12	UNION, PIPE, 3/4, SCH40, BLK	1	J2710
13	GAUGE, PRESSURE, 0-15, LIQ, 2 1/2"	1	J5967
14	VALVE, 3/4, BALL, JOMAR, T-100NE	1	J6083
15	ACTUATOR, BELIMO, LMCB24-SR-T	1	J6124
16	CABLE, M12MS-WIRE, DC, 2M	1	J88401
17	CABLE, M12MS-WIRE, AC, 2M	2	J88451
18	VALVE, BUTTERFLY, 3/4" SCC, W/MNT	1	T161916NN
19	EYEBOLT, PIPE TRAIN	2	T16224
20	SOLENOID & SPLICE ASY, VAP, 3/4"	2	T96152

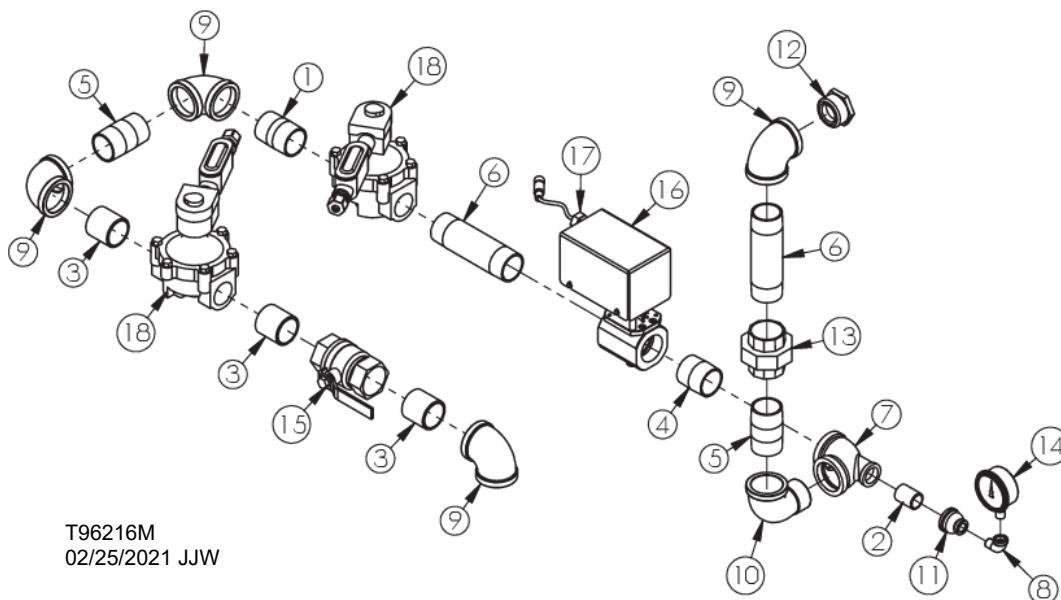
38" & 44" FAN HEATER 3/4" LP PIPE TRAIN, W/ EMOV T96215M



REF. #	DESCRIPTION	QTY.	PART #
1	NUT,3/8-16,PLT,HEX	2	J1020
2	NIPPLE,3/4XCL,SCH40,BLK	1	J2410
3	NIPPLE,3/4X2,SCH40,BLK	2	J2420
4	NIPPLE,3/4X3,SCH40,BLK	1	J2423
5	NIPPLE,3/4X4.5,SCH40,BLK	1	J2425
6	NIPPLE,3/4X14,SCH40,BLK	1	J24291
7	TEE,PIPE,3/4,SCH40,BLK	1	J2485
8	ELBOW,STREET,90°,1/4,SCH40,BLK	1	J2517
9	ELBOW,PIPE,90°,3/4,SCH40,BLK	2	J2525
10	ELBOW,STREET,90°,3/4,SCH40,BLK	1	J2530
11	ELBOW,STREET,90°,3/4,C300,BLK	1	J2532
12	BUSHING,REDUCING,3/4X1/4,SCH40	1	J2570
13	UNION,PIPE,3/4,SCH40,BLK	1	J2710
14	GAUGE,PRES,0-30,LIQ,1/4"BTM MT	1	J5960
15	REGULATOR,3/4",X1586VN	1	J6163
16	VALVE,BUTTERFLY,3/4"SCC,W/MNT	1	T161916NN
17	EYEBOLT,PIPE TRAIN	1	T18810
18	KIT,LP VAPOR OT,W/ SPLICE,AX*	1	T96120
19	KIT,ACTUATOR,BELIMO,2M	1	T96148
20	SOLENOID ASY,W/ M12,VAP,3/4"	1	T961522

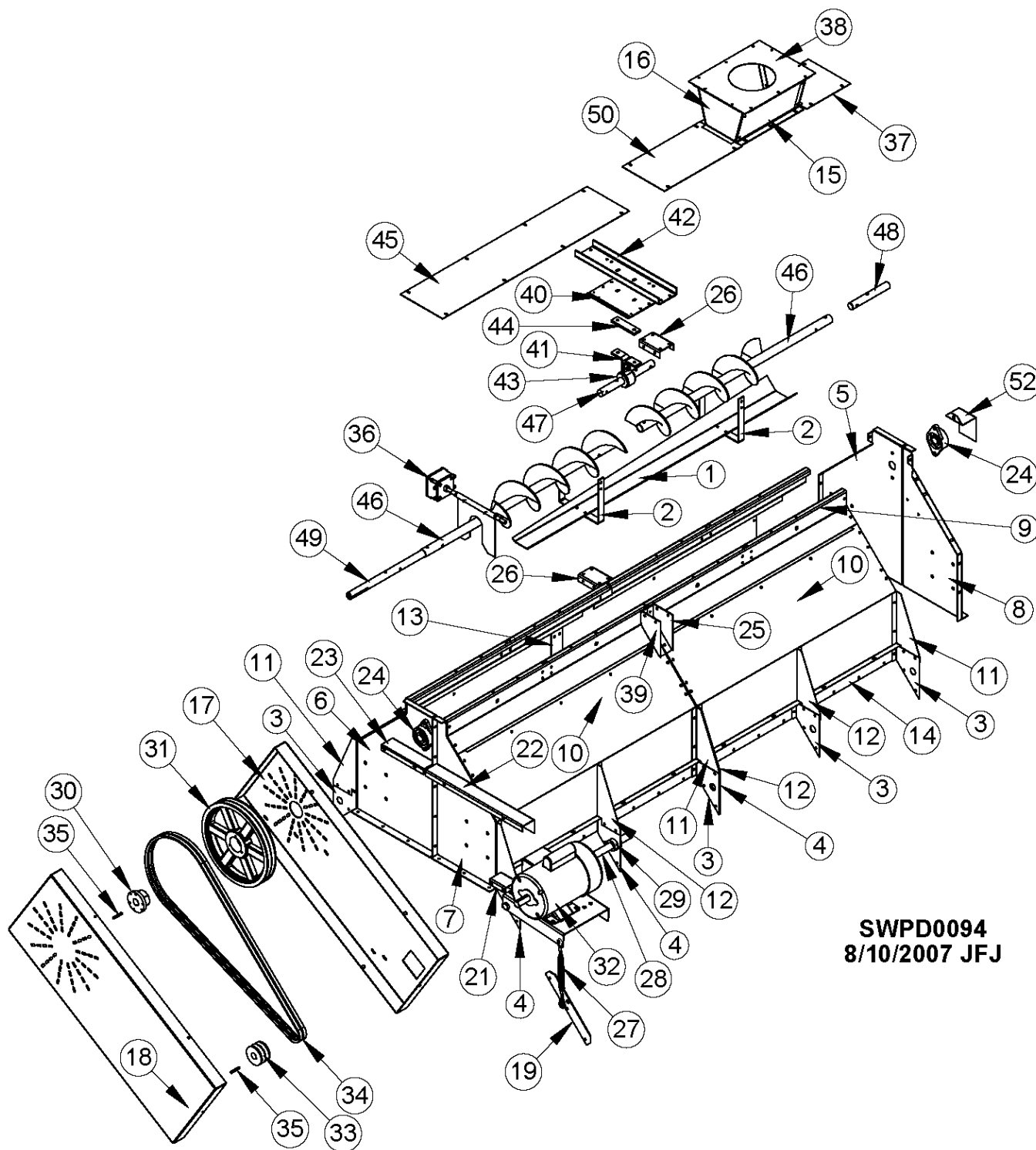
*Not shown

38" & 44" FAN HEATER 1-1/2" NG PIPE TRAIN W/ EMOV T96216M



REF. #	DESCRIPTION	QTY.	PART #
1	NIPPLE, 1-1/2X2.5, SCH40, BLK	1	J24084
2	NIPPLE, 3/4XCL, SCH40, BLK	1	J2410
3	NIPPLE, 1-1/2XCL, SCH40, BLK	3	J2431
4	NIPPLE, 1-1/2X2, SCH40, BLK	1	J2432
5	NIPPLE, 1-1/2X3, SCH40, BLK	2	J2433
6	NIPPLE, 1-1/2X6, SCH40, BLK	2	J2437
7	TEE, RED, 1-1/2X3/4X1-1/2, SCH40	1	J2477
8	ELBOW, STREET, 90°, 1/4, SCH40, BLK	1	J2517
9	ELBOW, PIPE, 90°, 1-1/2, SCH40, BLK	4	J2541
10	ELBOW, STREET, 90°, 1-1/2, SCH40	1	J2542
11	COUPLING, RED, 3/4X1/4, SCH40, BLK	1	J2574
12	BUSHING, REDUCING, 1.50X1, BLACK	1	J2581
13	UNION, PIPE, 1-1/2, SCH40, BLK	1	J2707
14	GAUGE, PRESSURE, 0-15, LIQ, 2 1/2"	1	J5967
15	VALVE, 1 1/2, BALL	1	J6087
16	VALVE, BUTTERFLY, 1.5" SCC, W/MNT	1	T161917NN
17	KIT, ACTUATOR, BELIMO, 2M	1	T96148
18	SOLENOID ASY, W/ M12, NG, 1 1/2"	2	T961532

8' AUGER FILL ASSEMBLY

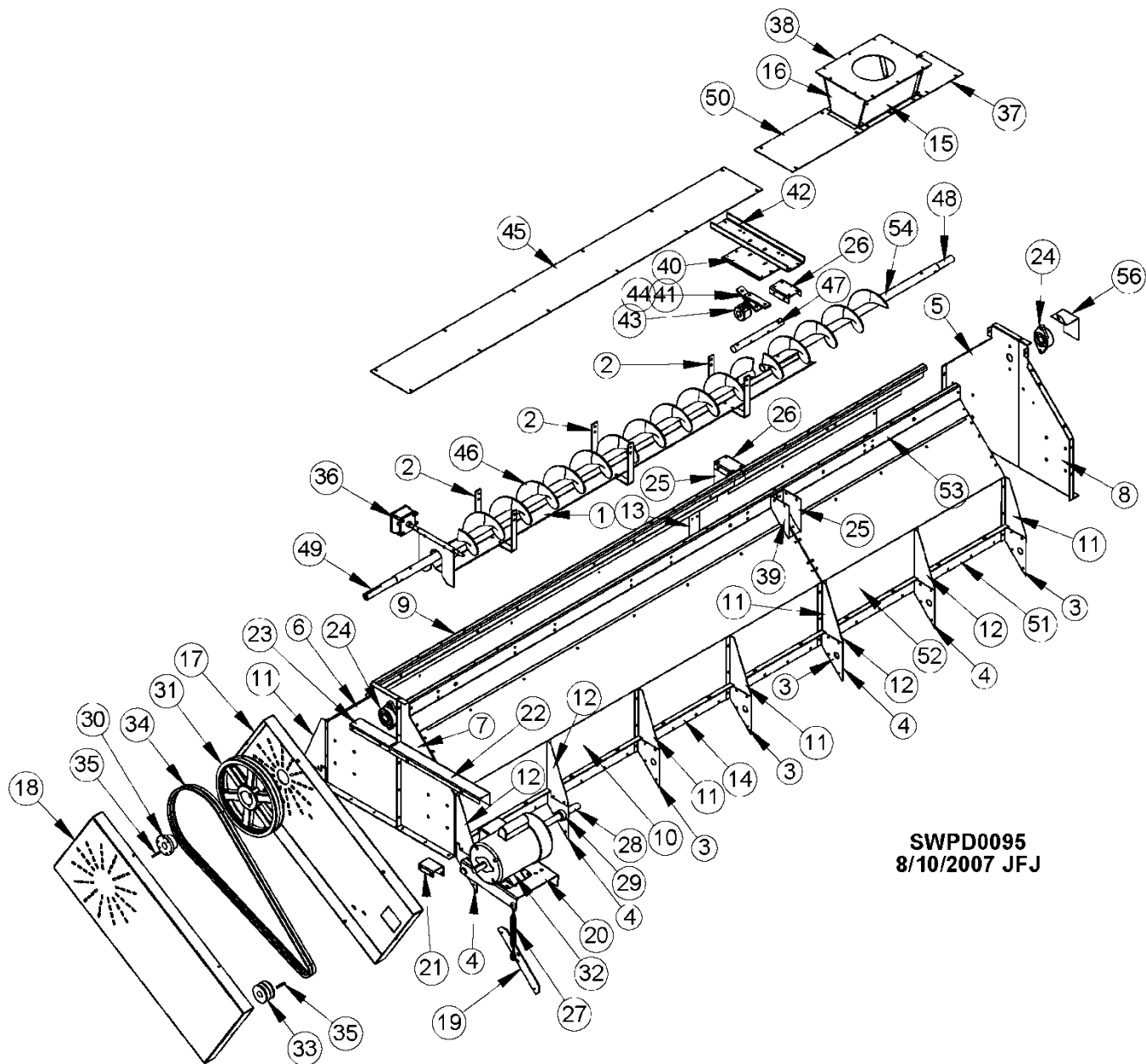


SWPD0094
8/10/2007 JFJ

8' AUGER FILL ASSEMBLY PARTS

REF. #	DESCRIPTION	QTY.	PART #
1	TRASH PAN	1	T10235
2	SUPPORT, TRASH PAN	2	T16236
3	LEFT SUPPORT GUSSET	6	T16117
4	RIGHT SUPPORT GUSSET	6	T16118
5	RR WET BIN END PLATE ASSY.	1	T17401AM
6	RF WET BIN END PLATE ASSY.	1	T17400AM
7	LF WET BIN END PLATE ASSY.	1	T17402AM
8	LR WET BIN END PLATE ASSY.	1	T17403AM
9	TOP 4' PANEL (FILL SWITCH)	4	T12537
10	SIDE, WET BIN, 4FT 2000	4	T12525
11	LT PIVOT BRACE WET BIN	4	T17410
12	RT PIVOT BRACE WET BIN	8	T17411
13	SPLICE, WET BIN SIDE	2	T17412
14	BOLT DOWN LIP 8' 2000	2	T17453
15	HOPPER SIDE	2	T17935
16	HOPPER END	2	T17936
17	TOP AUGER SHIELD (INNER)	1	T16256
18	TOP AUGER SHIELD (OUTER)	1	T16255
19	PLATE, TURNBUCKLE, MOTOR MOUNT	1	T16283
20	TOP MOTOR MOUNT	1	T16277
21	TOP SHIELD BRACE ASSY.	1	T16258AM
22	BRACKET, LF TOP AUGER SHIELD ASSY.	1	T16861AM
23	BRACKET, RF TOP AUGER SHIELD ASSY.	1	T16860AM
24	BEARING, 1.25, FLG, W/LC, HCFTS207-20	2	J0010
25	SPLICE GUSSET RIGHT	2	T16145
26	SPLICE CHANNEL SHORT	2	T16146
27	TURNBUCKLE, 3/8" X 6"	1	J0904
28	PIVOT, MOTOR MOUNT, TOP	1	T18150
29	COLLAR, SHAFT, 1-3/16"	2	J1338
30	BUSHING, 1.25, SK	1	J0410
31	PULLEY, 15.75 OD, DBL "B" GR, SK	1	J03992
32	MTR, AUGER 3HP, TEFC,	1	T12590
33	PULLEY, 3.5 OD, 1.25, DBL, B, CAST	1	J0317
34	BELT, B95	2	J0252
35	KEY, 1/4 X 1/4 X 2"	2	F4499
36	PADDLE, ASSEMBLY	1	T16262
37	LID, EXTENSION, WET BIN	1	T16159
38	FILL HOPPER ASSY.	1	T17937AM
39	SPLICE GUSSET LEFT	2	T16144
40	CRIMP PLATE	1	T16142
41	HANGER, AUGER, T, 6CH2203	1	J0097
42	SPLICE CHANNEL	1	T16143
43	BUSHING, WOOD, 1.25" ID	1	J0096
44	SPACER, T-HANGER, TOP AUGER	1	T16096
45	LID, WET HOLDING BIN	1	T16157
46	4' REAR, TOP AUGER	2	T12503
47	SHAFT, 8" HANGER BEARING	1	F4720
48	SHAFT, 1.25" X 9" LG	1	G73291
49	SHAFT, TOP FRONT, 13-1/4"	1	T16436
50	LID, BIN, WET HLD, 12'	1	T12519
51	PLATE, SHORT SPLICE (NOT SHOWN)	2	T16141
52	REAR SHAFT SHIELD	1	T16420

12' AUGER FILL ASSEMBLY

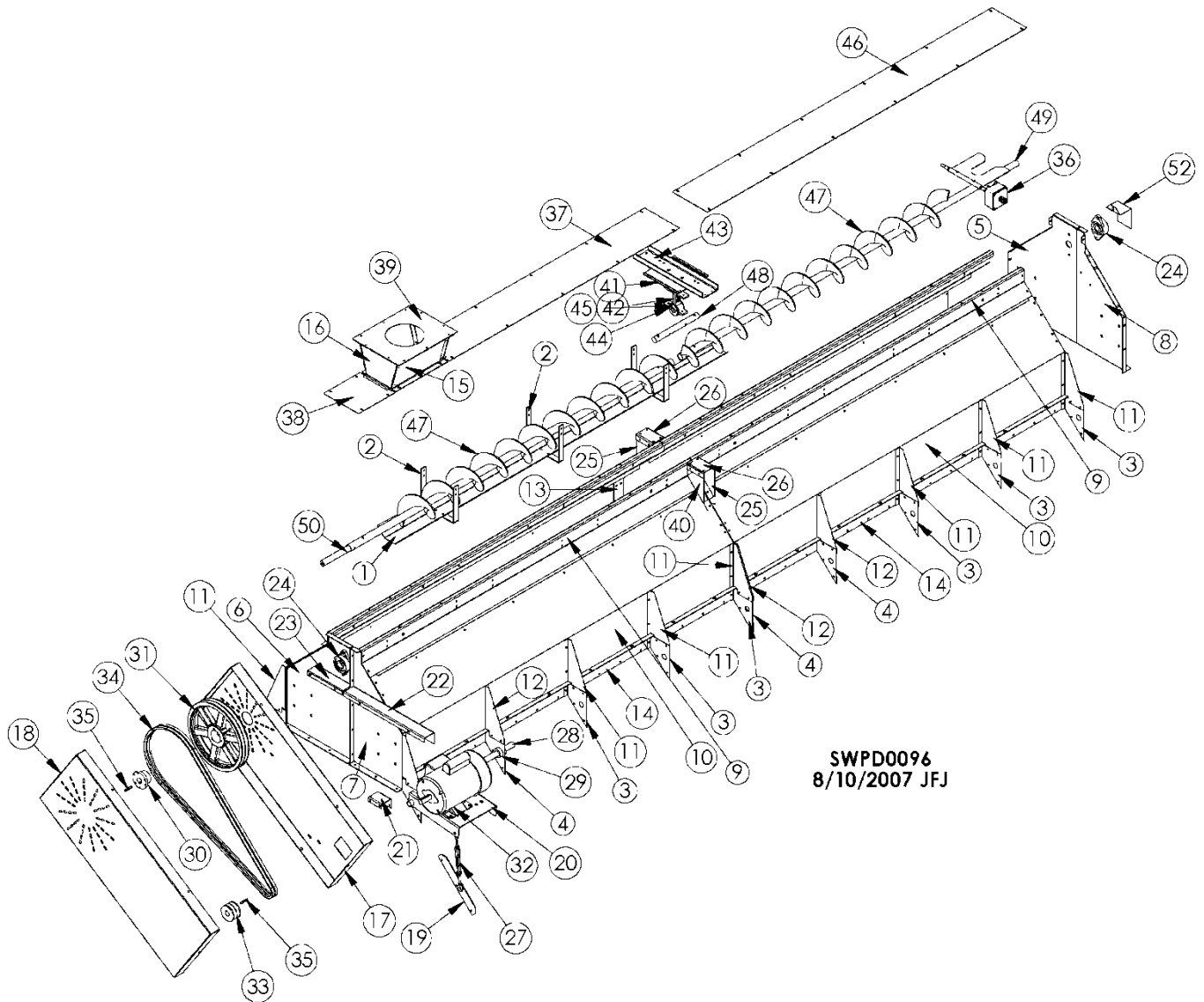


SWPD0095
8/10/2007 JFJ

12' AUGER FILL ASSEMBLY PARTS

REF. #	DESCRIPTION	QTY.	PART #
1	TRASH PAN	1	T16235
2	SUPPORT, TRASH PAN	3	T16236
3	LEFT SUPPORT GUSSET	8	T16117
4	RIGHT SUPPORT GUSSET	8	T16118
5	RR WET BIN END PLATE ASSY.	1	T17401AM
6	RF WET BIN END PLATE ASSY.	1	T17400AM
7	LF WET BIN END PLATE ASSY.	1	T17402AM
8	LR WET BIN END PLATE ASSY.	1	T17403AM
9	TOP 8' PANEL (FILL SWITCH)	2	T17457
10	WET BIN SIDE PERFORATED (STAINLESS)	2	T17450S
	WET BIN SIDE PERFORATED (GALVANIZED)	2	T17450
11	LT PIVOT BRACE WET BIN	8	T17410
12	RT PIVOT BRACE WET BIN	8	T17411
13	SPLICE, WET BIN SIDE	2	T17412
14	BOLT DOWN LIP 8' 2000	2	T17453
15	HOPPER SIDE	2	T17935
16	HOPPER END	2	T17936
17	TOP AUGER SHIELD (INNER)	1	T16256
18	TOP AUGER SHIELD (OUTER)	1	T16255
19	PLATE, TURNBUCKLE, CONNECTOR	1	T16283
20	TOP MOTOR MOUNT	1	T16277
21	TOP SHIELD BRACE ASSY.	1	T16258AM
22	BRACKET, LF TOP AUGER SHIELD ASSY.	1	T16861AM
23	BRACKET, RF TOP AUGER SHIELD ASSY.	1	T16860AM
24	BEARING, 1.25, FLG, W/LC, HCFTS207-20	2	J0010
25	SPLICE GUSSET RIGHT	2	T16145
26	SPLICE CHANNEL SHORT	2	T16146
27	TURNBUCKLE, 3/8" X 6"	1	J0904
28	PIVOT, MOTOR MOUNT, TOP	1	T18150
29	COLLAR, SHAFT, 1-3/16"	2	J1338
30	BUSHING, 1.25, SK	1	J0410
31	PULLEY, 15.75 OD, DBL "B" GR, SK	1	J03992
32	MTR, AUGER 3HP, 1PH, TEFC,	1	T12590
	MTR, AUGER 3HP, 3PH, TEFC	1	H3345
33	PULLEY, 3.5 OD, 1.25, DBL, B, CAST	1	J0317
34	BELT, B95	2	J0252
35	KEY, 1/4 X 1/4 X 2"	2	F4499
36	PADDLE, ASSEMBLY	1	T16262
37	LID, EXTENSION, WET BIN	1	T16159
38	FILL HOPPER ASSY.	1	T17937AM
39	SPLICE GUSSET LEFT	2	T16144
40	CRIMP PLATE	1	T16142
41	HANGER, AUGER, T, 6CH2203	1	J0097
42	SPLICE CHANNEL	1	T16143
43	BUSHING, WOOD, 1.25" ID	1	J0096
44	SPACER, T-HANGER, TOP AUGER	1	T16096
45	LID, WET HOLDING BIN	1	T16158
46	TOP AUGER	1	T16428
47	STUB SHAFT	1	F4720
48	SHAFT, 1.25" X 9" LG	1	G73291
49	SHAFT, TOP FRONT, 13-1/4"	1	T16436
50	LID, BIN, WET HLD. 12"	1	T12519
51	BOLT DOWN LIP, 4'	2	T12524
52	SIDE, WET BIN 4' (GALVANIZED)	2	T12525
	SIDE, WET BIN 4' (STAINLESS)	2	T12525S
53	TOP 4' PANEL (FILL SWITCH)	2	T12537
54	4' REAR, TOP AUGER	1	T12503
55	PLATE, SHORT SPLICE (NOT SHOWN)	2	T16141
56	REAR SHAFT SHIELD	1	T16420

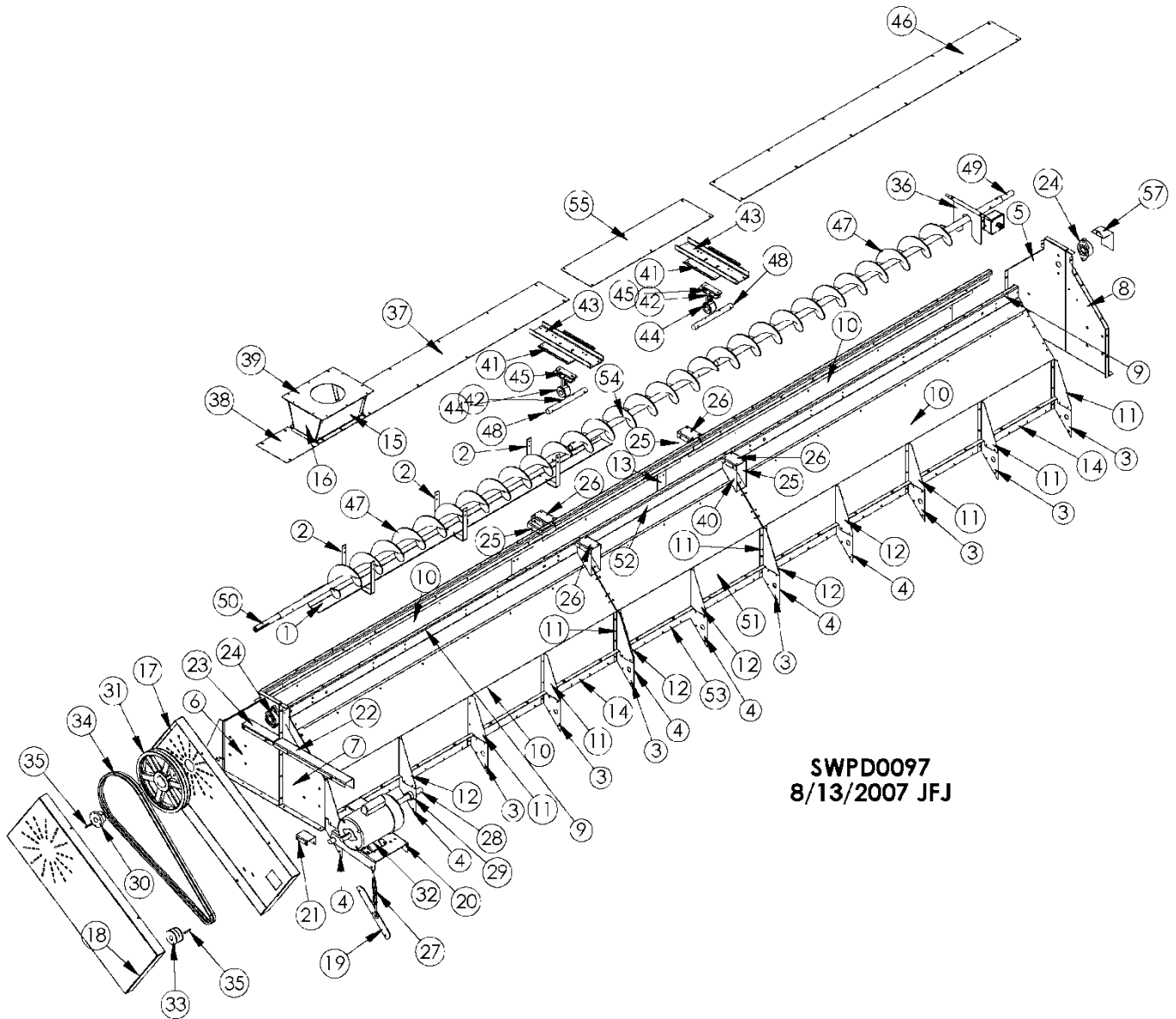
16' AUGER FILL ASSEMBLY



16' AUGER FILL ASSEMBLY PARTS

REF. #	DESCRIPTION	QTY	PART #	
			SINGLE MODULE / DOUBLE STACK	TRIPLE STACK
1	TRASH PAN	1	T16235	T16235
2	SUPPORT, TRASH PAN	3	T16236	T16236
3	LEFT SUPPORT GUSSET	12	T16117	T16117
4	RIGHT SUPPORT GUSSET	8	T16118	T16118
5	RR WET BIN END PLATE ASSY.	1	T17401AM	T17401AM
6	RF WET BIN END PLATE ASSY.	1	T17400AM	T17400AM
7	LF WET BIN END PLATE ASSY.	1	T17402AM	T17402AM
8	LR WET BIN END PLATE ASSY.	1	T17403AM	T17403AM
9	TOP 8' PANEL (FILL SWITCH)	4	T17457	T17457
10	WET BIN SIDE PERF, (STAINLESS)	4	T17450S	T17450S
	WET BIN SIDE PERF, (GALVANIZED)	4	T17450	T17450
11	LT PIVOT BRACE WET BIN	12	T17410	T17410
12	RT PIVOT BRACE WET BIN	8	T17411	T17411
13	SPLICE, WET BIN SIDE	2	T17412	T17412
14	BOLT DOWN LIP 8', 2000	4	T17453	T17453
15	HOPPER SIDE	2	T17935	T17935
16	HOPPER END	2	T17936	T17936
17	TOP AUGER SHIELD (INNER)	1	T16256	T16256
18	TOP AUGER SHIELD (OUTER)	1	T16255	T16255
19	PLATE, TURNBUCKLE, CONNECTOR	1	T16283	T16283
20	TOP MOTOR MOUNT	1	T16277	T16277
21	TOP SHIELD BRACE ASSY.	1	T16258AM	T16258AM
22	BRACKET, LF TOP AUGER SHIELD ASSY.	1	T16861AM	T16861AM
23	BRACKET, RF TOP AUGER SHIELD ASSY.	1	T16860AM	T16860AM
24	BEARING, 1.25, FLG, W/LC, HCFTS207 - 20	2	J0010	J0010
25	SPLICE GUSSET RIGHT	2	T16145	T16145
26	CHANNEL, SPLICE, SHORT	2	T16146	T16146
27	TURNBUCKLE, 3/8" X 6"	1	J0904	J0904
28	PIVOT, MOTOR MOUNT, TOP	1	T18150	T18150
29	COLLAR, SHAFT, 1-3/16"	2	J1338	J1338
30	BUSHING, 1.25 SK	1	J0410	J0410
31	PULLEY, 15.75OD, DOUBLE "B" GR. SK	1	J03992	J03992
32	MOTOR, AUGER 3HP, 1PH, TEFC	1	T12590	T12590
	MOTOR, AUGER 3HP, 3PH, TEFC	1	H3345	H3345
33	PULLEY, 3.5 OD, 1.25, DOUBLE, B, CAST	1	J0317	J0317
34	BELT, B95	2	J0252	J0252
35	KEY, 1/4 X 1/4 X 2	2	F4499	F4499
36	PADDLE, ASSEMBLY	1	T16262	T16262
37	LID, WET HOLDING BIN	1	T16157	T16157
38	LID, 10.5", EXTENSION, WET BIN	1	T16159	T16159
39	FILL HOPPER ASSY.	1	T17937AM	T17937AM
40	SPLICE GUSSET LEFT	2	T16144	T16144
41	CRIMP PLATE	1	T16142	T16142
42	HANGER, AUGER, T, 6CH2203	1	J0097	J0097
43	SPLICE CHANNEL	1	T16143	T16143
44	BUSHING, WOOD, 1.25" ID	1	J0096	J0096
45	SPACER, T-HANGER, TOP AUGER	1	T16096	T16096
46	LID, 92-1/2" WET HOLDING BIN	1	T16158	T16158
47	AUGER, TOP, 93-1/2" / AUGER, TOP, 93-1/2", 8"OD	2	T16428	T17428
48	SHAFT, 8' HANGER BEARING	1	F4720	F4720
49	SHAFT, 1.25" X 9"	1	G73291	G73291
50	SHAFT, TOP FRONT, 13-1/4"	1	T16436	T16436
51	PLATE, SHORT SPLICE (NOT SHOWN)	2	T16141	T16141
52	REAR SHAFT SHIELD	1	T16420	T16235

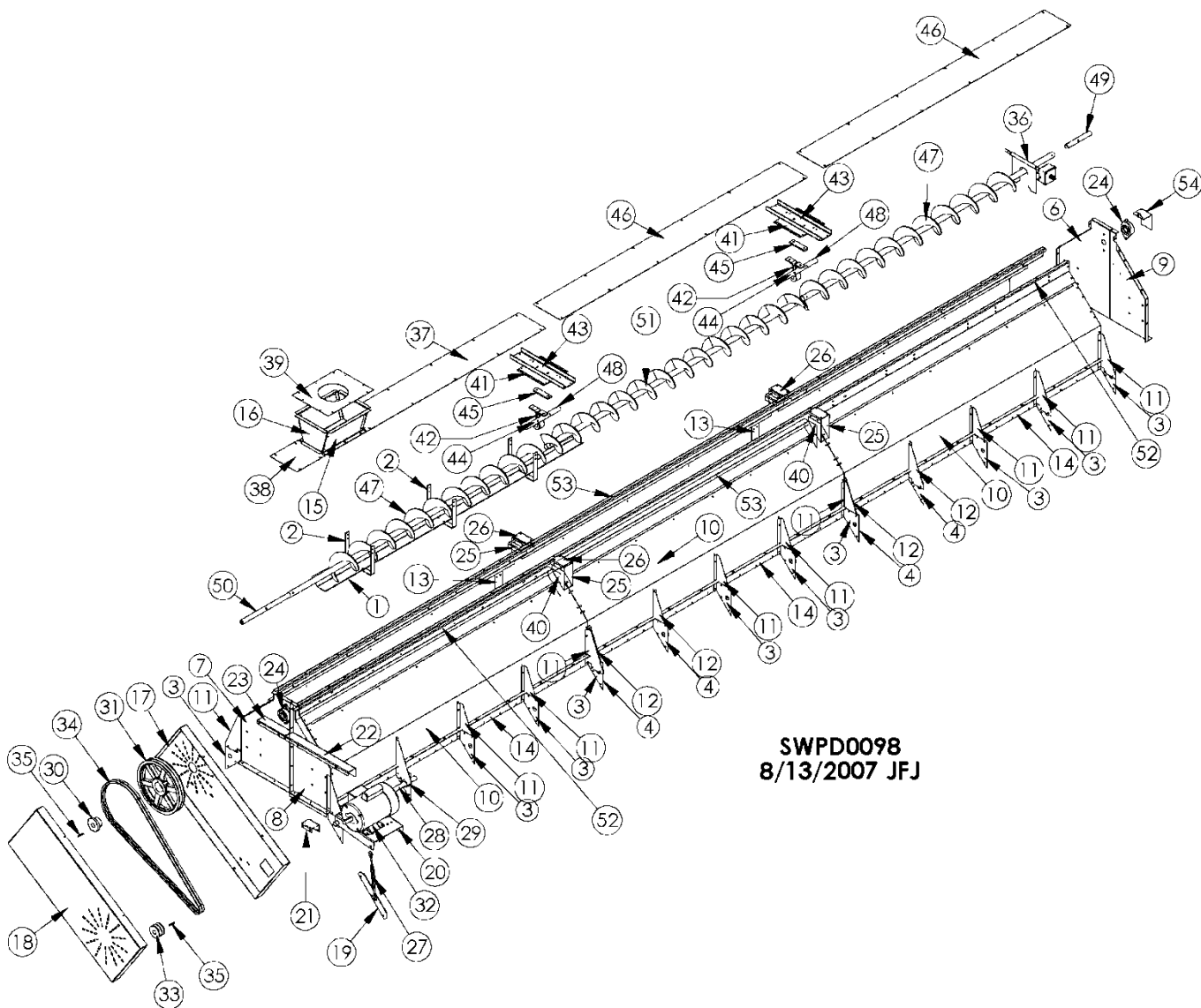
20' AUGER FILL ASSEMBLY



20' AUGER FILL ASSEMBLY PARTS

REF. #	DESCRIPTION	QTY.	PART #	
			SINGLE MODULE / DOUBLE STACK	TRIPLE STACK
1	TRASH PAN	1	T16235	T16235
2	SUPPORT, TRASH PAN	3	T16236	T16236
3	LEFT SUPPORT GUSSET	14	T16117	T16117
4	RIGHT SUPPORT GUSSET	12	T16118	T16118
5	RR WET BIN END PLATE ASSY.	1	T17401AM	T17401AM
6	RF WET BIN END PLATE ASSY.	1	T17400AM	T17400AM
7	LF WET BIN END PLATE ASSY.	1	T17402AM	T17402AM
8	LR WET BIN END PLATE ASSY.	1	T17403AM	T17403AM
9	TOP 8' PANEL (FILL SWITCH)	4	T17457	T17457
10	WET BIN SIDE PERF. (STAINLESS)	4	T17450S	T17450S
	WET BIN SIDE PERF. (GALVANIZED)	4	T17450	T17450
11	LT PIVOT BRACE WET BIN	14	T17410	T17410
12	RT PIVOT BRACE WET BIN	12	T17411	T17411
13	SPLICE, WET BIN SIDE	4	T17412	T17412
14	BOLT DOWN LIP 8', 2000	4	T17453	T17453
15	HOPPER SIDE	2	T17935	T17935
16	HOPPER END	2	T17936	T17936
17	TOP AUGER SHIELD (INNER)	1	T16256	T16256
18	TOP AUGER SHIELD (OUTER)	1	T16255	T16255
19	PLATE, TURNBUCKLE, CONNECTOR	1	T16283	T16283
20	TOP MOTOR MOUNT	1	T16277	T16277
21	TOP SHIELD BRACE ASSY.	1	T16258AM	T16258AM
22	BRACKET, LF TOP AUGER SHIELD ASSY.	1	T16861AM	T16861AM
23	BRACKET, RF TOP AUGER SHIELD ASSY.	1	T16860AM	T16860AM
24	BEARING, 1.25, FLG, W/LC, HCFTS207 - 20	2	J0010	J0010
25	SPLICE GUSSET RIGHT	4	T16145	T16145
26	CHANNEL, SPLICE, SHORT	4	T16146	T16146
27	TURNBUCKLE, 3/8" X 6"	1	J0904	J0904
28	PIVOT, MOTOR MOUNT, TOP	1	T18150	T18150
29	COLLAR, SHAFT, 1-3/16"	2	J1338	J1338
30	BUSHING, 1.25 SK	1	J0410	J0410
31	PULLEY, 15.75OD, DOUBLE "B" GR. SK	1	J03992	J03992
32	MOTOR, AUGER 5HP, 1PH, TEFC	1	T20590	T20590
	MOTOR, AUGER 5HP, 3PH, TEFC	1	H4190	H4190
33	PULLEY, 3.5 OD, 1.25, DOUBLE, B, CAST	1	J0317	J0317
34	BELT, B95	2	J0252	J0252
35	KEY, 1/4 X 1/4 X 2	2	F4499	F4499
36	PADDLE, ASSEMBLY	1	T16262	T16262
37	LID, WET HOLDING BIN	1	T16157	T16157
38	LID, 10.5", EXTENSION, WET BIN	1	T16159	T16159
39	FILL HOPPER ASSY.	1	T17937AM	T17937AM
40	SPLICE GUSSET LEFT	4	T16144	T16144
41	CRIMP PLATE	2	T16142	T16142
42	HANGER, AUGER, T, 6CH2203	2	J0097	J0097
43	SPLICE CHANNEL	2	T16143	T16143
44	BUSHING, WOOD, 1.25" ID	2	J0096	J0096
45	SPACER, T-HANGER, TOP AUGER	2	T16096	T16096
46	LID, 92-1/2" WET HOLDING BIN	1	T16158	T16158
47	AUGER, TOP, 93-1/2" / AUGER, TOP, 93-1/2", 8"OD	2	T16428	T17428
48	SHAFT, 8' HANGER BEARING	2	F4720	F4720
49	SHAFT, 1.25" X 9"	1	G73291	G73291
50	SHAFT, TOP FRONT, 13-1/4"	1	T16436	T16436
51	SIDE, WET BIN, 4', 2000	2	T12525	T12525
52	TOP 4' PANEL (LR) 12'	2	T20526	T20526
53	BOLT DOWN LIP, 4'	2	T12524	T12524
54	AUGER, TOP MID, 45-1/2" / AUGER, TOP MID, 45-1/2", 8"OD	1	T16427	T17427
55	LID, WET HOLDING BIN, 20' DRYER	1	T20158	T20158
56	PLATE, SHORT SPLICE (NOT SHOWN)	4	T16141	T16141
57	REAR SHAFT SHIELD	1	T16420	T16420

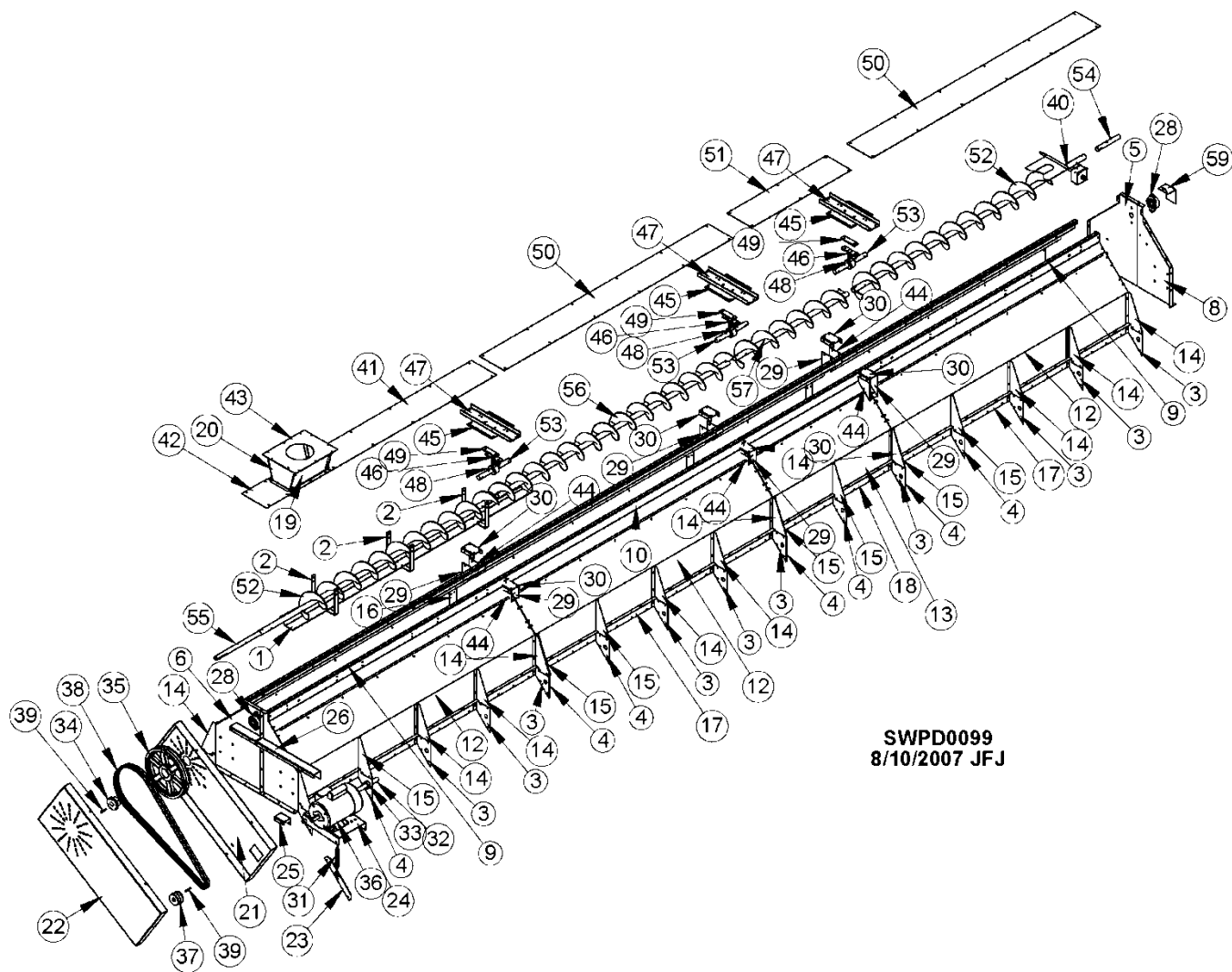
24' AUGER FILL ASSEMBLY



24' AUGER FILL ASSEMBLY PARTS

REF. #	DESCRIPTION	QTY.	PART #	
			SINGLE MODULE/DOUBLE STACK	TRIPLE STACK
1	TRASH PAN	1	T16235	T16235
2	SUPPORT, TRASH PAN	3	T16236	T16236
3	SUPPORT GUSSET, LEFT	17	T16117	T16117
4	SUPPORT GUSSET, RIGHT	13	T16118	T16118
5	SPLICE PLATE, SHORT (NOT SHOWN)	4	T16141	T16141
6	RR WET BIN END PLATE ASSY.	1	T17401AM	T17401AM
7	RF WET BIN END PLATE ASSY.	1	T17400AM	T17400AM
8	LF WET BIN END PLATE ASSY.	1	T17402AM	T17402AM
9	LR WET BIN END PLATE ASSY.	1	T17403AM	T17403AM
10	WET BIN SIDE PERF, (STAINLESS)	6	T17450S	T17450S
	WET BIN SIDE PERF, (GALVANIZED)	6	T17450	T17450
11	LT PIVOT BRACE WET BIN	17	T17410	T17410
12	RT PIVOT BRACE WET BIN	13	T17411	T17411
13	SPLICE, WET BIN SIDE	4	T17412	T17412
14	BOLT DOWN LIP 8", 2000	6	T17453	T17453
15	HOPPER SIDE	2	T17935	T17935
16	HOPPER END	2	T17936	T17936
17	TOP AUGER SHIELD (INNER)	1	T16256	T16256
18	TOP AUGER SHIELD (OUTER)	1	T16255	T16255
19	PLATE, TURNBUCKLE, CONNECTOR	1	T16283	T16283
20	TOP MOTOR MOUNT	1	T16277	T16277
21	TOP SHIELD BRACE ASSY.	1	T16258AM	T16258AM
22	BRACKET, LF TOP AUGER SHIELD ASSY.	1	T16861AM	T16861AM
23	BRACKET, RF TOP AUGER SHIELD ASSY.	1	T16860AM	T16860AM
24	BEARING, 1.25, FLG, W/LC, HCFTS207 - 20	2	J0010	J0010
25	SPLICE GUSSET, RIGHT	4	T16145	T16145
26	SPLICE CHANNEL, SHORT	4	T16146	T16146
27	TURNBUCKLE, 3/8" X 6"	1	J0904	J0904
28	PIVOT, MOTOR MOUNT, TOP	1	T18150	T18150
29	COLLAR, SHAFT, 1-3/16"	2	J1338	J1338
30	BUSHING, 1.25 SK	1	J0410	J0410
31	PULLEY, 15.75OD, DOUBLE "B" GR. SK	1	J03992	J03992
32	MOTOR, AUGER 5HP, 1PH, TEFC	1	T20590	T20590
	MOTOR, AUGER 5HP, 3PH, TEFC	1	H4190	H4190
33	PULLEY, 3.5OD, 1.25, DOUBLE, B, CAST	1	J0317	J0317
34	BELT, B95	2	J0252	J0252
35	KEY, 1/4 X 1/4 X 2	2	F4499	F4499
36	PADDLE, ASSEMBLY	1	T16262	T16262
37	LID, WET HOLDING BIN	1	T16157	T16157
38	LID, 10.5", EXTENSION, WET BIN	1	T16159	T16159
39	FILL HOPPER ASSY.	1	T17937AM	T17937AM
40	SPLICE GUSSET, LEFT	4	T16144	T16144
41	CRIMP PLATE	2	T16142	T16142
42	HANGER, AUGER, T, 6CH2203	2	J0097	J0097
43	SPLICE CHANNEL	2	T16143	T16143
44	BUSHING, WOOD, 1.25" ID	2	J0096	J0096
45	SPACER, T-HANGER, TOP AUGER	2	T16096	T16096
46	LID, 92-1/2" WET HOLDING BIN	2	T16158	T16158
47	AUGER, TOP, 93-1/2" / AUGER, TOP, 93-1/2", 8"OD	2	T16428	T17428
48	SHAFT, 8" HANGER BEARING	2	F4720	F4720
49	SHAFT, 1.25" X 9"	1	G73291	G73291
50	SHAFT, TOP FRONT, 13-1/4"	1	T16436	T16436
51	AUGER, BTM. FRNT., 93-1/2" / AUGER, BTM. FRNT., 93-1/2", 8"OD	1	T16430	T17430
52	TOP 8" PANEL (FILL SWITCH)	4	T17457	T17457
53	TOP 8" PANEL (LR&RF) 2000	2	T24451	T24451
54	REAR SHAFT SHIELD	1	T16420	T16420

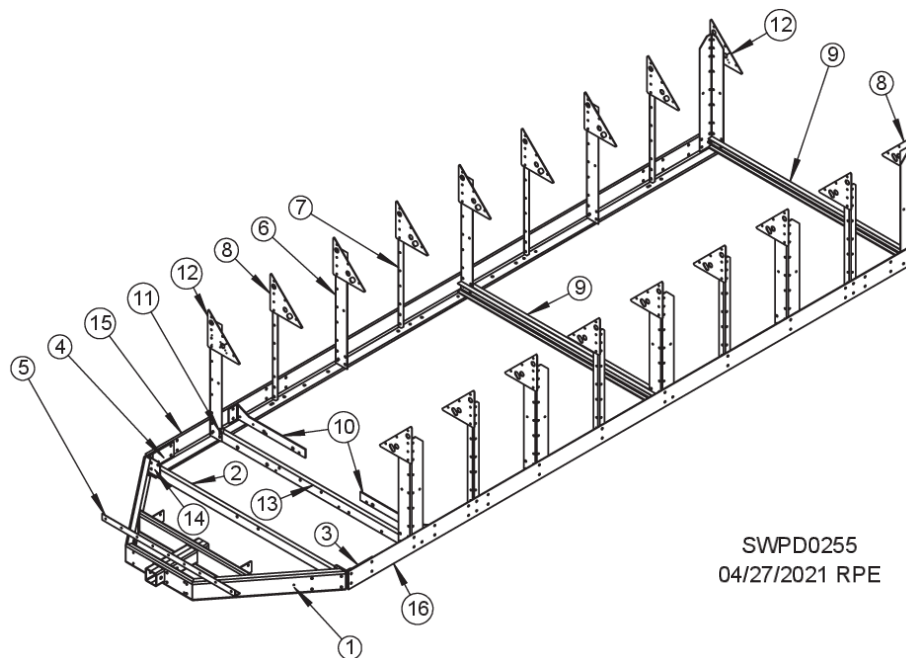
28' AUGER FILL ASSEMBLY



28' AUGER FILL ASSEMBLY PARTS

REF. #	DESCRIPTION	QTY.	PART #
1	Trash Pan	1	T16235
2	Support, Trash Pan	3	T16236
3	Left Support Gusset	20	T16117
4	Right Support Gusset	16	T16118
5	RR Wet Bin End Plate Assy.	1	T17401AM
6	RF Wet Bin End Plate Assy.	1	T17400AM
7	LF Wet Bin End Plate Assy.	1	T17402AM
8	LR Wet Bin End Plate Assy.	1	T17403AM
9	Top 8' Panel (Fill Switch)	4	T17457
10	Top 8' Panel (LR & RF) 2000	2	T24451
11	Top 4' Panel (LR) 12FT 2000	2	T20526
12	Wet Bin Side Perf, (Stainless)	6	T17450S
	Wet Bin Side Perf, (Galvanized)	6	T17450
13	Side, Wet Bin, 4FT 2000	2	T12525
14	LT Pivot Brace Wet Bin	20	T17410
15	RT Pivot Brace Wet Bin	16	T17411
16	Splice, Wet Bin Side	6	T17412
17	Bolt Down Lip 8', 2000	6	T17453
18	Bolt Down Lip 4', 2000	2	T12524
19	Hopper Side	2	T17935
20	Hopper End	2	T17936
21	Top Auger Shield (Inner)	1	T16256
22	Top Auger Shield (Outer)	1	T16255
23	Plate, Turnbuckle, Connector	1	T16283
24	Top Motor Mount	1	T16277
25	Top Shield Brace Assy.	1	T16258AM
26	Bracket, LF Top Auger Shield Assy.	1	T16861AM
27	Bracket, RF Top Auger Shield Assy.	1	T16860AM
28	Bearing, 1.25, FLG, W/LC, HCFTS207 - 20	2	J0010
29	Splice Gusset Right	6	T16145
30	Channel, Splice, Short	6	T16146
31	Turnbuckle, 3/8" x 6"	1	J0904
32	Pivot, Motor Mount, Top	1	T18150
33	Collar, Shaft, 1-3/16"	2	J1338
34	Bushing, 1.25 SK	1	J0410
35	Pulley, 15.75OD, Double "B" Gr. SK	1	J03992
36	Motor, Auger 5HP, 1ph, TEFC	1	T20590
	Motor, Auger 5HP, 3ph, TEFC	1	H4190
37	Pulley, 3.5 OD, 1.25, Double, B, Cast	1	J0317
38	Belt, B95	2	J0252
39	Key, 1/4 x 1/4 x 2	2	F4499
40	Paddle, Assembly	1	T16262
41	Lid, Wet Holding Bin	1	T16157
42	Lid, 10.5", Extension, Wet Bin	1	T16159
43	Fill Hopper Assy.	1	T17937AM
44	Splice Gusset Left	6	T16144
45	Crimp Plate	3	T16142
46	Hanger, Auger, T, 6CH2203	3	J0097
47	Splice Channel	3	T16143
48	Bushing, Wood, 1.25" ID	3	J0096
49	Spacer, T-Hanger, Top auger	3	T16096
50	Lid, 92-1/2" Wet Holding Bin	2	T16158
51	Lid, Wet Holding Bin 20FT	1	T20158
52	Top Auger	2	T16428
53	Shaft, 8' Hanger Bearing	3	F4720
54	Shaft, 1.25" x 9"	1	G73291
55	Shaft, Top Front, 13-1/4"	1	T16436
56	Auger, Bottom Front, 93-1/2"	1	T16430
57	Top Middle Auger (20FT)	1	T16427
58	Plate, Short Splice (not shown)	6	T16141
59	Rear Shaft Shield	1	T16420

FRAME FOR STANDARD & STACKED DRYERS, 8', 12', 16', 20', 24' & 28'

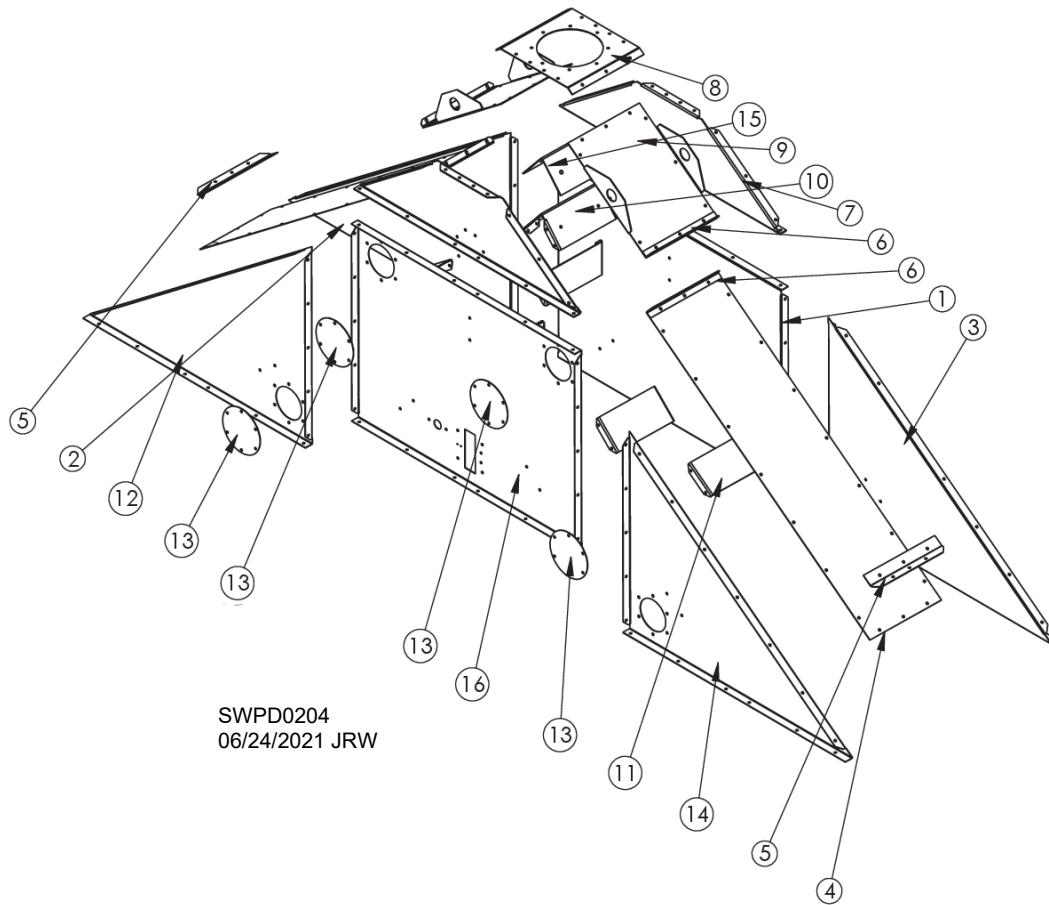


SWPD0255
04/27/2021 RPE

REF. #	DESCRIPTION	8' DRYER		12' DRYER		16' DRYER	
		QTY.	PART #	QTY.	PART #	QTY.	PART #
1	Hitch receiver weldment	1	T15320	1	T15320	1	T15320
2	Cross channel, front, 74-13/16"	1	T15321	1	T15321	1	T15321
3	Hitch connector plate, LH	1	T15322	1	T15322	1	T15322
4	Hitch connector plate, RH	1	T15323	1	T15323	1	T15323
5	Fan support angle	1	T15324	1	T15324	1	T15324
6	Wide vertical support	6	T16322	8	T16322	10	T16322
7	Narrow vertical support	4	T16323	6	T16323	8	T16323
8	Main connector plate	8	T16324	12	T16324	16	T16324
9	Cross channel	1	T16325	3	T16325	3	T16325
10	Motor brace	2	T16328	2	T16328	2	T16328
11	Tightener angle	1	T16329	1	T16329	1	T16329
12	Conduit box connector plate	2	T16331	2	T16331	2	T16331
13	Front cross channel	1	T16333	1	T16333	1	T16333
14	Cross channel bracket	2	T80147	2	T80147	2	T80147
15	Right frame angle	1	T08515	1	T13517	1	T80205
16	Left frame angle	1	T08516	1	T13518	1	T80206

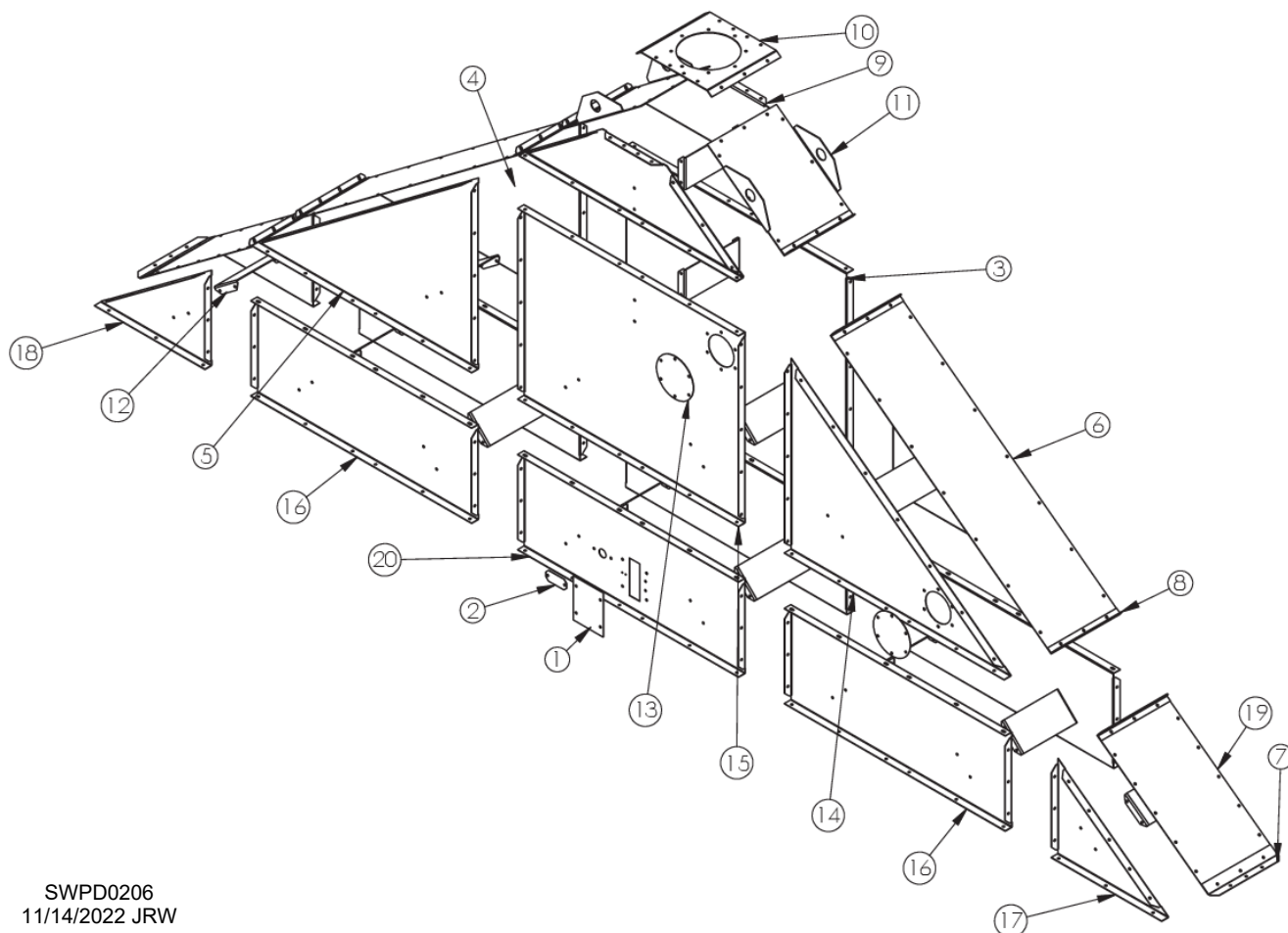
REF. #	DESCRIPTION	20' DRYER		24' DRYER		28' DRYER	
		QTY.	PART #	QTY.	PART #	QTY.	PART #
1	Hitch receiver weldment	1	T15320	1	T15320	1	T15320
2	Cross channel, front, 74-13/16"	1	T15321	1	T15321	1	T15321
3	Hitch connector plate, LH	1	T15322	1	T15322	1	T15322
4	Hitch connector plate, RH	1	T15323	1	T15323	1	T15323
5	Fan support angle	1	T15324	1	T15324	1	T15324
6	Wide vertical support	12	T16322	14	T16322	16	T16322
7	Narrow vertical support	10	T16323	12	T16323	14	T16323
8	Main connector plate	20	T16324	24	T16324	28	T16324
9	Cross channel	5	T16325	5	T16325	7	T16325
10	Motor brace	2	T16328	2	T16328	2	T16328
11	Tightener angle	1	T16329	1	T16329	1	T16329
12	Conduit box connector plate	2	T16331	2	T16331	2	T16331
13	Front cross channel	1	T16333	1	T16333	1	T16333
14	Cross channel bracket	2	T80147	2	T80147	2	T80147
15	Right frame angle	1	T20419	1	T24419	1	T28419
16	Left frame angle	1	T20420	1	T24420	1	T28420

12' DRYER GRAVITY FILL ASSEMBLY



REF. #	DESCRIPTION	QTY.	PART #
1	SIDEWALL, CENTER, GRAVITY FILL	1	TM04060
2	SIDEWALL, SIDE, RIGHT, GRAVITY FILL	1	TM04061
3	SIDEWALL, SIDE, LEFT, GRAVITY FILL	1	TM04062
4	COVER, SIDE, FULL, GRAVITY FILL	2	TM04063
5	ANGLE, SPLICE, COVER, BOTTOM	2	TM04064
6	ANGLE, SPLICE, COVER, GRAVITY FILL	4	TM04065
7	SIDE, EXTENSION, INLET, GRAVITY FILL	2	TM04066
8	TOP, EXTENSION, INLET, GRAVITY FILL	1	TM04067
9	COVER, EXTENSION, INLET, GRAVITY FILL	2	TM04068
10	BRACE, EXTENSION, INLET, GRAVITY FILL	1	TM04069
11	BRACE, INTERIOR, GRAVITY FILL	5	TM04070
12	SIDEWALL, SIDE, LEFT, GRAV FILL	1	TM04073
13	COVER, OPENING, SWITCH, FILL	4	TM04074
14	SIDEWALL, GRAV FILL, RT, SNSR	1	TM04088
15	LINER, INLET, GRAVITY FILL, TOP	1	TM04089
16	SIDEWALL, GRAV FILL, MOIST SNSR	1	TM04172

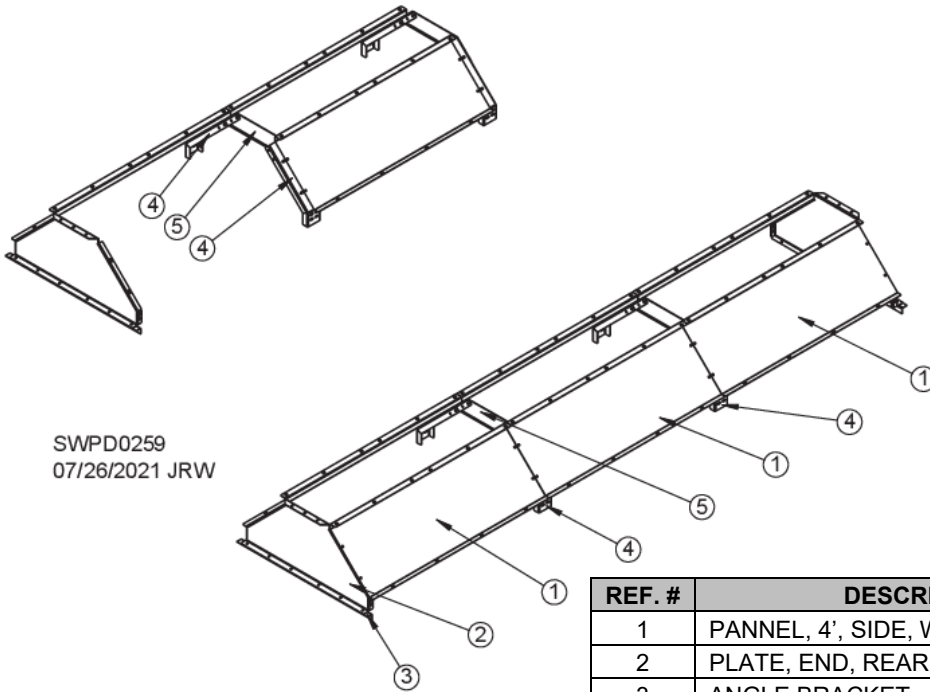
16' DRYER GRAVITY FILL ASSEMBLY



SWPD0206
11/14/2022 JRW

REF. #	DESCRIPTION	QTY.	PART #
1	PLATE, COVER, RF GARNER END	1	T17415
2	COVER PLATE, SAMPLE SPOUT	1	T43936
3	SIDEWALL, CENTER, GRAVITY FILL	1	TM04060
4	SIDEWALL, SIDE, RIGHT, GRAVITY FILL	1	TM04061
5	SIDEWALL, SIDE, LEFT, GRAVITY FILL	2	TM04062
6	COVER, SIDE, FULL, GRAVITY FILL	2	TM04063
7	ANGLE, SPLICE, COVER, BOTTOM	2	TM04064
8	ANGLE, SPLICE, COVER, GRAVITY FILL	8	TM04065
9	SIDE, EXTENSION, INLET, GRAVITY FILL	2	TM04066
10	TOP, EXTENSION, INLET, GRAVITY FILL	1	TM04067
11	COVER, EXT, INLET, GRAVITY FILL	2	TM04068
12	BRACE, INTERIOR, GRAVITY FILL	14	TM04070
13	COVER, OPENING, SWITCH, FILL	2	TM04074
14	SIDEWALL, GRAVITY FILL, RT, SNSR	1	TM04088
15	SIDEWALL, CENTER, GRAVITY FILL	1	TM04099
16	SIDEWALL, GRAV FILL, MID, 48" X 18"	5	TM04140
17	SIDEWALL, RT, 24" X 18", GRAVITY FILL	2	TM04141
18	SIDEWALL, LEFT, 24" X 18", GRAVITY FILL	2	TM04142
19	COVER, SIDE, HALF, GRAVITY FILL	2	TM04143
20	SIDEWALL, GRAVITY FILL, MID, MST SNS	1	TM04173

12' DRYER GRAVITY FILL TRANSITION ASSEMBLY

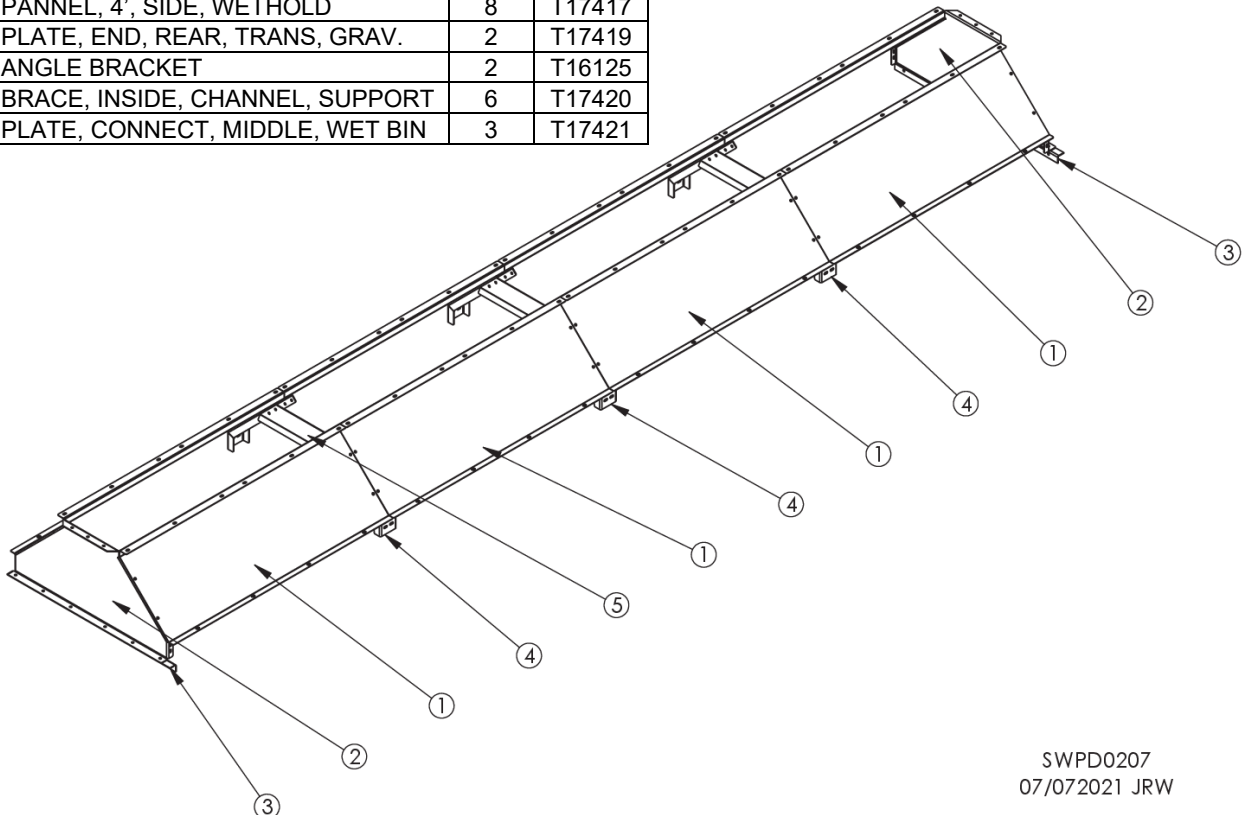


SWPD0259
07/26/2021 JRW

REF. #	DESCRIPTION	QTY.	PART #
1	PANNEL, 4', SIDE, WETHOLD	6	T17417
2	PLATE, END, REAR, TRANS, GRAV.	2	T17419
3	ANGLE BRACKET	2	T16125
4	BRACE, INSIDE, CHANNEL, SUPPORT	4	T17420
5	PLATE, CONNECT, MIDDLE, WET BIN	2	T17421

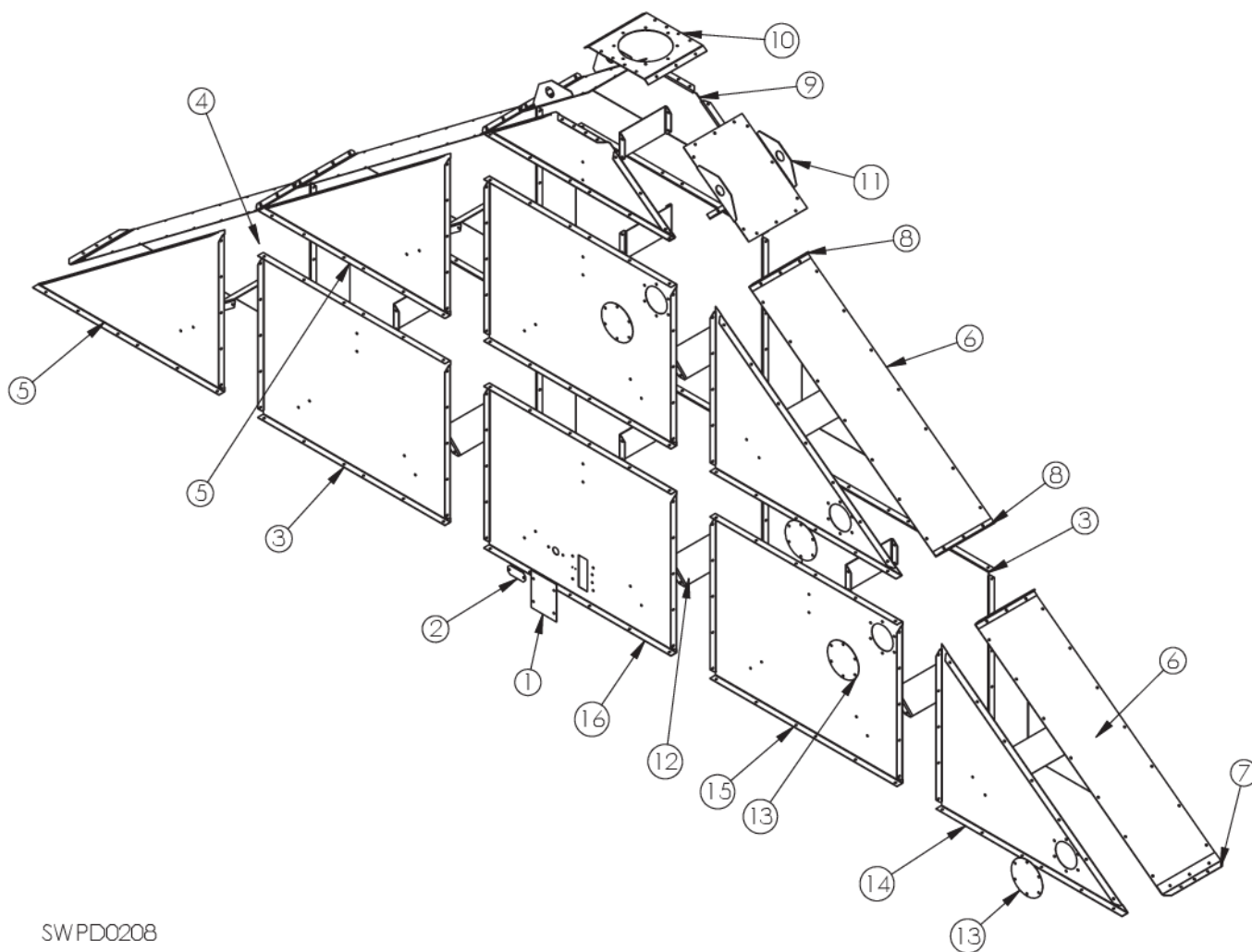
16' DRYER GRAVITY FILL TRANSITION ASSEMBLY

REF. #	DESCRIPTION	QTY.	PART #
1	PANNEL, 4', SIDE, WETHOLD	8	T17417
2	PLATE, END, REAR, TRANS, GRAV.	2	T17419
3	ANGLE BRACKET	2	T16125
4	BRACE, INSIDE, CHANNEL, SUPPORT	6	T17420
5	PLATE, CONNECT, MIDDLE, WET BIN	3	T17421



SWPD0207
07/07/2021 JRW

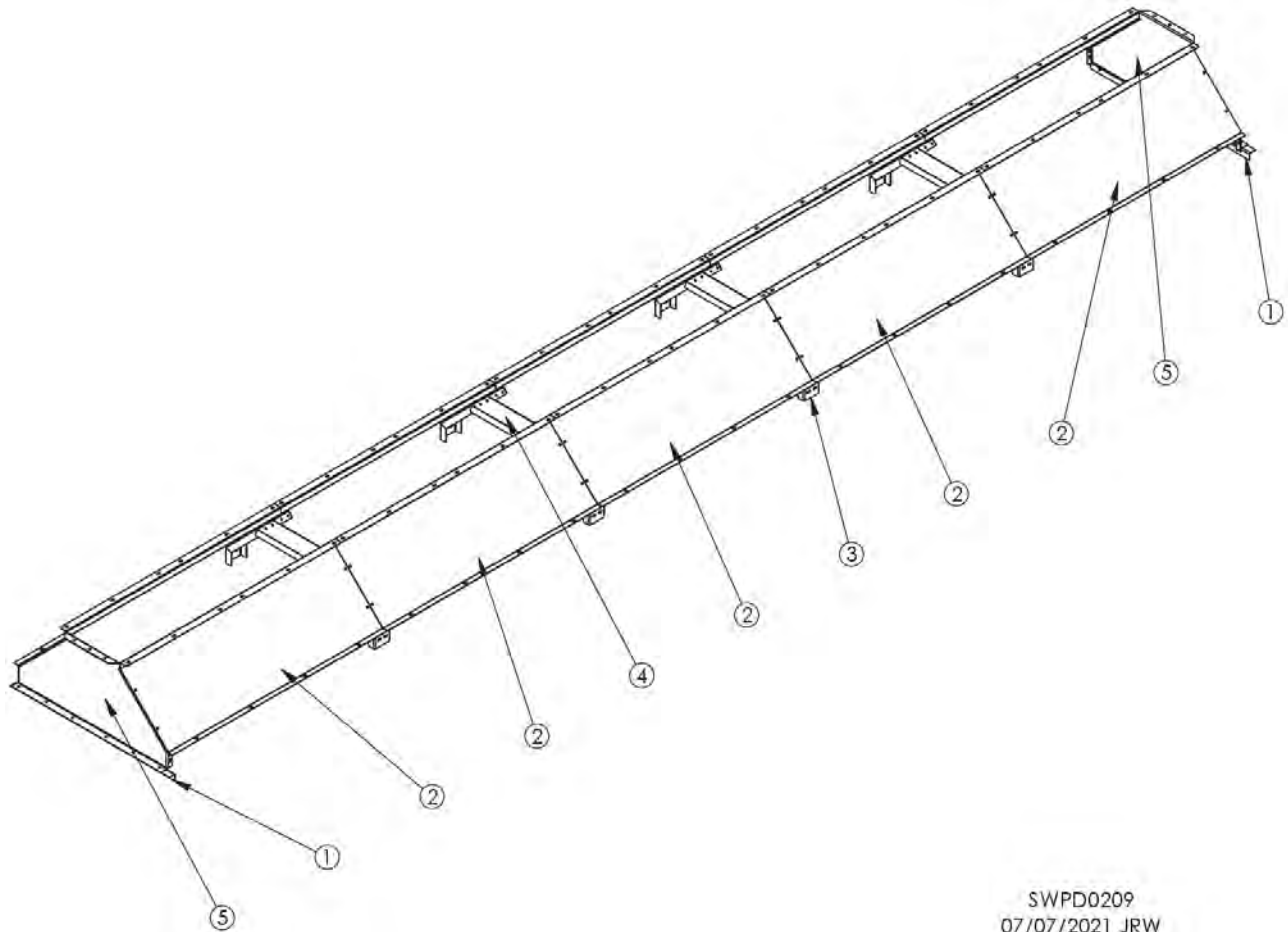
20' DRYER GRAVITY FILL ASSEMBLY



SWPD0208
11/10/2022 JPH

REF. #	DESCRIPTION	QTY.	PART #
1	PLATE, COVER, RF GARNER END	1	T17415
2	COVER PLATE, SAMPLE SPOUT	1	T43936
3	SIDEWALL, CENTER, GRAVITY FILL	5	TM04060
4	SIDEWALL, SIDE, RIGHT, GRAVITY FILL	3	TM04061
5	SIDEWALL, SIDE, LEFT, GRAVITY FILL	4	TM04062
6	COVER, SIDE, FULL, GRAVITY FILL	4	TM04063
7	ANGLE, SPLICE, COVER, BOTTOM	2	TM04064
8	ANGLE, SPLICE, COVER, GRAVITY FILL	8	TM04065
9	SIDE, EXTENSION, INLET, GRAVITY FILL	2	TM04066
10	TOP, EXTENSION, INLET, GRAVITY FILL	1	TM04067
11	COVER, EXT, INLET, GRAVITY FILL	2	TM04068
12	BRACE, INTERIOR, GRAVITY FILL	17	TM04070
13	COVER, OPENING, SWITCH, FILL	4	TM04074
14	SIDEWALL, GRAVITY FILL, RT, SNSR	2	TM04088
15	SIDEWALL, CENTER, GRAVITY FILL	2	TM04099
16	SIDEWALL, GRAV FILL, SENSORS	1	TM04160

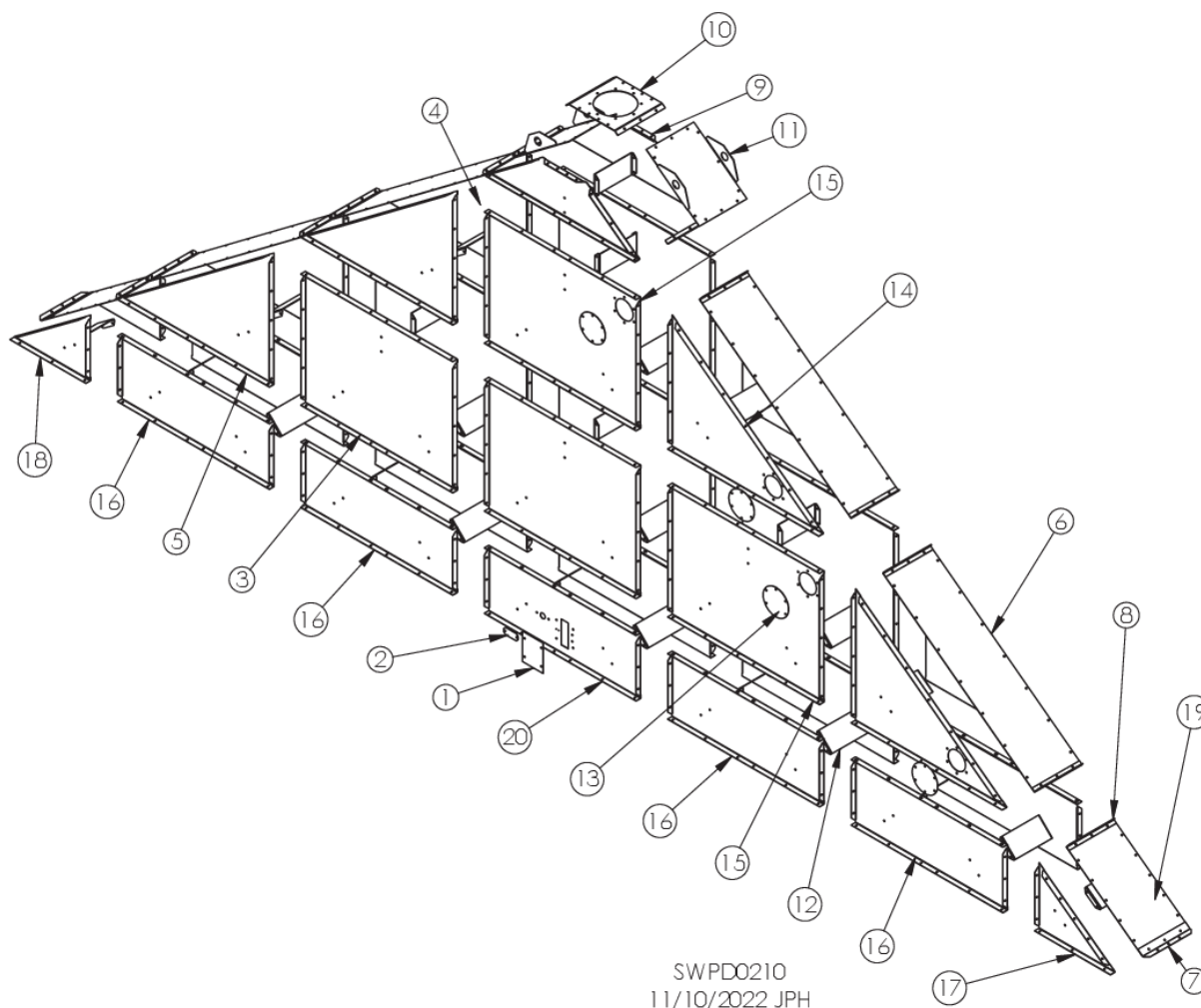
20' DRYER GRAVITY FILL TRANSITION ASSEMBLY



SWPD0209
07/07/2021 JRW

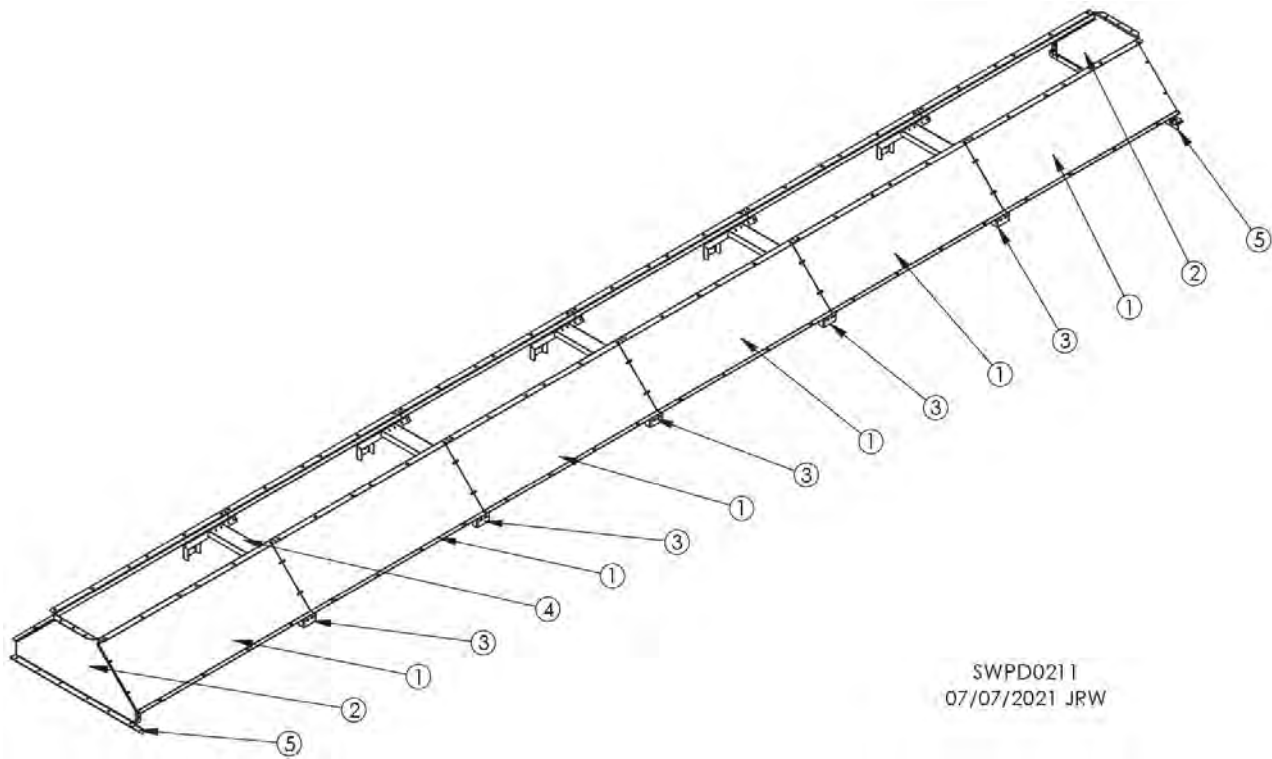
REF. #	DESCRIPTION	QTY.	PART #
1	ANGLE BRACKET	2	T16125
2	PANNEL, 4', SIDE, WETHOLD	10	T17417
3	BRACE, INSIDE, CHANNEL, SUPPORT	8	T17420
4	PLATE, CONNECT, MIDDLE, WET BIN	4	T17421
5	PLATE, END, REAR, TRANS, GRAV.	2	T17419

24' DRYER GRAVITY FILL ASSEMBLY



REF. #	DESCRIPTION	QTY.	PART #
1	PLATE, COVER, RF GARNER END	1	T17415
2	COVER PLATE, SAMPLE SPOUT	1	T43936
3	SIDEWALL, CENTER, GRAVITY FILL	6	TM04060
4	SIDEWALL, SIDE, RIGHT, GRAVITY FILL	2	TM04061
5	SIDEWALL, SIDE, LEFT, GRAVITY FILL	4	TM04062
6	COVER, SIDE, FULL, GRAVITY FILL	4	TM04063
7	ANGLE, SPLICE, COVER, BOTTOM	2	TM04064
8	ANGLE, SPLICE, COVER, GRAVITY FILL	12	TM04065
9	SIDE, EXTENSION, INLET, GRAVITY FILL	2	TM04066
10	TOP, EXTENSION, INLET, GRAVITY FILL	1	TM04067
11	COVER, EXT, INLET, GRAVITY FILL	2	TM04068
12	BRACE, INTERIOR, GRAVITY FILL	29	TM04070
13	COVER, OPENING, SWITCH, FILL	4	TM04074
14	SIDEWALL, GRAVITY FILL, RT, SNSR	2	TM04088
15	SIDEWALL, CENTER, GRAVITY FILL	2	TM04099
16	SIDEWALL, GRAV FILL, MID, 48" X 18"	9	TM04140
17	SIDEWALL, RT, 24" X 18", GRAVITY FILL	2	TM04141
18	SIDEWALL, LEFT, 24" X 18", GRAVITY FILL	2	TM04142
19	COVER, SIDE, HALF, GRAVITY FILL	2	TM04143
20	SIDEWALL, GRAVITY FILL, MID, MST SNS	1	TM04173

