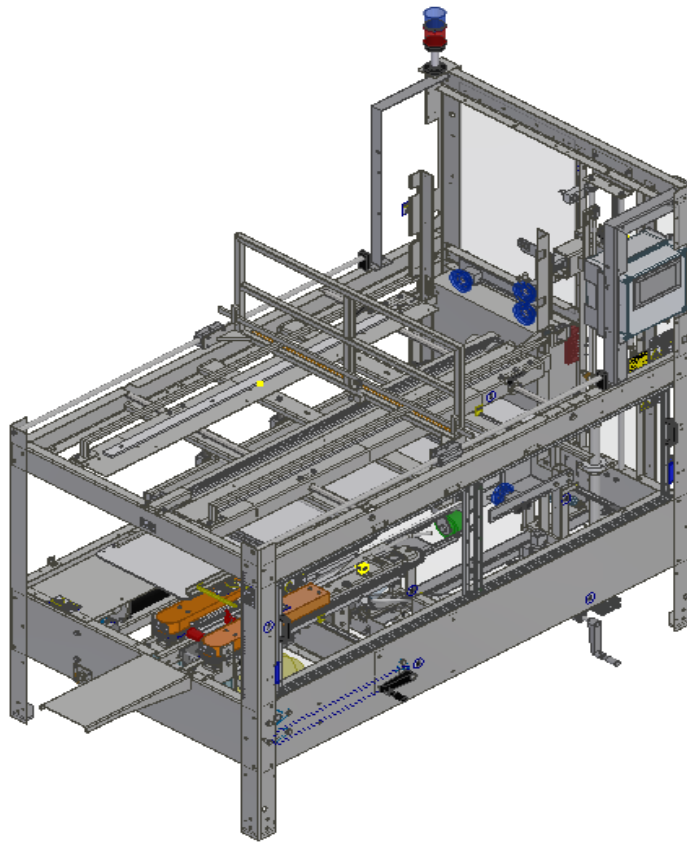


LOVESHAW

Little David™ Case Sealer

CF25

Case Erector



Version: P – Valid from October, 2019

P/N: CF25-OM

Operator's Manual

Little David™ CASE ERECTOR CF25 Operation

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INTRODUCTION

Thank you for purchasing the Little David™ case erector, the CF25. The CF25 is an automatic case erector and bottom sealer. The CF25 is a robust built 24/7 case erector constructed of quality materials, bearings, pneumatic and electrical components. All employees who will be required to operate and maintain the case erector **must** read this manual to ensure safe operation as well as proper set-up and maintenance throughout the life of the machine. After reading this manual, you will know how to perform the following functions:

- How to install the machine.
- How to operate the machine safely.
- Troubleshooting and replacing of worn or defective parts.

Throughout this manual there are several illustrations designed to help you perform the variety of tasks described.

Chapter

2

OPERATING SAFETY

This manual contains operator information for Little David Application Equipment. It is directed toward the person who operates and maintains the machine. Read through the manual completely before operating the machine. Thereafter, refer to it as necessary.

Take special note of all warnings, cautions, and maintenance instructions. Like any other piece of equipment, the Little David Case Erector functions best when maintained and used correctly.

Observe the warnings and cautions below when using the Little David CF25 case sealer. Within this manual, on page 5, all safety labels are depicted with location and part numbers. If a safety, label is missing or not legible it must be replaced immediately. Failure to follow safety labels can lead to injury or damage to the machine.

Instructions

Instructions are requirements to system operations.

Instruction: An electrical receptacle must be located near the machine. The line cord connection to the receptacle is the disconnect means for the machine. The receptacle must be located in an area that is easily accessible to all personnel.

Warnings

Warnings help prevent potential bodily injury.

- Warning:** This machine is equipped with moving parts. Do not place hands in the machine when parts are moving. Always use a roller-type exit conveyor, and always remove boxes after they clear the exit end of the machine.
- Warning:** Always disconnect all sources of energy to the machine before performing maintenance. Sources of energy include but are not limited to electrical and pneumatic. Refer to your company's lock out tag out procedures.
- Warning:** Never bypass or remove safety guards from the machine or tape cartridge.
- Warning:** Never override safety devices such as Emergency Stop switches.
- Warning:** Never adjust the machine or tape cartridges when the machine is operating.
- Warning:** Never place hands or body inside confines of the machine unless all power sources are locked out.
- Warning:** Never wear jewelry, loose clothing, such as ties, scarves etc. and long hair must be pulled back when operating this machine.
- Warning:** Never pull a jammed box out of the machine while it is in operation.
- Warning:** Use caution when near cartridge knife or when threading tape. The knife is very sharp, automatically operated and linked to the wipe-down rollers.
- Warning:** Do not attempt to open or work on the electrical box, junction boxes, or other electrical components without first disconnecting power to the machine. Shock hazard exists if the power is not disconnected.

Cautions

Cautions help prevent potential machine damage.

- Caution:** Provide and use proper electrical power.
- Caution:** Do not operate, maintain, or otherwise use this machine, except as described in this manual.

Safety Devices Functional Testing

It is necessary to test the functionality of the safety devices at regular time intervals. The safety emergency stop function must be tested daily before each and every shift of operation. The procedure for testing the emergency stop function is as follows:

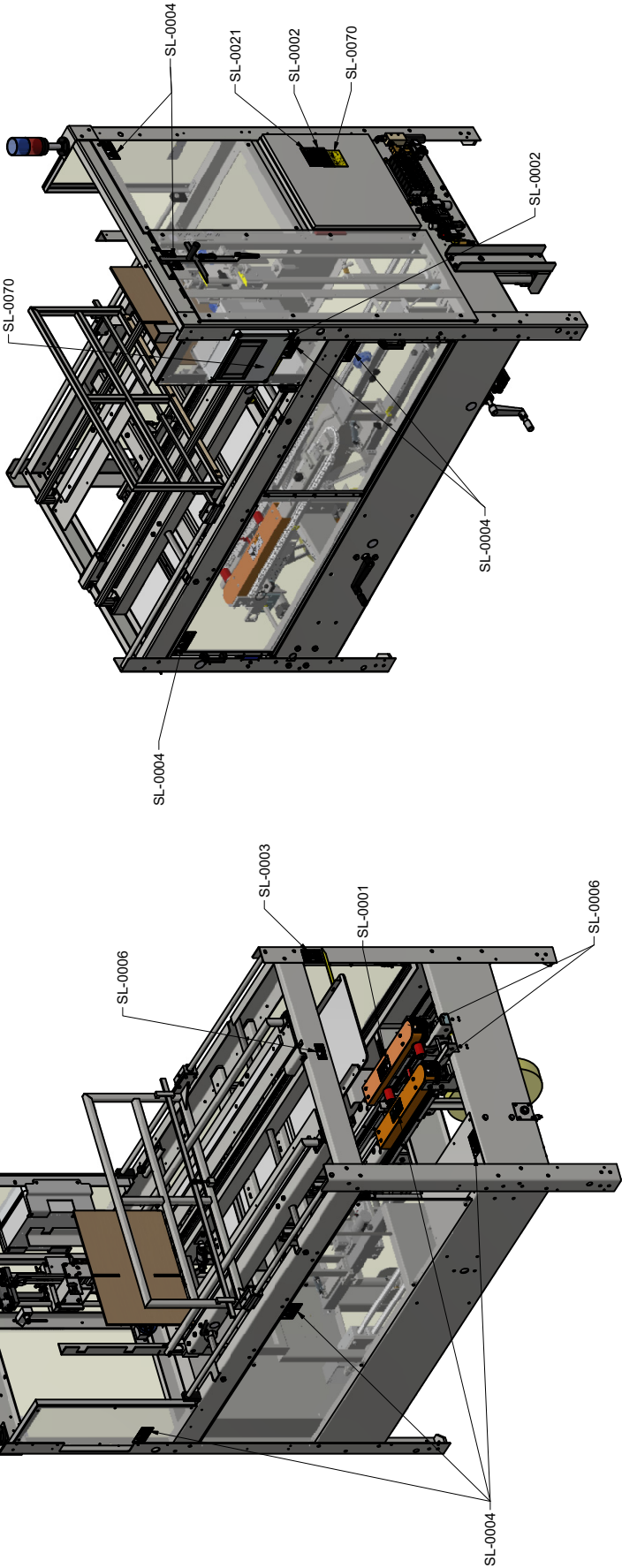
1. Connect the machine to the main electrical power source.
2. De-press the emergency stop pushbutton on the main electrical enclosure.
3. Press the start pushbutton on the main enclosure. If the machine does not start proceed to the next step. If the machine does start unplug it from the main electrical power source and report it to your supervisor. This machine cannot be used until a qualified technician corrects the issue.
4. Reset the estop pushbutton to its extended state. Push the start pushbutton the machine should start. With the machine running de-press the emergency stop pushbutton, the machine should now stop. This confirms that the emergency stop function is working correctly.
5. Test all E-Stops on the machine separately.

The overload motor relay must be tested every three months to confirm its operation. This test can only be performed by a qualify technician since it requires the enclosure door to be opened.

1. Connect the machine to the main electrical power source.
2. Insure that the emergency stop pushbutton is fully extended.
3. De-press the machine start pushbutton. The machine drive motor should start at this time.
4. Open the main electrical enclosure. Use extreme caution not to contact any live conductors.
5. Locate the overload relay and de-press the red test button on the front of the unit. The machine should stop. If the machine does not stop the overloads relay is defective and needs to be changed out. If the machine stops the overload relay passes the functionality test.
6. Install the main enclosure cover and secure all (4) screws.

Never operate a machine that does not pass the safety functional testing! Report it to management and have the machine taken out of service until the deficiency is corrected.

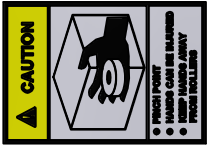
REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	1/20/2016	RTR



SL-0001



SL-0002



SL-0003



SL-0004



SL-0006



SL-0021



SL-0070



PM862

MATL	PART #	CAD FILE	SAFETY LABEL	ASSY	CF25T	UNLESS OTHERWISE NOTED:	TITLE
N/A	STD	PLOT DATE	1/20/2017	INCH	XX ± .005	ANGLES ± 1/2°	2206 EASTON TPK., SOUTH CANAAN, PA.
ST. ST.	N/A	DRAWN DATE	1/18/2017	DO NOT SCALE PRINT	XX ± .005	ANGLES ± 1/2°	CF20-T FOOT PRINT
STAINLESS	NO FINISH						
THIS DRAWING IS THE PROPERTY OF LOVESHAW. IT IS TO BE USED FOR THE MANUFACTURE OF THE EQUIPMENT ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE EXPRESS WRITTEN CONSENT OF LOVESHAW AND WILL BE RETURNED TO LOVESHAW UPON REQUEST.							
				DWG NO	CF25T	SCALE	1:13
				MATERIAL	N/A	CHECKED	
				DRAWN	thanner	APPROVED	

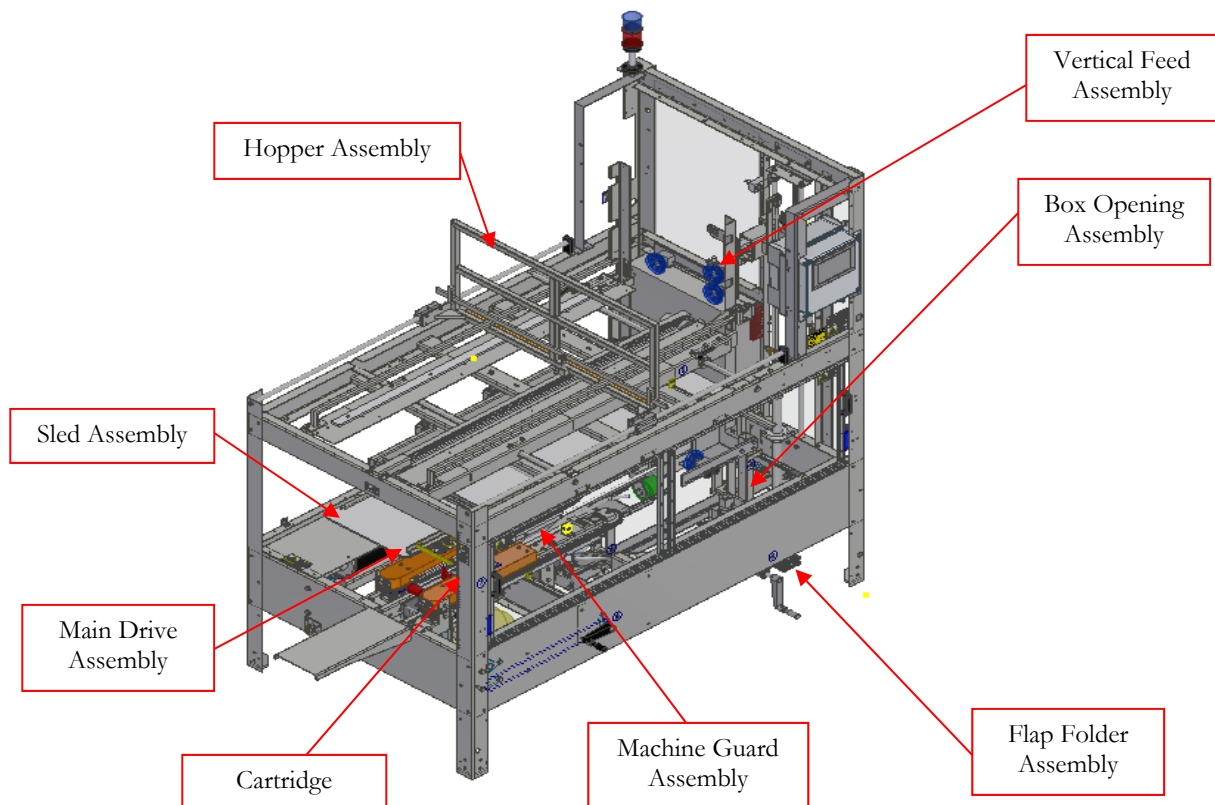
Chapter

3

OVERVIEW

Case Sealer Sections

This manual covers several parts of the machine. The following diagram identifies the some key sections of the machine.



Machine Specifications

Machine dimensions:

- Height: 75.75”
- Length : 75.13”
- Width: 43.25”
- Standard Discharge Height: 23”
- Weight: 1100 lb. uncrated

Electrical Requirements:

- Standard Voltage: 120/1/60 with 15 amp dedicated service.

Operating speed:

- Cases per Minute: 10 for standard machines (up to 15 c.p.m. options available)

Air Requirement:

- 14 SCFM @ 85 psi – Maximum throughput based on maximum box range.

Machine box capacity:

- Length: 6” to 16”
- Width: 6” to 14” (3.5” minimum for side-belt machines)
- Height: 4” to 12”

NOTE: Actual maximum dimensions are a function of each other and may be larger.

Machine Options:

- Spare Parts Kit
- Special Electronics
- Custom Color
- Casters
- Low Tape Alarm
- Low Hopper Alarm
- Box Jam Alarm
- Leg Extensions
- High Speed (12, 14, & 15)

INSTALLATION

Always check for any signs that the machine may have been damaged before fully removing it from the shipping skid. If machine arrives damaged contact Loveshaw immediately to help in filing a claim with the shipping company.

Exercise care when handling this machine, a sudden jolt or jar may cause serious damage.

Do not remove the shipping skid until machine has been moved to a point of installation. The skid is designed for easy and safe handling of your machine.

Section 1: Placing the Machine

The case former is fully assembled and ready for operation.

Step One: Carefully remove the machine from the shipping skid. Remove all fasteners and brackets holding the machine to the skid.

Step Two: Transfer the machine from the shipping skid to the factory floor by lifting it with a fork lift. Approach the machine from the side and carefully position the forks under the frame. Locate the forks in the center on the machine, so that they lift on the main frame flanges. Take care that the forks do not lift on any sub-assemblies as they may be damaged by the force. *Take care removing the machine from the skid as it weighs 1,100 pounds!*

Step Three: Use jack screws (1/2-13unc x 3" lg) in each leg to level the machine.

Step Four: Connect compressed air and electricity to the machine. Connect air supply to an air source with a minimum line pressure of 85 psi.

- Step Five:** Before starting the machine, load a new roll of tape on the cartridge and thread the tape according to the arrows on the unit.
- Step Six:** For proper start-up procedure, see the start-up procedure section of this manual.

Section 2: Important Considerations

- A great deal of trouble may be caused if the current is supplied by lines which are not heavy enough. If this occurs, the controls cannot operate at their full capacity and overheating may result. A similar condition will exist if poor electrical connections are made. It is, therefore, worthwhile to make sure that everything is electrically correct.
- Electrical polarity must be supplied to the machine exactly as shown on the electrical diagram. Power must be supplied to the L1 side of the circuit, and the L2 side will be neutral.
- The compressed air supplied to the machine should be clean and dry, as the filter is only meant to remove minor particles or slight amounts of moisture in the air line. Dirt or moisture can cause erratic operation or failure of control valves.

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THEORY OF OPERATION

Theory of Operation for Chain Drive Machines

The Machine E-Stop circuit is reset and the machine is started. All the cylinders go to their home position and the machine is ready to operate.

Selector switch, SS1, is set to Automatic mode which will allow the machine to operate continuously.

With boxes loaded in the hopper and limit switches LS1 (Vertical blank trolley home) and LS4 (Blanks in hopper ready) the vacuum cups cylinder will extend into the hopper to contact a blank. Solenoid valve, SV5 will be energized.

The vacuum generator connected to the vertical trolley vacuum cups will be enabled. This allows the vacuum cups to attach to the side wall of the box to be erected. Solenoid valve SV9 is energized.

SV5 will be de-energized pulling the blank out of the hopper.

Solenoid SV6 is energized and the vertical trolley will travel downwards towards the box opening area of the machine until finally reaching cylinder proximity switch Prox1. As the trolley is moving downward it will first trigger cylinder proximity switch Prox4. This will signal the vacuum cylinder to extend again to get the blank into position to be opened. Solenoid valve SV5 will be energized.

With the vertical trolley in position at Prox1, the box opening arm is rotated into position, contacting the opposite side of the blank with a vacuum cup. Solenoid valve SV2 is energized and cylinder proximity switch Prox6 is triggered.

When Prox6 is triggered vacuum is applied to the cup on the box opening arm. Solenoid SV8 is energized.

With the blank being held on both sides with vacuum cups, the opening arm is rotated back to its home position making cylinder proximity switch Prox5. Solenoid valve SV2 is de-energized.

With the box open the minor flap folders rotate upwards closing the flaps. Solenoid SV4 is energized.

With the minor flaps folded, both of the vacuum generators are turned off. The open box is only being supported by the minor flap folders. Solenoid valves SV8 and SV9 are de-energized.

The vacuum trolley moves up back to the hopper to get the next blank to be opened. At the same time the box pusher is waiting for a signal from photoelectric sensor PE2. When PE2 is triggered, it verifies the lugs are in position to receive the erected box. Solenoid valve SV7 is energized. Then the box pusher cylinder extended proximity switch is made, SV7 is de-energized, and the pusher goes back to its home position.

The open box is transferred by lugs that push the box by its rear panel. The major flaps are plowed upwards and tape is applied to the bottom of the box as it exits the machine.

The cycle repeats.

Theory of Operation for Belt Drive Machines

To start the machine, all guard doors must be closed, with the E-Stop reset. All cylinders will travel to their home position. The downstream photo eye, PE1, must be clear for machine to run.

With blanks properly loaded in the hopper, proximity switch, Prox7, will be made, allowing the operation sequence to continue.

With the selector switch on the control box set to “Auto”, press the “Start” button. The machine will process boxes continuously.

Solenoid valve, SV5, will be activated, extending the cylinder on the vacuum trolley to extend the vacuum cups towards the blanks. After a timed delay, SV9 is activated, supplying vacuum to the vacuum trolley vacuum cups. SV5 is deactivated, retracting the cylinder carrying the vacuum cups and carrying the blank.

After a timed delay, SV6 is actuated, retracting the vertical cylinder, lowering the vacuum trolley carrying the blank into the case forming section of the machine.

When the vertical trolley cylinder is lowered into position, Prox3 is made, activating SV2, rotating the box opening arm towards the blank. When the box opening arm reaches the blank, Prox6 is made, activating SV8, supplying vacuum to the box opening vacuum cups.

After a timed delay, SV2 deactivates, allowing the opening arm to rotate outward, opening the case.

When the case is opened, Prox5 is made, activating SV4, which extends the minor flap folder cylinders, folding the minor flaps.

After a timed delay, both SV8 and SV9 are deactivated, shutting off the vacuum from all cups.

SV7 is actuated, retracting the box pusher cylinder, pushing the box into the belt drive. SV6 is activated, extending the vertical trolley cylinder up to its home position.

The box enters the belt drive and PE3 is made, deactivating SV7 and SV10. SV7 extends the box pusher cylinder to its home position. SV10 retracts the box squaring cylinders, relieving the squaring paddles from the box. Once the box clears PE3, SV10 is deactivated, extending the box squaring cylinders, resetting the squaring paddles.

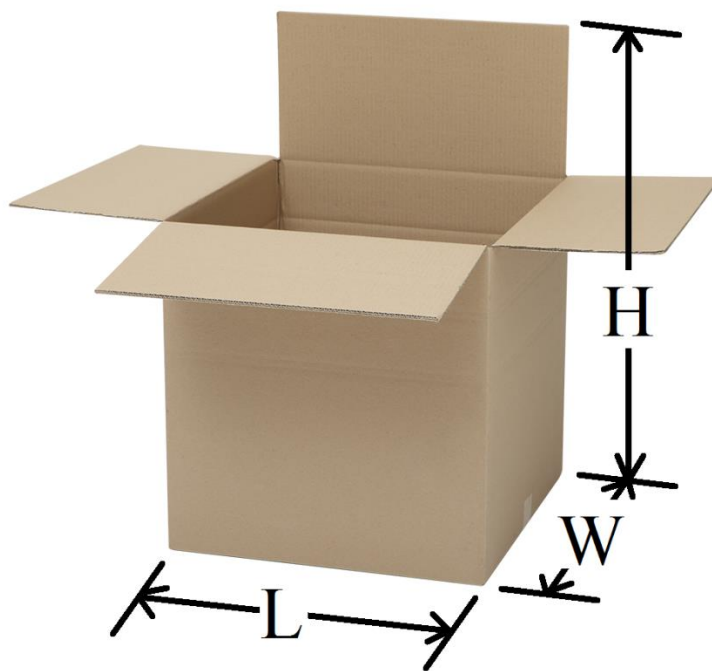
When the pusher cylinder extends back to its home position, PROX1 is made, SV4 actuates, retracting the minor flap folder cylinders, lowering the flap folder.

The cycle repeats.

OPERATING PROCEDURES

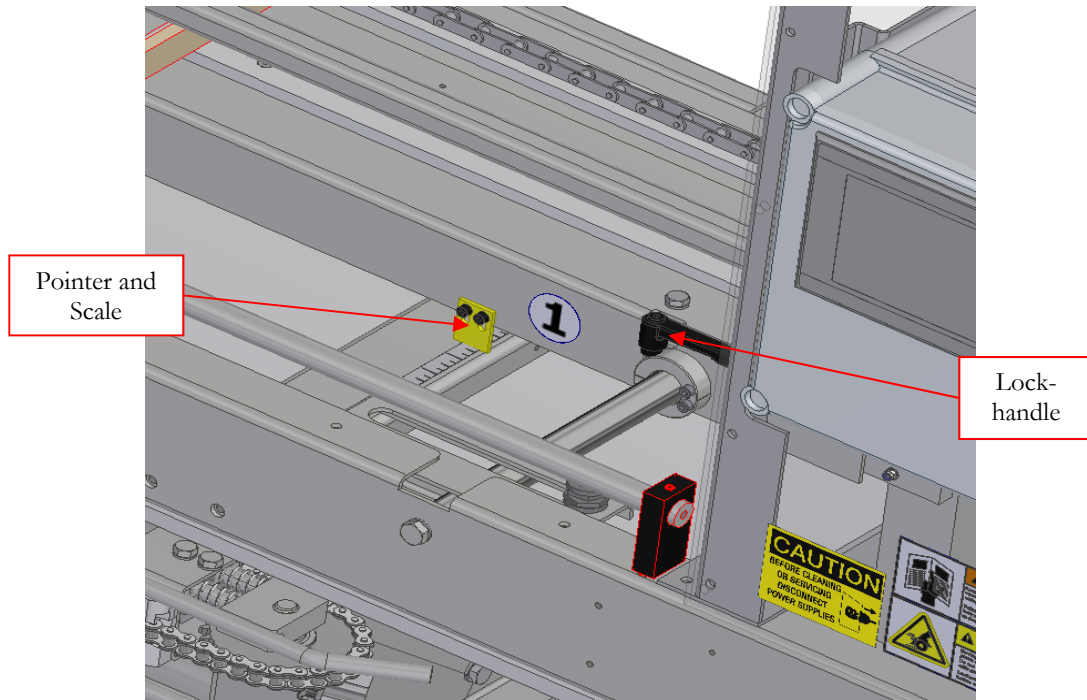
Set Up Procedure

Determine the length, width and height (with flaps up) of box in inches (see diagram).

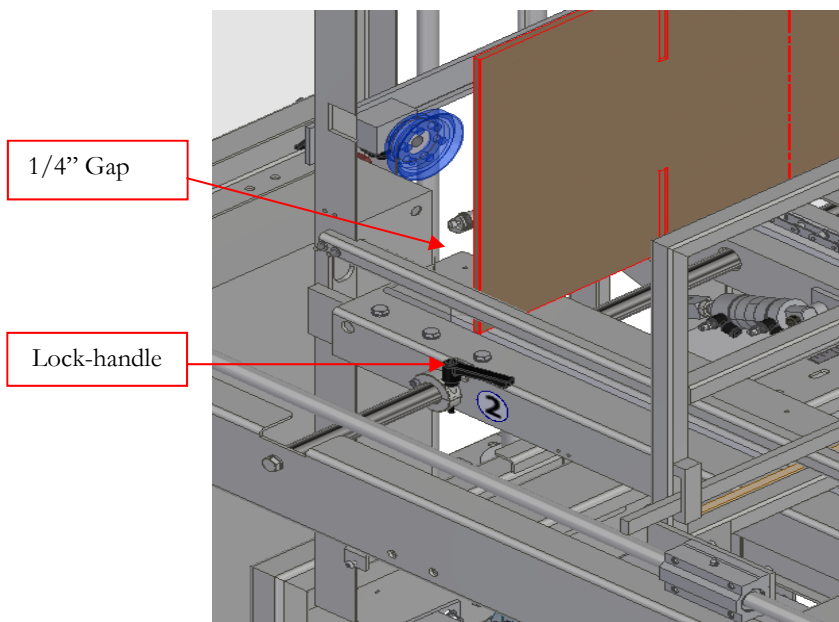


Important: Use scales and yellow pointers. Due to changes in design for continual improvement, the set-ups depicted in the steps below might not be exact, but similarities should exist.

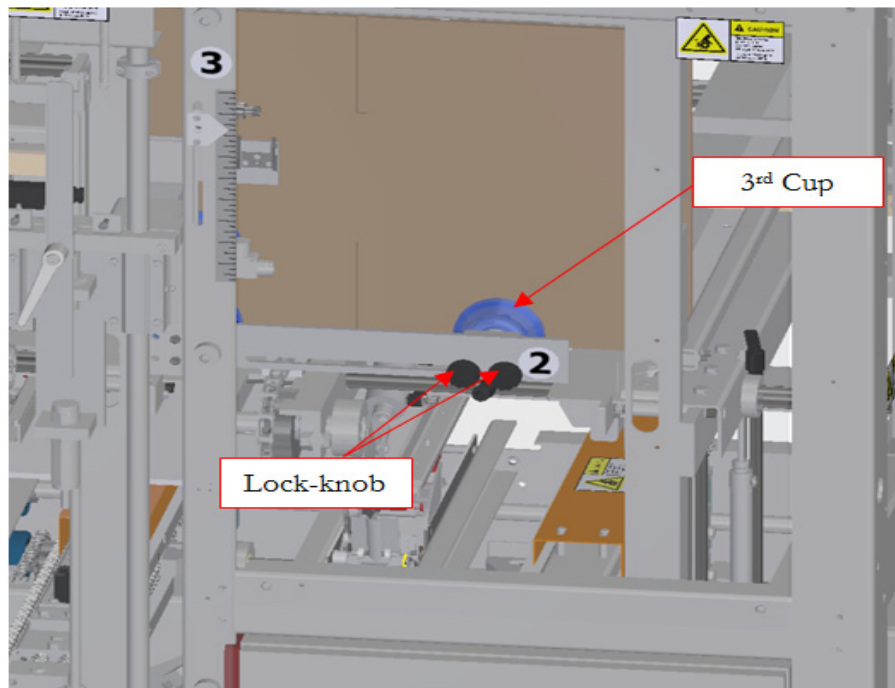
1) **Hopper, Near Side** – Set equal to width.



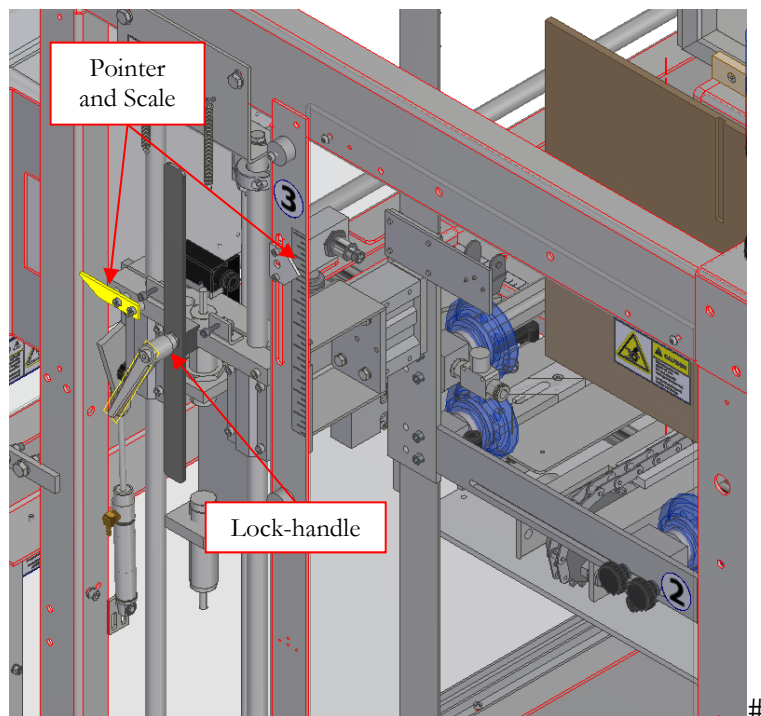
2.A) **Hopper, Far Side** – Use the blank (flat box) to set position. Leave 1/4" of extra room.



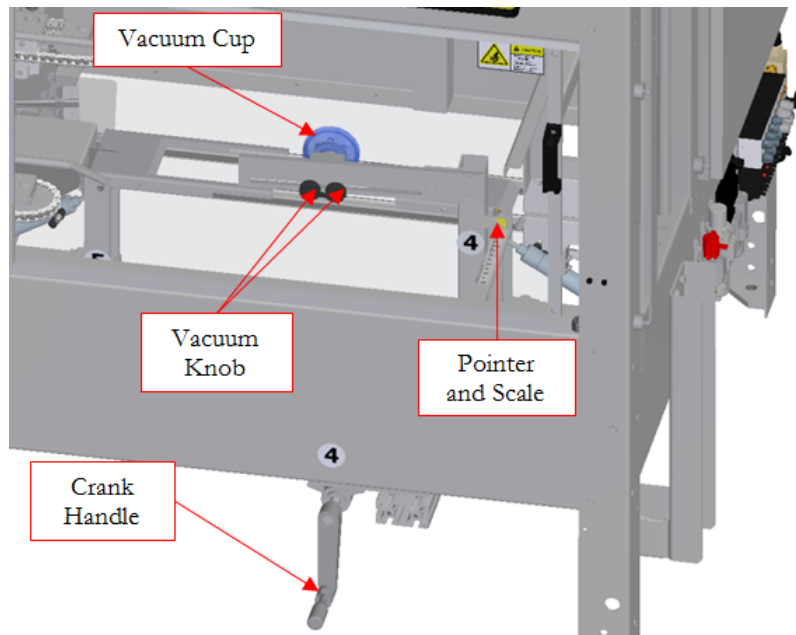
- 2.B) **3rd Vacuum Cup** – Adjust to widest position possible without cup hitting vertical box guide. Tighten lock knobs securely.



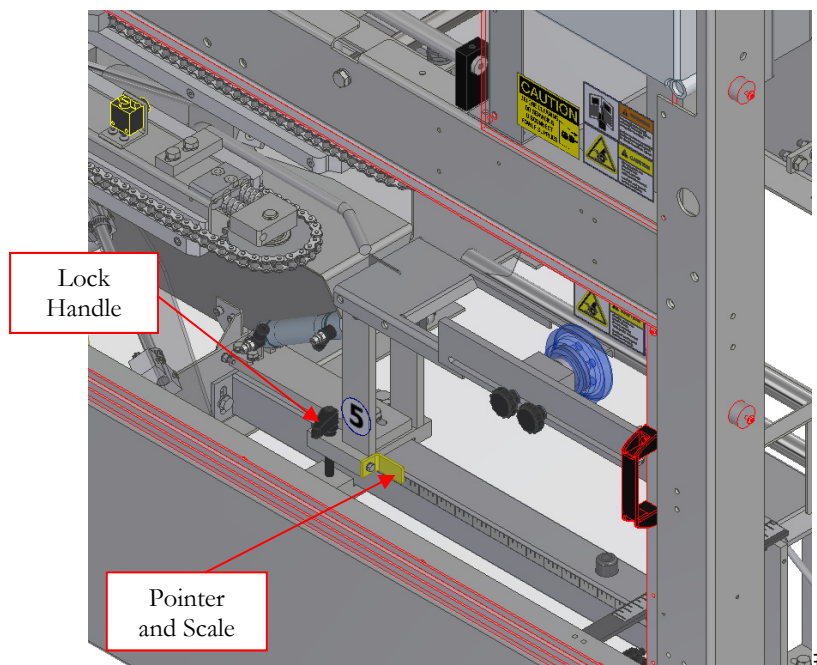
- 3) **Vertical Trolley Stop** – Set equal to width. Tighten securely.



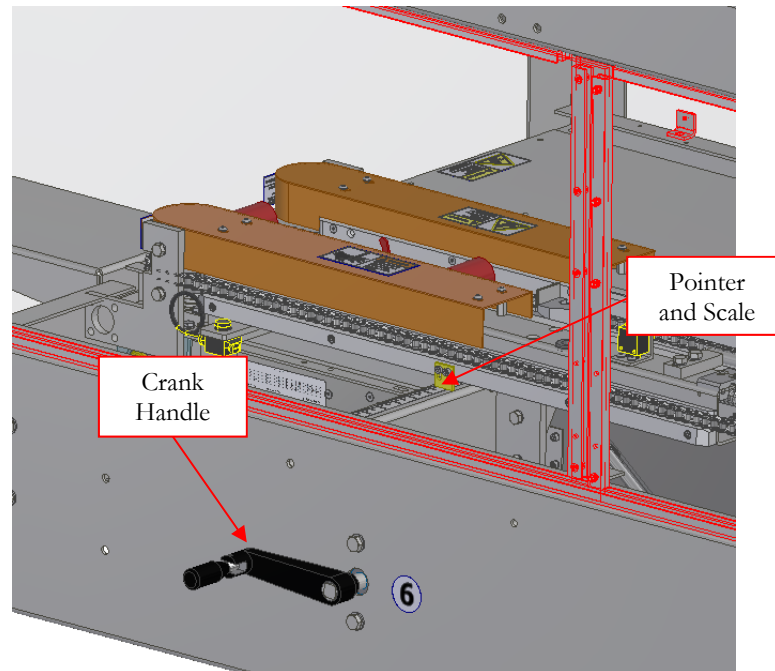
- 4) **Box Opening Arm** – set equal to width (arm in open position). Adjust vacuum cup to land in center of major panel.



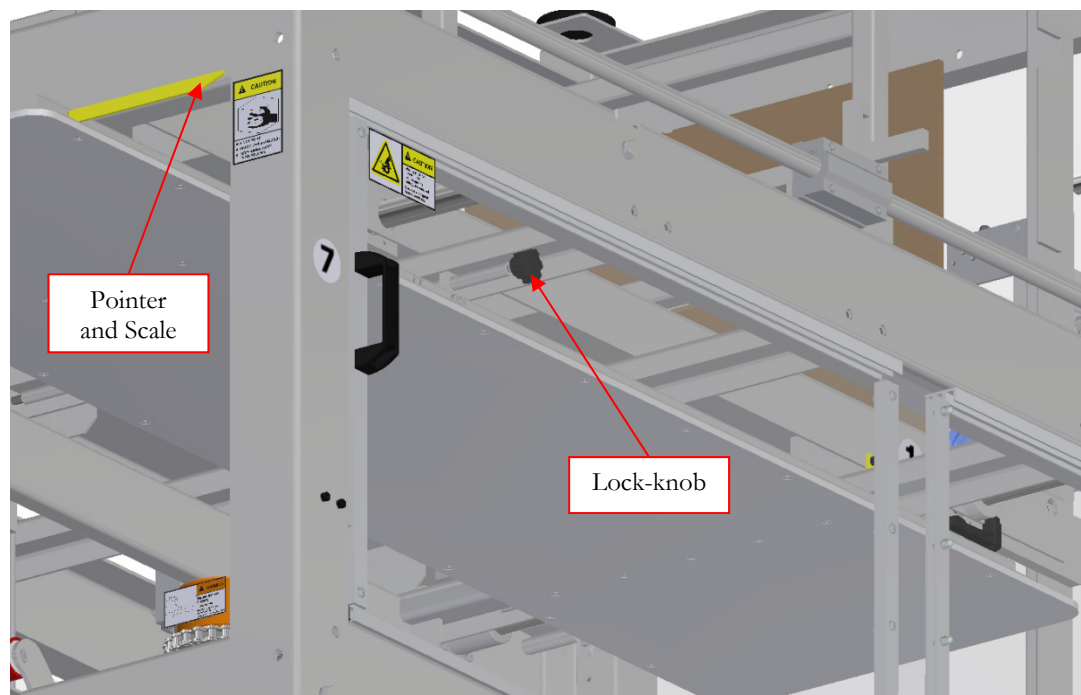
- 5) **Flap Folder** – Set to length.



- 6) **Lug Drive** – Set to width.



- 7) **Sled Height** – set to erected box with top flaps up.



- 8) Run one box in step (manual) mode to verify settings.#
-

Loading the Hopper

- 1) Make sure the hopper is correctly set up based on the outside dimensions of the erected box.
 - a. The blanks must be loaded with the major panel toward the operator side when facing the vacuum cups. If the blanks are not loaded this way the box will jam in the forming section.
- 2) Lift the hopper gate handle and push it all the way back.
- 3) The easiest way to load the machine is to place full bundles in the hopper without removing the straps. The hopper will hold approximately 7 bundles of 25 blanks.
- 4) When the hopper is fully loaded, cut all the straps off the bundles and remove them.
- 5) Lift the gate handle and push the gate forward to provide light pressure on the blanks.
- 6) Blanks should be vertical and not leaning in any direction.
 - a. The hopper can be reloaded without stopping the machine.
- 7) Support the blanks with one hand and slide the gate back with the other.
- 8) Take the last 5 or so blanks in the hopper and lean them toward the vacuum cups to support the remaining blanks.
- 9) Load full bundles in the hopper

Start-Up Procedure

- 1) Close all guard doors and make sure all personnel are clear from machinery.
- 2) Turn on main air disconnect and electrical power.
- 3) Check that hopper is filled with blanks, and that tape cartridge is filled with tape.
- 4) Check that machine has been properly set-up to run the blanks that are loaded in hopper.
- 5) Re-set the emergency stop push button and turn selector switch to run position.
- 6) Depress machine start push button. Machine will begin to process boxes.
- 7) While in run mode the machine will continue to make boxes unless the downstream photo-eye is blocked or the hopper empties.

Sequence of Operation

- 1) Initial condition of machine: hopper filled with blanks (boxes that are flat, as received). Emergency stop push button re-set, electrical and compressed air power turned on, machine mode selector switch turned on to run position, safety guards closed.
- 2) Depress the start push button.
- 3) The pneumatic soft-start valve will open allowing air to fill the system. The valve meters the flow of air so that components will move slowly to their home position without slamming. When the pressure in the machine equals the supply pressure the valve "latches in". This process should take between 3 to 4 seconds. If it does not latch in adjust the valve according to the instructions found in the trouble shooting section. After a count a 5 seconds, the plc will automatically start a cycle.
- 4) If not already in position, the hopper drive system will ratchet the gate forward, pushing the blanks until the limit switch is made. The (3) vacuum cups of the vertical case feeder will extend to contact the first blank in the hopper.
- 5) The vacuum system turns on causing the cups to securely grip the blank. The vacuum trolley pulls the blank downward into the forming area.
- 6) When the trolley reaches the bottom, vacuum is switched from the 3rd (outer) cup to the cup on the box-opening arm. Simultaneously, the arm swings in to grip the major panel of the box. Immediately, the arm reverses direction and returns to the home position, causing the box to open.
- 7) As the box is held open by vacuum, the minor flap folders swing up and push the flaps up. After a short time, vacuum is automatically turned off and the box rests on the flap folders. The vacuum trolley rises to the home position, ready to extract the next blank.
- 8) When the lug-drive photo-eye is tripped by the passing chain-lug, the box transfer arm pushes the box forward into the lug drive system. As it does the major flaps come in contact with the folding bars causing the flaps to fold upward. Once the box is fully pushed into the lug drive, the transfer arm returns to its home position and the minor flap folders retract.
- 9) The lugs pick up the box just in front of the idler sprockets and move the box through the remainder of the folding bars and over the tape cartridge. The finished box is ejected onto either the standard dead plate or a customer supplied conveyor.

Shut-Down Procedure

Control Stop:

- 1) Turn selector switch to test position. Wait until machine finishes processing box.
- 2) Depress emergency stop push button.

Emergency Stop:

- 1) Depress emergency stop push button.
- 2) Remove any unmade or jammed boxes before restarting machine.

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MAINTENANCE

Safety: NEVER perform any maintenance on the CF25 without first following your company's **LOCK OUT / TAG OUT** procedures.

Chain and Lug Drive Maintenance

CF25 chain drive machines have a dual spring chain tensioner on either side of the main drive assembly. For the convenience of servicing the chain, the tensioned sprocket mounts were designed with a clearance hole, which aligns with a threaded hole on the main drive.

NOTE: A 5/16-18 x 3" bolt will be required. This is not provided with the CF25.

1. Locate the clearance hole on the side of the main drive that you wish to service. Insert 5/16-18 x 3" bolt and begin to thread it into the hole. (See Figures 1 and 2 below.)
2. Tighten the bolt to release the desired amount of tension from the chain.
3. Leave bolt tightened in place while the chain is serviced.
4. Once the chain has been serviced and returned to its proper position, unthread the bolt to apply full tension to the chain.
5. Be certain to fully remove the main drive before running the machine.

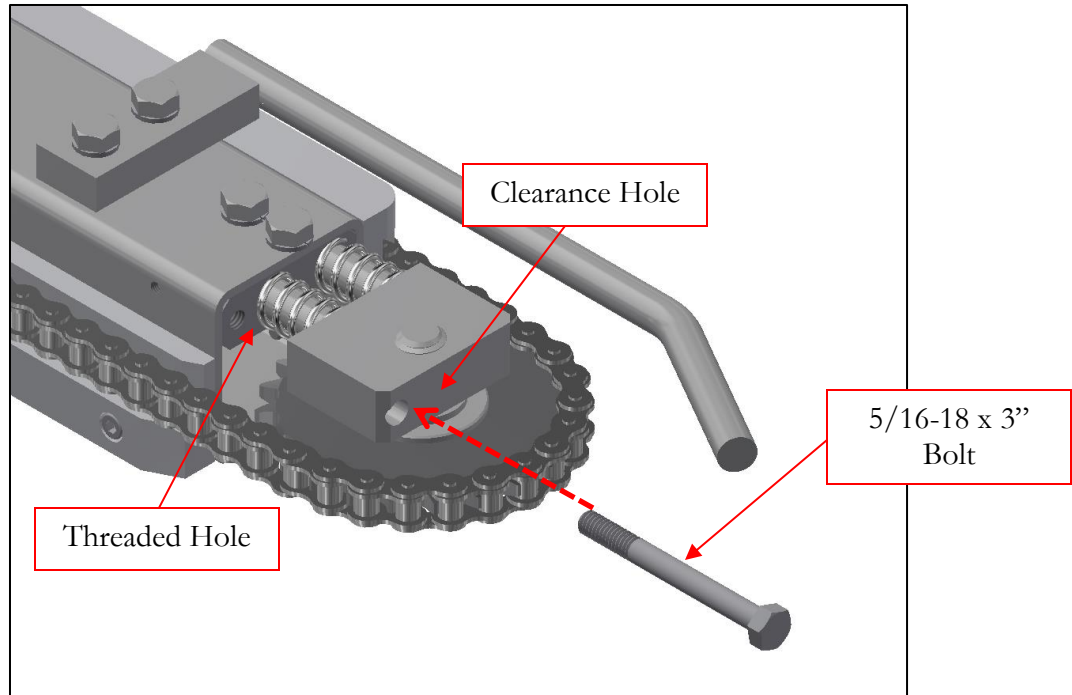


Figure 1. Inserting bolt into clearance hole.

