
Equipment Manual

Multipurpose Slicer

Model: 613-VS2-LES

Serial No: 1165423, consists of 1158300 slicer & 1176583 Auto Load Assy



PRECISION SLICING AND APPLICATION SYSTEMS



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Declaration of Compliance with
FDA Code of Federal Regulations Title 21
Part 110.40
Subpart C--Equipment

Machine:613-VS2-LES
Serial Number: 1165423
Manufacture Date: June 24, 2016

The machine listed above has been designed, manufactured and assembled using components that are in compliance with 21 CFR 110.40, which states:

"All plant equipment and utensils shall be so designed and of such material and workmanship as to be adequately cleanable, and shall be properly maintained. The design, construction, and use of equipment and utensils shall preclude the adulteration of food with lubricants, fuel, metal fragments, contaminated water, or any other contaminants. All equipment should be so installed and maintained as to facilitate the cleaning of the equipment and of all adjacent spaces. Food-contact surfaces shall be corrosion-resistant when in contact with food. They shall be made of nontoxic materials and designed to withstand the environment of their intended use and the action of food, and, if applicable, cleaning compounds and sanitizing agents. Food-contact surfaces shall be maintained to protect food from being contaminated by any source, including unlawful indirect food additives."

Mark Brick

A handwritten signature in blue ink that reads "Mark Brick". The signature is fluid and cursive, with a long horizontal stroke at the end.

Product / Compliance Engineer

Grote Equipment Manual



Log End Slicer Model 613-VS2-LES

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INTRODUCTION

Congratulations on the purchase of your new equipment. This manual will step you through setup, installation, operation and sanitation. Basic maintenance and troubleshooting will also be detailed. Read this manual completely before installation and operation.

GENERAL SAFETY PRECAUTIONS

Safety is very important. Safety messages and symbols are included in this manual and on your unit.



Always read and obey all safety messages. These messages are not meant to cover all possible situations that may occur. Common sense, caution and care must be exercised when installing, maintaining or operating this unit.

This is the safety alert symbol. This symbol alerts you to hazards that can kill or injure you or others. This symbol may be paired with other symbols and explanation to assist you.

⚠ DANGER

Failure to follow safety warnings and instructions **WILL** result in death or serious injury.

⚠ WARNING

Failure to follow safety warnings and instructions **COULD** result in death or serious injury.

⚠ CAUTION

Failure to follow safety warnings and instructions could result in moderate injury.

NOTICE

Failure to follow instructions could result in damage to your equipment.

NOTE

Pay particular attention to the information provided.

1. 613-VS2 MULTISLICER**SLICING FEATURES**

- Pendulum action / band-blade cutting principle
- 1 lane operation: nominal maximum product size
6" (152mm) stroke x 6" (330mm) width
- Maximum product height varies with product holder
stroke dimension - nominal values:
 - 6" (152mm) stroke: 2.5" (63mm)
maximum product height
 - 4" (101mm) stroke: 2.25" (57mm)
maximum product height
 - 2.5" (63mm) stroke: 1.8" (45mm)
maximum product height

- Carry-out conveyor, Cleatrac type

CONTROLS AND ELECTRICAL

- Bulk-slice, stack and shingle controls
- Log end height sensing/ejection system
- Variable speed 37-90 strokes per minute

2. AUTOLOADING SYSTEM, FEED CONVEYOR

- Auto load conveyor – dual stage, strip belt design (13" nominal width)
- Pivot nose assembly for ease of cleaning & sanitation
- Adjustable product loading guides for feed alignment into slice chamber
- Four swivel locking casters – detachable from slicing unit
- Powered by slicing unit – no dedicated power source required
- Stainless steel TENV AC gear motors

SETUP

The following figures show the various parts of the Model 613-VS2 Multi-Slicer and 613-VS2-LES. Refer to them and other detailed illustrations as you read the manual.

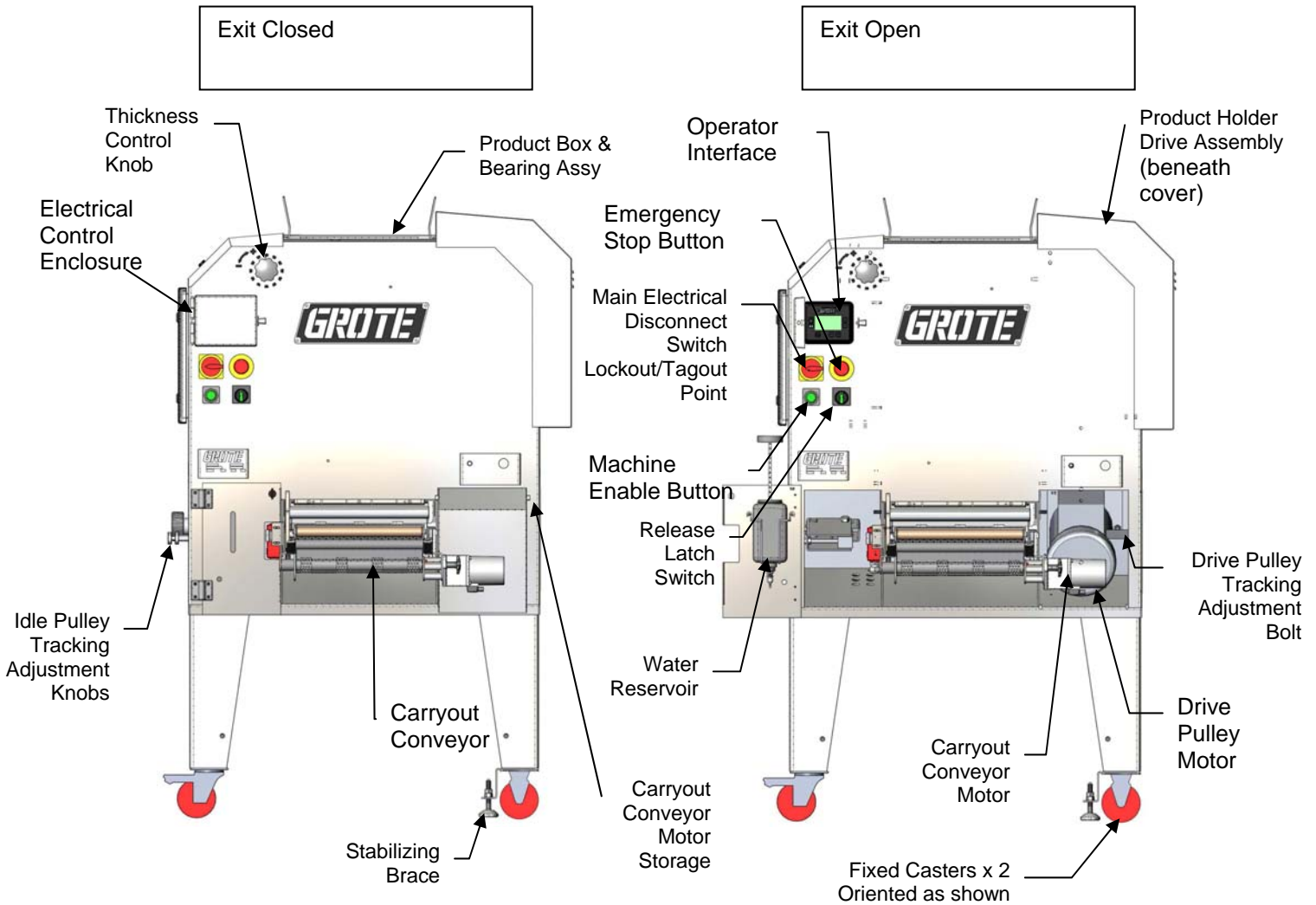


Figure 1. Exit View of the Model 613-VS2 Multi-Slicer

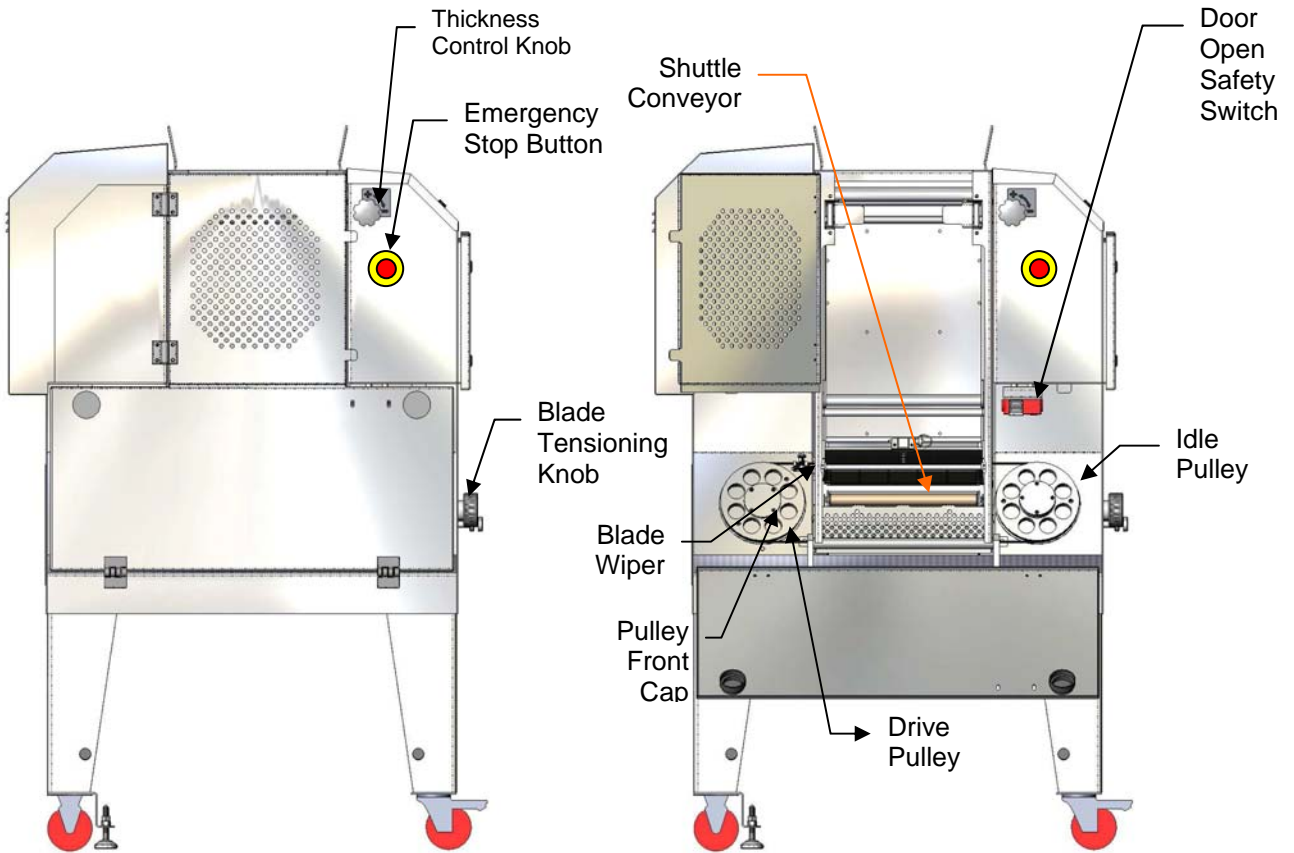


Figure 2. Entrance View of the Model 613-VS2 Multi-Slicer

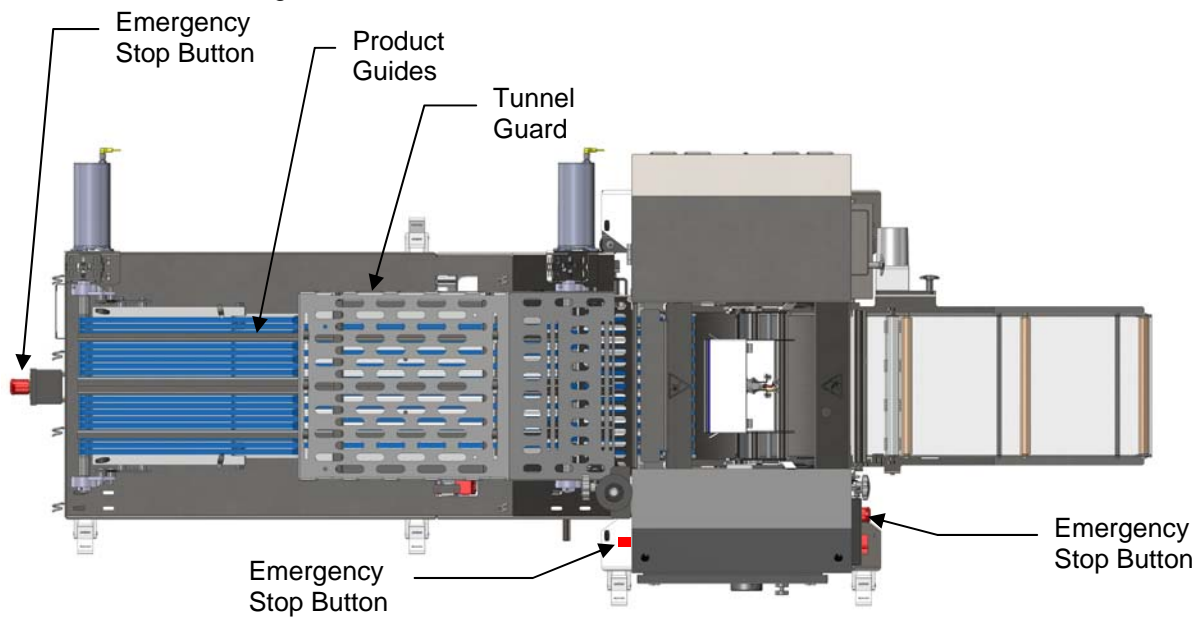


Figure 3. 613-VS2-LES Top view with Tunnel Guard Closed

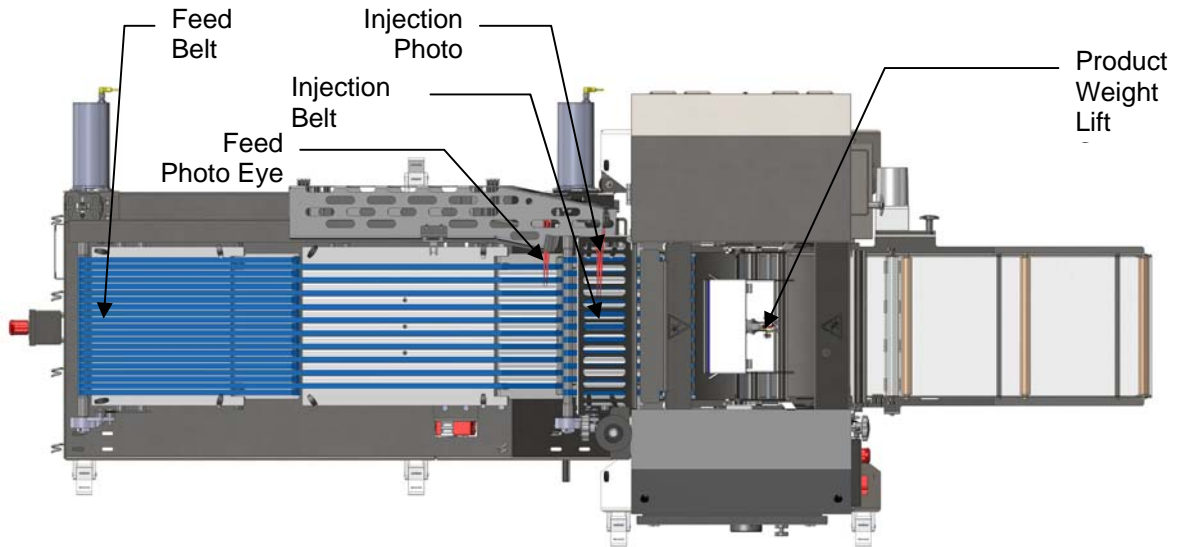


Figure 4: Top view with Tunnel Guard Opened

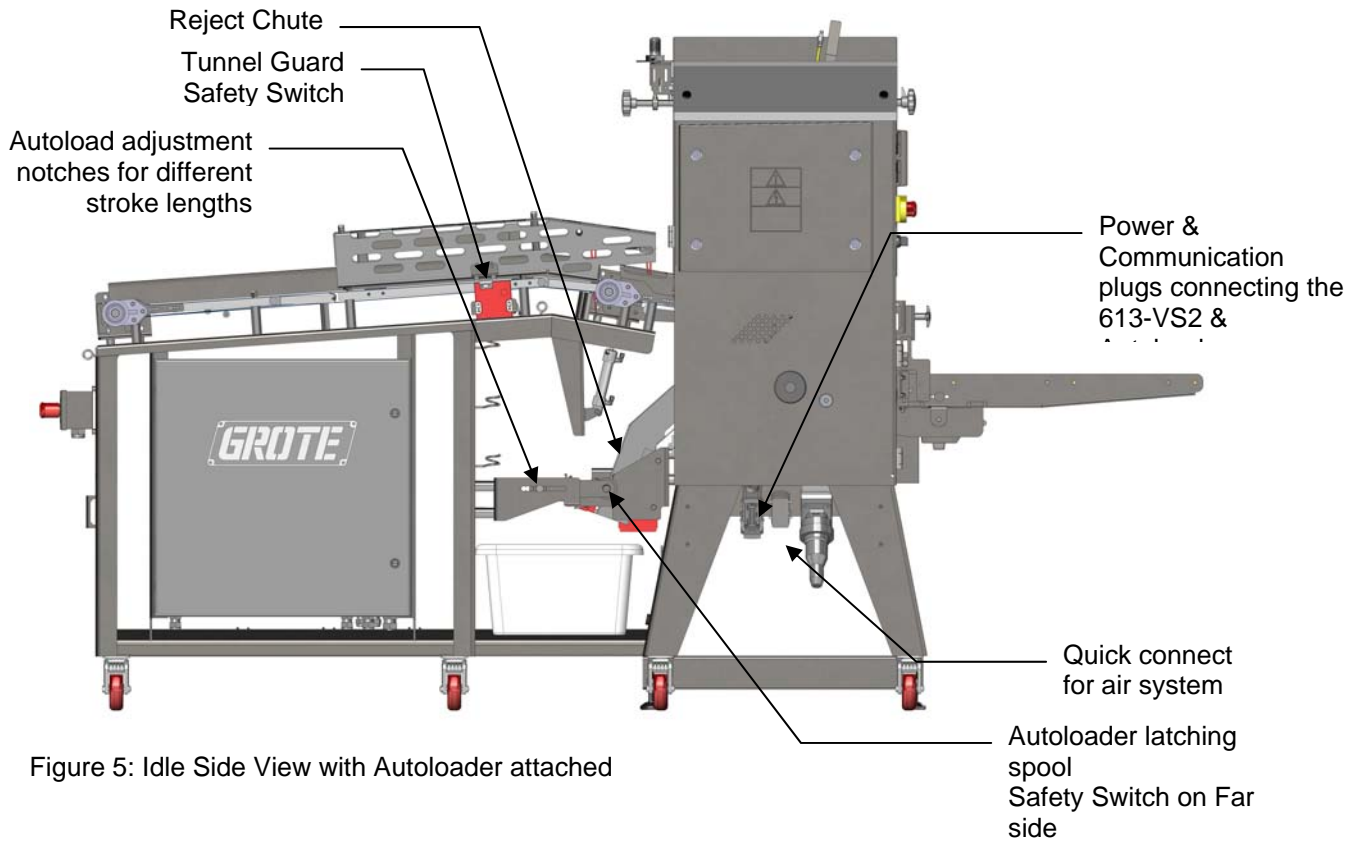



Figure 5: Idle Side View with Autoloader attached

UNPACKING PROCEDURE

1. Inspect the slicer and autoloader for signs of concealed damage such as dents, cracks, and loose or missing parts. Contact Grote Co. if you detect any damage.
2. Remove the shipping hardware from the machine
3. Remove all tape and cardboard from the slicer
4. Carefully remove the slicer from the pallet and attach the casters to the legs. Also attach the Stabilizing Brace to the two legs under the product drive.
5.  **WARNING** The two fixed casters are both placed under the stabilizing bar in the orientation shown in figure 1.
6. Verify that the autoloader system can be inserted into the 613-VS2. Variations in production floors may result in the need to adjust the equipment. Contact Grote Technical Services for advice.

LOCATING AND POSITIONING THE SLICER

The Multi-Slicer has casters for easy removal to a different location or cleaning station. After it is in position, lock the casters for safe operation.

Provide adequate space in the production room for safe slicer operation. Slicers in a permanent location and not moved for cleaning need enough space for normal operation, cleaning, band blade installation and removal, and routine maintenance.

Consider the following items when locating the Multi-Slicer:

1. Production - The production flow process of product to and from the slicer.
2. Sanitation - Method of cleaning the slicer and location of the sanitation facilities.
3. Electrical Power - Location of electrical power of the correct voltage and phase for the slicer.

ELECTRICAL INSTALLATION

NOTICE

A qualified electrician must perform the electrical installation of the Multi-Slicer. See Drawings section for an Electrical Schematic.

Grote manufactures Multi-Slicers to operate from specified voltages. Check the electrical specification plate to determine your machine voltage. The plate is stamped with the slicer voltage/phase/ampere requirements. If the slicer must operate from a different voltage supply, contact a Grote service rep.

Provide an appropriate electrical power supply that matches the voltage of the slicer and has an ampere rating equal to or higher than that specified on the slicer. Size extension cords for the current drawn by the slicer. Wire the appropriate connecting plug onto the end of the slicer pigtail, and provide a proper outlet and grounded connection to the Multi-Slicer. Inspect all connections and plug into the electrical supply.

ELECTRICAL CONNECTION TEST

A quick and simple test verifies proper pigtail wiring and electrical supply. Slicers equipped for 3-phase power contain a control unit that prevents slicer operation if the pigtail is incorrectly wired. The 3-phase wiring connections directly control slicer motor rotation and the motors must rotate in the correct direction.

NOTICE

This test confirms correct electrical connections to the slicer and is not intended as an operating guide. Read the Operation section before operating the slicer beyond this test procedure.

1. Clear carryout, feed & injection conveyor of any objects placed on them.
2. Verify the conveyor motor engages the conveyor drive pulley.
3. Latch in the Autoloader to the 613-VS2
4. Pull out the EMERGENCY STOP button.
5. Check the lockout/tagout switch to determine if it is in the open (power on) setting. Close all doors and guards. The slicer will not operate with open doors or guards.
6. Set the Release Latch Switch to LATCH.
7. Adjust CONVEYOR INDEX SPEED to 10 FPM.
8. Select CONVEYOR ONLY mode.
9. Press MACHINE ENABLE.
10. Press START. The conveyor belt should run, which indicates correct electrical installation.
11. Press STOP. The test is complete.

Single-phase voltage connections: If the test fails, recheck the electrical connections and voltage supply. If the test is successful, electrical installation is complete.

Three-phase voltage connections: If the test fails, unplug the slicer and rewire the plug by switching the connections of any two of the three leg wires. Repeat the test.

BAND BLADE INSTALLATION

The band blade is a razor sharp, 1/2 inch wide flat blade that runs around two pulleys. Clean and sanitize a new blade before use to remove a coating of corrosion preventative. Verify Blade Guide is clean.

CAUTION

Band blades are very sharp--use care when handling and wear recommended cut-resistant safety gloves.

1. Move the idle pulley toward the middle of the slicer to allow room for the band blade to wrap around both pulleys. To do this, loosen the Blade Tensioning Knob on the side of the machine. Turn it counterclockwise six to eight revolutions. Push on the knob to move the pulley toward the center of the machine. Repeat this procedure as required until the pulley bottoms out.
2. Verify the tapered bevel of the band blade cutting edge is on the outside of the blade. If not, twist the blade inside out. Install the blade with the non-cutting edge toward the back rim of the pulley.
3. Release and flip back the top portion of the blade wiper so the blade can pass over the two outside portions of the blade wiper and under the center portion.
4. Wrap the blade around one pulley at a time making sure the blade passes through the Blade Wiper and behind the lower blade guard.

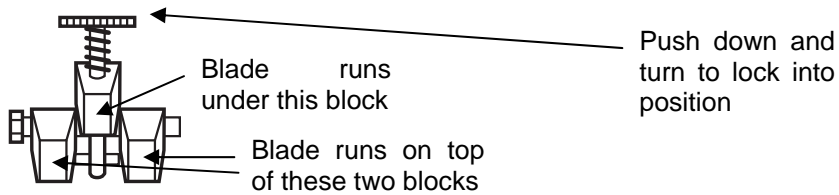


Figure 6. Blade Wiper

5. Begin to tighten the band blade by pulling out on the blade tensioning knob and turning it clockwise until a slight resistance is felt on the spring cage. The blade should be fairly taut at this time. The knob has an internal spring to maintain proper tension when the slicer is in operation. Start at one end of the Blade Guide, pull on the blade and position it into the Blade Guide slot. Repeat at the other end of the Blade Guide and the middle section until the blade seats in the entire length of the slot. Tension blade by tightening the Blade Tension Knob until the rod in the center of the knob is flush with the face of the knob.

NOTICE

Do not over tighten the band blade.

6. Inspect blade travel from pulley to pulley through the Blade Guide. It should travel in a straight line through the Blade Guide slot, lightly touching the top of the slot. *The blade should NOT touch the bottom of the Blade Guide slot.*
7. Clamp Blade Wiper together: Flip top portion down over blade, lift up bottom portion of wiper, then push down on wiper knob and rotate it one-quarter turn.
8. The band blade must seat smoothly into Blade Guide slot. The Blade Guide is factory set to properly position the blade in its slot and seldom needs readjustment. However, when it does need adjustment, see Blade Guide Adjustment.

BLADE TRACKING

Blade tracking is the alignment of the band blade as it runs over the blade pulleys. Each new blade installation requires tracking adjustment to ensure that the blade tracks accurately along the back lip of both pulleys. Observe tracking by hand-rotating the blade counterclockwise as you face the pulleys. The blade should lightly touch the back lip of the pulleys and seat into the Blade Guide slot. Adjust the blade if it is misaligned (see Idle Side Tracking and Drive Side Tracking).

Idle Side Tracking

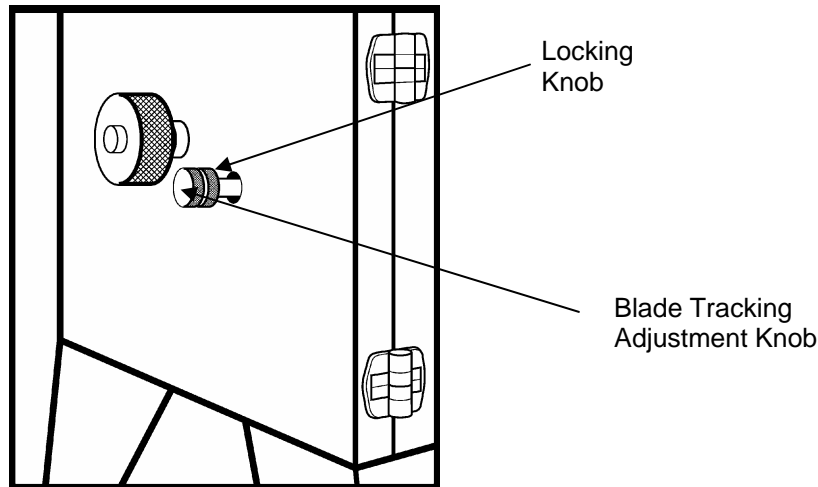


Figure 7 Idle Side Blade Tracking

To track the blade on the Idle Pulley, move the idle pulley with the Tracking Adjustment Knobs on the side of the machine.

The Blade Tracking Adjustment Knob adjusts the pulley and the Locking Knob locks it in place. Rotate the Blade Tracking Adjustment Knob clockwise to track the blade toward the back of the pulley. Rotate the Blade Tracking Adjustment Knob counter-clockwise to track the blade toward the front of the pulley.

Loosen the Locking Knob and manually turn the Idle Pulley while watching the blade movement over the pulley. Turn the Blade Tracking Adjustment Knob until the blade barely touches the back lip of the pulley. Avoid too much pressure against the back lip; it excessively wears the pulleys. Lock the knob in place after completing the adjustment.

Drive Side Tracking

Drive side tracking is set correctly at the factory and should not need reset. However, if the drive motor has been off the slicer or if blade pulleys wear significantly, it may be necessary to reset tracking. Use the procedure below to set drive side tracking.

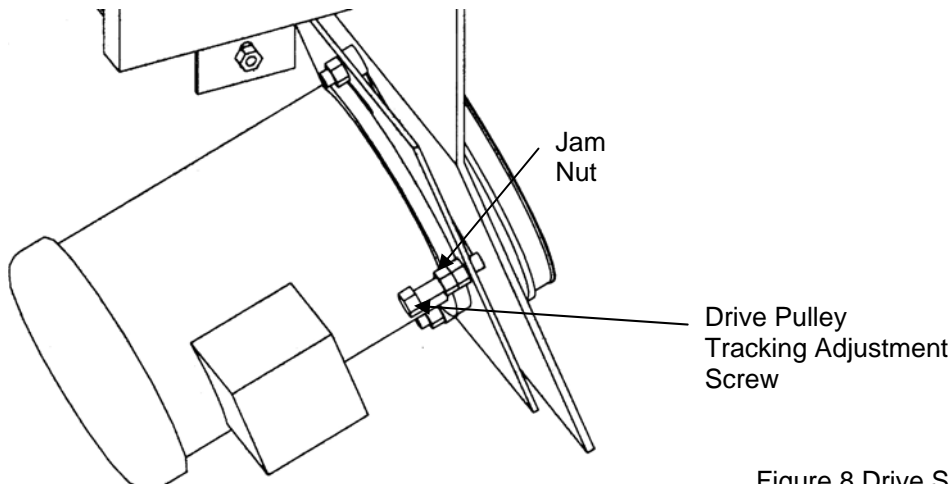


Figure 8 Drive Side Tracking

1. Remove Blade Guide.
2. Install a band blade.
3. Perform idle side tracking.
4. Remove drive motor covers.
5. Loosen the jam nut on the Drive Tracking Adjustment Bolt.
6. Manually rotate the blade and drive pulley and observe the blade position on the drive pulley. View the blade through the holes in the side of the machine. It should just lightly touch the back lip of the pulley as the pulley rotates.
7. Tighten the adjustment bolt clockwise to move the blade toward the back lip of the pulley. Loosen the adjustment bolt counter-clockwise to move the blade toward the front of the pulley. When the blade lightly touches the back lip, tighten the jam nut.
8. Re-check idle side tracking. It may be necessary to go back and forth a few times between idle side and drive side tracking to ensure both sides track correctly.
9. Remove band blade and reinstall Blade Guide.

BLADE GUIDE ADJUSTMENT

The Blade Guide Support Blocks hold the Blade Guide and Back Tray securely in place with thumbscrews. The Support Blocks have two sets of adjustment bolts.

NOTICE

The Height Adjustment Bolts adjust the Blade Guide vertically. DO NOT change the adjustment of these bolts. Blade Guide height is factory set with special tools, and should need no adjustment for the life of the slicer. Altering Blade Guide height without appropriate tools may adversely affect slice quality and the life of both the blade and Blade Guide.

The X-Gap Adjustment Bolts adjust the Blade Guide forward or backward. During normal operation, the X-Gap changes automatically with the slice thickness, but a worn Blade Guide may require manual X-Gap adjustment.

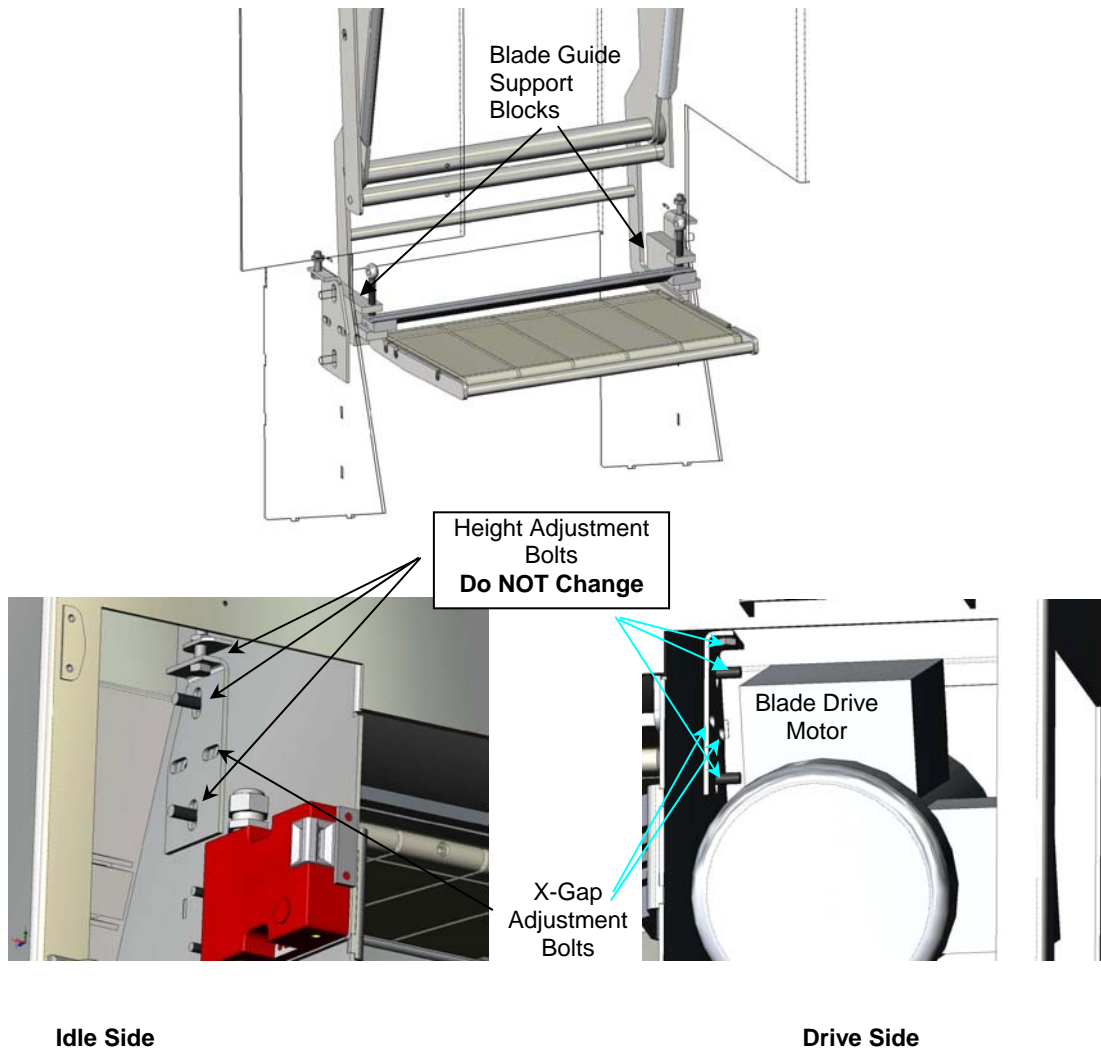


Figure 9 Blade Guide Support Block Adjustment Bolts

The back of the blade should clear the back of the Blade Guide slot by between .001 and .010 inch. However, over time, the blade wears down the back of the Blade Guide slot, and may increase the clearance by as much as .02 or .03 inch. This increase may adversely affect slice quality, particularly with thinner slices, and the life of both the blade and Blade Guide. To decrease the clearance, manually adjust the X-Gap using the procedure below.

1. Install a band blade. Verify proper blade tracking. See *Blade Tracking*.
2. Rotate the band blade pulley until the welded joint of the blade is between the pulleys in the lower part of the machine.
3. Inspect blade travel from pulley to pulley through the Blade Guide. It should travel in a straight line through the Blade Guide slot, lightly touching the top of the slot. *The blade should NOT touch the bottom of the Blade Guide slot.*

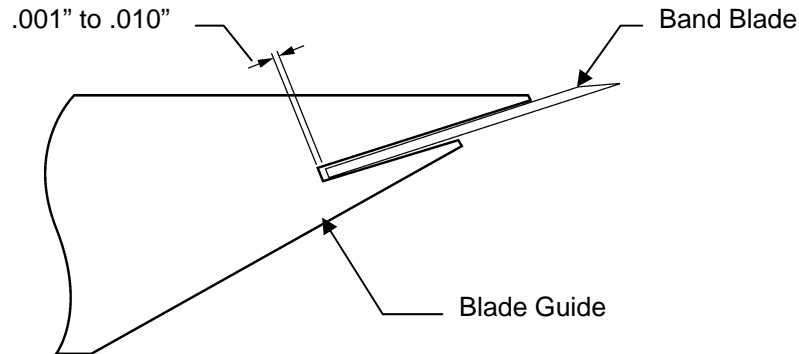


Figure 10 Band Blade Installation

4. Check for a clearance of .001 and .010 inch between the back of the blade and the bottom of the Blade Guide slot. It is properly adjusted if it just noticeably moves backward under pressure.
5. Each end of the Blade Guide is attached to the machine with a Support Block. Each of these blocks is held to the machine with four adjustment bolts. Slightly loosen the X-Gap Adjustment Bolts, *retaining some force with the lock washers*.
6. Use a small hammer to tap the Blade Guide Support Blocks forward to decrease the clearance between the back of the blade and the back of the Blade Guide slot. The blade must run freely through the Blade Guide slot, lightly touching the top of the slot. *The band blade should NOT touch the bottom of the Blade Guide slot*
7. Tighten the X-Gap Adjustment Bolts.

PRODUCT HOLDERS

Product holders hold the product as it moves over the band blade. The fit of the product in the holder is extremely important for good slice quality. It must fit freely in the holder but be contained as closely as possible. Generally, the inside dimension of the product holder should provide a 1/16 inch clear space on the sides in the stroke direction and 3/16" on the sides in the direction of blade travel. These guide lines are specific to the 613-VS2-LES.

Standard product holders are three-part assemblies with inside and outside product holders and a product weight. First, hang the inside product holder section on the top and bottom product holder mounting rods in the product box. Verify the section fully seats on the bottom mounting rod. Secondly, attach the product weight to the clevis of the lift cylinder. Verify that the weight is not hanging below the bottom of the inside product holder. It will typically be flush or 1/16" above the bottom lip. Next, place the outside product holder section over the inside product holder section and hang it on the product box mounting rods. Clamp the product holders in place by moving the clamping arms back and pinning them in place. Use the provided clamp collars to lock the product holder assembly centered over the low-product and weight up sensors. Connect the airlines for the lift cylinder.

Typically, the inside product holder will be placed centered relative to the weight sensors as shown in the figure below.

NOTICE

Always insure there is ~5/8" to ~1/4" space between the cluster and the tip of the injection conveyor. Failure to do so will result in the equipment being damaged!

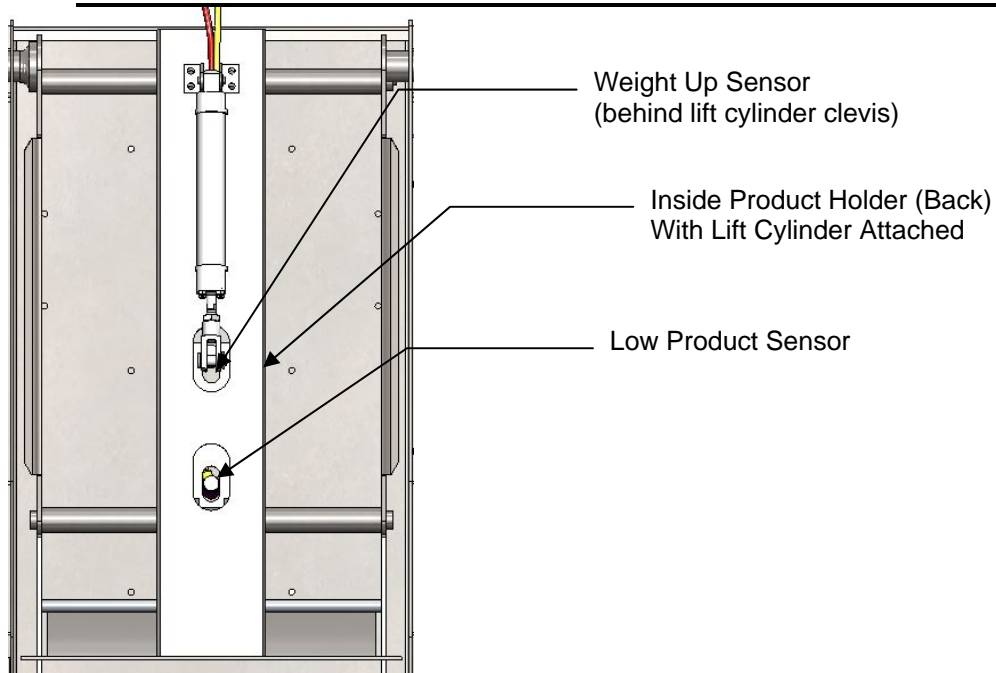


Figure 11. Inside (back) product holder installed

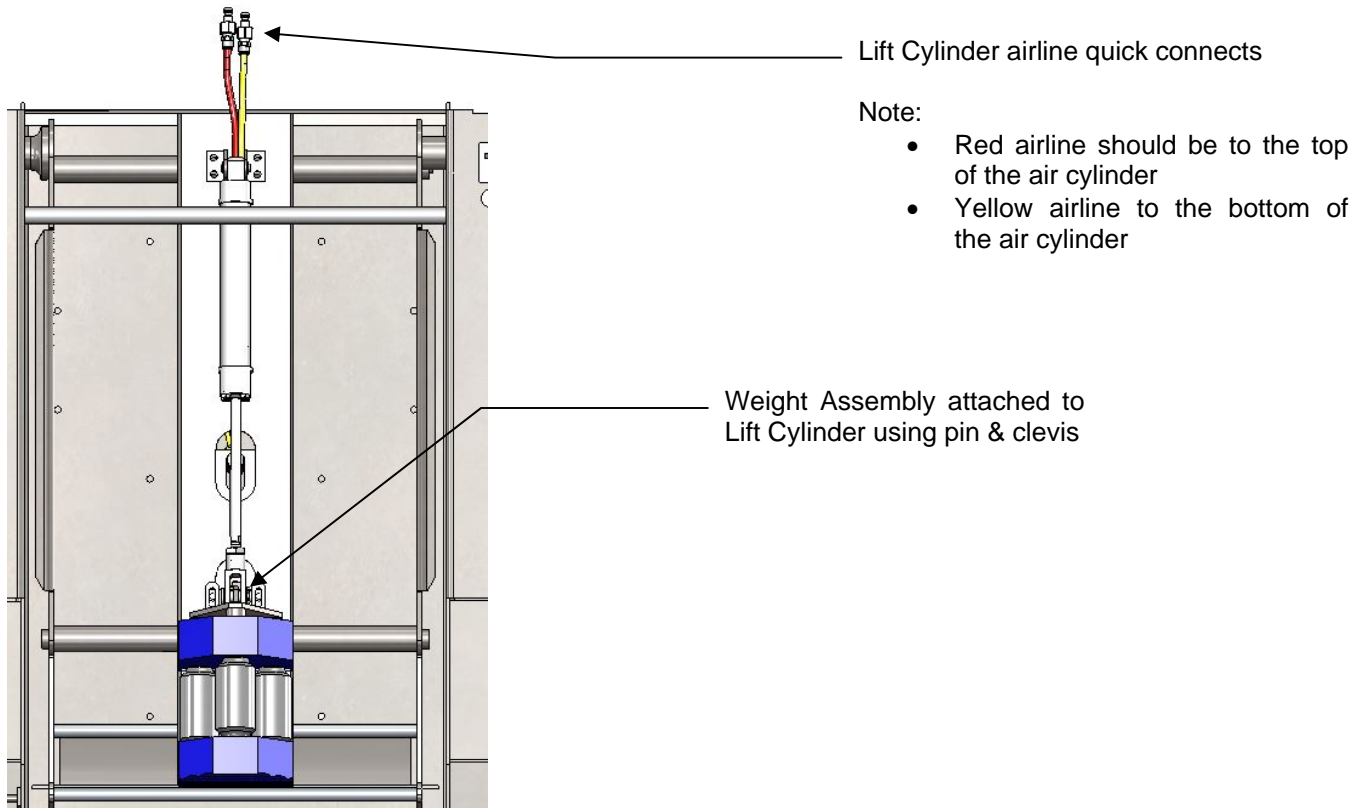


Figure 12. Inside (back) product holder with weight installed

Detailed Product Holder Installation

1. Ensure product holder clamp weldment is in the unlocked position towards the entrance side of machine.
2. Lower product holder through the opening in the top of the machine. If the product holder is a two-piece design, install the product holder “back” section first.
3. Hook product holder on the two mount shafts of the product box weldment. Adjust the product holder from side to side by sliding it on the mount shafts. Ensure that both upper and lower hooks are located on the mount shafts.
4. Attach the weight assembly to the lift cylinder clevis using the pull pin.
5. Install the outer (front) product holder on the mounting shafts
6. Set the two-piece shaft collars set product holder location. This will prevent the product holder for shifting side to side, which result in misalignment between the product guides on the feed conveyor and the product holder. Jams will occur if the product is not loaded correctly into the product holder
7. Lock product holder clamp arms. Pull towards the exit side of the machine and place the holes in the arms over the weld pins on the product box weldment.
8. Upon installation of a new product holder, follow the dry stroke procedure to ensure proper product holder clearance throughout the stroke.

Dry Stroke Procedure

Follow this procedure to check product holder height clearance:

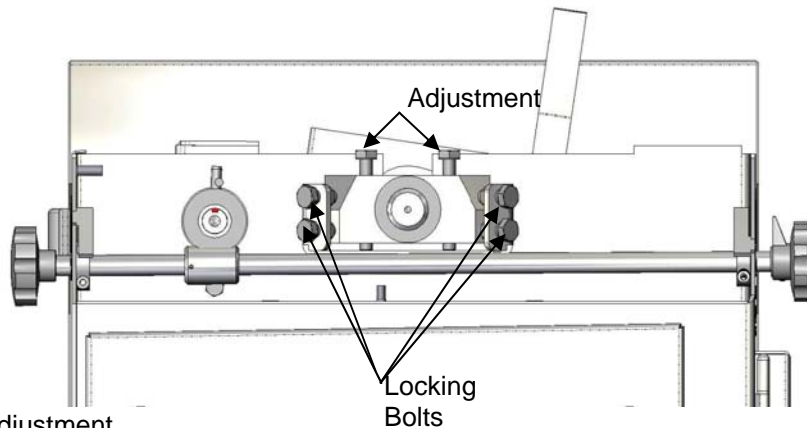
1. Set Lockout/Tagout switch to the closed (power off) setting.

2. With only the back product holder and weight assembly installed, adjust the height of the weight assembly using the threaded connection between the lift cylinder and its clevis. The weight assembly should come even with the back product holder. Install the front product holder and verify that the weight assembly is nearly flush or just above flush along the entire product holder. If not, adjust by screwing the cylinder rod into or out of the clevis holding the weight.
3. Remove Product Drive cover.
4. Remove the three screws securing the Product Drive motor fan cover and remove the cover.
5. Disengage clutch by depressing the actuator arm.
6. Spin Cluster Drive motor fan in a CLOCKWISE direction as viewed from the back of the Cluster Drive motor.

NOTICE

DO NOT SPIN CLUSTER DRIVE MOTOR FAN COUNTER-CLOCKWISE. IT WILL SERIOUSLY DAMAGE THE CLUTCH.

Product Holder Height Adjustment



NOTE: Similar adjustment assembly located on the opposite side of the Product Holder Box.

Figure 13. Product Holder Height Adjustment

Adjust the product holder so it is level and 1/16 inch above the Blade Guide. Check this adjustment after adjusting the Blade Guide.

NOTICE

Never allow the product holder or weight assembly to touch the blade. Damage will occur. Follow the procedure below to adjust product holder height.

1. Loosen the Locking Bolts located on the angled flange of the adjustment bracket.
2. Turn the Adjustment Bolt to raise or lower the product holder.
3. Repeat the above procedure on both sides of the product holder.
4. Adjust the height so that the product holder is level and 1/16 inch above the Blade Guide.
5. Tighten the Locking Bolts on both sides.
6. To check product holder height, perform the dry stroke procedure.

THICKNESS TRAY ADJUSTMENT

The Thickness Tray is a curved tray mounted to a frame that adjusts both horizontally and vertically to set product slice thickness and quality. Remove product holders from the machine when installing the Thickness Tray. To lift the frame and tray into the machine, slide the slots in the bottom of the frame over the bottom shaft in the machine, then hang the frame on the shaft at the top of the machine. The shuttle actuator arm should be removed from the thickness tray when it is either installed or removed from the slicer.

NOTICE

Position the pawl correctly or damage to the slicer may occur when it starts.

The factory sets the Thickness Tray level and parallel with the Blade Guide. The Thickness Tray must be level with the Blade Guide so there is no change in thickness from one side of the tray to the other. It must be parallel to the Blade Guide so there is no change in the gap between the Thickness Tray and Blade Guide from one side of the tray to the other. If these adjustments are not correct, slice thickness may vary across the span of the Blade Guide. To adjust the Thickness Tray:

1. Remove the band blade.
2. Loosen the bolts (two on each side) holding the Thickness Tray to the Thickness Tray frame and adjust the tray down to its lowest position in the frame.
3. Turn the slice thickness control adjustment knob clockwise until the stop pin on the gear contacts the pin welded to the frame of the machine. You will need to remove the upper guard on the idle side to do this.
4. Place the Thickness Tray assembly on the machine.
5. Install one product holder in the center of the product box.
6. Turn the slice thickness control knob approximately 1½ turns counterclockwise.
7. Adjust the Thickness Tray so the horizontal distance between the edge of the Blade Guide and the Thickness Tray is 0.220 inch (or equivalently 0.100 inch between the Blade Tip and the Thickness Tray) and parallel along the length of the guide. This factory setting is good for most products. Individual products that have certain characteristics may require this number to be modified. Please contact Grote service if assistance is needed.
8. Adjust Thickness Tray so it is vertically level with the Blade Guide along the length of the guide.
9. Finally, adjust back of tray to a 1/8 inch gap between the tray and the bottom of the product holder.
10. Tighten all four Thickness Tray bolts.

NOTICE

When Thickness Tray is assembled in lower slots, it may hit the shuttle and shuttle arms. For advice and additional information, contact Grote Service.

Thickness Indicator Calibration (Optional)

The Thickness Indicator displays a range of numbers between 3 and 98. These dimensionless numbers measure relative slice thickness. A lower number indicates a thinner slice, and a higher number indicates a thicker slice. To determine actual slice thickness, measure a product slice. Follow the procedure below to recalibrate the thickness indicator any time the Thickness Tray is readjusted.

1. Adjust Thickness Tray so it is level and parallel with the Blade Guide as described in *Thickness Tray Adjustment*.
2. Set thickness adjustment knob for minimum slice thickness. In this position, the slicer normally will not cut product.

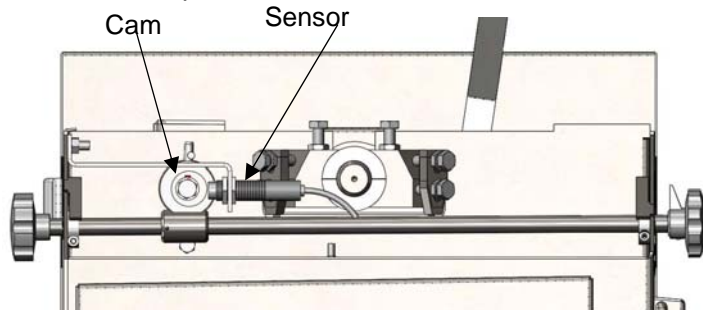


Figure 14. Thickness Proximity Sensor

3. Thickness is measured by a proximity sensor that senses the position of a cam on the thickness adjust rod. The sensor can be moved in or out to set the distance between the sensor and the cam. With the thickness set for minimum slice thickness, the sensor detects the highest portion of the cam. Loosen the nuts holding the sensor to the mounting bracket and adjust the sensor so that the thickness indicator reads 3.

AUTOLOAD SYSTEM

The Autoload system is composed of two conveyor belts (feed and Injection) mounted to a frame with a slave control panel attached below. This sub system attaches to the 613-VS using the pivoting latch mechanism with the latching spools.

The pivot can be moved using a 17mm wrench and moving the shoulder bolt to one of several notches spaced in 3/8" increments. This will adjust the position of the injection conveyor relative to the cluster frame. Larger clusters (in the stroke direction) will have to have the injection conveyor stick into the frame of the 613 less.

When changing cluster sizes, always check that there is adequate room between the tip of the injection conveyor and the cluster.

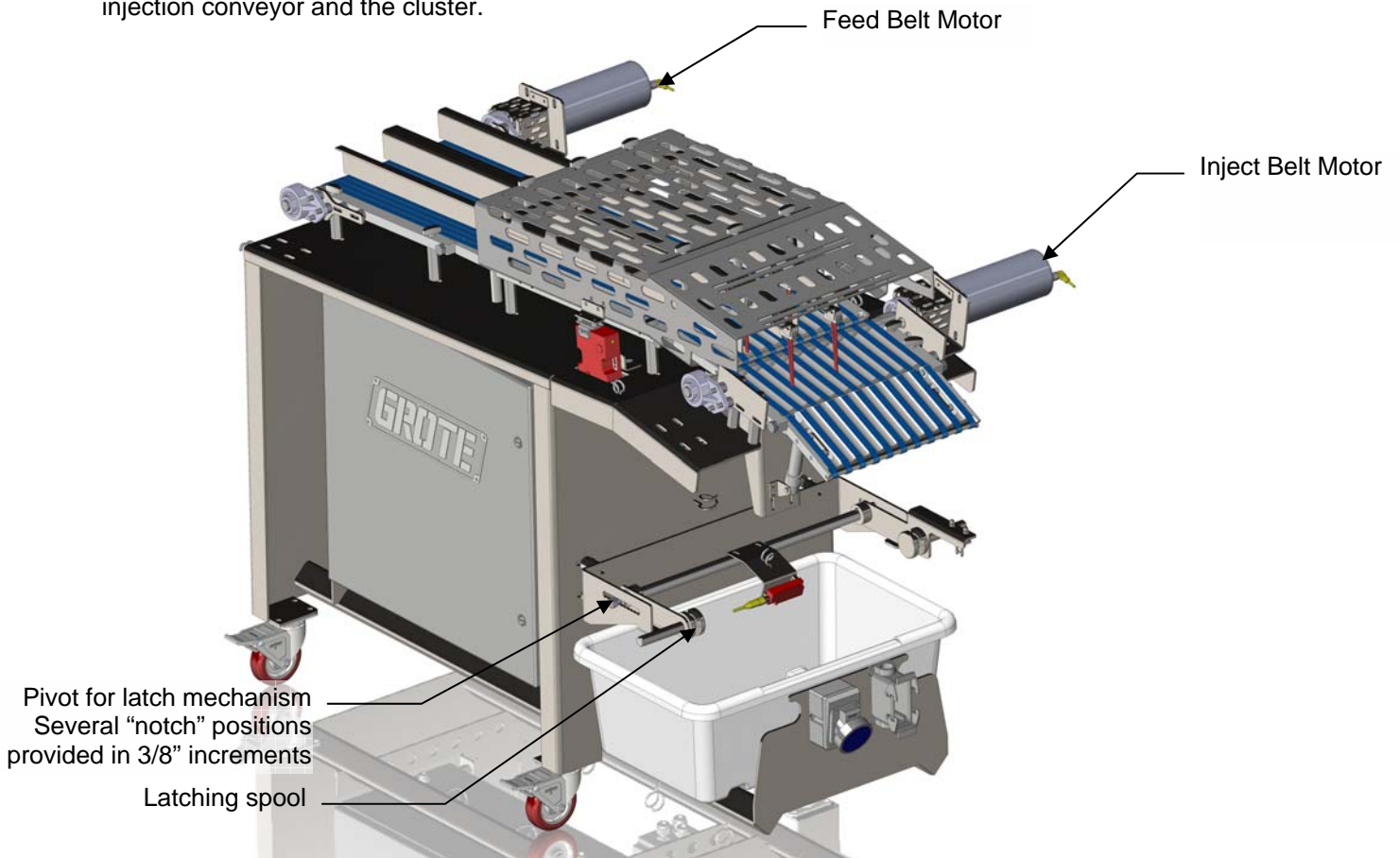


Figure 15. Autoloader detached

NOTICE

Always insure there is ~5/8" to ~1/4" space between the cluster and the tip of the injection conveyor. Failure to do so will result in the equipment being damaged!

Reject Chute installation and removal

Install the reject chute by hanging it on the top bar of the hanger bracket just under the entrance door. The reject chute can only be inserted and removed when the Autoloader is unlatched from the 613-VS2. The action of latching the Autoloader to the 613-VS2 captures the chute so that it cannot be removed. It must be in place for the system to be enabled and started.

Feed Belt tensioning

After sanitation is complete and the machine is dry, the belts must to be placed into the correct spots relative to the drive and idle pulley crowns. Start with the tunnel guard open and the two nose pivots up. The two outer most crowns are unsued in this application. Set a long belt into place on the second crown from the end. The next belt will be a short one. Repeat this pattern until all belts are loosely in place. Gently pivot the load area nose pivot down. As the nose is pivoted down, tension will increase on the belts. With light tension on the belt, check belt to crown alignment. Push the nose all the way down until it touches the stops under the conveyor. Repeat with the upstream nose pivot.

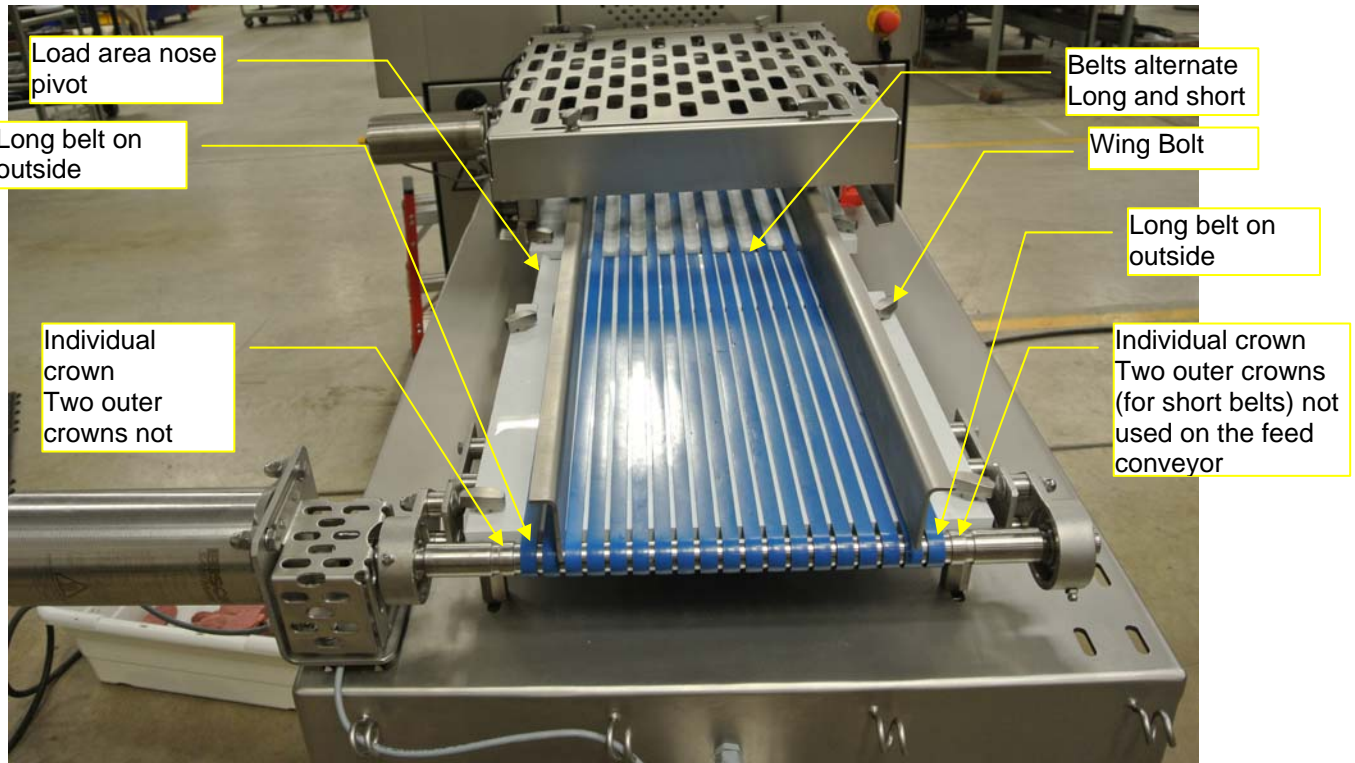


Figure 16. Feed Belt Placement

Feed Belt removal

With the tunnel guard opened, pivot up the noses of the two sections of the feed belt. This will remove tension on the belt. Remove the wing bolts on the side of the conveyor opposite the drive motor. Slip the belts between the conveyor bed and the standoff holding the conveyor bed.

Injection Belt tensioning

After sanitation is complete and the machine is dry, the belts must be placed into the correct spots relative to the drive and idle pulley crowns. Start with the tunnel guard open. Verify that each belt is placed over a crown on the drive and idle pulley. The pivot nose will pivot down when air, power and the release latch switch is set to latch.

Injection Belt removal

First, separate the autoloader system from the 613 and open the tunnel guard. The counterweight assembly captures the belts on the injection conveyor. Remove air from the system and use tools to unbolt the counterweight assembly. Then, remove the two wing bolts on the side of the conveyor opposite of the drive motor. Gently, lift the conveyor bed to allow the belts to be slipped between the conveyor bed and the stand off it is mounted to.

Injection Belt tracking

The belts will require no tracking adjustment if they are properly aligned to their correct crown on the drive and idle pulley. If the belts are not tracking properly, check that they are not twisted or tangled below the conveyor bed and that they are aligned with the proper crown.

CARRYOUT CONVEYOR SYSTEM

The carryout conveyor system moves product slices out of the machine to the desired customer location. It consists of a small motor permanently mounted to the slicer and a removable roller bed and belt assembly. The motor has a storage location on the slicer.

Belt Removal and Installation

Removal

1. Move the Motor to storage location on slicer and secure.
2. Remove Roller Bed and Belt Assembly from slicer.
3. Remove the Tensioning Roller by loosening the two thumbscrews and dropping the roller assembly out of the frame.
4. The Conveyor Belt has enough slack to then slide off the frame side rail.

Installation and Direction of Travel

Installation is opposite of removal. Ensure the belt spiral leads the crimped connector to which it is welded.

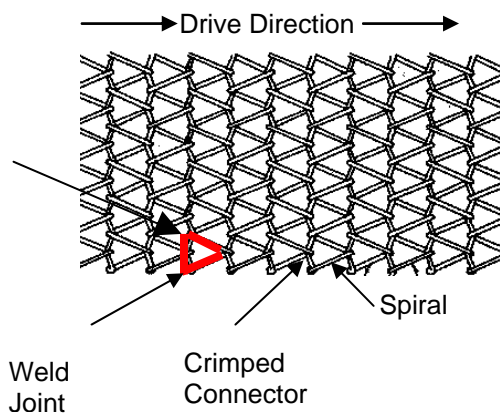


Figure 17. Carryout Conveyor, Correct Direction of Travel

SHUTTLE CONVEYOR SYSTEM

The shuttle conveyor system is required to operate in either Stack or Shingle Mode and, although not required, it may be used in Bulk Slice Mode. The shuttle moves with the product holder frame receiving the product slice on the forward stroke and dropping the slice on the carryout conveyor on the return stroke.