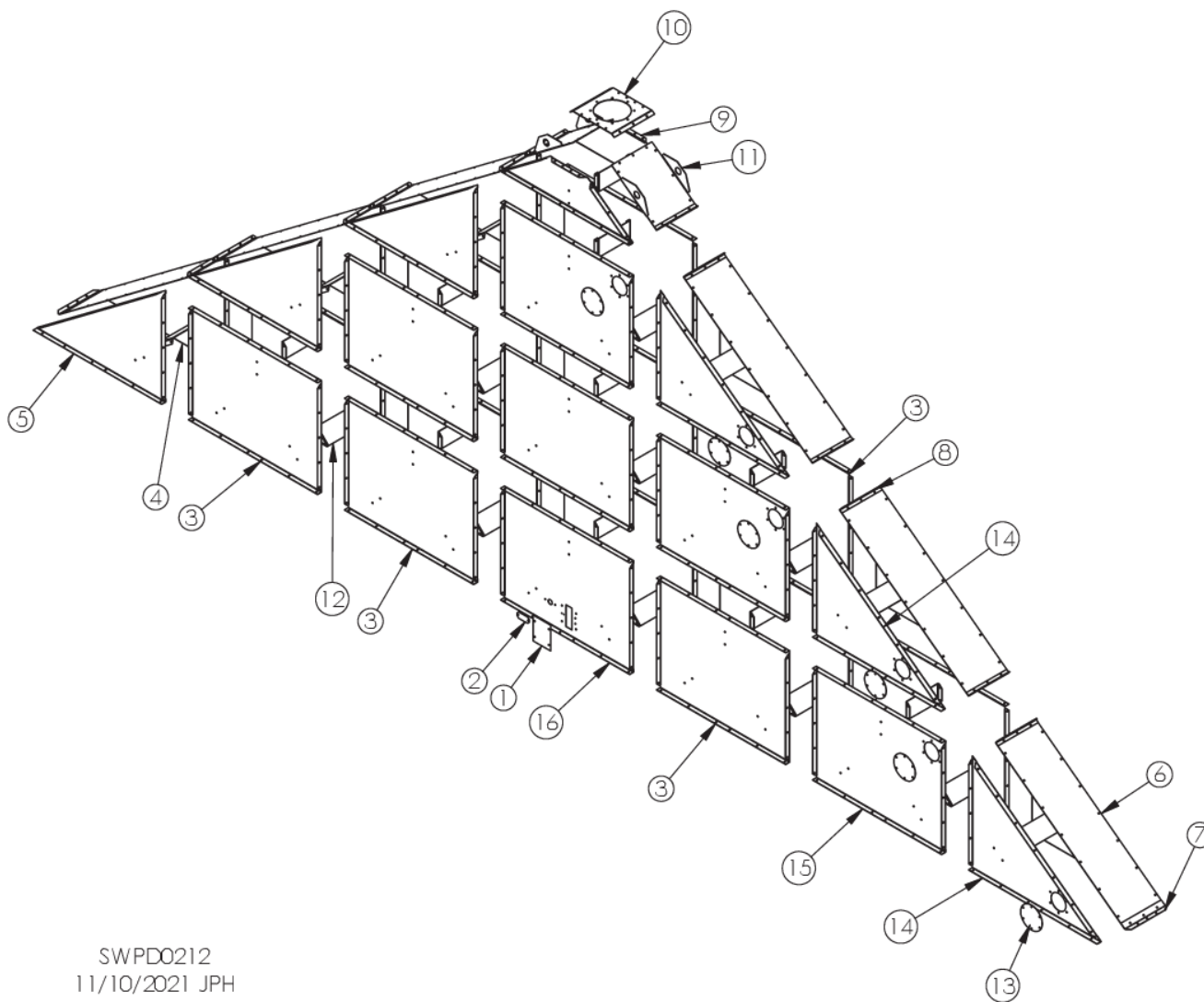
24' DRYER GRAVITY FILL TRANSITION ASSEMBLY



SWPD021 I
07/07/2021 JRW

REF. #	DESCRIPTION	QTY.	PART #
1	PANNEL, 4', SIDE, WETHOLD	12	T17417
2	PLATE, END, REAR, TRANS, GRAV.	2	T17419
3	BRACE, INSIDE, CHANNEL, SUPPORT	10	T17420
4	PLATE, CONNECT, MIDDLE, WET BIN	5	T17421
5	ANGLE BRACKET	2	T16125

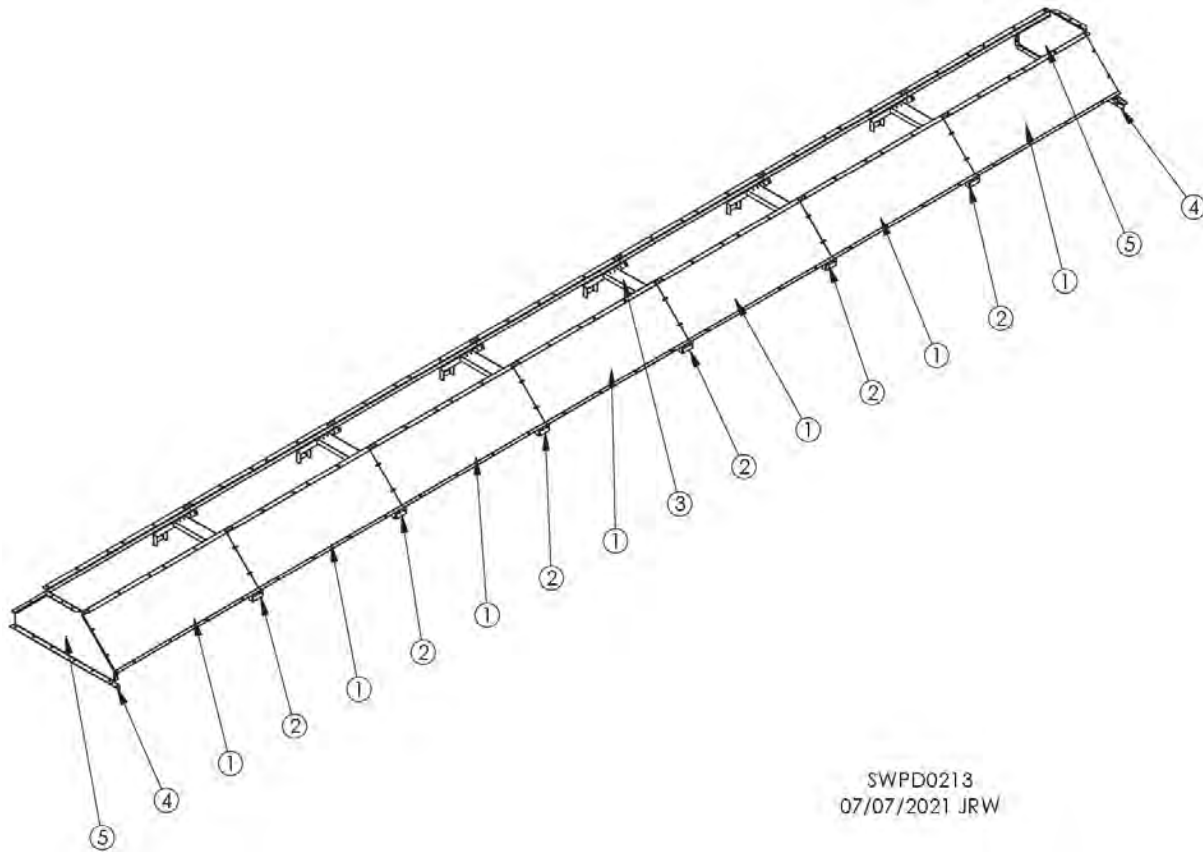
28' DRYER GRAVITY FILL ASSEMBLY



SWPD0212
11/10/2021 JPH

REF. #	DESCRIPTION	QTY.	PART #
1	PLATE, COVER, RF GARNER END	1	T17415
2	COVER PLATE, SAMPLE SPOUT	1	T43936
3	SIDEWALL, CENTER, GRAVITY FILL	14	TM04060
4	SIDEWALL, SIDE, RIGHT, GRAVITY FILL	3	TM04061
5	SIDEWALL, SIDE, LEFT, GRAVITY FILL	6	TM04062
6	COVER, SIDE, FULL, GRAVITY FILL	6	TM04063
7	ANGLE, SPLICE, COVER, BOTTOM	2	TM04064
8	ANGLE, SPLICE, COVER, GRAVITY FILL	12	TM04065
9	SIDE, EXTENSION, INLET, GRAVITY FILL	2	TM04066
10	TOP, EXTENSION, INLET, GRAVITY FILL	1	TM04067
11	COVER, EXTENSION, INLET, GRAVITY FILL	2	TM04068
12	BRACE, INTERIOR, GRAVITY FILL	34	TM04070
13	COVER, OPENING, SWITCH, FILL	6	TM04074
14	SIDEWALL, GRAV. FILL, RT, SNSR	3	TM04088
15	SIDEWALL, CENTER, GRAVITY FILL	3	TM04099
16	SIDEWALL, GRAV FILL, SENSORS	1	TM04160

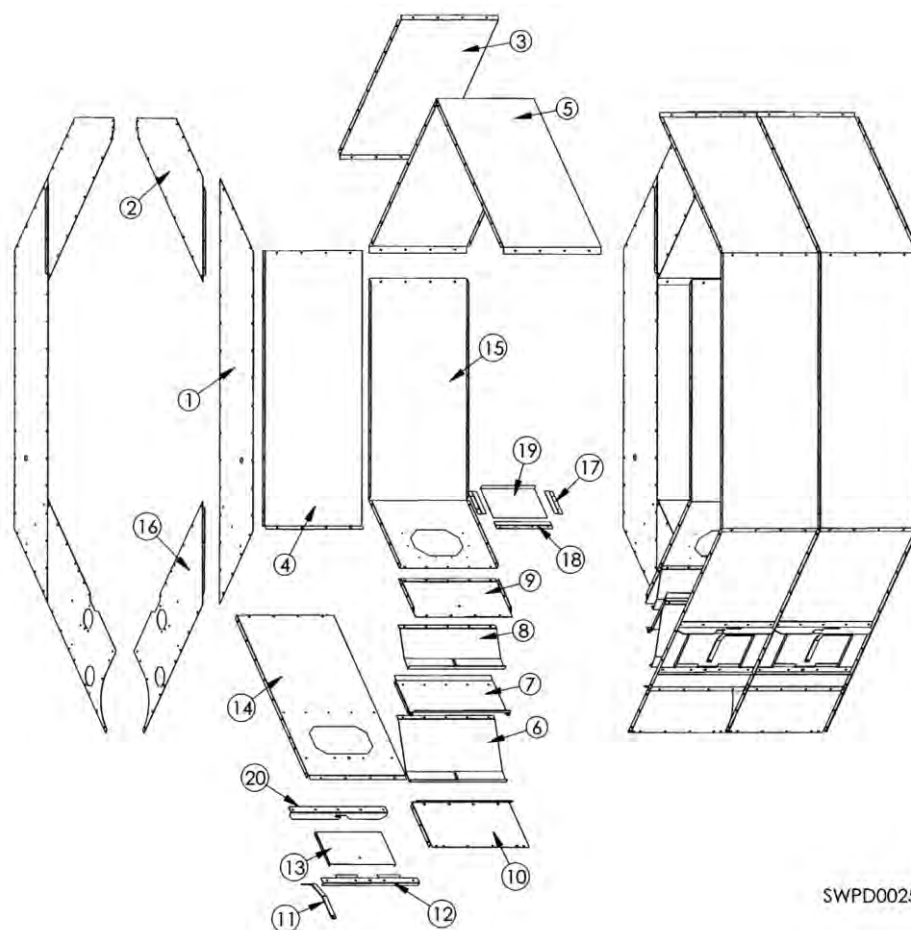
28' DRYER GRAVITY FILL TRANSITION ASSEMBLY



SWPD0213
07/07/2021 JRW

REF. #	DESCRIPTION	QTY.	PART #
1	PANNEL, 4', SIDE, WETHOLD	14	T17417
2	BRACE, INSIDE, CHANNEL, SUPPORT	12	T17420
3	PLATE, CONNECT, MIDDLE, WET BIN	6	T17421
4	ANGLE BRACKET	2	T16125
5	PLATE, END, REAR, TRANS, GRAV.	2	T17419

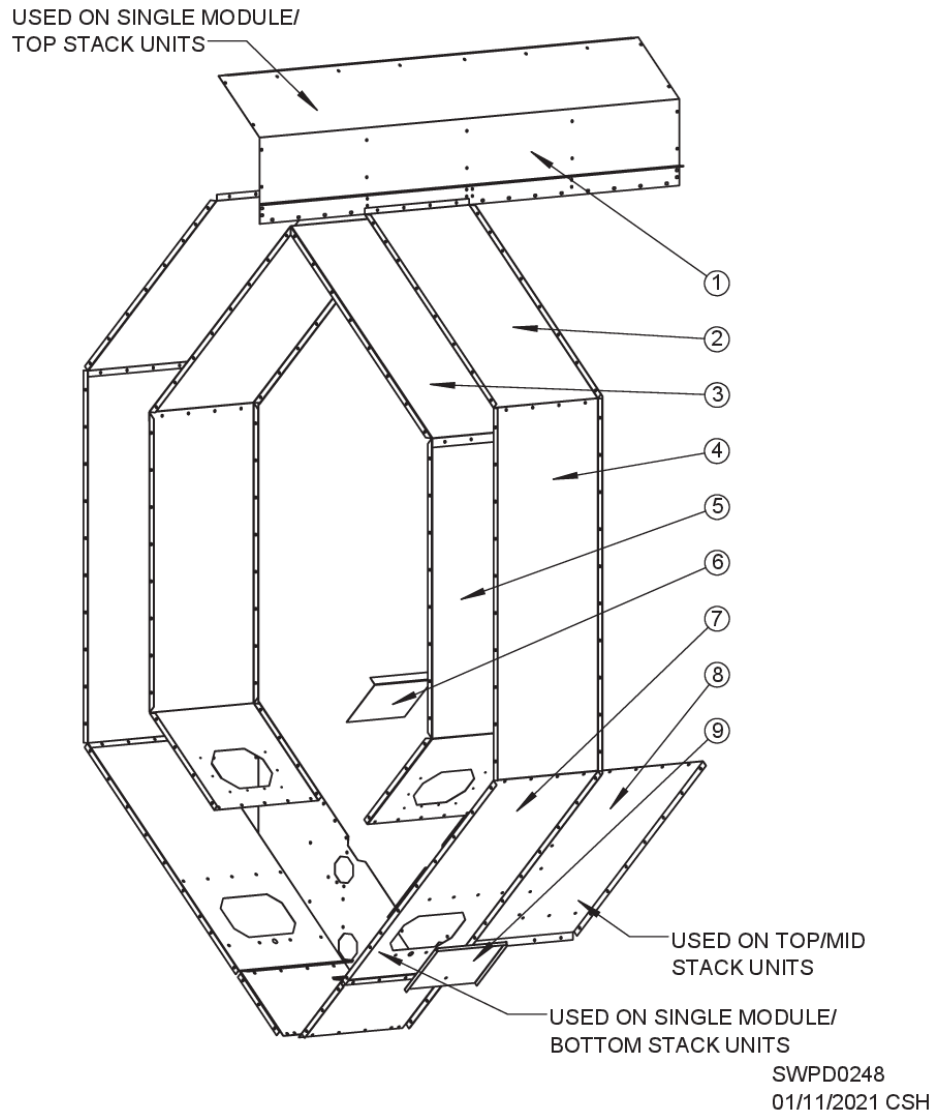
COLUMN PARTS



SWPD0025

REF. #	DESCRIPTION	12'		16'		20'		24'	
		QTY.	PART #	QTY.	PART #	QTY.	PART #	QTY.	PART #
1	Side divider	10	T16110	14	T16110	18	T16110	22	T16110
2	Upper divider	10	T16111	14	T16111	18	T16111	22	T16111
3	Outer top perf. panel (stainless)	12	T16105S	16	T16105S	20	T16105S	24	T16105S
	Outer top perf. panel (galvanized)	12	T16105	16	T16105	20	T16105	24	T16105
4	Outside middle perf. panel (stainless)	12	T16104S	16	T16104S	20	T16104S	24	T16104S
	Outside middle perf. panel (galv.)	12	T16104	16	T16104	20	T16104	24	T16104
5	Top inner perf. panel	6	T16114	8	T16114	10	T16114	12	T16114
6	Bottom flow control gate	12	T17900	16	T17900	20	T17900	24	T17900
7	Column separator	12	T17901	16	T17901	20	T17901	24	T17901
8	Top flow control gate	12	T17902	16	T17902	20	T17902	24	T17902
9	Rigid adjustment plate	12	T17903	16	T17903	20	T17903	24	T17903
10	Bottom rigid door	12	T17904	16	T17904	20	T17904	24	T17904
11	Latch	12	T17906	16	T17906	20	T17906	24	T17906
12	Support latch strap	12	T17907	16	T17907	20	T17907	24	T17907
13	Outer cleanout door	12	T17913W	16	T17913W	20	T17913W	24	T17913W
14	Bottom outer perf. panel (stainless)	12	T17909S	16	T17909S	20	T17909S	24	T17909S
	Bottom outer perf. panel (galv.)	12	T17909	16	T17909	20	T17909	24	T17909
15	Inner side perf. panel	12	T17910	16	T17910	20	T17910	24	T17910
16	Lower divider	10	T17924	14	T17924	18	T17924	22	T17924
17	Side rail, inner access	24	T16219	32	T16219	40	T16219	48	T16219
18	Bottom rail, inner access	12	T16220	16	T16220	20	T16220	24	T16220
19	Inner access door	12	T16221	16	T16221	20	T16221	24	T16221
20	Door latch bracket	12	T17657	16	T17657	20	T17657	24	T17657

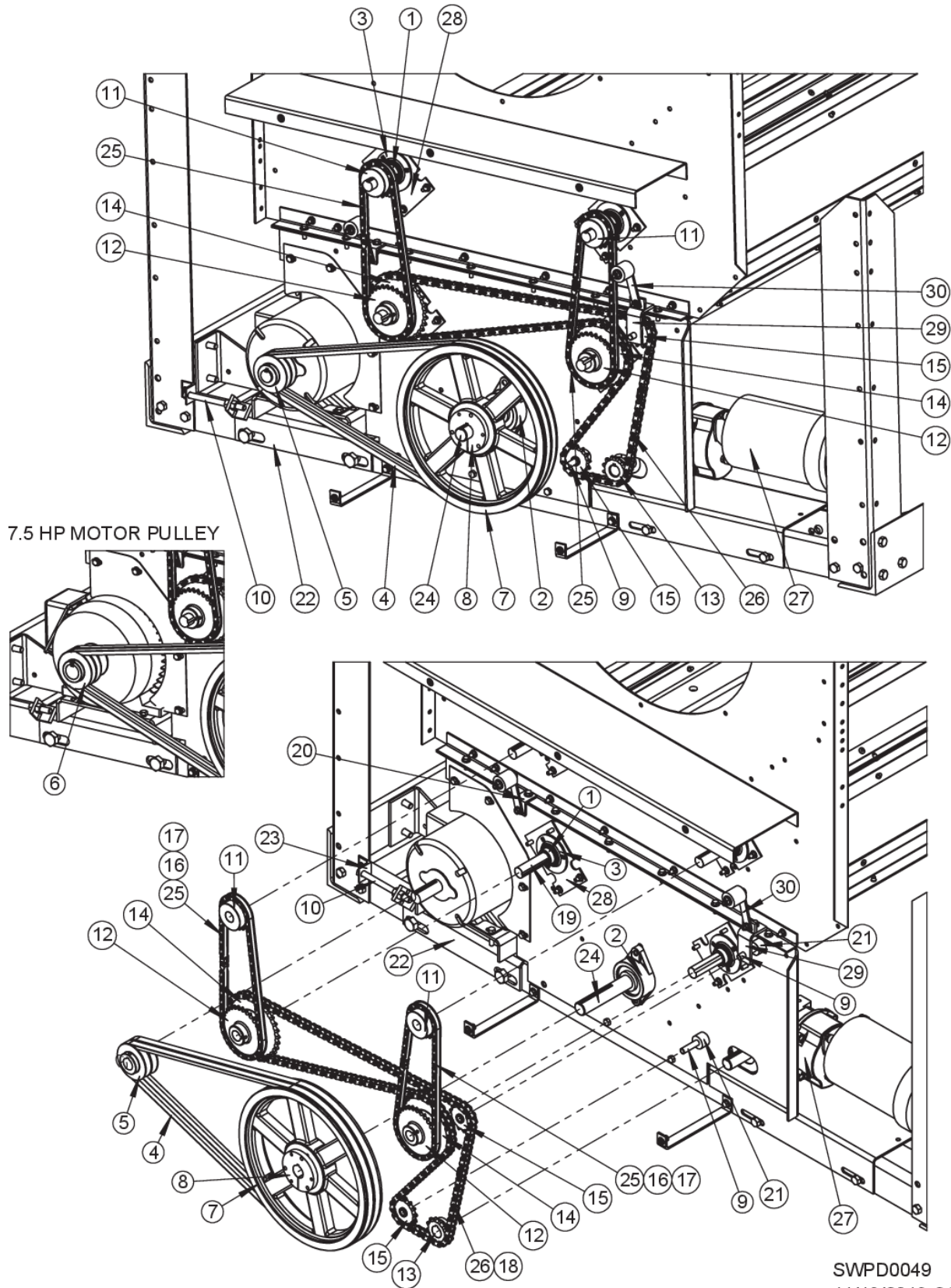
PERFORATED COLUMN SHEETS



REF. #	DESCRIPTION	QUANTITY			.094 ROUND GALVANIZED	.094 ROUND STAINLESS	.063 ROUND	.047 SLOT	.063 SLOT
		16'	20'	24'	PART #	PART #	PART #	PART #	PART #
1A	8' wet bin side	4	4	6	T17450	T17450S	T17441W	T17441	T17441W
1B	4' wet bin side	0	2	0	T12525	T12525S	T12536W	T12536	T12536W
2	Outside top perf panel	16	20	24	T16105	T16105S	T17505W	T175051	T17534
3	Inner top perf panel	8	10	12	T16114	T16114	T17414W	T174141	T17532
4	Outside middle perf panel	16	20	24	T16104	T16104S	T17504W	T175041	T17533
5	Inner middle perf panel	16	20	24	T17910	T17910	T17510W	T17503	T17530
6	Inner cleanout door	16	20	24	T16225W	T16225W	T16225W	T16225	T16225W
7	Bottom outer w/ cleanout	16	20	24	T17909	T17909S	T17919W	T179191	T17536
8	Bottom outer stack mod	16	20	24	T25506	T25506S	T25506W	T255061	T17535
9	Outer cleanout door	16	20	24	T17913W	T17913W	T17913W	T17913	T17913W

FRONT (DRIVE) END OF DRYER

3-5 HP AUGER UNLOAD DRIVE COMPONENTS

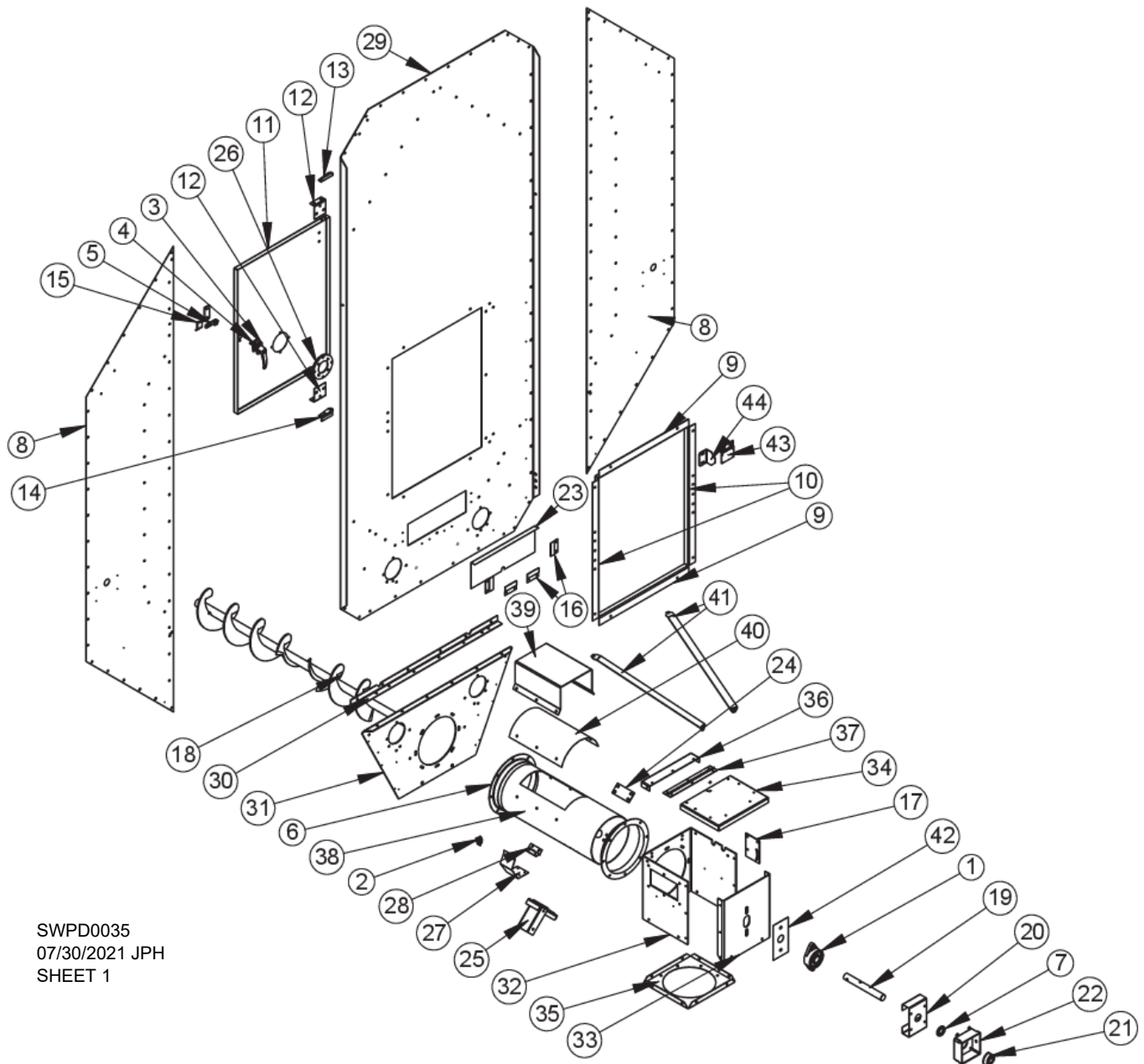


PARTS FOR FRONT (DRIVE) END OF DRYER W/ AUGER UNLOAD

REF. #	DESCRIPTION	3-5 HP/ QTY.	7.5 HP/ QTY.	PART #
1	Bearing, 1", center, w/ lock collar	4	4	J0005
2	Flange bearing, 1-1/4", w/ lock collar	1	1	J0010
3	Flangette, 3 hole	8	8	J0098
4	Belt, BX72, 15-3/4 x 3-1/2"	2	2	J0246
5	Pulley, 3-1/2" OD, 1-1/4", dbl, B	1	-	J0317
6	Pulley, 3-1/2" OD, 1-3/8", dbl, B	-	1	J0318
7	Pulley, 15-3/4" OD, dbl B	1	1	J03992
8	Bushing, 1-1/4"	1	1	J0410
9	Screw, 1/2 - 13 x 3"	2	2	J0750
10	Bolt, 1/2 - 13 x 6", tap	1	1	J0765
11	Sprocket, 40B, 20 tooth, 1" bore, keyed	2	2	J16487
12	Sprocket, 40B30, 30 tooth, 1" bore	2	2	J1649
13	Sprocket, 50B12, 1-1/8" bore	1	1	J16612*
14	Sprocket, 50B30, 1" bore	2	2	J1678
15	Sprocket, idler, 50-13	2	2	J1685
16	Chain link, #40 connector	2	2	J1745
17	Chain link, #40 offset, 1/2 link	2	2	J1750
18	Chain link, #50 connector	2	2	J1760
19	Front shaft, meter roll	4	4	T16266
20	Chain tightener bracket	1	1	T16274
21	Spacer	2	2	T16282
22	Unload motor mount weldment	1	1	T16290
23	Tightener angle	1	1	T16329
24	Shaft, top front, 13-1/4"	1	1	T16436
25	Chain, #40 73 links	2	2	T16800
26	Chain, #50 157 links, 2005	1	1	T16803
27	Reducer with A/C motor & mount assy.	1	1	T17282AM
28	Meter plate	4	4	T17920
29	Bracket weldment, idler sprocket	1	1	T17965
30	Chain tightener	2	2	T7367

***For stacked dryer, order J16741, 50B18, 1-1/8" bore**

BACK (DISCHARGE) END OF FULL-PLENUM DRYER

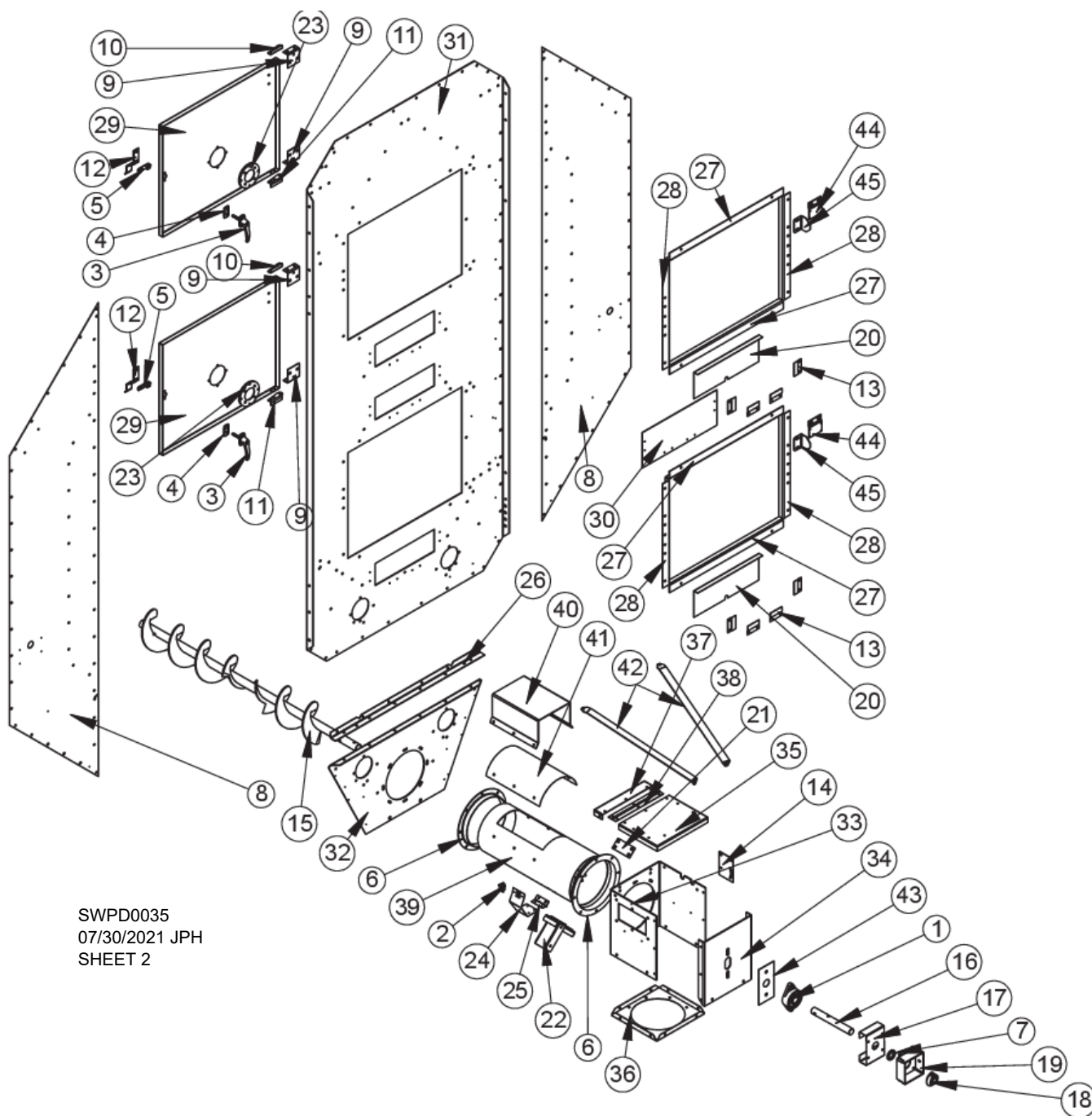


SWPD0035
07/30/2021 JPH
SHEET 1

PARTS FOR BACK (DISCHARGE) END OF FULL-PLENUM DRYER

REF. #	DESCRIPTION	QTY.	PART #
1	Flange bearing, 1-1/4", w/ lock collar	1	J0010
2	Latch	1	J2310
3	Locking handle	1	J2313
4	Handle gasket	1	J2314
5	Adjustable latch	1	J2318
6	Flange ring, 10"	2	J6610
7	Seal, 2" OD, 1-1/4" ID	1	J7023
8	Side end plate	2	T16101
9	Door edging, top & bottom	2	T16136
10	Door edging, sides	2	T16137
11	Access door	1	T16147
12	Hinge bracket	2	T16148
13	Top hinge	1	T16149
14	Bottom hinge	1	T16150
15	Rear catch	1	T16151
16	Blowout door side rail	4	T16154
17	Switch plate	1	T16358
18	Bottom rear auger	1	T16431
19	Bottom auger shaft, 1-1/4 x 10"	1	T17251
20	Proximity switch bracket	1	T17252
21	Proximity switch target	1	T17256
22	Proximity switch box	1	T17263
23	Blowout door	1	T17658
24	Sample spout cover	1	T17663
25	Sample spout	1	T17668
26	Sight glass assy., 2-1/2", 5" OD	1	T17688
27	Moisture sensor strap	1	T17850
28	Moisture sensor hinge	1	T17851
29	Rear end plate	1	T17916
30	Bottom splice angle	1	T17925
31	Rear bottom end plate	1	T25521
32	Sump box front & sides	1	T25670
33	Sump box rear plate	1	T25671
34	Sump box lid	1	T25672
35	Sump box bottom	1	T25674
36	Sump box lid side hinge	1	T25675
37	Sump box hinge	1	T25676
38	Discharge tube	1	T25677
39	Unload tube step	1	T25678
40	Unload tube cover	1	T25679
41	Unload tube brace	2	T25681
42	Bearing shim plate	1	T25682
43	Switch mounting bracket	1	T80215
44	Switch angle	1	T80216

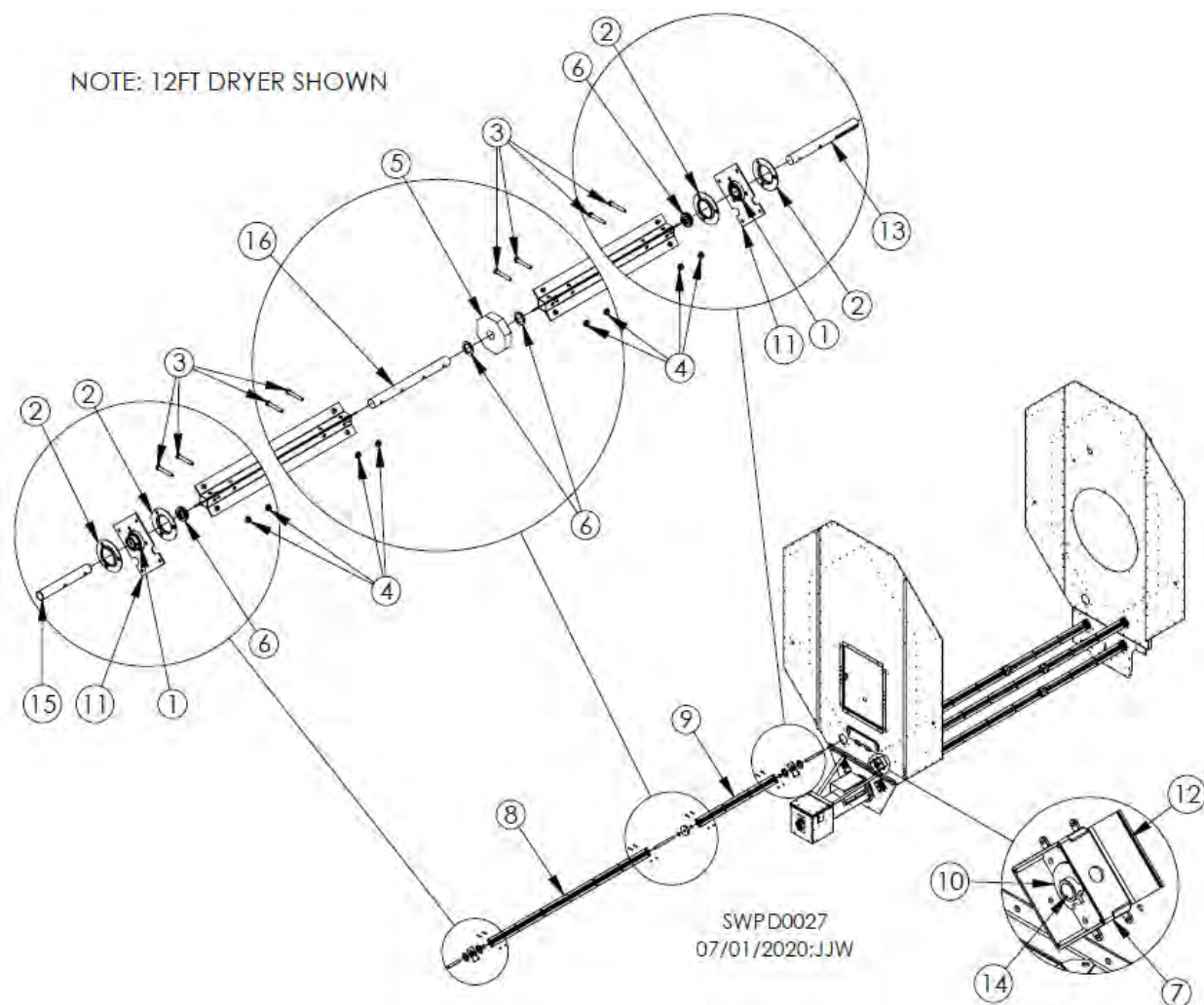
BACK (DISCHARGE) END OF SPLIT-PLENUM DRYER



PARTS FOR BACK (DISCHARGE) END OF SPLIT-PLENUM DRYER

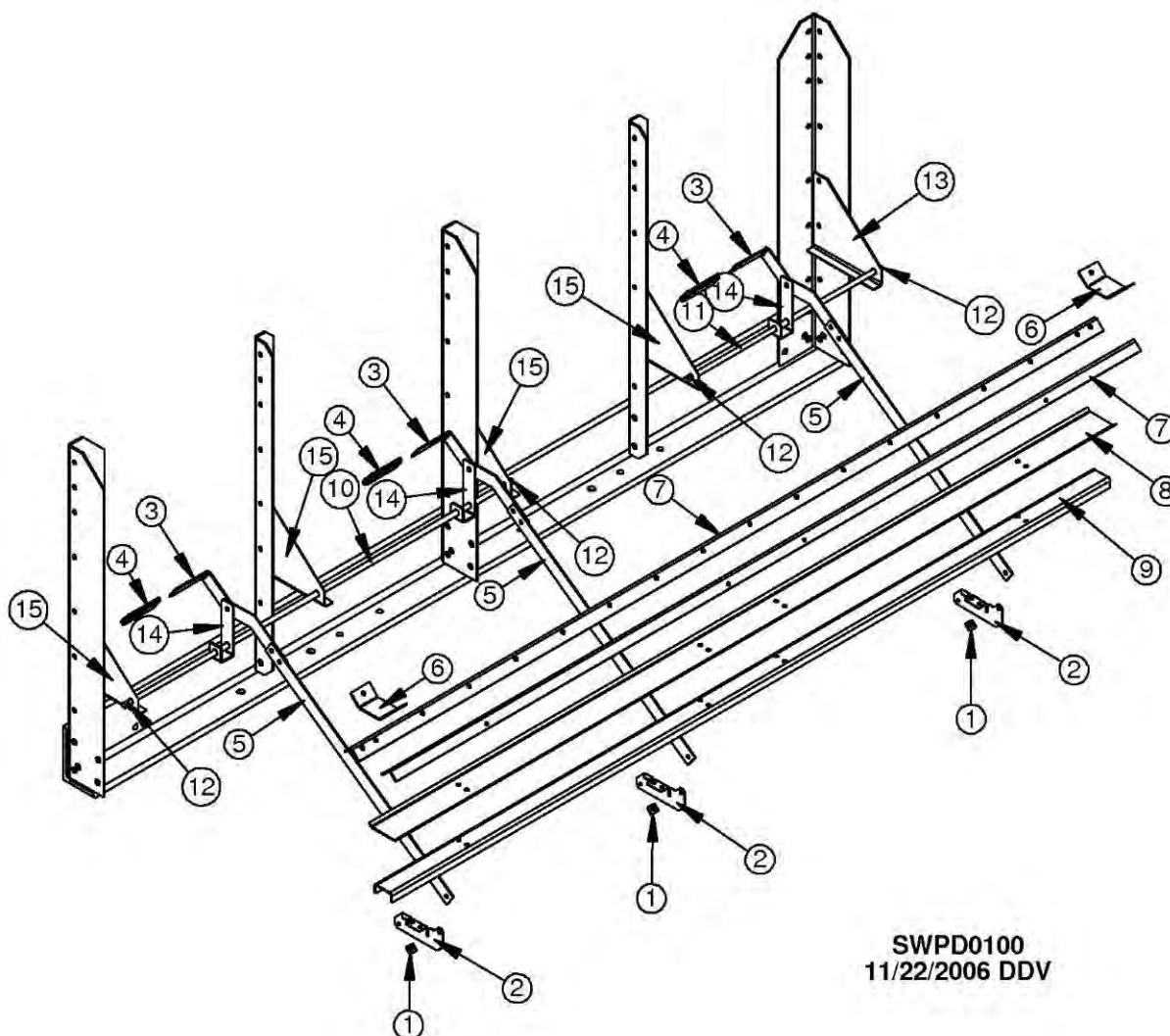
REF. #	DESCRIPTION	QTY.	PART #
1	Flange bearing, 1-1/4", w/ lock collar	1	J0010
2	Latch	1	J2310
3	Locking handle	2	J2313
4	Handle gasket	2	J2314
5	Adjustable latch	2	J2318
6	Flange ring, 10"	2	J6610
7	Seal, 2" OD, 1-1/4" ID	1	J7023
8	Side end plate	2	T16101
9	Hinge bracket	4	T16148
10	Top hinge	2	T16149
11	Bottom hinge	2	T16150
12	Rear catch	2	T16151
13	Blowout door side rail	8	T16154
14	Switch plate	1	T16358
15	Bottom rear auger	1	T16431
16	Bottom auger shaft, 1-1/4 x 10"	1	T17251
17	Proximity switch bracket	1	T17252
18	Proximity switch target	1	T17256
19	Proximity switch box	1	T17263
20	Blowout door	2	T17658
21	Sample spout cover	1	T17663
22	Sample spout	1	T17668
23	Sight glass assy., 2-1/2", 5" OD	2	T17688
24	Moisture sensor strap	1	T17850
25	Moisture sensor hinge	1	T17851
26	Bottom splice angle	1	T17925
27	Door edging, top & bottom	4	T24136
28	Door edging, sides	4	T24137
29	Access door	2	T24147
30	Blowout door cover	1	T24602
31	Rear end plate	1	T24916
32	Rear bottom end plate	1	T25521
33	Sump box front & sides	1	T25670
34	Sump box rear plate	1	T25671
35	Sump box lid	1	T25672
36	Sump box bottom	1	T25674
37	Sump box lid side hinge	1	T25675
38	Sump box hinge	1	T25676
39	Discharge tube	1	T25677
40	Unload tube step	1	T25678
41	Unload tube cover	1	T25679
42	Unload tube brace	2	T25681
43	Bearing shim plate	1	T25682
44	Switch mounting bracket	2	T80215
45	Switch angle	2	T80216

METERING ROLLS



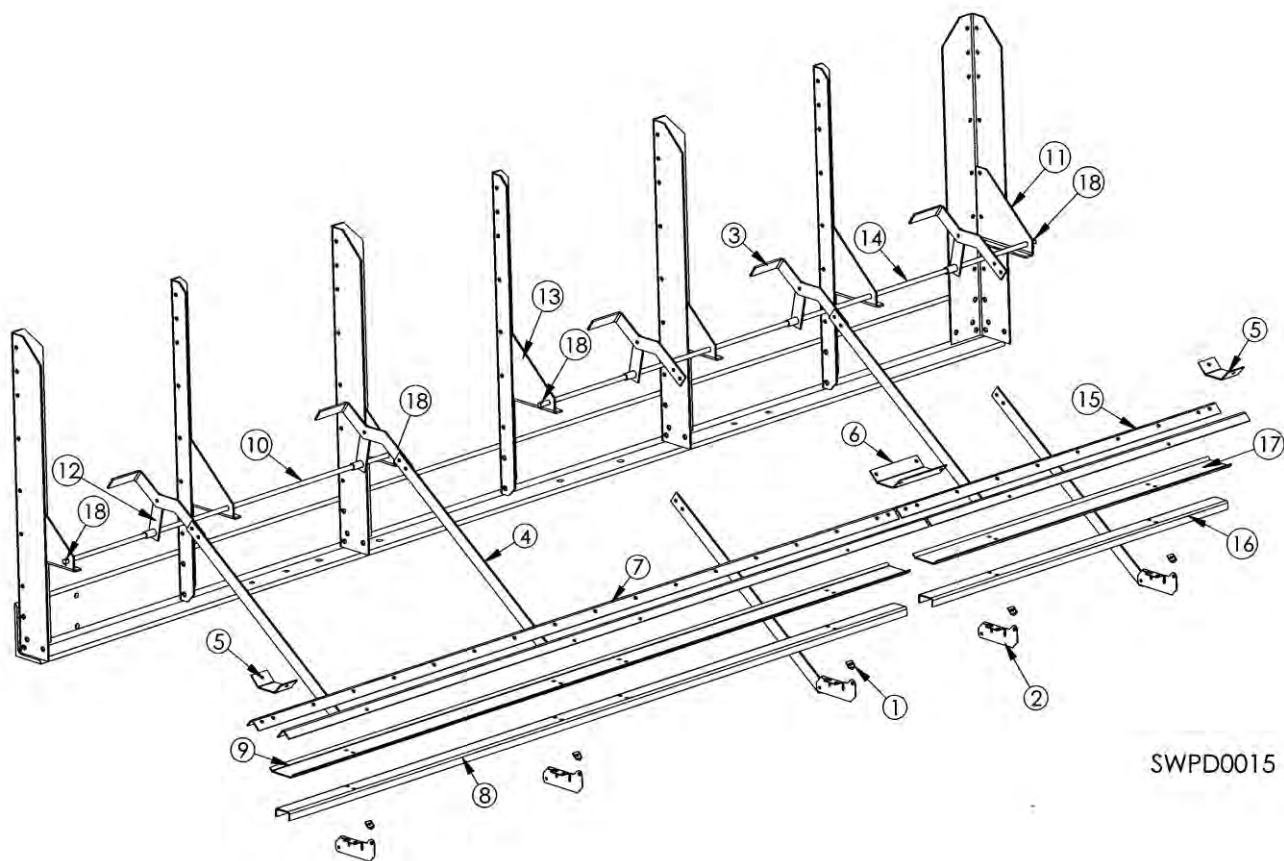
REF. #	DESCRIPTION	8' QTY.	12' QTY.	16' QTY.	20' QTY.	24' QTY.	28' QTY.	PART #
1	Center bearing, 1", w/ lock collar	8	8	8	8	8	8	J00058
2	Flange bearing, 3-hole	16	16	16	16	16	16	J0098
3	Screw, 5/16 - 18 x 2"	16	32	32	48	48	64	J0585
4	Whiz nut, 5/16" - 18	16	32	32	48	48	64	J1110
5	Wooden octagon bushing, 1" ID	0	4	4	8	8	12	J1245
6	Machine bushing, 18ga	64	80	80	96	96	112	J1266
7	Box, 5" x 5"	1	1	1	1	1	1	T16265
8	Meter roll assy., 8'	4	4	8	8	12	12	J3033
9	Meter roll assy., 4'	0	4	0	4	0	4	J3032
10	Target	1	1	1	1	1	1	T17281
11	Meter plate	8	8	8	8	8	8	T17920
12	Encoder bracket	1	1	1	1	1	1	T17921
13	Front shaft	4	4	4	4	4	4	T18266
14	Top rear shaft	1	1	1	1	1	1	T18267
15	Bottom rear shaft	3	3	3	3	3	3	T18268
16	Connecting shaft	0	4	4	8	8	12	T18269

8' CAM LOCK ASSEMBLY



REF. #	DESCRIPTION	QTY.	PART #
1	Pivot bracket	3	T16393
2	Door hinge, bottom	3	T16387
3	Handle	3	T16382
4	Handle cover, plastic, 1-1/2 x 4"	3	J23182
5	Extension arm	3	T16386
6	Seal plate, end	2	T16398
7	8' angle	2	T17456
8	8' door	1	T17455
9	8' door support	1	T17454
10	Shaft, long	1	T16400
11	Shaft, short	1	T20401
12	Pin, cotter, 1/8 x 1"	4	J1420
13	Gusset, rear	1	T16381
14	Pivot arm	3	T16383
15	Gusset, front	4	T16380

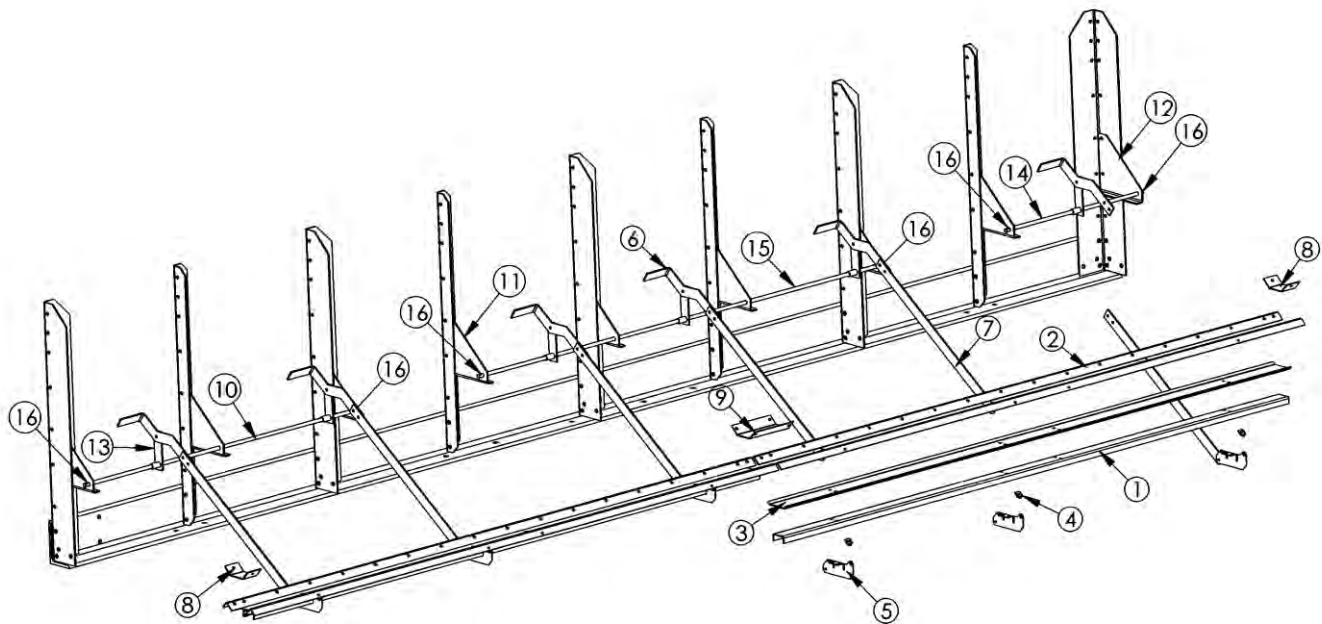
12' CAM LOCK ASSEMBLY



SWPD0015

REF. #	DESCRIPTION	QTY.	PART #
1	Pivot bracket	5	T16393
2	Door hinge, bottom	5	T16387
3	Handle	5	T16382
4	Extension arm	5	T16386
5	Seal plate, end	2	T16398
6	Seal plate, mid	1	T16390
7	8' angle	2	T17456
8	8' door support	1	T17454
9	8' door	1	T17455
10	Shaft, 49-3/4"	1	T16400
11	Gusset, rear	1	T16381
12	Pivot arm	5	T16383
13	Gusset, front	6	T16380
14	Shaft, 74"	1	T12516
15	Angle, 4'	2	T12529
16	4' door support	1	T12530
17	4' door	1	T12528
18	Pin, cotter, 1/8 x 1"	4	J1420

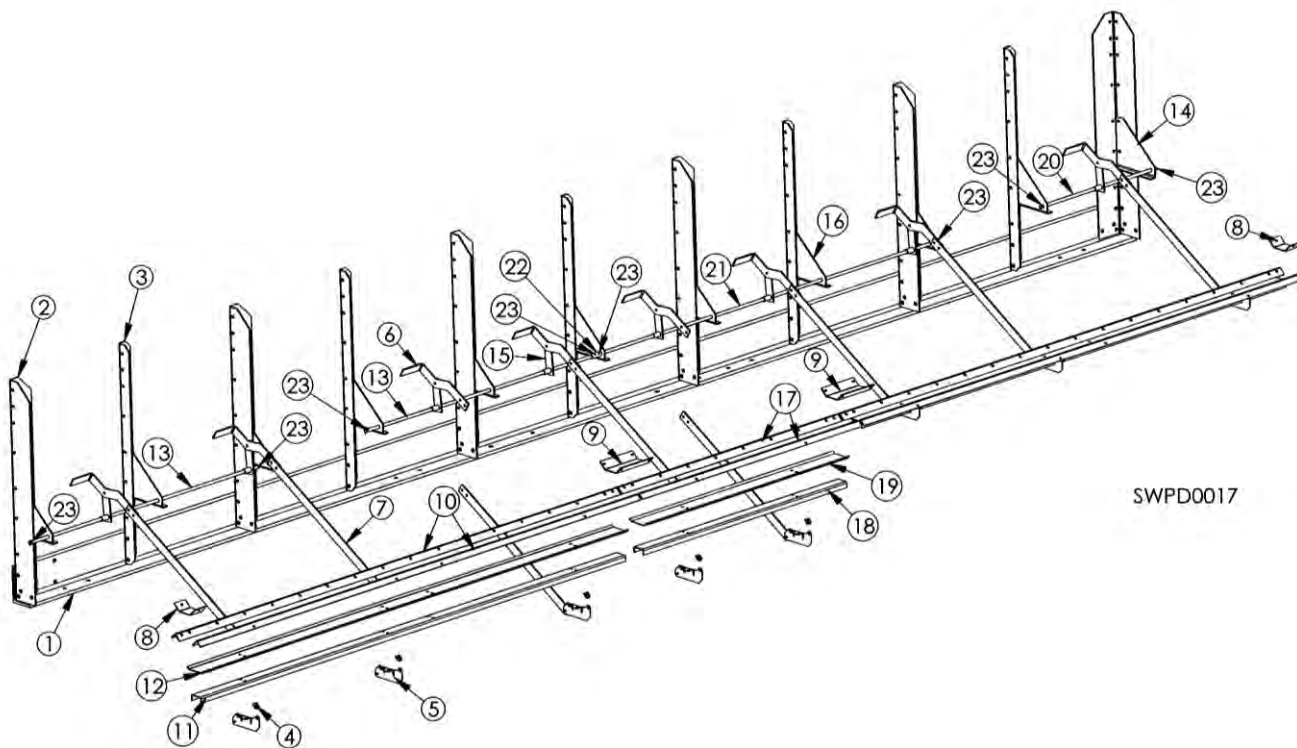
16' CAM LOCK ASSEMBLY



SWPD0016

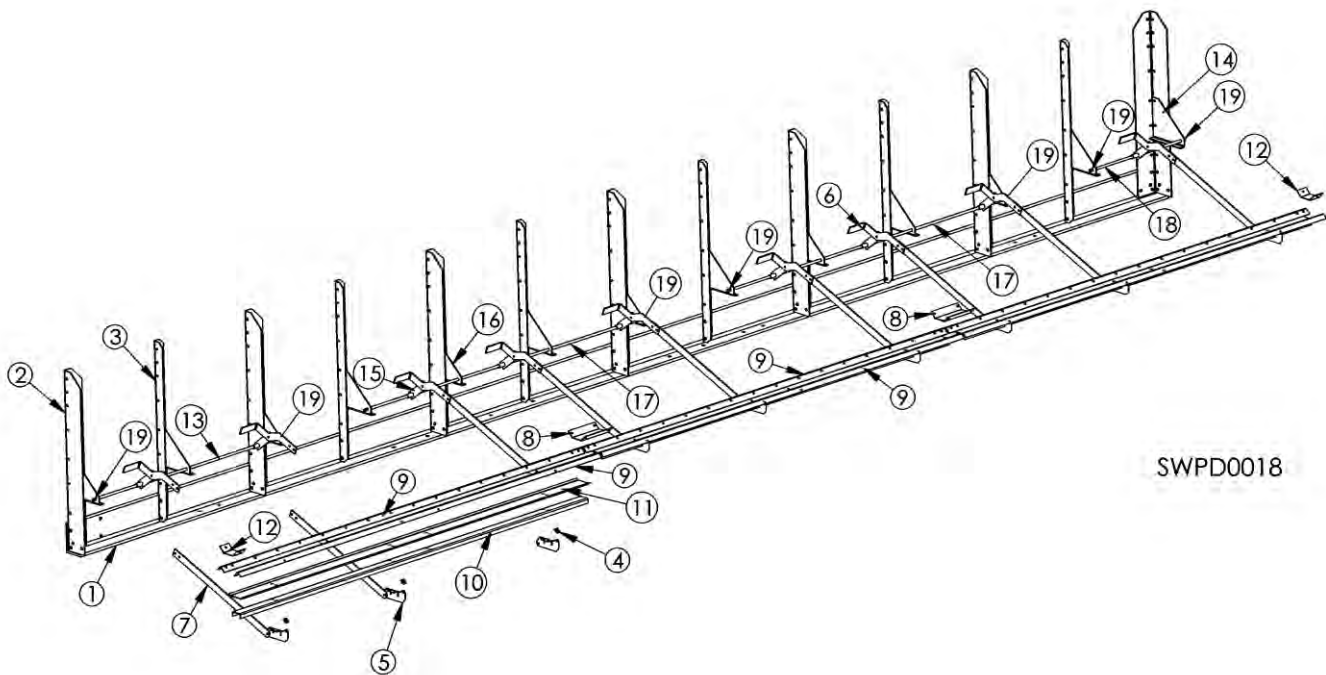
REF. #	DESCRIPTION	QTY.	PART #
1	8' door support	2	T17454
2	8' angle	4	T17456
3	8' door	2	T17455
4	Pivot bracket	6	T16393
5	Door hinge, bottom	6	T16387
6	Handle	6	T16382
7	Extension arm	6	T16386
8	Seal plate, end	2	T16398
9	Seal plate, mid	1	T16390
10	Shaft, 49-3/4"	1	T16400
11	Gusset, front	8	T16380
12	Gusset, rear	1	T16381
13	Pivot arm	6	T16383
14	Shaft, 25"	1	T20401
15	Shaft, 74"	1	T12516
16	Pin, cotter, 1/8 x 1"	6	J1420

20' CAM LOCK ASSEMBLY



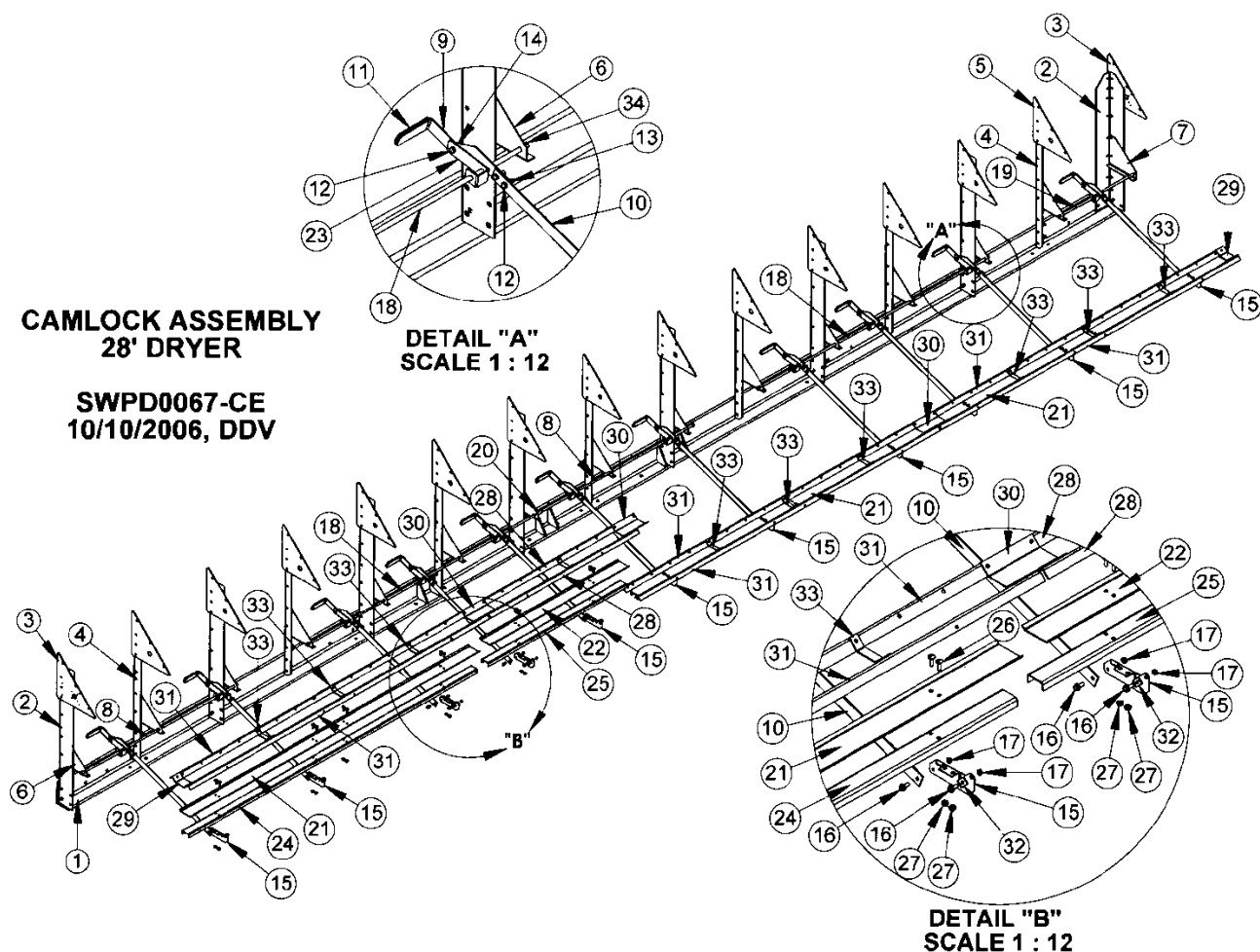
REF. #	DESCRIPTION	QTY.	PART #
1	Right frame angle	1	T20419
2	Wide vertical support	6	T16322
3	Narrow vertical support	5	T16323
4	Pivot bracket	8	T16393
5	Door hinge, bottom	8	T16387
6	Handle	8	T16382
7	Extension arm	8	T16386
8	Seal plate, end	2	T16398
9	Seal plate, mid	2	T16390
10	8' angle	4	T17456
11	8' door support	2	T17454
12	8' door	2	T17455
13	Shaft, 49-3/4"	2	T16400
14	Gusset, rear	1	T16381
15	Pivot arm	8	T16383
16	Gusset, front	10	T16380
17	Angle, 4'	2	T12529
18	4' door support	1	T12530
19	4' door	1	T12528
20	Shaft, 25"	1	T20401
21	Shaft, 74"	1	T12516
22	Connector, shaft	1	T20403
23	Pin, cotter, 1/8 x 1"	8	J1420

24' CAM LOCK ASSEMBLY



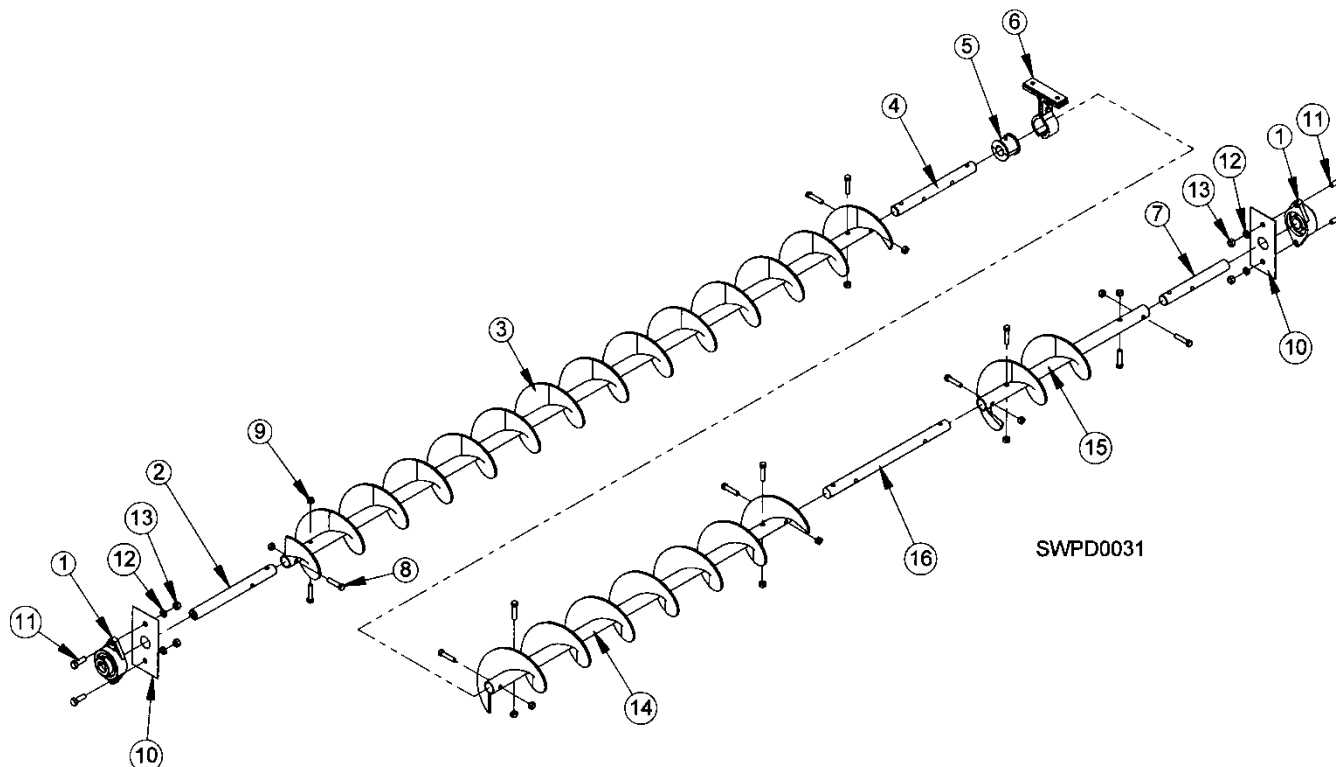
REF. #	DESCRIPTION	QTY.	PART #
1	Right frame angle	1	T24419
2	Wide vertical support	7	T16322
3	Narrow vertical support	8	T16323
4	Pivot bracket	9	T16393
5	Door hinge, bottom	9	T16387
6	Handle	9	T16382
7	Extension arm	9	T16386
8	Seal plate, mid	2	T16390
9	8' angle	6	T17456
10	8' door support	3	T17454
11	8' door	3	T17455
12	Seal plate, end	2	T16398
13	Shaft, 49-3/4"	1	T16400
14	Gusset, rear	1	T16381
15	Pivot arm	9	T16383
16	Gusset, front	12	T16380
17	Shaft, 74"	2	T12516
18	Shaft, 25"	1	T20401
19	Pin, cotter, 1/8 x 1"	8	J1420

28' CAM LOCK ASSEMBLY



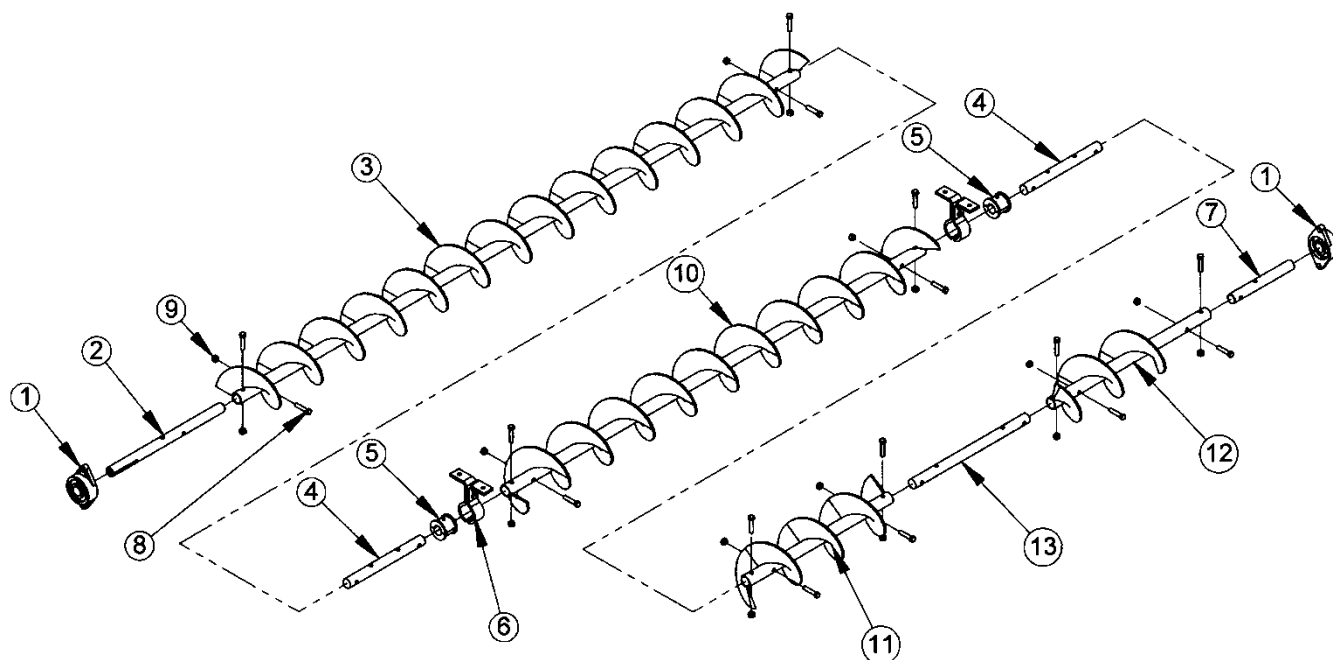
REF. #	DESCRIPTION	PART #	REF. #	DESCRIPTION	PART #
1	Right frame angle	T28318	18	Shaft, 74"	T12516
2	Wide vertical support	T16322	19	Shaft, 25"	T20401
3	Conduit box connector plate	T16331	20	Shaft connector	T20403
4	Narrow vertical support	T16323	21	8' door	T17455
5	Main connector plate	T16324	22	Door	T12528
6	Gusset, front	T16380	23	Pivot arm	T16383
7	Gusset, rear	T16381	24	8' door support	T17454
8	Shaft, 49-3/4"	T16400	25	Door support, 4'	T12530
9	Handle	T16382	26	Screw, 5/16 – 18 x 1"	J0528
10	Extension arm	T16386	27	Whiz nut, 5/16" - 18	J1110
11	Handle cover, plastic, 1-1/2 x 4"	J23182	28	Angle, 4'	T12529
12	Screw, 3/8 - 16 x 1"	J06063	29	Seal plate, end	T16398
13	Whizlock nut, 3/8" - 16	B5962	30	Seal plate, mid	T16390
14	Lock nut, 3/8" - 16	J1025	31	8' angle	T17456
15	Door hinge, bottom	T16387	32	Pivot bracket	T16393
16	Bolt, 5/16 – 18 x 3/4"	J0536	33	Connecting bracket	T16399
17	Lock nut, 5/16" – 18	J1010	34	Pin, cotter, 1/8 x 1"	J1420

BOTTOM AUGER ASSEMBLY FOR 12' DRYER



REF. #	DESCRIPTION	QTY.	PART #
1	BEARING, 1.25, FLANGE, W/LC, HCFTS207-20	2	J0010
2	SHAFT, TOP FRONT, 13-1/4"	1	T16436
3	AUGER, BOTTOM FRONT, 93-1/2"	1	T16430
4	SHAFT, STUB	1	F4720
5	BUSHING, WOOD, 1.25", ID	1	J0096
6	HANGER, AUGER, T, 6CH2203	1	J0097
7	SHAFT, 1.25" X 10", BOTTOM AUGER	1	T17251
8	SCREW, 7/16-14, 2, PLT	12	J0718
9	NUT, LOCK, 7/16"-14, PLT	12	J1034
10	BEARING SHIM PLATE	2	T25682
11	SCREW, 1/2-13, 1.5, GR 5 HHCS	4	J0730
12	WASHER, LOCK, 1/2, PLT	4	J1215
13	NUT, HEX, 1/2-13, PLT	4	J1040
14	AUGER, BOTTOM, REAR, 47.50"	1	T12492
15	AUGER, BOTTOM, STANDARD UNLOAD EXT	1	T12493
16	SHAFT, AUGER, MOISTURE SENSOR	1	F4723

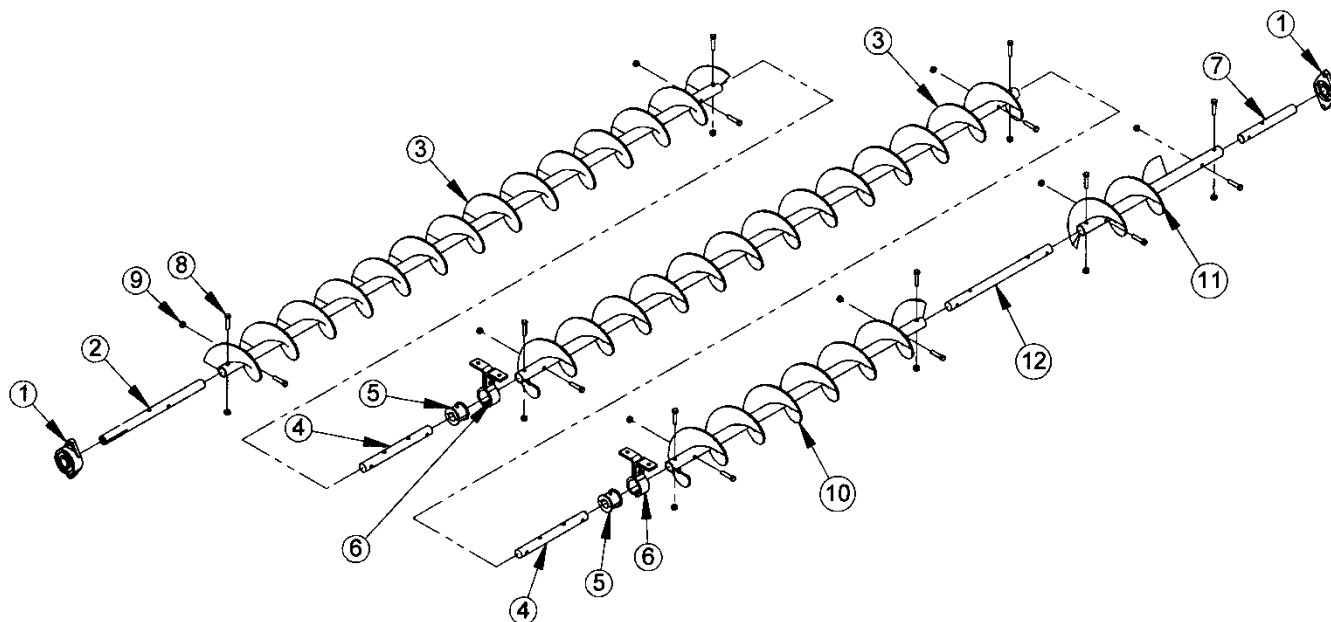
BOTTOM AUGER ASSEMBLY FOR 16' DRYER



SWPD0032

REF. #	DESCRIPTION	QTY.	PART #	
			SINGLE MODULE/DOUBLE STACK	TRIPLE STACK
1	BEARING, 1.25, FLANGE, W/LC, HCFTS207-20	2	J0010	J0010
2	SHAFT, TOP FRONT, 13-1/4"	1	T16436	T16436
3	AUGER, BOTTOM FRONT, 93-1/2"	1	T16430	---
	AUGER, BOTTOM FRONT, 93-1/2", 8"OD	2	---	T17430
4	SHAFT, 8", HANGER BEARING	2	F4720	F4720
5	BUSHING, WOOD, 1.25", ID	2	J0096	J0096
6	HANGER, AUGER, T, 6CH2203	2	J0097	J0097
7	SHAFT, 1.25" X 10"	1	T17251	T17251
8	SCREW, 7/16-14, 2, PLT	16	J0718	J0718
9	NUT, LOCK, 7/16-14, PLT	16	J1034	J1034
10	AUGER, BOTTOM MIDDLE, 69-1/2"	1	T16432	---
	AUGER, BOTTOM MIDDLE, 69-1/2", 8"OD	1	---	T17432
11	AUGER, BOTTOM REAR, 24"	1	T12498	---
	AUGER, BOTTOM REAR, 24", 8" UNLOAD AUGER	1	---	T17434
12	AUGER, BOTTOM, STD. UNLD. EXT.	1	T12493	---
	AUGER, BOTTOM, STD. UNLD. EXT., 3 STACK, 8" UNLD.	1	---	T17435
13	SHAFT, AUGER, MOISTURE SENSOR	1	F4723	F4723

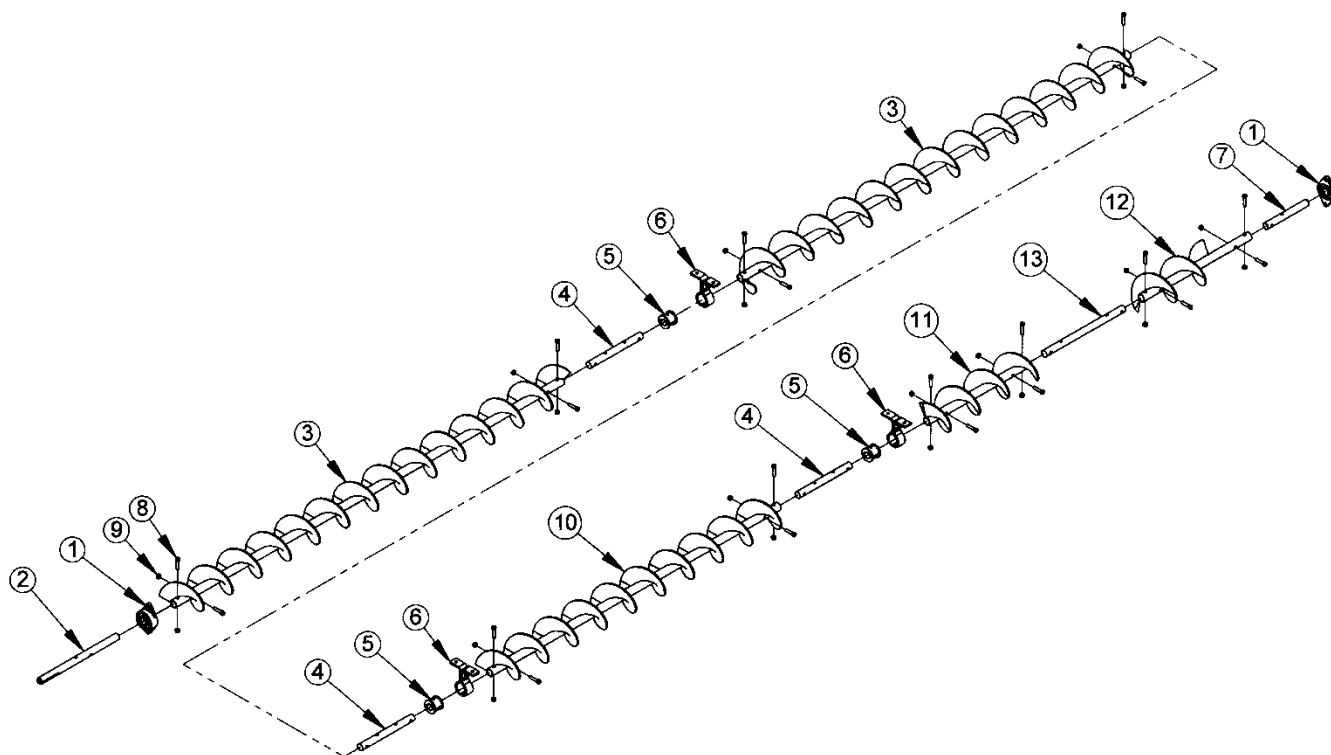
BOTTOM AUGER ASSEMBLY FOR 20' DRYER



SWPD0033

REF. #	DESCRIPTION	QTY.	PART #	
			SINGLE MODULE/DOUBLE STACK	TRIPLE STACK
1	BEARING, 1.25, FLANGE W/LC, HCFTS207-20	2	J0010	J0010
2	SHAFT, TOP FRONT, 13-1/4"	1	T16436	T16436
3	AUGER, BOTTOM FRONT, 93-1/2"	2	T16430	---
	AUGER, BOTTOM FRONT, 93-1/2", 8"OD	2	---	T17430
4	SHAFT, 8" HANGER BEARING	2	F4720	F4720
5	BUSHING, WOOD, 1.25" I.D.	2	J0096	J0096
6	HANGER, AUGER, T, 6CH2203	2	J0097	J0097
7	SHAFT, 1.25" X 10", BOTTOM AUGER	1	T17251	T17251
8	SCREW, 7/16-14, 2, PLT	16	J0718	J0718
9	NUT, LOCK, 7/16-14, PLT	16	J1034	J1034
10	AUGER, BOTTOM REAR, 47-1/2"	1	T12492	---
	AUGER, BOTTOM REAR, 47-1/2", 8" UNLOAD	1	---	T17438
11	AUGER, BOTTOM, STD. UNLD. EXT.	1	T12493	---
	AUGER, BOTTOM, STD. UNLD. EXT., 3 STACK, 8" UNLD.	1	---	T17435
12	SHAFT, AUGER, MOISTURE SENSOR	1	F4723	F4723

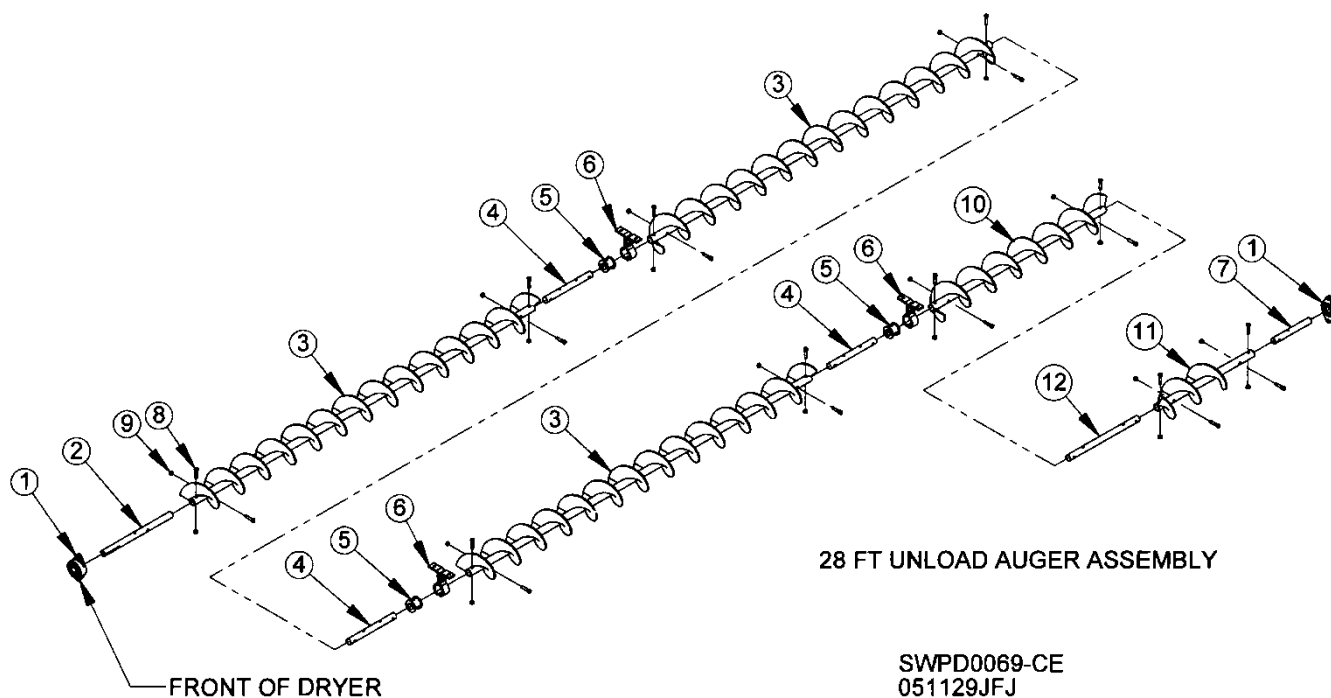
BOTTOM AUGER ASSEMBLY FOR 24' DRYER



SWPD0034

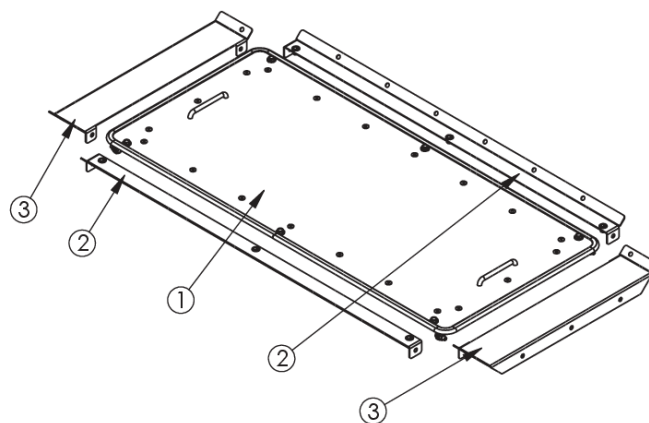
REF. #	DESCRIPTION	QTY.	PART #	
			SINGLE MODULE/DOUBLE STACK	TRIPLE STACK
1	BEARING, 1.25, FLANGE, W/LC, HCFTS207-20	2	J0010	J0010
2	SHAFT, TOP FRONT, 13-1/4"	1	T16436	T16436
3	AUGER, BOTTOM FRONT, 93-1/2"	2	T16430	---
	AUGER, BOTTOM FRONT, 93-1/2", 8"OD	2	---	T17430
4	SHAFT, 8" HANGER BEARING	3	F4720	F4720
5	BUSHING, WOOD, 1.25" ID	3	J0096	J0096
6	HANGER AUGER, T, 6CH2203	3	J0097	J0097
7	SHAFT, 1.25" X 10", BOTTOM AUGER	1	T17251	T17251
8	SCREW, 7/16-14, 2, PLT	20	J0718	J0718
9	NUT, LOCK, 7/16-14, PLT	20	J1034	J1034
10	AUGER, BOTTOM MIDDLE, 69-1/2"	1	T16432	---
	AUGER, BOTTOM MIDDLE, 69-1/2", 8"OD	1	---	T17432
11	AUGER, BOTTOM REAR, 24"	1	T12498	---
	AUGER, BOTTOM REAR, 24", 8" UNLOAD AUGER	1	---	T17434
12	AUGER, BOTTOM, STANDARD UNLOAD EXT	1	T12493	---
	AUGER, BOTTOM, STD. UNLD. EXT., 3 STACK, 8" UNLD.	1	---	T17435
13	SHAFT, AUGER, MOISTURE SENSOR	1	F4723	F4723

BOTTOM AUGER ASSEMBLY FOR 28' DRYER



REF. #	DESCRIPTION	QTY.	PART #
1	BEARING, 1.25, FLANGE, W/LC, HCFTS207-20	2	J0010
2	SHAFT, TOP FRONT, 13-1/4"	1	T16436
3	AUGER, BOTTOM FRONT, 93-1/2"	3	T16430
4	SHAFT, 8" HANGER BEARING	3	F4720
5	BUSHING, WOOD, 1.25" I.D.	3	J0096
6	HANGER AUGER, T, 6CH2203	3	J0097
7	SHAFT, 1.25" X 10", BOTTOM AUGER	1	T17251
8	SCREW, 7/16-14, 2, PLT	20	J0718
9	NUT, LOCK, 7/16-14, PLT	20	J1034
10	AUGER, BOTTOM REAR, 47.50"	1	T12492
11	AUGER, BOTTOM, STD UNLD EXT	1	T12493
12	SHAFT, AUGER, MOISTURE SENSOR	1	F4723

INNER CLEANOUT PANEL ASSEMBLY



SWPD0162
11/08/2018 TSR

REF. #	DESCRIPTION	QTY.	PART #
1	Bolt-on plenum floor assy.	1	T17212
2	Side frame	2	T17204AM
3	End frame	2	T17205

Appendix F

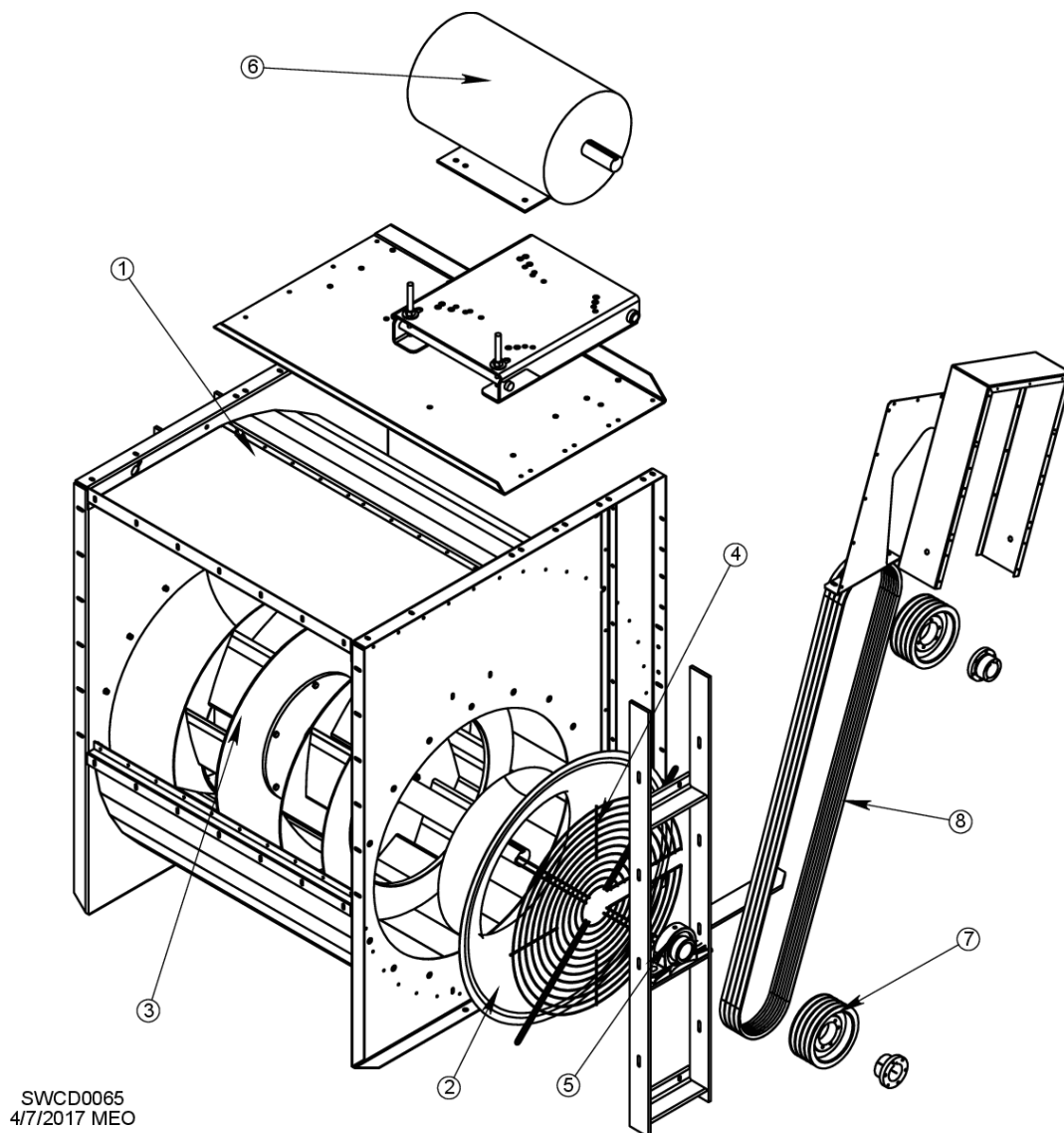
Centrifugal Dryer Parts/Assemblies

<u>DATE</u>	<u>REVISION</u>	<u>PAGE</u>
08/22/2024	– Updated heater drawings & parts lists	4 & 5
	Updated entry pipe drawings & parts lists & added orifice settings	9-12
	Added reference to 18-tooth sprocket J16741 for stacked dryer	28
	Updated fan support T15743C drawings & parts lists.....	51-56
	Updated fan support frame drawings & parts lists	57-58
	Updated drawing & parts list for full-heat blower mounting frame	61