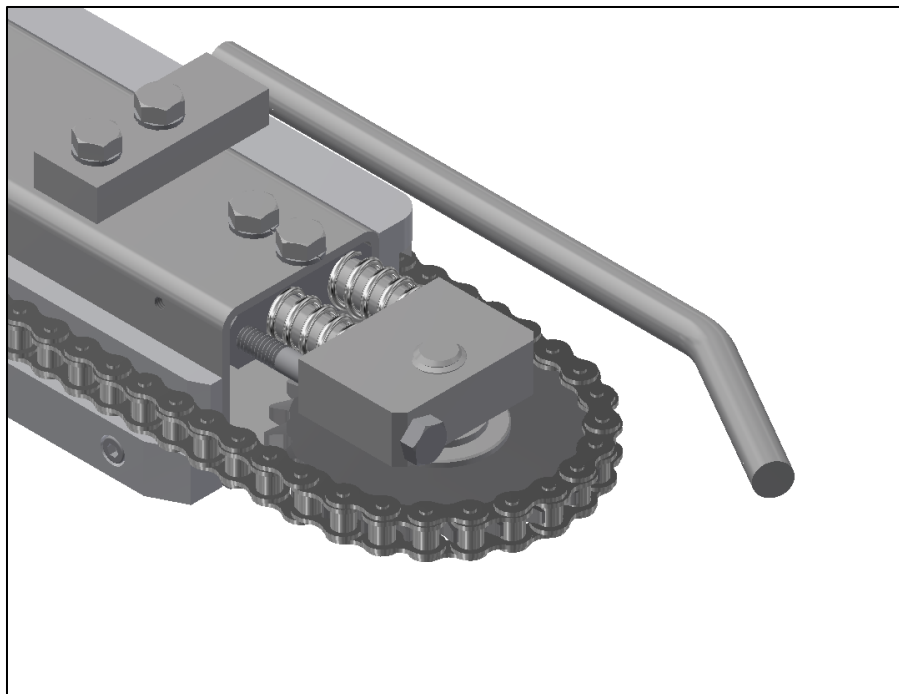


Figure 2. Tightening bolt to compress tensioner springs.

Side Belt Drive Maintenance

CF25 belt drive machines are not self-tensioning. The following instructions will assist in the tensioning of the side belts, or replacing worn belts.

1. For ease of maintaining belt tension, the belt arm door allows convenient access to the tensioning block. For replacing a worn belt, removal of the entire belt arm cover is necessary. (See Figures 2 and 3 below.)
2. Loosen the locking screw when adjusting belt tension.
3. Use the nuts against the tensioning block to loosen and tighten the idler pulley.
4. Replace the belt if necessary, and properly tension the belt.
5. Replace the belt arm door, or entire belt arm cover.

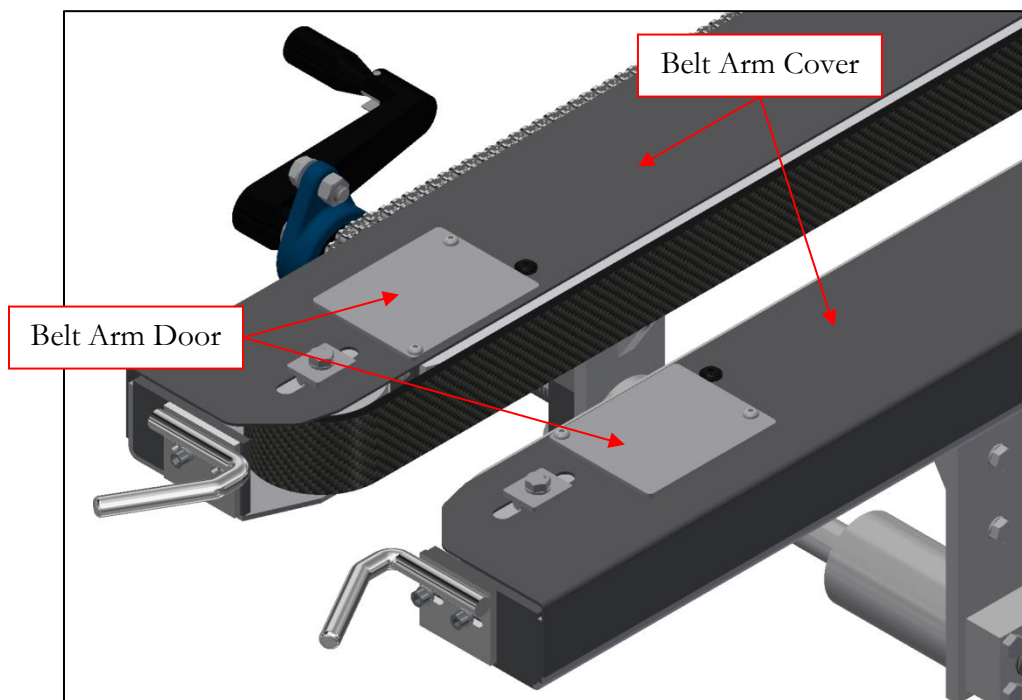


Figure 3. Panels to remove when accessing belt.

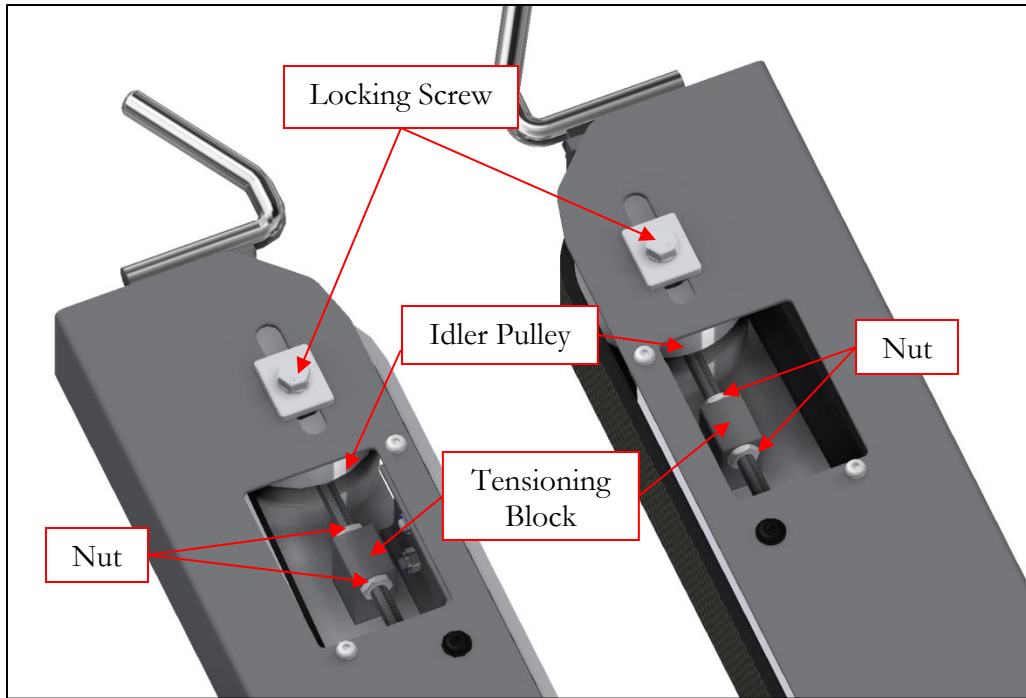


Figure 4. Tensioning the idler pulley.

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CF25 Preventative Maintenance Schedule

Follow the PM chart below according to the specified time intervals to maintain and enhance machine functionality and longevity.

Frequency:	Weekly	Monthly
Pneumatic Components	1. Inspect air filter and drain. 2. Inspect and clear the vacuum generator and the (3) in-line vacuum filters. 3. Make sure flow controls are set properly and locked. 4. Inspect the vacuum cups for damage. (If a cup is damaged, vacuum will be reduced in the remaining cups.) 5. Make sure vacuum lines are free from debris. 6. Make sure the regulator is set to 80 psi.	1. Inspect components and air lines for leaks. 2. Inspect cylinders for wear, damage, or excessive noise.
Mechanical Components	1. Check chain drive machines for chain tension on motor chain and lug drive. (Lug chains are automatically tensioned by spring loaded idlers. If excessive slack is present, chains should be replaced along with the sprockets and tensioning springs.) 2. Check that belt drive machines have proper belt tension and that rough top belt surfaces are not too worn. 3. Check all bearings and bushings for wear.	1. Check all sprockets and chains for wear. 2. Make sure the set screws in the sprockets are tight. 3. Check chain lugs for alignment. The face of the lug plates should be parallel. If necessary, adjust by loosening the B-LOC bushing found under the left side chain guard. See the Appendix B for detailed instructions on the B-LOC. <i>NOTE: Both the gear reducer and the right angle gear boxes are filled by the manufacturer with permanent lubrication and no maintenance is required.</i>
Photo Eyes		1. Clean Face

Spare Parts

See Appendix C for a complete list of recommended spare parts.

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TROUBLESHOOTING

Preliminary Checks

Check that electrical or air power has not been disconnected. Check for leaking or disconnected airlines. Check electrical fuses for continuity.

Using Test Mode to Troubleshoot Machine

- Close all guard doors and make sure the emergency stop push button is not depressed.
- Turn the selector switch to the step position and depress the machine's start push button. The machine's emergency stop circuit will energize, the lug drive will start to run and the machine is ready to start a cycle.
- The case erector can be stepped through each machine function by pushing the step push button.
- For example, when the machine is originally started in the test mode by pushing the step push button, the vertical trolley vacuum cup assembly will extend toward the hopper.
- By continually pushing the step button the machine will completely step through an entire machine cycle (refer to machine sequence of operation chart).
- By using the step mode to troubleshoot, it can be determined at which step the machine does not operate. By using this method you will eliminate excessive down time.

Checking Solenoid Valves

The solenoid valves are equipped with manual pushbutton overrides.

- With the machine in the test mode, depress and hold an override button to determine if the valve is able to actuate the pneumatic device that it's connected to.
- Also check that the valve is receiving electrical power. There are indicator lights built into the coils of the valves to aide in trouble shooting.

Checking PLC Inputs and Outputs

Properly checking inputs will require two people, one to trigger the device, and one to monitor the plc. The plc has indicator lights on its front panel for each input and output. Refer to the electrical schematics for plc/device information.

- To check the plc inputs, the machine must be “e” stopped. By manually moving the machine components, the various switches can be triggered one at a time, and the corresponding plc input can be verified.
- To properly check the outputs, the machine must be in the test mode of operation. By stepping the machine through its sequence of operation, the plc's outputs can be verified.

Tape Cartridge and Taping Issues

Refer to the tape cartridge section of this manual for all information referring to taping of the erected box.

Troubleshooting Table

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Vertical trolley vacuum cups will not extend toward hopper.	1) Box backup sensor PE1 is blocked, or malfunctioning. 2) LS1 is not functioning properly. 3) Trolley stop is loose. 4) Low tape roll detected (option). 5) Low hopper detected (option). 6) Check PLC outputs 8 & 9. They should NOT be lit. 7) Check PLC inputs 1, 2, 6, 8, 10, & 11 and output 3. They should be lit. 8) Solenoid 5 is malfunctioning.	1) Remove obstruction from sensor, or replace PE1 sensor. 2) Troubleshoot or replace LS1. 3) Secure the trolley stop. 4) Refill tape cartridge. 5) Refill hopper. 6) Check suggested PLC inputs and outputs. 7) Check air lines supplying solenoid 5; replace solenoid 5.
Vertical trolley vacuum cups will not pick blank from hopper.	1) Check PLC output 7. It should be lit. 2) Solenoid 9 is malfunctioning. 3) Vacuum cups are damaged. 4) Vacuum generator is not functioning properly.	1) Check suggested PLC inputs and outputs. 2) Check air lines to solenoid 9; replace solenoid 9. 3) Inspect, clean, or replace vacuum cups.

	5) Vacuum hoses are clogged or damaged.	4) Inspect, repair, or replace vacuum generator. 5) Replace inline filter cartridges in vacuum system with clean, new cartridges; check vacuum hoses for clogs; replace hoses/fittings.
Vertical trolley will not lower toward forming section of machine.	1) Check PLC output 4. It should be lit. 2) Solenoid 6 is malfunctioning. 3) Air flow controls are not functioning properly. 4) There is a mechanical bind or jam.	1) Check suggested PLC inputs and outputs. 2) Check air lines to solenoid 6; replace solenoid 6. 3) Troubleshoot air flow controls. 4) Remove or repair cause of bind or jam.
Box opening arm does not swing inward towards blank.	1) Check PROX 3 on bottom of vertical cylinder. It should be lit. 2) Check PLC input 4. It should be lit. 3) Solenoid 2 is malfunctioning. 4) Check PLC output 0. It should be lit. 5) Air flow controls are malfunctioning. 6) There is a mechanical bind or jam.	1) Check suggested PROX/PLC inputs and outputs. 2) Check air lines to solenoid 2; replace solenoid 2. 3) Troubleshoot air flow controls. 4) Remove or repair cause of bind or jam.
Box opening arm vacuum cup will not grip the blank.	1) Check PLC output 6 & 7 (it should be lit.) 2) Solenoid 8 and 9 are malfunctioning. 3) Vacuum cup is damaged. 4) Vacuum generator is not functioning properly. 5) Vacuum hoses are clogged or damaged. 6) Check PROX 6 on rotary actuator. It should be lit.	1) Check suggested PROX/PLC inputs and outputs. 2) Check air lines to solenoids 6 & 7; replace solenoids 6 & 7. 3) Inspect, repair, or replace vacuum generator. 4) Replace inline filter cartridges in vacuum system with clean, new cartridges; check vacuum hoses for clogs; replace hoses/fittings.
Box opening arm does not return to open position (home position).	1) Check PLC output 0. It should NOT be lit. 2) Solenoid 2 is malfunctioning. 3) Air flow controls are malfunctioning. 4) There is a mechanical bind or jam.	1) Check suggested PLC inputs and outputs. 2) Check air lines to solenoid 2; replace solenoid 2. 3) Troubleshoot air flow controls. 4) Remove or repair cause of bind or jam.
Minor flap folders do not operate.	1) Check PLC output 2. It should be lit. 2) Solenoid 4 is malfunctioning. 3) Check PROX 5. It should be lit. 4) Check PLC input 6. It should be lit.	1) Check suggested PROX/PLC inputs and outputs. 2) Check air lines to solenoid 4; replace solenoid 4. 3) Troubleshoot air flow controls. 4) Remove or repair cause of bind

	5) There is a mechanical bind or jam. 6) The air flow controls are malfunctioning.	or jam.
Vertical trolley will not rise toward the hopper (home position).	1) Check PROX 1 at rear of transfer cylinder. It should be lit. 2) Check PLC input 2. It should be lit. 3) Solenoid 6 is malfunctioning. 4) Check PLC output 8. It should NOT be lit. 5) The air flow controls are malfunctioning. 6) There is a mechanical bind or jam.	1) Check suggested PROX/PLC inputs and outputs. 2) Check air lines to solenoid 6; replace solenoid 6. 3) Troubleshoot air flow controls. 4) Remove or repair cause of bind or jam.
Box transfer arm will not push box into lug drive system.	1) Check PROX 4 near base of vertical cylinder. It should blink once as the trolley rises. 2) Check PLC input 5 & 14. They should blink once as the trolley rises. 3) Check PLC output 5. It should be lit. 4) Solenoid 7 is malfunctioning. 5) Lug detector PE2 is blocked or malfunctioning.	1) Check suggested PROX/PLC inputs and outputs. 2) Check air lines to solenoid 7; replace solenoid 7. 3) Remove obstruction from sensor, or replace PE2 sensor.
Machine shuts off on its own.	1) Safety gates are not securely closed. 2) Check PLC input 10. It should be lit. 3) Motor over-current relay is triggering. 4) There is a mechanical malfunction in the lug drive system.	1) Ensure safety gates are properly closed with safety switches engaged. 2) Check PLC inputs and outputs. 3) Check if motor is drawing too much current or malfunctioning. 4) Inspect lug drive system for damages, failures, etc.
Blanks jam while being stripped from hopper.	1) Pressure on front of blank is too tight or too loose. 2) The gap between the stripper plates are not spaced properly. 3) The hopper guide clearance is not correct.	1) If pressure on the front of the blank is too tight, adjust LS1 towards blanks, and slow the ratcheting action of the hopper cylinder by throttling the flow controls. 2) If pressure on the front of the blank is too loose, adjust LS1 away from the blanks. 3) Set the gap between the stripper plates to 1.5 times the width of the blank. 4) Set the hopper guide clearance to 1/4".

Box not square after taping.	1) Chain lugs are not square to each other. 2) Box squaring assembly is not functioning properly.	1) See mechanical section to adjust lugs to be square. 2) Adjust controls on box squaring assembly.
Major flaps (bottom) not straight or are overlapped.	1) Main drives are not properly set.	1) Adjust main drives by 1/8" increments.
Box deformed by drives (back panel 1 pushed in) or squeezers (sides of box have score lines).	1) Sled height is set too low. 2) Main drive is adjusted too narrow.	1) Adjust sled by 1/8" increments. 2) Adjust main drive by 1/8" increments.
Box does not open or transition into drive smoothly.	1) Trolley stop setting is not accurately adjusted. 2) Top sled is not properly adjusted. 3) Box opening arm is not properly inspected.	1) Adjust trolley stop, or sled, or box opening arm according to instructions in this manual.
Cylinders move slowly or erratically at start-up.	1) Damaged lines or loose fittings are leaking air. 2) Slow start valve is not properly adjusted.	1) Check for air leaks. 2) Adjust start valve. a. Set regulator to 80 psi. b. Open slow start metering valve by turning adjuster out with a 3mm hex key. (Screw is found underneath the valve body.) c. Test setting by starting machine and timing how fast valve latches in. correct setting is about 3 seconds. d. Readjust accordingly.
Box jams in machine belt drive machine.	1) Box is outside of allowable size limit. 2) Belts are worn.	1) Check that box is within allowable machine specs. 2) Replace worn belts.
Belts are slipping on drive rollers.	1) Belt is not properly tensioned. 2) Belts are stretched from age and use, reaching the end of their life span. 3) Knurling on drive rollers is worn down.	1) Tension belts by following instructions provided in the maintenance section. 2) Replace old/worn belts. 3) Replace drive rollers.

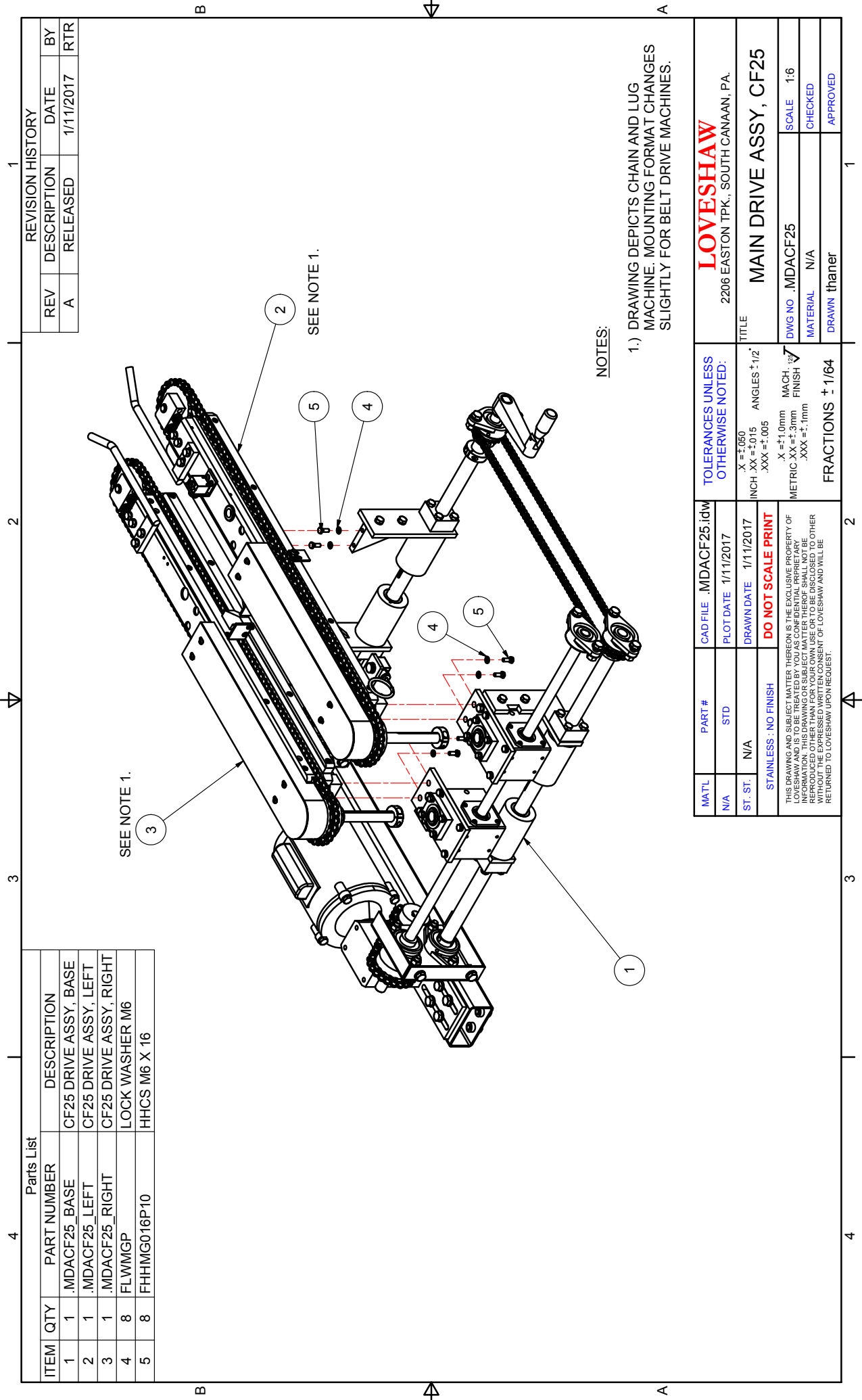
WARRANTY

For a detailed, up-to-date warranty, contact our customer service or view it on our website.

MECHANICAL DRAWINGS AND SCHEMATICS

Standard Universal Mechanical Drawings

The drawings and schematics in this section represent the mechanical layouts common to all CF25 machines.



REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	1/11/2017	RTR

Parts List		
ITEM	QTY	DESCRIPTION
1	1	.MDACF25_BASE
2	1	.MDACF25_LEFT
3	1	.MDACF25_RIGHT
4	8	FLWMGP
5	8	FHHMG016P10

MATL	PART #	CAD FILE .MDACF25.idw	TOLERANCES UNLESS OTHERWISE NOTED:	
N/A	STD	PLOT DATE 1/11/2017	INCH .XX = ±.015	ANGLES ±1/2°
ST. ST.	N/A	DRAWN DATE 1/11/2017	.XXX = ±.005	
STAINLESS : NO FINISH			X = ±1.0mm	MACH. FINISH
THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPRIETARY INFORMATION. THIS DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHERS WITHOUT THE WRITTEN CONSENT OF LOVESHAW AND WILL BE RETURNED TO LOVESHAW UPON REQUEST.			METRIC .XX = ±.3mm	FINISH
			.XXX = ±.1mm	
			FRACTIONS ± 1/64	
			1	

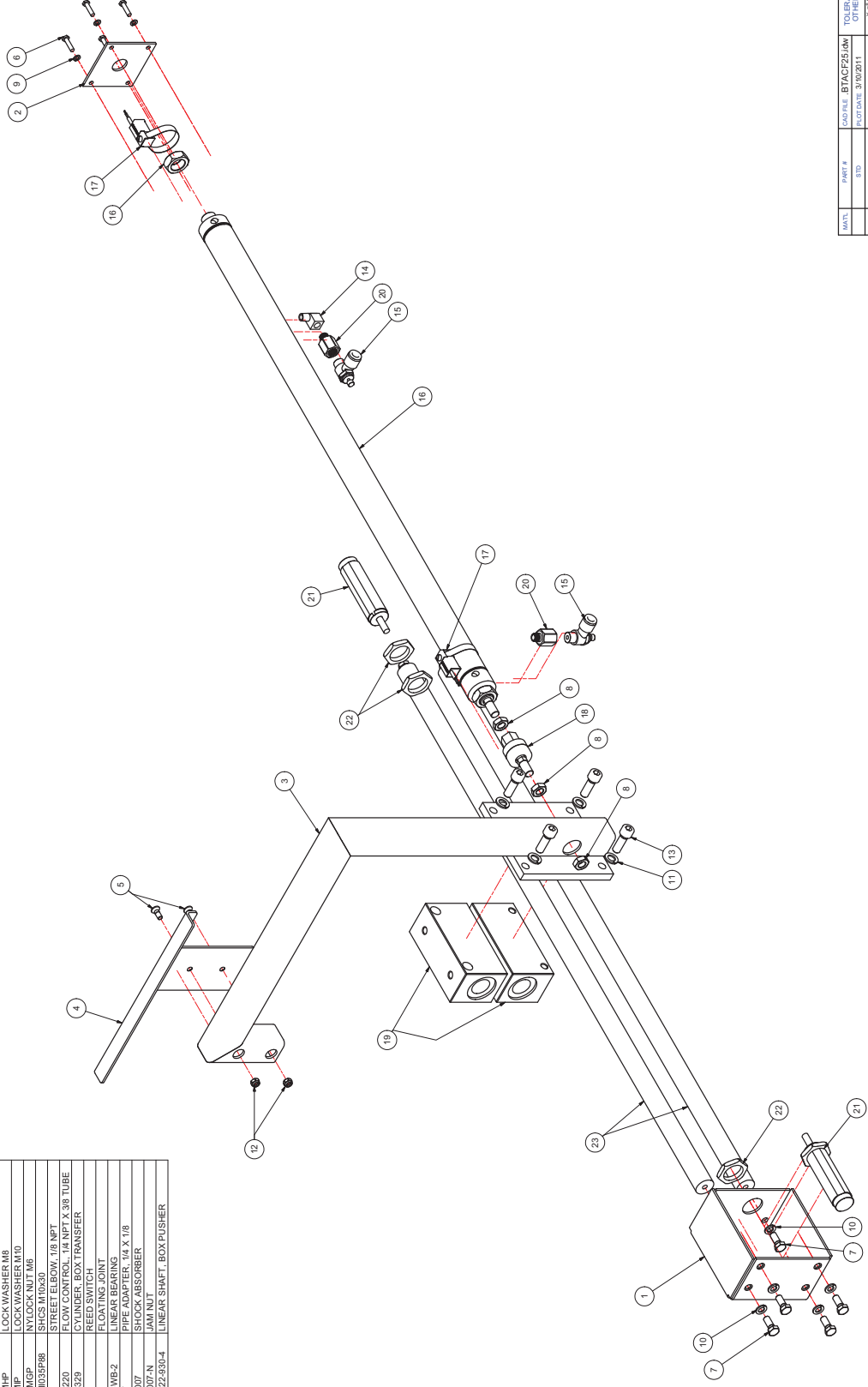
LOVESHAW	
2206 EASTON TPK., SOUTH CANAAN, PA.	
TITLE	
MAIN DRIVE ASSY, CF25	
DWG NO .MDACF25	SCALE 1:6
MATERIAL N/A	CHECKED
DRAWN thaler	APPROVED

NOTES:

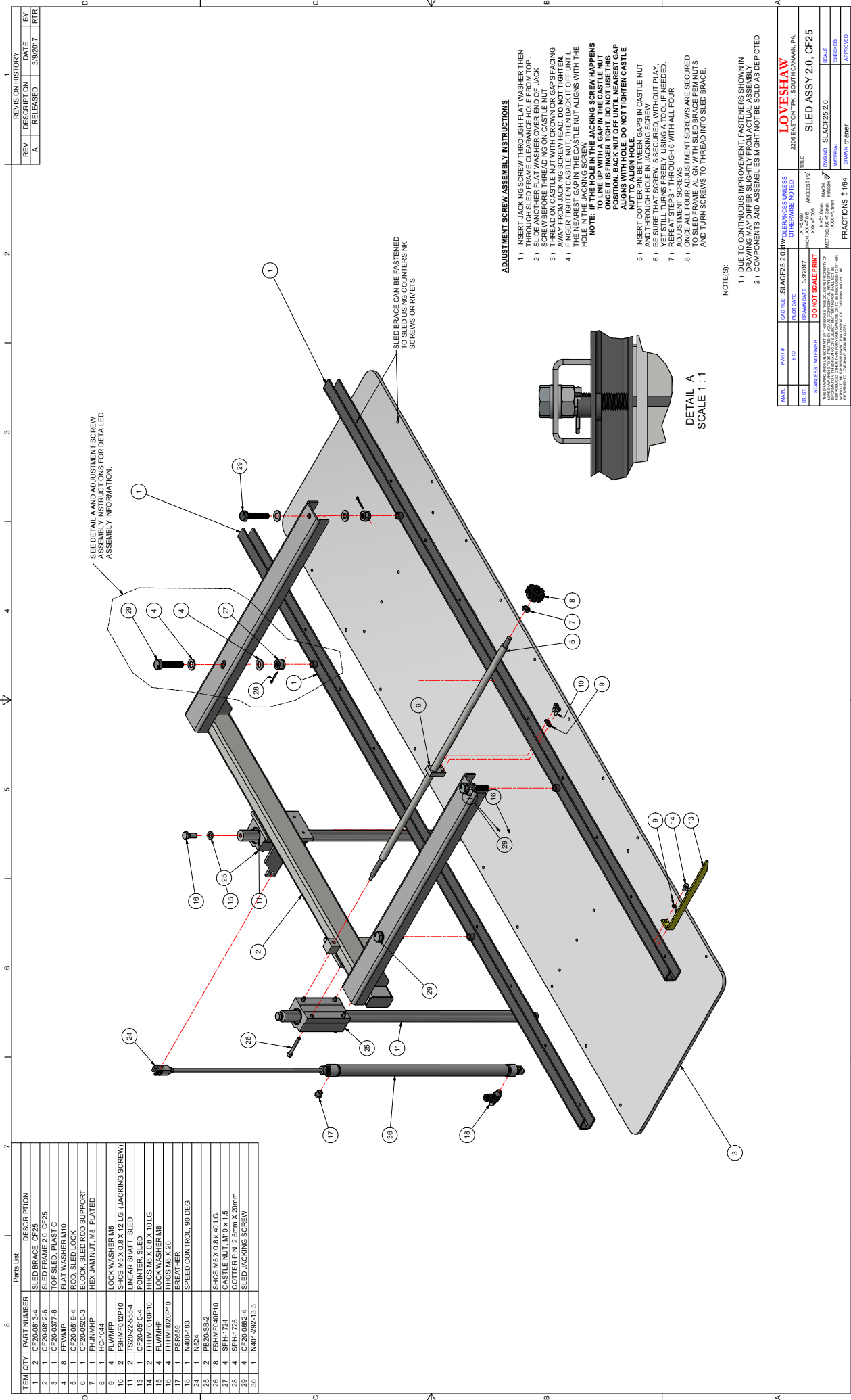
1.) DRAWING DEPICTS CHAIN AND LUG MACHINE. MOUNTING FORMAT CHANGES SLIGHTLY FOR BELT DRIVE MACHINES.

REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	2/2/2010	RM

Parts List		
ITEM	QTY	DESCRIPTION
1	1	CF20-0386-5 MOUNT, LINEAR SHAFT
2	1	CF20-0489-3 PLATE, CYLINDER MOUNTING
3	1	CF20-0518-5 ARM, BOX TRANSFER
4	1	CF20-0518-5 ARM, BOX TRANSFER
5	2	FFHM020P10 FHCS M8 X 16
6	4	FFHM020P10 HHCS M8 X 20
7	8	FFHM020P10 HHCS M8 X 20
8	3	FLJNSMP 7/16-20 HEX JAM NUT
9	4	FLWMFP LOCK WASHER M5
10	8	FLWMFP LOCK WASHER M8
11	4	FLWMFP LOCK WASHER M10
12	4	FLWMFP LOCK WASHER M8
13	4	FFHM020P10 FHCS M8 X 16
14	1	FFHM020P10 HHCS M8 X 20
15	2	STREET ELBOW, 1/8 NPT
16	2	N400-220 FLOW CONTROL, 1/4 NPT X 3/8 TUBE
17	1	N401-329 CYLINDER, BOX TRANSFER
18	2	N617 REED SWITCH
19	1	N629 FLOATING JOINT
20	2	PS25-WB-2 LINEAR BEARING
21	2	SHK-007-4 SHOCK ABSORBER, 1/4 X 1/8
22	2	SHK-007-N JAM NUT
23	2	TS25-22-430-4 LINEAR SHAFT, BOX PUSHER



LOVESHAW in ITW Company RT 286 SOUTH CANNAN, PA.				
BOX TRANSFER ASSEMBLY				
TITLE				
NOT TO SCALE PRINT				
UNLESS OTHERWISE NOTED: XXX ±.005				
FRACTIONS 1/164				
DO NOT SCALE PRINT				
THIS DRAWING AND ITS CONTENTS ARE THE PROPERTY OF LOVESHAW IN ITW COMPANY. IT IS TO BE USED FOR THE MANUFACTURE OF THE PARTS AND ASSEMBLIES SHOWN HEREON ONLY. IT IS NOT TO BE REPRODUCED OR COPIED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF LOVESHAW IN ITW COMPANY.				
DATE				
TIME				



REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	3/9/2017	RTR

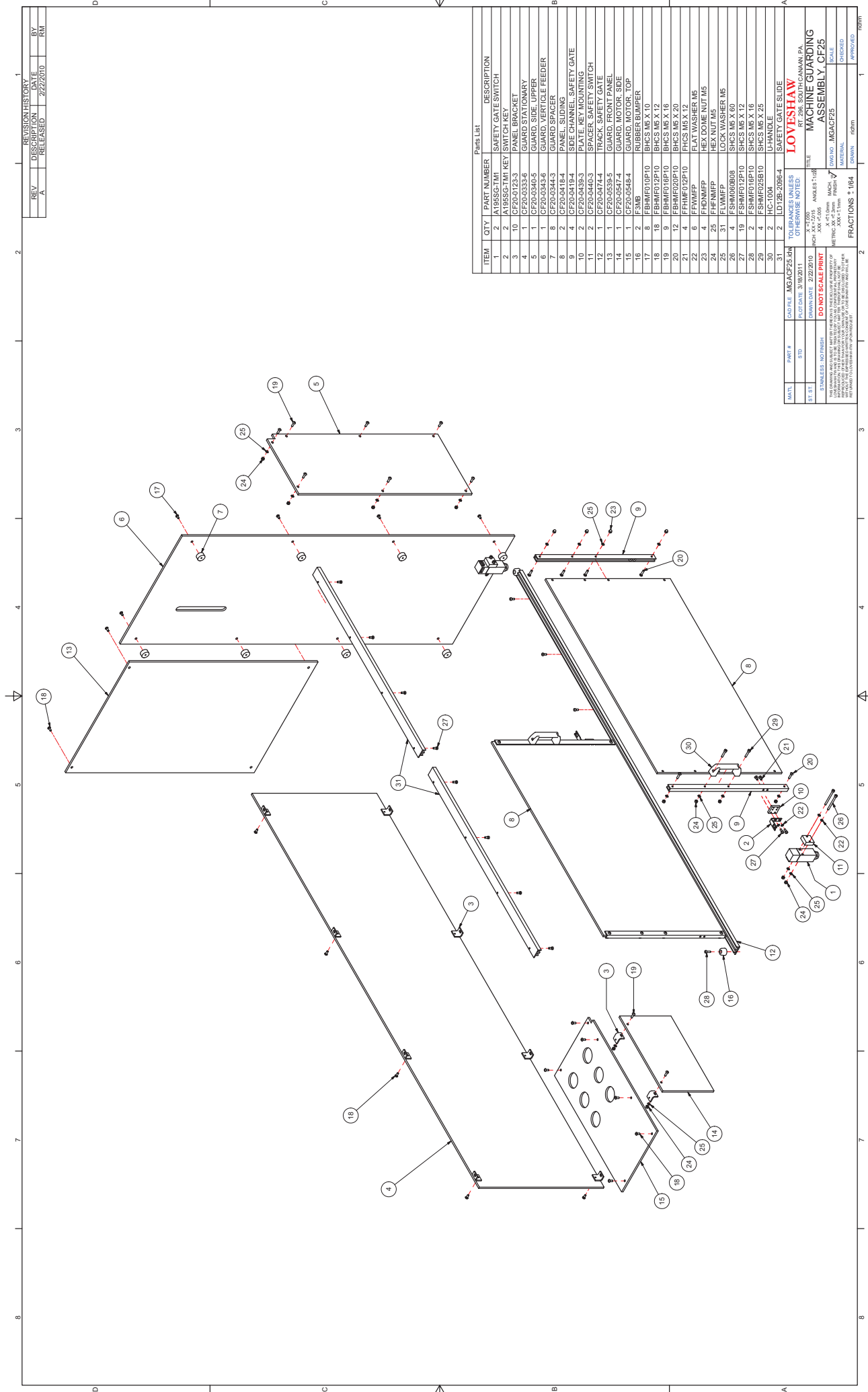
Parts List		
ITEM	QTY	PART NUMBER DESCRIPTION
1	2	CF20-0813-4 SLED BRACE, CF25
2	1	CF20-0812-6 SLED FRAME 2.0, CF25
3	1	CF20-0377-6 TOP SLED, PLASTIC
4	8	CF20-0519-10 COTTER PIN, 2.5mm X 10 G
5	1	CF20-0519-4 ROD, SLED LOCK
6	1	CF20-0820-3 BLOCK, SLED ROD SUPPORT
7	1	FLANNAHP HEX JAM NUT, M8, PLATED
8	1	HC-1044 LOCK WASHER M5
9	4	FLWMPF SHCS M5 X 0.8 X 12 LG. (JACKING SCREW)
10	2	FSHMFO12P10 LINEAR SHIRT, SLED
11	2	FS20-22-355-4 COTTER PIN, 2.5mm X 10 G
12	2	FLWMPF SHCS M5 X 0.8 X 10 LG.
13	2	FLWMPF SHCS M8 X 2.0
14	2	FLWMPF SHCS M8 X 2.0
15	4	FLWMPF SHCS M8 X 2.0
16	4	FLWMPF SHCS M8 X 2.0
17	1	PSR859 BREATHER
18	1	N400-183 SPEED CONTROL, 90 DEG
19	1	N524
20	2	PR20-SB-2 SHCS M5 X 0.8 X 40 LG.
21	2	FLWMPF SHCS M5 X 0.8 X 10 LG.
22	4	SPH-1724 COTTER PIN, 2.5mm X 20mm
23	4	SPH-1725 COTTER PIN, 2.5mm X 20mm
24	4	CF20-0822-4 SLED JACKING SCREW
25	1	N401-292-13.5

- ADJUSTMENT SCREW ASSEMBLY INSTRUCTIONS**
- 1.) INSERT JACKING SCREW THROUGH FLAT WASHER THEN COTTER PIN AND LOCK WASHER INTO SLED FRAME.
 - 2.) SLIDE ANOTHER FLAT WASHER OVER END OF JACK SCREW BEFORE THREADING ON CASTLE NUT.
 - 3.) THREAD ON CASTLE NUT WITH CROWBAR GAPS FACING AWAY FROM SLED FRAME. DO NOT TIGHTEN CASTLE NUT. FINGER TIGHTEN CASTLE NUT, THEN BACK IT OFF UNTIL THE NEAREST GAP IN THE CASTLE NUT ALIGNS WITH THE HOLE IN THE SLED FRAME.
 - 4.) FINGER TIGHTEN CASTLE NUT, THEN BACK IT OFF UNTIL THE NEAREST GAP IN THE CASTLE NUT ALIGNS WITH THE HOLE IN THE SLED FRAME.
 - NOTE: IF THE HOLE IN THE JACKING SCREW HAPPENS TO LINE UP WITH A GAP IN THE CASTLE NUT ONCE IT IS FINGER TIGHT, DO NOT USE THIS CASTLE NUT. IT IS NOT THE CORRECT CASTLE NUT. IT DOES NOT HAVE THE CORRECT GAPS. IT DOES NOT ALIGN WITH HOLE. DO NOT TIGHTEN CASTLE NUT TO ALIGN HOLE.
 - 5.) INSERT COTTER PIN BETWEEN GAPS IN CASTLE NUT AND SLED FRAME. DO NOT TIGHTEN CASTLE NUT.
 - 6.) BE SURE THAT SCREW IS SECURED, WITHOUT PLAY, YET STILL TURNS FREELY, USING A TOOL IF NEEDED.
 - 7.) REPEAT STEPS THROUGH 6 WITH ALL FOUR JACKING SCREWS.
 - 8.) ONCE ALL FOUR ADJUSTMENT SCREWS ARE SECURED TO SLED FRAME, ALIGN WITH SLED BRACE PEN NUTS AND TURN SCREWS TO THREAD INTO SLED BRACE.

NOTES:

- 1.) DUE TO CONTINUOUS IMPROVEMENT, FASTENERS SHOWN IN DRAWING MAY DIFFER SLIGHTLY FROM ACTUAL ASSEMBLY.
- 2.) COMPONENTS AND ASSEMBLIES MIGHT NOT BE SOLD AS DEPICTED.