NOTICE

The maximum stack height is two inches. Although the shuttle may be removed to produce thicker slices, stack quality may suffer.

Shuttle Conveyor

This standard system stacks and shingles most products. The shuttle belt is advanced on the return stroke by a plunger-tensioned pawl that engages the belt and moves it, conveying the product to the carryout conveyor.

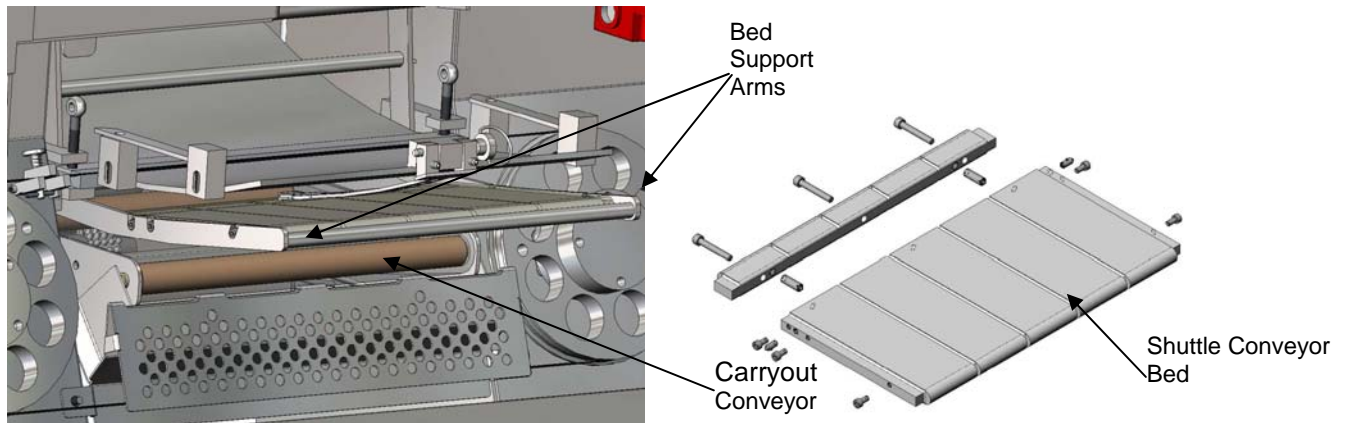


Figure 18. Shuttle Conveyor

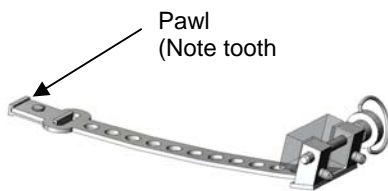


Figure 19. Shuttle Actuator Assembly

The actuator arm mounts to the back of the thickness tray. The conveyor bed lays in the bed support arms and moves with the pendulum as slicing occurs.

Align mounting holes in the actuator arm with the mounting hole in the block on the back of the thickness tray. Slide the quick release pin through all three holes. Adjust the ball plungers so that the actuator arm has a slight downward pressure on the Shuttle Conveyor Bed at the desired slice thickness setting. The shuttle actuator arm should be removed from the thickness tray when it is either installed or removed from the slicer.

NOTICE

Position the pawl correctly or damage to the slicer may occur when it starts.

Belt Replacement

1. Remove three screws that hold the nose piece.
2. Tilt or turn nose section 90°.
3. Remove old belt.
4. Install new belt with closed loop of chain link toward nose section.
5. Replace nose section by turning 90°.
6. Replace three screws.

Verify the closed loop is toward the nose section and that the pawls align properly with the belt loops.

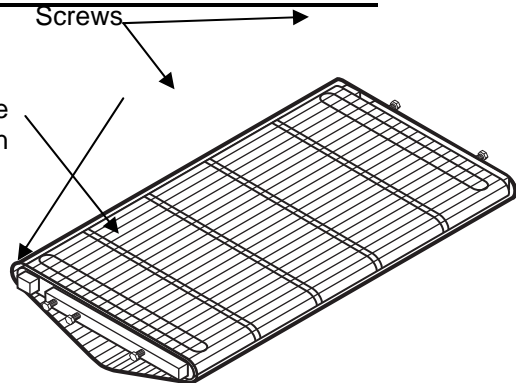


Figure 20. Shuttle Conveyor Belt

To install the Shuttle Conveyor Bed, place the conveyor bed side pins into the front slots on the bed support arms, then move it downward until the other pins drop into the back slot on the bed support arms. The split in the bed goes away from the installer toward the opposite side of the machine.

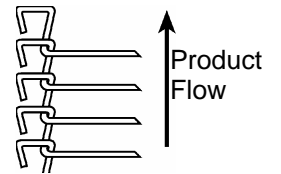


Figure 21. Shuttle Belt Loops

NOTE

The side pins are offset so the bed fits only one way.

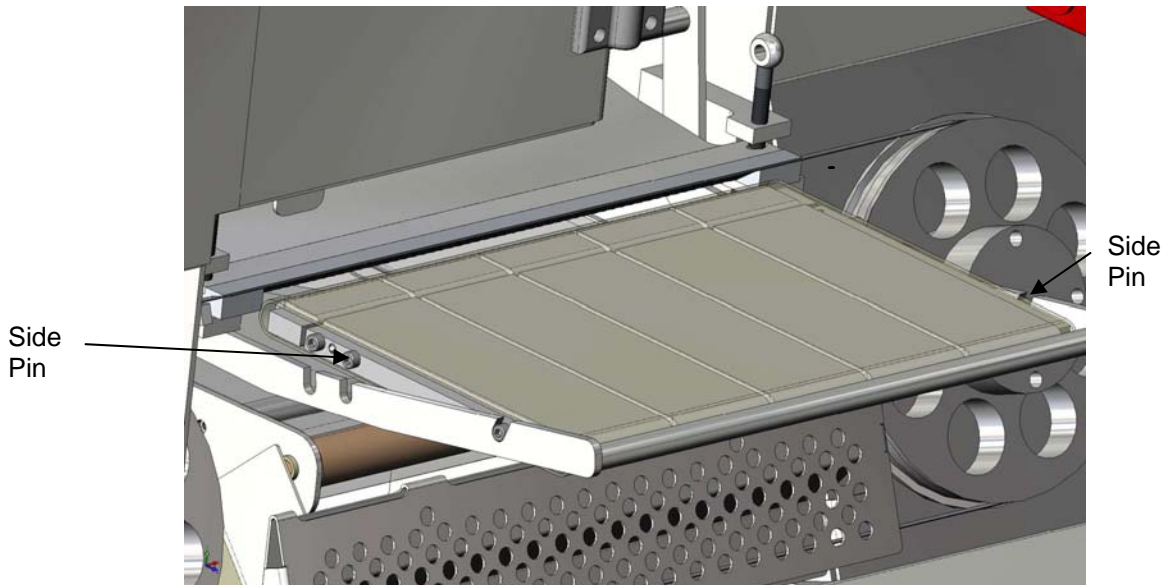


Figure 22 Shuttle Bed Installation

STATIC SLITER (OPTIONAL)

The static slitter consists of vertically arranged stationary blades protruding through slots in a dedicated thickness tray. Corresponding slots used in special product holders allow the blades to pass through the product and holder.

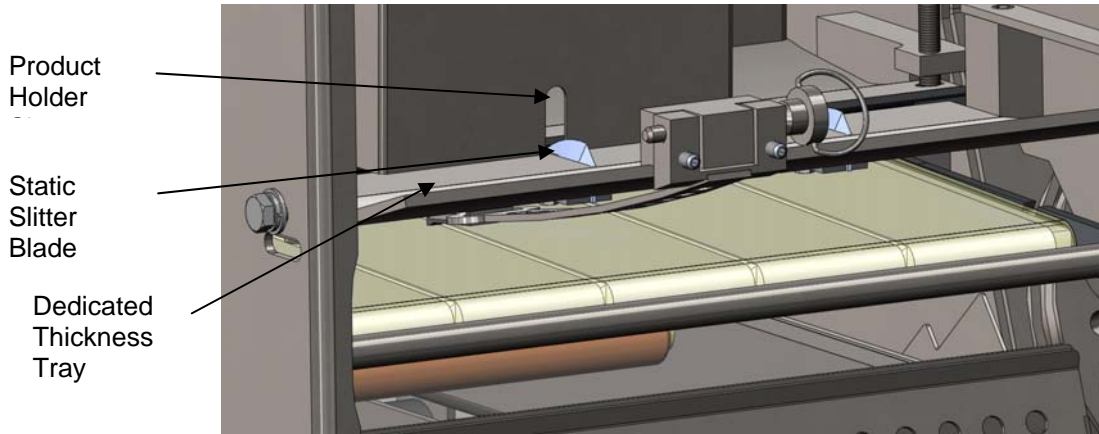


Figure 23 Static Slitter

CAUTION

Static blades are very sharp -- use care when handling and wear recommended cut-resistant safety gloves.

Two-piece collars are available to aid in alignment. When used in conjunction with the shuttle conveyor assembly, the static slitter assembly does not allow for slicing through the full slice thickness range. Refer to the static slitter assembly for slice thickness range restrictions.

NOTICE

Use care to align slots in the product holders with the blades or damage to the blades and product holders will occur. Damage to the machine will occur if the slice thickness range restrictions are exceeded.

NOTICE

Use care to align slots in the product holders with the blades or damage to the blades and product holders will occur. Damage to the machine will occur if the slice thickness range restrictions are exceeded.

NOISE CHARACTERISTICS

The illustration to the right shows positions of measured noise levels of a Model 613-VS2 Multi-Slicer. The decibel levels of each position are listed below.

Test in outdoor open space. Background noise: 54-62 db. Noise meter set at a height of 1.3 meters. Test settings: C-Lo Scale, slow response.

A: 78 dB B: 76 dB C: 80 dB D: 78 dB E: 80 dB F: 78 dB

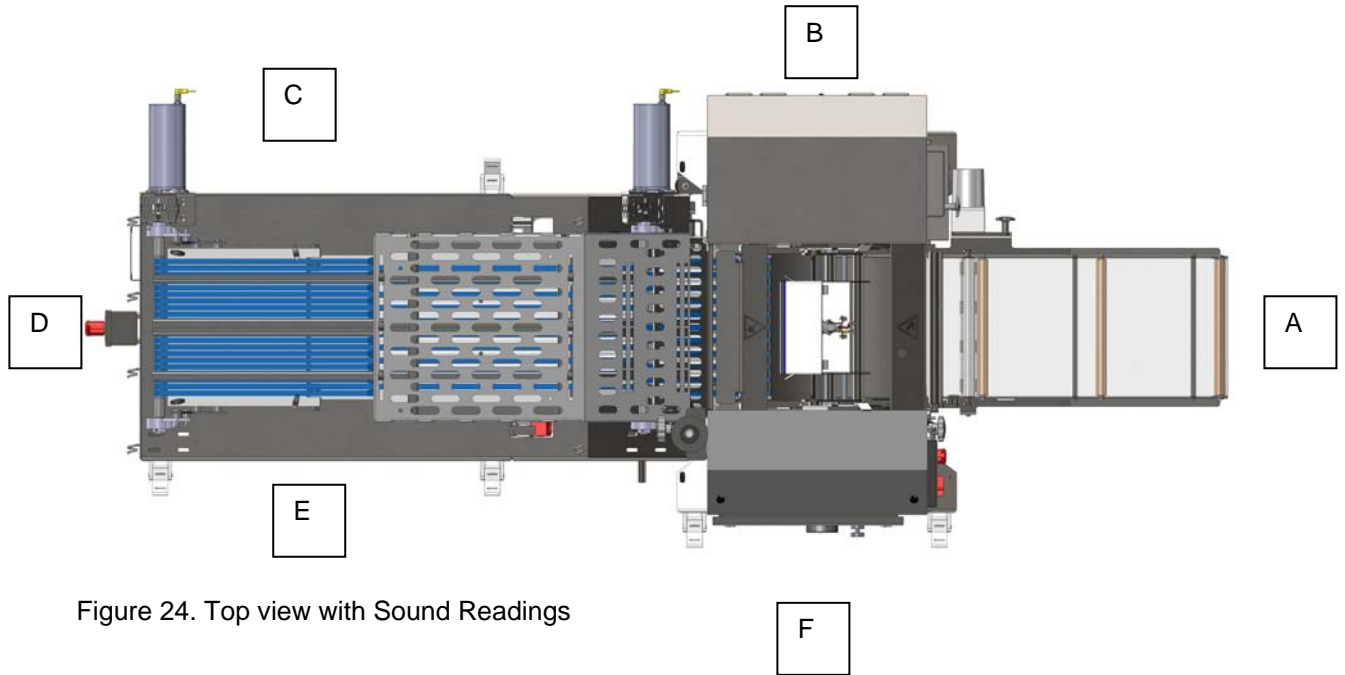


Figure 24. Top view with Sound Readings

OPERATION

ACCUBAND™ SYSTEM OF SLICING

The Grote 613-VS2 Slicer cuts non-frozen food product with a unique blade slicing system. The patented AccuBand™ System illustrated to the right is a slicing system that cuts the product with a disposable 1/2 inch wide razor-sharp band blade running continuously between two pulleys. When the blade dulls (usually after eight hours of use), replace it with a new one. Grote offers various band blade styles for optimized slicing of different types of products.

A Blade Guide holds the band blade in place, and often, potable water lubricates the blade as it runs. Scrapers contact the sides of the blade and keep excess product from accumulating while it runs.

Product placed in a product holder, swings back and forth like a pendulum across the band blade. The product holder pivots near the top and an offset crank arm connected to the holder drives it back and forth. An electrically operated motor and clutch-brake control the slicing action.

When the pendulum is in the home position, the bottom end of the product log rests on a curved surface called the Thickness Tray. As the product holder moves forward a slice is removed and the end of the log then rests on the Exit Tray. To control slice thickness, adjust the vertical distance between the Thickness Tray and the Blade Guide.

Product logs in the product holder gravity-feed to the cutting blade. As slices are removed from the log, they drop onto the conveyor below. Logs can be added to the top of the product holder without stopping the slicer.

Three different slicing modes are available: **Bulk Slice Mode, Shingle Mode, and Stack Mode.**

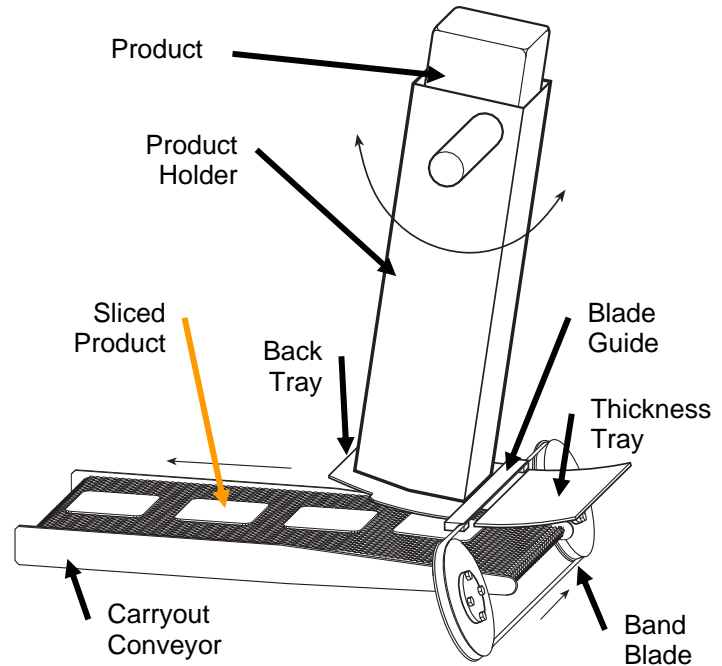


Figure 25. Accuband Slicing System

PRODUCT LOADING

Hand load product (end caps) onto the autoloader feed belt (see Figure 4) between the product guides. Product should be loaded in a single level, without overlap, but may be touching “tip to tail”. Never push product along the belt. Allow the motion of the conveyor to advance product into the system.

⚠ WARNING

NEVER REACH INTO the Product Holders (Clusters). DO NOT operate the slicer WITHOUT both the Product Holders and the Cluster Guards in place. The slicer utilizes a razor sharp band blade to slice product. If a product holder is empty, and/or cluster guards are not in place, the blade poses a risk of severing or cutting unprotected fingers whether the machine is in operation or not. ALWAYS use cut-resistant safety gloves when hands are in proximity of band blade. Failure to follow safety warnings and instructions COULD result in death or serious injury.

If product is Jammed or Lodged within a Holder, or product is to be removed for sanitation, ALWAYS:

1. Shut Down & Lock-Out / Tag-Out the Slicer (LOTO)
2. Use care to not contact the blade!
3. Use an extended length hook or grapple to dislodge or remove the obstruction.
4. Remove the outer product holder (cluster front) if needed.
5. Refit the Holder.
6. Resume operation.

OPERATING CONTROLS

Emergency Stop Switch

Push in the Emergency Stop Switch to immediately stop all slicer action and coast the blade pulleys to a stop. Users must reset the Emergency Stop Switch by pulling it out before the slicer can be turned on with the MACHINE ENABLE button.

⚠ WARNING

It takes time for the pulleys to coast to a stop. The Zero Speed Safety Switch will not let the slicer open until the blade drive pulley has stopped. Verify the blade is not moving prior to opening the slicer.

NOTE

Resetting the Emergency Stop Switch, by itself, will not reactivate the slicer. The MACHINE ENABLE button must be used.

Main Disconnect Switch

The Main Disconnect Switch is located on the front of the slicer. When the switch is off, the switch indicator reads “0” and all voltage is removed from all components in the control enclosure. The indicator reads “1” when the switch is on. Padlock the switch in the off position to ensure safety for personnel performing electrical work or any other activity that requires lock out/tag out.

⚠ WARNING

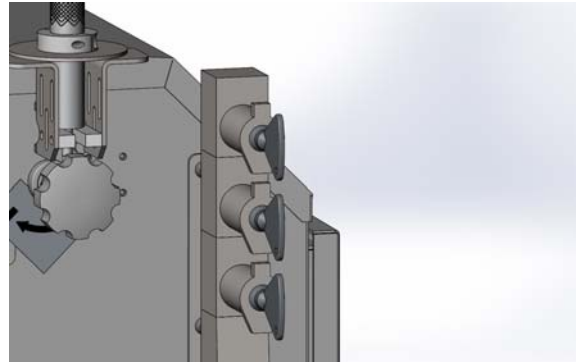
Voltage is still present on the supply side of the disconnect switch even when the switch is in the off position.

Machine Enable Button

Press the Machine Enable Button to enable the slicer for operation. This must be pushed to enable the slicer on power up and following an E-stop activation.

Safety Interlocks

The slicer is equipped with a unique-keyed guard locking system including 3 safety door locks and a main key switch that prevent it from operating unless the locks are actuated. To operate the machine, all guards must be closed with guard locks latched and the keys must be stored in the key switch attached to the entrance side of the cabinet of the slicer. A “zero speed” safety switch ensures that the blade has stopped moving before access is gained through the guard doors.



To Unlock the Machine Guards

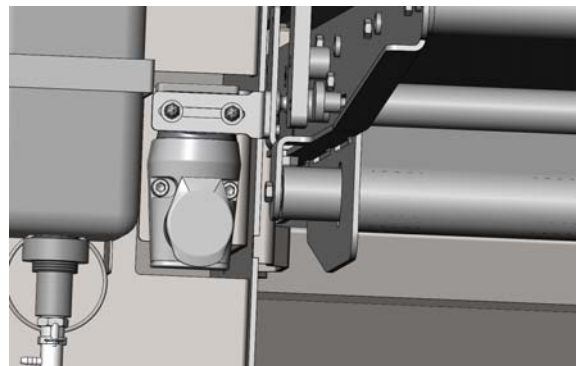
1. Rotate each of the keys counterclockwise until they stop. Always start with the TOP key and move in succession to the BOTTOM. The key "paddles" should now be oriented so they are vertical (pointing to the twelve o'clock/six o'clock position).
2. Pull the keys from the bank.
3. Insert the keys into their respective guard door locks and rotate to unlock.

To Lock the Machine Guards

1. Close the guard doors.
2. Insert each of the actuators into their respective guard door locks.
3. Rotate counterclockwise and remove the keys from each door lock.
4. Insert each of the keys into the key switch. Start with the key on the BOTTOM and move in succession to the TOP. Rotate each of the keys clockwise until they stop. The key "paddles" should now be oriented so they are pointing to the four o'clock/ten o'clock position.
5. The machine should now be ready to enable.

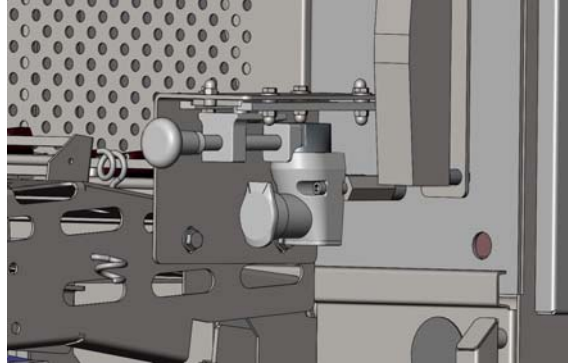
Carryout Conveyor Latched Safety Door Lock (Conveyor Removed)

Slicer operation without the carryout conveyor is a hazard because users may access the blade from underneath the slicer. A safety door lock requires the carryout conveyor to be in place before the machine can start. This switch is operated by an actuator attached to the conveyor. This lock will not release until the blade has stopped and a key from the key switch has been inserted and turned. Power must be applied to the machine to release this lock.



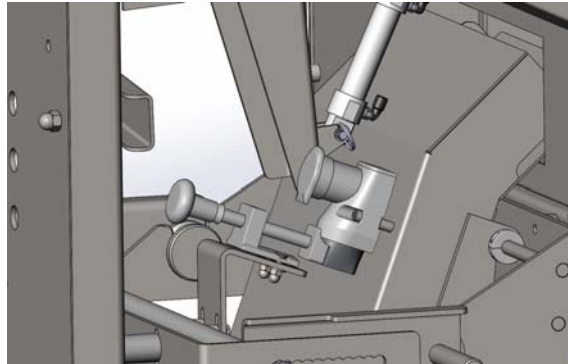
Tunnel Guard Latched Safety Switch (Tunnel Guard)

This lock ensures that the blade door and tunnel guard over the second half of the feed belt and injection belts cannot be opened during operation. An actuator is attached to the edge of the tunnel guard and latches into the safety door lock on the cabinet of the slicer. This lock will not release until the blade has stopped and a key from the key switch has been inserted and turned. Power must be applied to the machine to release this lock.



Reject Chute Present Safety Sensor Switch (Chute Guard)

This lock will not allow the machine to start unless the reject chute is in place. An actuator is attached to the pivot shaft of the autoloader latch arm and latches into the safety door lock on the reject chute. This lock will not release until the blade has stopped and a key from the key switch has been inserted and turned. Power must be applied to the machine to release this lock.



“Zero Speed” Safety Switch

This switch ensures that the blade has stopped moving before the guard door is opened. The Zero Speed Safety Switch prevents the latching switches listed above from being opened and the carryout conveyor from being removed until the blade has stopped and the Release Latch Switch is placed in RELEASE.

The system of operation of the safeties listed above should not be altered in any way to ensure the safe operation of the equipment.

Slice Thickness Control

To change slice thickness, turn the thickness control knob. There is a knob on both sides of the slicer. Rotate the control knobs in the direction indicated by the arrows on the cabinet for thicker or thinner slices. Thickness may range from 0 to .5 inches and may be changed during slicing. The Thickness Indicator displays relative thickness, if so equipped. To determine actual thickness, measure a slice.

NOTICE

Do not adjust below 0.5 inches or Shuttle Activator will jam into the Shuttle Bed and damage will occur to your equipment.

Prior to and after adjusting the thickness, lock the thickness control shaft into position using the locking mechanism. Light tightening is sufficient to prevent the thickness from drifting.

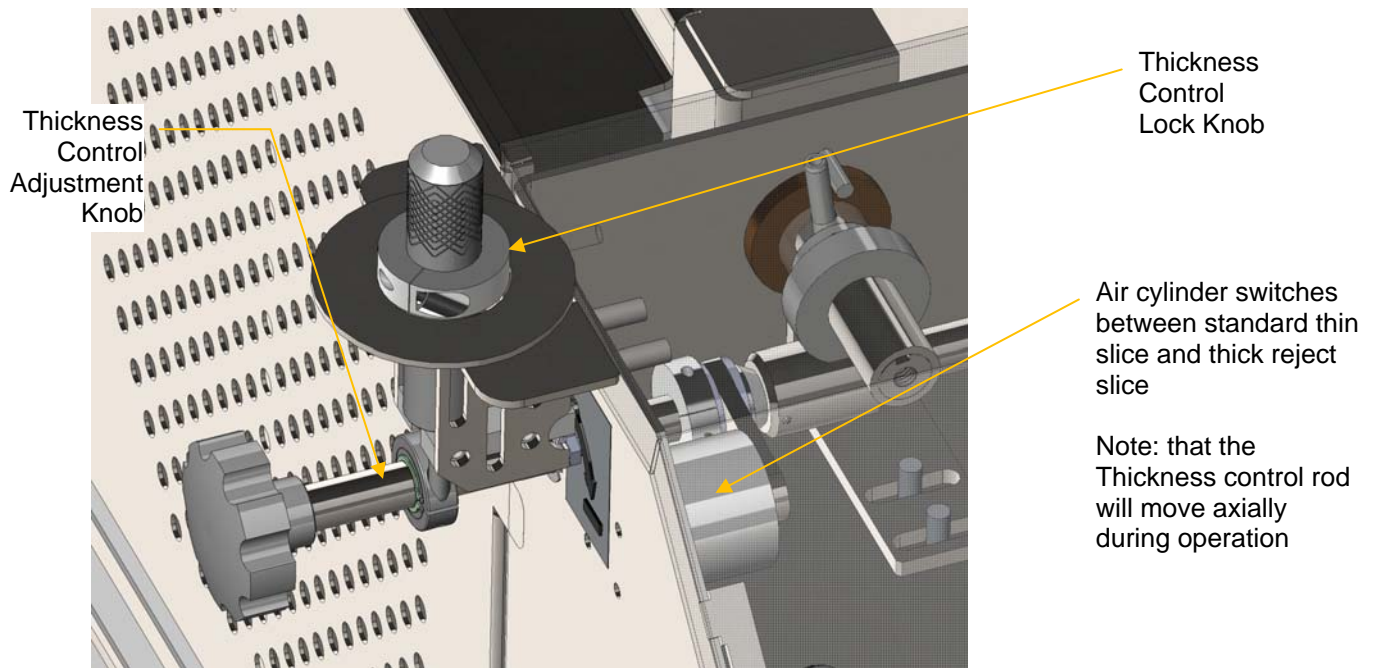


Figure 26. Thickness Control

OPERATOR INTERFACE

To operate the slicer, pull out the Emergency Stop Button and set the Main Disconnect Switch to the open (power on) position to supply power to the slicer. Then press the Machine Enable button.

Users interact with and control the machine through the Operator Interface. The interface is a Touch Screen that displays input control buttons, operating parameters, and output data.



Figure 27 Operator Interface

NOTICE

Do not use the Emergency Switch to stop the machine except under emergency conditions. The product box may not return to the “home” position.

NOTE

The basic description and functionality of your machine is described below. Your screens may vary due to the mechanical configuration of your machine. In addition, based on your specifications, functions (options) may be described that are not present on your machine.

Main Screen

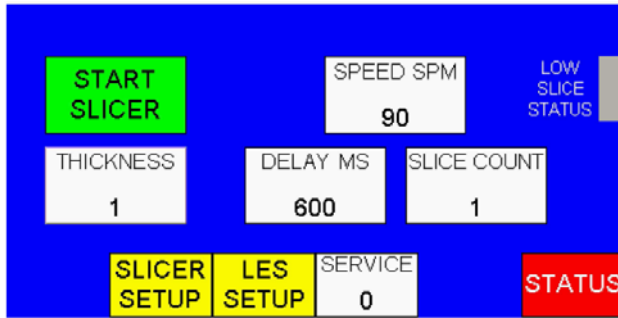


Figure 28. HMI, Main Screen

The Main Screen displays the Start/Stop, Slice Speed, Slice Delay, and Slice Count and Buttons.

START/STOP SLICER - Touch this button to start or stop the slicer.

SPEED (SPM) – This parameter sets the stroke speed in strokes per minute. The range is 37-90.

SLICE COUNT – In Stack or Shingle Mode, this parameter sets the number of slices in a stack or shingle. The range is 1-99.

DELAY – In Stack or Shingle Mode, this parameter sets the delay in milliseconds from the completion of a stack or shingle to the beginning of the next. The conveyor runs at fast speed for the Delay period and slow speed while slicing. The range is 0-999 milliseconds.

SLICER SETUP – Switches to the Slicer Setup screen

LES SETUP – Switches to the LES Setup screen

SERVICE – Switches to the service screen. A password is required to access this screen

STATUS – Switches to the Status screen

THICKNESS (OPTIONAL) – Indicates the slice thickness which is manually set on the machine. Refer to the Setup section.

Slicer Setup Screen

The Setup Screen displays the mode buttons, water and conveyor settings.

NOTICE

Stop the slicer before switching modes.

BULK MODE – Touch to run the slicer in Bulk Mode. In this mode, the slicer slices continuously onto the conveyor. The conveyor runs continuously. Conveyor speed is adjustable independent of slicer speed.

STACK MODE – Touch to run the slicer in Stack Mode. In this mode, the machine indexes the conveyor at fast speed for the time specified in DELAY, then stops the conveyor. The machine slices as many slices in a stack as specified in the SLICE COUNT, then the sequence repeats.

SHINGLE MODE - Touch to run the slicer in Shingle Mode. In this mode, the machine indexes the conveyor at fast speed for the time specified in DELAY, then indexes the conveyor at slow speed while it slices as many slices in a shingle as specified in the SLICE COUNT parameter. The sequence repeats.

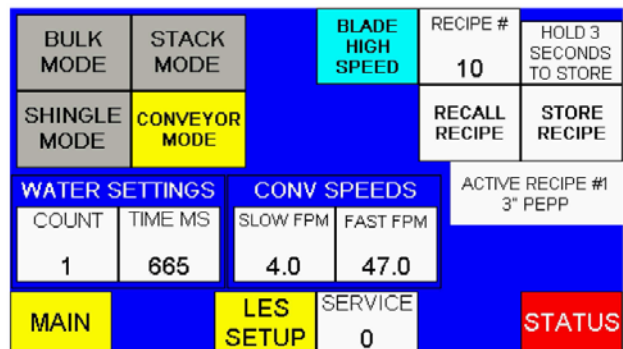


Figure 29. Slicer Setup Screen

CONVEYOR MODE - In this mode, the carryout conveyor runs, but no slicing occurs. This mode is typically used when slicing stops and a few slices remain to be carried out from the slicing zone. In this mode, the conveyor runs at the fast speed.

WATER COUNT - The machine applies water to the blade in pulses. Touch this button to set the interval between pulses in number of slicing strokes.

WATER ON TIME - The machine applies water to the blade in pulses. Touch this button to set the pulse duration in milliseconds.

CONVEYOR FAST SPEED – In Stack or Shingle Mode, this parameter sets the speed the conveyor runs in between each stack or shingle. In Conveyor Mode, this parameter sets conveyor speed and slicing is not active. This parameter is inactive in Bulk Mode

CONVEYOR SLOW SPEED – In Shingle Mode, this parameter sets the speed at which the conveyor runs during slicing. In Bulk Mode, this parameter sets conveyor speed. This parameter is inactive in Stack Mode and Conveyor Mode.

RECIPE# – Select the recipe to recall or save. Note that entering a number does not cause any change

RECALL RECIPE – Recalls and makes active the recipe# selected above. Changing recipes will cause the slicer to stop.

STORE RECIPE – Stores and makes active the recipe# selected above. You will have to press and hold this button for 3 seconds to complete the save action. This is to prevent accidentally overwriting data.

BLADE SPEED – (Optional). If your unit has an inverter installed on the blade, this sets either the low or high speed setting for the blade.

LES Setup Screen

GOOD LOW SLICES – Number of good slices in a log end after the low product sensor is triggered. The indicator to the left of this button lights to indicate when the system is operating in this phase of the process.

THICK EJECT SLICES – Number of thick eject slices to be taken and sent to the reject chute. The indicator to the left of this button lights to indicate when the system is operating in this phase of the process.

TRIM SLICES – Number of slices taken at the beginning of slicing a new log end. These slices will be placed on top of the thick eject slices from the last log and sent to the reject chute. If the low product sensor is triggered during this phase of operation, the number of good low slices will be reduced accordingly. The indicator to the left of this button lights to indicate when the system is operating in this phase of the process.

EJECT MOVE TIME – After slicing through the good slices in a log end, the carryout conveyor will advance at the fast conveyor speed on the Slicer Setup screen for this many milliseconds (ms). This will move the draft of sliced good product out from the slice zone and present a clear space on the belt for eject and trim slices. After the trim slices are complete, the conveyor will run in reverse for this many milliseconds, bringing the last draft back under the slice zone to complete the required number of slices for that draft.

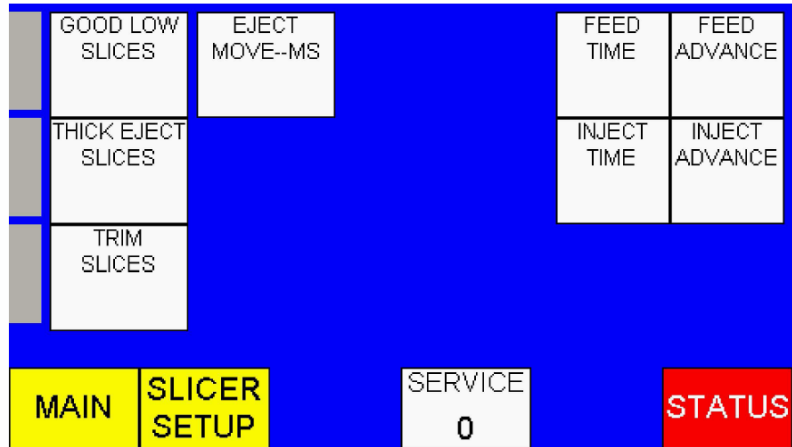


Figure 30. Les Setup Screen

FEED TIME – Time in milliseconds (ms) the feed belt pushes product onto the Injection belt. When the injection belt requests product from the feed belt and the feed belt has product to hand over to the injection belt, both belts will run at their reload speeds. The injection conveyor is set to run faster than the feed belt, pulling a single piece of product from the feed belt. Set this time longer for larger product (in the stroke direction) and shorter for smaller product. If the feed time is too short, product may not fully transfer onto the injection belt. If the feed time is too long, two pieces of product may be transferred to the injection belt.

INJECT TIME – Time in milliseconds (ms) the injection belt runs at its fastest speed transferring product to the cluster.

FEED ADVANCE TIME – After product is sensed (seen) by the photo eye over the feed belt, the feed belt will continue to run for this many milliseconds to insure the product is firmly under the photo eye.

INJECT ADVANCE TIME – After product is sensed (seen) by the photo eye over the injection belt, the belt will continue to run for this many milliseconds to insure the product is firmly under the photo eye.

Status Screen

The Status Screen displays existing alarms on the machine. Triggered alarms flash on the Status Screen.

This screen also shows status of sensors on the machine as well as the phase of each major subsystem.

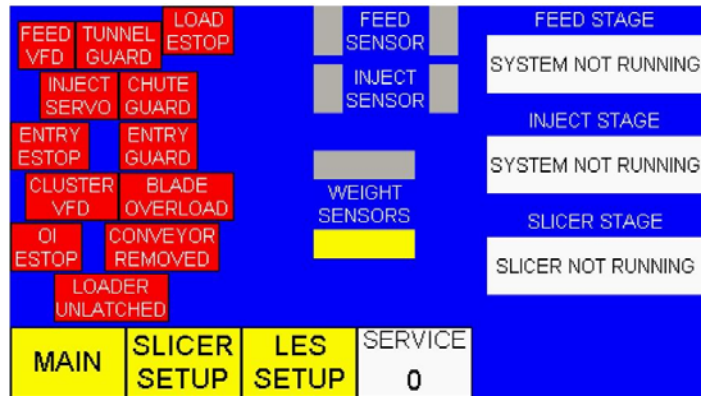


Figure 31. HMI Status Screen

SANITATION

This section outlines basic guidelines for cleaning your Grote equipment. These guidelines are provided solely for the purpose of **assisting** the customer in developing an effective equipment Sanitation Standard Operating Procedure (SSOP). These safeguards will aid in protecting operators, maintenance workers and/or consumers of product processed by this equipment. Additionally, proper sanitation and maintenance procedures will ensure optimal machine performance and longevity.

These are general precautions. Additional procedures will need to be developed depending on the type of product being processed as well as its further applications.

This SSOP must be routinely reviewed to ensure that it is effective and results in superior equipment sanitation which meets or exceeds industry standards for health and hygiene safety. The Operator/Owner is responsible for developing the SSOP.

Read this entire section prior to performing any sanitation regimen.

WARNING

All personnel must wear personal protective equipment (PPE) to avoid physical and/or respiratory hazards present during the sanitation process.

The use of high pressure spray is not recommended as cleaning fluids and contaminants may atomize and spread, posing health risks to personnel.

Remove all parts in direct contact with food products that can be easily removed (e.g. product holders, blade guides, tray inserts, etc.). Clean, inspect, and sanitize prior to reinstallation on the machine.

NOTICE

Cleaning Compounds

Cleaners designed for the food industry should be used on this equipment in proper concentrations.

Depending on the design of your machine, part types include, but are not limited to; coated aluminum, plated steel, various plastics, and elastomers (e.g., seals, etc.). Highly alkaline cleaning solutions may promote corrosion to the surface of components and/or cause premature degradation of the parts.

GUIDELINES FOR CLEANING

1. Release all latched safeties; separate the autoloader from the 613-VS2, open guards and remove the carryout conveyor.
2. Turn machine off. A padlock-securable lockout/tagout switch is supplied for input disconnect and lockout/tagout.
3. Remove Carryout Conveyor Motor and clamp it in the Carryout Conveyor Motor Clamp. Remove conveyor and clean it separately from the machine.
4. Separate the Autoloader from the 613-VS2
5. Remove product holders and any remaining product from the product box.
6. Remove Shuttle Actuator Arm.
7. Remove Thickness Tray and frame.

8. Remove shuttle bed.
9. Remove band blade. Release blade wiper assembly by pressing down and rotating the knob 1/4 turn.
10. Rotate blade tension handle counterclockwise and press in until the pulley shaft bottoms out in the housing. Carefully remove blade and safely dispose of it.

CAUTION

Band blades are very sharp--use care when handling and wear recommended cut-resistant safety gloves.

11. Loosen Blade Guide Support Block thumbscrews and remove the Blade Guide and Back Tray.
12. Loosen the tension on the feed belts by pivoting up the noses of the feed conveyor, first in the load section, secondly the nose adjacent to the injection conveyor.
13. If the autoloader is being separated from the 613-VS2 electrically, park the connectors on the locations provided on the autoloader front. This will protect the contacts from exposure to chemicals.



14. Either rinse and soak the Conveyor, Thickness Tray, Blade Guide, Exit Tray, Product Holders, Product Holder Weight and Shuttle separately in a tub of cleaning solution, or clean them with the rest of the machine. Clean the Carryout Conveyor Belt by removing the belt from the conveyor frame.
 - a. Insure the inside cluster holder (cluster back) assembly is not fully submerged. This is to prevent the pneumatic cylinder from filling with water and sanitizer.
 - b. The weight assembly may be removed from the lift cylinder clevis and soaked

NOTE

NOTE: The Grote Company supplies a scraper tool to clean the Blade Guide slot. Use this tool with cleaner and sanitizer to thoroughly clean the Blade Guide slot.

15. The HMI screen should be gently wiped with soap and water and sanitizer. Gently rinse off all chemicals. Do not use high pressure water on the HMI screen. Shut the cover to the Electrical Control Enclosure.
16. The four latching switches should likewise be hand sanitized and gently rinsed. Once this is done, some customers cover these switches to prevent more aggressive water sprays from penetrating these devices. The four latching switches are located at:
 - a. The carryout conveyor
 - b. The entrance guard to the 613
 - c. The latching spool connecting the autoloader to the 613-VS2
 - d. The tunnel guard
17. Pre-soak machine if this step is part of your cleaning operation. The pre-soak may include chemicals, but is normally a hot potable water rinse to loosen dried product clinging to the machine.
18. Spray entire machine with hot potable water rinse starting at the top and working down. Pay particular attention to the product zone to assure the removal of all excess product.

NOTICE

CAUTION: Before wash down, verify Operator Interface covers and plug covers are in place and all electrical enclosures are latched. Maintain a proper spray nozzle distance from the equipment. FAILURE TO DO SO MAY DAMAGE THE EQUIPMENT.

Be careful in using high-pressure spray on certain system areas. Keep high-pressure spray at least 12 inches away from the following areas:

AC motors: Shaft seals, flange and electrical connections.

Guard Switches and Sensors: Electrical connection and penetration areas.

Gearboxes: Shaft seal areas and flange connections.

Electrical enclosures: Door seals, and electrical connection and penetration areas.

Electrical Control Buttons and Switches: Electrical connection and penetration areas.

Electrical Connections: Electrical connection and penetration areas.

Operator Interface: Door seals, OI buttons, and electrical connection and penetration areas. Place protective bag over OI during high-pressure wash-down.

19. After removing as much excess product as possible, spray machine with cleaner. The type of cleaner dictates the amount of time it should remain on the machine. Use supplier recommendations for cleaning strength, time, and protective equipment. Also, use cleaner on the Product Holders, Shuttle Tray, Thickness Tray, Carryout Conveyor, and Blade Guide if not already soaking them in a cleaning solution.
20. Remove all cleaner by rinsing the entire machine from the top down with potable water.
21. Visually inspect machine for any areas that need cleaned again; spot-scrub and rinse as necessary.
22. Replace items removed from the machine.
23. Verify the Blade Guide slot is clean. Check the condition and wear of the Blade Guide with the Blade Guide utility tools provided with the slicer.
24. When the machine is visually clean, apply a sanitizer. High-concentration sanitizers may require another potable water rinse. Consult supplier recommendations.
25. Flush the blade guide potable water system daily by running the system with either a bleach concentration of ½% or a hydrogen peroxide concentration of up to 50%. Fill the potable water bottle with 1" of chosen sanitizing agent. Run slicer with potable water injection at highest setting. Rinse system thoroughly with potable water after cleaning. Run slicer until system is dry. Disconnect potable water bottle from system and clean with chosen cleaner. Rinse with potable water. Spray with sanitizer and rinse again if recommended by supplier. Let potable water bottle air dry with cap removed. Visually inspect all potable water lines for blockages, leaks, or other sanitation issues. Replace if necessary.
26. If production resumes immediately after cleaning, install the band blade. Otherwise, wait until just before the next production run to install the blade. In either case, spray a new blade with sanitizer before installing it. Grease all fittings to remove water.

CAUTION

Band blades are very sharp--use care when handling and wear recommended cut-resistant safety gloves.

27. Perform swab testing in accordance with your company Sanitation Operating Procedures. Areas of particular importance are in the product slicing zone consisting of the Band Blade, Blade Guide, Thickness Tray, Back Tray, Product Holders, Shuttle Tray, and Carryout Conveyor.



Figure 32. Autoloader being washed



Figure 33. 613-VS2 ready for sanitation

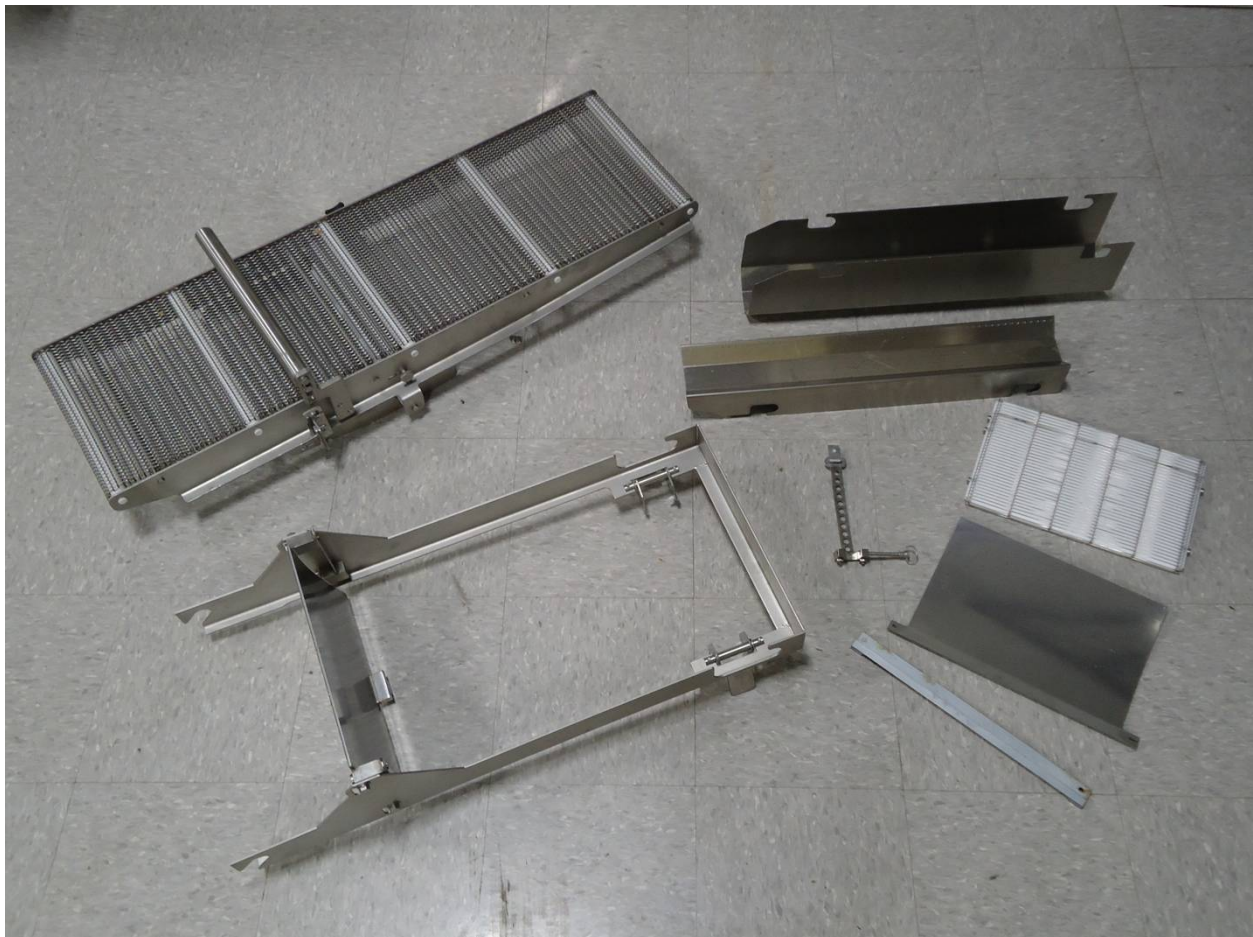


Figure 34. Items removed from the 613-VS2 for clean out of place

GUIDELINES FOR SANITATION OF GROTE BLADE GUIDES

For Grote equipment with blade guides that are routinely removed for sanitation, the following guidelines should be followed to ensure proper cleaning of the guide and to protect the plating which in turn protects the guide from corrosion.

Sanitizing Solutions

Typically, alkaline solvent cleaners with a pH of 10.4 in a 1% solution are used. Be sure to check the manufacturer's recommendation for:

- Correct concentration
- Contact time – the amount of time the solution is left on the parts before it is rinsed with water

Exceeding concentration and times can degrade the blade guide plating. Additionally, do not use chemicals with pH higher than 10.4.

A final sanitizing rinse with a quaternary ammonium chloride ("Quat") may also be done; once again by adhering to the manufacturer's instruction concerning concentrations and contact times.

Following any chemical sanitizing, the blade guide must be thoroughly rinsed with clean water.

Blade Guide Slot Cleaning

Use a Grote slot scraper (part 1028659) to clean debris from the guide prior to sanitizing and recheck it afterward. The scraper is specifically designed for thorough penetration into the blade guide slot without damaging or prematurely wearing the guide. Using other tools of different materials and sizes may not be as effective in cleaning, could damage the guide, and could introduce ferric contaminants which propagate post-sanitation oxides.

Blade Guide Handling

Care must be used when handling the guide so that the plating does not become chipped and that contaminants do not enter the slot.

If soaking a guide in a cleaning solution or rinse water, place the guide in a separate bin or tub from other parts to avoid inadvertent contact. If soaking multiple guides in the same container, keep them separated with a non-metallic (something that won't damage the plating) divider. Something as common as a non-ferrous dish rack can work well.

If storing parts until they are re-installed in the machine, keep the guide separate from other parts on a shelf or store it in its own container.

MAINTENANCE

GENERAL MAINTENANCE

Check the Blade Guide at every blade change. If the Blade Guide has any chips or cracks it should be replaced. During the first month of operation grease the product box drive chain every 40 hours. Change the oil in the product drive gear reducer after the first 100 hours of operation.

Perform the following operations after every sanitation cycle

1. Apply grease to the four bearings at the drive end of the feed and injection conveyor

Perform the following operations every 40 hours:

2. Check for wear in the product box bushings. There should be 1/16 inch clearance along the entire length of Blade Guide between the bottom of the product holder and the Blade Guide. If adjustment is required, follow Product Holder height adjustment procedure.
3. Check blade pulleys for excessive wear on the crown and back rim. Replace pulleys when excessively worn. Improper band blade tracking causes increased wear on the pulley rims.
4. Check blade wiper Delrin strips for wear and replace when worn.

Perform the following inspections every 120 hours:

1. Check all fasteners holding the bearings and bushings in the product box drive system.
2. Check clutch support bearings and bushings in the drive linkage.
3. Inspect product box drive chain for excessive wear.

Lubricate the following items every 200 hours after the first month of operation:

1. Product box drive chain.
2. Thickness adjustment gears.
3. Clutch shaft support bearings.
4. The three grease fittings in the product box drive system.
5. The four grease fittings in the injection conveyor drive box

Change oil in product box drive reducer every 2500 hours or after six months, whichever comes first. Recommended lubricant is Mobil SHC634 H2 Food Grade synthetic lubricant. Oil capacity is 22 ounces.

BLADE GUIDE MAINTENANCE

The Blade Guide is critical to maintaining slice quality and uniformity. Check it for chips or cracks at every blade change and replace it if any exist. Check Blade Guide wear after every 100 hours of operation.

Blade Guide Maintenance Tools

Each new slicer includes a set of three Blade Guide Maintenance tools shown to the right. One tool is a scraper to clean the Blade Guide slot. Use the other two to check the Blade Guide slot for excessive wear. A worn slot may affect slice placement accuracy and yield.

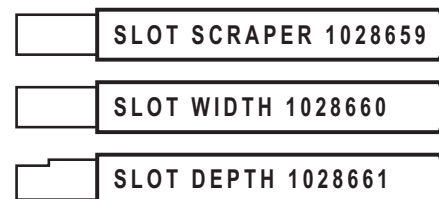


Figure 35. Blade Guide Maint. Tools

Slot Scraper

The Blade Guide scraper (1028659) cleans the Blade Guide slot. Simply insert the blade of the scraper into the slot and move it back and forth along the entire length of the slot. It should move freely from one end of the Blade Guide to the other. If the scraper hits an obstruction, use care in dislodging it; the Blade Guide is hardened steel and subject to cracking. Consult a Grote Service Representative if the obstruction is not easily dislodged.

Slot Width Checking Tool

The "width" wear checking tool (1028660) checks the Blade Guide slot width for excessive wear. Try to insert the tool blade into the Blade Guide slot. The tool blade is thicker than the standard slot width; if it inserts easily into the slot, the Blade Guide is worn excessively and may need replacement. Check the Blade Guide along the entire length, especially where the food product passes across the guide.

NOTICE

The tool will NOT insert into a new Blade Guide. DO NOT force this tool into the slot. It may damage the guide.

Slot Depth Checking Tool

The "depth" wear checking tool (1028661) checks the Blade Guide slot depth for excessive wear. Insert the tool blade into the slot until it touches the bottom. If the tool notch inserts beyond the top edge of the Blade Guide, the Blade Guide slot is worn excessively, and the Blade Guide may need replacement. Check the Blade Guide along the entire length, especially where food product passes across the guide.

PRODUCT BOX DRIVE UNIT MAINTENANCE

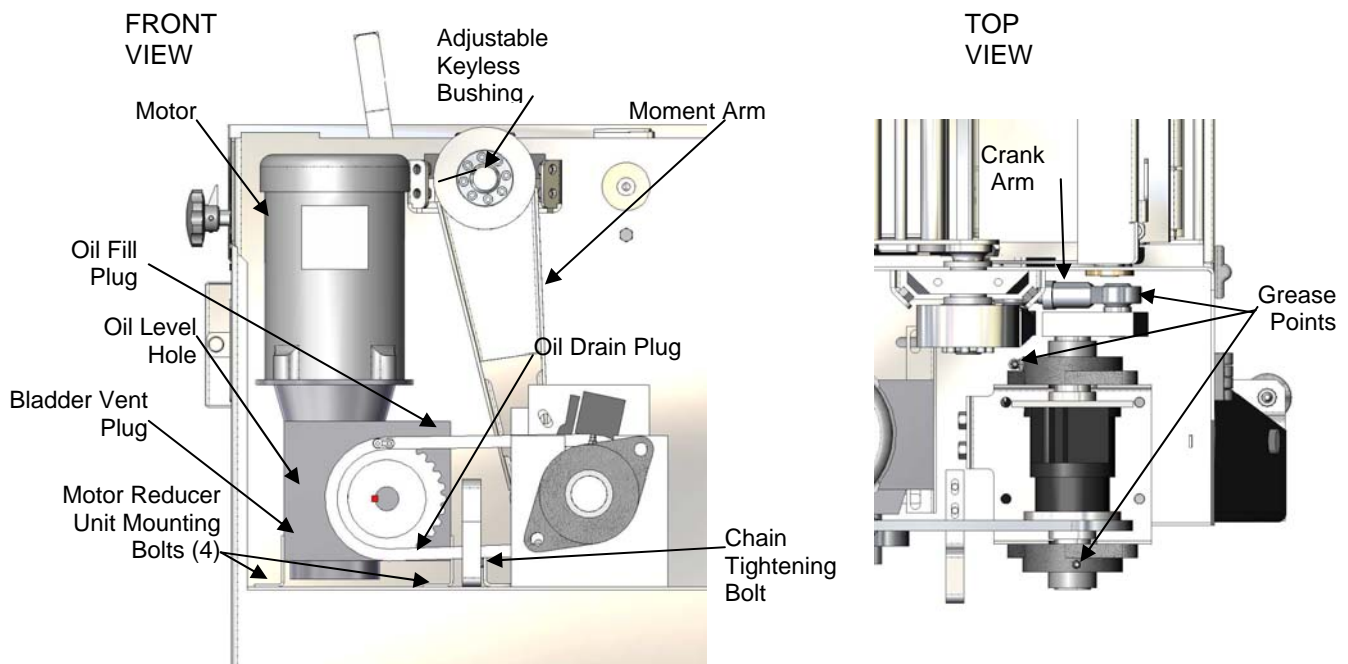


Figure 36. Product Box Drive System

The product box drive system moves the product box back and forth. To access it, remove the side cover of the slicer. The product box drive system uses an electric motor to drive a speed reducer connected by a roller chain to a clutch. A crank arm on the end of the clutch output shaft drives a linkage that moves the product box back and forth. Monitor and adjust the chain tension as required and lubricate the gear unit, chain, sprockets, clutch shaft support bearings, and linkage joints as indicated in the periodic maintenance section.

Tensioning the Drive Chain

A jerky product box movement indicates loose chain tension. To adjust the chain, loosen the four mounting hex nuts holding the motor-reducer unit to the frame. Loosen the jam nut on the chain tightening bolt and tighten the bolt until the chain is tight. Tighten the jam nut and the four hex nuts.

If there are worn chain links, replace the entire chain. Replace worn sprockets to prevent deformed teeth from damaging a new chain. Install new chains under slight tension as they elongate a small amount due to seating of pins and bushings during the first few days of operation.

Lubricating the Drive Chain

Lubricate chain manually with a brush or spout can. Use a good grade of medium weight non-detergent petroleum base oil. Do not use heavy oil or grease; it is generally too stiff to enter and fill chain joints.

Lubricating the Gear Reducer

Maintain gear reducer oil at the proper level. Remove the oil level plug located on the front of the gear box to see if the oil is level with the hole. To add oil, remove the plug at the top of the gear box and pour oil through the hole until the level reaches the oil level hole. Recommended oil is AGMA 7 rated Mobil SHC 634 H2 Food Grade synthetic lubricant for ambient temperatures of 10° to +105°F. Oil capacity is 22 ounces. Recommended change interval is 6 months or 2500 hours, whichever comes first.

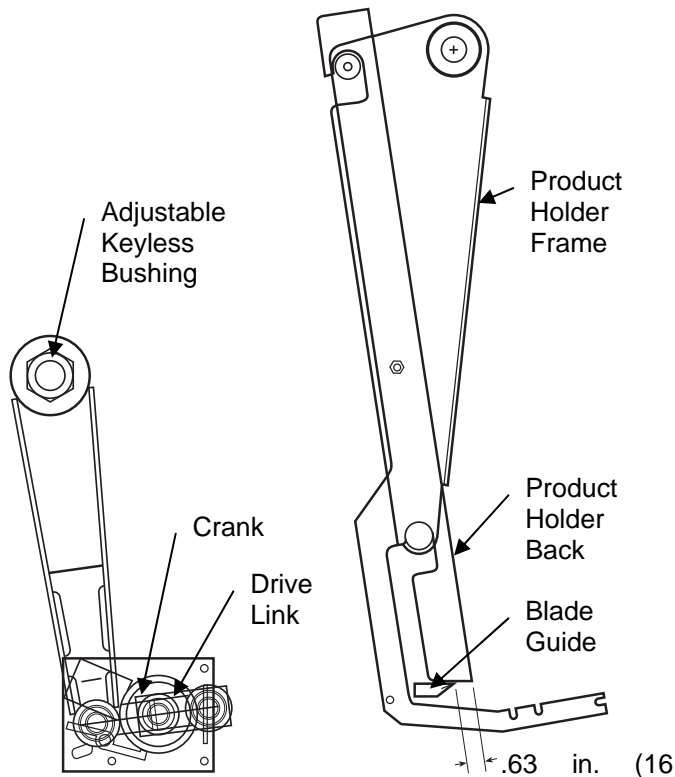


Figure 37. Moment Arm Adjustment

Moment Arm Adjustment

The moment arm is fastened to the product holder drive shaft with an Adjustable Keyless Bushing. Use the procedure below to reposition the product holder box:

1. Install back section of Product Holder.
2. Loosen the Adjustable Keyless Bushing. Refer to section below.
3. Verify the Crank is in the home position by adjusting the Clutch so the Crank aligns with the Drive Link when in the stopped position.

4. Manually adjust the Product Holder Frame so the Product Holder Back is .63 inches (16 mm) in front of the Blade Guide. Lock the Product Holder Frame in the position by tightening the Adjustable Keyless Bushing. Refer to section below.

Adjustable Keyless Bushing Removal/Replacement

Removal

1. Loosen and remove the clamping screws.
2. Apply a light-weight oil to 4 of the screws to be used for disassembly. Insert the screws into the dismantling threads of the front cone. All 4 screws must be used. Use only Class 12.9 Fasteners.
3. Tighten screws gradually and evenly in $\frac{1}{4}$ turn increments, moving in a crossed sequence (1-4) up to an initial torque value of 70 inch-pounds or until the front cone is loose.

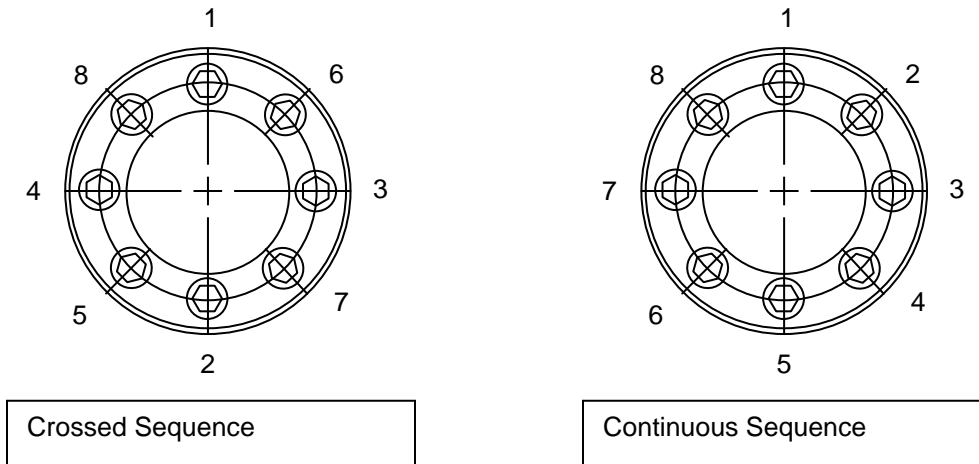


Figure 38 Tightening Sequence

4. If front cone is not yet loose, tighten screws gradually and evenly in $\frac{1}{4}$ turn increments moving in a crossed sequence (1-4) up to a final torque of 140 inch-pounds.

NOTICE

Do not over-tighten.

5. Repeat steps 3-4 to release rear cone.
6. Slide the Keyless Bushing out of the hub and shaft.

Installation

1. Carefully clean the hub and shaft contact surfaces and apply a thin film of light-weight oil. Apply light-weight oil to the sliding surfaces of the Keyless Bushing.

NOTICE

.Do not use any oil with Molybdenum disulfide, high pressure additives or grease.

2. Ensure that all three hub ring splits are 90 degrees apart.
3. Use only supplied class 12.9 Fasteners.
4. Slide the keyless Bushing into the Hub and then onto the Shaft.
5. Tighten screws gradually and evenly in $\frac{1}{4}$ turn increments, moving in a crossed sequence to an initial torque of 70 inch-pounds.
6. Tighten screws gradually and evenly in $\frac{1}{4}$ turn increments, moving in a crossed sequence to a final torque of 140 inch-pounds.

NOTICE

Do Not Over Torque.