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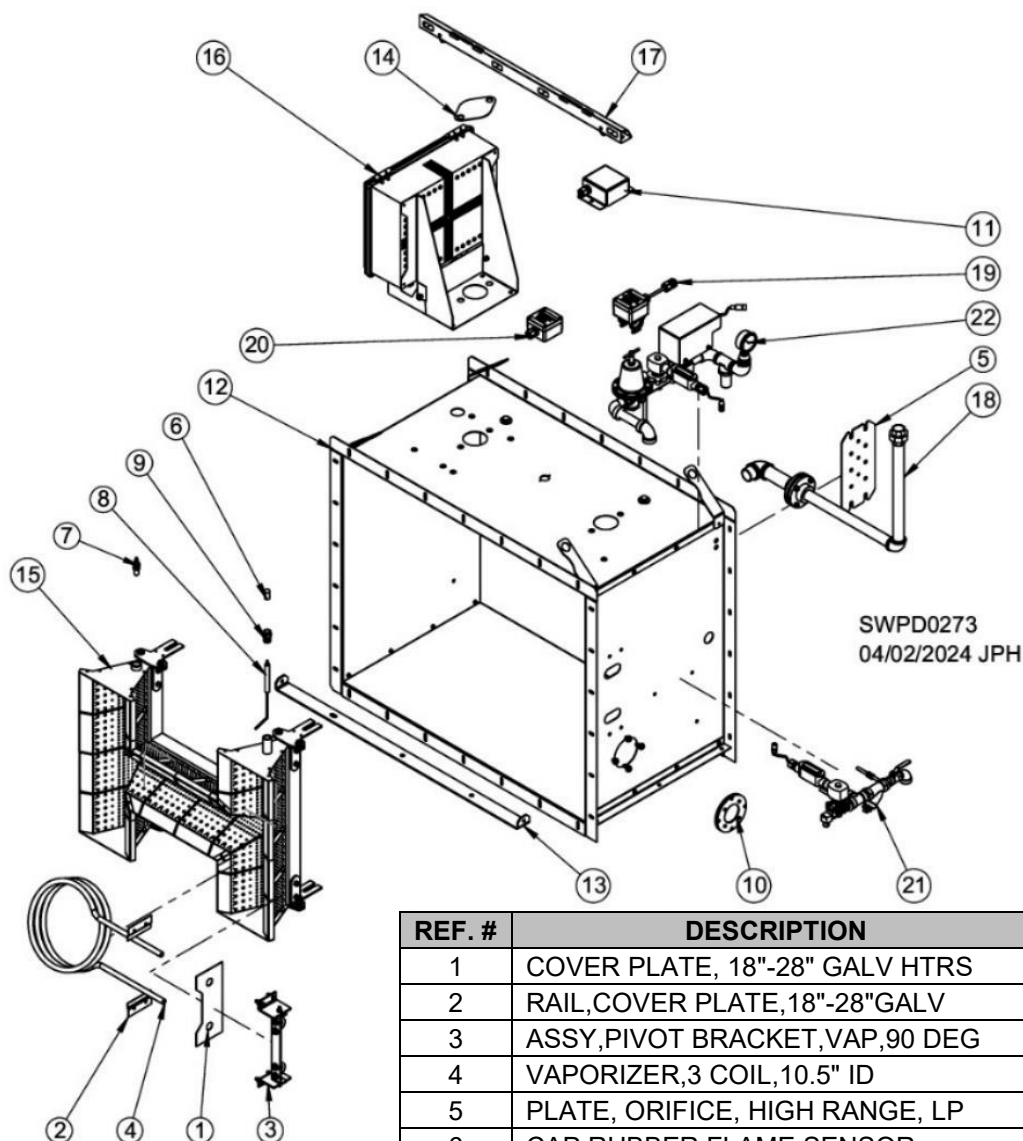
FAN PARTS	F-3
HEATER PARTS	F-4
PIPE TRAINS	F-5
FRAMES	F-13
CAM LOCK ASSEMBLIES	F-15
COLUMN PARTS	F-18
AUGER FILL ASSEMBLIES	F-21
FRONT (DRIVE) END OF DRYER	F-27
BACK (DISCHARGE) END OF DRYER	F-31
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GRAVITY FILL ASSEMBLIES	F-38
BOTTOM AUGERS	F-43
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FAN PARTS



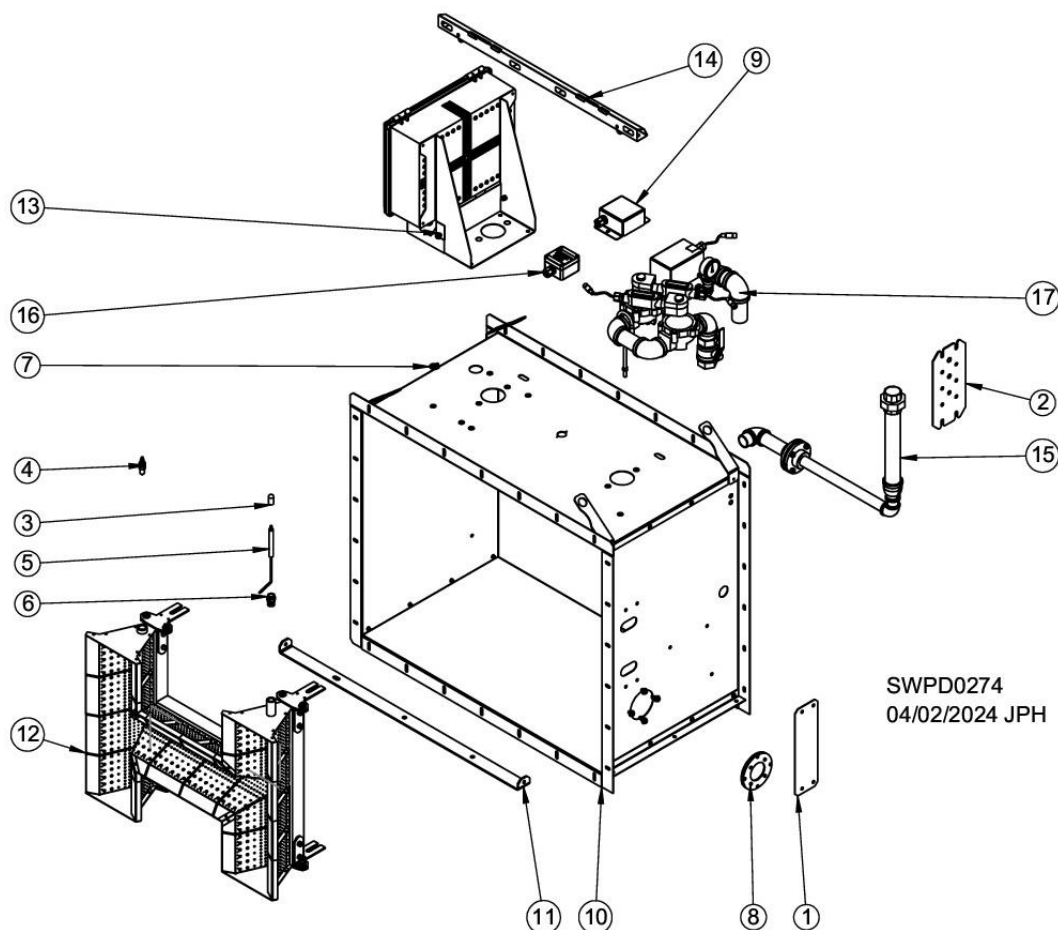
REF.#	DESCRIPTION	30HP, 3PH	40HP, 3PH	50HP, 3PH
1	HOUSING	T29201	T29201	T29201
2	INLET	D1275	D1275	D1275
3	BLADE	T29233 L T29234 R	T29133 L T29134 R	T29333 L T29334 R
4	INLET SCREEN	D3165	D3165	D3165
5	BEARING	J0048	J0048	J0048
6	MOTOR	H7126	H7200T	H7210
7	PULLEY	J03499	J03499	J03499
8	BELT	J02535	J02533	J02533

LP HEATER PARTS



REF. #	DESCRIPTION	LP PART #	QTY.
1	COVER PLATE, 18"-28" GALV HTRS	D6307	1
2	RAIL,COVER PLATE,18"-28"GALV	D6308	2
3	ASSY,PIVOT BRACKET,VAP,90 DEG	D6322	1
4	VAPORIZER,3 COIL,10.5" ID	D70321	1
5	PLATE, ORIFICE, HIGH RANGE, LP	D7175	1
6	CAP,RUBBER,FLAME SENSOR	J45381	1
7	SPARK PLUG,#64	J5739	1
8	SENSOR,FLAME,5-1/2",COMP MOUNT	J5747	1
9	COMPRESSION SET,FLM SENSR,1-18	J5748	1
10	SIGHT GLASS,ASSY,2.5",5"OD	T17688	1
11	COVER, FLAME SENSOR,#30,H-BURN	T291255	1
12	HOUSING,BURNER,CENT,GALV,H	T29187	1
13	STRAP,MOUNT,BURNER,H-BURNER	T291875	1
14	COVER,DOOR,ACCESS,FLAME SENSE	T29629	1
15	BURNER ELEMENT,ALUMINUM,H,ASSY	T29630	1
16	MOUNT, HEATER BOX ASSY	T29790	1
17	TRAY, CABLE ROUTING. 35"	T29793	1
18	PIPE,ENTRY,HOUSING,LP,DOMESTIC	T30312M	1
19	SWITCH, LP VAPOR OVERTEMP ASSY	T96126	1
20	SWITCH, HOUSING OVERTEMP	T96139	1
21	PIPETRAIN,AXIAL,LP,1/2",LIQ	T96214M	1
22	PIPETRAIN,CENT, LP,3/4",VAP	T96222M	1

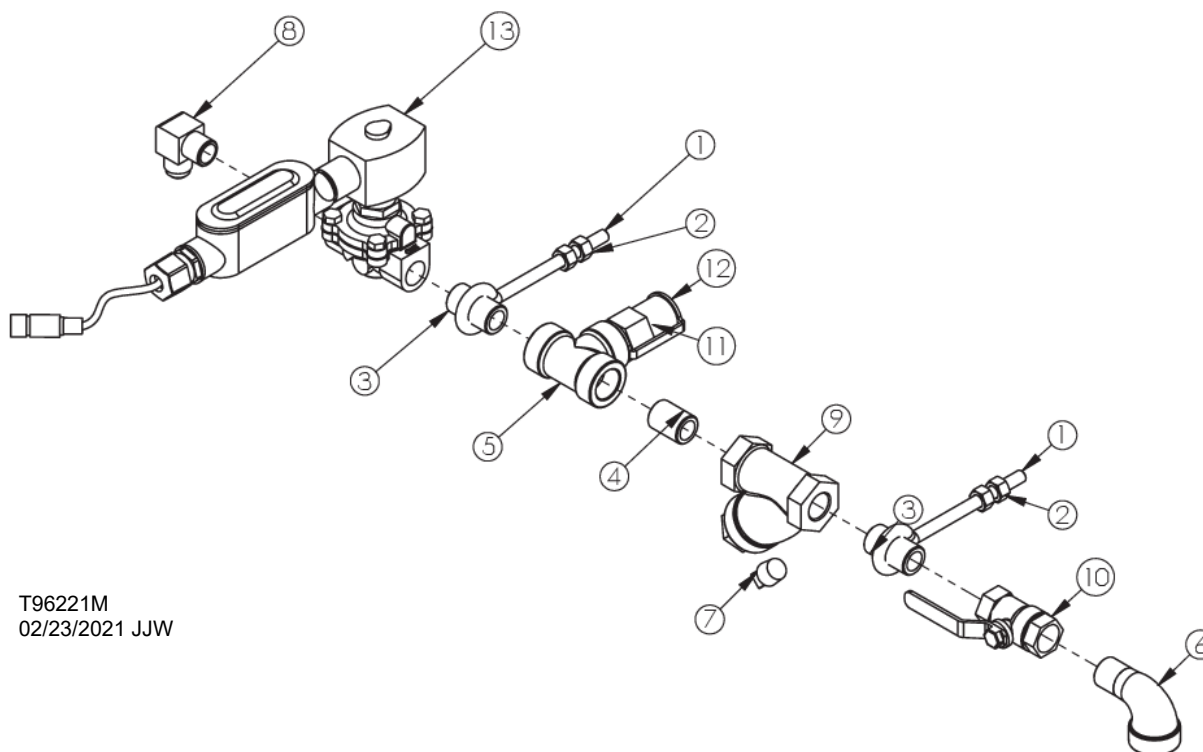
NG HEATER PARTS



SWPD0274
04/02/2024 JPH

REF. #	DESCRIPTION	LP PART #	QTY.
1	PLATE,SLOT COVER,NO VAPRZR	D7052	1
2	PLATE, ORIFICE, HIGH RANGE, NG	D7176	1
3	CAP,RUBBER,FLAME SENSOR	J45381	1
4	SPARK PLUG,#64	J5739	1
5	SENSOR,FLAME,5-1/2",COMP MOUNT	J5747	1
6	COMPRESSION SET,FLM SENSR,1-18	J5748	1
7	PLUG,HOLE,1/2"	J70091	1
8	SIGHT GLASS,ASSY,2.5",5"OD	T17688	1
9	COVER, FLAME SENSOR,#30,H-BURN	T291255	1
10	HOUSING,BURNER,CENT,GALV,H	T29187	1
11	STRAP,MOUNT,BURNER,H-BURNER	T291875	1
12	BURNER ELEMENT,ALUMINUM,H,ASSY	T29630	1
13	MOUNT, HEATER BOX ASSY	T29790	1
14	TRAY, CABLE ROUTING. 35"	T29793	1
15	PIPE,ENTRY,HOUSING,NG,DOMESTIC	T30322M	1
16	SWITCH, HOUSING OVERTEMP	T96139	1
17	PIPETRAIN,CENT,NG,1-1/2"	T96213M	1

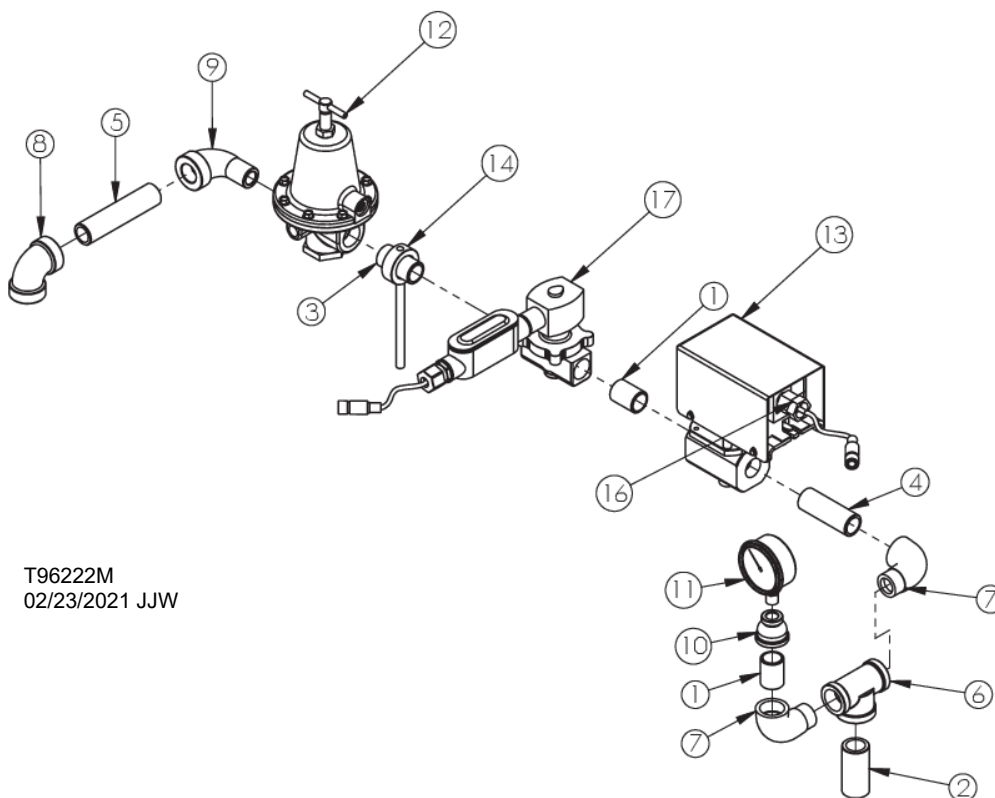
LP 1/2" PIPE TRAIN



T96221M
02/23/2021 JJW

REF. #	DESCRIPTION	QTY.	PART #
1	EYEBOLT,3/8-16,4.25,1 ID EYE	2	J0860
2	NUT,3/8-16,PLT,HEX	4	J1020
3	NIPPLE,1/2X1.5,SCH80,BLK	2	J2406
4	NIPPLE,1/2XCL,SCH80,BLK	1	J2407
5	TEE,PIPE,1/2,SCH80,BLK	1	J2472
6	ELBOW,STREET,90°,1/2,SCH80,BLK	1	J2519
7	PLUG,3/8,PIPE,BLACK	1	J2610
8	ELBOW,90°,1/2FLX1/2MIP,BRASS	1	J2745
9	STRAINER,WYE,1/2",20 MESH	1	J5992
10	VALVE,1/2",BALL,ITT 1550	1	J6082
11	VALVE,1/2",RELIEF,3129K	1	J6170
12	RAIN CAP,7545-40	1	J6200
13	SOLENOID ASY,W/ M12,LIQ,1/2"	1	T961512

LP 3/4" PIPE TRAIN

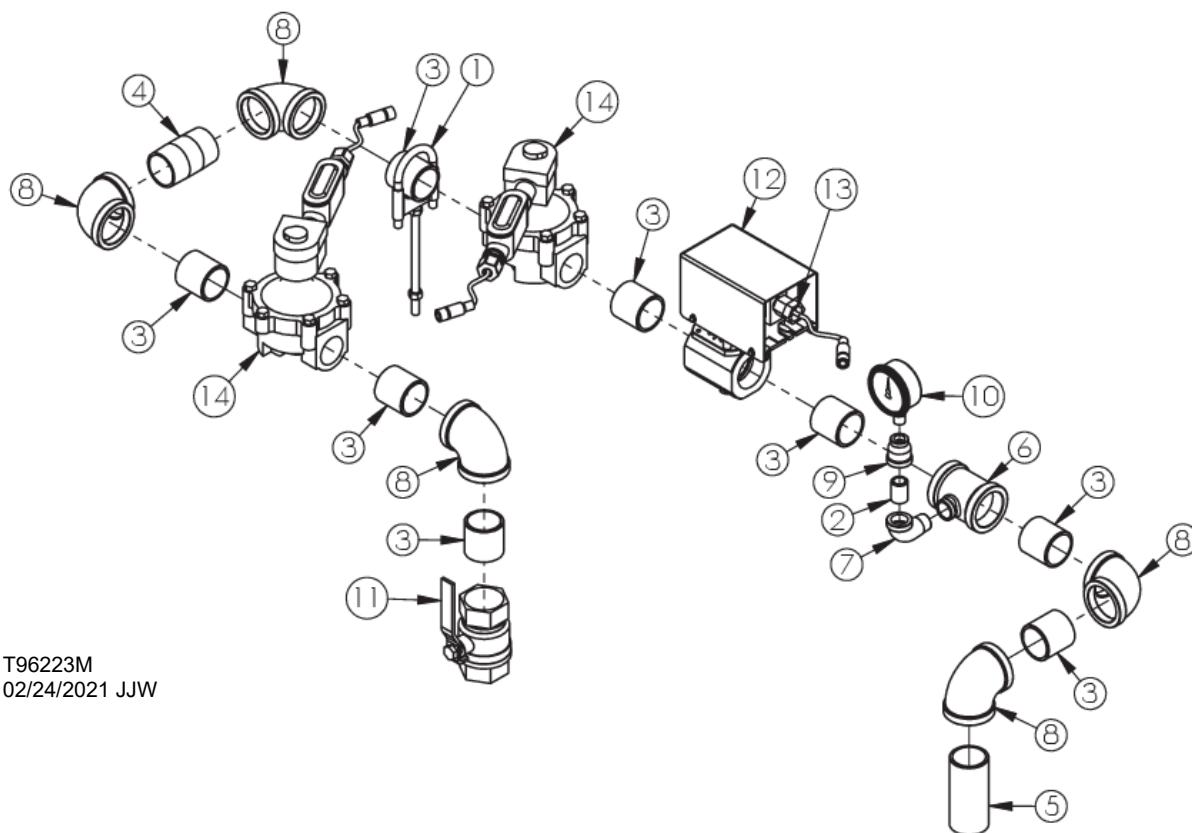


T96222M
02/23/2021 JJW

REF. #	DESCRIPTION	QTY.	PART #
1	NIPPLE,3/4XCL,SCH40,BLK	2	J2410
2	NIPPLE,1X2.5,SCH40,BLK	1	J24173
3	NIPPLE,3/4X2,SCH40,BLK	1	J2420
4	NIPPLE,3/4X3,SCH40,BLK	1	J2423
5	NIPPLE,3/4X4.5,SCH80,BLK	1	J24251
6	TEE,RED,3/4X3/4X1,SCH40,BLK	1	J24811
7	ELBOW,STREET,90°,3/4,SCH40,BLK	2	J2530
8	ELBOW,PIPE,90°,3/4,SCH80,BLK	1	J2531
9	ELBOW,STREET,90°,3/4,C300,BLK	1	J2532
10	COUPLING,RED,3/4X1/4,SCH40,BLK	1	J2574
11	GAUGE,PRES,0-30,LIQ,1/4"BTM MT	1	J5960
12	REGULATOR,3/4",X1586VN	1	J6163
13	VALVE,BUTTERFLY,3/4"SCC,W/MNT	1	T161916NN
14	EYEBOLT,PIPE TRAIN	1	T18810
15	KIT,LP VAPOR OT,W/ SPLICE,CENT	1	T96121*
16	KIT,ACTUATOR,BELIMO,3M	1	T96149
17	SOLENOID ASY,W/ M12,VAP,3/4"	1	T961522

*Not shown

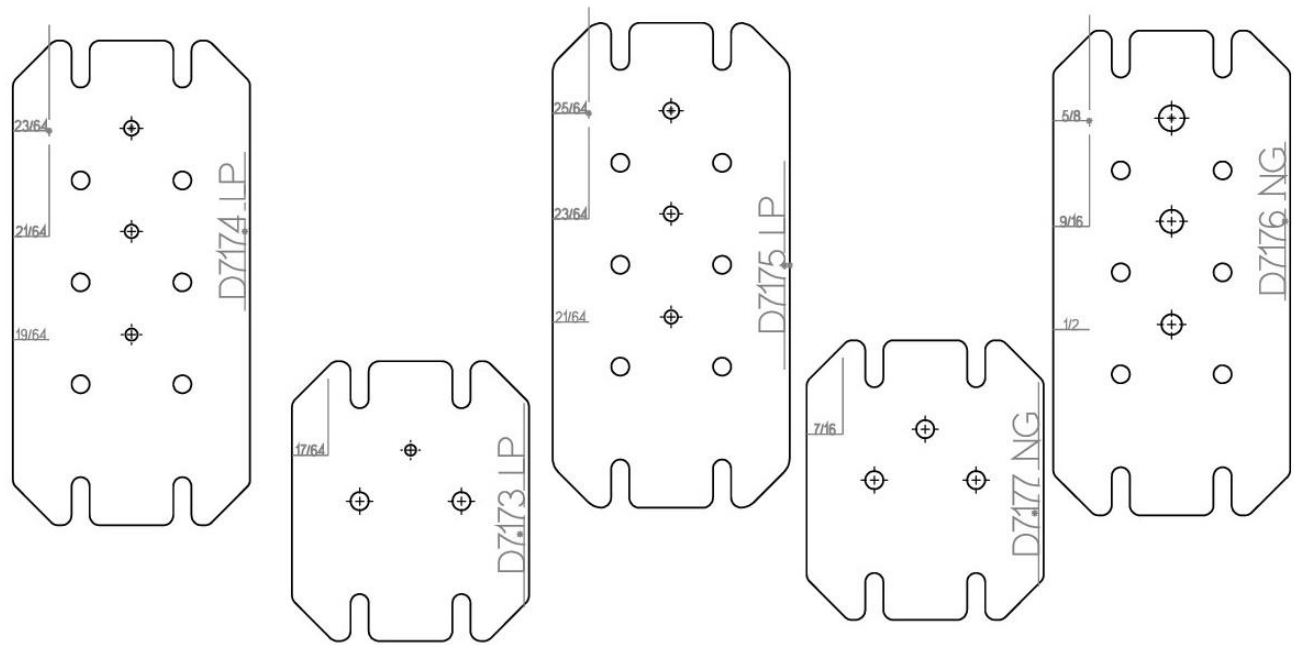
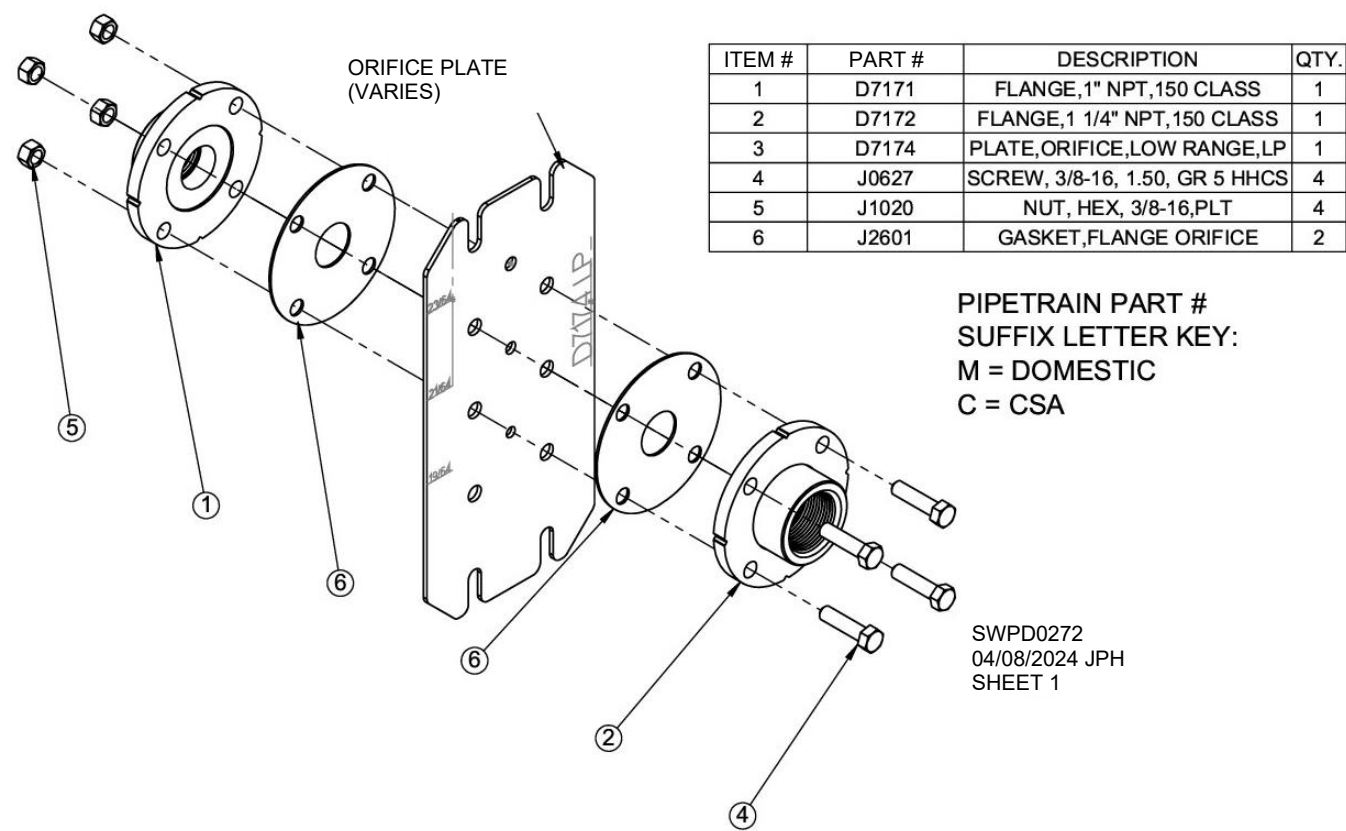
NG 1-1/2" PIPE TRAIN



T96223M
02/24/2021 JJW

REF. #	DESCRIPTION	QTY.	PART #
1	CLAMP, PIPE TRAIN, 2"	1	D71163
2	NIPPLE, 1/2XCL, SCH40, BLK	1	J2405
3	NIPPLE, 1-1/2XCL, SCH40, BLK	8	J2431
4	NIPPLE, 1-1/2X3, SCH40, BLK	1	J2433
5	NIPPLE, 1-1/2X4, SCH40, BLK	1	J2436
6	TEE, RED, 1-1/2X1-1/2X1/2, SCH40	1	J2479
7	ELBOW, STREET, 90°, 1/2, SCH40, BLK	1	J2520
8	ELBOW, PIPE, 90°, 1-1/2, SCH40, BLK	5	J2541
9	COUPLING, RED, 1/2X1/4, SCH40, BLK	1	J2572
10	GAUGE, PRESSURE, 0-15, LIQ, 2 1/2"	1	J5967
11	VALVE, 1 1/2, BALL	1	J6087
12	VALVE, BUTTERFLY, 1.5" SCC, W/MNT	1	T161917NN
13	KIT, ACTUATOR, BELIMO, 3M	1	T96149
14	SOLENOID ASY, W/ M12, NG, 1 1/2"	2	T961532

ADJUSTABLE ORIFICE PLATES & ENTRY PIPE ASSEMBLIES



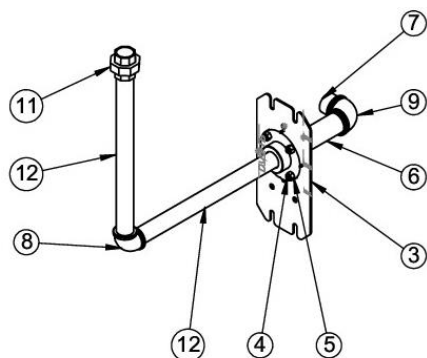
LP ORIFICE SETTING BY DRYER MODEL & HEATER #
(In inch fractions)

	Model	Heater 1	Heater 2	Heater 3	Heater 4	Heater 5	Heater 6
Single Module	T081	13/64					
	T121	19/64					
	T161	19/64					
	T201	23/64					
	T241	25/64					
	T163	19/64	13/64				
	T202	19/64	19/64				
	T203	19/64	13/64				
	T242	19/64	19/64				
	T243	23/64	13/64				
	T283	23/64	17/64				
	TC161	21/64					
	TC163	21/64					
	TC201	23/64					
	TC203	23/64					
	TC241	25/64					
	TC243	25/64					
	TC281	25/64					
	TC283	25/64					
Two Module	T165	19/64	19/64	19/64			
	T205	23/64	19/64	19/64			
	T206	19/64	19/64	19/64	19/64		
	T245	25/64	19/64	19/64			
	T246	19/64	19/64	19/64	19/64		
	TC165	21/64	21/64				
	TC205	23/64	23/64				
	TC245	25/64	25/64				
	TH165	19/64	21/64				
	TH205	23/64	23/64				
	TH245	25/64	25/64				
Three Module	T168	19/64	19/64	19/64	19/64		
	T208	23/64	23/64	19/64	19/64		
	T209	19/64	19/64	19/64	19/64	19/64	19/64
	T248	25/64	25/64	19/64	19/64		
	T249	19/64	19/64	19/64	19/64	19/64	19/64
	TC168	21/64	21/64	21/64			
	TC208	23/64	23/64	23/64			
	TC248	25/64	25/64	25/64			
	TH168	19/64	19/64	21/64			
	TH208	23/64	23/64	23/64			
	TH248	25/64	25/64	25/64			

NG ORIFICE SETTING BY DRYER MODEL & HEATER #
(In inch fractions)

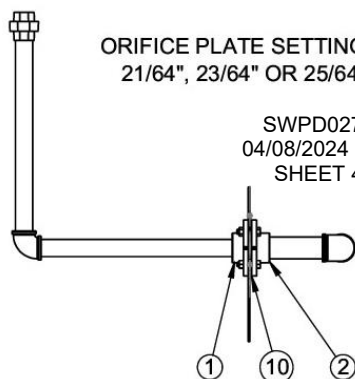
	Model	Heater 1	Heater 2	Heater 3	Heater 4	Heater 5	Heater 6
Single Module	T081	25/64					
	T121	1/2					
	T161	1/2					
	T201	9/16					
	T241	5/8					
	T163	1/2	25/64				
	T202	1/2	1/2				
	T203	1/2	25/64				
	T242	1/2	1/2				
	T243	9/16	25/64				
	T283	9/16	25/64				
	TC161	1/2					
	TC163	1/2					
	TC201	9/16					
	TC203	9/16					
	TC241	5/8					
	TC243	5/8					
	TC281	5/8					
	TC283	5/8					
Two Module	T165	1/2	1/2	1/2			
	T205	9/16	1/2	1/2			
	T206	1/2	1/2	1/2	1/2		
	T245	5/8	1/2	1/2			
	T246	1/2	1/2	1/2	1/2		
	TC165	1/2	1/2				
	TC205	9/16	9/16				
	TC245	5/8	5/8				
	TH165	1/2	1/2				
	TH205	9/16	9/16				
	TH245	5/8	5/8				
Three Module	T168	1/2	1/2	1/2	1/2		
	T208	9/16	9/16	1/2	1/2		
	T209	1/2	1/2	1/2	1/2	1/2	1/2
	T248	5/8	5/8	1/2	1/2		
	T249	1/2	1/2	1/2	1/2	1/2	1/2
	TC168	1/2	1/2	1/2			
	TC208	9/16	9/16	9/16			
	TC248	5/8	5/8	5/8			
	TH168	1/2	1/2	1/2			
	TH208	9/16	9/16	9/16			
	TH248	5/8	5/8	5/8			

ENTRY PIPE T30312M FOR LP BURNER



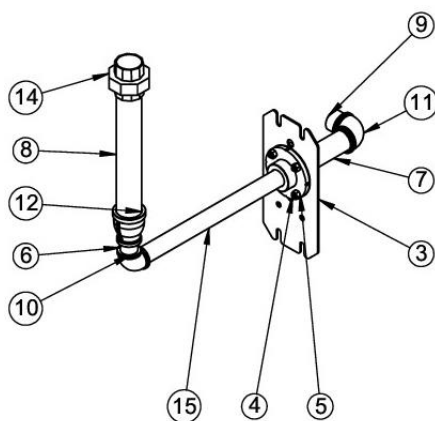
ORIFICE PLATE SETTINGS:
21/64", 23/64" OR 25/64"

SWPD0272
04/08/2024 JPH
SHEET 4



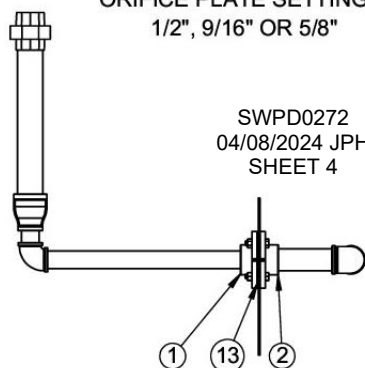
REF. #	DESCRIPTION	PART #	QTY.
1	FLANGE, 1"NPT, 150 CLASS, WELD	D7171	1
2	FLANGE, 1-1/4"NPT, 150 CLASS, WLD	D7172	1
3	PLATE, ORIFICE, HIGH RANGE, LP	D7175	1
4	SCREW, 3/8-16, 1.50, PLT, GR5, HHCS	J0627	4
5	NUT, 3/8-16, PLT, HEX	J1020	4
6	NIPPLE, 1-1/4X5, SCH40, BLK	J2435	1
7	NIPPLE, 1-1/4XCL, SCH40, BLK	J2500	1
8	ELBOW, PIPE, 90°, 1, SCH40, BLK	J25251	1
9	ELBOW, PIPE, 90°, 1-1/4, SCH40, BLK	J2540	1
10	GASKET, FLANGE ORIFICE	J2601	2
11	UNION, PIPE, 1, SCH40, BLK	J2696	1
12	PIPE, 1X15.5, SCH40, THRD	T17218	2

ENTRY PIPE T30322M FOR NG BURNER



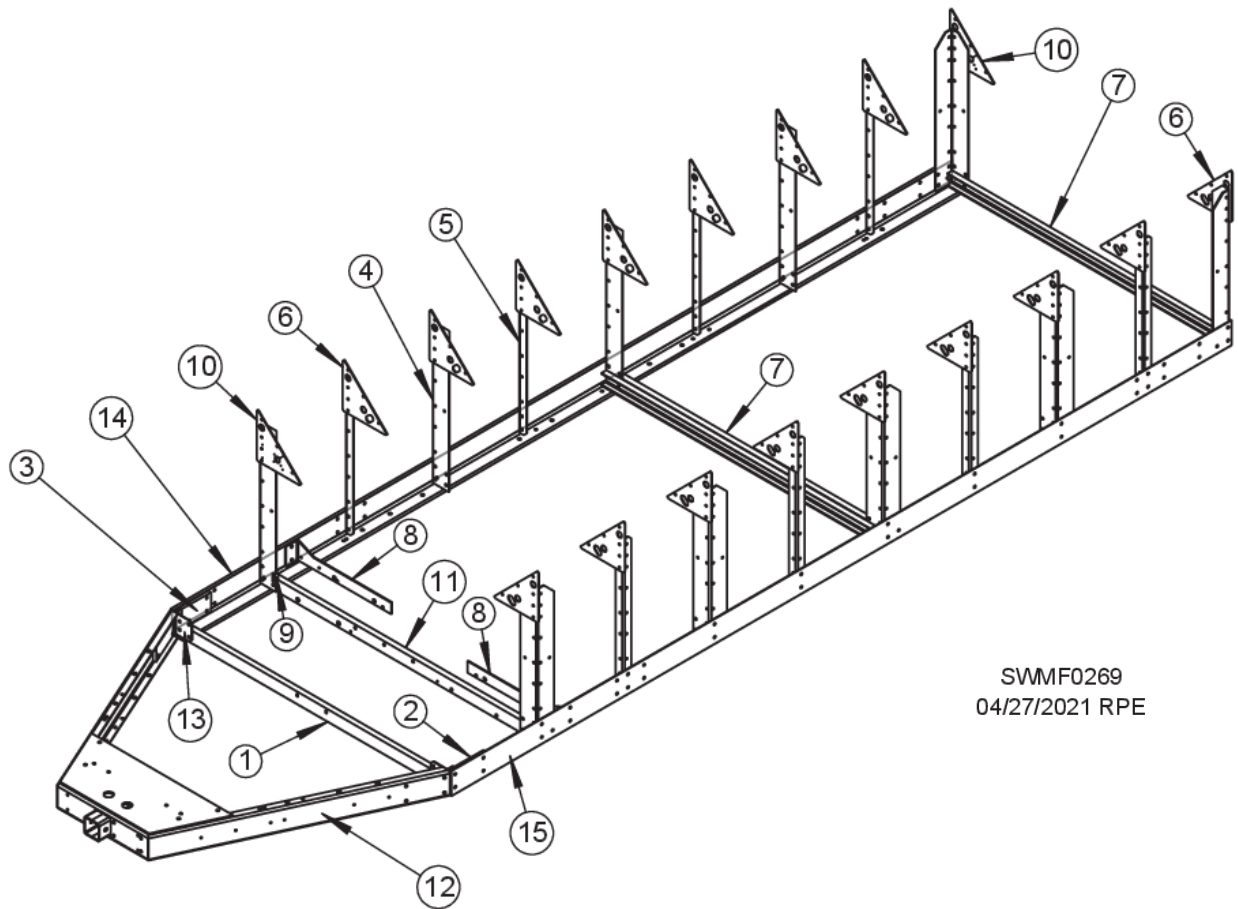
ORIFICE PLATE SETTINGS:
1/2", 9/16" OR 5/8"

SWPD0272
04/08/2024 JPH
SHEET 4



REF. #	DESCRIPTION	PART #	QTY.
1	FLANGE, 1"NPT, 150 CLASS, WELD	D7171	1
2	FLANGE, 1-1/4"NPT, 150 CLASS, WLD	D7172	1
3	PLATE, ORIFICE, HIGH RANGE, NG	D7176	1
4	SCREW, 3/8-16, 1.50, PLT, GR5, HHCS	J0627	4
5	NUT, 3/8-16, PLT, HEX	J1020	4
6	NIPPLE, 1-1/4X5, SCH40, BLK	J2435	1
7	NIPPLE, 1-1/2X12, SCH40, BLK	J24391	1
8	NIPPLE, 1-1/4XCL, SCH40, BLK	J2500	1
9	ELBOW, PIPE, 90°, 1, SCH40, BLK	J25251	1
10	ELBOW, PIPE, 90°, 1-1/4, SCH40, BLK	J2540	1
11	COUPLING, RED, 1-1/2X1, SCH40, BLK	J2553	1
12	GASKET, FLANGE ORIFICE	J2601	2
13	UNION, PIPE, 1-1/2, SCH40, BLK	J2707	1
14	PIPE, 1X15.5, SCH40, THRD	T17218	1

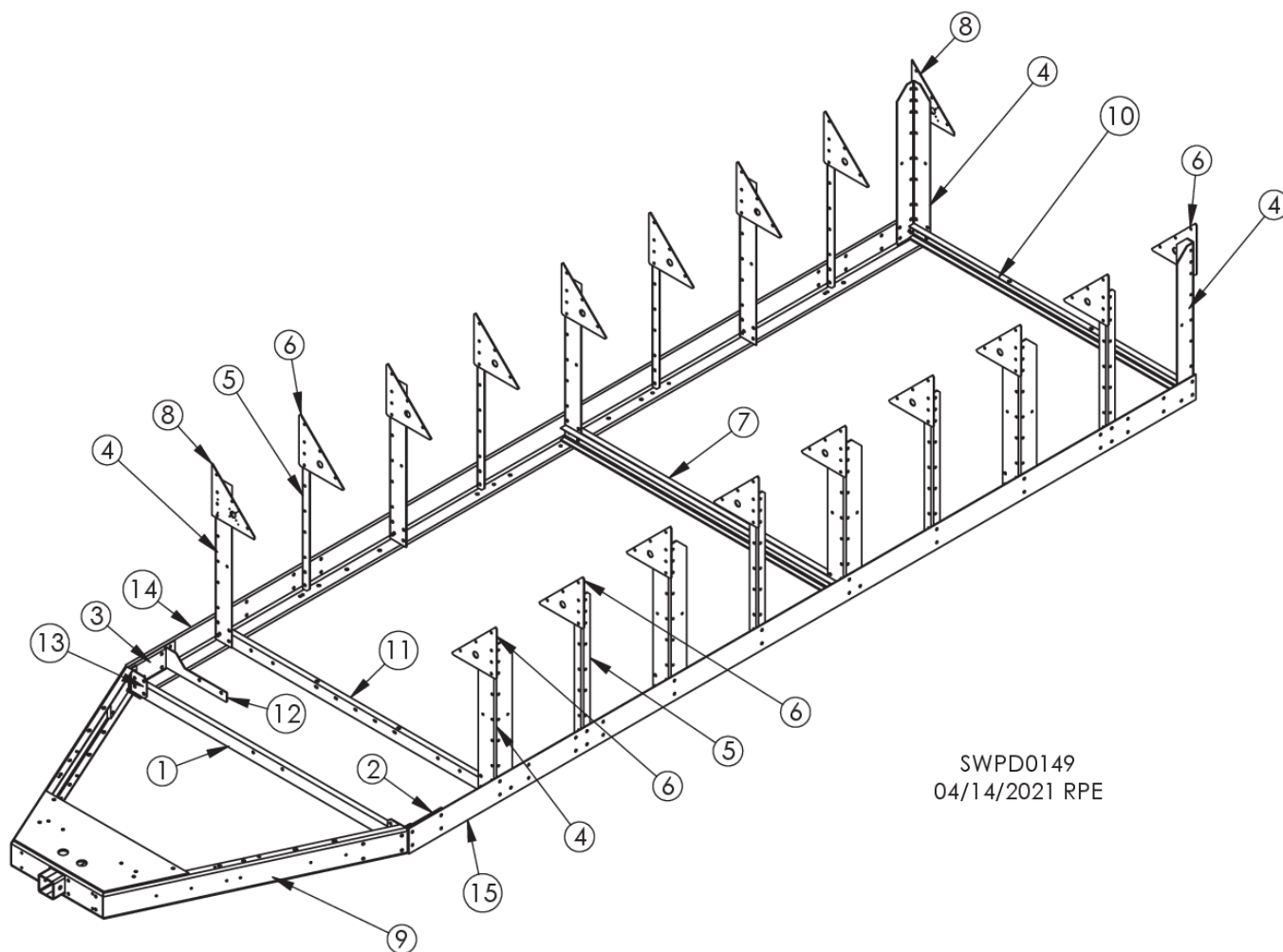
FRAME FOR DRYER W/ AUGER UNLOAD



SWMF0269
04/27/2021 RPE

ITEM #	DESCRIPTION	16'		20'		24'	
		QTY.	PART #	QTY.	PART #	QTY.	PART #
1	CHANNEL,CROSS,74.8125",FRONT	1	T15325	1	T15325	1	T15325
2	PLATE,HITCH CONNECTOR,INSD,LH	1	T15326	1	T15326	1	T15326
3	PLATE,HITCH CONNECTOR,INSD,RH	1	T15327	1	T15327	1	T15327
4	WIDE VERTICAL SUPPORT	10	T16322	12	T16322	14	T16322
5	NARROW VERTICAL SUPPORT	8	T16323	10	T16323	12	T16323
6	PLATE,MAIN CONNECTOR	16	T16324	20	T16324	24	T16324
7	CROSS CHANNEL	3	T16325	5	T16325	5	T16325
8	DC MOTOR BRACE	2	T16328	2	T16328	2	T16328
9	TIGHTENER ANGLE	1	T16329	1	T16329	1	T16329
10	PLATE, CONNECTOR,BOX CONDUIT	2	T16331	2	T16331	2	T16331
11	FRONT CROSS CHANNEL	1	T16333	1	T16333	1	T16333
12	HITCH RECEIVER WELDMENT	1	T24423	1	T24423	1	T24423
13	BRACKET,CROSS CHANNEL	2	T80147	2	T80147	2	T80147
14	RIGHT FRAME ANGLE	1	T80205	1	T20419	1	T24419
15	LEFT FRAME ANGLE	1	T80206	1	T20420	1	T24420

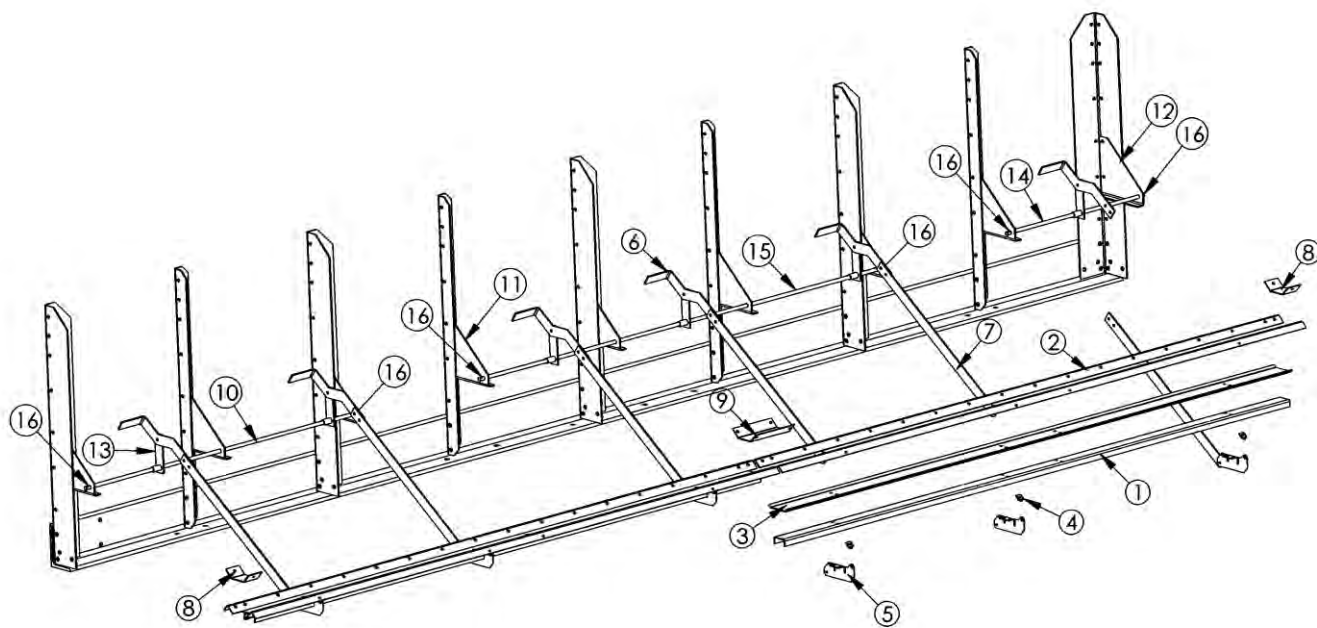
FRAME FOR DRYER W/ DRAG CONVEYOR UNLOAD



SWPD0149
04/14/2021 RPE

REF.#	DESCRIPTION	16' DRYER		20' DRYER		24' DRYER	
		QTY.	PART #	QTY.	PART #	QTY.	PART #
1	FRONT CROSS CHANNEL, 74-13/16"	1	T15325	1	T15325	1	T15325
2	HITCH CONNECTOR PLATE, INSIDE LH	1	T15326	1	T15326	1	T15326
3	HITCH CONNECTOR PLATE, INSIDE, RH	1	T15327	1	T15327	1	T15327
4	WIDE VERT SUPPORT	10	T16322	12	T16322	14	T16322
5	NARROW VERT SUPPORT	8	T16323	10	T16323	12	T16323
6	MAIN CONNECTOR PLATE	16	T16324	20	T16324	24	T16324
7	CROSS CHANNEL	2	T16325	4	T16325	4	T16325
8	CONDUIT BOX CONNECTOR PLATE	2	T16331	2	T16331	2	T16331
9	HITCH RECEIVER WELDMENT	1	T24423	1	T24423	1	T24423
10	CROSS CHANNEL FOR DC UNLOAD	1	T5002	1	T5002	1	T5002
11	FRONT CROSS CHANNEL FOR DC UNLOAD	1	T5003	1	T5003	1	T5003
12	GEARBOX SUPPORT BRACKET	1	T5023	1	T5023	1	T5023
13	CROSS CHANNEL BRACKET	2	T80147	2	T80147	2	T80147
14	RIGHT FRAME ANGLE	1	T80205	1	T20419	1	T24419
15	LEFT FRAME ANGLE	1	T80206	1	T20420	1	T24420

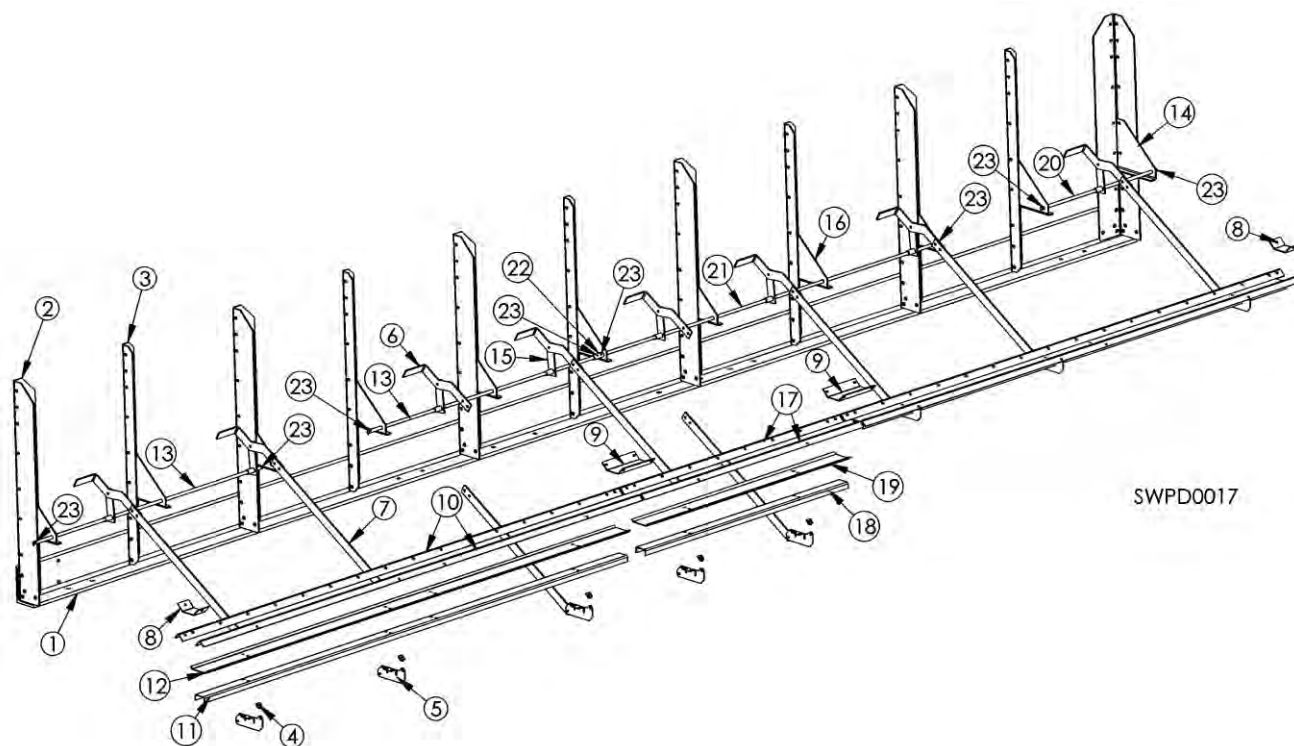
16' CAM LOCK ASSEMBLY



SWPD0016

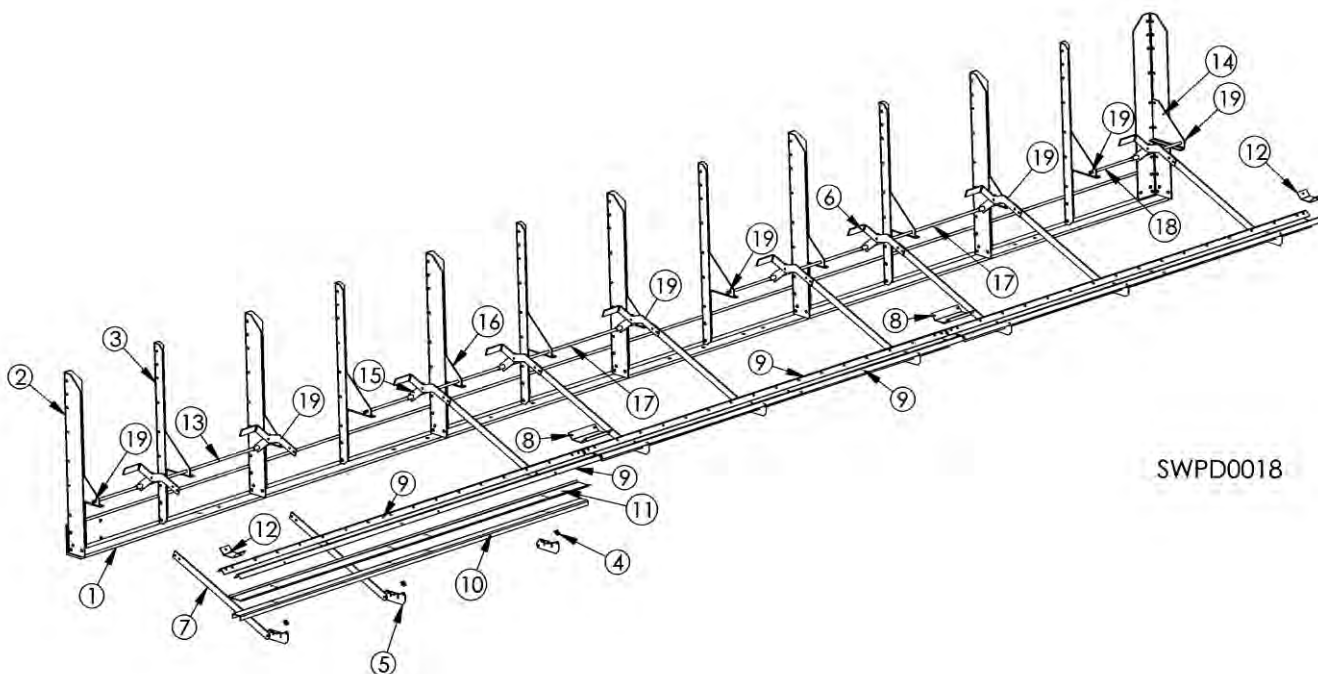
REF. #	DESCRIPTION	QTY.	PART #
1	8' DOOR SUPPORT, CAM LOCK	2	T17454
2	8' ANGLE, CAM LOCK	4	T17456
3	8' DOOR, CAM LOCK	2	T17455
4	PIVOT BRACKET	6	T16393
5	HINGE, BOTTOM DOOR, CAM LOCK	6	T16387
6	HANDLE, CAM LOCK	6	T16382
7	EXTENSION ARM, CAM LOCK	6	T16386
8	SEAL PLATE, END, CAM LOCK	2	T16398
9	SEAL PLATE, MID, CAM LOCK	1	T16390
10	SHAFT, 49.75", CAM LOCK	1	T16400
11	GUSSET, FRONT, CAM LOCK	8	T16380
12	GUSSET, REAR, CAM LOCK	1	T16381
13	PIVOT ARM WELDMENT, CAM LOCK	6	T16383
14	SHAFT, 25", CAM LOCK	1	T20401
15	SHAFT, CAM LOCK, 74"	1	T12516
16	PIN, COTTER, 1/8", 1, PLT	6	J1420

20' CAM LOCK ASSEMBLY



REF. #	DESCRIPTION	QTY.	PART #
1	RIGHT FRAME ANGLE	1	T20319
2	WIDE VERTICAL SUPPORT	6	T16322
3	NARROW VERTICAL SUPPORT	5	T16323
4	PIVOT BRACKET	8	T16393
5	HINGE BOTTOM DOOR CAM LOCK	8	T16387
6	HANDLE CAM LOCK	8	T16382
7	EXTENSION ARM, CAM LOCK	8	T16386
8	SEAL PLATE, END, CAM LOCK	2	T16398
9	SEAL PLATE, MID, CAM LOCK	2	T16390
10	8' ANGLE, CAM LOCK	4	T17456
11	8' DOOR SUPPORT, CAM LOCK	2	T17454
12	8' DOOR, CAM LOCK	2	T17455
13	SHAFT, 49.75", CAM LOCK	2	T16400
14	GUSSET, REAR, CAM LOCK	1	T16381
15	PIVOT ARM WELDMENT, CAM LOCK	8	T16383
16	GUSSET, FRONT, CAM LOCK	10	T16380
17	ANGLE, CAM LOCK 4'	2	T12529
18	DOOR SUPPORT, CAM LOCK 4'	1	T12530
19	DOOR, CAM LOCK 4'	1	T12528
20	SHAFT, 25", CAM LOCK	1	T20401
21	SHAFT, CAM LOCK, 74"	1	T12516
22	CONNECTOR, SHAFT	1	T20403
23	PIN, COTTER, 1/8, 1, PLT	8	J1420

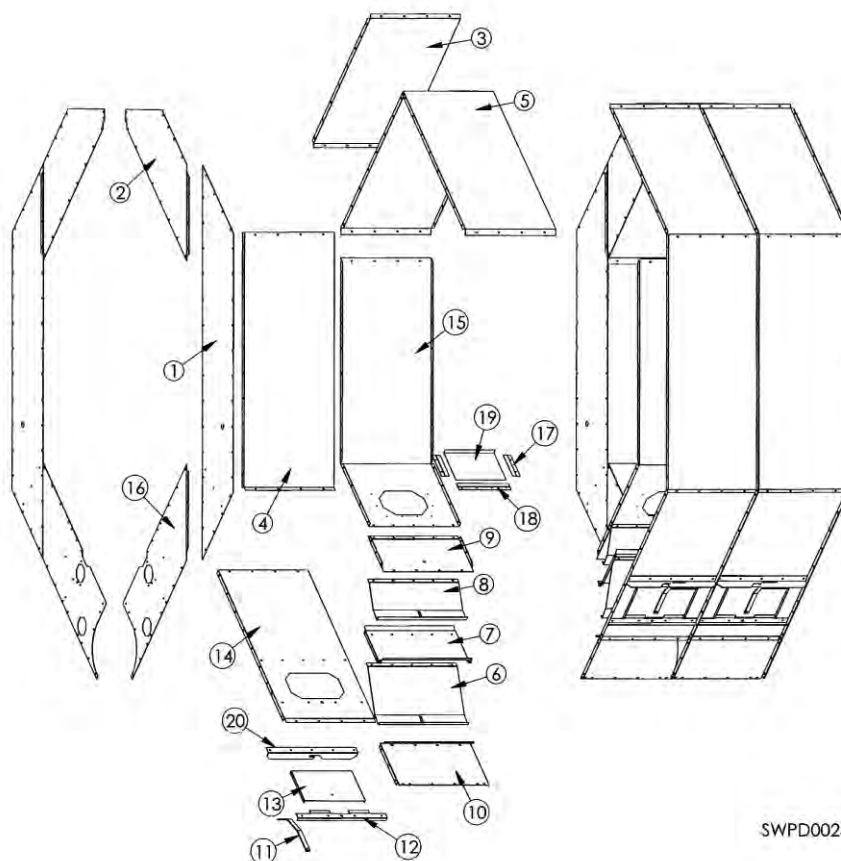
24' CAM LOCK ASSEMBLY



SWPD0018

REF. #	DESCRIPTION	QTY.	PART #
1	RIGHT FRAME ANGLE	1	T24319
2	WIDE VERTICAL SUPPORT	7	T16322
3	NARROW VERTICAL SUPPORT	8	T16323
4	PIVOT BRACKET	9	T16393
5	HINGE, BOTTOM DOOR, CAM LOCK	9	T16387
6	HANDLE, CAM LOCK	9	T16382
7	EXTENSION ARM, CAM LOCK	9	T16386
8	SEAL PLATE, MID, CAM LOCK	2	T16390
9	8' ANGLE, CAM LOCK	6	T17456
10	8' DOOR SUPPORT	3	T17454
11	8' DOOR, CAM LOCK	3	T17455
12	SEAL PLATE, END, CAM LOCK	2	T16398
13	SHAFT, CAM LOCK, 49.75"	1	T16400
14	GUSSET, REAR	1	T16381
15	PIVOT ARM WELDMENT	9	T16383
16	GUSSET, FRONT	12	T16380
17	SHAFT, CAM LOCK, 74"	2	T12516
18	SHAFT, CAM LOCK, 25"	1	T20401
19	PIN, COTTER, 1/8, 1, PLT	8	J1420

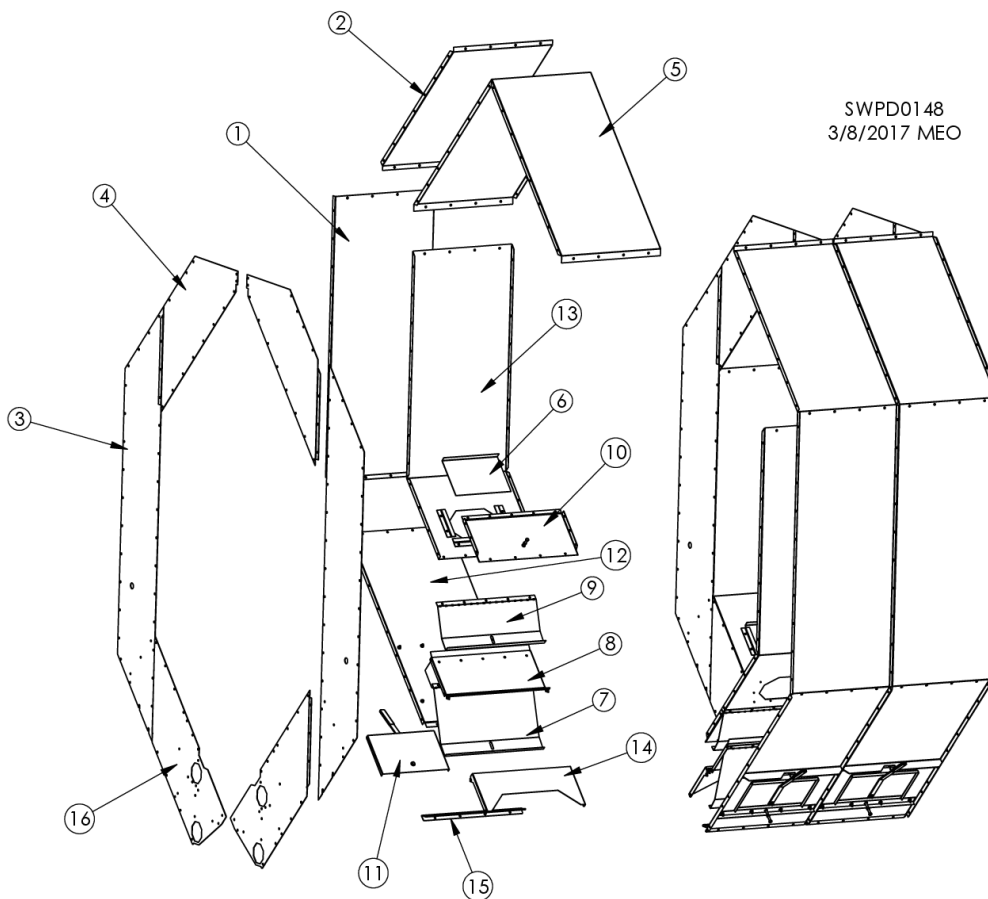
COLUMN PARTS FOR DRYER W/ AUGER UNLOAD



SWPD0025

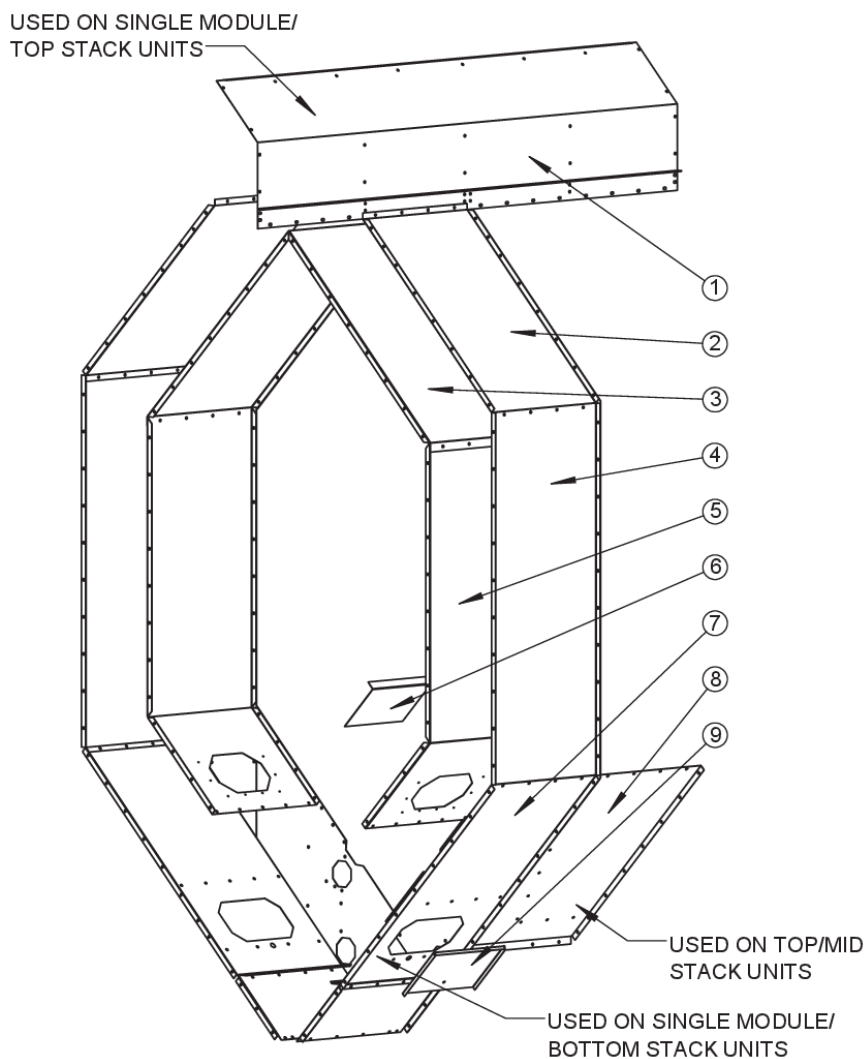
REF. #	DESCRIPTION	16'		20'		24'	
		QTY.	PART #	QTY.	PART #	QTY.	PART #
1	SIDE DIVIDER	14	T16110	18	T16110	22	T16110
2	UPPER DIVIDER	14	T16111	18	T16111	22	T16111
3	OUTER TOP PERF. PANEL (STAINLESS)	16	T16105S	20	T16105S	24	T16105S
	OUTER TOP PERF. PANEL (GALVANIZED)	16	T16105	20	T16105	24	T16105
4	OUTSIDE MIDDLE PERF. PANEL (STAINLESS)	16	T16104S	20	T16104S	24	T16104S
	OUTSIDE MIDDLE PERF. PANEL (GALV.)	16	T16104	20	T16104	24	T16104
5	TOP INNER PERF. PANEL	8	T16114	10	T16114	12	T16114
6	BOTTOM FLOW CONTROL GATE	16	T17900	20	T17900	24	T17900
7	COLUMN SEPARATOR	16	T17901	20	T17901	24	T17901
8	TOP FLOW CONTROL GATE	16	T17902	20	T17902	24	T17902
9	RIGID ADJUSTMENT PLATE	16	T17903	20	T17903	24	T17903
10	BOTTOM RIGID DOOR	16	T17904	20	T17904	24	T17904
11	LATCH	16	T17906	20	T17906	24	T17906
12	SUPPORT LATCH STRAP	16	T17907	20	T17907	24	T17907
13	OUTER CLEANOUT DOOR	16	T17913W	20	T17913W	24	T17913W
14	BOTTOM OUTER PERF. PANEL (STAINLESS)	16	T17909S	20	T17909S	24	T17909S
	BOTTOM OUTER PERF. PANEL (GALV.)	16	T17909	20	T17909	24	T17909
15	INNER SIDE PERF. PANEL	16	T17910	20	T17910	24	T17910
16	LOWER DIVIDER	14	T17924	18	T17924	22	T17924
17	SIDE RAIL, INNER ACCESS	32	T16219	40	T16219	48	T16219
18	BOTTOM RAIL, INNER ACCESS	16	T16220	20	T16220	24	T16220
19	INNER ACCESS DOOR	16	T16221	20	T16221	24	T16221
20	DOOR LATCH BRACKET	16	T17657	20	T17657	24	T17657

COLUMN PARTS FOR DRYER W/ DRAG CONVEYOR UNLOAD



REF. #	DESCRIPTION	16'		20'		24'	
		QTY.	PART #	QTY.	PART #	QTY.	PART #
1	OUTSIDE MIDDLE PERF. PANEL (STAINLESS)	16	T16104S	20	T16104S	24	T16104S
	OUTSIDE MIDDLE PERF. PANEL (GALV.)	16	T16104	20	T16104	24	T16104
2	OUTER TOP PERF. PANEL (STAINLESS)	16	T16105S	20	T16105S	24	T16105S
	OUTER TOP PERF. PANEL (GALVANIZED)	16	T16105	20	T16105	24	T16105
3	SIDE DIVIDER	14	T16110	18	T16110	22	T16110
4	UPPER DIVIDER	14	T16111	18	T16111	22	T16111
5	TOP INNER PERF. PANEL	8	T16114	10	T16114	12	T16114
6	INNER ACCESS DOOR	16	T16221	20	T16221	24	T16221
7	BOTTOM FLOW CONTROL GATE	16	T17900	20	T17900	24	T17900
8	COLUMN SEPARATOR	16	T17901	20	T17901	24	T17901
9	TOP FLOW CONTROL GATE	16	T17902	20	T17902	24	T17902
10	RIGID ADJUSTMENT PLATE W/ BOLT	16	T17903AM2	20	T17903AM2	24	T17903AM2
11	OUTER CLEANOUT DOOR ASSY.	16	T17908AM	20	T17908AM	24	T17908AM
12	BOTTOM OUTER PERF. PANEL ASSY. (STAINLESS)	16	T17909AMS	20	T17909AMS	24	T17909AMS
	BOTTOM OUTER PERF. PANEL ASSY. (GALV.)	16	T17909AM	20	T17909AM	24	T17909AM
13	INNER SIDE PERF. PANEL	16	T17910AM	20	T17910AM	24	T17910AM
14	BOTTOM GRAIN GUIDE	16	T5025	20	T5025	24	T5025
15	BOTTOM RIGID BRACKET	16	T5026	20	T5026	24	T5026
16	LOWER DIVIDER	14	T5027	18	T5027	22	T5027

PERFORATED COLUMN SHEETS (AUGER & DRAG UNLOAD)

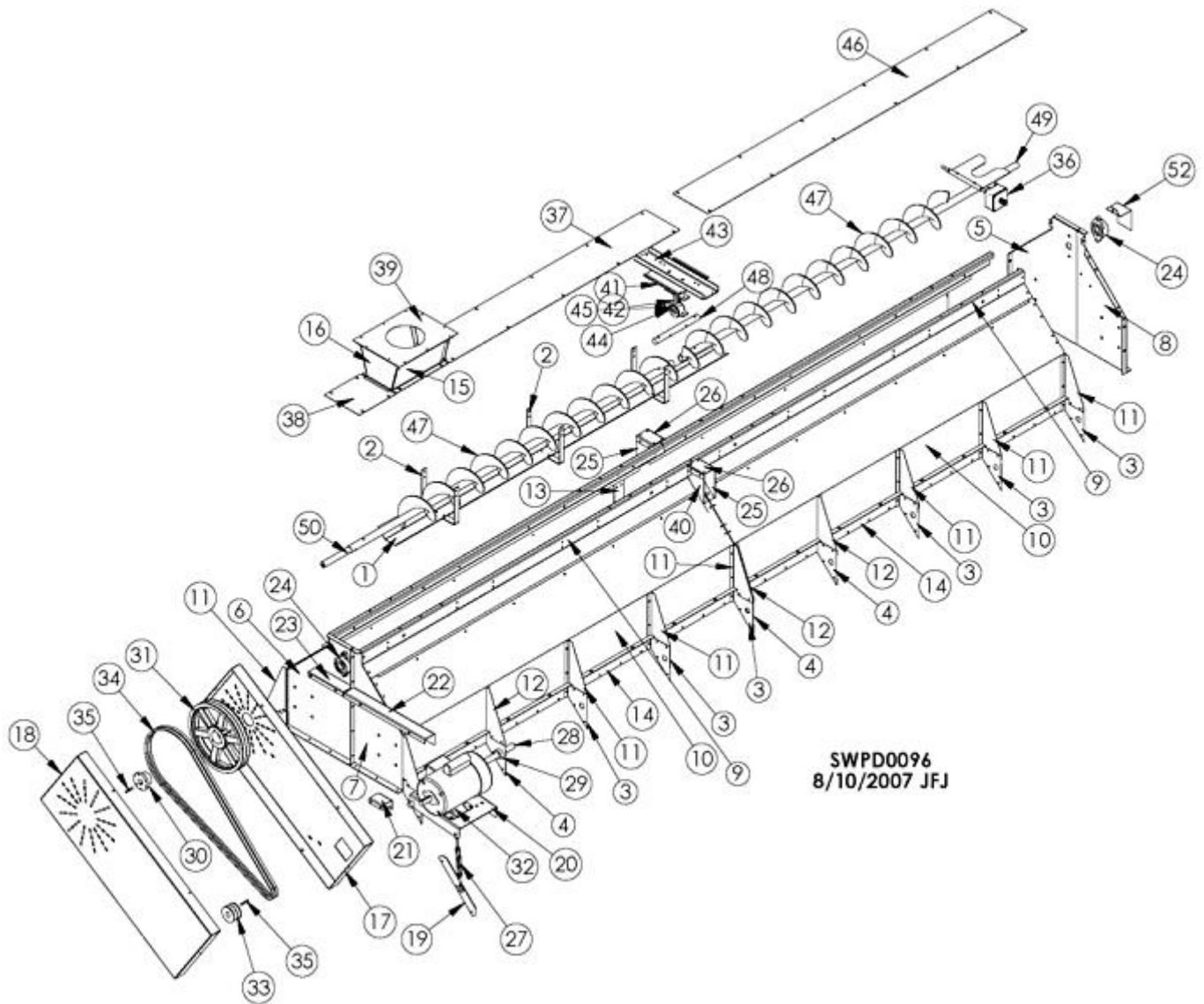


SWPD0248
01/11/2021 CSH

REF. #	DESCRIPTION	QUANTITY			.094 ROUND GALVANIZED PART #	.094 ROUND STAINLESS PART #	.063 ROUND PART #	.047 SLOT PART #	.063 SLOT PART #
		16'	20'	24'					
1A	8' WET BIN SIDE	4	4	6	T17450	T17450S	T17441W	T17441	T17441W
1B	4' WET BIN SIDE	0	2	0	T12525	T12525S	T12536W	T12536	T12536W
2	OUTSIDE TOP PERF PANEL	16	20	24	T16105	T16105S	T17505W	T175051	T17534
3	INNER TOP PERF PANEL	8	10	12	T16114	T16114	T17414W	T174141	T17532
4	OUTSIDE MIDDLE PERF PANEL	16	20	24	T16104	T16104S	T17504W	T175041	T17533
5	INNER MIDDLE PERF PANEL	16	20	24	T17910*	T17910*	T17510W	T17503	T17530
6	INNER CLEANOUT DOOR	16	20	24	T16225W	T16225W	T16225W	T16225	T16225W
7	BOTTOM OUTER W/ CLEANOUT	16	20	24	T17909	T17909S	T17919W	T179191	T17536
8	BOTTOM OUTER STACK MOD	16	20	24	T25506	T25506S	T25506W	T255061	T17535
9	OUTER CLEANOUT DOOR	16	20	24	T17913W	T17913W	T17913W	T17913	T17913W

*On suction-cool dryer there are two pieces, T17511 (Upper) & T17512AM, (Lower, .063 perf.)