LOVESHAW		2208 EAST ONTARIO, SOUTH CAMPAIN, PA.	
DRAWING NO.		SLACF25 2.0	
TITLE		SLED ASSY 2.0, CF25	
SCALE		AS SHOWN	
CHECKED		APPROVED	
DATE		3/9/2017	
BY		RTR	
MATERIAL		STAINLESS, NOT FINISH	
FINISH		DO NOT SCALE PRINT	
TOLERANCES UNLESS OTHERWISE NOTED:		FRACTIONS: 1/16"	
DIMENSIONS UNLESS OTHERWISE NOTED:		DECIMALS: .005"	
ANGLES UNLESS OTHERWISE NOTED:		ANGLES: 1°	
DIMENSIONS UNLESS OTHERWISE NOTED:		DIMENSIONS: .005"	
DIMENSIONS UNLESS OTHERWISE NOTED:		DIMENSIONS: .005"	
DIMENSIONS UNLESS OTHERWISE NOTED:		DIMENSIONS: .005"	

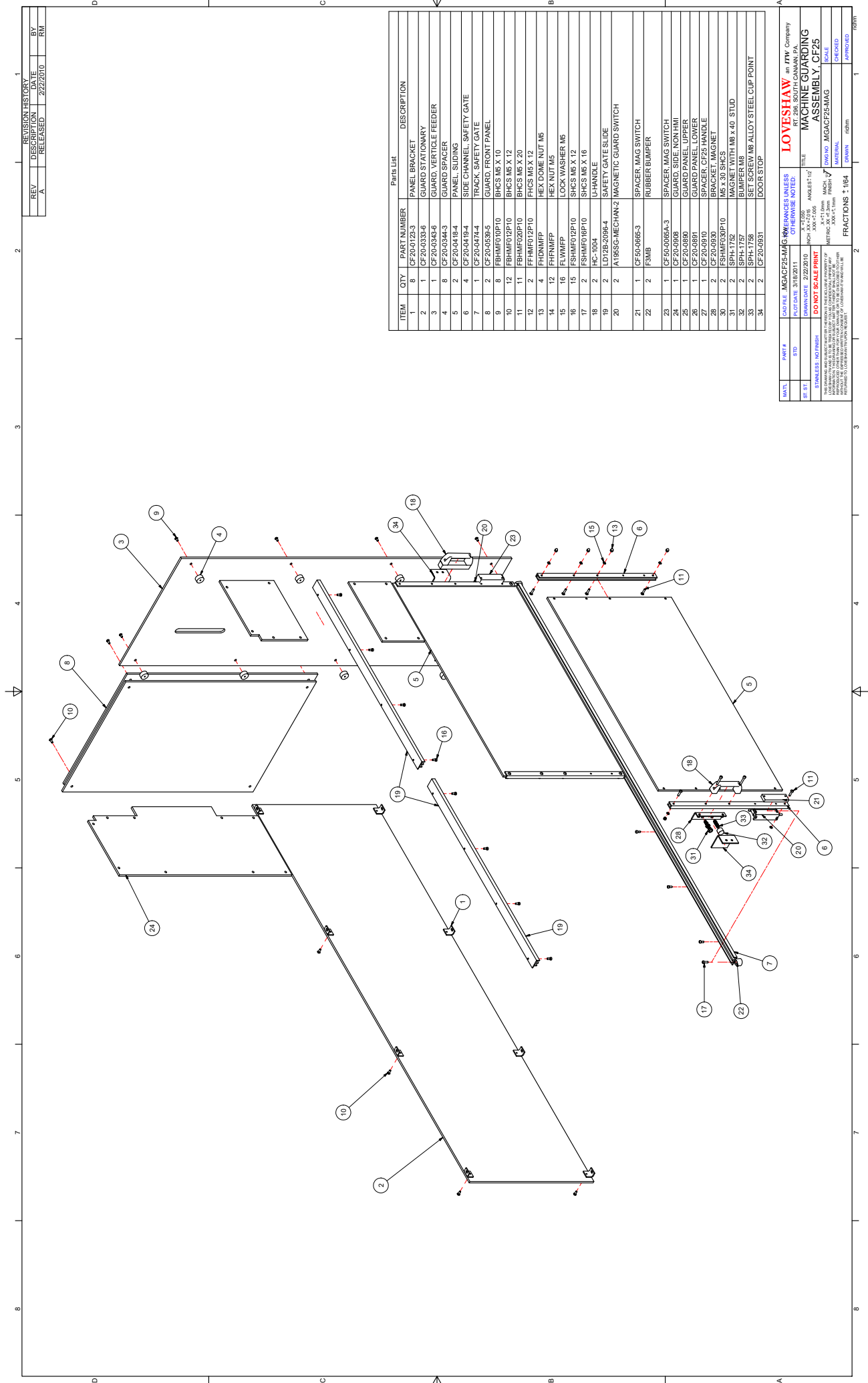


REVISION HISTORY			
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A	RELEASED	2/22/2010	RM

Parts List		
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1	2	A195SC1-M1 SWITCH KEY
2	2	A195SC1-M1 SWITCH KEY
3	1	CF20-0334-3 GUARD STATIONARY
4	1	CF20-0334-3 GUARD STATIONARY
5	1	CF20-0340-5 GUARD SIDE UPPER
6	1	CF20-0343-6 GUARD VERTICLE FEEDER
7	8	CF20-0344-3 GUARD SPACER
8	2	CF20-0418-4 PANEL SLIDING
9	4	CF20-0418-4 SIDE CHANNEL SAFETY GATE
10	2	CF20-0435-3 STATE KEY MOUNTING
11	2	CF20-0435-3 STATE KEY MOUNTING
12	1	CF20-0474-4 TRACK SAFETY GATE
13	1	CF20-0535-5 GUARD FRONT PANEL
14	1	CF20-0547-4 GUARD MOTOR, SIDE
15	1	CF20-0548-4 GUARD MOTOR, TOP
16	2	F3MB RUBBER BUMPER
17	8	FHMF010P10 BHCS M5 X 10
18	18	FHMF010P10 BHCS M5 X 12
19	18	FHMF010P10 BHCS M5 X 16
20	12	FHMF010P10 BHCS M5 X 20
21	4	FHMF012P10 FHCS M5 X 12
22	6	FHMF012P10 FLAT WASHER M5
23	4	FHMF012P10 HEX NUT M5
24	25	FHMF012P10 LOCK WASHER M5
25	31	FHMF012P10 LOCK WASHER M5
26	4	FHMF012P10 SHCS M5 X 60
27	2	FHMF012P10 SHCS M5 X 2
28	2	FHMF012P10 SHCS M5 X 16
29	4	FHMF025B10 SHCS M5 X 20
30	2	HC-1004 U-HANDLE
31	2	LD 12B-209B-4 SAFETY GATE SLIDE

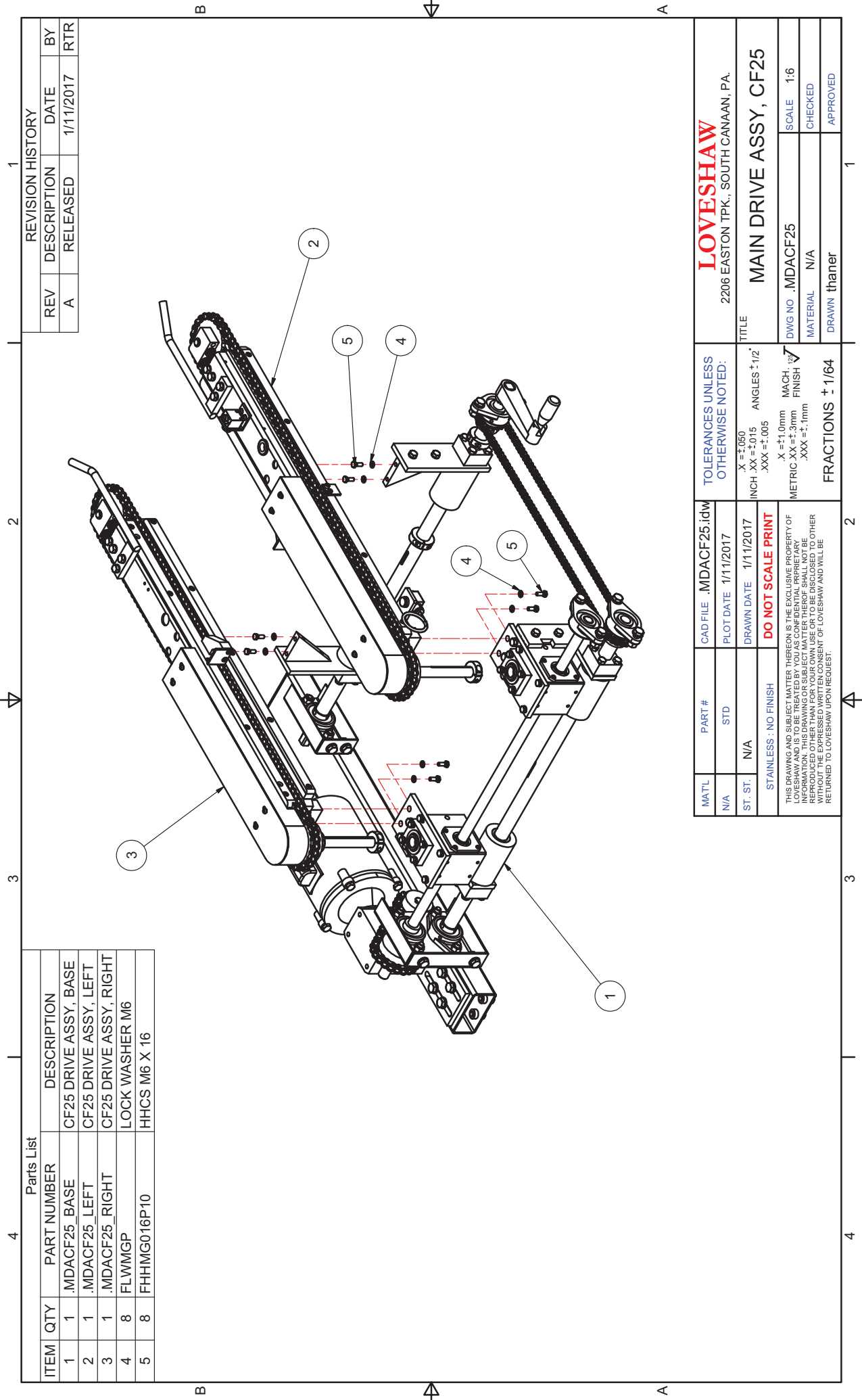
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XXX ±.045			
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XXX ±.980			
XXX ±.985			
XXX ±.990			
XXX ±.995			
XXX ±.1000			

TOLERANCES UNLESS OTHERWISE NOTED:			
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XXX ±.010			
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XXX ±.020			
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XXX ±.030			
XXX ±.035			
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XXX ±.045			
XXX ±.050			
XXX ±.055			
XXX ±.060			
XXX ±.065			
XXX ±.070			
XXX ±.075			
XXX ±.080			
XXX ±.090			



Standard Chain Drive Mechanical Drawings

The drawings and schematics in this section represent the mechanical layouts specific to standard, CF25, chain drive machines.

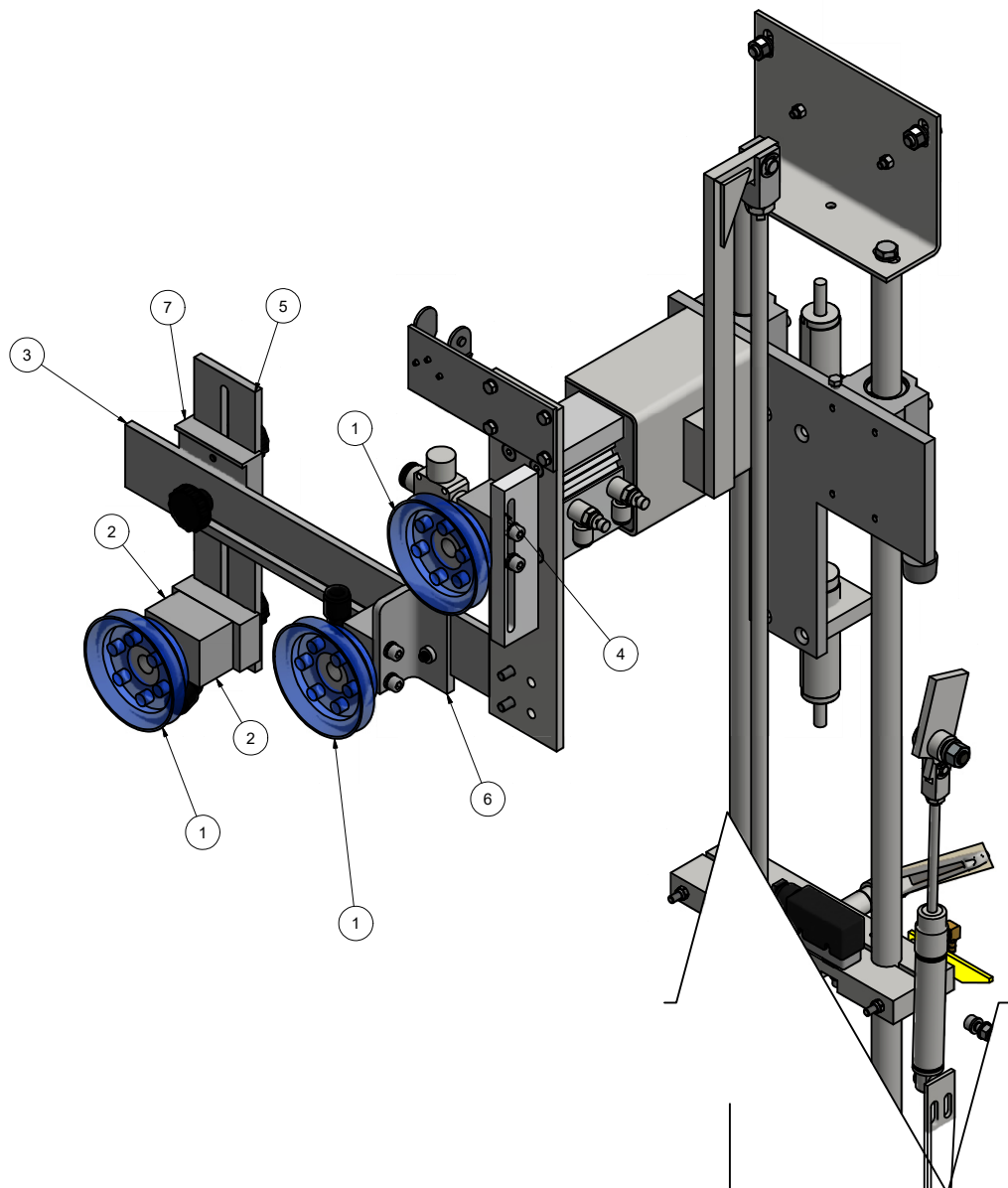


Parts List		
ITEM	QTY	DESCRIPTION
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2	1	MDACF25 LEFT
3	1	MDACF25 RIGHT
4	8	FLWMGP
5	8	FHIMG016P10

REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	1/11/2017	RTR

LOVESHAW		2206 EASTON TPK., SOUTH CANAAN, PA.	
TITLE		MAIN DRIVE ASSY, CF25	
TOLERANCES UNLESS OTHERWISE NOTED:		X = ±.050 INCH XX = ±.015 ANGLES ±1/2° .XXX = ±.005	
CAD FILE .MDACF25.idw		PLOT DATE 1/11/2017	
ST. ST. N/A		DRAWN DATE 1/11/2017	
STAINLESS : NO FINISH		DO NOT SCALE PRINT	
THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPRIETARY INFORMATION. THIS DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHERS WITHOUT THE WRITTEN CONSENT OF LOVESHAW AND WILL BE RETURNED TO LOVESHAW UPON REQUEST.		MACH. FINISH X = ±1.0mm METRIC XX = ±.3mm .XXX = ±.1mm	
DWG NO. MDACF25		SCALE 1:6	
MATERIAL N/A		CHECKED	
DRAWN thaler		APPROVED	
FRACTIONS ± 1/64		1	

REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	4/9/2015	DW



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	VC-1001	CUP
2	2	CF20-0574-4	BLOCK, SUCTION CUP, ARM
3	1	CF20-0480-5	CUP BASE, 3 CUPS
4	1	CF20-0672-3	CUP ADJ. BLOCK
5	1	CF20-0669-4	CUP ADJ. BAR
6	1	CF20-0671-4	CUP SUPPORT BRACKET
7	1	CF20-0668-4	CUP MOUNT TOP

MATERIAL	PART #	CAD FILE	VFACF25 with offset cups manual page.dwg	LOVESHAW
STD	PLOT DATE	OTHERWISE NOTED:	2206 EASTON TPK., SOUTH CANAAN, PA.	TITLE
ST. SH	DRAWN DATE 4/9/2015	X = ±.050 INCH .XX = ±.015 .XXX = ±.005	ANGLES ± 1/2°	VERTICAL FEEDER ASSEMBLY, CF25
FIN/LESS : NO FINISH	DO NOT SCALE PRINT	X = ±1.0mm METRIC .XX = ±.3mm .XXX = ±.1mm	MACH. FINISH	DWG NO .VFACF25 with offset cups SCALE
FRACTIONS ± 1/64				MATERIAL
				CHECKED
				DRAWN dennisw
				APPROVED

REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	1/10/2017	RTR

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	CF50-0283-3	BLOCK, ANCHOR
2	1	CF20-0495-3	BLOCK, IDLER
3	2	SPR-1052	SPRING, COMPRESSION
4	2	SPH-1359	SHOULDER BOLT, 1/2" X 3" LG.
5	2	CF20-0497-5	GUIDE STRIP, LUG CHAIN
6	1	203174-12	SPROCKET
7	1	SPK-0121	SPROCKET, IDLER
8	1	BRG-2004	BEARING, FLANGED
9	1	SPH-1401	SHOULDER BOLT, 3/4 X 3/4
10	5	SPH-1402	SHIM WASHER
11	1	CF20-0506-4	STRIP, SQUEEZER
12	1	CF20-0530-4	BOX GUIDE, LUG DRIVES
13	4	FHHMH025P10	HHCS M8 X 25
14	5	FSHMF020P10	SHCS M5 X 0.8 X 20 LG.
15	5	FLWMHP	LOCK WASHER M8
16	5	FFHMF030P10	FLAT HEAD CAP SCREW M5 X 30 LG.
17	4	CF20-0508A-3	STANDOFF, CHAIN GUARD
18	1	CF20-0496-6	MAIN TUBE, LUG DRIVE
19	1	CF20-0569-4	SHAFT, VERTICAL DRIVE FIXED SIDE
20	2	202201	2 PIECE SHAFT COLLAR, 3/4"
21	1	SPH-1232	FLAT WASHER
22	1	FHHMH016P10	HHCS M8 X 16
23	4	FBHMF012P10	HEX SOC. BUTT. HD. SCREW
24	1	CF20-0538-5	GUARD, LUG DRIVE
25	1	CF20-0612-5	GUIDE STRIP, LUG DRIVE
26	1	CHACF25-L1	LUG CHAIN ASSEMBLY, CF25-T
27	1	CF20-0676-4	GUIDE STRIP SPACER
28	1	CF20-0591-4	SQUEEZER STRIP, NARROW BOX
29	5	FFHMF045P10	STEP AP203

DRAWING INFORMATION			
MATL	PART #	CAD FILE	MDACF25, RIGHT DRIVE
ST. ST.	STD	PLOT DATE	1/10/2017
STAINLESS, NO FINISH		DRAWN DATE	1/10/2017
		DO NOT SCALE PRINT	

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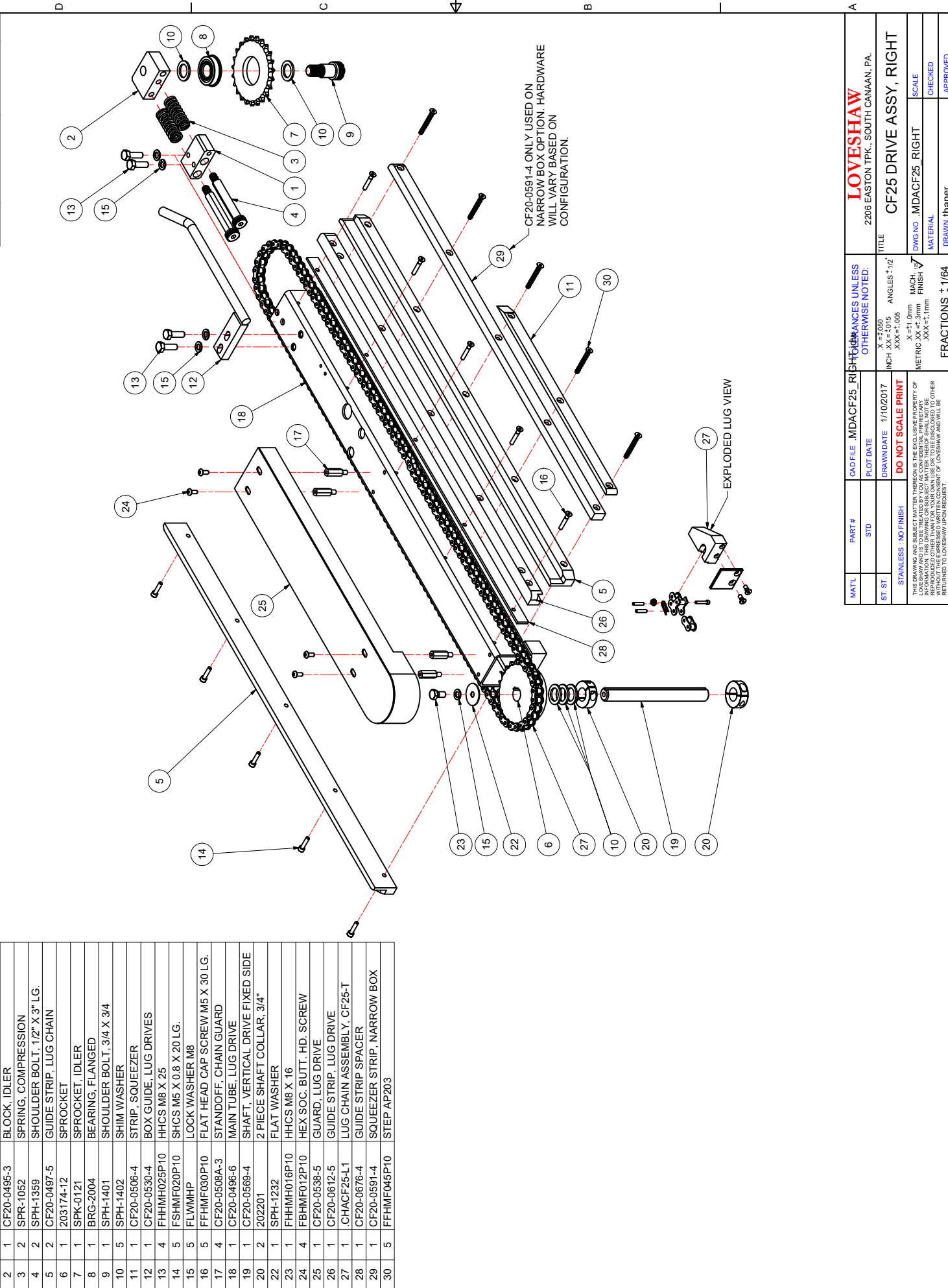
TOLERANCES UNLESS OTHERWISE NOTED:			
X ±.050	INCH	XX ±.015	ANGLES ±1/2°
X ±1.0mm	MACH.	XX ±.3mm	FINISH
XXX ±.1mm			

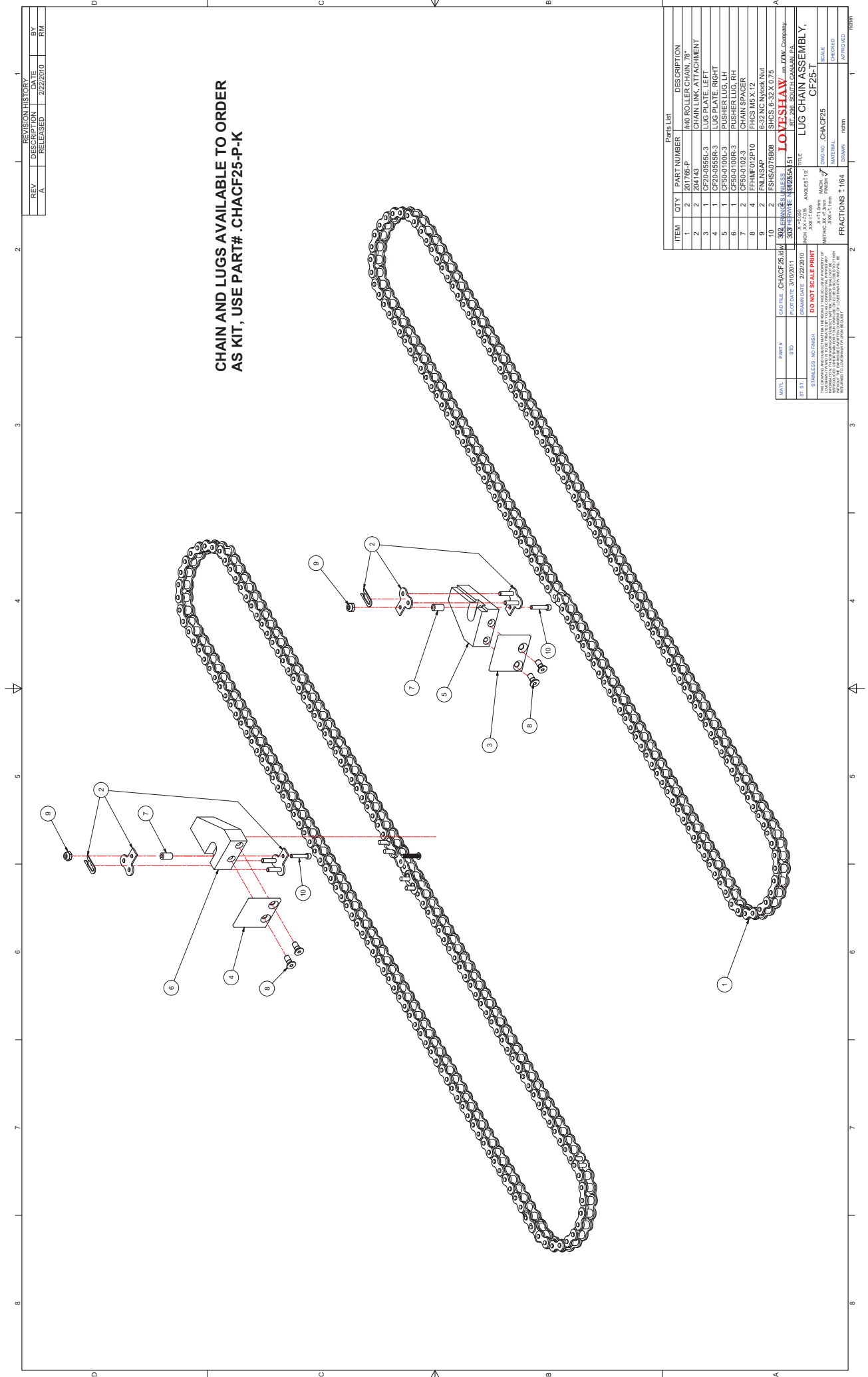
FRACTIONS ± 1/64			
DWG NO	MDACF25, RIGHT	SCALE	CHECKED
MATERIAL			APPROVED
DRAWN	thanan		

LOVESHAW			
2206 EASTON TPK., SOUTH CANAAN, PA.			
TITLE			
CF25 DRIVE ASSY, RIGHT			

EXPLODED LUG VIEW			
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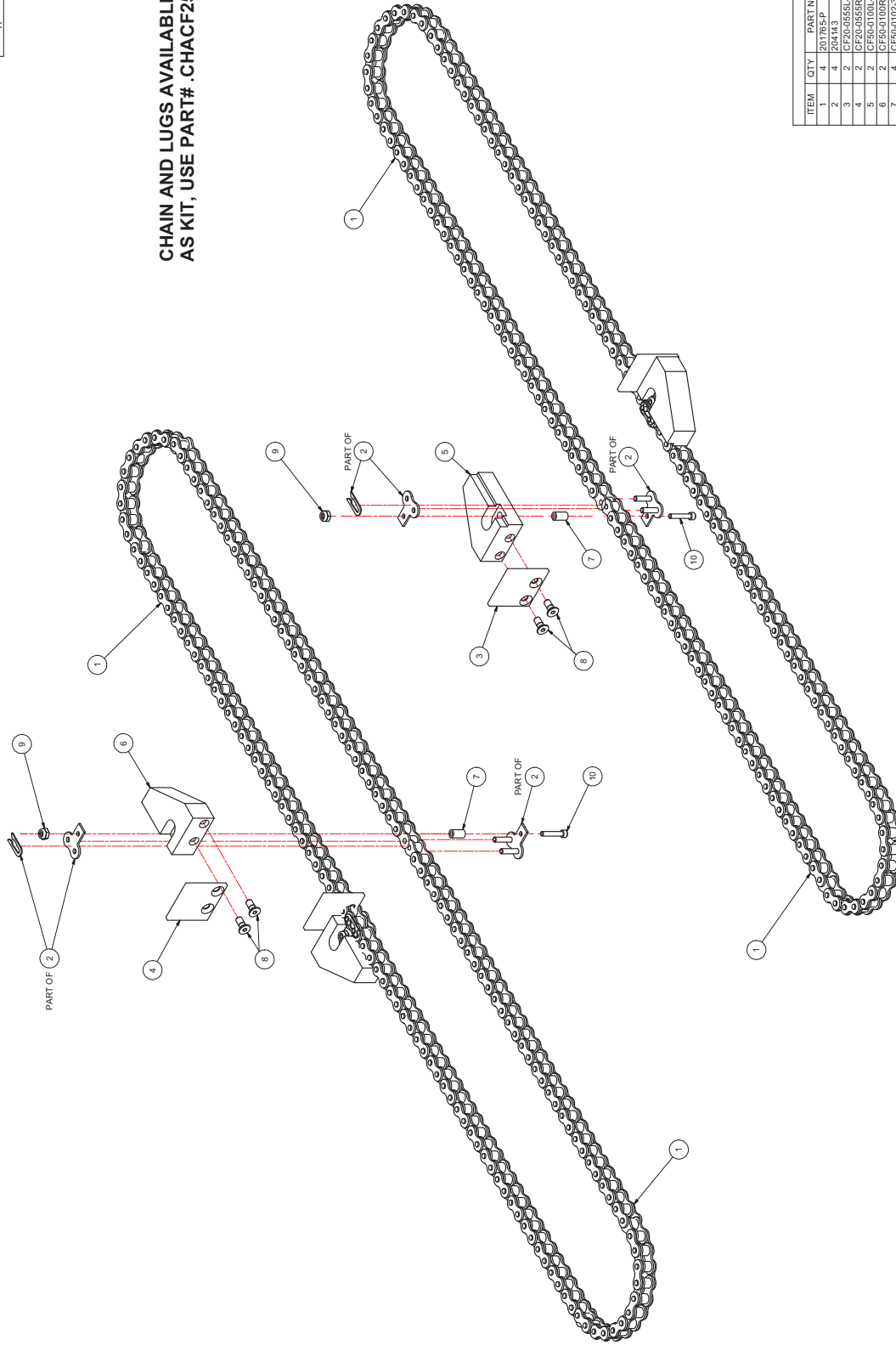
CF20-0591-4 ONLY USED ON NARROW BOX OPTION. HARDWARE WILL VARY BASED ON CONFIGURATION.			
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REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	9/1/2010	RM

CHAIN AND LUGS AVAILABLE TO ORDER
AS KIT, USE PART# .CHACF25-P-KHS

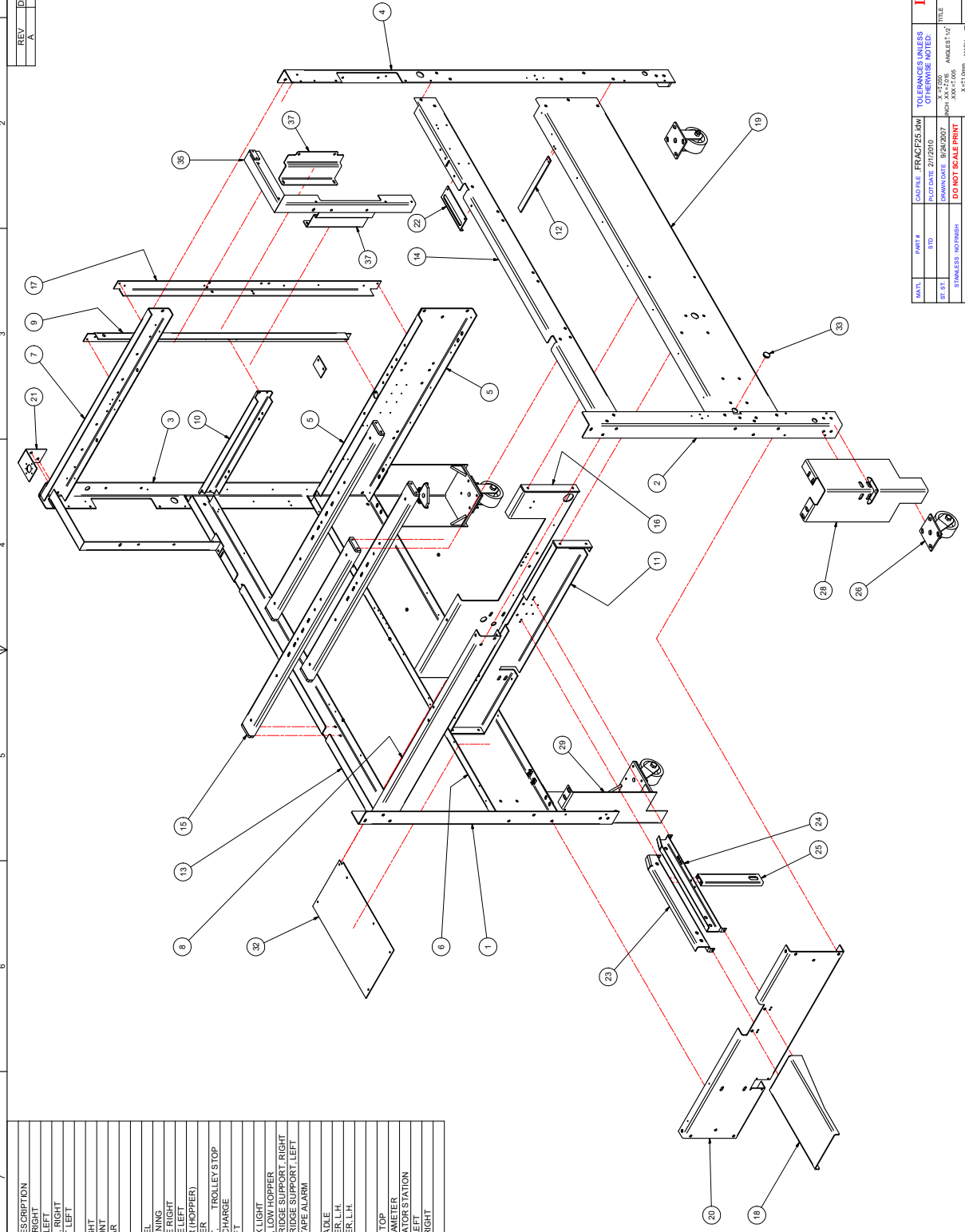


Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	201785-P	#40 ROLLER CHAIN, 30"
2	4	20414-3	CHAIN LINK ATTACHMENT
3	2	CF20-0555L-3	LUG PLATE, LEFT
4	2	CF20-0555R-3	LUG PLATE, RIGHT
5	2	CF20-0100L-3	PUSHER LUG, LH
6	2	CF20-0100R-3	PUSHER LUG, RH
7	4	CF20-0102-3	CHAIN SPACER
8	8	FFHMF012PT0	FIRES M6 X 0.8 X 12 LG.
9	4	FFHNSAP	632 NC NYLON NUT
10	4	FFHSA075B08	SHCS, 6-32 X 0.75
TOLERANCES UNLESS OTHERWISE NOTED:			
FRACTIONS: 1/16"			
DECIMALS: .005"			
ANGLES: 1/2°			
HOLE: .005"			
FINISH: 7			
MATERIAL: 304 SS			
SCALE: 1"=16"			
CHECKED: [Signature]			
APPROVED: [Signature]			

MATL	PART #	CAD FILE	CHACF25-HS	HW	UNLESS	NOTED:
STAINLESS	NO FINISH	DO NOT SCALE PRINT	6/1/2010	XX.XX.XX	XX.XX.XX	XX.XX.XX
THIS DRAWING AND ITS CONTENTS ARE THE PROPERTY OF LOVE SHAW. IT IS TO BE USED FOR THE PURPOSES SPECIFIED ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM LOVE SHAW. THIS DRAWING IS TO BE USED FOR THE PURPOSES SPECIFIED ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM LOVE SHAW.						

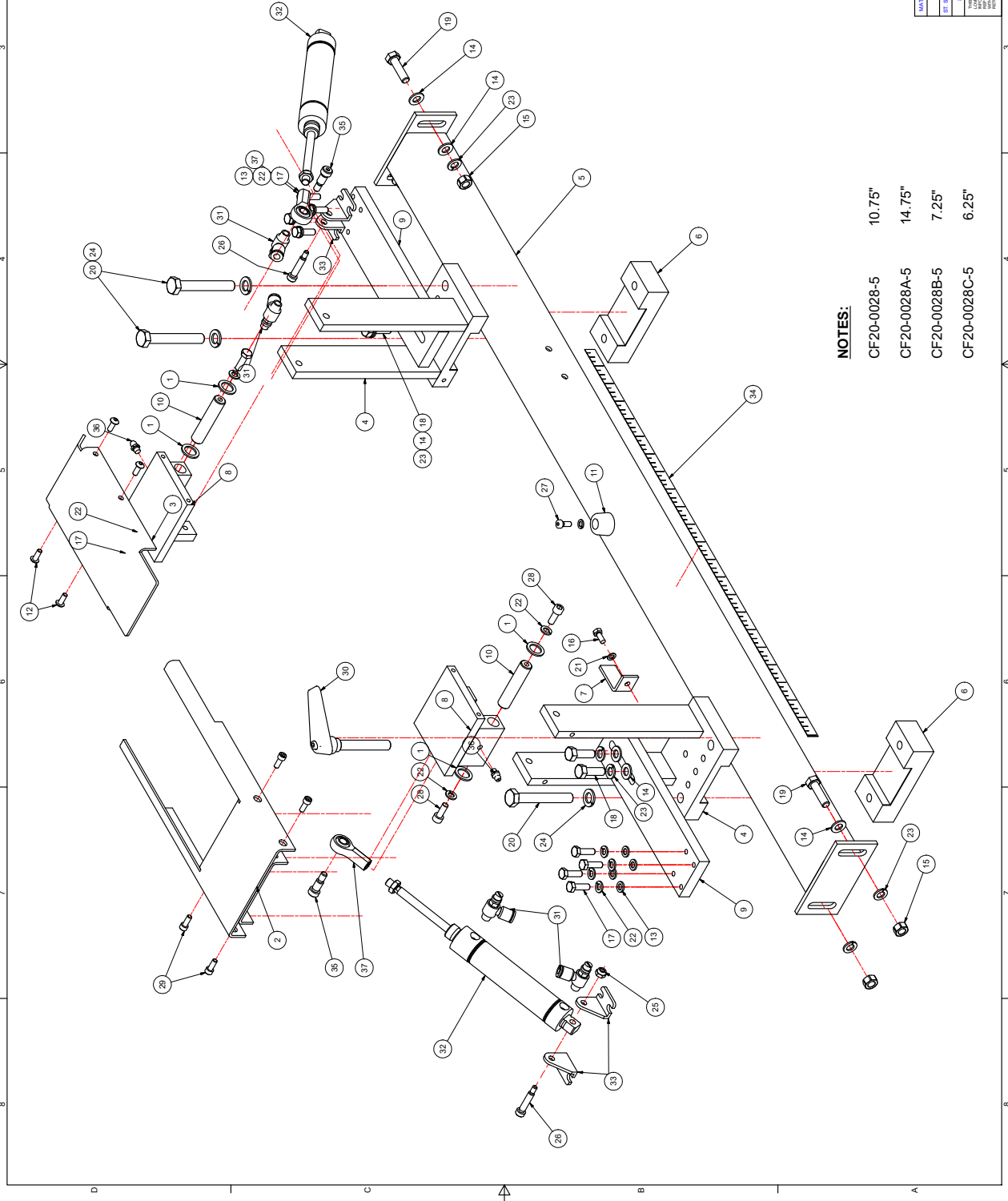
REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	9/24/2007	RM

Parts List			DESCRIPTION
ITEM	QTY	PART NUMBER	
1	1	CF20-0318-6	UPRIGHT REAR, RIGHT
2	1	CF20-0319-6	UPRIGHT REAR, LEFT
3	1	CF20-0328-6	UPRIGHT FRONT, RIGHT
4	1	CF20-0329-6	UPRIGHT FRONT, LEFT
5	1	CF20-0331-6	FRONT FRAME
6	1	CF20-0321-6	FRAME, SIDE RIGHT
7	1	CF20-0332-6	BRACE, TOP FRONT
8	1	CF20-0324-6	BRACE, TOP REAR
9	1	CF20-0338-6	GUARD MOUNT
10	1	CF20-0336-5	MIDDLE BRACE
11	1	CF20-0322-6	CENTER CHANNEL
12	1	CF20-0335-6	CHANNEL, EXTENSION
13	1	CF20-0326-6	BRACE, TOP SIDE RIGHT
14	1	CF20-0325-6	BRACE, TOP SIDE LEFT
15	3	CF20-0327-6	BRACE - CENTER (HOPPER)
16	1	CF20-0512-6	CHANNEL, CENTER
17	1	CF20-0537-5	MOUNTING POST, TROLLEY STOP
18	1	CF20-0436-5	EXTENSION, DISCHARGE
19	1	CF20-0320-6	FRAME, SIDE LEFT
20	1	CF20-0330-6	BRACKET, SIDE RIGHT
21	1	CF20-0539-4	BRACKET, STACK LIGHT
22	1	CF20-0594-4	BRACKET, PROX. LOW HOPPER
23	1	CF20-0599R-5	CHANNEL, CARTRIDGE SUPPORT, RIGHT
24	1	CF20-0599L-5	CHANNEL, CARTRIDGE SUPPORT, LEFT
25	1	CR2910A	BRACKET, LOW TAPE ALARM
26	2	201763	CASTER
27	2	JA203	WIRE HOSE CRADLE
28	2	CF20-0561-6	BRACKET, CENTER, L.H.
29	1	CF20-0561-6	BRACKET, CENTER, R.H.
30	1	CF20-0675A-5	FRAME COVER
31	1	CF20-0675-6	FRAME COVER
32	1	CF20-0548-4	GUARD, MOTOR, TOP
33	1	SPH-1722	HOLE PLUG 1" DIAMETER
34	1	CF50-0190-4	BRACKET, OPERATOR STATION
35	1	CF20-0892	GUARD MOUNT LEFT
36	1	CF20-0892R	GUARD MOUNT RIGHT
37	2	CF20-0585	PHI BOX MOUNT



PART #		CADD FILE		FRAC/F25.MW		TOLERANCES UNLESS OTHERWISE NOTED:		LOVESHAW an ITW Company	
BTD		PLOT DATE		21/2010		RT 298 SOUTH CANNAN, PA.			
STAINLESS		NO FINISH		DO NOT SCALE PRINT		TITLE		FRAME ASSY CF25-T	
SCALE		DRAWING		MATERIAL		CHECKED		APPROVED	
FRACTIONS 1/164		FORM		DRAWING		MATERIAL		CHECKED	

REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	2/10/2010	RM



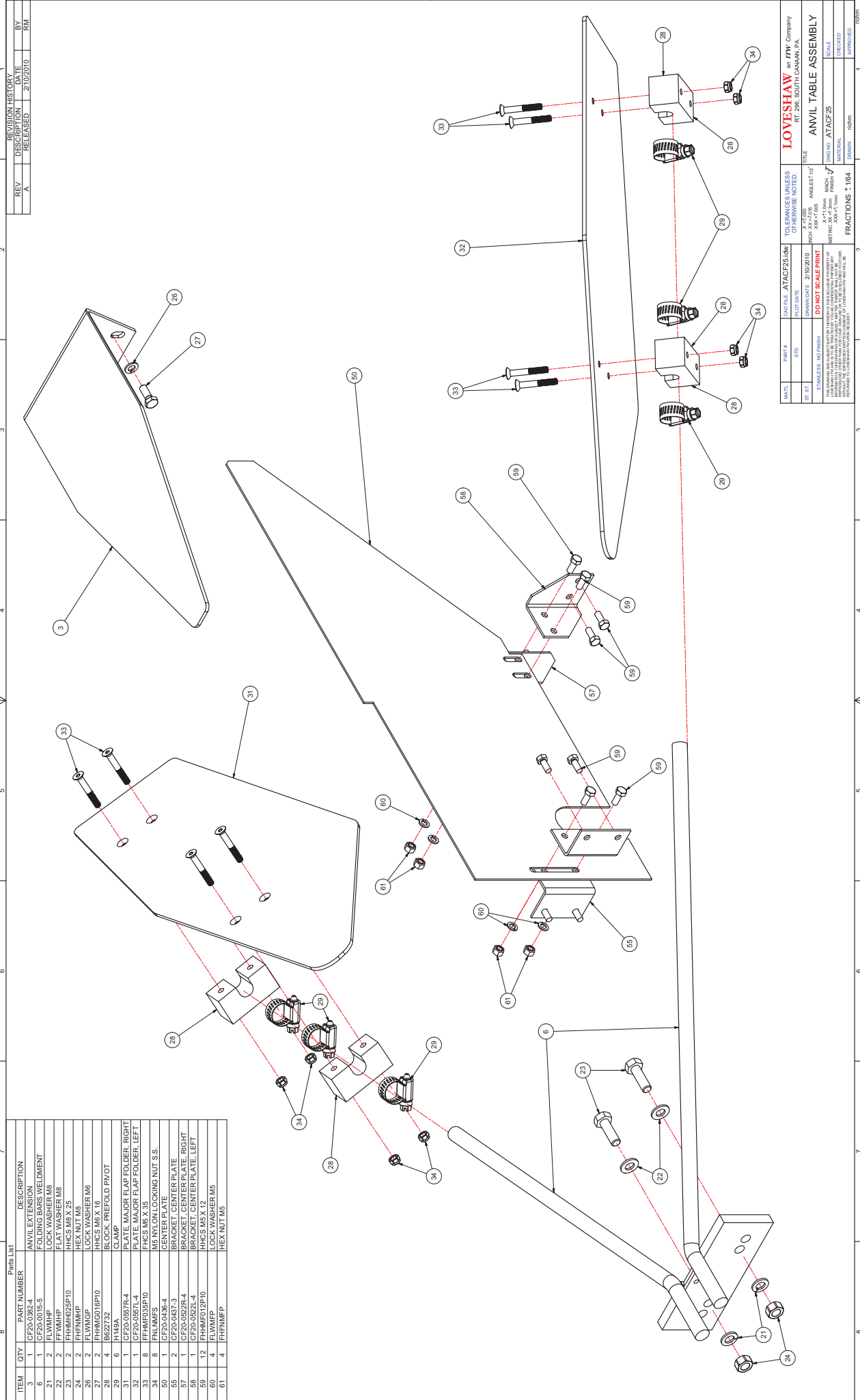
- NOTES:**
- CF20-0028-5 10.75"
 - CF20-0028A-5 14.75"
 - CF20-0028B-5 7.25"
 - CF20-0028C-5 6.25"

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	BS-1-102	THRUST WASHER
2	1	CF20-0028-5	FLAP FOLDER FRONT
3	1	CF20-0028-5	FLAP FOLDER REAR (SEE NOTE FOR SIZES)
4	2	CF20-0387-5	FLAP FOLDER BRACKET
5	1	CF20-0376-5	MOUNT - FLAP FOLDER
6	2	CF20-0345-3	CLAMP - FLAP FOLDER
7	1	CF20-0345-3	POINTER, FRONT FLAP FOLDER
8	2	CF20-0377-5	PIVOT BRACKET FLAP FOLDER
9	2	CF20-0381-3	PIVOT BRACKET FLAP FOLDER
10	2	CF20-0381-3	PIVOT SHAFT FLAP FOLDER
11	1	F-MB	RUBBER BUMPER
12	4	FBHSD060P05	BHCS 10-32 X 1/2
13	8	FWMGP	FLAT WASHER M6
14	10	FWMHP	FLAT WASHER M8
15	4	FHMHP	HEX NUT M8
16	1	FHMCD02P10	BHCS M5 X 1/2
17	10	FHMCD02P10	BHCS M5 X 1/2
18	4	FHMCD05P10	BHCS M8 X 20
19	4	FHMCD03S10	BHCS M8 X 30
20	3	FHMCD07P8	BHCS M10 X 70
21	2	FLWMP	LOCK WASHER M5
22	12	FLWMP	LOCK WASHER M6
23	8	FLWMP	LOCK WASHER M8
24	3	FLWMP	LOCK WASHER M10
25	1	FLWMP	LOCK WASHER M12
26	2	FSBSC10B08	SHOULDER BOLT 1/4 x 1 x 10-24 THRD
27	1	FSM012P10	SHCS M5 X 1/2
28	2	FSM030P10	SHCS M6 X 1/2
29	4	FSHSD060P05	BHCS 10-32 X 1/2
30	1	HC-1032	RATCHET HANDLE
31	4	N400-83	SPEED CONTROL 90 DEG
32	2	N401-388	AIR CYLINDER
33	1	SCL-403	SCALE FUL HORIZONTAL RIGHT TO LEFT
34	1	SCL-1072	SHOULDER BOLT 1/4 x 1/2 x 1/4-20 THRD
35	2	SPH-1383	GREASE FITTING 1/4-28UNF
36	2	SPH-1460	ROD END BEARING
37	2	SPH-1460	ROD END BEARING

TOLERANCES UNLESS OTHERWISE NOTED:			
MATL	PART #	CAST/FILE	FFAC25.dwg
STAINLESS	NOT FINISH	DATE	2/10/2010
BT 3T	BYD	DATE	2/10/2010
DO NOT SCALE PRINT			
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XXX ±1500000000000000000000000000.000			
XXX ±2000000000000000000000000000.000			
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XXX ±150000000000000000000000000000.000			
XXX ±200000000000000000000000000000.000			
XXX ±250000000000000000000000000000.000			
XXX ±300000000000000000000000000000.000			
XXX ±400000000000000000000000000000.0			