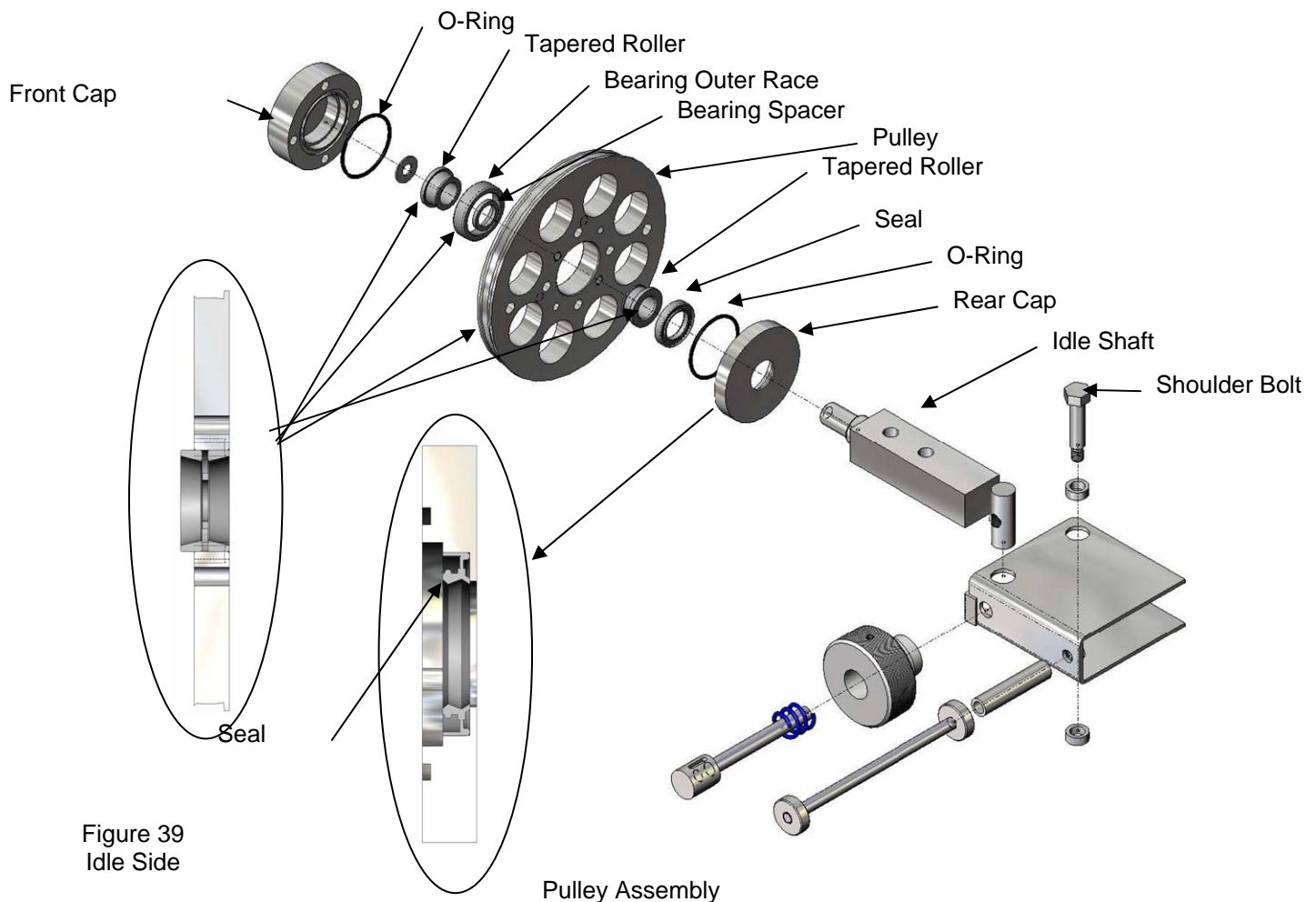
7. Starting from the last tightened screw, check that all screws are tightened to the final torque value in a clockwise continuous sequence.

NOTICE

Do Not repeat the step above more than twice.

IDLE SIDE PULLEY BEARING AND/OR PULLEY REPLACEMENT

Replacement of the idle side pulley bearing may be necessary due to excessive wear of either the pulley or bearing. The bearing mounts in the center of the pulley with a lip seal on the shaft to retain lubricant and keep out contaminants and water.



Removing Old Bearing

1. Remove the band blade.

CAUTION

Band blades are very sharp--use care when handling and wear recommended cut-resistant safety gloves.

2. Remove shaft and pulley from machine by removing shoulder bolt that attaches the shaft to the support.
3. Remove front cap of pulley by removing the four bolts. Discard the old O-ring.
4. Remove bolt and washer at the end of shaft.
5. Pull pulley from shaft. The bearing outer race and one tapered roller will be removed with it.
6. Remove bearing spacer and the other tapered roller from shaft.
7. Pull rear cap from shaft. Remove shaft seal and O-ring from rear cap and discard.
8. Press bearing outer race from pulley.

Installing New Bearing

Thoroughly lubricate the new bearing with an approved food-grade No. 2 grease. Use a wrench-removable thread-locking compound on all of the screws and bolts during reassembly.

1. Clean and degrease all parts reused in the reassembly of the idle side pulley assembly.
2. Install new seal and O-ring in rear cap. Verify seal is installed in the proper direction with the lip pointing in toward the bearing.
3. Slip the rear cap onto shaft; the small diameter goes onto the shaft first. Be careful not to damage the new lip seal.
4. Slip the first tapered roller onto the shaft until it seats on the rear cap.
5. Press outer bearing race into pulley until it is flush with the back side of the pulley. The back side is the side with the flange on the outside diameter. A portion of the outer race will extend out the front of the pulley.
6. Slip inner spacer onto shaft. *These spacers are custom ground for each bearing set; do not reuse old spacers when changing bearings.*
7. Slip outer race and pulley assembly followed by the second tapered roller onto shaft.
8. Insert bolt with Belleville washer onto end of shaft.
9. Pack front cap with grease and install a new O-ring. Align bolt holes in the pulley and rear cap and replace the front cap with four bolts.
10. Install pulley assembly on machine using the shoulder bolt and nut.

BLADE DRIVE MOTOR REPLACEMENT

The blade drive motor is located in the lower right corner of the control side of the machine. First, remove the drive pulley and then unbolt and remove the motor from the slicer. To access the motor, remove the rear cover and side plate.

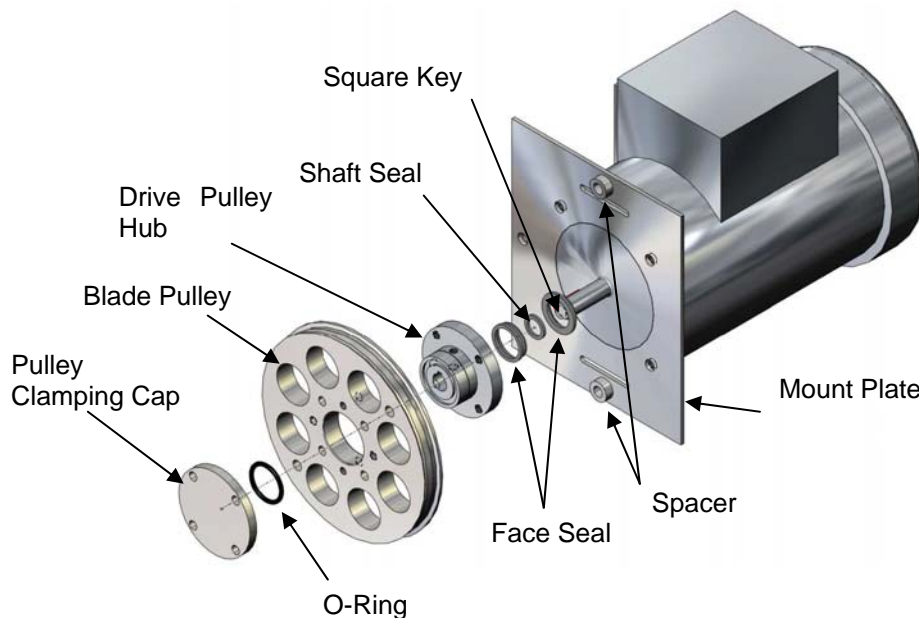


Figure 40 Drive Side Pulley Assembly

Removing Old Drive Motor

1. Disconnect electrical power to the slicer.
2. Open the doors on the back (non-control side) of the slicer.
3. Remove band blade.



Band blades are very sharp--use care when handling and wear recommended cut-resistant safety gloves.

4. Remove drive pulley front cap (left-hand pulley) by removing the four bolts
5. Use the pulley threaded holes (under front cap) with two 5/16 - 18 bolts to force the pulley off the hub.
6. Pull hub and key off the motor shaft by removing the two set screws.
7. Remove the Drive Pulley Motor covers from the control side of the slicer.
8. Ensure that electrical power is disconnected and then remove the motor power cord.
9. Remove Drive Pulley Tracking Adjustment Bolt from motor mounting plate.
10. Remove motor and mounting plate from slicer by removing the two nuts at the top and bottom of the motor mounting plate.
11. Remove motor from motor mounting plate by removing the four mounting screws.

Installing New Drive Motor

1. Install the motor shaft seal (1100760). Install the seal with the flexible lip toward the motor.
2. Attach motor mounting plate to the face of the motor by using the four mounting screws. Be careful to align the plate correctly.
3. Lift motor and motor mounting plate into machine, insert the two threaded studs into the holes on the frame, and use the two nuts to attach the motor. Use a spacer on the front of each stud.
4. Install the Drive Pulley Tracking Adjustment Screw.
5. Install the two set screws in the pulley hub.
6. Install motor mounting face seal (1077352). Install the seal with the flexible lip toward the motor and resting on the Motor Mounting Plate surface.
7. Push the pulley hub onto the motor shaft until the front face of the hub is .675 inch away from the plate through which the motor shaft extends. Tighten the two set screws on the hub.
8. Align the bolt holes of the pulley to the hub and install the four fasteners.
9. Replace the front cap on the pulley with the four cap screws.
10. Reconnect the electrical cable to the motor.

After the motor and pulley are installed on the slicer adjust the band blade tracking.

CLUTCH COIL MAINTENANCE

A clutch couples the product box drive motor to the product holder box. The clutch activates to move product holder box.

Clutch Coil Adjustment

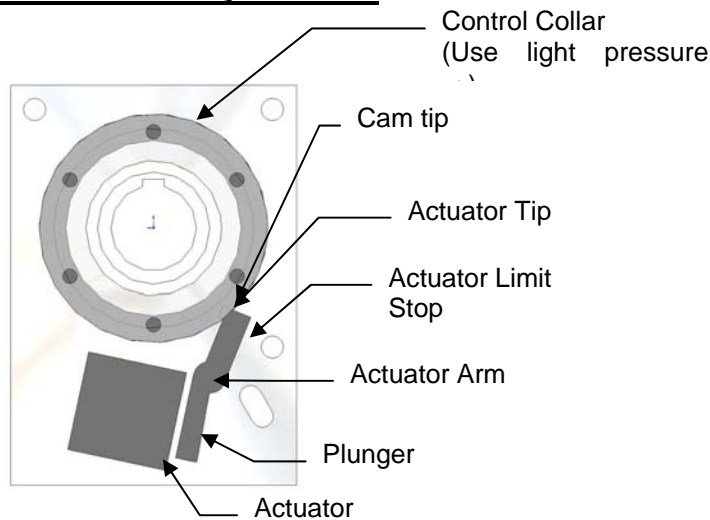


Figure 41. Clutch Brake

1. Disconnect the power supply by setting the lockout/tagout switch to the closed (power off) setting.
2. Loosen actuator limit stop assembly and move it to the position farthest away from the actuator arm. Temporarily tighten the adjustment bolt.
3. Rotate the control collar until the cam tip is directly adjacent to the actuator tip.
4. Apply light pressure to the control collar in the direction shown. This pressure removes any "play" in the control collar. Depress the plunger in the actuator coil fully until it bottoms. While fully depressing the plunger, check clearance between the actuator tip and the cam tip. If clearance is not within .015 and .025, loosen coil mounting bolts and slide coil assembly until proper clearance is obtained. Tighten coil mounting bolts.
5. Adjust actuator limit stop with the plunger fully depressed. To adjust actuator limit, loosen mounting bolt and slide the limit stop towards the actuator arm until it just makes contact. Tighten the actuator limit stop mounting bolt.
6. Apply power to the coil. If it buzzes, it has not been adjusted properly. Repeat the adjustment procedure making sure the plunger bottoms with a small clearance (.0050-0.010) between the actuator and the actuator limit stop.

Clutch Coil Replacement

Remove the two screws holding the actuator coil in place and unplug the two wires from the coil. Remove the old coil and install the new one. After installation, see Clutch Coil Adjustment to adjust the coil.

Clutch Collar Adjustment

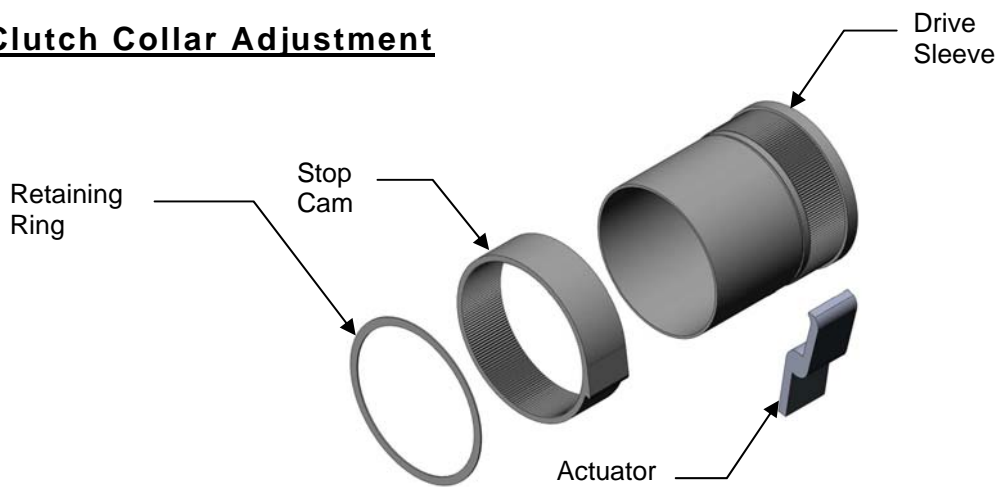


Figure 42. Clutch Control Collar

The clutch control collar adjustment determines the product box stop position. To stop the product box in the most extended position, line up the crank arm with the connecting rod. Adjust the position as follows.

1. Work retaining ring out of groove and slide forward on the sleeve.
2. Slide stop collar off the splines; rotate to desired stop position, and slide back on splines. Hold the actuator pawl clear during this operation.
3. Slide retaining ring back into groove.

NOTICE

Do NOT disengage brake sleeve. It will damage the clutch.

TROUBLESHOOTING

This section contains troubleshooting suggestions when the slicer is not operating properly. Find the problem that describes your trouble condition and check the areas outlined.

1. CONTROL PANEL WON'T LIGHT UP

- **Wrong Voltage** - Check incoming voltage.
- **Open Safeties** – Close all doors. Verify conveyor is in place and plugged into safety
- **Overload Tripped** - Check for proper setting and output. Check line polarity.
- **Emergency Stop Button Activated** – Pull out button to reset.

2. BLADE WON'T RUN OR RUNS SLOW

- **Wrong Voltage** - Check incoming voltage. Check E-stops.
- **Overload Tripped** - Check for proper setting and output. Check line polarity.
- **Worn Pulleys** – Check both pulleys and bearings for ease of operation.
- **Seized Blade** - Check blade and guide for product residue. Check applicator ports. Track blade according to manual.

3. PRODUCT BOX WON'T MOVE

- **If Control Panel is not lit, see Item #1.**
- **Open Safeties** – Close all doors. Verify conveyor is in place and plugged into safety
- **Clutch Out of Adjustment** - Check for proper clutch adjustment and proper coil voltage.
- **Circuit Breaker Tripped** – Press tripped breaker to reset.
- **Control Goes into Stack or Shingle Mode and Blade Runs, but Box Doesn't Move** – Check for proper adjustment of Proximity Count Sensor and proper voltage.

4. PRODUCT BOX BANGS

- **Improper Product Box Home Position** – Adjust to 5/8" from Blade Guide to leading edge of product holder. Readjust the Moment Arm Adjustable Bushing.
- **Improper Clutch Home Position** – Offset Crank Arm and Drive Link should align when the Clutch Stop Collar is against the Actuator Arm.
- **Worn Product Box Bearing Blocks** - Check bearing blocks for wear and proper adjustment.

5. PRODUCT BOX WON'T COUNT

- **Proximity Count Sensor Out of Adjustment** – Check for proper power to Proximity Sensor. Check for proper adjustment to trip flag.
- **Clutch Out of Adjustment** - Check for proper clutch adjustment and proper coil voltage.

6. PRODUCT CONVEYOR DOESN'T RUN

- **Wrong Voltage** - Check incoming voltage.
- **Improper Belt Tension** – Check belt tension.
- **Improper Connection between Motor Coupling and Drive Shaft**– Check connection.
- **No Power to Speed Pack** – Check power.
- **Faulty Motor** – To check motor, supply power directly to the motor, instead of through the Speed Pack (motor should run at full speed only).

7. BREAKING BLADES

- **Not Enough Water** - Check water pump for proper operation and output.
- **Blade Not Tracking Correctly** - Check blade and guide for product residue. Check water applicator ports for product residue; clean with pressurized air. Re-track according to manual.
- **Blade Tension Spring Worn, Broken, or Rusty** - Replace spring.
- **Idle Side Bearing Block Not Moving Correctly** - Block must move freely with one hand. Clean if necessary.
- **Blade Guide Dirty or Adjusted Improperly** – Clean with Blade Guide tool. Check manual for proper adjustment.
- **Improper Product Holder Clearance** - No less than 1/32" no more than 1/16" from trailing edge of product holder to the blade.

8. EXCESSIVE PRODUCT SCRAP

- **Incorrect Product Temperature** - Verify product temperature is within the proper range for slicing.
- **Improper Loading of Product** - Stop machine. Check product and tube sizes for proper fit.
- **Improper Product Holder Clearance** - No less than 1/32" no more than 1/16" from trailing edge of product holder to the blade.
- **Blade Dull or Inside Out** - Replace or re-install correctly.
- **Blade Guide Dirty or Adjusted Improperly** – Clean with Blade Guide tool. Check manual for proper adjustment.
- **Thickness Tray not Level** - Place straight edge from blade guide to thickness tray and level side to side, front to back.

9. PRODUCT CURLING OR TWISTING

- **Incorrect Product Temperature** - The colder the product the more severe the curl; the warmer, the more severe the twisting. Verify product temperature is within the proper range for slicing.
- **Improper or Worn Blade Guide** – Check for wear with Blade Guide tools. Use the correct style blade guide for your slicing application. Contact Grote Service.

10. PRODUCT SLINGING

- **Not Enough Water** - Check water pump for proper operation and output.
- **Not Enough Product Weight in Product Holders** - Product holders must be at least 2/3 full.
- **Improper Loading of Product** - Stop machine. Check product and tube sizes for proper fit.
- **Incorrect Product Temperature** - Verify product temperature is within the proper range for slicing.
- **Blade not Tracking Correctly** - Check blade and guide for product residue. Check water ports. Track the blade according to manual.
- **Incorrect X-Gap** - Reset X-gap according to manual.
- **Improper Product Holder Clearance** - No less than 1/32" no more than 1/16" from trailing edge of product holder to the blade.

11. PRODUCT NOT SLICING OR SKIPPING

- **Not Enough Water** - Check water pump for proper operation and output.
- **Not Enough Product Weight in Product Holders** - Product holders must be at least 2/3 full.
- **Improper Loading of Product** - Stop machine. Check product and tube sizes for proper fit.
- **Blade Dull or Inside Out** - Replace blade. Check blade for proper bevel installation.
- **Incorrect Product Temperature** - Verify product temperature is within the proper range for slicing.
- **Blade not Tracking Correctly** - Check blade and guide for product residue. Check water ports. Track the blade according to manual.
- **Blade Guide Worn out of Adjustment** - Use supplied gauge tools to check for wear. Replace blade guide if required. Verify adjustment according to manual.

12. PRODUCT NOT STACKING OR LAYING DOWN PROPERLY

- **Not Enough Water** - Check water pump for proper operation and output.
- **Blade not Tracking Correctly** - Check blade and guide for product residue. Check water ports. Track the blade according to manual.
- **Blade Dull or Inside Out** - Replace blade. Check blade for proper bevel installation.
- **Not Enough Product Weight in Product Holders** - Product holders must be at least 2/3 full.
- **Improper Loading of Product** - Stop machine. Check product and tube sizes for proper fit.
- **Improper Slice Position on Shuttle Belt** – Leading edge of the slice must land within the first three links of the Shuttle Belt.
- **Shuttle Pawls Improperly Positioned** – Verify pawl freely moves. Align pawl with Shuttle Belt center.

13. PRODUCT NOT RELEASING OR CUTTING CLEANLY

- **Not Enough Water** - Check water pump for proper operation and output.
- **Dull Blade** - Replace blade. If blade is new, check for blade contact with product holders.
- **Incorrect Product Temperature** - Verify product temperature is within the proper range for slicing.
- **Improper Loading of Product** - Stop machine. Check product and tube sizes for proper fit.
- **Blade not Tracking Correctly** - Check blade and guide for product residue. Check water ports. Track the blade according to manual.
- **Incorrect X-Gap** - Reset X-gap according to manual.
- **Improper or Worn Blade Guide** - Use supplied gauge tools to check for wear. Replace blade guide if required.

14. ROUGH OR CHAFED PRODUCT

- **Not Enough Water** - Check water pump for proper operation and output.
- **Blade Dull or Inside Out** - Replace blade. Check blade for proper bevel installation.
- **Wrong Style Blade** - Use the proper style blade for your slicing application. Contact Grote Service.

15. PRODUCT FRACTURING

- **Incorrect Product Temperature** - Verify product temperature is within the proper range for slicing.
- **Product Drops Off Thickness Tray Before Slice is Finished** - Check slice gap and thickness tray for proper settings and range. Slice gap can be set too wide.
- **Improper or Worn Blade Guide** - Use supplied gauge tools to check for wear. Replace blade guide if required. Use the proper style blade guide for your slicing application. Contact Grote Service.

16. PRODUCT TAILING

- **Incorrect Product Temperature** - Verify product temperature is within the proper range for slicing.
- **Blade not Tracking Correctly** - Check blade and guide for product residue. Check water ports. Track the blade according to manual.
- **Dull Blade** - Replace blade.
- **Thickness Tray not Level from Front to Back** - Place straight edge on blade guide and reset thickness tray level from front to back at ground zero.
- **Incorrect Slice Gap** - Reset slice gap according to chart in manual.
- **Improper Product Holder Clearance** - No less than 1/32" no more than 1/16" from trailing edge of product holder to the blade.

17. PRODUCT THICKNESS VARIES FROM SIDE TO SIDE

- **Improper Loading of Product** - Stop machine. Check product and tube sizes for proper fit.
- **Blade not Tracking Correctly** - Check blade and guide for product residue. Check water ports. Track the blade according to manual.
- **Thickness Tray not Level from Side to Side** - Place straight edge on blade guide and reset thickness tray level from side to side.

18. PRODUCT THICKNESS VARIES FROM FRONT TO BACK

- **Improper Loading of Product** - Stop machine. Check product and tube sizes for proper fit.
- **Blade not Tracking Correctly** - Check blade and guide for product residue. Check water ports. Track the blade according to manual.
- **Blade Guide not Adjusted** - Check manual for proper settings.
- **Incorrect X-Gap** - Reset X-gap according to manual.
- **Thickness Tray not Level from Front to Back** - Place straight edge on blade guide and reset thickness tray level from front to back at zero thickness.

19. PRODUCT MISSES CLUSTER

- **Product holder not centered**
- **Product guides on aligned properly at the feed conveyor**
- **Feed time too long will double load product – this may take several load cycles to show**
- **Injection time too short**

Inverter Parameters

Mitsubishi D-700

Part No. : 1166893
Machine : 613--Cluster
Inverter : 1 hp, 230 v, 1121618
Date : 9/13/12
Engineer : MAK

Parameter No.	Parameter	Units	Range	Res	Factory	Machine
0	Torque Boost (manual)	%	0 to 30	0.1	6	6
1	Upper limit frequency	Hz	0 to 120	0.01	120	60 *
2	Lower limit frequency	Hz	0 to 120	0.01	0	25 *
3	Base frequency	Hz	0 to 400	0.01	60	60
4	Multi-speed setting (high speed)	Hz	0 to 400	0.01	60	60
5	Multi-speed setting (middle speed)	Hz	0 to 400	0.01	30	30
6	Multi-speed setting (low speed)	Hz	0 to 400	0.01	10	10
7	Acceleration Time	Sec	0 to 3600	0.1	5	1.4 *
8	Deceleration Time	Sec	0 to 3600	0.1	5	1.4 *
9	Electronic thermal relay	A	0 to 15	0.1	4.1	2.0 *
73	0-5V/0-10V Selection		0 to 1	1	1	0 *
79	Operation mode		1-4,6,7	1	0	2 *
80	Motor capacity	kW	0.1– 7.5kW	.01	9999	.37 *
83	Motor rated voltage	V	0-1000V	0.1	200V	230 *
84	Rated motor frequency	Hz	10- 120Hz	0.01	60Hz	60
90	Motor constant (R1)	Ohm s	0- 50ohms	0.00 1	9999	4.391 *
125	Terminal 2 frequency setting gain frequency	Hz	0 to 400	0.01	60	60
126	Terminal 4 frequency setting gain frequency	Hz	0 to 400	0.01	60	60
160	Extended function display selection		0,9999	1	0	0
192	A, B, C, Terminal Function Selection		0 to 9999	1	99	11 *
C2	Terminal 2 frequency setting bias frequency	Hz	0 to 400	0.01	0	25 *
Clr	Parameter clear		0, 1, 2		0	0

* denotes machine settings different from factory settings

Inverter Parameters Mitsubishi D-700

Pr 79 Operation mode

- 1 keypad only enabled
- 2 external operation only
- 3 freq set via keypad, run via external signal
- 4 freq set via external signal, run via keypad

To set parameters

press PU/EXT button until PU indicator light is on
press MODE button until display reads P 0
turn dial until the desired parameter number is displayed
press SET button to access parameter value
turn dial until desired value is displayed
press SET button to store parameter value
when complete, turn dial back to parameter #0 and press MODE button

If parameter # 79 has been set to 2 and additional changes need to be made, change value back to 0, then press PU/EXT button until PU indicator light is on, then change parameters.

REV A – added parameters 80, 83, 84, and 90

Inverter Parameters

Mitsubishi D-700

Part No. : 1174601
Machine : 613-VS2 Conveyor
Inverter : 1 hp, 230 v, 1121618
Date : 3/31/14
Engineer : MAK

Parameter No.	Parameter	Units	Range	Res	Factory	Machine
0	Torque Boost (manual)	%	0 to 30	0.1	6	6
1	Upper limit frequency	Hz	0 to 120	0.01	120	80 *
2	Lower limit frequency	Hz	0 to 120	0.01	0	3 *
3	Base frequency	Hz	0 to 400	0.01	60	60
4	Multi-speed setting (high speed)	Hz	0 to 400	0.01	60	60
5	Multi-speed setting (middle speed)	Hz	0 to 400	0.01	30	30
6	Multi-speed setting (low speed)	Hz	0 to 400	0.01	10	10
7	Acceleration Time	Sec	0 to 3600	0.1	5	0.1 *
8	Deceleration Time	Sec	0 to 3600	0.1	5	0.1 *
9	Electronic thermal relay	A	0 to 15	0.1	4.1	.22 *
73	0-5V/0-10V Selection		0 to 1	1	1	0 *
79	Operation mode		1-4,6,7	1	0	2 *
125	Terminal 2 frequency setting gain frequency	Hz	0 to 400	0.01	60	80 *
126	Terminal 4 frequency setting gain frequency	Hz	0 to 400	0.01	60	60
160	Extended function display selection		0,9999	1	0	0
192	A, B, C, Terminal Function Selection		0 to 9999	1	99	11 *
C2	Terminal 2 frequency setting bias frequency	Hz	0 to 400	0.01	0	3 *
Clr	Parameter clear		0, 1, 2		0	0

** denotes machine settings different from factory settings*

Inverter Parameters Mitsubishi D-700

To reach parameter C2:

- Press mode until P 0 appears.
- Rotate dial until C . . appears, press set.
- Rotate dial until C 2 appears, press set.
- Change setting to desired value, press set.
- Rotate dial until C - appears, press set.
- Rotate dial to change final parameter, P 79.

Pr 79 Operation mode

- 1 keypad only enabled
- 2 external operation only
- 3 freq set via keypad, run via external signal
- 4 freq set via external signal, run via keypad

To set parameters

- press PU/EXT button until PU indicator light is on
- press MODE button until display reads P 0
- turn dial until the desired parameter number is displayed
- press SET button to access parameter value
- turn dial until desired value is displayed
- press SET button to store parameter value
- when complete, turn dial back to parameter #0 and press MODE button

If parameter # 79 has been set to 2 and additional changes need to be made, change value back to 0, then press PU/EXT button until PU indicator light is on, then change parameters.

Inverter Parameters

Mitsubishi D-700

Part No. : 1174605
Machine : 613-VS2 BLADE
Inverter : 2 hp, 230 v, 1127982
Date : 4/21/14
Engineer : MAK

Parameter No.	Parameter	Units	Range	Res	Factory	Machine
0	Torque Boost (manual)	%	0 to 30	0.1	6	6
1	Upper limit frequency	Hz	0 to 120	0.01	120	60 *
2	Lower limit frequency	Hz	0 to 60	0.01	0	20 *
3	Base frequency	Hz	0 to 400	0.01	60	60
4	Multi-speed setting (high speed)	Hz	0 to 400	0.01	60	60
5	Multi-speed setting (middle speed)	Hz	0 to 400	0.01	30	30
6	Multi-speed setting (low speed)	Hz	0 to 400	0.01	10	10
7	Acceleration Time	Sec	0 to 3600	0.1	5	1.5 *
8	Deceleration Time	Sec	0 to 3600	0.1	5	1.5 *
9	Electronic thermal relay	A	0 to 15	0.1	4.1	3.4 *
73	0-5V/0-10V Selection		0 to 1	1	1	1
79	Operation mode		1-4,6,7	1	0	3 *
125	Terminal 2 frequency setting gain frequency	Hz	0 to 400	0.01	60	60
126	Terminal 4 frequency setting gain frequency	Hz	0 to 400	0.01	60	60
160	Extended function display selection		0,9999	1	0	0
192	A, B, C, Terminal Function Selection		0 to 9999	1	99	11 *
C2	Terminal 2 frequency setting bias frequency	Hz	0 to 400	0.01	0	0
Clr	Parameter clear		0, 1, 2		0	0

** denotes machine settings different from factory settings*

Set frequency to 60.0 Hz

Inverter Parameters Mitsubishi D-700

To reach parameter C2:

- Press mode until P 0 appears.
- Rotate dial until C . . appears, press set.
- Rotate dial until C 2 appears, press set.
- Change setting to desired value, press set.
- Rotate dial until C - appears, press set.
- Rotate dial to change final parameter, P 79.

Pr 79 Operation mode

- 1 keypad only enabled
- 2 external operation only
- 3 freq set via keypad, run via external signal
- 4 freq set via external signal, run via keypad

To set parameters

- press PU/EXT button until PU indicator light is on
- press MODE button until display reads P 0
- turn dial until the desired parameter number is displayed
- press SET button to access parameter value
- turn dial until desired value is displayed
- press SET button to store parameter value
- when complete, turn dial back to parameter #0 and press MODE button

If parameter # 79 has been set to 2 and additional changes need to be made, change value back to 0, then press PU/EXT button until PU indicator light is on, then change parameters.

Revisions:

12/18/14—Changed parameter 8 from 10.0 to 1.5 seconds—JRD

Inverter Parameters

Mitsubishi D-700

Part No. : 1174829
Machine : Auto Load, Feed
Inverter : 1 hp, 230 v, 1121618
Date : 4/15/14
Engineer : JRD

Parameter No.	Parameter	Units	Range	Res	Factory	Machine
0	Torque Boost (manual)	%	0 to 30	0.1	6	6
1	Upper limit frequency	Hz	0 to 120	0.01	120	90 *
2	Lower limit frequency	Hz	0 to 60	0.01	0	0
3	Base frequency	Hz	0 to 400	0.01	60	60
4	Multi-speed setting (high speed)	Hz	0 to 400	0.01	60	30 *
5	Multi-speed setting (middle speed)	Hz	0 to 400	0.01	30	30 *
6	Multi-speed setting (low speed)	Hz	0 to 400	0.01	10	10 *
7	Acceleration Time	Sec	0 to 3600	0.1	5	0.2 *
8	Deceleration Time	Sec	0 to 3600	0.1	5	0.2 *
9	Electronic thermal relay	A	0 to 15	0.1	4.1	0.27 *
73	0-5V/0-10V Selection		0 to 1	1	1	1
79	Operation mode		1-4,6,7	1	0	2 *
125	Terminal 2 frequency setting gain frequency	Hz	0 to 400	0.01	60	60
126	Terminal 4 frequency setting gain frequency	Hz	0 to 400	0.01	60	60
160	Extended function display selection		0,9999	1	0	0
192	A, B, C, Terminal Function Selection		0 to 9999	1	99	11 *
C2	Terminal 2 frequency setting bias frequency	Hz	0 to 400	0.01	0	0
Clr	Parameter clear		0, 1, 2		0	0

** denotes machine settings different from factory settings*

Inverter Parameters Mitsubishi D-700

Pr 79 Operation mode

- 1 keypad only enabled
- 2 external operation only
- 3 freq set via keypad, run via external signal
- 4 freq set via external signal, run via keypad

To set parameters

press PU/EXT button until PU indicator light is on
press MODE button until display reads P 0
turn dial until the desired parameter number is displayed
press SET button to access parameter value
turn dial until desired value is displayed
press SET button to store parameter value
when complete, turn dial back to parameter #0 and press MODE button

If parameter # 79 has been set to 2 and additional changes need to be made, change value back to 0, then press PU/EXT button until PU indicator light is on, then change parameters.

Inverter Parameters

Mitsubishi D-700

Part No. : 1174830
Machine : Auto Load, Inject
Inverter : 1 hp, 230 v, 1121618
Date : 4/15/14
Engineer : JRD

Parameter No.	Parameter	Units	Range	Res	Factory	Machine
0	Torque Boost (manual)	%	0 to 30	0.1	6	6
1	Upper limit frequency	Hz	0 to 120	0.01	120	90 *
2	Lower limit frequency	Hz	0 to 60	0.01	0	6*
3	Base frequency	Hz	0 to 400	0.01	60	60
4	Multi-speed setting (high speed)	Hz	0 to 400	0.01	60	40 *
5	Multi-speed setting (middle speed)	Hz	0 to 400	0.01	30	60 *
6	Multi-speed setting (low speed)	Hz	0 to 400	0.01	10	40 *
7	Acceleration Time	Sec	0 to 3600	0.1	5	0.2 *
8	Deceleration Time	Sec	0 to 3600	0.1	5	0.2 *
9	Electronic thermal relay	A	0 to 15	0.1	4.1	0.27 *
73	0-5V/0-10V Selection		0 to 1	1	1	1
79	Operation mode		1-4,6,7	1	0	2 *
125	Terminal 2 frequency setting gain frequency	Hz	0 to 400	0.01	60	60
126	Terminal 4 frequency setting gain frequency	Hz	0 to 400	0.01	60	60
160	Extended function display selection		0,9999	1	0	0
192	A, B, C, Terminal Function Selection		0 to 9999	1	99	11 *
C2	Terminal 2 frequency setting bias frequency	Hz	0 to 400	0.01	0	0
Clr	Parameter clear		0, 1, 2		0	0

** denotes machine settings different from factory settings*

Inverter Parameters Mitsubishi D-700

Pr 79 Operation mode

- 1 keypad only enabled
- 2 external operation only
- 3 freq set via keypad, run via external signal
- 4 freq set via external signal, run via keypad

To set parameters

press PU/EXT button until PU indicator light is on
press MODE button until display reads P 0
turn dial until the desired parameter number is displayed
press SET button to access parameter value
turn dial until desired value is displayed
press SET button to store parameter value
when complete, turn dial back to parameter #0 and press MODE button

If parameter # 79 has been set to 2 and additional changes need to be made, change value back to 0, then press PU/EXT button until PU indicator light is on, then change parameters.

SPARE PARTS LIST

The Spare Parts List lists parts used on the machine identified by the Serial Number on the front cover of this manual. These parts may need replacement during the life of this machine. Grote Company recommends the advanced purchase of these parts for future maintenance and repair.

Items with indented descriptions on the spare parts list are repair parts associated with the immediately preceding primary item. For some of these items, customers may wish to stock only the repair item listed in the indented description.

GROTE PART RETURN POLICY

Before returning anything, please call for a **Return Materials Authorization** number at **1-888-534-7683**.

NOTE: Return Material Authorization numbers are valid for only 60 days. If a customer returns an item without prior authorization, Grote either ships it back to the customer freight collect or refuses the shipment.

To assure fast, accurate processing of a return, have the information below at hand when calling:

- The original invoice number
- The customer purchase order number
- Serial number of the equipment from which these parts come
- Grote part number for returned item/items (customer must receive authorization for all items returned)
- Blade lot #
- Quantity to be returned

Return the item/items properly packaged to avoid damage. Damage incurred due to improper packaging is the responsibility of the shipper. Use the original packaging if possible. Reference the Return Materials Authorization number on the outside of the box. After Grote receives and inspects the items, we determine credit.

NOTE: The customer is responsible for the cost to ship the item(s) to Grote. Credit will not include freight.

Reasons for Return

Defective

A description of the defect is required. Include as much detail as possible. Did the unit fail while in operation? What were the symptoms when the component failed? If the item is covered within the warranty period and free from defects in material and workmanship, credit may be considered. If the item is repairable under warranty, Grote may return it to the customer in lieu of credit.

Replacement Request

A descriptive reason is required for the replacement request. Grote ships a chargeable replacement item to the customer via the customer's preferred method of shipment. Grote issues credit upon return of the item and inspection.

Credit or Replacement

Grote issues credit against the original purchase order/invoice number and sends a credit memo. Customers may apply credit memos to replacement invoices. The customer must notify Grote to apply credit memos to invoices.

Customers may order replacement parts at the time the RMA is issued. Grote sends the priced item via the customer's preferred method of shipment.

Repair/Rebuild:

Grote requires the information below for Repair/Rebuild items:

- The part number of the item to be returned
- The 7-digit serial number of the customer machine
- A customer purchase order number
- A method of shipment for the return

Overstock:

NOTE: A 30% restocking fee may apply. If the item was custom manufactured, credit may be denied.

If returning blades, no open boxes may be returned. With all other returns, Grote determines credit upon inspection.

Shipped Wrong Merchandise

Return items in the original package. Grote issues credit upon return. Correct items ship upon notification of the mistake.

Duplicate Shipment

Return items in the original package. Grote issues credit upon return if we can return the parts to stock and there is no damage.

PARTS AND SERVICE

J. E. GROTE COMPANY, Inc.

CORPORATE HEADQUARTERS: 1160 Gahanna Parkway, Columbus, Ohio 43230 • **Tel:** 614-868-8414 • **Fax:** 614-863-1647

Parts and Service (Toll Free within USA): **Tel:** 1-888-53-GROTE (534-7683) • **Fax:** 1-888-39-GROTE (394-7683)

E-Mail: service@grotecompany.com • sales@grotecompany.com

EUROPEAN SALES/SERVICE: Wrexham Technology Park, Wrexham, North Wales LL137YP, United Kingdom

Tel: Int +44 (0) 1978-362243 • **Fax:** Int +44 (0) 1978-362255

E-Mail: service@intl.grotecompany.com • sales@intl.grotecompany.com

BOM Spares Report

613-VS2, CABINET SLICER, LES



To feed our growing world - Together

PART NO 1165423

<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>Dwg #</u>	<u>QUANTITY</u>
1000144	ROLLER CHAIN, #40, RUSTLESS	P1000144	30.5
1000586	ROLLER CHAIN, #40 CONNECTING LINK	P1000586	1
1000953	MOTOR, AC, .50 HP, 208-230/460/3	V1000953	1
1008436	KEY, SQUARE, 3/16, 1.00 LG	D1022075.	1
1014946	RETAINING RING, EXTERNAL .625 SHAFT	P1014946	2
1016303	BEARING, PLATED, 1.500" ID	P1016305	2
1026630	BUSHING, BRNZ, FL, .38, .50, .50	P1026630	1
1028659	SCRAPER, BLADE GUIDE SLOT	NO - DWG	1
1028660	WIDTH GAUGE, BLADE GUIDE SLOT	NO - DWG	1
1028661	DEPTH GAUGE, BLADE GUIDE SLOT	NO - DWG	1
1029538	TUBING, PVC, CLEAR, 1/4 OD, 1/8 ID	P1029538	30
1044067	WASHER, DELRIN, 1.50, .630, .125	D1010118.	2
1044194	LATCH, FLUSH-PULL	P1044194	2
1055426	SENSOR, PROX, INDUCTIVE, NO, NPN	P1055426	1
1058451	##CLUTCH BRAKE, CB-8, 1 STOP,CW,24VDC		1
1066568	ROLL PIN, 5/16 DIA X 2.00 LG	P1066568	1
1067420	SPRING, COMP, DIE (BLUE) MP	P1067420	1
1068609	LATCH, SLOTTED, QUARTER TURN PULLUP	P1068609	2
1068781	SEAL, SHAFT, 1.00 SHAFT, 1.50HSG SS	P1068781	1
1068782	BEARING ASSY, TAPERED ROLLER, 3/4"	P1068782	1
1068786	O-RING, 2 X 2 3/16 X 3/32 (NOM)	P1068786	2
1070011	BEARING CAP, FRONT, IDLE PULLEY	1070011	1
1070040	BLADE PULLEY, 7.395 CROWN DIA.	D1070040	2
1070635	SWITCH, SAFETY, INTERLOCK, 24VAC/DC	P1070635	2
1070724	BUSHING, BRNZ, FL, .75, 1.00, .50	P1070724	1
1071314	BLADE WIPER, UPPER	A1071314	1
1071315	BLADE WIPER, LOWER	A1071315	2
1071513	BUSHING, X GAP SHAFT, BRASS	A1071513	2
1071757	LATCH, KNOB TP, QUARTER TURN PULLUP	P1071757	1
1071892	BAND BLADE, KNIFE EDGE, 6'- 0"	D1012289.	25
1073309	CIRCUIT BREAKER, 2 POLE, 10A, 480V, 1077	P1073309	2
1073466	LATCH, ENCL, STN STL,CE,W/ 28MM CAM	P1073446	4
1073695	LATCH, ENCL, STN STL,CE,W/ 24MM CAM	P1073695	0
1074331	RELAY, SAFETY, MSR117T, 24V AC/DC	P1074331	1
1075366	BLADE GUIDE, 613,CB	1075366	1
1077348	BUSHING, 5/8"ID, .072-.135 THK SHT	P1077348	2
1077427	HINGE, DOOR POSITIONING	P1077427	4
1078050	ROD END, FEMALE, 3/4 DIA,ROLLER BRG	V1078050	1
1079933	CIRCUIT BREAKER, 2 POLE, 4A, 480V		1
1082326	ROD END, MODIFIED, MALE, 3/4" BORE	A1082326	1
1083765	GLOVES, ST STL CORD, KNIT, MEDIUM	P1083765	2
1083779	MOTOR, AC, .75 HP, 115/208/230/1 ++	V1083779	1
1087329	CABLE, QD, M12, 5M, R/A, 4 PIN		5
1087624	RELAY, SPDT, 24 VDC, ULTRA-SLIM		1
1087800	BEARING CAP, REAR IDLE PULLEY	B1087800	1
1096807	PUMP, MINI-BELLOWS, 1/2" 24VDC LGRV	V1096807	1

BOM Spares Report



To feed our growing world - Together

613-VS2, CABINET SLICER, LES

PART NO 1165423

1100760	SEAL, FACE, .998-1.002 DIA, VR1, FO	1
1115372	SCREW, THUMB, KNRL, SHD, M6-1.0 X 16	2
1120110	POWER SUPPLY, 24 VDC, 2A, DIN	1
1120141	GEARMOTOR, 230V 3-PHASE, 1/20 HP, 335RPM	1
1121618	INVERTER, 1 HP, 230 V, FR-D700 ++	2
1123677	PLC MODULE, MLOGIX, 2 IN/2 OUT ANA++	1
1124630	DIODE PLUG, PHOENIX	4
1127982	INVERTER, 2 HP, 230 V, FR-D700 ++	1
1128461	SWITCH, CONTACT, NC, M22	14
1131069	KNOB, M10-1.50, BLIND FEMALE, NYLON	2
1137134	SWITCH, ENET, UNMANAGED	1
1140269	SWITCH, ESTOP OPERATOR, M22	3
1141332	CONV BELT, CLEATRAC, 13.14" X 100"ENDLES	1
1141621	PLC MODULE, MLOGIX, 8 IN/6 RLY OUT	1
1143108	SWITCH, SAFETY, 2NC,1N0, 24 VDC+++ +	1
1143109	CABLE, QD, M12, 5M, STRT, 6 PIN	1
1143238	MOTOR, AC, 25W, 18:1, 230V 3PH	1
1143610	CABLE, ETHERNET, RJ45 CAT 5 3',BLK	3
1149174	PLC, AB 1100, 10/6 I/O, VAC LINE++	1
1149249	KEYLESS BUSHING, 2.362 OD, 1.250 ID	1
1149573	CONV BELT, WIRE, 13 1/2" FLAT FLEX	1
1149812	SHUTTLE ACTUATOR WELDMENT, 613 1149812	1
1150071	SHUTTLE ACTUATOR, PAWL, 613 1150071	1
1152463	REDUCER, 90, 20:1, 56C IN, L OUT	1
1152852	COLLAR, 2 PC CLAMPING, 1.00 ID, MET	6
1154772	CONTACTOR, MINI, 24 VDC, 9 A, NO	0
1154773	CONTACTOR, MINI, 24 VDC, 16 A, NO	0
1154774	AUX CONTACT, 300-M, 2NO/2NC	0
1155421	SWITCH, PB, MOM, M22, ILLUM	1
1155424	SWITCH, LENS, PB, FLUSH, BLU, M22	1
1155430	SWITCH, LED, BLU, M22	1
1155431	SWITCH, CONTACT, NO, M22	1
1155432	SWITCH, PB, DBL, GRN/RED, M22,ILLUM	0
1159273	FTG, AIR, EL, R1/4, T8, P	4
1160357	TUBING, RED, 6MM OD, POLYURETHANE	0
1160358	TUBING, BLUE, 6MM OD, POLYURETHANE	24
1160359	FTG, AIR, STR, R1/8, T6, N	0
1160618	TUBING, BLACK, 6MM OD, POLYURETHANE	224
1160619	TUBING, YELLW, 6MM OD, POLYURETHANE	0
1160620	TUBING, RED, 8MM OD, POLYURETHANE	36
1160622	TUBING, BLUE, 8MM OD, POLYURETHANE	48
1160623	TUBING, YELLW, 8MM OD, POLYURETHANE	36
1160642	VALVE, PNEU, 5/2, R1/4, 1 SOL, BDY P	3
1161044	BEARING, SS, 20 MM ID, 3 BLT FLG	4
1162005	KNOB, SS, M8 X 16MM, WING SCREW	4

BOM Spares Report



To feed our growing world - Together

613-VS2, CABINET SLICER, LES

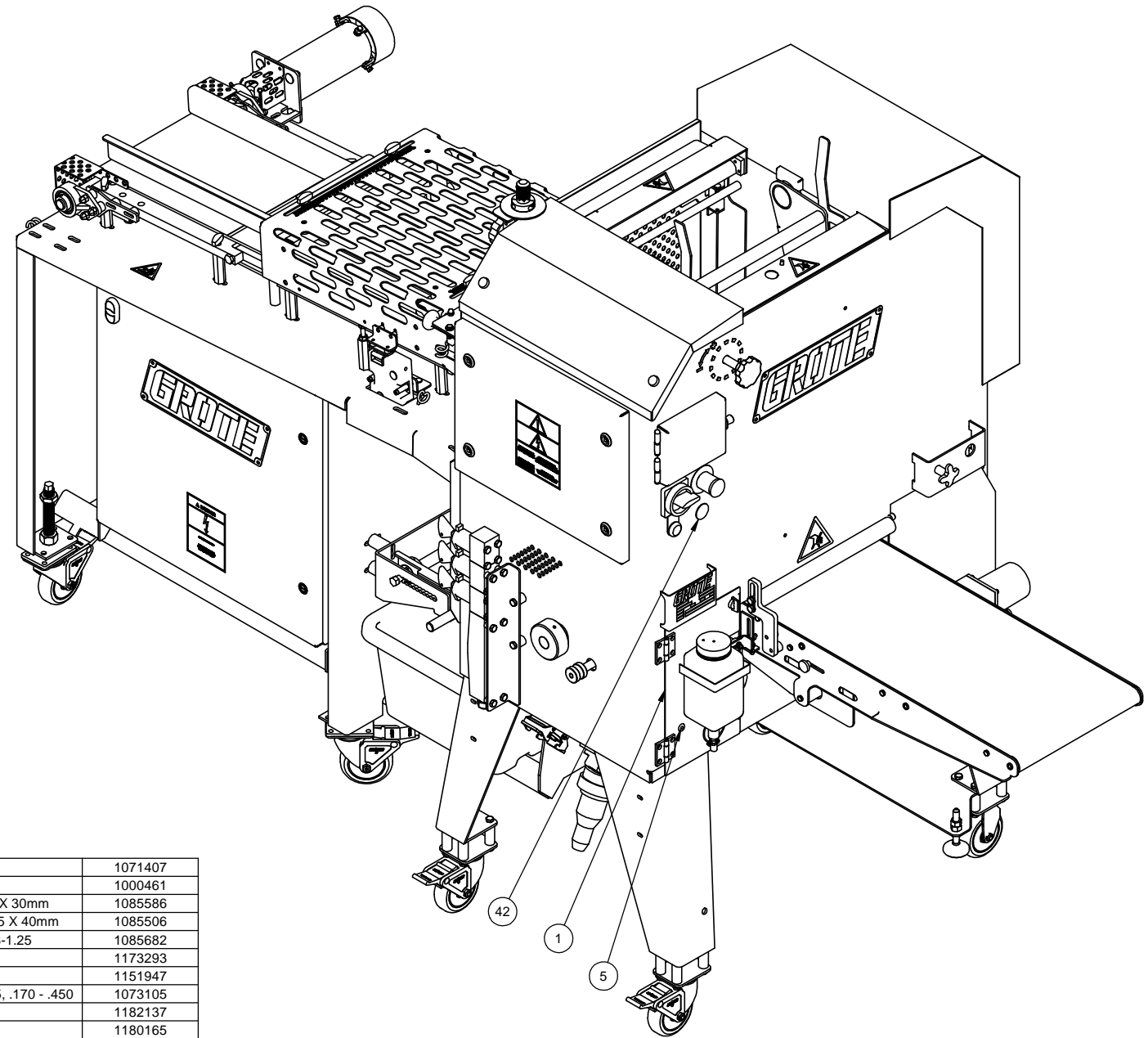
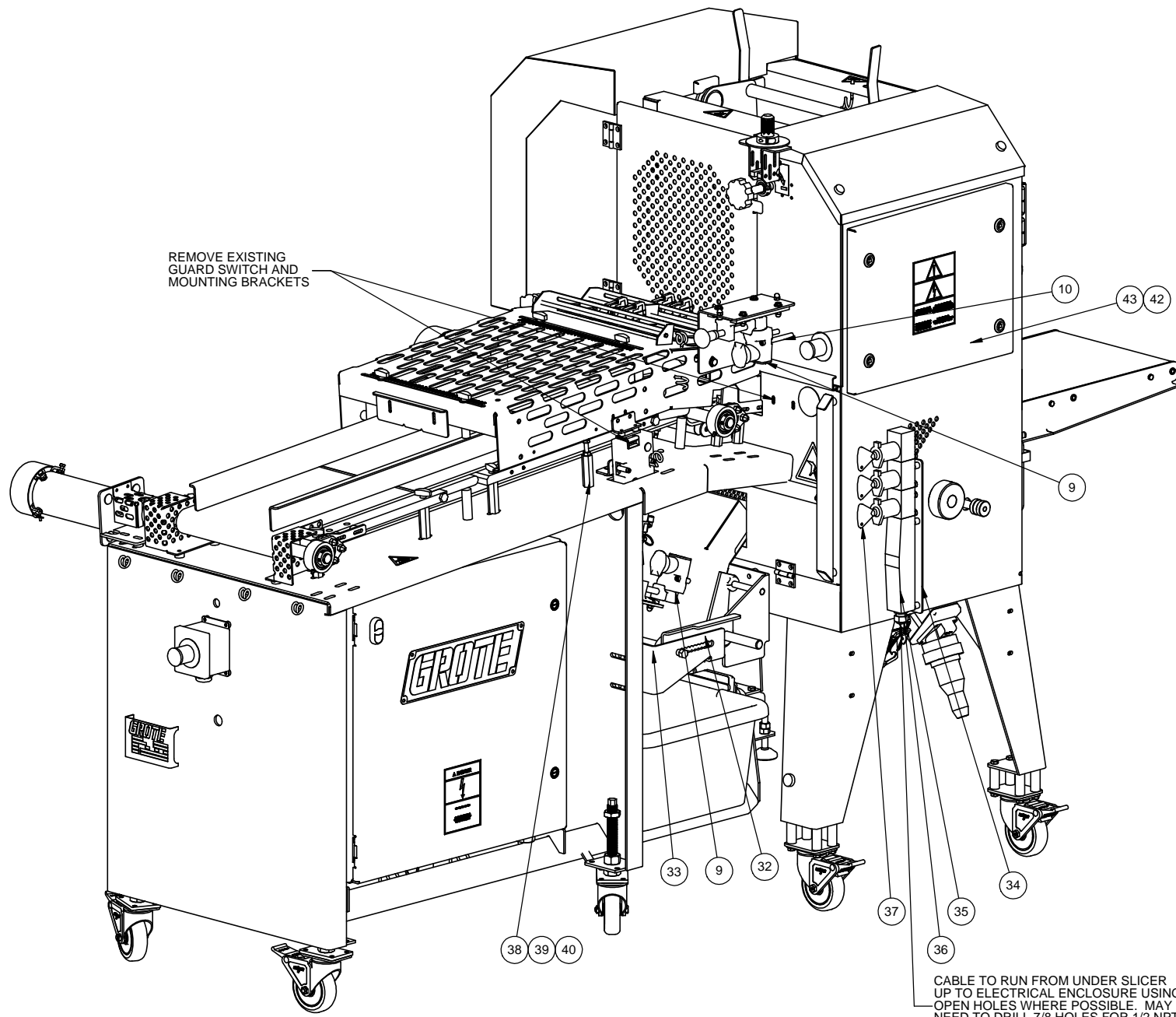
PART NO 1165423

1165684	AIR CYL, 25MM BORE, 125MM STROKE, SS	1165684	0
1165752	MNT BRG, 3 BLT FLG X 20 MM	1165752	2
1165753	MNT BRG, 3 BLT FLG X 20 MM + GUARD	1165753	2
1165756	FEED BELT, MICROPITCH, 12"WD X 93.25LG	1165756	1
1165757	INJECT BELT, MODULAR, 12" WD X 27.7" LG	1165757	1
1165782	MOTOR MNT,LES, AUTO LOAD	1165782	2
1165784	INJECT BELT ASY, MODULAR BELT, 613-LES	1165784	1
1165853	GEARMOTOR, 230V 3-PHASE, 1/20 HP, 89 RPM	1165853	1
1173279	COUPLING, OLDHAM, COMPLETE, 16MM, KEYED	1173279	2
1173304	AIR CYL, 20MM BORE, 50MM STROKE, SS		1
1175284	SENSOR, EYE, 20-350 MM, PNP	1175284	4
1176801	ZERO SPEED SENSOR, WIE, 24VDC		1
1184312	CONTACTOR, MINI, 24 VDC, 20 A, NO, LP1K		2
1184313	AUX CONTACT, LP1K, 2NO/2NC		2
6800-0046-01	FTG, AIR, FLC, R1/4, T8, P, ELBOW		1
6800-0052-01	FTG, AIR, FLC, R1/4, T6, P, ELBOW		2
6800-0097-01	FTG, AIR, QRC, GF1/4, S, SR23 PLUG		1
6800-0104-01	FTG, AIR, STR, G1/4, T8, N		1

DRAWINGS

The following pages contain drawings for the major assemblies and an electrical schematic comprising the Multi-Slicer. Parts illustrated in the assemblies are identified with Grote Part Numbers listed on the following page.

DATE	MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY
A	ADDED ITEMS 38-40	C.JL	10/26/2015
B	ITEM 3 WAS 1151947, ITEM 6 WAS 1085585 QTY 6, ITEM 9 WAS 1151948, ITEM 12 WAS 1051349, ITEM 16 WAS 1099789, ITEM 24 WAS 1085491, ITEM 27 QTY WAS 8, ITEM 35 WAS 1180149, ADDED ITEMS 41-43, ADDED NOTES	C.JL	1/9/2016



QTY	ITEM NO.	Description1	Description2	Part_Number
2	20	CAP NUT METRIC	M8 - 1.25	1085708
6	19	CAP NUT METRIC	M6 - 1.0	1085707
6	18	SPACER, SS	.50, .34, .50	1094689
2	17	SPACER, SS	.50, .28, .50	1008744
2	16	SPACER, SS	.50, .28, .25	1009216
1	15	SLIDE PLATE, ACTUATOR, INTLK		1180139
2	14	T-SLOT GUIDE, ACTUATOR, INTLK		1180138
4	13	WASHER, FLAT, SS	.50, .27, .09 THK	1021803
2	12	WASHER, FLAT, SS	.75, .34, .13 THK	1050882
1	11	MOUNT BRACKET, ACTUATOR, INTLK		1180137
2	10	STANDOFF, SS	.375, M6 X 1 X .31, 2.50	1180140
2	9	DOOR LOCK, SINGLE, BOLT STYLE		1151946
2	8	SPACER, TAPPED, SS	.75, M8 X 1.25, .75	1163976
2	7	SOC SCR METRIC	M6-1 X 10mm	1085576
4	6	SOC SCR METRIC	M6-1 X 35mm	1085587
1	5	GROMMET, RUBBER	.25 ID X .625 OD	1096406
1	4	MOUNT BRACKET ASY, CONV KEY, 613, INTRLK		1179589
1	3	DOOR LOCK, SINGLE, SLAM STYLE		1151945
1	2	MOUNT BRACKET, KEY LOCK UNIT, 613, INTRL		1179570
1	1	COVER WLDMT, IDLE EXIT, 613, INTRLK		1179568

QTY	ITEM NO.	Description1	Description2	Part_Number
1	43	SEAL, KNOCKOUT, 1/2 NPT HEYCO #3833		1071407
2	42	HOLE SEAL, STN STL, 1/2" CONDUIT		1000461
2	41	SOC SCR METRIC	M6-1 X 30mm	1085586
1	40	HEX SCR METRIC	M8-1.25 X 40mm	1085506
1	39	HEX NUT METRIC	M8-1.25	1085682
1	38	CONVEYOR MNT STANDOFFS, AUTO LOAD LES		1173293
3	37	KEY, DOOR LOCK		1151947
1	36	CORD GRIP	M20 X 1.5, .170 - .450	1073105
1	35	KEY SWITCH, SOL CNTRL, S40, 3 KEY, MOD		1182137
1	34	MOUNT BRACKET, KEY SWITCH, S40		1180165
1	33	PIVOT SHAFT, 613-VS2-LES		1180142
1	32	REJECT CHUTE WLDMT, 613-LES		1180143
1	31	MOUNT BRACKET, ACTUATOR, INTLK		1180141
2	30	FL SOC SCR METRIC	M6-1.0 X 20MM	1085639
2	29	FL SOC SCR METRIC	M6-1.0 X 16MM	1085638
6	28	HEX SCR METRIC	M8-1.25 X 25mm	1085503
14	27	HEX SCR METRIC	M8-1.25 X 12mm	1085500
2	26	HEX SCR METRIC	M6-1 X 25mm	1085492
2	25	HEX SCR METRIC	M8-1.25 X 16mm	1085501
4	24	HEX SCR METRIC	M6-1 X 20mm	1085491
2	23	FLATWASHER	5/16	1005344
8	22	FLATWASHER	1/4"	1005282
2	21	CAP NUT METRIC	M6 - 1.0	1085707

ITEMS 3, 9, 35, AND 37 ARE SERIALIZED. PLEASE CONTACT GROTE OR SEE TOP LEVEL MACHINE BOM TO FIND SPECIFIC SERIAL NUMBER.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE: .XX = ±.01 .XXX = ±.005 FRACTIONAL: ±.03 ANGLES: ±0°-30'

125

THIRD ANGLE PROJECTION

DESIGNED BY: C.JL DRAWN BY: C.JL DATE: 7/31/15

SCALE: 1:6

WELD, DRILL

REFERENCE: 0

DWG NO: 1180136

REV: B

WEIGHT: 2483.57 lbs.