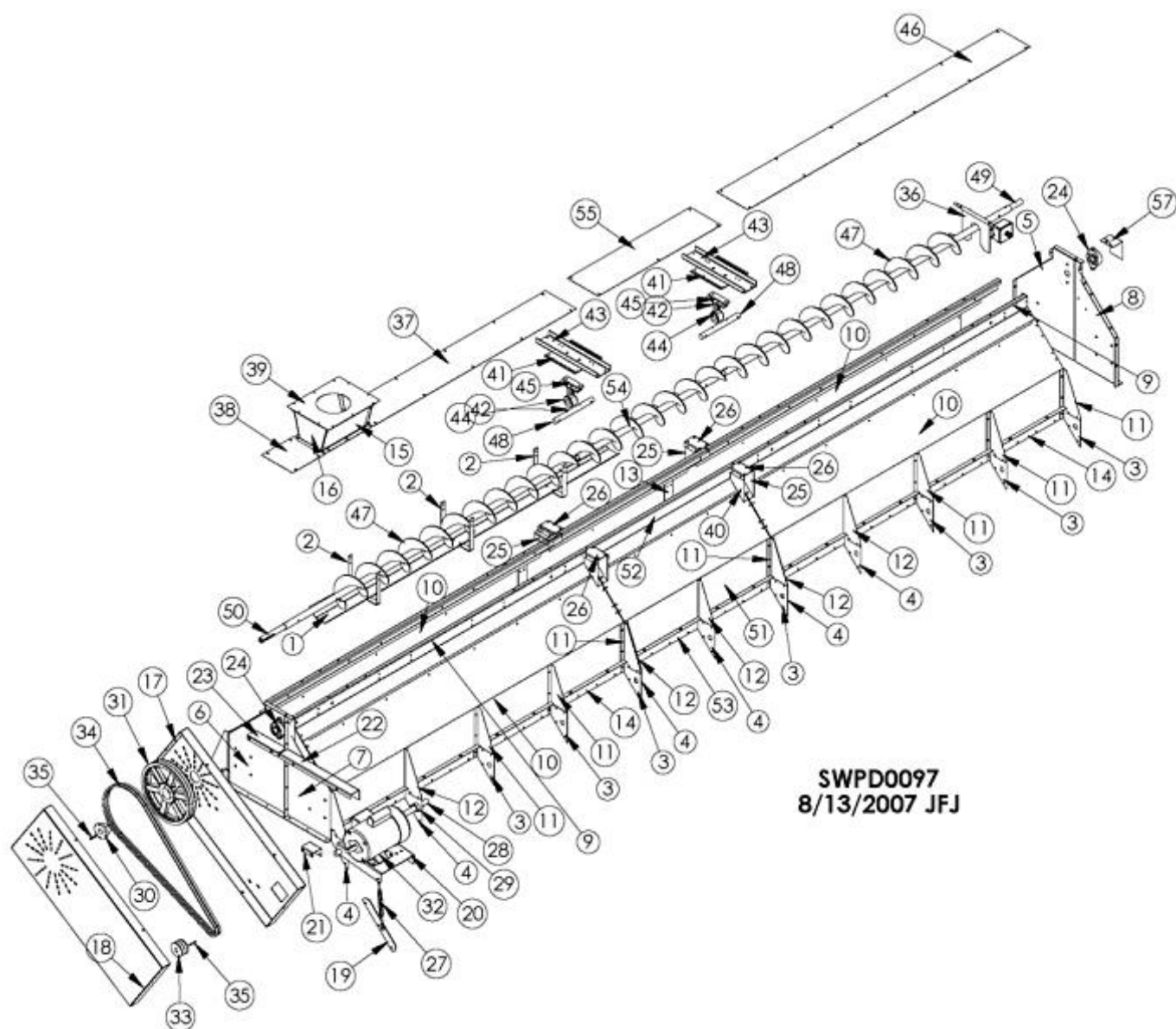
16' AUGER FILL ASSEMBLY



16' AUGER FILL ASSEMBLY PARTS

REF. #	DESCRIPTION	QTY.	PART #
1	TRASH PAN	1	T16235
2	SUPPORT, TRASH PAN	3	T16236
3	LEFT SUPPORT GUSSET	12	T16117
4	RIGHT SUPPORT GUSSET	8	T16118
5	RR WET BIN END PLATE ASSY.	1	T17401AM
6	RF WET BIN END PLATE ASSY.	1	T17400AM
7	LF WET BIN END PLATE ASSY.	1	T17402AM
8	LR WET BIN END PLATE ASSY.	1	T17403AM
9	TOP 8' PANEL (FILL SWITCH)	4	T17457
10	WET BIN SIDE PERF, (STAINLESS)	4	T17450S
	WET BIN SIDE PERF, (GALVANIZED)	4	T17450
11	LT PIVOT BRACE WET BIN	12	T17410
12	RT PIVOT BRACE WET BIN	8	T17411
13	SPLICE, WET BIN SIDE	2	T17412
14	BOLT DOWN LIP 8', 2000	4	T17453
15	HOPPER SIDE	2	T17935
16	HOPPER END	2	T17936
17	TOP AUGER SHIELD (INNER)	1	T16256
18	TOP AUGER SHIELD (OUTER)	1	T16255
19	PLATE, TURNBUCKLE, CONNECTOR	1	T16283
20	TOP MOTOR MOUNT	1	T16277
21	TOP SHIELD BRACE ASSY.	1	T16258AM
22	BRACKET, LF TOP AUGER SHIELD ASSY.	1	T16861AM
23	BRACKET, RF TOP AUGER SHIELD ASSY.	1	T16860AM
24	BEARING, 1.25, FLG, W/LC, HCFTS207 - 20	2	J0010
25	SPLICE GUSSET RIGHT	2	T16145
26	CHANNEL, SPLICE, SHORT	2	T16146
27	TURNBUCKLE, 3/8" X 6"	1	J0904
28	PIVOT, MOTOR MOUNT, TOP	1	T18150
29	COLLAR, SHAFT, 1-3/16"	2	J1338
30	BUSHING, 1.25 SK	1	J0410
31	PULLEY, 15.75OD, DOUBLE "B" GR. SK	1	J03992
32	MOTOR, AUGER 3HP, 1PH, TEFC	1	T12590
	MOTOR, AUGER 3HP, 3PH, TEFC	1	H3345
33	PULLEY, 3.5 OD, 1.25, DOUBLE, B, CAST	1	J0317
34	BELT, B95	2	J0252
35	KEY, 1/4 X 1/4 X 2	2	F4499
36	PADDLE, ASSEMBLY	1	T16262
37	LID, WET HOLDING BIN	1	T16157
38	LID, 10.5", EXTENSION, WET BIN	1	T16159
39	FILL HOPPER ASSY.	1	T17937AM
40	SPLICE GUSSET LEFT	2	T16144
41	CRIMP PLATE	1	T16142
42	HANGER, AUGER, T, 6CH2203	1	J0097
43	SPLICE CHANNEL	1	T16143
44	BUSHING, WOOD, 1.25" ID	1	J0096
45	SPACER, T-HANGER, TOP AUGER	1	T16096
46	LID, 92-1/2" WET HOLDING BIN	1	T16158
47	TOP AUGER	2	T16428
48	SHAFT, 8' HANGER BEARING	1	F4720
49	SHAFT, 1.25" X 9"	1	G73291
50	SHAFT, TOP FRONT, 13-1/4"	1	T16436
51	PLATE, SHORT SPLICE (NOT SHOWN)	2	T16141
52	REAR SHAFT SHIELD	1	T16420

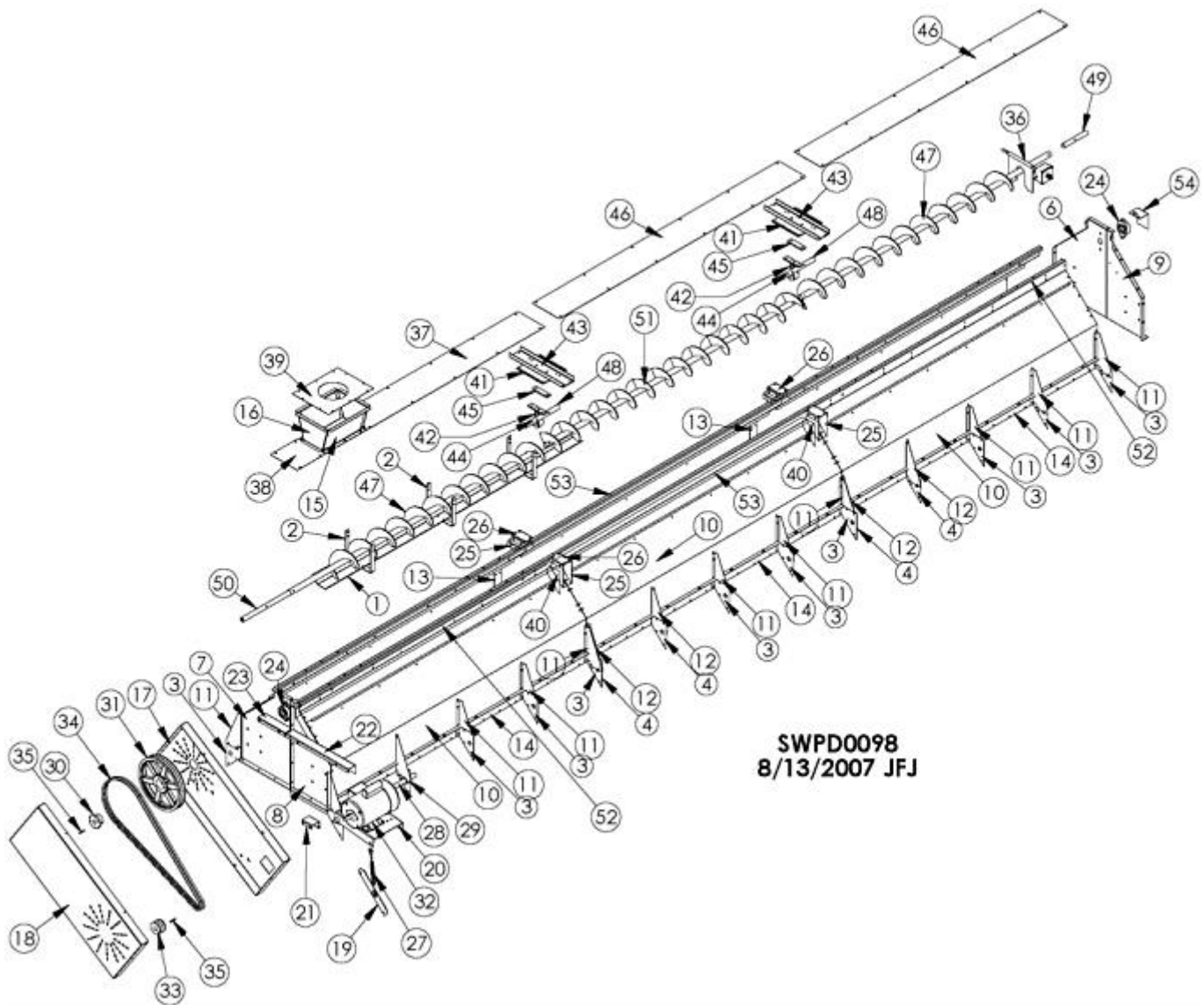
20' AUGER FILL ASSEMBLY



20' AUGER FILL ASSEMBLY PARTS

REF. #	DESCRIPTION	QTY.	PART #
1	TRASH PAN	1	T16235
2	SUPPORT, TRASH PAN	3	T16236
3	LEFT SUPPORT GUSSET	14	T16117
4	RIGHT SUPPORT GUSSET	12	T16118
5	RR WET BIN END PLATE ASSY.	1	T17401AM
6	RF WET BIN END PLATE ASSY.	1	T17400AM
7	LF WET BIN END PLATE ASSY.	1	T17402AM
8	LR WET BIN END PLATE ASSY	1	T17403AM
9	TOP 8' PANEL (FILL SWITCH)	4	T17457
10	WET BIN SIDE PERF, (STAINLESS)	4	T17450S
	WET BIN SIDE PERF, (GALVANIZED)	4	T17450
11	LT PIVOT BRACE WET BIN	14	T17410
12	RT PIVOT BRACE WET BIN	12	T17411
13	SPLICE, WET BIN SIDE	4	T17412
14	BOLT DOWN LIP 8', 2000	4	T17453
15	HOPPER SIDE	2	T17935
16	HOPPER END	2	T17936
17	TOP AUGER SHIELD (INNER)	1	T16256
18	TOP AUGER SHIELD (OUTER)	1	T16255
19	PLATE, TURNBUCKLE, CONNECTOR	1	T16283
20	TOP MOTOR MOUNT	1	T16277
21	TOP SHIELD BRACE ASSY.	1	T16258AM
22	BRACKET, LF TOP AUGER SHIELD ASSY.	1	T16861AM
23	BRACKET, RF TOP AUGER SHIELD ASSY.	1	T16860AM
24	BEARING, 1.25, FLG, W/LC, HCFTS207 - 20	2	J0010
25	SPLICE GUSSET RIGHT	4	T16145
26	CHANNEL, SPLICE, SHORT	4	T16146
27	TURNBUCKLE, 3/8" X 6"	1	J0904
28	PIVOT, MOTOR MOUNT, TOP	1	T18150
29	COLLAR, SHAFT, 1-3/16"	2	J1338
30	BUSHING, 1.25 SK	1	J0410
31	PULLEY, 15.75OD, DOUBLE "B" GR. SK	1	J03992
32	MOTOR, AUGER 5HP, 1PH, TEFC	1	T20590
	MOTOR, AUGER 5HP, 3PH, TEFC	1	H4190
33	PULLEY, 3.5 OD, 1.25, DOUBLE, B, CAST	1	J0317
34	BELT, B95	2	J0252
35	KEY, 1/4 X 1/4 X 2	2	F4499
36	PADDLE, ASSEMBLY	1	T16262
37	LID, WET HOLDING BIN	1	T16157
38	LID, 10.5", EXTENSION, WET BIN	1	T16159
39	FILL HOPPER ASSY.	1	T17937AM
40	SPLICE GUSSET LEFT	4	T16144
41	CRIMP PLATE	2	T16142
42	HANGER, AUGER, T, 6CH2203	2	J0097
43	SPLICE CHANNEL	2	T16143
44	BUSHING, WOOD, 1.25" ID	2	J0096
45	SPACER, T-HANGER, TOP AUGER	2	T16096
46	LID, 92-1/2" WET HOLDING BIN	1	T16158
47	TOP AUGER	2	T16428
48	SHAFT, 8' HANGER BEARING	2	F4720
49	SHAFT, 1.25" X 9"	1	G73291
50	SHAFT, TOP FRONT, 13-1/4"	1	T16436
51	SIDE, WET BIN, 4', 2000	2	T12525
52	TOP 4' PANEL (LR) 12'	2	T20526
53	BOLT DOWN LIP, 4'	2	T12524
54	TOP MIDDLE AUGER 20'	1	T16427
55	LID, WET HOLDING BIN 20'	1	T20158
56	PLATE, SHORT SPLICE (NOT SHOWN)	4	T16141
57	REAR SHAFT SHIELD	1	T16420

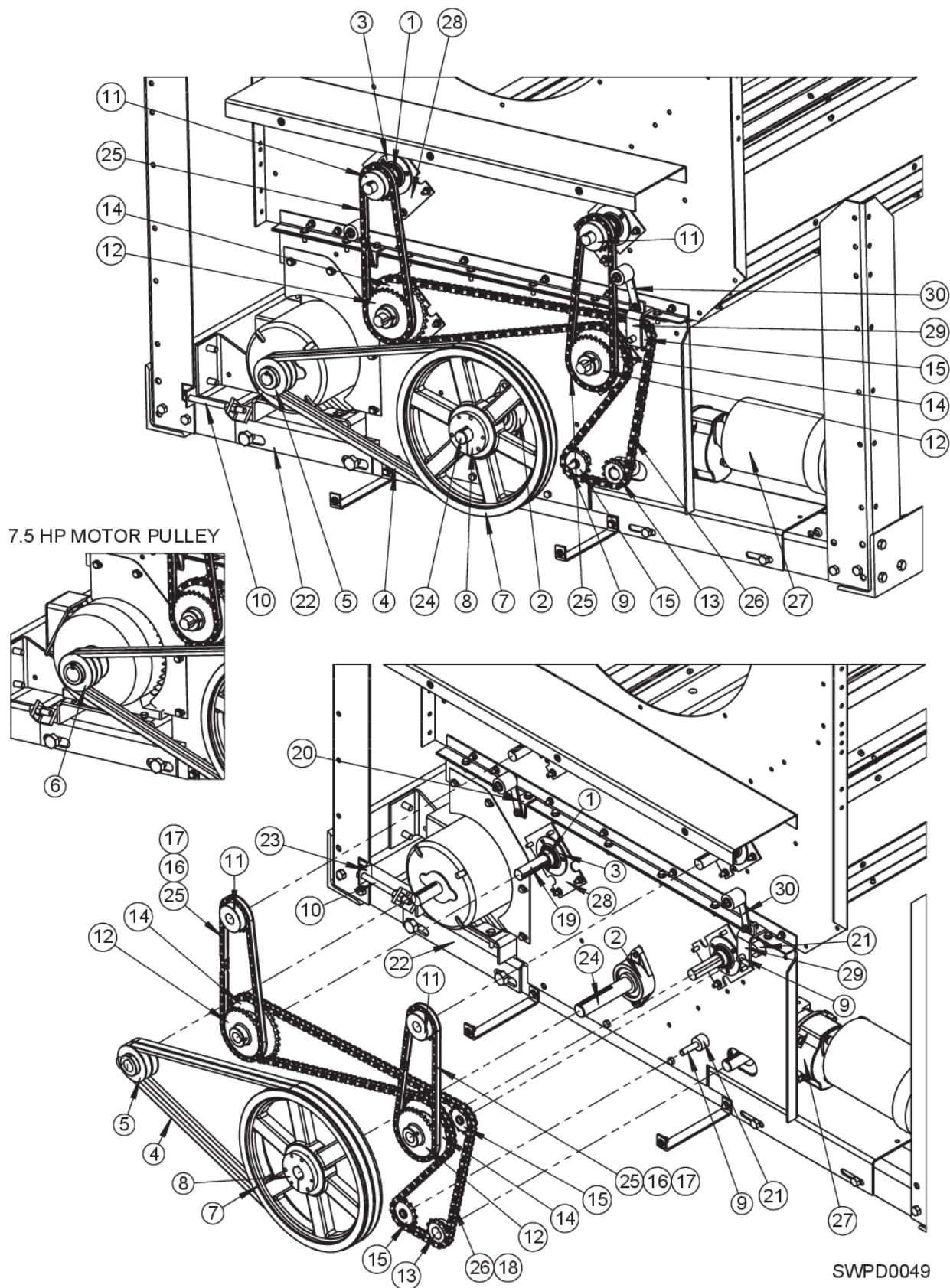
24' AUGER FILL ASSEMBLY



24' AUGER FILL ASSEMBLY PARTS

REF. #	DESCRIPTION	QTY.	PART #
1	TRASH PAN	1	T16235
2	SUPPORT, TRASH PAN	3	T16236
3	LEFT SUPPORT GUSSET	17	T16117
4	RIGHT SUPPORT GUSSET	13	T16118
5	PLATE, SHORT SPLICE (NOT SHOWN)	4	T16141
6	RR WET BIN END PLATE	1	T17401AM
7	RF WET BIN END PLATE	1	T17400AM
8	LF WET BIN END PLATE	1	T17402AM
9	LR WET BIN END PLATE	1	T17403AM
10	WET BIN SIDE PERF, (STAINLESS)	6	T17450S
	WET BIN SIDE PERF, (GALVANIZED)	6	T17450
11	LT PIVOT BRACE WET BIN	17	T17410
12	RT PIVOT BRACE WET BIN	13	T17411
13	SPLICE, WET BIN SIDE	4	T17412
14	BOLT DOWN LIP 8', 2000	6	T17453
15	HOPPER SIDE	2	T17935
16	HOPPER END	2	T17936
17	TOP AUGER SHIELD (INNER)	1	T16256
18	TOP AUGER SHIELD (OUTER)	1	T16255
19	PLATE, TURNBUCKLE, CONNECTOR	1	T16283
20	TOP MOTOR MOUNT	1	T16277
21	TOP SHIELD BRACE	1	T16258AM
22	BRACKET, LF TOP AUGER SHIELD	1	T16861AM
23	BRACKET, RF TOP AUGER SHIELD	1	T16860AM
24	BEARING, 1.25, FLG, W/LC, HCFTS207 - 20	2	J0010
25	SPLICE GUSSET RIGHT	4	T16145
26	CHANNEL, SPLICE, SHORT	4	T16146
27	TURNBUCKLE, 3/8" X 6"	1	J0904
28	PIVOT, MOTOR MOUNT, TOP	1	T18150
29	COLLAR, SHAFT, 1-3/16"	2	J1338
30	BUSHING, 1.25 SK	1	J0410
31	PULLEY, 15.75OD, DOUBLE "B" GR. SK	1	J03992
32	MOTOR, AUGER 5HP, 1PH, TEFC	1	T20590
	MOTOR, AUGER 5HP, 3PH, TEFC	1	H4190
33	PULLEY, 3.5 OD, 1.25, DOUBLE, B, CAST	1	J0317
34	BELT, B95	2	J0252
35	KEY, 1/4 X 1/4 X 2	2	F4499
36	PADDLE, ASSEMBLY	1	T16262
37	LID, WET HOLDING BIN	1	T16157
38	LID, 10.5", EXTENSION, WET BIN	1	T16159
39	FILL HOPPER ASSY.	1	T17937AM
40	SPLICE GUSSET LEFT	4	T16144
41	CRIMP PLATE	2	T16142
42	HANGER, AUGER, T, 6CH2203	2	J0097
43	SPLICE CHANNEL	2	T16143
44	BUSHING, WOOD, 1.25" ID	2	J0096
45	SPACER, T-HANGER, TOP AUGER	2	T16096
46	LID, 92-1/2" WET HOLDING BIN	2	T16158
47	TOP AUGER	2	T16428
48	SHAFT, 8' HANGER BEARING	2	F4720
49	SHAFT, 1.25" X 9"	1	G73291
50	SHAFT, TOP FRONT, 13-1/4"	1	T16436
51	AUGER, BOTTOM FRONT, 93-1/2"	1	T16430
52	TOP 8' PANEL (FILL SWITCH)	4	T17457
53	TOP 8' PANEL (LR&RF) 2000	2	T24451
54	REAR SHAFT SHIELD	1	T16420

FRONT (DRIVE) END OF DRYER W/ AUGER UNLOAD

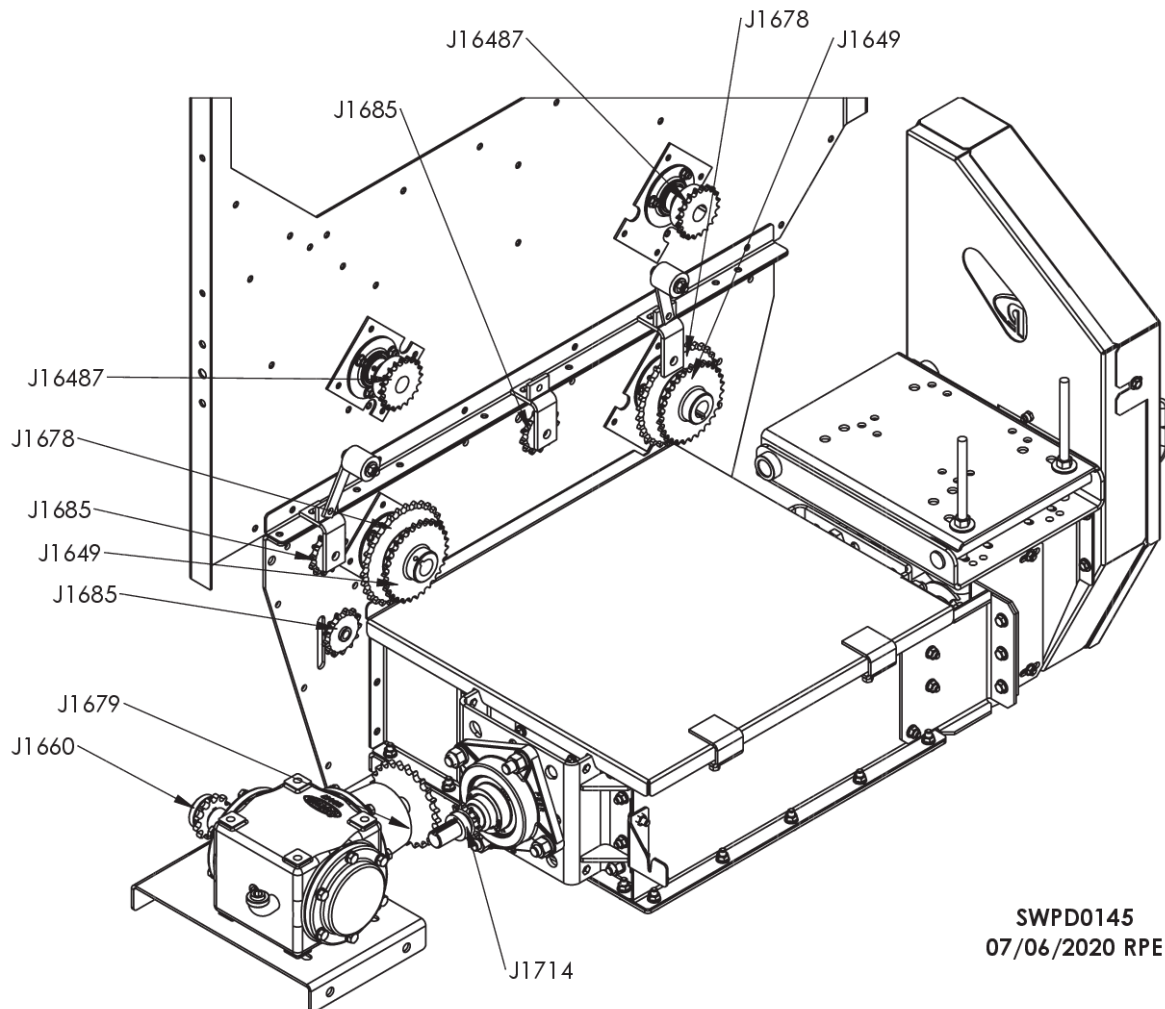


PARTS FOR FRONT (DRIVE) END OF DRYER W/ AUGER UNLOAD

REF. #	DESCRIPTION	3-5 HP/ QTY.	7.5 HP/ QTY.	PART #
1	BEARING, 1", CENTER, FH205-16, W/L CLR	4	4	J0005
2	BEARING, 1.25", FLG, W/LC, HCFTS207-20	1	1	J0010
3	FLANGETTE, 3 HOLE, 205 BEARING	8	8	J0098
4	BELT, BX72, 15.75 X 3.5"	2	2	J0246
5	PULLEY, 3.5" OD, 1.125", DBL, B, CAST	1	-	J0317
6	PULLEY, 3.5" OD, 1.375", DBL, B	-	1	J0318
7	PULLEY, 15.75" OD, DBL B GR., SK	1	1	J03992
8	BUSHING, 1.25", SK	1	1	J0410
9	SCREW, 1/2-13 X 3", PLT, GR5, HHCS	2	2	J0750
10	BOLT, 1/2-13 X 6", PLT, GR5, TAP	1	1	J0765
11	SPROCKET, 40B, 20 TOOTH, 1" BORE, KEYED	2	2	J16487
12	SPROCKET, 40B30, 30 TOOTH, 1" BORE	2	2	J1649
13	SPROCKET, 50B12, 1.125" BORE	1	1	J16612*
14	SPROCKET, 50B30, 1" BORE	2	2	J1678
15	SPROCKET, IDLER, 50-13	2	2	J1685
16	CHAIN LINK, #40 CONNECTOR	2	2	J1745
17	CHAIN LINK, #40 OFFSET, 1/2 LINK	2	2	J1750
18	CHAIN LINK, #50 CONNECTOR	2	2	J1760
19	FRONT SHAFT, METER ROLL	4	4	T16266
20	CHAIN TIGHTENER BRACKET	1	1	T16274
21	SPACER, SPROCKET	2	2	T16282
22	UNLOAD MOTOR MOUNT WELDMENT	1	1	T16290
23	TIGHTENER ANGLE	1	1	T16329
24	SHAFT, TOP FRONT, 13-1/4"	1	1	T16436
25	CHAIN, #40 73 LINKS	2	2	T16800
26	CHAIN, #50 157 LINKS, 2005	1	1	T16803
27	REDUCER WITH A/C MOTOR & MOUNT ASSY	1	1	T17282AM
28	METER PLATE	4	4	T17920
29	BRACKET WELDMENT, IDLER SPROCKET	1	1	T17965
30	CHAIN TIGHTENER	2	2	T7367

*For stacked dryer, order J16741, 50B18, 1-1/8" bore

FRONT (DRIVE) END OF DRYER W/ DRAG CONVEYOR UNLOAD

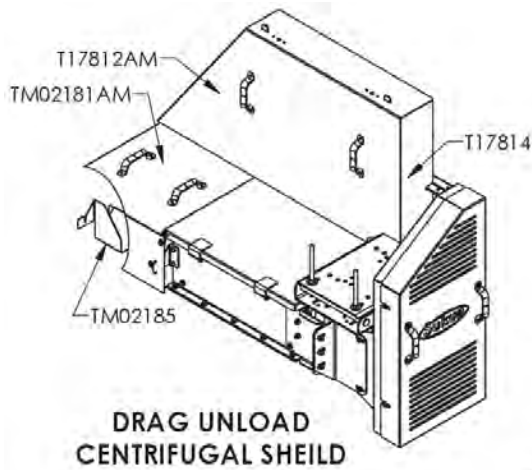


SWPD0145
07/06/2020 RPE

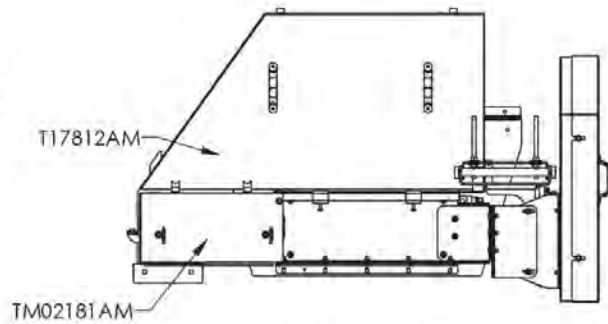
SPROCKET IDENTIFICATION

J16487, 40B20, 1" BORE
J1678, 50B30, 1" BORE
J1685, 50BB13H, 1/2" ID
J1649, 40B30F, 1" BORE
J1679, 50B25, 1" BORE
J1660, 50B12, 1" BORE
J1714, 50B10, 1" BORE

DRAG CONVEYOR SHIELDS

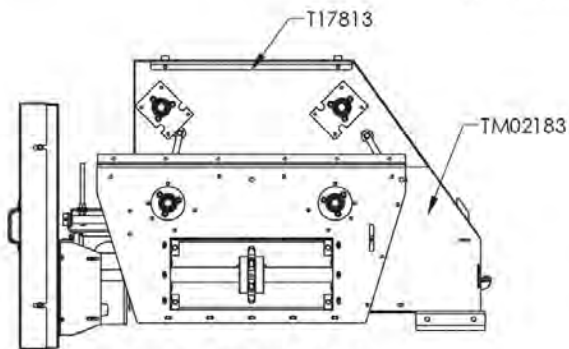


**DRAG UNLOAD
CENTRIFUGAL SHIELD**

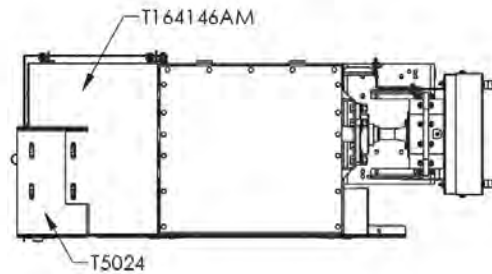


FRONT CENTRIFUGAL

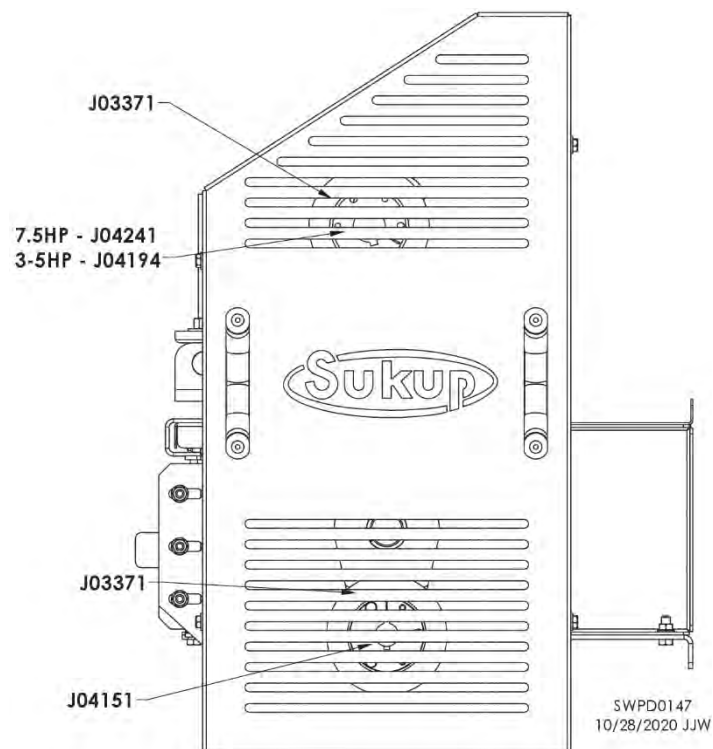
SWPD0146
10/30/2020 JJW



REAR CENTRIFUGAL

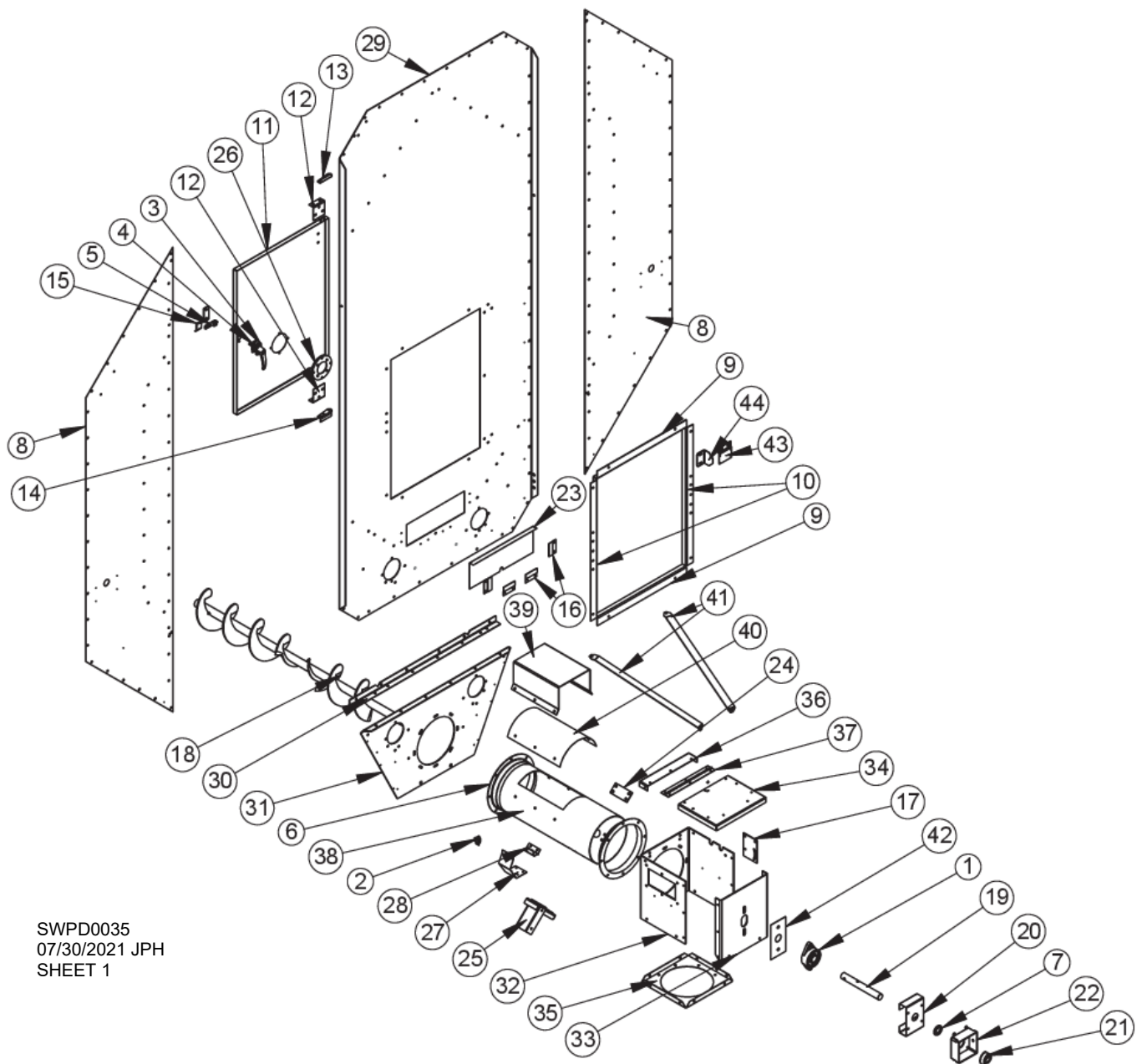


BOTTOM CENTRIFUGAL



SWPD0147
10/28/2020 JJW

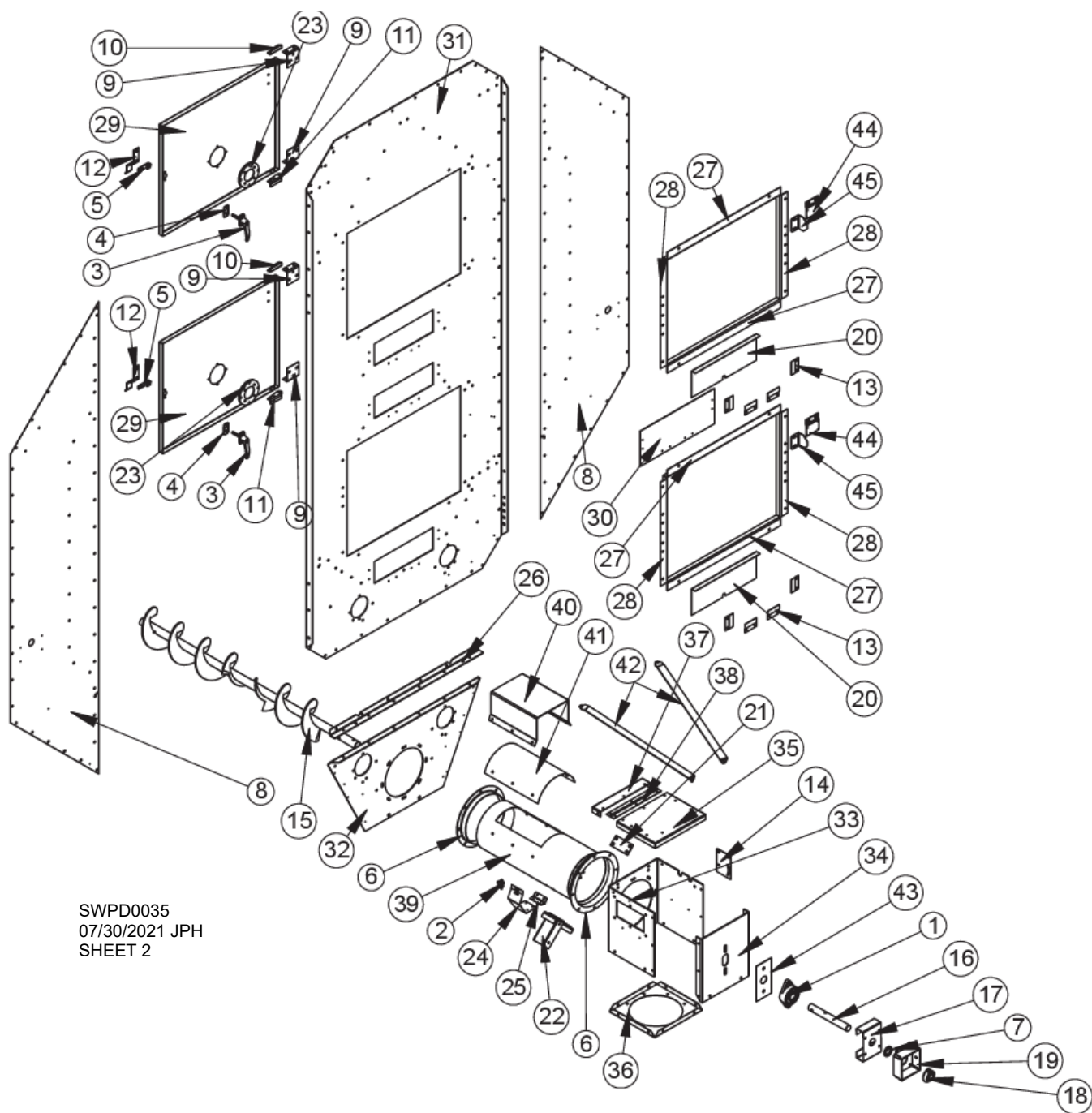
BACK (DISCHARGE) END OF FULL-PLENUM DRYER W/ AUGER UNLOAD



PARTS FOR BACK (DISCHARGE) END OF FULL-PLENUM DRYER W/ AUGER UNLOAD

REF. #	DESCRIPTION	QTY.	PART #
1	BRG,1.25,FLG,W/LC,HCFTS207-20	1	J0010
2	LATCH,3-10 LL, 2-57-1625-07-00	1	J2310
3	HANDLE, LOCKING, #GD303	1	J2313
4	GASKET, #G-2, FOR GD303 HANDLE (J2313)	1	J2314
5	LATCH,ADJUSTABLE,#5559	1	J2318
6	RING, 10", FLANGE	2	J6610
7	SEAL 2" OD 1 1/4 ID CR#12481	1	J7023
8	PLATE,SIDE END	2	T16101
9	EDGING TOP & BOTTOM,DOOR	2	T16136
10	EDGING SIDES, REAR DOOR	2	T16137
11	ACCESS DOOR	1	T16147
12	HINGE BRACKET	2	T16148
13	TOP HINGE,ACC DOOR	1	T16149
14	BOTTOM HINGE,ACC DOOR	1	T16150
15	CATCH, REAR ACC DOOR	1	T16151
16	SIDE RAIL, BLOWOUT DOOR	4	T16154
17	MERC SWITCH PLATE	1	T16358
18	BOTTOM REAR AUGER	1	T16431
19	SHAFT,1.25 x 10, BOTTOM AUGER	1	T17251
20	BRACKET, PROX. SW, UNLOAD AUGER	1	T17252
21	TARGET. PROX. SW., UNLOAD AUGER	1	T17256
22	BOX, PROX. SWITCH, UNLOAD AUGER	1	T17263
23	BLOWOUT DOOR	1	T17658
24	COVER,SAMPLE SPOUT (UNLOAD)	1	T17663
25	SPOUT,SAMPLE,UNLOAD,AUGER,ASSY	1	T17668
26	SIGHT GLASS,ASSY,2.5",5"OD	1	T17688
27	STRAP, MOUSTURE SENSOR-REAR	1	T17850
28	HINGE, MOUSTURE SENSOR-REAR	1	T17851
29	REAR END PLATE	1	T17916
30	SPLICE,BOTTOM ANGLE	1	T17925
31	REAR BOTTOM END PLATE	1	T25521
32	FRONT-SIDES, SUMP BOX	1	T25670
33	REAR PLATE, SUMP BOX	1	T25671
34	LID, SUMP BOX	1	T25672
35	BOTTOM, SUMP BOX	1	T25674
36	LID HINGE SIDE, SUMP BOX	1	T25675
37	HINGE, SUMP BOX	1	T25676
38	TUBE, DISCHARGE	1	T25677
39	STEP, UNLOAD TUB	1	T25678
40	COVER,TUBE,REAR DISCHARGE	1	T25679
41	BRACE FOR UNLOAD AUGER	2	T25681
42	BEARING SHIM PLATE	1	T25682
43	BRACKET, SWITCH MOUNTING	1	T80215
44	ANGLE, SWITCH ACCUATION	1	T80216

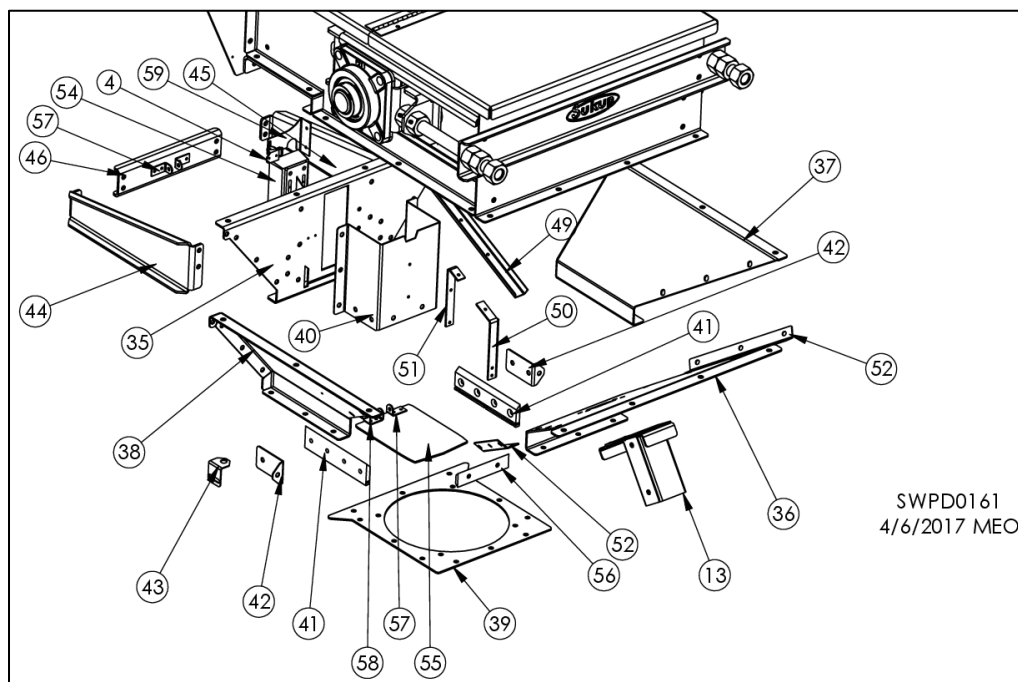
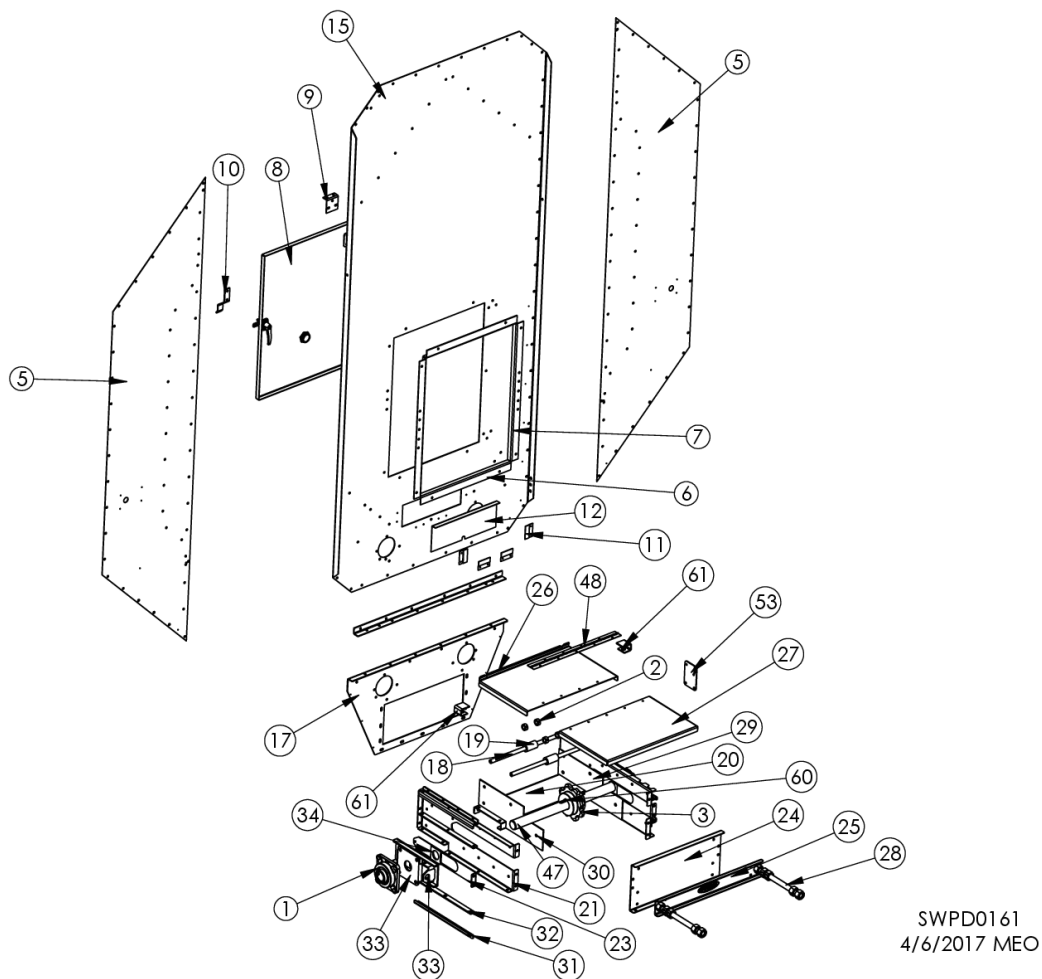
BACK (DISCHARGE) END OF SPLIT-PLENUM DRYER W/ AUGER UNLOAD



PARTS FOR BACK (DISCHARGE) END OF SPLIT-PLENUM DRYER W/ AUGER UNLOAD

REF. #	DESCRIPTION	QTY.	PART #
1	BRG, 1.25, FLG, W/LC, HCFTS207-20	1	J0010
2	LATCH, 3-10 LL, 2-57-1625-07-00	1	J2310
3	HANDLE, LOCKING, #GD303	2	J2313
4	GASKET, #G-2, FOR GD303 HANDLE (J2313)	2	J2314
5	LATCH, ADJUSTABLE, #5559	2	J2318
6	RING, 10", FLANGE	2	J6610
7	SEAL 2" OD 1 1/4 ID CR#12481	1	J7023
8	PLATE, SIDE END	2	T16101
9	HINGE BRACKET	4	T16148
10	TOP HINGE, ACC DOOR	2	T16149
11	BOTTOM HINGE, ACC DOOR	2	T16150
12	CATCH, REAR ACC DOOR	2	T16151
13	SIDE RAIL, BLOWOUT DOOR	8	T16154
14	MERC SWITCH PLATE	1	T16358
15	BOTTOM REAR AUGER	1	T16431
16	SHAFT, 1.25 x 10, BOTTOM AUGER	1	T17251
17	BRACKET, PROX. SW, UNLOAD AUGER	1	T17252
18	TARGET. PROX. SW., UNLOAD AUGER	1	T17256
19	BOX, PROX. SWITCH, UNLOAD AUGER	1	T17263
20	BLOWOUT DOOR	2	T17658
21	COVER, SAMPLE SPOUT (UNLOAD)	1	T17663
22	SPOUT, SAMPLE, UNLOAD, AUGER, ASSY	1	T17668
23	SIGHT GLASS, ASSY, 2.5", 5" OD	2	T17688
24	STRAP, MOUSTURE SENSOR-REAR	1	T17850
25	HINGE, MOUSTURE SENSOR-REAR	1	T17851
26	SPLICE, BOTTOM ANGLE	1	T17925
27	TOP & BOTTOM EDGING, 2 FAN/HEATER	4	T24136
28	EDGING, SIDES, 2 FAN - HEATER	4	T24137
29	ACCESS DOOR, 2 FAN/HEATER	2	T24147
30	COVER, BLOW OUT, REAR	1	T24602
31	REAR END PLATE, 2 FAN/HEATER	1	T24916
32	REAR BOTTOM END PLATE	1	T25521
33	FRONT-SIDES, SUMP BOX	1	T25670
34	REAR PLATE, SUMP BOX	1	T25671
35	LID, SUMP BOX	1	T25672
36	BOTTOM, SUMP BOX	1	T25674
37	LID HINGE SIDE, SUMP BOX	1	T25675
38	HINGE, SUMP BOX	1	T25676
39	TUBE, DISCHARGE	1	T25677
40	STEP, UNLOAD TUB	1	T25678
41	COVER, TUBE, REAR DISCHARGE	1	T25679
42	BRACE FOR UNLOAD AUGER	2	T25681
43	BEARING SHIM PLATE	1	T25682
44	BRACKET, SWITCH MOUNTING	2	T80215
45	ANGLE, SWITCH ACCUATION	2	T80216

BACK (DISCHARGE) END OF DRYER W/ DRAG CONVEYOR UNLOAD

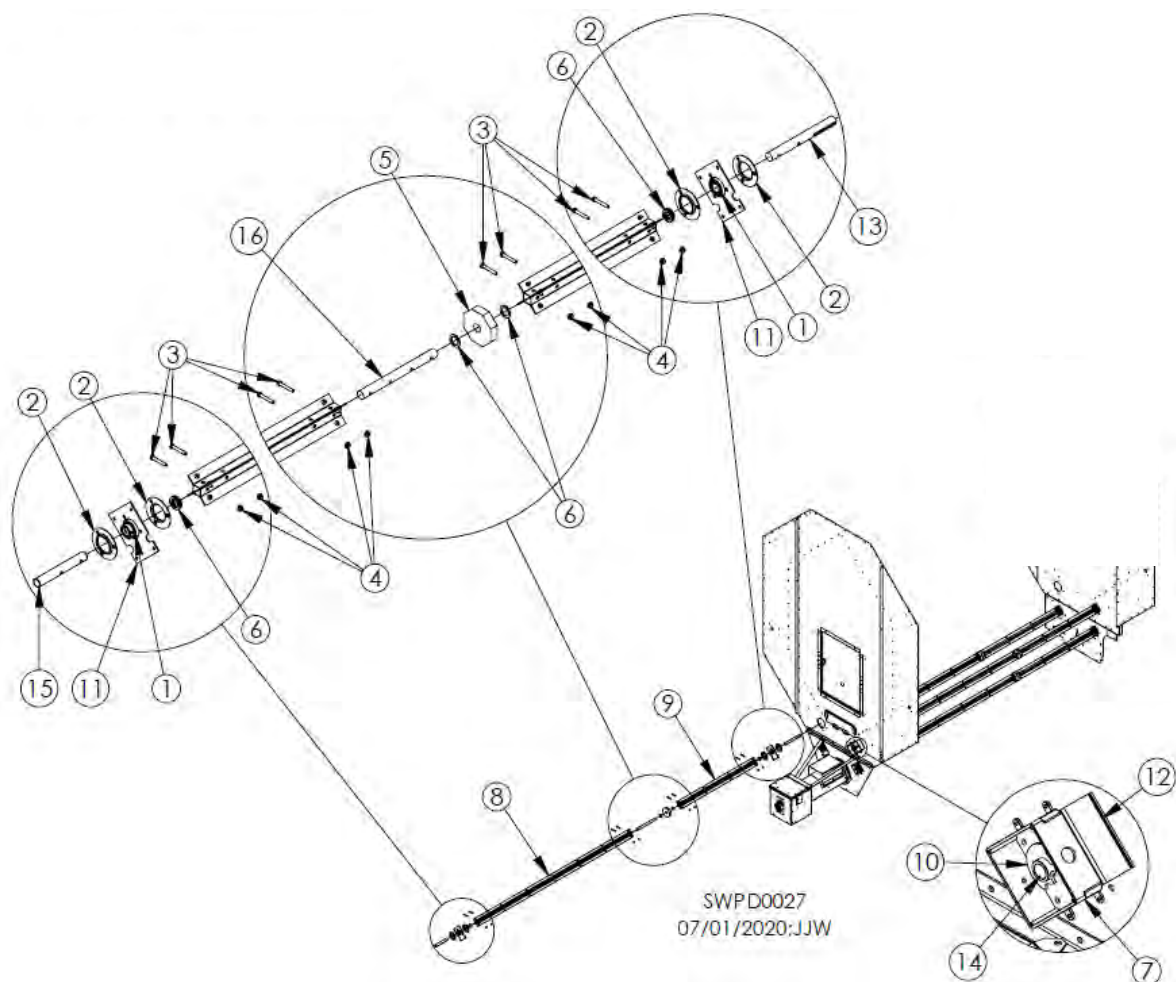


PARTS LIST FOR BACK (DISCHARGE) END OF DRYER W/ DRAG CONVEYOR UNLOAD

REF. #	DESCRIPTION	QTY.	PART #
1	BEARING, 1.9375, 4-BOLT, PEER	2	J00722
2	COLLAR, SHAFT, 3/4	4	J1327
3	SPROCKET, 81X,C,8T,1.9375" BORE	1	J2134
4	LATCH, 3-10 LL, 2-57-1625-07-00	1	J2310
5	SIDE END PLATE	2	T16101
6	EDGING, TOP & BOTTOM, DOOR	2	T16136
7	EDGING SIDES, REAR DOOR	2	T16137
8	REAR DOOR ASSY, 1-FAN DRYER	1	T16147AM
9	HINGE BRACKET	2	T16148
10	CATCH, REAR ACCESS DOOR	1	T16151
11	SIDE RAIL, BLOWOUT DOOR	4	T15154
12	BLOWOUT DOOR	1	T17658
13	SPOUT, SAMP, UNLD, DRAG, ASSY	1	T17677
14	HINGE, MOISTURE SENSOR-REAR	1	T17851
15	REAR END PLATE	1	T17916
16	BOTTOM ANGLE SPLICE	1	T17925
17	PLATE, BACK, SUPPORT, DRAG	1	T5028
18	ROD, 3/4" OD, 21" LONG, RET.	2	T5036
19	ROLLER, ROD, CHN RET., UHMW	2	T5037
20	HEAD, BOTTOM, WELDMENT	1	T5049
21	SIDE, RIGHT, HEAD, CFD DRAG	1	T5050
22	SIDE, LEFT, HEAD, CFD DRAG	1	T5051
23	BRACKET, SIDE, HEAD, COVER	2	T5052
24	BRACKET, BACK, HEAD	1	T5053
25	HEAD, TENSIONER, WLDMT, DRAG	1	T5054
26	TOP, COVER, HEAD, CFD DRAG	1	T5055
27	TOP, COVER, HEAD, HINGE	1	T5055-01
28	ROD, ADJ. WELD, 12"	2	T5056
29	LINER, HEAD, LEFT	1	T5057
30	LINER, HEAD, RIGHT	1	T5058

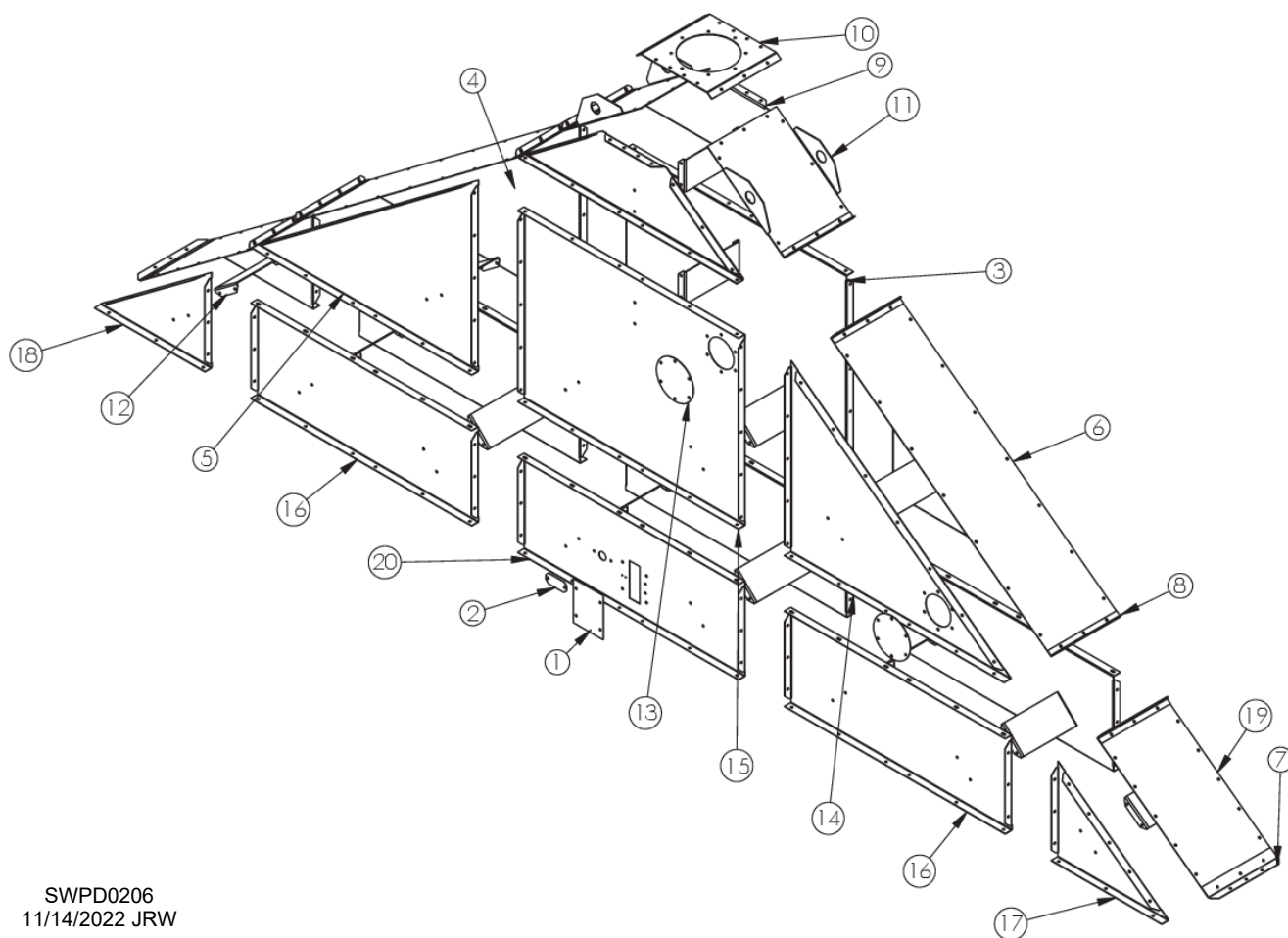
REF. #	DESCRIPTION	QTY.	PART #
31	BRACKET, GUIDE, TENSION, HEAD	4	T5059
32	GUIDE, TENSIONER, UHMW, HEAD	4	T5060
33	HEAD, TENSIONER, WELDMENT, DRAG	2	T5062
34	COVER, UHMW, 1-15/16"	2	T5063
35	FRONT, SAMPLER, MOISTURE, DRAG	1	T5065
36	BACK, STATIC, MOISTURE, DRAG	1	T5066
37	RIGHT, STATIC, MOISTURE, DRAG	1	T5067
38	LEFT, STATIC, MOISTURE, DRAG	1	T5068
39	BOTTOM, 8" HOLE, STATIC	1	T5069
40	BOX, STATIC SAMPLER, MOISTURE	1	T5070
41	SEAL, GATE, INSIDE, MOISTURE	2	T5071
42	BRACKET, UHMW HOLDER, MOIST.	2	T5072
43	BRACKET, PROX SENSOR, ACTUATOR	1	T5073
44	BRACKET, ACTUATOR, RIGHT SIDE	1	T5074
45	BRACKET, ACTUATOR, LEFT SIDE	1	T5075
46	CHANNEL, ACTUATOR, BRACING	1	T5076
47	SHAFT, 1.9375, TAIL, 21" X 31.25"	1	T5090
48	HINGE, RELIEF DOOR, HEAD, DRAG	1	T5092
49	GUIDE, SAMPLE SPOUT, DRAG	1	T5094
50	SUPPORT, GUIDE, 65-DEG	1	T50951
51	SUPPORT, GUIDE, 115-DEG	1	T50961
52	BRACKET, OUTSIDE, SEAL, SAMP.	2	T5098
53	PLATE, TILT SWITCH, HEAD, UNLD	1	T5099
54	SENSOR, MOIST., CFD, 24V, 2015	1	T6035
55	SLIDE GATE, MOISTURE SENSOR	1	U10783
56	SEAL, GATE, BACK, MOIST. SENSOR	1	U10788
57	MOUNT, TAB, LINEAR ACTUATOR	3	U10789
58	MOUNT, TAB, LINEAR ACTUATOR, R	1	U10796
59	BKT, RETAINER, MOISTURE SENSOR	1	U10799
60	KEY, 1/2" SQ, 3-7/8"L	1	W60529
61	CLAMP, TOP, CONV, ASSY	2	W60784

METERING ROLLS



REF. #	DESCRIPTION	16' QTY.	20' QTY.	24' QTY.	PART #
1	Bearing, 1", w/ lock collar	8	8	8	J00058
2	Flangette, 3-hole	16	16	16	J0098
3	Screw, 5/16 - 18 x 2"	32	48	48	J0585
4	Whiz nut, 5/16" - 18	32	48	48	J1110
5	Wooden bushing, 1" ID	4	8	8	J1245
6	Machine bushing, 1", 18ga	80	96	96	J1266
7	Box, 5" x 5"	1	1	1	T16265
8	Metering roll assy., 8'	8	8	12	J3033
9	Metering roll assy., 4'	0	4	0	J3032
10	Target	1	1	1	T17281
11	Meter plate	8	8	8	T17920
12	Encoder bracket	1	1	1	T17921
13	Front shaft	4	4	4	T18266
14	Rear shaft, top	1	1	1	T18267
15	Rear shaft, bottom	3	3	3	T18268
16	Connecting shaft	4	8	8	T18269

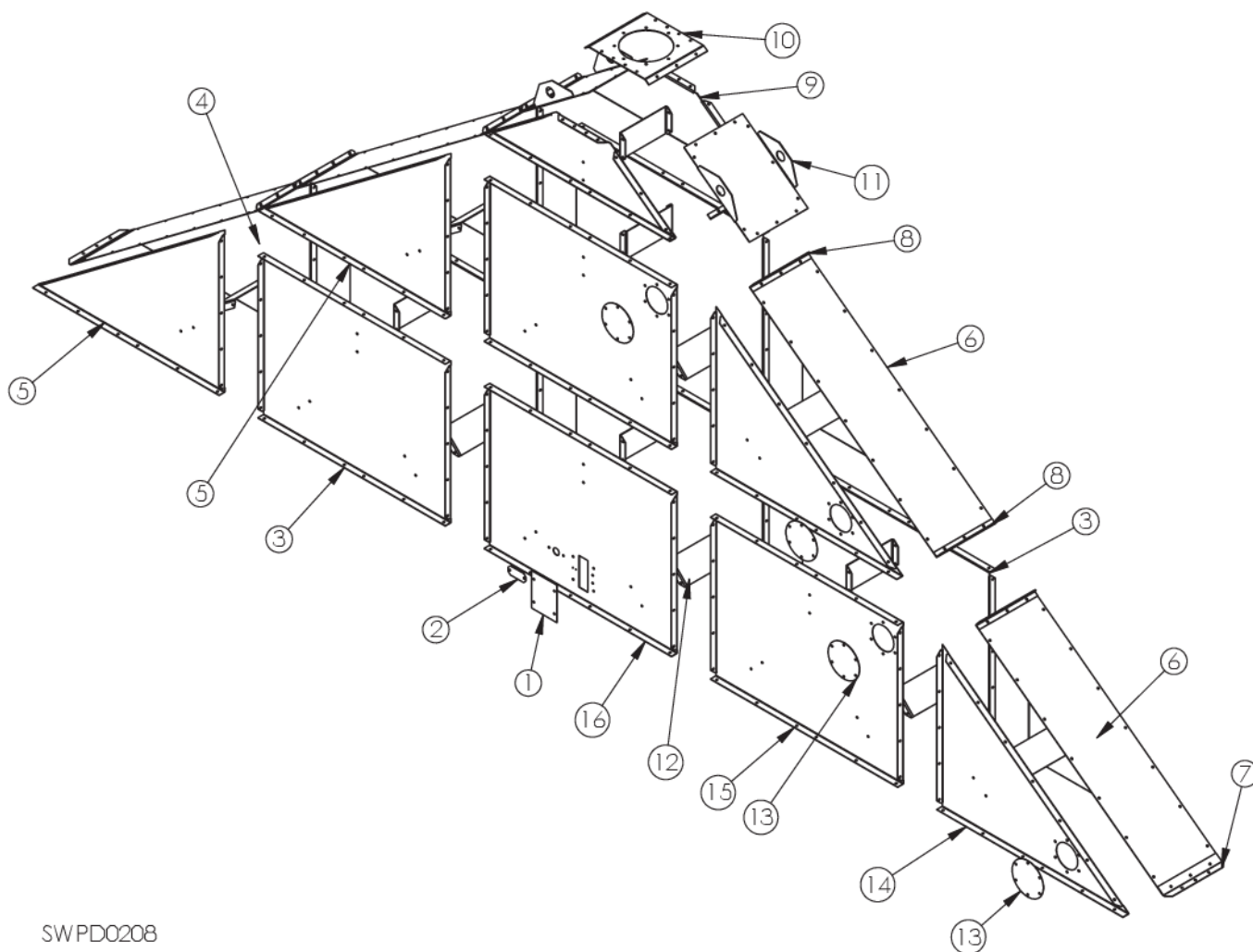
16' DRYER GRAVITY FILL ASSEMBLY



SWPD0206
11/14/2022 JRW

REF. #	DESCRIPTION	QTY.	PART #
1	PLATE, COVER, RF GARNER END	1	T17415
2	COVER PLATE, SAMPLE SPOUT	1	T43936
3	SIDEWALL, CENTER, GRAVITY FILL	1	TM04060
4	SIDEWALL, SIDE, RIGHT, GRAVITY FILL	1	TM04061
5	SIDEWALL, SIDE, LEFT, GRAVITY FILL	2	TM04062
6	COVER, SIDE, FULL, GRAVITY FILL	2	TM04063
7	ANGLE, SPLICE, COVER, BOTTOM	2	TM04064
8	ANGLE, SPLICE, COVER, GRAVITY FILL	8	TM04065
9	SIDE, EXTENSION, INLET, GRAVITY FILL	2	TM04066
10	TOP, EXTENSION, INLET, GRAVITY FILL	1	TM04067
11	COVER, EXT, INLET, GRAVITY FILL	2	TM04068
12	BRACE, INTERIOR, GRAVITY FILL	14	TM04070
13	COVER, OPENING, SWITCH, FILL	2	TM04074
14	SIDEWALL, GRAVITY FILL, RT, SNSR	1	TM04088
15	SIDEWALL, CENTER, GRAVITY FILL	1	TM04099
16	SIDEWALL, GRAV FILL, MID, 48" X 18"	5	TM04140
17	SIDEWALL, RT, 24" X 18", GRAVITY FILL	2	TM04141
18	SIDEWALL, LEFT, 24" X 18", GRAVITY FILL	2	TM04142
19	COVER, SIDE, HALF, GRAVITY FILL	2	TM04143
20	SIDEWALL, GRAVITY FILL, MID, MST SNS	1	TM04173

20' DRYER GRAVITY FILL ASSEMBLY

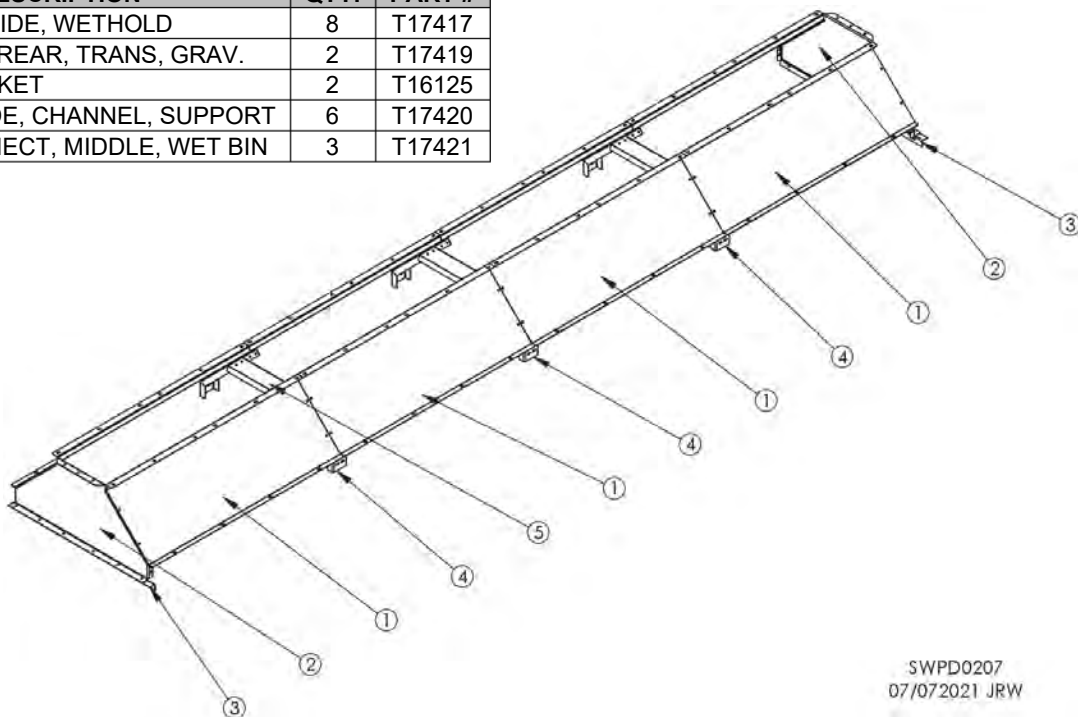


SWPD0208
11/10/2022 JPH

REF. #	DESCRIPTION	QTY.	PART #
1	PLATE, COVER, RF GARNER END	1	T17415
2	COVER PLATE, SAMPLE SPOUT	1	T43936
3	SIDEWALL, CENTER, GRAVITY FILL	5	TM04060
4	SIDEWALL, SIDE, RIGHT, GRAVITY FILL	3	TM04061
5	SIDEWALL, SIDE, LEFT, GRAVITY FILL	4	TM04062
6	COVER, SIDE, FULL, GRAVITY FILL	4	TM04063
7	ANGLE, SPLICE, COVER, BOTTOM	2	TM04064
8	ANGLE, SPLICE, COVER, GRAVITY FILL	8	TM04065
9	SIDE, EXTENSION, INLET, GRAVITY FILL	2	TM04066
10	TOP, EXTENSION, INLET, GRAVITY FILL	1	TM04067
11	COVER, EXT, INLET, GRAVITY FILL	2	TM04068
12	BRACE, INTERIOR, GRAVITY FILL	17	TM04070
13	COVER, OPENING, SWITCH, FILL	4	TM04074
14	SIDEWALL, GRAVITY FILL, RT, SNSR	2	TM04088
15	SIDEWALL, CENTER, GRAVITY FILL	2	TM04099
16	SIDEWALL, GRAV FILL, SENSORS	1	TM04160

16' DRYER GRAVITY FILL TRANSITION ASSEMBLY

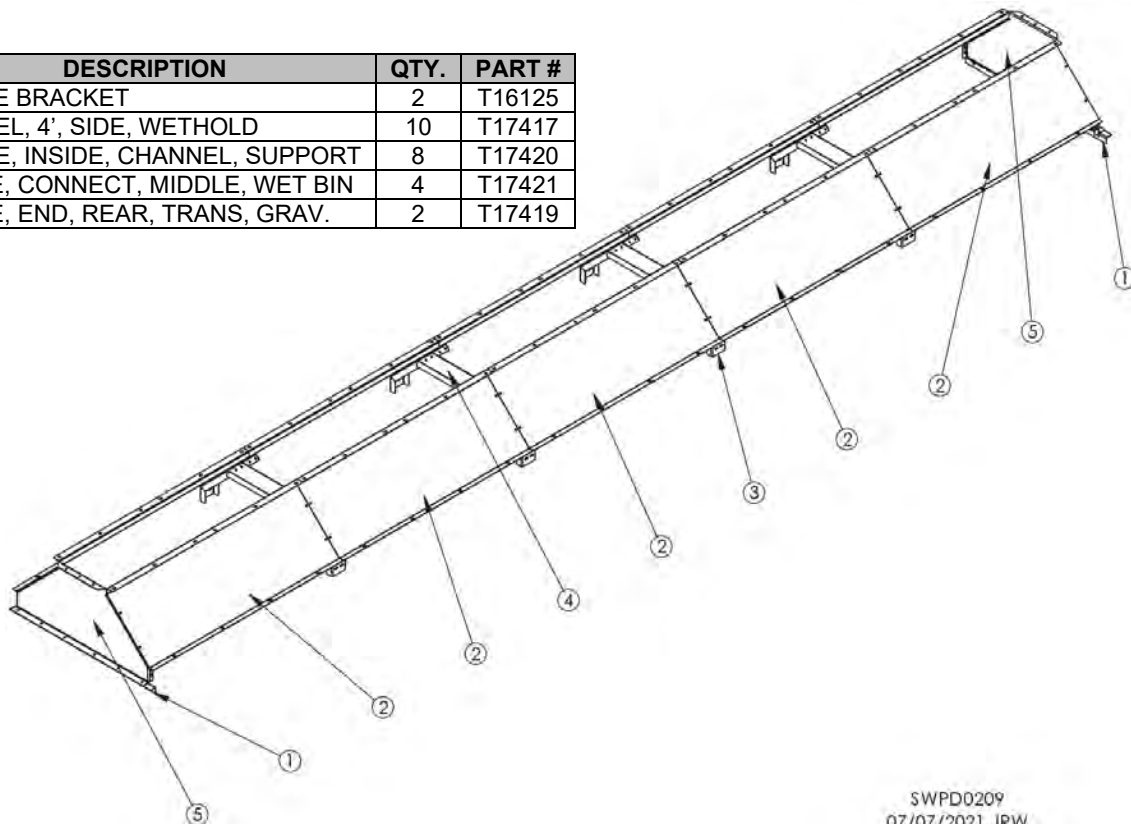
REF. #	DESCRIPTION	QTY.	PART #
1	PANNEL, 4', SIDE, WETHOLD	8	T17417
2	PLATE, END, REAR, TRANS, GRAV.	2	T17419
3	ANGLE BRACKET	2	T16125
4	BRACE, INSIDE, CHANNEL, SUPPORT	6	T17420
5	PLATE, CONNECT, MIDDLE, WET BIN	3	T17421



SWPD0207
07/07/2021 JRW

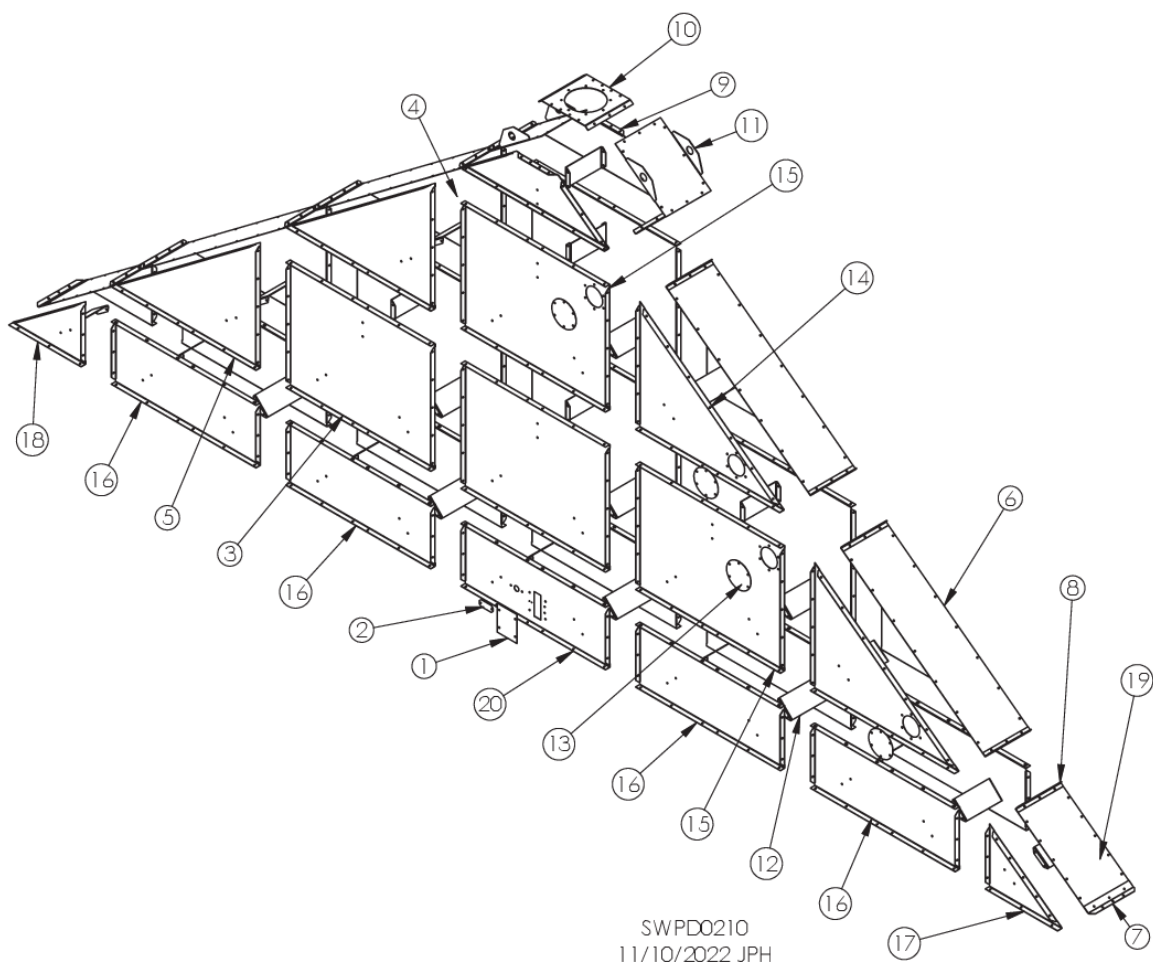
20' DRYER GRAVITY FILL TRANSITION ASSEMBLY

REF. #	DESCRIPTION	QTY.	PART #
1	ANGLE BRACKET	2	T16125
2	PANNEL, 4', SIDE, WETHOLD	10	T17417
3	BRACE, INSIDE, CHANNEL, SUPPORT	8	T17420
4	PLATE, CONNECT, MIDDLE, WET BIN	4	T17421
5	PLATE, END, REAR, TRANS, GRAV.	2	T17419



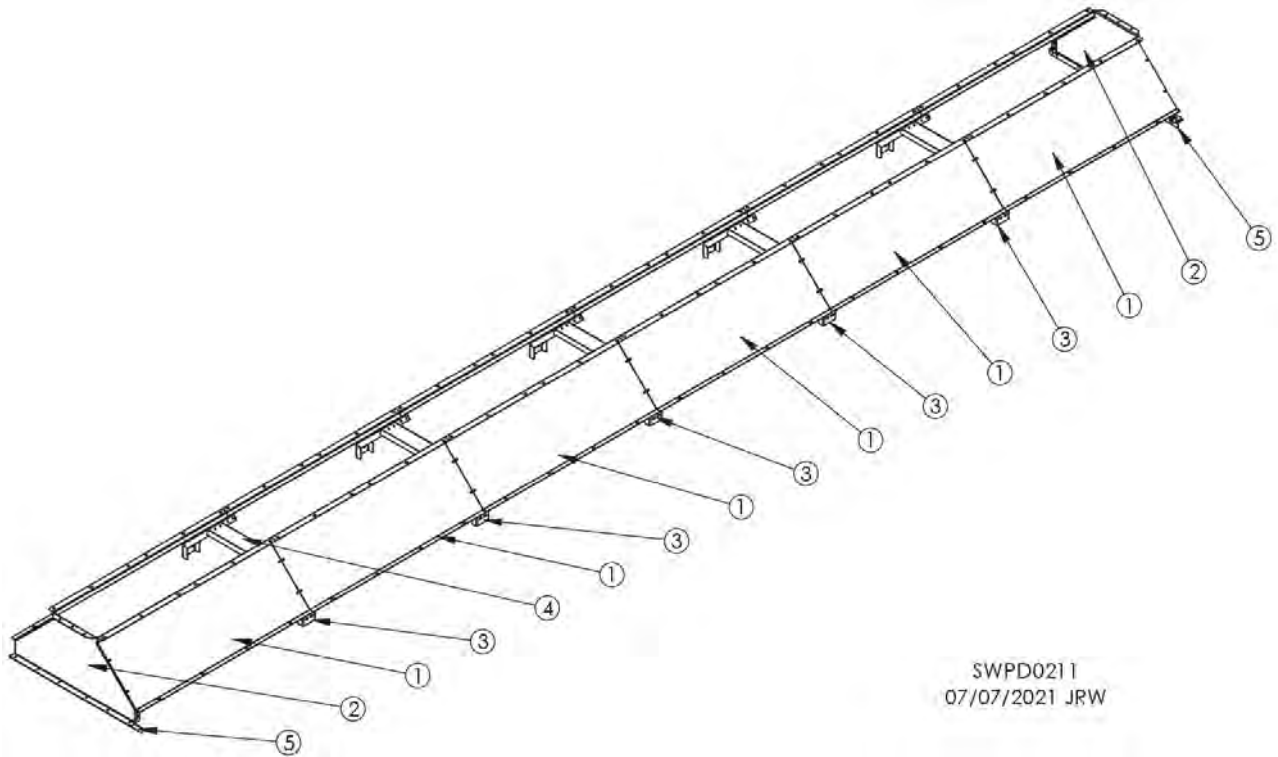
SWPD0209
07/07/2021 JRW

24' DRYER GRAVITY FILL ASSEMBLY



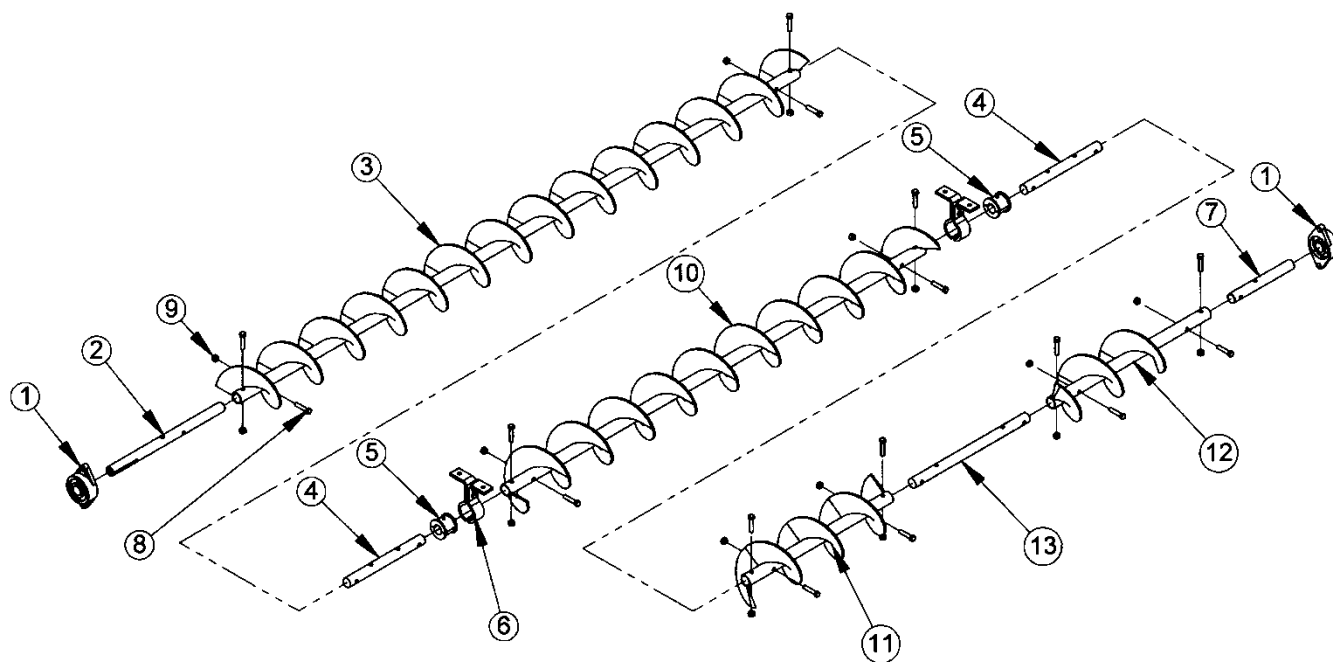
REF. #	DESCRIPTION	QTY.	PART #
1	PLATE, COVER, RF GARNER END	1	T17415
2	COVER PLATE, SAMPLE SPOUT	1	T43936
3	SIDEWALL, CENTER, GRAVITY FILL	6	TM04060
4	SIDEWALL, SIDE, RIGHT, GRAVITY FILL	2	TM04061
5	SIDEWALL, SIDE, LEFT, GRAVITY FILL	4	TM04062
6	COVER, SIDE, FULL, GRAVITY FILL	4	TM04063
7	ANGLE, SPLICE, COVER, BOTTOM	2	TM04064
8	ANGLE, SPLICE, COVER, GRAVITY FILL	12	TM04065
9	SIDE, EXTENSION, INLET, GRAVITY FILL	2	TM04066
10	TOP, EXTENSION, INLET, GRAVITY FILL	1	TM04067
11	COVER, EXT, INLET, GRAVITY FILL	2	TM04068
12	BRACE, INTERIOR, GRAVITY FILL	29	TM04070
13	COVER, OPENING, SWITCH, FILL	4	TM04074
14	SIDEWALL, GRAVITY FILL, RT, SNSR	2	TM04088
15	SIDEWALL, CENTER, GRAVITY FILL	2	TM04099
16	SIDEWALL, GRAV FILL, MID, 48" X 18"	9	TM04140
17	SIDEWALL, RT, 24" X 18", GRAVITY FILL	2	TM04141
18	SIDEWALL, LEFT, 24" X 18", GRAVITY FILL	2	TM04142
19	COVER, SIDE, HALF, GRAVITY FILL	2	TM04143
20	SIDEWALL, GRAVITY FILL, MID, MST SNS	1	TM04173

24' DRYER GRAVITY FILL TRANSITION ASSEMBLY



REF. #	DESCRIPTION	QTY.	PART #
1	PANNEL, 4', SIDE, WETHOLD	12	T17417
2	PLATE, END, REAR, TRANS, GRAV.	2	T17419
3	BRACE, INSIDE, CHANNEL, SUPPORT	10	T17420
4	PLATE, CONNECT, MIDDLE, WET BIN	5	T17421
5	ANGLE BRACKET	2	T16125

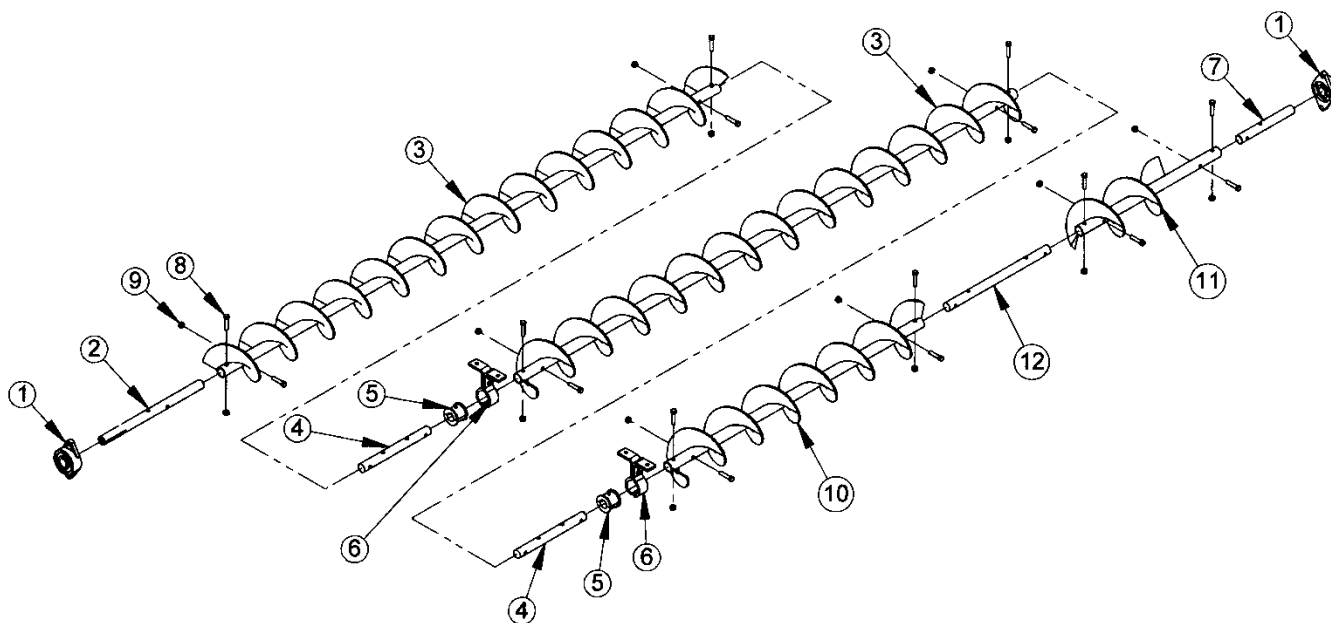
BOTTOM AUGER ASSEMBLY FOR 16' DRYER



SWPD0032

REF. #	DESCRIPTION	QTY.	PART #
1	BEARING, 1.25, FLANGE, W/LC, HCFTS207-20	2	J0010
2	SHAFT, TOP FRONT, 13-1/4"	1	T16436
3	AUGER, BOTTOM FRONT, 93-1/2"	1	T16430
4	SHAFT, 8", HANGER BEARING	2	F4720
5	BUSHING, WOOD, 1.25", I.D.	2	J0096
6	HANGER, AUGER, T, 6CH2203	2	J0097
7	SHAFT, 1.25" X 10"	1	T17251
8	SCREW, 7/16-14, 2, PLT	16	J0718
9	NUT, LOCK, 7/16-14, PLT	16	J1034
10	AUGER, BOTTOM MIDDLE, 69-1/2"	1	T16432
11	AUGER, BOTTOM REAR, 24"	1	T12498
12	AUGER, BOTTOM, STD. UNLD. EXT.	1	T12493
13	SHAFT, AUGER, MOISTURE SENSOR	1	F4723

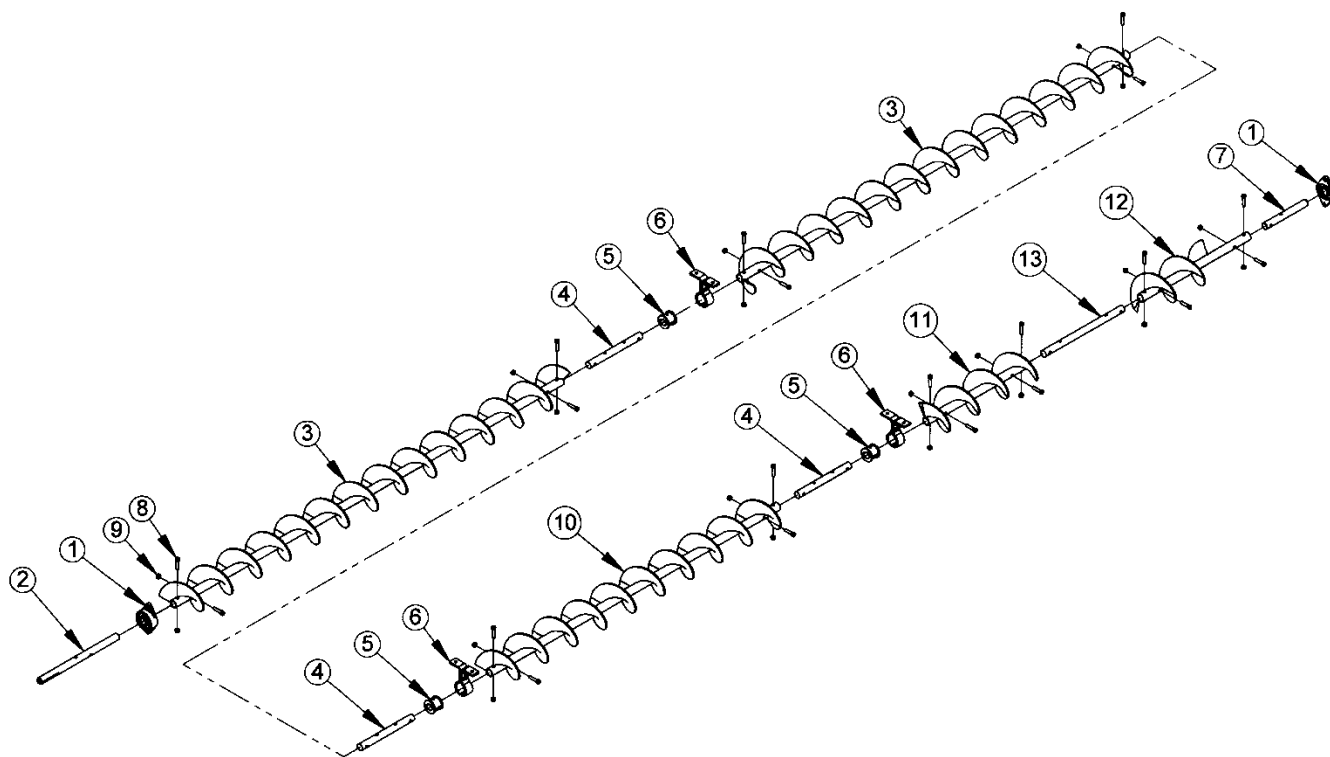
BOTTOM AUGER ASSEMBLY FOR 20' DRYER



SWPD0033

REF. #	DESCRIPTION	QTY.	PART #
1	BEARING, 1.25, FLANGE W/LC, HCFTS207-20	2	J0010
2	SHAFT, TOP FRONT, 13-1/4"	1	T16436
3	AUGER, BOTTOM FRONT, 93-1/2"	2	T16430
4	SHAFT, 8" HANGER BEARING	2	F4720
5	BUSHING, WOOD, 1.25" I.D.	2	J0096
6	HANGER, AUGER, T, 6CH2203	2	J0097
7	SHAFT, 1.25" X 10", BOTTOM AUGER	1	T17251
8	SCREW, 7/16-14, 2, PLT	16	J0718
9	NUT, LOCK, 7/16-14, PLT	16	J1034
10	AUGER, BOTTOM REAR, 47.50"	1	T12492
11	AUGER, BOTTOM, STD. UNLD. EXT.	1	T12493
12	SHAFT, AUGER, MOISTURE SENSOR	1	F4723

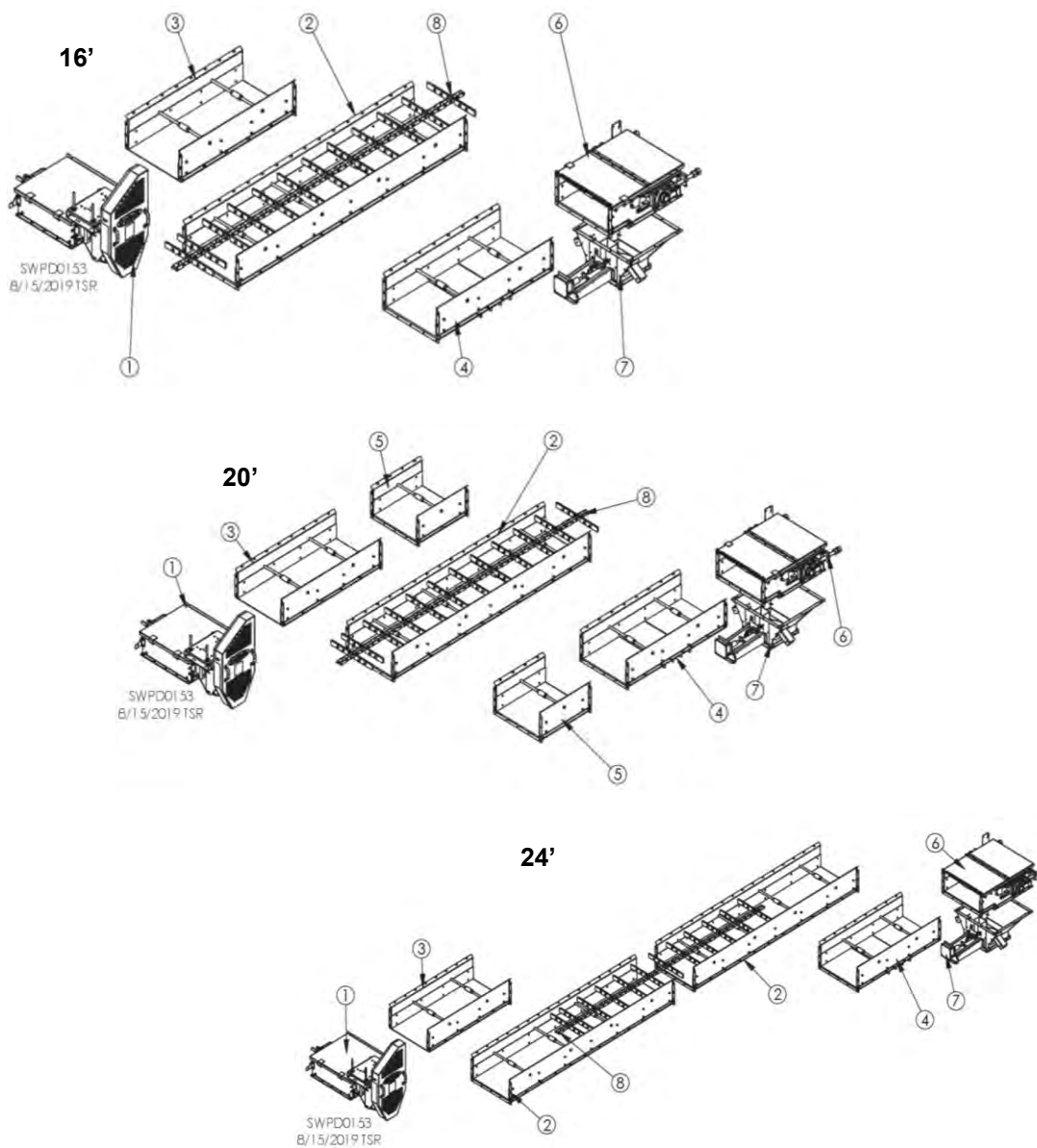
BOTTOM AUGER ASSEMBLY FOR 24' DRYER



SWPD0034

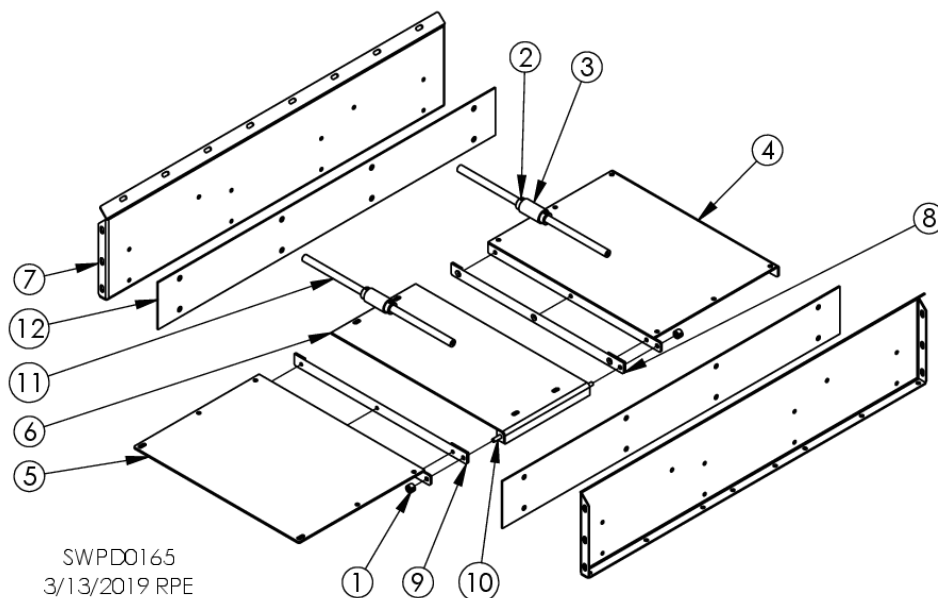
REF. #	DESCRIPTION	QTY.	PART #
1	BEARING, 1.25, FLANGE W/LC, HCFTS207-20	2	J0010
2	SHAFT, TOP FRONT, 13-1/4"	1	T16436
3	AUGER, BOTTOM FRONT, 93-1/2"	2	T16430
4	SHAFT, 8" HANGER BEARING	2	F4720
5	BUSHING, WOOD, 1.25" I.D.	2	J0096
6	HANGER, AUGER, T, 6CH2203	2	J0097
7	SHAFT, 1.25" X 10", BOTTOM AUGER	1	T17251
8	SCREW, 7/16-14, 2, PLT	16	J0718
9	NUT, LOCK, 7/16-14, PLT	16	J1034
10	AUGER, BOTTOM REAR, 47.50"	1	T12492
11	AUGER, BOTTOM, STD. UNLD. EXT.	1	T12493
12	SHAFT, AUGER, MOISTURE SENSOR	1	F4723