REV	DESCRIPTION	DATE	BY
A	RELEASED	2/10/2010	RM

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	CF20-0382-4	ANVIL EXTENSION
6	1	CF20-0075-5	FOLDING BARS WELDMENT
21	2	FLWMHP	LOCK WASHER M8
23	2	FLWMHP	LOCK WASHER M8
24	2	FHNHMD2P10	FLW NUT M8
26	2	FLWMGP	LOCK WASHER M8
27	2	FHNHMD16P10	FLW NUT M8
28	4	B627732	LOCK WASHER M8
29	6	H49A	CLAMP
31	1	CF20-0057R-4	PLATE MAJOR FLAP FOLDER, RIGHT
32	1	CF20-0057L-4	PLATE MAJOR FLAP FOLDER, LEFT
33	8	FHNHMD2P10	FLW NUT M8
34	8	FNLNMF5	M5 NYLON LOCKING NUT S.S.
50	1	CF20-0436-4	CENTER PLATE
55	2	CF20-0437-3	BRACKET, CENTER PLATE
57	1	CF20-0522R-4	BRACKET, CENTER PLATE, RIGHT
58	1	CF20-0522L-4	BRACKET, CENTER PLATE, LEFT
59	12	FHNHMD2P10	FLW NUT M8
60	4	FLWMGP	LOCK WASHER M8
61	4	FHNHMD2P10	FLW NUT M8

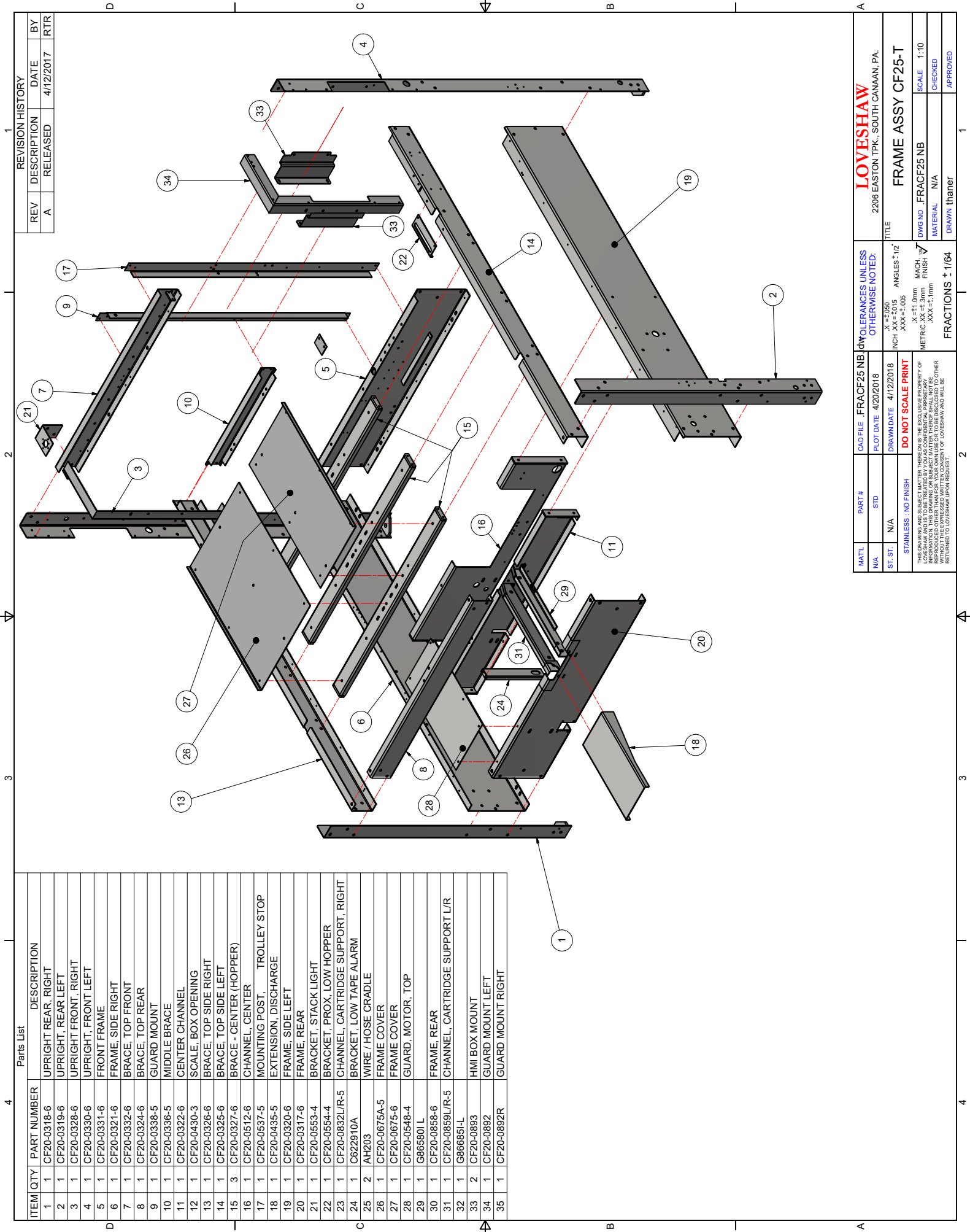


MATL	PART #	QTY	UNIT	DATE	BY
STAINLESS	NO FINISH	DO NOT SCALE PRINT	2/10/2010	RM	RM
TOLERANCES UNLESS OTHERWISE NOTED:					
FRACTIONS: 1/164					
APPROVED					

REV	DESCRIPTION	DATE	BY
A	RELEASED	2/10/2010	RM

Standard Belt Drive Mechanical Drawings

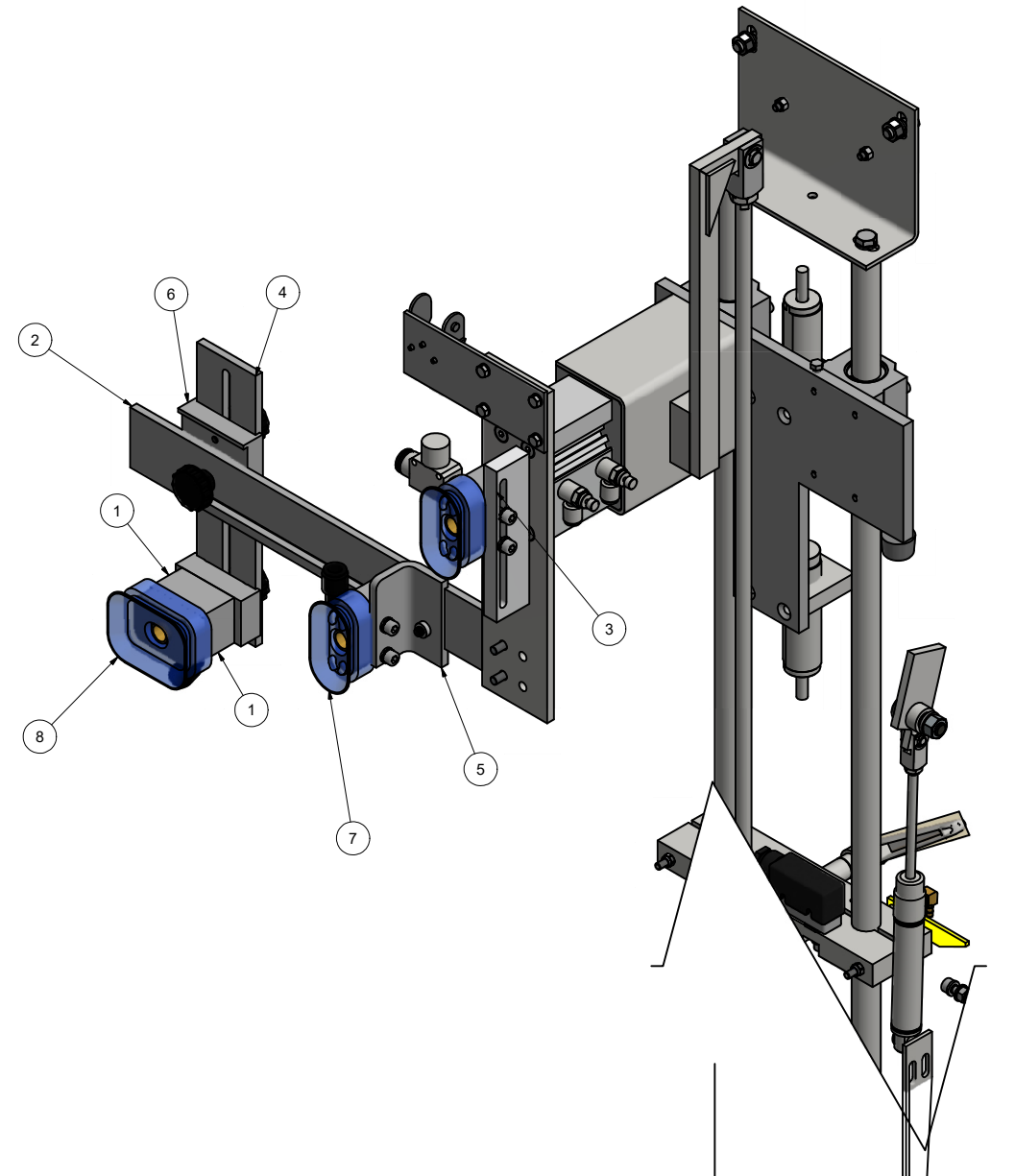
The drawings and schematics in this section represent the mechanical layouts specific to standard, CF25, belt drive machines.



REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	4/12/2017	RTR

Parts List		
ITEM	QTY	PART NUMBER DESCRIPTION
1	1	CF20-0318-6 UPRIGHT REAR, RIGHT
2	1	CF20-0319-6 UPRIGHT, REAR LEFT
3	1	CF20-0328-6 UPRIGHT FRONT, RIGHT
4	1	CF20-0330-6 UPRIGHT, FRONT LEFT
5	1	CF20-0331-6 FRONT FRAME
6	1	CF20-0321-6 FRAME, SIDE RIGHT
7	1	CF20-0332-6 BRACE, TOP FRONT
8	1	CF20-0324-6 BRACE, TOP REAR
9	1	CF20-0338-5 GUARD MOUNT
10	1	CF20-0336-5 MIDDLE BRACE
11	1	CF20-0322-6 CENTER CHANNEL
12	1	CF20-0430-3 SCALE, BOX OPENING
13	1	CF20-0326-6 BRACE, TOP SIDE RIGHT
14	1	CF20-0325-6 BRACE, TOP SIDE LEFT
15	3	CF20-0327-6 BRACE - CENTER (HOPPER)
16	1	CF20-0512-6 CHANNEL, CENTER
17	1	CF20-0537-5 MOUNTING POST, TROLLEY STOP
18	1	CF20-0435-5 EXTENSION, DISCHARGE
19	1	CF20-0320-6 FRAME, SIDE LEFT
20	1	CF20-0553-4 BRACKET, REAR
21	1	CF20-0554-4 BRACKET, PROX, LOW HOPPER
22	1	CF20-0832L/R-5 CHANNEL, CARTRIDGE SUPPORT, RIGHT
23	1	G622910A BRACKET, LOW TAPE ALARM
24	1	WIRE / HOSE CRADLE
25	2	AH203 FRAME COVER
26	1	CF20-0675A-5 FRAME COVER
27	1	CF20-0675-6 GUARD, MOTOR, TOP
28	1	G865801 L FRAME, REAR
29	1	CF20-0858-6 CHANNEL, CARTRIDGE SUPPORT L/R
30	1	G866851-L HMI BOX MOUNT
31	1	CF20-0892 GUARD MOUNT LEFT
32	2	CF20-0893 GUARD MOUNT RIGHT
33	1	CF20-0892R
34	1	
35	1	

LOVESHAW		2206 EASTON TPK., SOUTH CANAAN, PA.	
TITLE		FRAME ASSY CF25-T	
DWG NO		FRAME ASSY CF25-T	
MATERIAL		N/A	
DRAWN		thanner	
CHECKED			
APPROVED			
SCALE		1:10	
FINISH		MACH	
TOLERANCES UNLESS OTHERWISE NOTED:		X ±.050 ANGLES ±1/2°	
INCH		XX ±.015	
METRIC		XX ±.3mm	
FRACTIONS		± 1/64	

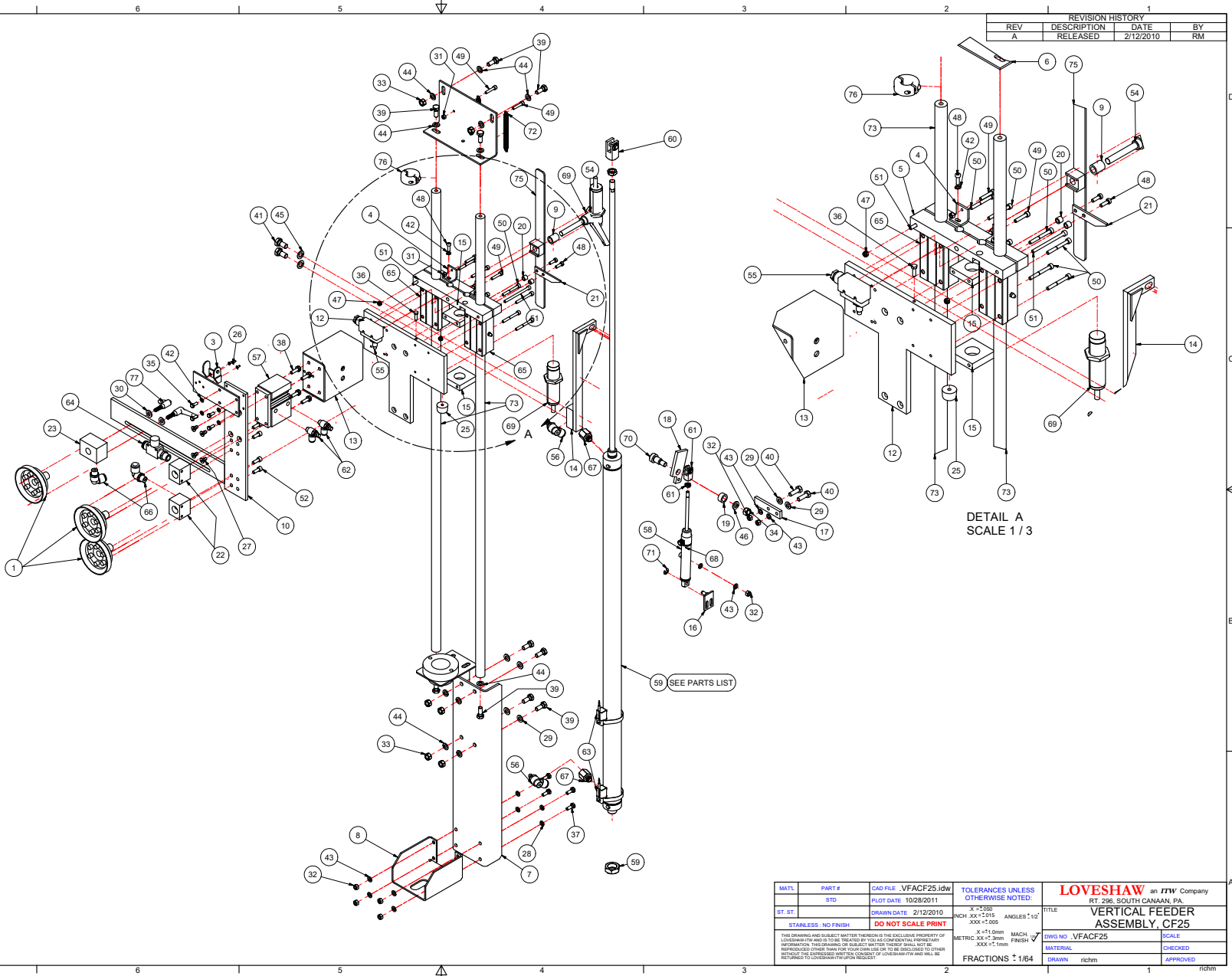


REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	4/9/2015	DW

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	CF20-0574-4	BLOCK, SUCTION CUP, ARM
2	1	CF20-0480-5	CUP BASE, 3 CUPS
3	1	CF20-0672-3	CUP ADJ. BLOCK
4	1	CF20-0669-4	CUP ADJ. BAR
5	1	CF20-0671-4	CUP SUPPORT BRACKET
6	1	CF20-0668-4	CUP MOUNT TOP
7	2	VC-1012	VACUUM CUP OVAL SMALL
8	1	VC-1013	VACUUM CUP OVAL LARGE

MATL	PART #	CAD FILE VFACF25 with offset cups manual page.dwg	LOVESHAW
STD	PLOT DATE	OTHERWISE NOTED:	2206 EASTON TPK., SOUTH CANAAN, PA.
ST. ST.	DRAWN DATE 4/9/2015	X = ±.050 INCH .XX = ±.015 .XXX = ±.005	TITLE VERTICAL FEEDER ASSEMBLY, CF25
STAINLESS: NO FINISH	DO NOT SCALE PRINT	ANGLES ± 1/2° X = ±1.0mm METRIC .XX = ±.3mm .XXX = ±.1mm	DWG NO. _VFACF25 with offset cups.dwg
FRACTIONS ± 1/64			CHECKED
DRAWN dennisw			APPROVED

		8	9	7	
		Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION		
D	1	3	VC-1001	SUCTION CUP	
	2	4 FT.	CC-0001	ENERGY CHAIN	
	3	1	CC-0003	BRACKET, ENERGY CHAIN	
	4	2	CF20-0123-3	PANEL BRACKET	
	5	1	CF20-0371-4	CLAMP, VERTICAL FEEDER	
	6	1	CF20-0372-4	MOUNT, VERTICAL SHAFTS	
	7	1	CF20-0424-4	BRACKET, VERTICAL CYLINDER	
	8	1	CF20-0425-5	BRACKET, CYLINDER	
	9	1	CF20-0472-3	SPACER, VERTICAL CLAMP	
	10	1	CF20-0480-6	CUP BASE, 3 CUPS	
	11	1	CF20-0524-3	ENERGY CHAIN BRACKET	
	12	1	CF20-0525-4	BEARING PLATE, VERTICAL FEEDER	
	13	1	CF20-0526-4	BRACKET, PICK CYLINDER	
	14	1	CF20-0527-4	ARM, VERTICAL CYLINDER	
	15	2	CF20-0529-3	BLOCK, SHOCK MOUNT	
	16	1	CF20-0533-4	PIVOT BRACKET, TROLLEY STOP CYLINDER	
	17	1	CF20-0534-3	HARD STOP, DOG	
	18	1	CF20-0535-3	DOG, TROLLEY STOP	
	19	1	CF20-0536-3	SPACER, DOG	
	20	2	CF20-0540-3	SPACER, POINTER	
	21	1	CF20-0541-3	POINTER, VERTICAL STOP	
	22	2	CF20-0543-4	BLOCK, SUCTION CUP	
	23	1	CF20-0574-4	BLOCK, SUCTION CUP, ARM	
	24	1	CF20-0592-4	BRACKET, CYLINDER SUPPORT BLOCK	
	C	25	1	F3MB	RUBBER BUMPER
26		3	FFHMD008P10	FHCS M3 X 10	
27		4	FFHMG012P10	FHCS M6 X 12	
28		5	FFWMGP	FLAT WASHER M6	
29		6	FFWMHP	FLAT WASHER M8	
30		2	FFWSDP	FLAT WASHER 1/4"	
31		4	FHFNMFP	HEX NUT M5	
32		7	FHFNMGP	HEX NUT M6	
33		6	FHFNMHP	HEX NUT M8	
34		1	FHFNSJP	HEX NUT 3/8-16	
35		4	FHHMF012P10	HHCS M5 X 12	
36		1	FHHMF016P10	HHCS M5 X 16	
37		8	FHHMG016P10	HHCS M6 X 16	
38		4	FHHMG020P10	HHCS M6 X 20	
39		10	FHHMH020P10	HHCS M8 X 20	
40		2	FHHMH025P10	HHCS M8 X 25	
41		2	FHHMH020P88	HHCS M10 X 20	
42		6	FLWMFP	LOCK WASHER M5	
43		15	FLWMGP	LOCK WASHER M6	
44		12	FLWMHP	LOCK WASHER M8	
45		2	FLWMIP	LOCK WASHER M10	
46		1	FLWSFP	LOCK WASHER 3/8"	
47		2	FNLNMF5	M5 NYLON LOCKING NUT	
48		4	FSHMF016P10	SHCS M5 X 16	
49		4	FSHMF025P10	SHCS M5 X 25	
50		8	FSHMF045P10	SHCS M5 X 45	
51		2	FSHMF070P10	SHCS M5 X 70	
52		4	FSHMG016P10	SHCS M6 X 16	
53		1	FSHMG020P10	SHCS M6 X 20	
B		54	1	HC-1045	RATCHET HANDLE
		55	1	LDF506	LIMIT SWITCH ASSY
		56	2	N400-220	FLOW CONTROL, 1/4 NPT X 3/8 TUBE
		57	1	N401-228	GUIDED CYLINDER
		58	1	N401-334	CYLINDER, TROLLEY STOP
	59	1	N401-362	CYLINDER, VERTICAL TROLLEY, STANDARD *****HIGH SPEED MACHINES USE N401-363*****	
	60	1	N471	ROD CLEVIS	
	61	1	N524	CLEVIS, CYLINDER	
	62	2	N590	FLOW CONTROL, 1/8 NPT X 1/4 TUBE	
	63	2	N651	SWITCH	
	64	1	N642	HAND VALVE	
	65	2	PB20-SB-2	BEARING, PILLOW BLOCK	
	66	2	PF-18	ELBOW, 1/4NPT X 3/8 PUSHLOC	
	67	2	PF-27	PIPE ADAPTER, 1/4 X 1/8	
	68	1	PSR636	ELBOW, ADAPTER, 1/8 NPT X 1/4 TUBE	
	69	2	SHK-007	SHOCK ABSORBER	
	70	1	SPH-1415	SHOULDER BOLT, 1/2" DIA X 5/8" LG.	
	71	1	SPH-1417	E-CLIP, 1/4"	
	72	2	SPR-1059	EXTENSION SPRING	
73	2	TS20-22-1200-4	LINEAR SHAFT, VERTICAL		
74	1	CF20-0587-3	BUSHING, VERTICAL CYLINDER		
75	1	CF20-0674-4	SLOT COVER		
76	1	SPH-1648	COLLAR, 20mm ID		
77	2	HC-1094	RATCHET HANDLE, 1/4-20 X 3/4"		

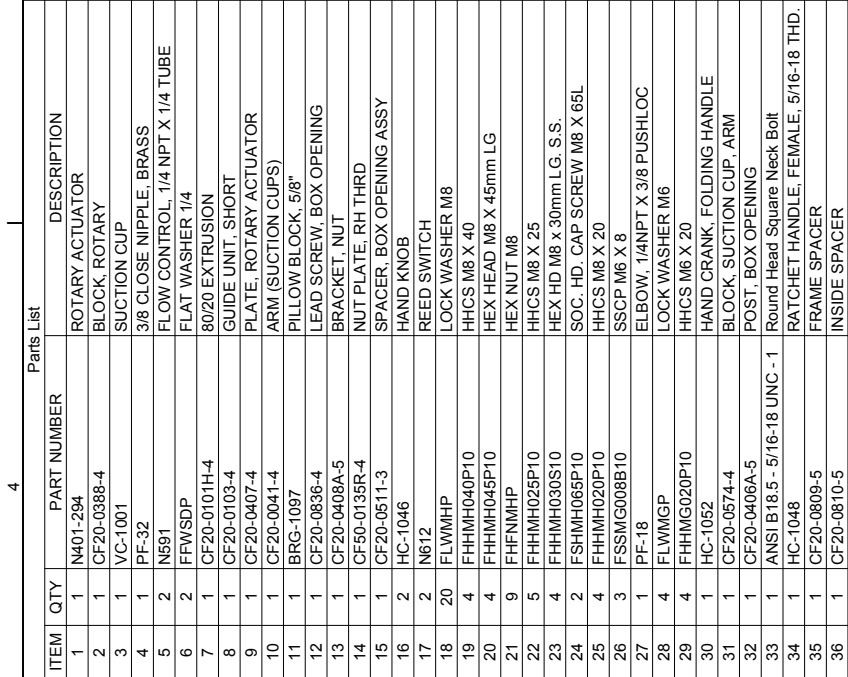


MATERIAL		PART #	CAD FILE	VFACF25.i3d	TOLERANCES UNLESS OTHERWISE NOTED:	LOVESHAW an ITW Company	
BT		ST	PLT	DATE	10/28/2011	RT. 296, SOUTH CANAAN, PA.	
INCH		XX	±.015	ANGLES	±.02°	TITLE	
METRIC		XX	±.3mm	ANGLES	±.5°	VERTICAL FEEDER ASSEMBLY, CF25	
STAINLESS: NO FINISH		DO NOT SCALE PRINT		X ±.1mm		DWG NO. VFACF25	
THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL, PROPRIETARY INFORMATION. THE DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF LOVESHAW AND SHALL BE RETURNED TO LOVESHAW UPON REQUEST.		MACH FINISH		SCALE		DRAWN richm	
FRACTIONS 1/64		CHECKED		APPROVED		richm	

REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	4/16/2018	RTR

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION

1	1	N401-294	ROTARY ACTUATOR
2	1	CF20-0388-4	BLOCK, ROTARY
3	1	VC-1001	SUCTION CUP
4	1	PF-32	3/8 CLOSE NIPPLE, 1/4 NPT X 1/4 TUBE
5	2	N591	FLAT WASHER 1/4
6	2	FWSDP	80/20 EXTRUSION
7	1	CF20-0101H-4	GUIDE UNIT, SHORT
8	1	CF20-0103-4	PLATE, ROTARY ACTUATOR
9	1	CF20-0407-4	ARM (SUCTION CUPS)
10	1	CF20-0041-4	PILLOW BLOCK, 5/8"
11	1	BRG-1097	LEAD SCREW, BOX OPENING
12	1	CF20-0836-4	BRACKET, NUT
13	1	CF20-0408A-5	NUT PLATE, RH THRD
14	1	CF50-0135R-4	SPACER, BOX OPENING ASSY
15	1	CF20-0511-3	HAND KNOB
16	2	HC-1046	REED SWITCH
17	2	N612	LOCK WASHER M8
18	20	FLWMHP	HCMS M8 X 40
19	4	FHHMH040P10	HEX HEAD M8 X 45mm LG
20	4	FHHMH045P10	HEX NUT M8
21	9	FHFNMHP	HCMS M8 X 25
22	5	FHHMH025P10	HEX HD M8 x 30mm LG, S.S.
23	4	FHHMH030S10	SOC, HD, CAP SCREW M8 X 65L
24	2	FSHMH065P10	HCMS M8 X 20
25	4	FHHMH020P10	SSCP M6 X 8
26	3	FSSMG008B10	ELBOW, 1/4NPT X 3/8 PUSHLOC
27	1	PF-18	LOCK WASHER M6
28	4	FLWMGP	HCMS M6 X 20
29	4	FHHMG020P10	HAND CRANK, FOLDING HANDLE
30	1	HC-1052	BLOCK, SUCTION CUP, ARM
31	1	CF20-0574-4	POST, BOX OPENING
32	1	CF20-0406A-5	Round Head Square Neck Bolt
33	1	ANSI B18.5 - 5/16-18 UNC - 1	RATCHET HANDLE, FEMALE, 5/16-18 THD.
34	1	HC-1048	FRAME SPACER
35	1	CF20-0809-5	INSIDE SPACER
36	1	CF20-0810-5	



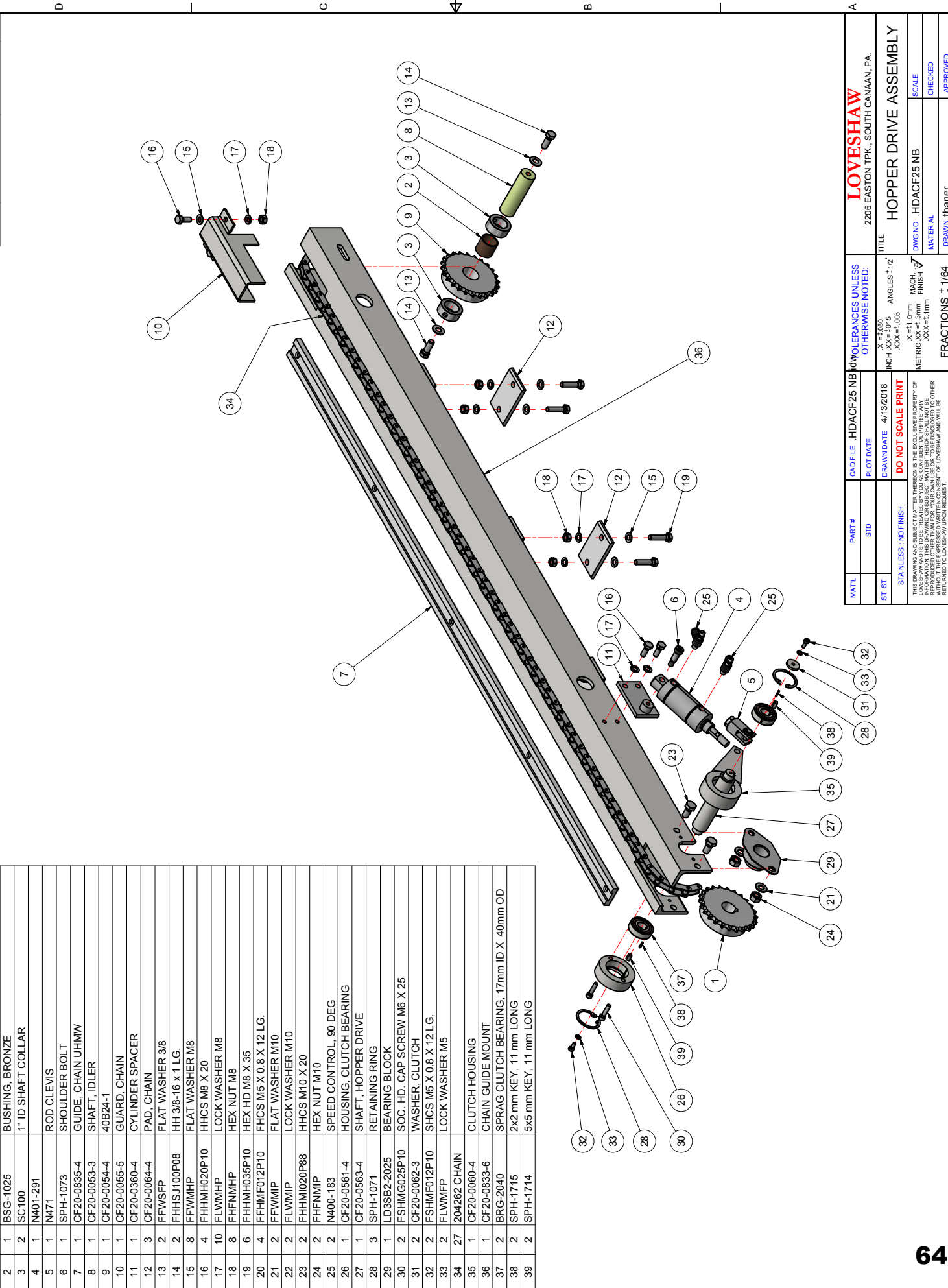
LOVESHAW		BOX OPENING ASSEMBLY, CF25-T	
2206 EASTON TPK., SOUTH CANAAN, PA.		DRAWN BY: 1/64	
TITLE		MATERIAL	
X = ±.050		FINISH	
INCH XX = ±.005		FRACTIONS ± 1/64	
X = ±1.0mm		CHECKED	
METRIC XX = ±.3mm		APPROVED	
.XXX = ±.1mm			

REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	4/13/2017	RTR

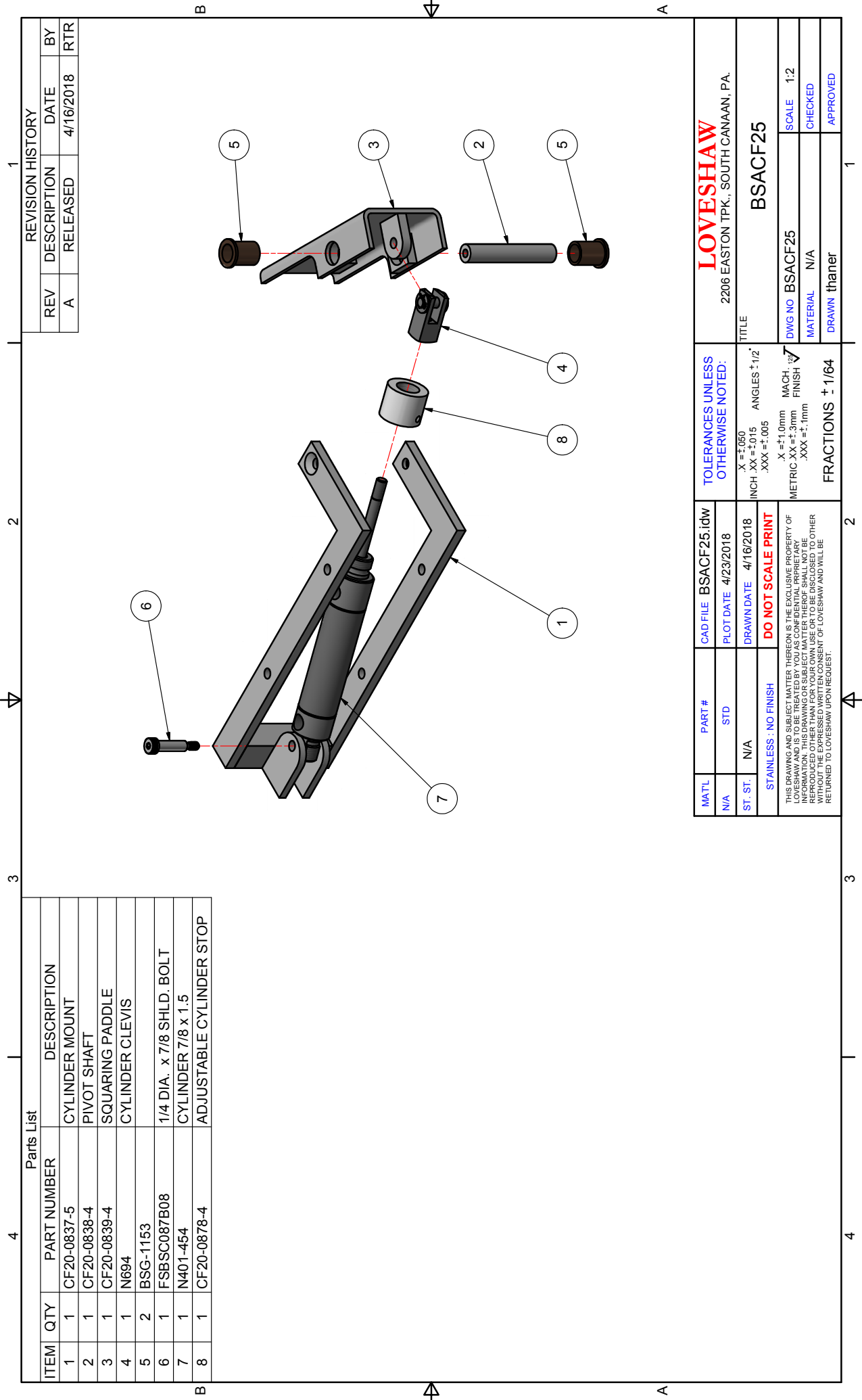
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	SPK-0024	40B-24T-1BK
2	1	BSG-1025	BUSHING, BRONZE
3	2	SC100	1" ID SHAFT COLLAR
4	1	N401-291	
5	1	N471	ROD, CLEVIS
6	1	SPH-1073	SHOULDER BOLT
7	1	CF20-0835-4	GUIDE, CHAIN UHMM
8	1	CF20-0053-3	SHAFT, IDLER
9	1	CF20-0054-4	40B24-1
10	1	CF20-0055-5	GUARD, CHAIN
11	1	CF20-0360-4	CYLINDER SPACER
12	3	CF20-0064-4	PAD, CHAIN
13	2	FWFSFP	FLAT WASHER 3/8
14	2	FHHSJ100P08	HH 3/8-16 x 1 LG.
15	8	FFWMHP	FLAT WASHER M8
16	4	FHHM-H020P10	HHCS M6 X 20
17	10	FLWMHP	LOCK WASHER M8
18	8	FHFNHMP	HEX NUT M8
19	6	FHHM-H035P10	HEX HD M8 X 35
20	4	FFHMF012P10	FHCS M5 X 0.8 X 12 LG.
21	2	FFWMIP	FLAT WASHER M10
22	2	FLWMIP	LOCK WASHER M10
23	2	FHHM020P88	HHCS M10 X 20
24	2	FHFNIP	HEX NUT M10
25	2	N400-183	SPEED CONTROL, 90 DEG
26	1	CF20-0561-4	HOUSING, CLUTCH BEARING
27	1	CF20-0563-4	SHAFT, HOPPER DRIVE
28	3	SPH-1071	RETAINING RING
29	1	LD35B2-2025	BEARING BLOCK
30	2	FSHMG025P10	SOC. HD. CAP SCREW M6 X 25
31	2	CF20-0062-3	WASHER, CLUTCH
32	2	FSHMF012P10	SHCS M5 X 0.8 X 12 LG.
33	2	FLWMFP	LOCK WASHER M5
34	27	204262 CHAIN	
35	1	CF20-0060-4	CLUTCH HOUSING
36	1	CF20-0833-6	CHAIN GUIDE MOUNT
37	2	BRG-2040	SPRAG CLUTCH BEARING, 17mm ID X 40mm OD
38	2	SPH-1715	2x2 mm KEY, 11 mm LONG
39	2	SPH-1714	5x5 mm KEY, 11 mm LONG

Parts List			
1	SPK-0024	40B-24T-1BK	
2	BSG-1025	BUSHING, BRONZE	
3	SC100	1" ID SHAFT COLLAR	
4	N401-291		
5	N471	ROD, CLEVIS	
6	SPH-1073	SHOULDER BOLT	
7	CF20-0835-4	GUIDE, CHAIN UHMM	
8	CF20-0053-3	SHAFT, IDLER	
9	CF20-0054-4	40B24-1	
10	CF20-0055-5	GUARD, CHAIN	
11	CF20-0360-4	CYLINDER SPACER	
12	CF20-0064-4	PAD, CHAIN	
13	FWFSFP	FLAT WASHER 3/8	
14	FHHSJ100P08	HH 3/8-16 x 1 LG.	
15	FFWMHP	FLAT WASHER M8	
16	FHHM-H020P10	HHCS M6 X 20	
17	FLWMHP	LOCK WASHER M8	
18	FHFNHMP	HEX NUT M8	
19	FHHM-H035P10	HEX HD M8 X 35	
20	FFHMF012P10	FHCS M5 X 0.8 X 12 LG.	
21	FFWMIP	FLAT WASHER M10	
22	FLWMIP	LOCK WASHER M10	
23	FHHM020P88	HHCS M10 X 20	
24	FHFNIP	HEX NUT M10	
25	N400-183	SPEED CONTROL, 90 DEG	
26	CF20-0561-4	HOUSING, CLUTCH BEARING	
27	CF20-0563-4	SHAFT, HOPPER DRIVE	
28	SPH-1071	RETAINING RING	
29	LD35B2-2025	BEARING BLOCK	
30	FSHMG025P10	SOC. HD. CAP SCREW M6 X 25	
31	CF20-0062-3	WASHER, CLUTCH	
32	FSHMF012P10	SHCS M5 X 0.8 X 12 LG.	
33	FLWMFP	LOCK WASHER M5	
34	204262 CHAIN		
35	CF20-0060-4	CLUTCH HOUSING	
36	CF20-0833-6	CHAIN GUIDE MOUNT	
37	BRG-2040	SPRAG CLUTCH BEARING, 17mm ID X 40mm OD	
38	SPH-1715	2x2 mm KEY, 11 mm LONG	
39	SPH-1714	5x5 mm KEY, 11 mm LONG	

ITEM	QTY	PART NUMBER	DESCRIPTION
1	SPK-0024	40B-24T-1BK	
2	BSG-1025	BUSHING, BRONZE	
3	SC100	1" ID SHAFT COLLAR	
4	N401-291		
5	N471	ROD, CLEVIS	
6	SPH-1073	SHOULDER BOLT	
7	CF20-0835-4	GUIDE, CHAIN UHMM	
8	CF20-0053-3	SHAFT, IDLER	
9	CF20-0054-4	40B24-1	
10	CF20-0055-5	GUARD, CHAIN	
11	CF20-0360-4	CYLINDER SPACER	
12	CF20-0064-4	PAD, CHAIN	
13	FWFSFP	FLAT WASHER 3/8	
14	FHHSJ100P08	HH 3/8-16 x 1 LG.	
15	FFWMHP	FLAT WASHER M8	
16	FHHM-H020P10	HHCS M6 X 20	
17	FLWMHP	LOCK WASHER M8	
18	FHFNHMP	HEX NUT M8	
19	FHHM-H035P10	HEX HD M8 X 35	
20	FFHMF012P10	FHCS M5 X 0.8 X 12 LG.	
21	FFWMIP	FLAT WASHER M10	
22	FLWMIP	LOCK WASHER M10	
23	FHHM020P88	HHCS M10 X 20	
24	FHFNIP	HEX NUT M10	
25	N400-183	SPEED CONTROL, 90 DEG	
26	CF20-0561-4	HOUSING, CLUTCH BEARING	
27	CF20-0563-4	SHAFT, HOPPER DRIVE	
28	SPH-1071	RETAINING RING	
29	LD35B2-2025	BEARING BLOCK	
30	FSHMG025P10	SOC. HD. CAP SCREW M6 X 25	
31	CF20-0062-3	WASHER, CLUTCH	
32	FSHMF012P10	SHCS M5 X 0.8 X 12 LG.	
33	FLWMFP	LOCK WASHER M5	
34	204262 CHAIN		
35	CF20-0060-4	CLUTCH HOUSING	
36	CF20-0833-6	CHAIN GUIDE MOUNT	
37	BRG-2040	SPRAG CLUTCH BEARING, 17mm ID X 40mm OD	
38	SPH-1715	2x2 mm KEY, 11 mm LONG	
39	SPH-1714	5x5 mm KEY, 11 mm LONG	



MATL	PART #	CAD FILE	HDACF25 NB	TOLERANCES UNLESS OTHERWISE NOTED:	TITLE
STD	STD	PLOT DATE	4/13/2018	INCH XX±.015 ANGLES ±1/2°	2206 EASTON TPK., SOUTH CANAAN, PA.
ST. ST.	ST. ST.	DO NOT SCALE PRINT	DO NOT SCALE PRINT	.X ±1.0mm MACH. FINISH	HOPPER DRIVE ASSEMBLY
STAINLESS, NO FINISH	STAINLESS, NO FINISH	DO NOT SCALE PRINT	DO NOT SCALE PRINT	METRIC XX ±.3mm	DWG NO. HDACF25 NB
THIS DRAWING IS THE PROPERTY OF LOVESAW. IT IS TO BE USED FOR THE EXCLUSIVE USE OF THE CUSTOMER. NO PARTS OR INFORMATION FROM THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE EXPRESS WRITTEN CONSENT OF LOVESAW AND WILL BE RETURNED TO LOVESAW UPON REQUEST.					SCALE
					CHECKED
					APPROVED



Parts List		
ITEM	QTY	PART NUMBER
1	1	CF20-0837-5
2	1	CF20-0838-4
3	1	CF20-0839-4
4	1	N694
5	2	BSG-1153
6	1	FSBSC087B08
7	1	N401-454
8	1	CF20-0878-4

REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	4/16/2018	RTR

LOVESHAW		2206 EASTON TPK., SOUTH CANAAN, PA.	
TITLE		BSACF25	
TOLERANCES UNLESS OTHERWISE NOTED:		X = ±.050 ANGLES ±.12° INCH XX = ±.015 .XXX = ±.005	
CAD FILE BSACF25.idw		PLOT DATE 4/23/2018	
ST. ST. N/A		DRAWN DATE 4/16/2018	
STAINLESS : NO FINISH		DO NOT SCALE PRINT	
THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPRIETARY INFORMATION. THIS DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHER PARTIES WITHOUT THE WRITTEN CONSENT OF LOVESHAW AND WILL BE RETURNED TO LOVESHAW UPON REQUEST.		X = ±1.0mm MACH. FINISH METRIC XX = ±.3mm .XXX = ±.1mm	
FRACTIONS ± 1/64		DRAWN THANER	

Special Options Mechanical Drawings

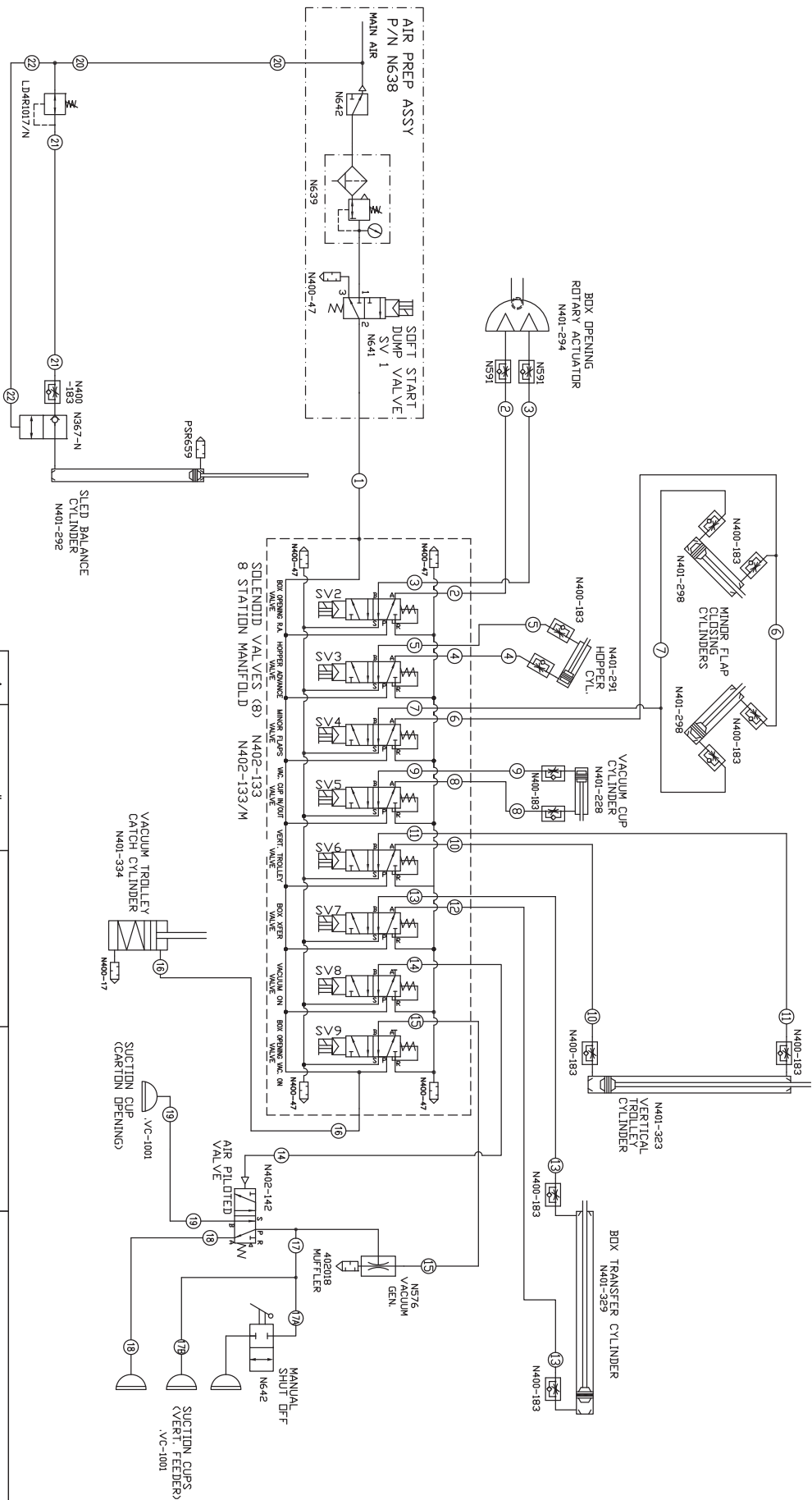
The drawings and schematics in this section represent the mechanical layouts of special options that can be custom ordered.