SHEET: 1 OF 2

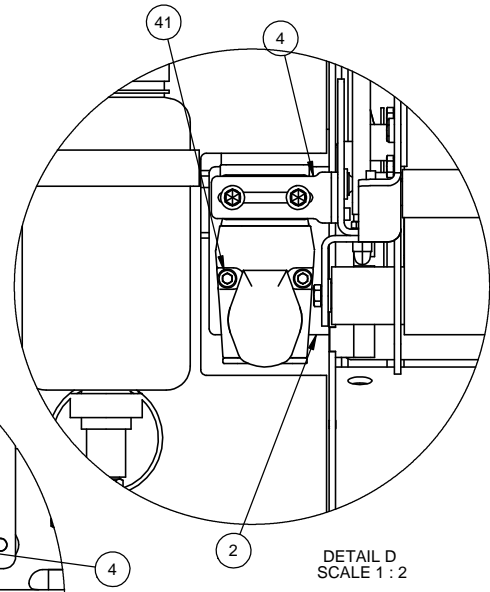
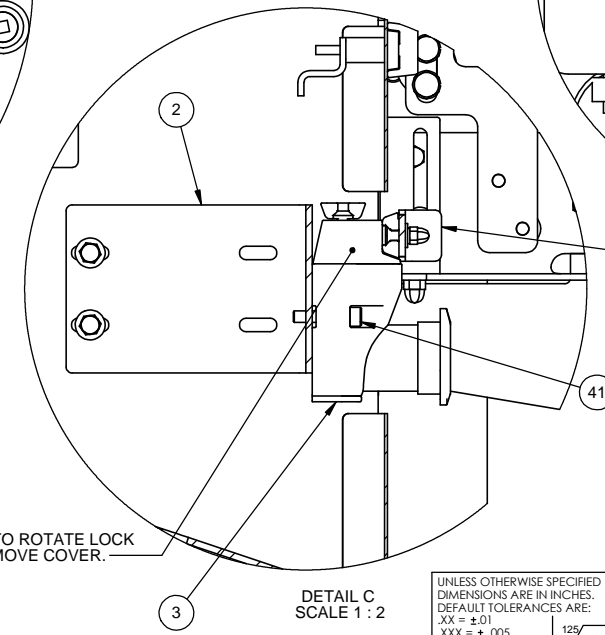
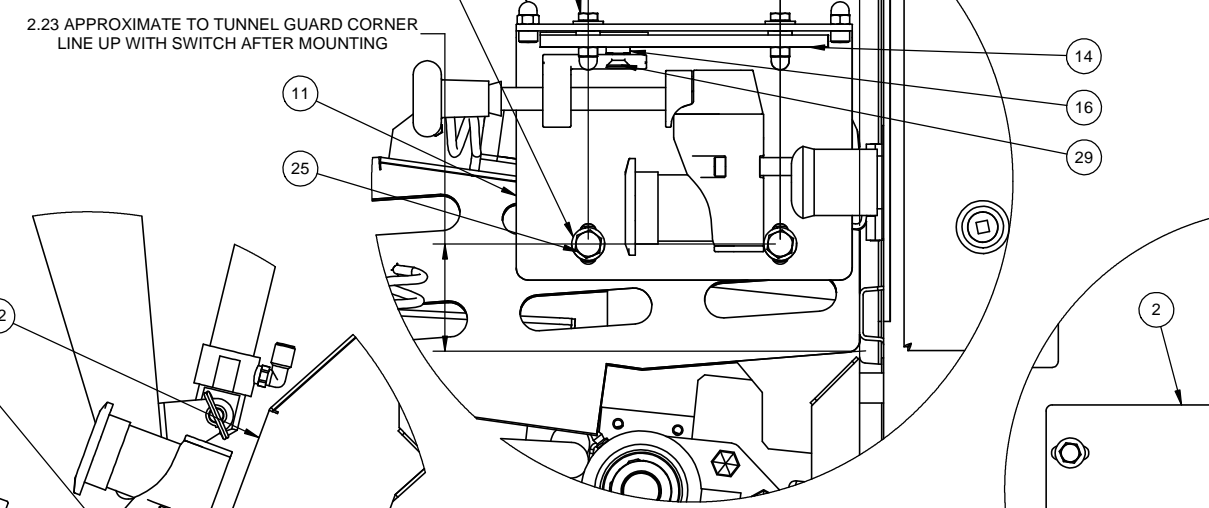
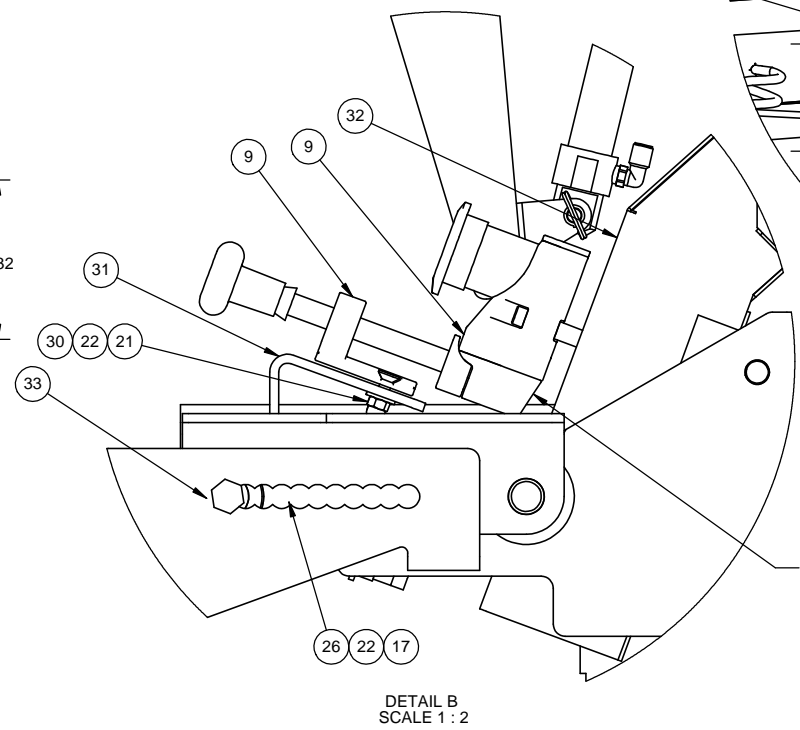
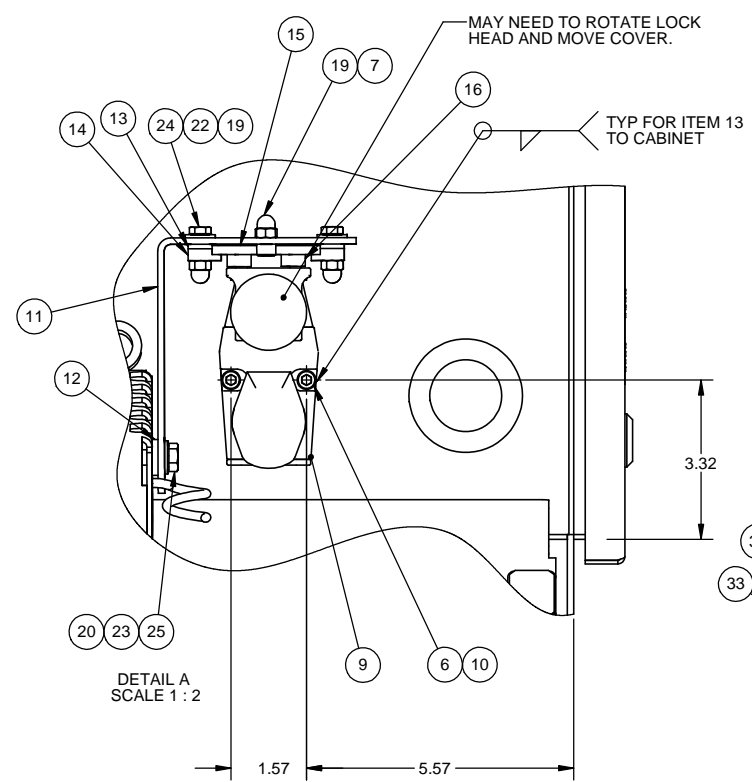
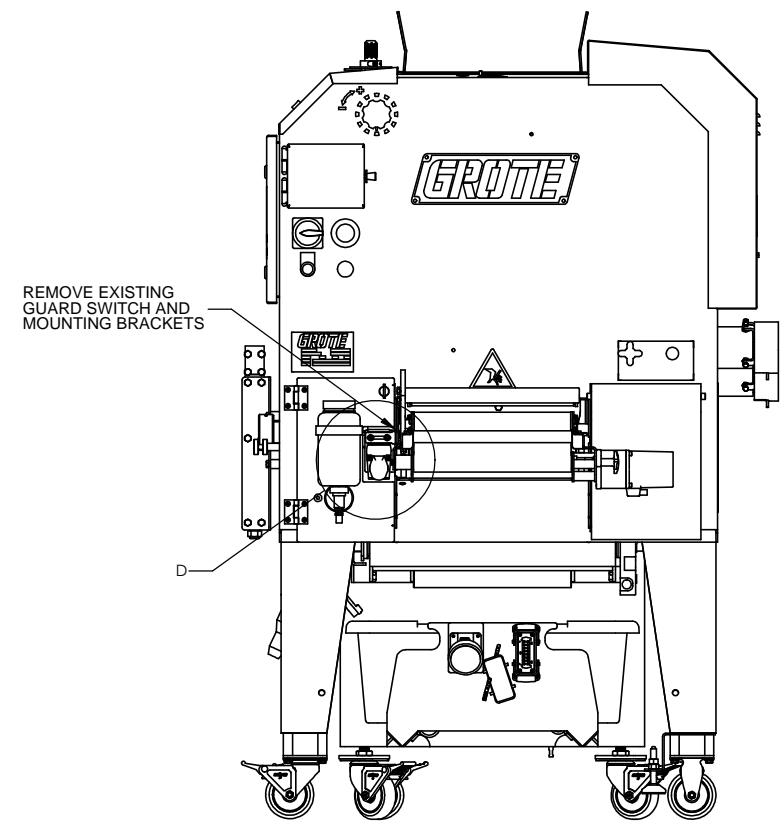
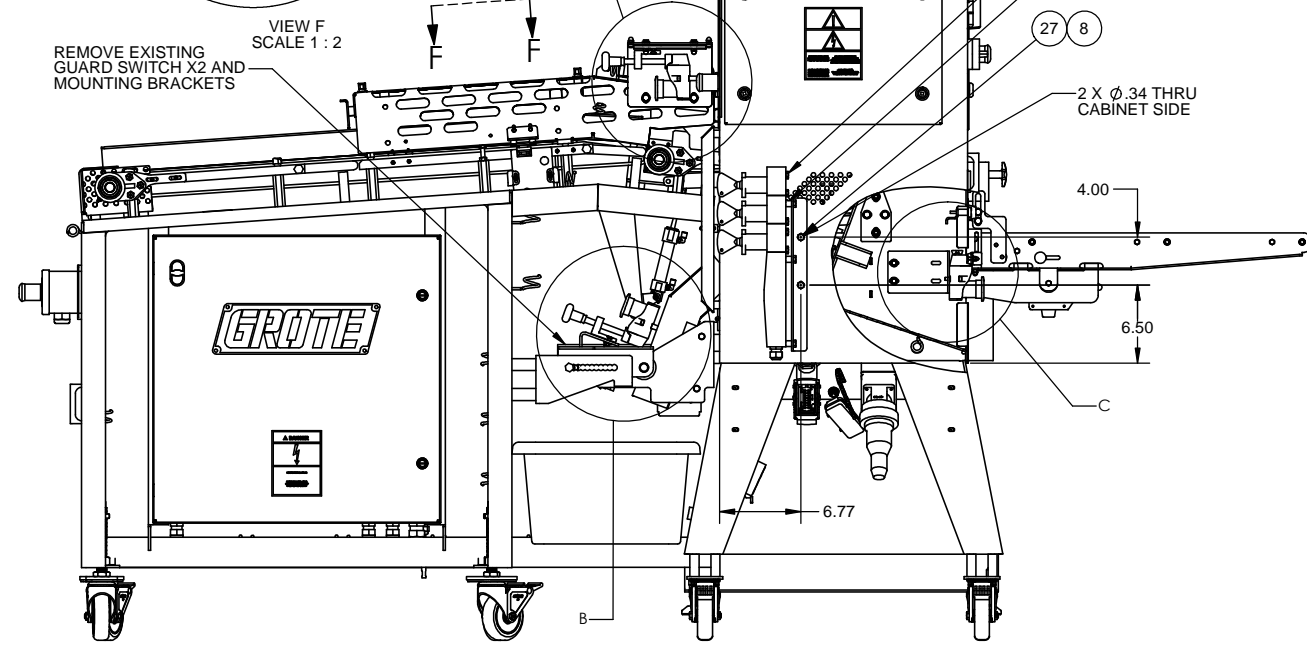
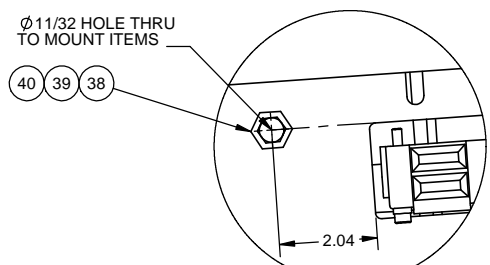
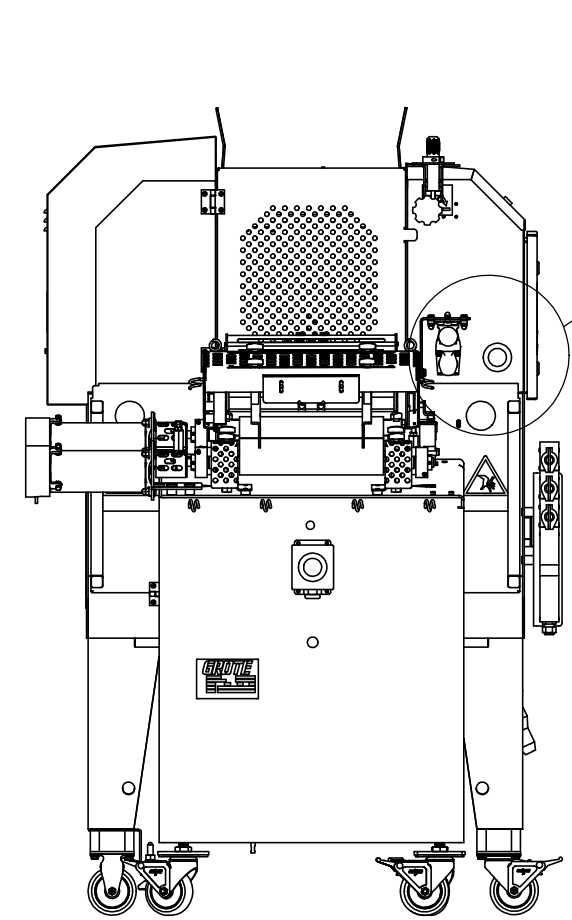
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FIELD MOD, INTLK, 613-VS2-LES

DRW REV: PRE-08
CONFIG: Default
MODEL: 1180136
Monday, January 11, 2016
LOCAL VAULT: 1180136

DATE	MO	LINE	QNTY

DRW REV: PRE-08
 CONFIG: Default
 MODEL: 1180136
 Monday, January 11, 2016
 C:\LOCAL VAULT\1180136



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ±0°-30'

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TITLE: FIELD MOD, INTLK, 613-VS2-LES

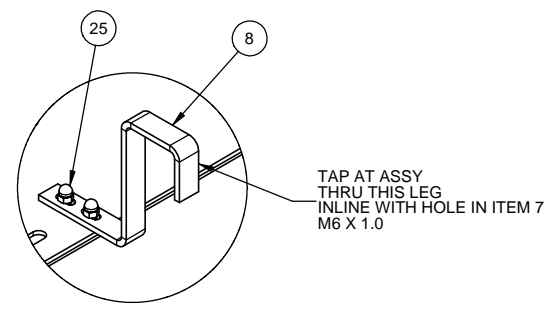
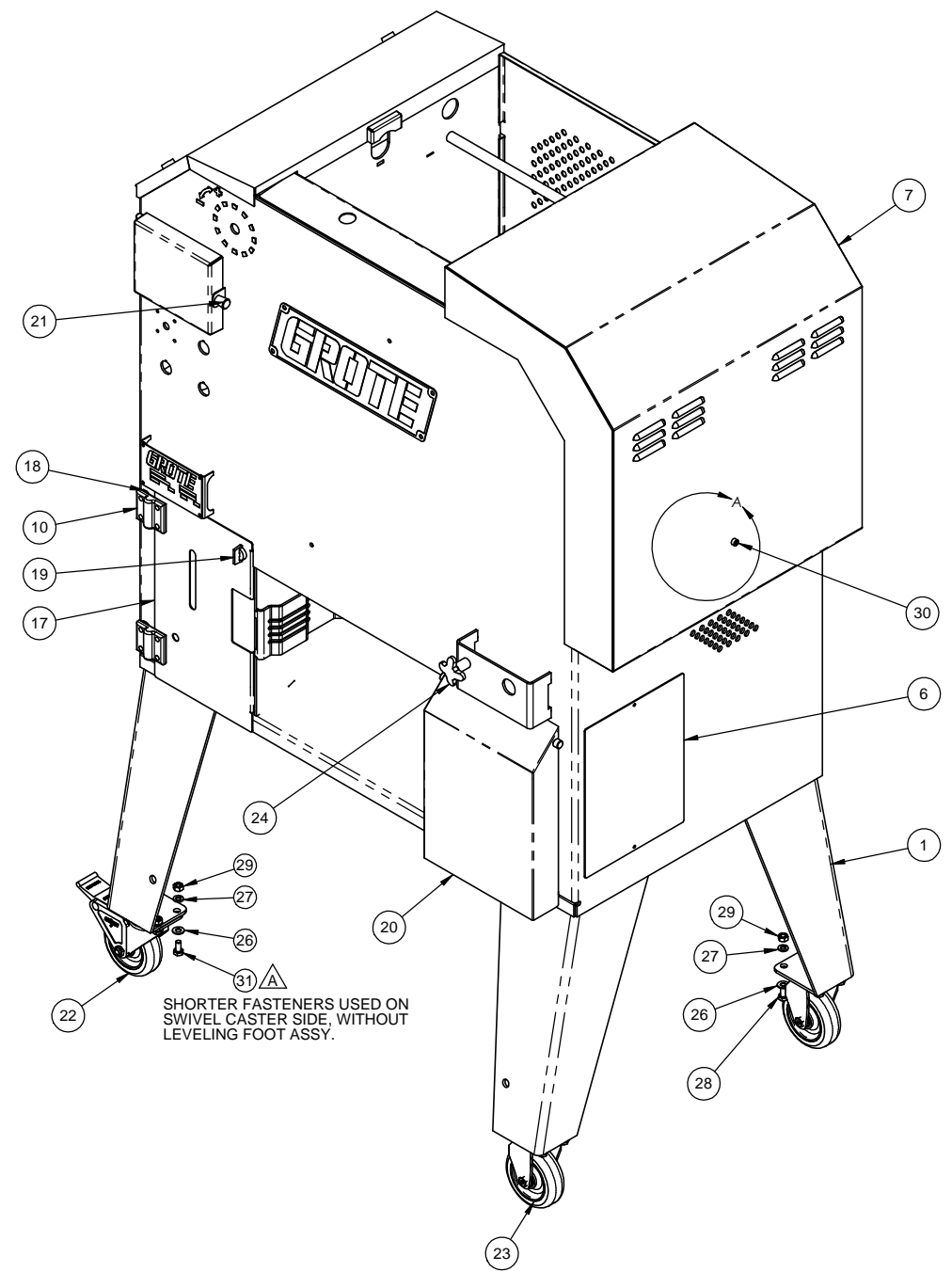
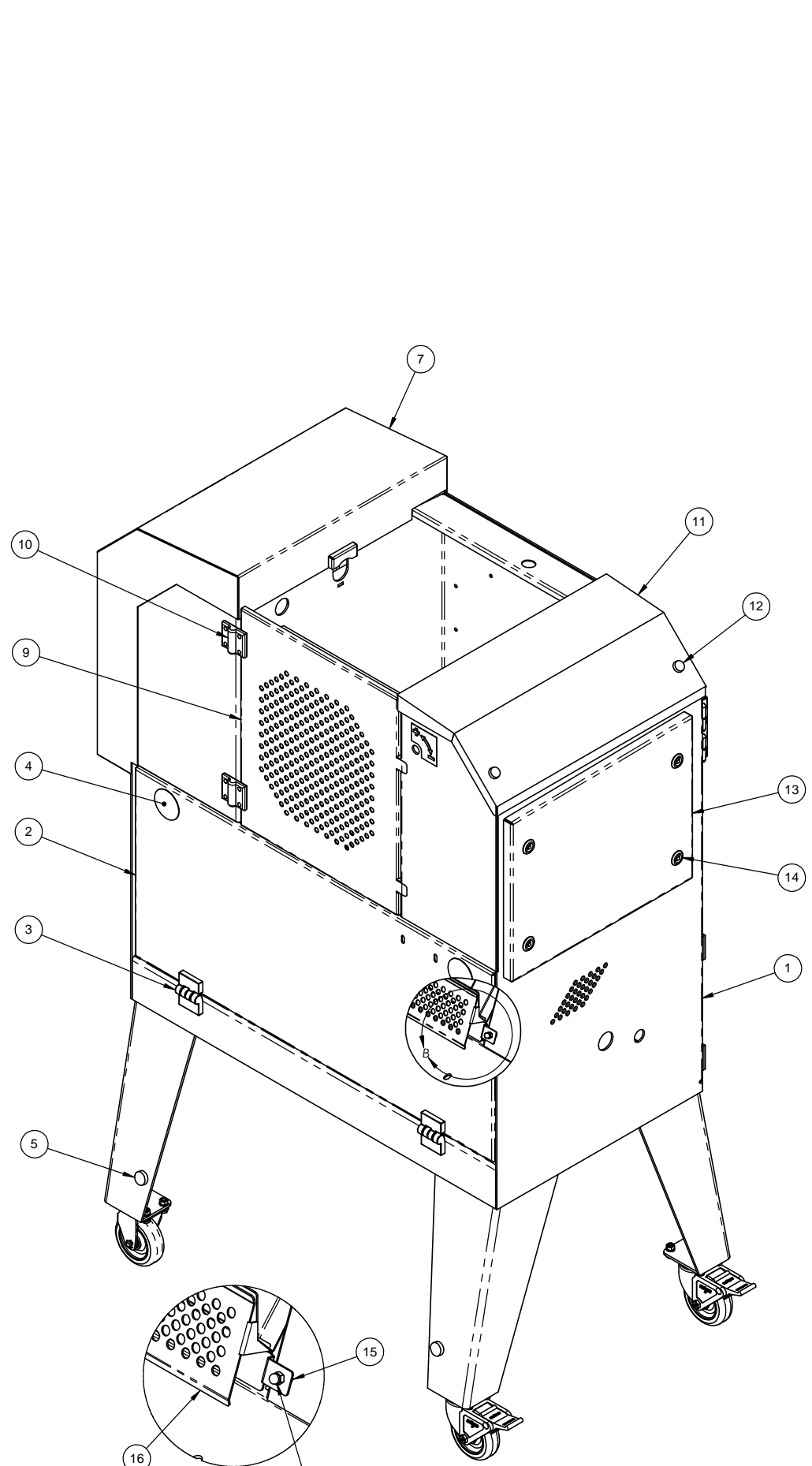
SIZE	REFERENCE	DWG NO	REV
D	0	1180136	B

THIRD ANGLE PROJECTION

DESIGNED BY	DRAWN BY	DATE	SCALE	WEIGHT	SHEET
CJL	CJL	7/31/15	1:8	2483.57 lbs.	2 OF 2

SPECIFICATION
WELD, DRILL

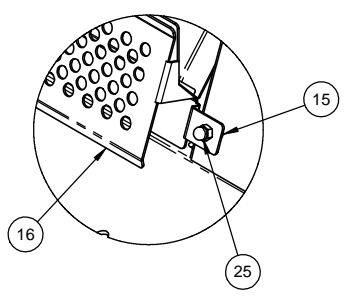
REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY	DATE
A	ITEM 28 WAS 1085503 QTY 16, ADDED ITEM 31	CJL		12/8/2010



DETAIL A
SCALE 3 : 8

SHORTER FASTENERS USED ON SWIVEL CASTER SIDE, WITHOUT LEVELING FOOT ASSY.

QTY	ITEM NO.	Description1	Description2	Part_Number
8	31	HEX SCR METRIC	M8-1.25 X 16mm	1085501
1	30	SOC SCR METRIC	M6-1 X 8mm	1085575
16	29	HEX NUT METRIC	M8-1.25	1085682
8	28	HEX SCR METRIC	M8-1.25 X 20mm	1085502
16	27	LOCKWASHER	5/16"	1005330
16	26	FLATWASHER	5/16	1005344
4	25	CAP NUT METRIC	M6 - 1.0	1085707
1	24	KNOB, M10-1.50, BLIND FEMALE, NYLON		1131069
2	23	CASTER, RIGID, 4" SS		1125701
2	22	CASTER, SWIVEL, 4" SS, TOTAL LOCK		1125700
1	21	KNOB, SPRING PLUNGER, THREAD IN		1099257
1	20	COVER, BLADE MOTOR 613		1072058
1	19	LATCH, KNOB TP, QUARTER TURN PULLUP		1071757
2	18	SHIM, HINGE		1077428
1	17	COVER, IDLE EXIT, 613		1149403
1	16	BLADE GUARD WELDMENT, 613		1149402
2	15	SPACER, SS	.50, .28, .345	1026734
4	14	LATCH, ENCL, STN STL, CE, W/ 28MM CAM		1073466
1	13	LID ASSY, ELEC ENCLOSURE, 613		1151147
2	12	LATCH, SLOTTED, QUARTER TURN PULLUP		1068609
1	11	COVER WELDMENT, IDLE TOP, 613		1149398
4	10	HINGE, DOOR POSITIONING		1077427
1	9	DOOR, CLUSTER ACCESS, 613		1149397
1	8	MOUNT BRACKET, DRIVE COVER, 613		1149396
1	7	COVER WELDMENT, DRIVE TOP, 613		1149395
1	6	COVER, DRIVE SIDE		1077716
2	5	GROMMET, BUMPER, 1"OD, 5/16"H, 1/2"HOLE		1123500
2	4	LATCH, FLUSH-PULL		1044194
2	3	HINGE, PLASTIC, M6 X 1.0		1149277
1	2	COVER, BLADE ACCESS, 613		1149394
1	1	CABINET WELDMENT, 613		1156622



DETAIL B
SCALE 3 : 8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE: .XX = ±.01 .XXX = ±.005 FRACTIONAL: ±.03 ANGLES: ±0°-30'

THIRD ANGLE PROJECTION

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FILE: CABINET & COVERS ASSY, 613

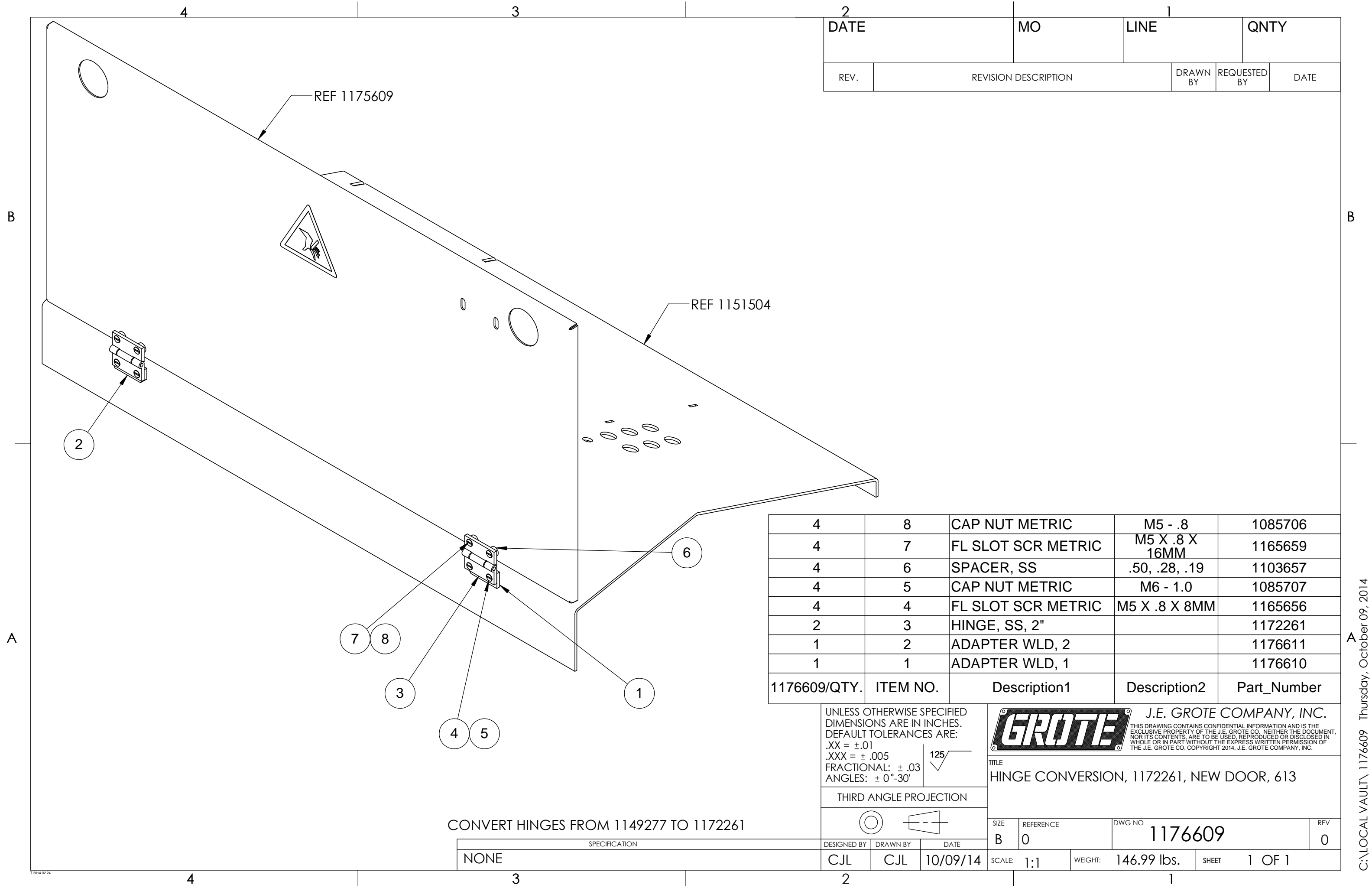
DESIGNED BY: CJL DRAWN BY: CJL DATE: 06/25/10

SIZE: D REFERENCE: 1152886 DWG NO: 1156621

SCALE: 3:16 WEIGHT: 331.27 lbs. SHEET: 1 OF 1

SPECIFICATION	None
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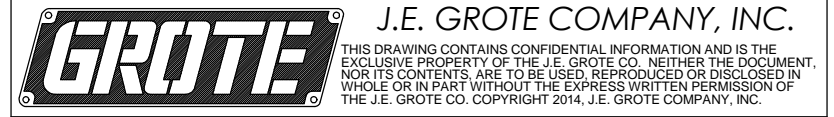
C:\LOCAL VAULT_013-V2_20120420\1156621 Friday, May 18, 2012



2		1	
DATE	MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY
			DATE

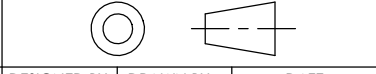
4	8	CAP NUT METRIC	M5 - .8	1085706
4	7	FL SLOT SCR METRIC	M5 X .8 X 16MM	1165659
4	6	SPACER, SS	.50, .28, .19	1103657
4	5	CAP NUT METRIC	M6 - 1.0	1085707
4	4	FL SLOT SCR METRIC	M5 X .8 X 8MM	1165656
2	3	HINGE, SS, 2"		1172261
1	2	ADAPTER WLD, 2		1176611
1	1	ADAPTER WLD, 1		1176610
1176609/QTY.	ITEM NO.	Description1	Description2	Part_Number

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ± 0°-30'



TITLE
 HINGE CONVERSION, 1172261, NEW DOOR, 613

THIRD ANGLE PROJECTION



SIZE	REFERENCE	DWG NO	REV
B	0	1176609	0

CONVERT HINGES FROM 1149277 TO 1172261

SPECIFICATION		
NONE		

DESIGNED BY	DRAWN BY	DATE
CJL	CJL	10/09/14

SCALE:	WEIGHT:	SHEET
1:1	146.99 lbs.	1 OF 1

A

B

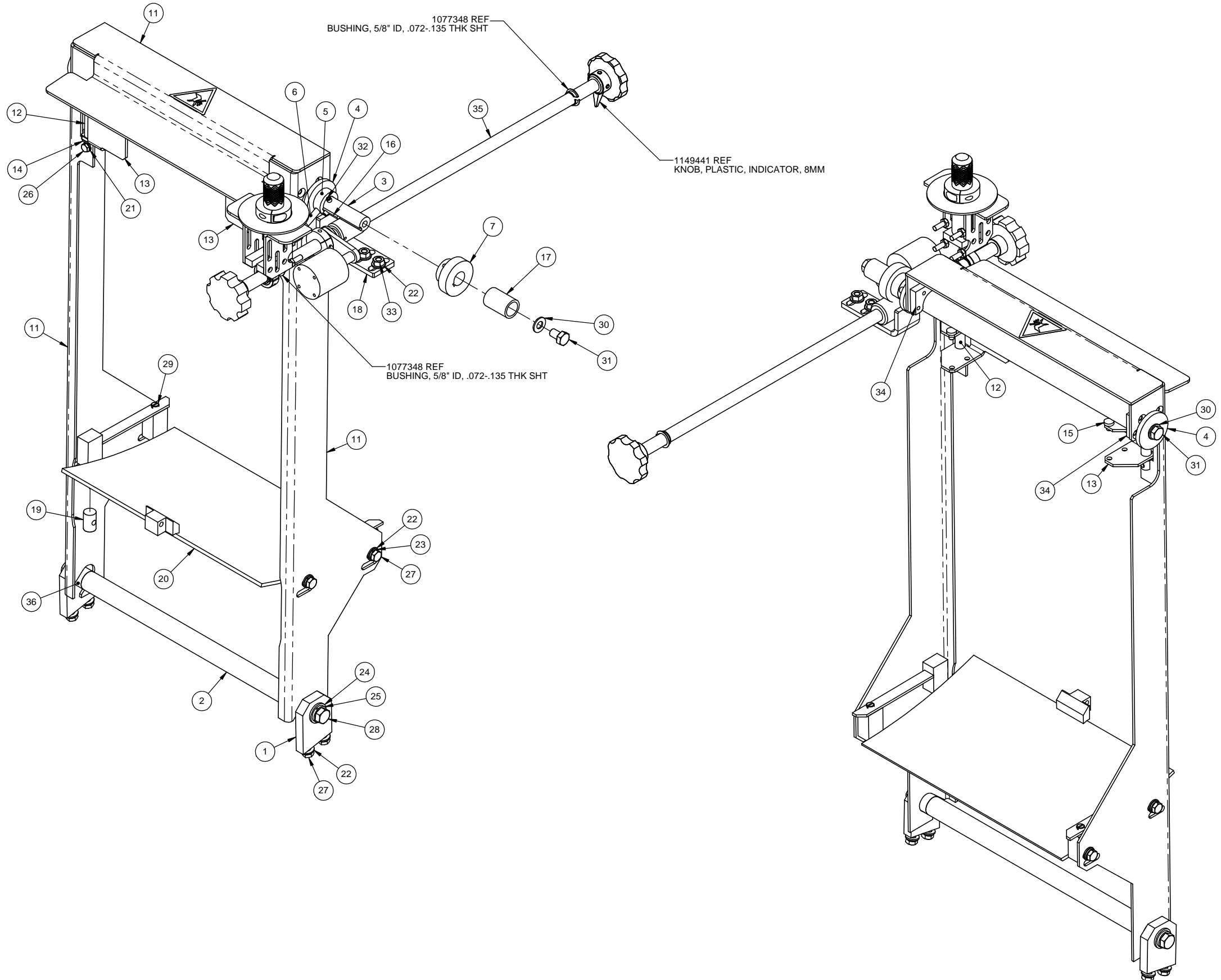
MODEL: 1176608

CONFIG:1176609

DRW REV:PRE-00

C:\LOCAL VAULT\ 1176609 Thursday, October 09, 2014

DATE	MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY
A	REMOVED ITEM 8 P/N 1145014 QTY 1. REMOVED ITEM 9 P/N 1077348 QTY 2. REMOVED ITEM 10 P/N 1149441 QTY 1.	D.J.G	C.J.L
			6/23/2014



QTY	ITEM NO.	Description1	Description2	Part Number
2	36	BUSHING, DELRIN, 1.000, .750, .500		1136664
1	35	SHAFT SHIFTING ASSY, THK ADJ		1173964
2	34	WEAR PAD, THICKNESS TRAY, 613-VS2-LES		1165707
2	33	HEX NUT METRIC	M8-1.25	1085682
2	32	SET SCR METRIC CUP	M6 -.1 X 6MM	1101505
2	31	HEX SCR METRIC	M10-1.5 X 16mm	1085512
2	30	FLATWASHER	3/8"	1005281
2	29	SET SCR METRIC FLAT SLOT	M10-1.5X25	1158925
2	28	HEX SCR METRIC	M12-1.75 X 30mm	1085526
8	27	HEX SCR METRIC	M8-1.25 X 20mm	1085502
4	26	HEX SCR METRIC	M6-1 X 12mm	1085489
2	25	LOCKWASHER	1/2"	1005324
2	24	FLATWASHER	1/2"	1005328
8	23	LOCKWASHER	5/16"	1005330
10	22	FLATWASHER	5/16"	1005344
4	21	LOCKWASHER	1/4"	1005326
1	20	THICKNESS TRAY WELDMENT, 613, WIDE		1175477
4	19	BARREL NUT, METRIC	0.625, 1 LG, M8-1.25	1153496
1	18	BRACKET, STOP, THK TRAY, 613		1169169
1	17	SPACER, SS	1.00, .77, 1.50	1149504
1	16	KEY, SQUARE, SS	.188 X 1.00	1008436
4	15	BUTTON, NYLON, WITH STEM .12X.50DIA		1076351
4	14	WASHER, FLAT, SS	.75, .53, .075 THK	1076707
2	13	LOCK, THICKNESS ASSY, 613		1156752
2	12	PIVOT SHAFT, THK TRAY FRAME LOCK, 613		1149446
1	11	THICKNESS TRAY FRAME WELDMENT, 613-LES		1165709
	10			
	9			
	8			
1	7	WORM GEAR MODIFICATION, 613		1149450
1	6	ROLL PIN	5/16 DIA X 2.00 LG	1066568
1	5	MODIFIED SPACER		1077353
2	4	BUSHING, X GAP SHAFT, BRASS		1071513
1	3	SHAFT, THICKNESS, 613		1149438
1	2	LOWER SHAFT, 613 THICKNESS ASSY, METRIC	1.00, M12 X 1.75 X .75, 16.00	1136665
2	1	THICKNESS TRAY FRAME MOUNT, 613		1149448



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE: .XX = ±.01 .XXX = ±.005 FRACTIONAL: ±.03 ANGLES: ±0°-30'

THIRD ANGLE PROJECTION

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TITLE: THICKNESS TRAY ASSY, 613-VS-LES

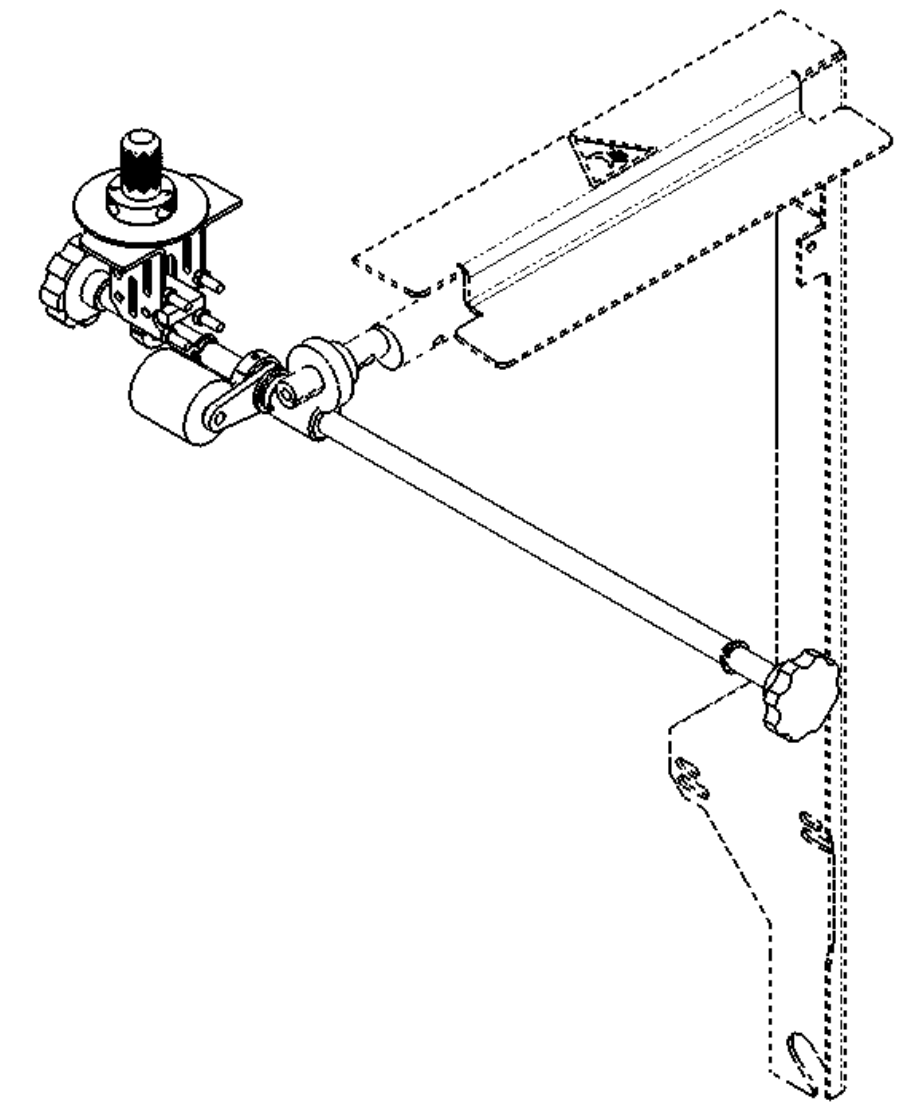
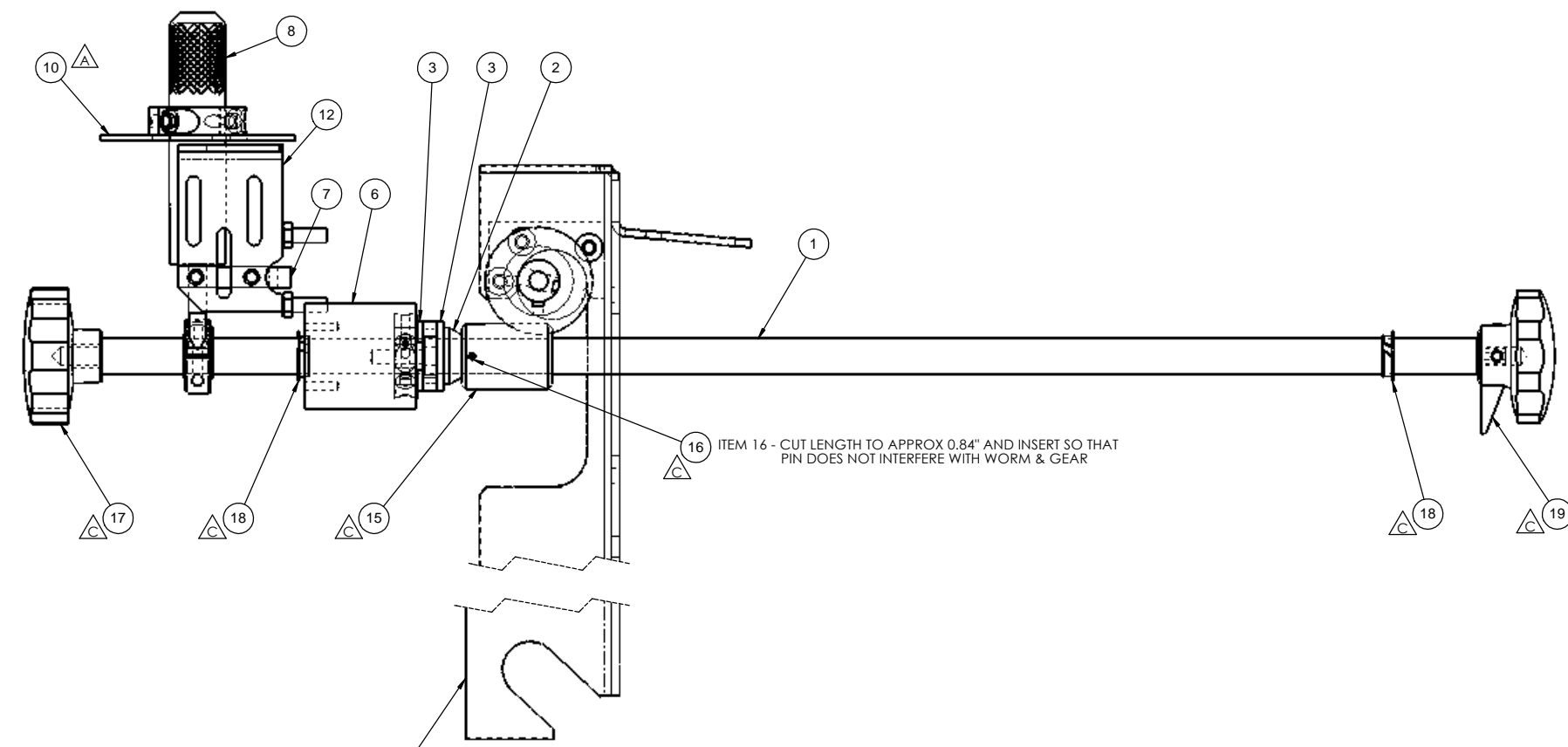
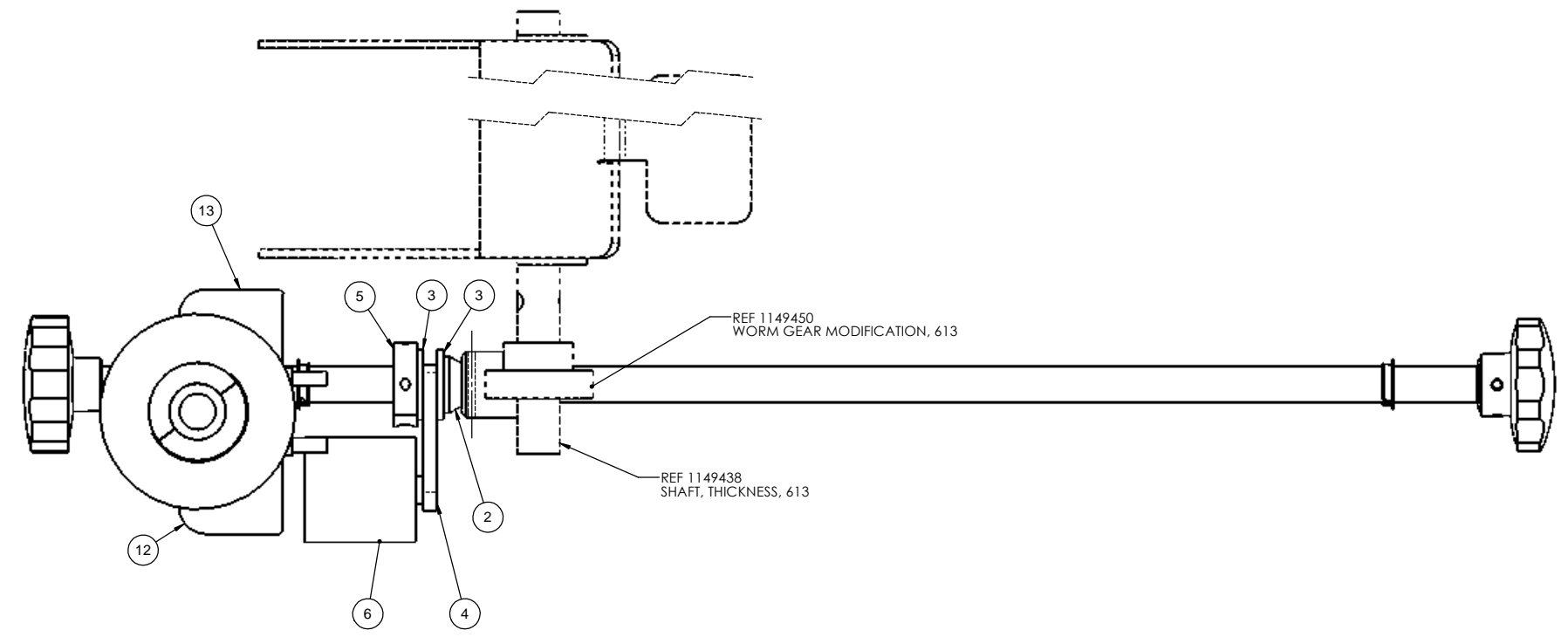
SIZE: D REFERENCE: 1149437 DWG NO: 1165708

DESIGNED BY: JTF DRAWN BY: DLC DATE: 6/3/2014 SCALE: 3:8 WEIGHT: 300.19 lbs. SHEET: 1 OF 1

SPECIFICATION	REV
NONE	A

DRW REV: PRE-04
CONFIG: Default
MODEL: 1165708
Monday, June 23, 2014
C:\LOCAL VAULT\Steve-King Owens - 613-VS2-STD, SS KIT\ 1165708

REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE
A	ADDED ITEMS FOR THICKNESS LOCK	JTF	JTF	3/23/2014
B	UPDATED VIEWS OF ITEMS 12 & 13.	DLC	JTF	6/3/2014
C	REMOVED ITEM 14 P/N 1165707 QTY 2. ADDED ITEM 15 P/N 1076191 QTY 1. ADDED ITEM 16 P/N 1145014 QTY 1. ADDED ITEM 17 P/N 1149440 QTY 1. ADDED ITEM 18 P/N 1077348 QTY 2. ADDED ITEM 19 P/N 1149441 QTY 1.	DJG	CJL	6/23/2014



QTY.	ITEM	Description1	Description2	Part_Number
1	19	KNOB, PLASTIC, INDICATOR, 8MM		1149441
2	18	BUSHING, 5/8" ID, .072-.135 THK SHT		1077348
1	17	KNOB, PLASTIC, M10 X 1.50		1149440
1	16	PIN, DOWEL, 18-8 SS	0.125 X 1.00	1145014
1	15	WORM MODIFICATION, PLATED		1076191
	14			
1	13	GUARD, THICKNESS LOCK LEFT HAND		1165706
1	12	GUARD, THICKNESS LOCK RH	SEE 1165706 FOR LH	1165705
2	11	RETAINING RING, EXTERNAL, .625 SHAFT		1014946
1	10	GUARD, KNOB, WLD		1165703
1	9	COLLAR, 1 PC CLAMPING, 0.625 ID	7/16 WD	1124393
1	8	HANDLE, CLAMP COLLAR, 10-32,		1165701
1	7	LOCK SHOE, THICKNESS ADJ.		1165702
1	6	AIR CYL, 1.12 BORE, 1.0 STK, SS		1116574
1	5	COLLAR, 2PC CLAMP	0.625 ID	1082806
1	4	FORK, SHIFTING		1173933
2	3	WASHER, DELRIN	1.25, 0.64, 0.117	1151122
1	2	WASHER, SHIFTING		1173934
1	1	SHAFT, THICKNESS ADJUSTMENT		1173963

REF 1165711
SUPPORT, THK TRAY FRAME, LH, 613-LES

ITEM 16 - CUT LENGTH TO APPROX 0.84" AND INSERT SO THAT
PIN DOES NOT INTERFERE WITH WORM & GEAR

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ±0°-30'

THIRD ANGLE PROJECTION

DESIGNED BY: GAB
DRAWN BY: DLC
DATE: 01-22-14

SCALE: 1:2

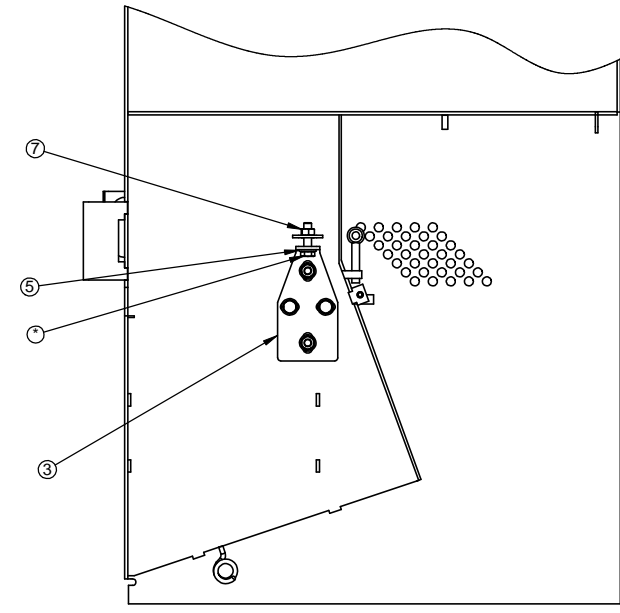
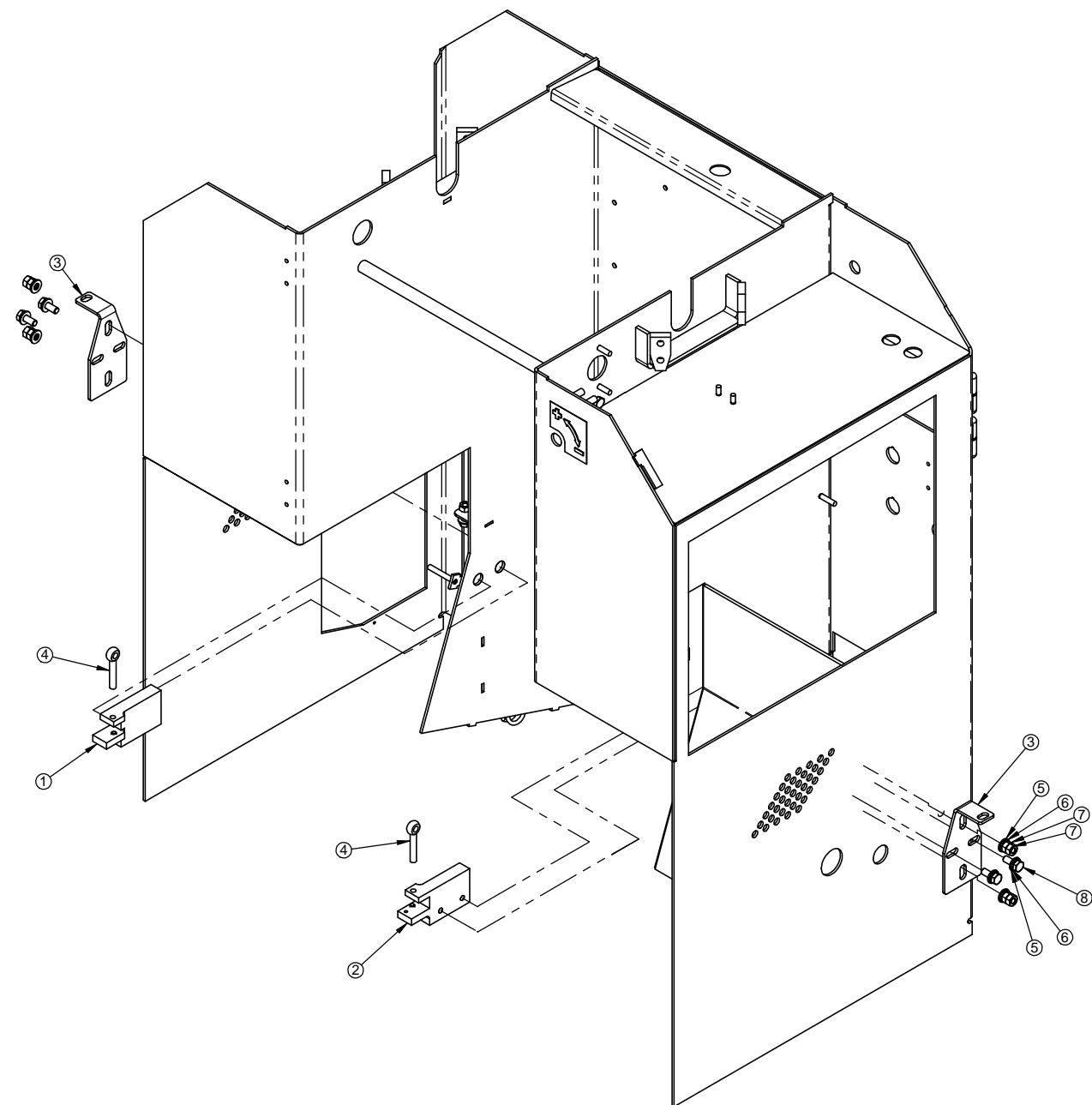
WEIGHT: 24.61 lbs.