DRAG CONVEYOR ASSEMBLIES, 16', 20' & 24' DRYER



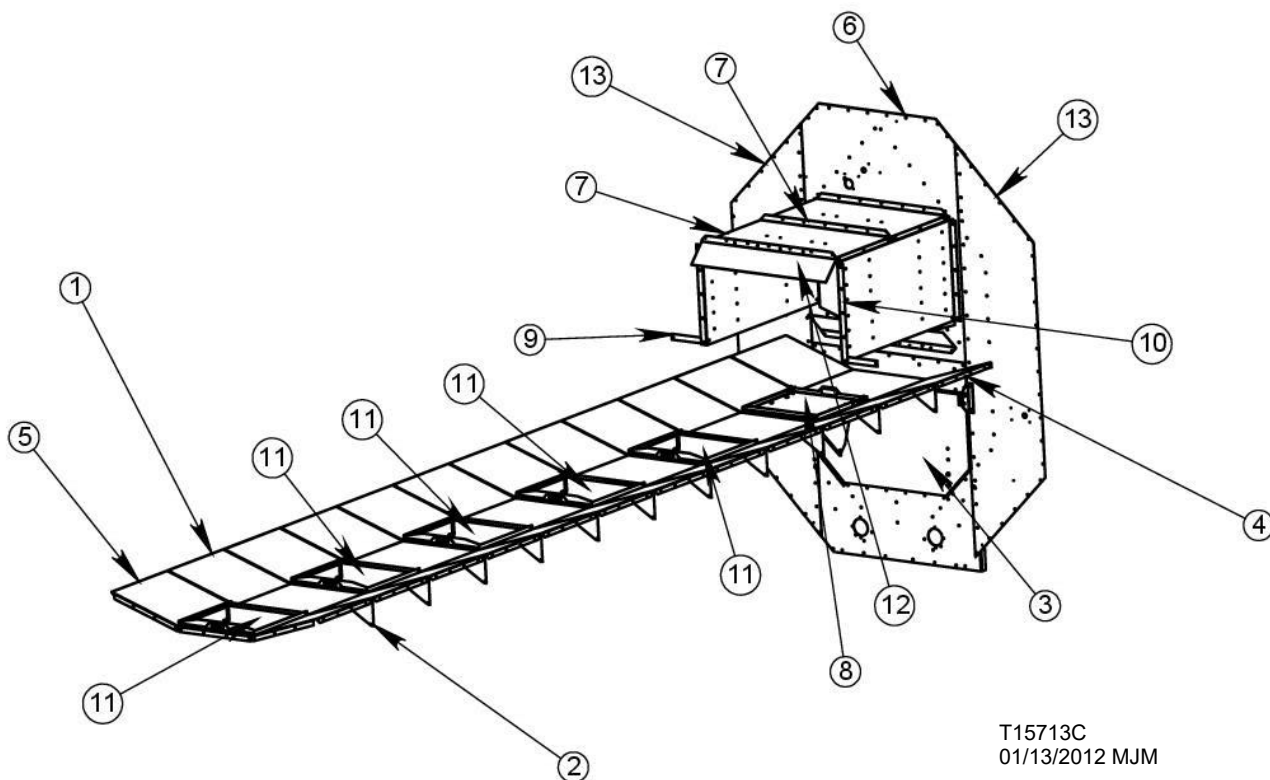
REF. #	DESCRIPTION	16'-QTY.	20'-QTY.	24'-QTY.	PART #
1	TAIL, CONV, 2109, 1.935BRG	1	1	1	T50041
2	BODY, 8', CONV, 2109, 3/16, 10GA	1	1	2	T5030
3	BODY, 4', CONV, 2109, 3/16, 10GA	1	1	1	T5038
4	BODY, 4', CONV, 2109, CLEANOUT	1	1	1	T50380
5	BODY, 2', CONV, 2109, 3/16, 10GA	-	2	-	T5043
6	HEAD, CONV, 2109, 1.9375BRG, 3/16	1	1	1	T5048
7	STATIC SAMPLER, DRAG, ASY	1	1	1	T50660
8	CHAIN, 21", 81X, CONVEYOR, ASY	4	5	6	W60518

DRAG CONVEYOR CLEANOUT DOOR ASSEMBLY



REF. #	DESCRIPTION	QTY.	PART #
1	COLLAR, SHAFT, 3/8"	2	J1319
2	COLLAR, SHAFT, 3/4"	4	J1327
3	ROLLER, RD, CHAIN RETURN, UHMW	2	T5037
4	BOTTOM, FRONT, CLEANOUT, WELDMENT	1	T50381
5	BOTTOM, REAR, CLEANOUT, WELDMENT	1	T50382
6	DOOR, CLEANOUT, WELDMENT	1	T50383
7	SIDE, 9", BODY, 4', CLEANOUT	2	T50384
8	STRIP, UHMW, STRIP, FRONT	1	T50385
9	STRIP, UHMW, GUIDE, BACK	1	T50386
10	ROD, PIVOT, 14", 3/8"	1	T50387
11	ROD, ROLLER, RETURN, .75, 21"	2	W60452-01
12	LINER, 9", BODY, 4'	2	W71263

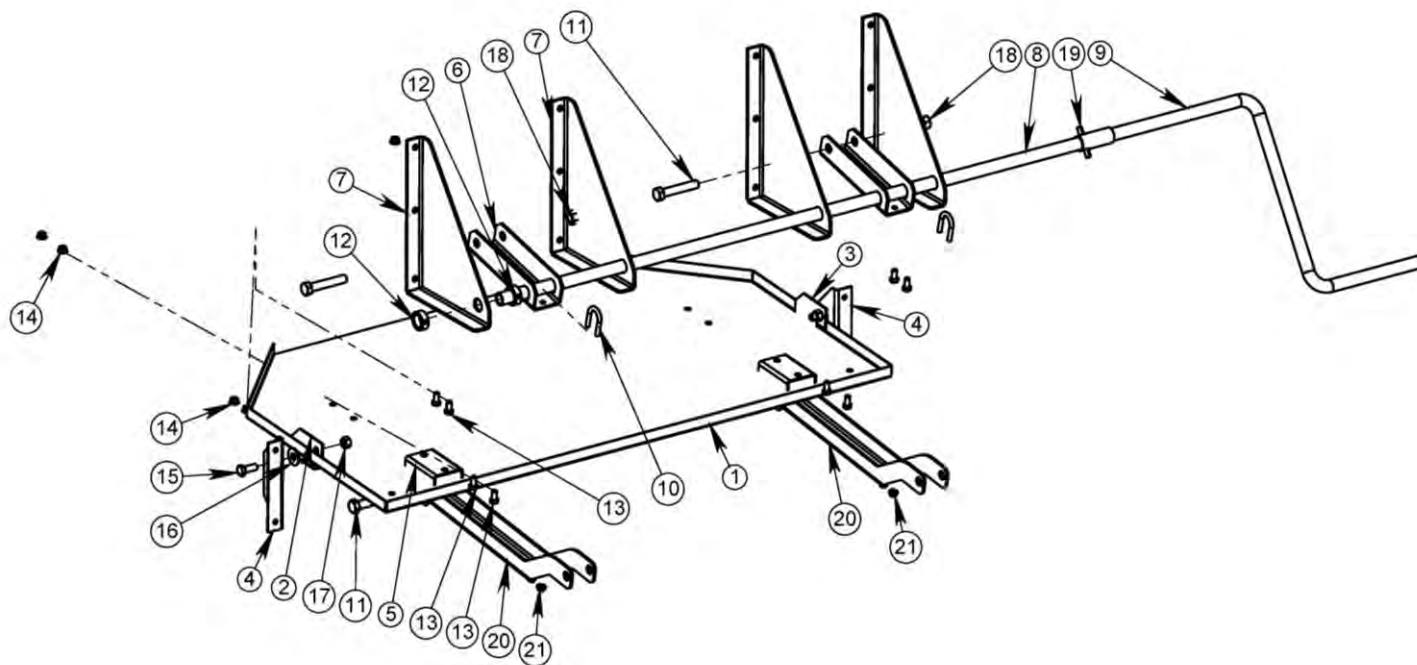
T15713C, PLENUM DIVIDER



T15713C
01/13/2012 MJM

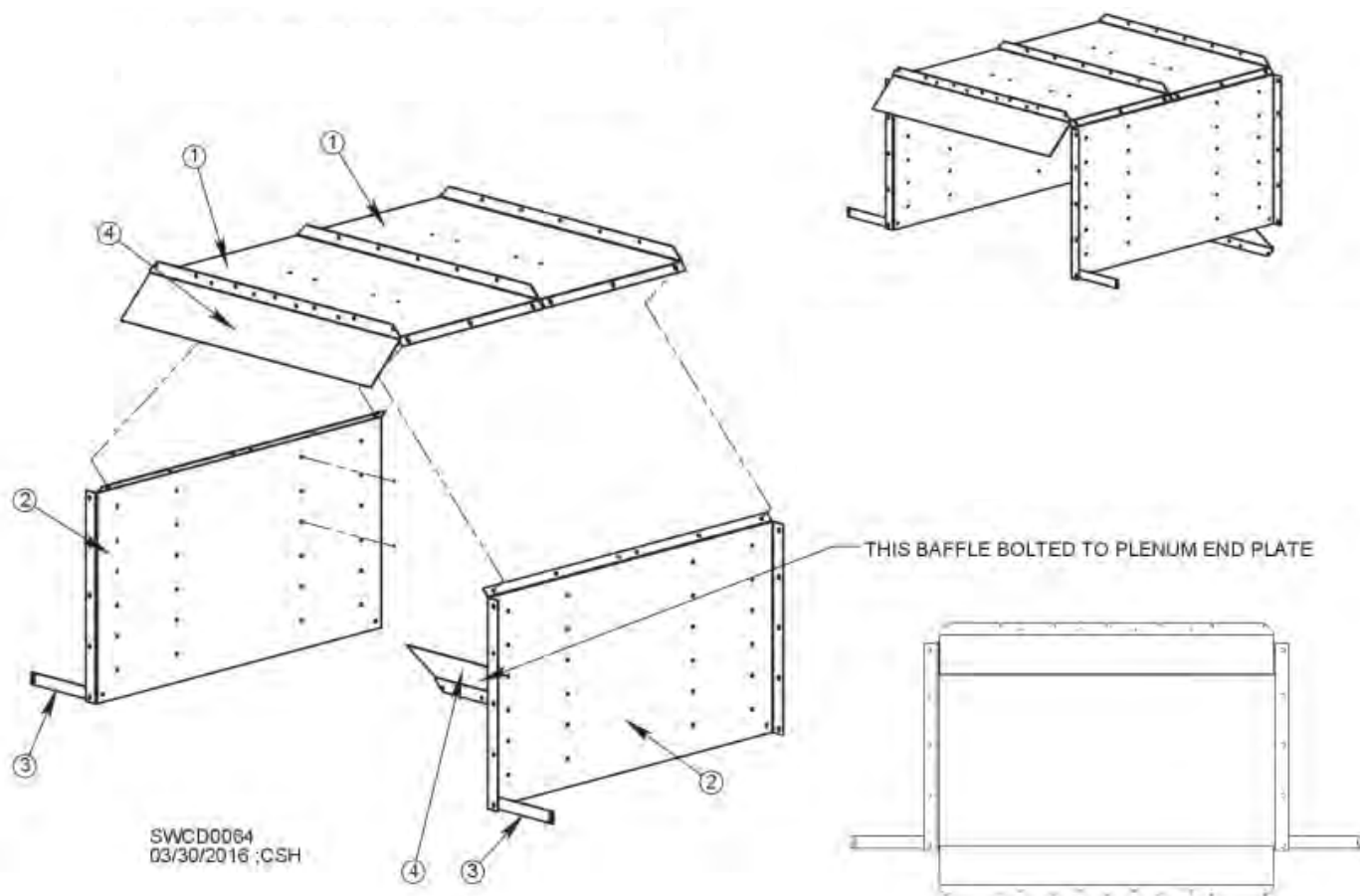
REF. #	DESCRIPTION	QTY.	PART #
1	DIVIDER, PLENUM	6	T24600
2	GUSSET, PLENUM DIVIDER	22	T24601
3	AIR BAFFLE ASSEMBLY	1	T43940
4	UPPER SEAL PLATE, END PLT SUCTION OPEN	1	T80128
5	DIVIDER WITH HOLE ASSY, W/NUT INSERTS	6	T80144AM
6	PLATE, FRONT END, CENT FAN	1	T80150
7	TOP PANEL, HEATER SHIELD	2	T80151
8	HATCH, FRONT, PLENUM	1	T80195
9	BRACKET, EXTENSION TO PERF	2	T80240
10	PANEL, SIDE, TUNNEL EXTENSION	2	T80241
11	DOOR, PLENUM, ASSEMBLY	5	T80263
12	BAFFLE, 45 DEG, HEAT DIST, CENT	2	T80266
13	SIDE END PLATE	2	T16101

AIR BAFFLE



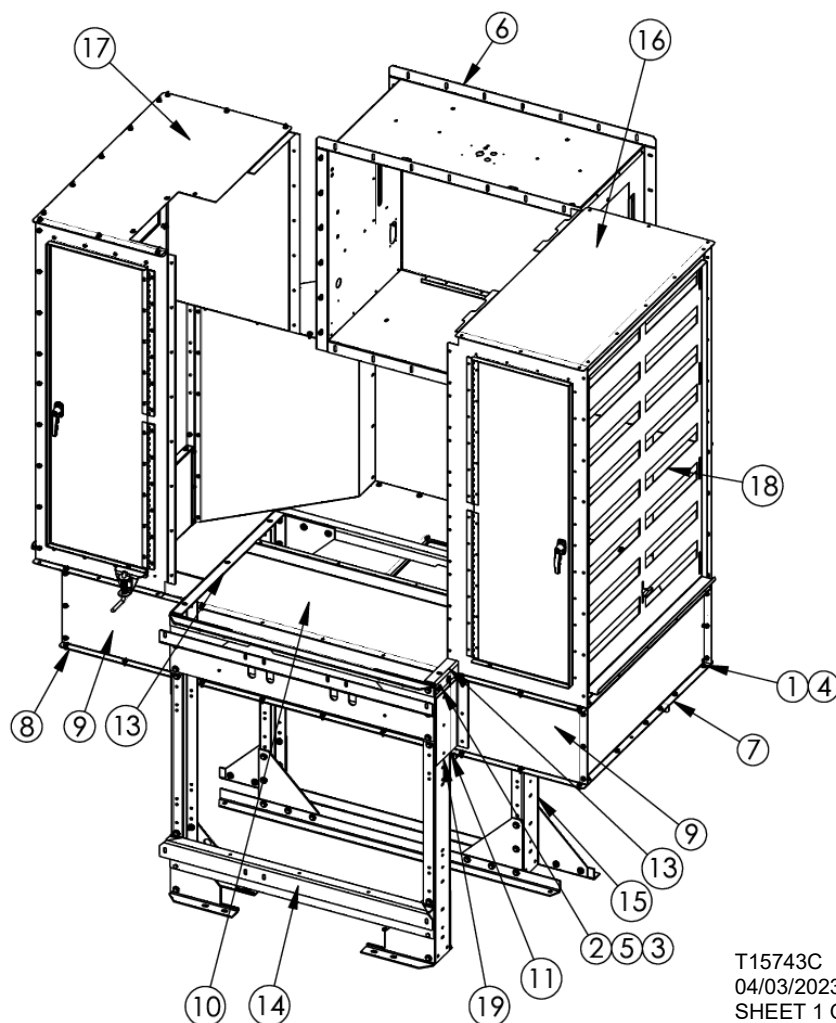
REF. #	DESCRIPTION	QTY.	PART #
1	BAFFLE PANEL	1	T43941
2	HINGE BAFFLE PANEL, RIGHT	1	T43942
3	HINGE BAFFLE PANEL, LEFT	1	T43943
4	HINGE, FRONT END PLATE	2	T43944
5	LINKAGE BRACKET, PANEL	2	T43945
6	LINKAGE ARM SHORT	2	T43946
7	PIVOT BRACKET	4	T43948
8	PIVOT ROD	1	T43949
9	PIVOT HANDLE WELDMENT	1	T43952
10	U-BOLT, 5/16-18, 1-1/16"ID 1.75D	2	J0810
11	SCREW 5/8-11X3-1/2	4	J0795
12	1" SHAFT COLLAR	2	J1335
13	SCREW, 3/8-16, 3/4, PLT	8	J0605
14	NUT, 3/8-16 FLANGE WHIZLOK	8	J1017
15	SCREW, 1/2"-13, 1.25, PLT, GR5, HHCS	2	J0728
16	WASHER, FLAT, 1/2	2	J1125
17	NUT, 1/2"-13, PLT, GR8, LOCK	2	J1042
18	NUT, 5/8-11 TOP LOCK	4	J1047
19	ROLL PIN, 3/8 X 2-1/2"	1	J1513
20	LINKAGE ARM LONG	2	T43947
21	NUT. WHIZ, 5/16-18	4	J1110

PLENUM DUCTWORK



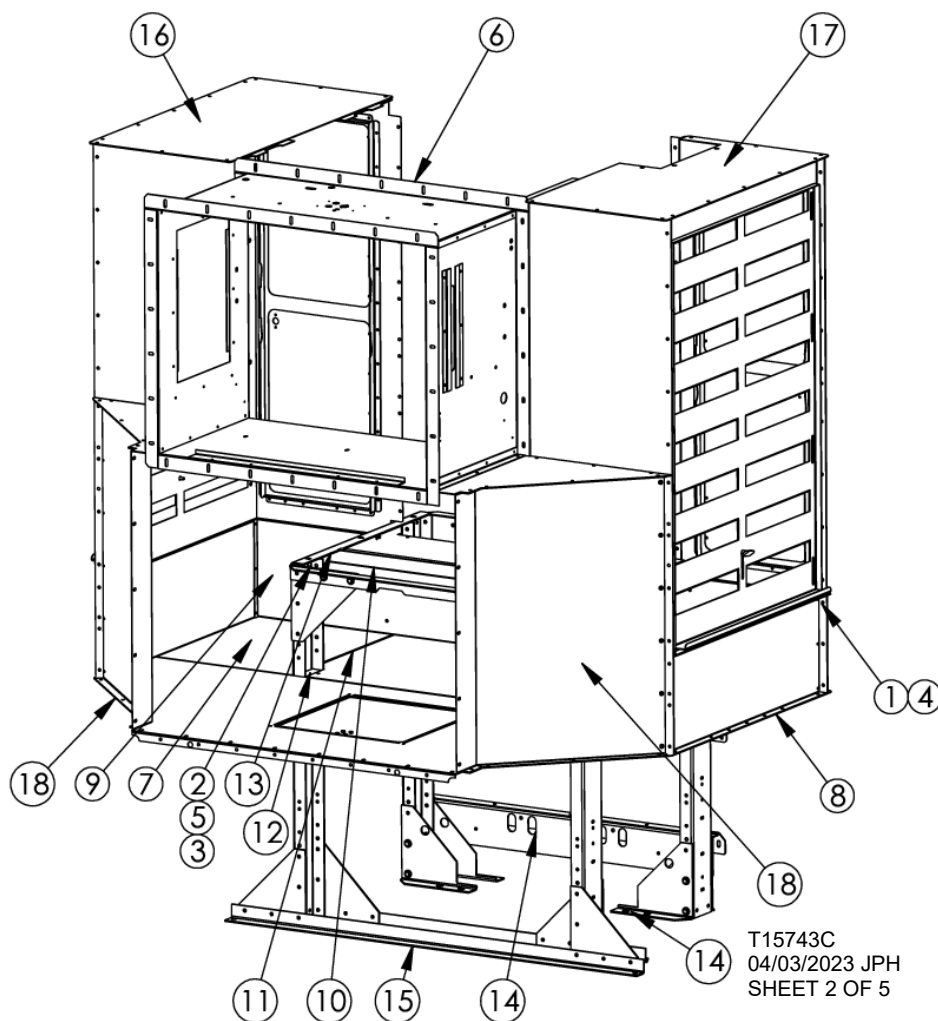
REF. #	DESCRIPTION	QTY.	PART #
1	TOP PANEL, HEATER	2	T80151
2	PANEL, SIDE, TUNNEL	2	T80241
3	BRACKET, EXTENSION TO	2	T80240
4	BAFFLE, 45°, HEAT DIST,	2	T80266

FAN SUPPORT (T15743C), FRONT VIEW



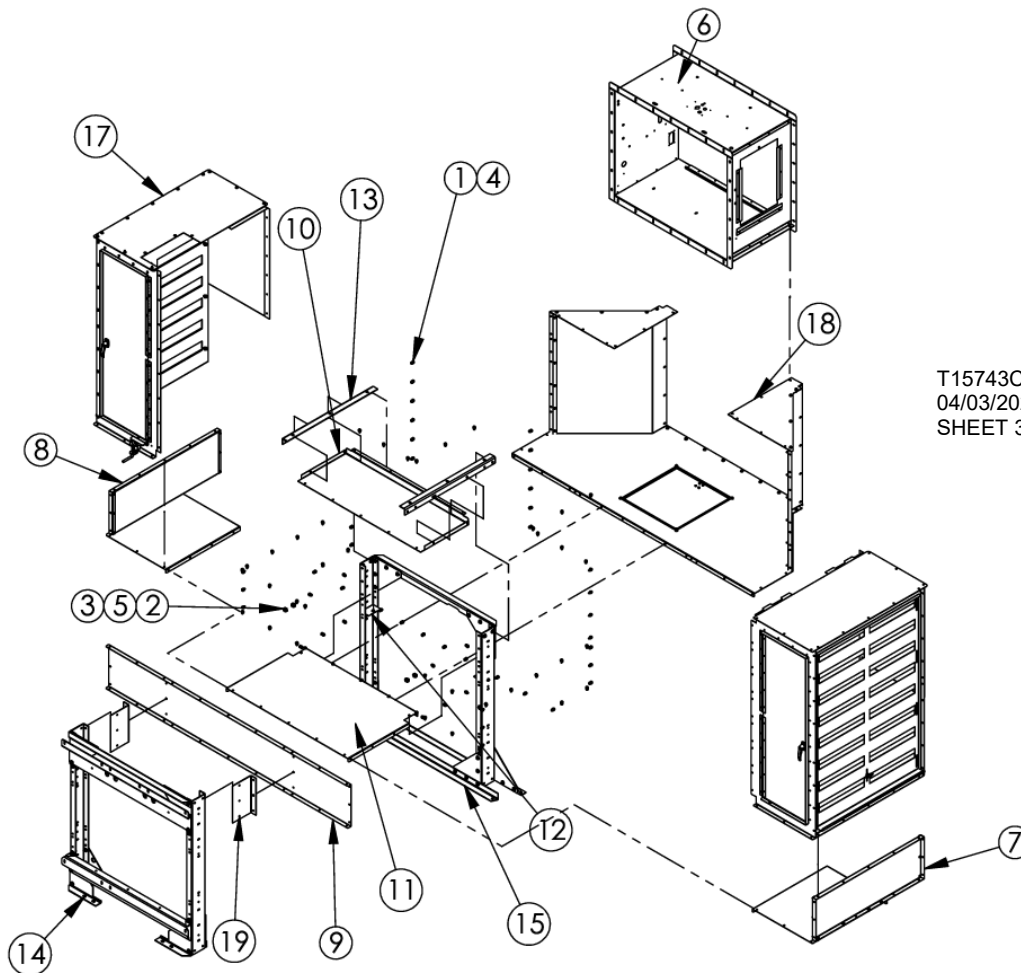
T15743C
04/03/2023 JPH
SHEET 1 OF 5

REF. #	DESCRIPTION	QTY.	PART #
1	SCREW, 5/16-18, 3/4", PLT, GR5, HHWZ	106	J0536
2	SCREW, 3/8-16, 1, PLT	8	J0606
3	NUT, HEX, 3/8-16, PLT LOCK	8	J1025
4	NUT, WHIZ, 5/16-18	106	J1110
5	WASHER, FLAT, 3/8, PLT	16	J1117
6	HOUSING, BURNER, CENT, GALV, REV	1	T29181
7	LOWER PANEL ASSY, LH	1	T80105
8	LOWER PANEL ASSY, RH	1	T801052
9	FRONT PANEL, BLOWER INTAKE DUCT	1	T80115
10	UPPER MID PANEL, BLOWER INTAKE DUCT	1	T80116
11	BOTTOM CENTER PANEL, BLOWER DUCT	1	T80123
12	CLIP, CENTER BOTTM PANEL, BLOWER DUCT	2	T80126
13	HORIZ SIDE, BLOWER MOUNT FRAME	2	T80139
14	FRAME, HEATER SUPPORT, BACK	1	T80160
15	FRAME, HEATER SUPPORT, FRONT	1	T80161
16	INTAKE PLENUM, LH	1	T80162
17	INTAKE PLENUM, RH	1	T80163
18	DUCTWORK, SUCT COOL CONNECTION	1	T80164
19	BRACKET, DRYER DUCTWORK FRONT SUPPORT	2	T80200

FAN SUPPORT (T15743C), REAR VIEW

REF. #	DESCRIPTION	QTY.	PART #
1	SCREW, 5/16-18, 3/4", PLT, GR5, HHWZ	106	J0536
2	SCREW, 3/8-16, 1, PLT	8	J0606
3	NUT, HEX, 3/8-16, PLT LOCK	8	J1025
4	NUT, WHIZ, 5/16-18	106	J1110
5	WASHER, FLAT, 3/8, PLT	16	J1117
6	HOUSING, BURNER, CENT, GALV, REV	1	T29181
7	LOWER PANEL ASSY, LH	1	T80105
8	LOWER PANEL ASSY, RH	1	T801052
9	FRONT PANEL, BLOWER INTAKE DUCT	1	T80115
10	UPPER MID PANEL, BLOWER INTAKE DUCT	1	T80116
11	BOTTOM CENTER PANEL, BLOWER DUCT	1	T80123
12	CLIP, CENTER BOTTM PANEL, BLOWER DUCT	2	T80126
13	HORIZ SIDE, BLOWER MOUNT FRAME	2	T80139
14	FRAME, HEATER SUPPORT, BACK	1	T80160
15	FRAME, HEATER SUPPORT, FRONT	1	T80161
16	INTAKE PLENUM, LH	1	T80162
17	INTAKE PLENUM, RH	1	T80163
18	DUCTWORK, SUCTION COOL CONNECTION	1	T80164
19	BRACKET, DRYER DUCTWORK FRONT SUPPORT	2	T80200

FAN SUPPORT (T15743C), EXPLODED FRONT VIEW



T15743C
04/03/2023 JPH
SHEET 3 OF 5

REF. #	DESCRIPTION	QTY.	PART #
1	SCREW, 5/16-18, 3/4", PLT, GR5, HHWZ	106	J0536
2	SCREW, 3/8-16, 1, PLT	8	J0606
3	NUT, HEX, 3/8-16, PLT LOCK	8	J1025
4	NUT, WHIZ, 5/16-18	106	J1110
5	WASHER, FLAT, 3/8, PLT	16	J1117
6	HOUSING, BURNER, CENT, GALV, REV	1	T29181
7	LOWER PANEL ASSY, LH	1	T80105
8	LOWER PANEL ASSY, RH	1	T801052
9	FRONT PANEL, BLOWER INTAKE DUCT	1	T80115
10	UPPER MID PANEL, BLOWER INTAKE DUCT	1	T80116
11	BOTTOM CENTER PANEL, BLOWER DUCT	1	T80123
12	CLIP, CENTER BOTTM PANEL, BLOWER DUCT	2	T80126
13	HORIZ SIDE, BLOWER MOUNT FRAME	2	T80139
14	FRAME, HEATER SUPPORT, BACK	1	T80160
15	FRAME, HEATER SUPPORT, FRONT	1	T80161
16	INTAKE PLENUM, LH	1	T80162
17	INTAKE PLENUM, RH	1	T80163
18	DUCTWORK, SUCT COOL CONNECTION	1	T80164
19	BRACKET, DRYER FRONT SUPPORT	2	T80200

FAN SUPPORT ASSY. T15743C PARTS

REF. #	DESCRIPTION	QTY.	PART #
1	SCREW, 5/16-18, 3/4", PLT, GR5, HHWZ	108	J0536
2	SCREW, 3/8-16, 1, PLT	8	J0606
3	NUT, HEX, 3/8-16, PLT LOCK	8	J1025
4	NUT, WHIZ, 5/16-18	108	J1110
5	WASHER, FLAT, 3/8, PLT	16	J1117
6	HOUSING, BURNER, CENT, GALV, REV	1	T29181
	VAPORIZER SIDE, 40HP, BOLT, GALV, REV	1	T29184
	TOP HEATER HOUSE, REV	1	T29182
	DOOR SIDE, HEATER HOUSE	1	T29185
	BOTTOM, HEATER HOUSE	1	T29183
	VANE SLIDE	1	D7066-06
	DOOR SLIDES, HEATER, GALV	5	D7055-03
	FLANGE, DUCT TRANS, HEATER HOUSING	2	T29186
7	LOWER PANEL ASSY, LH	1	T80105
	LOWER PANEL ASSEMBLY	1	T801051
	END FLANGE	2	T80107
	SLEEVE, HUCKBOLT, 1/4"	6	J0893
	1/4" X 5/8" HUCKBOLT	6	J0892
	LOWER PANEL	1	T80106
	BOTTOM RIGHT PANEL, BLOWER DUCT	1	T80125
	SCREW, 5/16-18, 3/4", PLT, GR5 HHWZ	4	J0536
	NUT, WHIZ, 5/16-18	4	J1110
8	LOWER PANEL ASSY, RH	1	T801052
	LOWER PANEL ASSEMBLY	1	T801051
	END FLANGE	2	T80107
	SLEEVE, HUCKBOLT, 1/4"	6	J0893
	1/4" X 5/8" HUCKBOLT	6	J0892
	LOWER PANEL	1	T80106
	BOTTOM LEFT PANEL, BLOWER DUCT	1	T80124
	SCREW, 5/16-18, 3/4", PLT, GR5, HHWZ	4	J0536
	NUT, WHIZ, 5/16-18	4	J1110
9	FRONT PANEL, BLOWER INTAKE DUCT	1	T80115
10	UPPER MID PANEL, BLOWER INTAKE DUCT	1	T80116
11	BOTTOM CENTER PANEL, BLOWER DUCT	1	T80123
12	CLIP, CENTER BOTTOM PANEL, BLOWER DUCT	2	T80126
13	HOZT SIDE, BLOWER MOUNT FRAME	2	T80139
14	FRAME, HEATER SUPPORT, BACK	1	T80160
	FRONT LEG, BLOWER MOUNT FRAME	2	T80137
	BRACKET, LEFT, FRONT LEGS, BLOWER	2	TM07157
	GUSSET PLATE, BLOWER MOUNT FRAME	2	T80138
	HOZT BASE 1, BLOWER MOUNT FRAME	1	T80140
	BRACKET, RIGHT, FRONT LEGS, BLOWER	2	TM07158
	WASHER, FLAT, 3/8, PLT	52	J1117
	NUT, HEX, 3/8-16, PLT LOCK	26	J1025
	SCREW, 3/8-16, 1-25, PLT, GR5, HHCS	26	J0616
	BRACE, PBOX, MOUNT, SUPPORT	2	T80290
	BRACE, TOP, PBOX, DAMPEN	1	T80291
	BRACE, BTM, PBOX, DAMPEN	1	T80292
15	FRAME, HEATER SUPPORT, FRONT	1	T80161
	FRONT LEG, BLOWER MOUNT FRAME	2	T80137
	GUSSET PLATE, BLOWER MOUNT FRAME	6	T80138
	HOZT BASE 1, BLOWER MOUNT FRAME	1	T80140
	HOZT BASE 2, BLOWER MOUNT FRAME	1	T80141
	HOZT BASE 3, BLOWER MOUNT FRAME	1	T80142
	SCREW, 3/8-16, 1-25, PLT, GR5, HHCS	20	J0616
	NUT, HEX, 3/8-16, PLT LOCK	30	J1025
	WASHER, FLAT, 3/8, PLT	60	J1117
	SCREW, 3/8-16, 1, PLT	10	J0606
	SCREW, 5/16-18, 3/4", PLT, GR5, HHWZ	2	J0536

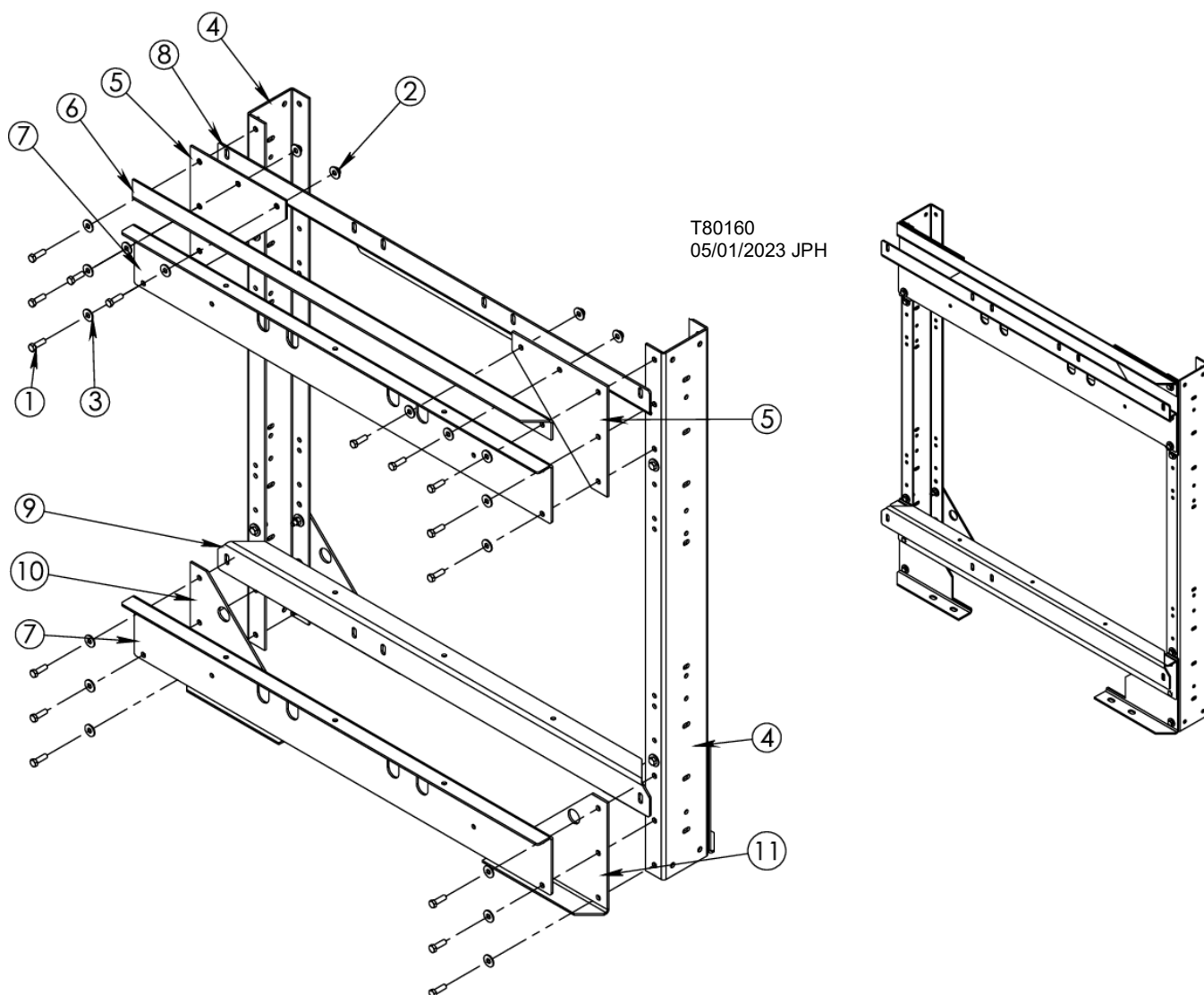
FAN SUPPORT ASSY. T15743C PARTS

REF. #	DESCRIPTION	QTY.	PART #
15 (cont.)	NUT, WHIZ, 5/16-18	2	J1110
16	INTAKE PLENUM, LH	1	T80162
	PANEL,AIR,W/FLANGES,STATIONARY	1	T802704
	DOOR ASSY, CENT, FRONT, LEFT	1	T80247
	PANEL,DOOR,CENT FAN,REVERSIBLE	1	T802706
	FRAME,DOOR,SHORT,CENT DRY FRONT	2	T802464
	FRAME,DOOR,LONG,CENT DRY FRONT	2	T802463
	HINGE,DOOR,CENT DRYER,FRONT	2	T802461
	HINGE, STAINLESS, A-803, 2" WIDE, .120 PIN	1	J2271-26
	HINGE, STAINLESS, HALF	2	J2271-01-26
	SPACER,DOOR,CENT DRYER,FRONT	2	T802462
	DOOR,LEFT,FRONT,CENT DRYER	1	T802472
	GASKET, #G-2, FOR GD303 HANDLE (J2313)	1	J2314
	HANDLE, LOCKING, #GD303	1	J2313
	LATCH,ADJUSTABLE,#5559	1	J2318
	SCREW,#10-16,1/2,PLT,SELFDRILL	1	J0467
	AIR PANEL, ADJUSTABLE	1	T80104
	LT SIDE PANEL, BLOWER INTAKE DUCT	1	T80119
	LT TOP PANEL, BLOWER INTAKE DUCT	1	T80120
	KNOB, PLASTIC, 5/16-18 X 3/4"	1	J4167
17	INTAKE PLENUM, RH	1	T80163
	PANEL,AIR,W/FLANGES,STATIONARY	1	T802704
	KNOB, PLASTIC, 5/16-18 X 3/4"	1	J4167
	AIR PANEL, ADJUSTABLE	1	T80104
	DOOR ASSY, CENT, FRONT, RIGHT	1	T80246
	PANEL,RIGHT,DOOR,CENT,FRONT	1	T802465
	FRAME,DOOR,SHORT,CENT DRY FRONT	2	T802464
	FRAME,DOOR,LONG,CENT DRY FRONT	2	T802463
	HOLDER,LATCH,RIGHT,DOOR,FRONT	1	T802467
	DOOR,RIGHT,FRONT,CENT DRYER	1	T802466
	SPACER,DOOR,CENT DRYER,FRONT	2	T802462
	HINGE,DOOR,CENT DRYER,FRONT	2	T802461
	HINGE, STAINLESS, A-803, 2" WIDE, .120 PIN	1	J2271-26
	HINGE, STAINLESS, HALF	2	J2271-01-26
	SCREW, #10-24, 3/4, PLT, SLT, RHMS	2	J0516
	WASHER,LOCK,#10 EXT TOOTH	2	J1190
	NUT,HEX,10-24,PLT,MS	2	J0985
	1/4" X 5/8" HUCKBOLT	45	J0892
	SLEEVE, HUCKBOLT, 1/4"	45	J0893
	LATCH,SPRING BOLT	1	J2294
	BOLT 1/4 - 20 X 3/4	4	J0505
	NUT, LOCK,1/4-20,PLT	4	J0992
	HANDLE, LOCKING, #GD303	1	J2313
	LATCH,ADJUSTABLE,#5559	1	J2318
	SCREW,#10-16,1/2,PLT,SELFDRILL	1	J0467
	GASKET, #G-2, FOR GD303 HANDLE (J2313)	1	J2314
	RT SD PANEL, BLOWER INTAKE DUCT	1	T80110
	RT TOP PANEL, BLWR INTAKE DUCT	1	T80117
	NUT, WHIZ, 5/16-18	25	J1110
	SCREW, 5/16-18, 3/4", PLT, GR5, HHWZ	25	J0536
	NUT, RIVET, 5/16"-18	2	J1007
	SCREW, 5/16-18, 1.25, PLT, GR5	8	J0550
	WASHER, FLAT, 5/16	16	J1111
	NUT, LOCK, 5/16-18, PLT	8	J1010

FAN SUPPORT ASSY. T15743C PARTS

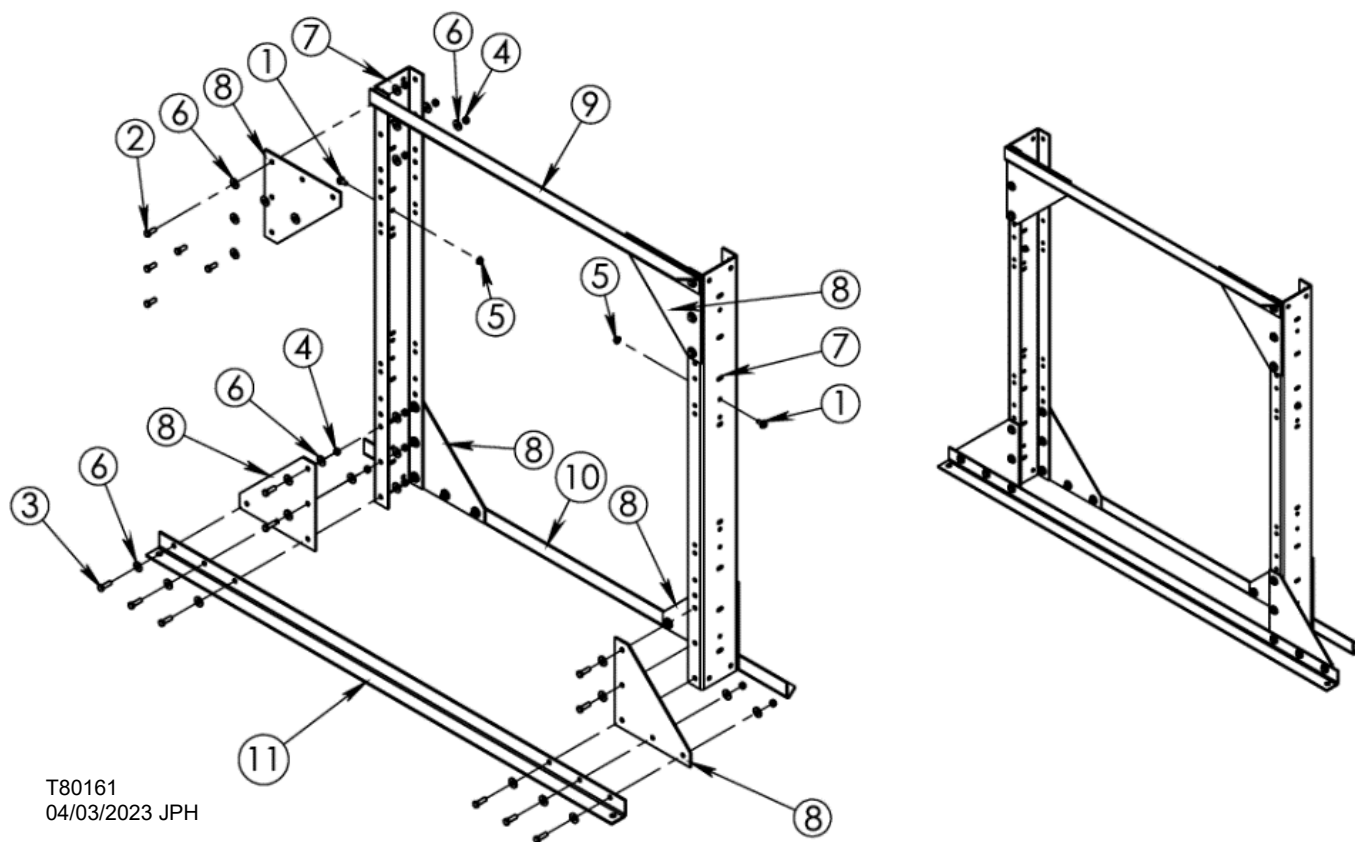
REF. #	DESCRIPTION	QTY.	PART #
18	DUCTWORK,SUCTCOOL CONNECTION	1	T80164
	TRANSITION TOP PANEL	2	T80111
	BOTTOM ANGLE, BLOWER TRANS-END PLT	1	T80121
	BOTTOM PANEL, BLOWER TRNS	1	T80122
	TRANSITION SIDE PANEL W/ HOLE	1	T80146
	PANEL, TRANSITION SIDE, W/ HOLE	1	T80157
	END FLANGE, TRANSITION SIDE PANEL	1	T80114
	1/4" X 5/8" HUCKBOLT	6	J0892
	SLEEVE, HUCKBOLT, 1/4"	6	J0893
	TRANSITION SIDE PANEL	1	T80112
	PANEL, TRANSITION SIDE PANEL	1	T80113
	END FLANGE, TRANSITION SIDE PANEL	1	T80114
	1/4" X 5/8" HUCKBOLT	6	J0892
	SLEEVE, HUCKBOLT, 1/4"	6	J0893
	SCREW,5/16-18,3/4",PLT,GR5,HHWZ	28	J0536
	NUT, WHIZ, 5/16-18	28	J1110
	DOOR, PLENUM, ASSM	1	T80263
	DOOR, HINGE, PLENUM DIVIDE	1	T80262
	FRAME, DOOR, PLENUM DIVIDE	1	T80261
	LATCH,SPRING BOLT	1	J2294
	PLATE, ADJUSTER, DOOR ACCESS	1	V01040-01
	SCREW,5/16-18,3/4",PLT,GR5,HHWZ	2	J0536
	BOLT 1/4 - 20 X 3/4	4	J0505
	SCREW 5/16- 1/2"	2	J0519
	NUT, LOCK, 5/16-18, PLT	2	J1010
	NUT, LOCK,1/4-20,PLT	4	J0992
	NUT, WHIZ, 5/16-18	2	J1110
	TRIM,EDGE,RUBBER,STYLE 10	4	J23288
	19	BRACKET, DRYER FRONT SUPPORT	2

FAN SUPPORT FRAME, BACK (T80160)



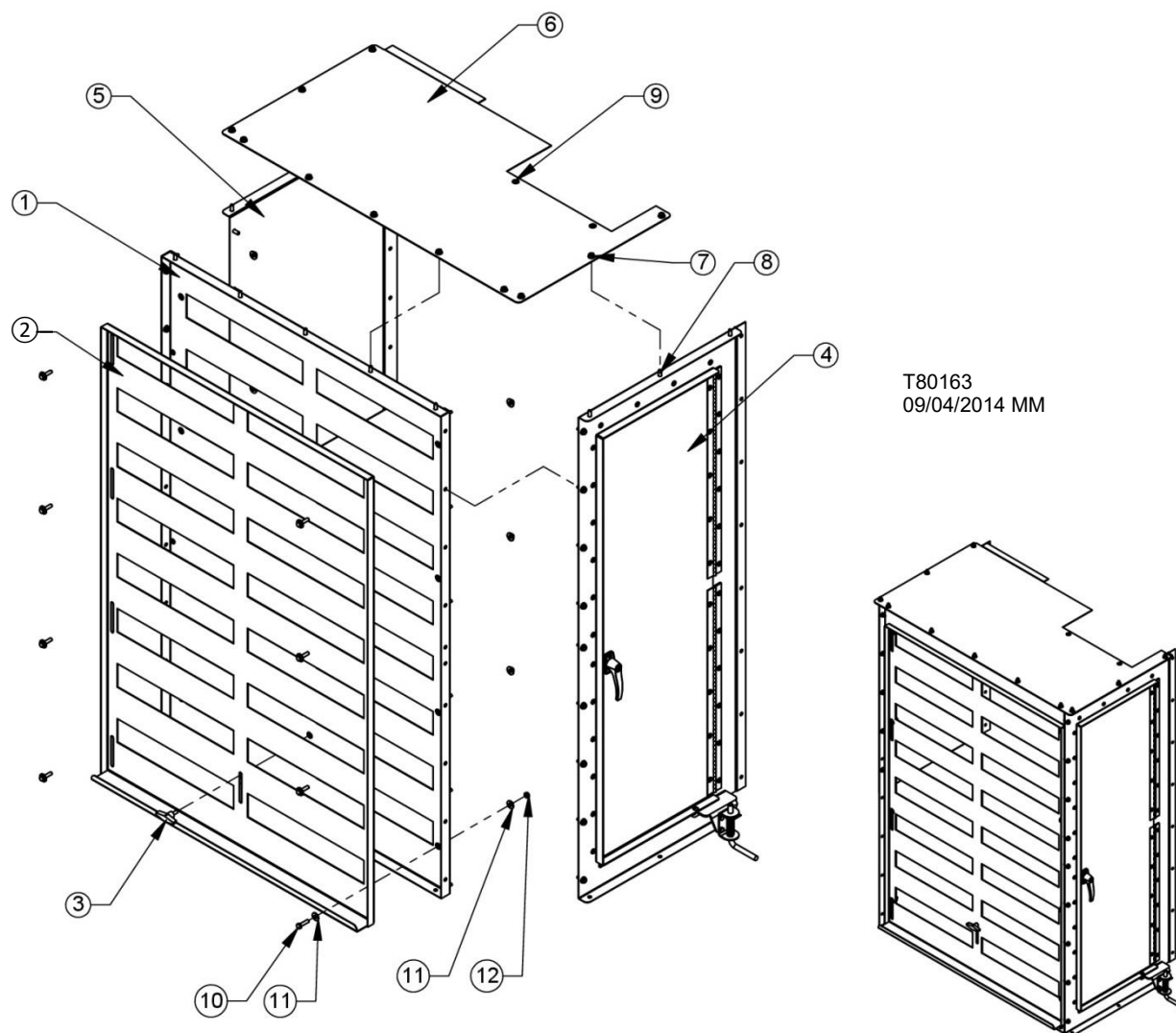
REF. #	DESCRIPTION	QTY.	PART #
1	SCREW, 3/8-16, 1.25, PLT, GR5, HHCS	26	J0616
2	NUT, HEX, 3/8-16, PLT LOCK	26	J1025
3	WASHER, FLAT, 3/8, PLT	52	J1117
4	FRONT LEG, BLOWER MOUNT FRAME	2	T80137
5	GUSSET PLATE, BLOWER MOUNT FRAME	2	T80138
6	HORIZ BASE 1, BLOWER MOUNT FRAME	1	T80140
7	BRACE,PBOX,MOUNT,SUPPORT	2	T80290
8	BRACE,TOP,PBOX,DAMPEN	1	T80291
9	BRACE,BTM,PBOX,DAMPEN	1	T80292
10	BRACKET, LEFT, FRONT LEGS, BLOWER	2	TM07157
11	BRACKET, RIGHT, FRONT LEGS, BLOWER	2	TM07158

FAN SUPPORT FRAME, FRONT (T80161)



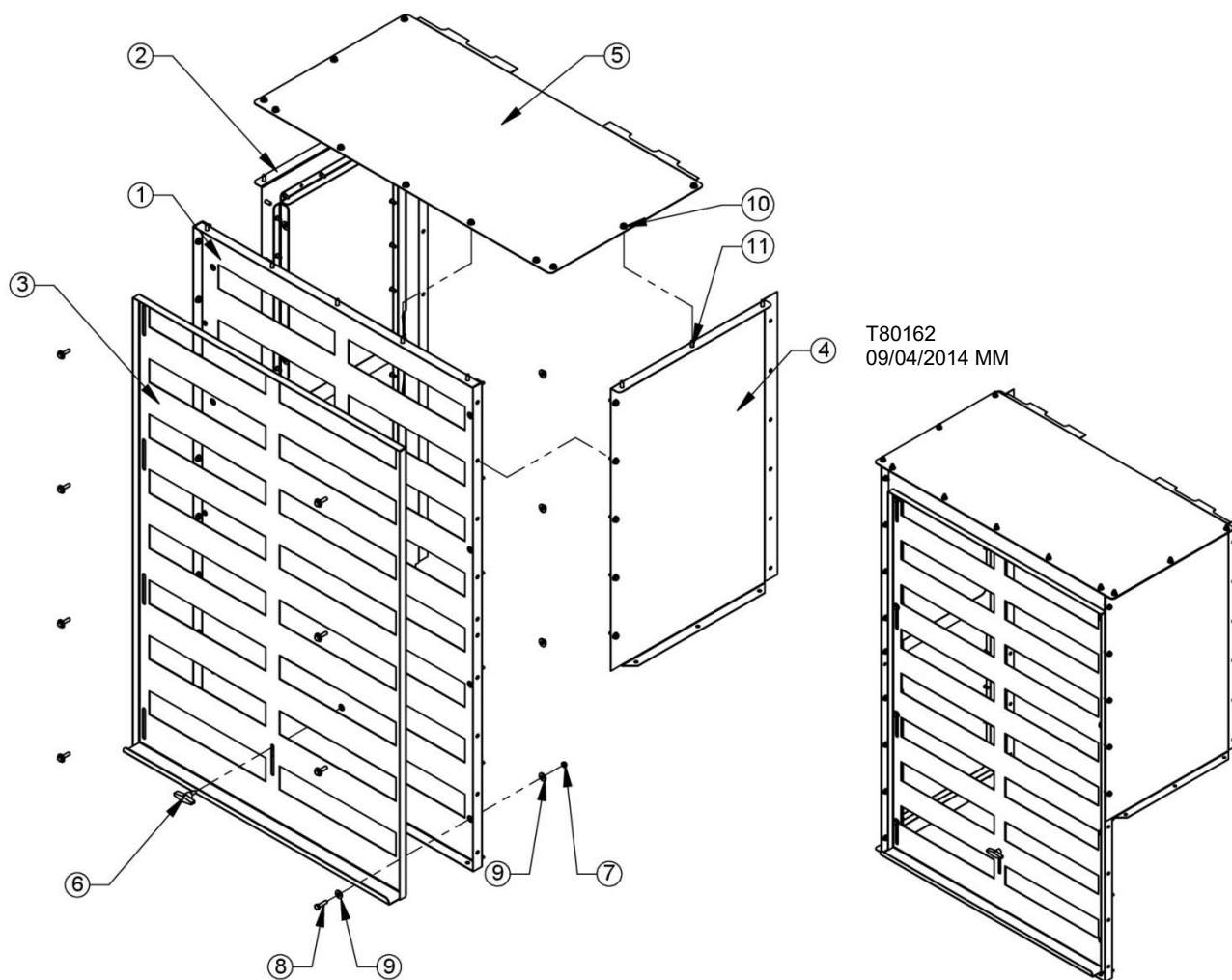
REF. #	DESCRIPTION	QTY.	PART #
1	SCREW, 5/16-18, 3/4", PLT, GR5, HHWZ	2	J0536
2	SCREW, 3/8-16, 1, PLT	10	J0606
3	SCREW, 3/8-16, 1.25, PLT, GR5, HHCS	20	J0616
4	NUT, HEX, 3/8-16, PLT LOCK	30	J1025
5	NUT, WHIZ, 5/6-18	2	J1110
6	WASHER, FLAT, 3/8, PLT	60	J1117
7	FRONT LEG, BLOWER MOUNT FRAME	2	T80137
8	GUSSET PLATE, BLOWER MOUNT FRAME	6	T80138
9	HORIZ BASE 1, BLOWER MOUNT FRAME	1	T80140
10	HORIZ BASE 2, BLOWER MOUNT FRAME	1	T80141
11	HORIZ BASE 3, BLOWER MOUNT FRAME	1	T80142

INTAKE PLENUM (T80163), RIGHT



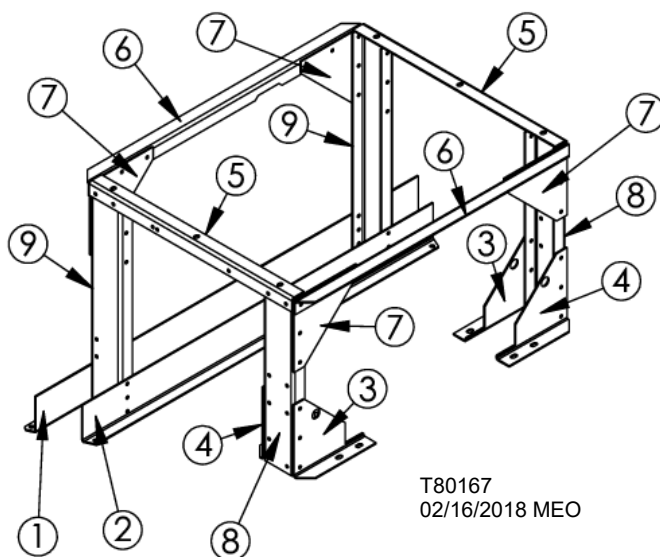
REF. #	DESCRIPTION	QTY.	PART #
1	AIR PANEL, STATIONARY ASSEMBLY	1	T80101
2	AIR PANEL, ADJUSTABLE	1	T80104
3	KNOB, PLASTIC, 5/16-18 X 3/4"	1	J4167
4	DOOR ASSY, CENT, FRONT, RIGHT	1	T80246
5	RT SIDE PANEL, BLOWER INTAKE DUCT	1	T80110
6	RT TOP PANEL, BLOWER INTAKE DUCT	1	T80117
7	NUT, WHIZ, 5/16-18	25	J1110
8	SCREW, 5/16-18, 3/4", PLT GR5, HHWZ	25	J0536
9	NUT, RIVET, 5/16"-18	2	J1007
10	SCREW, 5/16-18, 1.25, PLT, GR5	8	J0550
11	WASHER, FLAT, 5/16	16	J1111
12	NUT, LOCK, 5/16-18, PLT	8	J1010

INTAKE PLENUM (T80162), LEFT



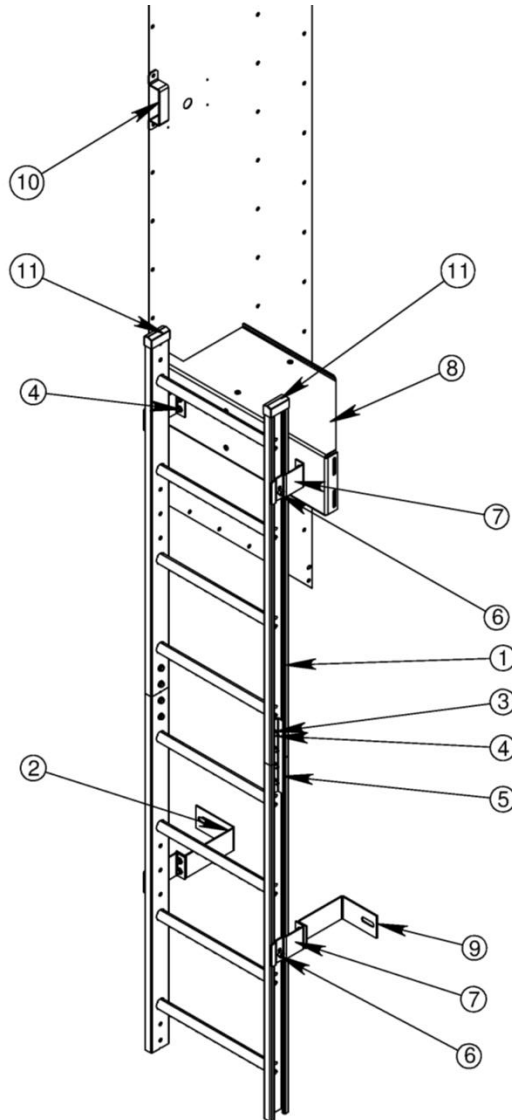
REF. #	DESCRIPTION	QTY.	PART #
1	AIR PANEL, STATIONARY ASSEMBLY	1	T80101
2	DOOR ASSY, CENT, FRONT, LEFT	1	T80247
3	AIR PANEL, ADJUSTABLE	1	T80104
4	LT SIDE PANEL, BLOWER INTAKE DUCT	1	T80119
5	LT TOP PANEL, BLOWER INTAKE DUCT	1	T80120
6	KNOB, PLASTIC, 5/16-18 X 3/4"	1	J4167
7	NUT, LOCK, 5/16-18, PLT	8	J1010
8	SCREW, 5/16-18, 1.25", PLT GR5	8	J0550
9	WASHER, FLAT, 5/16	16	J1111
10	NUT, WHIZ, 5/16"-18	25	J1110
11	SCREW, 5/16-18, 3/4", PLT, GR5, HHWZ	25	J0536

BLOWER MOUNTING FRAME (T80167), FULL HEAT



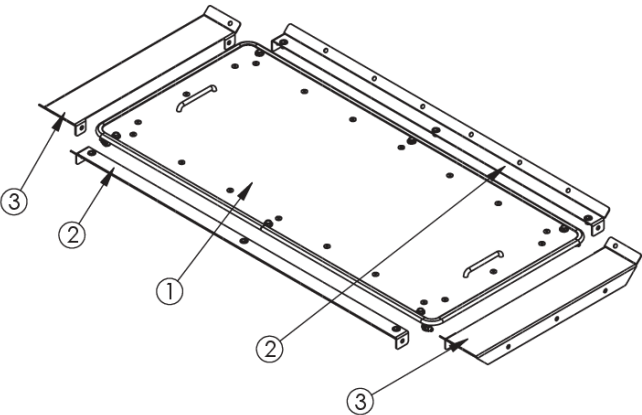
REF. #	DESCRIPTION	QTY.	PART #
1	REAR HORIZ SUPPORT B, BLOWER MNT FRAME	1	T80172
2	REAR HORIZ SUPPORT A, BLOWER MNT FRAME	1	T80170
3	LF BRACKET, FRONT LEGS, BLOWER MNT FRM	2	T80155
4	RT BRACKET, FRONT LEGS, BLOWER MNT FRM	2	T80156
5	HORIZ SIDE, BLOWER MOUNT FRAME	2	T80139
6	HORIZ BASE 1, BLOWER MOUNT FRAME	2	T80140
7	GUSSET PLATE, BLOWER MOUNT FRAME	4	T80138
8	FRONT LEG, BLOWER MOUNT FRAME	2	T80168
9	REAR LEG, BLOWER MOUNT FRAME	2	T80169

LADDER PARTS



REF. #	DESCRIPTION	QTY.	PART #
1	LADDER, 44"	2	B5084
2	BRACKET, LADDER, FRONT STACK CENT DRYER	1	T80222
3	NUT, WHIZ, 5/16-13	16	J1110
4	SCREW, 5/16-18, 3/4", PLT, GR5, HHWZ	16	J0536
5	SPLICE, LADDER	2	T25545
6	CLIP & BOLT, LADDER	4	B5008
7	BRACKET, LADDER, REAR PLATFORM	4	T35515
8	PLATFORM ASSY, LADDER SUPPORT, SUCTION COOL DRYER	1	T28151
9	BRACKET, LADDER, FRONT STACK CENT DRYER	1	T80223
10	HANDLE, DRYER FRONT	1	T28152
11	CAP, LADDER, VINYL	2	J5065

INNER CLEANOUT PANEL ASSEMBLY



SWPD0162
11/08/2018 TSR

REF. #	DESCRIPTION	QTY.	PART #
1	DOOR, FLOOR, PLENUM, BOLT ON ASY	1	T17212
2	FRAME, SIDE, DOOR, PLEN, BOLT, ASY	2	T17204AM
3	FRAME, END, DOOR, PLENUM, BOLT ON	2	T17205



QuadraTouch Pro™ Software

Control System for Cross-Flow (Axial/Centrifugal), Mixed-Flow & Tower Dryers



Software changes often. For latest version, go <https://support.mysukup.com/>. Click on Grain Dryers, then select the type of dryer you have.

Appendix H

Electrical Drawings
For Axial/Centrifugal & Mixed-Flow Dryers

Wire numbers and uses
Electrical drawings

DATE	REVISION	PAGE
08/22/2024	– Updated vapor over-temp switch photo & description	H-53
	Updated heater housing over-temp switch photo	H-54
	Updated moisture sensor photo and important note on storing sensor	H-62
	Eliminated photo of discontinued heater ignition board D3948	H-68



Wire Numbers & Uses – QuadraTouch Pro, 2015 to Present

Common System Wires		
Wire #	Description	Use
LINE	110VAC supply from transformer to CB8	Line power from transformer
0	110VAC from bottom of CB8 to E-Stop	Conductor between CB8 and E-Stop
1	110VAC supply after E-Stop	Emergency switched control supply
2	Neutral wire	Provides return for 110V circuits
5	5 second load auxiliary 1 – Supply side	Voltage supplied to 5 will relay to 7 upon K6 PLC relay being activated (27A).
6	110V load contactor	110V present energizes load contactor
6A	24VDC K1 PLC load relay coil	24VDC present energizes PLC load relay K1
7	5 second load auxiliary 1 – Coil side	Connect 7 to coil on load auxiliary 1 contactor.
8	10 second load auxiliary 2 – Supply side	Voltage supplied to 8 will relay to 9 upon K7 PLC relay being activated (28A).
9	10 second load auxiliary 2 – Coil side	Connect 9 to the coil on load auxiliary 2 contactor.
10	110V unload power ON	110V present energizes unload contactor
10A	24VDC K2 PLC unload relay coil	24VDC present energizes PLC unload relay K2
14	Dry contact unload auxiliary – Supply side	Voltage supplied to 14 will relay to 15 upon Load contactor being energized.
15	Dry contact unload auxiliary – Coil side	Connect auxiliary device to 15 and voltage from 14 will pass to 15 when unload coil is energized.
17	Meter roll reference voltage	0 to 10 volt reference for AC drive, 1V=10% meter roll, 10V=100% meter roll
17B	Manual backup reference AC drive voltage	0 to 10 volt reference for AC drive, 1V=10% meter roll, 10V=100% meter roll
17C	PLC reference AC drive voltage	0 to 10 volt reference for AC drive, 1V=10% meter roll, 10V=100% meter roll
18	24V supply	Powered from PLC DC supply, provides voltage for sensors
19	110V switch leg for work light	Provides switched 110V for work light (110V present, work light ON)
19A	24VDC K5 PLC work light relay coil	24VDC present energizes PLC work light relay K5
21B	PLC AC drive ON signal	24VDC present tells AC Drive to turn meter rolls in forward direction.
21C	Manual backup AC drive ON signal	24VDC present tells AC drive to turn meter rolls in forward direction.
21D	AC drive ON signal	24VDC present tells AC drive to turn meter rolls in forward direction.
27A	24VDC K6 PLC load aux 1 relay coil	24VDC present energizes PLC load aux 1 relay K6
28A	24VDC K7 PLC load aux 2 relay coil	24VDC present energizes PLC load aux 2 relay K7
30	Special aux unload – Supply side	Potential free contact with 31
31	Special aux unload – Coil side	Potential free contact with 30
32	Special aux unload – Supply side	24VDC supplied to 32 and factory jumper between 32 & 33.
33	Special aux unload – Coil side	33 carries 24VDC and goes through special aux unload relay and energizes K2 unload relay

Wire Numbers & Uses – QuadraTouch Pro, 2015 to Present

Common System Wires		
Wire #	Description	Use
36	Rear door signal wire	24V present = Door closed, provides voltage at PLC for rear door status (Doors are in series)
40	Right grain column over-temperature	24V present = Status OK, provides voltage at PLC for plenum high temperature status
41	Left grain column over-temperature	24V present = Status OK, provides voltage at PLC for plenum high temperature status
42	Grain discharge chute	24V present = Status OK, provides voltage back to PLC for grain discharge chute status
44	Lower grain paddle switch	24V present = Status grain not empty, lower grain switch
47	PLC load ON input	24V present = Load auger ON, provides PLC with status of load operation (on or off)
49A	Motor overload – Meter rolls	24V present = Status OK, provides voltage back to PLC for overload status of meter rolls
49B	Motor overload – Load motor	24V present = Status OK, provides voltage back to PLC for overload status of load motor
49C	Motor overload – Unload motor	24V present = Status OK, provides voltage back to PLC for overload status of unload motor
49D	Motor overload – Auxiliary box	24V present = Status OK, provides voltage back to PLC for overload status of device(s) in auxiliary box (series wired)
53	Upper grain paddle switch	24V present = Status Dryer FULL
70	Automatic batch RTD signal wire	Provides signal to processor for Autobatch temperature drying, 0 – 5 volt DC reference
93	Meter roll proximity signal wire	24VDC oscillating square wave = meter roll rotation confirmed.
94	Unload ON signal	24VDC = Unload coil has been energized.
95	Common reference on PLC for 24V supply	24VDC ground. DC Common.
96	Unload auger proximity signal wire	24VDC oscillating square wave = unload auger rotation confirmed.
U	User Fault circuit	24VDC = User Fault OK – Jumped out from factory.
D3	Discharge moisture sensor blue, 0V to 3VDC temperature signal to PLC	Provides processor with a voltage signal corresponding to temperature
D4	Discharge moisture sensor black, 0 to 9VDC moisture signal to PLC	Provides processor with a voltage signal corresponding to moisture
D5	Incoming moisture sensor black, 0 to 9VDC moisture signal to PLC	Provides processor with a voltage signal corresponding to moisture
116	110V Main gas valve ON	110V present energizes main gas valve (2-fan & up)
116A	24VDC K10 PLC Main gas valve relay	24VDC present energizes main gas valve relay K10

Wire Numbers & Uses – QuadraTouch Pro, 2015 to Present

Fan/Heat 1		
Wire #	Description	Use
100	Fan soft start monitoring (Pos. 1)	24V = Status OK, provides voltage at PLC for soft start trip monitoring
101	Air switch (Pos. 1)	24V = Status OK, provides voltage at PLC for air switch closure
102	Vapor high limit switch (Pos. 1)	24V = Status OK, provides voltage at PLC for vapor high temperature
103	Housing high limit switch (Pos. 1)	24V = Status OK, provides voltage at PLC for heater housing high temperature
104	Plenum over-temp switch (Pos. 1)	24V = Status OK, provides voltage at PLC for plenum high temperature
105	Plenum static air switch (Pos. 1)	24V present = Status OK, provides voltage back to PLC for static air status
106	Heater flame sense (Pos. 1)	24V present = Status OK, provides voltage back to PLC for flame sense status
107	PLC fan ON input (Pos. 1)	24V present = Fan ON, provides PLC with status of fan operation
108	PLC heat ON input (Pos. 1)	24V present = ON, tells PLC that system is calling for heater to turn on
109	Motor overload fan (Pos. 1)	24V present = ON, tells PLC that fan breaker is OK
110A	24VDC from PLC to K3 Fan 1 relay	24V present energizes Fan 1 relay K3
110C	110V power from K3 Fan1 relay to Fan 1 coil	110V present energizes Fan 1 contactor or soft start and supply power Fan 1 NO contact
110H	110V power from Fan 1 NO contact to K4A Heat 1 relay	110V present supplies 110V power to K4A Heat 1
111	110V power from Heat 1A relay to CB9 breaker	110V present supplies CB9 with power
111A	24VDC from PLC to K4A, K4B Heat 1 relay	24V present energizes Heat 1 relays K4A, K4B
112	110V from CB9 breaker to heater box (Pos. 1)	110V present heater circuit will begin firing sequence
161	EMOV (2-10V) (Pos. 1)	Reference voltage for EMOV

Wire Numbers & Uses – QuadraTouch Pro, 2015 to Present

Fan/Heat 2		
Wire #	Description	Use
200	Fan soft start monitoring (Pos. 2)	24V = Status OK, provides voltage at PLC for soft start trip monitoring
201	Differential air switch (Pos. 2)	24V = Status OK, provides voltage at PLC for differential air switch closure
202	Vapor high limit switch (Pos. 2)	24V = Status OK, provides voltage at PLC for vapor high temperature
203	Housing high limit switch (Pos. 2)	24V = Status OK, provides voltage at PLC for heater housing high temperature
204	Plenum over-temp switch (Pos. 2)	24V = Status OK, provides voltage at PLC for plenum high temperature
205	Plenum static air switch (Pos. 2)	24V present = Status OK, provides voltage back to PLC for static air status
206	Heater flame sense (Pos. 2)	24V present = Status OK, provides voltage back to PLC for flame sense status
207	PLC fan ON input (Pos. 2)	24V present = Fan ON, provides PLC with status of fan operation
208	PLC heat ON input (Pos. 2)	24V present = ON, tells PLC that system is calling for heater to turn on
209	Motor overload fan (Pos. 2)	24V present = ON, tells PLC that fan breaker is OK
210A	24VDC from PLC to K8 Fan 2 relay	24V present energizes Fan 2 relay K8
210C	110V power from K8 Fan 2 relay to Fan 2 coil	110V present energizes Fan 2 contactor or soft start and supply power Fan 2 NO contact
210H	110V power from Fan 2 NO contact to K9A Heat 2 relay	110V present supplies 110V power to K9A Heat 2
211	110V power from Heat 9A relay to CB10 breaker	110V present supplies CB10 with power
211A	24VDC from PLC to K9A, K9B Heat 2 relay	24V present energizes Heat 2 relays K9A, K9B
212	110V power from CB10 breaker to heater box (Pos. 2)	110V present heater circuit will begin firing sequence
261	EMOV (2-10V) (Pos. 2)	Reference voltage for EMOV

Wire Numbers & Uses – QuadraTouch Pro, 2015 to Present

Fan/Heat 3		
Wire #	Description	Use
300	Fan soft start monitoring (Pos. 3)	24V = Status OK, provides voltage at PLC for soft start trip monitoring
301	Differential air switch (Pos. 3)	24V = Status OK, provides voltage at PLC for differential air switch closure
302	Vapor high limit switch (Pos. 3)	24V = Status OK, provides voltage at PLC for vapor high temperature
303	Housing high limit switch (Pos. 3)	24V = Status OK, provides voltage at PLC for heater housing high temperature
304	Plenum over-temp switch (Pos. 3)	24V = Status OK, provides voltage at PLC for plenum high temperature
305	Plenum static air switch (Pos. 3)	24V present = Status OK, provides voltage back to PLC for static air status
306	Heater flame sense (Pos. 3)	24V present = Status OK, provides voltage back to PLC for flame sense status
307	PLC fan ON input (Pos. 3)	24V present = Fan ON, provides PLC with status of fan operation
308	PLC heat ON input (Pos. 3)	24V present = ON, tells PLC that system is calling for heater to turn on
309	Motor overload fan (Pos. 3)	24V present = ON, tells PLC that fan breaker is OK
310A	24VDC from PLC to K11 Fan 3 relay	24V present energizes Fan 3 relay K11
310C	110V power from K11 Fan 3 relay to Fan 3 coil	110V present energizes Fan 3 contactor or soft start and supply power Fan 3 NO contact
310H	110V power from Fan 3 NO contact to K12A Heat 3 relay	110V present supplies 110V power to K12A Heat 3
311	110V power from Heat 12A relay to CB11 breaker	110V present supplies CB11 with power
311A	24VDC from PLC to K12A, K12B Heat 3 relay	24V present energizes Heat 3 relays K12A, K12B
312	110V power from CB11 breaker to heater box (Pos. 3)	110V present heater circuit will begin firing sequence
361	EMOV (2-10V) (Pos. 3)	Reference voltage for EMOV

Wire Numbers & Uses – QuadraTouch Pro, 2015 to Present

Fan/Heat 4		
Wire #	Description	Use
400	Fan soft start monitoring (Pos. 4)	24V = Status OK, provides voltage at PLC for soft start trip monitoring
401	Differential air switch (Pos. 4)	24V = Status OK, provides voltage at PLC for differential air switch closure
402	Vapor high limit switch (Pos. 4)	24V = Status OK, provides voltage at PLC for vapor high temperature
403	Housing high limit switch (Pos. 4)	24V = Status OK, provides voltage at PLC for heater housing high temperature
404	Plenum over-temp switch (Pos. 4)	24V = Status OK, provides voltage at PLC for plenum high temperature
405	Plenum static air switch (Pos. 4)	24V present = Status OK, provides voltage back to PLC for static air status
406	Heater flame sense (Pos. 4)	24V present = Status OK, provides voltage back to PLC for flame sense status
407	PLC fan ON input (Pos. 4)	24V present = Fan ON, provides PLC with status of fan operation
408	PLC heat ON input (Pos. 4)	24V present = ON, tells PLC that system is calling for heater to turn on
409	Motor overload fan (Pos. 4)	24V present = ON, tells PLC that fan breaker is OK
410A	24VDC from PLC to K13 Fan 4 relay	24V present energizes Fan 4 relay K13
410C	110V power from K13 Fan 4 relay to Fan 4 coil	110V present energizes Fan 4 contactor or soft start and supply power Fan 4 NO contact
410H	110V power from Fan 4 NO contact to K12A Heat 4 relay	110V present supplies 110V power to K12A Heat 4
411	110V power from Heat 14A relay to CB12 breaker	110V present supplies CB12 with power
411A	24VDC from PLC to K14A, K14B Heat 4 relay	24V present energizes Heat 4 relays K14A, K14B
412	110V power from CB12 breaker to heater box (Pos. 4)	110V present heater circuit will begin firing sequence
461	EMOV (2-10V) (Pos. 4)	Reference voltage for EMOV

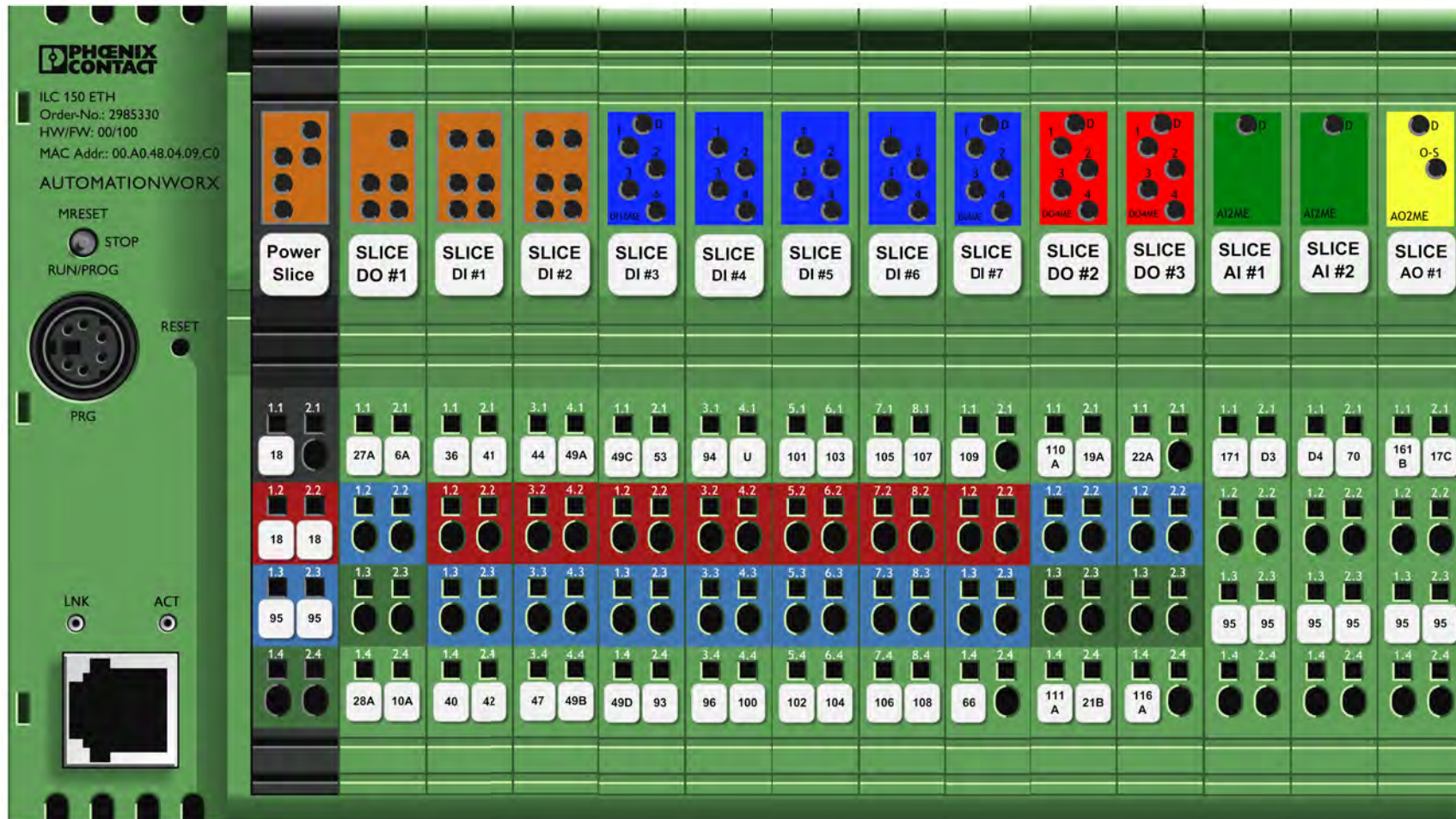
Wire Numbers & Uses – QuadraTouch Pro, 2015 to Present

Fan/Heat 5		
Wire #	Description	Use
500	Fan soft start monitoring (Pos. 5)	24V = Status OK, provides voltage at PLC for soft start trip monitoring
501	Differential air switch (Pos. 5)	24V = Status OK, provides voltage at PLC for differential air switch closure
502	Vapor high limit switch (Pos. 5)	24V = Status OK, provides voltage at PLC for vapor high temperature
503	Housing high limit switch (Pos. 5)	24V = Status OK, provides voltage at PLC for heater housing high temperature
504	Plenum over-temp switch (Pos. 5)	24V = Status OK, provides voltage at PLC for plenum high temperature
505	Plenum static air switch (Pos. 5)	24V present = Status OK, provides voltage back to PLC for static air status
506	Heater flame sense (Pos. 5)	24V present = Status OK, provides voltage back to PLC for flame sense status
507	PLC fan ON input (Pos. 5)	24V present = Fan ON, provides PLC with status of fan operation
508	PLC heat ON input (Pos. 5)	24V present = ON, tells PLC that system is calling for heater to turn on
509	Motor overload fan (Pos. 5)	24V present = ON, tells PLC that fan breaker is OK
510A	24VDC from PLC to K15 Fan 5 relay	24V present energizes Fan 5 relay K15
510C	110V power from K15 Fan 5 relay to Fan 5 coil	110V present energizes Fan 5 contactor or soft start and supply power Fan 5 NO contact
510H	110V power from Fan 5 NO contact to K16A Heat 5 relay	110V present supplies 110V power to K16A Heat 5
511	110V power from Heat 16A relay to CB13 breaker	110V present supplies CB13 with power
511A	24VDC from PLC to K16A, K16B Heat 5 relay	24V present energizes Heat 5 relays K16A, K16B
512	110V power from CB13 breaker to heater box (Pos. 5)	110V present heater circuit will begin firing sequence
561	EMOV (2-10V) (Pos. 5)	Reference voltage for EMOV

Wire Numbers & Uses – QuadraTouch Pro, 2015 to Present

Fan/Heat 6		
Wire #	Description	Use
600	Fan soft start monitoring (Pos. 6)	24V = Status OK, provides voltage at PLC for soft start trip monitoring
601	Differential air switch (Pos. 6)	24V = Status OK, provides voltage at PLC for differential air switch closure
602	Vapor high limit switch (Pos. 6)	24V = Status OK, provides voltage at PLC for vapor high temperature
603	Housing high limit switch (Pos. 6)	24V = Status OK, provides voltage at PLC for heater housing high temperature
604	Plenum over-temp switch (Pos. 6)	24V = Status OK, provides voltage at PLC for plenum high temperature
605	Plenum static air switch (Pos. 6)	24V present = Status OK, provides voltage back to PLC for static air status
606	Heater flame sense (Pos. 6)	24V present = Status OK, provides voltage back to PLC for flame sense status
607	PLC fan ON input (Pos. 6)	24V present = Fan ON, provides PLC with status of fan operation
608	PLC heat ON input (Pos. 6)	24V present = ON, tells PLC that system is calling for heater to turn on
609	Motor overload fan (Pos. 6)	24V present = ON, tells PLC that fan breaker is OK
610A	24VDC from PLC to K17 Fan 6 relay	24V present energizes Fan 6 relay K17
610C	110V power from K17 Fan 6 relay to Fan 6 coil	110V present energizes Fan 6 contactor or soft start and supply power Fan 6 NO contact
610H	110V power from Fan 6 NO contact to K18A Heat 6 relay	110V present supplies 110V power to K18A Heat 6
611	110V power from Heat 18A relay to CB14 breaker	110V present supplies CB14 with power
611A	24VDC from PLC to K18A, K18B Heat 6 relay	24V present energizes Heat 6 relays K18A, K18B
612	110V power from CB14 breaker to heater box (Pos. 6)	110V present heater circuit will begin firing sequence
661	EMOV (2-10V) (Pos. 6)	Reference voltage for EMOV

1 Fan PLC Setup



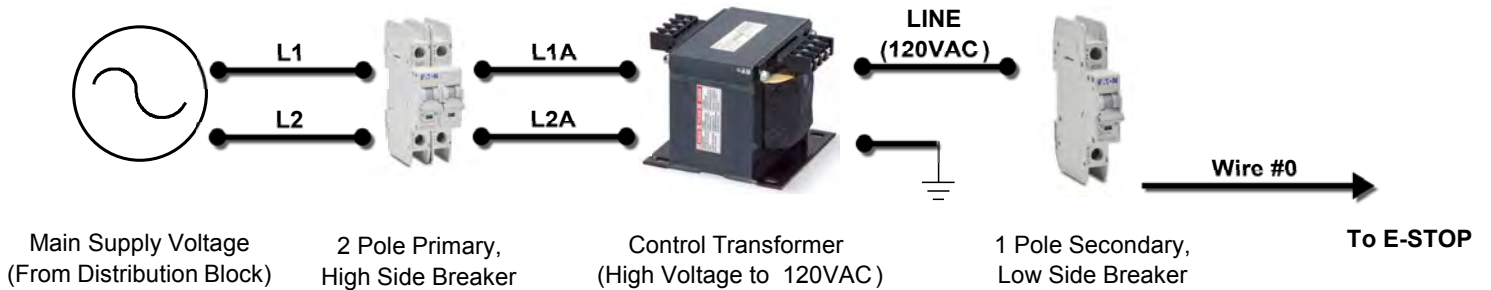
Title: PORTABLE DRYER: 1 FAN PLC Setup	
Author: SUKUP MFG CO - MRK	
Date: 3/15	Sheet: 101.1
Revision: 3/18/2019 - DWS (1)	

The diagram illustrates the terminal block layout for a Phoenix Contact ILC 150 ETH. It features 24 channels, each with a specific module and terminal assignments. The modules are color-coded: orange for Power and DO, blue for DI, red for DO, green for AI, and yellow for AO. The terminal assignments are as follows:

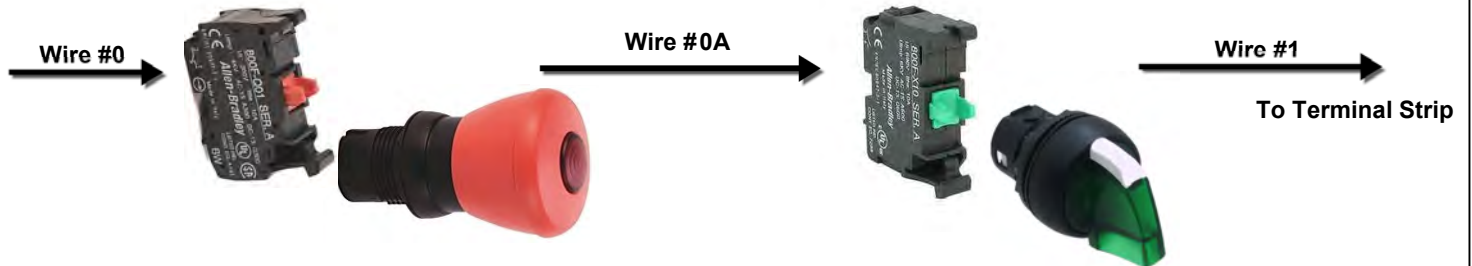
Channel	Module	Terminal 1	Terminal 2	Terminal 3	Terminal 4
1	Power Slice	1.1	2.1	18	18
2	SLICE DO #1	1.1	2.1	27A	6A
3	SLICE DI #1	1.1	2.1	36	41
4	SLICE DI #2	3.1	4.1	44	49A
5	SLICE DI #3	1.1	2.1	49C	53
6	SLICE DI #4	3.1	4.1	94	U
7	SLICE DI #5	5.1	6.1	101	103
8	SLICE DI #6	7.1	8.1	105	107
9	SLICE DI #7	1.1	2.1	109	201
10	SLICE DI #8	3.1	4.1	203	205
11	SLICE DI #9	5.1	6.1	207	209
12	SLICE DI #10	7.1	8.1	7.1	8.1
13	SLICE DO #2	1.1	2.1	110 A	19A
14	SLICE DO #3	1.1	2.1	22A	210 A
15	SLICE AI #1	1.1	2.1	171	D3
16	SLICE AI #2	1.1	2.1	D4	271
17	SLICE AI #2.1	1.1	2.1	70	D5
18	SLICE AO #1	1.1	2.1	161 B	17C
19	SLICE AO #2	1.1	2.1	261 B	1.2
20	SLICE AO #2	1.2	2.2	1.2	2.2
21	SLICE AO #2	1.3	2.3	1.3	2.3
22	SLICE AO #2	1.4	2.4	1.4	2.4
23	SLICE AO #2	1.1	2.1	1.1	2.1
24	SLICE AO #2	1.2	2.2	1.2	2.2

Revision: 3/18/2019 - DWS (1)

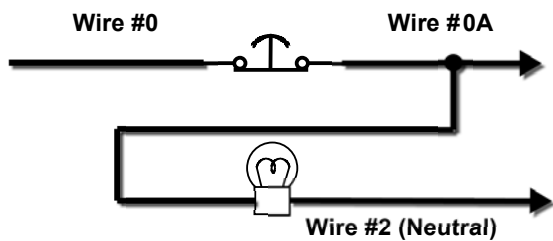
Emergency Stop and System Control Switch Wiring



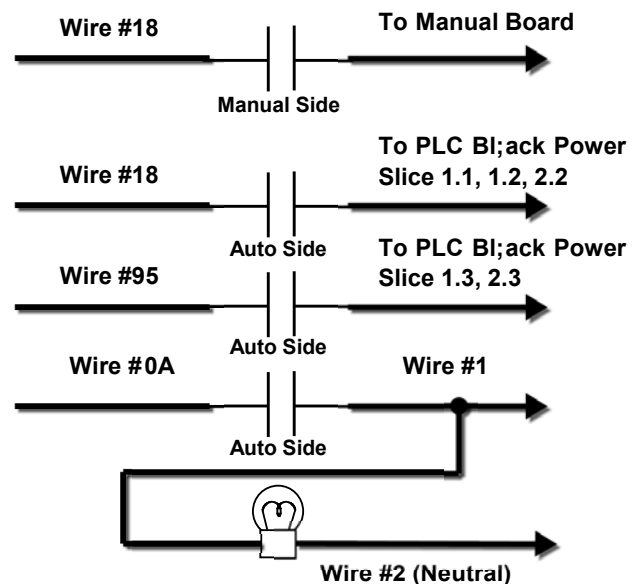
NOTE: 575VAC is Fused
Instead of 2 Pole breaker shown



E-STOP (Emergency Stop Switch)



System Control Switch Manual ---- OFF ---- Auto (3 Position)



Title: PORTABLE DRYER: Emergency Stop and System Control Switch Wiring

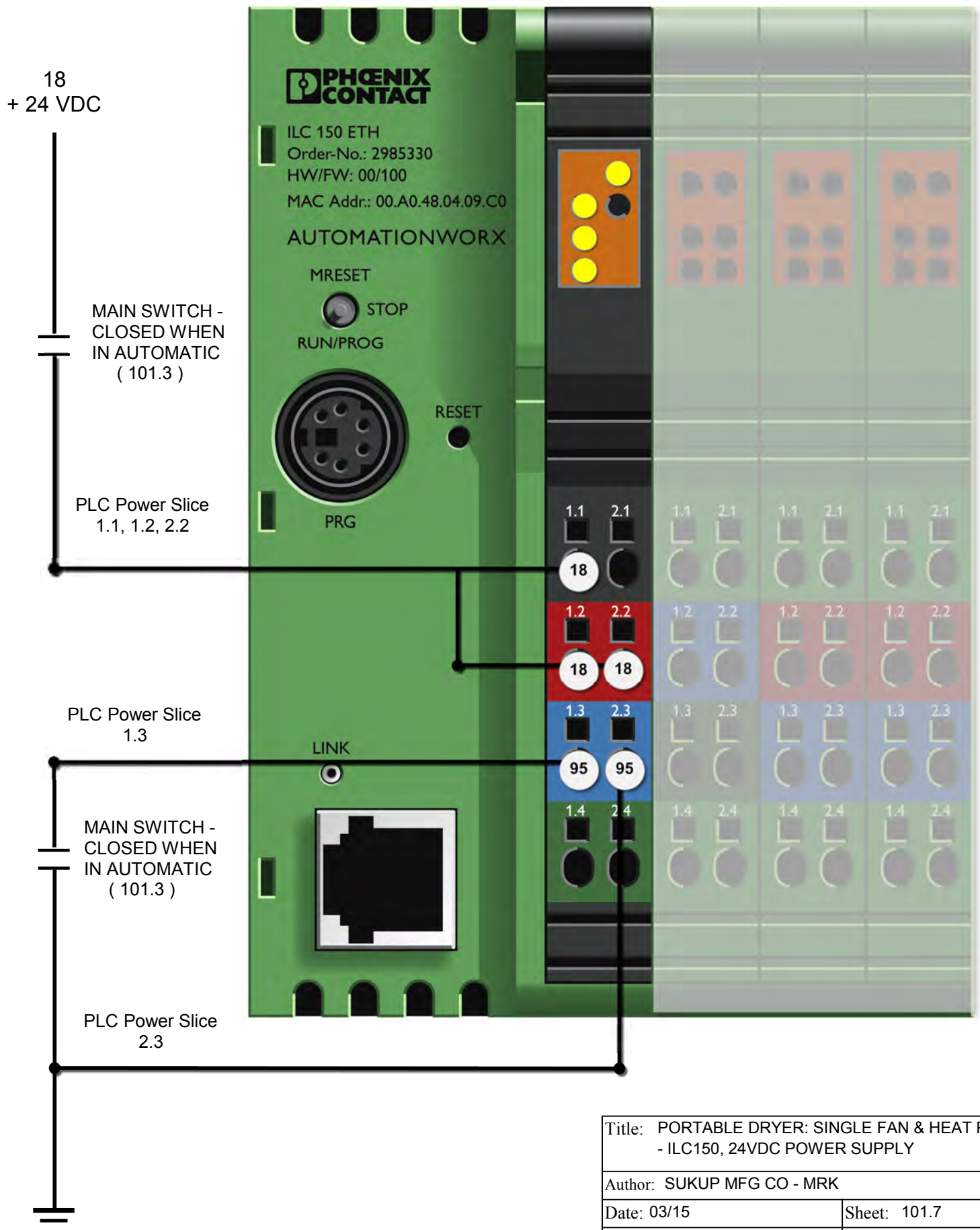
Author: SUKUP MFG CO - MRK

Date: 03/15

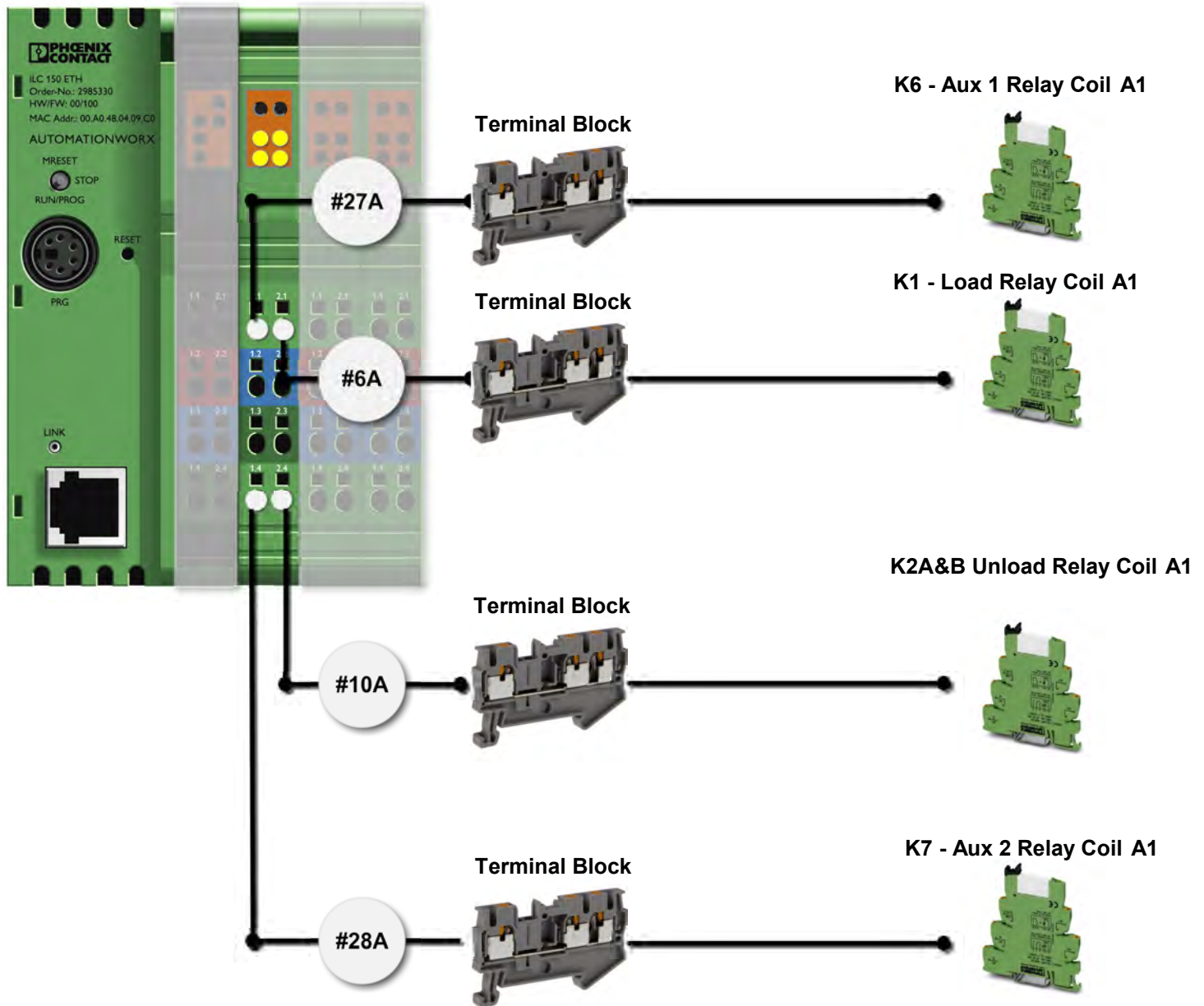
Sheet: 101.3

Revision: 8/17/2017 - DWS (1)

PLC POWER SLICE (Designated by Black Wiring Arm)



PLC DO SLICE #1 (Digital Output Card #1 - same as red cards)



All Digital Output cards SEND 24Vdc from the PLC to a certain device. Typically they are used to energize a relay or provide an interlock or "GO" signal to a process.