PNEUMATIC DRAWINGS AND SCHEMATICS

Standard Chain Drive Pneumatic Drawings

The drawings and schematics in this section represent the pneumatic layouts specific to standard, CF25, chain drive machines.

REVISION RECORD				
REV	DESCRIPTION	DATE	ATH	DR CK
A	RELEASED	12/30/08	RM	

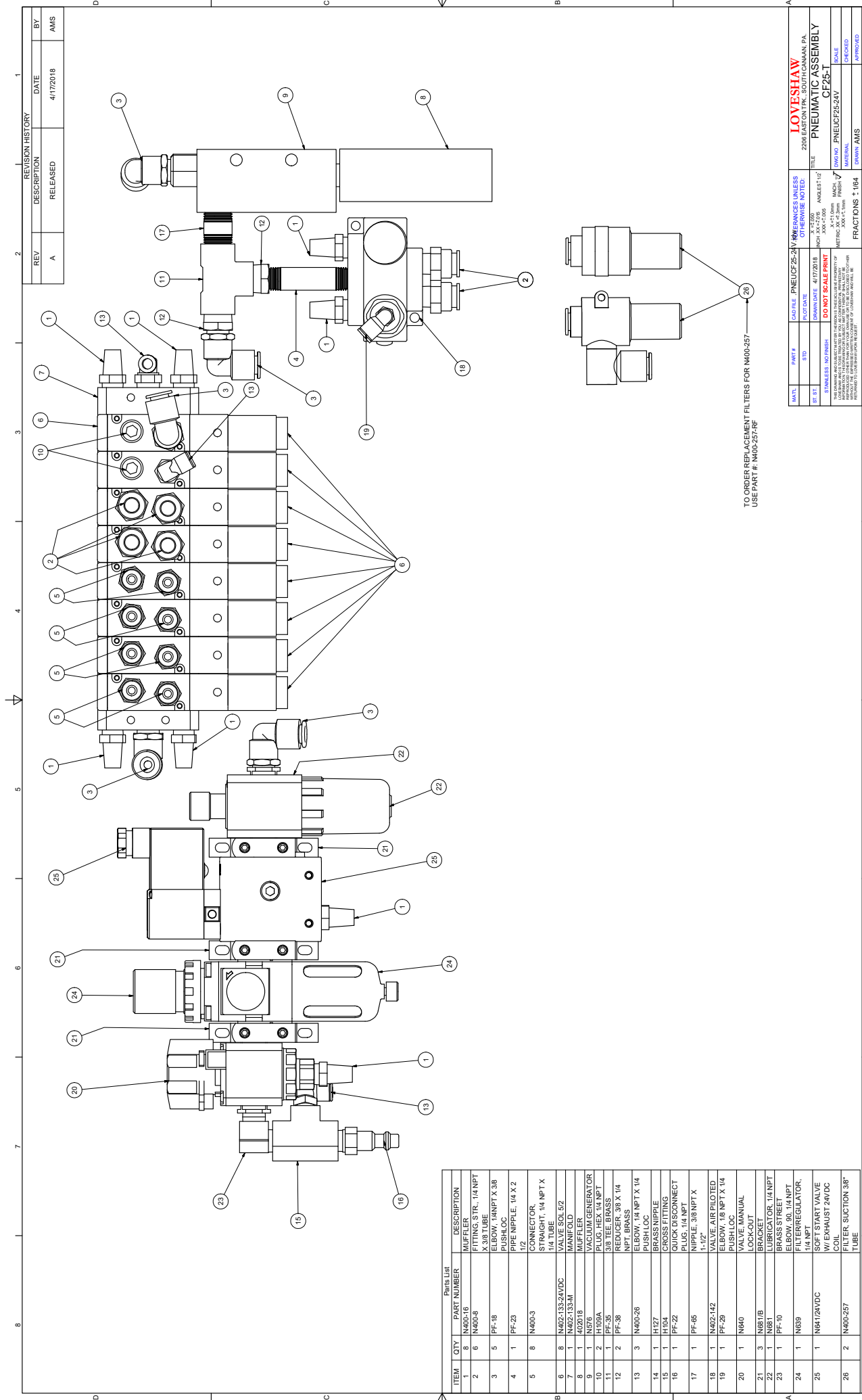


MAT'L	PART #	CAD FILE:	G83330
C.R.S.	STD	PLOT DATE:	7/18/2011
ST. ST.		DRAWN DATE:	12/30/09
STAINLESS:	NO FINISH	DO NOT SCALE	PRINT
THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW-INTV AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPERTY. NO PART OF THIS DRAWING OR SUBJECT MATTER THEREON IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE EXPRESS WRITTEN CONSENT OF LOVESHAW-INTV AND WILL BE RETURNED TO LOVESHAW-INTV UPON REQUEST.			
TOLERANCES UNLESS OTHERWISE NOTED:		INCH $.XX = \pm .050$ $.XXX = \pm .005$ METRIC $.XX = \pm 1.0mm$ $.XXX = \pm .1mm$ ANGLES $\pm 1/2^\circ$ FRACTIONS $\pm 1/64$ FINISH $\sqrt{\text{ }}$	
LOVESHAW on <i>TM</i> Company RT. 296, SOUTH CANAN, PA.			
TITLE: CASE ERECTOR CF25T			
PNEUMATIC SCHEMATIC			
DWG. #. CF20-0544-4			
MATERIAL:		SCALE:	
DESIGNED: RM		CHECK'D:	
DRAWN: RM		APP'R'D:	

Standard Belt Drive Pneumatic Drawings

The drawings and schematics in this section represent the pneumatic layouts specific to standard, CF25, belt drive machines.





REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	4/17/2018	AMS

Parts List		
ITEM	QTY	DESCRIPTION
1	8	MUFFLER
2	6	1/2" NPT X 1/4" NPT
3	5	ELBOW, 1/4" NPT X 3/8"
4	1	PUSH-LOC
5	8	CONNECTOR, STRAIGHT, 1/4" NPT X 1/4" NPT
6	8	CONNECTOR, STRAIGHT, 1/4" NPT X 1/4" NPT
7	1	MANIFOLD
8	1	MUFFLER
9	1	VACUUM GENERATOR
10	2	PLUG, HEX 1/4" NPT
11	1	REDUCER, 3/8" X 1/4"
12	2	PLUG, 3/8" NPT
13	3	ELBOW, 1/4" NPT X 1/4"
14	1	BRASS NIPPLE
15	1	CROSS FITTING
16	1	QUICK DISCONNECT
17	1	NIPPLE, 3/8" NPT X 1/2"
18	1	ELBOW, 1/8" NPT X 1/4"
19	1	PUSH-LOC
20	1	VALVE, MANUAL LOCK-OUT
21	3	BRACKET
22	1	LUBRICATOR, 1/4" NPT
23	1	BRASS STREET NPT
24	1	FILTER/REGULATOR
25	1	SOFT START VALVE W/ EXHAUST 24VDC COIL
26	2	FILTER, SUCTION 38" TUBE

TO ORDER REPLACEMENT FILTERS FOR M400-257
USE PART #: M400-257-FR

LOVESHAW	
2208 EAST ONTARIO, SOUTH CAMDEN, PA	
TITLE	PNEUMATIC ASSEMBLY
DATE	4/17/2018
BY	AMS
CHECKED	
APPROVED	
PNEUMATIC ASSEMBLY	
CF25-T	
24VDC	
SCALE	
FRACTIONS: 1/16	

Chapter
12

ELECTRICAL DRAWINGS AND SCHEMATICS

Standard Universal Electrical Drawings

The drawings and schematics in this section represent the electrical layouts common to all CF25 machines.

Programmable Logic Controller

Standard PLC: AB MICRO830

Optional PLC: AB MICRO850

NOTE: Check the title block on panel assembly correlated to the specific machine before ordering replacement PLC. Contact Loveshaw Customer Service for assistance if necessary.

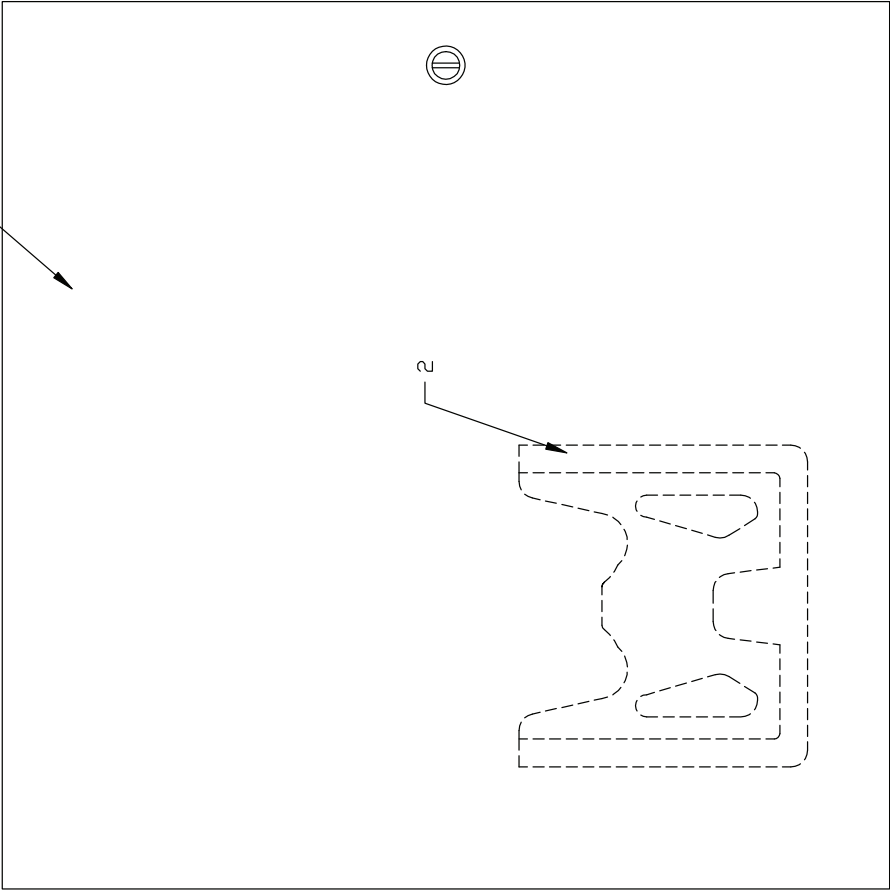
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120 Volt, 60 Hz, Standard Chain Drive Electrical Drawings

The drawings and schematics in this section represent the electrical layouts related specifically to standard, chain drive 120V rated machines.

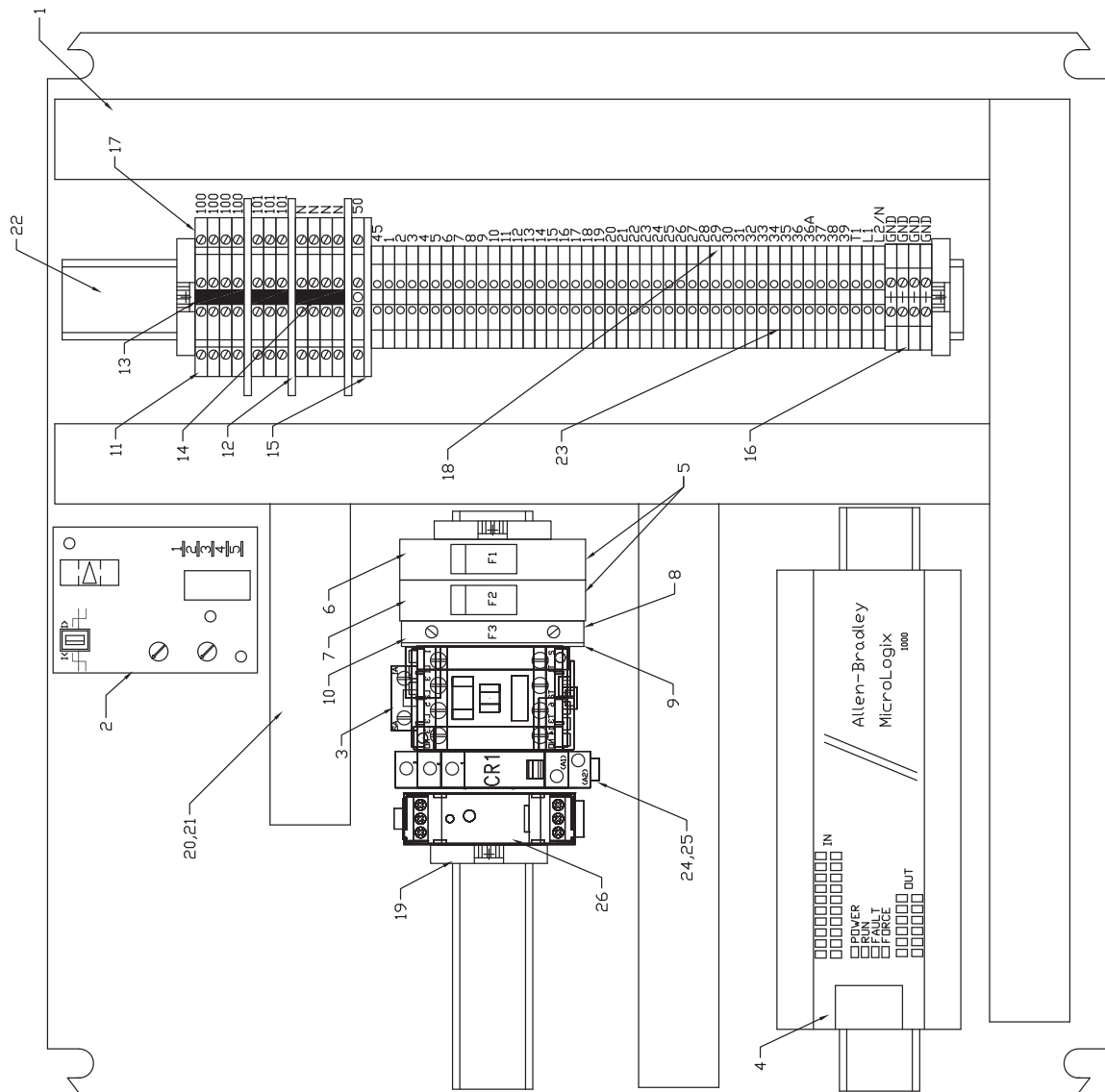
REVISION RECORD			
REV	DESCRIPTION	DATE	ATH DR CK

KEY	PART NO.	DESCRIPTION
1	A100N-202006B-1	ENCLOSURE
2	A100N-PP-HDF-1	PRINT POCKET
3	AH-CEP-2	CABLE ENTRY PLATE

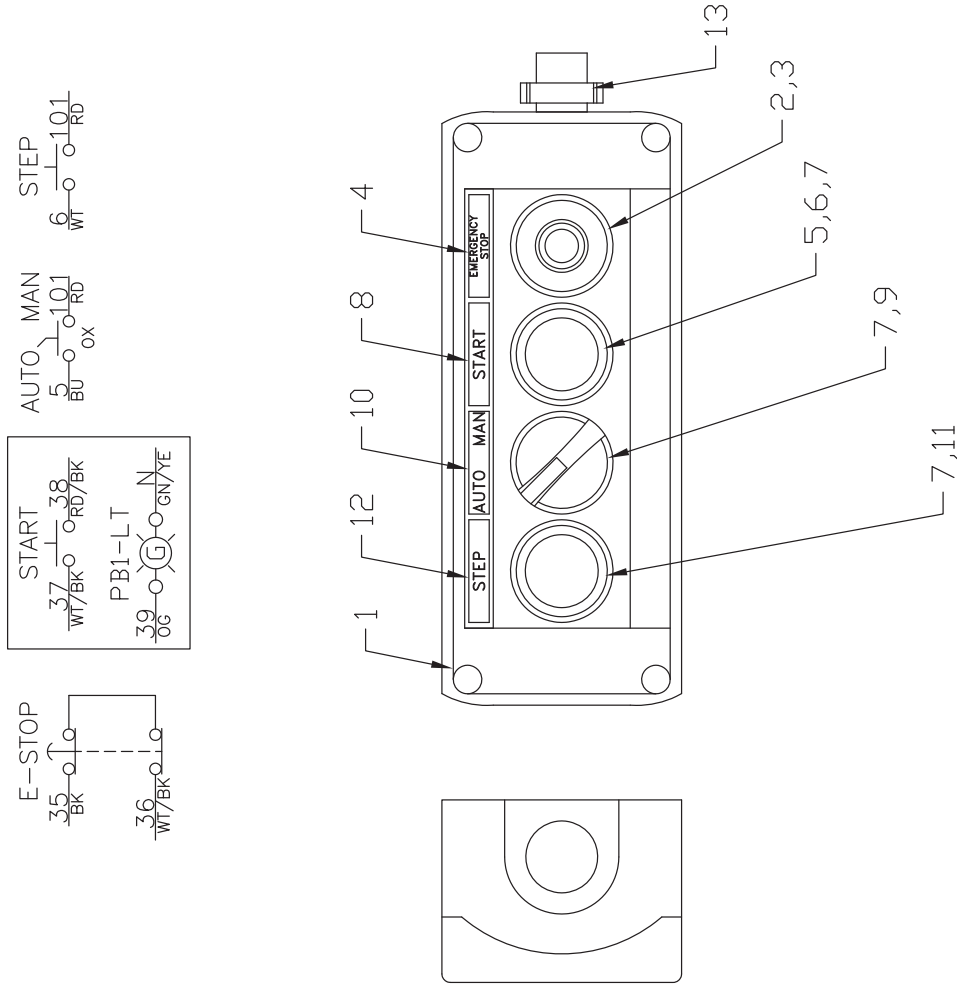


TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE: ELECTRICAL ENCLOSURE ASSEMBLY CF25T -- 120/1/60		
FRACTIONAL +/- 1/64	DWG. NO. ED2123	SCALE: 3 : 8	DATE: 12/17/09
ANG. -- 1/2°	MATERIAL: COMMERCIAL	DESIGNED: MENTA	DRAWN: WM
		APPRVD: --	

KEY	PART NO.	DESCRIPTION
1	A100N-2020P-1	PANEL
2	303111	OVER CURRENT RELAY
3	A106-AB-2A	CONTACTOR
4	A241AB-1000-1DC	PLC
5	A125BH-AB-DIN-3	FUSE HOLDER
6	A125SB-10-R	FUSE, 10 AMP
7	A125SB-3-R	FUSE, 3 AMP
8	A125BH-AB-DIN	FUSE HOLDER
9	A128B-AB16	FUSE BLOCK BARRIER
10	A125SB-6/10-326	FUSE 6/10 AMP
11	A124-AB-JD3C	DOUBLE TERMINAL BLOCK
12	A128-AB-PPJD3	PARTITION PLATE
13	A124-AB-CJ-4	4 POLE CENTER JUMPER
14	A124-AB-CJ-3	3 POLE CENTER JUMPER
15	A128-AB-EBJD3	END PARRIER PLATE
16	A124-AB-JG4	GROUND TERMINAL
17	A124-AB-MARK-DT	TERMINAL MARKER CARD
18	A124-AB-MARK-ST	TERMINAL MARKER CARD
19	A128-AB-ERL35	TERMINAL ANCHOR
20	A250-PAN-1X2	WIREWAY
21	A250-PAN-1X2C	WIREWAY COVER
22	A209-AB-2	DIN RAIL
23	A124-AB-J3	SINGLE TERMINAL
24	A183-AB-7	RELAY SPST 120 VAC COIL
25	A184-AB-2	RELAY BASE
25	A268PS-22	POWER SUPPLY



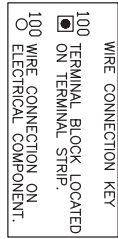
TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE: ELECTRICAL PANEL ASSEMBLY CF25T-120/1/60		
FRACTIONAL +/- 1/64	DWG. NO. ED2147	SCALE: 1 : 2	DATE: 03/30/10
ANG. — 1/2°	MATERIAL: COMMERCIAL	DRAWN: WM	APPRVD: ---



ITEM	PART No.	DESCRIPTION
1	A149-SQD-1	4 HOLE ENCLOSURE
2	A149-SQD-2	E-STOP PUSH BUTTON SW.
3	A149-SQD-3	N.C. CONTACT BLOCK
4	A149-SQD-4	E-STOP LEGEND PLATE
5	A149-SQD-5	GREEN PUSH BUTTON ILLUMINATED SW.
6	A149-SQD-6-DC	LIGHT MODULE
7	A149-SQD-7	N.O. CONTACT BLOCK
8	A149-SQD-8	"START" LEGEND PLATE
9	A149-SQD-9	(2) POSITION SELECTOR SWITCH
10	A149-SQD-10	AUTO / MAN LEGEND PLATE
11	A149-SQD-11	BLACK FLUSH PUSH BUTTON SW.
12	A149-SQD-12	"STEP" LEGEND PLATE
13	AH200-QD-8	MALE 8 POLE DISCONNECT

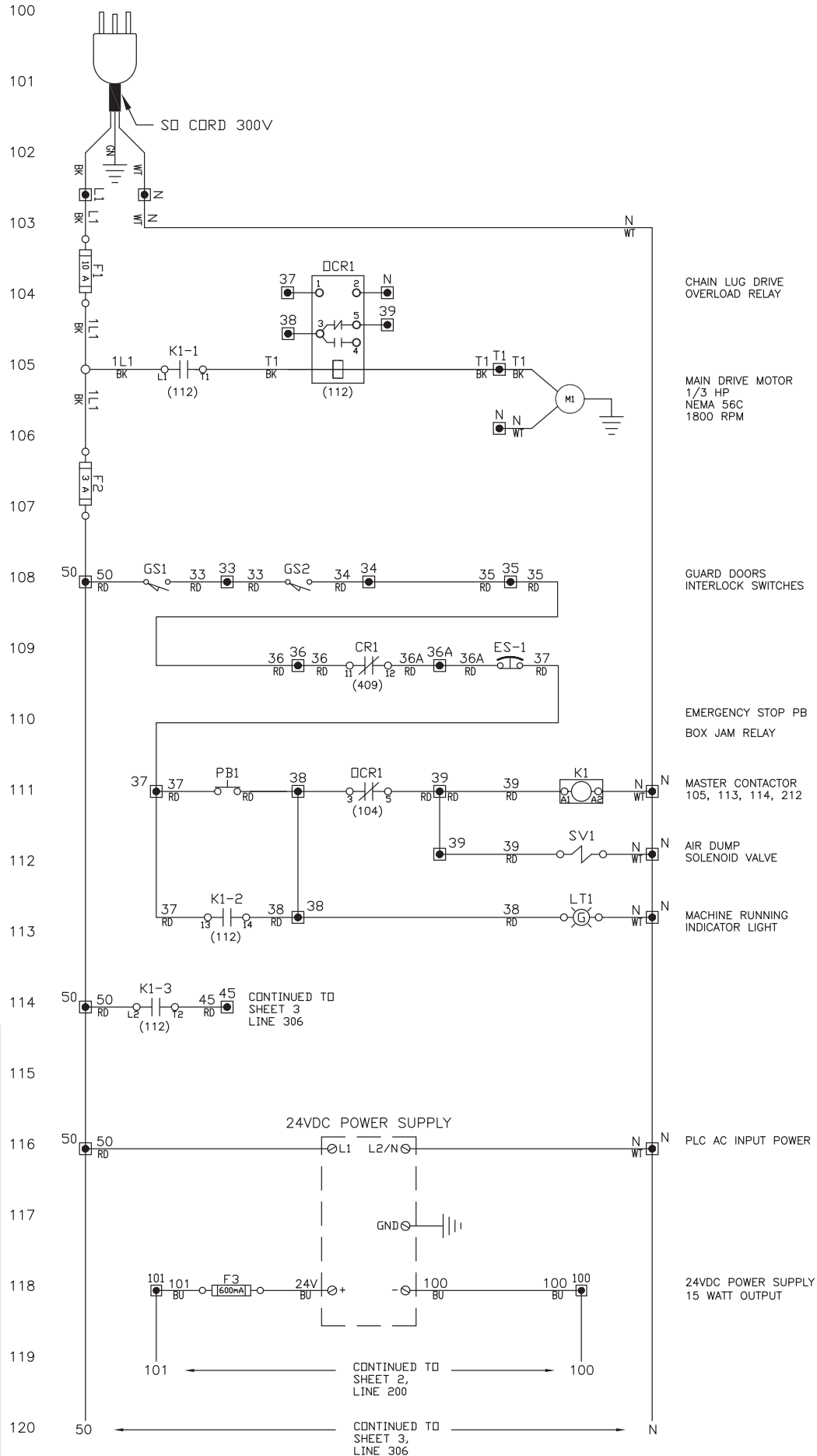
TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE: OPERATOR ENCLOSURE ASSY. CF25T - 24VDC		
FRACTIONAL	DWG. NO. ED2459	SCALE: 3 : 4	
+/- 1/64	MATERIAL: COMMERCIAL	DATE: 07/2/12	
ANG. - 1/2"	DESIGNED: MENTA	DRAWN: WM	APPRVD: ---

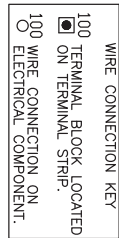
INCOMING POWER 100
120/1/60 HZ
10 AMPS



- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

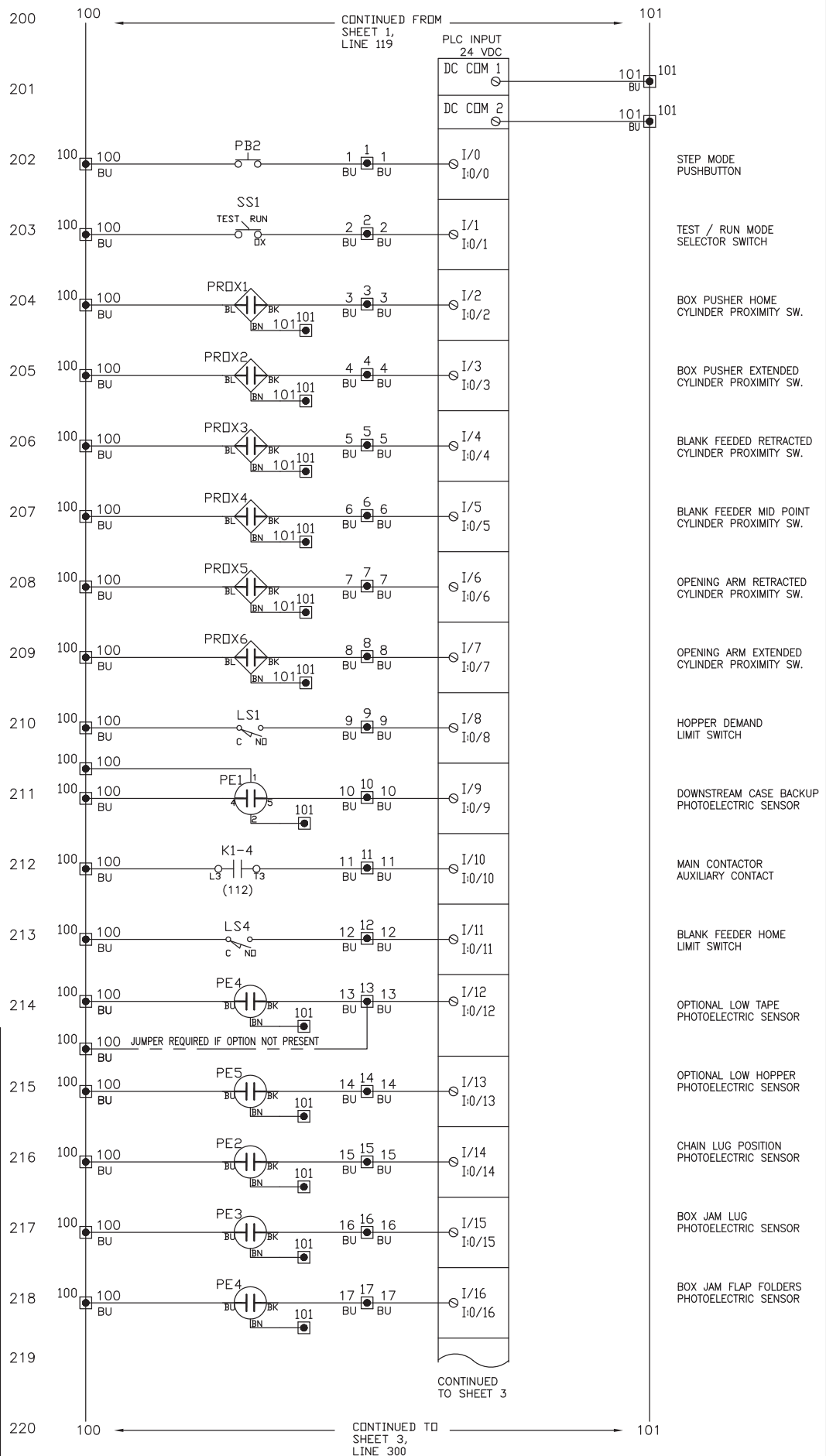
TOLERANCES EXCEPT AS NOTED		THE LOVESHAW CORPORATION	
DECIMAL (3 PL)	+/- .005	RT 296, SOUTH CANAAN, PA.	
FRACTIONAL	+/- 1/64	TITLE: ELECTRICAL SCHEMATIC - SHEET 1	
DWG. NO. ED2150S1	MATERIAL: N/A	CF25T - 120/1/60	
DESIGNED: MENTA	DATE: 09/1/11	SCALE: N/A	
DRAWN: WM	APPRVD: --		





- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

TOLERANCES EXCEPT AS NOTED	DECIMAL	TITLE: ELECTRICAL SCHEMATIC - SHEET 2
	+/-.005	
FRACTIONAL	+/-.1/64	DWG. NO. ED2150S2
	ANG. - 1/2°	
MATERIAL: N/A		SCALE: N/A
DESIGNED: MENTA		DATE: 04/05/10
DRAWN: WM		APPRD: ---



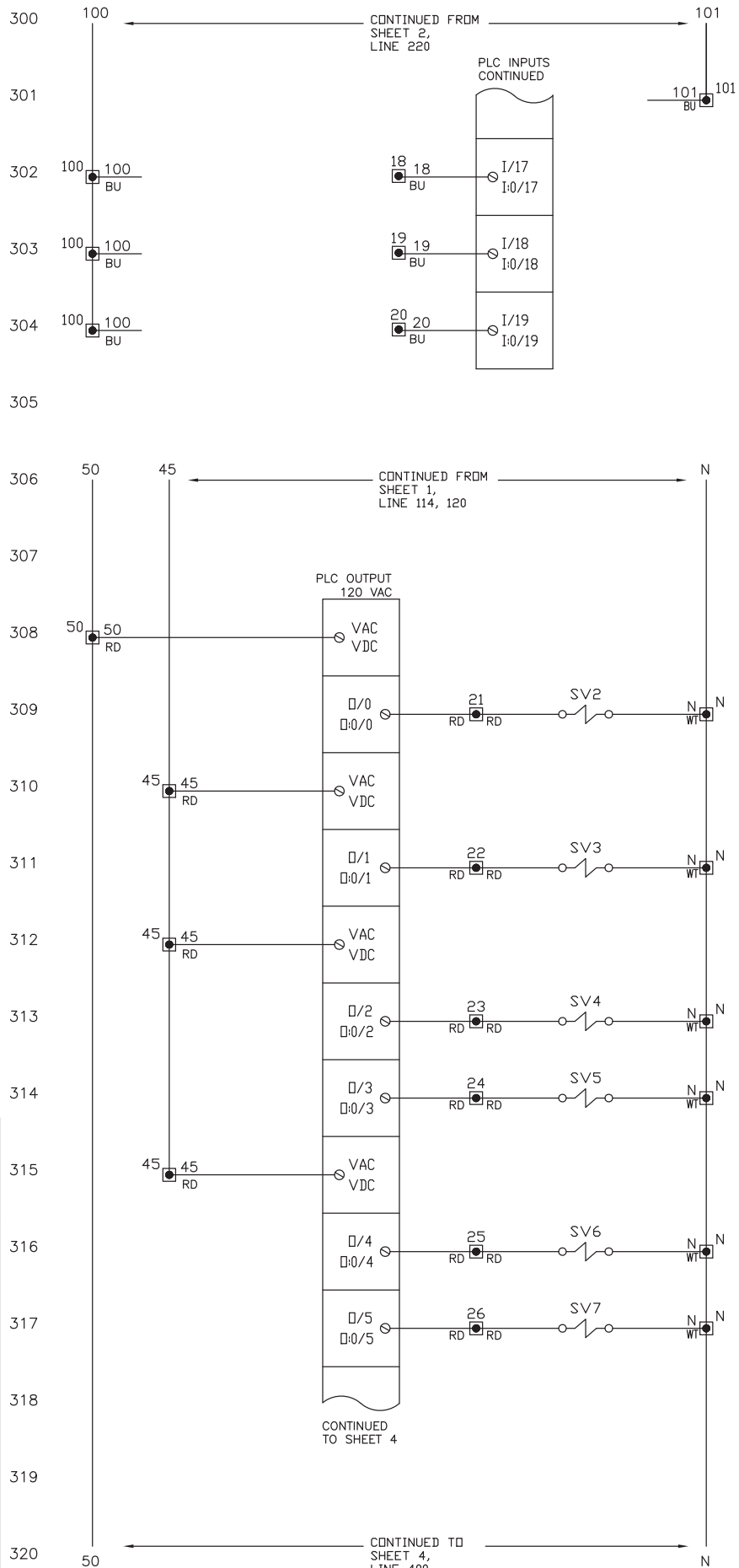
WIRE CONNECTION KEY

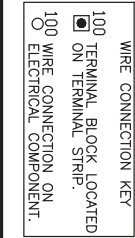
100 TERMINAL BLOCK LOCATED ON TERMINAL STRIP.

100 WIRE CONNECTION ON ELECTRICAL COMPONENT.

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

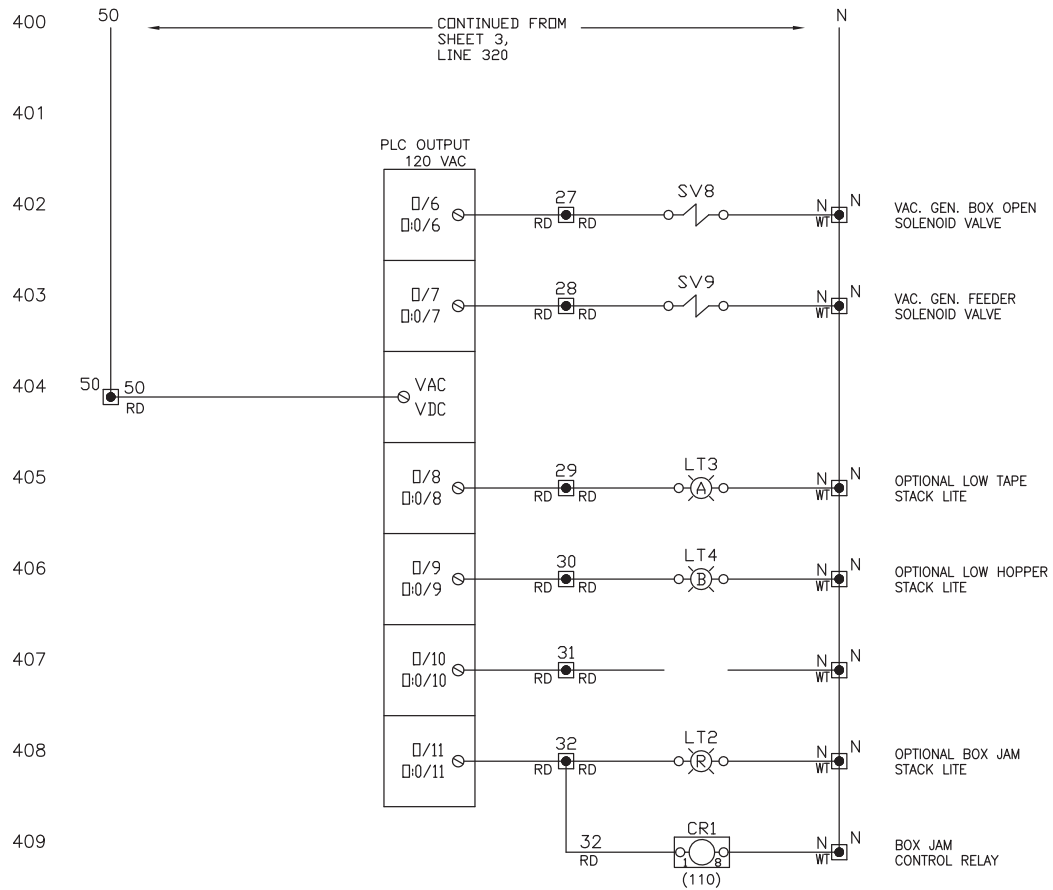
TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION
DECIMAL (3 PLC)	RT 296, SOUTH CANAAN, PA.
+/- .005	TITLE: ELECTRICAL SCHEMATIC - SHEET 3
FRACTIONAL	CF25T - 120/1/60
+/- 1/64	DWG. NO. ED2150S3
ANG. - 1/2°	MATERIAL: N/A
DESIGNED: MENTA	SCALE: N/A
DRAWN: WM	DATE: 04/05/10
	APPRD: ---





- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

TOLERANCES EXCEPT AS NOTED		THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.	
DECIMAL (3 PLC) +/- .005	TITLE: ELECTRICAL SCHEMATIC - SHEET 4 CF25T - 120/1/60		
FRACTIONAL +/- 1/64	DWG. NO. ED2150S4	SCALE: N/A	
ANG. - 1/2°	MATERIAL: N/A	DATE: 04/05/10	
DESIGNED: MENTA	DRAWN: WM	APPRVD: --	

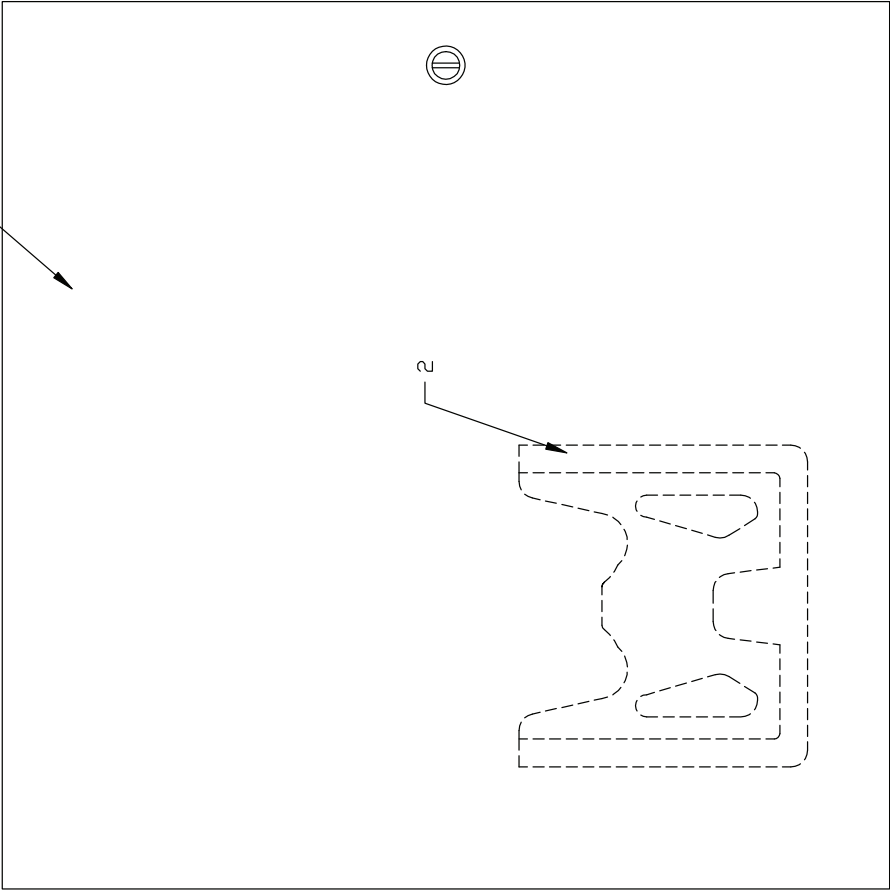


120 Volt, 60 Hz, Standard Belt Drive Electrical Drawings

The drawings and schematics in this section represent the electrical layouts related specifically to standard, belt drive, 120V rated machines.