SHEET 1 OF 1

J.E. GROTE COMPANY, INC.
SHAFT SHIFTING ASSY, THK ADJ
1173964

SPECIFICATION	DESIGNED BY	DRAWN BY	DATE	SCALE	WEIGHT	SHEET
NONE	GAB	DLC	01-22-14	1:2	24.61 lbs.	1 OF 1

DRW REV:PRE-05
CONFIG:FOR ASY DRAWING
MODEL: 1173964
WEDNESDAY, JUNE 25, 2014
LOCAL VAULT: 1173964



QTY	ITEM NO.	Description1	Description2	Part_Number
2	9	HEX SCR METRIC	M8-1.25 X 16mm	1085501
4	8	HEX SCR METRIC	M8-1.25 X 20mm	1085502
10	7	HEX NUT METRIC	M8-1.25	1085682
8	6	LOCKWASHER	5/16"	1005330
10	5	FLATWASHER	5/16	1005344
2	4	EYE BOLT, SS, 50MM, M8-1.25 X 32MM		1151155
2	3	VERTICAL ADJUSTMENT BRACKET, 613		1156998
1	2	WELDMENT, BLADE GUIDE MOUNT, RH,613		1156348
1	1	WELDMENT, BLADE GUIDE MOUNT, LH,613		1149606

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ±0°-30'

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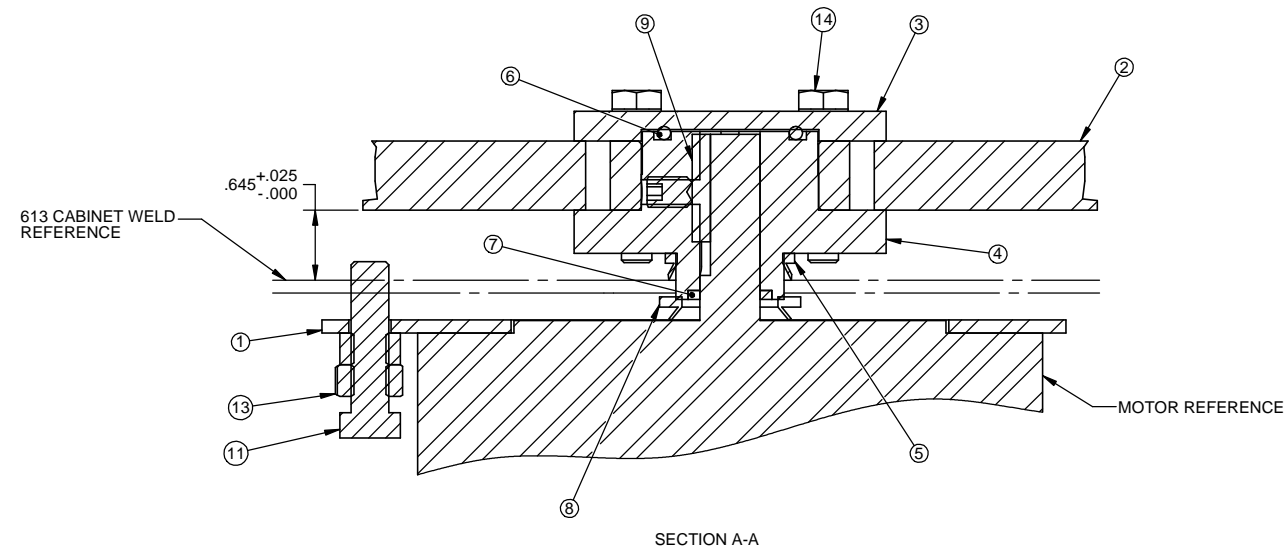
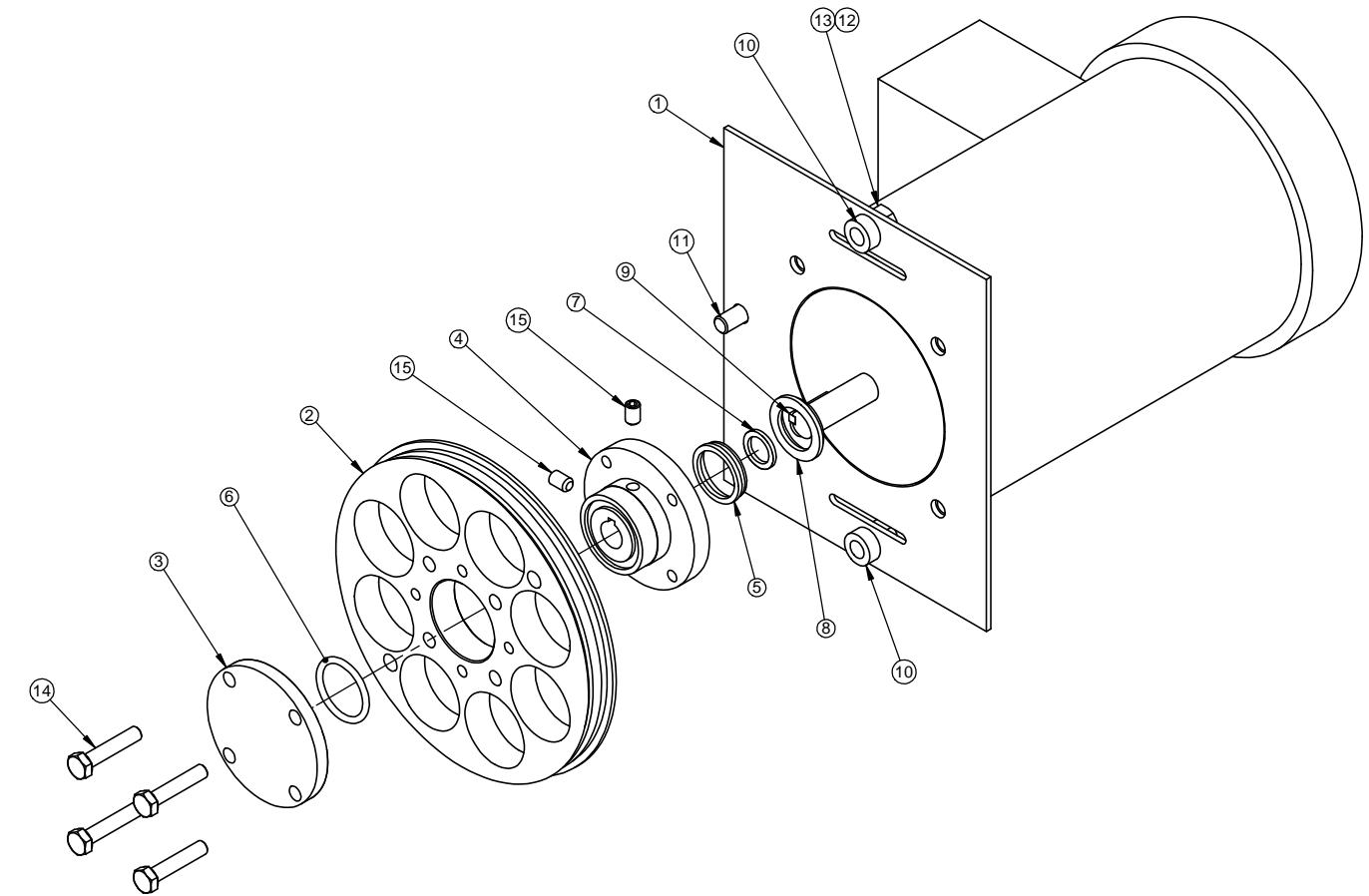
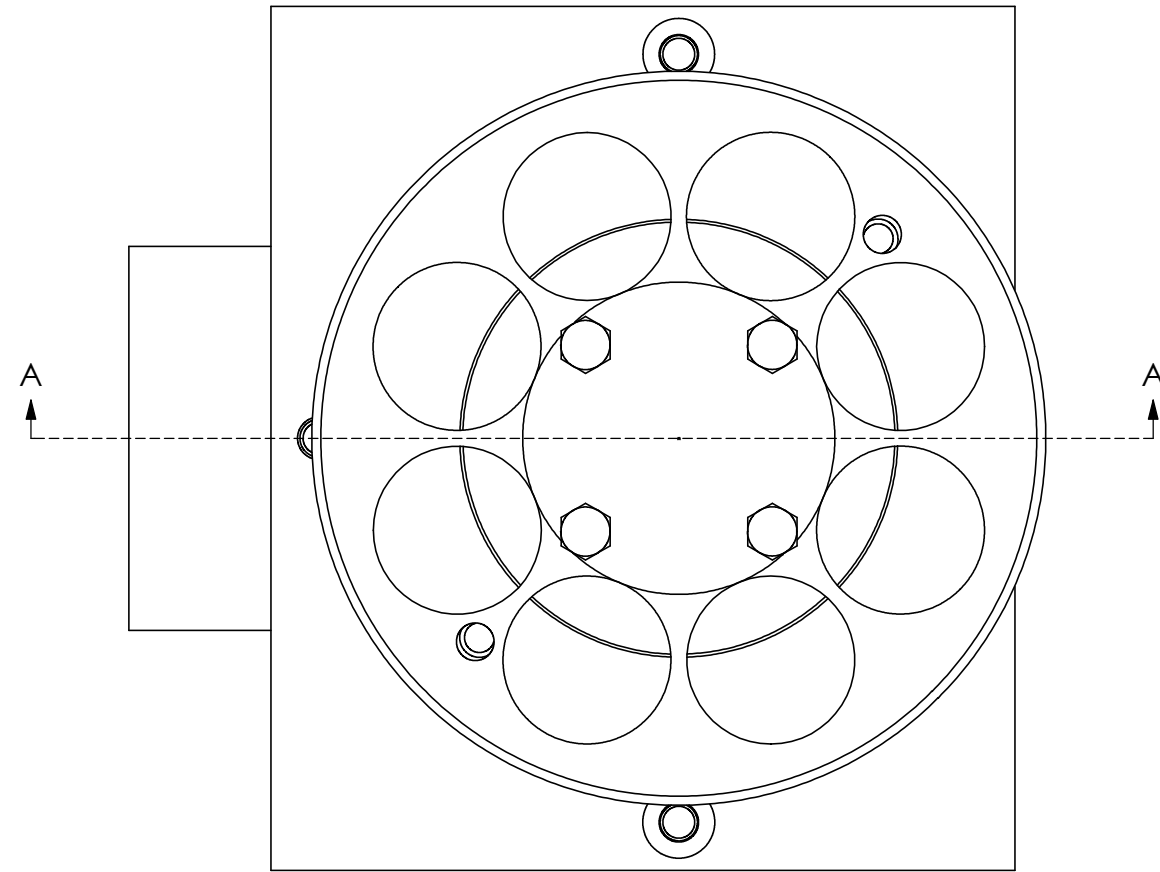
125

THIRD ANGLE PROJECTION

SIZE REFERENCE DWG NO. REV
D 1156347 1156997 0

DESIGNED BY DRAWN BY DATE SCALE WEIGHT SHEET
None C.JL C.JL 8/13/10 1:4 171.72 lbs. 1 OF 1

REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE
A	ADDED ITEMS 11 THRU 15.	DLC	C.JL	10/14/2009



QTY	ITEM NO.	Description1	Description2	Part_Number
2	15	SET SCR METRIC CUP	M8 -1.25 X 12MM	1085723
4	14	HEX SCR METRIC	M8-1.25 X 12mm	1085500
3	13	HEX NUT METRIC	M10-1.5	1085683
2	12	LOCKWASHER	3/8"	1005229
1	11	HEX SCR METRIC	M10-1.5 X 40mm	1085517
2	10	SPACER, SS	.75, .41, .312	1026117
1	9	KEY, SQUARE, SS	.188 X 1.12	1022578
1	8	SEAL, FACE, .998-1.002 DIA, VR1, FO		1100760
1	7	SEAL, SHAFT, .625 SHAFT, .875HSG SS		1077352
1	6	O-RING, 1.25 X 1.50 X .125		1028188
1	5	SEAL, FACE, 1.07-1.14 DIA, VR1, FOR		1131604
1	4	HUB, DRIVE PULLEY, 0.625		1149473
1	3	CAP, PULLEY CLAMPING		1070042
1	2	BLADE PULLEY, 7.395 CROWN DIA.		1070040
1	1	MOUNT PLATE, BLADE MOTOR, 613		1149472

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE: .XX = ±.01, .XXX = ±.005, FRACTIONAL: ±.03, ANGLES: ±0°-30'

THIRD ANGLE PROJECTION

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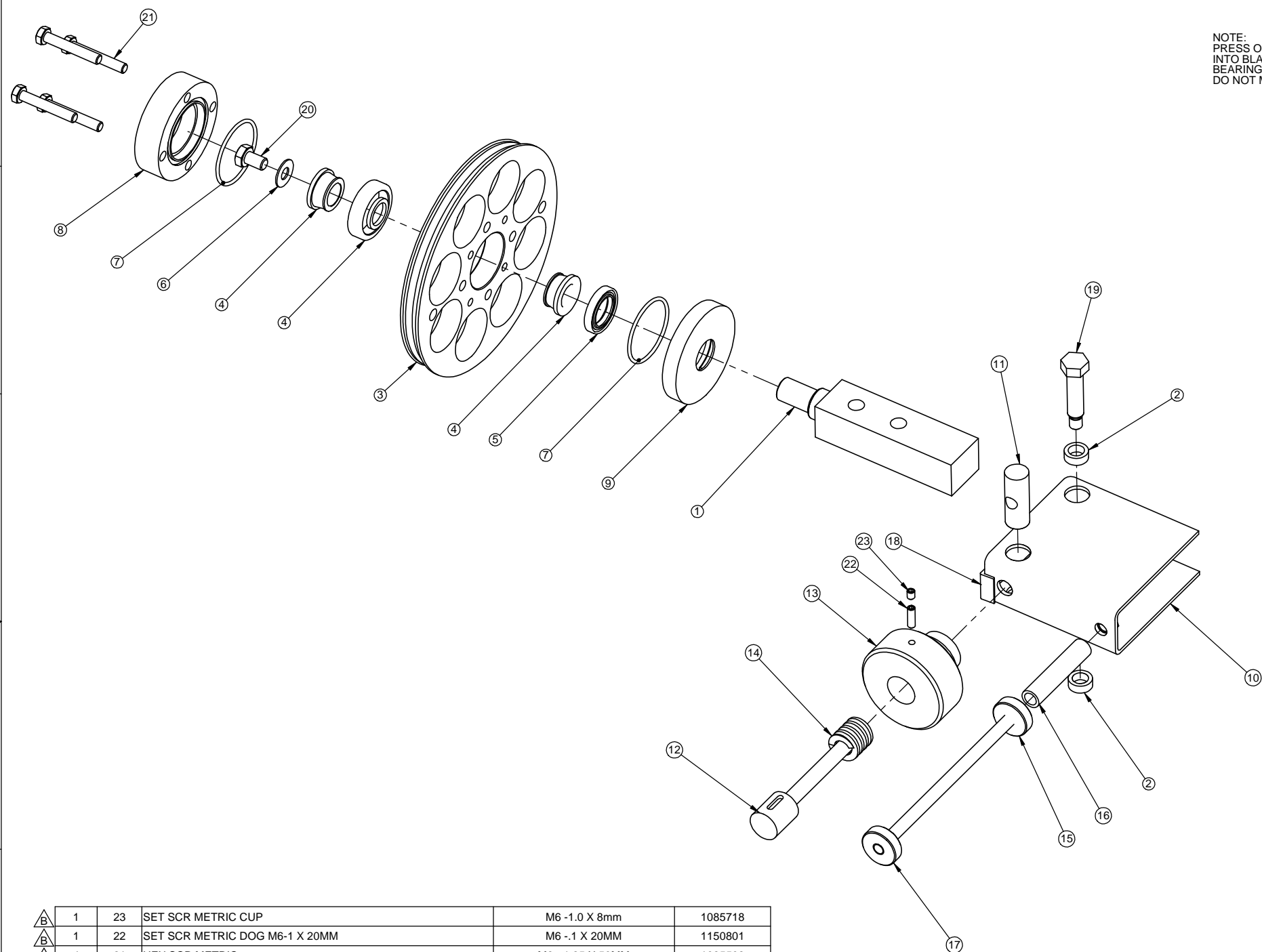
TITLE: PULLEY ASSY, BLADE DRIVE, 613

SIZE: D REFERENCE: 1077827 DWG NO: 1149471 REV: A

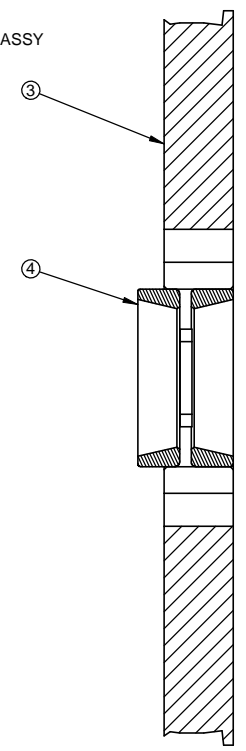
DESIGNED BY: C.JL DRAWN BY: ARB DATE: 7/21/2008 SCALE: 1:1 WEIGHT: 125.61 lbs. SHEET: 1 OF 1

C:\LOCAL VAULT\1149471 Monday, June 16, 2014

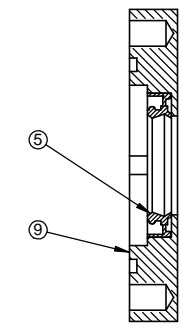
REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY	DATE
A	ITEM 16 WAS 1080785, ITEM 17 WAS 1149484	C.JL	C.JL	12/30/2008
B	ADDED ITEMS 20-23	C.JL	C.JL	10/15/2009



NOTE:
PRESS OUTER RACE CUP OF BEARING ASSY
INTO BLADE PULLEY AS SHOWN.
BEARINGS ASSY IS A MATCHED SET.
DO NOT MIX WITH OTHER ASSY'S.



NOTE:
PRESS SHAFT SEAL
INTO BEARING CAP
PRIOR TO ASSY.



QTY	ITEM NO.	Description1	Description2	Part_Number
1	23	SET SCR METRIC CUP	M6 -1.0 X 8mm	1085718
1	22	SET SCR METRIC DOG M6-1 X 20MM	M6 -1 X 20MM	1150801
4	21	HEX SCR METRIC	M8 - 1.25 X 50MM	1085508
1	20	HEX SCR METRIC	M10-1.5 X 16mm	1085512
1	19	SCREW, SHOULDER, HEAD, HEX, METRIC	0.499, 0.498, 1.800, M10X1.50	1149476
1	18	WEAR STRIP, UHMW SNAP ON, 1/8"		1015841
1	17	PIVOT ADJUSTMENT SCREW, BLADE TENSION ASSY, METRIC		1150803
1	16	TUBE, ROUND, SS	0.625, 0.095, 2.88	1144429
1	15	KNOB, STD, TAPPED	1.25, M10-1.50	1149483
1	14	SPRING, COMP, DIE	1.00, 0.58, BLUE	1067420
1	13	KNOB, BLADE TENSION, DELRIN		1149482
1	12	PLUNGER WLDMT, BLADE TENSION		1149480
1	11	BARREL NUT, METRIC	0.75, 2 LG, M12-1.75	1149479
1	10	TENSION BRACKET, BLADE IDLE, 613		1149478
1	9	BEARING CAP, REAR IDLE PULLEY		1087800
1	8	BEARING CAP, FRONT, IDLE PULLEY		1070011
2	7	O-RING, 2.00 X 2.1875 X .09375		1068786
1	6	WASHER, BELLEVILLE, .402 ID, .906 OD		1149477
1	5	SEAL, SHAFT, 1.00 SHAFT, 1.50 HSG		1068781
1	4	BEARING ASSY, TAPERED ROLLER, 3/4"		1068782
1	3	BLADE PULLEY, 7.395 CROWN DIA.		1070040
2	2	SPACER, SS	.75, .503-506, .282 +0.002 -0.002	1069983
1	1	SHAFT, IDLE, ROLLER BRG, 613		1149475

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ±0°-30'

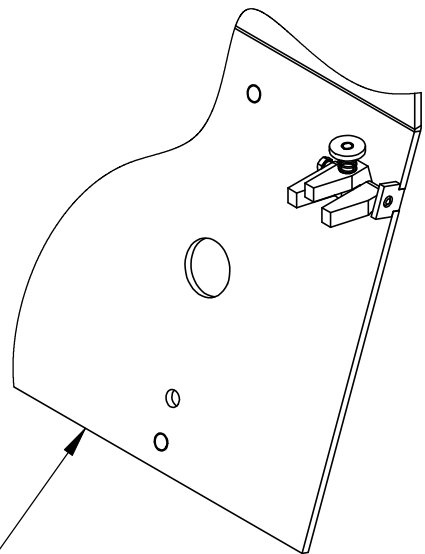
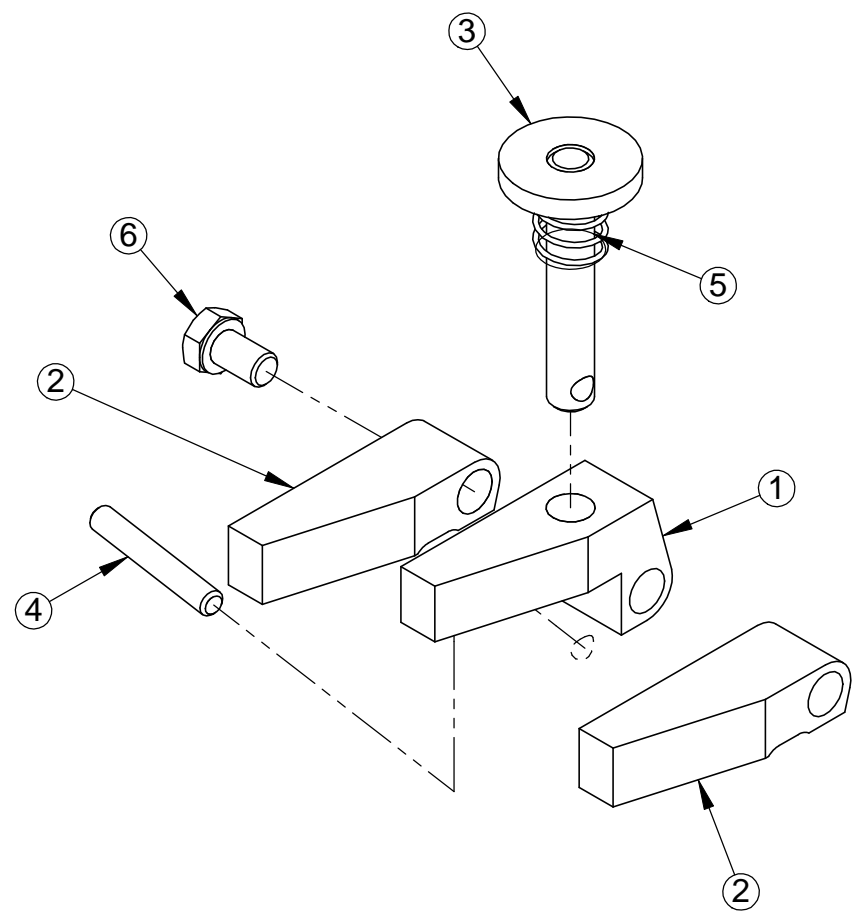
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125
THIRD ANGLE PROJECTION

SIZE: D REFERENCE: 1078915 DWG NO: 1149474 REV: B
DESIGNED BY: C.JL DRAWN BY: ARB DATE: 7/24/08 SCALE: 1:2 WEIGHT: 10.25 lbs. SHEET: 1 OF 1

C:\LOCAL VAULT\1149474 Tuesday, May 25, 2010

REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY	DATE
A	ADDED ITEM 6.	DLC	CJL	10/15/2009



DRIVE PULLEY MOUNT PLATE REFERENCE

QTY	ITEM NO.	Description1	Description2	Part_Number
1	6	HEX SCR METRIC	M5-.8 X 8mm	1085476
1	5	SPRING, COMP, SS		1083469
1	4	PIN, LOCKING HANDLE		1071311
1	3	LOCKING HANDLE WELDMENT		1071308
2	2	BLADE WIPER, LOWER		1071315
1	1	BLADE WIPER, UPPER		1071314

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ± 0°-30'

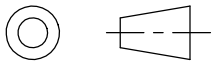
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TITLE
BLADE WIPER ASSY, 613

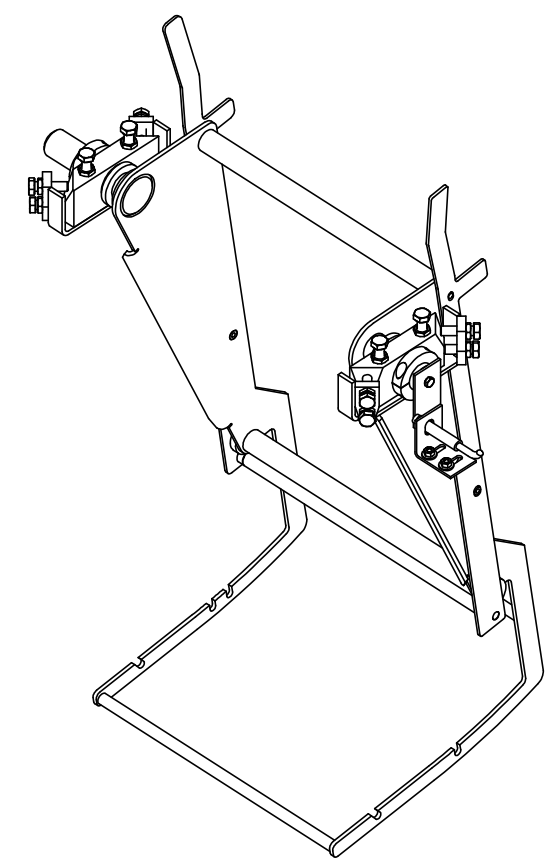
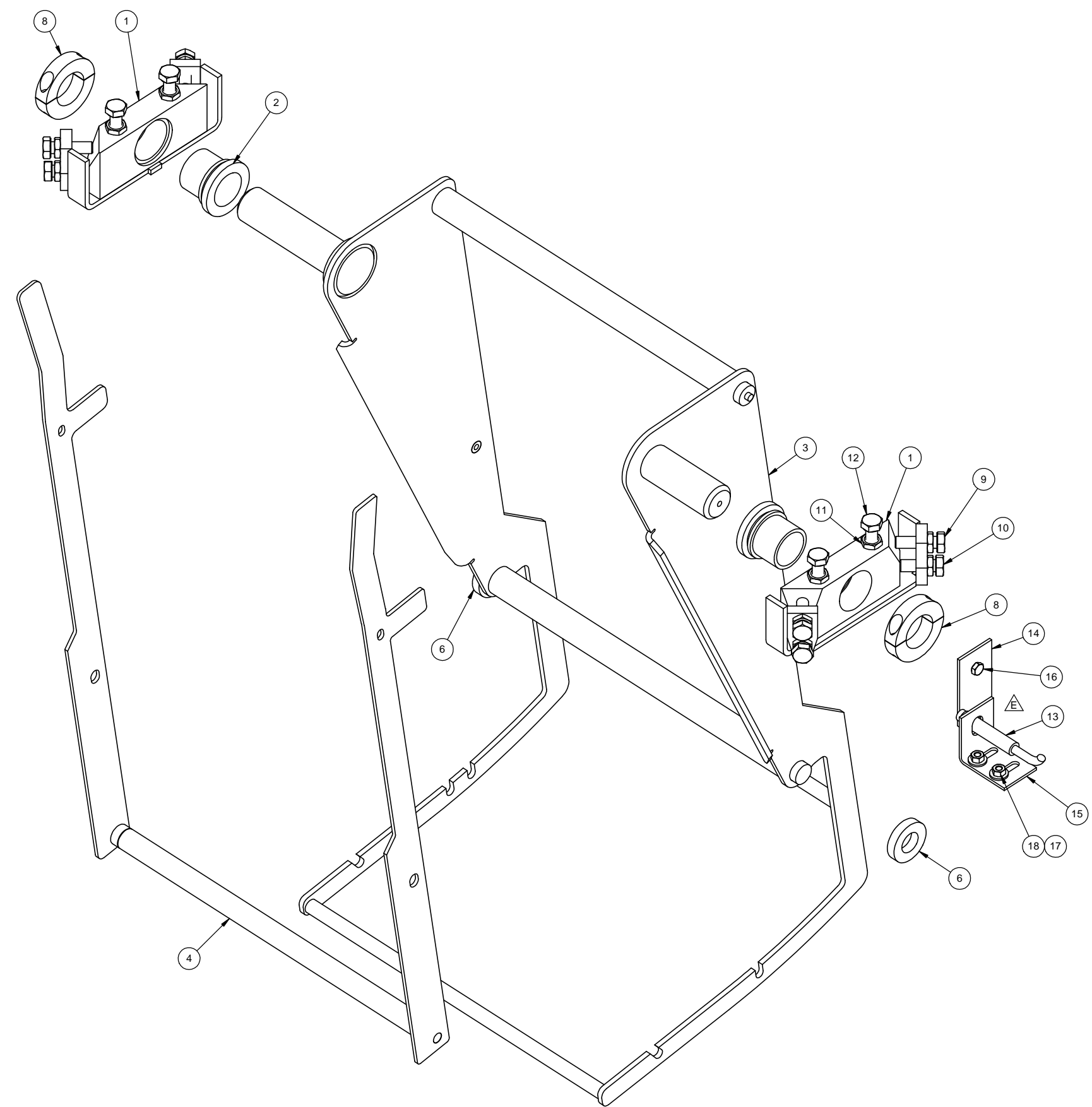
THIRD ANGLE PROJECTION



SIZE	REFERENCE	DWG NO	REV
B	1079861	1149449	A

SPECIFICATION			DESIGNED BY	DRAWN BY	DATE	SCALE:	WEIGHT:	SHEET
None			CJL	ARB	7/21/2008	1:1	9.09 lbs.	1 OF 1

REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE
A	ADDED ITEM 7	C.JL	C.JL	1/5/2009
B	REMOVED ITEMS 5 & 7, ADDED ITEMS 8 & 9	C.JL	C.JL	7/30/2009
C	REMOVED ITEM 9	C.JL	C.JL	8/27/2009
D	ADDED ITEMS 9, 10, 11, 12.	DLC	C.JL	10/13/2009
E	ADDED ITEM 13 THRU 18.	DLC	C.JL	1/18/2013



△	2	18	HEX NUT METRIC	M6-1.0	1085681
△	2	17	FLATWASHER	1/4"	1005282
△	1	16	HEX SCR METRIC	M6-1 X 16mm	1085490
△	1	15	BRACKET, SENSOR MOUNT		1071439
△	1	14	TRIGGER, SENSOR		1071438
△	1	13	SENSOR, PROX, INDUCTIVE, NO, NPN		1055426
△	4	12	HEX SCR METRIC	M10-1.5 X 70mm	1086015
△	12	11	HEX JAM NUT METRIC	M10-1.5	1085693
△	4	10	HEX SCR METRIC	M10-1.5 X 30mm	1085515
△	4	9	HEX SCR METRIC	M10-1.5 X 35mm	1085516
△	2	8	COLLAR, 2PC CLAMP	1.25 ID	1021254
△	7				
△	2	6	CLUSTER CLAMP SPRING		1080250
△	5				
△	1	4	CLUSTER CLAMP WELDMENT, 613		1149569
△	1	3	CLUSTER BOX WELDMENT, 613		1149561
△	2	2	BUSHING, CLUSTER BOX, 613		1149560
△	2	1	BUSHING BLOCK, CLUSTER BOX, 613		1149559
QTY	ITEM NO.		Description1	Description2	Part Number

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ±0°-30'

125

THIRD ANGLE PROJECTION

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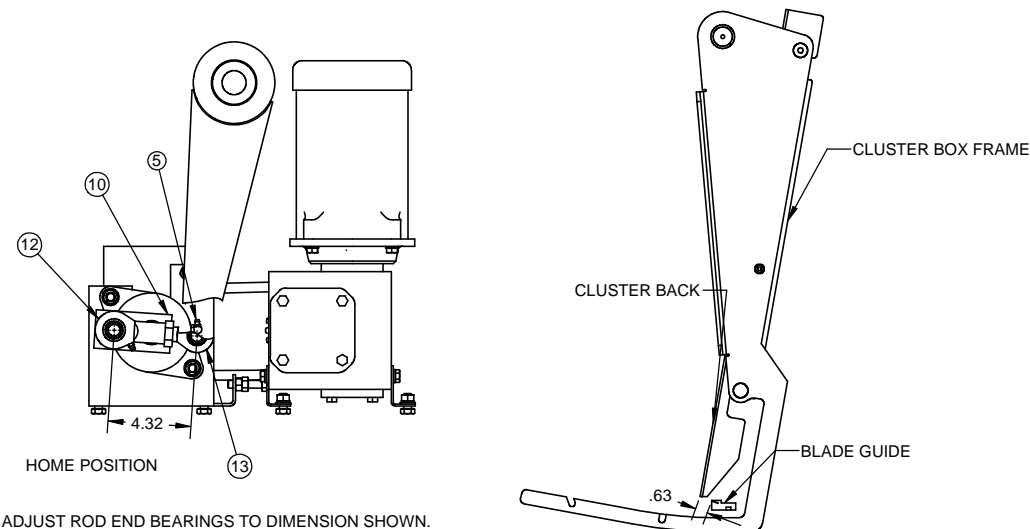
TITLE: CLUSTER BOX ASSY, 613

SIZE: D REFERENCE DWG NO: 1149558

DESIGNED BY: C.JL DRAWN BY: ARB DATE: 7/28/08 SCALE: 1:2 WEIGHT: 31.48 lbs. SHEET: 1 OF 1

SPECIFICATION: None

REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY	DATE
A	ITEM 8 WAS 1078263, ADDED ITEMS 21-35	C.JL	C.JL	10/15/2009
B	ADDED NOTE	C.JL	C.JL	8/20/2010



ADJUST ROD END BEARINGS TO DIMENSION SHOWN.
ADJUST CLUTCH (ITEM 6) SO CRANK (ITEM 8) LINES UP WITH ROD ENDS (ITEMS 9 AND 10) WHEN IN STOPPED POSITION.

WITH CLUSTER BACK INSTALLED AND CLUTCH IN THE STOPPED POSITION, ADJUST THE POSITION OF THE CLUSTER BOX FRAME SO THAT THE CLUSTER BACK IS .63 IN. IN FRONT OF THE BLADE GUIDE. LOCK FRAME IN THIS POSITION BY TIGHTENING THE KEYLESS BUSHING.

NOTE:
APPLY LOCTITE #242 TO THE THREADS OF ITEM 4, CRANK DRIVE SHAFT, BEFORE ASSEMBLING TO ITEM 8, CRANK ARM.

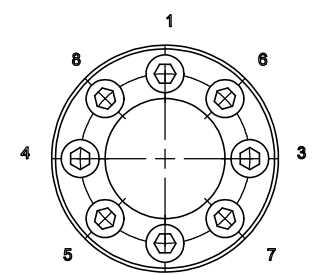
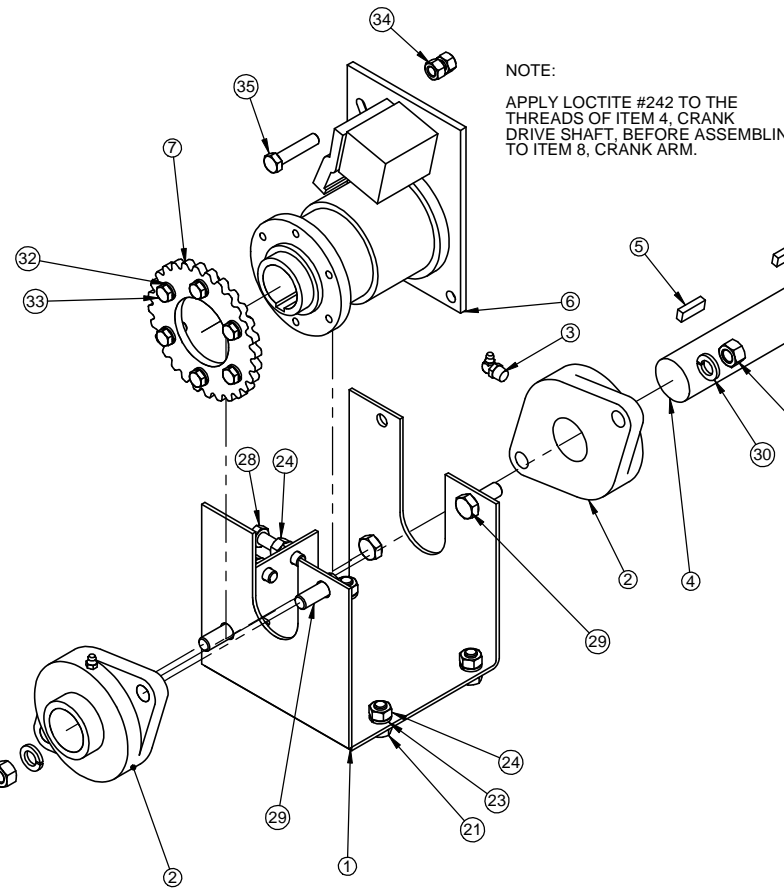
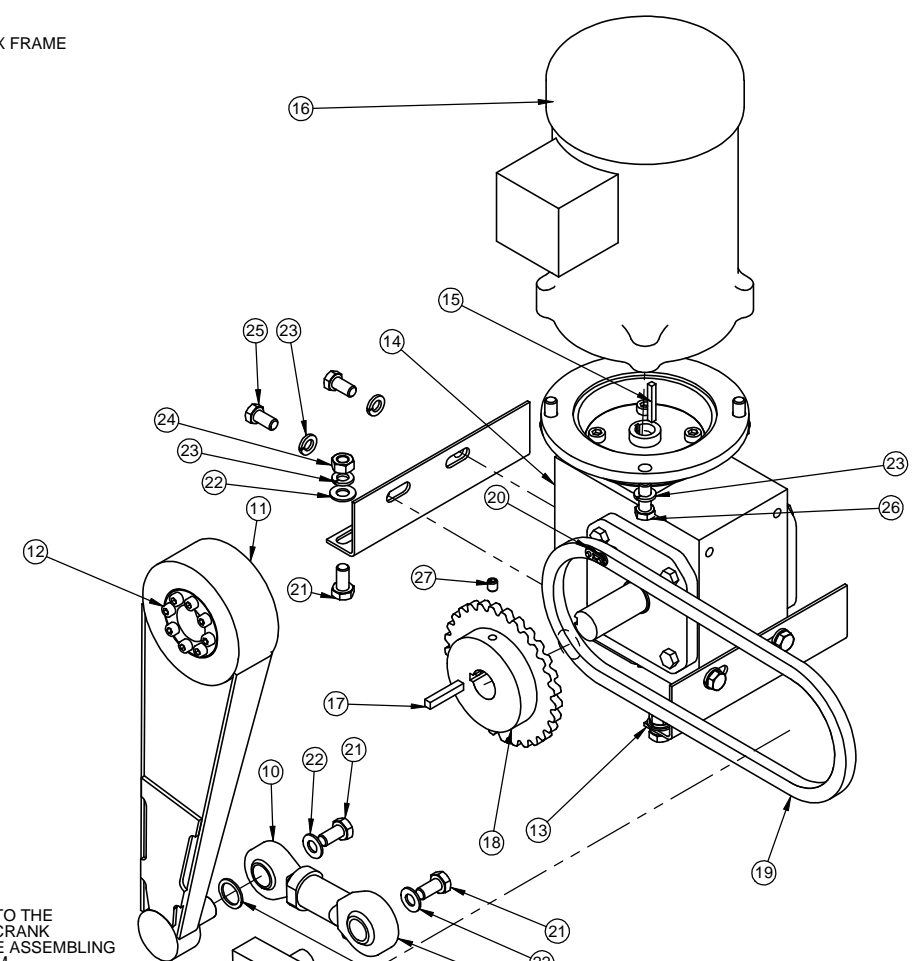


FIGURE 1

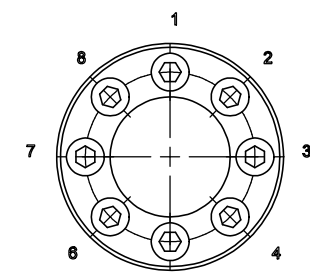


FIGURE 2

KEYLESS BUSHING (ITEM 12) - REPLACEMENT SCREW 1150100

INSTALLATION PROCEDURE:

- CAREFULLY CLEAN THE HUB AND SHAFT CONTACT SURFACES AND APPLY A THIN FILM OF LIGHT-WEIGHT OIL. DO NOT USE ANY OIL WITH MOLYBDENUM BISULFIDE, HIGH PRESSURE ADDITIVES OR GREASE. APPLY LIGHT WEIGHT OIL TO THE SLIDING SURFACES OF THE KEYLESS BUSHING.
- ENSURE THAT ALL THREE HUB RING SPLITS ARE 90 DEGREES APART. USE ONLY SUPPLIED CLASS 12.9 FASTENERS.
- SLIDE THE KEYLESS BUSHING INTO THE HUB AND THEN ONTO THE SHAFT.
- TIGHTEN SCREWS GRADUALLY AND EVENLY IN 1/4 TURN INCREMENTS, MOVING IN A CROSSED SEQUENCE SHOWN IN FIGURE 1 TO AN INITIAL TORQUE OF 70 IN.-LB.
- TIGHTEN SCREWS GRADUALLY AND EVENLY IN 1/4 TURN INCREMENTS, MOVING IN A CROSSED SEQUENCE SHOWN IN FIGURE 1 TO A FINAL TORQUE OF 140 IN.-LB. DO NOT OVER-TORQUE.
- STARTING FROM THE LAST TIGHTENED SCREW, CHECK, IN A CLOCKWISE CONTINUOUS SEQUENCE SHOWN IN FIGURE 2, THAT ALL SCREWS ARE TIGHTENED TO THE FINAL TORQUE VALUE. REPEAT THIS STEP NO MORE THAN TWICE.

REMOVAL PROCEDURE:

- LOOSEN AND REMOVE THE CLAMPING SCREWS.
- APPLY A LIGHT-WEIGHT OIL TO 4 OF THE SCREWS TO BE USED FOR DISASSEMBLY. INSERT THE SCREWS INTO THE DISMANTLING THREADS OF THE FRONT CONE. ALL 4 SCREWS MUST BE USED. USE ONLY CLASS 12.9 FASTENERS.
- TIGHTEN SCREWS GRADUALLY AND EVENLY IN 1/4 TURN INCREMENTS, MOVING IN A CROSSED SEQUENCE SHOWN IN FIGURE 1 (1-4) UP TO AN INITIAL TORQUE VALUE OF 70 IN.-LB OR UNTIL FRONT CONE IS LOOSE.
- IF FRONT CONE IS NOT YET LOOSE TIGHTEN SCREWS GRADUALLY AND EVENLY IN 1/4 TURN INCREMENTS, MOVING IN A CROSSED SEQUENCE SHOWN IN FIGURE 1 (1-4) UP TO A FINAL TORQUE OF 140 IN.-LB. DO NOT OVER TIGHTEN. REPEAT STEPS 3 AND 4 TO RELEASE REAR CONE.
- SLIDE KEYLESS BUSHING OUT OF HUB AND SHAFT.

QTY	ITEM NO.	Description1	Description2	Part Number
1	35	HEX HEAD CAP SCREW	3/8"-16 X 1 3/4"	1016282
2	34	HEX NUT	3/8"-16	1005230
6	33	HEX HEAD CAP SCREW	5/16"-18 X 3/4"	1006015
6	32	LOCKWASHER	5/16"	1005330
4	31	HEX NUT METRIC	M12-1.75	1085684
4	30	LOCKWASHER	1/2"	1005324
4	29	HEX SCR METRIC	M12-1.75 X 30mm	1085526
2	28	HEX SCR METRIC	M10-1.5 X 45mm	1085518
1	27	SET SCREW, CUPPOINT	5/16"-18 X 3/8"	1013659
4	26	HEX HEAD CAP SCREW	3/8"-16 X 1"	1005321
4	25	HEX HEAD CAP SCREW	3/8"-16 X 3/4"	1006007
10	24	HEX NUT METRIC	M10-1.5	1085683
16	23	LOCKWASHER	3/8"	1005229
6	22	FLATWASHER	3/8"	1005281
10	21	HEX SCR METRIC	M10-1.5 X 20mm	1085513
1	20	ROLLER CHAIN, #40 CONNECTING LINK		1000586
30.5	19	ROLLER CHAIN, #40, RUSTLESS		1000144
1	18	SPROCKET, PLATED, #40, 29T, 1.000 ID		1078401
1	17	KEY, SQUARE, SS	.25 X 1.47	1017870
1	16	MOTOR, AC, .50 HP, 208-230/460/3		1000953
1	15	KEY, SQUARE, SS	.188 X 1.38	1021835
1	14	REDUCER, 90, 20:1, 56C IN, L OUT		1152463
2	13	MOUNT, GEARBOX, 613-90		1078048
1	12	KEYLESS BUSHING, 2.362 OD, 1.250 ID		1149249
1	11	MOMENT ARM WELDMENT, CLSTR DRV, 613		1149409
1	10	ROD END, MODIFIED, MALE, 3/4" BORE		1082326
1	9	ROD END, FEMALE, 3/4 DIA, ROLLER BRG		1078050
1	8	WELDMENT, CRANK ARM, 613		1153629
1	7	SPROCKET, CB-8 CLUTCH BRAKE, 28T		1003309
1	6	CLUTCH BRAKE, CB-8, 1 STOP, CW, 24VDC		1058451
2	5	KEY, CB-8 CLUTCH		1001658
1	4	SHAFT, DRIVE, CRANK, 613, 90 SPM		1078262
1	3	GREASE FITTING, 1/8"NPT, 90 DEG		1010779
2	2	BEARING, PLATED, 1.500" ID		1016303
1	1	MOUNT, CLSTR DRV, BRG, CB-8, 613		1149406

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE: .XX = ±.01 FRACTIONAL: ±.03 ANGLES: ±0°-30'

THIRD ANGLE PROJECTION

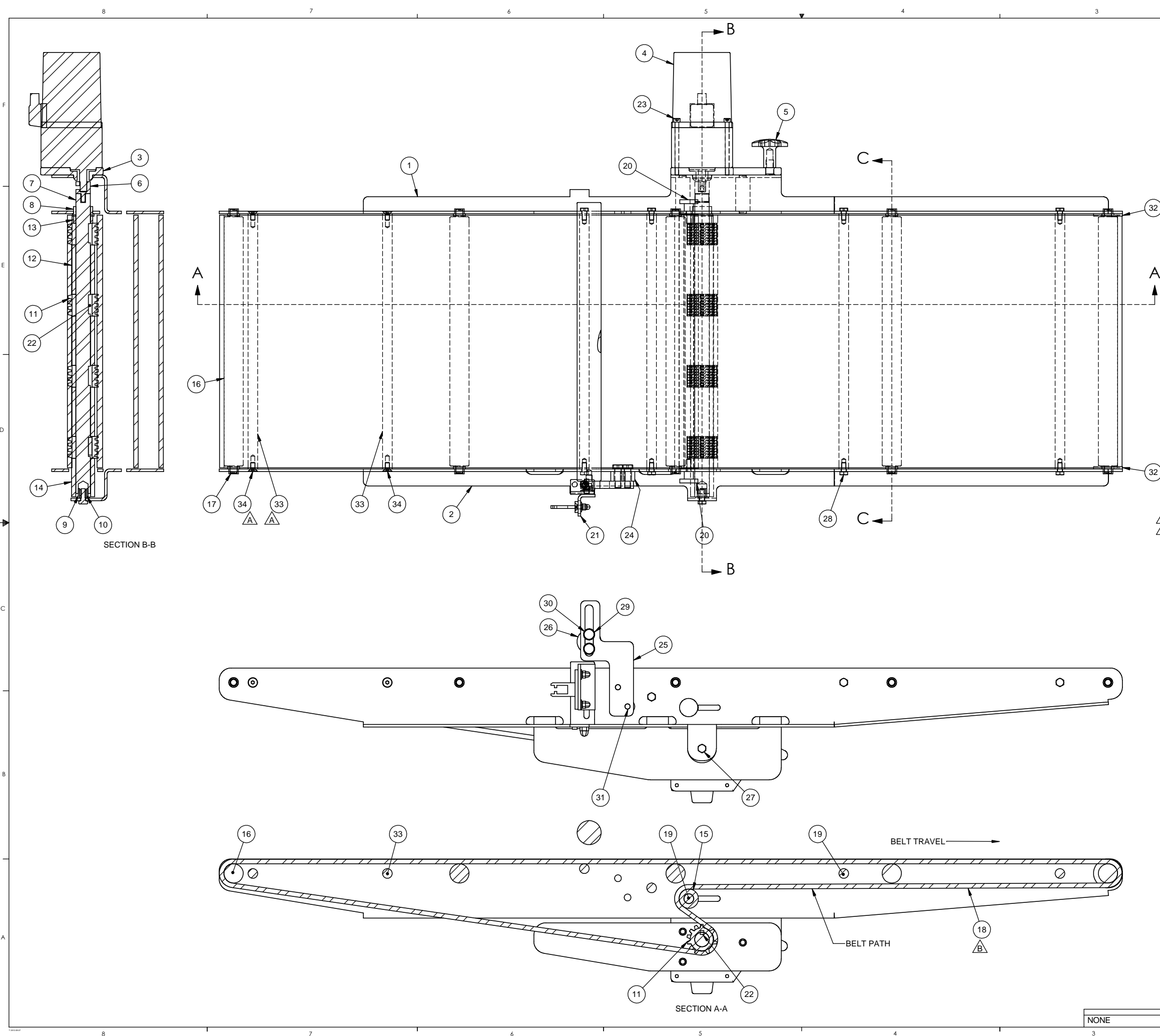
DESIGNED BY: C.JL DRAWN BY: C.JL DATE: 7/10/2008

REFERENCE: 1125567 DWG NO: 1152489

SCALE: 1:3 WEIGHT: 135.56 lbs. SHEET: 1 OF 1

J.E. GROTE COMPANY, INC. CLUSTER DRIVE ASSY, 613

REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE
A	ITEM 33 P/N 1173966 WAS QTY 1. ITEM 34 P/N 1085637 WAS QTY 2.	DJG	CJL	6/23/2014
B	ITEM 1141332 WAS Q100 OF 1067390	JTF	JTF	7/14/2014



QTY	ITEM NO.	Description1	Description2	Part Number
4	34	FL SOC SCR METRIC	M6-1.0 X 12MM	1085637
2	33	STANDOFF, SS, W/C/SINK, 613-LES		1173966
2	32	WASHER, DELRIN	1.50, 0.63, 0.125	1044067
2	31	HEX SCR METRIC	M8-1.25 X 25mm	1085503
2	30	HEX SCR METRIC	M8-1.25 X 20mm	1085502
2	29	LOCKWASHER	5/16"	1005330
8	28	HEX SCR METRIC	M6-1 X 12mm	1085489
1	27	HEX SCR METRIC	M6-1 X 16mm	1085490
1	26	HANDLE, GUARD, C/O CONV, 613		1153001
1	25	RISER BLOCK, GUARD, C/O CONV, 613		1153000
2	24	SPACER, SS	.75, .41, .50	1013408
4	23	SOC SCR METRIC	M5 - .8 X 70MM	1147483
1	22	KEY, SQUARE, ROUND ENDS	0.19, 0.93	1031127
1	21	MOUNT BRACKET ASSY, CONV KEY, 613		1149349
2	20	SCREW, THUMB, KNURLED, SHOULDER, METRIC	M6-1.0X16MM	1115372
5	19	STANDOFF, SS	.50, M6 X 1 X .50, 13.28	1148977
1	18	CONV BELT, CLEATRAC, 13.14"	100" LONG	1141332
10	17	BUSHING, DELRIN FLG, .375, .50, .38		1142064
5	16	ROLLER, DELRIN, 12.97" WD, 1.25 D		1148971
1	15	SPACER, HDPE, EXT	1.00, 0.52, 13.22	1077774
1	14	SPACER, HDPE, EXT	1.20, 0.77, 2.00	1149357
1	13	SPACER, HDPE, EXT	1.00, 0.77, 0.43	1088219
3	12	SPACER, HDPE, EXT	1.20, 0.77, 2.56	1086598
4	11	GEAR, CLEATRAC, 14T, 0.751/0.752 BO		1139962
1	10	STANDOFF, THRU, SS	0.38, M6 X 1.00, 0.44	1147413
1	9	BUSHING, FLANGE, BRONZE	0.38, 0.50, 0.50	1026630
1	8	BUSHING, FLANGE, BRONZE	0.75, 1.00, 0.50	1070724
1	7	DRIVE SHAFT, CARRYOUT CONVEYOR, 613		1149352
1	6	DRIVE COUPLING, C/O CONVEYOR 613/713		1077719
1	5	KNOB, M10-1.50, BLIND FEMALE, NYLON		1131069
1	4	MOTOR, SPEED CONTROL, 230 VAC		1143238
1	3	PLATE, MOTOR MOUNTING, CASTING MOD METRIC		1149358
1	2	SIDE PLATE WLDMT, CONV, 33, I, RH, 613-LES		1173969
1	1	SIDE PLATE WLD, CONV, 33, D, LH, 613-LES		1173967

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE: .XX = ±.01 .XXX = ±.005 FRACTIONAL: ±.03 ANGLES: ±0°-30'

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TITLE: CARRYOUT CONV ASSY, 33IN, CLEAT, 613-LES

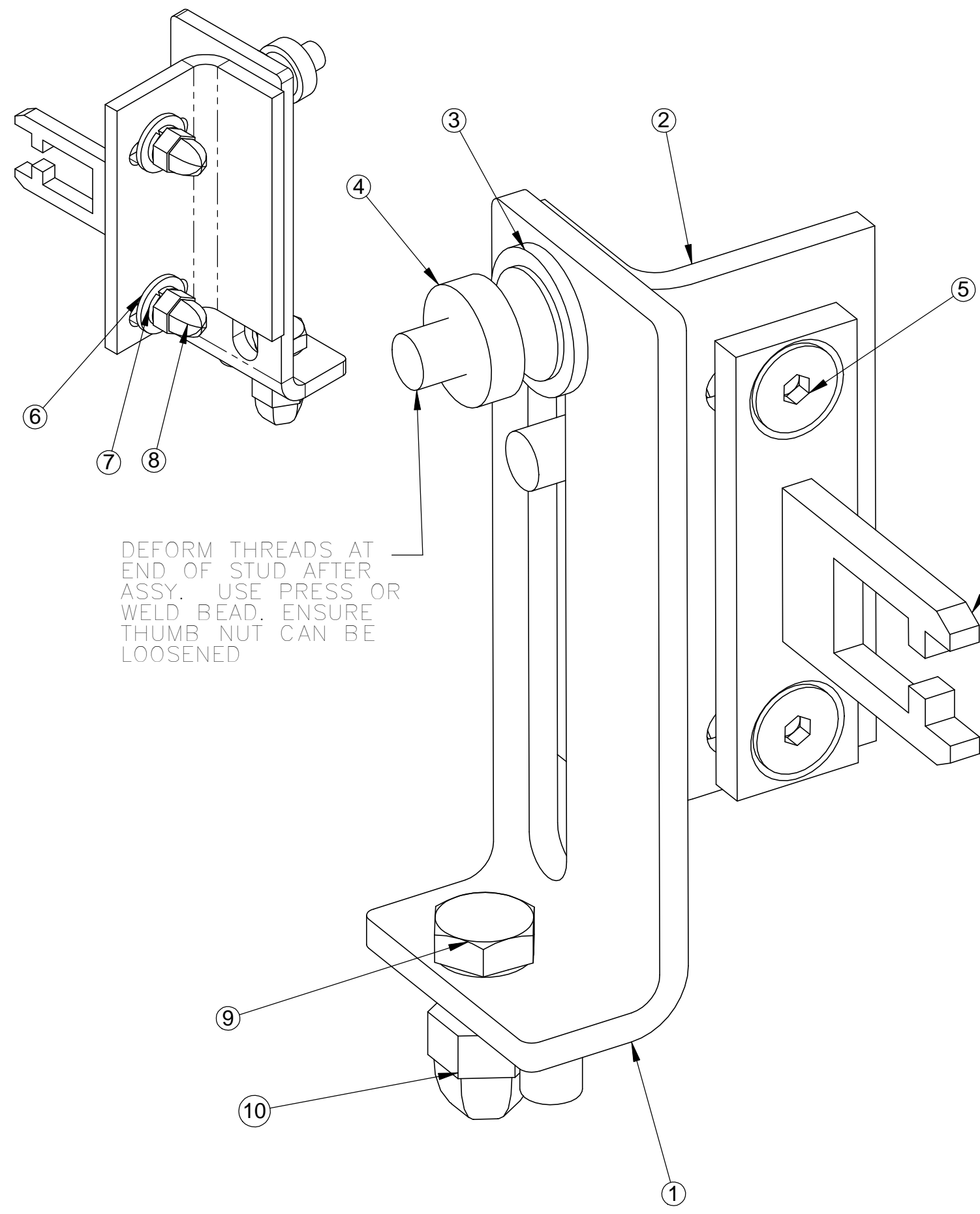
THIRD ANGLE PROJECTION

SIZE: D REFERENCE: 1152185 DWG NO: 1173971 REV: B

DESIGNED BY: GAB DRAWN BY: DLC DATE: 01-22-14 SCALE: 1:2.5 WEIGHT: 49.11 lbs. SHEET: 1 OF 1

DRW REV: PRE-04
CONFIG: Default
MODEL: 1173971
Thursday, October 02, 2014
C:\LOCAL VAULT\1173971

REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY	DATE
A	ADDED ITEMS 5-10	CJL	CJL	11/19/2009



QTY	ITEM NO.	Description1	Description2	Part_Number
1	10	CAP NUT METRIC	M6 X 1.0	1085707
1	9	HEX SCR METRIC	M6-1 X 16mm	1085490
2	8	CAP NUT METRIC	M5 X 0.8	1085706
2	7	LOCKWASHER	#10	1013789
2	6	FLATWASHER	#10	1005320
2	5	FL SOC SCR METRIC	M5-.8 X 16mm	1085627
1	4	NUT, THUMB, KNURLED, SS, M6-1.0		1147465
1	3	FLATWASHER	1/4"	1005282
1	2	MOUNT BRACKET, CONV KEY, 613		1149351
1	1	MOUNT BRACKET, CONV KEY, 613		1149350

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ± 0°-30'

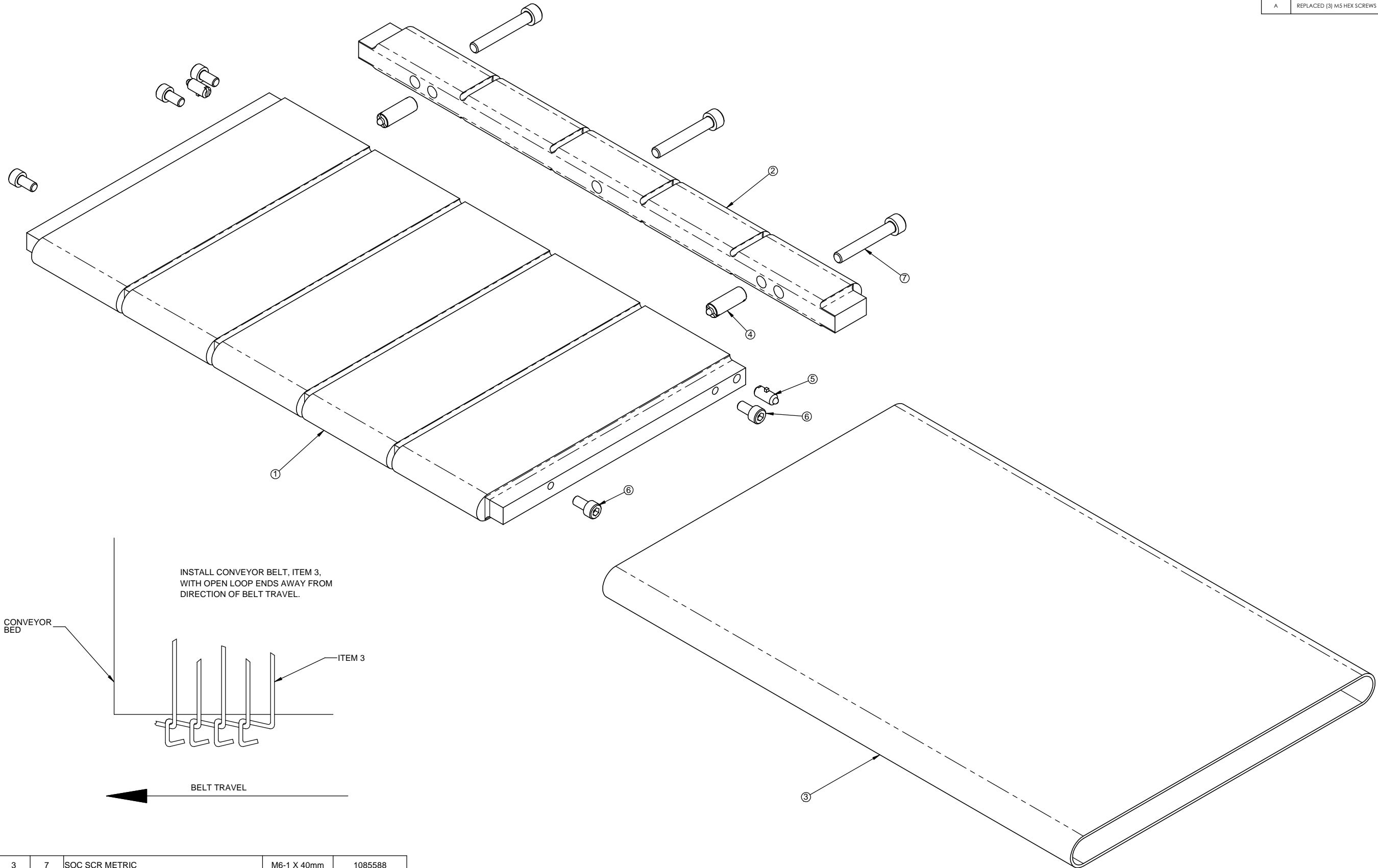
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TITLE MOUNT BRACKET ASSY, CONV KEY, 613			
SIZE B	REFERENCE 1130317	DWG NO 1149349	REV A
SCALE: 2:1	WEIGHT: 0.43 lbs.	SHEET 1 OF 1	

SPECIFICATION None			DESIGNED BY CJL	DRAWN BY ARB	DATE 7/7/2008
-----------------------	--	--	--------------------	-----------------	------------------

C:\LOCAL VAULT\ 1149349 Tuesday, November 16, 2010

REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE
A	REPLACED (3) M5 HEX SCREWS W/M5 SOC SCREWS.	DLC	C.JL	2/18/2009



QTY	ITEM NO.	Description1	Description2	Part_Number
3	7	SOC SCR METRIC	M6-1 X 40mm	1085588
5	6	SOC SCR METRIC	M5 - .8 X 10mm	1085565
2	5	PLUNGER, SPRING, BALL NOSE, SLOTTED, SS, METRIC	M6 X 1 X 14MM	1143751
2	4	PLUNGER, SPRING, ROUND NOSE, SLOTTED, SS, METRIC	M8 X 1.25 X 22MM	1149580
1	3	CONV BELT, WIRE, 13 1/2" FLAT FLEX		1149573
1	2	SHUTTLE BED, TENSION SECTION, 613		1149572
1	1	SHUTTLE BED, MAIN SECTION, 613		1149571

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ±0°-30'

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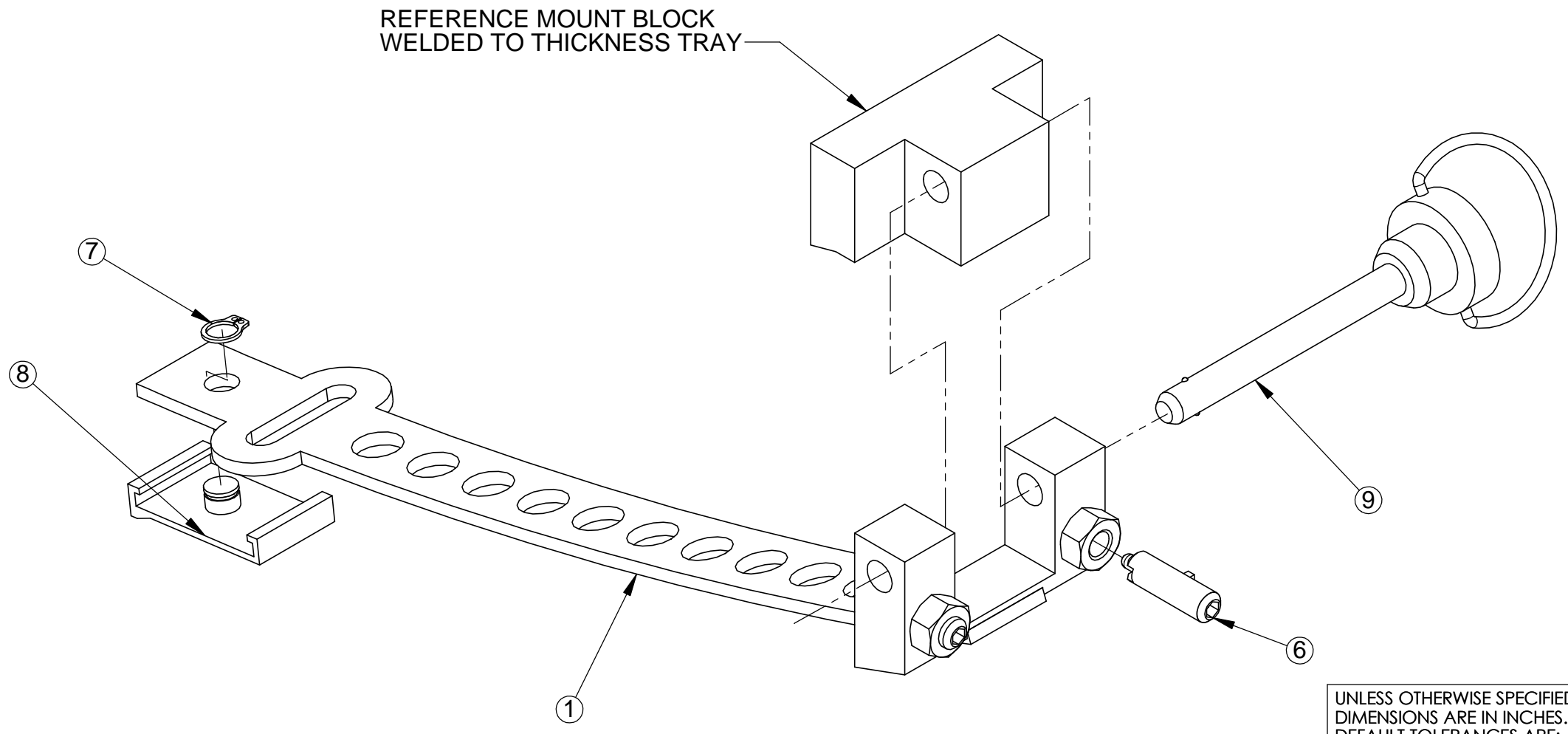
DESIGNED BY: C.JL DRAWN BY: C.JL DATE: 07/25/08
 TITLE: SHUTTLE CONV BED ASSY, 613
 SIZE: D REFERENCE: 1123506 DWG NO: 1149570 REV: A
 SCALE: 1:1 WEIGHT: 8.01 lbs. SHEET: 1 OF 1

None SPECIFICATION

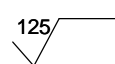
QTY	ITEM NO.	Description1	Description2	Part_Number
2	10	HEX NUT METRIC	M6-1.0	1085681
1	9	PIN, QUICK RELEASE, .25 X 2.0, SS		1150244
1	8	SHUTTLE ACTUATOR, PAWL, 613		1150071
1	7	RETAINING RING, EXTERNAL	.25 SHAFT	1000210
2	6	PLUNGER, SPRING, ROUND NOSE, HEX, SS, METRIC	M6 X 1.0 X 20MM	1148523
	5			
	4			
	3			
	2			
1	1	SHUTTLE ACTUATOR WELDMENT, 613		1149812

- △ H
- △ F
- △ D
- △ F
- △ F
- △ A
- △ F

REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY	DATE
A	ITEM 2 WAS 1149806, REMOVED ITEM 3, UPDATED VIEW	CJL	CJL	9/16/2008
B	UPDATED VIEWS	CJL	CJL	9/16/2008
C	UPDATED VIEWS	CJL	CJL	9/18/2008
D	ADDED ITEMS 7 & 8, UPDATED VIEWS	CJL	CJL	10/07/2008
E	UPDATED VIEWS	CJL	CJL	10/13/2008
F	REMOVED ITEMS 2, 4, 5, ADDED ITEM 9, UPDATED VIEW	CJL	CJL	10/23/2008
G	UPDATED VIEW OF ITEM 1	CJL	CJL	3/4/2010
H	ADDED ITEM 10	CJL	JK	1/30/2014



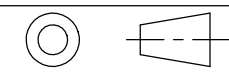
UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ± 0°-30'



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TITLE
SHUTTLE ACTUATOR ASSY, 613

THIRD ANGLE PROJECTION



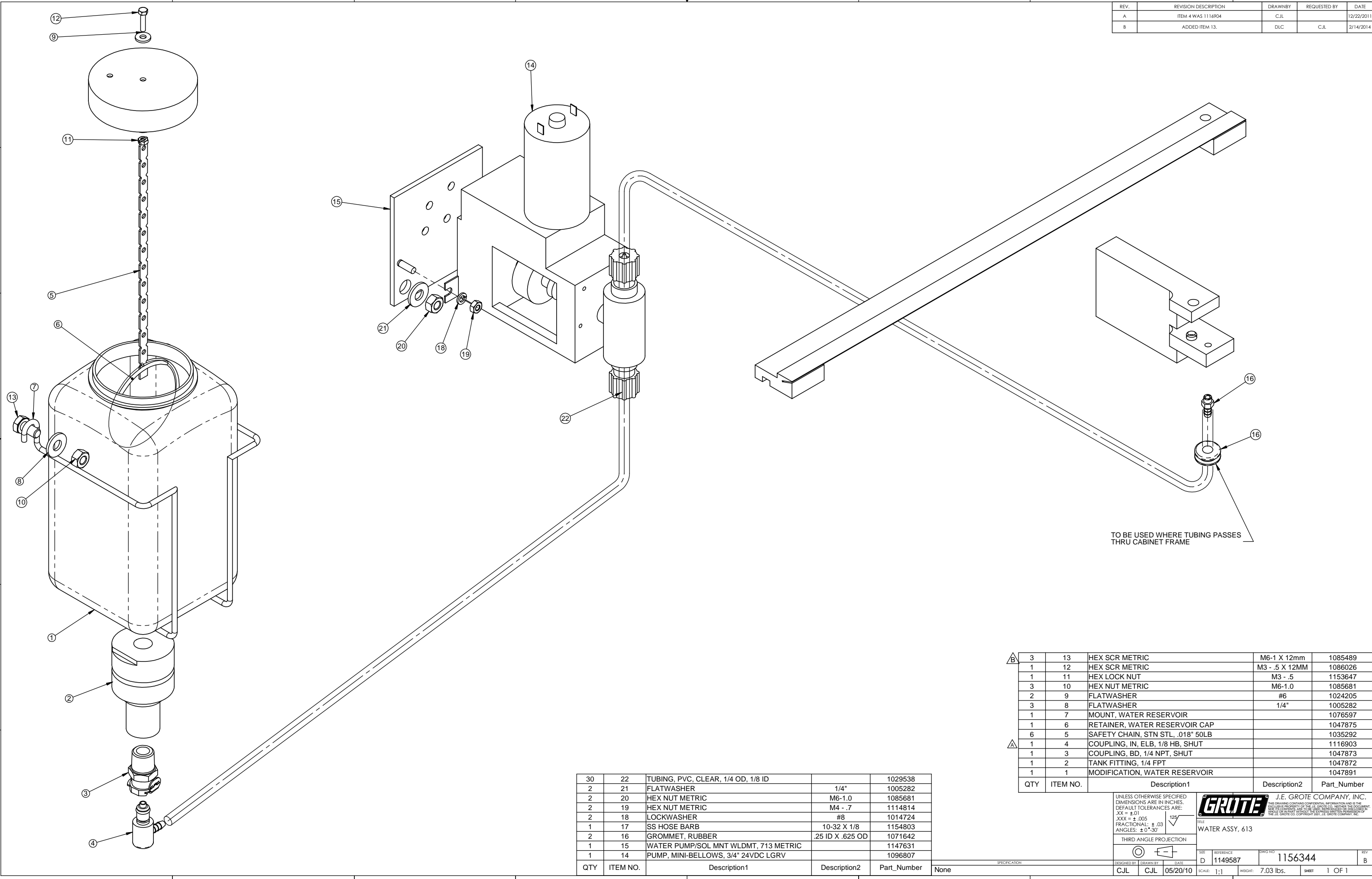
SIZE	REFERENCE	DWG NO	REV
B	0	1149811	H

SPECIFICATION		
None		

DESIGNED BY	DRAWN BY	DATE
CJL	CJL	08/18/08

SCALE:	WEIGHT:	SHEET
1:1	0.75 lbs.	1 OF 1

REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY	DATE
A	ITEM 4 WAS 1116904	C.JL		12/22/2011
B	ADDED ITEM 13.	DLC	C.JL	2/14/2014