Title: PORTABLE DRYER: Digital Output Slice #1

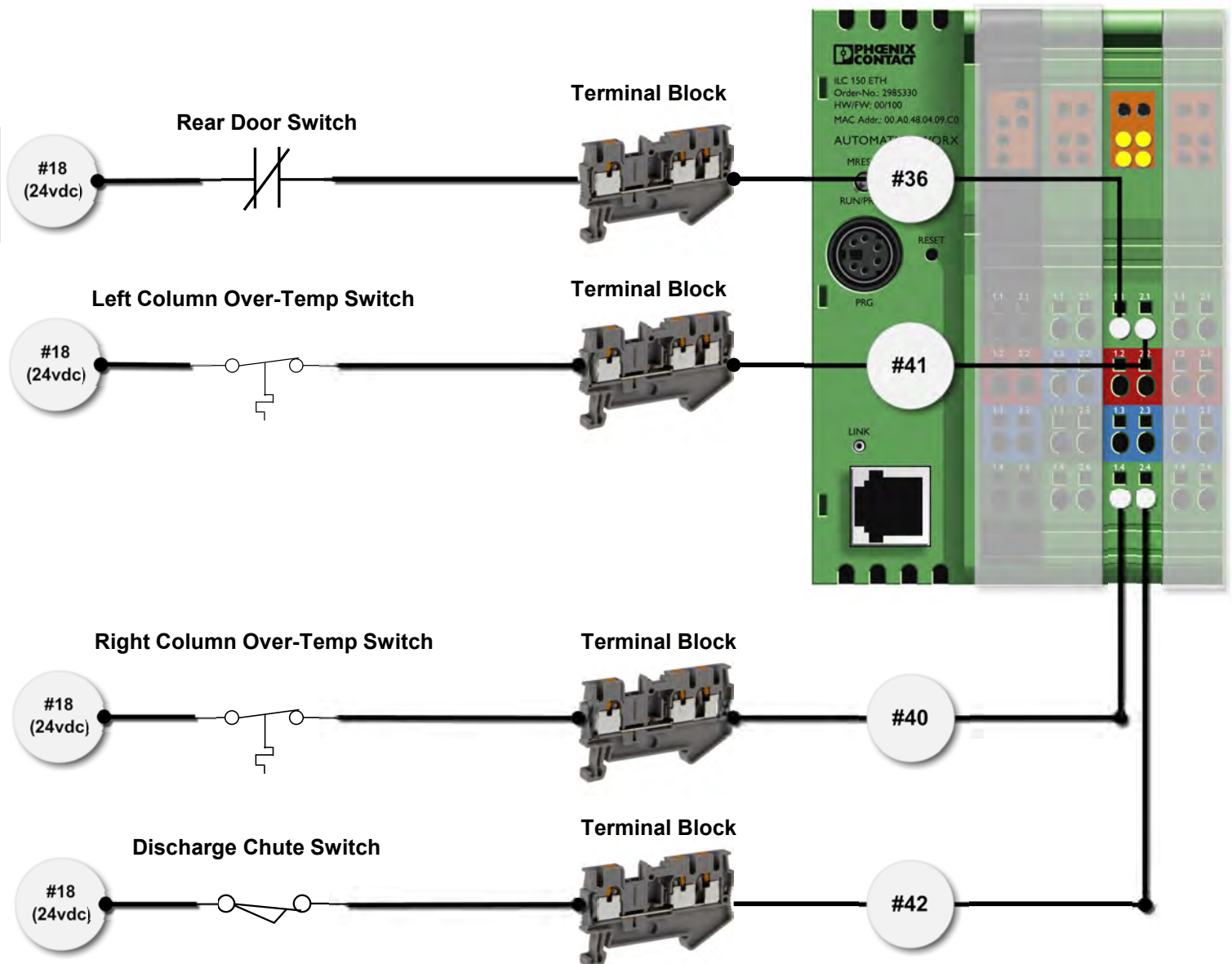
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 101.8

Revision:

PLC DI SLICE #1 (Digital Input Card #1 - same as blue cards)



All Digital Input cards RECEIVE 24Vdc into the PLC from certain device. Typically they are receiving the ON/OFF status of a switch on the dryer.

Title: PORTABLE DRYER: Digital Input Slice #1

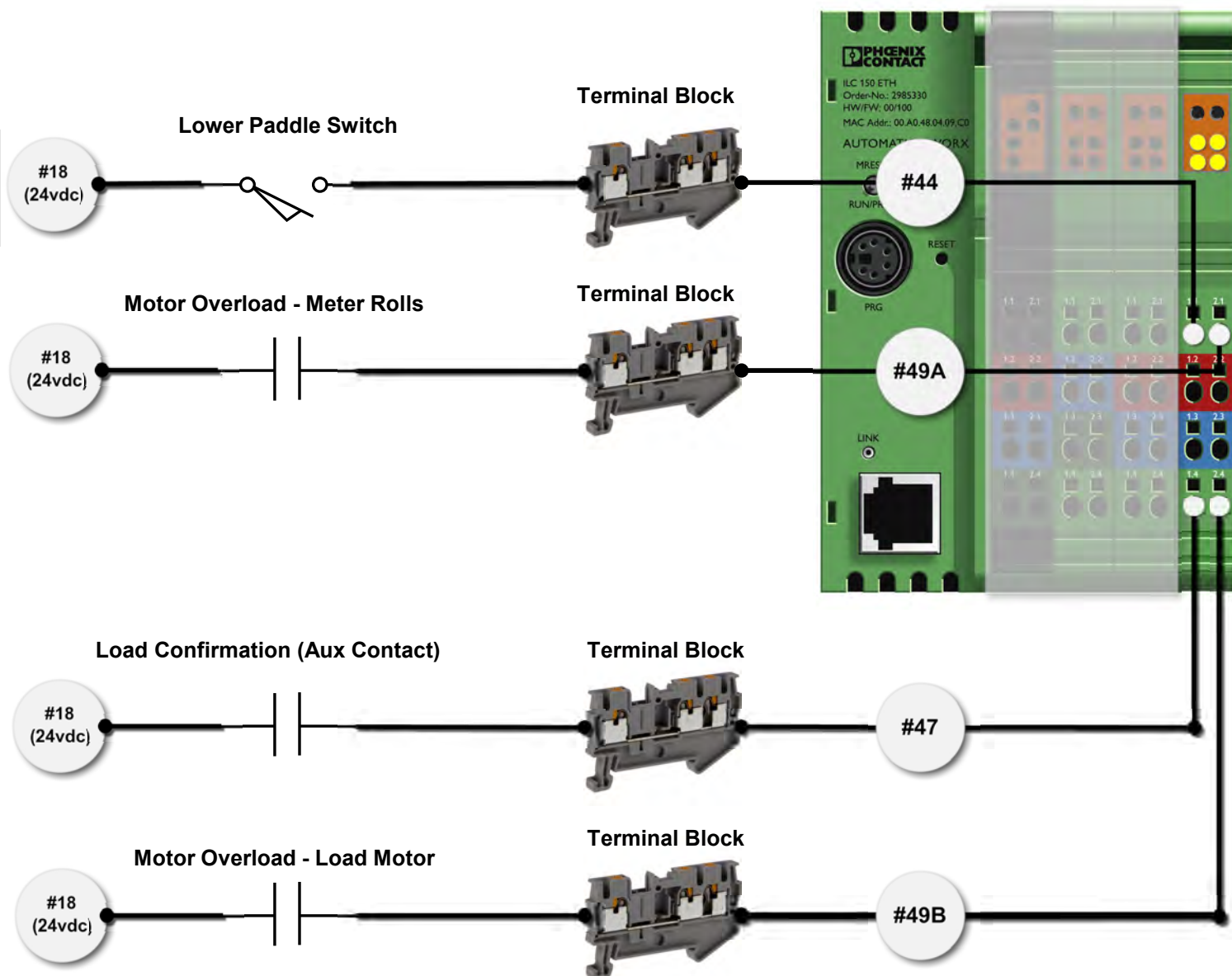
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 101.9

Revision: 6/6/2017 - DWS (1)

PLC DI SLICE #2 (Digital Input Card #2- same as blue cards)



All Digital Input cards RECEIVE 24Vdc into the PLC from certain device. Typically they are receiving the ON/OFF status of a switch on the dryer.

Title: PORTABLE DRYER: Digital Input Slice #2

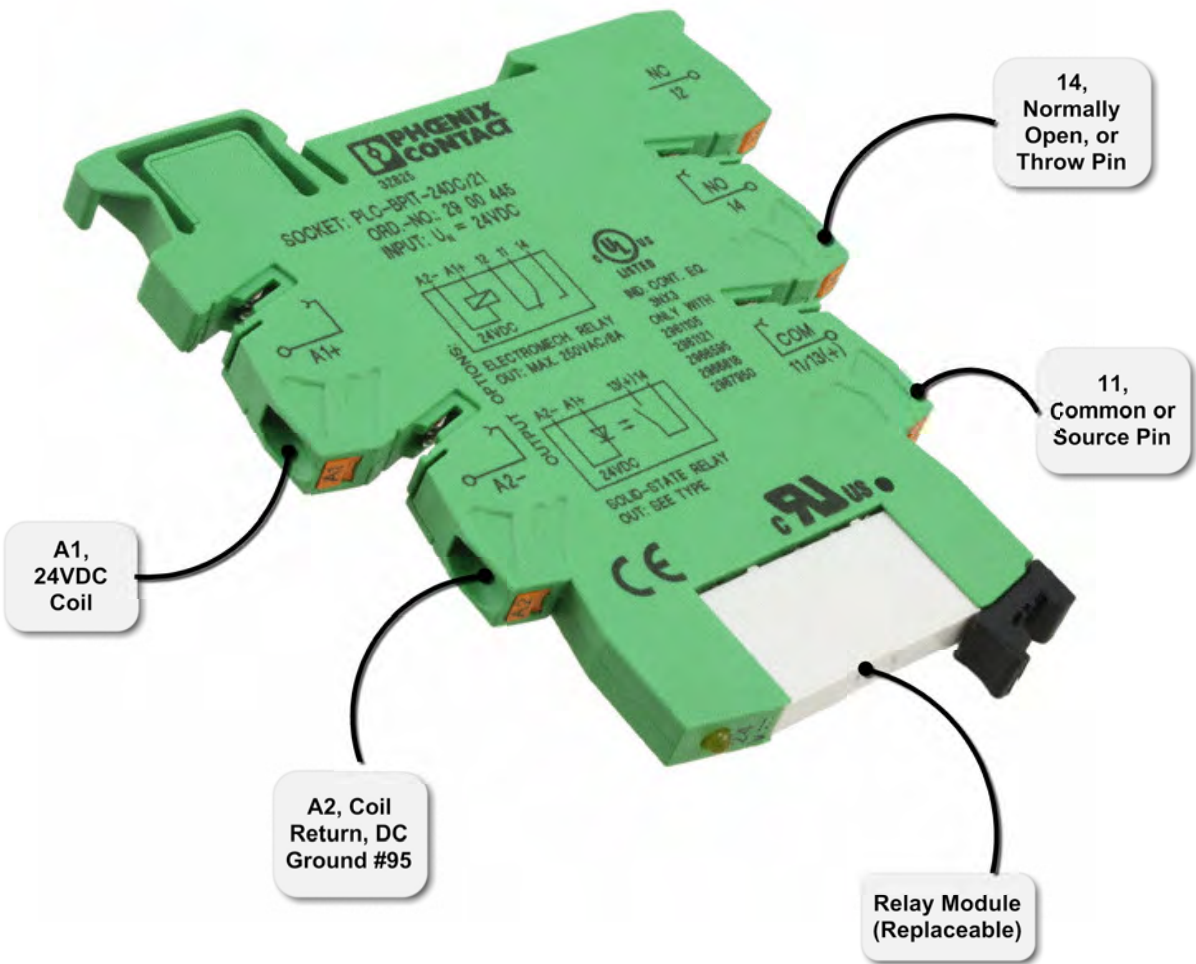
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 101.10

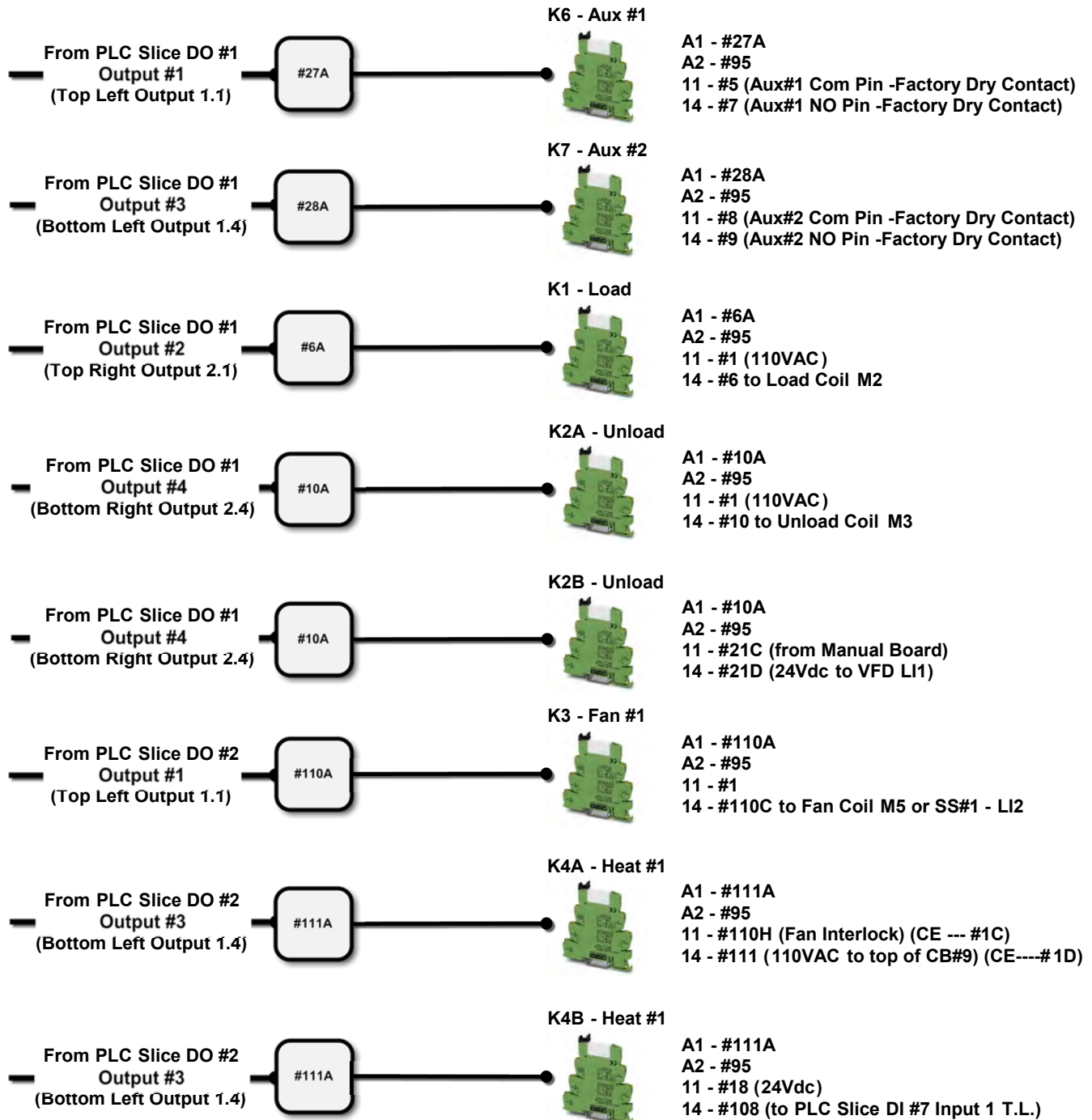
Revision: 6/6/2017 - DWS (1)

24VDC PLC Relay



Title: PORTABLE DRYER: PLC Relays	
Author: SUKUP MFG CO - MRK	
Date: 3/15	Sheet: 101.11
Revision:	

1-6 Fan PLC Relay Wiring



Title: PORTABLE DRYER: PLC Relay Wiring

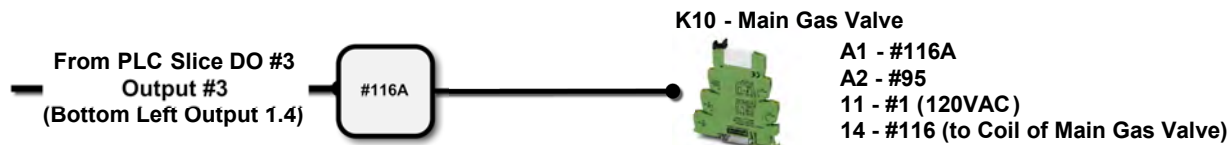
Author: SUKUP MFG CO - MRK

Date: 3/15

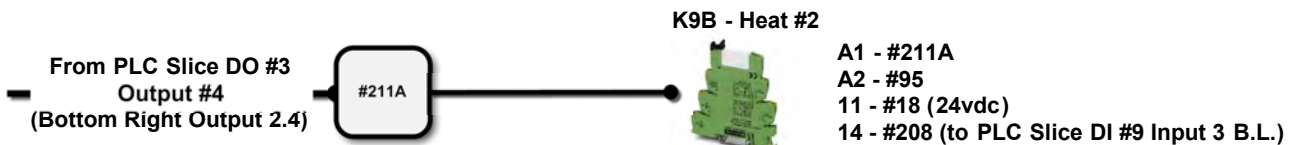
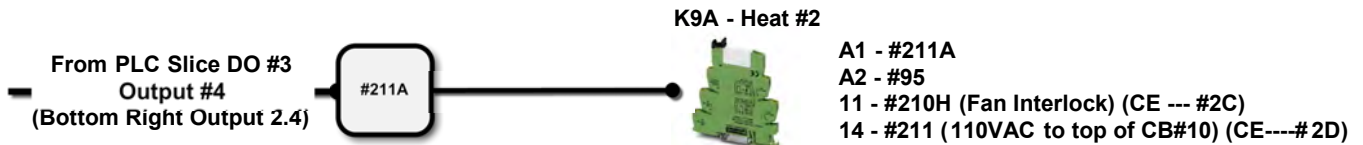
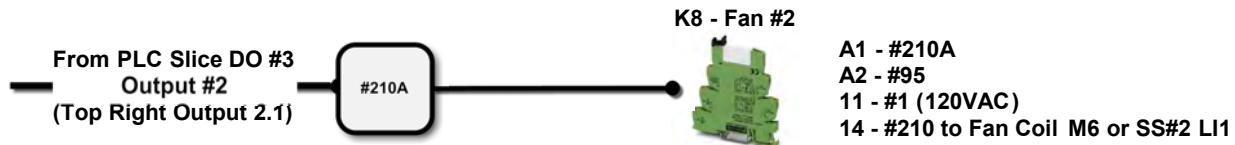
Sheet: 101.12

Revision: 6/7/2017 - DWS (1)

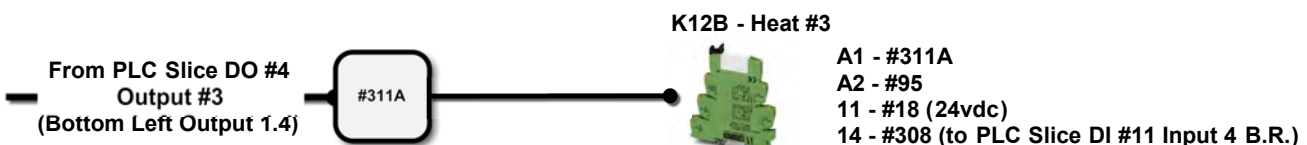
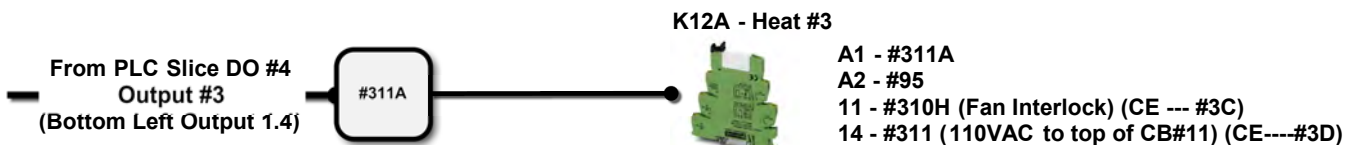
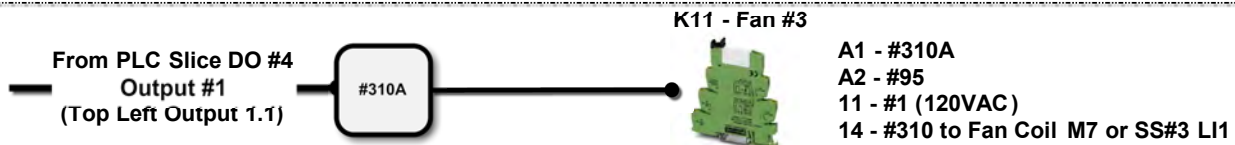
1-6 Fan PLC Relay Wiring



1 Fan - Stop Here



2 Fan - Stop Here



3 Fan - Stop Here

Title: PORTABLE DRYER: PLC Relay Wiring

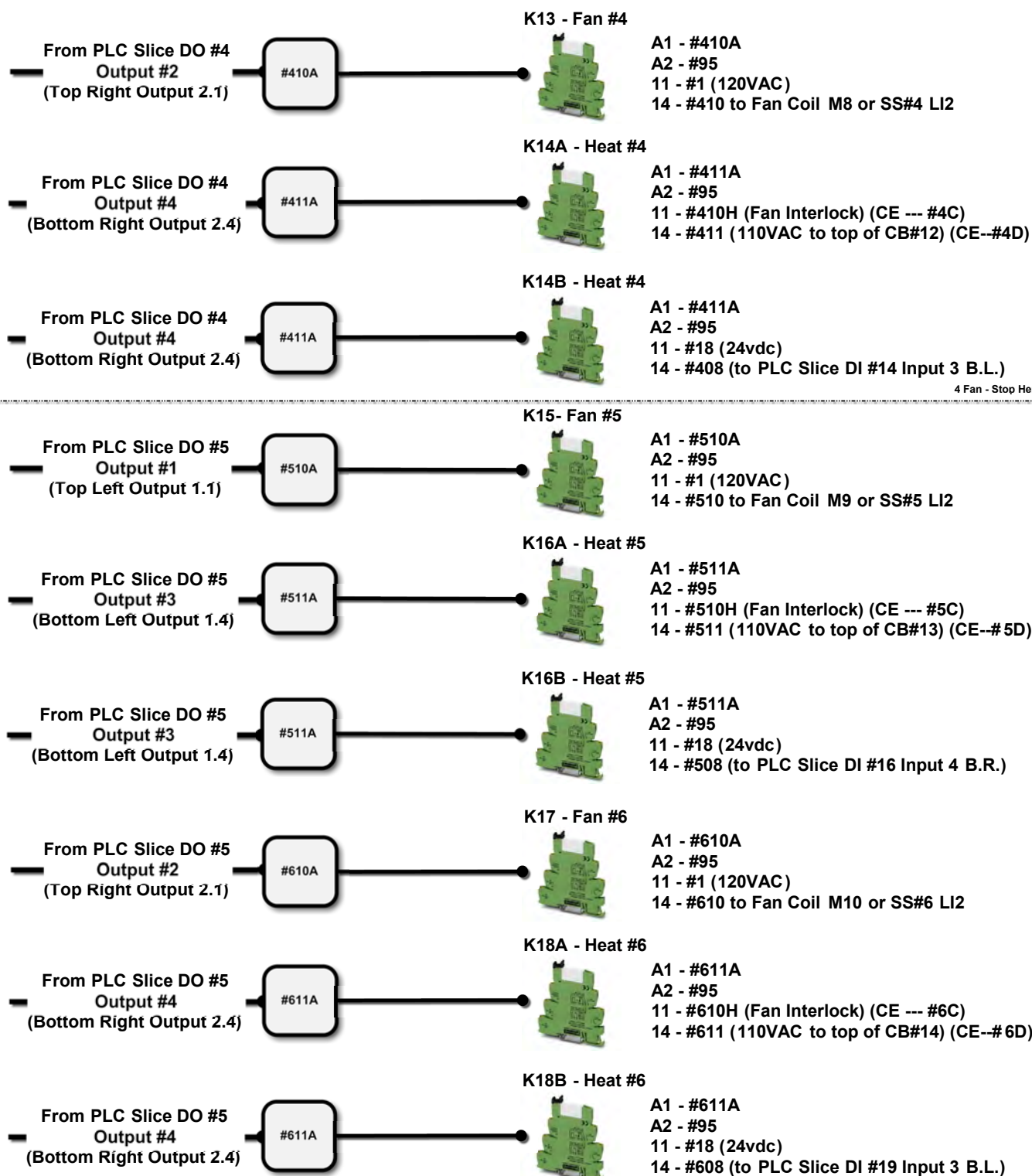
Author: SUKUP MFG CO - MRK

Date: 3/15

Sheet: 101.13

Revision:

1-6 Fan PLC Relay Wiring



Title: PORTABLE DRYER: PLC Relay Wiring

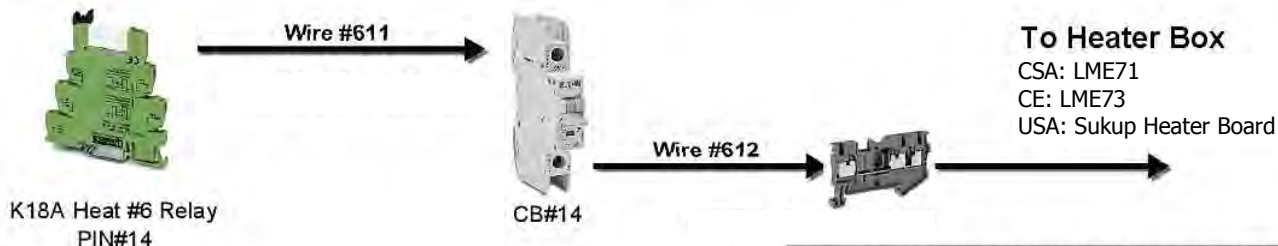
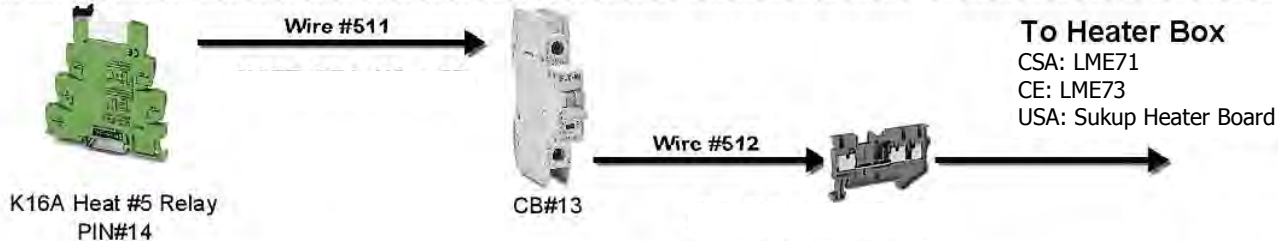
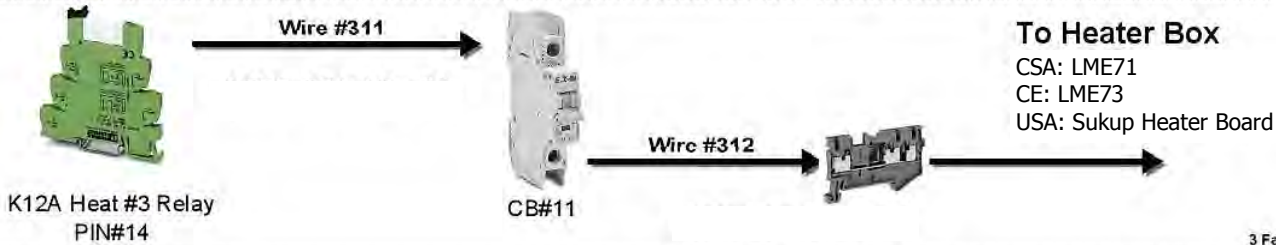
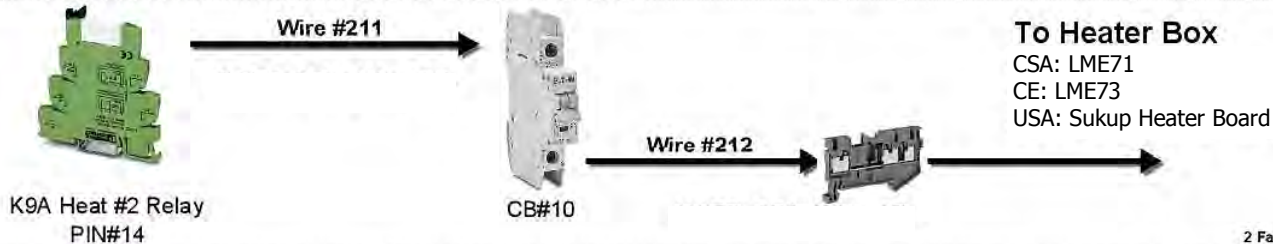
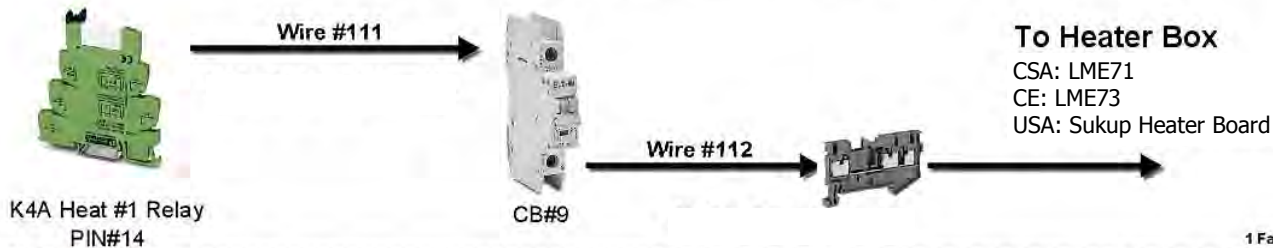
Author: SUKUP MFG CO - MRK

Date: 3/15

Sheet: 101.14

Revision:

Heater Relay and Heater Breaker Wiring



Title: PORTABLE DRYER: Heater Breaker Wiring

Author: SUKUP MFG CO - MRK

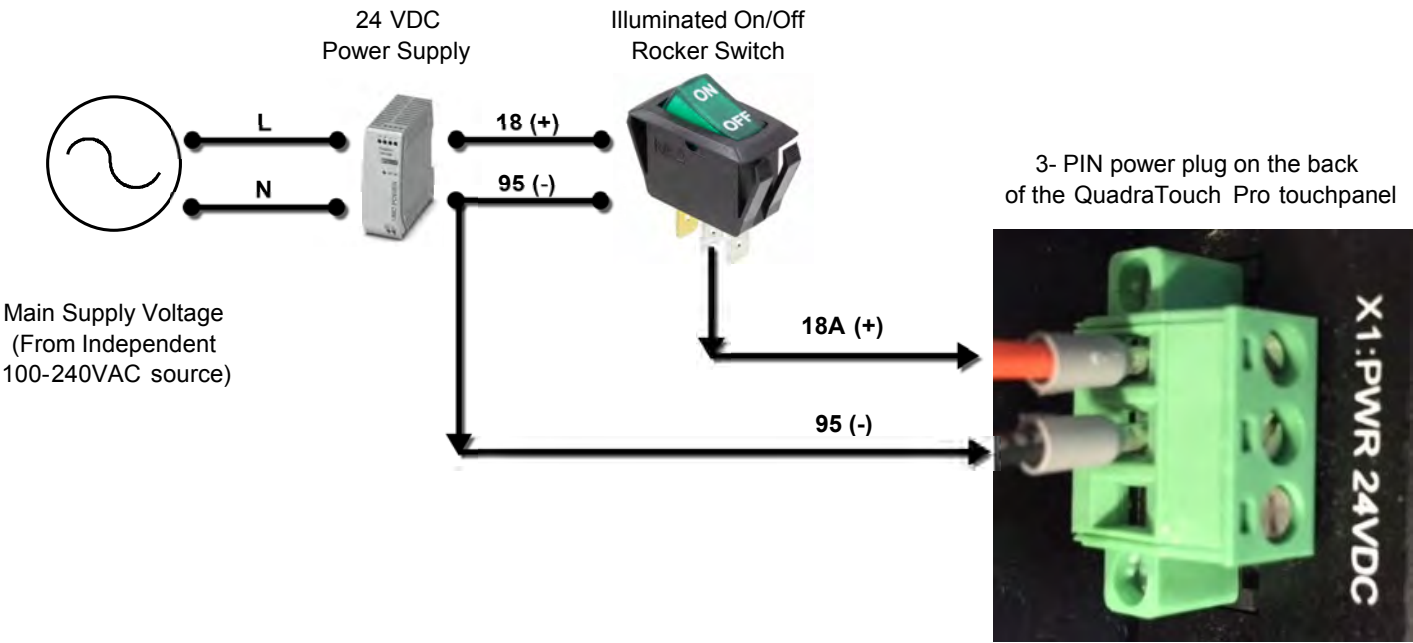
Date: 03/15

Sheet: 101.16

Revision:

Rev: 12/01/18

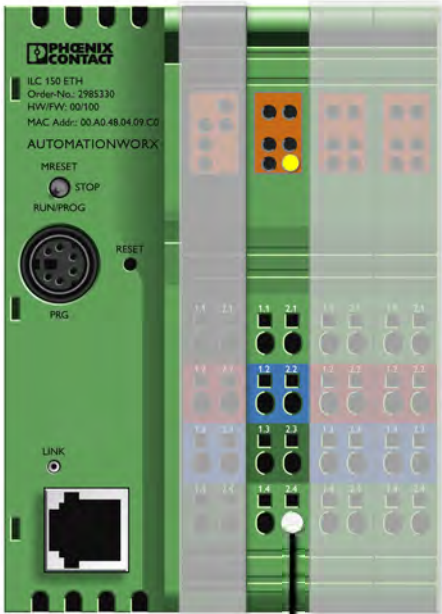
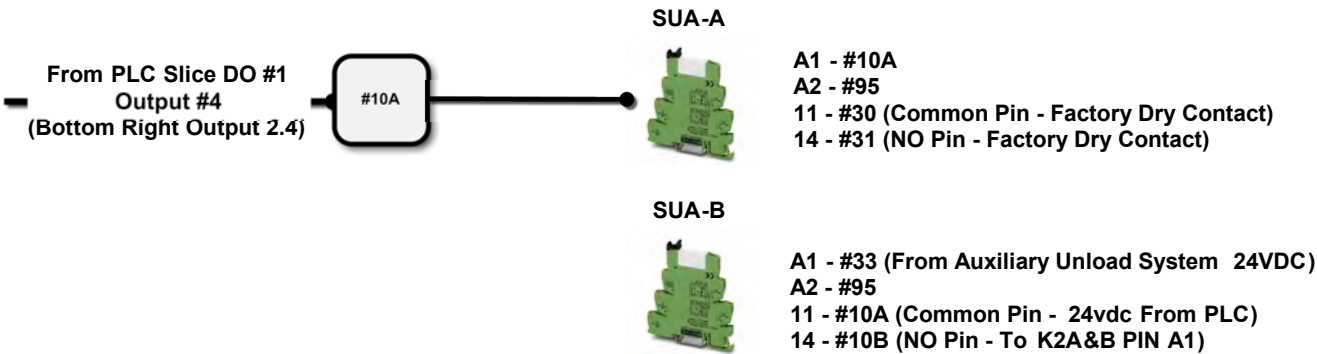
2016 QuadraTouch Pro™ Wiring



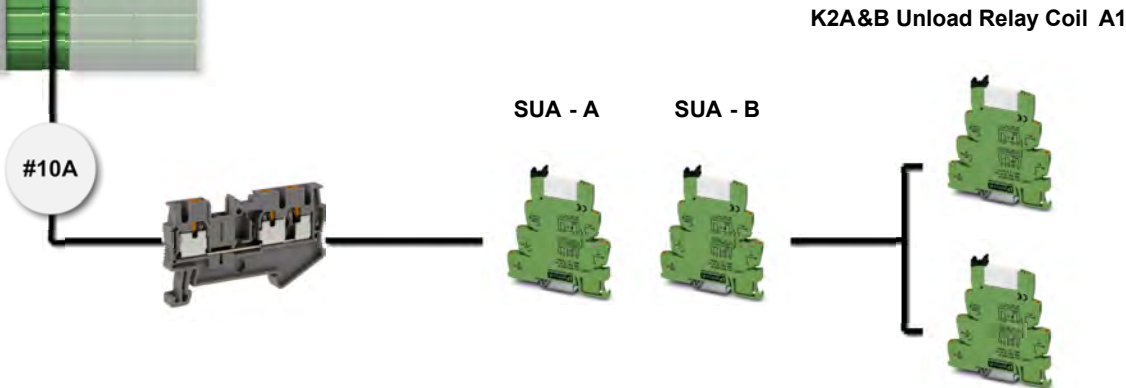
Title: T23476/U23476: QuadraTouch Pro™ Wiring	
Author: SUKUP MFG CO - MRK	
Date: 10/15	Sheet: 101.17
Revision:	

SUA Relay Wiring

The SUA (special unload auxiliary) relays A&B are used to turn on an auxiliary unloading system before the dryer's unload system starts discharging grain.

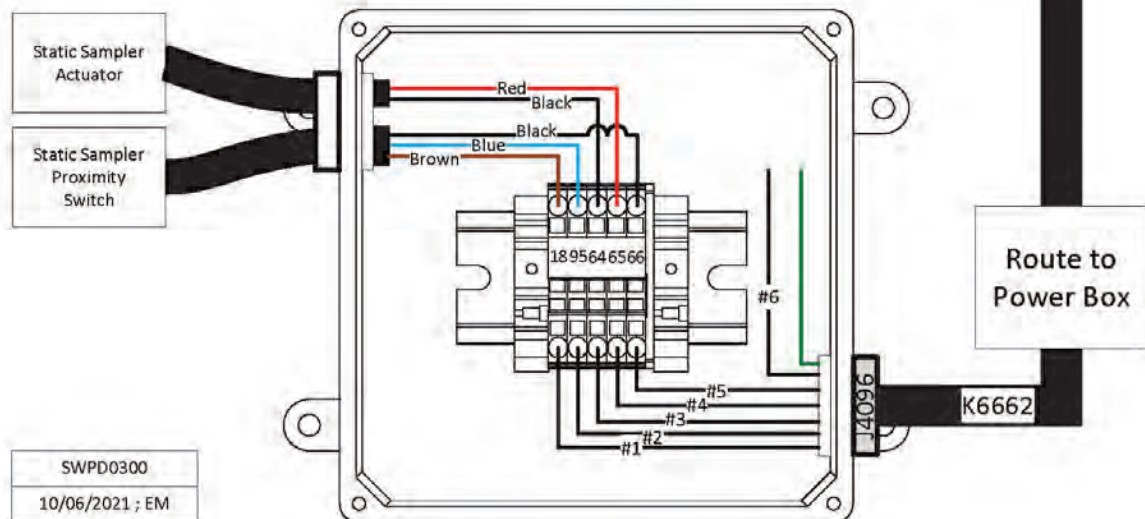
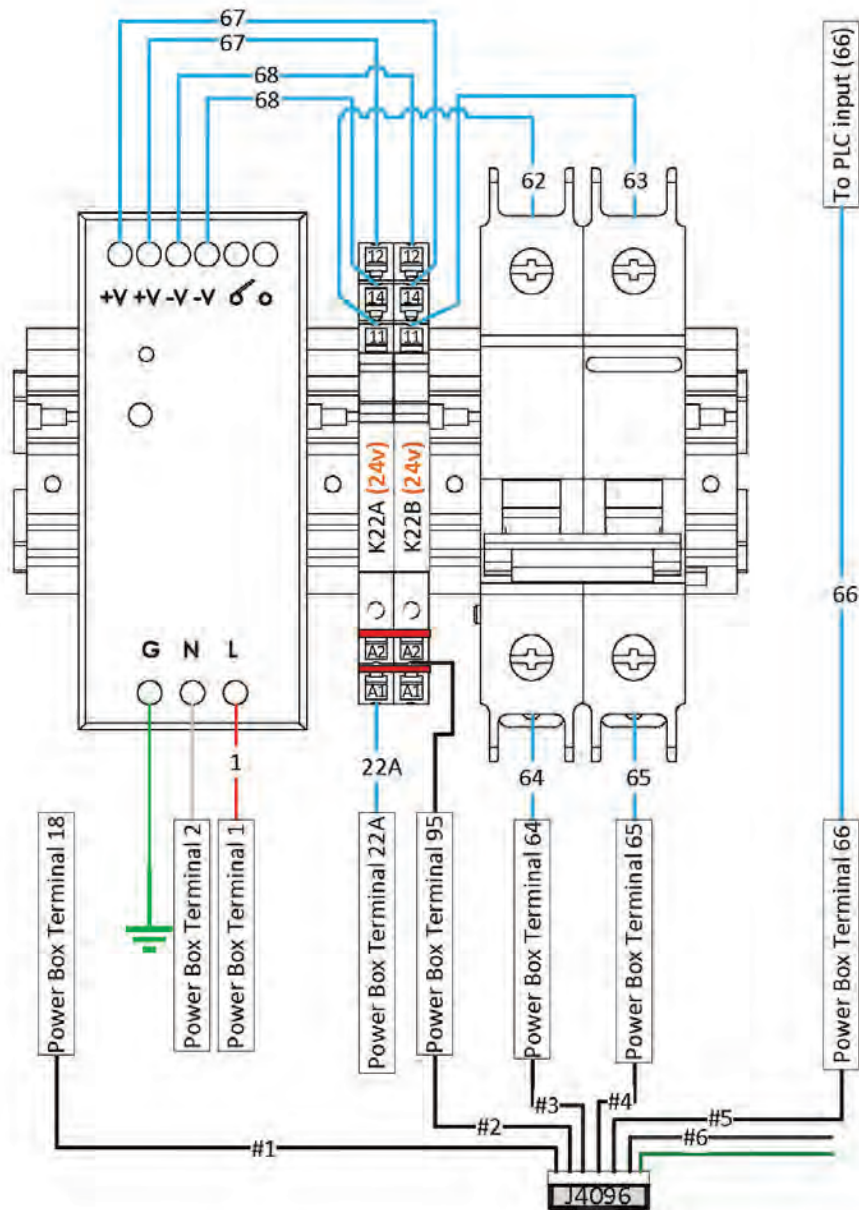


The Output 10A from the PLC energizes the SUA-A, A1 coil. Wire 30 is connected to wire 31 (factory dry contact). This is the "GO" command for the auxiliary unloading system. This system needs to close a contact (wires 32 & 33) when it's ready for the dryer to unload in to the auxiliary unload system. Wire 32 is supplied with 24vdc from Sukup Manufacturing. When 32 and 33 are connected together (by a contact on the auxiliary unload system) it will energize SUA - B which will start the dryer's unload system.

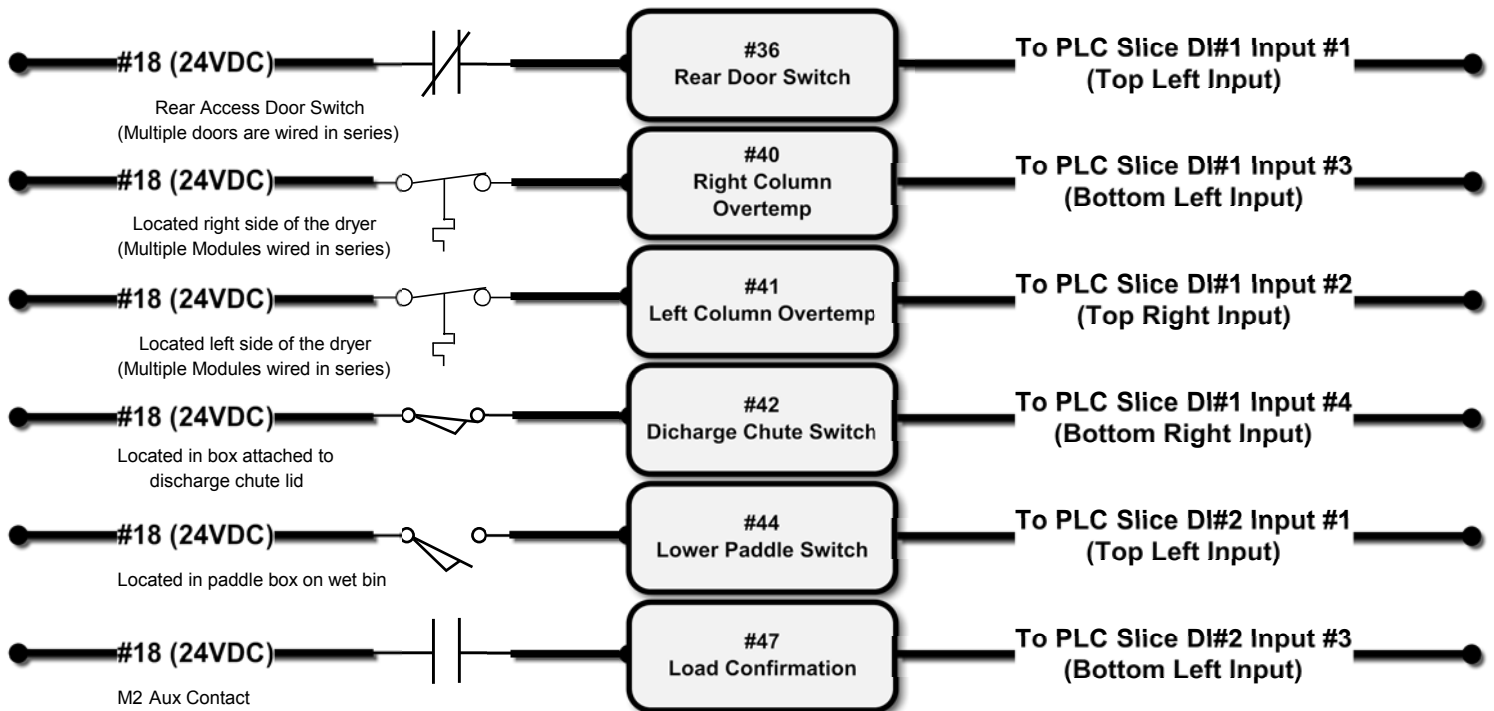


Title: PORTABLE DRYER: SUA Relay Wiring	
Author: SUKUP MFG CO - MRK	
Date: 10/15	Sheet: 101.18
Revision:	

Static Sample Circuit Diagram (MF/Portables)



PLC Digital Inputs 1-6 Fan



Title: PORTABLE DRYER: Digital Input Line Diagram

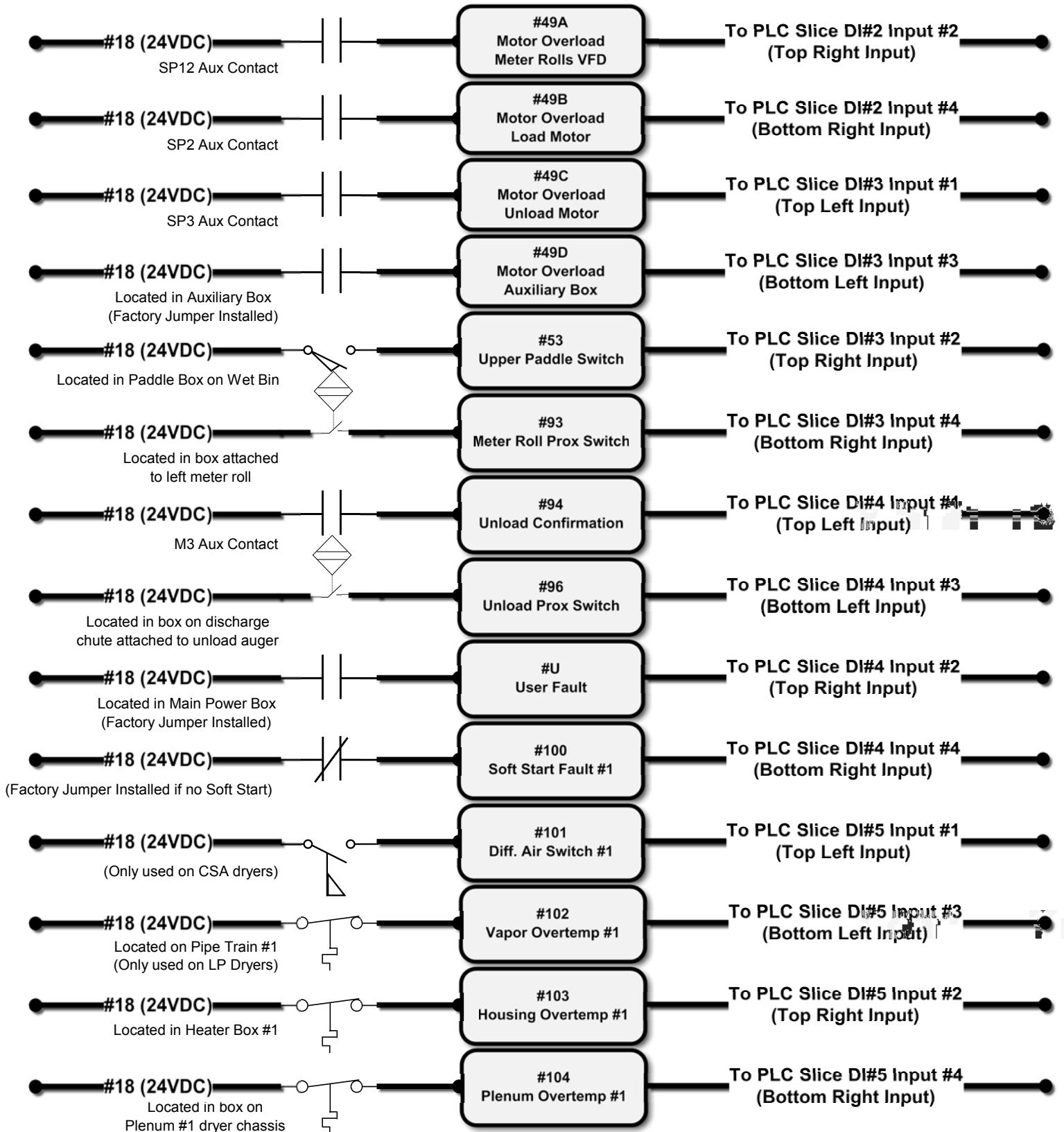
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 102.1

Revision: 6/7/2017 - DWS (1)

PLC Digital Inputs 1-6 Fan



Title: PORTABLE DRYER: Digital Input Line Diagram

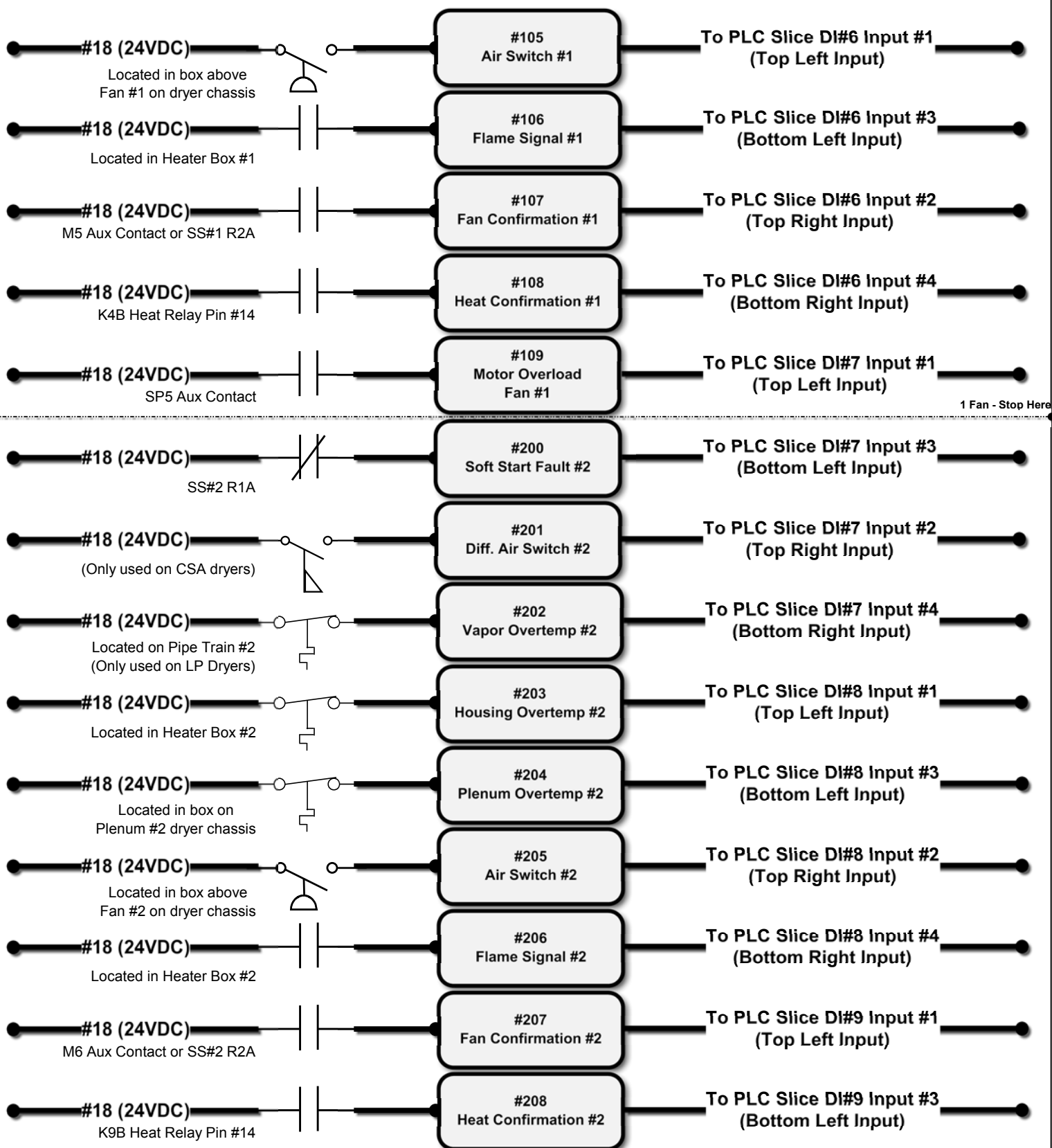
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 102.2

Revision: 8/23/2017 - DWS (2)

PLC Digital Inputs 1-6 Fan



Title: PORTABLE DRYER: Digital Input Line Diagram

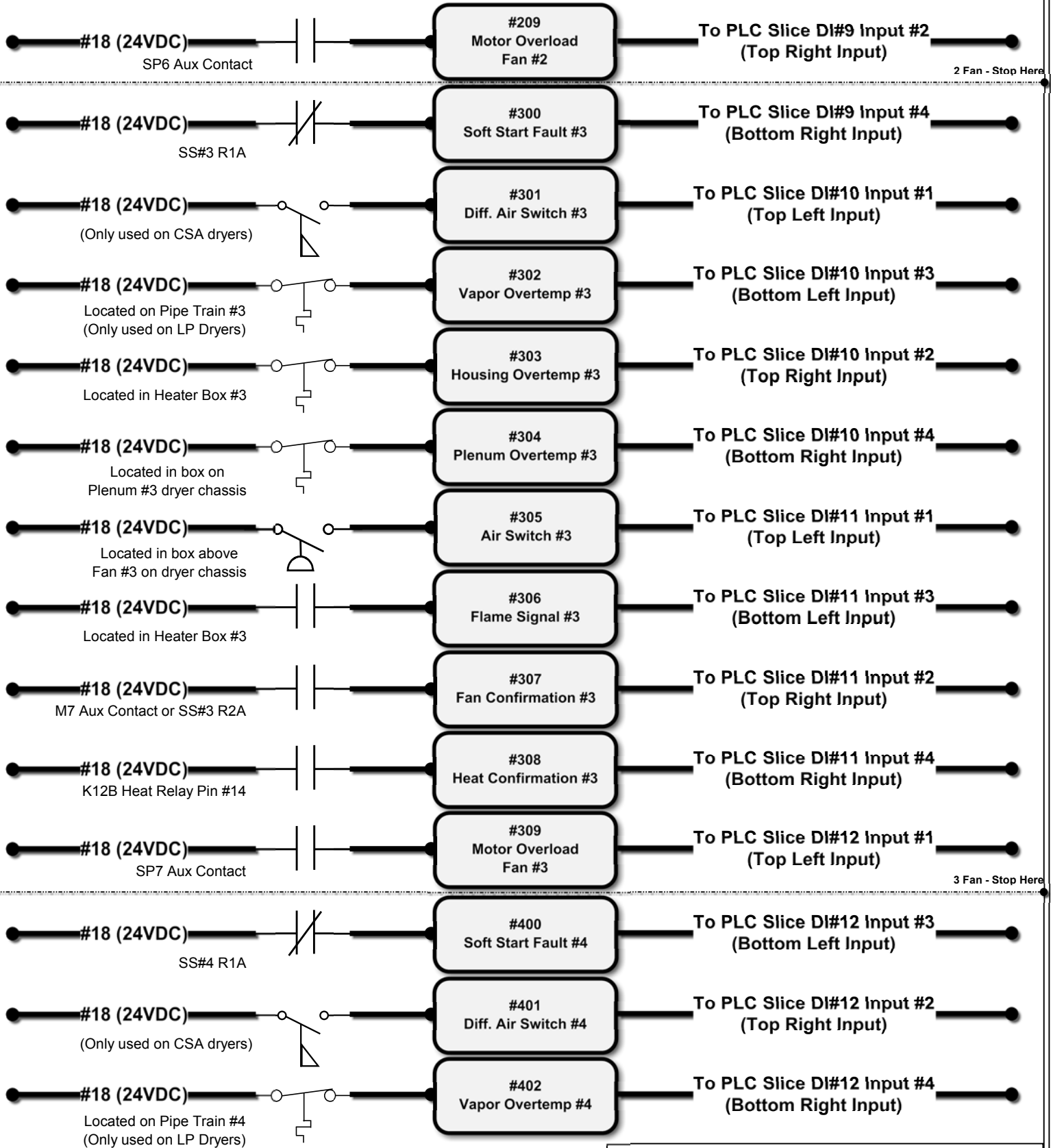
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 102.3

Revision: 8/23/2017 - DWS (2)

PLC Digital Inputs 1-6 Fan



Title: PORTABLE DRYER: Digital Input Line Diagram

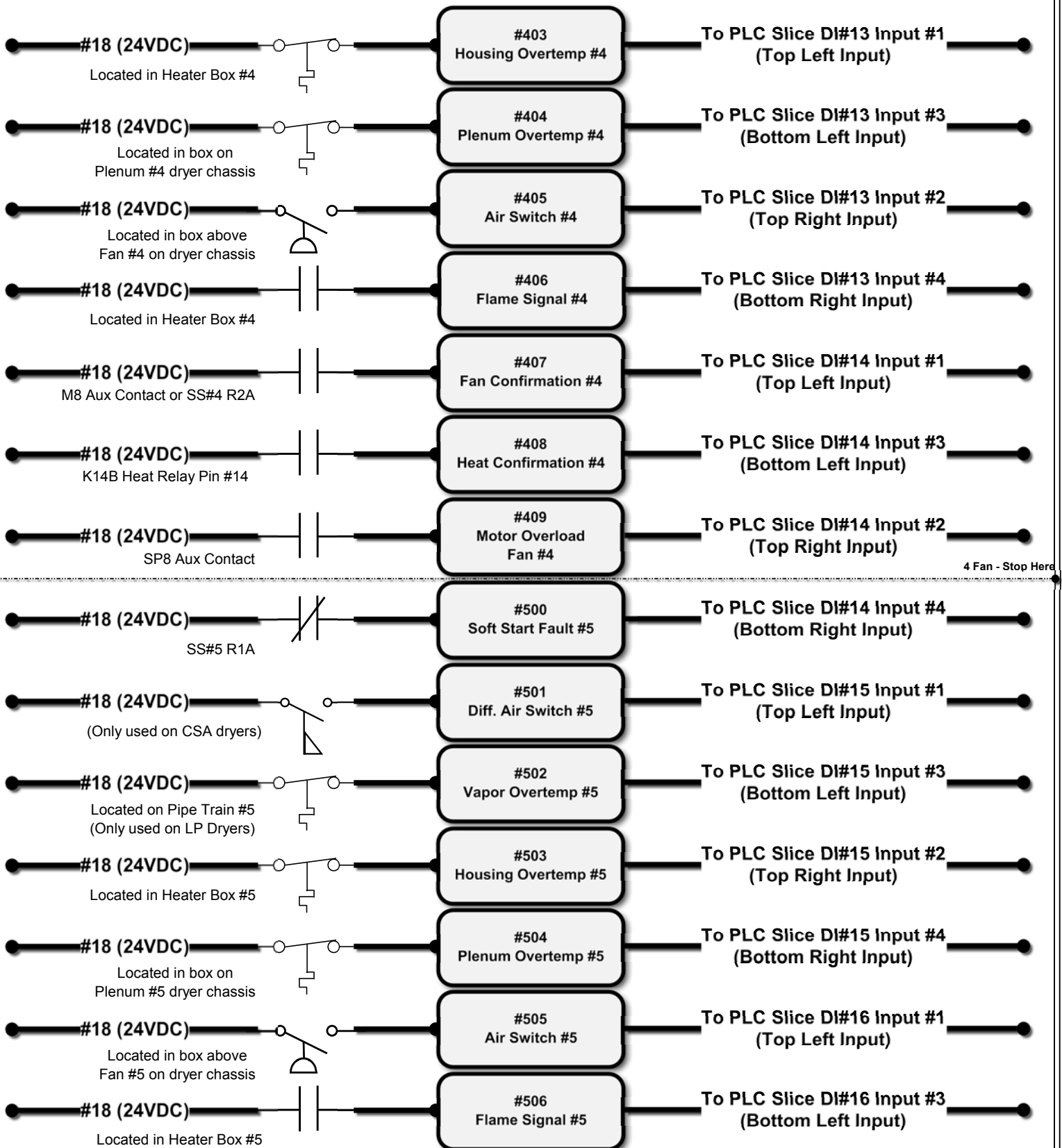
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 102.4

Revision: 6/7/2017 - DWS (1)

PLC Digital Inputs 1-6 Fan



Title: PORTABLE DRYER: Digital Input Line Diagram

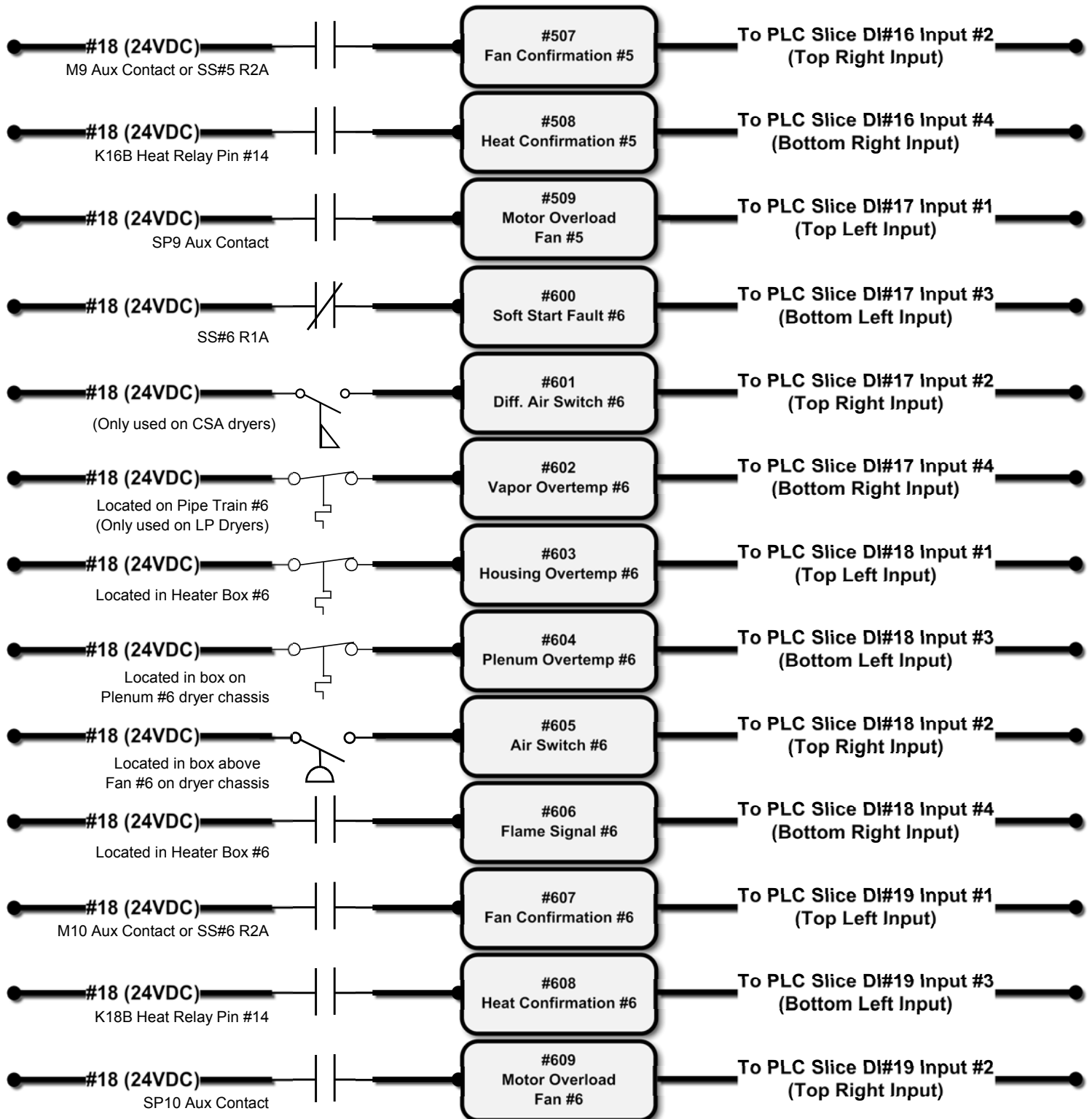
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 102.5

Revision: 6/7/2017 - DWS (1)

PLC Digital Inputs 1-6 Fan



Title: PORTABLE DRYER: Digital Input Line Diagram

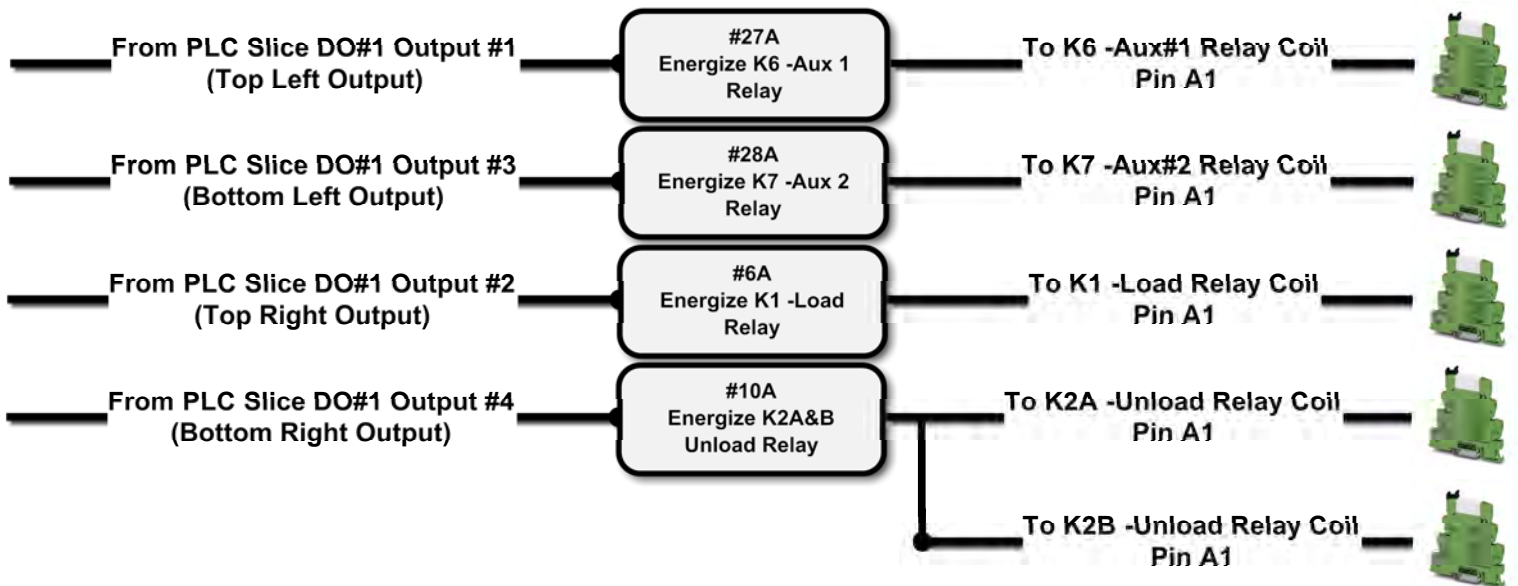
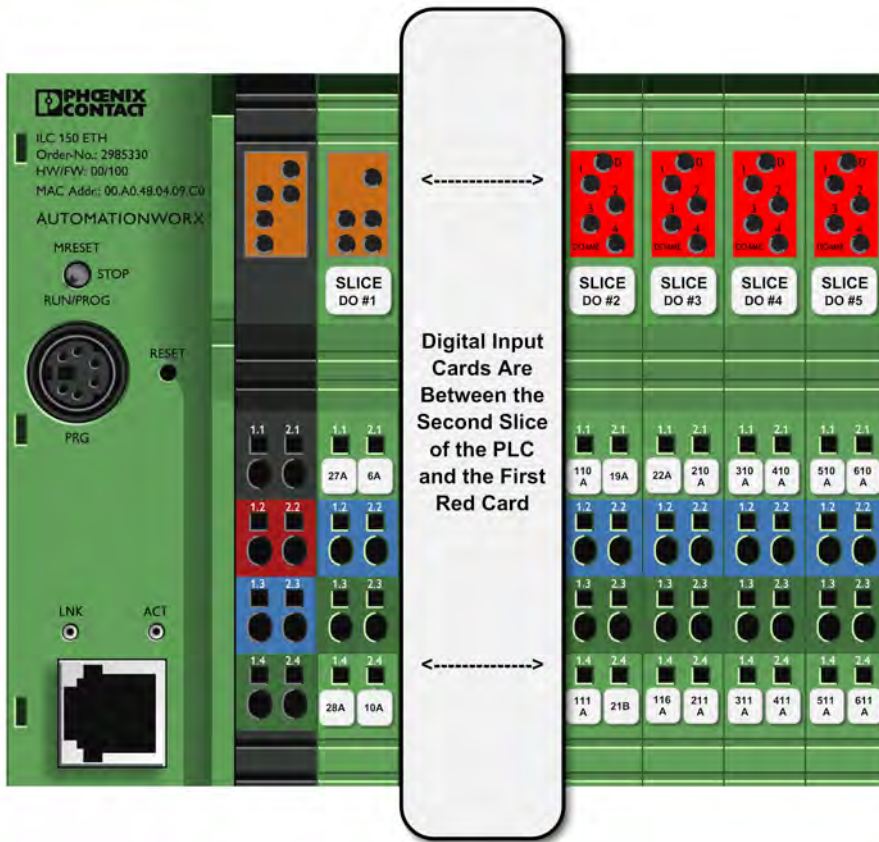
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 102.6

Revision: 6/7/2017 - DWS (1)

PLC Digital Outputs 1-6 Fan



Title: PORTABLE DRYER: Digital Output Line Diagram

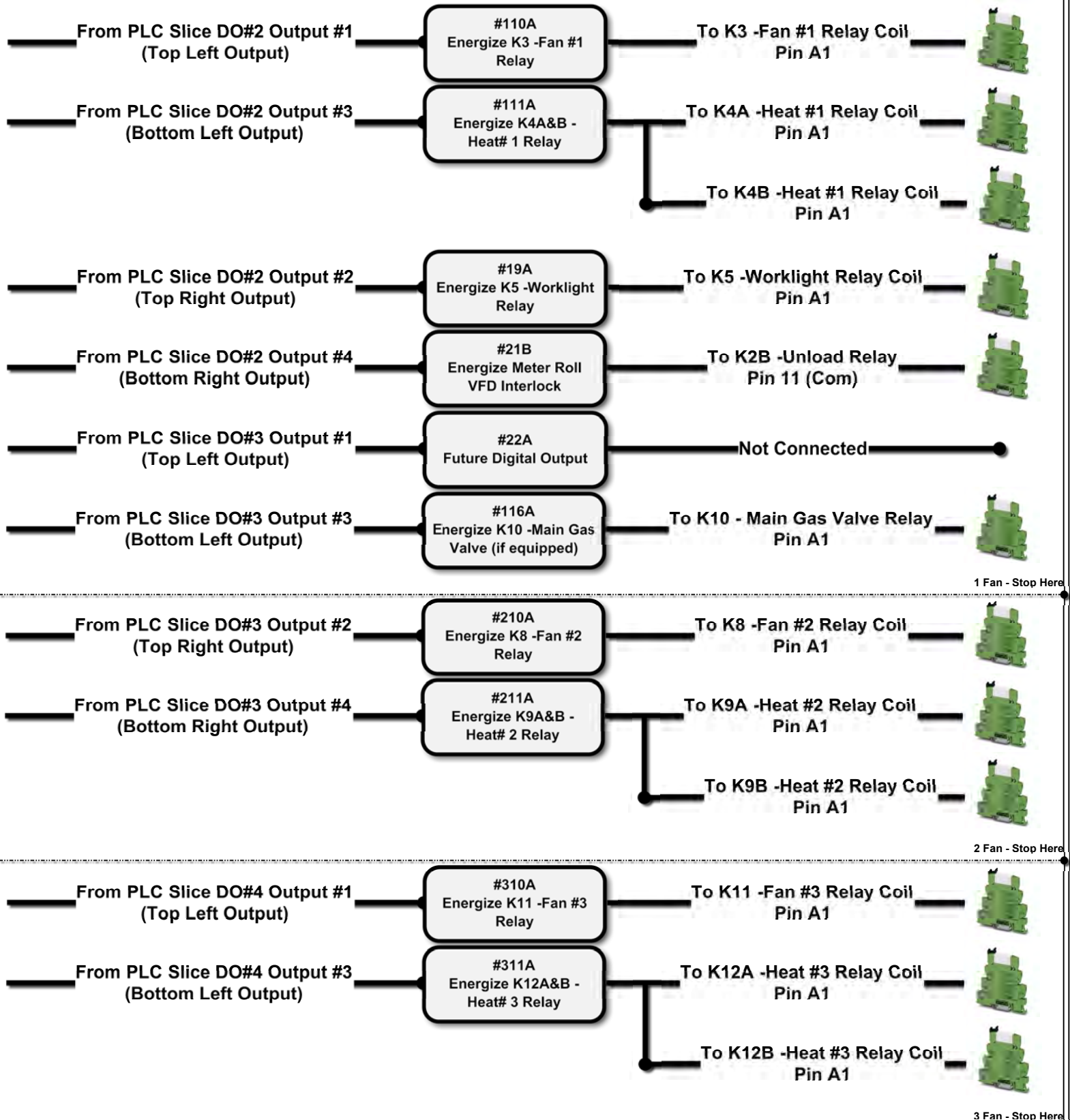
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 103.1

Revision:

PLC Digital Outputs 1-6 Fan



Title: PORTABLE DRYER: Digital Output Line Diagram

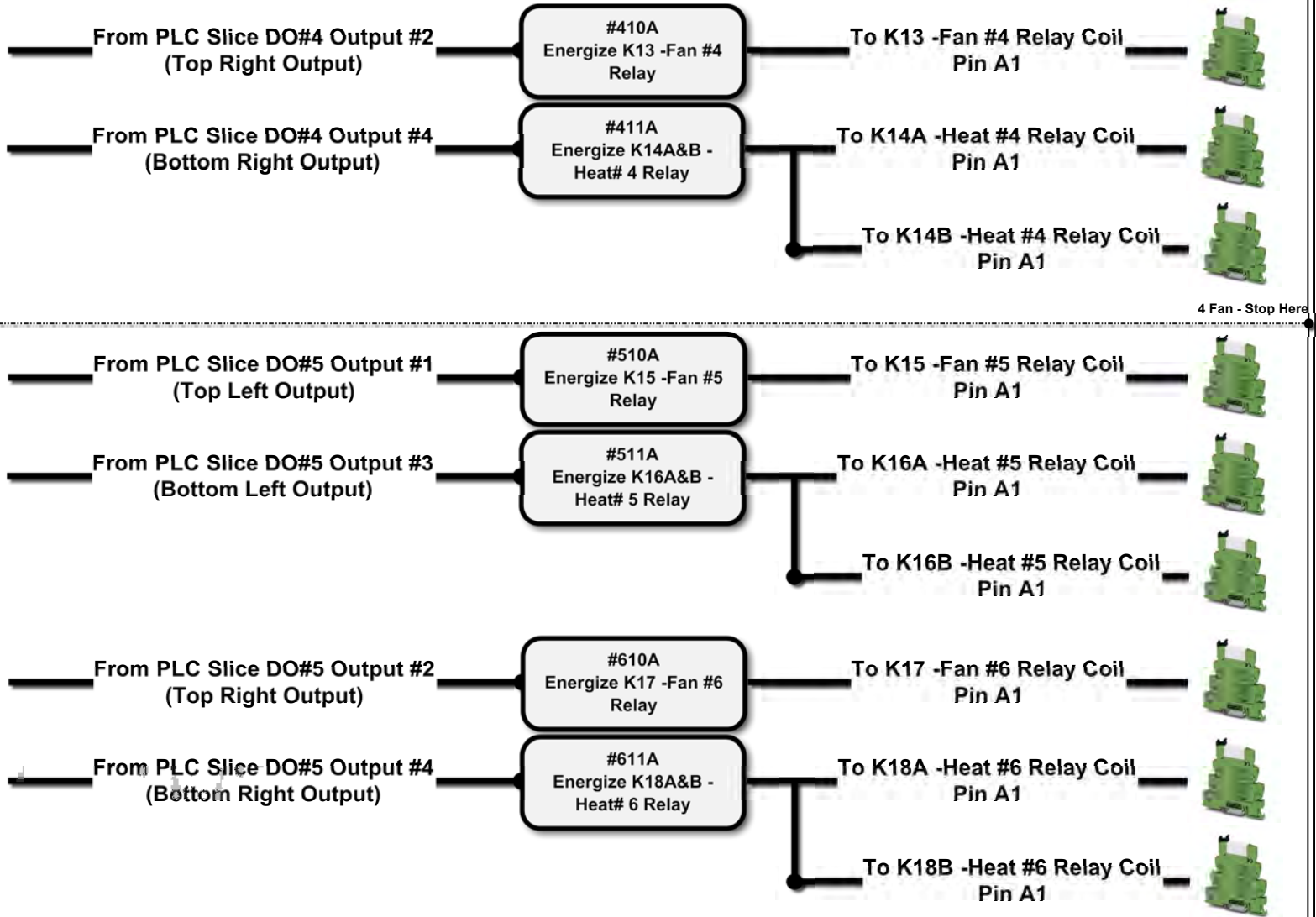
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 103.2

Revision:

PLC Digital Outputs 1-6 Fan



Title: PORTABLE DRYER: Digital Output Line Diagram

Author: SUKUP MFG CO - MRK

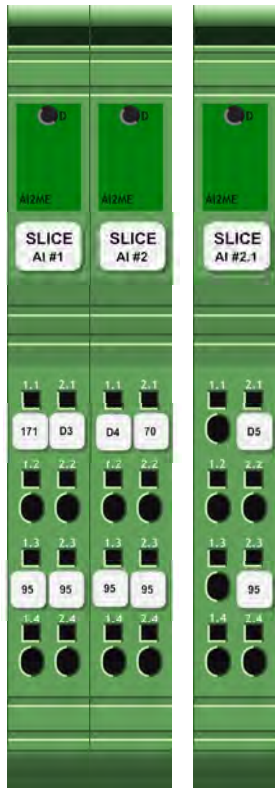
Date: 03/15

Sheet: 103.3

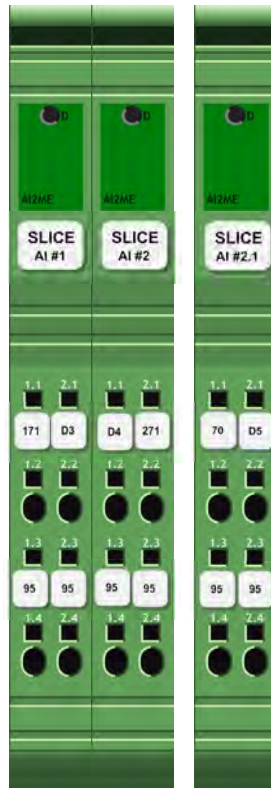
Revision:

PLC Analog Inputs 1-6 Fan

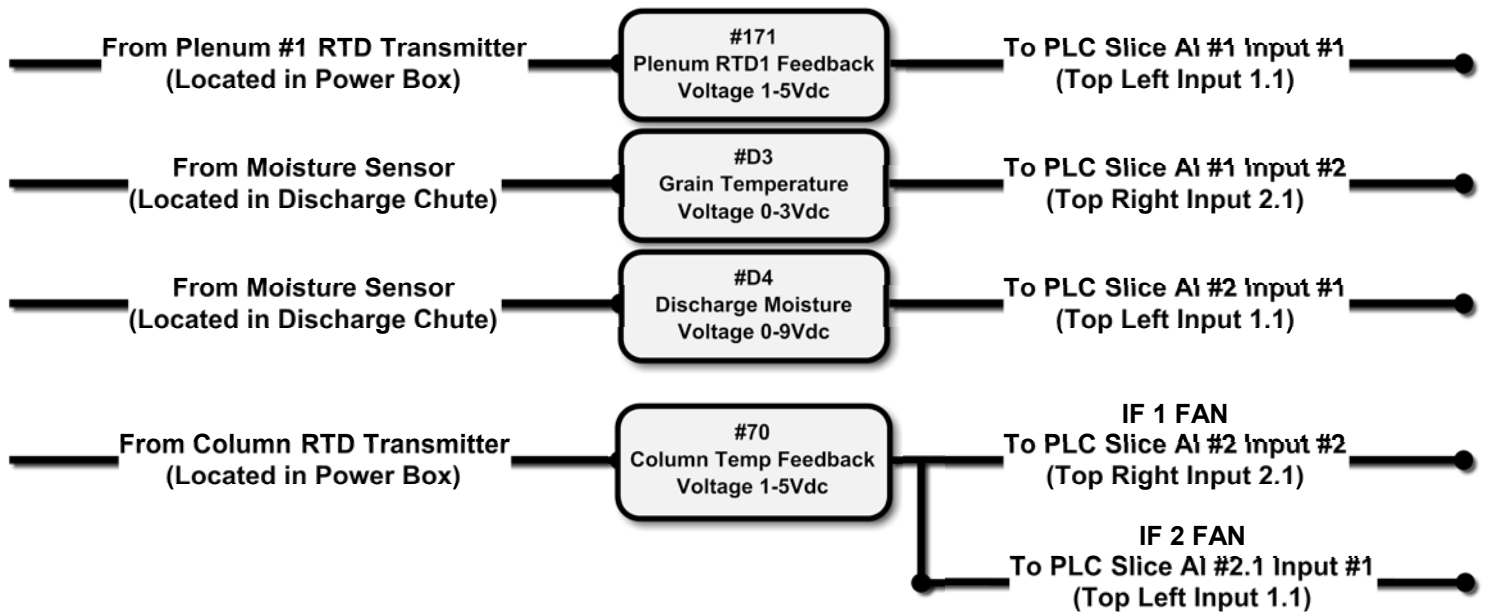
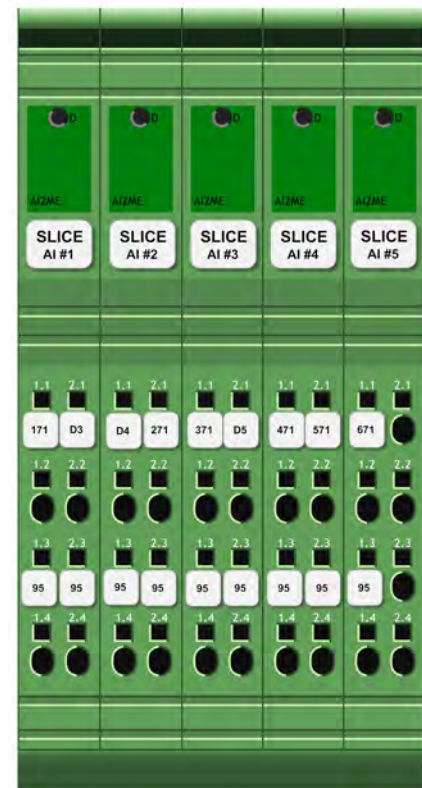
1 Fan



2 Fan



3-6 Fan



1 Fan without 2.1 (Input MST Sensor) - Stop Here

Title: PORTABLE DRYER: Analog Input Line Diagram

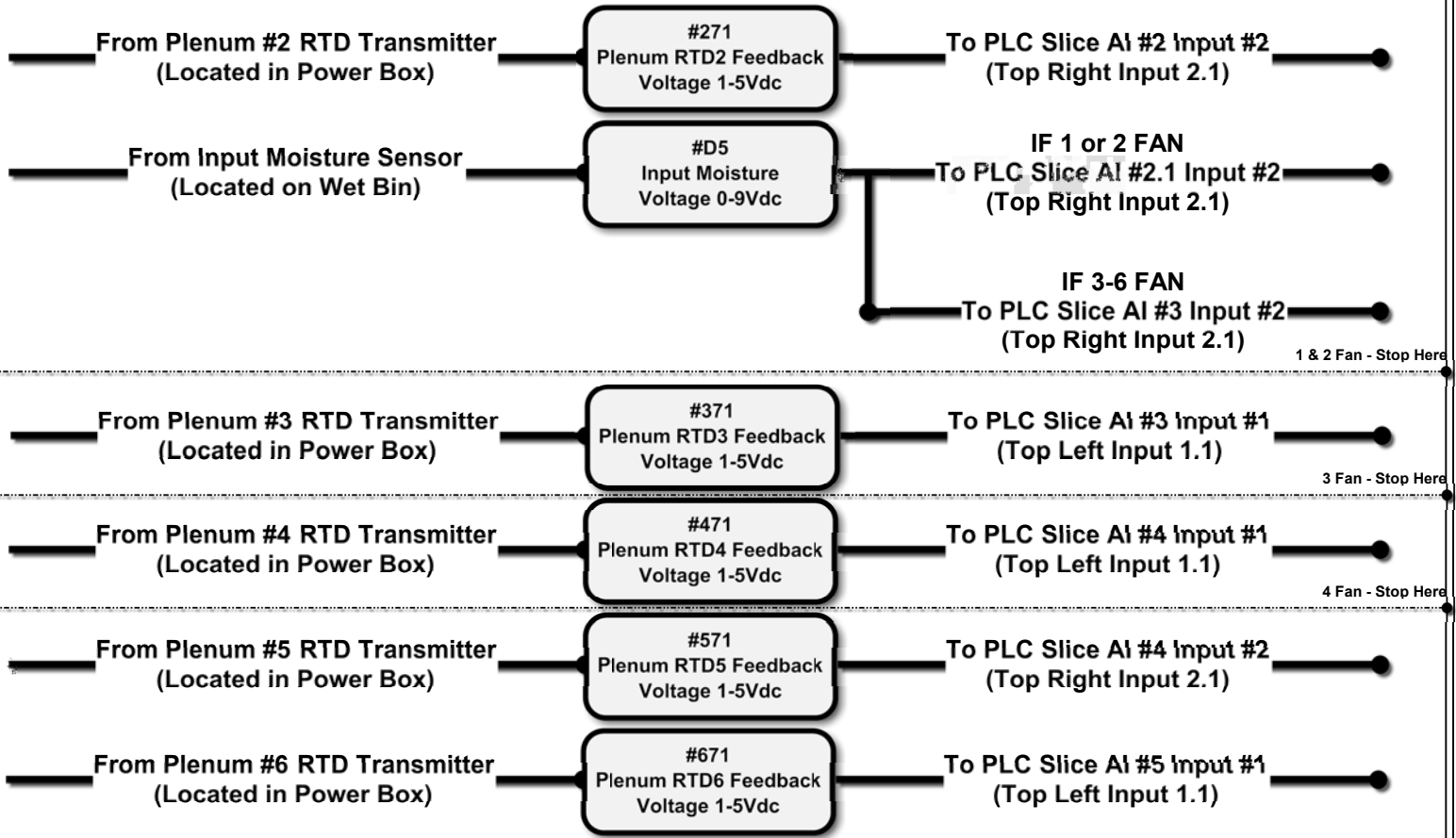
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 104.1

Revision:

PLC Analog Inputs 1-6 Fan



Title: PORTABLE DRYER: Analog Input Line Diagram

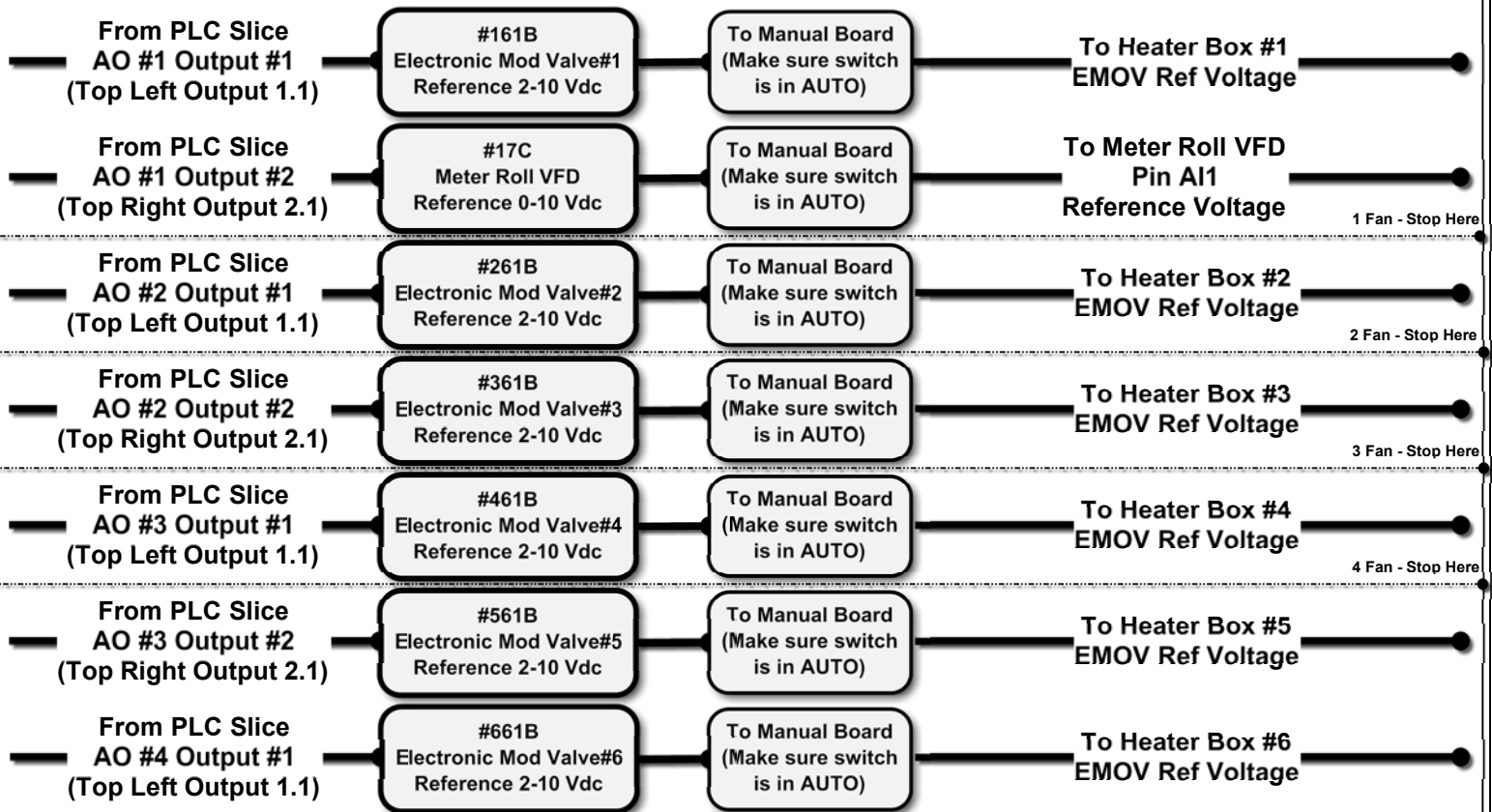
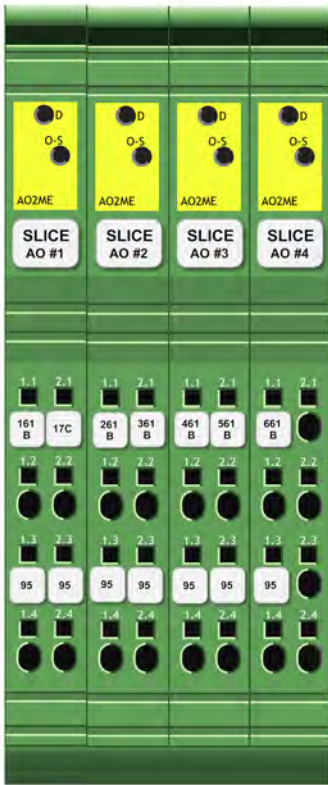
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 104.2

Revision:

PLC Analog Outputs 1-6 Fan



Title: PORTABLE DRYER: Analog Input Line Diagram

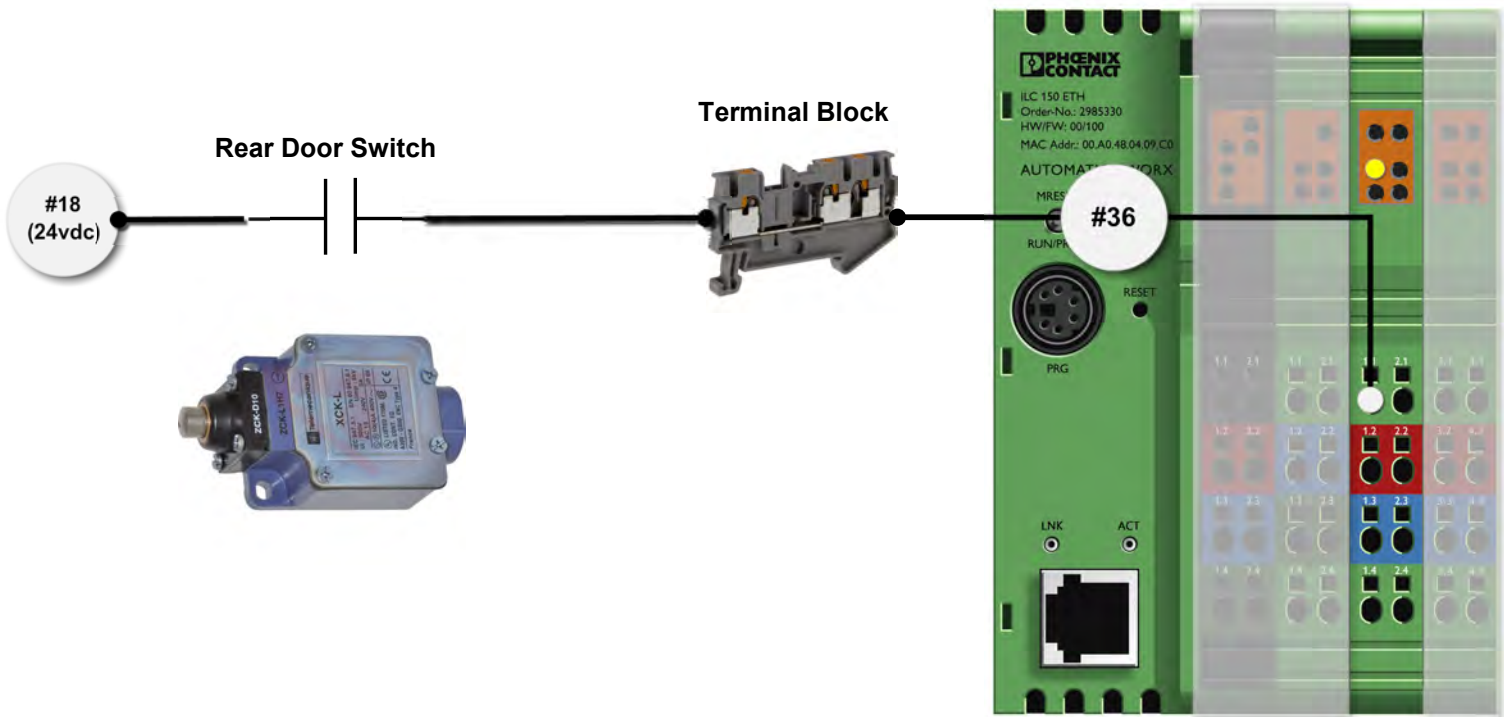
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 105.1

Revision:

Rear Door Circuit #36



The Rear Door Switch circuit starts in the power box. 24vdc is sent to the rear junction box on wire #18. From there, 24vdc is sent to the rear door switch. When the switch is depressed, it completes the circuit and sends 24vdc back to the rear junction box on wire #36. From there, wire #36 goes back to the power box, and into the PLC on Slice DI #1, input 1 (1.1 top left). If there are multiple door switches on the dryer, they are wired in series before returning #36 to the rear junction box.