REVISION RECORD			
REV	DESCRIPTION	DATE	ATH DR CK

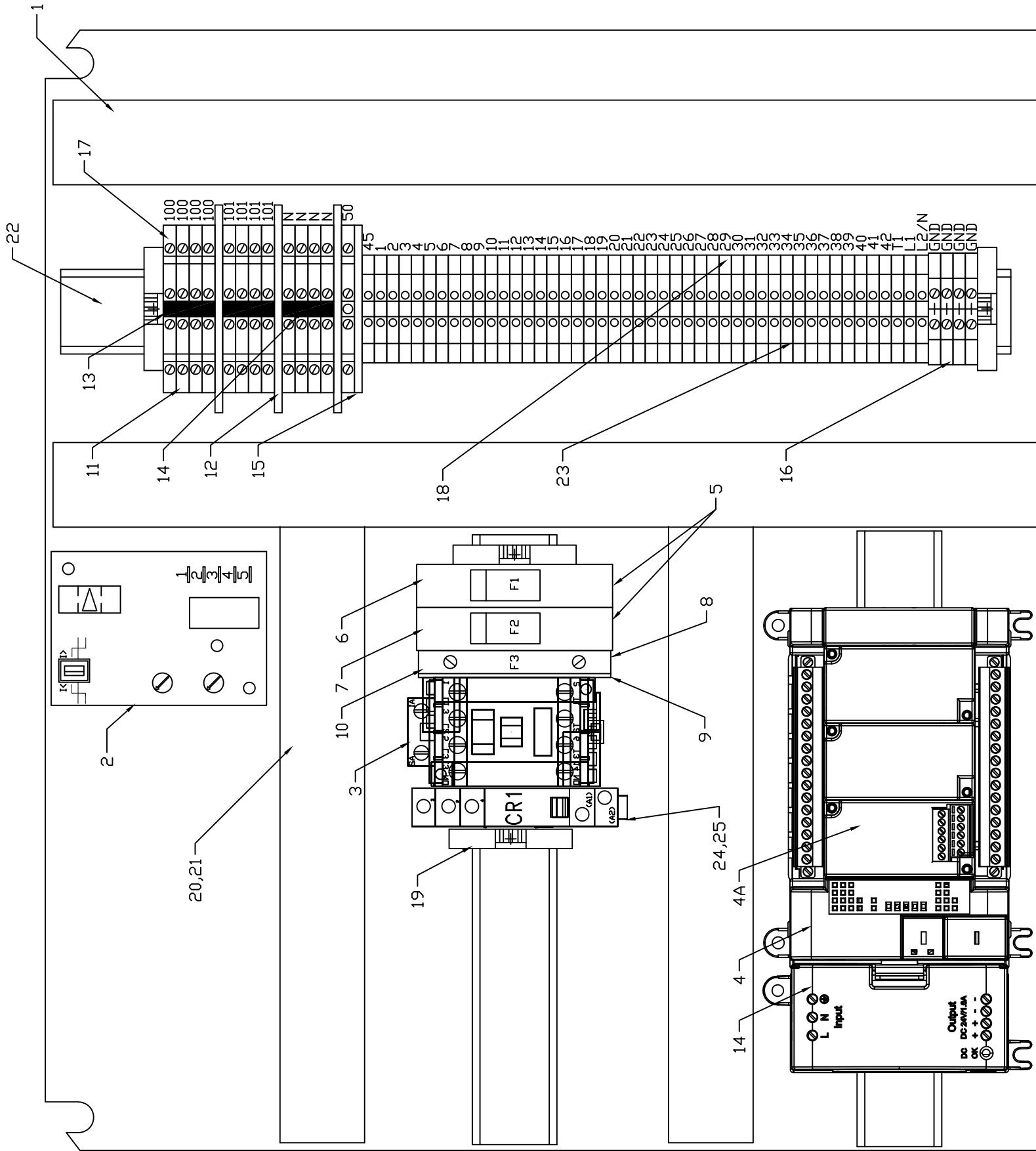
KEY	PART NO.	DESCRIPTION
1	A100N-202006B-1	ENCLOSURE
2	A100N-PP-HDF-1	PRINT POCKET
3	AH-CEP-2	CABLE ENTRY PLATE

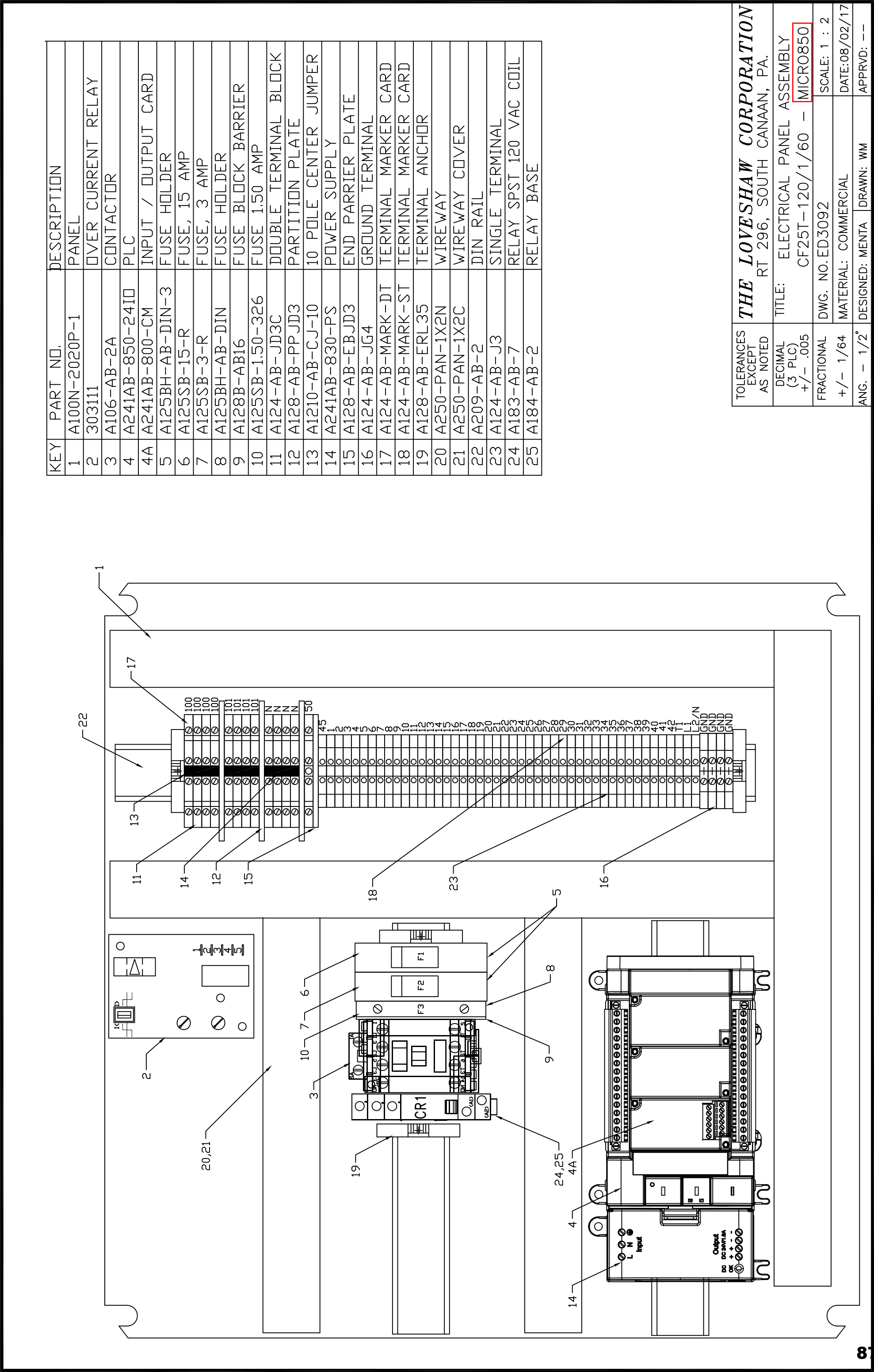


TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE: ELECTRICAL ENCLOSURE ASSEMBLY CF25T -- 120/1/60		
FRACTIONAL +/- 1/64	DWG. NO. ED2123	SCALE: 3 : 8	DATE: 12/17/09
ANG. -- 1/2°	MATERIAL: COMMERCIAL	DESIGNED: MENTA	DRAWN: WM
		APPRVD: --	

KEY	PART NO.	DESCRIPTION
1	A100N-2020P-1	PANEL
2	303111	OVER CURRENT RELAY
3	A106-AB-2A	CONTACTOR
4	A241AB-830-2R	PLC
4A	A241AB-800-CM	INPUT / OUTPUT CARD
5	A125BH-AB-DIN-3	FUSE HOLDER
6	A125SB-15-R	FUSE, 15 AMP
7	A125SB-3-R	FUSE, 3 AMP
8	A125BH-AB-DIN	FUSE HOLDER
9	A128B-AB16	FUSE BLOCK BARRIER
10	A125SB-1.50-326	FUSE 1.50 AMP
11	A124-AB-JD3C	DOUBLE TERMINAL BLOCK
12	A128-AB-PPJD3	PARTITION PLATE
13	A1210-AB-CJ-10	10 POLE CENTER JUMPER
14	A214AB-830-PS	POWER SUPPLY
15	A128-AB-EBJD3	END PARRIER PLATE
16	A124-AB-JG4	GROUND TERMINAL
17	A124-AB-MARK-DT	TERMINAL MARKER CARD
18	A124-AB-MARK-ST	TERMINAL MARKER CARD
19	A128-AB-ERL35	TERMINAL ANCHOR
20	A250-PAN-1X2N	WIREWAY
21	A250-PAN-1X2C	WIREWAY COVER
22	A209-AB-2	DIN RAIL
23	A124-AB-J3	SINGLE TERMINAL
24	A183-AB-7	RELAY SPST 120 VAC COIL
25	A184-AB-2	RELAY BASE

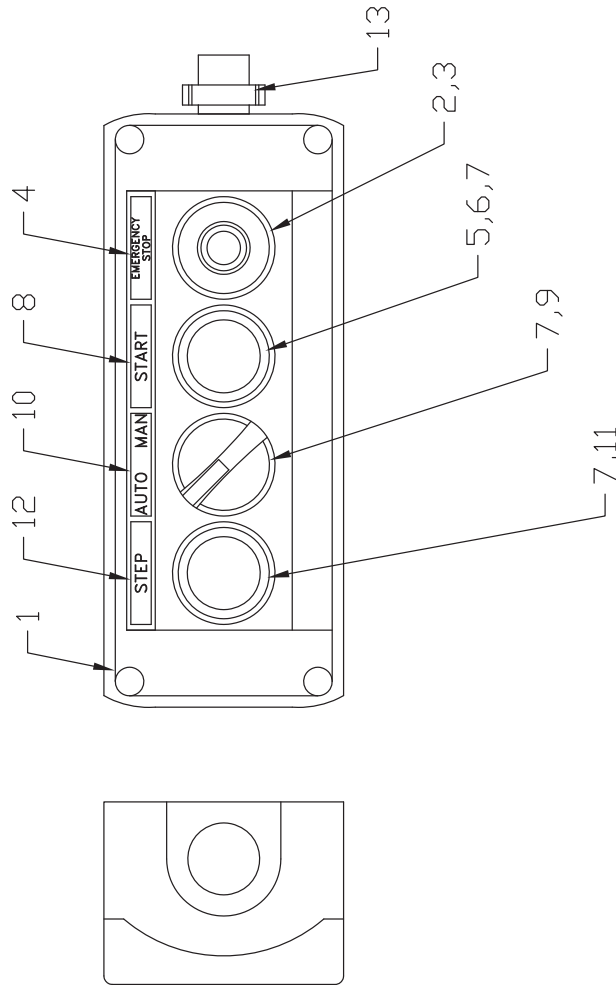
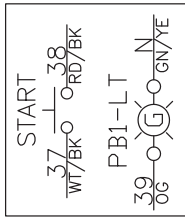
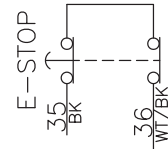
TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE:	ELECTRICAL PANEL ASSEMBLY	
FRACTIONAL	DWG. NO.	ED3017	SCALE: 1 : 2
+/- 1/64	MATERIAL:	COMMERCIAL	DATE:03/03/17
ANG. - 1/2°	DESIGNED:	MENTA	DRAWN: WM APPRVD: --





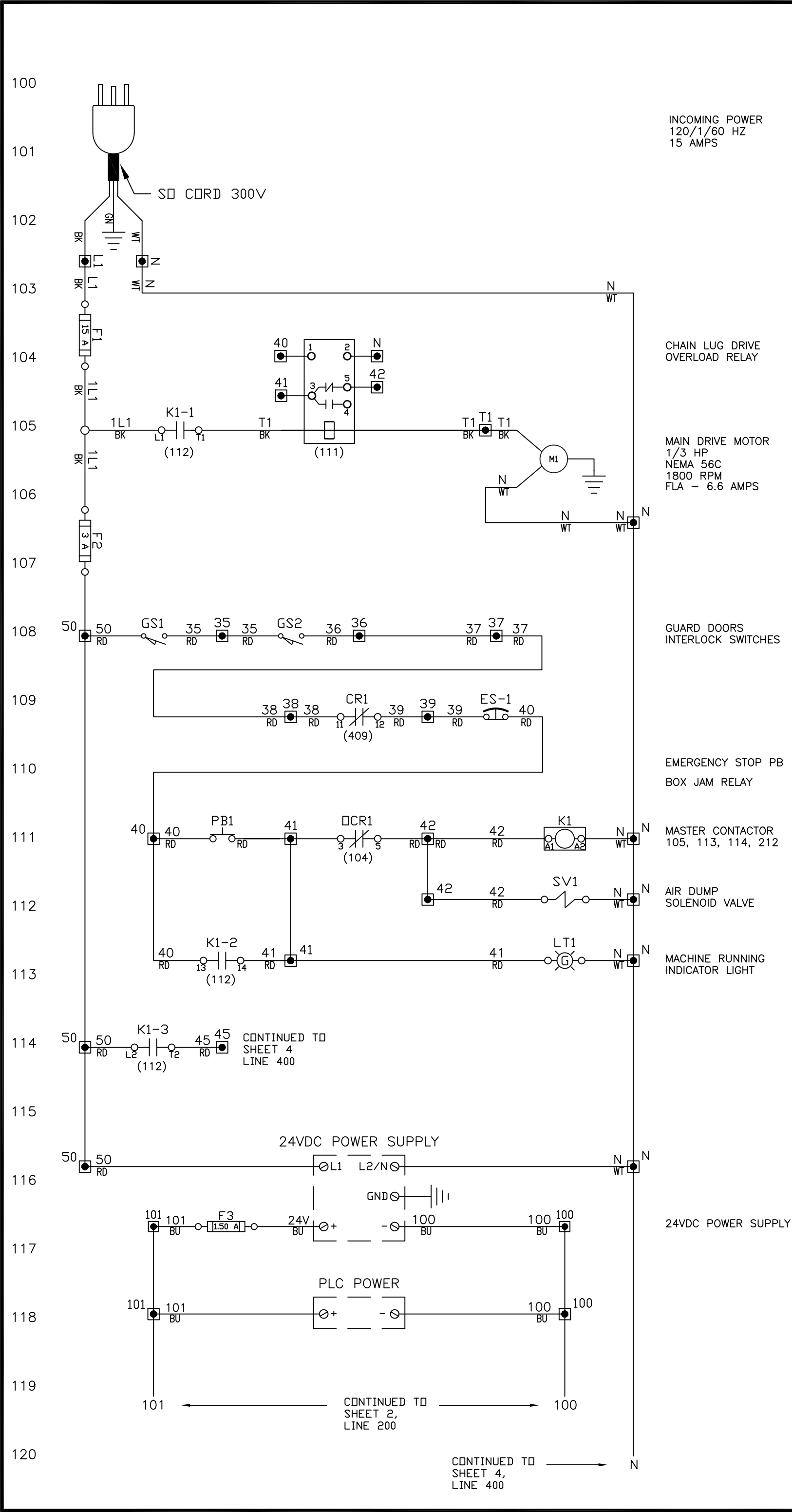
KEY	PART NO.	DESCRIPTION
1	A100N-2020P-1	PANEL
2	303111	OVER CURRENT RELAY
3	A106-AB-2A	CONTACTOR
4	A241AB-850-24ID	PLC
4A	A241AB-800-CM	INPUT / OUTPUT CARD
5	A125BH-AB-DIN-3	FUSE HOLDER
6	A125SB-15-R	FUSE, 15 AMP
7	A125SB-3-R	FUSE, 3 AMP
8	A125BH-AB-DIN	FUSE HOLDER
9	A128B-AB16	FUSE BLOCK BARRIER
10	A125SB-1.50-326	FUSE 1.50 AMP
11	A124-AB-JD3C	DOUBLE TERMINAL BLOCK
12	A128-AB-PPJD3	PARTITION PLATE
13	A1210-AB-CJ-10	10 POLE CENTER JUMPER
14	A241AB-830-PS	POWER SUPPLY
15	A128-AB-EBJD3	END PARRIER PLATE
16	A124-AB-JG4	GROUND TERMINAL
17	A124-AB-MARK-DT	TERMINAL MARKER CARD
18	A124-AB-MARK-ST	TERMINAL MARKER CARD
19	A128-AB-ERL35	TERMINAL ANCHOR
20	A250-PAN-1X2N	WIREWAY
21	A250-PAN-1X2C	WIREWAY COVER
22	A209-AB-2	DIN RAIL
23	A124-AB-J3	SINGLE TERMINAL
24	A183-AB-7	RELAY SPST 120 VAC COIL
25	A184-AB-2	RELAY BASE

TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE:	ELECTRICAL PANEL ASSEMBLY	
FRACTIONAL +/- 1/64	DWG. NO.	ED3092	SCALE: 1 : 2
ANG. - 1/2°	MATERIAL:	COMMERCIAL	DATE:08/02/17
	DESIGNED:	MENTA	DRAWN: WM
			APPRVD: --



ITEM	PART No.	DESCRIPTION
1	A149-SQD-1	4 HOLE ENCLOSURE
2	A149-SQD-2	E-STOP PUSH BUTTON SW.
3	A149-SQD-3	N.C. CONTACT BLOCK
4	A149-SQD-4	E-STOP LEGEND PLATE
5	A149-SQD-5	GREEN PUSH BUTTON ILLUMINATED SW.
6	A149-SQD-6-DC	LIGHT MODULE
7	A149-SQD-7	N.O. CONTACT BLOCK
8	A149-SQD-8	"START" LEGEND PLATE
9	A149-SQD-9	(2) POSITION SELECTOR SWITCH
10	A149-SQD-10	AUTO / MAN LEGEND PLATE
11	A149-SQD-11	BLACK FLUSH PUSH BUTTON SW.
12	A149-SQD-12	"STEP" LEGEND PLATE
13	AH200-QD-8	MALE 8 POLE DISCONNECT

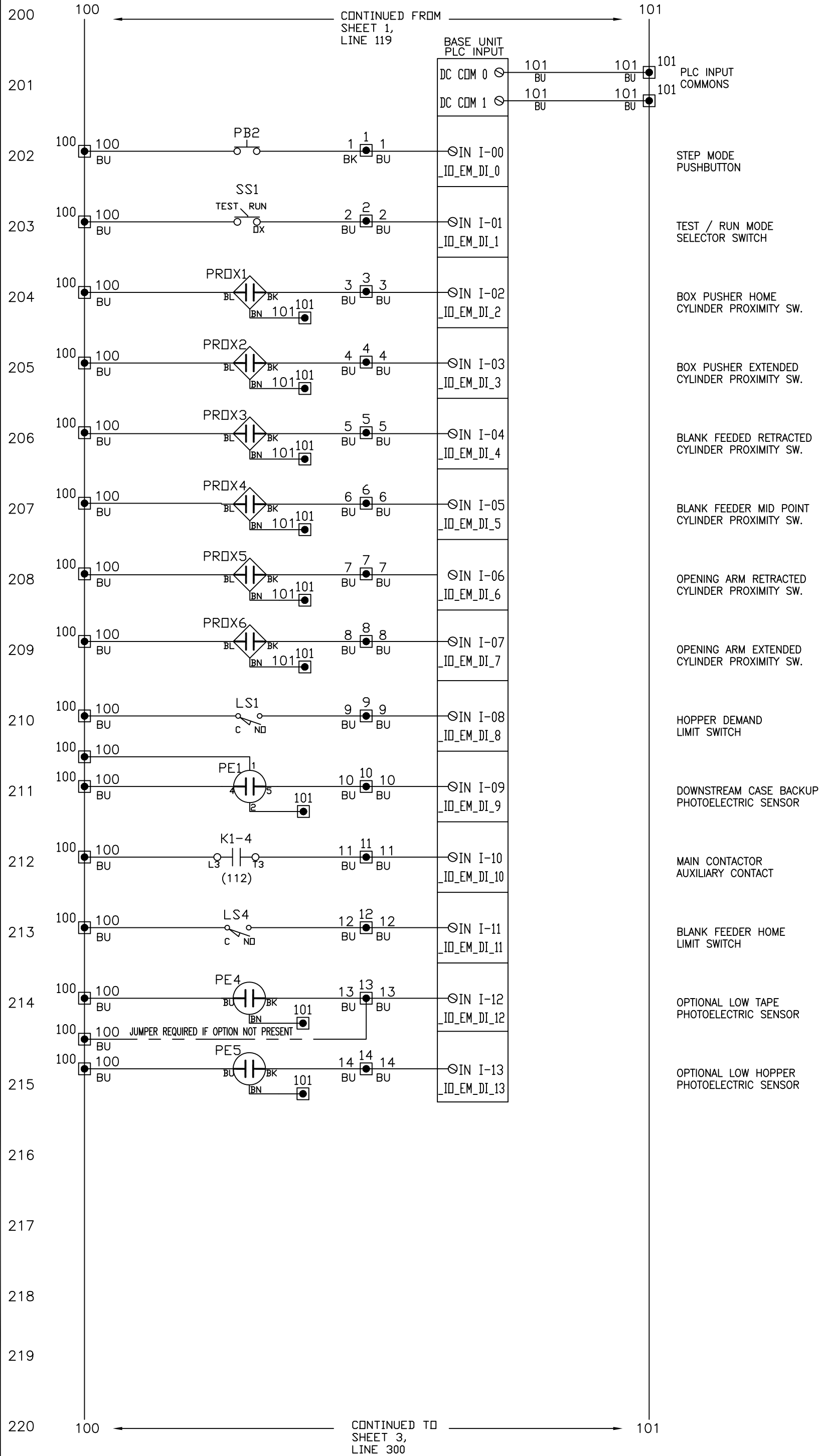
TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE: OPERATOR ENCLOSURE ASSY. CF25T - 24VDC		
FRACTIONAL	DWG. NO. ED2459	SCALE: 3 : 4	
+/- 1/64	MATERIAL: COMMERCIAL	DATE: 07/2/12	
ANG. - 1/2"	DESIGNED: MENTA	DRAWN: WM	APPRVD: ---



TOLERANCES EXCEPT AS NOTED		THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.	
DECIMAL (3 PLC)	+/- .005	TITLE: ELECT. SCHEMATIC. - SH. 1 OF 4 CF25T - 120/1/60	
FRACTIONAL	+/- 1/64	DWG. NO. ED3018S1	SCALE: N/A
ANG. - 1/2°		MATERIAL: N/A	DATE: 03/03/17
		DESIGNED: MENTA	DRAWN: WM
			APPRVD: --

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

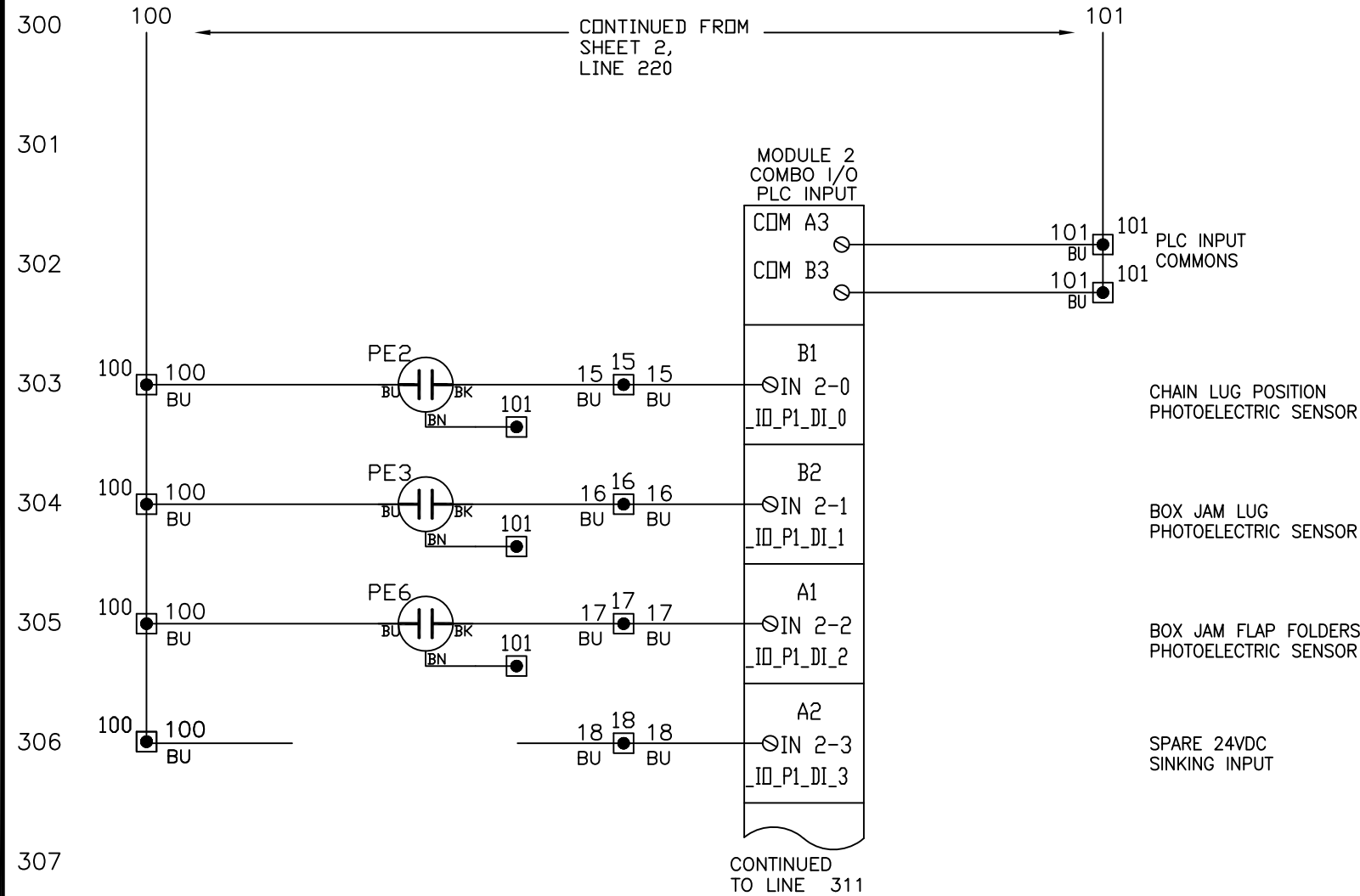
WIRE CONNECTION KEY	
100	TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100	WIRE CONNECTION ON ELECTRICAL COMPONENT.



TOLERANCES EXCEPT AS NOTED		THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.	
DECIMAL (3 PLC)	+/- .005	TITLE: ELECT. SCHEMATIC – SH. 2 OF 4 CF25T – 120/1/60	
FRACTIONAL	+/- 1/64	DWG. NO.ED3018S2	SCALE: N/A
ANG. – 1/2°		MATERIAL: N/A	DATE:03/03/17
		DESIGNED: MENTA	APPRVD: --
		DRAWN: WM	

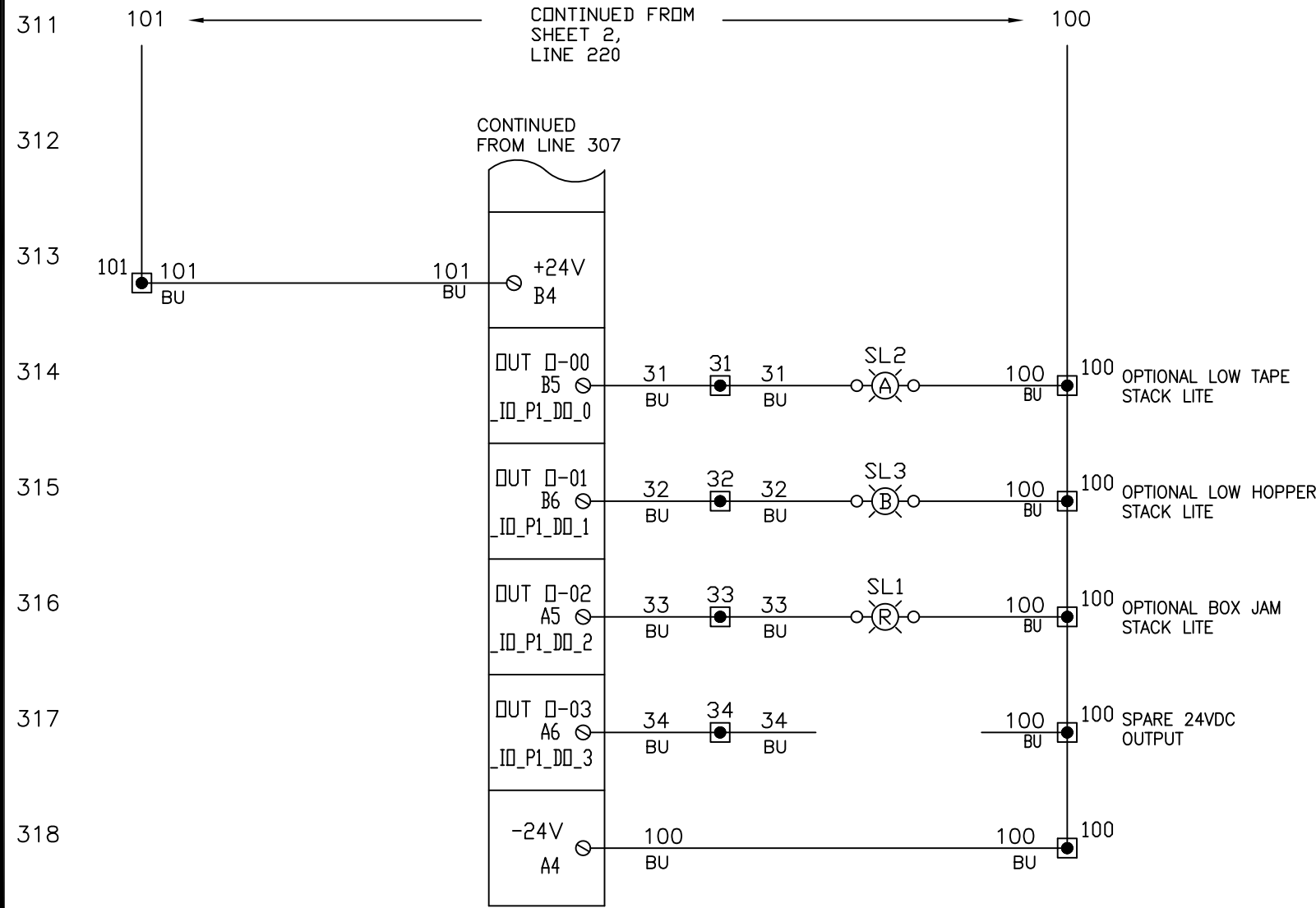
- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY	
100	TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100	WIRE CONNECTION ON ELECTRICAL COMPONENT.

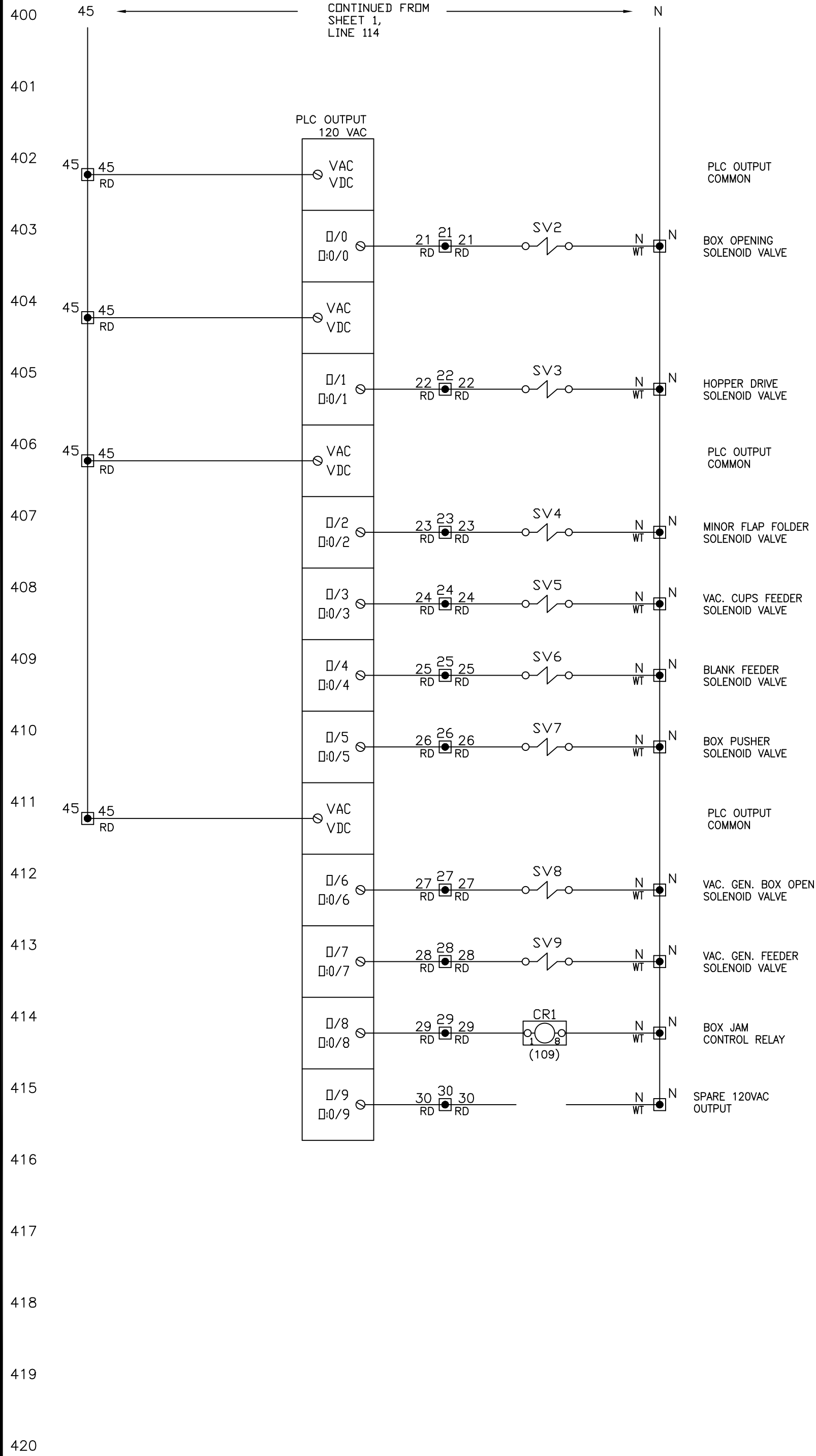


TOLERANCES EXCEPT AS NOTED		THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.	
DECIMAL (3 PLC)	+/- .005	TITLE: ELECT. SCHEMATIC – SH. 3 OF 4 CF25T – 120/1/60	
FRACTIONAL	+/- 1/64	DWG. NO.ED3018S3	SCALE: N/A
ANG. – 1/2°		MATERIAL: N/A	DATE:03/03/17
		DESIGNED: MENTA	APPRVD: --
		DRAWN: WM	

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.



WIRE CONNECTION KEY	
100	TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100	WIRE CONNECTION ON ELECTRICAL COMPONENT.



TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
	DECIMAL (3 PLC) +/- .005	TITLE: ELECT. SCHEMATIC – SH. 4 OF 4 CF25T – 120/1/60	
	FRACTIONAL +/- 1/64	DWG. NO.ED3018S4	SCALE: N/A
	ANG. – 1/2°	MATERIAL: N/A	DATE:03/03/17
DESIGNED: MENTA		DRAWN: WM	APPRVD: --

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY
100 TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100 WIRE CONNECTION ON ELECTRICAL COMPONENT.

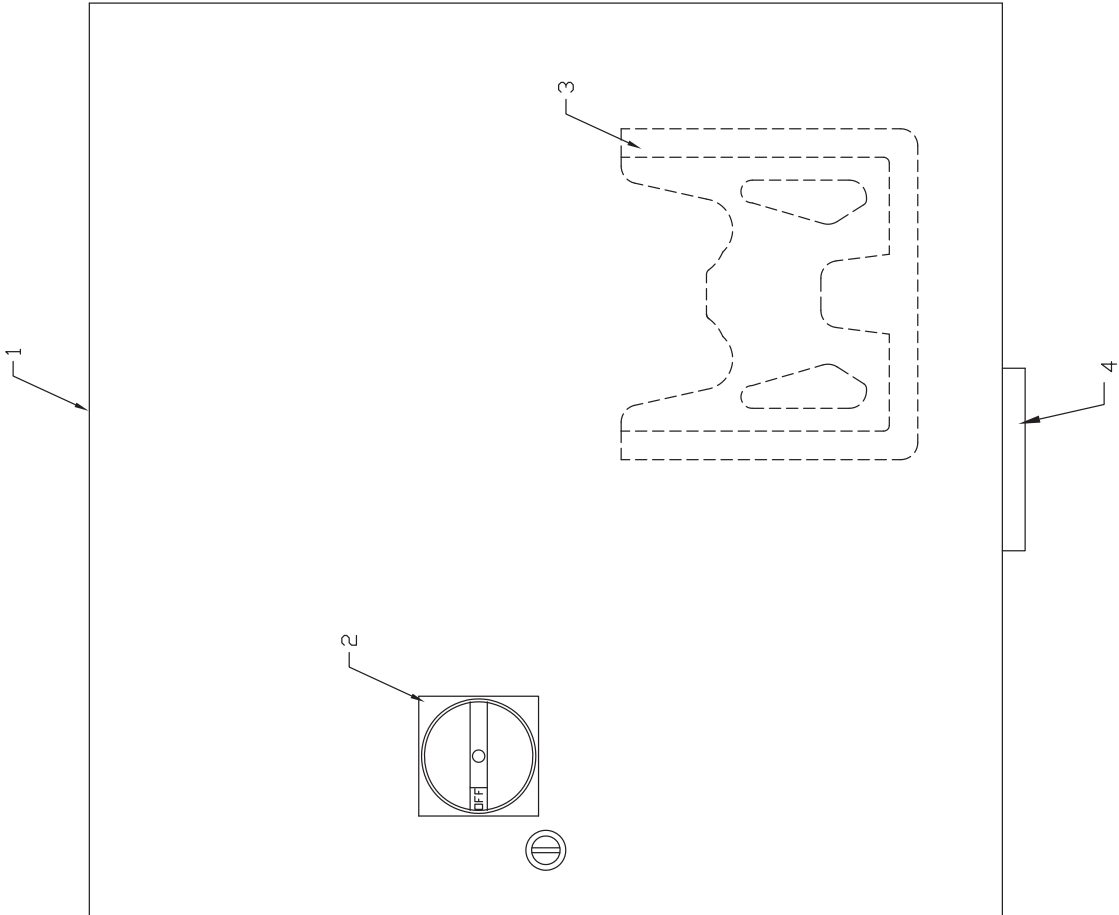
240 Volt, 60 Hz, Non CE Compliant, Standard Chain Drive Electrical Drawings

The drawings and schematics in this section represent the electrical layouts related specifically to standard, chain drive, 240V rated machines that are not CE compliant.

NOTE: Not all machines are CE compliant – determine the specifications of the machine in order to reference the proper drawings and schematics within this manual.

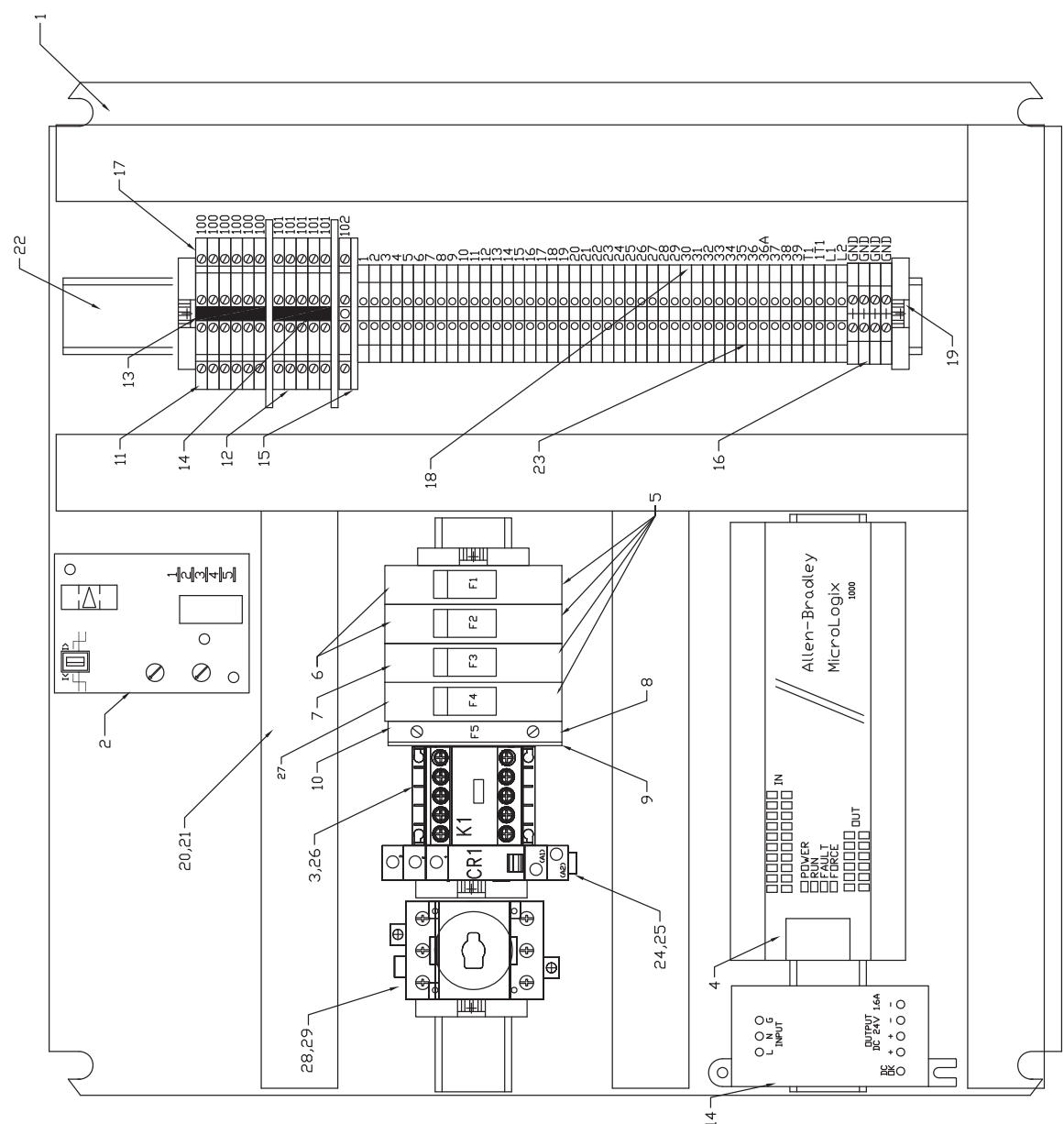
REVISION RECORD				
REV	DESCRIPTION	DATE	ATH	DR CK

KEY	PART NO.	DESCRIPTION
1	A100N-202006B-1	ENCLOSURE
2	UG59-8H	DISCONNECT HANDLE
3	A100N-PP-HOF-1	PRINT POCKET
4	AH-CEP-2	CABLE ENTRY PLATE

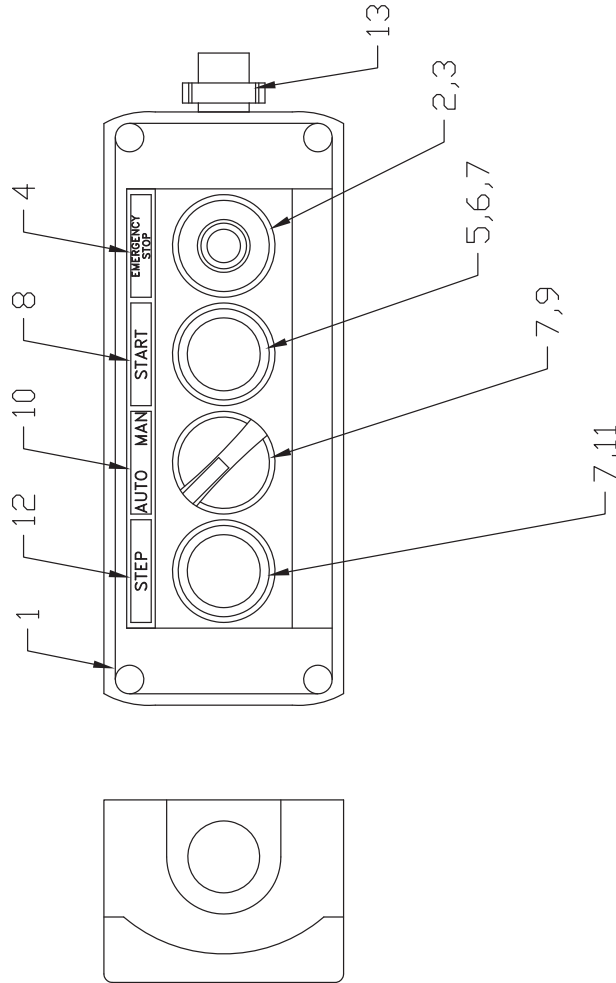
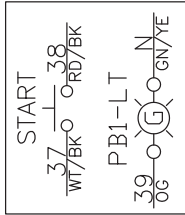
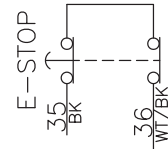


TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PL) +/- .005	TITLE: ELECTRICAL ENCLOSURE ASSEMBLY CF25T - w/ DOOR DISCONNECT SW.		
FRACTIONAL	DWG. NO. ED2408	SCALE: 3 : 8	
+/- 1/64	MATERIAL: COMMERCIAL	DATE: 4/04/12	
ANG. - 1/2°	DESIGNED: MENTA	DRAWN: WM	APPRVD: ---

KEY	PART NO.	DESCRIPTION
1	A100N-2020P-1	PANEL
2	303111-DC	OVER CURRENT RELAY
3	A106-AB-K-9-24V	CONTACTOR
4	A241AB-1000-1D	PLC
5	A125BH-AB-DIN-3	FUSE HOLDER
6	A125SB-7-R	FUSE, 7 AMP
7	A125SB-3-R	FUSE, 3 AMP
8	A125BH-AB-DIN	FUSE HOLDER
9	A128B-AB16	FUSE BLOCK BARRIER
10	A125SB-1.5-312	FUSE 1.5 AMP
11	A124-AB-JD3C	DOUBLE TERMINAL BLOCK
12	A128-AB-PPJD3	PARTITION PLATE
13	A124-AB-CJ-10	10 POLE CENTER JUMPER
14	A241AB-830-PS	24VDC POWER SUPPLY
15	A128-AB-EBJD3	END PARRIER PLATE
16	A124-AB-JG4	GROUND TERMINAL
17	A124-AB-MARK-DT	TERMINAL MARKER CARD
18	A124-AB-MARK-ST	TERMINAL MARKER CARD
19	A128-AB-ERL35	TERMINAL ANCHOR
20	A250-PAN-1X2	WIREWAY
21	A250-PAN-1X2C	WIREWAY COVER
22	A209-AB-2	DIN RAIL
23	A124-AB-J3	SINGLE TERMINAL
24	A183-AB-7-24VDC	RELAY SPST 24 VDC COIL
25	A184-AB-2	RELAY BASE
26	A106-AB-K-AUX	AUXILIARY CONTACT BLOCK
27	A125SB-1/2-R	FUSE, 1/2 AMP
28	UG59-8D	DISCONNECT SWITCH
29	UG59-8S	DISCONNECT SHAFT

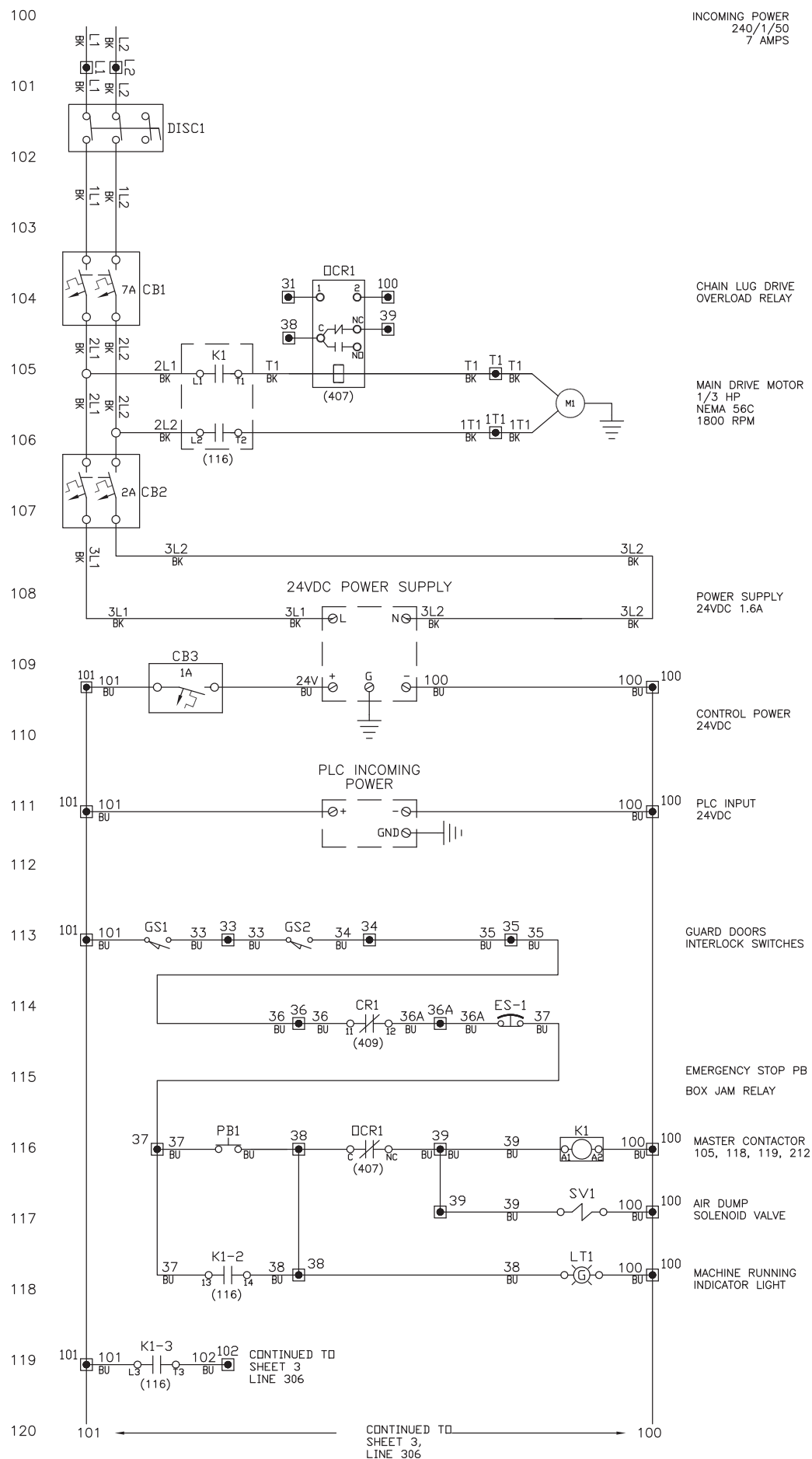


TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE: ELECTRICAL PANEL ASSEMBLY CF25T-240/1/50		
FRACTIONAL	DWG. NO. ED2448	SCALE: 1 : 2	
+/- 1/64	MATERIAL: COMMERCIAL	DATE: 06/21/12	
ANG. - 1/2°	DESIGNED: MENTA	DRAWN: WM	APPRVD: --



ITEM	PART No.	DESCRIPTION
1	A149-SQD-1	4 HOLE ENCLOSURE
2	A149-SQD-2	E-STOP PUSH BUTTON SW.
3	A149-SQD-3	N.C. CONTACT BLOCK
4	A149-SQD-4	E-STOP LEGEND PLATE
5	A149-SQD-5	GREEN PUSH BUTTON ILLUMINATED SW.
6	A149-SQD-6-DC	LIGHT MODULE
7	A149-SQD-7	N.O. CONTACT BLOCK
8	A149-SQD-8	"START" LEGEND PLATE
9	A149-SQD-9	(2) POSITION SELECTOR SWITCH
10	A149-SQD-10	AUTO / MAN LEGEND PLATE
11	A149-SQD-11	BLACK FLUSH PUSH BUTTON SW.
12	A149-SQD-12	"STEP" LEGEND PLATE
13	AH200-QD-8	MALE 8 POLE DISCONNECT

TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE: OPERATOR ENCLOSURE ASSY. CF25T - 24VDC		
FRACTIONAL	DWG. NO. ED2459	SCALE: 3 : 4	
+/- 1/64	MATERIAL: COMMERCIAL	DATE: 07/2/12	
ANG. - 1/2"	DESIGNED: MENTA	DRAWN: WM	APPRVD: ---



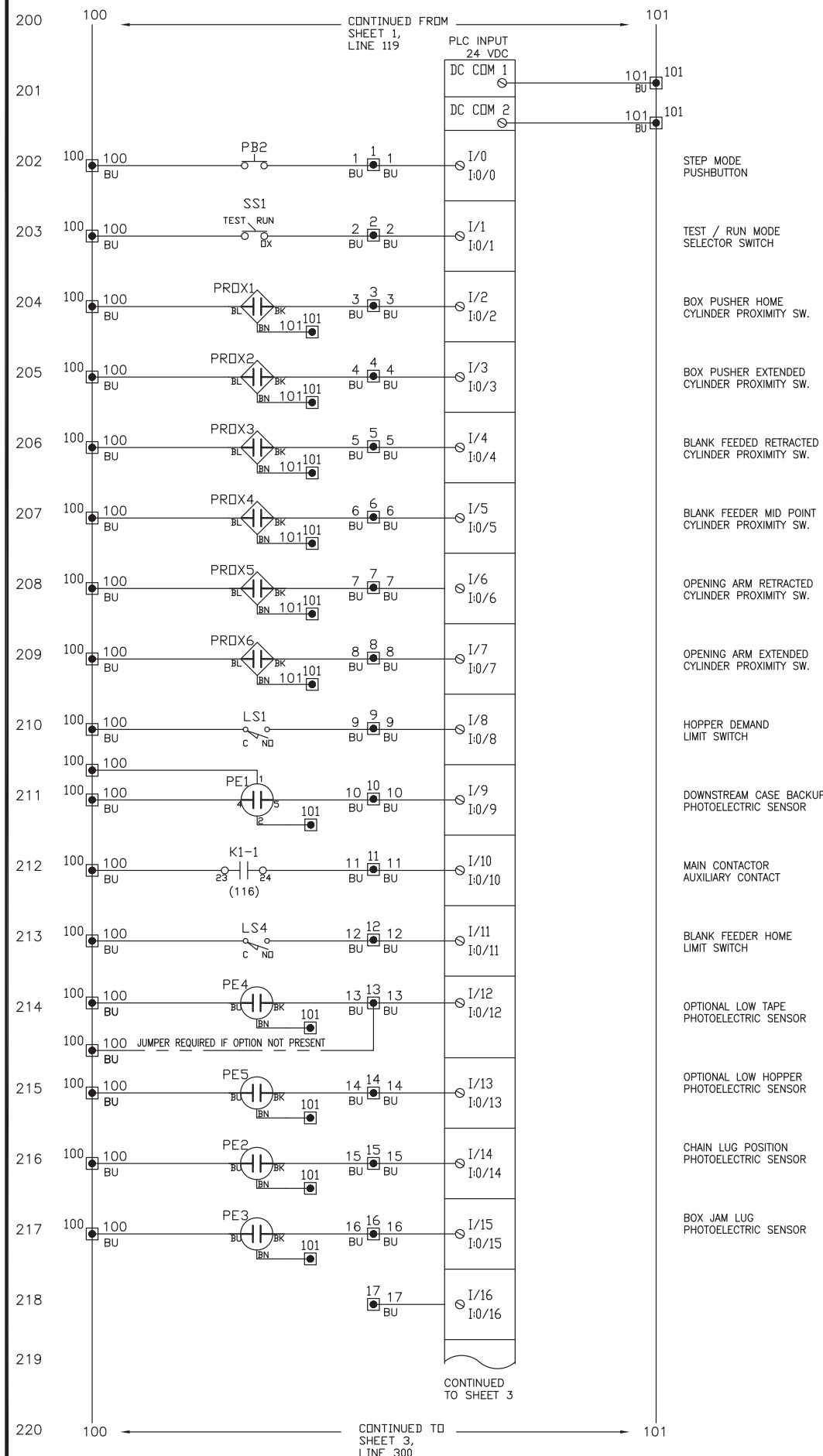
THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.			
TOLERANCES EXCEPT AS NOTED	TITLE: ELECT. SCHEMATIC - SH. 1 OF 4	DWG. NO. ED2616S1	SCALE: N/A
DECIMAL (3 PLC) +/- .005	CF25T - 240/1/50	MATERIAL: N/A	DATE: 07/22/13
FRACTIONAL +/- 1/64		DESIGNED: MENTA	APPRVD: --
ANG. - 1/2"		DRAWN: WM	

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN. 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY

100 TERMINAL BLOCK LOCATED ON TERMINAL STRIP.

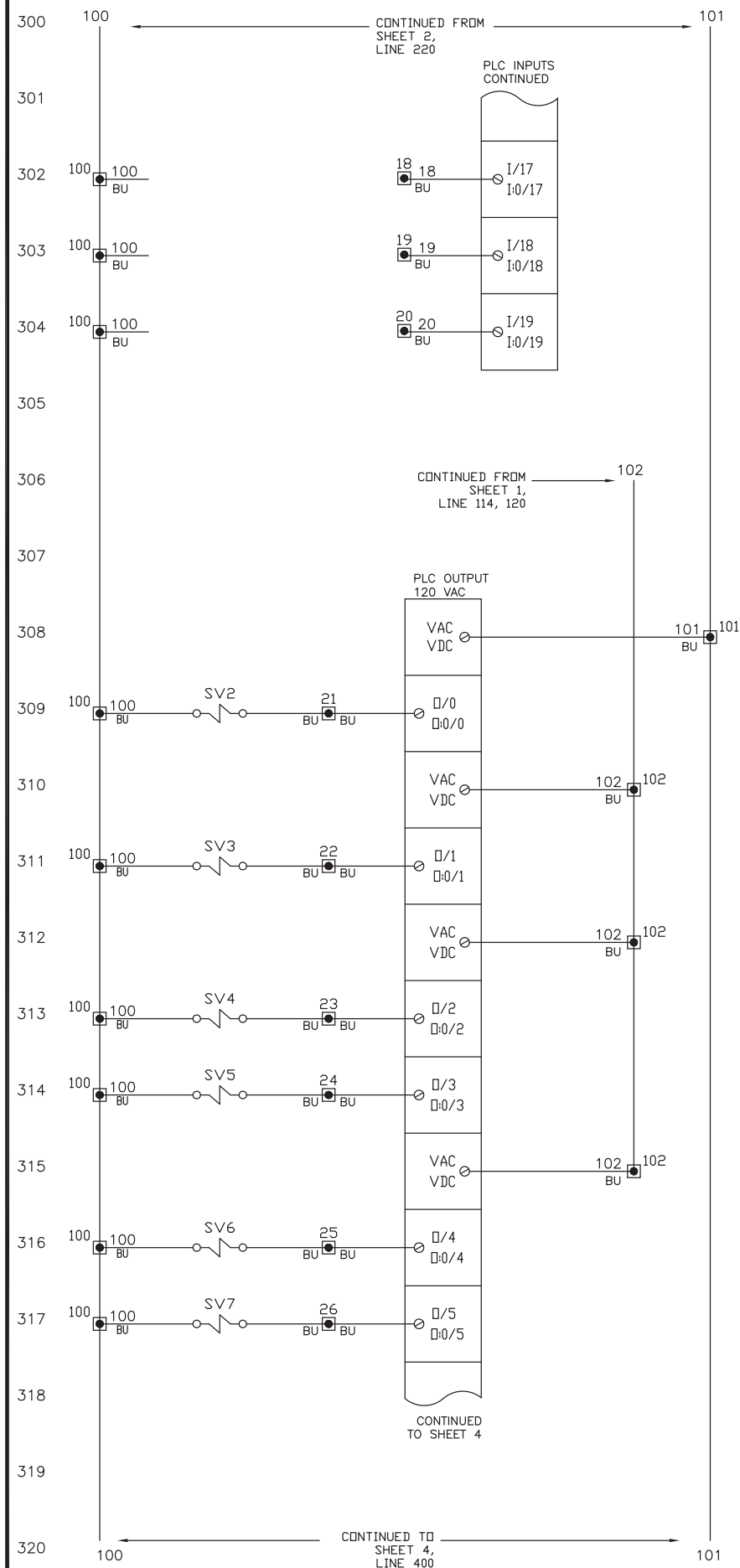
100 WIRE CONNECTION ON ELECTRICAL COMPONENT.



THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.			
TOLERANCES EXCEPT AS NOTED	TITLE: ELECT. SCHEMATIC - SH. 2 OF 4	DWG. NO. ED2616S2	SCALE: N/A
DECIMAL (3 PLC) +/- .005	CF25T - 240/1/50	MATERIAL: N/A	DATE: 07/22/13
FRACTIONAL +/- 1/64		DESIGNED: MENTA	APPRVD: ---
ANG. - 1/2°		DRAWN: WM	

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN. 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY	
100	TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
101	WIRE CONNECTION ON ELECTRICAL COMPONENT.



TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
	DECIMAL (3 PLC)	TITLE: ELECT. SCHEMATIC - SH. 3 OF 4	CF25T - 240/1/50
	FRACTIONAL	DWG. NO. ED2616S3	SCALE: N/A
	+/- 1/64	MATERIAL: N/A	DATE: 07/22/13
	ANG. - 1/2"	DESIGNED: MENTA	DRAWN: WM
		APPRD: ---	

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN. 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY	
100	TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100	WIRE CONNECTION ON ELECTRICAL COMPONENT.

240 Volt, 60 Hz, Non CE Compliant, Standard Belt Drive Electrical Drawings

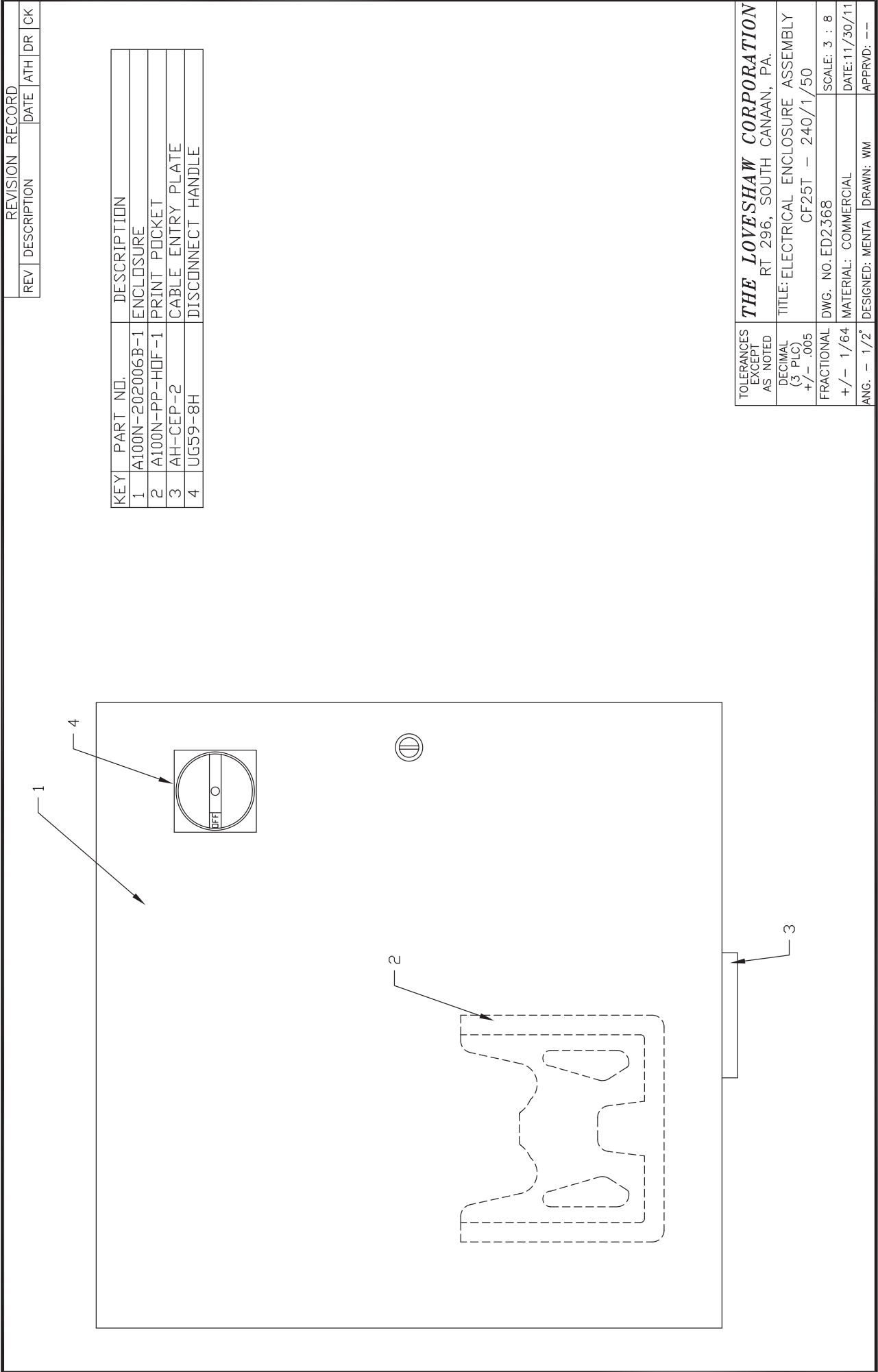
The drawings and schematics in this section represent the electrical layouts related specifically to standard, belt drive, 240V rated machines that are not CE compliant.

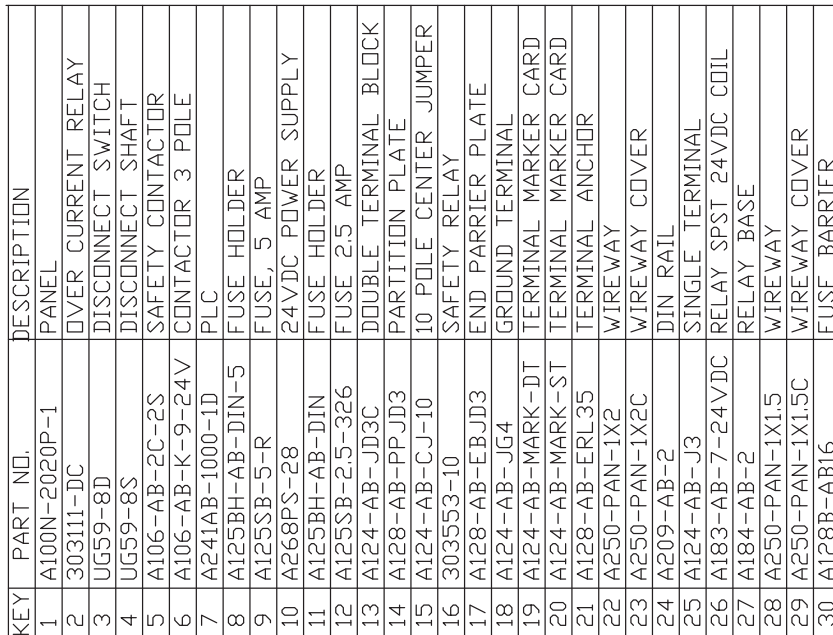
NOTE: Not all machines are CE compliant – determine the specifications of the machine in order to reference the proper drawings and schematics within this manual.

240 Volt, 50 Hz, CE Compliant, Standard Chain Drive Electrical Drawings

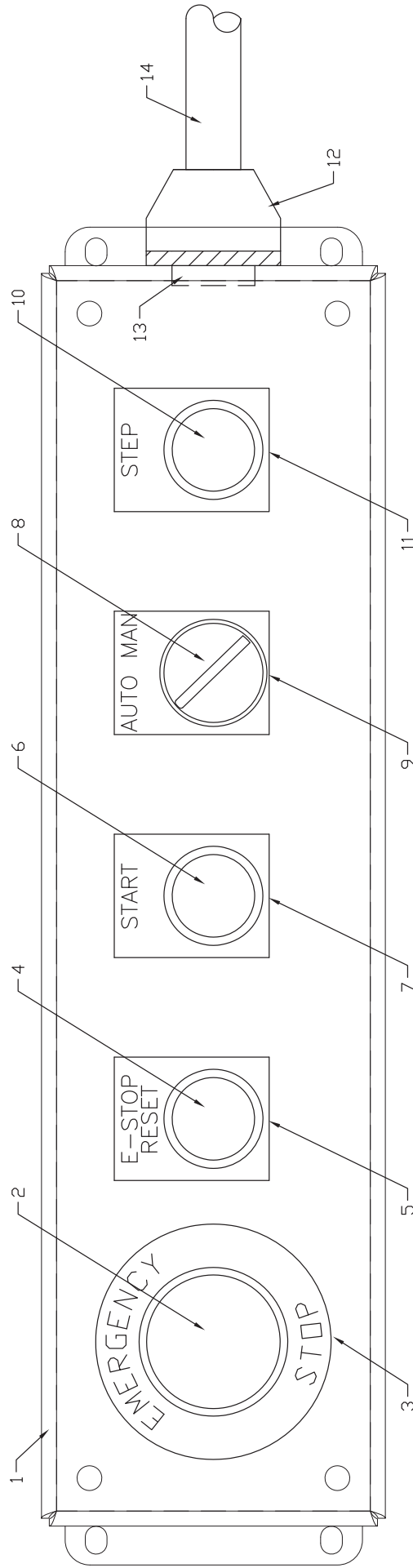
The drawings and schematics in this section represent the electrical layouts related specifically to standard, chain drive, 240V rated machines that are CE compliant.

NOTE: Not all machines are CE compliant – determine the specifications of the machine in order to reference the proper drawings and schematics within this manual.

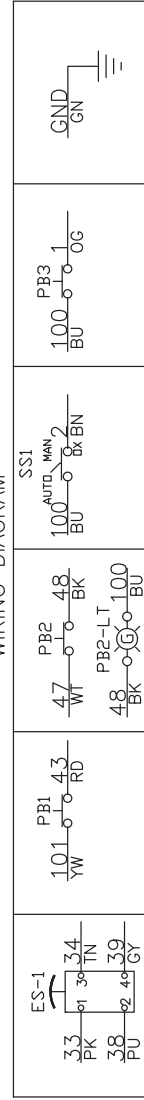


104

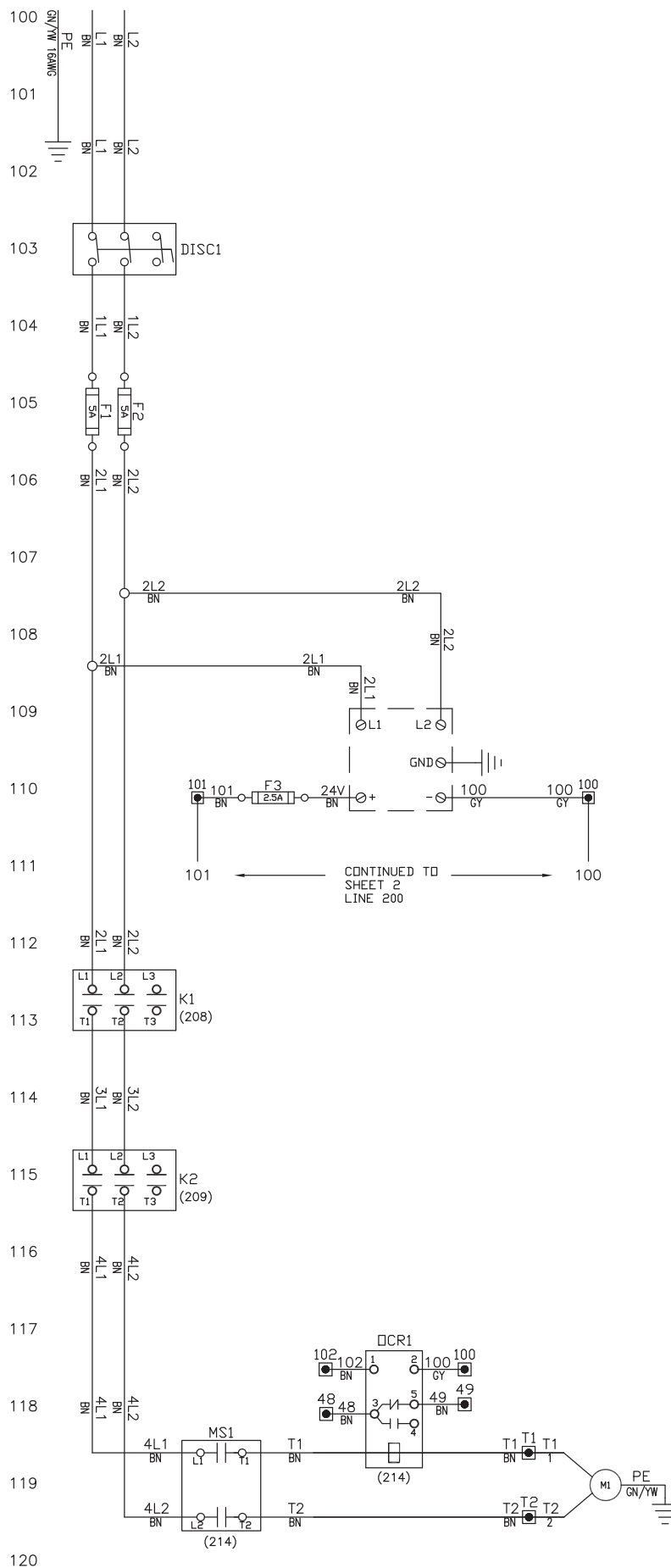
KEY	PART NUMBER	PART DESCRIPTION
1	A149-H0F-5-22MM	OPERATOR ENCLOSURE
2	LD12B-2074-ABF2	RED MUSHROOM. HEAD OPERATOR W/ 2 N.C.
3	A213-AB-RD-F	LEGEND PLATE "EMERGENCY STOP"
4	LD12B-2081-ABF	BLUE EXTENDED HEAD PUSHBUTTON
5	A213-AB-9-F	LEGEND PLATE "E-STOP RESET"
6	A149-AB-98F	GREEN FLUSH PUSH BUTTON W/ N.O. CONTACT
7	A214-AB-1-F	LEGEND PLATE "START"
8	A149-AB-6F	2 POS. SEL. SW. W/ N.O. CONTACT
9	A213-AB-13	LEGEND PLATE - AUTO/MAN
10	A149-AB-7F	BLACK FLUSH P. B. W/ N.O. CONT.
11	A214-AB-18	LEGEND PLATE "STEP"
12	AH200-TB-1	STRAIN RELIEF CONNECTOR
13	AH117	LOCK NUT
14	A18-12	MULTI CONDUCTOR CABLE



WIRING DIAGRAM



TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE: OPERATOR STATION CF25		
FRACTIONAL +/- 1/64	DWG. NO. ED2269A	SCALE: N/A	DATE: 04/04/11
ANG. - 1/2"	MATERIAL: N/A	DESIGNED: MENTA	DRAWN: WM
			APPRVD: --



INCOMING POWER
240/1/50
5 AMPS

MAIN POWER
DISCONNECT SWITCH

MAIN POWER
FUSES

POWER SUPPLY
24VDC 75 W

MAIN POWER
CONTACTOR

REDUNDANT
MAIN POWER
CONTACTOR

MOTOR OVERLOAD
PROTECTION

MAIN DRIVE MOTOR
1/2 HP
NEMA 56C
1800 RPM

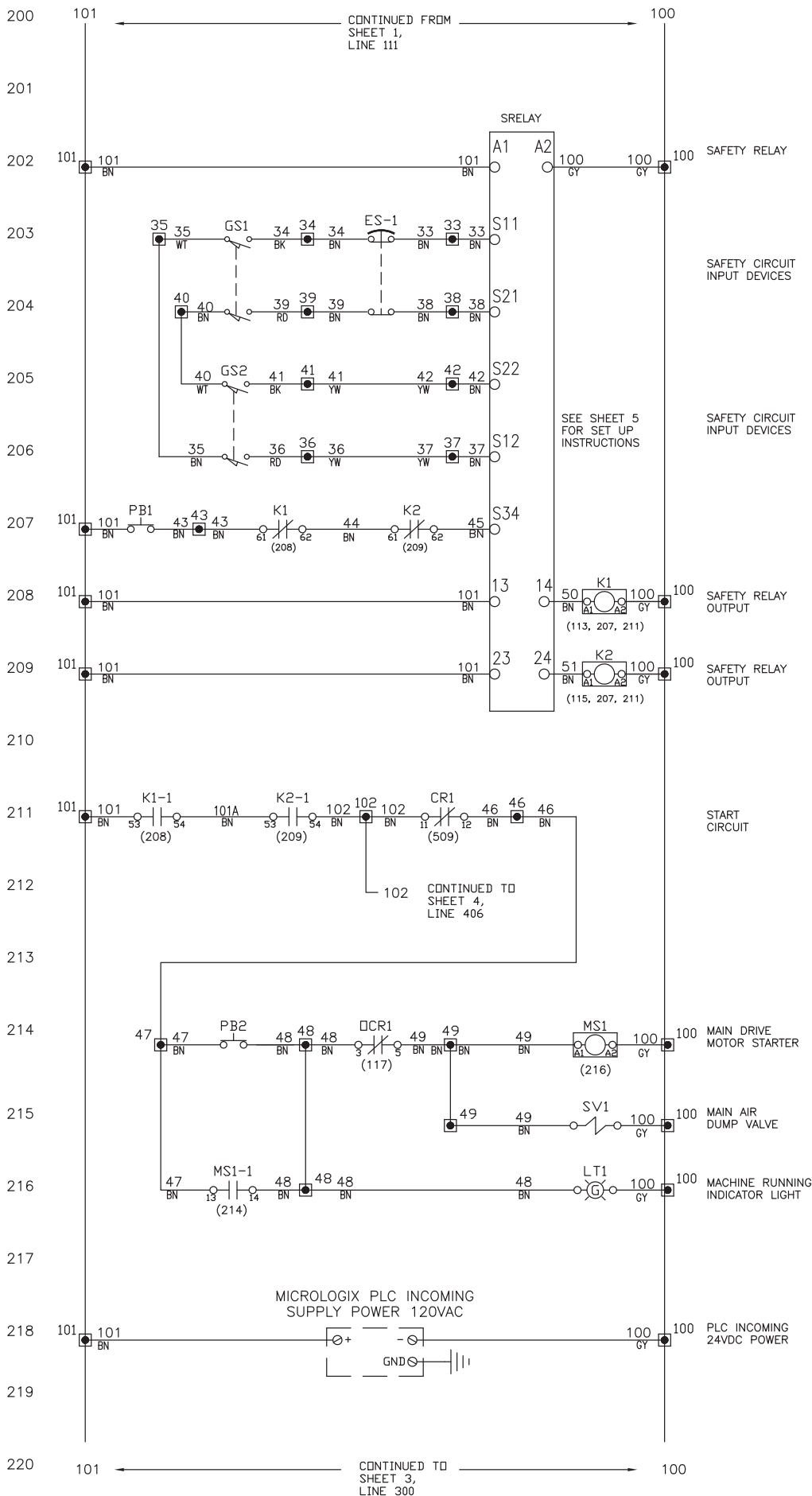
THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.	
TOLERANCES EXCEPT AS NOTED	TITLE: ELECT. SCHEMATIC - SH 1 OF 5
DECIMAL (3 PLC) +/- .005	CF25T - 240/1/50
FRACTIONAL +/- 1/64	DWG. NO. ED2731S1
ANG. - 1/2°	MATERIAL: N/A
DESIGNED: MENTA	DATE: 05/13/14
DRAWN: WM	APPRVD: ---

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC POWER WIRE MIN. 16 AWG.
 3. DC CONTROL WIRE MIN. 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY

100 TERMINAL BLOCK LOCATED ON TERMINAL STRIP.

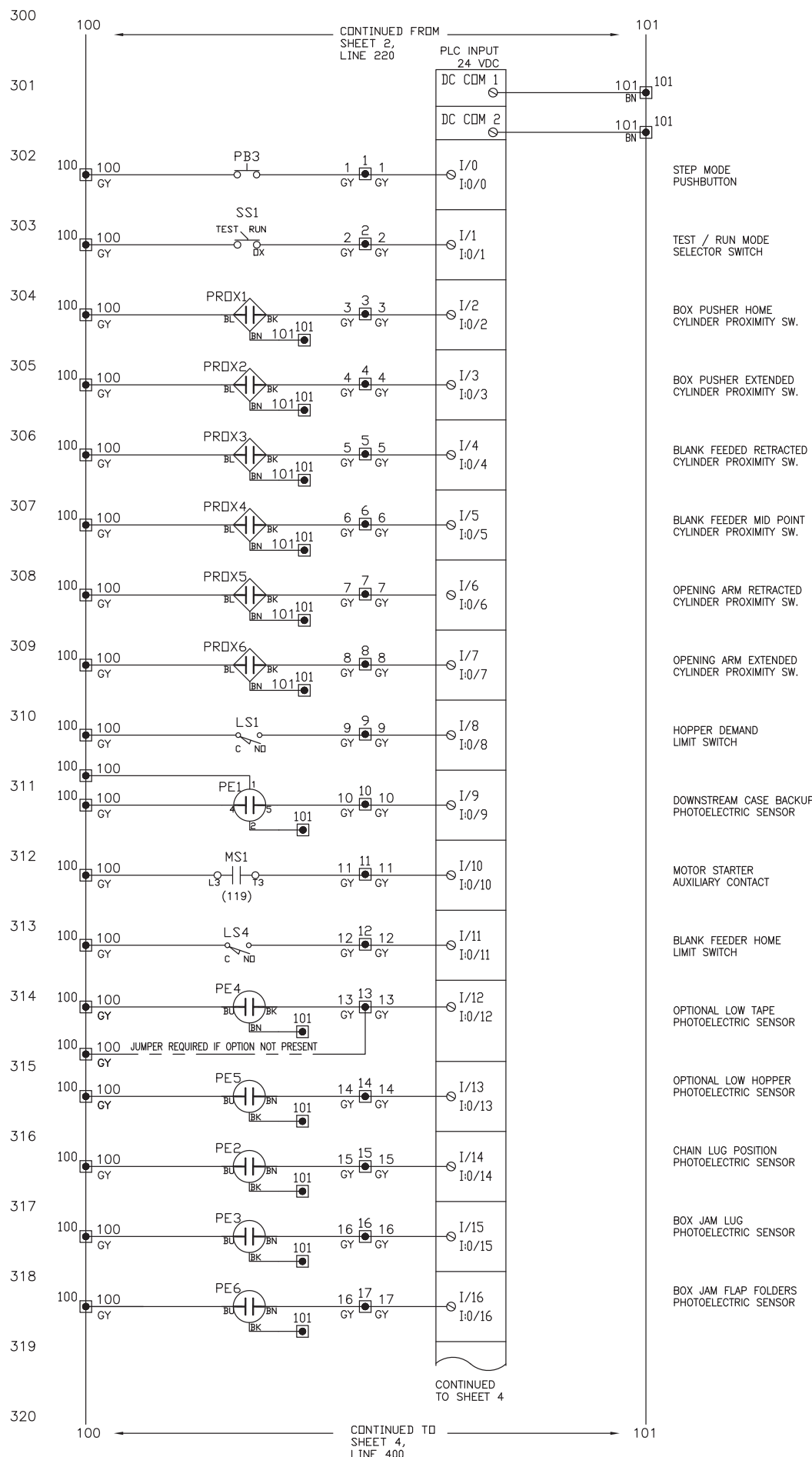
100 WIRE CONNECTION ON ELECTRICAL COMPONENT.



THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.	TOLERANCES EXCEPT AS NOTED	TITLE: ELECT. SCHEMATIC - SH 2 OF 5	SCALE: N/A	DATE: 05/13/14
	DECIMAL (3 PLC) +/- .005	CF25T - 240/1/50	DWG. NO. ED2731S2	APPRVD: ---
	FRACTIONAL +/- 1/64	MATERIAL: N/A	DESIGNED: MENTA	DRAWN: WM
	ANG. - 1/2"			

WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
2. DC CONTROL WIRE MIN. 18 AWG.

100	TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100	WIRE CONNECTION ON ELECTRICAL COMPONENT.



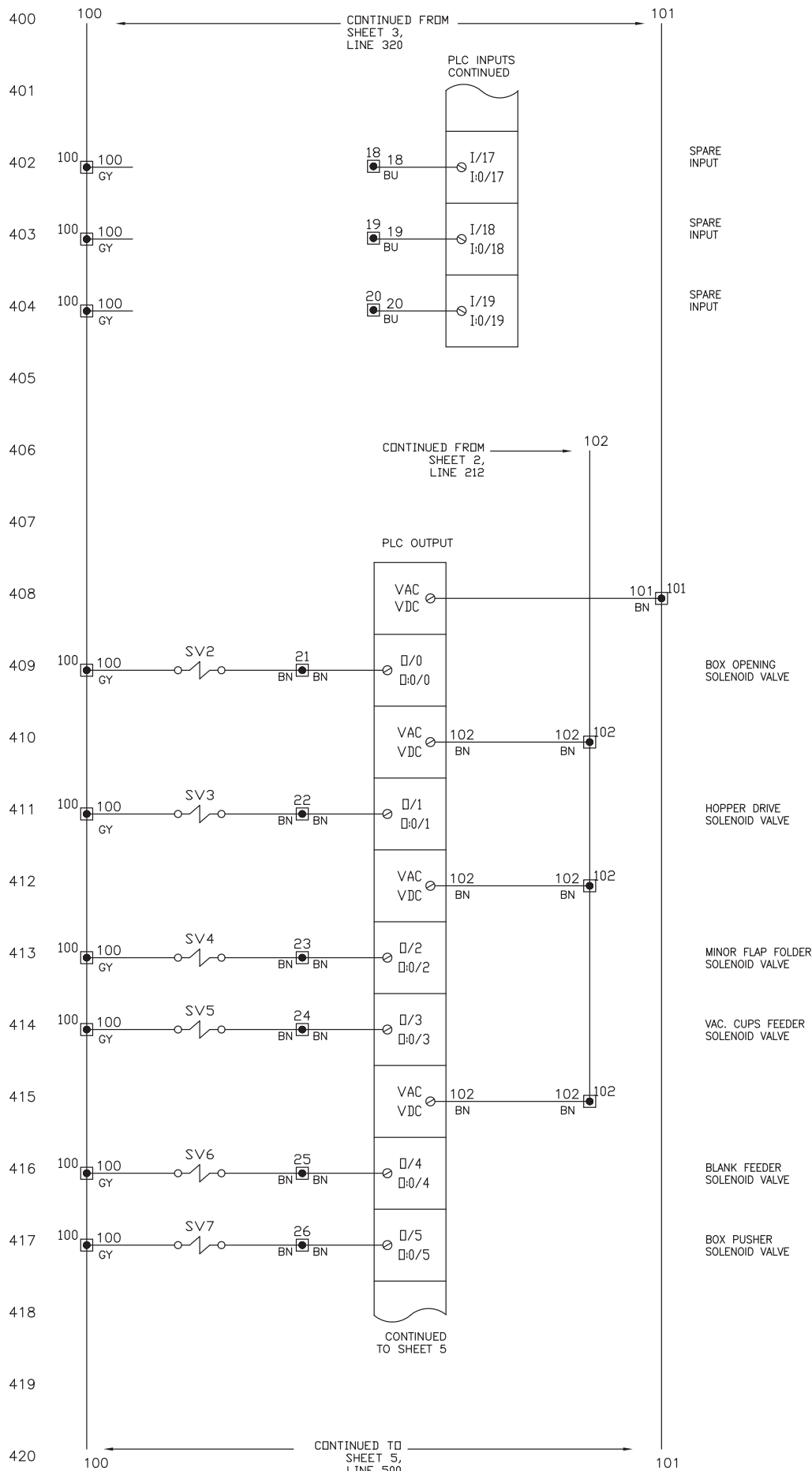
THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.			
TOLERANCES EXCEPT AS NOTED	TITLE: ELECT. SCHEMATIC - SH 3 OF 5	DWG. NO. ED2731S3	SCALE: N/A
DECIMAL (3 PLC) +/-.005	CF25T - 240/1/50	MATERIAL: N/A	DATE: 05/13/14
FRACTIONAL +/-.1/64		DESIGNED: MENTA	APPRVD: ---
ANG. - 1/2°		DRAWN: WM	

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN. 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY

100 TERMINAL BLOCK LOCATED ON TERMINAL STRIP.

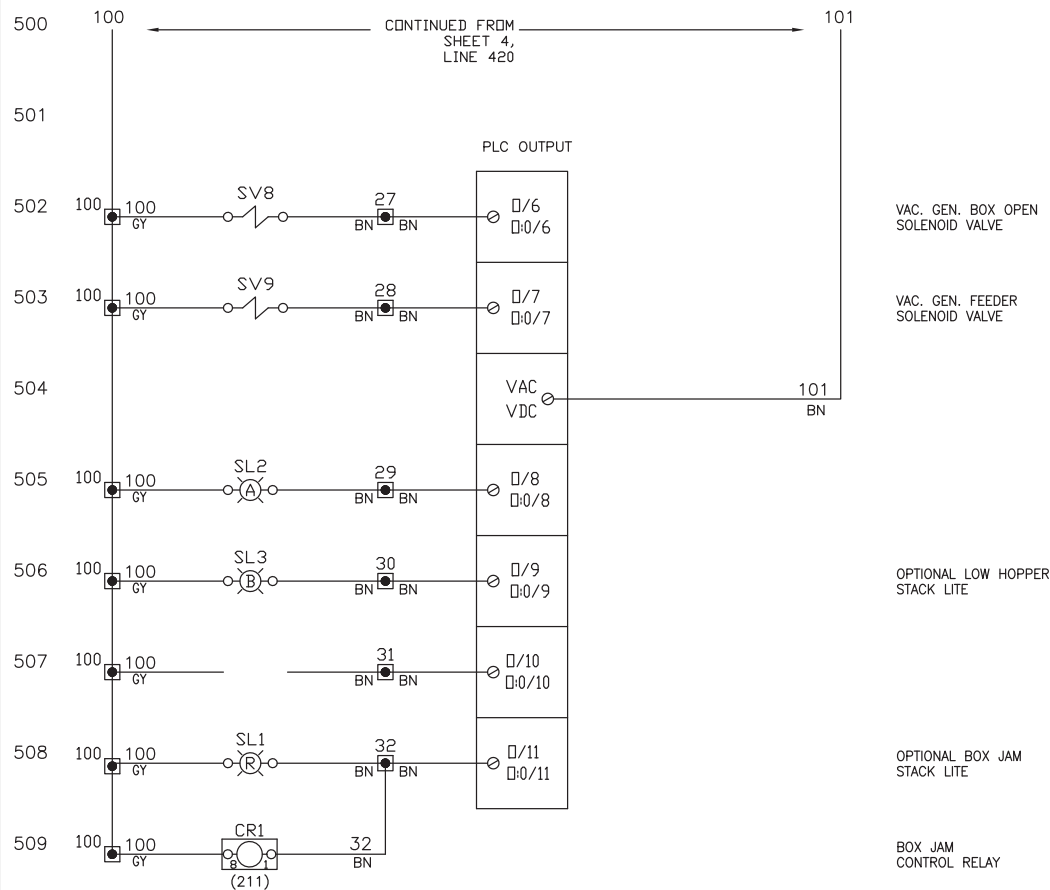
100 WIRE CONNECTION ON ELECTRICAL COMPONENT.



TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
	DECIMAL (3 PLC)	TITLE: ELECT. SCHEMATIC - SH 4 OF 5	SCALE: N/A
	+/- .005	CF25T - 240/1/50	DATE: 05/13/14
	FRACTIONAL	DWG. NO. ED2731S4	APPRD: ---
	+/- 1/64	MATERIAL: N/A	DRAWN: WM
	ANG. - 1/2°	DESIGNED: MENTA	

WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
2. DC CONTROL WIRE MIN. 18 AWG.

WIRE CONNECTION KEY	
100	TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
●	100 WIRE CONNECTION ON ELECTRICAL COMPONENT.
○	



513 SAFETY RELAY SET UP INSTRUCTIONS:
 1. Turn on power, after power up test is completed "PWR" LED will flash red.
 2. Turn rotary switch fully CW until reaching AM position. "IN1" LED will blink.
 3. Position is set when "PWR" LED is solid green.
 4. Cycle power to unit to lock in configuration.

514

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WIRE CONNECTION KEY	
100	TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
●	100 WIRE CONNECTION ON ELECTRICAL COMPONENT.

THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		TITLE: ELECT. SCHEMATIC - SH 5 OF 5 CF25T - 240/1/50		SCALE: N/A	DATE: 05/13/14
TOLERANCES EXCEPT AS NOTED		FRACTIONAL DECIMAL (3 PLC)		DWG. NO. ED2731S5	MATERIAL: N/A
1/16 - 1/64		1/2		DESIGNED: MENTA	DRAWN: WM
APPROVED: ---					

WIRING NOTES:
 1. WIRE COLORS ARE AS NOTED.
 2. DC CONTROL WIRE MIN. 18 AWG.

240 Volt, 50 Hz, CE Compliant, Standard Belt Drive Electrical Drawings

The drawings and schematics in this section represent the electrical layouts related specifically to standard, belt drive, 240V rated machines that are CE compliant.

NOTE: Not all machines are CE compliant – determine the specifications of the machine in order to reference the proper drawings and schematics within this manual.

230 Volt, 3 Phase, 60 Hz, Standard Chain Drive Electrical Drawings

The drawings and schematics in this section represent the electrical layouts related specifically to standard, chain drive, 230V rated, 3 phase machines.

230 Volt, 3 Phase, 60 Hz, Standard Belt Drive Electrical Drawings

The drawings and schematics in this section represent the electrical layouts related specifically to standard, belt drive, 230V rated, 3 phase machines.

460 Volt, 3 Phase, 60 Hz, Standard Belt Drive Electrical Drawings

The drawings and schematics in this section represent the electrical layouts related specifically to standard, belt drive, 460V rated, 3 phase machines.

460 Volt, 3 Phase, 60 Hz, Standard Belt Drive Electrical Drawings

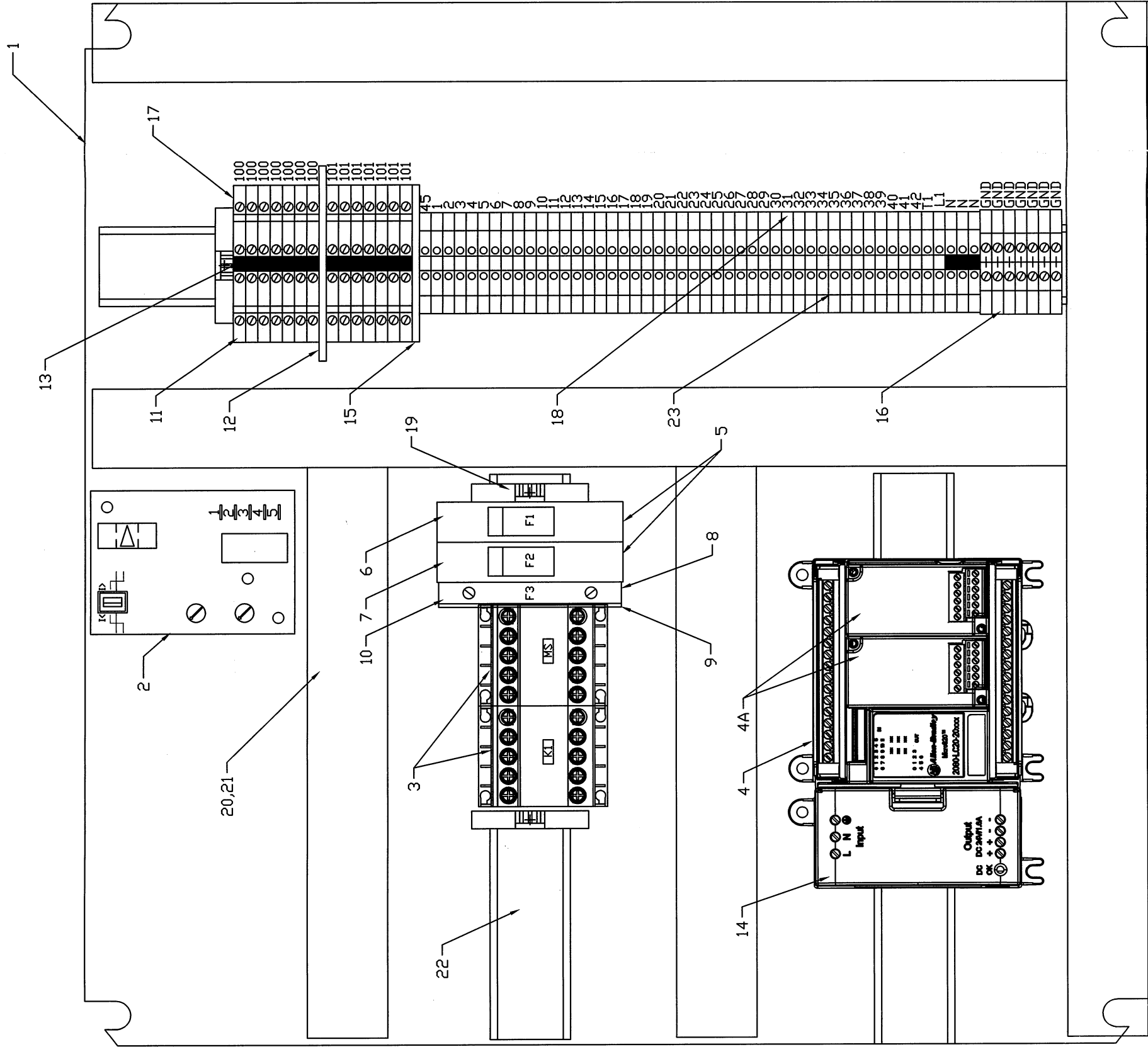
The drawings and schematics in this section represent the electrical layouts related specifically to standard, belt drive, 460V rated, 3 phase machines.

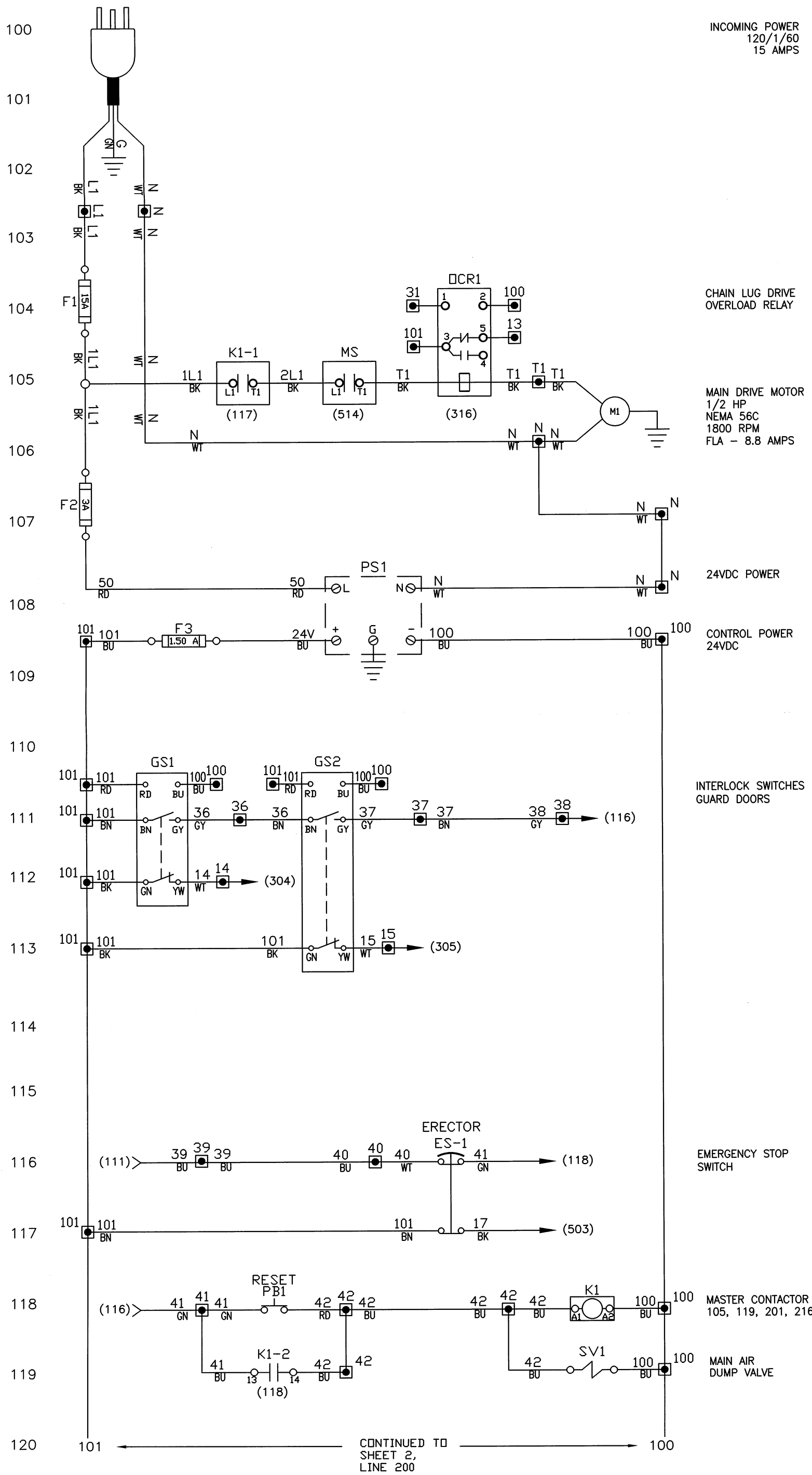
120 Volt, 60 Hz, Standard HMI Chain Drive Electrical Drawings

The drawings and schematics in this section represent the electrical layouts related specifically to standard, chain drive 120V rated machines.

KEY	PART NO.	DESCRIPTION
1	A100N-2020P-1	PANEL
2	303111-DC	OVER CURRENT RELAY
3	A106-AB-9-24V	CONTACTOR
4	A241AB-820-1	PLC
4A	A241AB-800-CM	INPUT / OUTPUT CARD
5	A125BH-AB-DIN-3	FUSE HOLDER
6	A125SB-15-R	FUSE, 15 AMP
7	A125SB-3-R	FUSE, 3 AMP
8	A125BH-AB-DIN	FUSE HOLDER
9	A128B-AB16	FUSE BLOCK BARRIER
10	A125SB-1.50-326	FUSE 1.50 AMP
11	A124-AB-JD3C	DOUBLE TERMINAL BLOCK
12	A128-AB-PPJD3	PARTITION PLATE
13	A124-AB-CJ-10	10 POLE CENTER JUMPER
14	A241AB-830-PS	POWER SUPPLY
15	A128-AB-EBJD3	END PARRIER PLATE
16	A124-AB-JG4	GROUND TERMINAL
17	A124-AB-MARK-DT	TERMINAL MARKER CARD
18	A124-AB-MARK-ST	TERMINAL MARKER CARD
19	A128-AB-ERL35	TERMINAL ANCHOR
20	A250-PAN-1X2N	WIREWAY
21	A250-PAN-1X2C	WIREWAY COVER
22	A209-AB-2	DIN RAIL
23	A124-AB-J3	SINGLE TERMINAL

TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE: ELECTRICAL PANEL ASSEMBLY CF25T-120/1/60 - MICRO820 HMI		
FRACTIONAL	DWG. NO.ED3139	SCALE: 1 : 2	
+/- 1/64	MATERIAL: COMMERCIAL	DATE:12/01/17	
ANG. - 1/2°	DESIGNED: +	DRAWN: WM	APPRVD: --





INCOMING POWER
120/1/60
15 AMPS

CHAIN LUG DRIVE
OVERLOAD RELAY

MAIN DRIVE MOTOR
1/2 HP
NEMA 56C
1800 RPM
FLA - 8.8 AMPS

24VDC POWER

CONTROL POWER
24VDC

INTERLOCK SWITCHES
GUARD DOORS

EMERGENCY STOP
SWITCH

MASTER CONTACTOR
105, 119, 201, 216

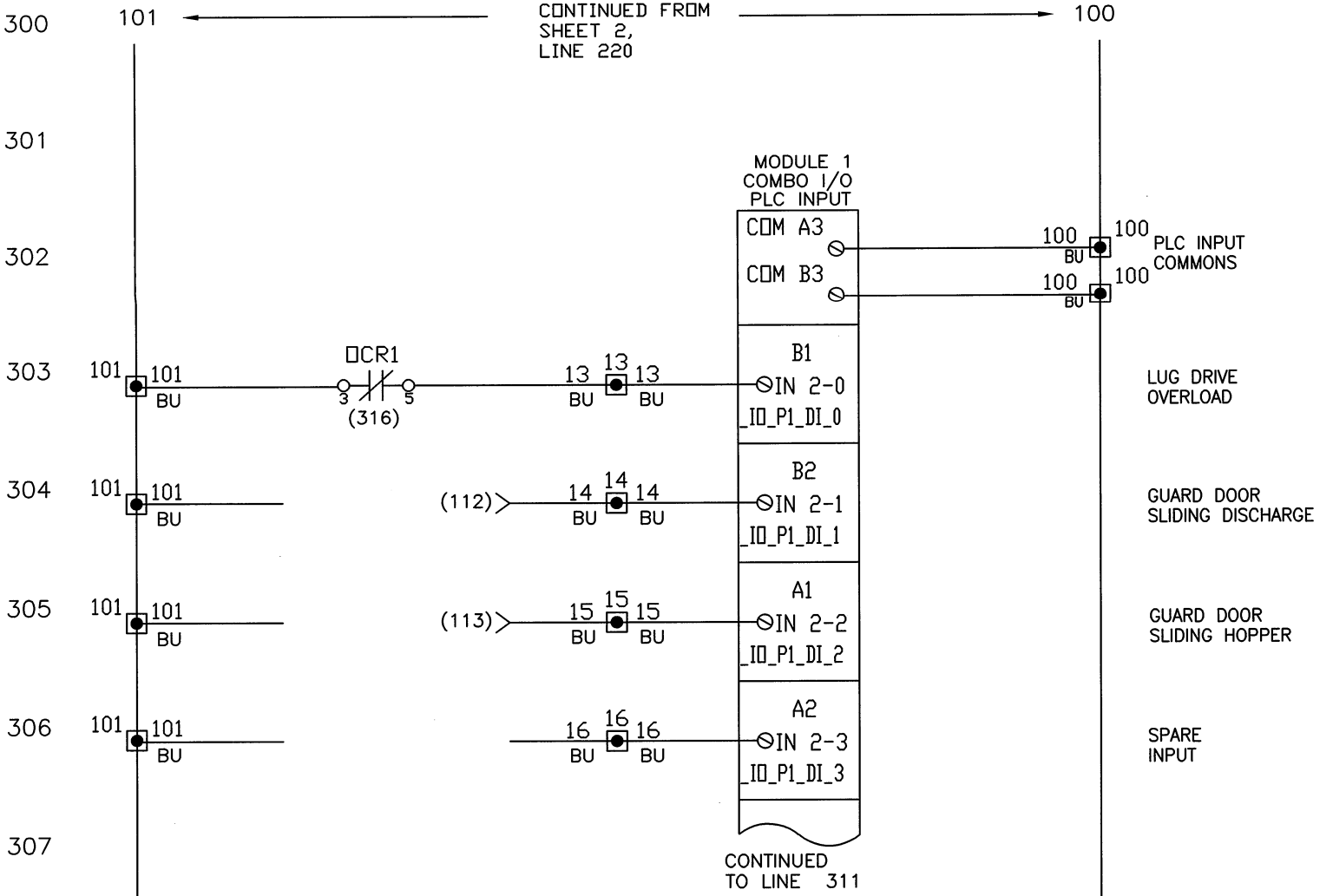
MAIN AIR
DUMP VALVE

CONTINUED TO
SHEET 2,
LINE 200

THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.	
TOLERANCES EXCEPT AS NOTED	TITLE:ELECT. SCHEMATIC - SH. 1 OF 5 CF25 - 120/1/60 MICRO 820
DECIMAL (3 PLC) +/- .005	SCALE: N/A
FRACTIONAL +/- 1/64	DWG. NO. ED3138S1
ANG. - 1/2	MATERIAL: N/A
	DATE:12/01/17
	DESIGNED: MENTA
	DRAWN: WM
	APPRVD: --

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY	
100	TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100	WIRE CONNECTION ON ELECTRICAL COMPONENT.



THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.	
TOLERANCES EXCEPT AS NOTED	DESIGNED: MENTA
DECIMAL (3 PLC) +/- .005	DWG. NO. ED3138S3
FRACTIONAL +/- 1/64	MATERIAL: N/A
ANG. - 1/2	DATE: 12/01/17
	APPRVD: --

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY
100 TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100 WIRE CONNECTION ON ELECTRICAL COMPONENT.

400 45 ← CONTINUED FROM SHEET 2, LINE 201 CONTINUED FROM SHEET 3, LINE 320 → 100

401

402 45 45 BU PLC OUTPUT 120 VAC CM 0

PLC OUTPUT COMMON

403 21 21 21 BU SV2 100 100 BU

BOX OPENING SOLENOID VALVE

404 45 45 BU CM 1

405 22 22 22 BU SV3 100 100 BU

HOPPER DRIVE SOLENOID VALVE

406 45 45 BU CM 2

PLC OUTPUT COMMON

407 23 23 23 BU SV4 100 100 BU

MINOR FLAP FOLDER SOLENOID VALVE

408 24 24 24 BU SV5 100 100 BU

VACUUM CUPS FEEDER SOLENOID VALVE

409 45 45 BU CM 3

410 25 25 25 BU SV6 100 100 BU

BLANK FEEDER SOLENOID VALVE

411 26 26 26 BU SV7 100 100 BU

BOX PUSHER SOLENOID VALVE

412 27 27 27 BU SV8 100 100 BU

VAC. GEN. BOX OPEN SOLENOID VALVE

413

414

415

416

417

418

419

420 CONTINUED TO SHEET 5, LINE 500 → 100

THE LOVESHAU CORPORATION
RT 296, SOUTH CANAAN, PA.

TOLERANCES EXCEPT AS NOTED	DECIMAL (3 PLC) +/- .005	FRACTIONAL +/- 1/64	ANG. - 1/2°
		SCALE: N/A	DATE: 12/01/17
		DWG. NO. ED3138S4	MATERIAL: N/A
		DESIGNED: MENTA	DRAWN: WM
			APPRVD: --

TITLE: ELECT. SCHEMATIC - SH. 4 OF 5
CF25 - 120/1/60 MICRO 820

WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
2. AC CONTROL WIRE MIN. 18 AWG.
3. DC CONTROL WIRE MIN 20 AWG.
4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY
100 TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100 WIRE CONNECTION ON ELECTRICAL COMPONENT.

500
501
502
503
504
505
506
507

509
510
511
512
513
514
515
516
517
518
519
520

101
101
101
101
101
101
101

101
101
101
101
101
101
101

BU
BN
BU
BU
BU
BU
BU

BU
BU
BU
BU
BU
BU
BU

← CONTINUED FROM SHEET 3, LINE 320

101

101

101

101

101

101

101

101

101

101

101

101

101

101

101

101

101

101

101

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101

101

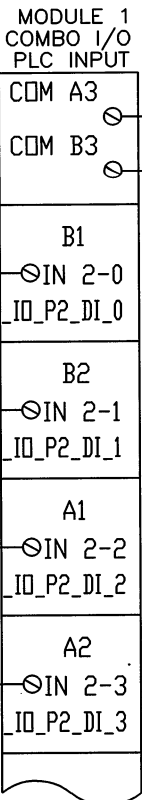
101

101

101

101

CONTINUED FROM SHEET 5, LINE 520



CONTINUED TO LINE 511

100
BU
100
BU

PLC INPUT
COMMONS

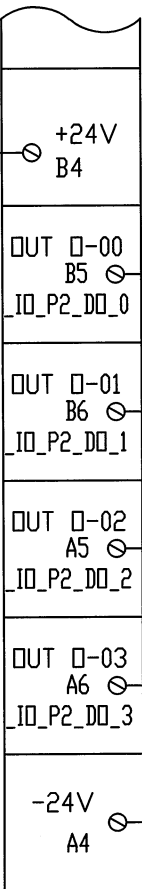
E-STOP
OPERATOR STATION

CHAIN LUG
POSITION
SENSOR

BOX JAM
LUG INFEEED
SENSOR

BOX JAM
FLAP FOLDERS
SENSOR

CONTINUED FROM LINE 507



32
BU
32
BU

SV9

100
BU
100
BU

SOLID STATE
OUTPUT COMMON

VAC. GEN. BOX PULL DOWN
SOLENOID VALVE

33
BU
33
BU

MS
(105)

100
BU
100
BU

MOTOR
STARTER

34
BU
34
BU

100
BU
100
BU

SPARE 24VDC
OUTPUT

35
BU
35
BU

100
BU
100
BU

SPARE 24VDC
OUTPUT

100
BU

100
BU
100
BU

SOLID STATE
OUTPUT COMMON

THE LOVESHAW CORPORATION
RT 296, SOUTH CANAAN, PA.

TOLERANCES EXCEPT AS NOTED	DECIMAL (3 PLC) +/- .005	FRACTIONAL +/- 1/64	ANG. - 1/2°	DESIGNED: MENTA	DRAWN: WM	APPRVD: --
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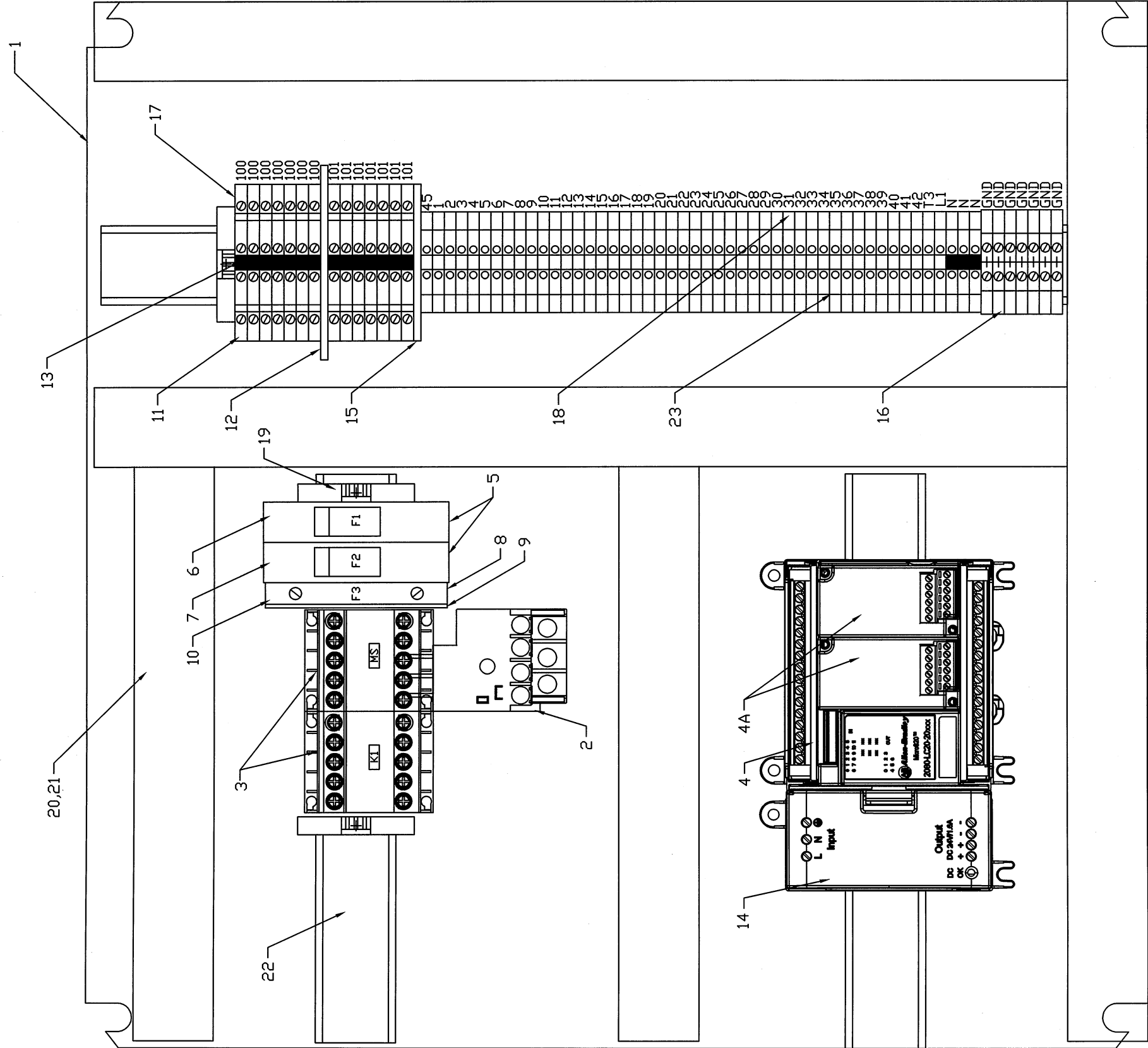
TITLE:ELECT. SCHEMATIC - SH. 5 OF 5	CF25 - 120/1/60 MICRO 820	SCALE: N/A	DATE:12/01/17
DWG. NO.ED3138S5	MATERIAL: N/A		

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY
100 TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100 WIRE CONNECTION ON ELECTRICAL COMPONENT.

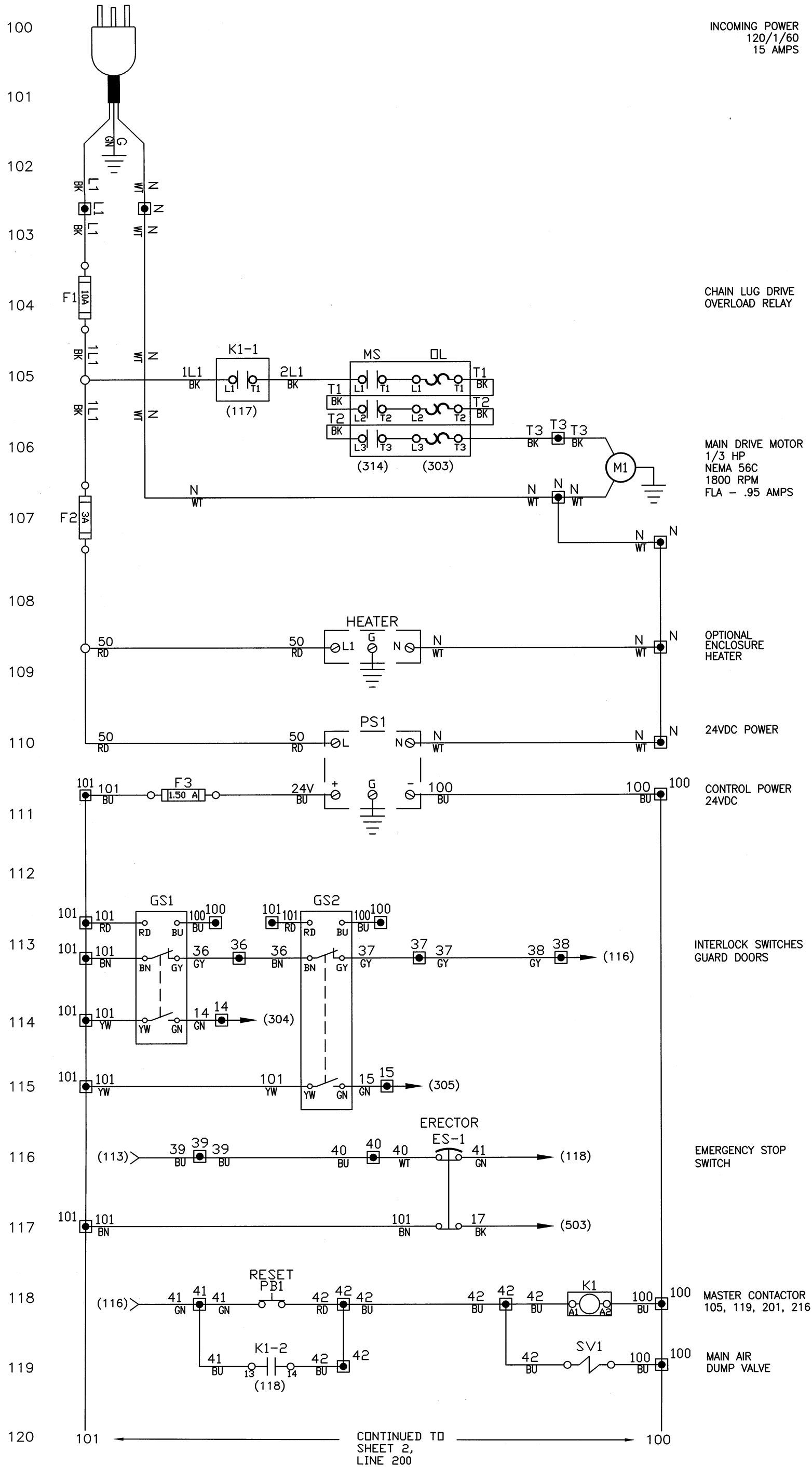
120 Volt, 60 Hz, Standard HMI Belt Drive Electrical Drawings

The drawings and schematics in this section represent the electrical layouts related specifically to standard, chain drive 120V rated machines.



KEY	PART NO.	DESCRIPTION
1	A100N-2020P-1	PANEL
2	LP05-AB-K-1.3	OVERLOAD RELAY
3	A106-AB-K-9-24V	CONTACTOR
4	A241AB-820-1	PLC
4A	A241AB-800-CM	INPUT / OUTPUT CARD
5	A125BH-AB-DIN-3	FUSE HOLDER
6	A125SB-10-R	FUSE, 10 AMP
7	A125SB-3-R	FUSE, 3 AMP
8	A125BH-AB-DIN	FUSE HOLDER
9	A128B-AB16	FUSE BLOCK BARRIER
10	A125SB-1.5-326	FUSE 1.50 AMP
11	A124-AB-JD3C	DOUBLE TERMINAL BLOCK
12	A128-AB-PPJD3	PARTITION PLATE
13	A124-AB-CJ-10	10 POLE CENTER JUMPER
14	A241AB-830-PS	POWER SUPPLY
15	A128-AB-EBJD3	END PARRIER PLATE
16	A124-AB-JG4	GROUND TERMINAL
17	A124-AB-MARK-DT	TERMINAL MARKER CARD
18	A124-AB-MARK-ST	TERMINAL MARKER CARD
19	A128-AB-ERL35	TERMINAL ANCHOR
20	A250-PAN-1X2N	WIREWAY
21	A250-PAN-1X2C	WIREWAY COVER
22	A209-AB-2	DIN RAIL
23	A124-AB-J3	SINGLE TERMINAL

TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.		
DECIMAL (3 PLC) +/- .005	TITLE: ELECTRICAL PANEL ASSEMBLY CF25SB 120/1/60 MICRO820 HMI		
FRACTIONAL +/- 1/64	DWG. NO. ED3219	SCALE: 1 : 2	DATE: 04/11/18
ANG. - 1/2°	MATERIAL: COMMERCIAL	DESIGNED: MENTA	DRAWN: WM
			APPRVD: --



INCOMING POWER
120/1/60
15 AMPS

CHAIN LUG DRIVE
OVERLOAD RELAY

MAIN DRIVE MOTOR
1/3 HP
NEMA 56C
1800 RPM
FLA - .95 AMPS

OPTIONAL
ENCLOSURE
HEATER

24VDC POWER

CONTROL POWER
24VDC

INTERLOCK SWITCHES
GUARD DOORS

EMERGENCY STOP
SWITCH

MASTER CONTACTOR
105, 119, 201, 216

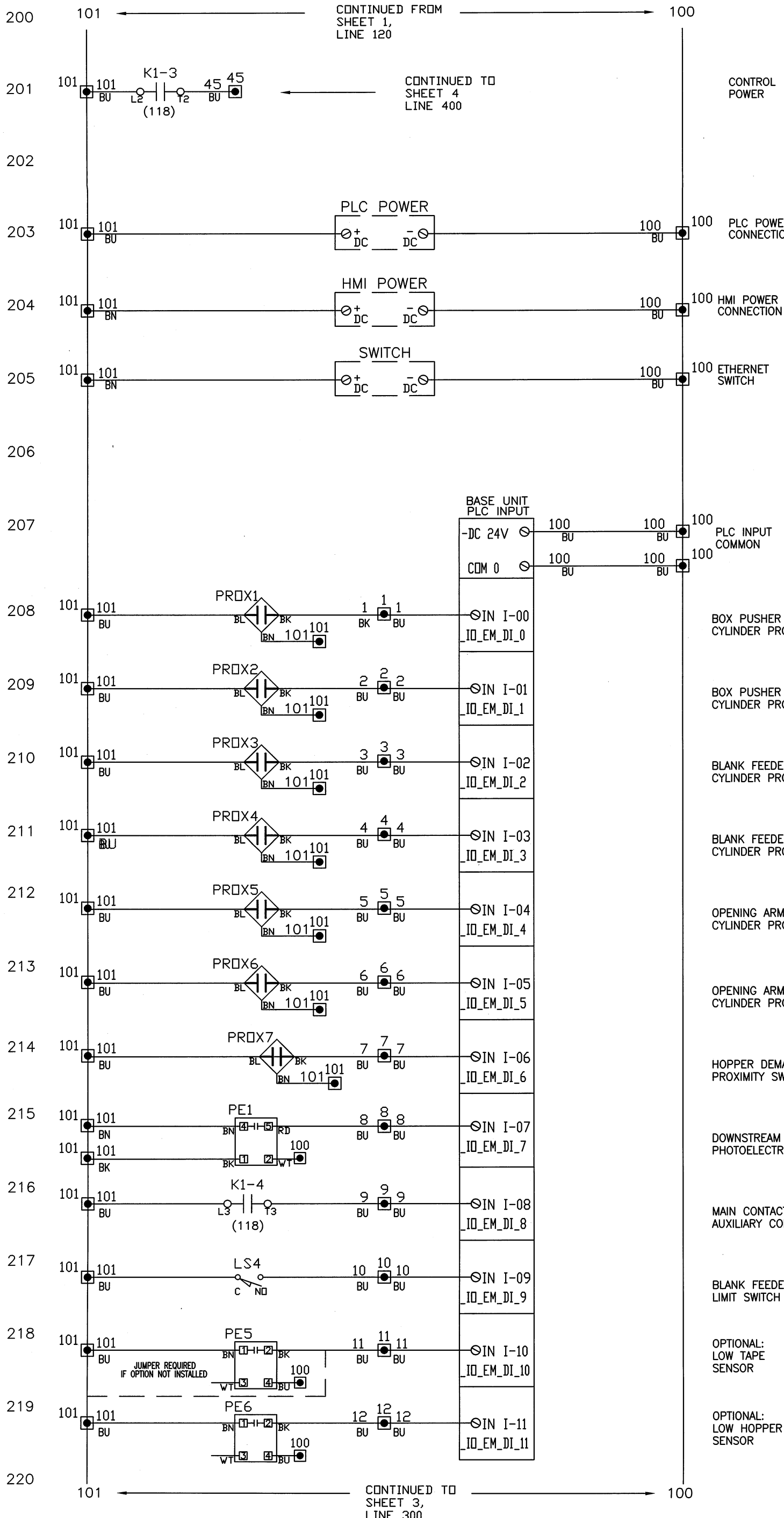
MAIN AIR
DUMP VALVE

CONTINUED TO
SHEET 2,
LINE 200

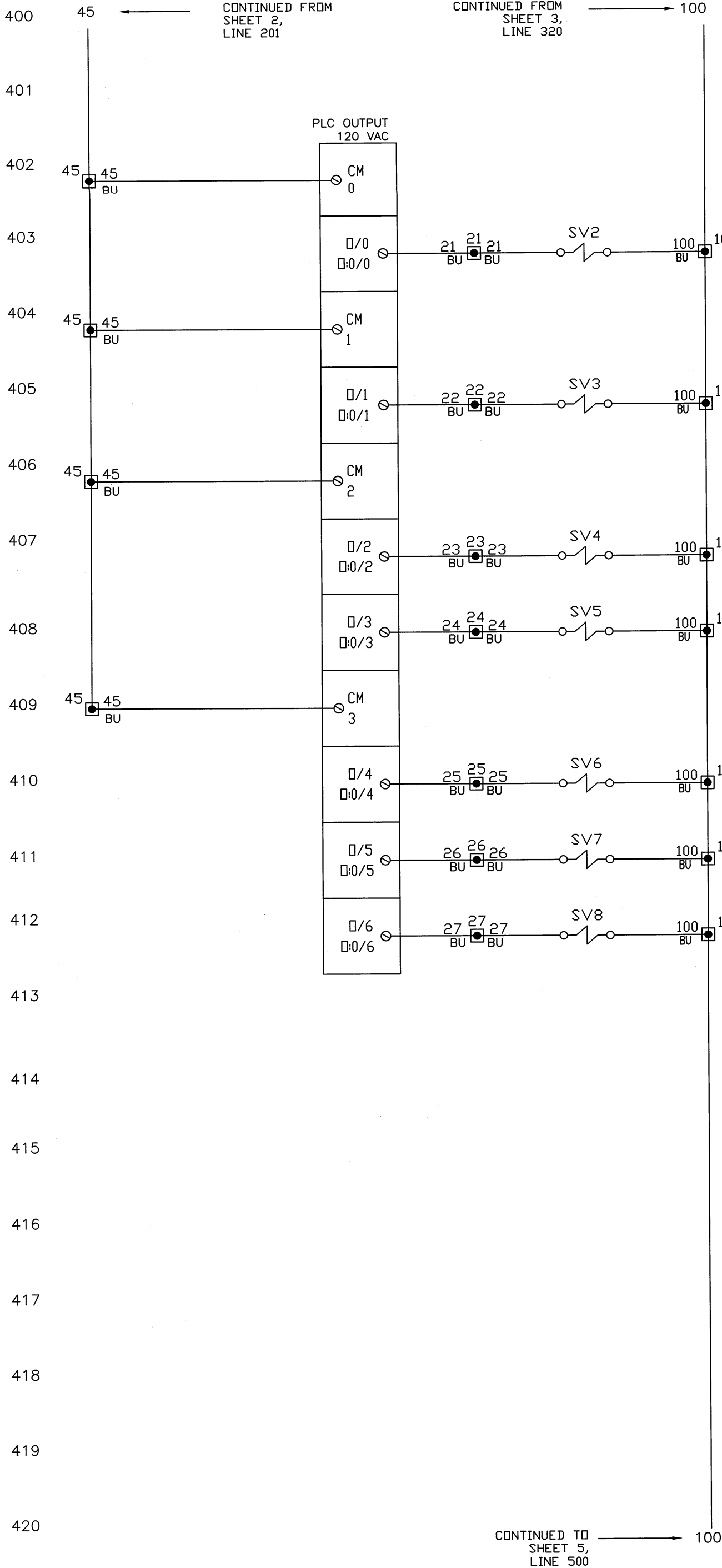
THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.			
TOLERANCES EXCEPT AS NOTED	TITLE: ELECT. SCHEMATIC - SH. 1 OF 5	DWG. NO. ED3220S1	SCALE: N/A
DECIMAL (3 PLC) +/- .005	CF25SB - 120/1/60 MICRO 820	MATERIAL: N/A	DATE: 04/11/18
FRACTIONAL +/- 1/64		DESIGNED: MENTA	DRAWN: WM
ANG. - 1/2°		APPRVD: --	

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY	
100	TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100	WIRE CONNECTION ON ELECTRICAL COMPONENT.



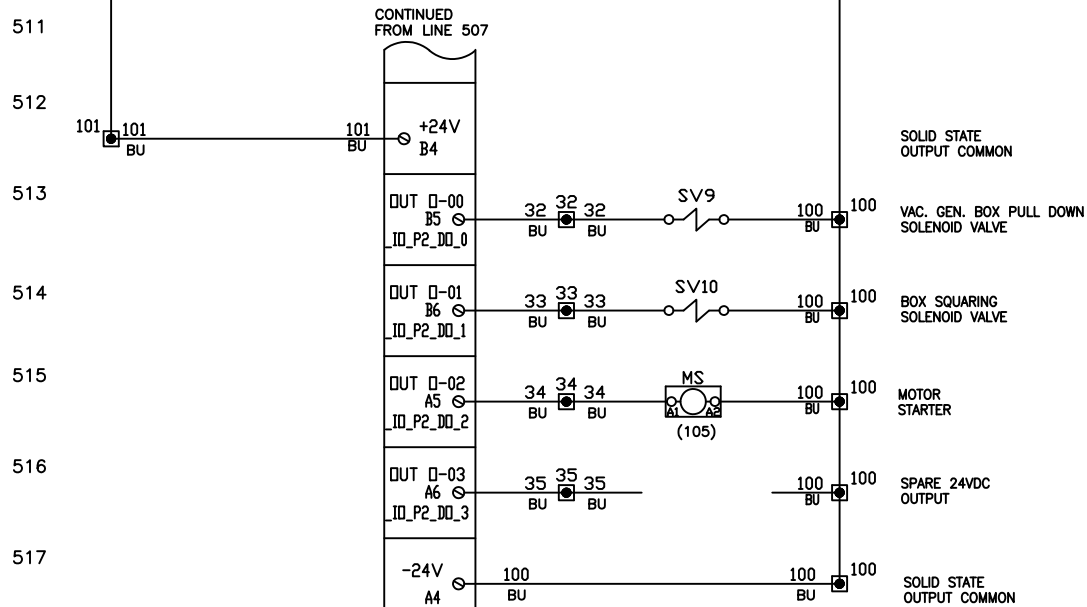
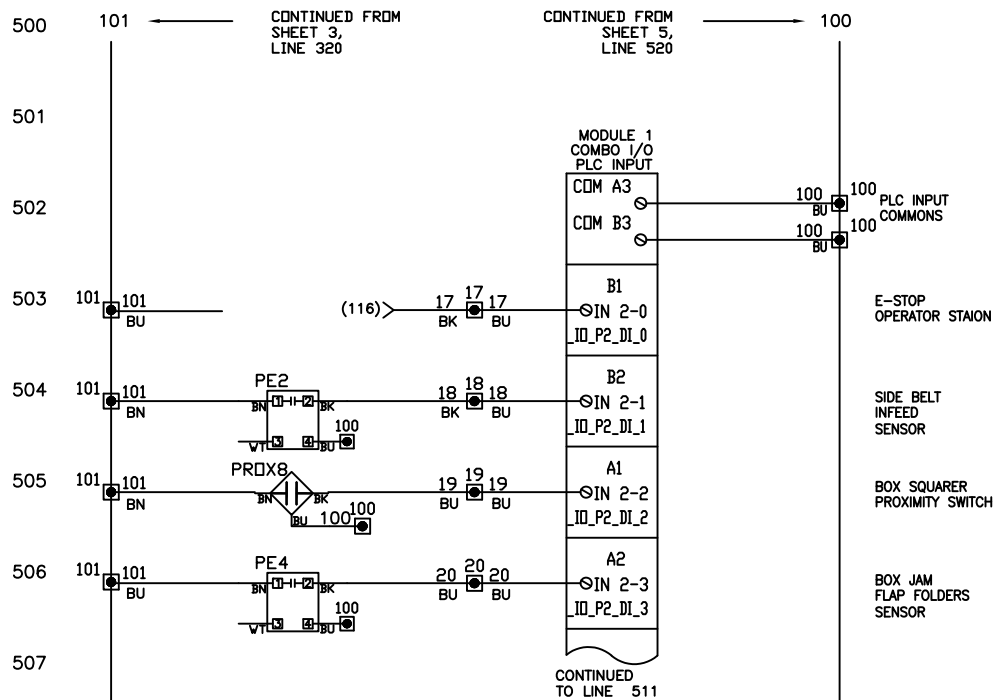
TOLERANCES EXCEPT AS NOTED		THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.	
DECIMAL (3 PLC) +/- .005	TITLE: ELECT. SCHEMATIC - SH. 2 OF 5 CF25SB - 120/1/60 MICRO 820		SCALE: N/A
FRACTIONAL +/- 1/64	DWG. NO. ED3220S2		DATE: 04/11/18
ANG. - 1/2°	DESIGNED: MENTA		APPRVD: --
		DRAWN: WM	



TOLERANCES EXCEPT AS NOTED	THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA.			
	DECIMAL (3 PLC) +/- .005	TITLE: ELECT. SCHEMATIC - SH. 4 OF 5		
	FRACTIONAL +/- 1/64	DWG. NO. ED3220S4	SCALE: N/A	DATE: 04/11/18
	ANG. - 1/2°	DESIGNED: MENTA	DRAWN: WM	APPRVD: ---

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY	
100	TERMINAL BLOCK LOCATED ON TERMINAL STRIP.
100	WIRE CONNECTION ON ELECTRICAL COMPONENT.



THE LOVESHAW CORPORATION			
RT 296, SOUTH CANAAN, PA.			
TOLERANCES EXCEPT AS NOTED	TITLE: ELECT. SCHEMATIC - SH. 5 OF 5	DWG. NO. ED3220S5	SCALE: N/A
DECIMAL (3 PLC) +/- .005	CF25SB - 120/1/60 MICRO 820	MATERIAL: N/A	DATE: 04/11/18
FRACTIONAL +/- 1/64		DESIGNED: MENTA	DRAWN: WM
ANG. - 1/2"		APPROVED: ---	

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN. 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

WIRE CONNECTION KEY

100 TERMINAL BLOCK LOCATED ON TERMINAL STRIP.

100 WIRE CONNECTION ON ELECTRICAL COMPONENT.

APPENDICES

Appendix A: Available Special Options

BOX JAM DETECTION SENSOR: P/N: A219-PF-13

LOW TAPE DETECTION SENSOR: P/N: 303527

LOW HOPPER DETECTION SENSOR: P/N: 302575

Appendix B: B-LOC Instructions

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Appendix C: Recommended Spare Parts List

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RECOMMENDED SPARE PARTS KIT FOR MODEL CF25

PART #	QTY	DESCRIPTION	NOTES
.REPKIT-CAC60	1	.CAC60 REPAIR KIT	2" TAPE
.REPKIT-CAC61	1	.CAC61 REPAIR KIT	3" TAPE
N401-329	1	CYLINDER, BOX TRANSFER	
N400-220	1	FLOW CONTROL, 1/4 NPT X 3/8 TUBE	
SHK-007	1	SHOCK ABSORBER	
SHK-007-N	1	JAM NUT	
N401-298	1	CYLINDER, FLAP FOLDER	
SPH-1460	1	ROD END BEARING	
N400-183	1	FLOW CONTROL, 1/8 NPT X 1/4 TUBE	
SPR-1065L	1	TORSION SPRING, HOPPER	
SPR-1065R	1	TORSION SPRING, HOPPER	
N591	1	FLOW CONTROL, 1/4 NPT X 1/4 TUBE	
.VC-1001	4	VACUUM CUP WITH NIPPLE	
HC-1046	1	KNURLED KNOB	
SPR-1059	2	EXTENSION SPRING	
HC-1045	1	RATCHET HANDLE	
N401-362	1	CYLINDER, VERTICAL FEEDER	STANDARD (10 CPM)
N401-363	1	CYLINDER, VERTICAL FEEDER	HIGH SPEED (>10 CPM)
N402-133	2	SOL VAVLE	
N402-142	1	AIR PILOTED VALVE	
N669	1	AIR FILTER AIR	
A125SB-10-R	1	FUSE	
A125SB-3-R	1	FUSE	
A125SB-2/10-312	1	FUSE	

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