TO BE USED WHERE TUBING PASSES THRU CABINET FRAME

QTY	ITEM NO.	Description1	Description2	Part_Number
3	13	HEX SCR METRIC	M6-1 X 12mm	1085489
1	12	HEX SCR METRIC	M3 - .5 X 12MM	1086026
1	11	HEX LOCK NUT	M3 - .5	1153647
3	10	HEX NUT METRIC	M6-1.0	1085681
2	9	FLATWASHER	#6	1024205
3	8	FLATWASHER	1/4"	1005282
1	7	MOUNT, WATER RESERVOIR		1076597
1	6	RETAINER, WATER RESERVOIR CAP		1047875
6	5	SAFETY CHAIN, STN STL, .018" 50LB		1035292
1	4	COUPLING, IN, ELB, 1/8 HB, SHUT		1116903
1	3	COUPLING, BD, 1/4 NPT, SHUT		1047873
1	2	TANK FITTING, 1/4 FPT		1047872
1	1	MODIFICATION, WATER RESERVOIR		1047891

QTY	ITEM NO.	Description1	Description2	Part_Number
30	22	TUBING, PVC, CLEAR, 1/4 OD, 1/8 ID		1029538
2	21	FLATWASHER	1/4"	1005282
2	20	HEX NUT METRIC	M6-1.0	1085681
2	19	HEX NUT METRIC	M4 - .7	1114814
2	18	LOCKWASHER	#8	1014724
1	17	SS HOSE BARB	10-32 X 1/8	1154803
2	16	GROMMET, RUBBER	.25 ID X .625 OD	1071642
1	15	WATER PUMP/SOL MNT WLDMT, 713 METRIC		1147631
1	14	PUMP, MINI-BELLOWS, 3/4" 24VDC LGRV		1096807

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ±0°-30'

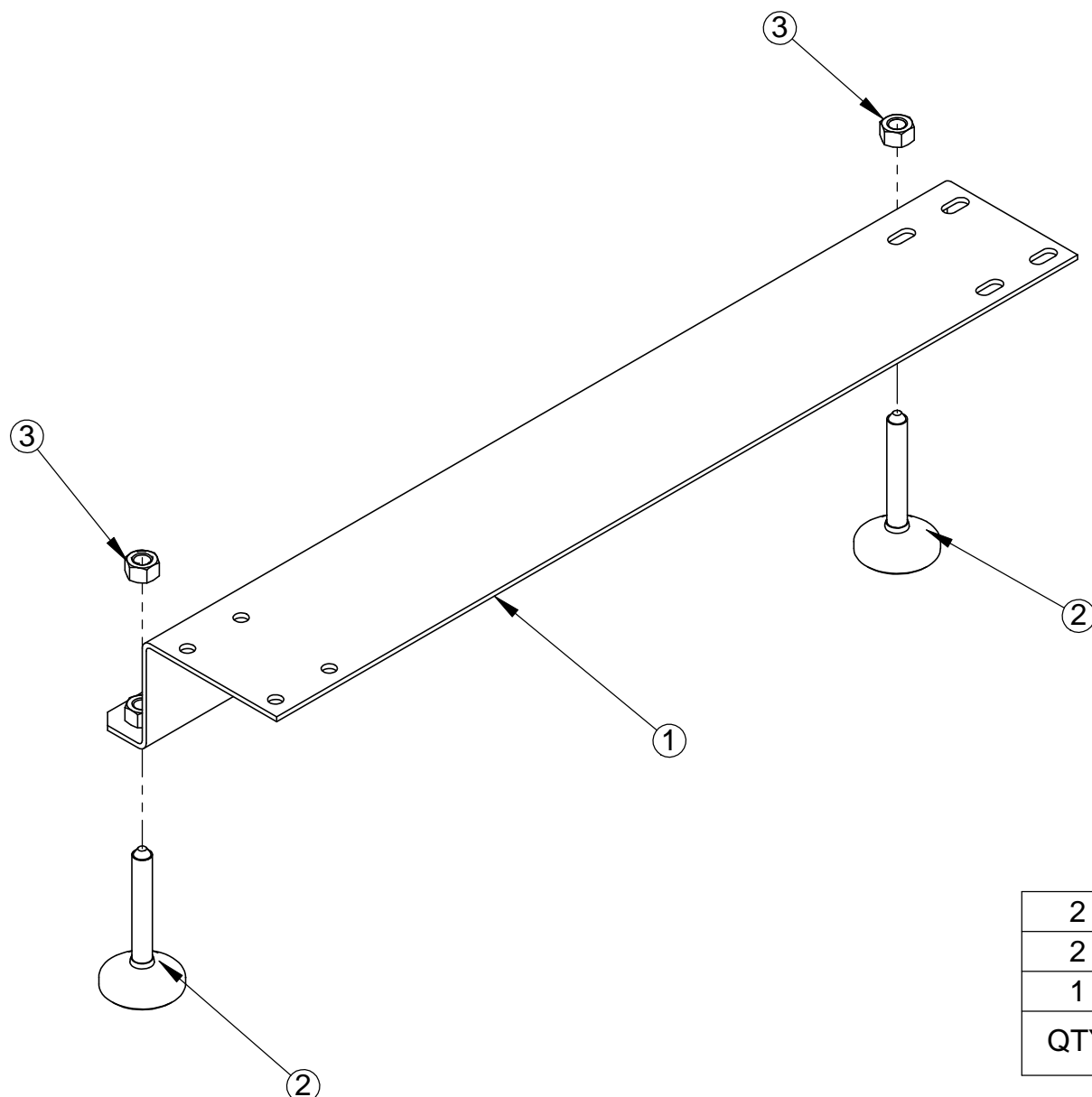
THIRD ANGLE PROJECTION

GROTE J.E. GROTE COMPANY, INC.
 WATER ASSY, 613

SIZE: D REFERENCE: 1149587 DWG NO: 1156344
 DESIGNED BY: C.JL DRAWN BY: C.JL DATE: 05/20/10 SCALE: 1:1 WEIGHT: 7.03 lbs. SHEET: 1 OF 1

C:\LOCAL VAULT\1156344 Wednesday, February 19, 2014

2		1		
REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY	DATE



2	3	HEX NUT METRIC	M12-1.75	1085684
2	2	SWIVEL FOOT, M12 X 1.75, 3.90" NV		1149997
1	1	MOUNT, LEVELING PADS, 613		1149998
QTY	ITEM NO.	Description1	Description2	Part_Number

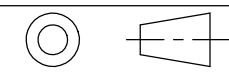
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ± 0°-30'

125 ✓

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TITLE
MOUNT ASSY, LEVELING PAD, 613

THIRD ANGLE PROJECTION

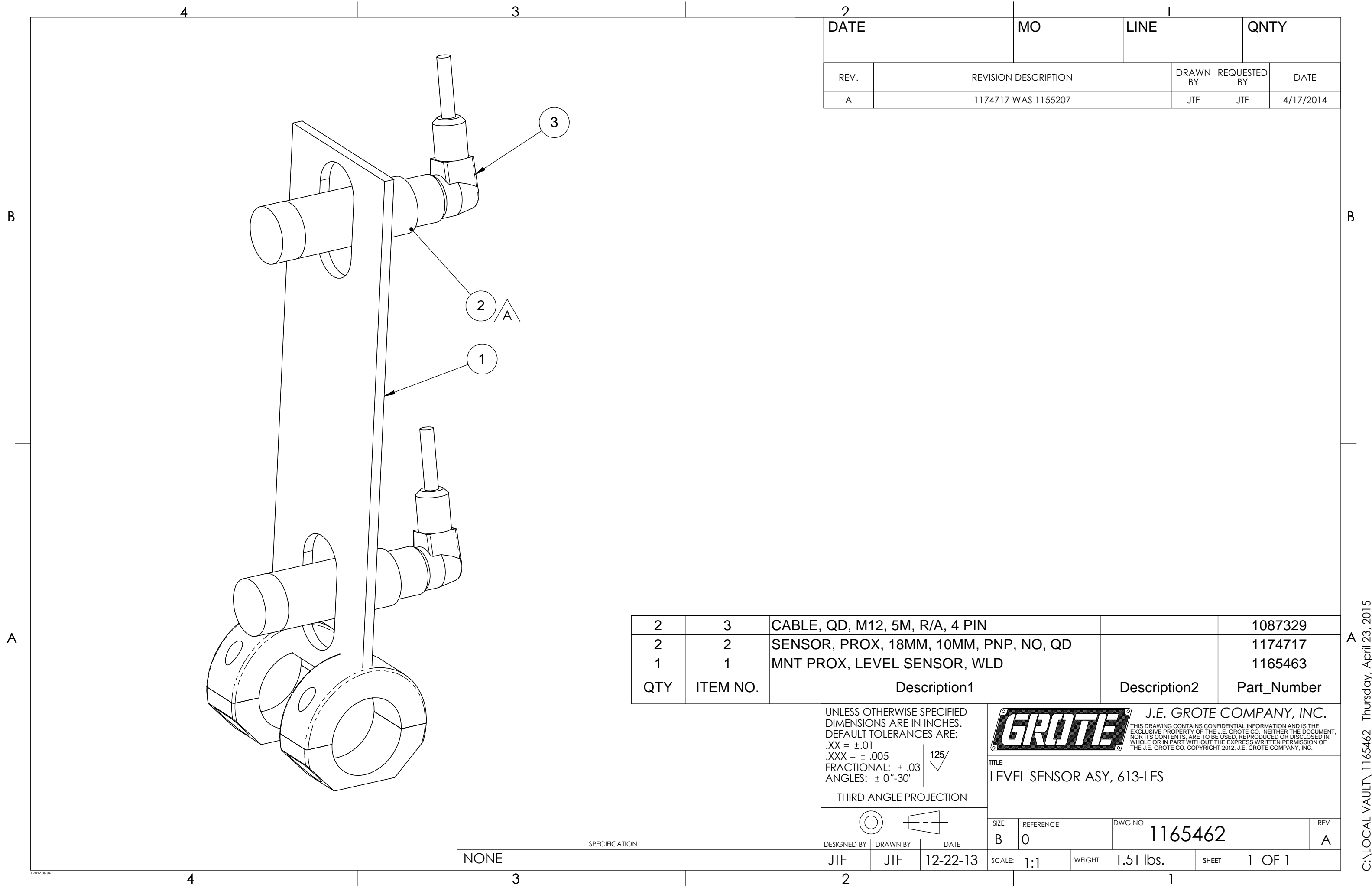


SIZE	REFERENCE	DWG NO	REV
B	1081695	1149996	0

SPECIFICATION
None

DESIGNED BY	DRAWN BY	DATE
CJL	CJL	09/18/08

SCALE:	WEIGHT:	SHEET
1:4	10.03 lbs.	1 OF 1



2		1	
DATE	MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY
A	1174717 WAS 1155207	JTF	JTF
			DATE
			4/17/2014

2	3	CABLE, QD, M12, 5M, R/A, 4 PIN		1087329
2	2	SENSOR, PROX, 18MM, 10MM, PNP, NO, QD		1174717
1	1	MNT PROX, LEVEL SENSOR, WLD		1165463
QTY	ITEM NO.	Description1	Description2	Part_Number

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ± 0°-30'

125 ✓

THIRD ANGLE PROJECTION

DESIGNED BY: JTF
 DRAWN BY: JTF
 DATE: 12-22-13

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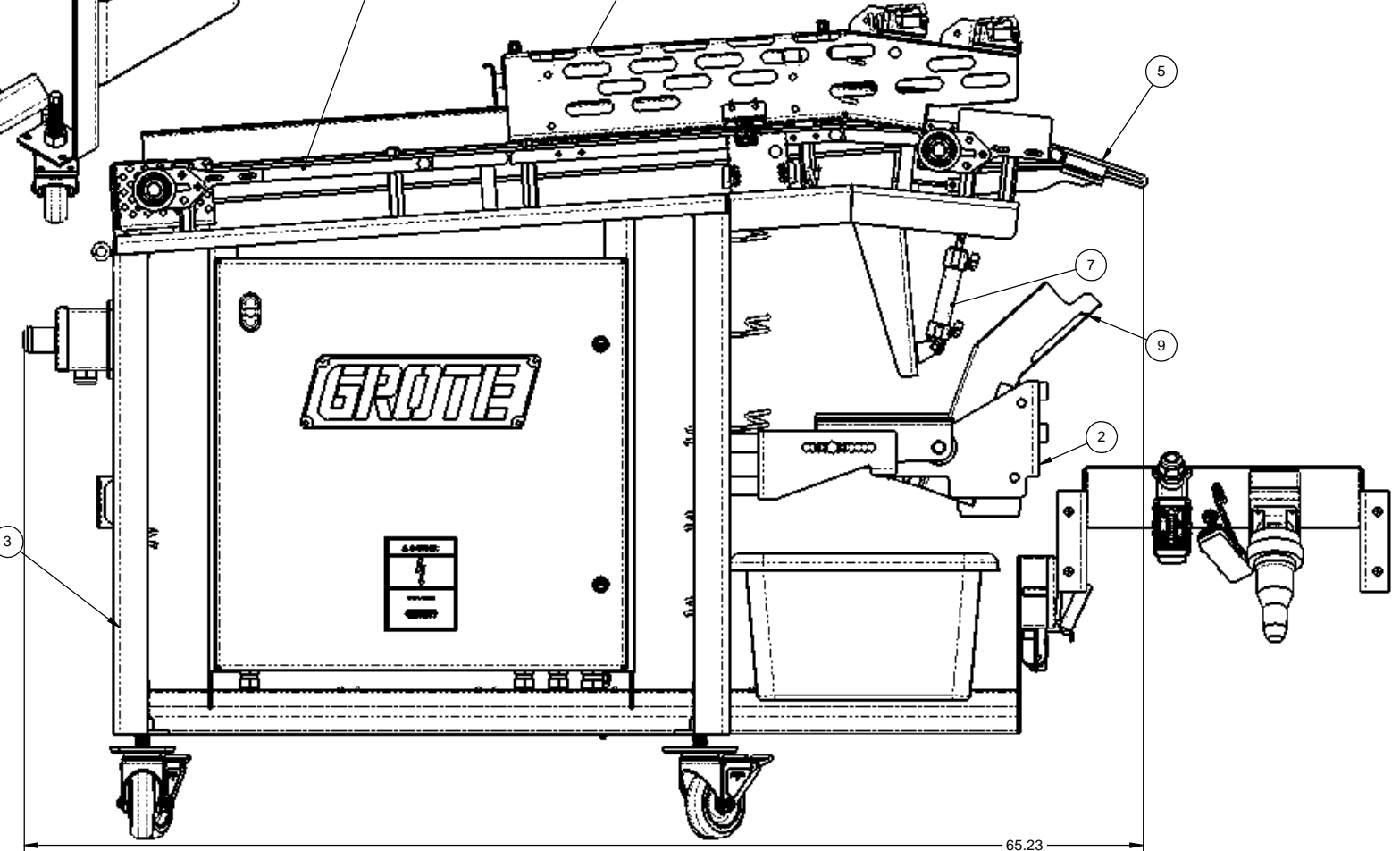
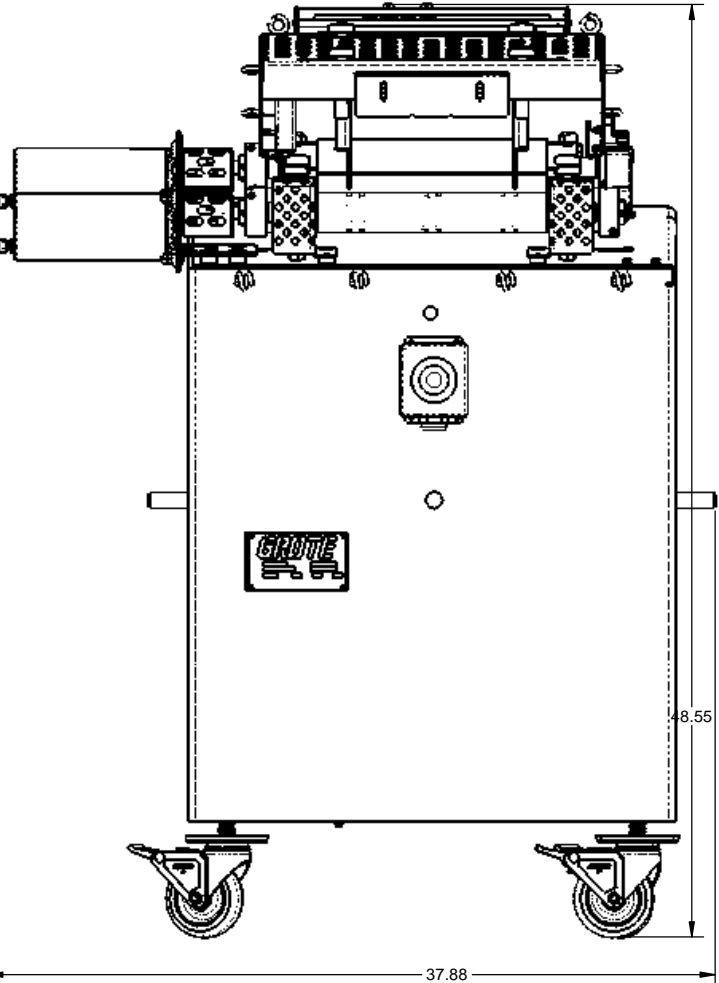
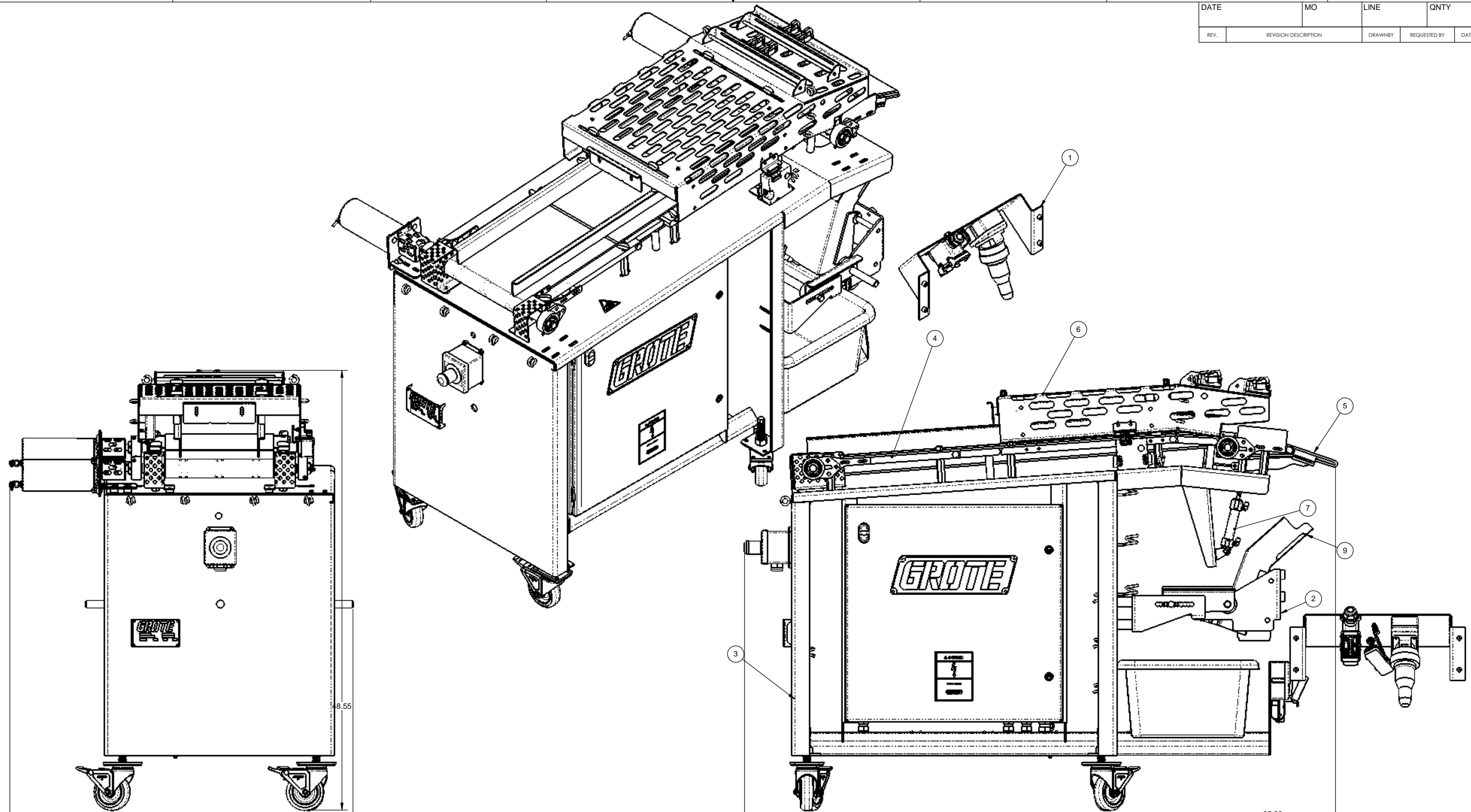
TITLE: LEVEL SENSOR ASY, 613-LES

SIZE: B REFERENCE: 0 DWG NO: 1165462 REV: A

SCALE: 1:1 WEIGHT: 1.51 lbs. SHEET: 1 OF 1

SPECIFICATION	
NONE	

REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE



UNIT CAN BE ASSEMBLED OPOSIT HAND WITH CHANGE OF MOTOR MOUNT & GUARDS
 TUNNEL GUARD ASSEMBLY MUST BE FLIPPED AS WELL

QTY	ITEM NO.	Description1	Description2	Part Number
1	9	REJECT CHUTE ASY, 613-LES		1173310
1	8	PNE ASY, AUTO LOAD LES		1173308
1	7	PIVOT NOSE ASY, INJECT BELT, AUTO LOAD LES		1173305
1	6	TUNNEL GUARD ASY, AUTO LOAD LES		1165785
1	5	INJECT BELT ASY, MODULAR BELT, 613-LES		1165784
1	4	FEED BELT ASY, MODULAR BELT, 613-LES		1165780
1	3	FRAME ASY, 613-LES		1165776
1	2	LOCATING CONVEYOR ASSEMBLY		1165487
1	1	PLUG PLATE ASY		1165455

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE: .XXX = ±.01 .XXX = ±.005 FRACTIONAL: ±.03 ANGLES: ±0°-30'

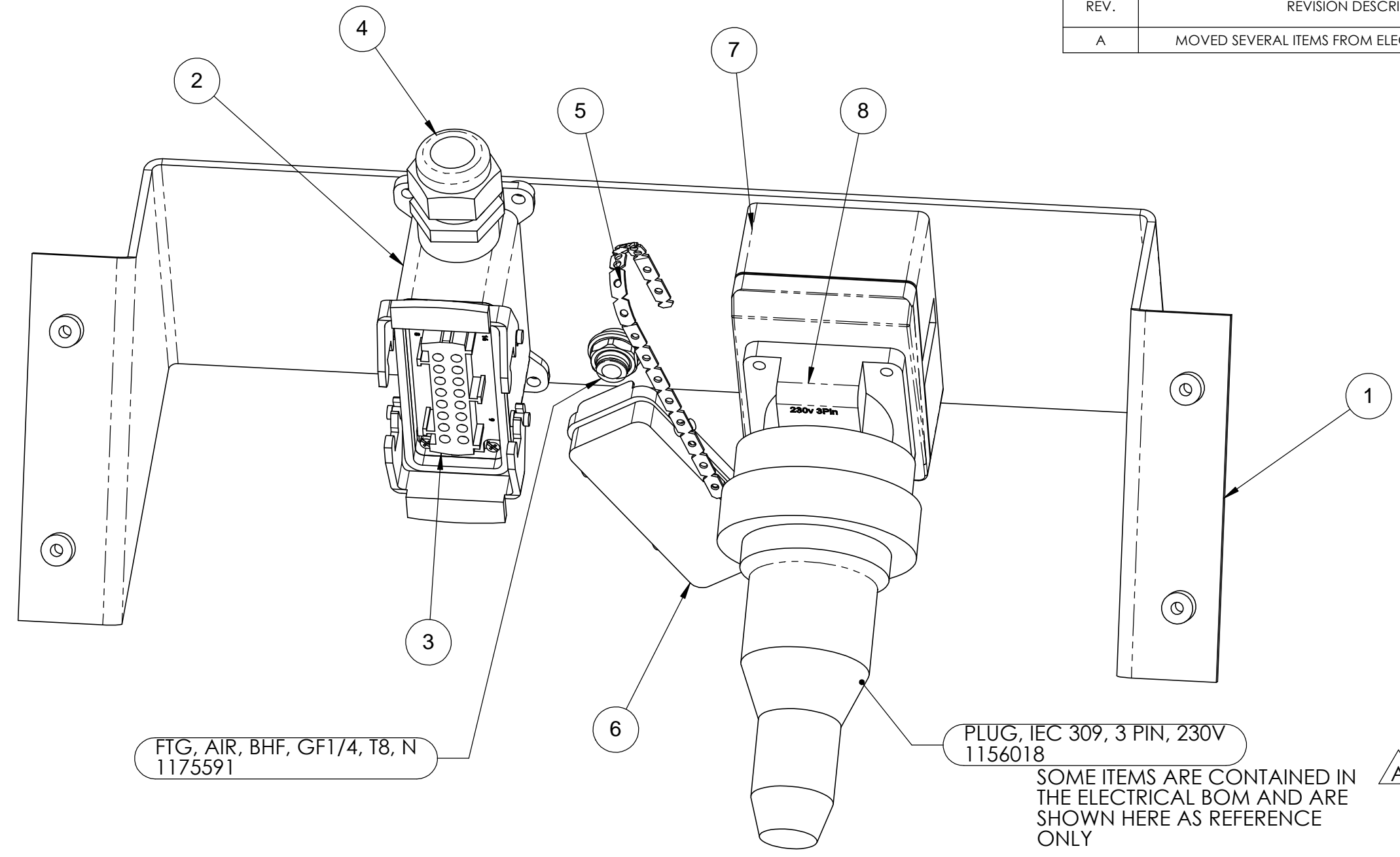
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THIRD ANGLE PROJECTION

DESIGNED BY	DRAWN BY	DATE	SIZE	REFERENCE	DWG NO.	REV
JTF	JTF	06-17-14	D	1165486	1165775	0

TITLE: AUTO LOAD ASY, 613-VS2-LES GEN 3
 SCALE: 1:5 WEIGHT: 542.67 lbs. SHEET 1 OF 1

DATE		MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE
A	MOVED SEVERAL ITEMS FROM ELECTRICAL BOM TO HERE	JTF	JTF	6/26/2014



FTG, AIR, BHF, GF1/4, T8, N
1175591

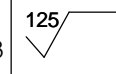
PLUG, IEC 309, 3 PIN, 230V
1156018

SOME ITEMS ARE CONTAINED IN THE ELECTRICAL BOM AND ARE SHOWN HERE AS REFERENCE ONLY



1	8	RECEPTACLE, IEC 309, 3 PIN, 230V, PM		7007-0017
1	7	SOCKET BOX, SURFACE MTG, 3 PIN		7007-0004
1	6	COVER, PLUG/RECEP, 16 PIN, EPIC		1161207
1	5	SAFETY CHAIN, STN STL, .018" 50LB	6" LENGTH	1035292
1	4	CORD GRIP	M25 X 1.5, .485 - .709	1140650
1	3	INSERT, RECEPTACLE, 16 PIN, EPIC		1161204
1	2	BASE, RECEPTACLE, 16 PIN, EPIC, SFC		1172985
1	1	PLUG PLATE WLD, 613-LES		1165456
QTY	ITEM NO.	Description1	Description2	Part_Number

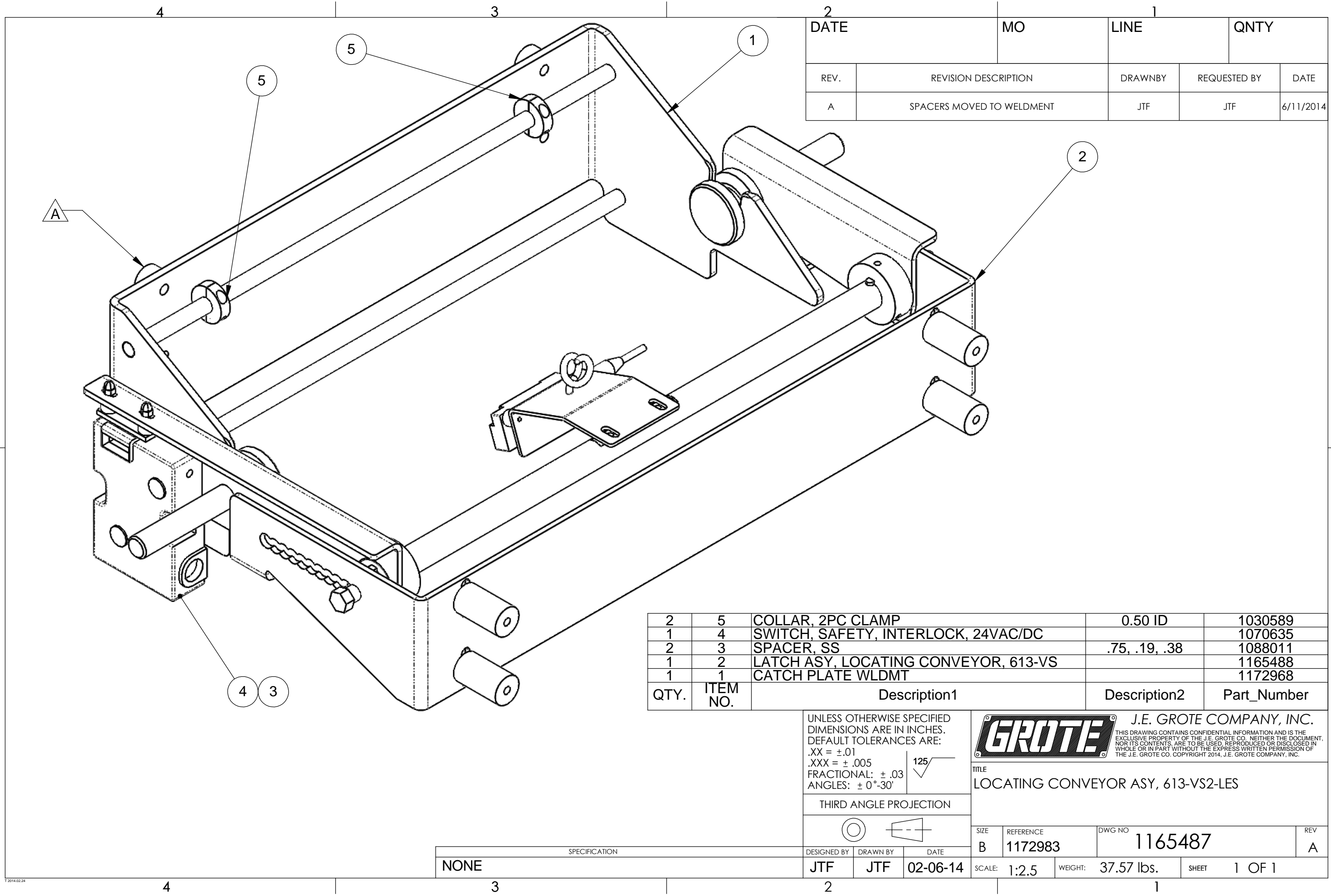
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ± 0°-30'



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TITLE PLUG PLATE ASY		DWG NO 1165455		REV A
SIZE B	REFERENCE A	SCALE 1:2	WEIGHT 17.82 lbs.	SHEET 1 OF 1

SPECIFICATION			DESIGNED BY	DRAWN BY	DATE
NONE			JTF	JTF	12-13-13



2		1	
DATE	MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY
A	SPACERS MOVED TO WELDMNT	JTF	JTF
			DATE
			6/11/2014

QTY.	ITEM NO.	Description1	Description2	Part_Number
2	5	COLLAR, 2PC CLAMP	0.50 ID	1030589
1	4	SWITCH, SAFETY, INTERLOCK, 24VAC/DC		1070635
2	3	SPACER, SS	.75, .19, .38	1088011
1	2	LATCH ASY, LOCATING CONVEYOR, 613-VS		1165488
1	1	CATCH PLATE WLDMT		1172968

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ± 0°-30'

125

THIRD ANGLE PROJECTION

DESIGNED BY: JTF
 DRAWN BY: JTF
 DATE: 02-06-14

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TITLE: LOCATING CONVEYOR ASY, 613-VS2-LES

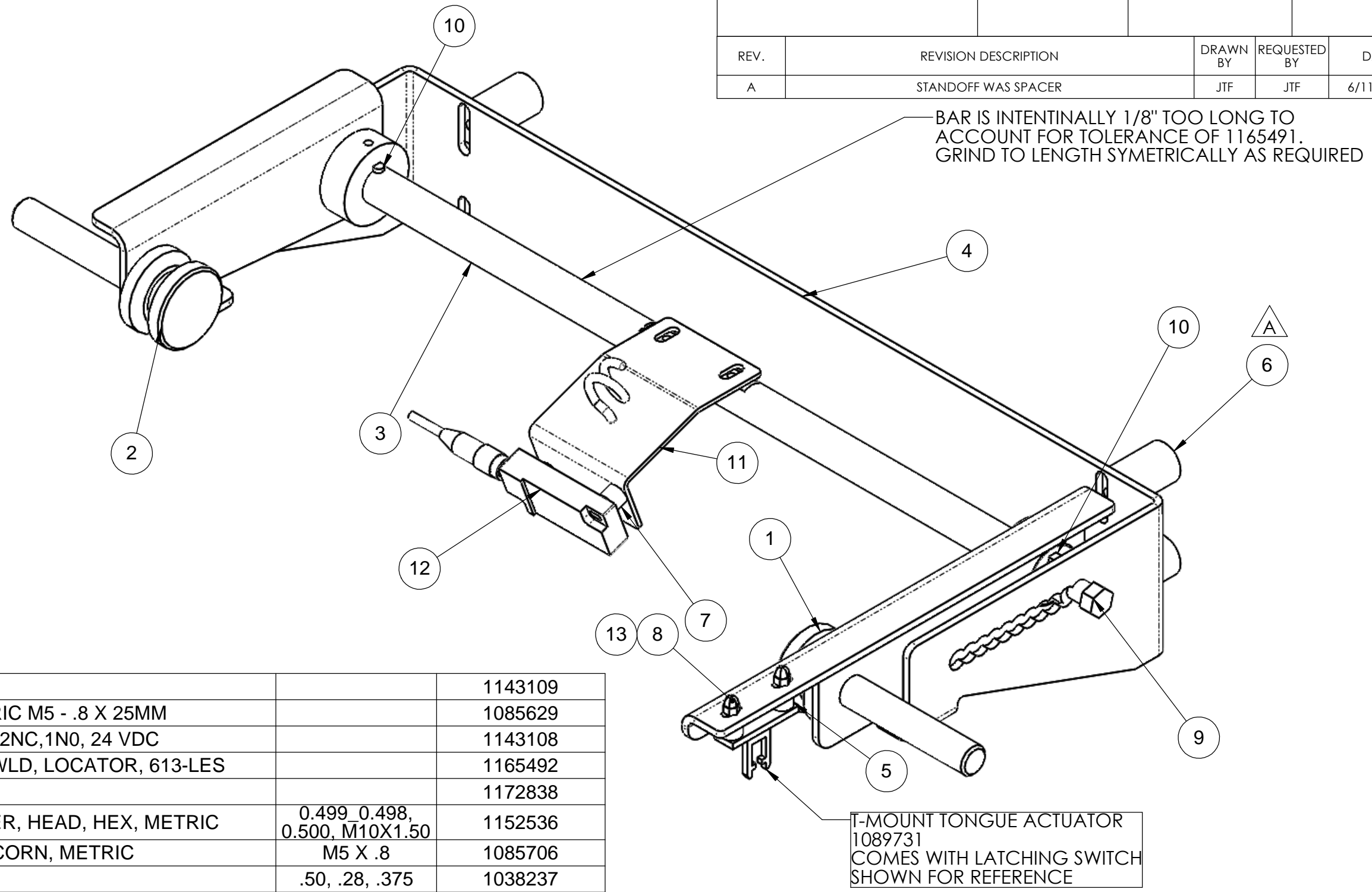
SIZE	REFERENCE	DWG NO	REV
B	1172983	1165487	A

SCALE: 1:2.5 WEIGHT: 37.57 lbs. SHEET 1 OF 1

SPECIFICATION	
NONE	

C:\LOCAL VAULT\613-VS2-LES System \ 1165487 Wednesday, June 11, 2014
 MODEL: 1165487
 CONFIG: 11th Hole Click
 DRW REV: PRE-02

DATE		MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE
A	STANDOFF WAS SPACER	JTF	JTF	6/11/2014



1	14	CABLE, 6 PIN, 5M		1143109
2	13	FL SOC SCR METRIC M5 - .8 X 25MM		1085629
1	12	SWITCH, SAFETY, 2NC,1N0, 24 VDC		1143108
1	11	SENSOR MOUNT WLD, LOCATOR, 613-LES		1165492
2	10	KEY, 6MM X 35MM		1172838
2	9	SCREW, SHOULDER, HEAD, HEX, METRIC	0.499_0.498, 0.500, M10X1.50	1152536
2	8	NUT, CAP, HEX, ACORN, METRIC	M5 X .8	1085706
2	7	SPACER, SS	.50, .28, .375	1038237
4	6	STANDOFF, SS	1.00, M8 X 1.25 X .63, 1.75	1127377
2	5	SPACER, SS	.50, .28, 0.42	1138901
1	4	LATCH POSITIONER, FAB		1165491
1	3	PIVOT SHAFT		1172975
1	2	LATCH PLATE WLDMT		1172976
1	1	LATCH PLATE, WLD, LOCATIING, 613-LES		1165490
QTY.	ITEM NO.	Description1	Description2	Part_Number

T-MOUNT TONGUE ACTUATOR
1089731
COMES WITH LATCHING SWITCH
SHOWN FOR REFERENCE

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ± 0°-30'

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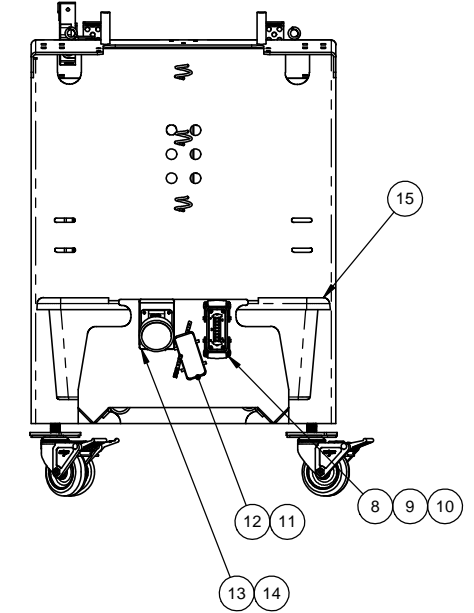
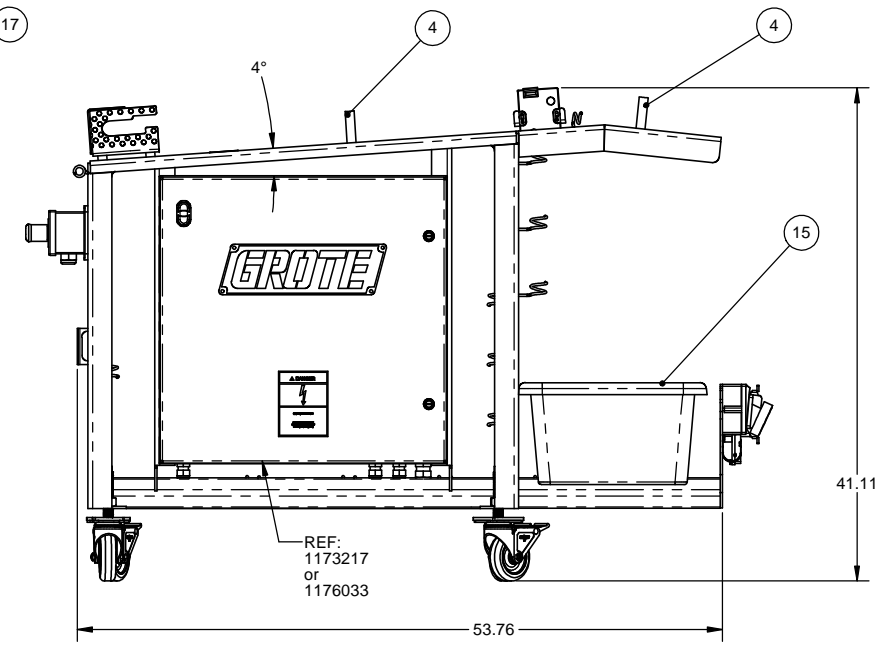
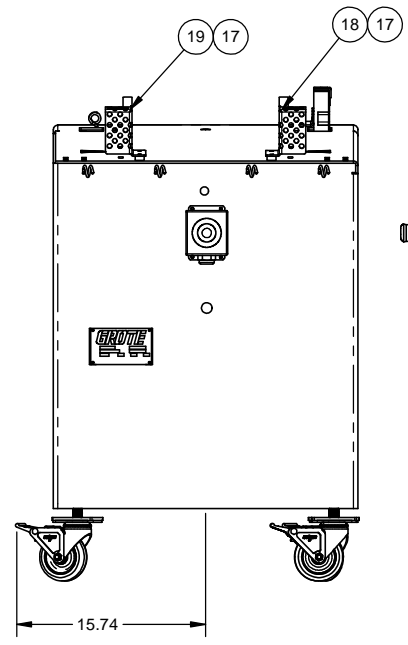
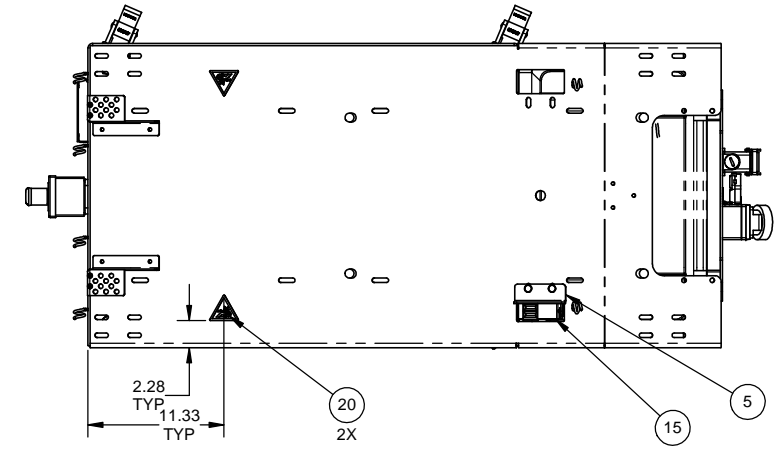
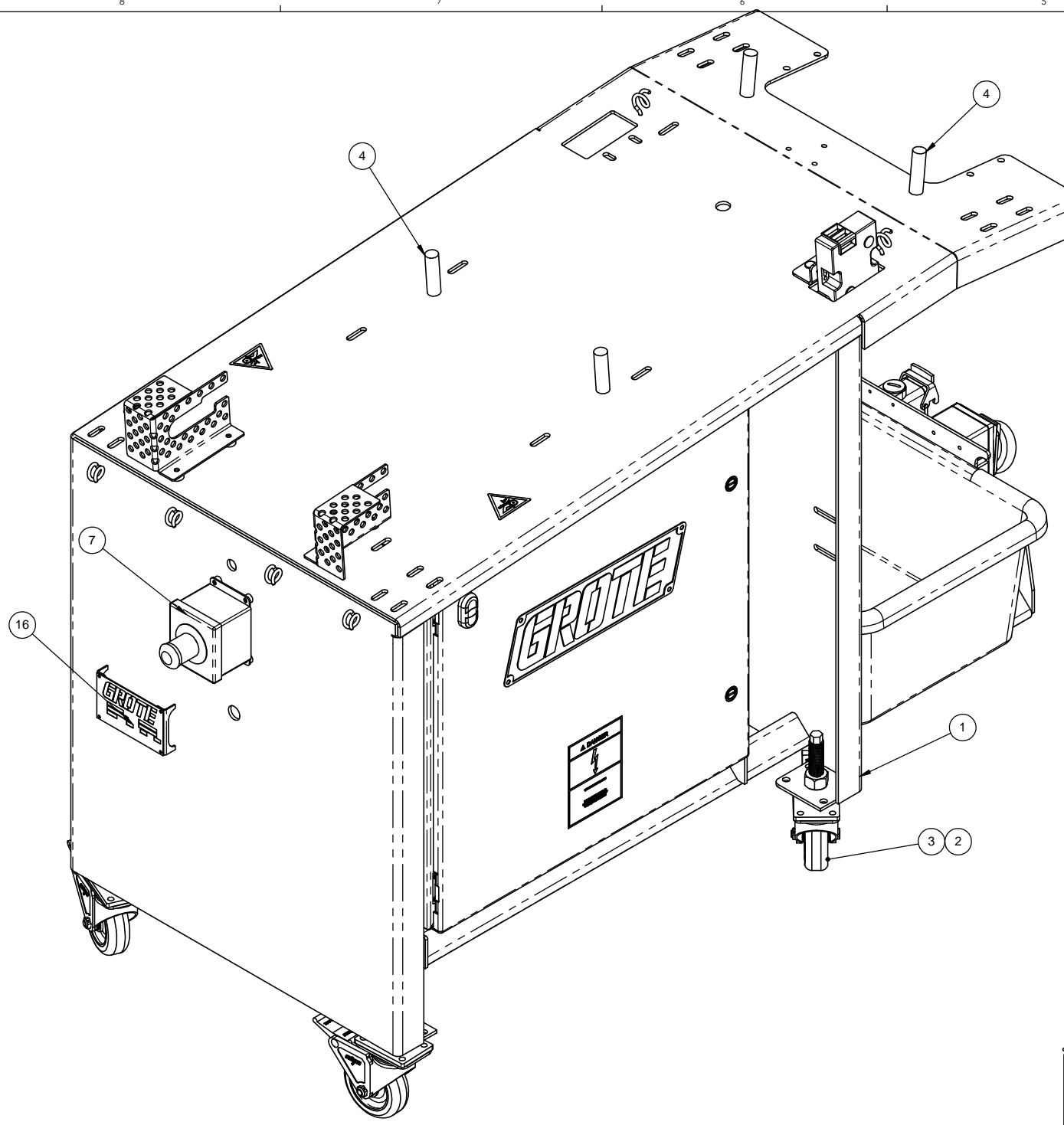
TITLE LATCH ASSEMBLY, CONVEYOR LOCATOR			
SIZE B	REFERENCE 1172980	DWG NO 1165488	REV 0
SCALE: 1:2.5	WEIGHT: 20.60 lbs.	SHEET 1 OF 1	

THIRD ANGLE PROJECTION

DESIGNED BY JTF	DRAWN BY JTF	DATE 02-06-14
--------------------	-----------------	------------------

SPECIFICATION	
NONE	

DATE	MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWNBY	REQUESTED BY
			DATE



2	20	TEMPLATE, ECE, ISO, ENTNGL, BELT, 2.5"		1172514
1	19	NIP GUARD, LH	MIRROR OF 1173331	1173332
1	18	NIP GUARD, RH		1173331
4	17	SPACER, SS	.75, .28, .38	1046411
1	16	ID PLATE, RIVETED, GROTE		1164106
1	15	TOTE, CROSS STACK NEST 25.1 X 16 X 8.5	PLASTIC, FDA, USDA	1165454
1	14	RECEPTACLE, IEC 309, 3 PIN, 230V, PM		7007-0017
1	13	SOCKET BOX, SURFACE MTG, 3 PIN		7007-0004
1	12	COVER, PLUG/RECEP, 16 PIN, EPIC		1161207
1	11	SAFETY CHAIN, STN STL, .018" 50LB	6" LENGTH	1035292
1	10	PLUG, BLANKING, EPIC, M25 X 1.5	W/ O-RING	1141330
1	9	INSERT, RECEPTACLE, 16 PIN, EPIC		1161204
1	8	BASE, RECEPTACLE, 16 PIN, EPIC, SFC		1172985
1	7	SWITCH BOX ASSY, E-STOP, PORT C	STAINLESS WITH STANDOFFS	1167028
1	6	SWITCH, SAFETY, INTERLOCK, 24VAC/DC		1070635
1	5	MNT, SAFETY LATCH, WLD, TUNNEL GUARD		1165500
4	4	NOSE SUPPORT, 2.625" LONG		1173335
4	3	CASTER, SWIVEL, 4" SS, TOTAL LOCK		1125700
4	2	CASTER MOUNT & LEVEL WLDMT, M20 X 4.5"		1165735
1	1	FRAME WLD, 613-LES		1165777
QNTY	ITEM NO.	Description1	Description2	Part_Number
			NONE	

CONTROL PIGTAIL (IN CNTRL ENCL BOM):
 1161205 = HOOD
 1161206 = 16 PIN INSERT
 1172992 = CORD GRIP
 1173240 = CABLE

POWER PIGTAIL (IN CNTRL ENCL BOM)
 1156018 = PLUG

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ±0°-30'

THIRD ANGLE PROJECTION

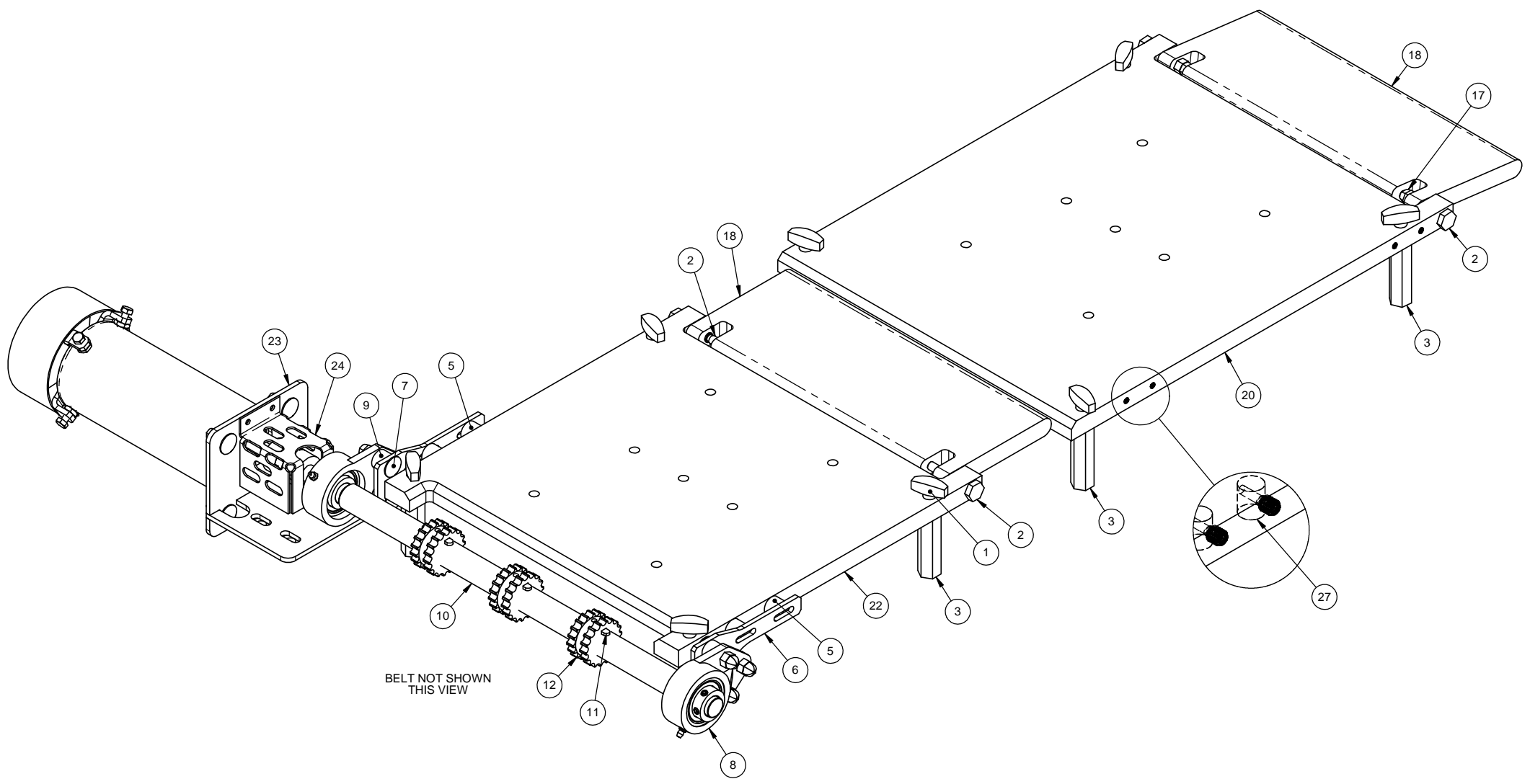
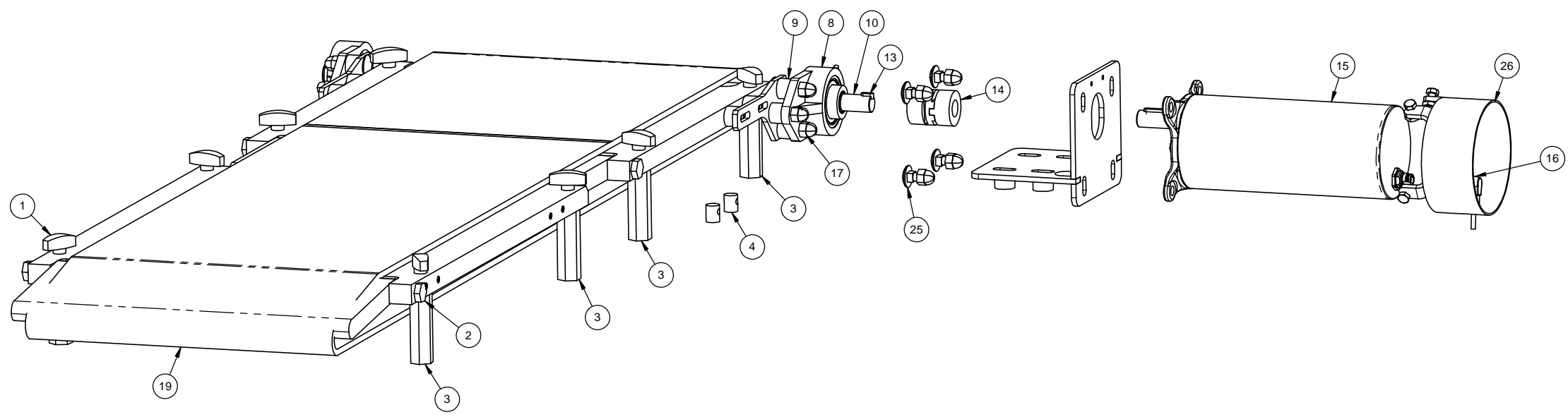
DESIGNED BY: JTF DRAWN BY: JTF DATE: 06-17-14

REFERENCE: D 1165494 DWG NO: 1165776

SCALE: 1:8 WEIGHT: 312.67 lbs. SHEET: 1 OF 1

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DATE	MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY
			DATE



QNTY	ITEM NO.	Description1	Description2	Part_Number
8	27	BARREL NUT, METRIC	0.5, 0.625 LG, M5-0.8	1178962
1	26	CABLE GUARD ASY		1177062
4	25	CARRIAGE BOLT, M8	X 20MM, SS	1126556
1	24	GUARD, COUPLING, AUTO LOAD, LES		1165783
1	23	MOTOR MNT,LES, AUTO LOAD		1165782
1	22	BED 1, FEED, LES LOAD		1165781
8	21	THREADED INSERT,M5-.8INT,M8-1.25EXT	W/ LOCK TAB	1092015
1	20	BED 2, FEED, LES LOAD		1180191
1	19	FEED BELT, MICROPITCH, 12"WD X 93.25LG	FLUSH GRID, WITH SANICLIP	1165756
2	18	NOSE BAR, FEED, LES		1165740
12	17	CAP NUT METRIC	M8 X 1.25	1085708
1	16	CABLE, QD, M12, 5M, R/A, 4 PIN		1087329
1	15	GEARMOTOR, 230V 3-PHASE, 1/20 HP	27 IN-LB @ 89RPM	1165853
1	14	OLDHAM COUPLING ASY, 16MM, KEY		1173279
1	13	KEY, SQUARE, ROUND ENDS, 5MM, .472		0664-3067-01
3	12	MICROPITCH, SPROCKET, 18T, 1" BORE		1165761
3	11	KEY, SQUARE, ROUND ENDS	0.25, 1.48	1017796
1	10	DRIVE ROLLER, FEED BELT, LES AUTO LOAD	MODULAR BELT	1165737
10	9	SPACER, SS	.75, .38, .50	1151733
2	8	BEARING, SS, 20 MM ID, 3 BLT FLG		1161044
6	7	CARRIAGE BOLT, M8-1.25 X 35MM	SS	1161045
2	6	MNT BRG, 3 BLT FLG X 20 MM		1165752
4	5	SPACER, SS	.75, .28, .50	1029154
4	4	BARREL NUT, METRIC	0.5, 0.625 LG, M6-1	1173273
8	3	CONVEYOR MNT STANDOFFS, AUTO LOAD LES		1173293
4	2	SCREW, SHOULDER, HEAD, HEX, METRIC	0.375, 1.574+0.002 -, 0.002, M8X1.25	1173142
8	1	KNOB, SS, M8 X 30MM, WING SCREW		1163945

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE: .XX = ±.01 .XXX = ±.005 FRACTIONAL: ±.03 ANGLES: ±0°-30'

THIRD ANGLE PROJECTION

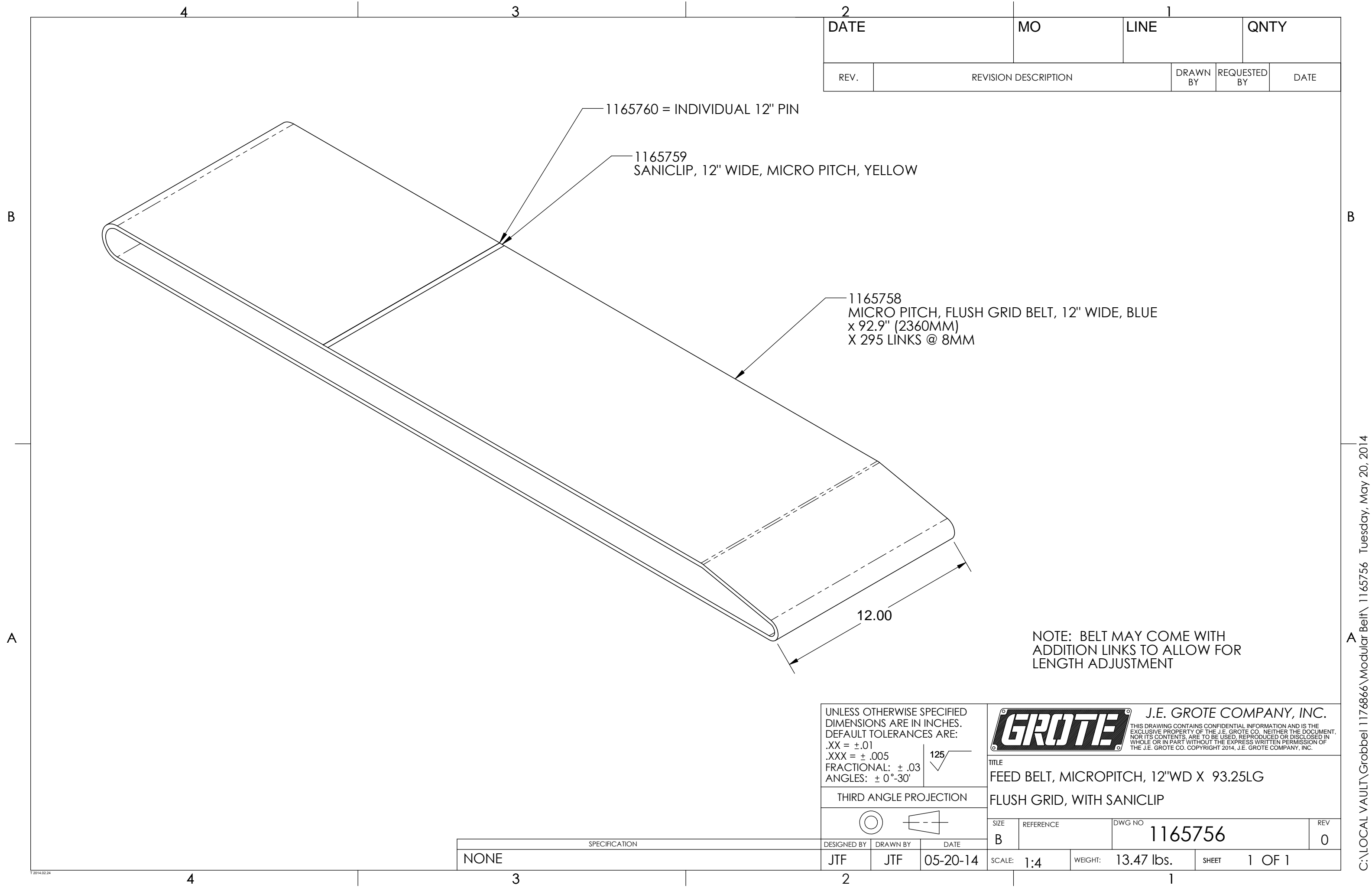
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TITLE: FEED BELT ASY, MODULAR BELT, 613-LES

SIZE: D REFERENCE: 1165780 DWG NO: 1180967

DESIGNED BY: C/JL DRAWN BY: DLC DATE: 10-27-15 SCALE: 1:2.5 WEIGHT: 67.22 lbs. SHEET: 1 OF 1

DRW REV:PRE-01
 CONFIG:Default
 MODEL: 1180967
 Tuesday, October 27, 2015
 C:\LOCAL VAULT\1180967



DATE		MO	LINE	QNTY
REV.	REVISION DESCRIPTION			DRAWN BY
			REQUESTED BY	DATE

1165760 = INDIVIDUAL 12" PIN

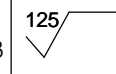
1165759
SANICLIP, 12" WIDE, MICRO PITCH, YELLOW

1165758
MICRO PITCH, FLUSH GRID BELT, 12" WIDE, BLUE
x 92.9" (2360MM)
X 295 LINKS @ 8MM

12.00

NOTE: BELT MAY COME WITH
ADDITION LINKS TO ALLOW FOR
LENGTH ADJUSTMENT

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ± 0°-30'



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TITLE			
FEED BELT, MICROPITCH, 12"WD X 93.25LG			
FLUSH GRID, WITH SANICLIP			
SIZE	REFERENCE	DWG NO	REV
B		1165756	0
SCALE:	1:4	WEIGHT:	13.47 lbs.
		SHEET	1 OF 1

SPECIFICATION		
NONE	DESIGNED BY	DRAWN BY
	JTF	JTF
	DATE	05-20-14

4

3

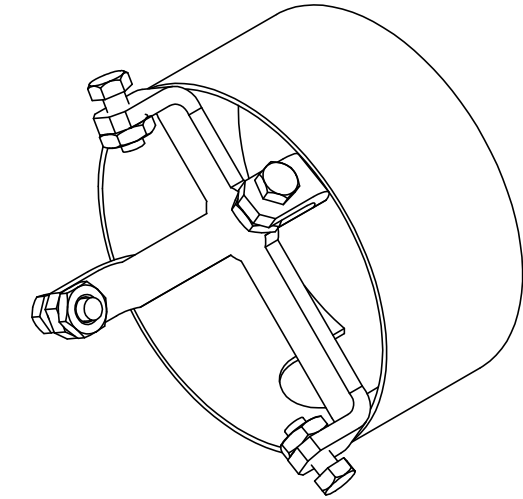
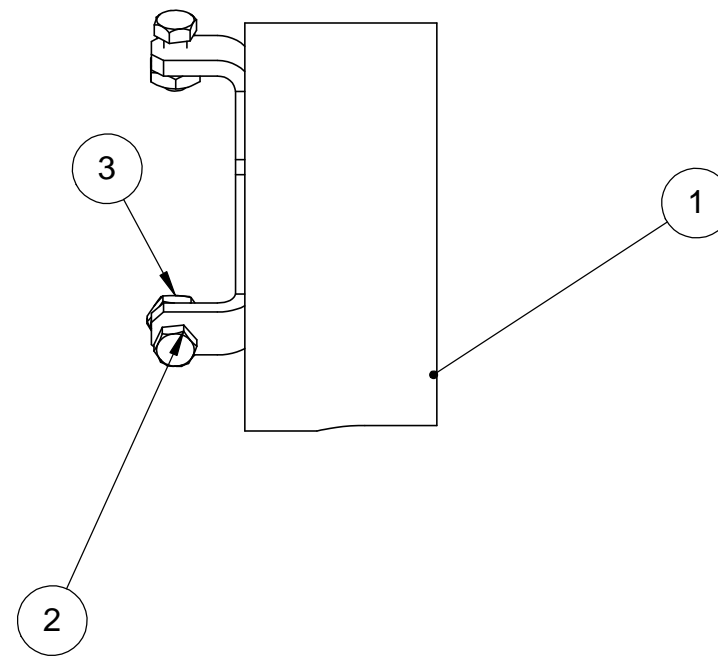
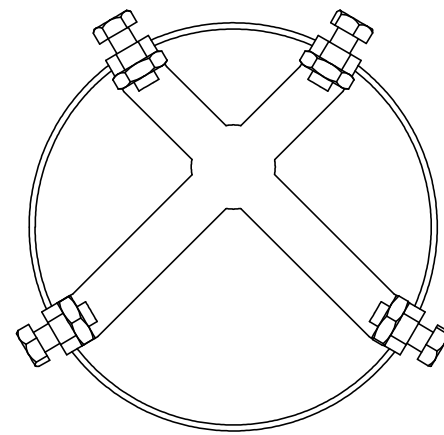
2

1

DATE		MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE

B

B



A

A

4	3	HEX JAM NUT METRIC	M8-1.25	1085692
4	2	HEX SCR METRIC M6 - 1.0	16MM	1085490
1	1	CABLE GUARD WLD		1177063
QNTY	ITEM NO.	Description1	Description2	Part_Number

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ± 0°-30'

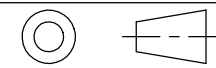
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TITLE
CABLE GUARD ASY

THIRD ANGLE PROJECTION



SIZE	REFERENCE	DWG NO	REV
B		1177062	0

SPECIFICATION			DESIGNED BY	DRAWN BY	DATE	SCALE:	WEIGHT:	SHEET
NONE			JTF	JTF	11-03-14	1:2	0.76 lbs.	1 OF 1

4

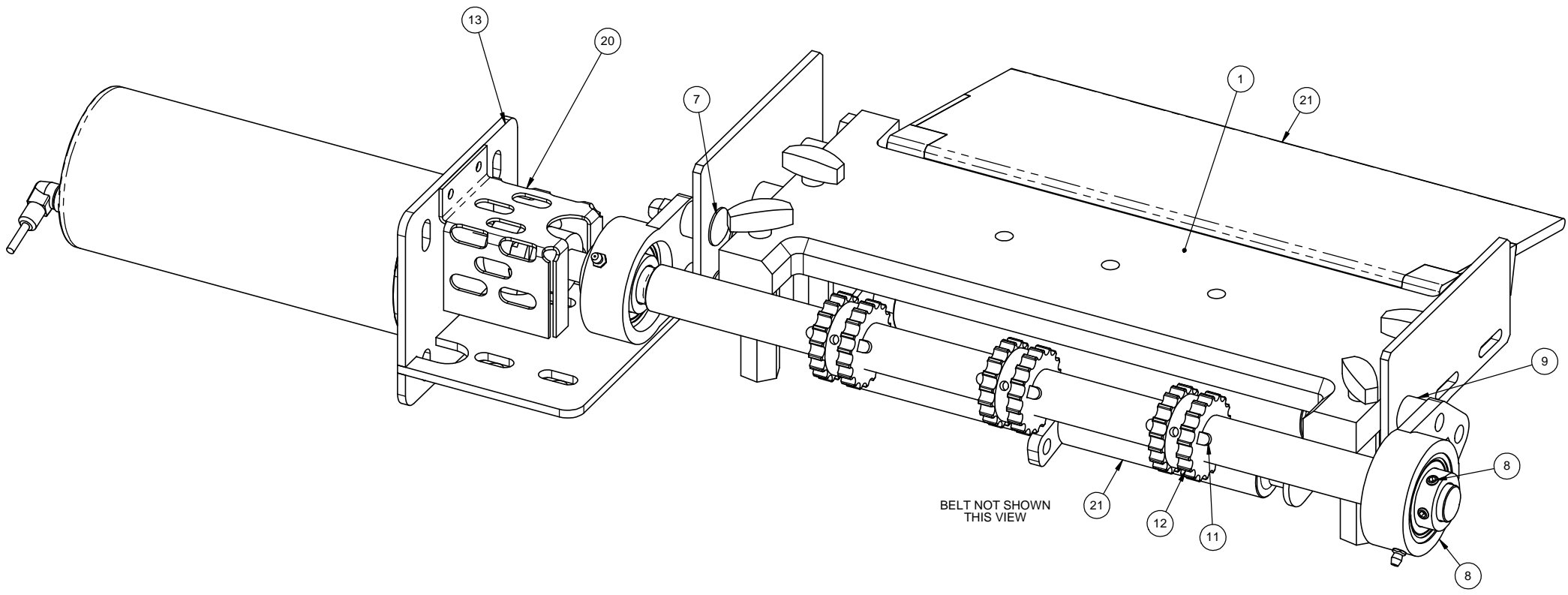
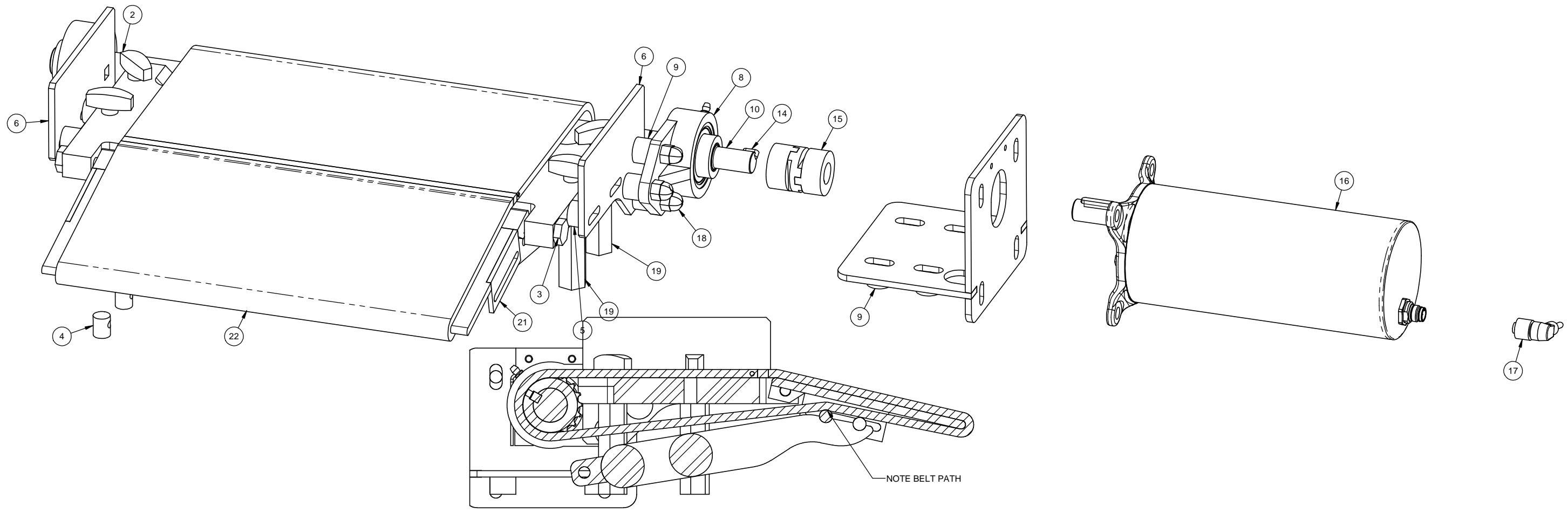
3

2

1

DRW REV: PRE-02
 CONFIG: Default
 MODEL: 1165784
 Saturday, June 28, 2014
 C:\Users\John.Foreman\Documents\GROTE\LOCAL VAULT\613-V32\LES System\1165784

DATE	MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY
			DATE



QNTY	ITEM NO.	Description1	Description2	Part_Number
1	22	INJECT BELT, MODULAR, 12" WD X 27.7" LG	WD X 27.7" LG	1165757
1	21	PIVOT NOSE ASY, INJECTION, LES		1165741
1	20	GUARD, COUPLING, AUTO LOAD, LES		1165783
4	19	CONVEYOR MNT STANDOFFS, AUTO LOAD LES		1173293
3	18	CAP NUT METRIC	M8 X 1.25	1085708
1	17	CABLE, PROX, 22-4C, FEML-90		1087329
1	16	GEARMOTOR, 230V 3-PHASE, 1/20 HP	7 IN-LB @ 335	1120141
1	15	OLDHAM COUPLING ASY, 16MM, KEY		1173279
1	14	KEY, SQUARE, ROUND ENDS, 5MM, .472		0664-3067-01
1	13	MOTOR MNT, LES, AUTO LOAD		1165782
3	12	MICROPITCH, SPROCKET, 18T, 1" BORE		1165761
3	11	KEY, SQUARE, ROUND ENDS	0.25, 1.48	1017796
1	10	DRIVE ROLLER, FEED BELT, LES AUTO LOAD	MODULAR BELT	1165737
10	9	SPACER, SS	.75, .38, .50	1151733
2	8	BEARING, SS, 20 MM ID, 3 BLT FLG		1161044
3	7	CARRIAGE BOLT, M8-1.25 X 35MM	SS	-
2	6	MNT BRG, 3 BLT FLG X 20 MM + GUARD		1165753
4	5	SPACER, SS	.75, .28, .50	1029154
4	4	BARREL NUT, METRIC	0.5, 0.625 LG, M6-1	1173273
2	3	SCREW, SHOULDER, HEAD, HEX, METRIC	1.574+0.002, 0.002, M8X1.25	1173142
4	2	KNOB, SS, M8 X 30MM, WING SCREW		1163945
1	1	BED 3, INJECTION, LES LOAD		1173147

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ±0°-30'

THIRD ANGLE PROJECTION

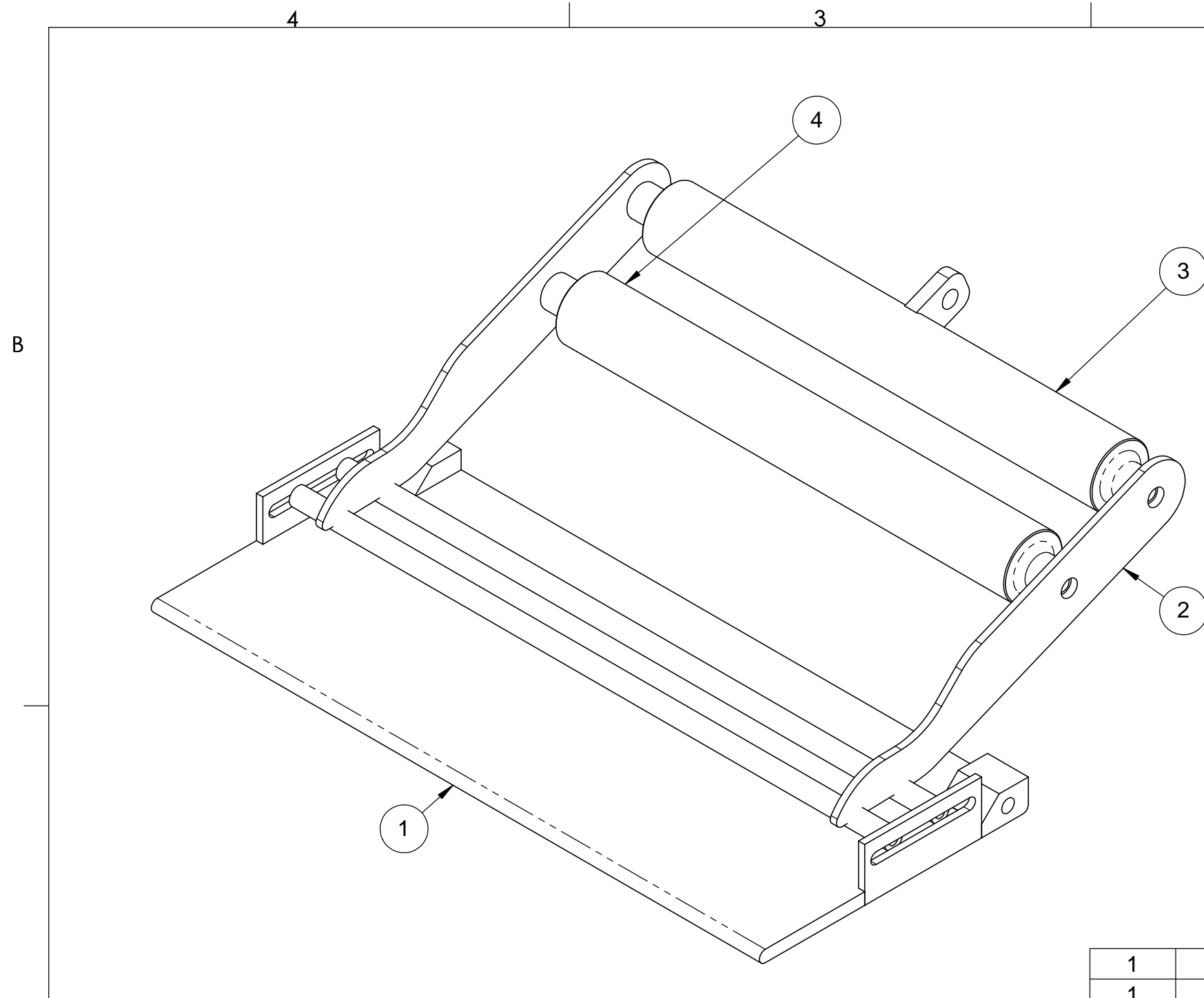
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TITLE: INJECT BELT ASY, MODULAR BELT, 613-LES

SIZE: D REFERENCE: 1165770 DWG NO: 1165784 REV: 0

DESIGNED BY: JTF DRAWN BY: JTF DATE: 06-24-14 SCALE: 1:1.5 WEIGHT: 47.23 lbs. SHEET: 1 OF 1

SPECIFICATION
NONE



2		1	
DATE	MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY
			DATE

1	4	COUNTER WEIGHT, INJECTOR PIVOT BELT		1173284
1	3	WEIGHT AND PIVOT LEVER		1165746
1	2	BRKT, CNT WEIGHT, WLD		1165749
1	1	SLIDER BED, INJECTION NOSE, LES, WLD		1165742
QTY	ITEM NO.	Description1	Description2	Part_Number

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ± 0°-30'

125 ✓

THIRD ANGLE PROJECTION

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TITLE
 PIVOT NOSE ASY, INJECTION, LES

SIZE	REFERENCE	DWG NO	REV
B	0	1165741	0
SCALE:	1:2	WEIGHT:	14.09 lbs.
		SHEET	1 OF 1

SPECIFICATION		
NONE		

A

A

B

B

4

3

2

1

4

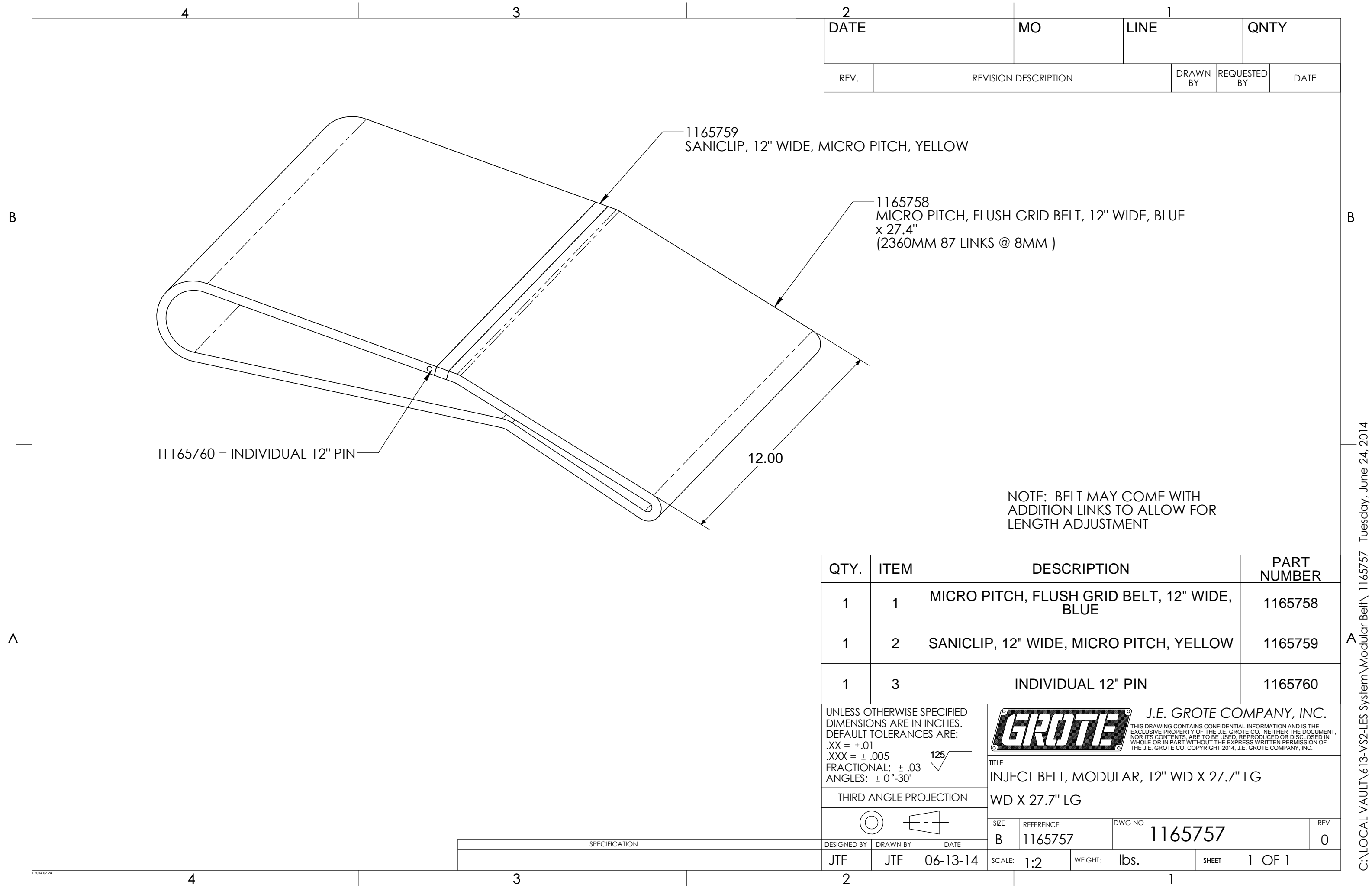
3

2

1

T2014.02.24

C:\LOCAL VAULT\Grobbe\1176866\1165741 Wednesday, May 21, 2014
 MODEL: 1165741
 CONFIG:Default
 DRW REV:PRE-01



DATE		MO	LINE		QNTY	
REV.	REVISION DESCRIPTION			DRAWN BY	REQUESTED BY	DATE

1165759
SANICLIP, 12" WIDE, MICRO PITCH, YELLOW

1165758
MICRO PITCH, FLUSH GRID BELT, 12" WIDE, BLUE
x 27.4"
(2360MM 87 LINKS @ 8MM)

1165760 = INDIVIDUAL 12" PIN

12.00

NOTE: BELT MAY COME WITH
ADDITION LINKS TO ALLOW FOR
LENGTH ADJUSTMENT

QTY.	ITEM	DESCRIPTION	PART NUMBER
1	1	MICRO PITCH, FLUSH GRID BELT, 12" WIDE, BLUE	1165758
1	2	SANICLIP, 12" WIDE, MICRO PITCH, YELLOW	1165759
1	3	INDIVIDUAL 12" PIN	1165760

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ± 0°-30'

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TITLE
 INJECT BELT, MODULAR, 12" WD X 27.7" LG
 WD X 27.7" LG

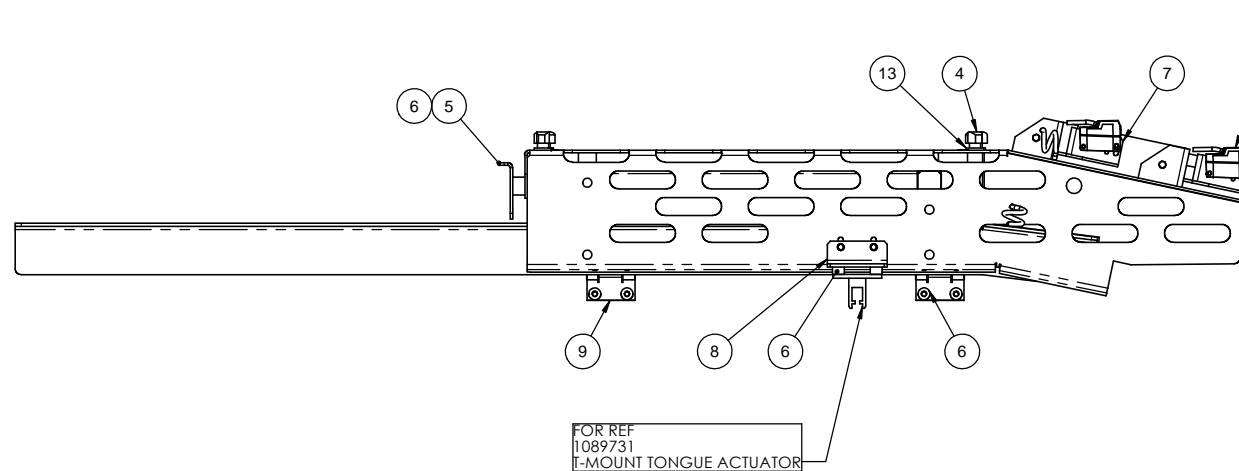
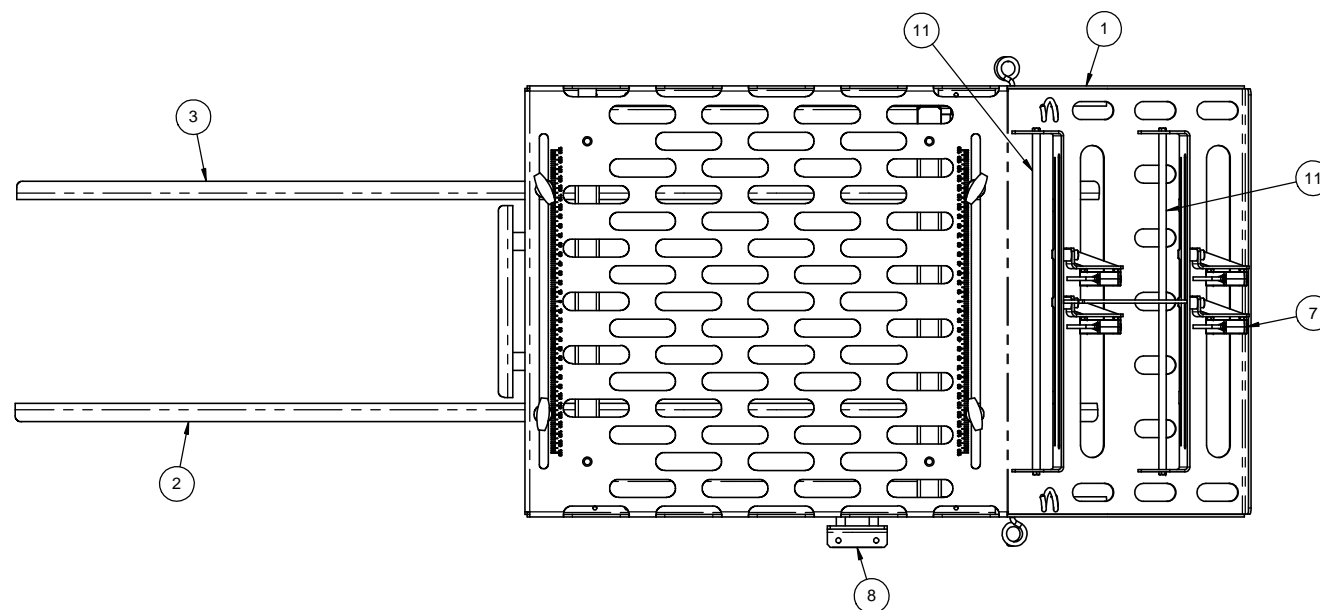
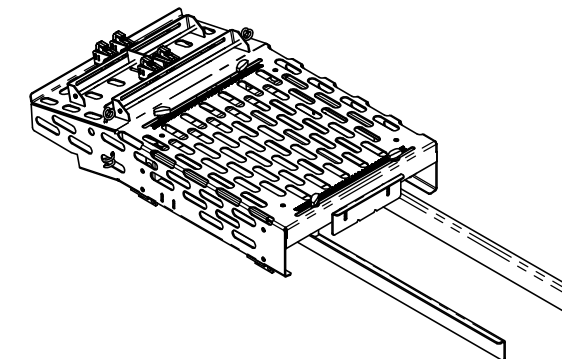
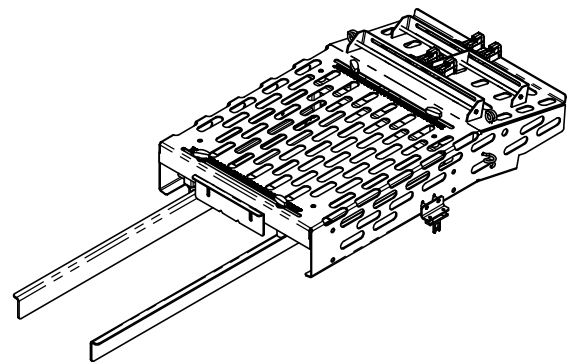
SIZE	REFERENCE	DWG NO	REV
B	1165757	1165757	0

THIRD ANGLE PROJECTION

DESIGNED BY	DRAWN BY	DATE	SCALE	WEIGHT	SHEET
JTF	JTF	06-13-14	1:2	lbs.	1 OF 1

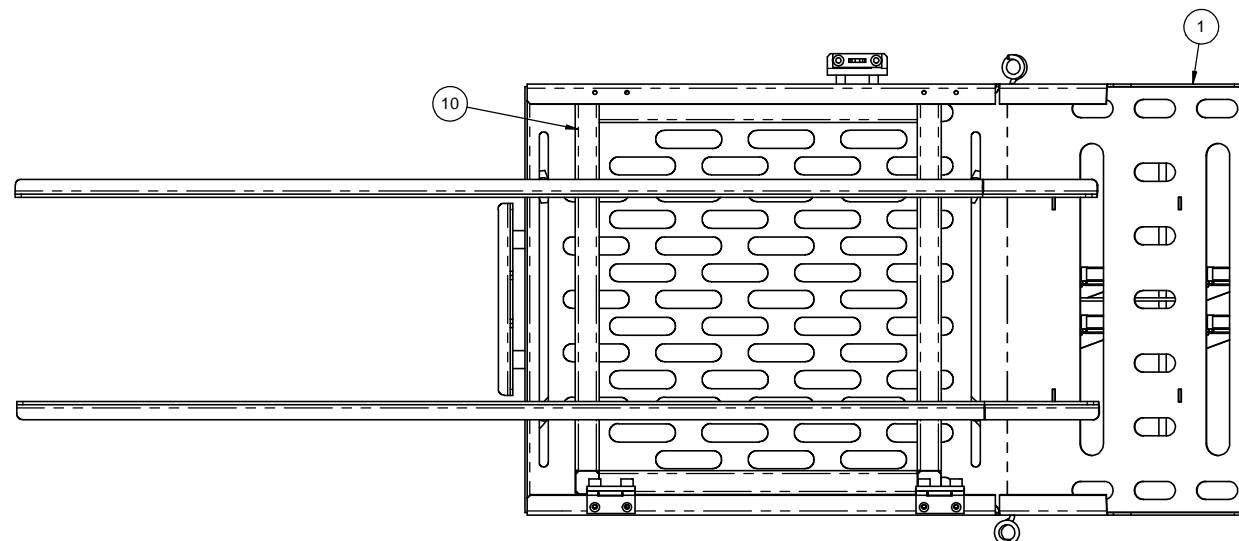
C:\LOCAL VAULT\613-VS2-LES System\Modular Belt\ 1165757 Tuesday, June 24, 2014
 MODEL: 1165757
 CONFIG:Default<As Machined>
 DRW REV:PRE-01

REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE
A	ITEM 4 WAS 1162005.	DLC	C.JL	1/8/2015
B	ITEM 4 WAS 1118538. ADDED ITEM 13.	DLC	C.JL	1/13/2015



REFERENCE:
SENSOR, EYE, 20-350 MM, PNP
1175284

FOR REF
1089731
T-MOUNT TONGUE ACTUATOR



QNTY	ITEM NO.	Description1	Description2	Part_Number
4	13	FLATWASHER, METRIC	M8, 316 SS	1115400
4	12	HEX SCR METRIC M4 X .07	LENGTH DETERMINED BY ASSEMBLY	" "
2	11	ROD, WIRE WRAP, PE, LES		1173333
1	10	RIB CAGE, TUNNEL GUARD, INSIDE		1173330
2	9	HINGE, SS, 2"		1172261
1	8	MNT SAFETY TAB, WLD		1173302
4	7	PE ASY, 613-LES		1173327
8	6	SPACER, SS	.50, .22, .31	1051352
1	5	HEIGHT LIMIT PLATE X 8" WIDE		1165755
4	4	KNOB, SS, M8 X 16MM, WING SCREW		1162005
1	3	DIVIDER STAND OFF, WLD, LH		1165788
1	2	DIVIDER STAND OFF, WLD, RH		1165786
1	1	TUNNEL GUARD, 613-LES, WLD		1173324

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ±0°-30'

125

THIRD ANGLE PROJECTION

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TITLE: TUNNEL GUARD ASY, AUTO LOAD LES

SIZE: D REFERENCE: 1173294 DWG NO: 1165785 REV: B

DESIGNED BY: JTF DRAWN BY: JTF DATE: 06-24-14 SCALE: 1:4 WEIGHT: 43.42 lbs. SHEET: 1 OF 1

DRW REV: B
 CONFIG: Right Hand asy
 MODEL: 1165785
 Tuesday, January 13, 2015
 CALLOCAL VALUITY: 1165785

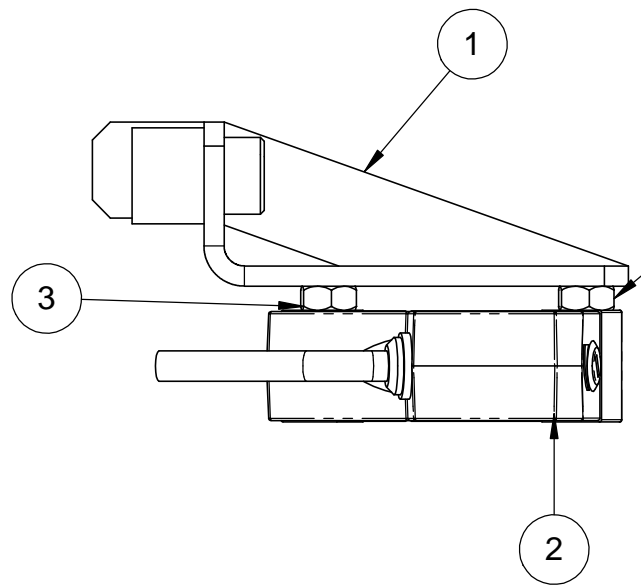
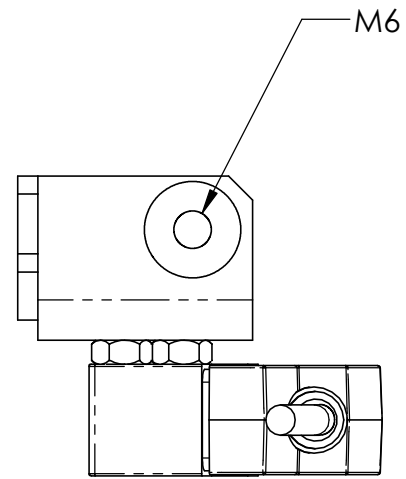
4

3

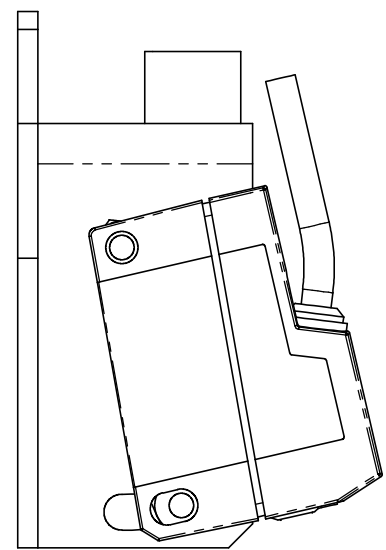
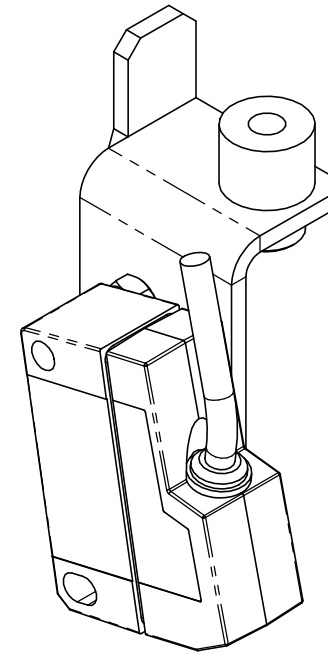
2

1

DATE		MO	LINE	QNTY
REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE



NOTE:
ASSEMBLE WITH
NUT AS SPACER



2	3	NUT, HEX, SS, METRIC	M4 X 0.7	1114814
1	2	SENSOR, EYE, 20-350 MM, PNP		1175284
1	1	PE BRKT, WLD, 613-LES	MOUNTS PE 1175284	1173328
QNTY	ITEM NO.	Description1	Description2	Part_Number

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ± 0°-30'

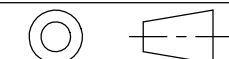
125



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TITLE
PE ASY, 613-LES

THIRD ANGLE PROJECTION



SIZE	REFERENCE	DWG NO	REV
B	1165771	1173327	0

SPECIFICATION	DESIGNED BY	DRAWN BY	DATE
NONE	JTF	JTF	06-24-14

SCALE:	WEIGHT:	SHEET
1:1	0.80 lbs.	1 OF 1

B

B

A

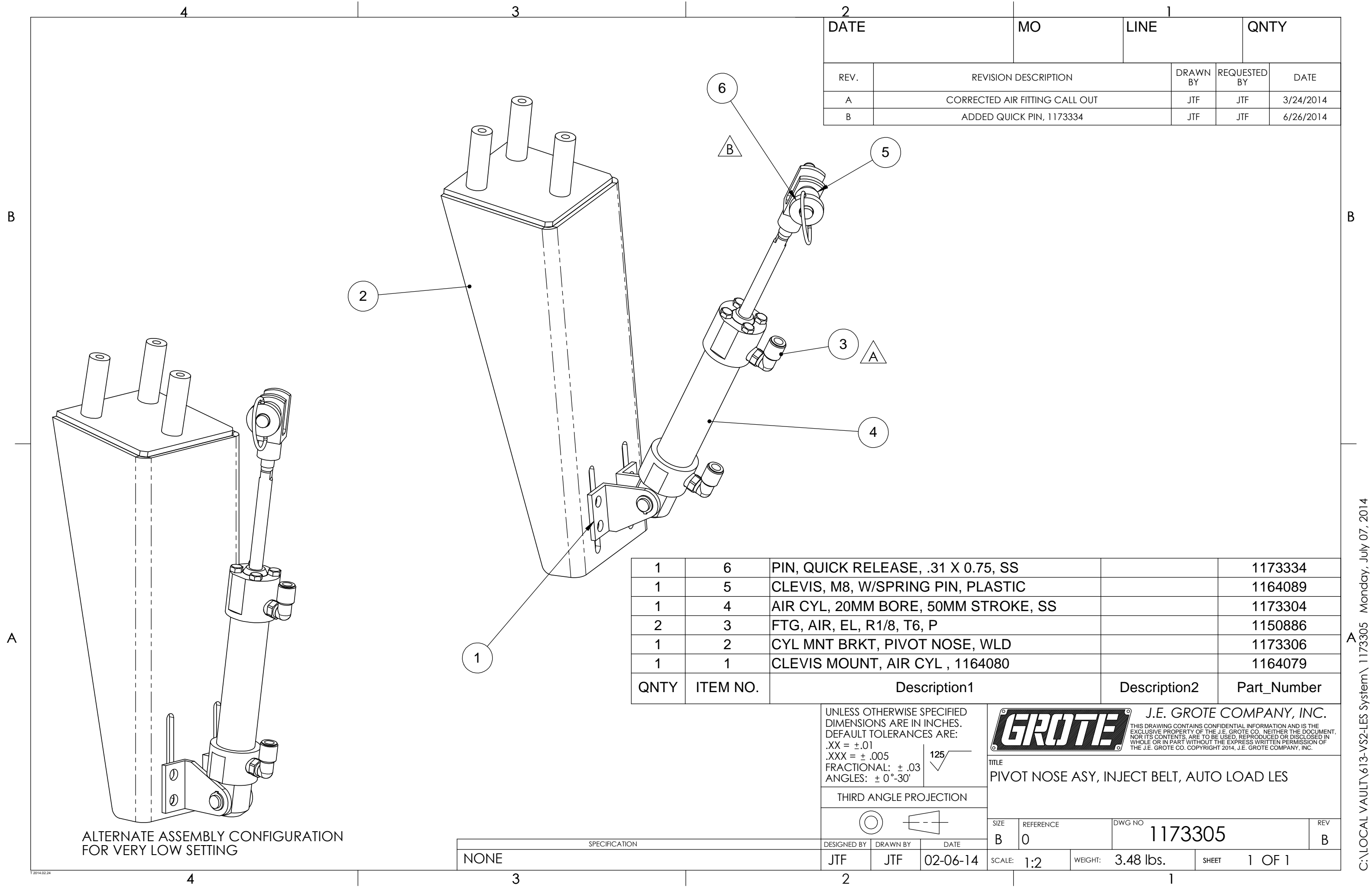
A

4

3

2

1



2		1		
DATE	MO	LINE	QNTY	
REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE
A	CORRECTED AIR FITTING CALL OUT	JTF	JTF	3/24/2014
B	ADDED QUICK PIN, 1173334	JTF	JTF	6/26/2014

1	6	PIN, QUICK RELEASE, .31 X 0.75, SS		1173334
1	5	CLEVIS, M8, W/SPRING PIN, PLASTIC		1164089
1	4	AIR CYL, 20MM BORE, 50MM STROKE, SS		1173304
2	3	FTG, AIR, EL, R1/8, T6, P		1150886
1	2	CYL MNT BRKT, PIVOT NOSE, WLD		1173306
1	1	CLEVIS MOUNT, AIR CYL, 1164080		1164079
QNTY	ITEM NO.	Description1	Description2	Part_Number

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 DEFAULT TOLERANCES ARE:
 .XX = ±.01
 .XXX = ±.005
 FRACTIONAL: ±.03
 ANGLES: ± 0°-30'

125 ✓

THIRD ANGLE PROJECTION

DESIGNED BY: JTF
 DRAWN BY: JTF
 DATE: 02-06-14

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TITLE: PIVOT NOSE ASY, INJECT BELT, AUTO LOAD LES

SIZE	REFERENCE	DWG NO	REV
B	0	1173305	B

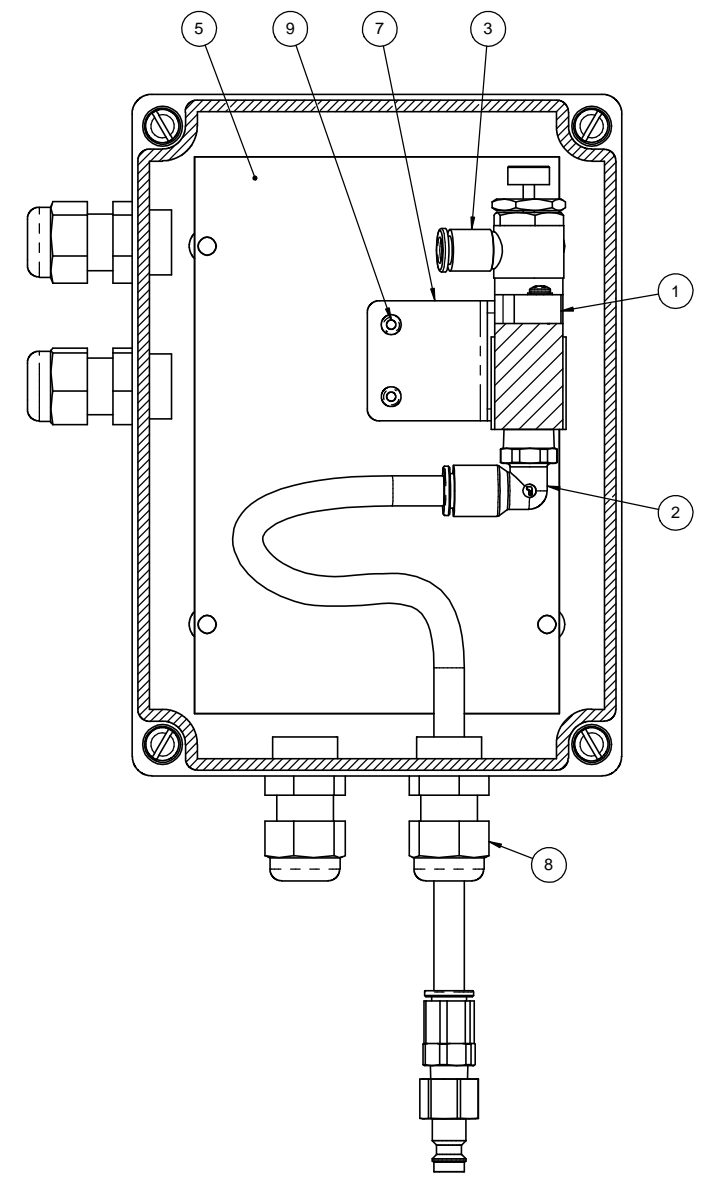
SCALE: 1:2 WEIGHT: 3.48 lbs. SHEET 1 OF 1

ALTERNATE ASSEMBLY CONFIGURATION
 FOR VERY LOW SETTING

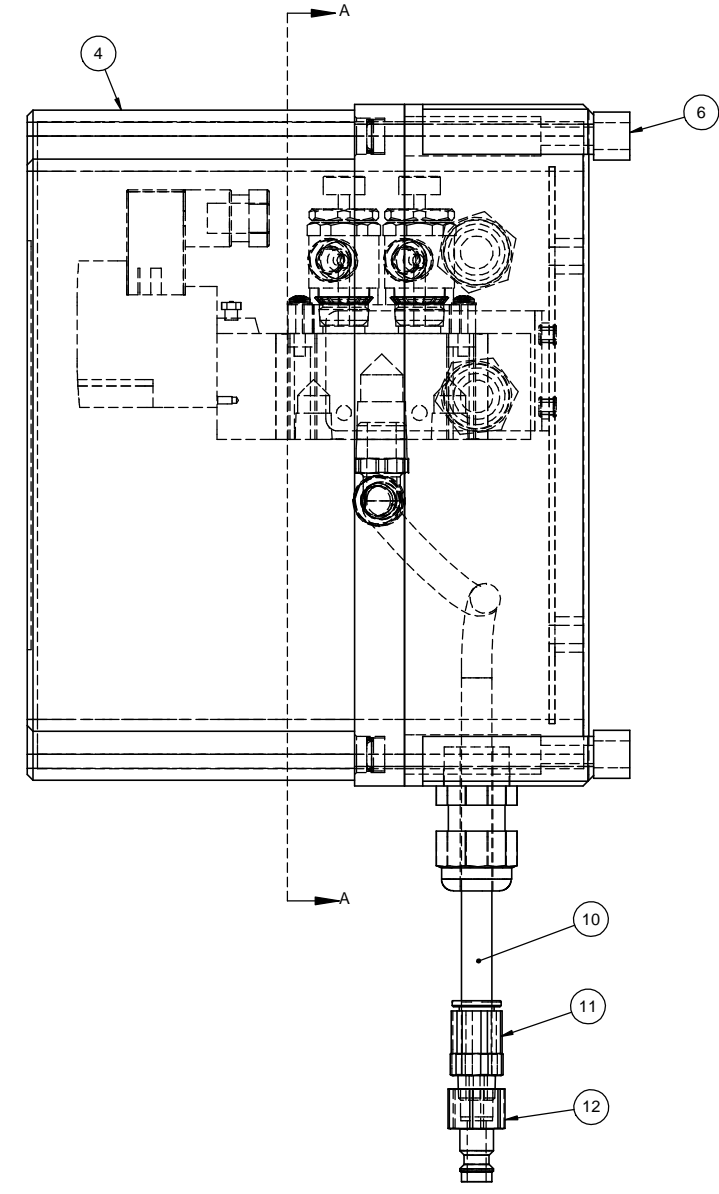
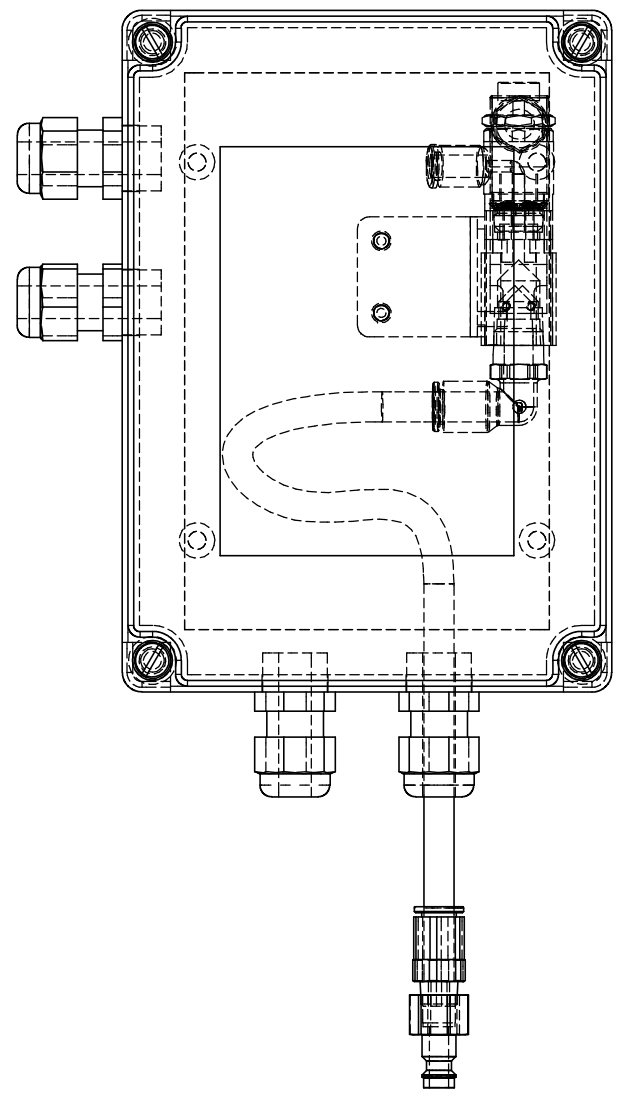
SPECIFICATION
NONE

DRW REV:PRE-03
 CONFIG:Default
 MODEL: 1173305
 Monday, July 07, 2014
 C:\LOCAL VAULT\613-VS2-LES System\ 1173305

DATE	MO	LINE	QNTY		
REV.	REVISION DESCRIPTION		DRAWN BY	REQUESTED BY	DATE
A	AS BUILT		JTF	JTF	6/12/2014



SECTION A-A



QNTY	ITEM NO.	Description1	Description2	Part_Number
1	12	FTG. AIR, QRC, GF1/8, S, SR 21 PLUG		6800-0026
1	11	FTG. AIR, STR, R1/8, T8, N		6800-0122-01
1	10	TUBING, BLACK, 8MM OD, POLYURETHANE	100"	1160618
2	9	RIVET, POP, 5/32" DIA STN STL #54		1080856
4	8	CORD GRIP	0.375 NPT, .181 - .312	1116598
1	7	BRKT, MOUNT, SOL, SHT		1165774
4	6	SPACER, SS	.50, .28, .375	1038237
1	5	BACK PANEL FOR 1173309		1165496
1	4	ENCL, PLASTIC, 7 X 5 X6		1173309
2	3	FTG. AIR, FLC, R1/4, T6, P, ELBOW	METER IN (TUBE TO THREAD)	1141327
1	2	FTG. AIR, EL, R1/4, T8, P		1159273
1	1	VALVE, PNE, 5/2, R1/4, 1 SOL, BDY P	24VDC	1160642

BOX WILL BE MODIFIED FOR HOLES AND SOLENOID MOUNTING AT ASSEMBLY
SEE SHEET 2

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE: .XXX = ±.01 .XXX = ±.005 FRACTIONAL: ±.03 ANGLES: ±0°-30'

THIRD ANGLE PROJECTION

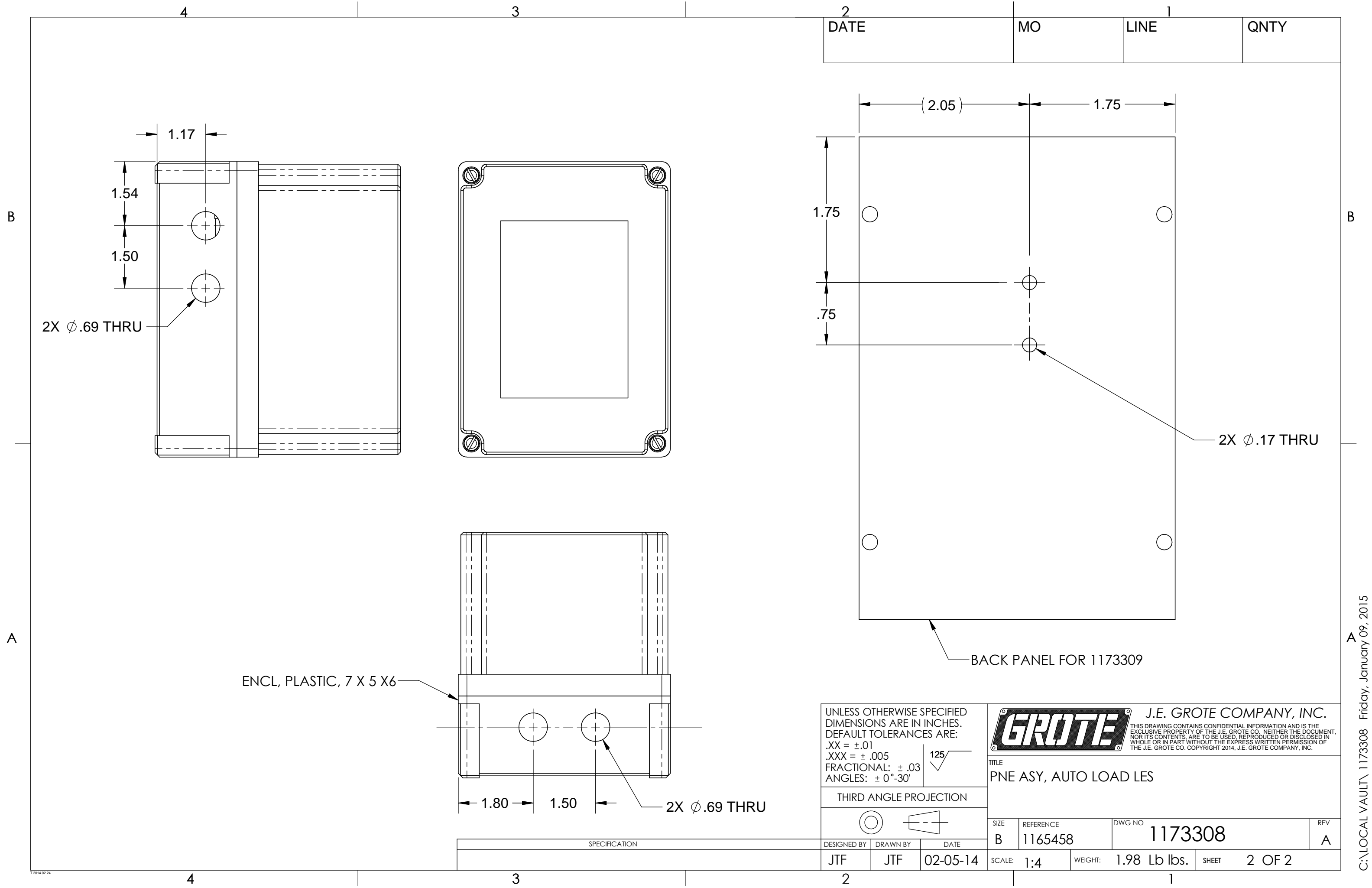
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TITLE: PNE ASY, AUTO LOAD LES

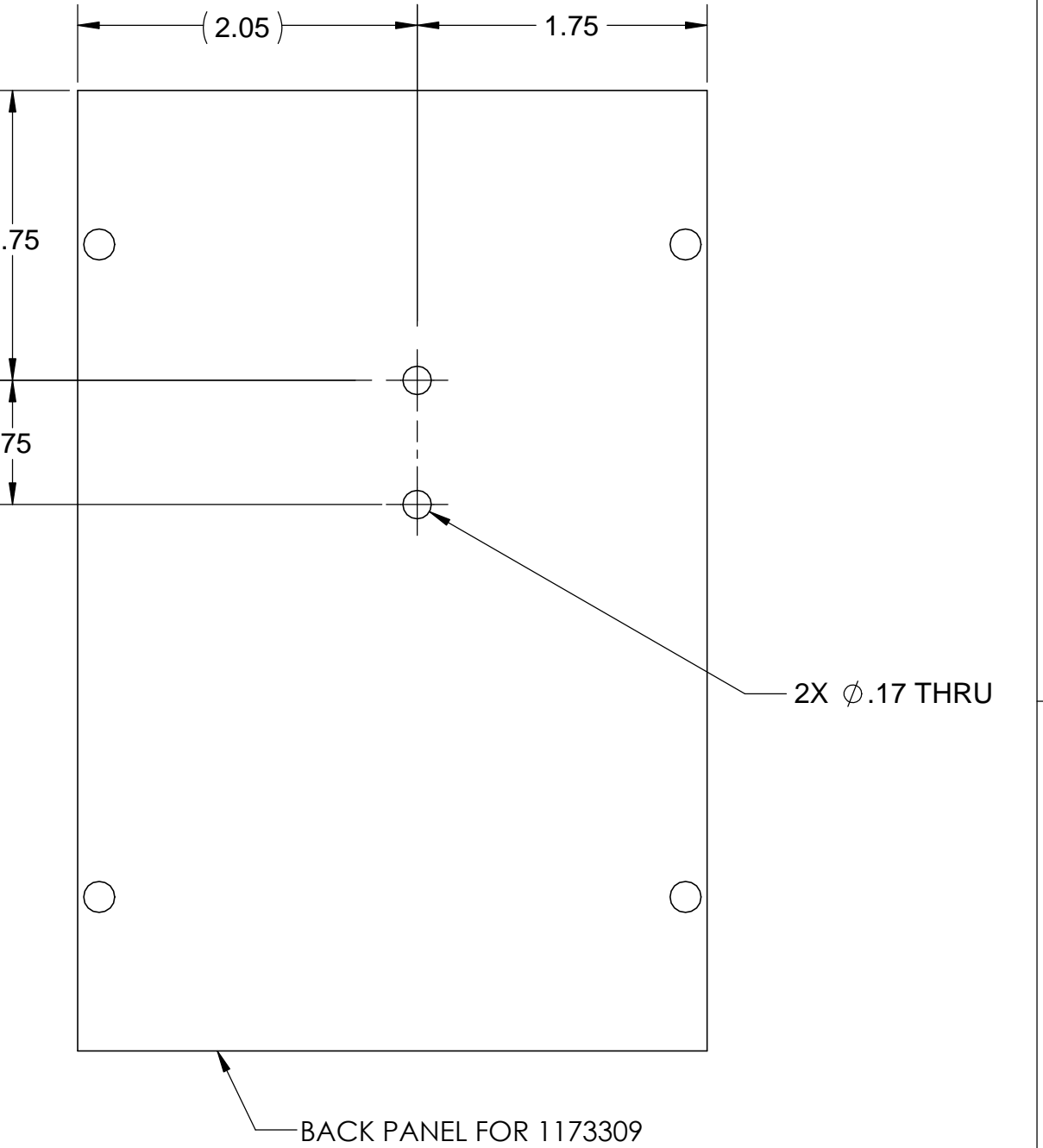
DESIGNED BY	DRAWN BY	DATE	SCALE	REFERENCE	DWG NO.	REV
JTF	JTF	02-05-14	1:1	D 1165458	1173308	A

WEIGHT: 1.98 Lb lbs. SHEET 1 OF 2

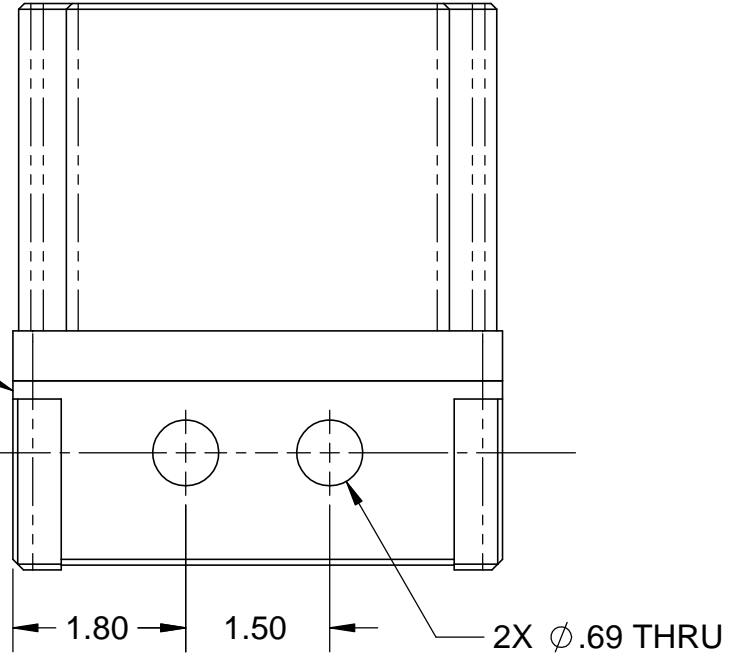
DRW REV:PRE-05
CONFIG:Drawing
MODEL: 1173308
Friday, January 09, 2015
LOCAL VAULT: 1173308



DATE	MO	LINE	QNTY
------	----	------	------



ENCL, PLASTIC, 7 X 5 X6



UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ± 0°-30'

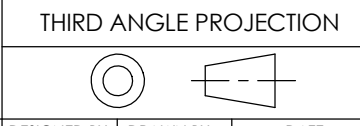
125



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TITLE
PNE ASY, AUTO LOAD LES



THIRD ANGLE PROJECTION

SIZE	REFERENCE	DWG NO	REV
B	1165458	1173308	A
SCALE:	1:4	WEIGHT:	1.98 Lb lbs.
SHEET		2 OF 2	

SPECIFICATION		
DESIGNED BY	DRAWN BY	DATE
JTF	JTF	02-05-14

C:\LOCAL VAULT\1173308 Friday, January 09, 2015
 MODEL: 1173308
 CONFIG:Drawing
 DRW REV:PRE-05

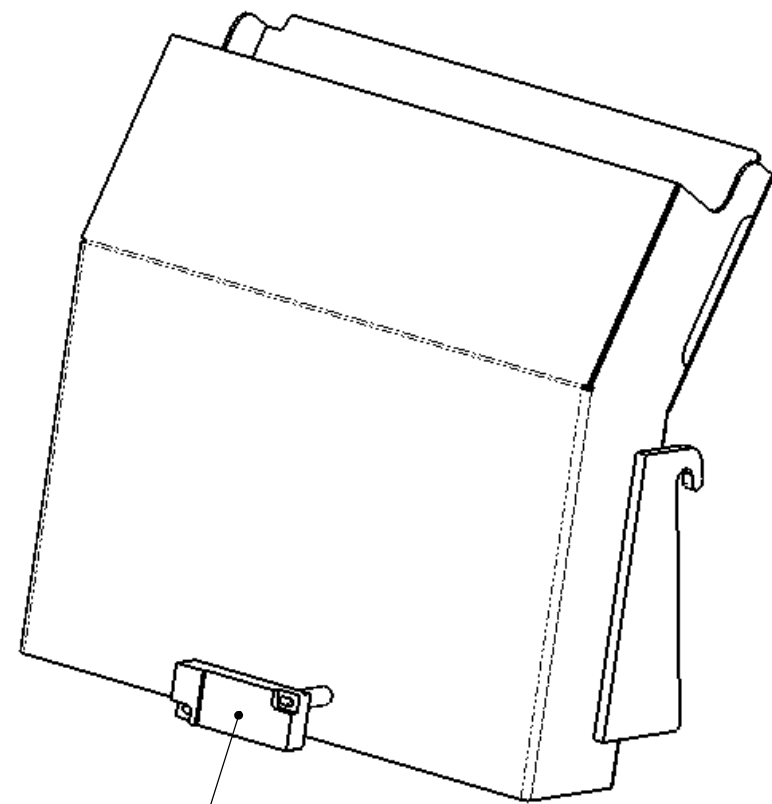
4

3

2

1

DATE		MO	LINE	QNTY
REV.	REVISION DESCRIPTION		DRAWN BY	REQUESTED BY
				DATE



ACTUATOR, MAGNETIC SAFETY SWITCH
1150702
SHOWN FOR REFERENCE
ITEM IS INCLUDED IN PURCHASE OF SENSOR

B

B

A

A

1	1	REJECT CHUTE, FAB, 613-LES		1173311
Default/QTY	ITEM NO.	Description1	Description2	Part_Number

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
DEFAULT TOLERANCES ARE:
.XX = ±.01
.XXX = ±.005
FRACTIONAL: ±.03
ANGLES: ± 0°-30'

125

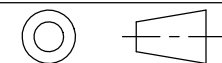


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TITLE
REJECT CHUTE ASY, 613-LES

THIRD ANGLE PROJECTION



SIZE	REFERENCE	DWG NO	REV
B	0	1173310	0

SPECIFICATION			DESIGNED BY	DRAWN BY	DATE	SCALE:	WEIGHT:	SHEET
NONE			JTF	JTF	02-08-14	1:4	12.04 lbs.	1 OF 1

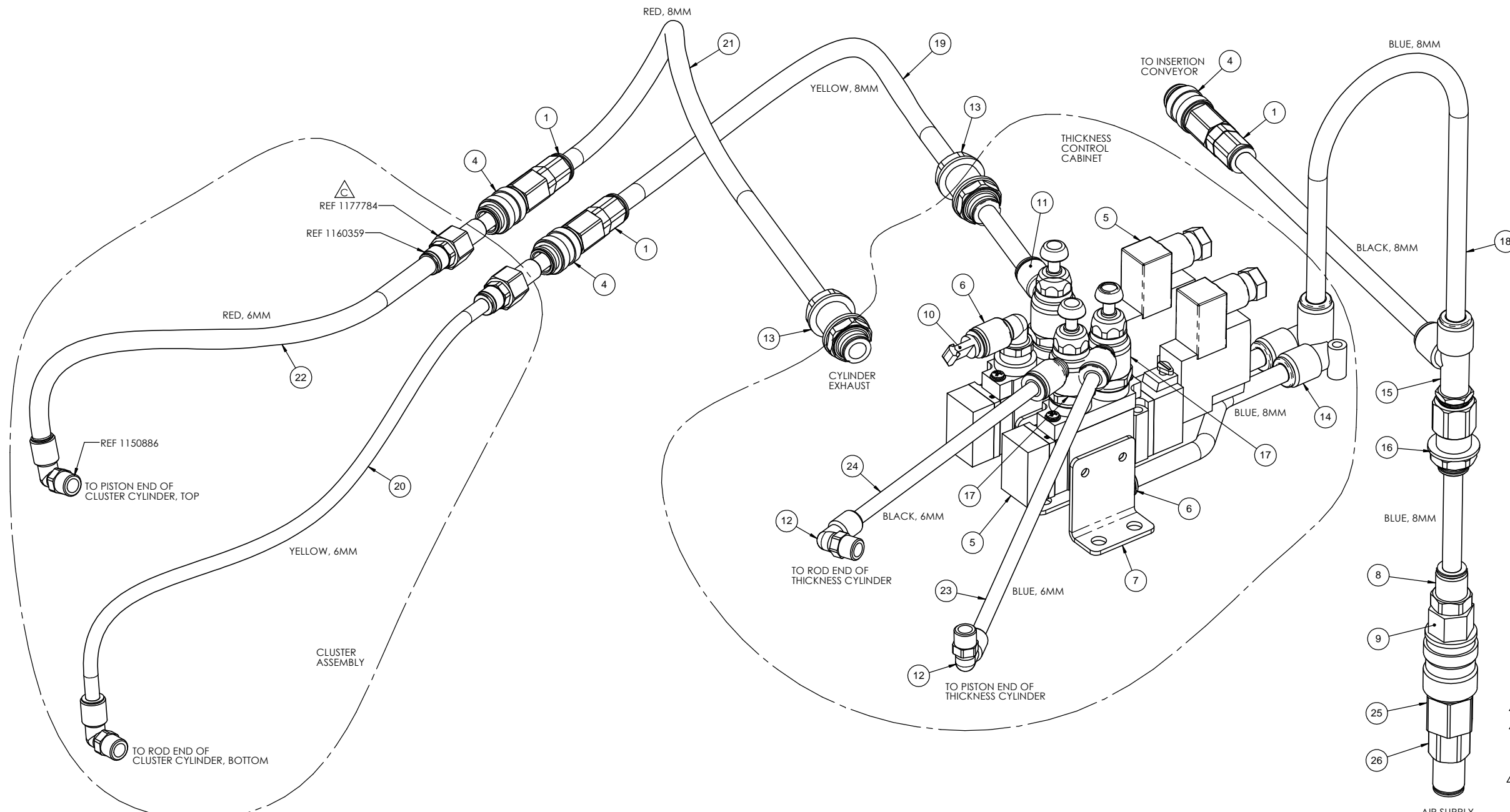
4

3

2

1

REV.	REVISION DESCRIPTION	DRAWN BY	REQUESTED BY	DATE
A	AS BUILT	C.J.L		6/20/2014
B	ADDED ITEMS 25 & 26.	DLC	C.J.L	1/9/2015
C	REF. 1177784 WAS REF. 6800-0026. ITEMS 2, 3, 20 & 22 ARE NOW REF. QTY OF ITEM 12 WAS 4.	DLC	C.J.L	2/19/2015



QTY	ITEM NO.	Description1	Description2	Part Number
1	26	FTG, AIR, STR, GF1/4, T8, N		1177451
1	25	FTG, AIR, QRC, R1/4, S, SER23 BODY		6800-0055-01
1	24	TUBING, BLACK, 6MM OD, POLYURETHANE	24" - CUT TO LENGTH	1160618
1	23	TUBING, BLUE, 6MM OD, POLYURETHANE	24" - CUT TO LENGTH	1160358
REF.	22	TUBING, RED, 6MM OD, POLYURETHANE	12" - CUT TO LENGTH	1160357
1	21	TUBING, RED, 8MM OD, POLYURETHANE	36" - CUT TO LENGTH	1160620
REF.	20	TUBING, YELLW, 6MM OD, POLYURETHANE	12" - CUT TO LENGTH	1160619
1	19	TUBING, YELLW, 8MM OD, POLYURETHANE	36" - CUT TO LENGTH	1160623
1	18	TUBING, BLUE, 8MM OD, POLYURETHANE	48" - CUT TO LENGTH	1160622
2	17	FTG, AIR, FLC, R1/4, T6, P, ELBOW		6800-0052-01
1	16	FTG, AIR, BHF, GF1/4, T8, N		1175591
1	15	FTG, AIR, TEE, U1/4, T8, P	Mertic Size	6800-0107
1	14	FTG, AIR, Y, T8, T8, P, BRANCH UNION ELBOW		1163662
2	13	FTG, AIR, BHF, T8, T8, P		6800-0096
2	12	FTG, AIR, EL, R1/8, T6, P		1150886
1	11	FTG, AIR, FLC, R1/4, T8, P, ELBOW		6800-0046-01
1	10	FTG, AIR, PLG, T8, P		6800-0109
1	9	FTG, AIR, QRC, GF1/4, S, SR 23 PLUG		6800-0097-01
1	8	FTG, AIR, STR, G1/4, T8, N		6800-0104-01
2	7	BRKT, MOUNT, SOL, SHT		1160667
3	6	FTG, AIR, EL, R1/4, T8, P		1159273
2	5	VALVE, PNE, 5/2, R1/4, 1 SOL, BDY P	24VDC	1160642
3	4	FTG, AIR, QRC, GF1/8, S, SR 21 BODY		6800-0025
REF.	3	FTG, AIR, QRC, GF1/8, N, SR21 PLUG, SHUT		1177784
REF.	2	FTG, AIR, STR, G1/8, T6, N		1160359
3	1	FITTING, PNEU, 8MM STRT 1/8 BSPT		6800-0122

	4MM	6MM	8MM	10MM
BLK	1159071	1160618	1160621	1162901
BLU	1160615	1160358	1160622	
RED	1159070	1160357	1160620	
YLW	1160616	1160619	1160623	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DEFAULT TOLERANCES ARE: .XX = ±.01 .XXX = ±.005 FRACTIONAL: ±.03 ANGLES: ±0°-30'

THIRD ANGLE PROJECTION

GROTE J.E. GROTE COMPANY, INC.
PNE ASY, 613-LES

SIZE: D REFERENCE: A1160662 DWG NO: 1165458

DESIGNED BY: JTF DRAWN BY: JTF DATE: 12-13-13 SCALE: 1:1 WEIGHT: 2.81 Lb lbs. SHEET: 1 OF 1

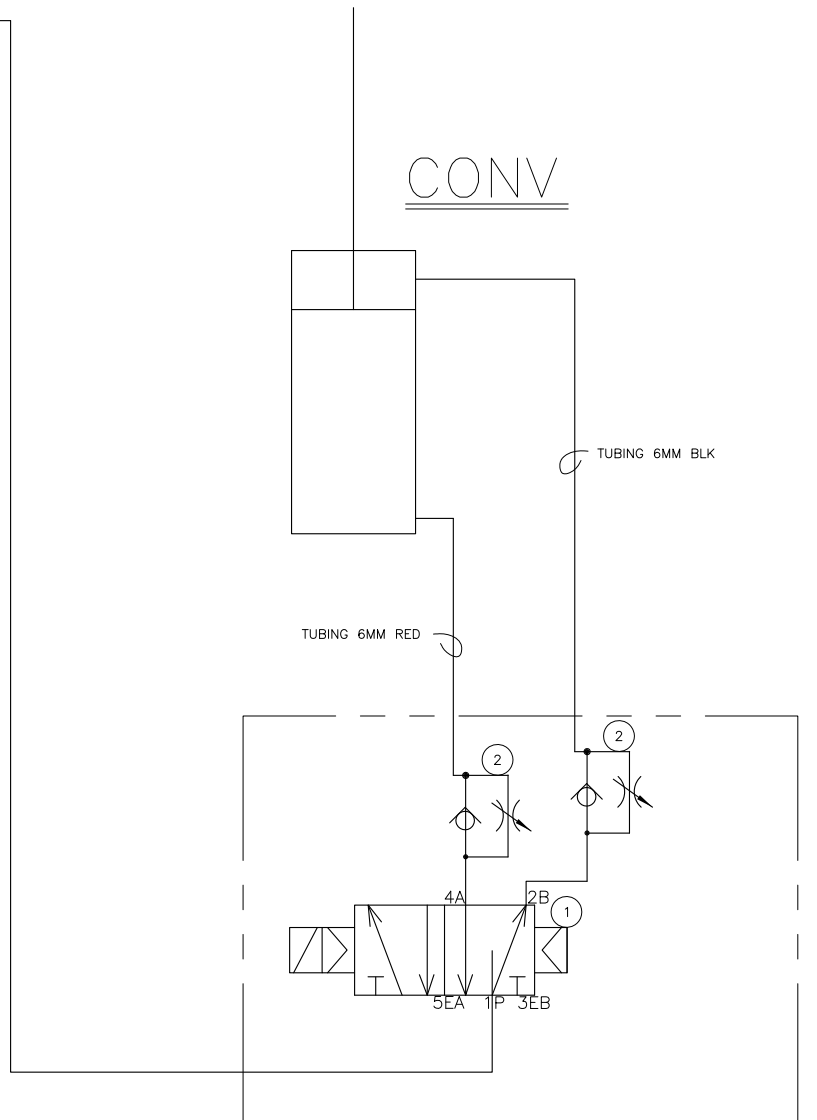
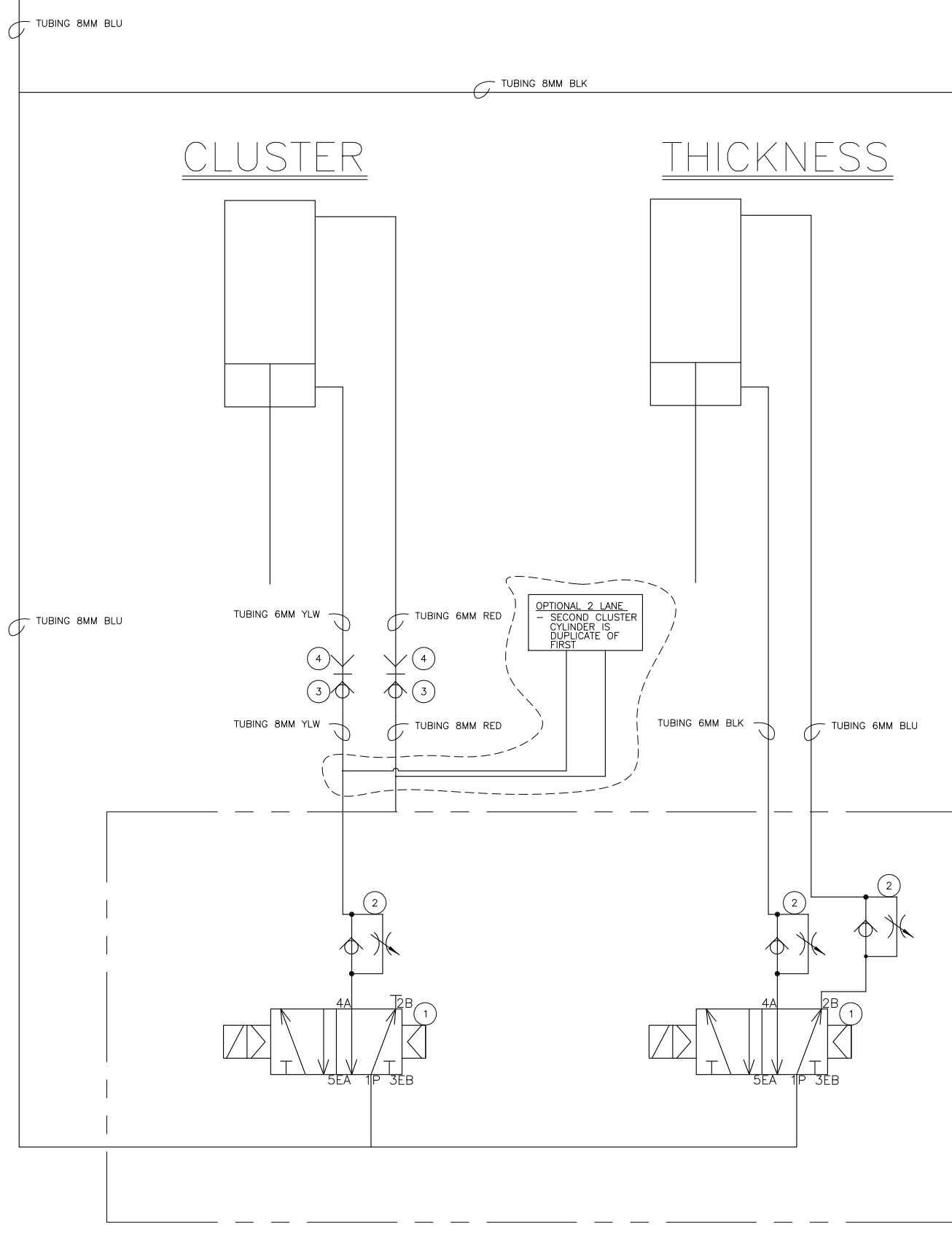
DRW REV: C CONFIG: Drawing MODEL: 1165458 Thursday, February 19, 2015

SUPPLY — 60 PSI MINIMUM

DATE	MO	LINE	QTY
------	----	------	-----

SYM	REVISION RECORD	DRAWN BY	REQ'D BY	DATE
A	REMOVED MUFFLER	CJL		01/11/16

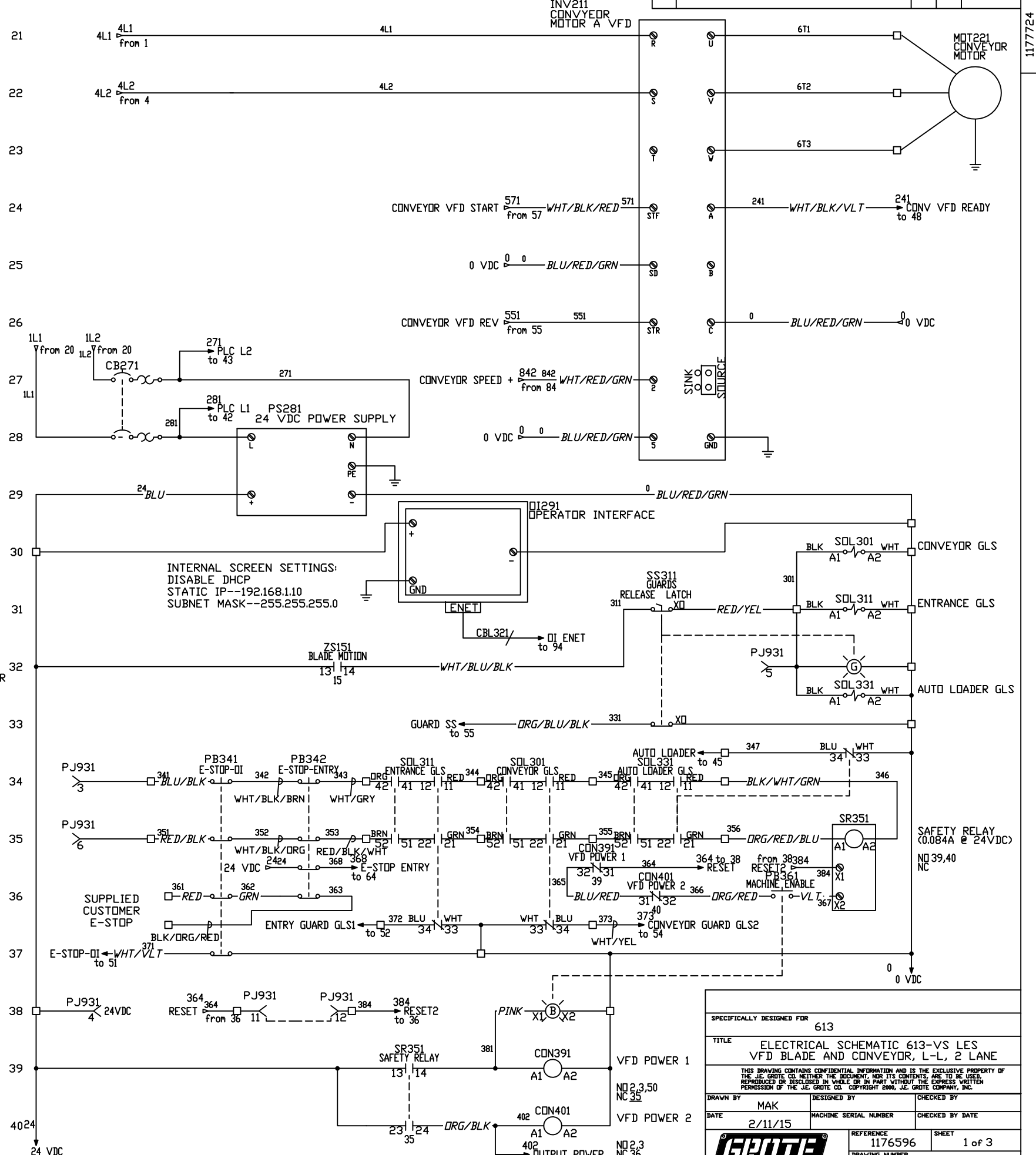
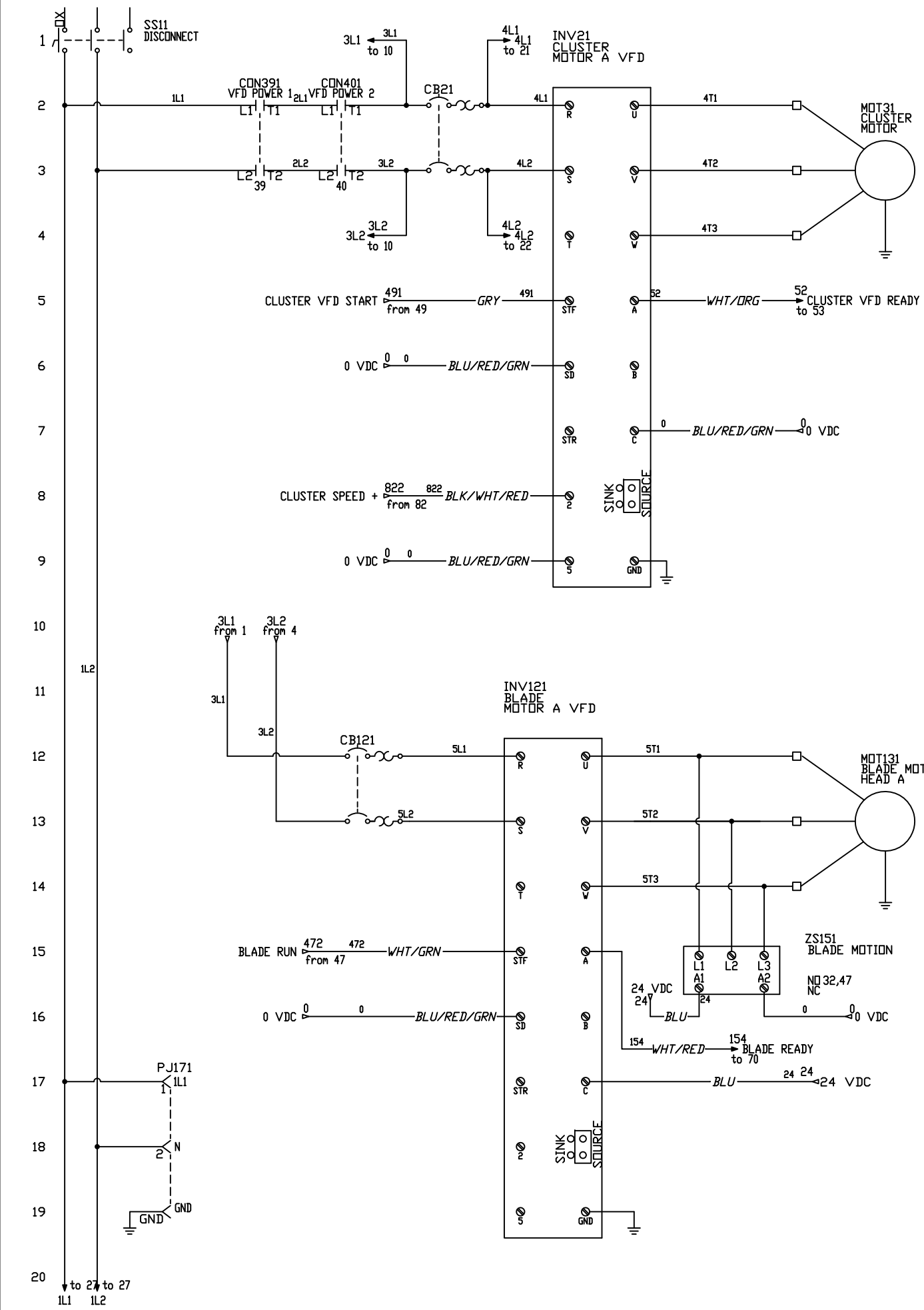
1176476



	4mm	6mm	8mm	10mm
BLK	1159071	1160618	1160621	1162901
BLU	1160615	1160358	1160622	
RED	1159070	1160357	1160620	
YLW	1160616	1160619	1160623	

2	4	FTG, AIR, QRC, GF1/8, S, SR21 PLUG
2	3	FTG, AIR, QRC, GF1/8, S, SR21 BODY
5	2	FTG, AIR, FLC, R1/4, T6, P, ELBOW
3	1	VALVE, PNE, 5/2, R1/4, 1 SOL, BDY P
NO. REQ'D	ITEM NO.	DESCRIPTION
		TOLERANCES (EXCEPT AS NOTED)
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		TITLE: SCHEMATIC, PNEU 613-VS2 LES
		DRAWN BY: CJL
		DESIGNED BY:
		CHECKED BY:
		DATE: 9/23/14
		SCALE: 1" = 1"
		NEXT ASSY:
		REFERENCE: 1162969
		DRAWING NUMBER: 1176476
		WEIGHT:
		LBS:
		GROTE J.E. GROTE COMPANY, INC.

ASSEMBLY NUMBER
1176476



INTERNAL SCREEN SETTINGS:
 DISABLE DHCP
 STATIC IP--192.168.1.10
 SUBNET MASK--255.255.255.0

SPECIFICALLY DESIGNED FOR 613

TITLE ELECTRICAL SCHEMATIC 613-VS LE'S VFD BLADE AND CONVEYOR, L-L, 2 LANE

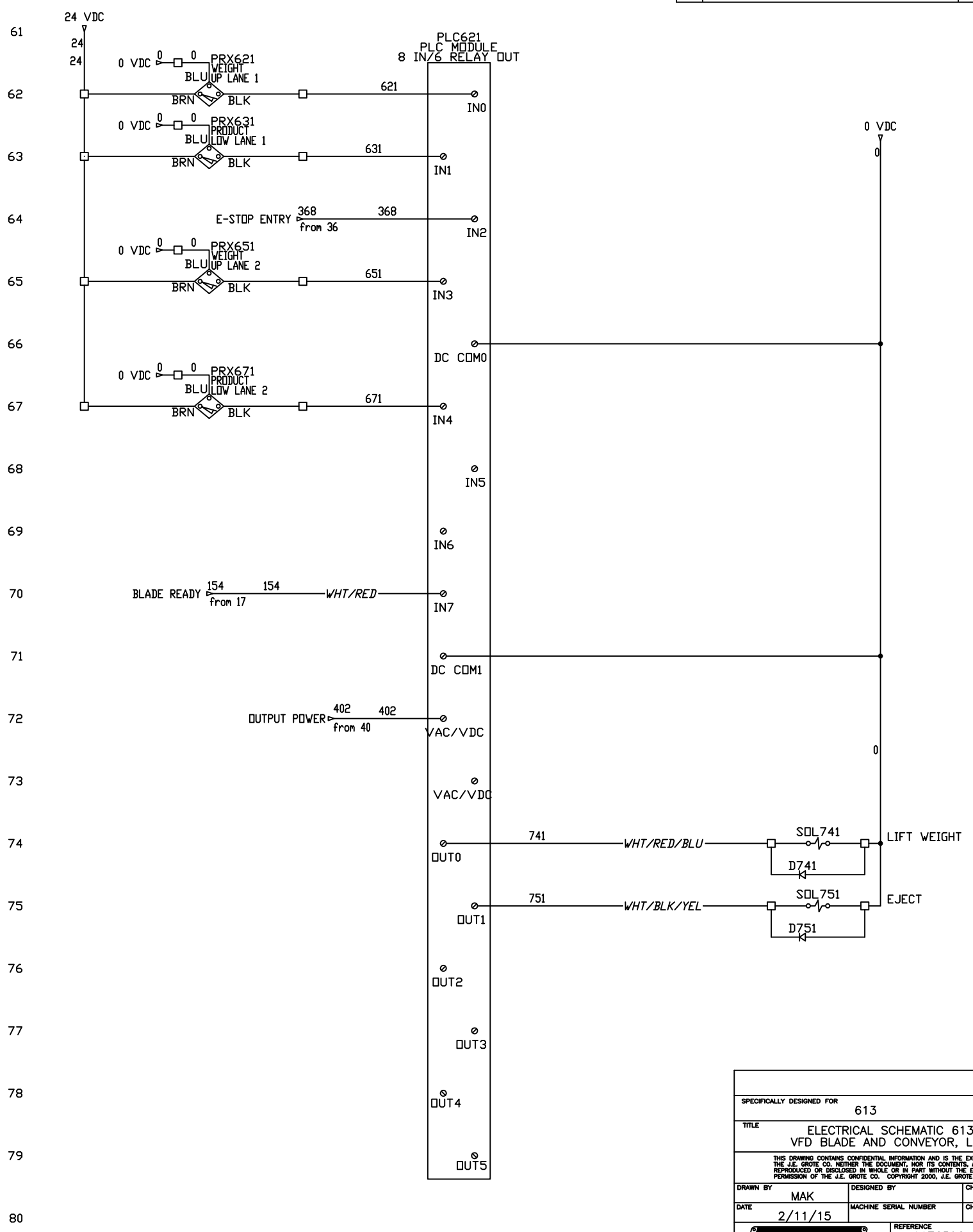
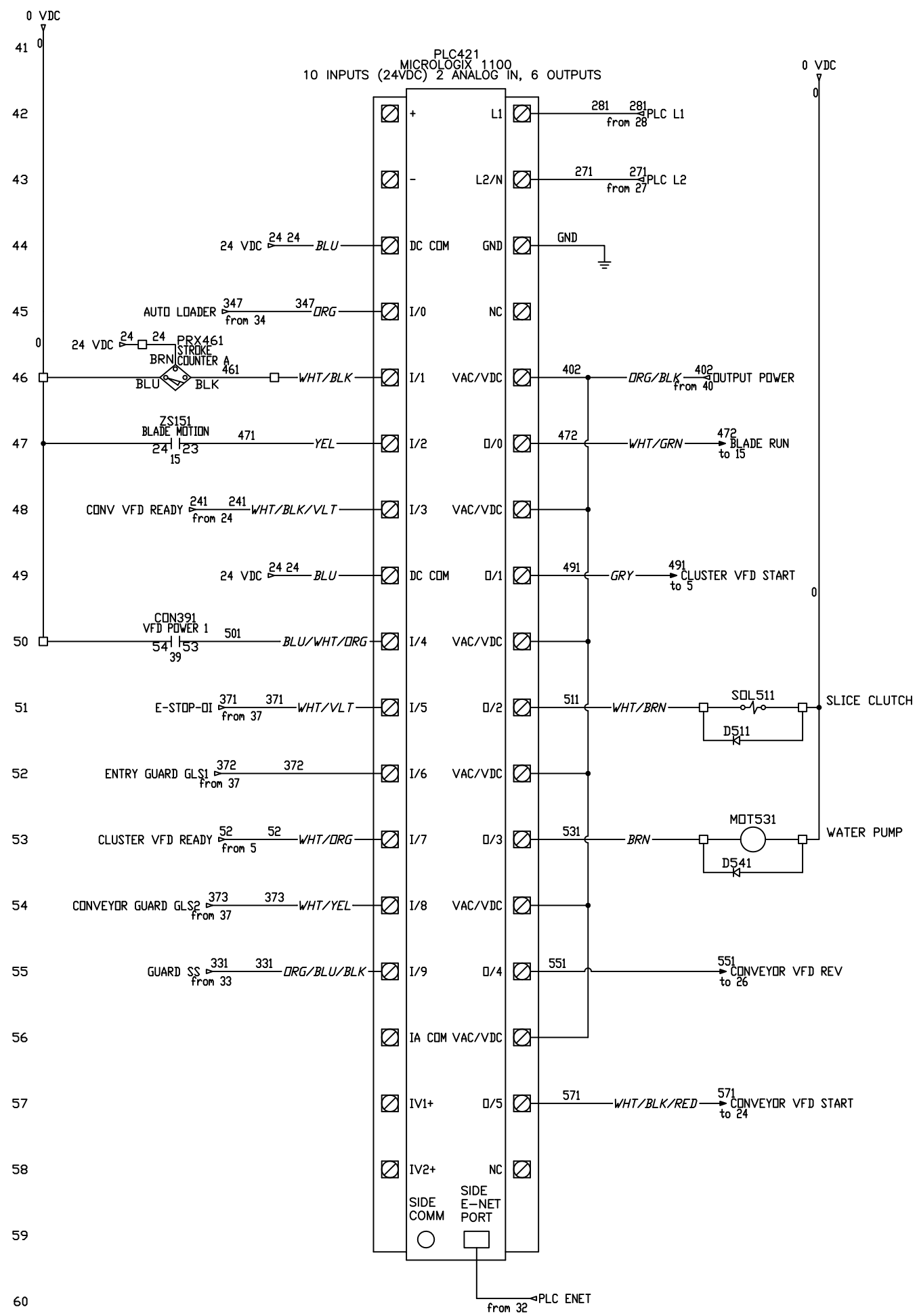
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DRAWN BY MAK	DESIGNED BY	CHECKED BY
DATE 2/11/15	MACHINE SERIAL NUMBER	CHECKED BY DATE
REFERENCE 1176596		SHEET 1 of 3
DRAWING NUMBER 1177724		

J.E. GROTE COMPANY, INC.

PLOT TIME = 10:28a PLOT DATE = 06-25-14

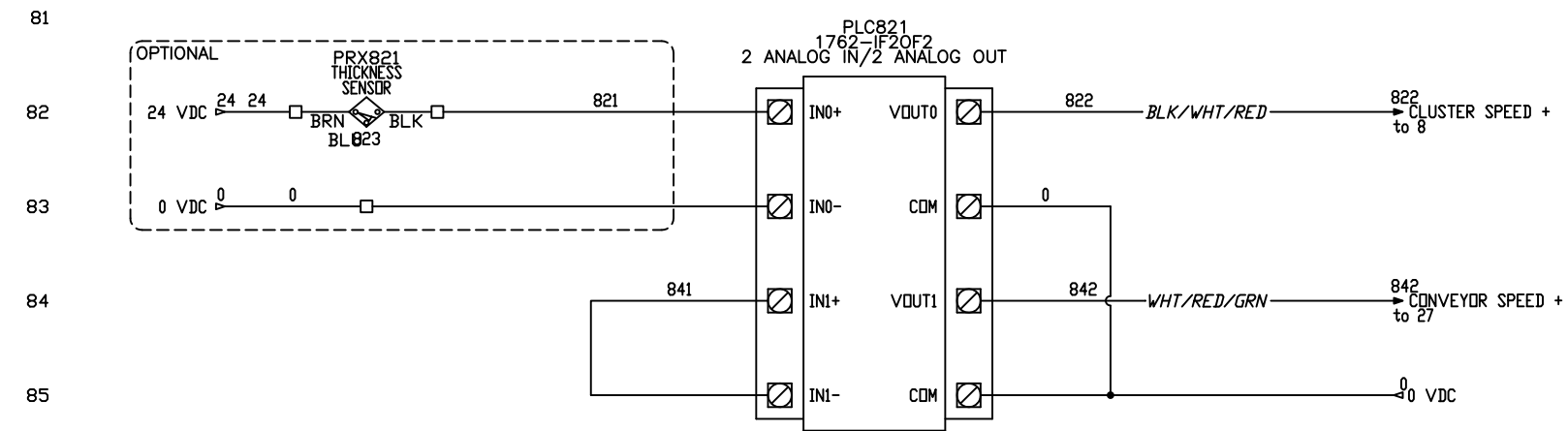
1177724



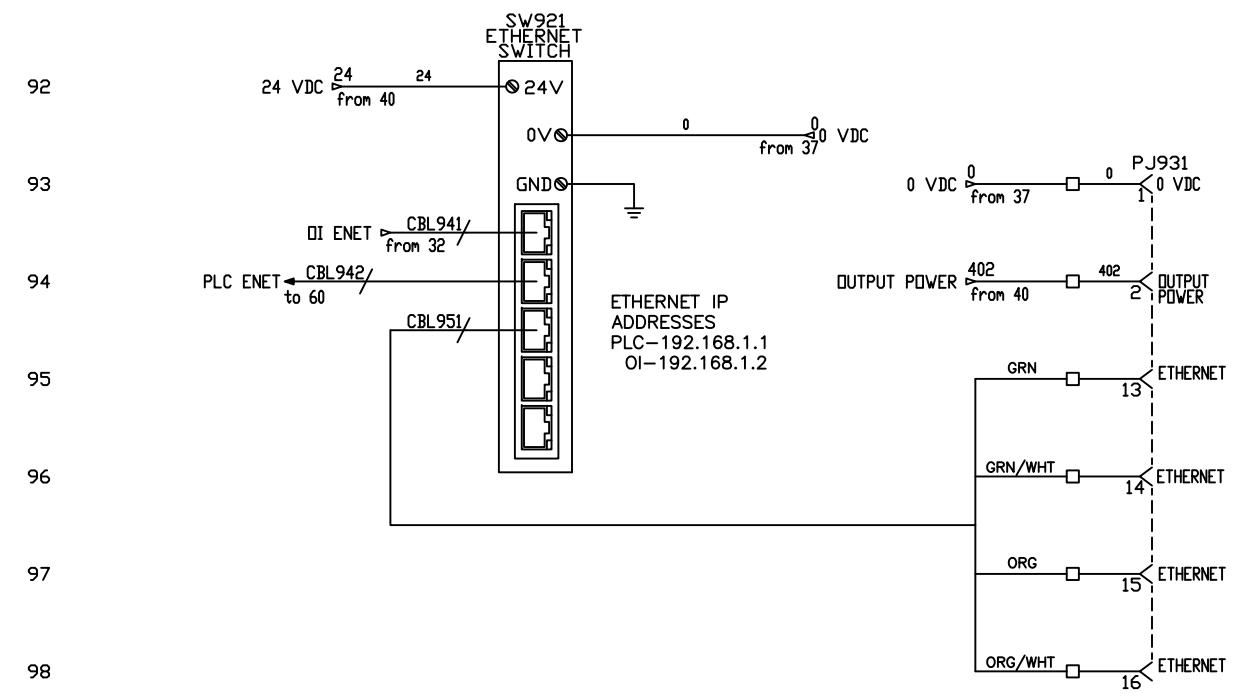
SPECIFICALLY DESIGNED FOR		613
TITLE ELECTRICAL SCHEMATIC 613-VS LES VFD BLADE AND CONVEYOR, L-L, 2 LANE		
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DRAWN BY MAK	DESIGNED BY	CHECKED BY
DATE 2/11/15	MACHINE SERIAL NUMBER	CHECKED BY DATE
REFERENCE 1176596		SHEET 2 of 3
DRAWING NUMBER 1177724		

J.E. GROTE COMPANY, INC.

PLOT TIME = 1:37p PLOT DATE = 12-05-13



TAG	CATALOG	DESC	QUERY3	MISC1
CB121	1073309	CIRCUIT BREAKER	H-TRIP, 10 A, 2 POLE	
CB21	1073309	CIRCUIT BREAKER	H-TRIP, 10 A, 2 POLE	
CB271	1079933	CIRCUIT BREAKER	H-TRIP, 4 A, 2 POLE	
CBL321	1143611	CABLE	ENET, 10 FT	
CBL941	1143611	CABLE	ENET, 10 FT	
CBL942	1143610	CABLE	ENET, 3 FT	
CBL951	1143611	CABLE	ENET, 10 FT	
CON391	1154773	CONTACTOR	16 A, 24 VDC COIL	.104 A
	1154774	AUXILIARY CONTACT	2NO/2NC	
CON401	1154773	CONTACTOR	16 A, 24 VDC COIL	.104 A
	1154774	AUXILIARY CONTACT	2NO/2NC	
FU151	1155343	FUSE	CC CLASS, 2 A	
FU152	1155343	FUSE	CC CLASS, 2 A	
FU153	1155343	FUSE	CC CLASS, 2 A	
INV121	1127982	VFD	FR-S500, 2 HP, 230 VAC	
INV21	1121618	VFD	FR-S500, 1 HP, 230 VAC	
INV211	1121618	VFD	FR-S500, 1 HP, 230 VAC	
OI291	1164295	OPERATOR INTERFACE	PANELVIEW 400C, 24 VDC	.3 A
PLC421	1149174	PLC	10 IN / 6 OUT, AC, 2 ANALOG IN	
PLC621	1141621	MODULE, I/O	8 DC IN / 6 RELAY OUT	
PLC821	1123677	PLC	EXPANSION, MICROLOGIX, 2AI/2AO	
PRX461	1055426	PROX	NPN, 24 VDC, NO	
PRX621	1055426	PROX	NPN, 24 VDC, NO	
PRX631	1055426	PROX	NPN, 24 VDC, NO	
PRX821	1071002	PROX	ANALOG, PNP, 10-30 VDC, 1.4-10 mA	
PS281	1120110	POWER SUPPLY	2 A, 24 VDC, DIN RAIL, 100-240 VAC	1.0-.4 A
SOL301	1070635	GUARD LOCKING SWITCH	INTERLOCK, 24 VDC	
SOL331	1070635	GUARD LOCKING SWITCH	INTERLOCK, 24 VDC	
SR351	1074331	SAFETY RELAY	SAFETY, 24 VDC	.084 A
SS11	1156946	DISCONNECT	40 A	DOOR MOUNT
SW921	1137134	ETHERNET SWITCH	5 PORT	
ZS151	1176801	ZERO SPEED SWITCH	24 VDC	.146 A



60 HZ ID TAG REFERENCE #1125558
50 HZ ID TAG REFERENCE #1125559

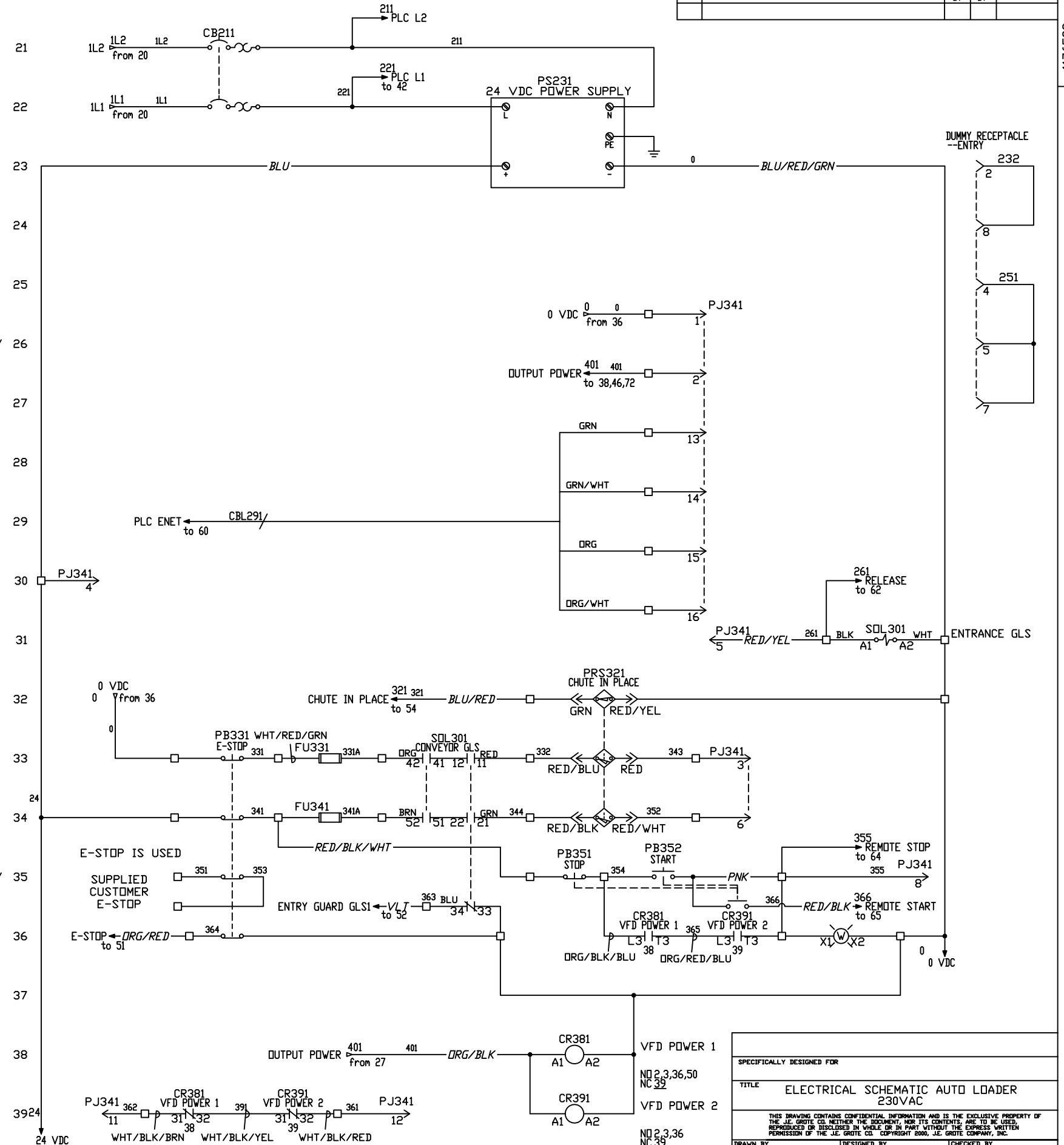
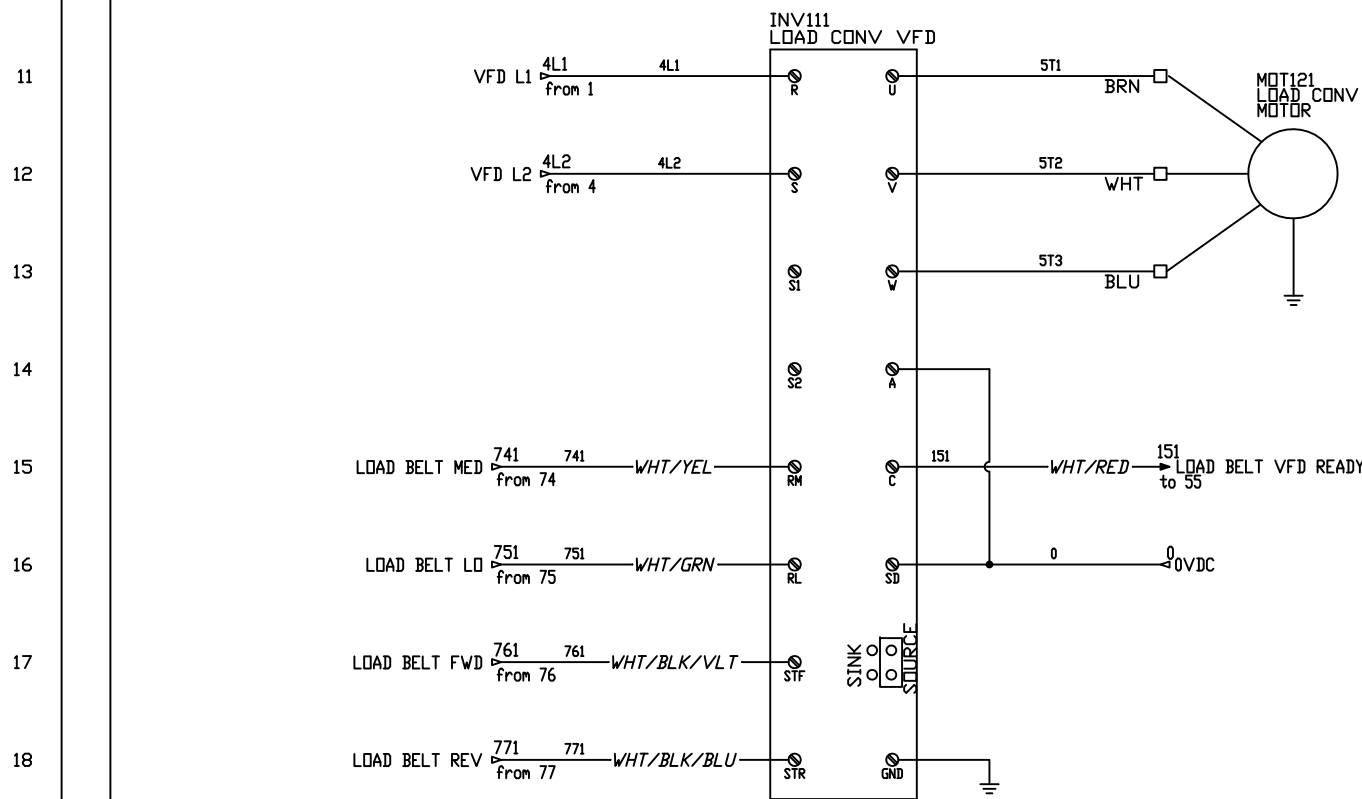
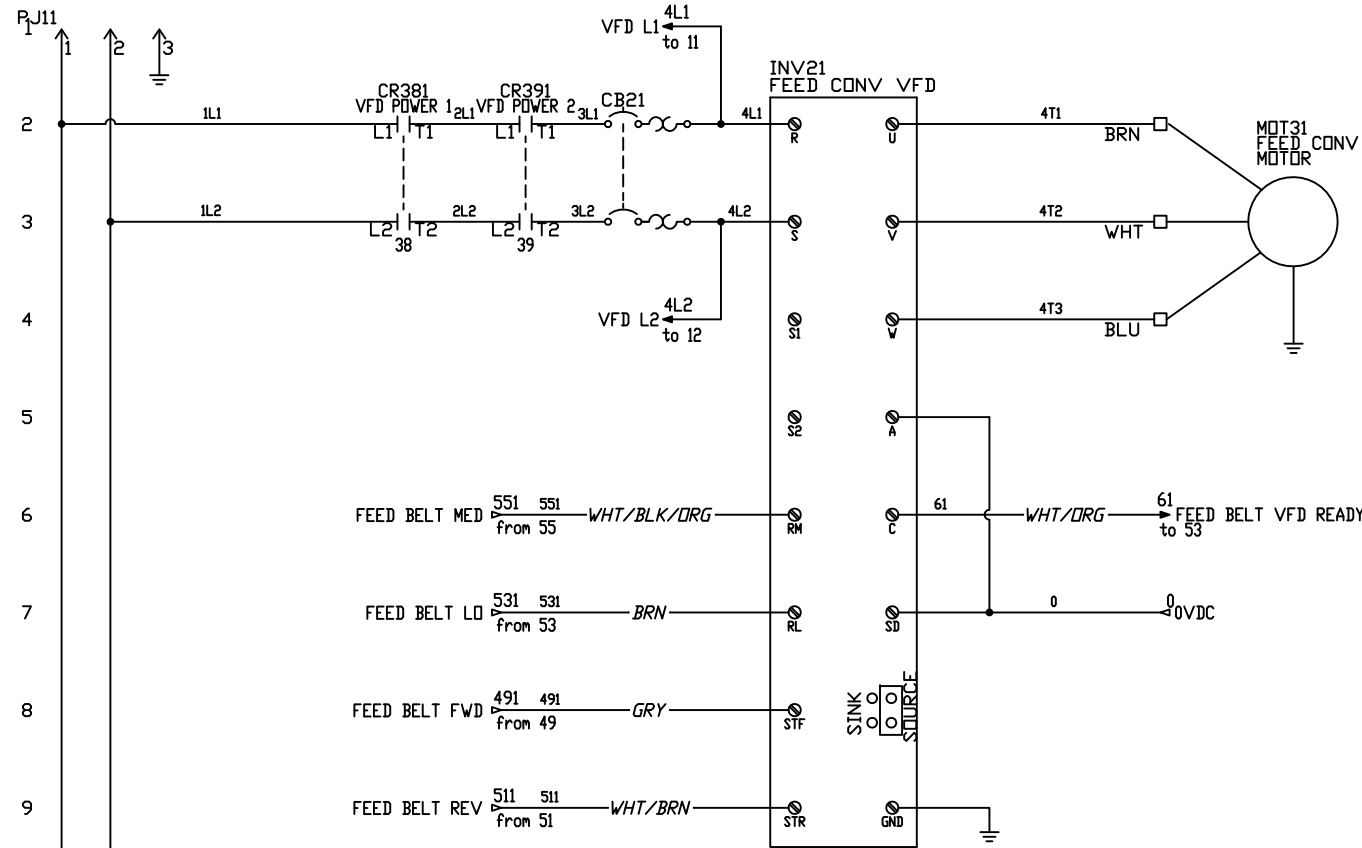
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SPECIFICALLY DESIGNED FOR		613	
TITLE ELECTRICAL SCHEMATIC 613-VS LES VFD BLADE AND CONVEYOR, L-L, 2 LANE			
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DRAWN BY MAK	DESIGNED BY	CHECKED BY	
DATE 2/11/15	MACHINE SERIAL NUMBER	CHECKED BY DATE	
REFERENCE 1176596		SHEET 3 of 3	
DRAWING NUMBER 1177724			

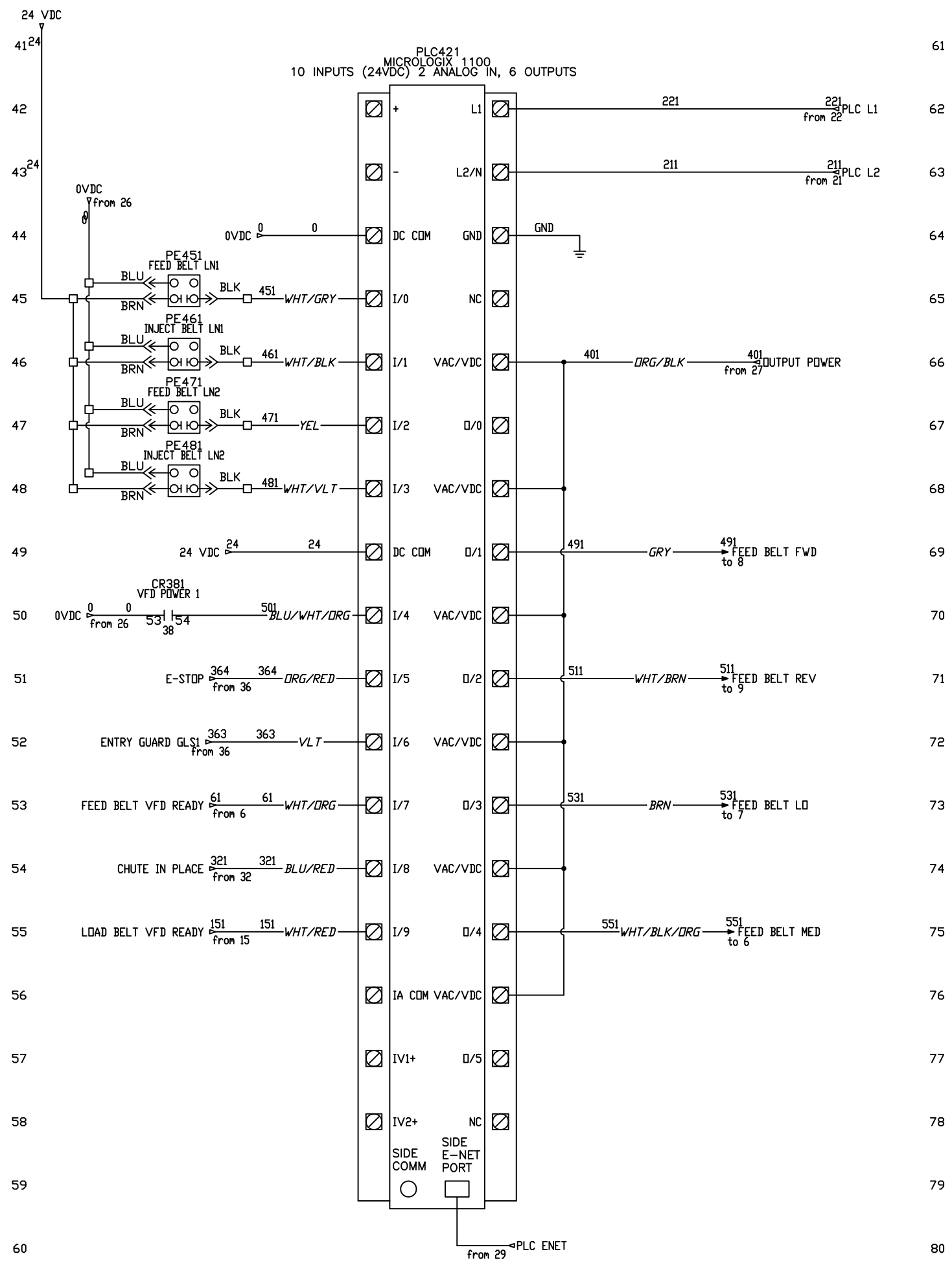
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SYM	REVISION RECORD	DRAWN BY	RED'D BY	DATE

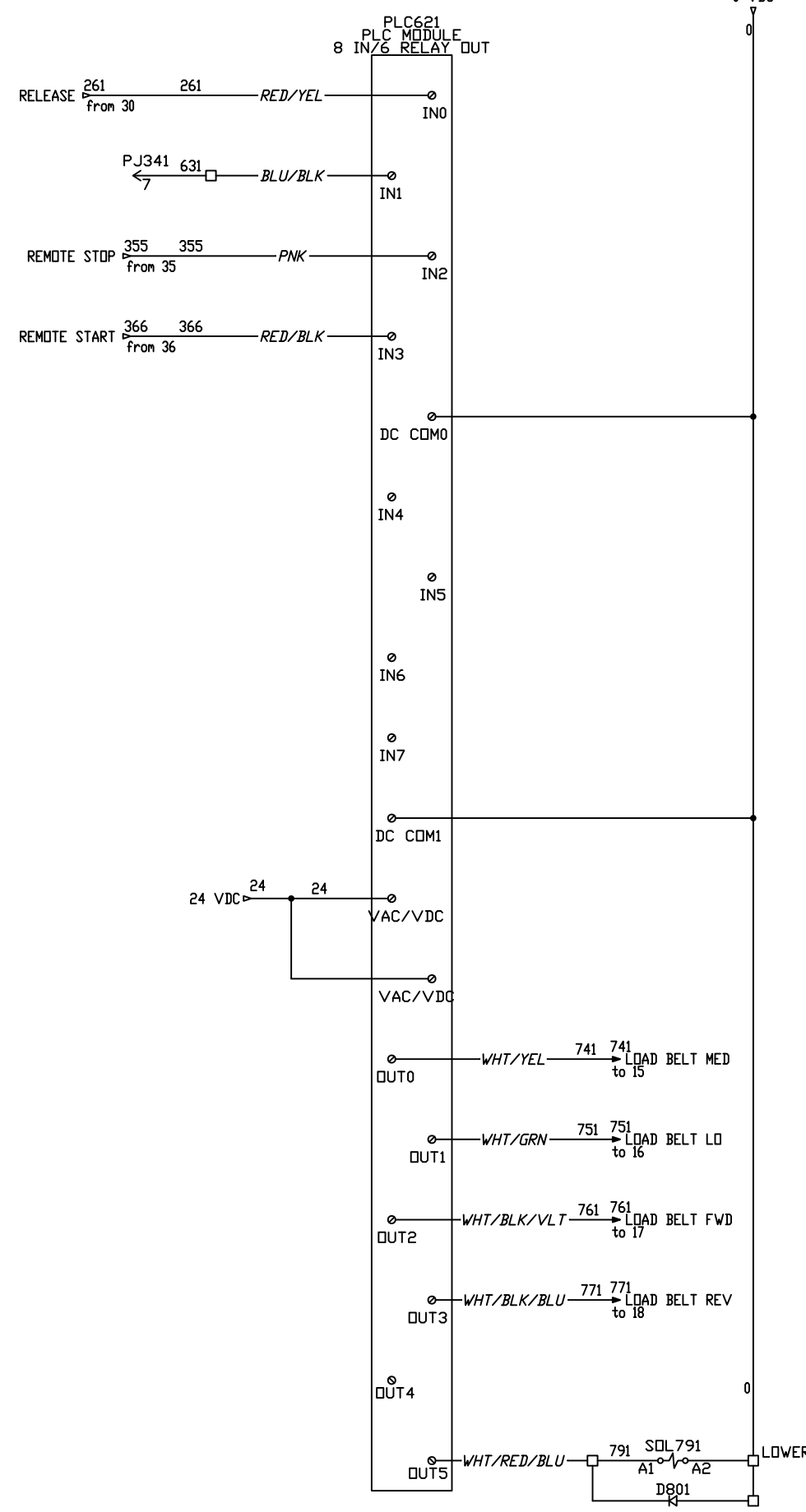
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TITLE ELECTRICAL SCHEMATIC AUTO LOADER 230VAC		
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DATE 10/07/14	MACHINE SERIAL NUMBER	CHECKED BY DATE
REFERENCE 1176032		SHEET 1 of 3
DRAWING NUMBER 1176598		



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DATE 10/07/14	MACHINE SERIAL NUMBER	CHECKED BY DATE
REFERENCE 1176032		SHEET 2 of 3
DRAWING NUMBER 1176598		


PLOT TIME = 8:18a PLOT DATE = 06-20-14

SYM	REVISION RECORD	DRAWN	REQ'D	DATE
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TAG	CATALOG	DESC	QUERY3	MISC1
CB21	1073309	CIRCUIT BREAKER	H-TRIP, 10 A, 2 POLE	
CB211	1079933	CIRCUIT BREAKER	H-TRIP, 4 A, 2 POLE	
CBL291	1143610	CABLE	ENET, 3 FT	
CR381	1154772	CONTACTOR	9 A, 24 VDC COIL, NO AUX	.104 A
	1154774	AUXILIARY CONTACT	2NO/2NC	
CR391	1154772	CONTACTOR	9 A, 24 VDC COIL, NO AUX	.104 A
	1154774	AUXILIARY CONTACT	2NO/2NC	
FU331	1176879	FUSE	GDA CLASS, .4 A	
FU341	1176879	FUSE	GDA CLASS, .4 A	
INV111	1121618	VFD	FR-D720, 1 HP, 230 VAC	
INV21	1121618	VFD	FR-D720, 1 HP, 230 VAC	
PLC421	1149174	PLC	10 IN / 6 OUT, AC, 2 ANALOG IN	
PLC621	1141621	MODULE, I/O	8 DC IN / 6 RELAY OUT	
PS231	1120110	POWER SUPPLY	2 A, 24 VDC, DIN RAIL, 100-240 VAC	1.0-.4 A

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TITLE ELECTRICAL SCHEMATIC AUTO LOADER 230VAC		
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DRAWN BY MAK	DESIGNED BY	CHECKED BY
DATE 10/07/14	MACHINE SERIAL NUMBER	CHECKED BY DATE
 J.E. GROTE COMPANY, INC.	REFERENCE 1176032	SHEET 3 of 3
	DRAWING NUMBER 1176598	