Title: PORTABLE DRYER: Rear Door Circuit #36

Author: SUKUP MFG CO - MRK

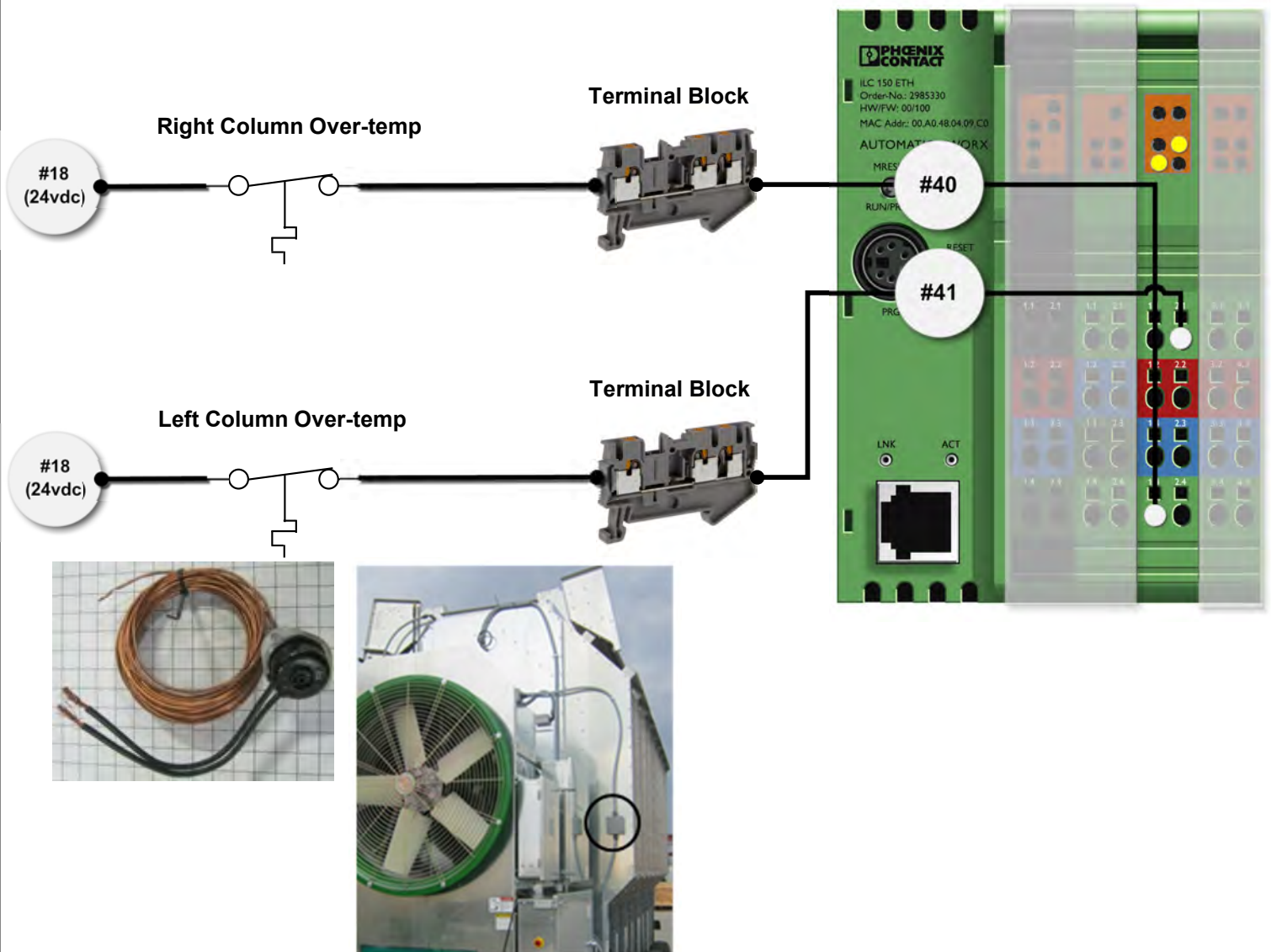
Date: 03/15

Sheet: Rear Door #36

Revision: 6/7/2017 -
DWS (1)

106.1

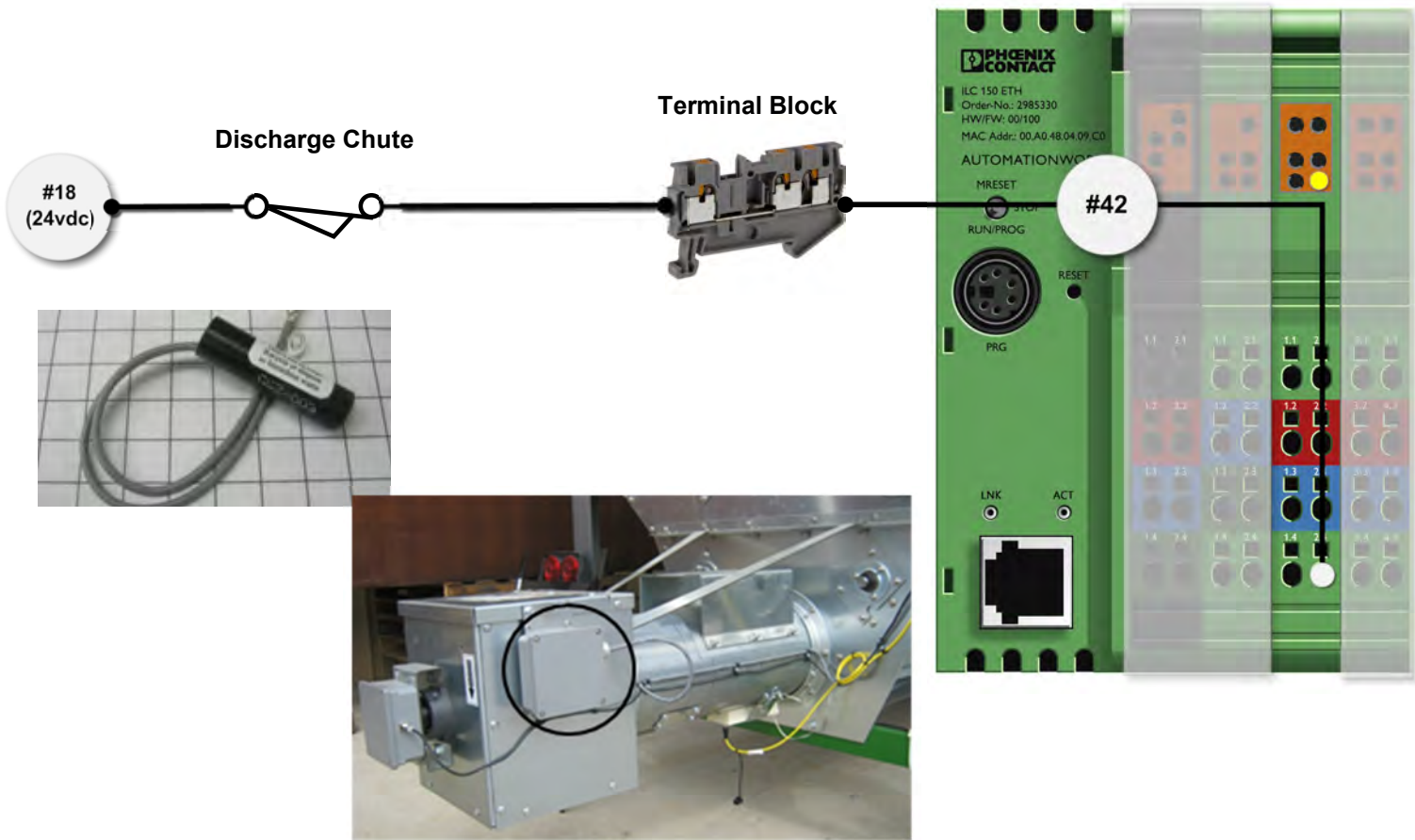
Column High-Limit Circuits #40 and #41



The Right and Left Column High-Limit (Over-temp) Circuits are designed to detect dangerously high temperatures in their respective grain columns. When the column temperature is too high, the switch opens, interrupting the 24vdc back to inputs #40 or #41.

Title: PORTABLE DRYER: Column Overtemp Circuits	
Author: SUKUP MFG CO - MRK	
Date: 03/15	Sheet: Column Overtemp #40, #41
Revision: 6/17 DWS	106.2

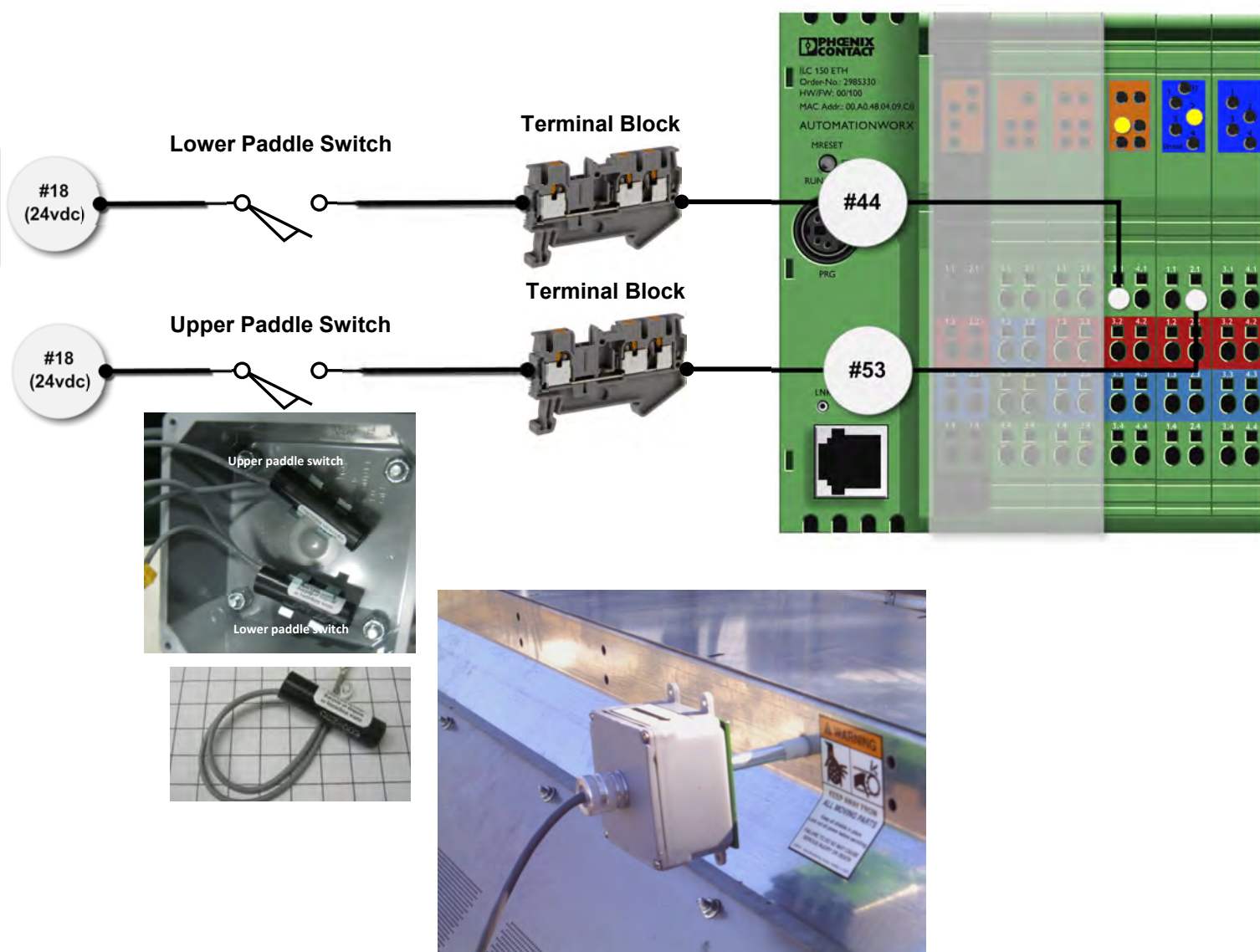
Rear Discharge Chute #42



The Rear Discharge Chute Circuit is located on the back of the dryer, directly above the discharge point of grain. Intended to detect the backup of grain, the lid is attached to a gray plastic box containing a tilt switch. When the lid is lifted open, the switch opens, interrupting the flow of 24vdc on wire #42.

Title: PORTABLE DRYER: Rear Discharge Chute	
Author: SUKUP MFG CO - MRK	
Date: 03/15	Sheet: Disharge Chute #42
Revision: 6/17 DWS	106.3

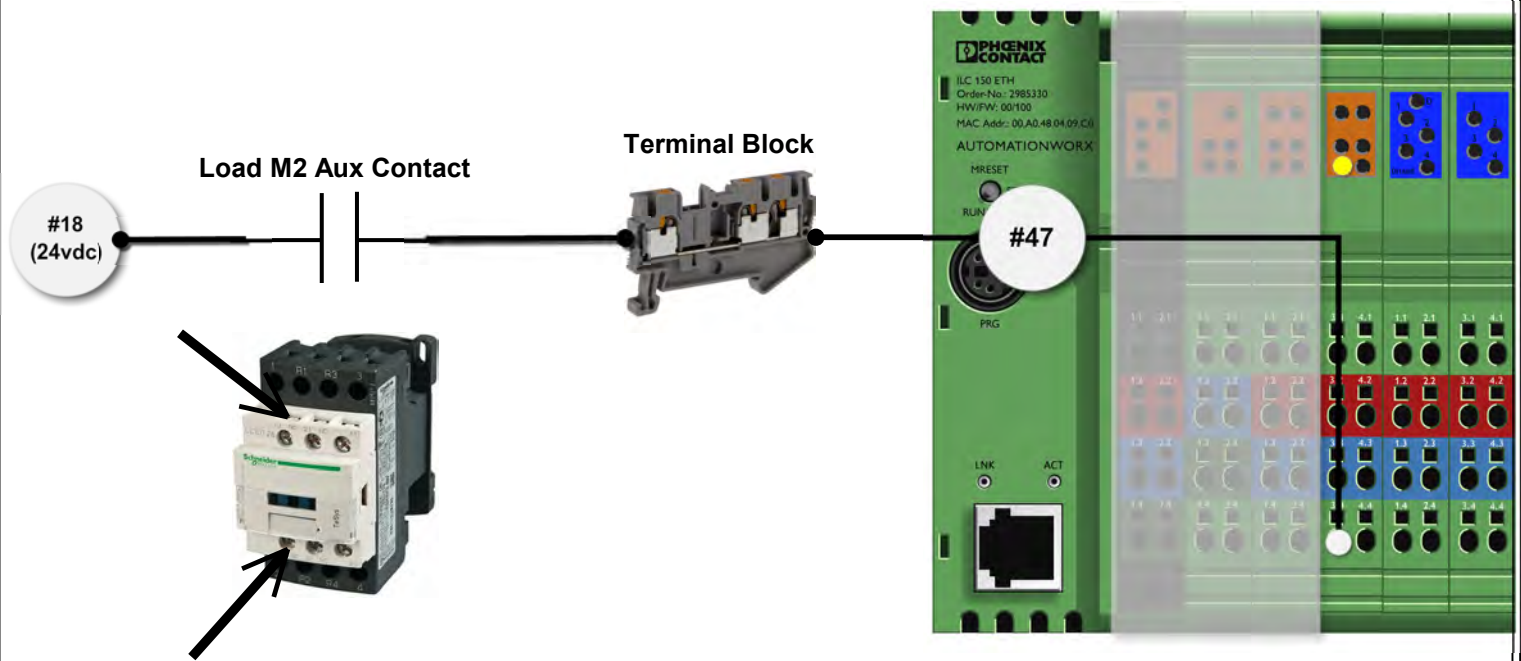
Paddle Switches #44 & #53



The Paddle Switch on the dryer is a 2-position switch that helps the dryer with its automated loading procedure. It also assists in telling the dryer when the wet bin is empty or full for too long. As grain fills the wet bin, the lower paddle switch (#44) will gently lift up and close the circuit (24vdc). This will also tell the dryer to disengage the Aux #2 relay K7. Next, as the wet bin is almost full, the upper paddle switch (#53) will gently lift up and close the circuit (24vdc). When the upper paddle switch closes, the Load Relay K1 and Aux #1 Relay will also disengage.

Title: PORTABLE DRYER: Paddle Switch Circuit	
Author: SUKUP MFG CO - MRK	
Date: 03/15	
Revision: 6/7/2017 - DWS (1)	106.4

Load Confirmation #47



The Load Confirmation Circuit closes when the Load contactor is energized by the K1 Load Relay. When the contactor pulls in (sending voltage to the unload motor) the normally open auxiliary contact on the M2 Load Contactor closes - thus sending 24vdc back to the PLC on wire #47.

Title: PORTABLE DRYER: Load Confirmation #47

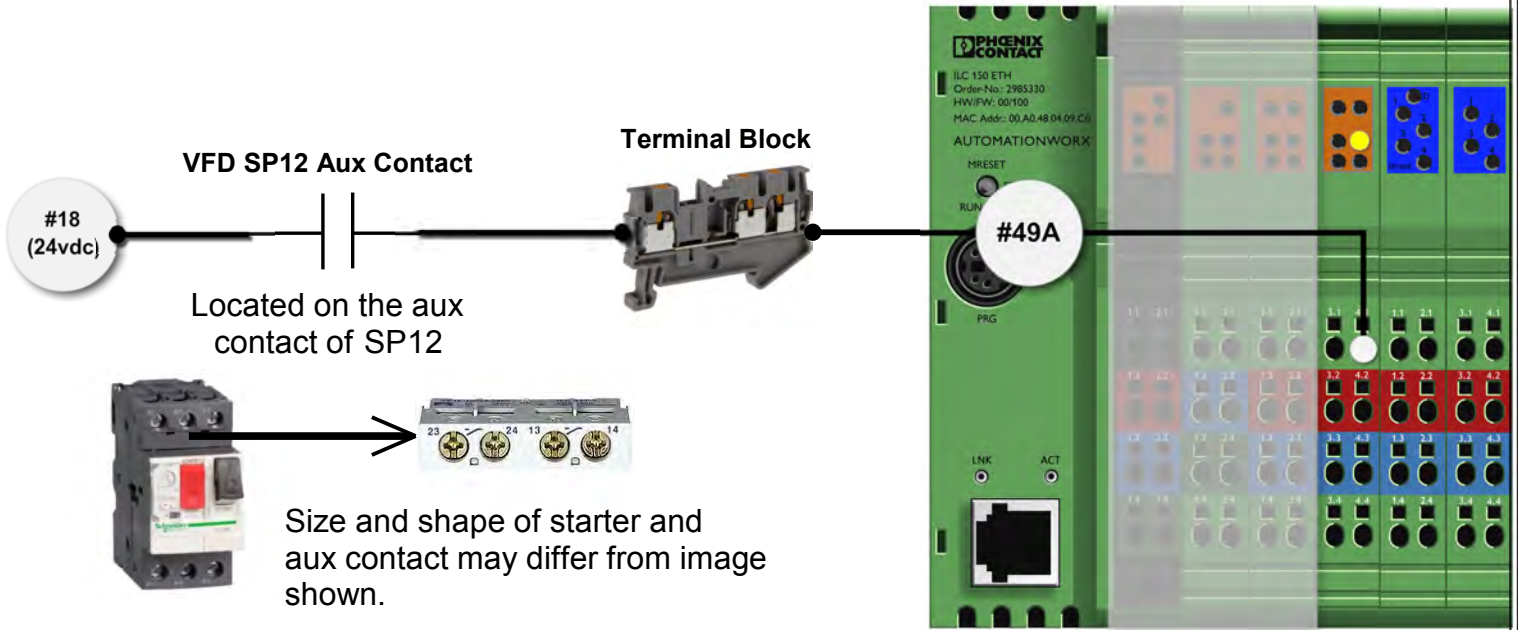
Author: SUKUP MFG CO - MRK

Date: 03/15

Revision: 6/7/2017 - DWS (1)

106.5

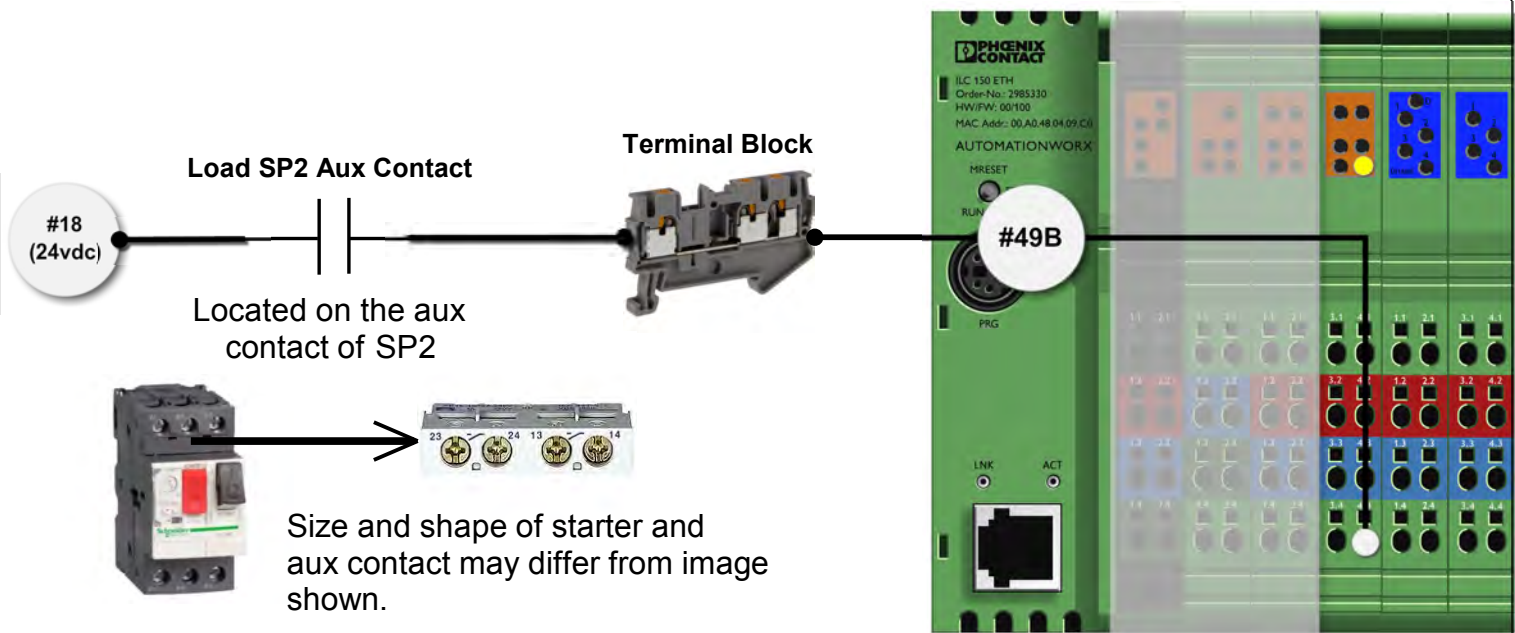
Motor Overload VFD #49A



The Motor Overload VFD circuit is designed to monitor the starter protector for the VFD which operates the meter roll motor. The circuit is closed under normal operating conditions. It is open during a trip or overload condition.

Title: PORTABLE DRYER: Motor Overload VFD #49A	
Author: SUKUP MFG CO - MRK	
Date: 03/15	
Revision: 6/7/2017 - DWS (1)	106.6

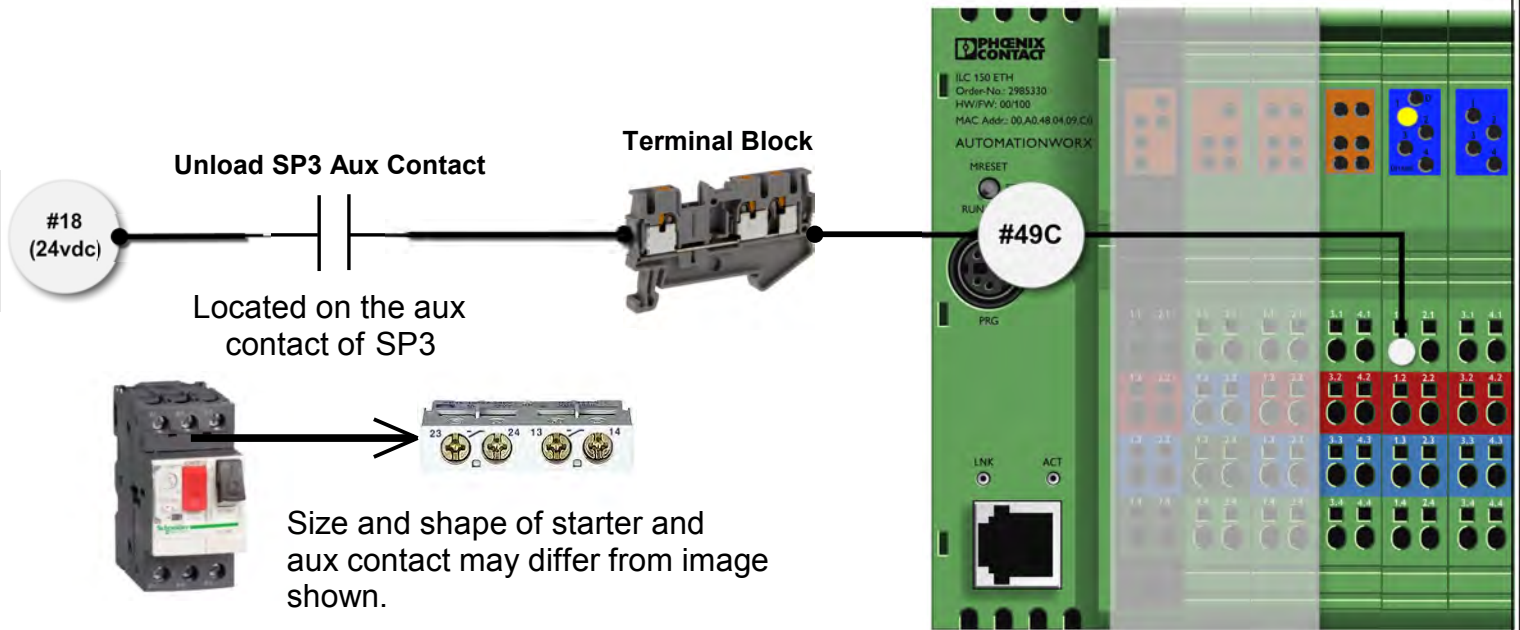
Motor Overload Load #49B



The Motor Overload Load circuit is designed to monitor the starter protector for the Load which operates the leveling auger on the top of the dryer. The circuit is closed under normal operating conditions. It is open during a trip or overload condition.

Title: PORTABLE DRYER: Motor Overload Load #49B	
Author: SUKUP MFG CO - MRK	
Date: 03/15	
Revision: 6/7/2017 - DWS (1)	106.7

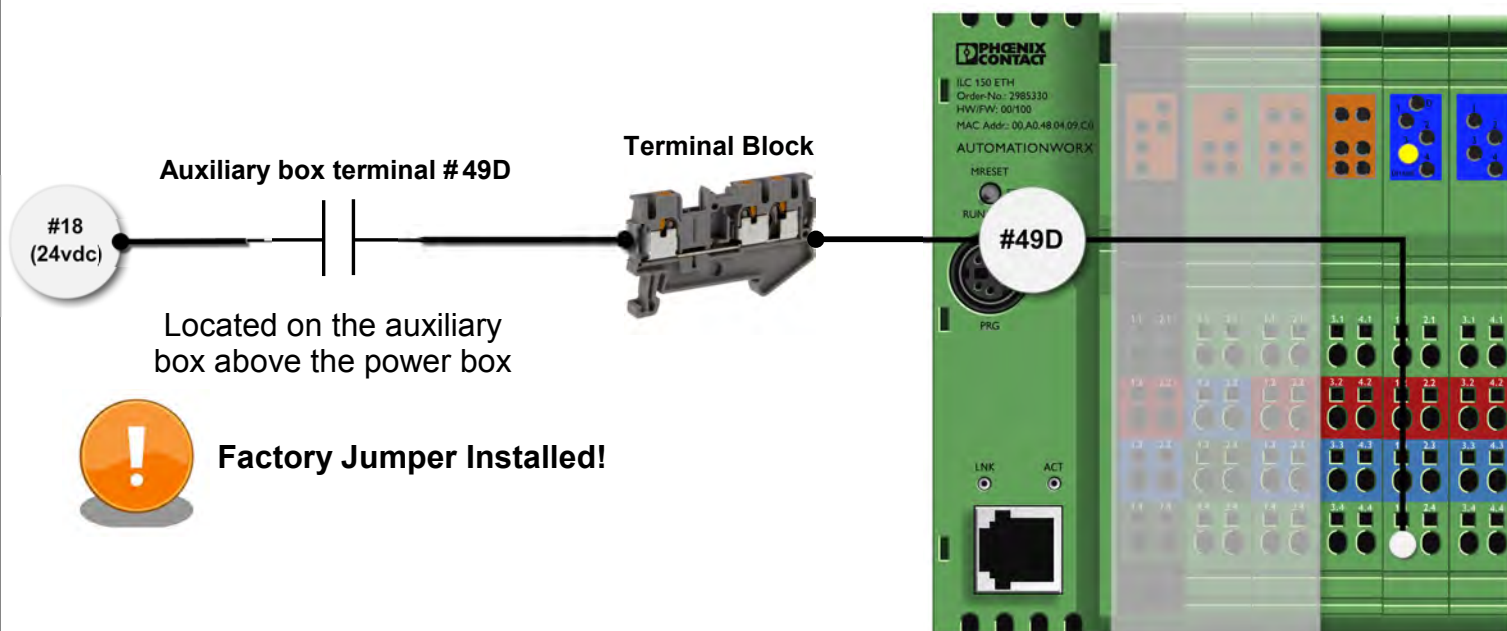
Motor Overload Unload #49C



The Motor Overload Unload circuit is designed to monitor the starter protector for the unload which operates the auger on the bottom of the dryer. The circuit is closed under normal operating conditions. It is open during a trip or overload condition.

Title: PORTABLE DRYER: Motor Overload Unload #49C	
Author: SUKUP MFG CO - MRK	
Date: 03/15	
Revision: 6/7/2017 - DWS (1)	106.8

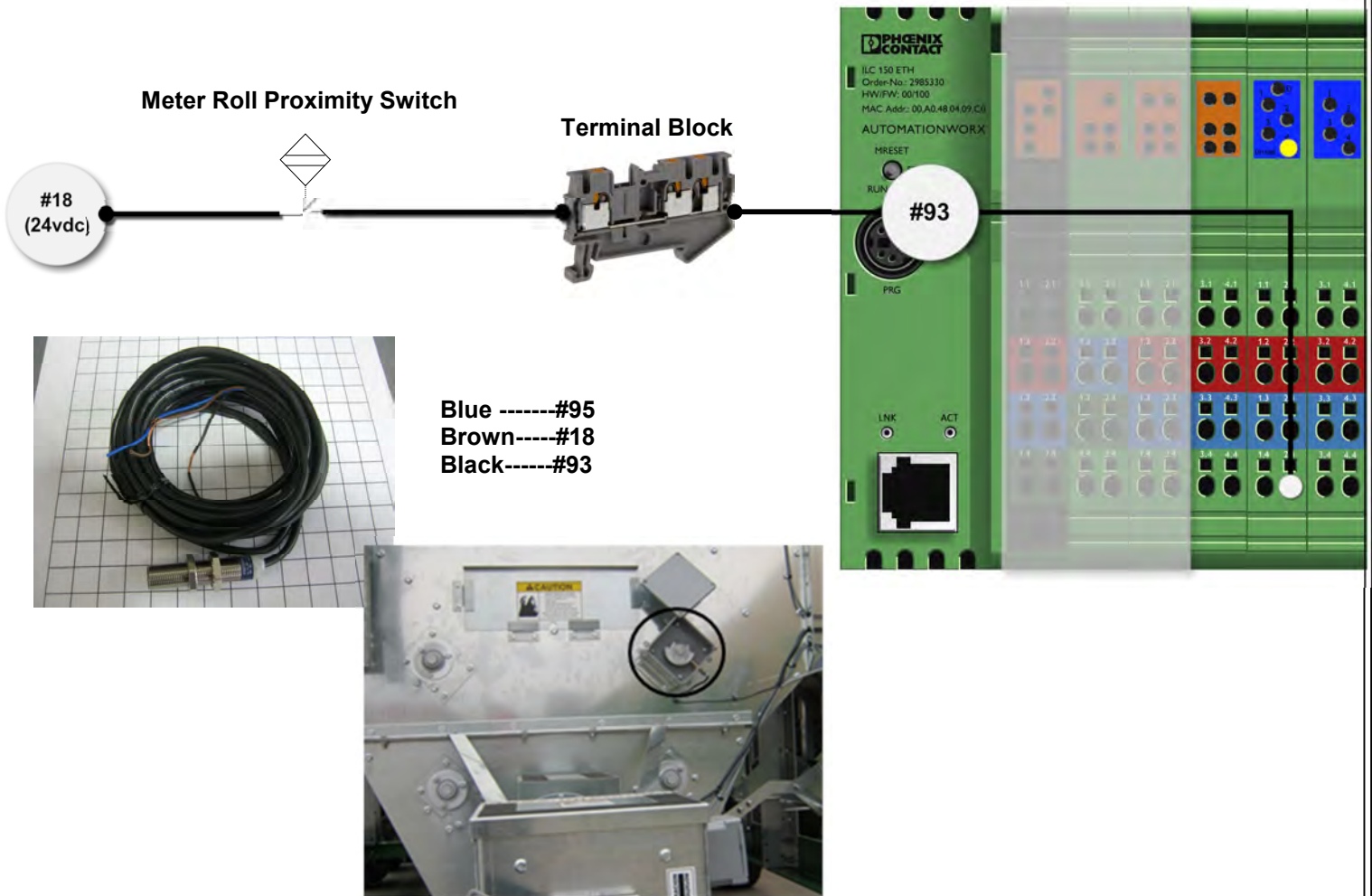
Motor Overload Auxiliary Box #49D



The Motor Overload Auxiliary Box circuit is designed to monitor and additional starter protectors which typically assist in loading and unloading the dryer. If multiple starters are used, they need to be wired in series. The circuit is closed under normal operating conditions. It is open during a trip or overload condition.

Title: PORTABLE DRYER: Motor Overload Aux #49D	
Author: SUKUP MFG CO - MRK	
Date: 03/15	
Revision: 6/7/2017 - DWS (1)	106.9

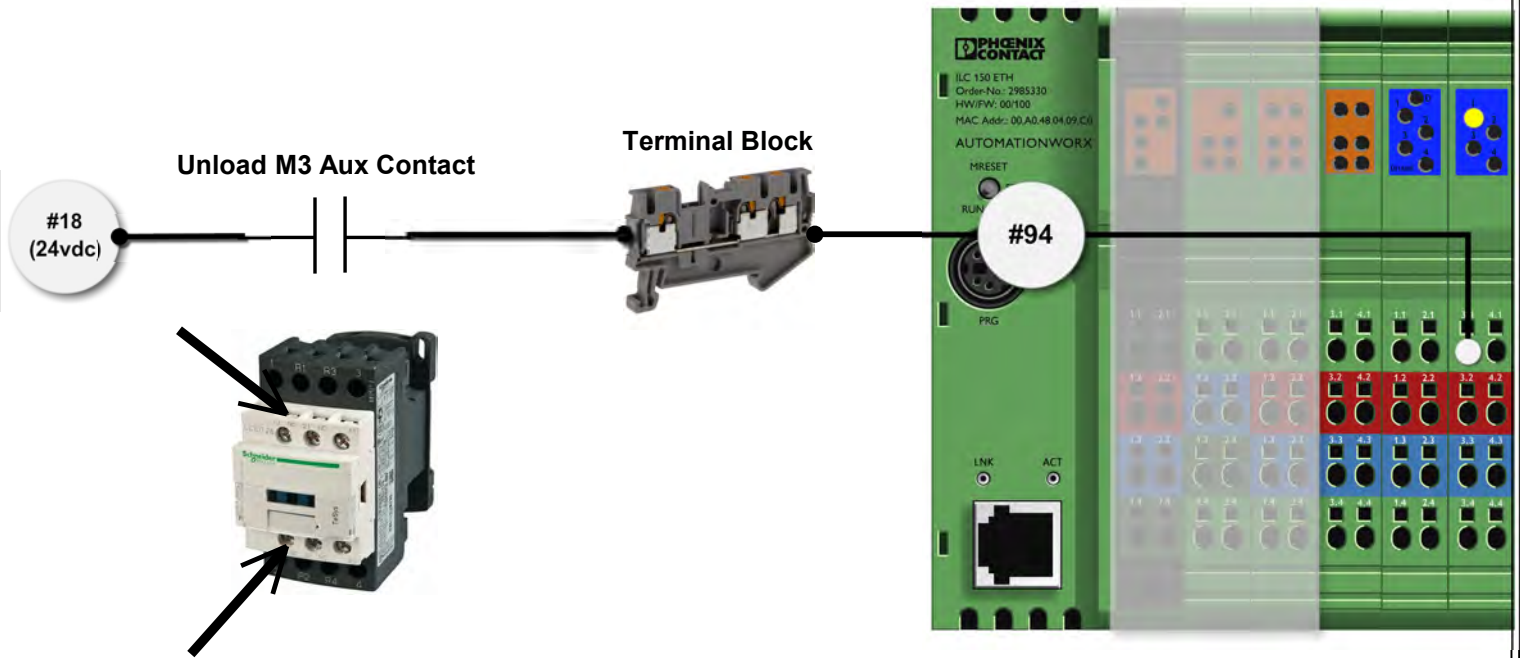
Meter Roll Proximity Switch #93



The Meter Roll Proximity Switch Circuit is designed to confirm rotation of the metering rolls when the VFD has been energized. The circuit will close when the proximity switch is in close contact with the flag or target. It will open when it is not. During operation, the meter roll proximity signal #93 needs to turn off and back on every 2 minutes.

Title: PORTABLE DRYER: Meter Roll Prox Switch #93	
Author: SUKUP MFG CO - MRK	
Date: 03/15	
Revision: 6/7/2017 - DWS (1)	106.10

Unload Confirmation #94



The Unload Confirmation Circuit closes when the unload contactor is energized by the K2A Unload Relay. When the contactor pulls in (sending voltage to the unload motor) the normally open auxiliary contact on the M3 unload contactor closes - thus sending 24vdc back to the PLC on wire #94.

Title: PORTABLE DRYER: Unload Confirmation #94

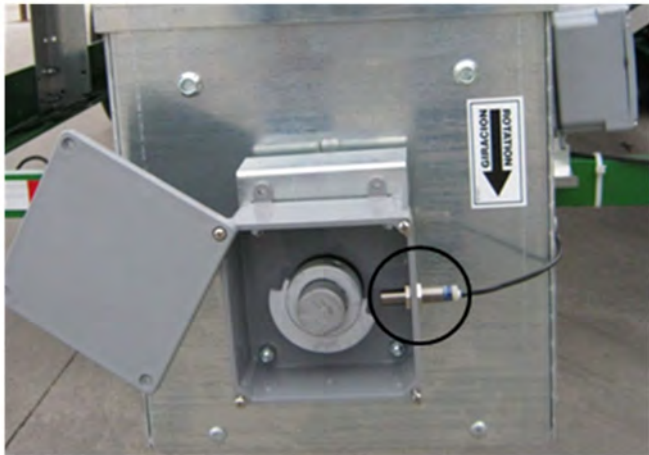
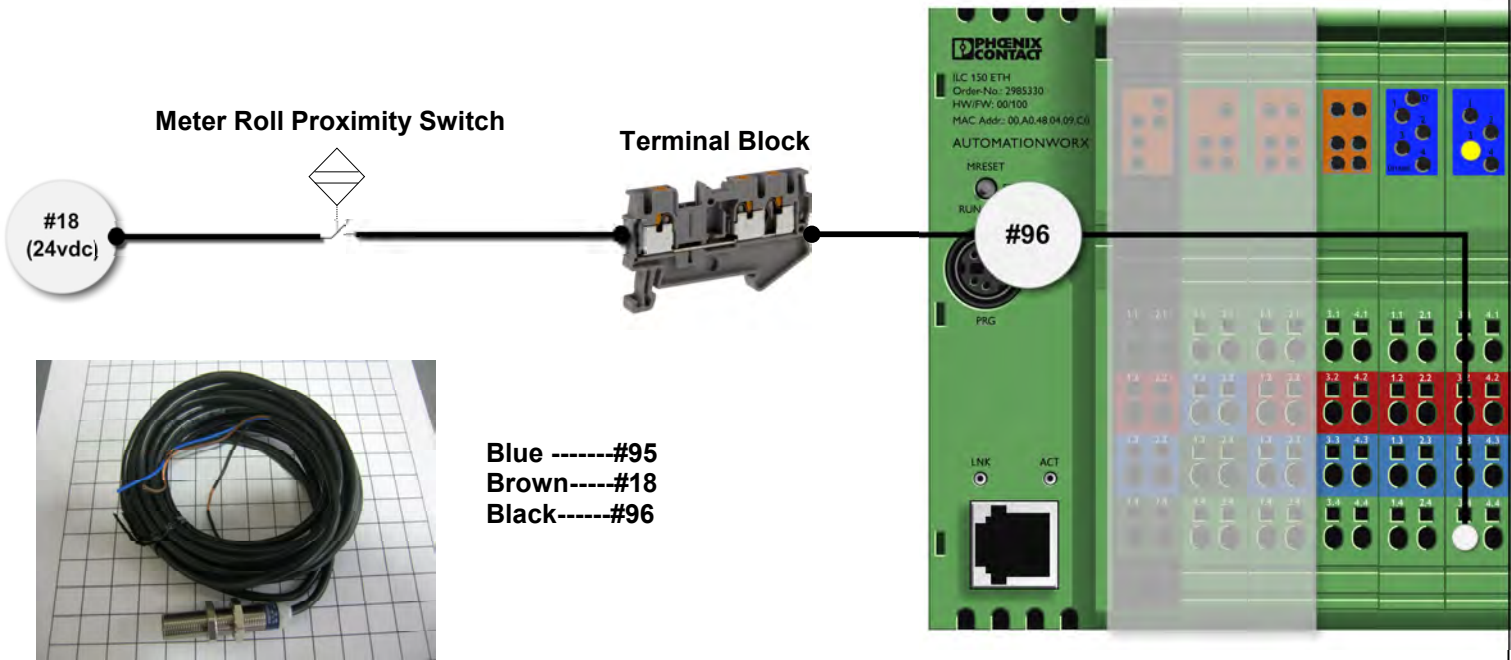
Author: SUKUP MFG CO - MRK

Date: 03/15

Revision: 6/7/2017 - DWS (1)

106.11

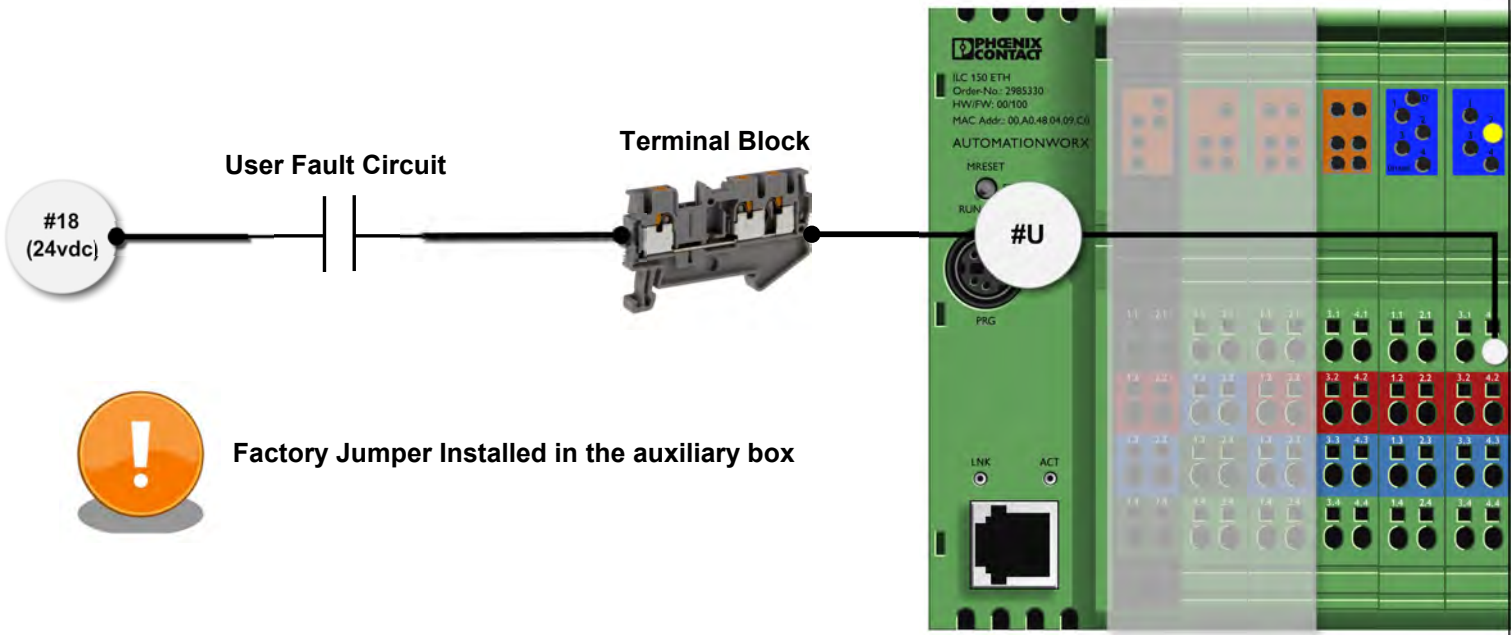
Unload Proximity Switch #96



The Unload Proximity Switch Circuit is designed to confirm rotation of the unload auger when the K2A Unload Relay has been energized. The circuit will close when the proximity switch is in close contact with the flag or target. It will open when it is not. During operation, the unload proximity signal #96 needs to turn off and back on every 5 seconds.

Title: PORTABLE DRYER: Unload Prox #96	
Author: SUKUP MFG CO - MRK	
Date: 03/15	
Revision: 6/7/2017 - DWS (1)	106.12

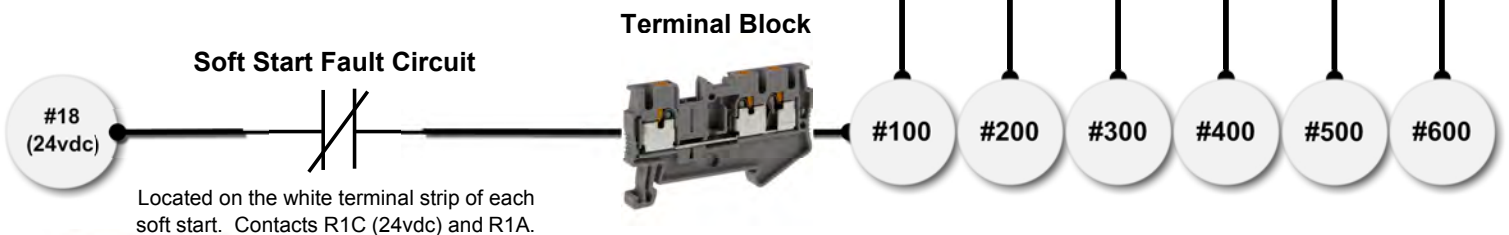
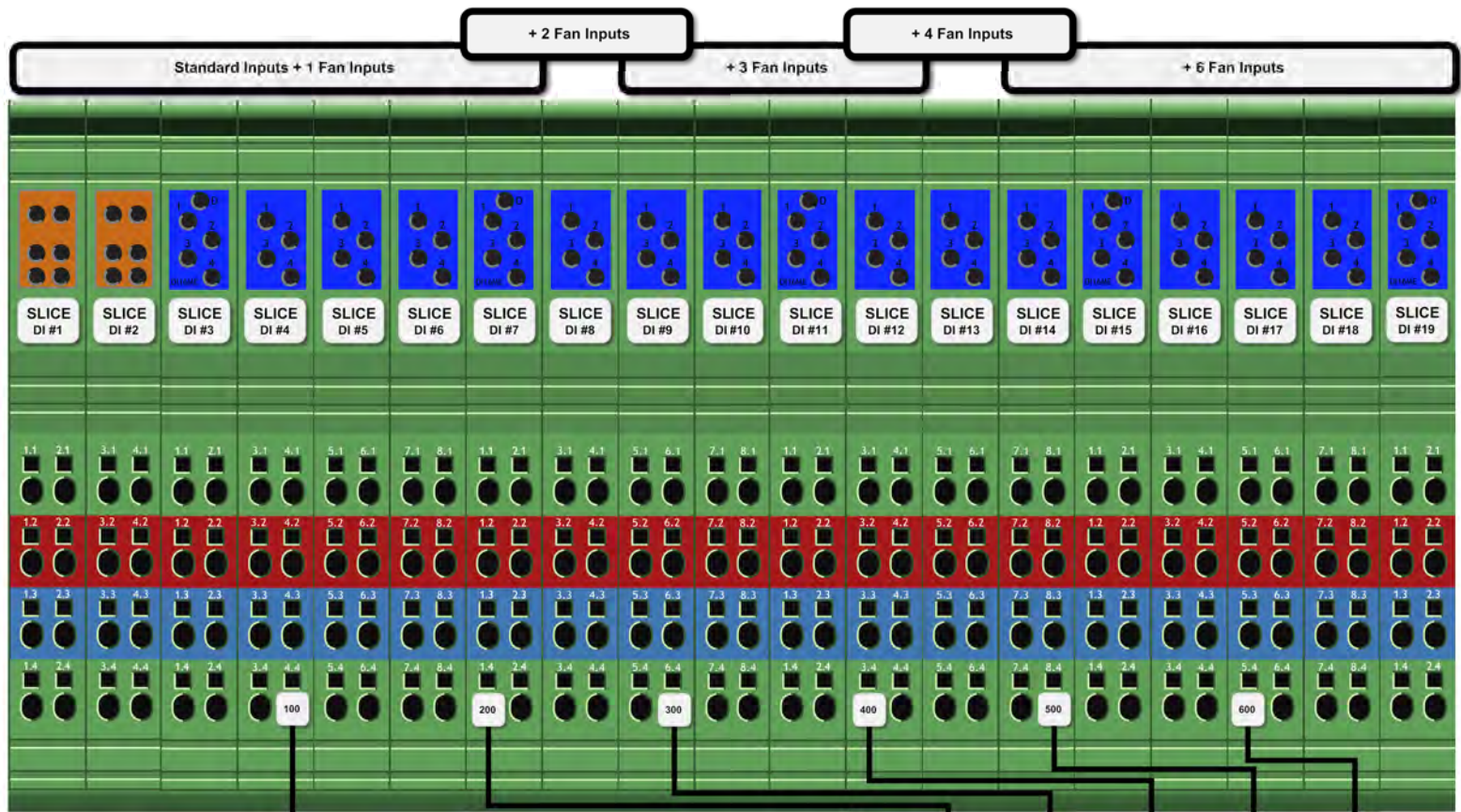
User Fault Circuit #U



The User Fault Circuit #U is an additional fault circuit provided to the dryer operator for additional equipment monitoring. For example, the dryer operator has a custom unload system that needs to be running in order for the dryer to keep running. The operator can interlock the unload system with the user fault circuit. 24vdc needs to be present under normal operating conditions. An open circuit results in dryer shutdown.

Title: PORTABLE DRYER: User Fault Circuit #U	
Author: SUKUP MFG CO - MRK	
Date: 03/15	
Revision: 6/7/2017 - DWS (1)	106.13

Soft Start Fault #100, #200, #300, #400, #500, #600



The Soft Start Fault Circuit is designed to monitor each soft start for any failures. In the event the soft start faults, the contact on R1A opens, and the dryer will shutdown.

Title: PORTABLE DRYER: Soft Start Fault Circuit

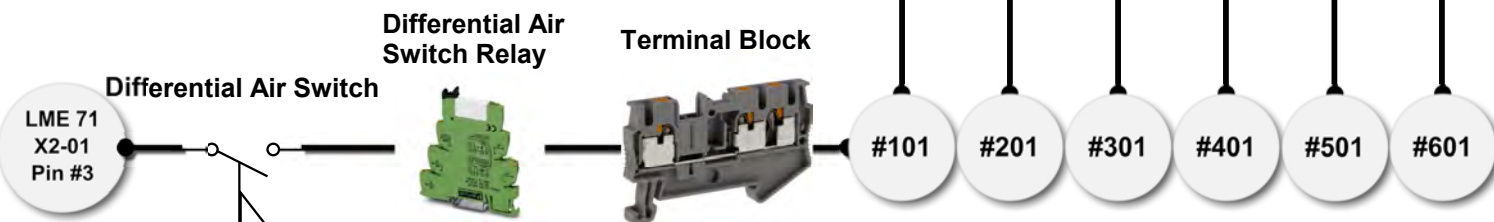
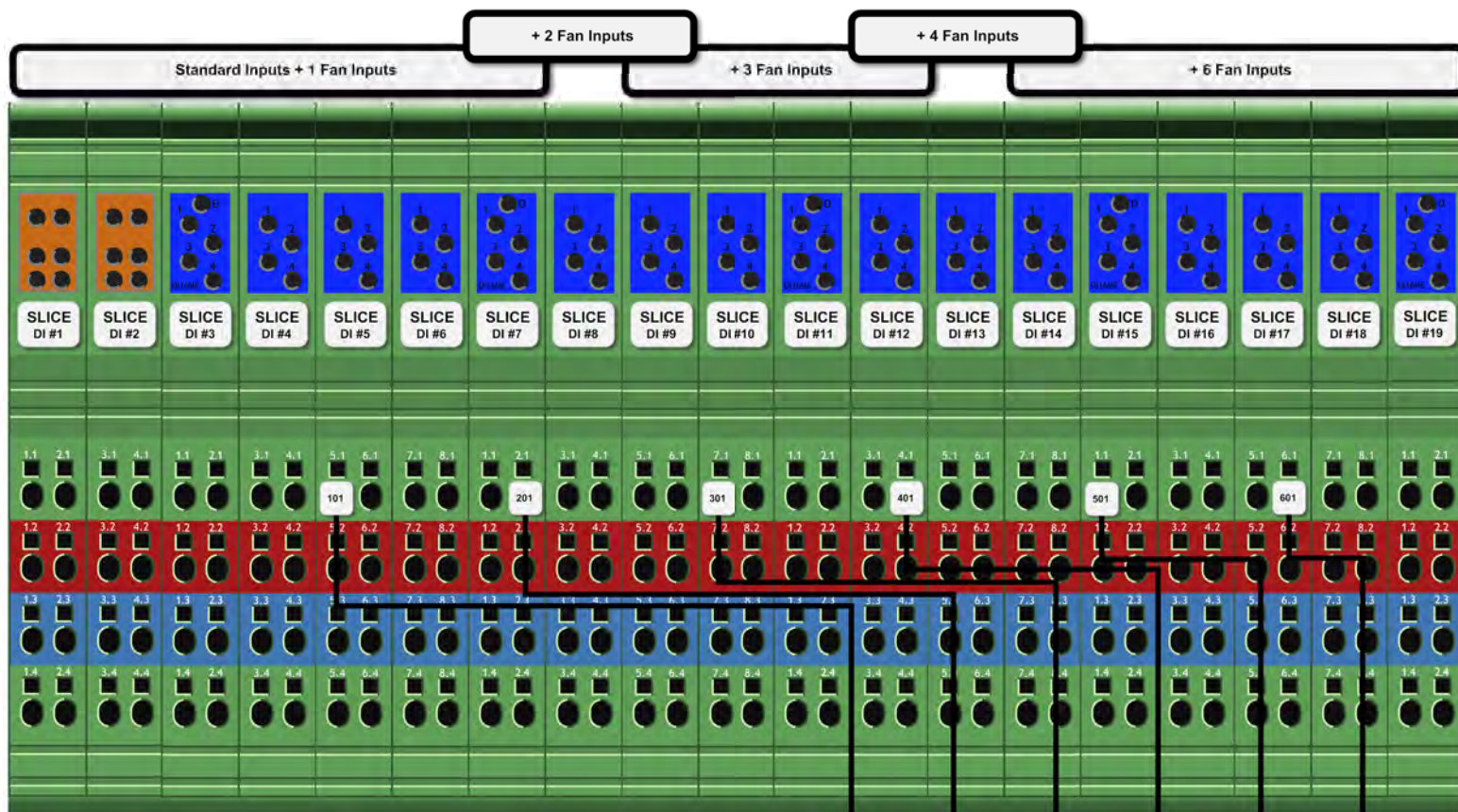
Author: SUKUP MFG CO - MRK

Date: 03/15

Revision: 6/7/2017 - DWS (1)

106.14

Differential Air Switch Circuits #101, #201, #301, #401, #501, #601



- A1 - #NO side of Differential Air Switch
- A2 - #2 (Neutral)
- 11 - #18 (24VDC)
- 14 - #X01 to PLC (Differential Air Switch Relay Confirmation)



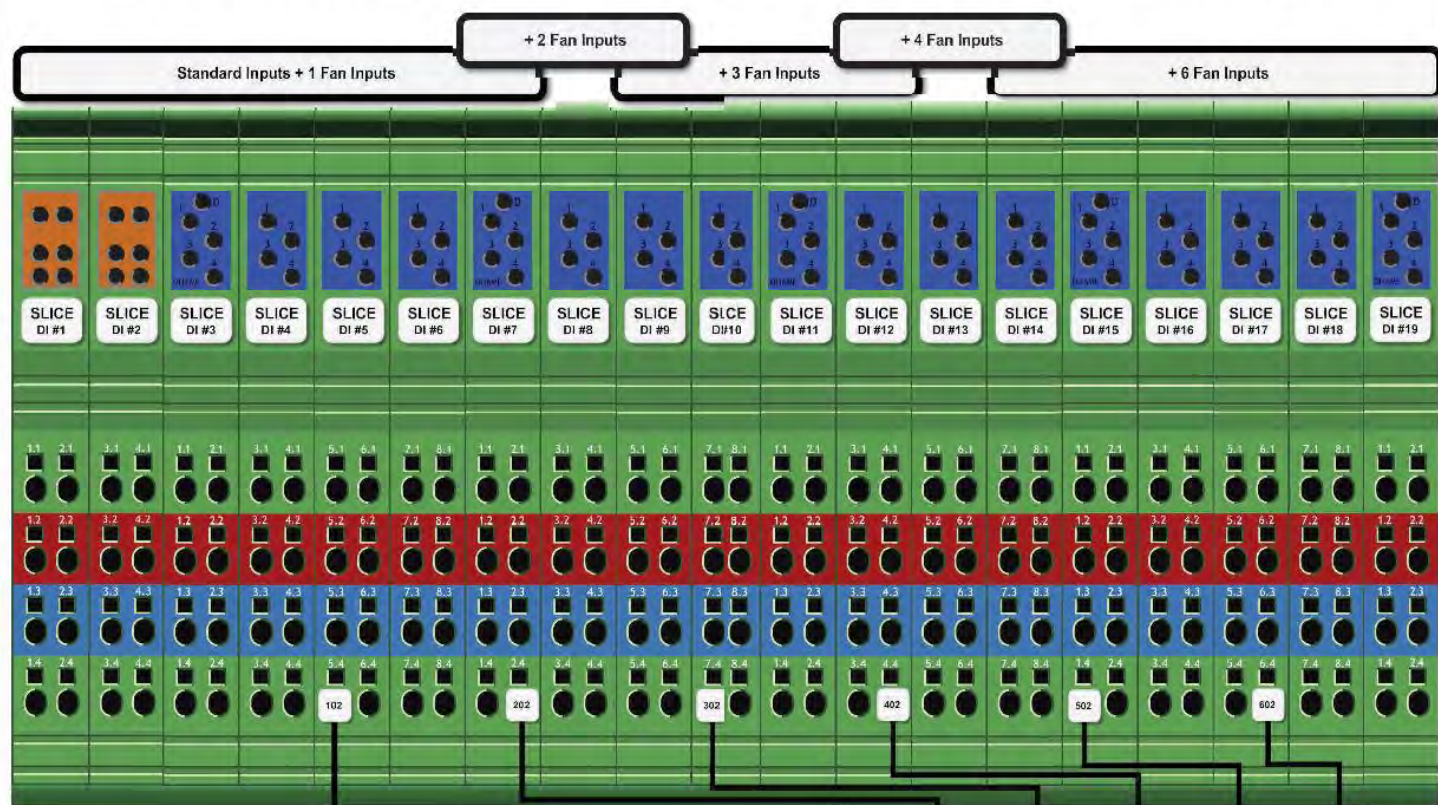
CSA Dryers ONLY
Domestic USA and International CE dryers have factory jumper installed



The Differential Air Switch Circuit is Closes when the differential air switch (Located in the heater box) closes, thus closing a 110VAC relay. The relay allows 24vdc to flow back to the PLC indicating the differential air switch is closed, indicating suction. This differential air switch is only used on CSA dryers, and domestic and CE have a factory jumper installed.

Title: PORTABLE DRYER: Differential Air Switch Circuit	
Author: SUKUP MFG CO - MRK	
Date: 05/16	
Revision: 6/7/2017 - DWS (1)	106.15

Vapor Over-Temp Circuits #102, #202, #302, #402, #502, #602



Switch T96126
used for
domestic
dryers

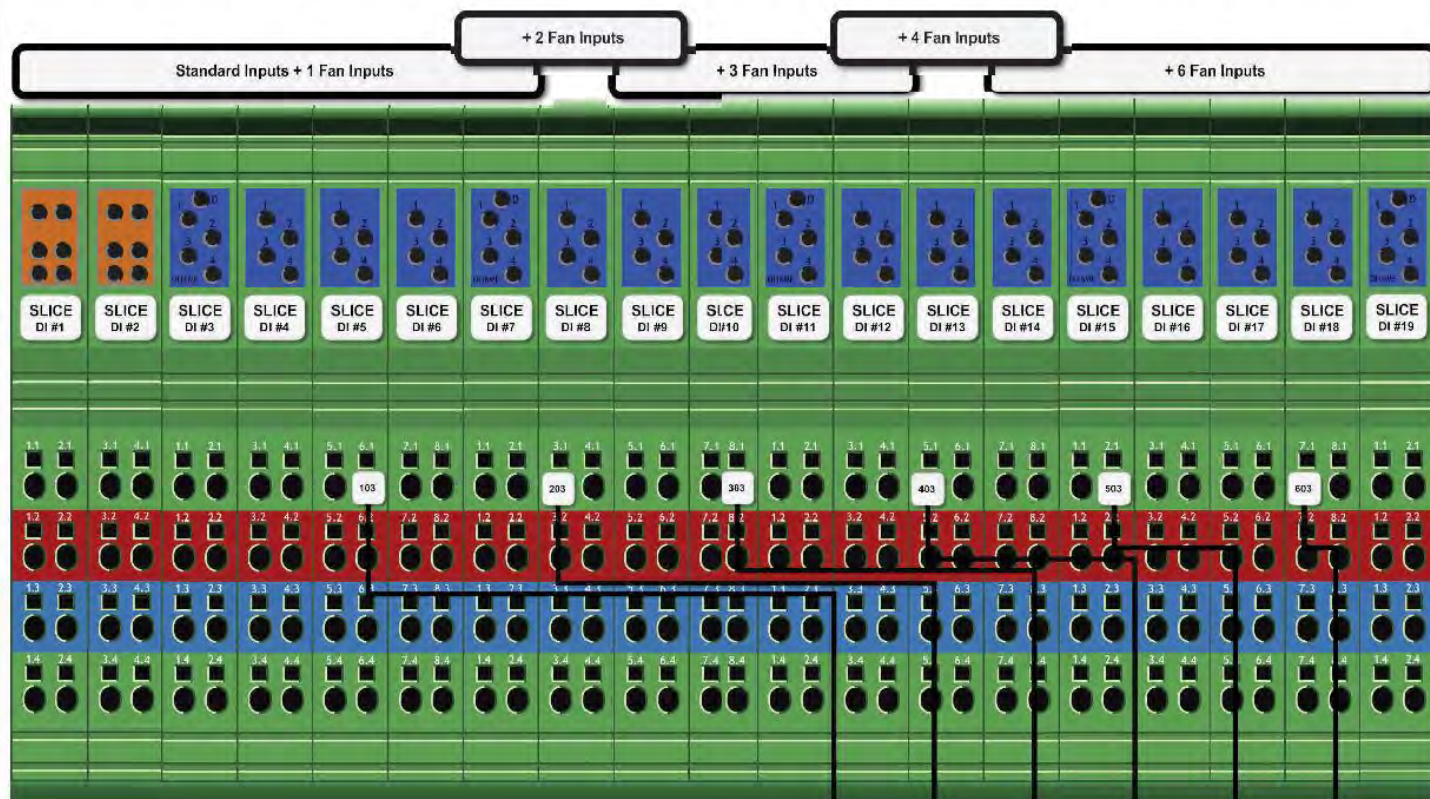
Switch T96124
used for CSA
dryers



Vapor Over-Temp Switch is designed to detect excessive temperatures (>140°F) in vaporized gas. Vapor pipe/hose should be warm to touch, but not so hot it burns hand. Vaporizer coil can be adjusted to reduce temperature of gas (or raise it if pipe/hose is frozen). If switch will not reset after coil adjustment, a deflector cone can be installed to keep vapor from overheating.

Title: PORTABLE DRYER: Vapor Over-Temp Circuit	
Author: SUKUP MFG CO - MRK	
Date: 03/15	
Revision: 8/12/2024 - JTB	106.16

Housing High-Limit Circuits #103, #203, #303, #403, #503, #603



The Housing Over-Temp Circuit is designed to detect excessive temperatures in the heater housing itself. This circuit serves as a backup to the fan monitoring circuits. If the fan stops working during operation, heat will rapidly rise inside the heater housing, thus shutting down the dryer. This is a manual reset circuit. Depress the button on the middle of the switch to reset it.

Title: PORTABLE DRYER: Housing Over-Temp Circuit

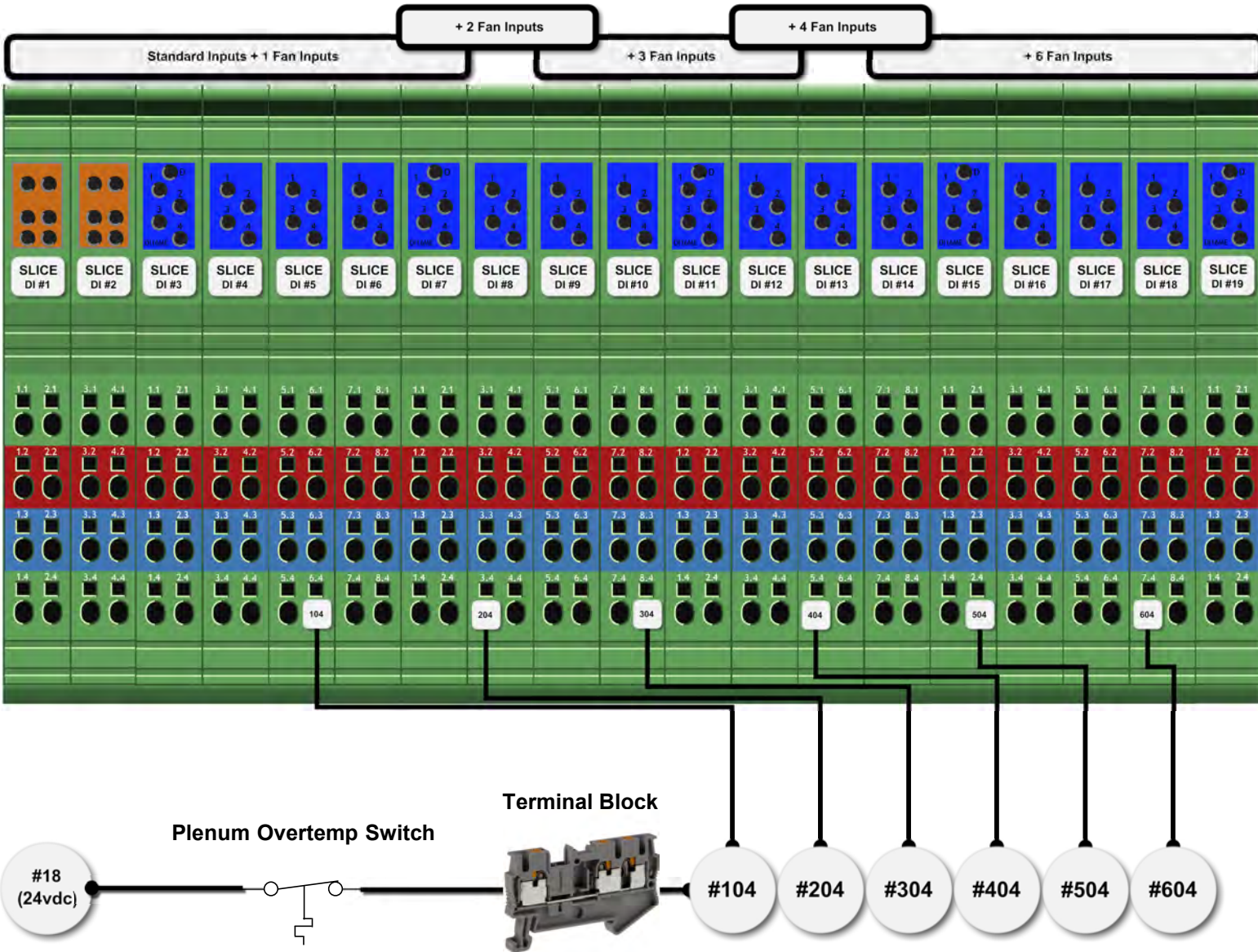
Author: SUKUP MFG CO - MRK

Date: 03/15

Revision: 8/12/2024 – JTB

106.17

Plenum Over-Temp Circuits #104, #204, #304, #404, #504, #604



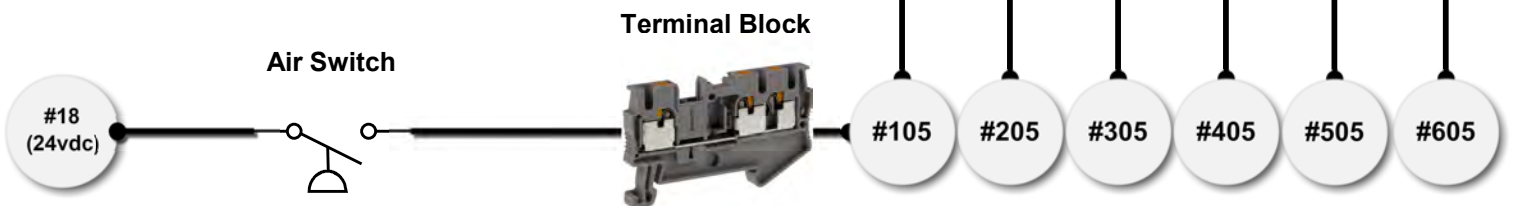
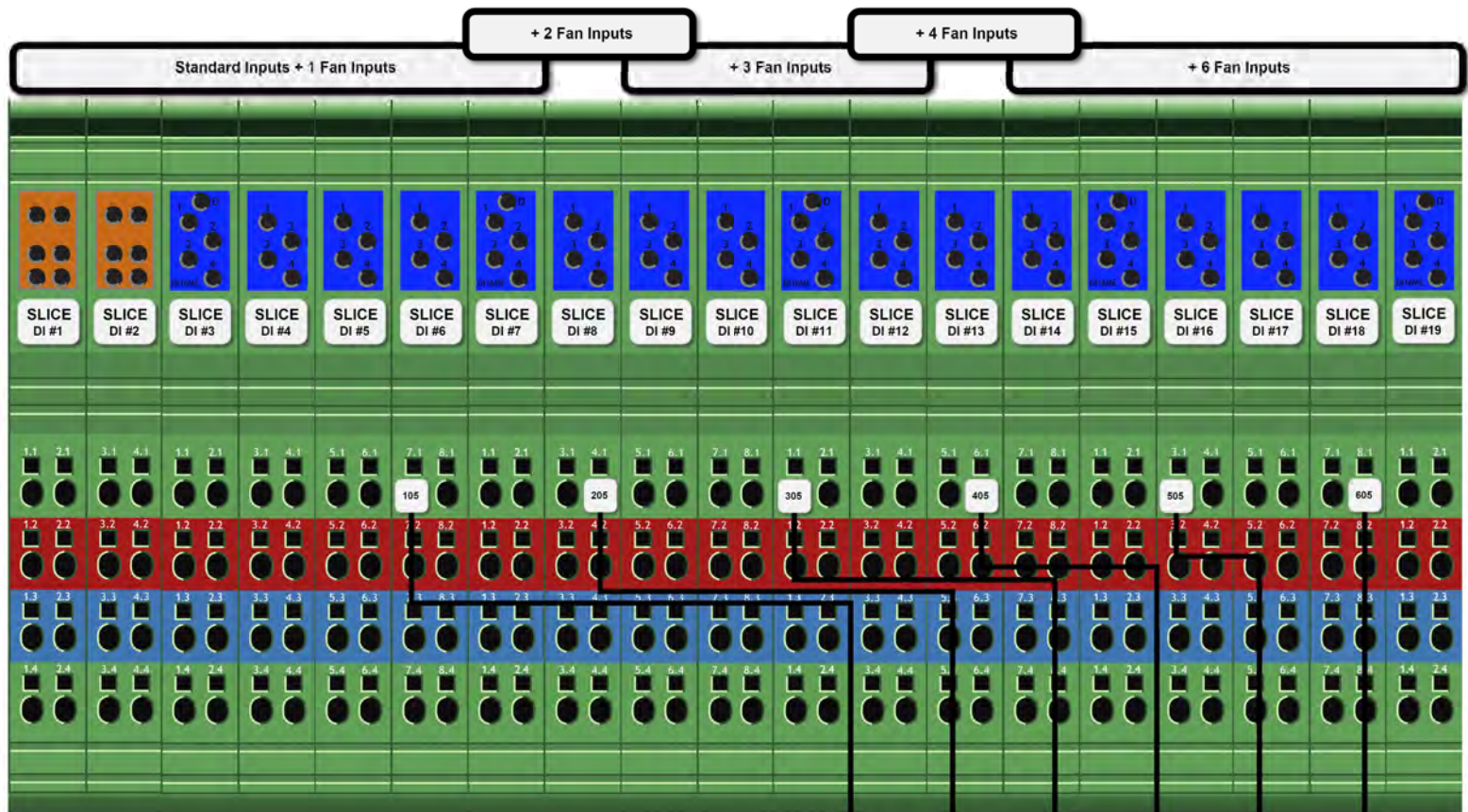
Switch is located in a box with the air switch on the chassis of the dryer above each fan/ heater housing



The Plenum Over-Temp Circuit is designed to detected excessive temperatures (>325°F) in the plenum of each fan/heater. This circuit serves as a fire detection system as well as a backup in the event of a loss in control of the electronic modulating valve in each respective pipe train.

Title: PORTABLE DRYER: Plenum Overtemp Circuit	
Author: SUKUP MFG CO - MRK	
Date: 03/15	
Revision: 6/7/2017 - DWS (1)	106.18

Air Switch Circuits #105, #205, #305, #405, #505, #605



Switch is located above the fan housing or on the chassis of the respective plenum.



Calibrated Switch - T58620
Retrofit Kit from Old Air Switch - TM95298



The Air Switch Circuit is designed to detect a rise in static pressure inside the plenum of each respective fan/heater. When the dryer is full of grain, and the fan is on, the air switch will close sending 24vdc to the PLC indicating it sees increased static air pressure.

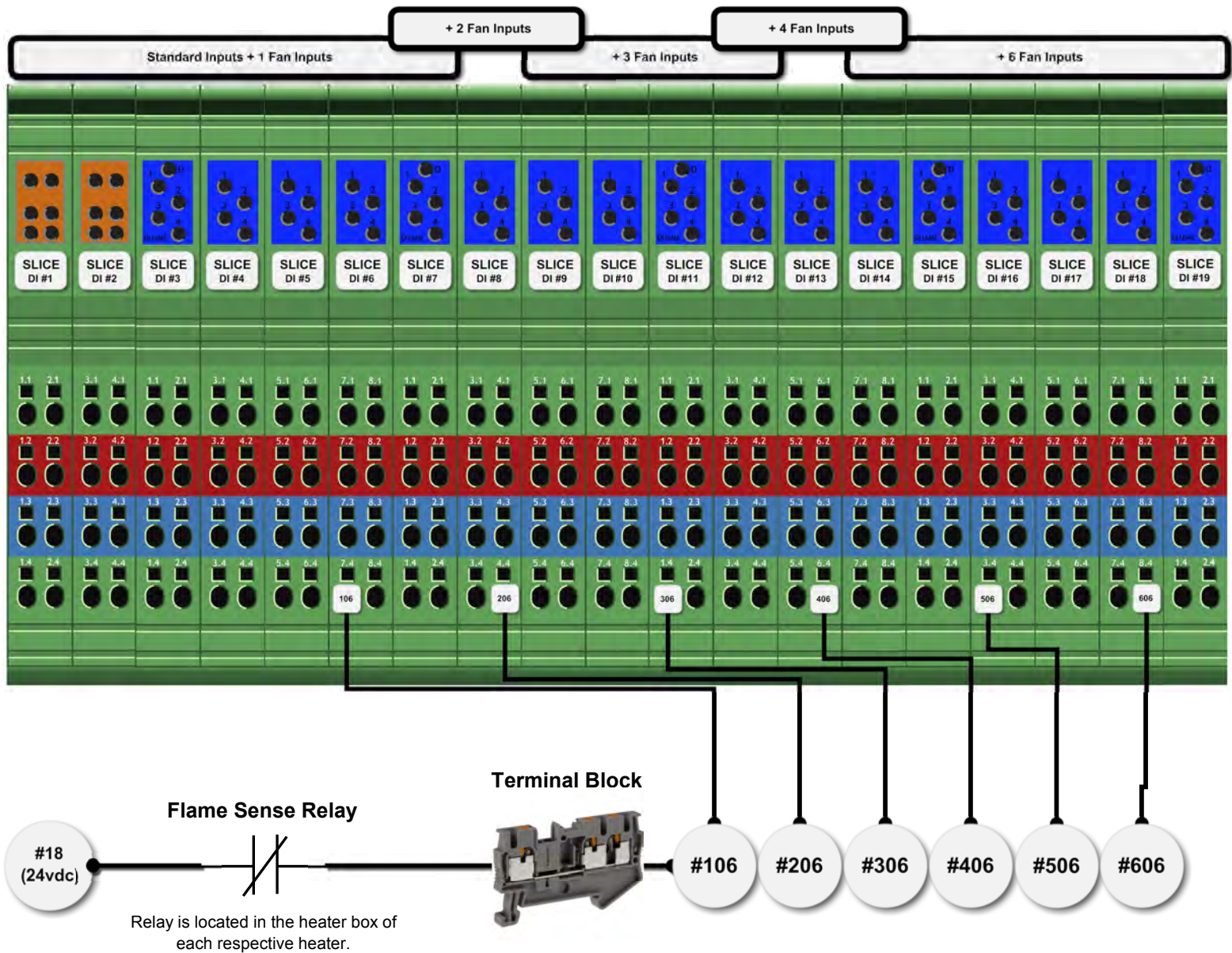
Title: PORTABLE DRYER: Air Switch Circuit

Author: SUKUP MFG CO - MRK

Date: 03/15

Revision: 7/23/2020 - DWS (2) 106.19

Flame Sense Circuits #106, #206, #306, #406, #506, #606



The Flame Sense Circuit is designed to detect flame in each respective heater. During heater board ignition, the heater board waits for the flame probe to confirm micro current in the flame. Upon confirmation, the heater board closes the flame sense relay, sending 24vdc back to the PLC on the flame sense circuit wire.

Title: PORTABLE DRYER: Flame Sense Circuit

Author: SUKUP MFG CO - MRK

Date: 03/15

Revision: 6/7/2017 - DWS (1)

106.20

Fan Confirmation Circuits #107, #207, #307, #407, #507, #607

Fan Confirmation Circuit

#18 (24vdc)

Located on the side of fan contactor (aux contact) or soft start R2A.

Terminal Block

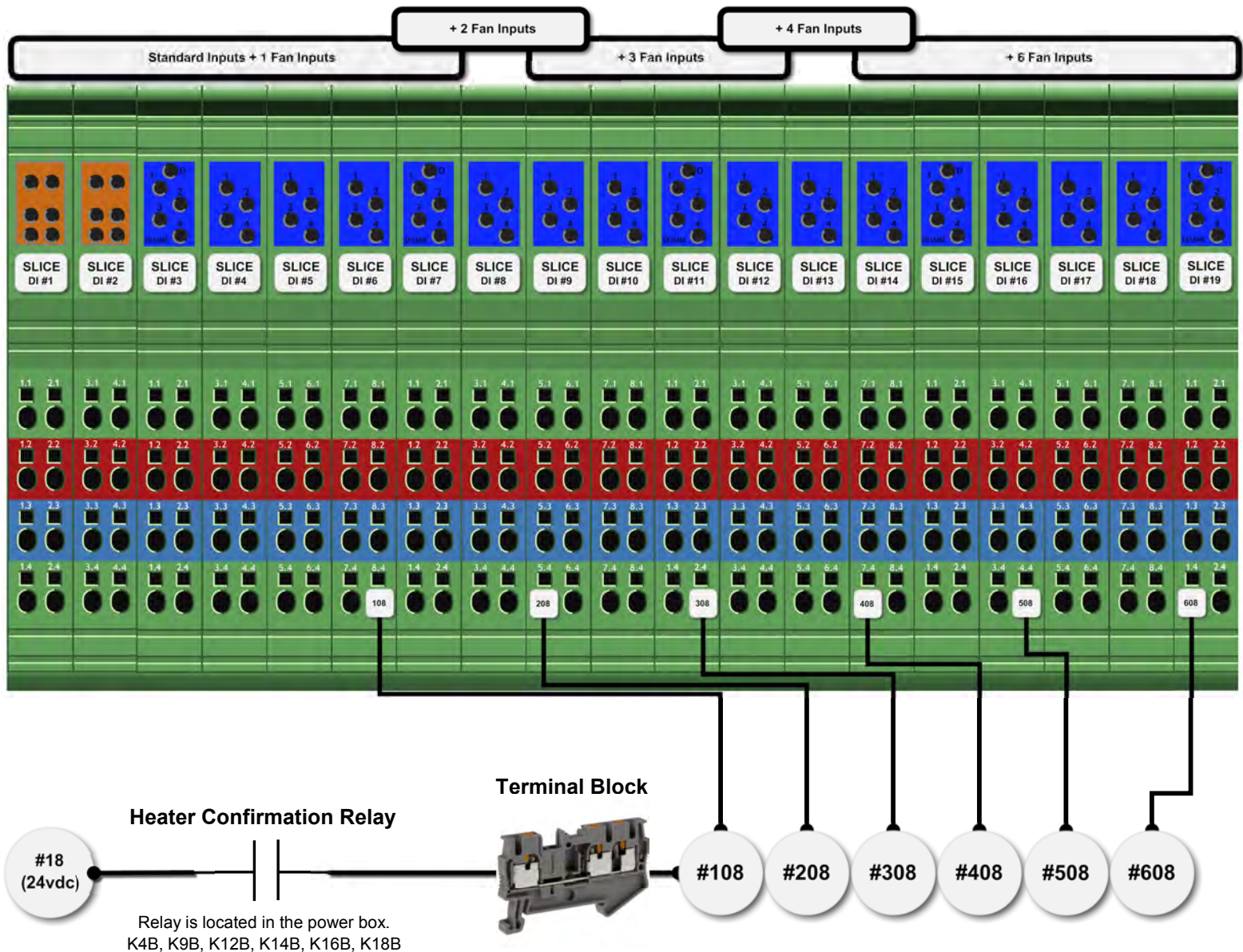
#107 #207 #307 #407 #507 #607

The Fan Confirmation Circuit is designed to tell the PLC that the contactor has been pulled in, and voltage should be flowing to the motor. This signal also triggers the timer for the air switch and serves as a software interlock for heater power. On Soft Starts, the fan confirmation signal will not close until the fan is up to speed.

Title: PORTABLE DRYER: Fan Confirmation Circuit	
Author: SUKUP MFG CO - MRK	
Date: 03/15	
Revision: 6/7/2017 - DWS (1)	106.21

H - 58

Heater Confirmation Circuits #108, #208, #308, #408, #508, #608



The Heater Confirmation Relay tells the PLC that it has energized the Heater Relays, and power is intended to be sent to the heater box. This will start the Flame Out Timer. If the flame signal doesn't come on before the timer expires, the dryer will fault on a Flame Timeout.

Title: PORTABLE DRYER: Heater Confirmation Circuit

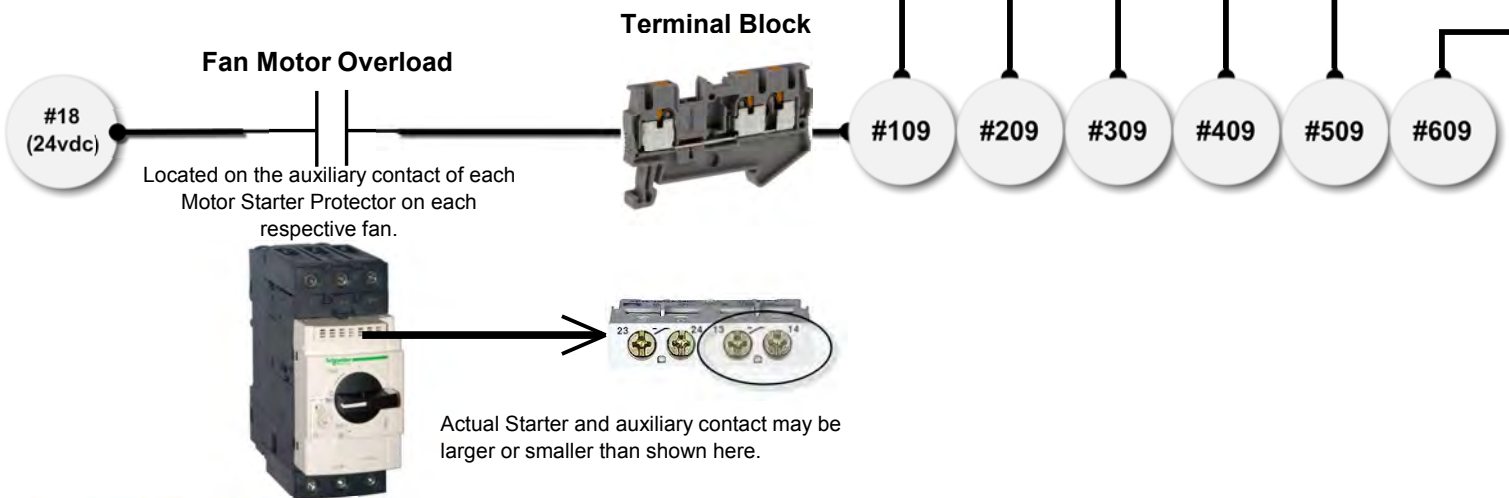
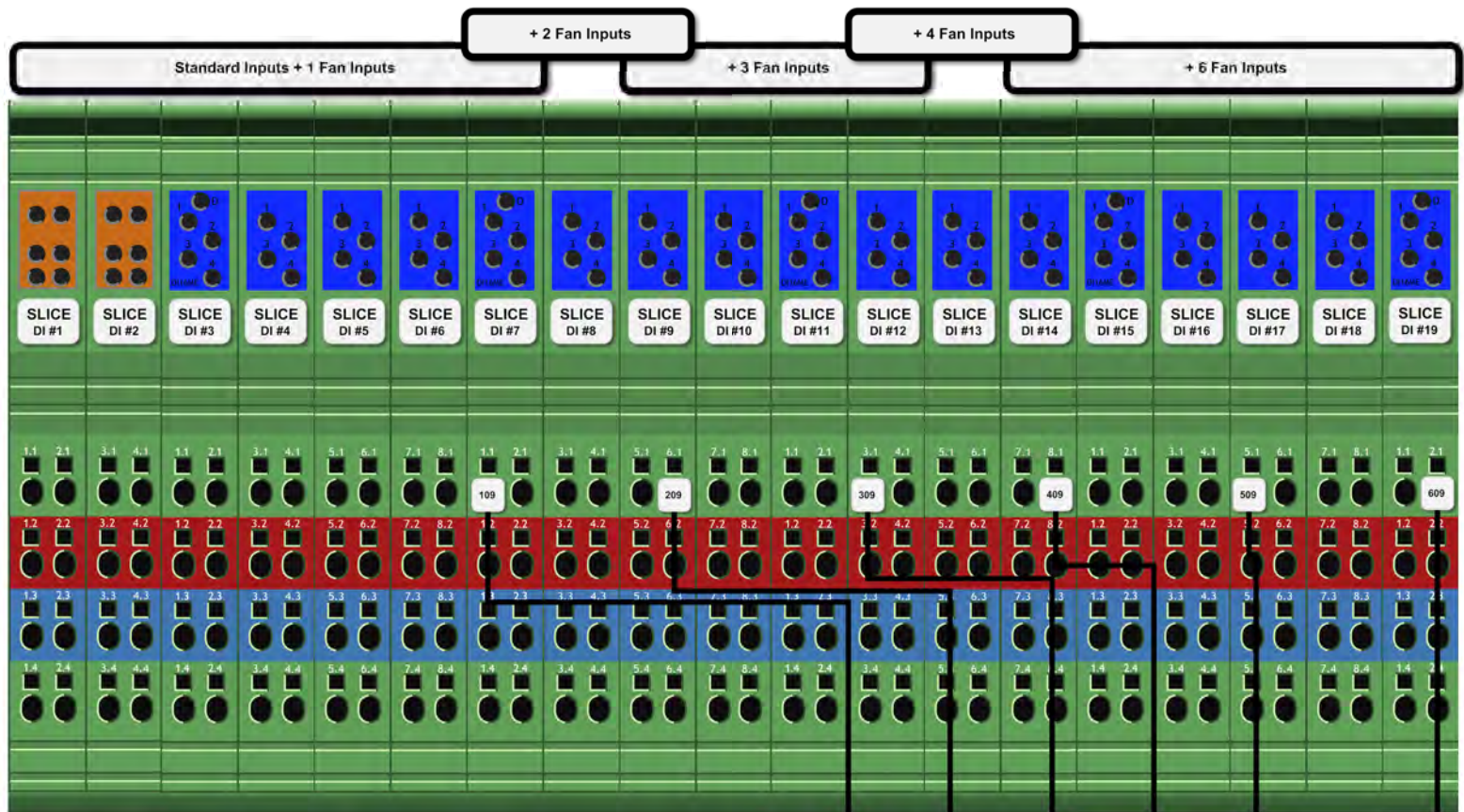
Author: SUKUP MFG CO - MRK

Date: 03/15

Revision: 6/7/2017 - DWS (1)

106.22

Fan Motor Overload Circuits #109, #209, #309, #409, #509, #609



The Fan Motor Overload Circuits are located on each of the fan starter protectors. When the starter is in operational mode, the circuit is complete. When the starter is in trip position, the circuit is open.

Title: PORTABLE DRYER: Fan Motor Overload Circuit

Author: SUKUP MFG CO - MRK

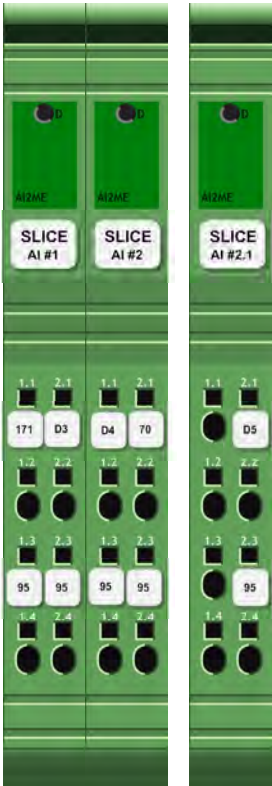
Date: 03/15

Revision: 6/7/2017 - DWS (1)

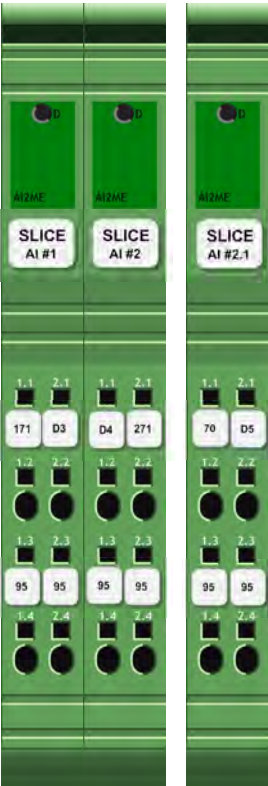
106.23

Plenum RTD Transmitter

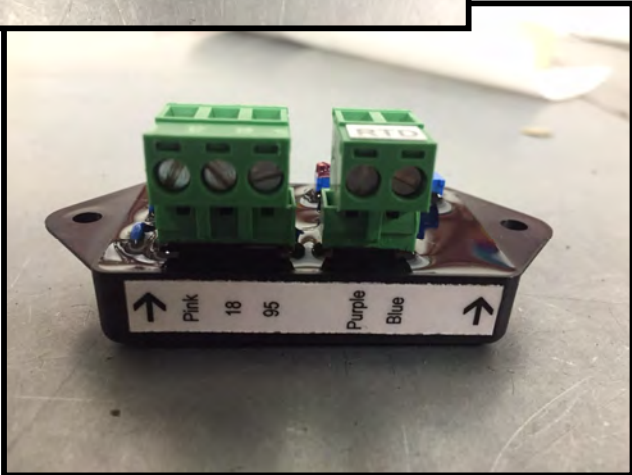
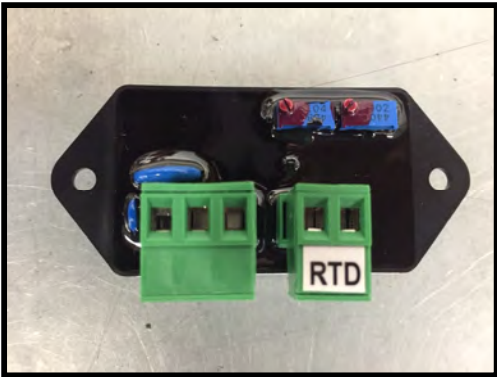
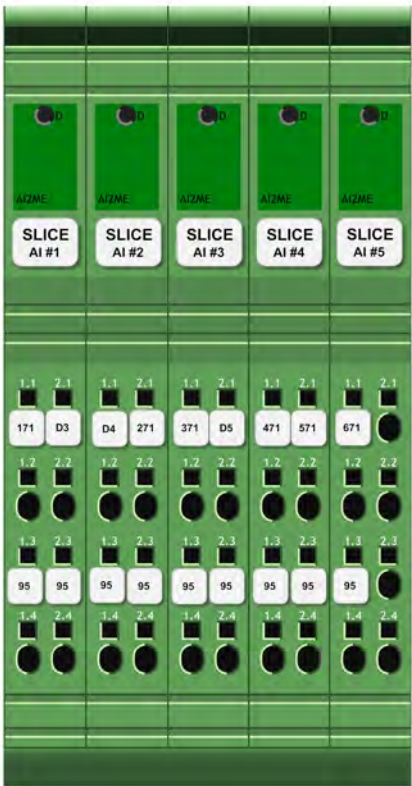
1 Fan



2 Fan



3-6 Fan



**Pink - DC voltage Reference to PLC
(171, 271, 371, 471, 571, 671)**

**Wire #18 - 24vdc Power
Wire #95 - dc common (-)**

**Purple - Resistance from RTD
Blue - Resistance from RTD**

Title: PORTABLE DRYER: Plenum RTD Transmitter

Author: SUKUP MFG CO - MRK

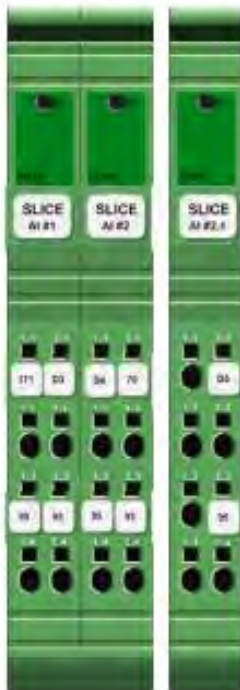
Date: 03/15

Sheet: 106.24

Revision:

Moisture Sensor

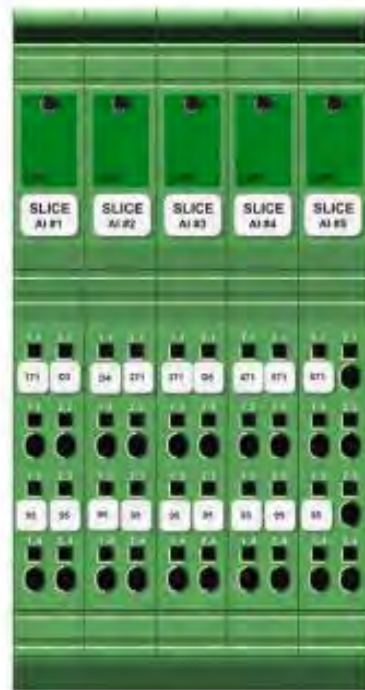
1 Fan



2 Fan



3-6 Fan



Important: Remove sensor and store in climate-controlled place when dryer is not in use.

Pinout:

Black Wire: Moisture Reference (D4 or D5)

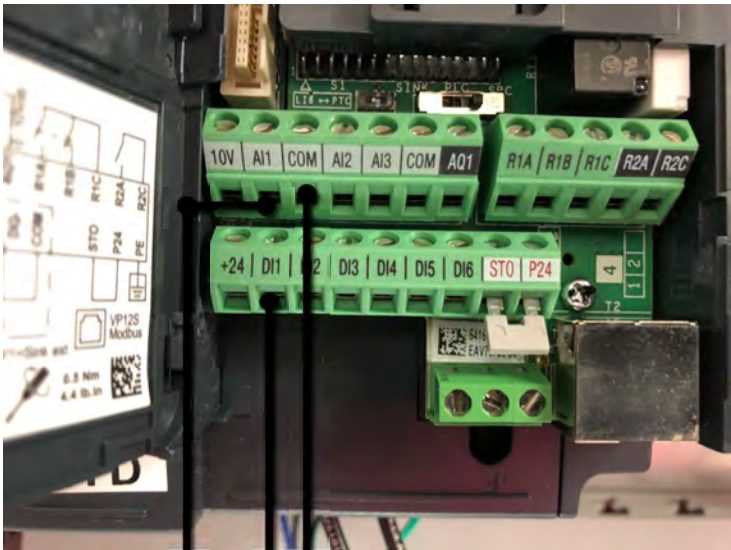
Blue Wire: Temperature Reference (D3)

Brown: #18 - 24vdc Supply

White: #95 - DC common (-)

Title: Moisture Sensor	
Author: SUKUP MFG CO - MRK	
Date: 03/15	Sheet: 106.25
Revision: 8/12/2024 – JTB	

ATV 320 VFD Wiring Diagram



#95 Black → COM
 #17 Gray → AI1
 #21D Blue → DI1

#17 Meter Roll
 Reference Voltage

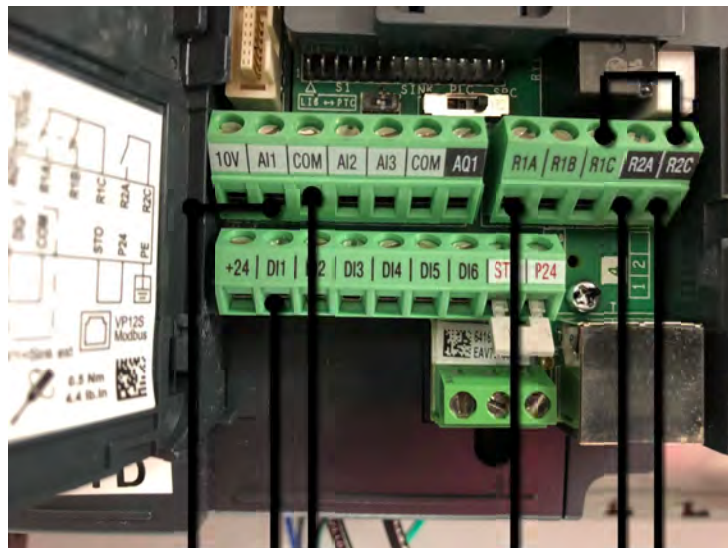
K2B Relay Pin#14



#95 DC Common (-)

Title: VFD Control Wiring ATV320	
Author: SUKUP MFG CO - MRK	
Date: 03/16	
Revision:	106.26

ATV 320 VFD Wiring Diagram Drag Unload



#95 Black → COM
 #17 Gray → AI1
 #21D Blue → DI1
 #18 Orange → R1C & R2C
 #49A Purple → R1A
 #94 Purple → R2A

#17 Meter Roll
Reference Voltage

K2B Relay Pin#14

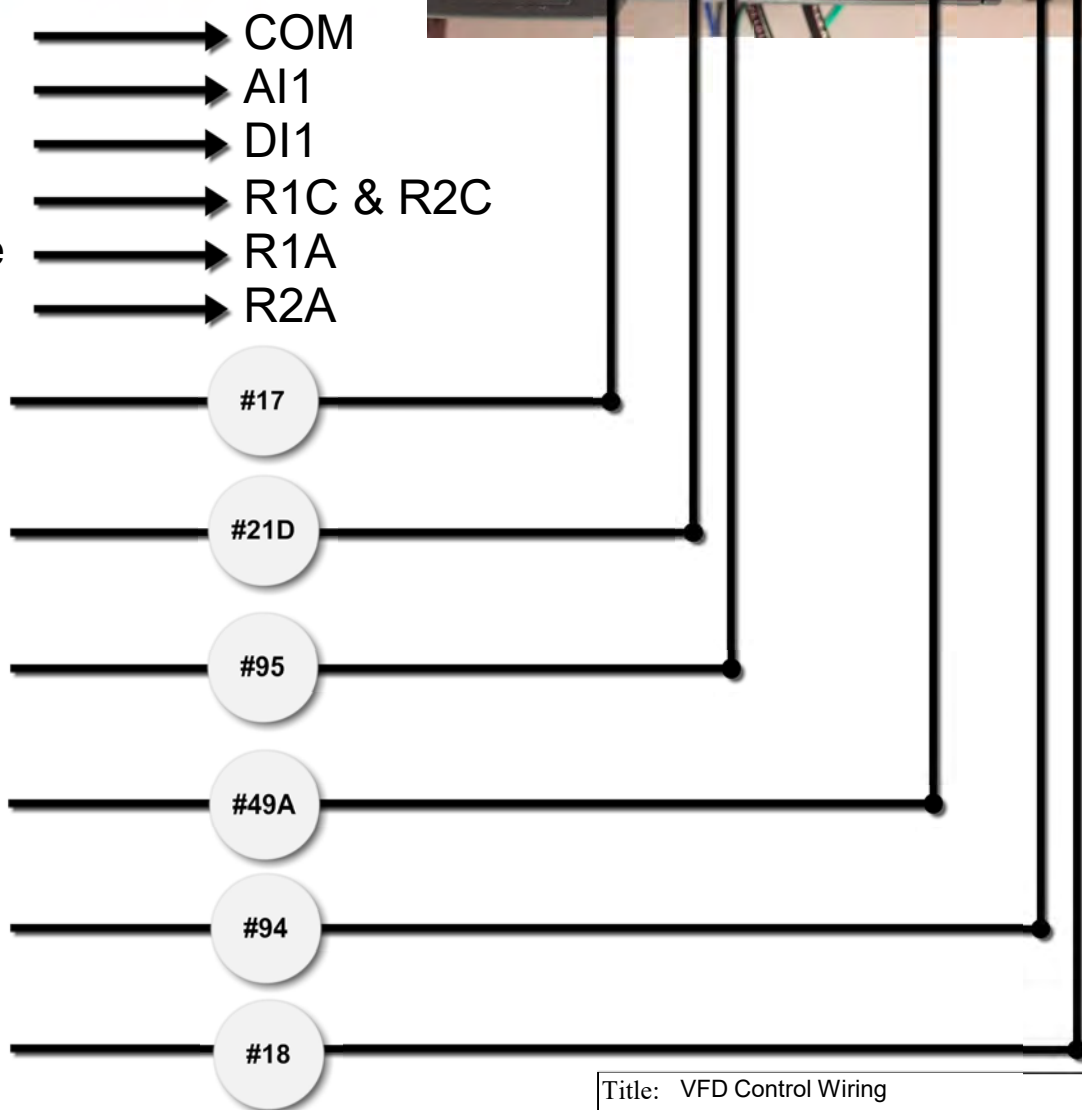


#95 DC Common (-)

#49A VFD Motor
Overload

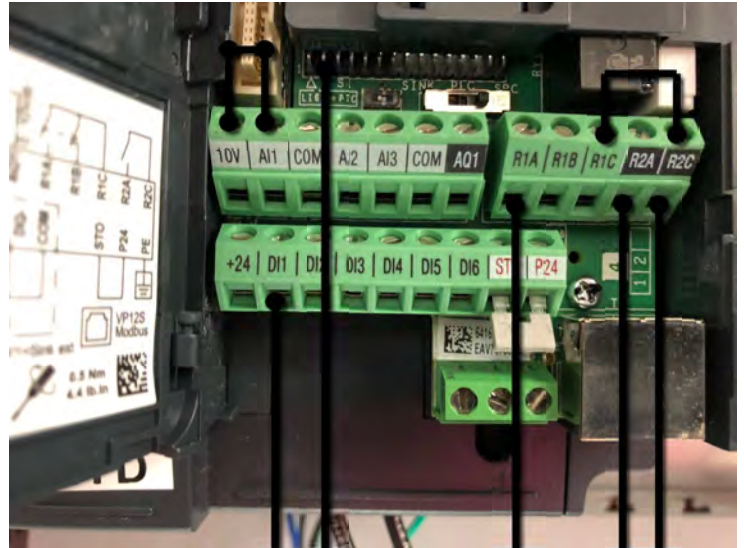
#94 Unload
Confirmation

#18 24vdc (+)



Title: VFD Control Wiring ATV320 Drag	
Author: SUKUP MFG CO - MRK	
Date: 03/2018	
Revision:	106.27

ATV 320 VFD Wiring Diagram Fan Motor



- #95 Black → COM
- 10V → AI1
- #X10D Blue → DI1
- #18 Orange → R1C & R2C
- #X09 Purple → R1A
- #X07 Purple → R2A

Fan Relay Pin#14



#X10
D

#95 DC Common (-)

#95

#X09 VFD Motor
Overload

#X09

#X07 Fan
Confirmation

#X07

#18 24vdc (+)

#18

From VFD Pin R2A

#X07

K2X Heater Interlock



- A1 - #X07
- A2 - #95
- 11 - #X10C
- 14 - #x10H

Special Note:

R2A - Wire #X07 (VFD in RUN mode - Confirmation of full run speed)

#X07 also energizes a 24VDC relay that acts as an auxiliary contact for the VFD. When energized, it serves the purpose of the heater interlock for X10C and X10H. (K21 for Fan 1, K22 Fan 2, K23 Fan 3, K24 Fan 4)

Title: VFD Control Wiring
ATV320 Fan Motor

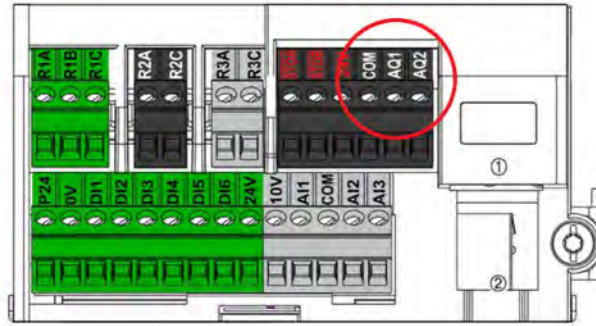
Author: SUKUP MFG CO - MRK

Date: 08/2019

Revision:

106.28

ATV 630 VFD Wiring Diagram Fan Motor



Blue #X10D ----- DI1
 Black #95 ----- COM (Next to AI1)
 Orange #18 ----- R1C
 Purple #X00 ---- R1A (VFD/Soft Start Fault)
 Orange #18 ----- R2C (Jumped from R1C)
 Purple #X07 ---- R2A (Motor Running)
 Red #X10C ----- R3C (Heater Interlock Circuit)
 Red #X10H ----- R3A (Heater Interlock Circuit))
 10V Jumer to AI1

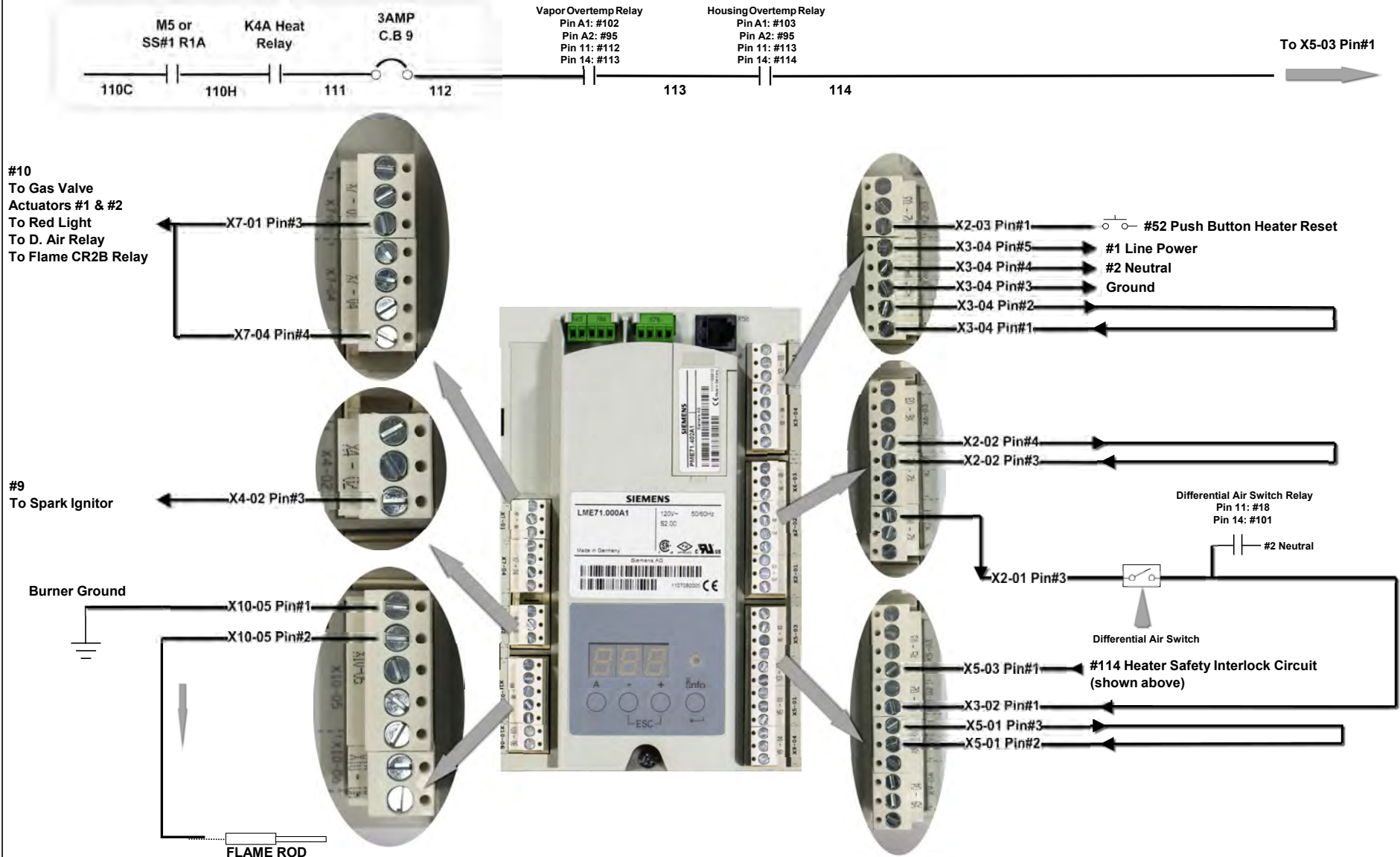
Special Note:

The ATV 630 has a 3rd programmable relay, so the heater interlock circuit is run through the R3 contact unlike the ATV320 and the ATS22.

Title: VFD Control Wiring ATV630 Fan Motor	
Author: SUKUP MFG CO - MRK	
Date: 08/2019	
Revision:	106.29

Heater Control Unit LME71.000A1

Located in Power Box



Title: Portable Dryer Heater Control Unit - LME71 CSA

Author: SUKUP MFG CO - MRK

Date: 6/15

Sheet: 107.7

Revision:

Sukup Heater Ignition Board - D39481

Located in Power Box - Heater Pos. 1 Shown

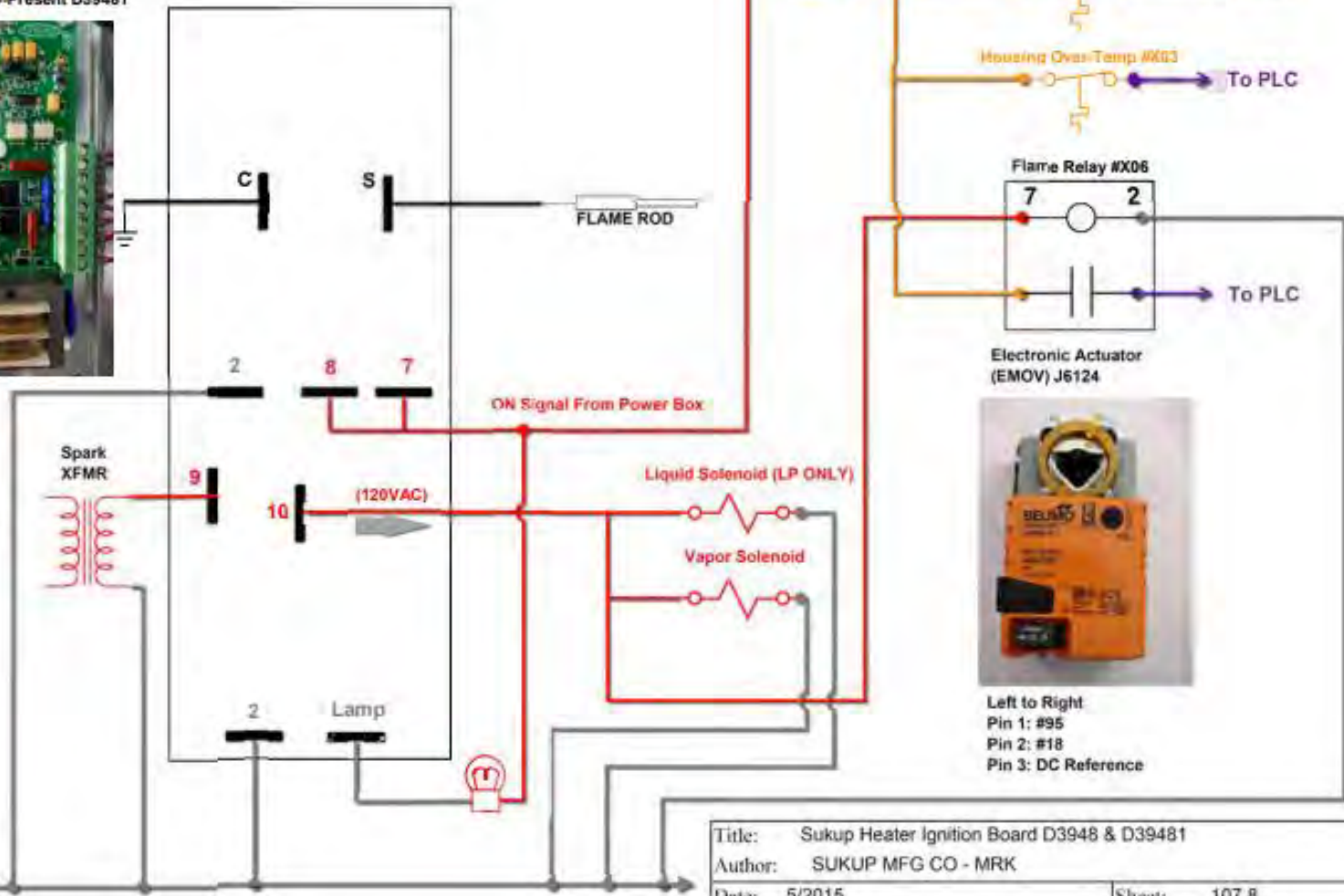
Red Wires are 110VAC
Gray Wires are AC Neutral
Orange Wires are 24VDC
Blue Wires are 24VDC
Purple Wires are 24VDC



Heater Board
2019-Present D39481



D39481 has a pluggable harness (shown below)



Left to Right
Pin 1: #95
Pin 2: #18
Pin 3: DC Reference

Title: Sukup Heater Ignition Board D3948 & D39481

Author: SUKUP MFG CO - MRK

Date: 5/2015

Sheet: 107.8

Revision: 8/12/2024 - JTB

ATS22 Soft Start Wiring

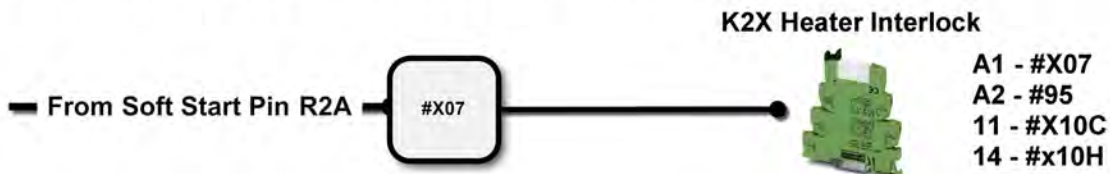


- CL1 - Wire #1 (Line, 110VAC)
- CL2 - Wire #2 (Neutral)
- R1C - Wire #18 (24vdc)
- R1A - Wire #(X00) (Soft Start Fault Monitoring)
- R2C - Wire #18 (24vdc)
- R2A - Wire #X07 (Soft Start in RUN mode - Confirmation of full run speed)
- LI1 - Wire #1 (Line, 110VAC)
- LI2 - Wire #X10C (110Vac Run Command from Fan X Relay)
- COM- Wire #2 (Neutral)

Special Note:

R2A - Wire #X07 (Soft Start in RUN mode - Confirmation of full run speed)

#X07 also energizes a 24VDC relay that acts as an auxiliary contact for the Soft Start. When energized, it serves the purpose of the heater interlock for X10C and X10H. (K21 for Fan 1, K22 Fan 2, K23 Fan 3, K24 Fan 4)



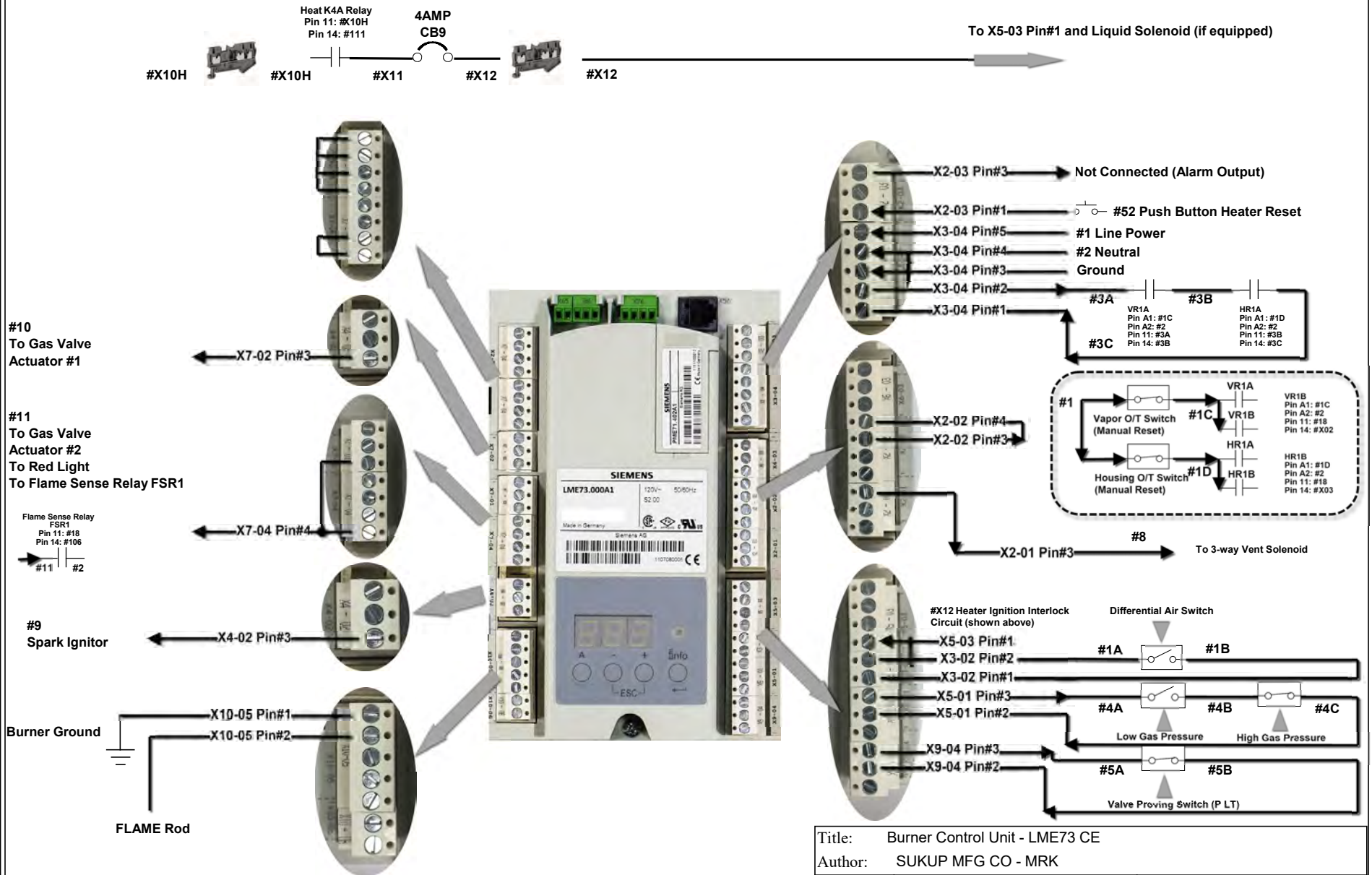
Title: ATS22 Soft Start Wiring

Author: SUKUP MFG CO - MRK

Date: 6/16

Revision: 3/24/2020 - MRK (1) 107.24

Heater Control Unit LME73.000A1



Title: Burner Control Unit - LME73 CE

Author: SUKUP MFG CO - MRK

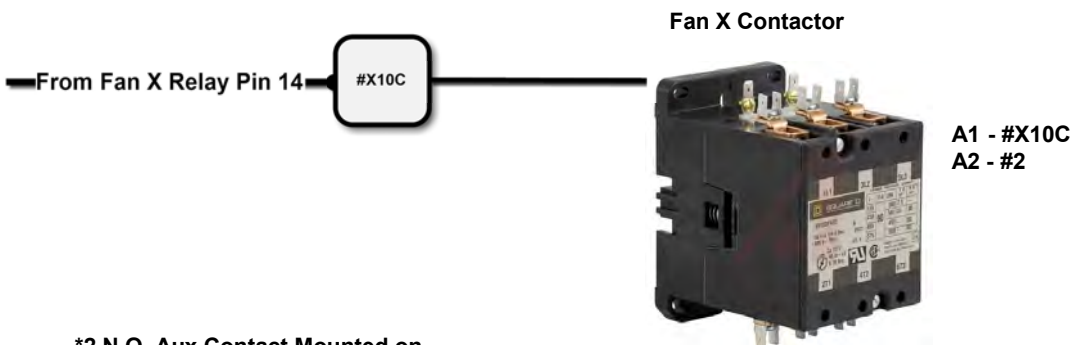
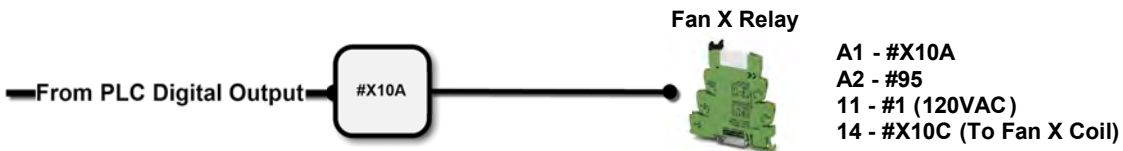
Date: 1/2019

Sheet: 107.25

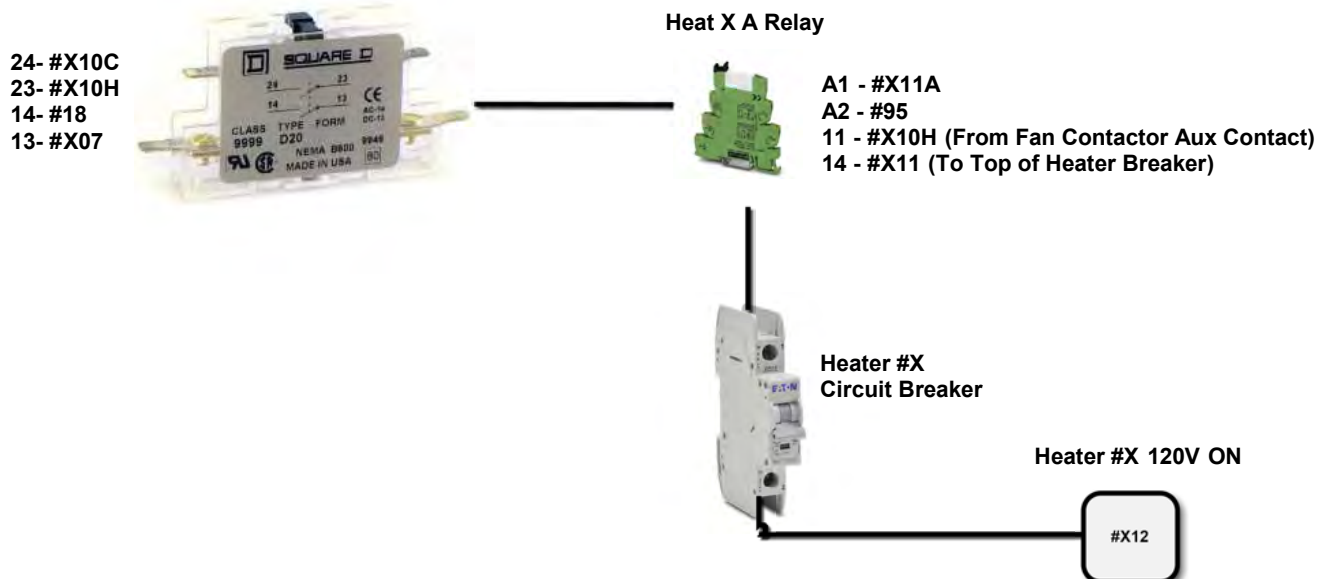
Revision:

Fan / Heater Interlock Circuit

"X" is dictated by the Fan Position. Fan #1 is always the lowest fan. Fans are counted from the ground up, like floors on a building. Pictures of components like relays, contactors, and auxiliary contacts may vary from your actual product.



*2 N.O. Aux Contact Mounted on the side of the Fan X contactor



*Older Dryers that do not have thermal magnetic breakers with Fault monitoring (Prior to MY 2008) will require a 240VAC relay in place of the 2 N.O. Auxiliary Contact to avoid possible contactor closure without power present.

Title: PORTABLE DRYER: Fan/Heater Wiring

Author: SUKUP MFG CO - MRK

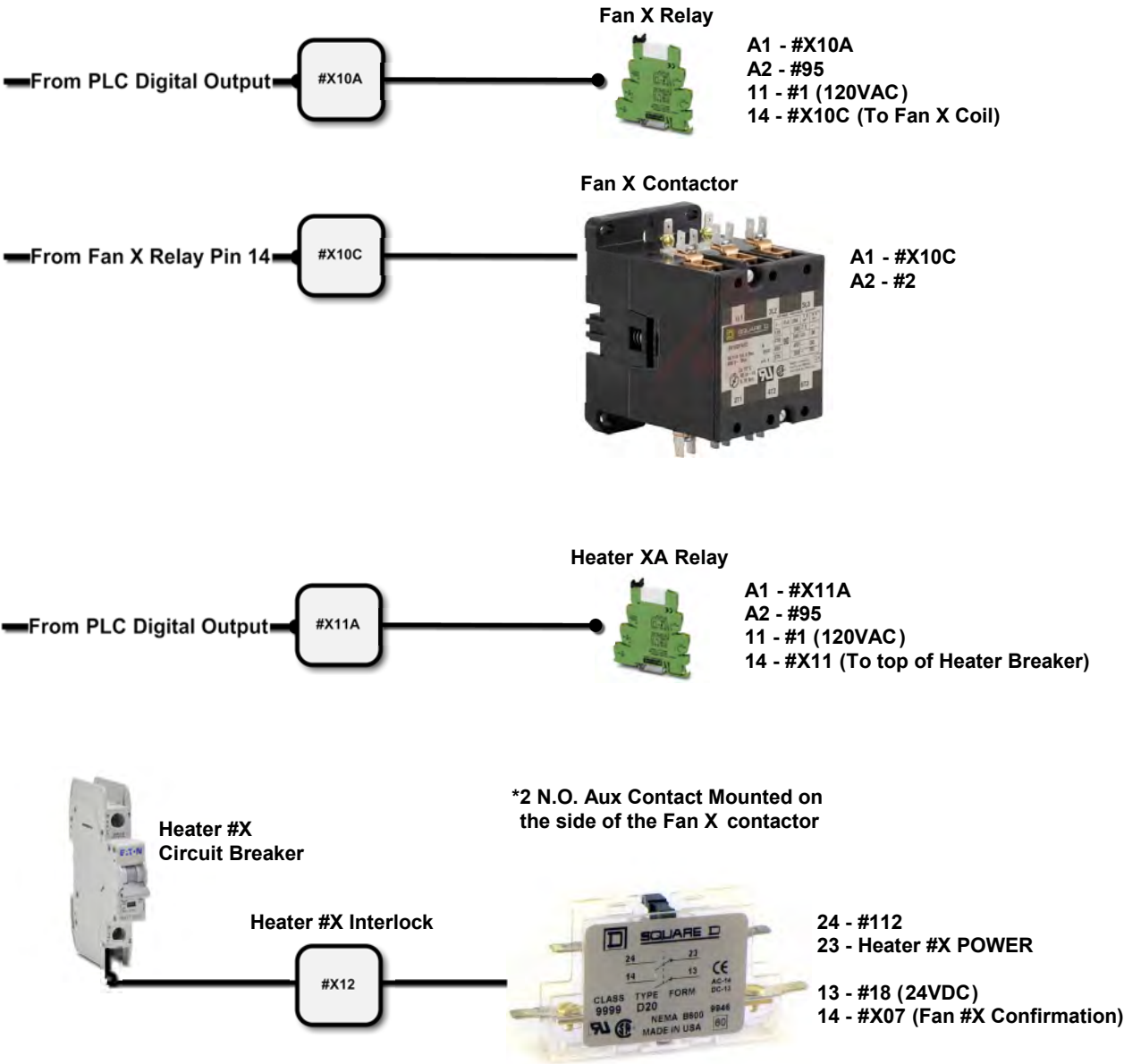
Date: 3/16

Sheet: 113.1

Revision:

Retrofit Fan / Heater Interlock Circuit

"X" is dictated by the Fan Position. Fan #1 is always the lowest fan. Fans are counted from the ground up, like floors on a building. Pictures of components like relays, contactors, and auxiliary contacts may vary from your actual product.



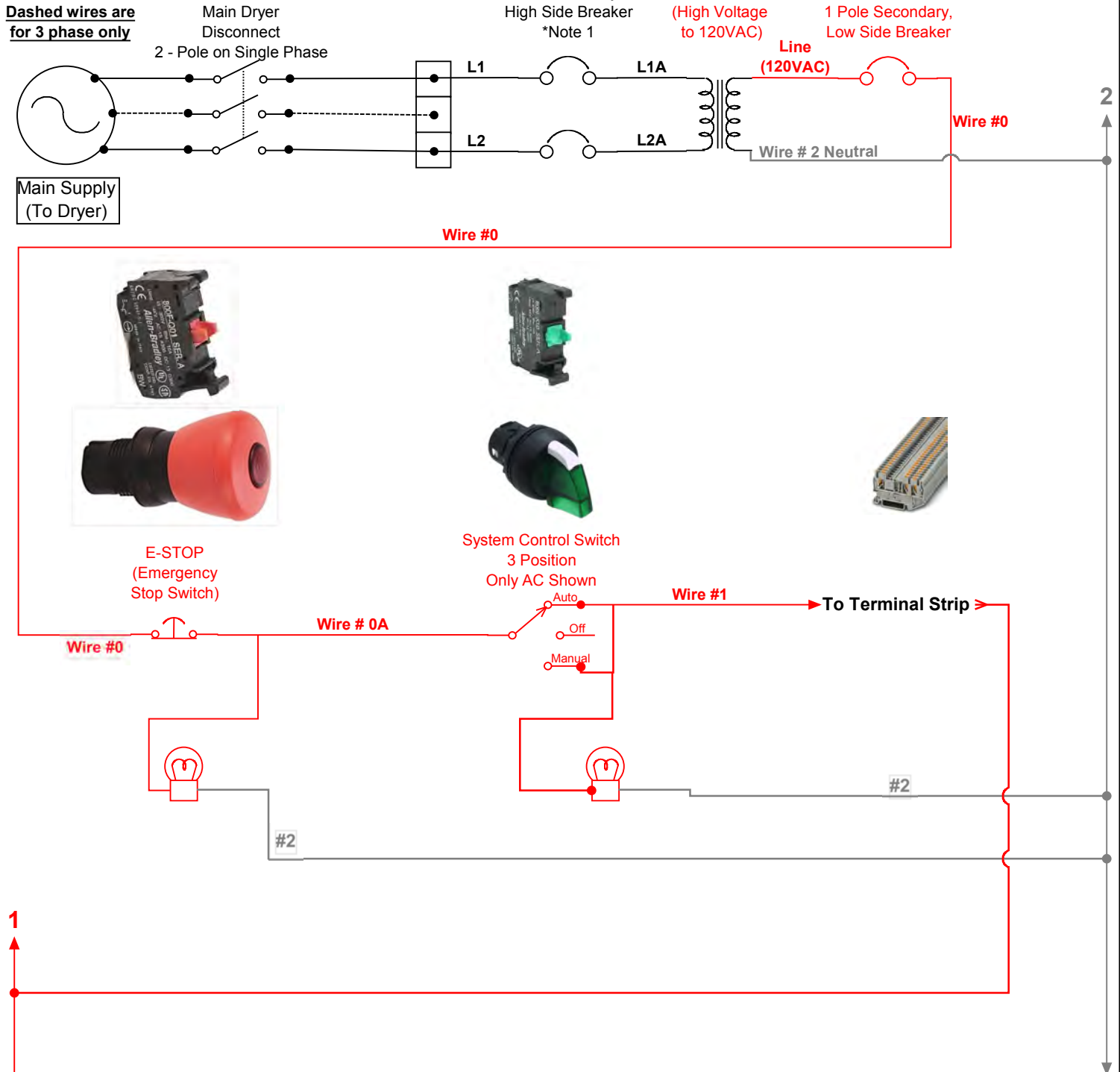
*Older Dryers that do not have thermal magnetic breakers with Fault monitoring (Prior to MY 2008) will require a 240VAC relay in place of the 2 N.O. Auxiliary Contact to avoid possible contactor closure without power present.

Title: PORTABLE DRYER: Retrofit Fan/Heater Wiring	
Author: SUKUP MFG CO - MRK	
Date: 3/16	Sheet: 113.2
Revision:	

Emergency Stop and AC System Control Switch Wiring



Dashed wires are for 3 phase only



NOTE 1: 575VAC is Fused Instead of 2 Pole breaker shown

Red Wires are 110VAC
 Gray Wires are AC Neutral
 Orange Wires are 24VDC
 Blue Wires are 24VDC
 Purple Wires are 24VDC
 Black Wires are DC Ground

Title: PORTABLE DRYER: Emergency Stop and System Control Switch Wiring

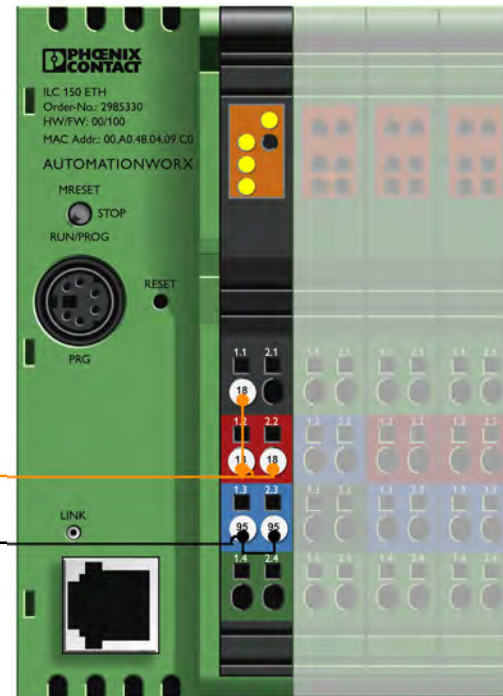
Author: SUKUP MFG CO - MRK

Date: 03/15

Sheet: 115.1

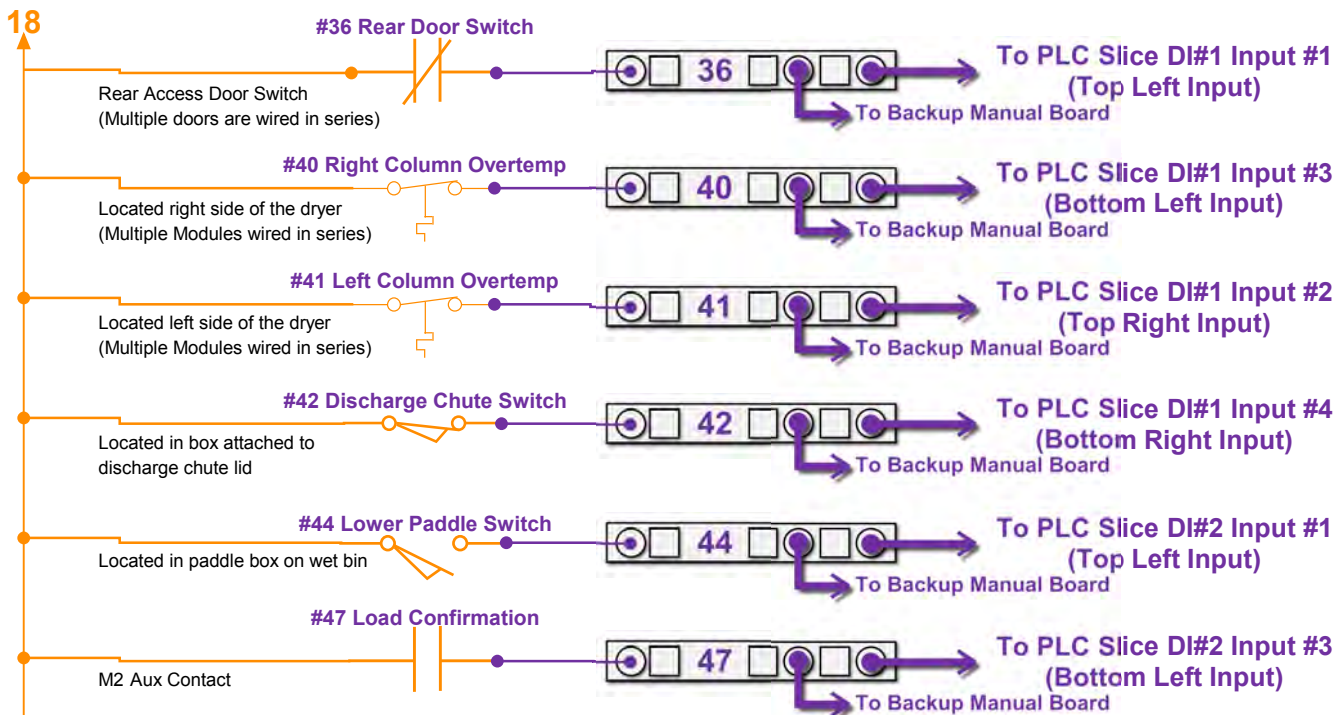
Revision: 6/7/2017 - DWS (1)

24VDC Power Supply



Revision: 11/17/2017 - DWS(1)

PLC Digital Inputs 1-6 Fan



Red Wires are 110VAC
Gray Wires are AC Neutral
Orange Wires are 24VDC
Blue Wires are 24VDC
Purple Wires are 24VDC
Black Wires are DC Ground

Title:	PORTABLE DRYER: Digital Input Ladder Diagram
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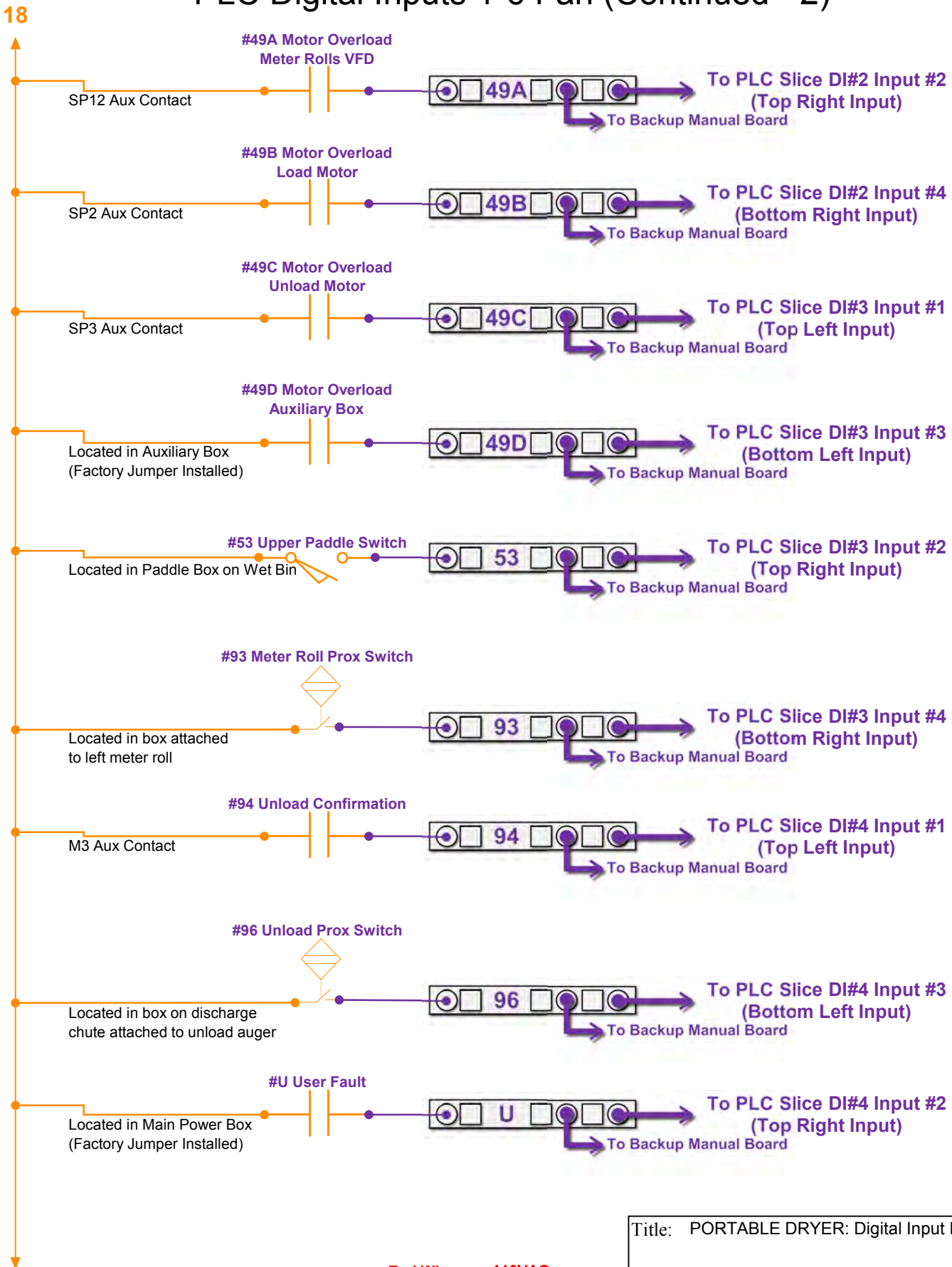
Author: SUKUP MFG CO - DWS

Date: 6/7/2017

Sheet: 115.3

Revision:

PLC Digital Inputs 1-6 Fan (Continued - 2)

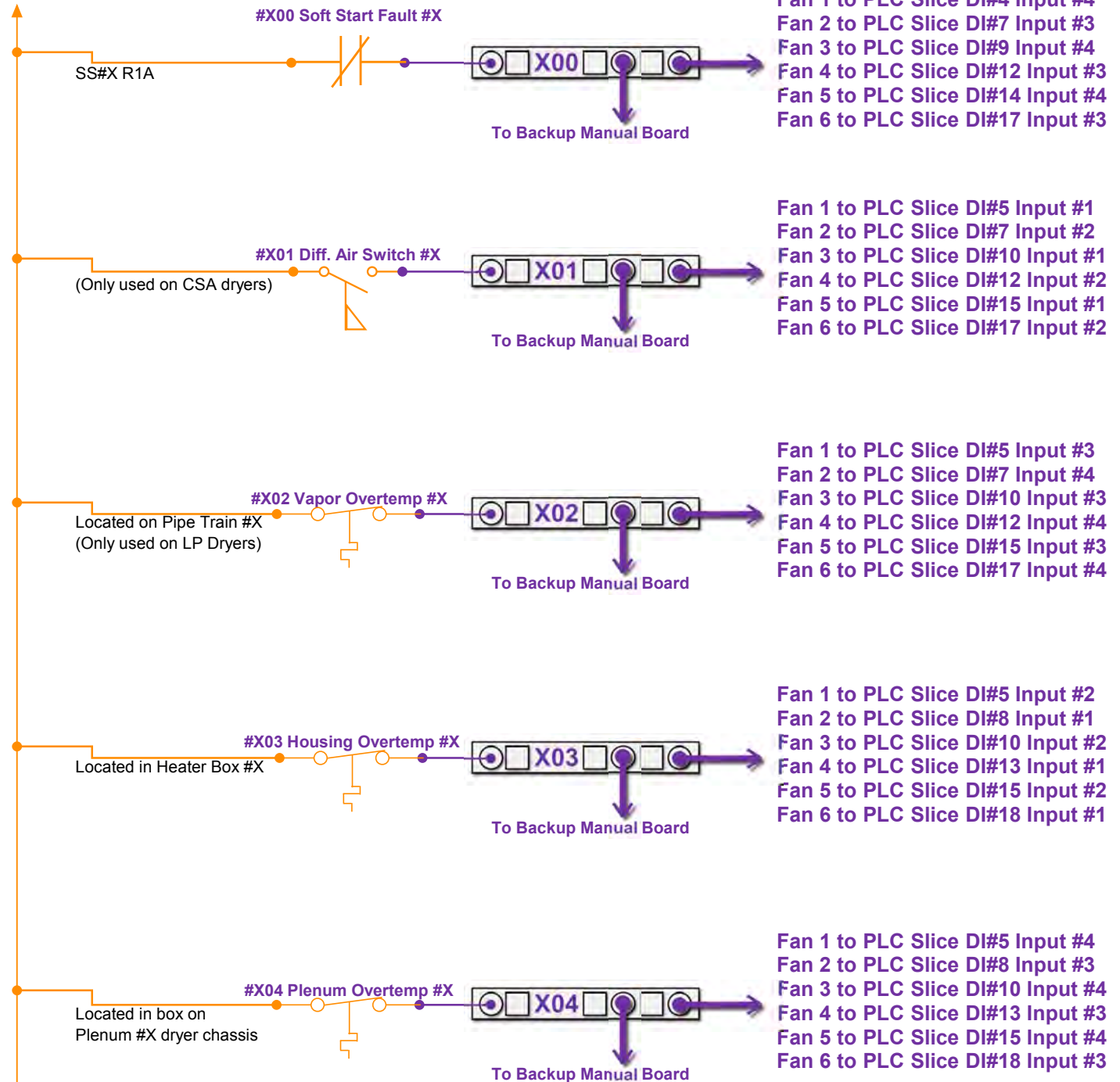


Red Wires are 110VAC
 Gray Wires are AC Neutral
 Orange Wires are 24VDC
 Blue Wires are 24VDC
 Purple Wires are 24VDC
 Black Wires are DC Ground

Title: PORTABLE DRYER: Digital Input Ladder Diagram	
Author: SUKUP MFG CO - DWS	
Date: 6/7/2017	Sheet: 115.4
Revision:	

PLC Digital Inputs 1-6 Fan (Continued - 3)

18



Replace "X" with Fan Number

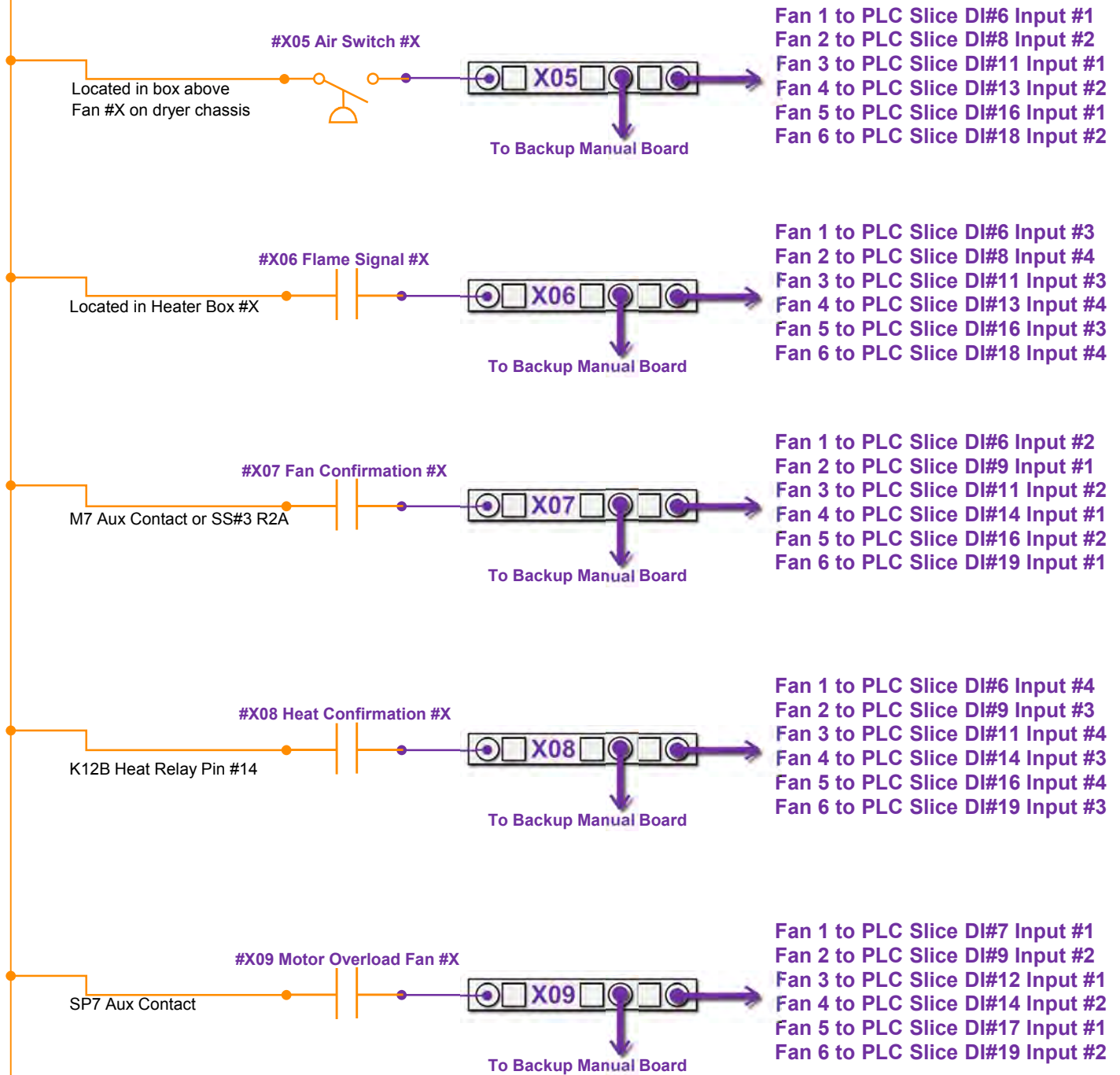
PLC Input Reference
Input #1 - Top Left
Input #2 - Top Right
Input #3 - Bottom Left
Input #4 - Bottom Right

Red Wires are 110VAC
Gray Wires are AC Neutral
Orange Wires are 24VDC
Blue Wires are 24VDC
Purple Wires are 24VDC
Black Wires are DC Ground

Title: PORTABLE DRYER: Digital Input Ladder Diagram	
Author: SUKUP MFG CO - DWS	
Date: 6/7/2017	Sheet: 115.5
Revision:	

PLC Digital Inputs 1-6 Fan (Continued - 4)

18



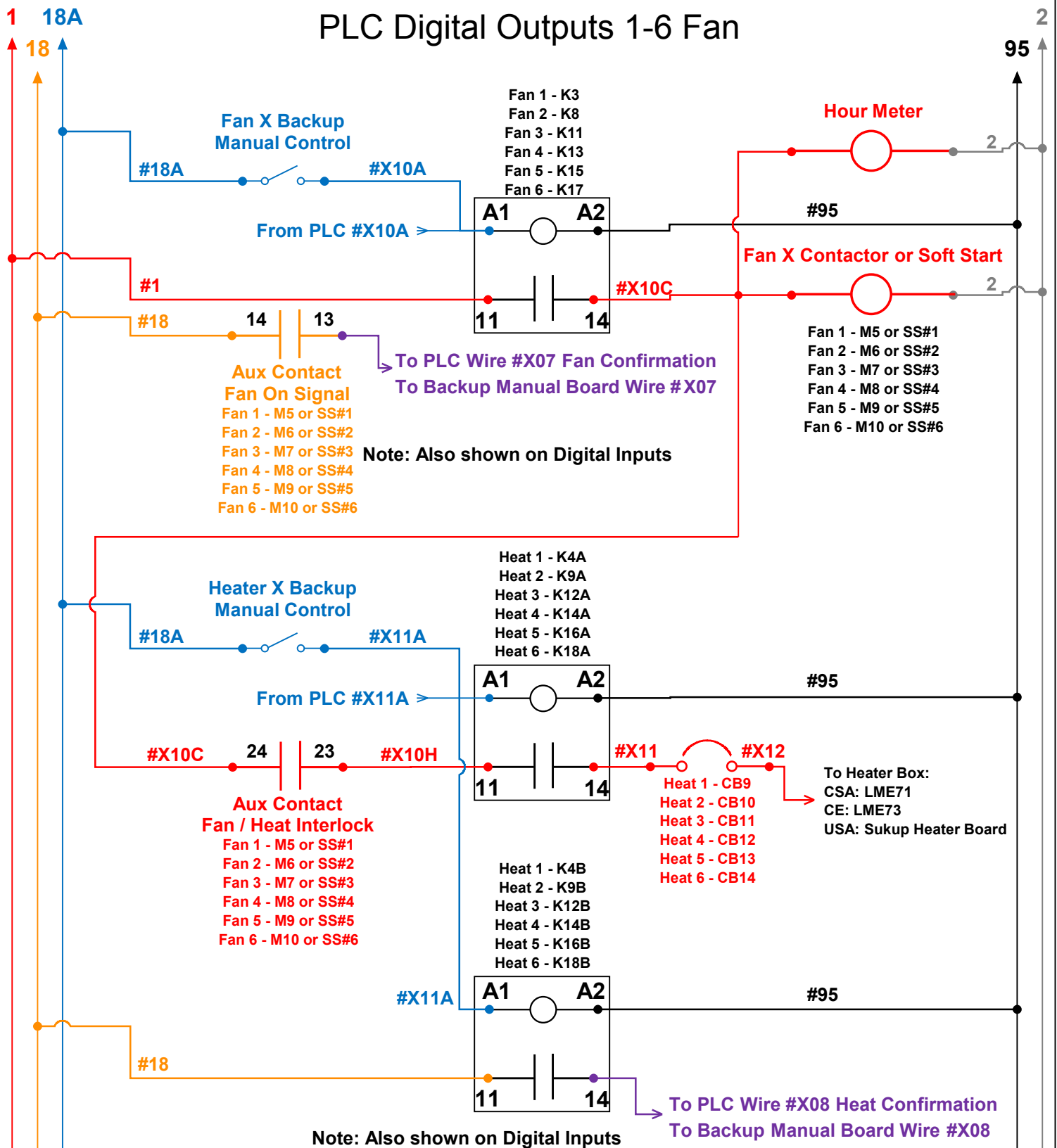
Replace "X" with Fan Number

PLC Input Reference
Input #1 - Top Left
Input #2 - Top Right
Input #3 - Bottom Left
Input #4 - Bottom Right

Red Wires are 110VAC
Gray Wires are AC Neutral
Orange Wires are 24VDC
Blue Wires are 24VDC
Purple Wires are 24VDC
Black Wires are DC Ground

Title: PORTABLE DRYER: Digital Input Ladder Diagram	
Author: SUKUP MFG CO - DWS	
Date: 6/7/2017	Sheet: 115.6
Revision:	

PLC Digital Outputs 1-6 Fan

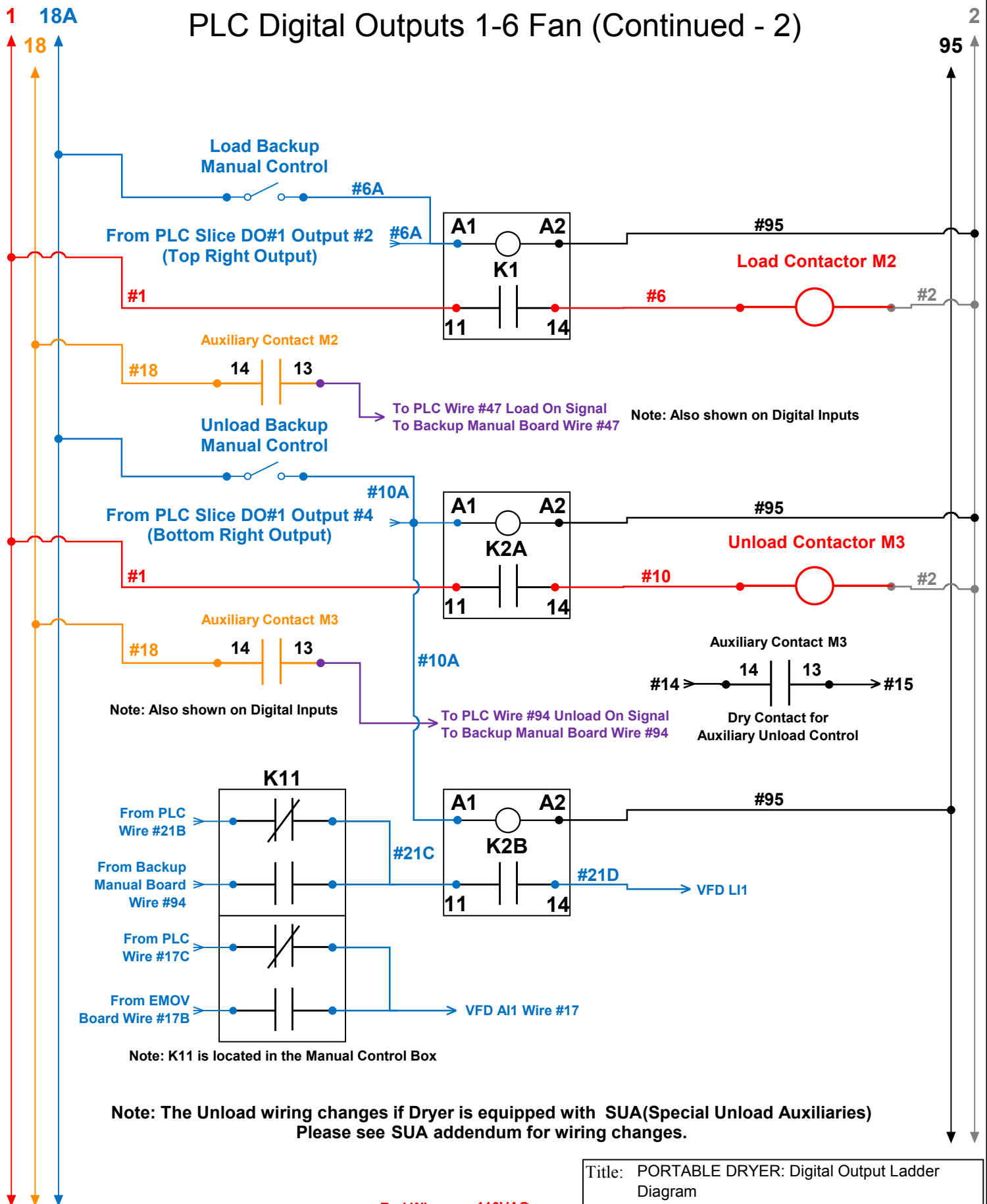


Note: Replace X in wire number with Fan or Heater Number

Red Wires are 110VAC
 Gray Wires are AC Neutral
 Orange Wires are 24VDC
 Blue Wires are 24VDC
 Purple Wires are 24VDC
 Black Wires are DC Ground

Title: PORTABLE DRYER: Digital Output Ladder Diagram	
Author: SUKUP MFG CO - DWS	
Date: 6/7/2017	Sheet: 115.7
Revision: 11/26/2018 - DWS(1)	

PLC Digital Outputs 1-6 Fan (Continued - 2)



Title: PORTABLE DRYER: Digital Output Ladder Diagram

Author: SUKUP MFG CO - DWS

Date: 6/7/2017

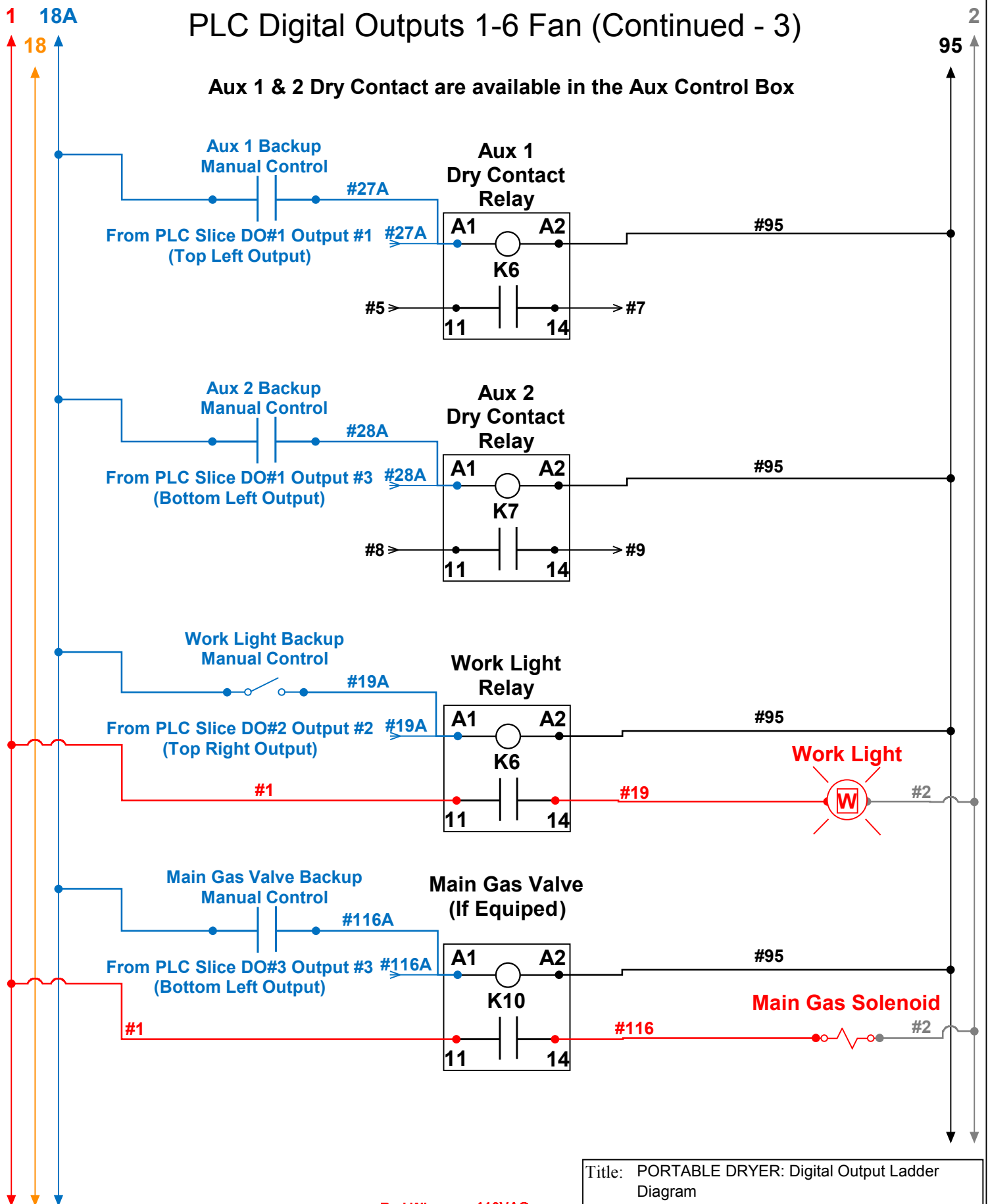
Sheet: 115.8

Revision:

Red Wires are 110VAC
Gray Wires are AC Neutral
Orange Wires are 24VDC
Blue Wires are 24VDC
Purple Wires are 24VDC
Black Wires are DC Ground

PLC Digital Outputs 1-6 Fan (Continued - 3)

Aux 1 & 2 Dry Contact are available in the Aux Control Box



Red Wires are 110VAC
 Gray Wires are AC Neutral
 Orange Wires are 24VDC
 Blue Wires are 24VDC
 Purple Wires are 24VDC
 Black Wires are DC Ground

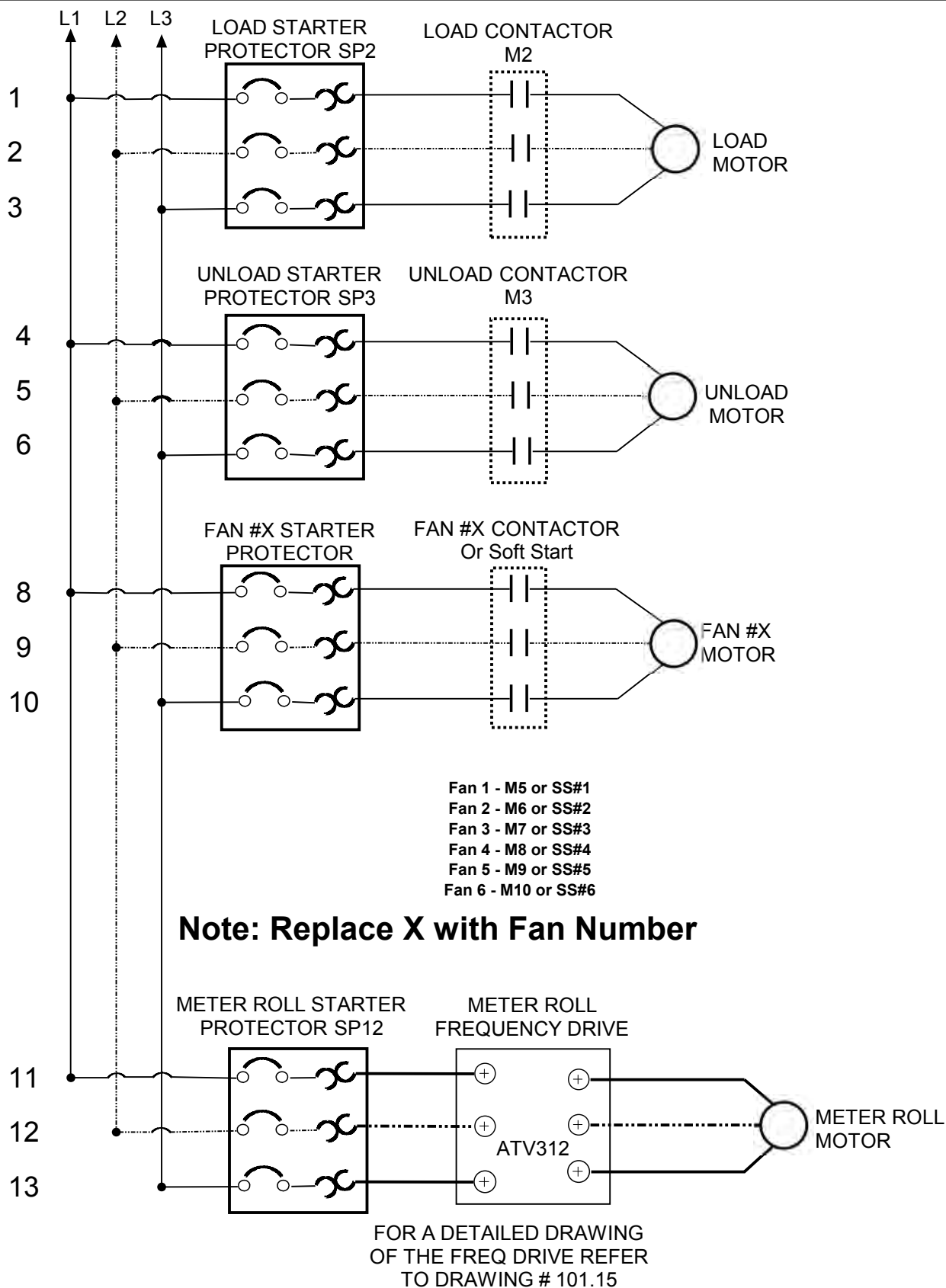
Title: PORTABLE DRYER: Digital Output Ladder Diagram

Author: SUKUP MFG CO - DWS

Date: 6/7/2017

Sheet: 115.9

Revision:



Note: Dotted/Dashed Lines are for 3 Phase Only

Title: PORTABLE DRYER: 1-6 FAN MOTOR CONTACTOR & RELAY WIRING

Author: SUKUP MFG - DWS

Date: 10/4/2017

Sheet: 115.10

Revision: