New Tech Machinery
A MAZZELLA COMPANY

OPERATION and MAINTENANCE MANUAL

SSQII

Quick Change – Commercial/Residential Roof Panel Machine

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CHAPTER 1
MACHINE SAFETY

MACHINE SAFETY

1. **Make sure the operator of the machine has read and understands this manual in its entirety before attempting to operate this equipment.**
2. This machine has crushing and shearing hazards capable of severing an arm, a hand, or fingers. **ALWAYS keep covers and guards mounted to machine during operation.**
3. **Protective gloves must be worn while operating the machine.** The incoming material and finished products have sharp edges that can cause deep cuts.
4. **Protective footwear must be worn.** Handling coils of sheet metal creates risk of crushed feet and toes.
5. **DO NOT** wear loose clothing, jewelry, etc. that could become entangled in the moving parts of the machine when operating.
6. **USE ONLY** properly rated devices for lifting reeled coils into or out of the reel stand assembly.
7. **STOP THE MACHINE** and lock it out before attempting to make any adjustments, perform any maintenance or changeover procedures. See the section below on Lockout/Tagout Procedure for more information
8. For **gasoline powered machines** refer to the Operator's Manual of the engine (provided with the machine) for important safety information. Failure to follow the instructions found there could result in serious injury or death.
9. For **electrically powered machines** the following safety items also apply:
    a. All electrical work must be performed by a qualified electrician.
    b. Disconnect and lock out the power before opening any electrical enclosures. See the section below on Lockout/Tagout Procedure for more information.
    c. Inspect the power cord regularly and replace if damaged.

Lockout/Tagout Procedure

Before performing any maintenance or adjustment of the machine it is essential to make sure that it is completely off and cannot be started again. This will prevent the accidental operation of the machine while someone is working in an area normally protected by guarding. Failure to lockout/tagout the machine could result in serious injury or death. Instructions on how to do this for both gas engine models and electric motor models are shown below. Throughout this manual there are references to lock out the machine before performing certain operations. Follow the procedure for your machine shown below when instructed to lock out the machine.

Gas Engine Machine Lockout – Turn the disconnect switch on the right side of the control panel to the off position and apply a padlock as shown in Figure 1. Note – the padlock is not provided.

CHAPTER 1

MACHINE SAFETY

Figure 1: Lockout of Gas Engine Machines

Electric Motor Machine Lockout – Turn off the machine by moving the disconnect switch on the right side of the control panel to the off position. Unplug the power cord and apply a plug lockout and padlock as shown in Figure 2. Note – the plug lockout and padlock are not provided.

Figure 2: Lockout of Electric Motor Machines

CHAPTER 2

SSQ II SPECIFICATIONS

SSQ II SPECIFICATIONS

SSQ II Dimensions:	Length-14’ 4”	(4.4m) without Angled Slitter
	Length-15’ 4”	(4.7m) with Angled Slitter
	Width-5’2”	(1.57m)
	Height-4’ 3”	(1.3m) with Over Head Rack
	2’ 6”	(.8m) without Over Head Rack
SSQ II on Trailer:	Length-18’ 11”	(5.8m)
	Width-7’ 2½”	(2.2m)
	Height-6’ 3”	(1.9m) with Over Head Rack
SSQ II Weights:	2830 lbs. (1280 kg)	Base Machine with Roller Set, Power Pack, and Rib Rollers
	2260 lbs. (1020 kg)	Trailer
	336 lbs. (152 kg)	Overhead Reel Rack
	80 lbs. (36 kg)	Expandable Arbor, each
	62 lbs. (28 kg)	10-foot Runout Table, each
	150 lbs. (68 kg)	Perforator
	220 lbs. (100 kg)	Notching System
	250 lbs. (113 kg)	Angled Slitter
	60 lbs. (27 kg)	PVC Strippable Film Applicator
Speed:	Gas Engine	75 ft./min. (23m/min.) approx. max.
	3PH 60Hz Motor	72 ft./min. (22m/min.) approx.
	1PH 60Hz Motor	50 ft./min. (15m/min.) approx.
	3PH 50Hz Motor	58 ft./min. (18m/min.) approx.
	1PH 50Hz Motor	40 ft./min. (12m/min.) approx.
Drive:	Hydraulic via chain, sprocket and gear using 16 polyurethane drive rollers.	
Shear:	Hydraulically Powered, Infinitely adjustable, hardened tool steel dies and blades w/Panel Recognition Proximity Sensor	
Hydraulic Fluid:	32AW – Approximately 15-16 gallons.	
Coil Width and Max Dia:	15” to 30” coil width (380mm to 760mm) Note**:** 30” coil width requires Expandable Arbor or Remote De-coiler Stand. The maximum coil diameter is 32” with the Overhead Reel Rack, and 45” with the Free Standing Decoiler.	

CHAPTER 2

SSQ II SPECIFICATIONS

Coil Maximum Weight: Dual Overhead Reel Rack – 6000 lbs. total or 5000 lbs. max per expandable arbor, whichever comes first. Note, machines with notchers are limited to 5000 lbs. total in order to keep the GVWR under the trailer capacity.
Free Standing Decoiler – 5000 lbs. maximum.

Materials Formed: The materials listed below will work with most of the profiles offered on the SSQ2 machine, but some profiles have more specific requirements. Please refer to the individual profile drawings starting on Page 99 for more information.

Painted Steel 28ga. to 22ga. (.4mm to .8mm)
Painted, Galvanized, Aluminized

Note: -50 ksi maximum for 24ga. to 22ga.
-50 ksi recommended, 80 ksi acceptable with adjustments for 28ga. to 26ga.

Painted Aluminum .019" to .040" (.5mm to 1.0mm)

Copper 16 oz. to 20 oz. ¾ Hard
(.5mm to .7mm)

Note: Notching is not recommended with copper.

Ternecoat Stainless Steel 26ga. (.5mm)

Controls:

Standard: Manual Control Box w/Length Control Limit Switch
Optional: Computer Batch and Length Control

MACHINE ORIENTATION

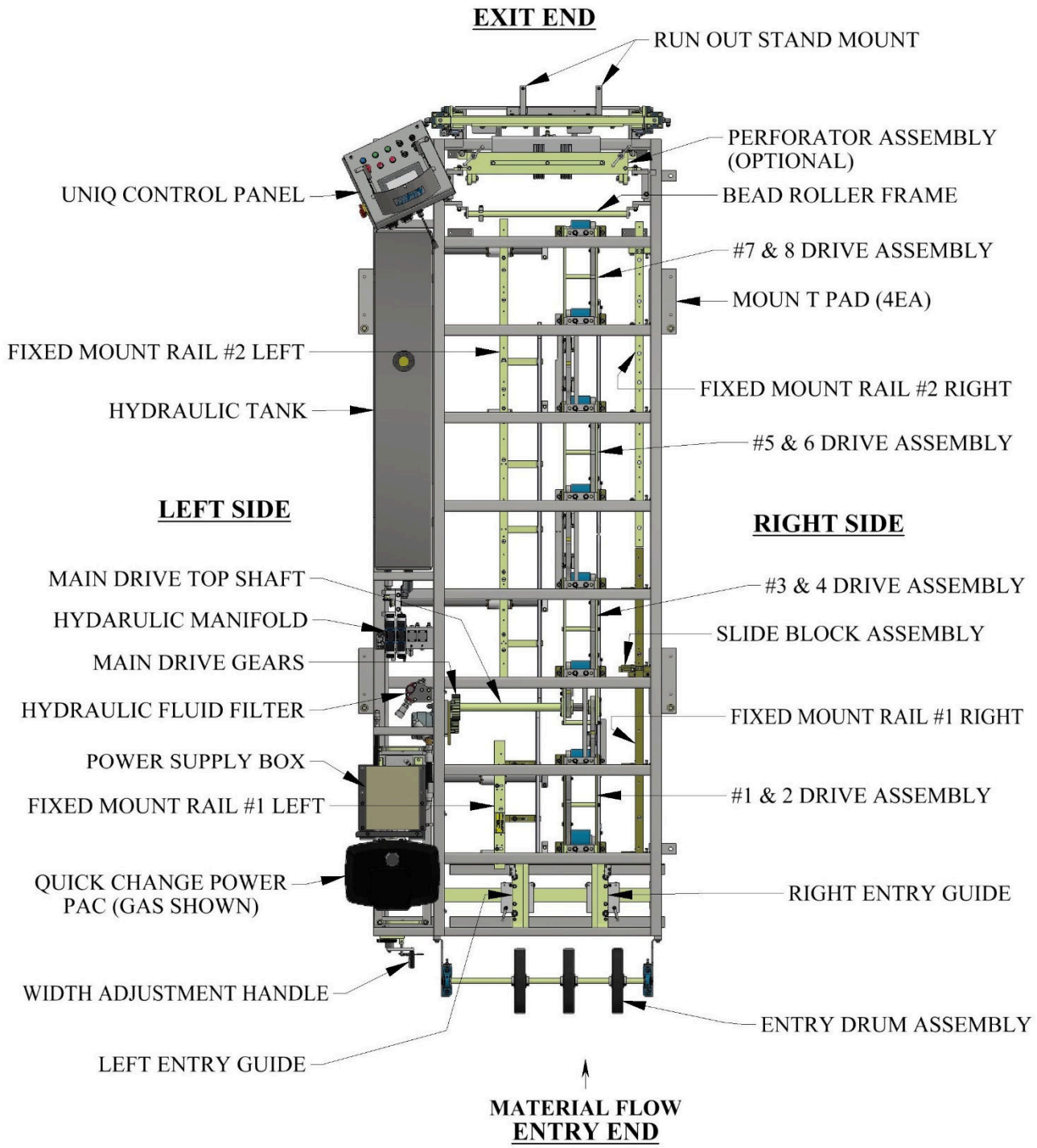


Figure 3: Machine Orientation

CHAPTER 3

MACHINE ORIENTATION

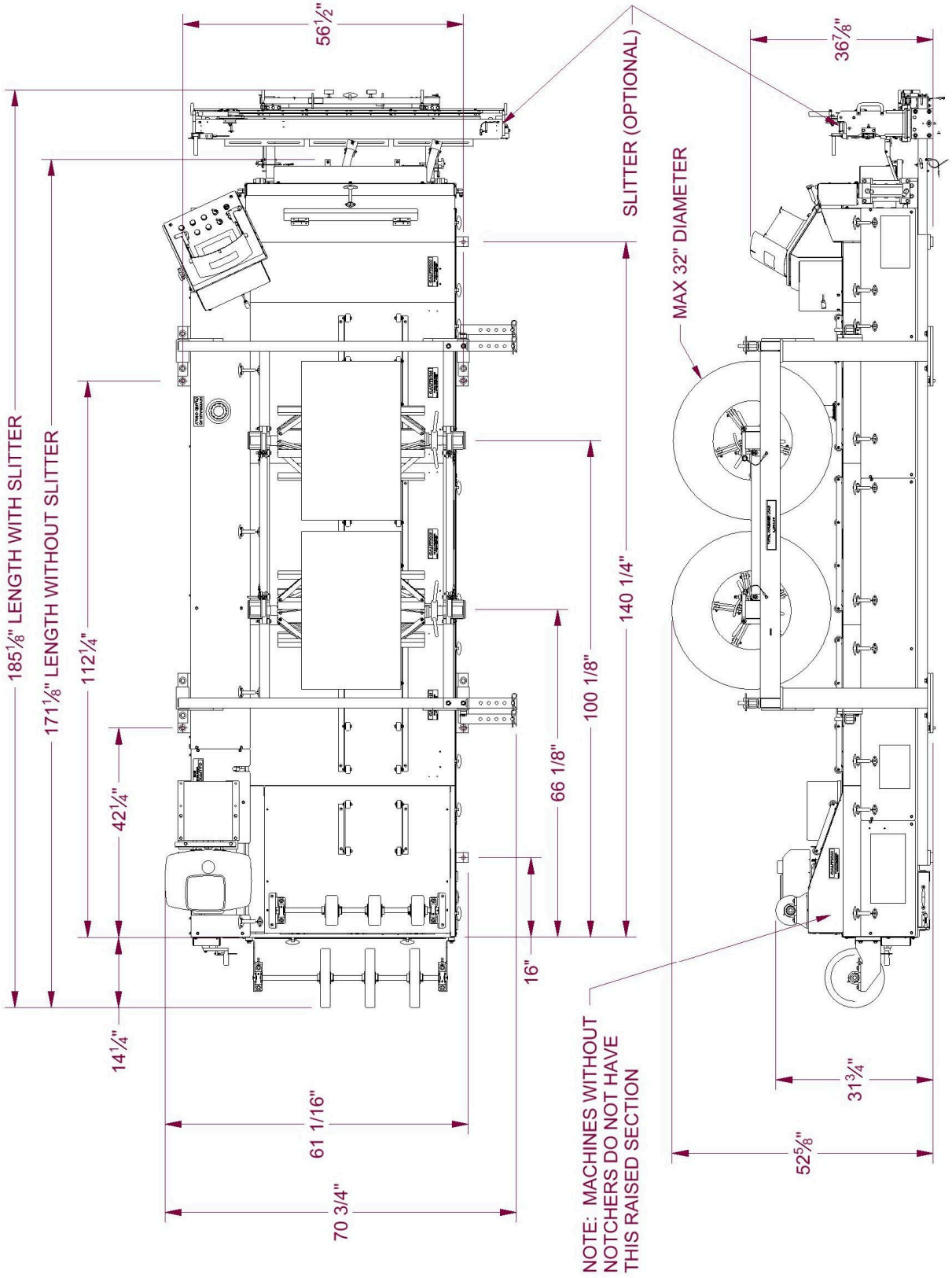


Figure 4: Mounting Foot Detail

CHAPTER 3

MACHINE ORIENTATION

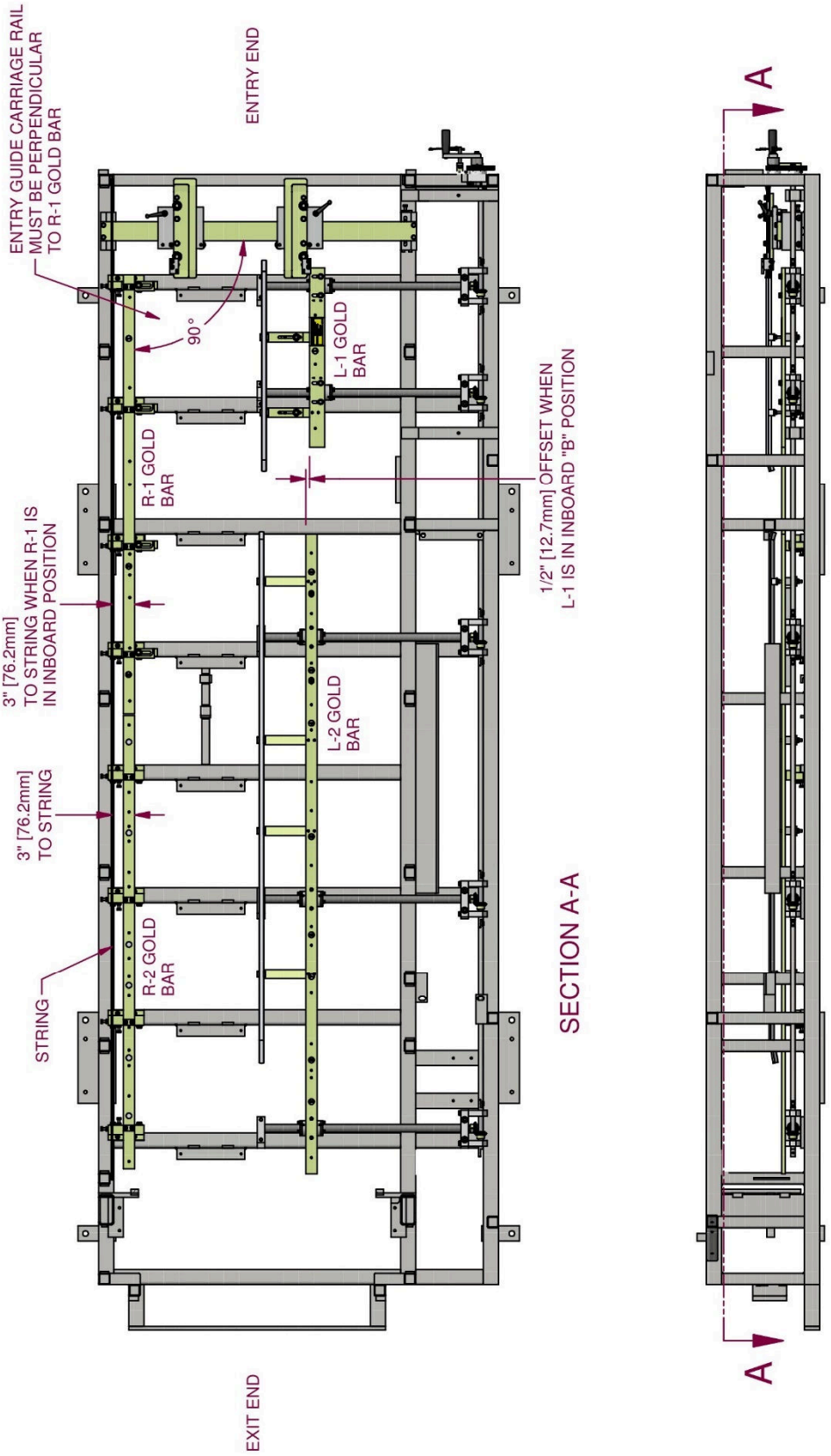


Figure 5: Fixed Mount Rail (Gold Bar) Setup

GENERAL MAINTENANCE

1. **Always keep covers on during operation and storage.** The covers are for operator safety, but also protect the internal components of the machine from the environment.
2. Avoid storage of the machine outdoors for long periods of time. Cover the machine with a tarp to protect it but provide good ventilation to prevent condensation and rust. The life of the machine will be extended if it is stored properly.
3. Keep the machine clean. This will increase the life of the machine and make maintenance easier. A clean machine will provide a clean product.
4. Before operating the machine, visually inspect for foreign objects debris or anything unusual. If something doesn't seem correct, inspect and remedy prior to operation.
5. Keep chains properly tensioned. This will add to the life of the chains and sprockets. The chains should be just snug. An over-tightened chain is just as bad for the machine as a loose chain. Idler sprockets are provided on each chain for this purpose.
6. Lubricate the chains a minimum of every 40 hours of operation. It is preferable to use a moly chain lube or equivalent.
7. Lubricate the 3 main drive gears a minimum of every 30 hours of operation. Use of an Open Gear Spray Lubricant is recommended. (Figure 28 & Figure 29 on page 38).
8. Keep Bead Roller Carriage Shafts (Figure 43 on page 50) clean and lubricate with Spray Lube.
9. Lubricate 5 Acme Shafts (Figure 6 on page 11) with Spray Lube as needed.
10. Lubricate Miter-Gears (Figure 6 on page 11) on ends of Acme Shafts with Spray Lube as needed.
11. Keep Arbor Cradles (Figure 19 on page 27) lubricated with Clear Grease.
12. Lubricate Arbor Nut (Figure 18 on page 25) using a grease gun with EP Grease when threads begin to look dry.
13. Lubricate both faces of the Shear Blades and Dies (Figure 31 on page 42) a minimum of once daily with Spray Lube. More should be added as needed before the cut edges begin to deteriorate.
14. **Always empty the machine of material before transport or storage.** Water may collect in the panel and damage the forming rollers.
15. For machines with a gas engine, **shut off the fuel valve when the machine is not in use** to prevent flooding the engine.
16. **Do not use solvents or harsh chemicals to clean the drive rollers** as this will damage the polyurethane. See the drive roller cleaning procedure below for more information.

CHAPTER 4

GENERAL MAINTENANCE

Drive Roller Cleaning Procedure

You will need: clean cloth rags, Simple Green degreaser, green Scotchbrite pads.

1. Remove any material from inside the machine.
2. Remove top inspection covers front to back of machine.
3. Inspect machine for debris and verify that all machine internal components are in correct and functioning order.
4. Turn off the machine and lock it out. See the Lockout/Tagout Procedure Section on page 1 for more information.
5. Spray two sets of rollers with Simple Green taking care not to spray the drive chains and bearings. (Note that a cardboard shield can be placed around the rollers to control overspray.)
6. Turn the machine on and jog in the forward direction until the degreaser starts to dry. Stop the machine and jog in reverse 2”-3” to move the degreaser to an accessible location.
7. Turn off the machine and lock it out.
8. Wipe down as much degreaser as possible.
9. Turn the machine back on and jog another 2”-3” to move degreaser to an accessible location.
10. Turn off the machine and lock it out.
11. Wipe down the remaining degreaser on the rollers.
12. Repeat steps 4-13 for the remaining drive rollers or for additional cleaning for extremely dirty rollers.
13. Replace the covers.

CHAPTER 4

GENERAL MAINTENANCE

Recommended Lubricants and Fluids

The following lubricants are available from New Tech Machinery.

Spray Lube for:
Shear Blades, Shear Dies, Entry Guide, Bead Roller Carriage Shafts, Acme Shafts and Mitre Gears
Super Lube - Multi-Purpose Synthetic Aerosol Lubricant with Syncolon (PTFE)
NTM PN: LUBE-SPRAY - 11oz can

Clear Grease for:
Arbor Cradles
Synthetic Extreme Pressure, High Temperature Grease with Syncolon (PTFE)
NTM PN: LUBE-GEL - 400 gram container

EP Grease for:
Arbor Nuts and Pillow Blocks
Grease - Lubricants Type: Moly Ep Grease
NTM PN: LUBE-GREASE - 14 Ounce Container

Open Gear Spray Lubricant for:
Main Drive Gears
Open Gear and Wire Rope Lubricant
NTM PN: LUBE-GEAR - 11 oz. Aerosol Can

Moly Chain Lube for:
Drive Chains
NTM PN: LUBE-CHAIN - 11 oz. Aerosol Can

Hydraulic Fluid (32AW) for:
Hydraulic Tank
NTM PN: HYD-200-018 - 5 Gallons
(4 Required)

Oil for Notchers:
It is recommended to use a punch and die oil or vanishing oil. The viscosity of the oil cannot exceed 1500 SSU.
NTM PN: LUBE-NOTCHER - Tool & Die Lubricant, 1 Gallon

We also offer the following lubrication kits to simplify ordering:

LUBE-KIT-SSQ/SSQ2/SSP – Contains 1 LUBE-CHAIN, 1 LUBE-GEAR, 1 LUBE-GEL, 1 LUBE-GREASE, and 2 LUBE-SPRAY.

LUBE-KIT-SSQ2-N – Contains all the items in the above kit plus 1 LUBE-NOTCHER.

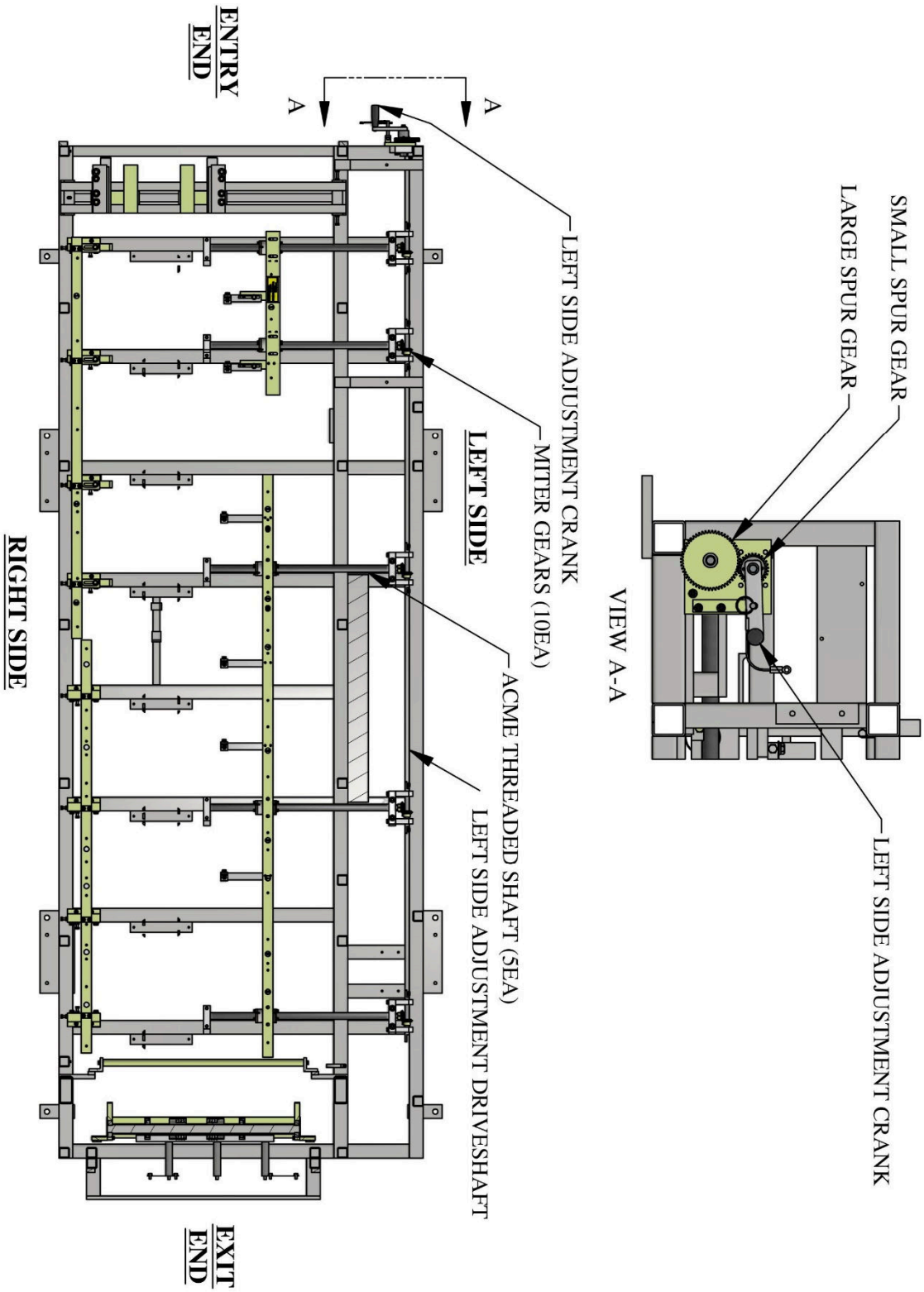


Figure 6: Acme Shafts and Left Side Adjustment

ELECTRICAL CONTROLS AND OPERATION

POWER CORD REQUIREMENTS

Follow the chart below to determine the appropriate wire gauge to supply power to the machine. Make sure the cord being used is marked properly. Do not assume that because an extension cord looks heavy enough that it is the right gauge. **Use of the wrong gauge extension cord creates a risk of fire and electrocution and will void the warranty on motor and electrical controls.**

HP	Phase	Hertz	Voltage	CORD LENGTH / RECOMMENDED GAUGE					Plug
				Up to 50'	50'-100'	100'-150'	150'-200'	200'-300'	
7.5	3	60	208	10	6	6	4	2	NEMA L15-30
			230	10	8	6	4	3	NEMA L15-30
			460	12	12	12	10	10	NEMA L16-30
5	1	60	208	8	6	4	3	1	NEMA L6-30
			230	10	6	4	4	2	NEMA L6-30
5	3	50	380	12	12	12	10	8	None
5	1	50	220	10	6	4	3	2	None

NEMA L6-30 Male

NEMA L15-30 Male

NEMA L16-30 Male

Note: Always follow your local electrical code and requirements.

GENERATOR USE FOR ELECTRIC MOTOR MACHINES

If a generator will be used to power the machine it must be large enough to handle the amp draw requirements of the motor. Contact the local generator supplier for proper sizing and refer to the specification plate on the electric motor. **Use of an improperly sized generator will cause a low voltage situation of the electric motor and controls which will void the warranty.**

CHAPTER 5

ELECTRICAL CONTROLS AND OPERATION

CONTROL PANEL OPERATION – AUTOMATIC VERSION

Figure 7: Control Panel - Automatic Version

POWER DISCONNECT SWITCH

Turn this switch clockwise to turn on the machine. Turn it counterclockwise to turn off all features of the machine including the control panel. The switch should be locked in the off position during maintenance and service. If the machine is not going to be used for 15 minutes or more it is recommended to set this switch to the off position to avoid draining the engine starter battery.

AUTO-MAN SWITCH

Turn this switch to Auto in order to run the machine in automatic mode with the touchscreen. When in Auto mode all of the buttons will be disabled except for the Emergency Stop and Motor Start buttons. All other controls should be done with the touchscreen.

Turn this switch to Manual in order to run the machine in manual mode. For instance, during setup and testing it is recommended to switch to Manual. Manual mode can also be used if the touchscreen is not functioning correctly. In this scenario the Remote Limit Switch can be attached to the runout table in order to produce panels at a desired length. Please refer to the Remote Limit Switch section of the main machine manual for more information.

FORWARD-REVERSE SWITCH
This selector switch controls the direction of movement of the material through the machine. Select forward to feed material and run panel through the machine. **NOTE: The machine will not run continuously in reverse.**

STOP FEED
This button will stop the drives when the machine is running in Manual Mode in conjunction with the Remote Limit Switch.

SHEAR UP
This is an indicator light that tells the user if the top of stroke limit switches on the shear are activated. If the shear is up the light should be on. The drives will not function unless both the top left and top right limit switches sense that the shear is up. **NOTE: When the AUTO-MAN switch is in Auto, the Shear Up light is disabled.**

EMERGENCY STOP
Pressing this button will stop the machine functions and shut off the engine/electric motor. The touchscreen will remain on, and jobs can still be entered or edited. To start the machine again, twist the Emergency Stop button counterclockwise and press the Start button.

USB Port
Insert a USB drive into this port when uploading cut lists to the machine. Refer to the Import/Export section for more information.

JOG-RUN Switch
This selector switch allows the machine to run continuously, or jog material through the machine. Select JOG to load coil into machine and to move material through the machine in small increments. Select RUN after material has cleared the shear, and the machine will be ready to run panel.
NOTE: The LENGTH CONTROL LIMIT SWITCH must be plugged in to the Limit Switch Plug underneath the Control Panel to run continuously.

START FEED
This button is used to activate the drive system of the machine. If the Length Control Limit Switch is plugged in and the Jog/Run switch is in Run then the drive will continue to operate after the button is released. The drive will stop when the panel reaches the limit switch or if one of the stop buttons is pressed.

SHEAR DOWN & MAINTENANCE MODE SHEAR DOWN
Press and hold the Shear Down button to activate the shear and cut off the panel. The shear will return to the up position as soon as the button is released. **NOTE: All the covers must be on the**

machine and the shear guard must be attached or the Shear Down button will not function. If the shear must be operated with the covers or shear guard removed, during setup for example, then use the Maintenance Mode Shear Down Buttons on the sides of the control panel. Both buttons must be pressed at the same time.

START BUTTON

Press this button momentarily to start the Electric Motor machine. Press and hold this button until the engine starts on a Gas Engine model. **Note: The Power Disconnect Switch must be on and the Emergency Stop buttons must be out in order to start the machine.**

CONTROL PANEL OPERATION – MANUAL VERSION

Figure 8: Control Panel - Manual Version

CHAPTER 5

ELECTRICAL CONTROLS AND OPERATION

POWER DISCONNECT SWITCH

Turn this switch clockwise to turn on the machine. Turn it counterclockwise to turn off all features of the machine including the control panel. The switch should be locked in the off position during maintenance and service. If the machine is not going to be used for 15 minutes or more it is recommended to set this switch to the off position to avoid draining the engine starter battery.

MODE INDICATOR LIGHT

This light indicates what mode the machine is in. Green means the machine is ready and can be run normally. Yellow means that one of the Emergency Stop buttons has been pressed. Red means that one or more of the covers or guards has been removed and the machine is in maintenance mode.

FORWARD-REVERSE SWITCH

This selector switch controls the direction of movement of the material through the machine. Select forward to feed material and run panel through the machine. **NOTE: For operator safety, the machine will not run continuously in reverse.**

STOP FEED

This button will stop the drives when the machine is running in Manual Mode in conjunction with the Remote Limit Switch.

SHEAR UP

This is an indicator light that tells the user if the top of stroke limit switches on the shear are activated. If the shear is up the light should be on. The drives will not function unless both the top left and top right limit switches sense that the shear is up. **NOTE: When the AUTO-MAN switch is in Auto, the Shear Up light is disabled.**

EMERGENCY STOP

Pressing this button will stop the machine functions and shut off the engine/electric motor. The touchscreen will remain on, and jobs can still be entered or edited. To start the machine again, twist the Emergency Stop button counterclockwise and press the Start button.

JOG-RUN Switch

This selector switch allows the machine to run continuously, or jog material through the machine. Select JOG to load coil into machine and to move material through the machine in small increments. Select RUN after material has cleared the shear, and the machine will be ready to run panel.

NOTE: The LENGTH CONTROL LIMIT SWITCH must be plugged in to the Limit Switch Plug underneath the Control Panel to run continuously.

START FEED

This button is used to activate the drive system of the machine. If the Length Control Limit Switch is plugged in and the Jog/Run switch is in Run then the drive will continue to operate after the button is released. The drive will stop when the panel reaches the limit switch or if one of the stop buttons is pressed.

SHEAR DOWN & MAINTENANCE MODE SHEAR DOWN

Press and hold the Shear Down button to activate the shear and cut off the panel. The shear will return to the up position as soon as the button is released. **NOTE: All the covers must be on the machine and the shear guard must be attached or the Shear Down button will not function.** If the shear must be operated with the covers or shear guard removed, during setup for example, then use the Maintenance Mode Shear Down Buttons on the sides of the control panel. Both buttons must be pressed at the same time.

START BUTTON
Press this button momentarily to start the Electric Motor machine. Press and hold this button until the engine starts on a Gas Engine model. **Note: The Power Disconnect Switch must be on and the Emergency Stop buttons must be out in order to start the machine.**

ENTRY END CONTROLS

Figure 9: Entry End Controls

REV/FWD SWITCH
This switch is used for the initial loading of the coil into the machine. Turn the switch to the right to engage the drives forward and to the left for reverse. Once the switch is released it will return to the center position and stop the drives. It is recommended to only jog the material a few inches at a time until the leading edge is all the way through the machine.

EMERGENCY STOP
Pressing this button will stop the machine functions and shut off the engine/electric motor. The touchscreen will remain on, and jobs can still be entered or edited. To start the machine again, twist the Emergency Stop button counterclockwise and press the Start button on the main control panel.

Cover Interlock Switches

As a safety feature, the machine is equipped with interlock switches on the covers and guards that need to be removed on a regular basis. The covers with interlock switches are shown in **Figure 10**.

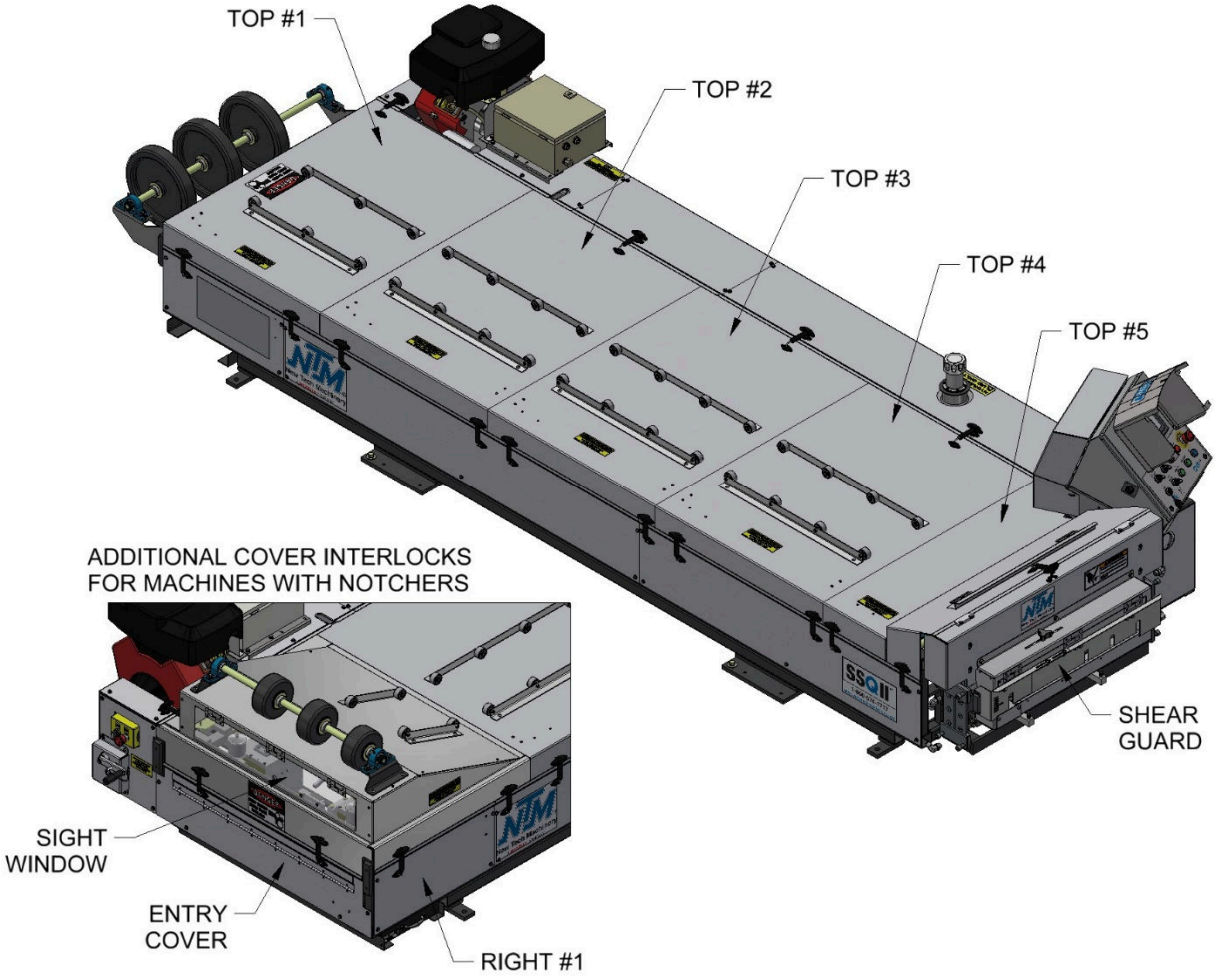


Figure 10: Covers with Interlock Switches

If one of these covers is removed or out of position the machine will be put into maintenance mode. In maintenance mode some functions of the machine are disabled to prevent injury. The drive is limited to jog mode only and the shear will not come down automatically. To operate the shear in maintenance mode, press the two Maintenance Mode Shear Down buttons on the sides of the control panel.

If the machine is in maintenance mode and all the covers and guards are in place, then most likely one of them is slightly out of position. Check to make sure that all the top covers are seated fully down. If all the covers look okay then the indicator lights can be used to identify which cover is causing the problem. Starting from the entry end of the machine, all the lights will be green up until the first one that is out of position. That one will be orange along with all the following lights (even if those covers are all okay). Look through openings at the entry and exit ends of the machine to find the first light that is orange then correct the cover above that light. See Figure 11 below for a sample view through the entry end. The lights are circled.

CHAPTER 5

ELECTRICAL CONTROLS AND OPERATION

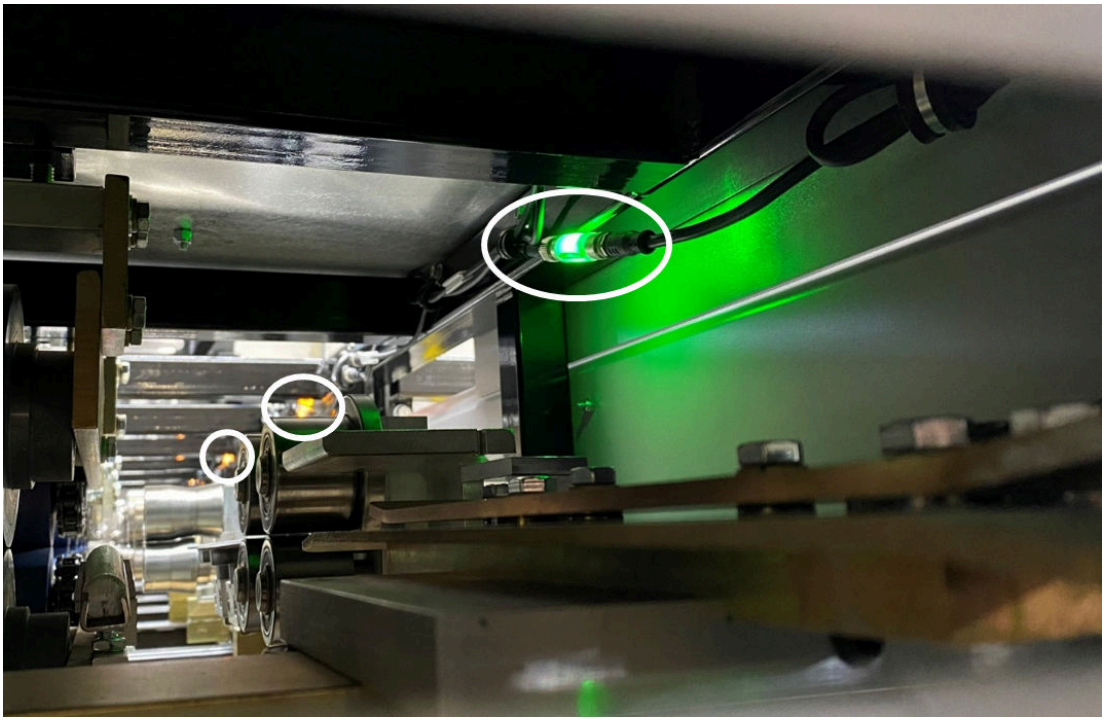


Figure 11: Cover Sensor Lights

If all the covers seem to be positioned correctly then it's possible one of the magnetic sensors or actuators need to be adjusted. They are mounted in slotted holes and can be moved closer or further away from each other. See the diagram in **Figure 12** for the ideal positioning of them and adjust their positions as needed. It's also possible that some metal debris could be stuck to one of the sensors or actuators and be interfering with the functioning. Please clean them off if this is the case.

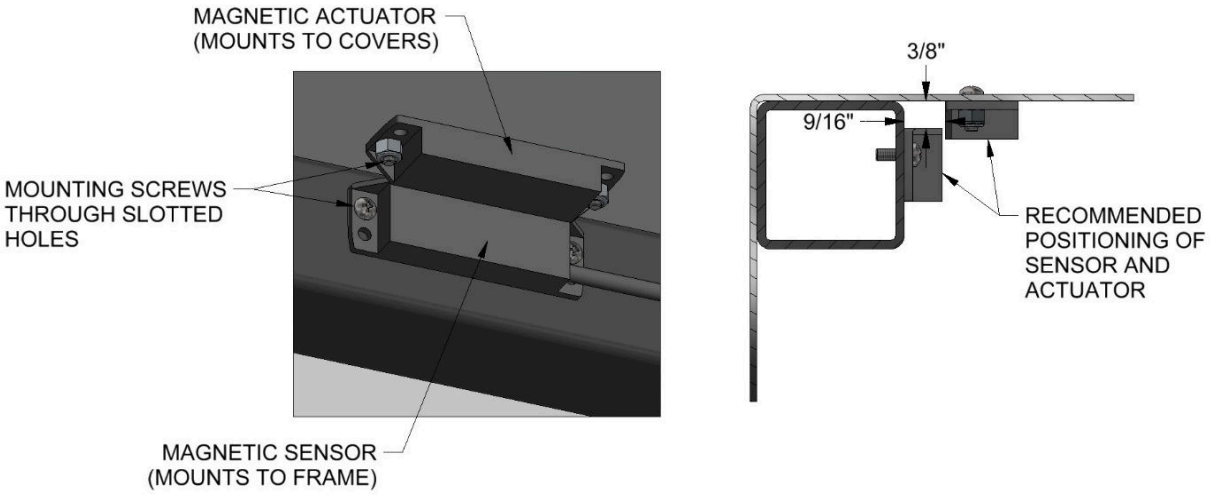


Figure 12: Interlock Switch Detail

Remote Limit Switch

(See Figure 13 on page 20.)

NOTE: The machine will not run continuously in the forward direction unless the Remote Limit Switch is plugged into the machine. The Remote Limit Switch is used for panel length control. The Remote Limit Switch is designed to attach to the right side of the optional Run Out Tables (see page 126) available for the machine. Plug the female end of a 3-wire 14-gage extension cord into the limit switch, and the male end into the female Limit Switch Plug located at the bottom of the Control Panel Assembly. The length of the panel to be ran determines length of the extension cord needed. Run out a panel to the desired length and stop the machine. Slide the Remote Limit Switch onto the bottom let of the angle on the right side of the run out table so that the ARM of the switch is against the end of the panel. Pull the limit switch back toward the shear until a click is heard in the Limit Switch Head and secure the limit switch at this location. Cut and remove the set up panel from the table. Push the start button and run the next panel allowing the limit switch to stop the machine. Measure this second panel before cutting to determine if the machine stopped in the correct position and make the necessary adjustment to the limit switch to obtain the desired length. Repeat as necessary.

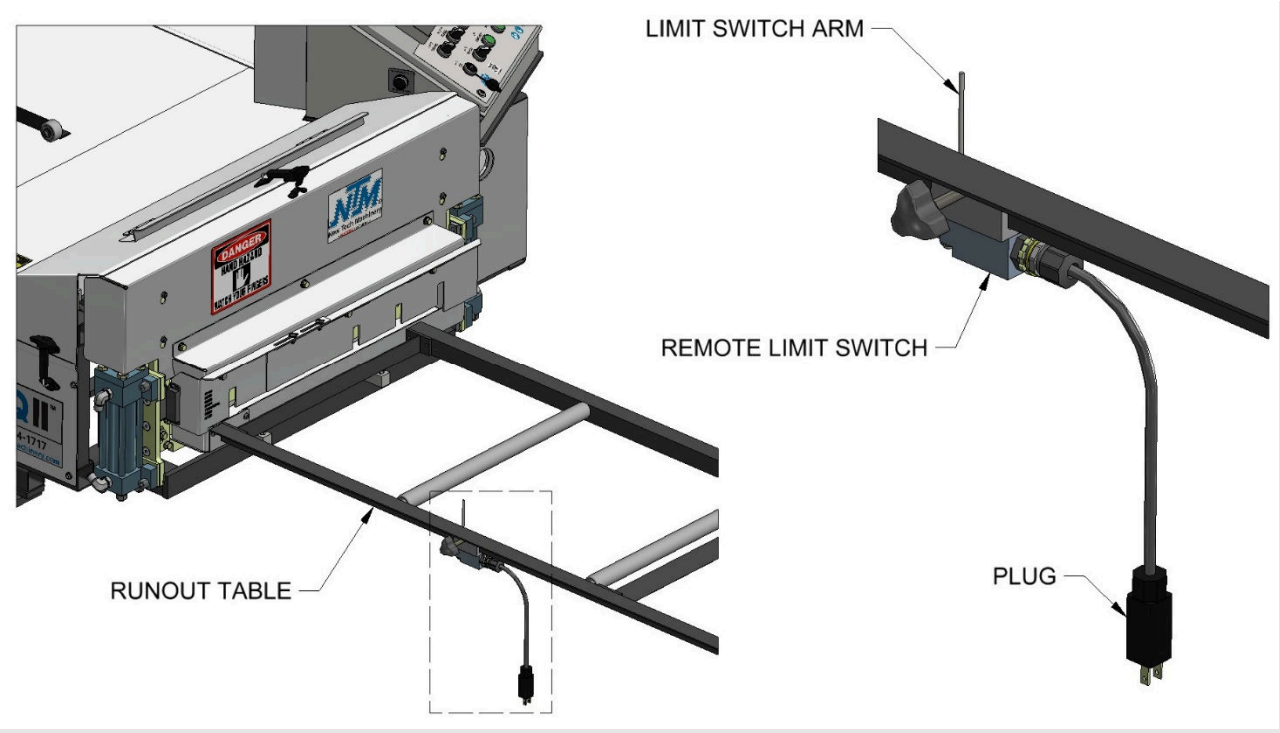


Figure 13: Run Out Table and Remote Limit Switch

CHAPTER 5

ELECTRICAL CONTROLS AND OPERATION

Circuit Breakers

(Figure 15)

All machines have a circuit breaker inside the Main Control Panel, and another one inside the Power Supply Box (see **Figure 3** for their locations on the machine). These circuit breakers protect the electrical components. If one of the breakers are tripped, none of the control panel lights will come on and the machine will be inoperable. **To reset the breaker(s):** Open the lid to the Control Panel and/or Power Supply Box. The Control Panel lid opens by loosening the two screws in the bottom corners of the large sloped front surface. The Power Supply Box lid opens by turning the inset latch on the top with a slotted screwdriver. Locate the circuit breaker(s) by referring to **Figure 15** through **Figure 17**. The pictures show the breakers in the un-tripped position. Reset the breaker(s) if necessary.

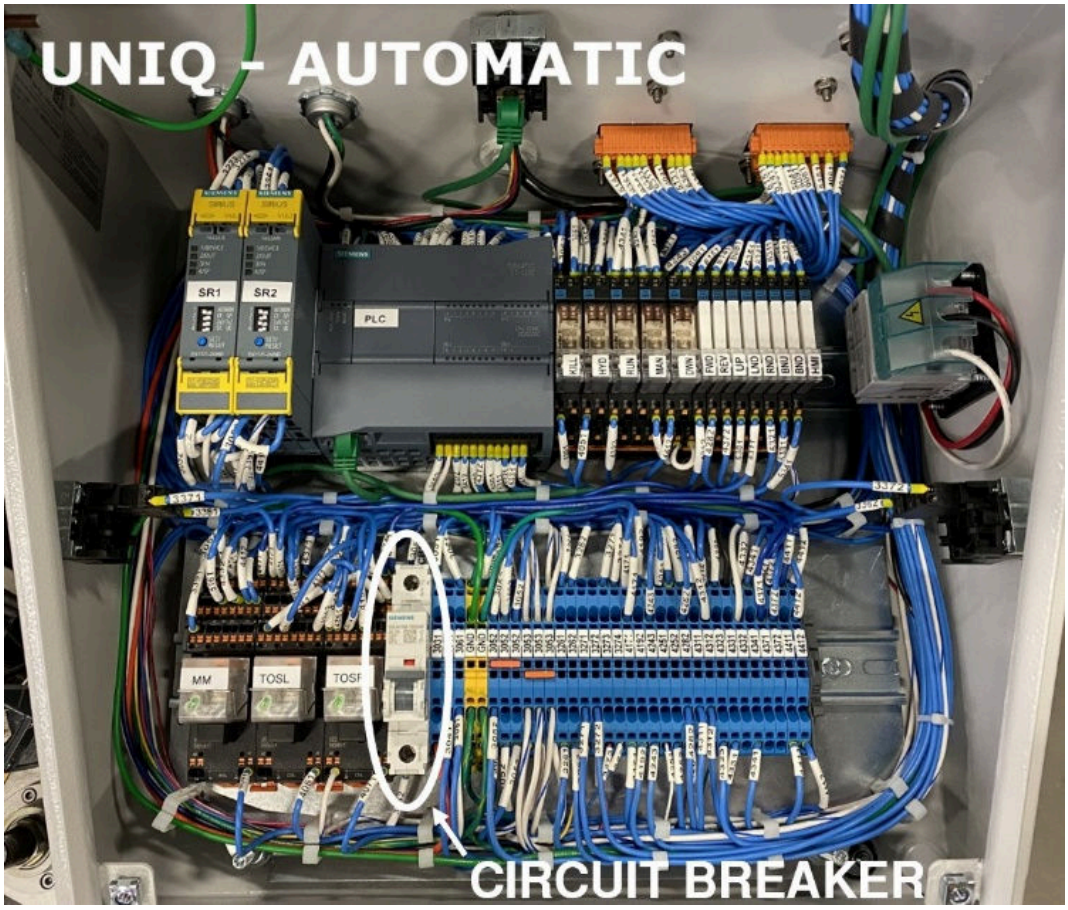


Figure 14: Automatic Uniq Control Panel Circuit Breaker Location

CHAPTER 5

ELECTRICAL CONTROLS AND OPERATION

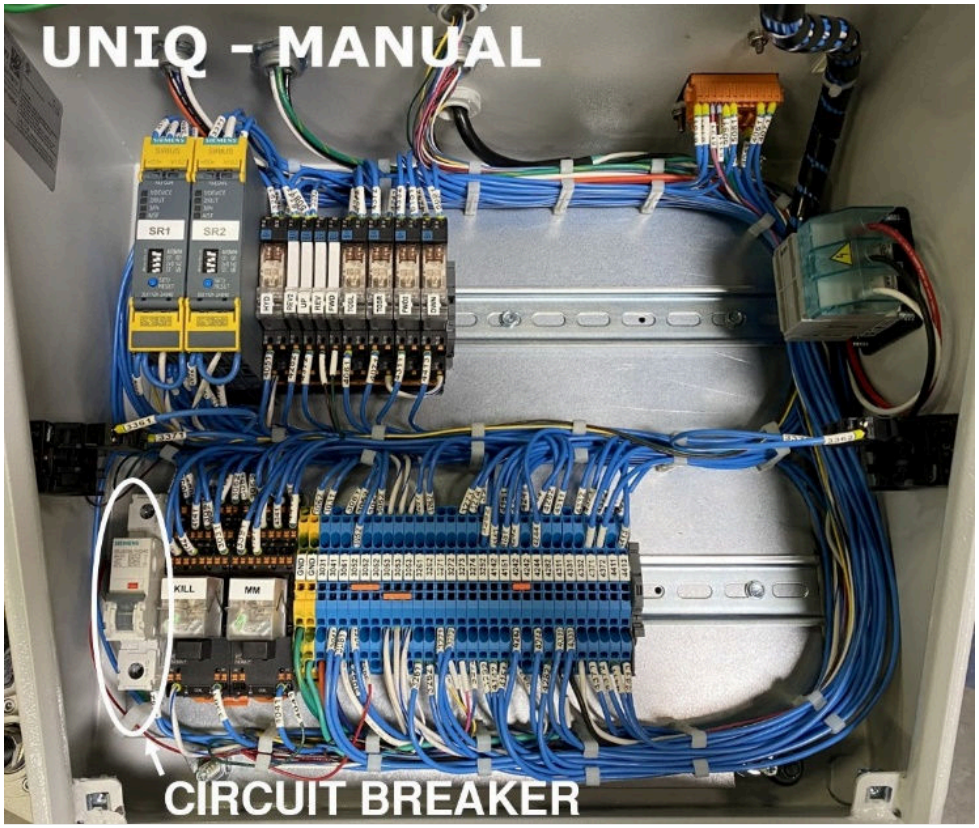


Figure 15: Manual Uniq Control Panel Circuit Breaker Location

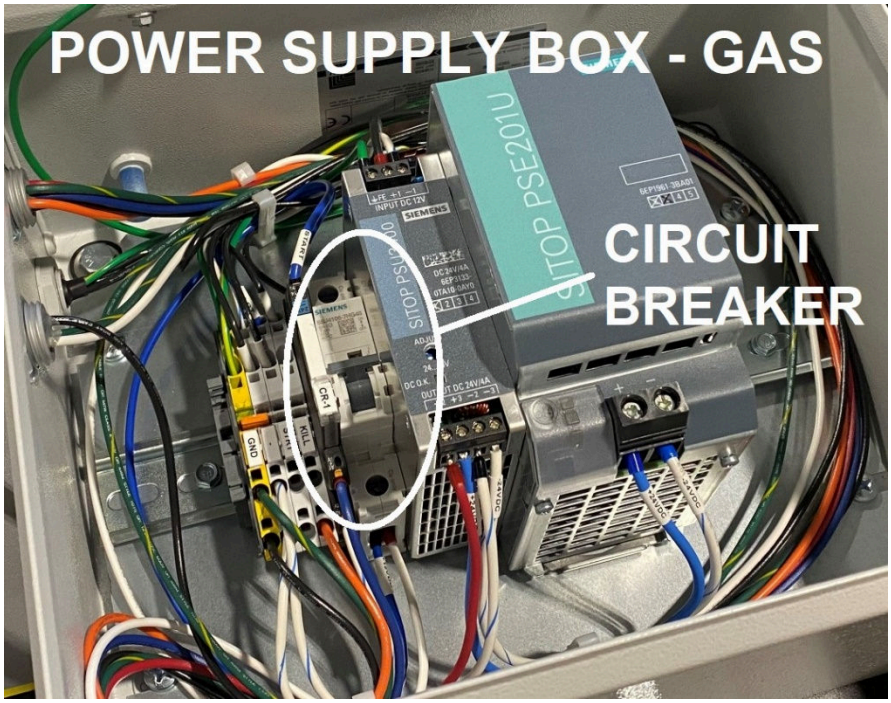


Figure 16: Gas Engine Power Supply Box Circuit Breaker Location

ELECTRICAL CONTROLS AND OPERATION

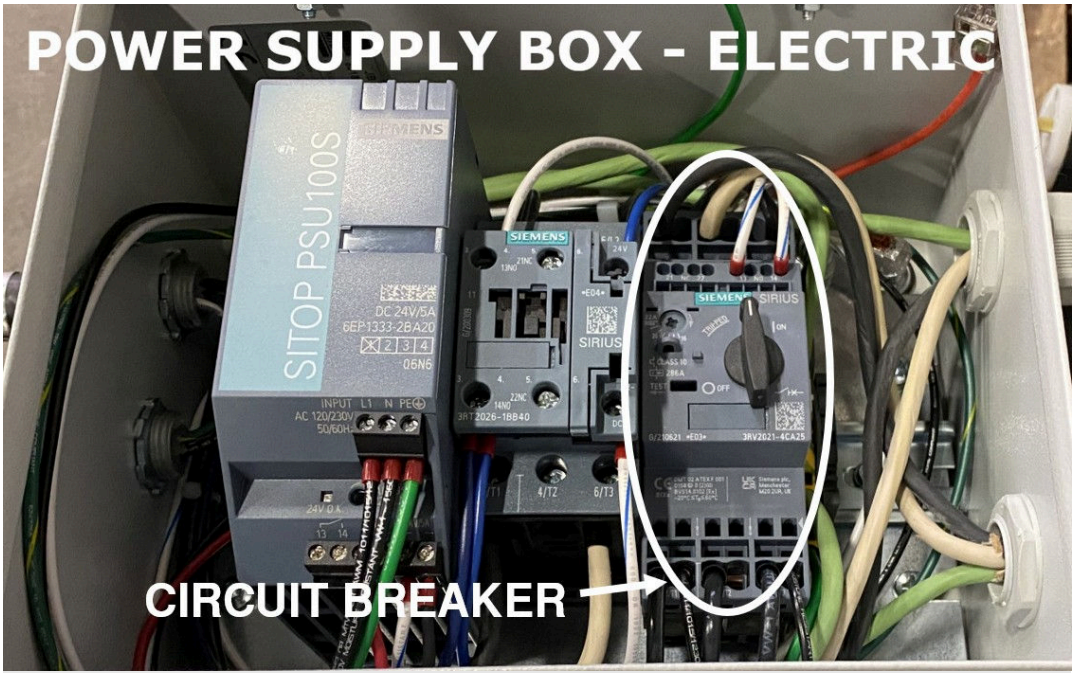


Figure 17: Electric Motor Power Supply Box Circuit Breaker Location

REEL STANDS AND EXPANDABLE ARBORS

EXPANDABLE ARBOR

(Figure 18)
The Expandable Arbor adjusts to accommodate coils with 16” to 20” inside diameters by expanding into the ID of the coil.

THREADED NUT

The threaded nut should always be on the right side of the machine and the tail of the coil should always be routed over the top and pointing toward the exit or shear end of the machine.
This threaded nut is used to increase or decrease the outside diameter of the arbor. Turning the nut clockwise will increase the outside diameter of the arbor, and counter-clockwise rotation will decrease the arbor size. There is a grease zerk in the collar of the threaded nut that should be lubricated at least twice a year, or whenever grease in not visible on the threads of the shaft.

END COLLAR

The End Collar has two positions.
Position “A” is used for coils with inside diameters of 16”.
Position “B” is used for coils with inside diameters of 20”.

To adjust from one position to the other, remove 2 screws “C” until end collar is free to slide. Slide the collar to the inside position for 20” ID or outside position for 16” ID coil. Align the holes in the collar to the respective threaded holes in the reel shaft. Re-insert and tighten "C" bolts to lock the end collar to the shaft.

LOADING EXPANDABLE ARBORS WITH COIL

1. Using the Threaded Nut, collapse the arbor small enough to fit into the inside diameter of the coil.
2. Slide the Expandable Arbor into the center of the coil making sure the threaded nut is on the right and the tail of the coil is over the top and pointed toward the exit end of the machine.
3. Turn the Threaded Nut clockwise until the Support Bars on the arbor are just snug against the inside of the coil.
4. Using the Reel Set Up Chart, (Figure 18), find the “D” dimension that corresponds to the profile being used. The negative values indicate that the coil should extend past the end of the rails by the amount shown.
5. Slide the arbor left or right to get the correct “D” dimension measuring from the edge of the coil to the end of the Support Bar on the Threaded Nut side.
6. Finish by rotating the Threaded Nut clockwise until the Support Bars are very tight against the inside of the coil. Verify that dimension “D” is correct, and re-adjust if necessary. The Coil and Arbor are now ready for loading. (see LOADING REELED COIL on page 28)

CHAPTER 6

REEL STANDS AND EXPANDABLE ARBORS

SET-UP CHART	
PROFILE	"D"
BB750	1-3/16"
FF100	7/8"
FF150	-1/8"
FWQ100	1/2"
FWQ150	0"
SS100	1-1/8"
SS150	5/8"
SS200/210A	-1/4"
SS275	-3/4"
SS450/450SL	-1/4"
SS550	-1/8"
SS675	-3/4"
TRQ250	-5/8"

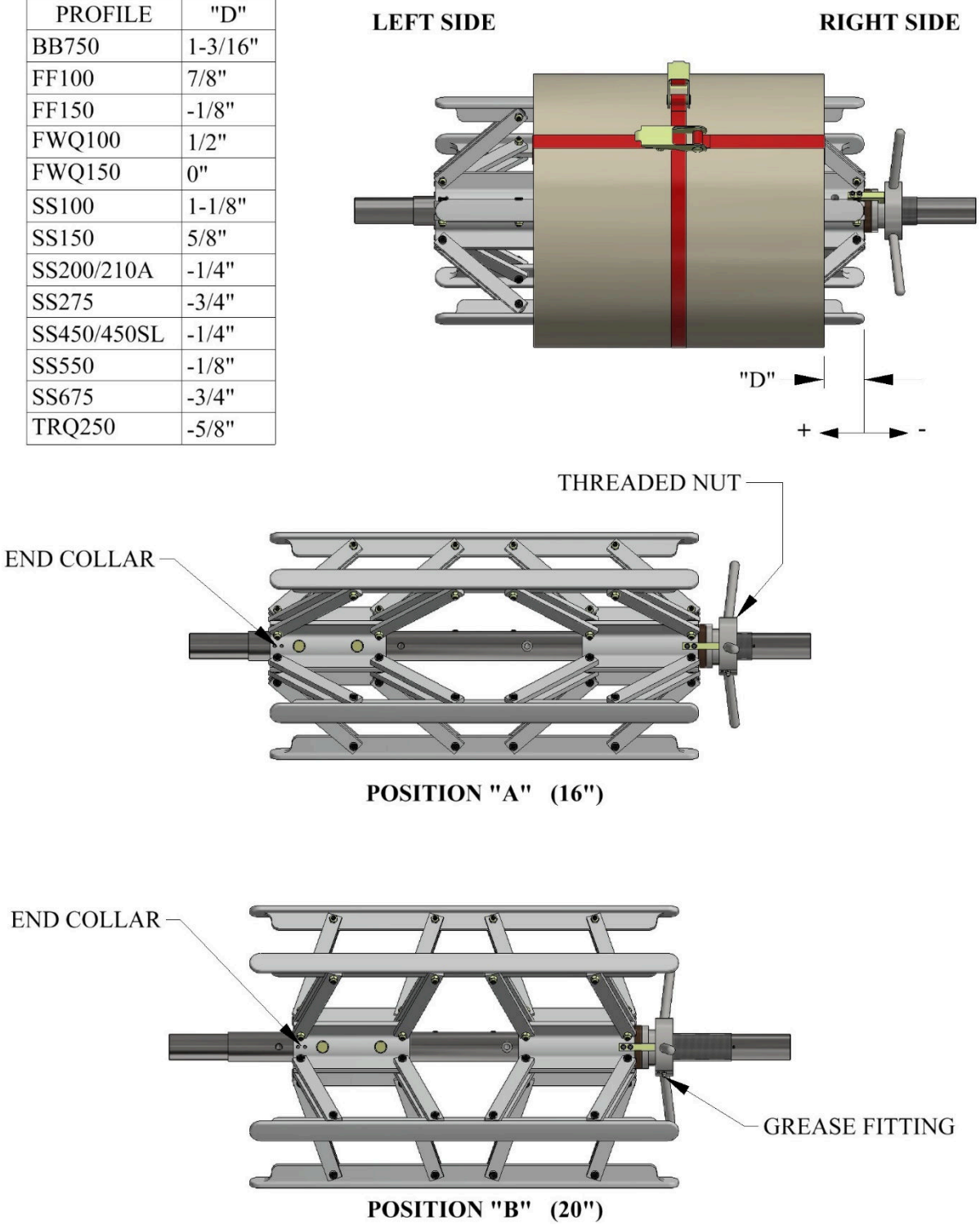


Figure 18: Expandable Arbor Set-Up

CHAPTER 6

REEL STANDS AND EXPANDABLE ARBORS

CAUTION: Always use properly rated lifting devices to load and unload coils.

Maximum Capacity / Reel: **3,000 lbs.**

Total Capacity for Reel Stand: **6,000 lbs.**

1. The reel shafts must rest in the cradles on the reel rack. Keep the cradles lubricated with synthetic lube to minimize wear. (Figure 19)
2. Use the Hold Down Bars on each cradle to secure the coil and reel to the reel stand during both operation and transit of the machine. The Hold Down Bracket should be used to keep the coil from uncoiling too fast during the fabrication of panels. Apply just enough drag to keep coil tensioned. (Figure 19)
   Caution: Do not over tighten Hold Down Bars during machine operation. This will cause excessive load on the drive and electrical systems and premature failure will result. **Do tighten Hold Down Bars** tightly prior to transport of the machine.
3. If a Remote Decoiler is used it should be placed 8 to 10 feet behind the machine. Align the decoiler as close as possible to the Right Side Entry Guide, making the side of the coil and reel parallel to the machine. NOTE: The closer the Decoiler and reel are set to the machine, the more critical this alignment becomes.

CHAPTER 6

REEL STANDS AND EXPANDABLE ARBORS

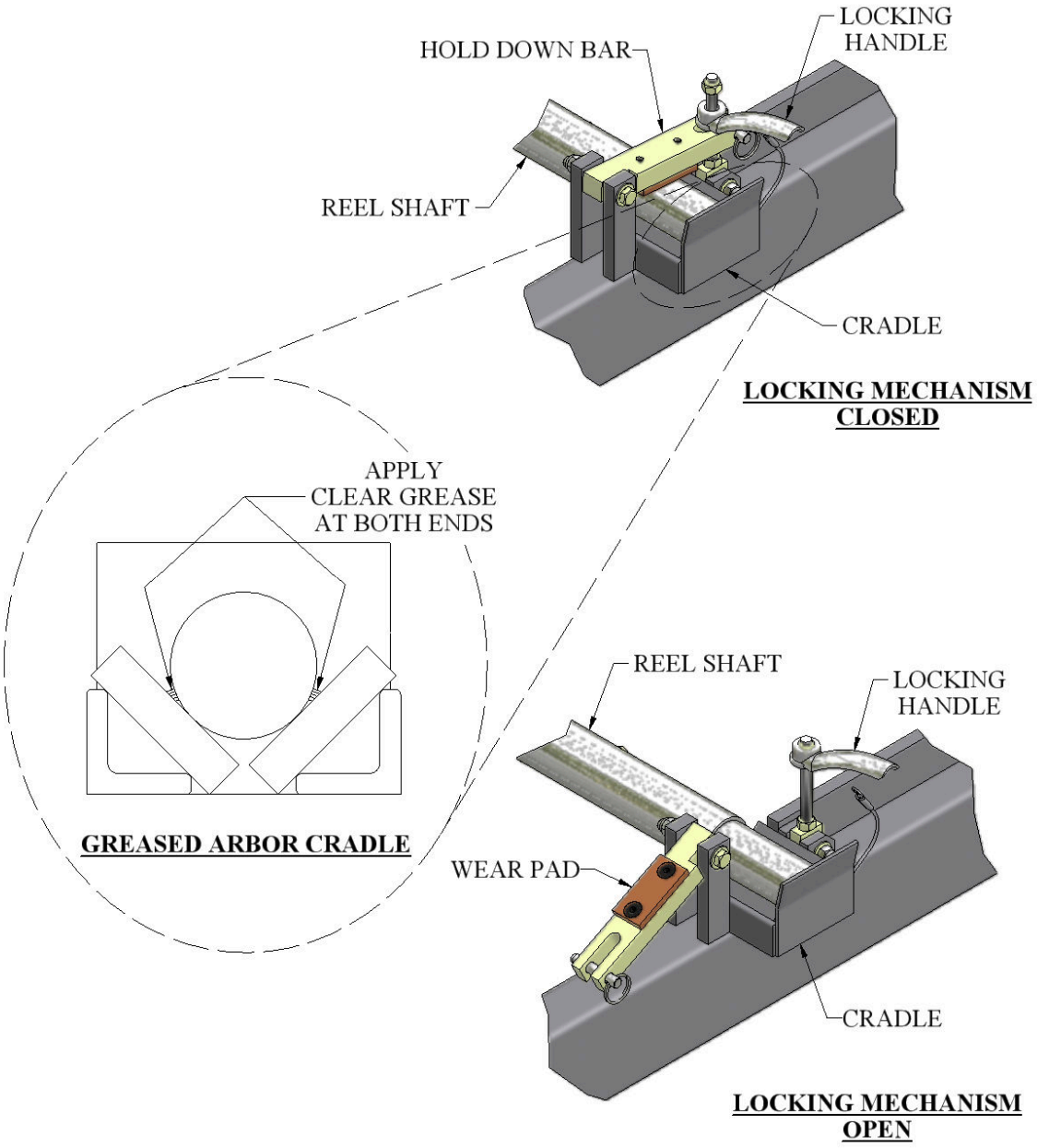


Figure 19: Expandable Reel Assembly

CHAPTER 6

REEL STANDS AND EXPANDABLE ARBORS

LOADING REELED COIL

Caution:
Always use a properly sized forklift or lifting device to load or unload Expandable Arbors loaded with coil.

1. Prepare the reel stand by making sure the Hold Down Bars are in the unlocked and open Position (Figure 19).
2. Using an approved lifting device, lift the reeled coil into the cradles on the reel stand making sure that the tail of the coil is in the correct position (Figure 20) then remove the lifting device.
3. Rotate the Hold Down Bars (Figure 19) to the closed position and thread the handle onto the hold down bolt. If material is going to be used from this coil, tighten the left and right handle just snug. Final adjustment of tension should be made while running a panel to keep reel from unwinding material too fast. As the coil becomes smaller, re-adjustment will need to be made. **Caution: Do Not over tighten Hold Down Bars. Drive and/or electrical system failure may occur.**
4. If the machine will be transported after loading coil, tighten the Hold Down Bars securely to keep coil from unwinding during transport, and secure the loose end of the material to the coil.
5. Before transporting the loaded Expandable Arbor, the coil should be secured around the outside edges through the inside diameter using a strap, rope, etc. to prevent the coil from telescoping (Figure 18).

NOTE: Make sure Hold Down Bars are tightened securely and coil is properly tied off before transporting machine.

CHAPTER 6

REEL STANDS AND EXPANDABLE ARBORS

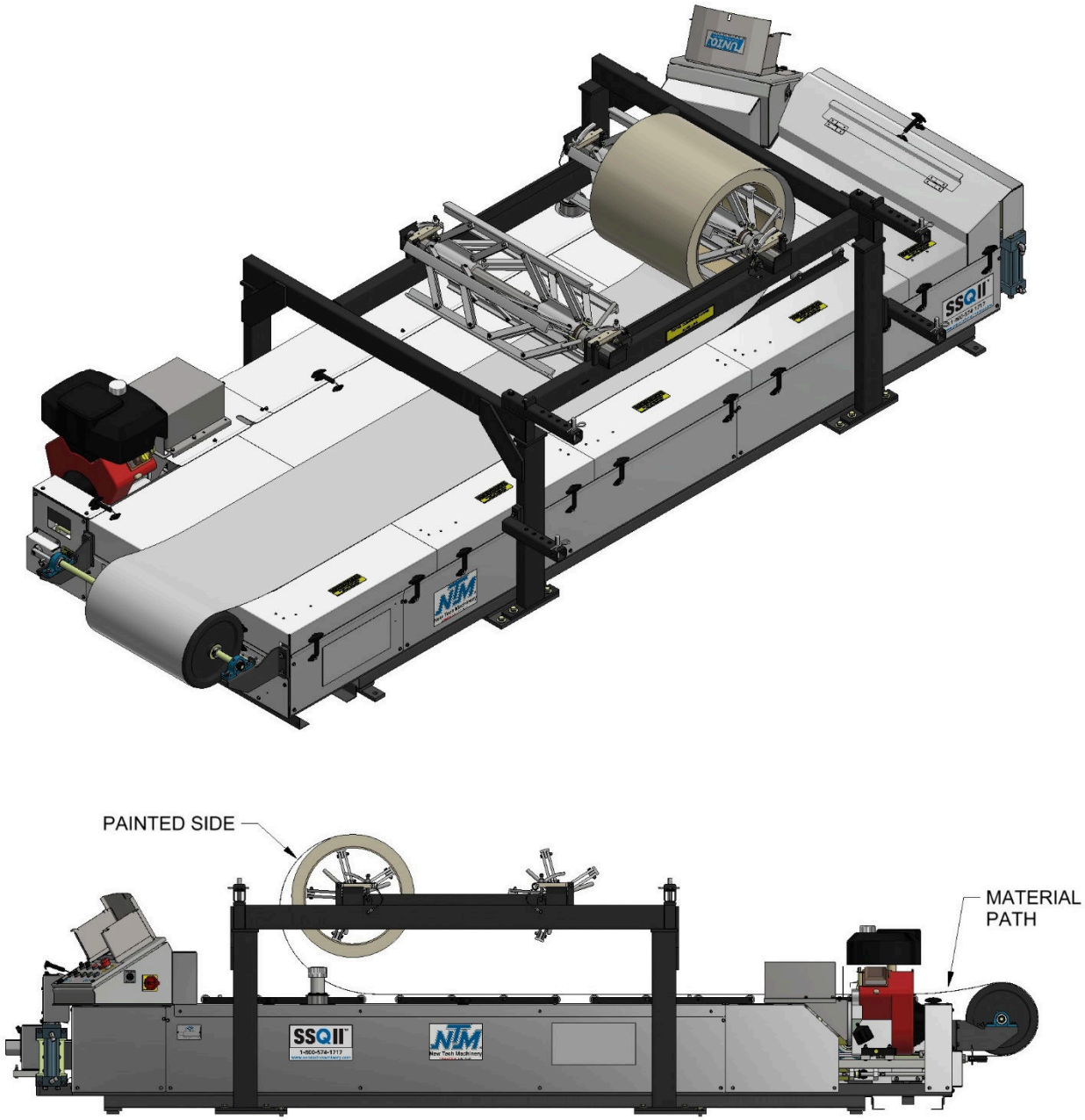


Figure 20: Material Routing

NOTE: If you are producing the **FWQ100** or **FWQ150** profile then the coil should be loaded in the opposite orientation as shown above. The painted side should face down as it enters the machine.

CHAPTER 6

REEL STANDS AND EXPANDABLE ARBORS

Free Standing Decoiler Use

If the coil is mounted onto a free standing decoiler instead of the overhead rack, then it may be necessary to support the underside of the coil to prevent it from rubbing on the lower entry guide shoes. The optional brackets shown in Figure 21 can be used to lower the entry drums in order to support the panel. Please note that they are not compatible with the trailer.

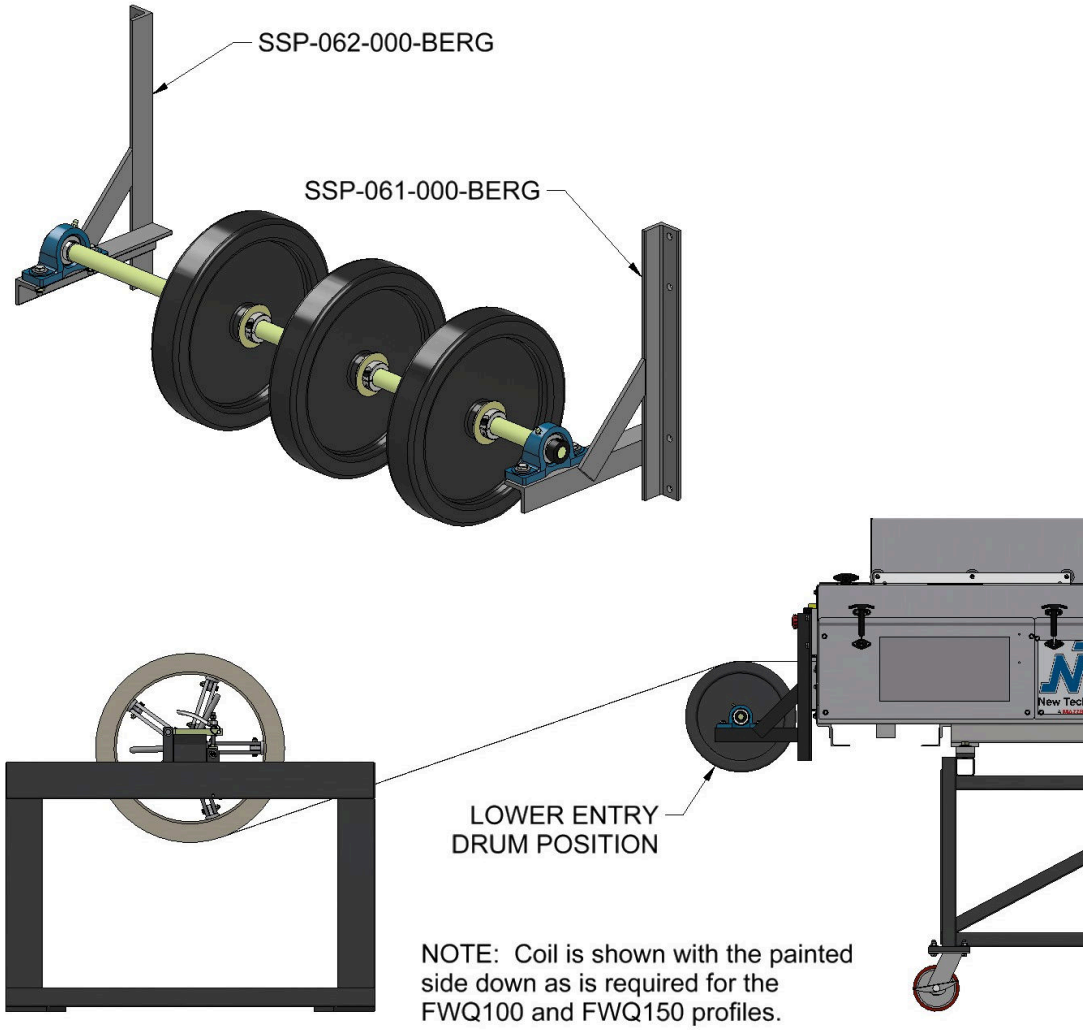


Figure 21: Free Standing Decoiler Setup

HYDRAULIC SYSTEMS

Maintenance

(Figure 22)
The hydraulic system in the machine is very durable and reliable. The system must be properly maintained to ensure trouble free operation and longevity. The factory has installed a 32 weight AW hydraulic fluid. Because this equipment is used primarily outdoors and exposed to the elements, it is recommended that the oil be changed annually. Hydraulic oil will degrade if it remains stagnate in the system for long periods of time. Check the fluid level weekly. The fluid level should be approximately 6" below the top of the filler neck. When checking the fluid level, also note the color and condition of the fluid which should be clear in color.

Hydraulic Fluid Troubleshooting

	CONDITION	SOLUTION
1	White milky color indicates water contamination.	Change the fluid.
2	Dark fluid usually indicates a dirty oil filter.	Replace the oil filter.
3	Foamy fluid will cause a noisy pump and slow erratic operation of the system. The cause is usually low oil level or air in the system.	Check fluid level and bleed off air by pushing the shear down button and holding for 10 seconds.
4	Machine runs slow after continuous operation. Check hydraulic fluid temperature, it should be no more than 140°F (60°C).	Allow to cool down. Move to a shaded area if possible.

Changing Hydraulic Fluid and Filter

(Figure 25 & Figure 26)
The hydraulic fluid should be changed at least once a year. More frequently if the machine is constantly in operation in a dusty environment or if the fluid becomes contaminated. The filter element should be replaced when the red Replacement Indicator sticks up. To change the fluid and filter:

1. Remove the Left Side Covers and set aside.
2. Remove Filler Cap.
3. Uncoil Drain Hose from under the tank and hang over the side of the machine and trailer.
4. Place a container under the hose to catch the old fluid.
5. Open the Drain Valve and drain the fluid into the container. Discard of Properly.
6. Unscrew the Filter Bowl and discard the old filter element.
7. Install the new filter element for the brand of filter in your machine. Refer to the list below.

Brand	NTM Part #	Manuf. Part #
Parker	HYD-200-231	947622Q
Donaldson	HYD-200-241	EB1078
Rexroth	HYD-200-137	R928006647
Hydac	HYD-200-141	0055D010ON

8. Re-attach the filter bowl.

9. Fill the tank with fresh 32 weight fluid until the level is **7" below the top of the Filler Neck** (approximately 15 gal).

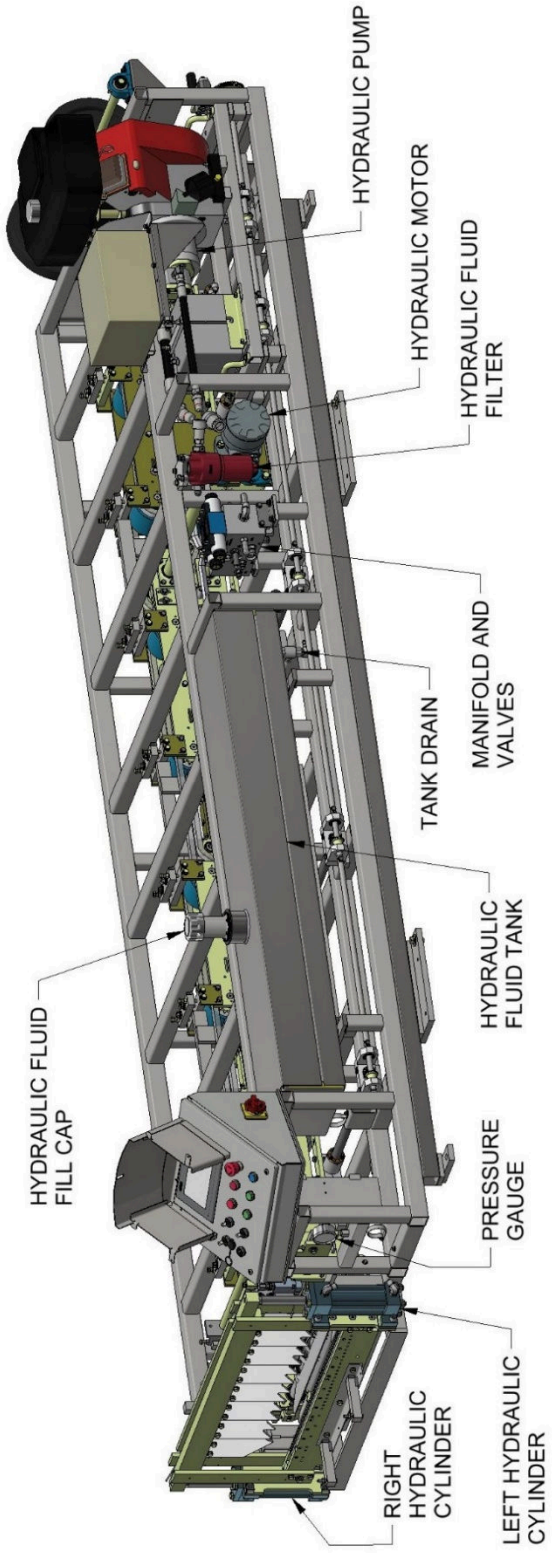


Figure 22: Hydraulic System – Overview

CHAPTER 7

HYDRAULIC SYSTEMS

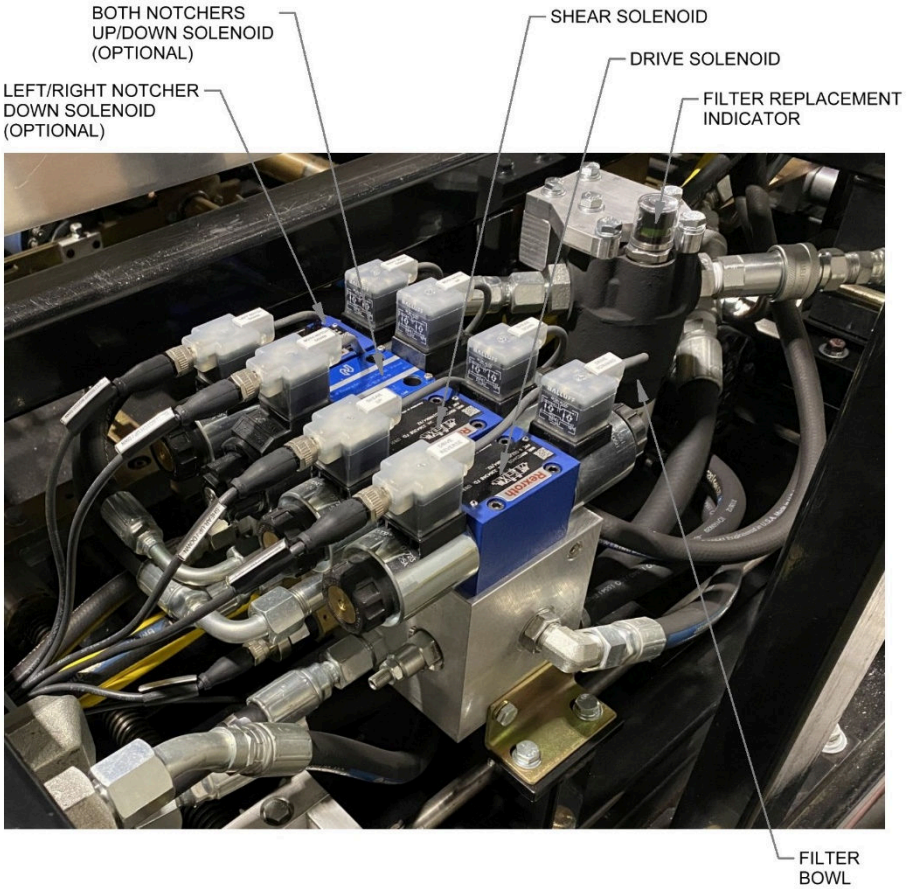


Figure 23: Hydraulic Manifold

CHAPTER 7

HYDRAULIC SYSTEMS

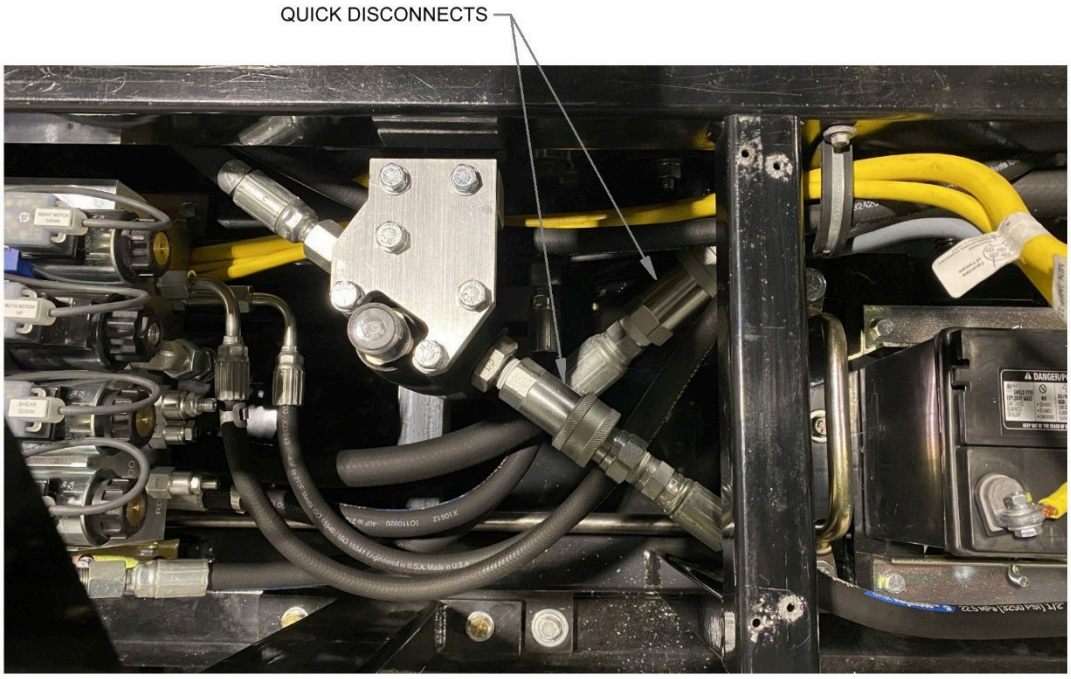


Figure 24: Quick Disconnects

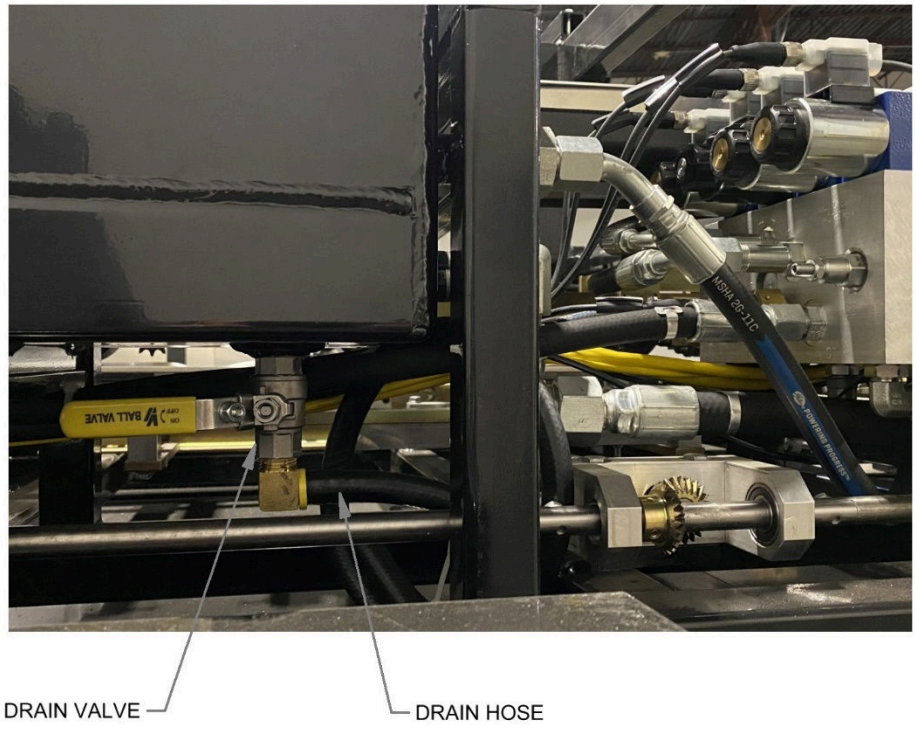


Figure 25: Tank Drain

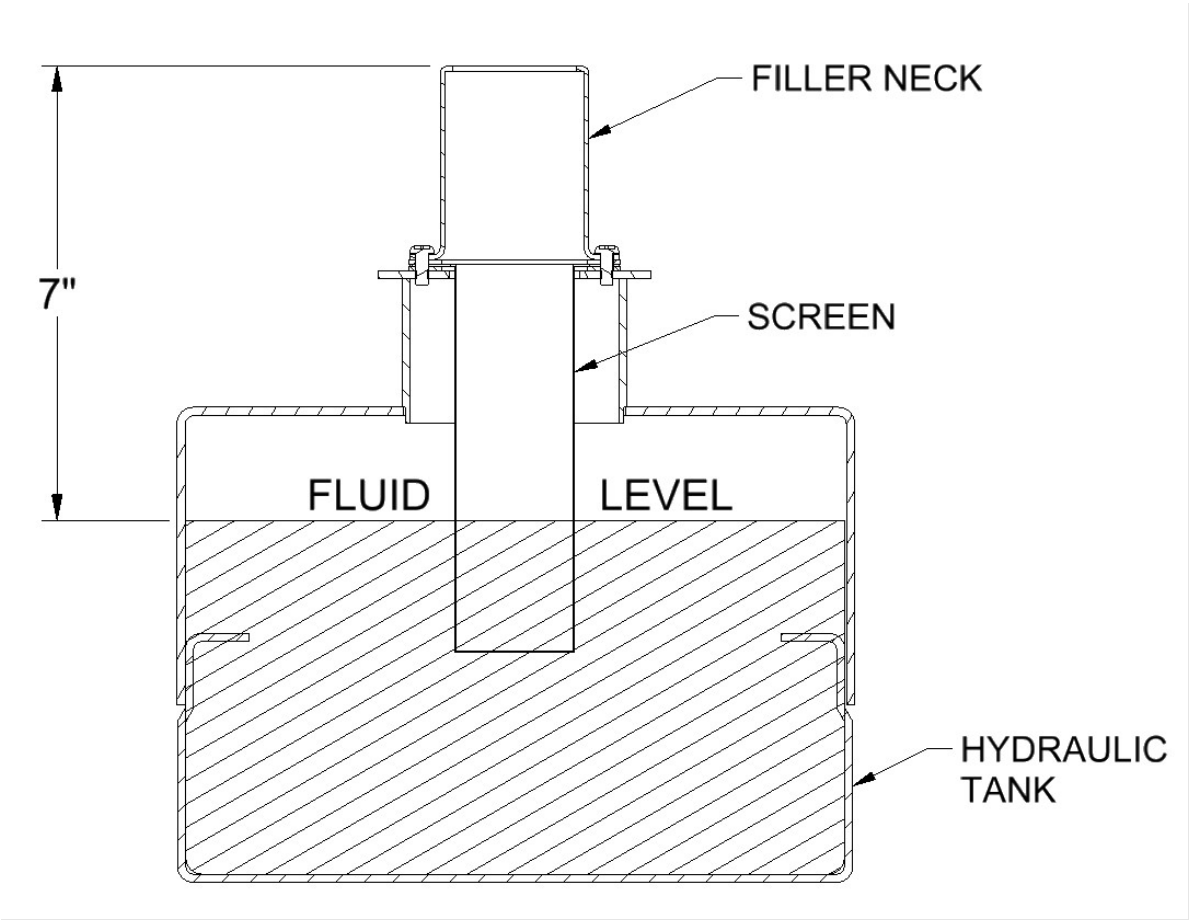


Figure 26: Hydraulic Fluid Level

DRIVE SYSTEM

(Figure 27, Figure 28 & Figure 29)
The drive system of the machine consists of eight top and eight bottom polyurethane drive rollers. They are divided into groups of 2 per assembly making 4 Top Drive Roll Assemblies and 4 Bottom Drive Roll Assemblies. They are connected together via chain and sprocket and there are chain tensioner's on each assembly. The drive system is powered by a hydraulic motor which transfers power to the drive assemblies using spur gears and a top and bottom drive shaft.

1. Clearance between the top and bottom drive rollers is factory set at ¾ of a turn of pressure past the point of contact. This will drive material up to 22ga. though the machine without the need for adjustment. If adjustment becomes necessary due to slippage, pressure can be added. **Do not add more than ¼ turn beyond the factory setting.** It is important to adjust only one end of each assembly at a time to maintain side to side alignments.
To add pressure: Loosen two Lock-Down Bolts "B" 1/8 of a turn. Loosen lock nuts on two corresponding Jack Bolts "A". Tighten Bolts "A" 1/8 of a turn. Re-tighten 2 lock nuts on Jack Bolts "A" to lock in adjustment. Repeat this procedure on the other end of the Drive Assembly and repeat for the other 3 drive assemblies. Test for result and repeat one more time if necessary.
To remove pressure: Loosen two lock nuts on Jack Bolts "A". Loosen two Jack Bolts "A" 1/8 of a turn. Tighten two corresponding Lock-Down Bolts "B" 1/8 of a turn. Tighten two lock nuts on Jack Bolts "A" to lock in adjustment. Repeat this procedure on the other end of the Drive assembly.

2. There are three different chain tensioners on the machine.
A. The first are located in slots on the side plates of the Drive Roll Assemblies. They follow the chain locations alternating from one side to the other. To adjust, slightly loosen the nut on the bolt holding the tensioner sprocket in place. Using a dead blow hammer tap the tensioner assembly toward the drive roller until the chain is snug. Lock into position by tightening the bolt on the assembly.
B. The second type is similar. These are located on the top and bottom spreader bars located between the Drive Roll Assemblies. These are used in the same way except there is a bolt located in the edge of the slot on the assembly used to push the tensioner assembly toward the Drive Roller to tension the chain.
C. The third is located on the Top #1 Spreader Bar between the sprocket and drive roller. (see detail 'A" Figure 29) Loosen two "D" bolts enough to move the tensioner assembly up toward the chain until snug. Re-tighten the two "D" bolts.

3. The chains used in this system are #50 Roller Chain. See Figure 29 for chain locations and lengths if chain replacement is necessary.

4. The polyurethane drive rollers will eventually need cleaning. This will become evident when they start leaving a stripe the width of the drive roller on the formed panels that doesn't come off easily or if a material is used with an oily film on it. Avoid cleaning the drive rollers with harsh chemicals or solvent. These products will attack the polyurethane and cause irreversible damage. **Use of these products will void the warranty on the drive rollers.**

Clean the rollers with mild soap and water and a rag. **Caution must be taken around the moving parts of the machine during the cleaning process.**

5. Covers should be kept on the machine during operation and storage. Ultraviolet light will attack the polyurethane drive rollers and cause deterioration. Again, this type of damage is not covered under the warranty.

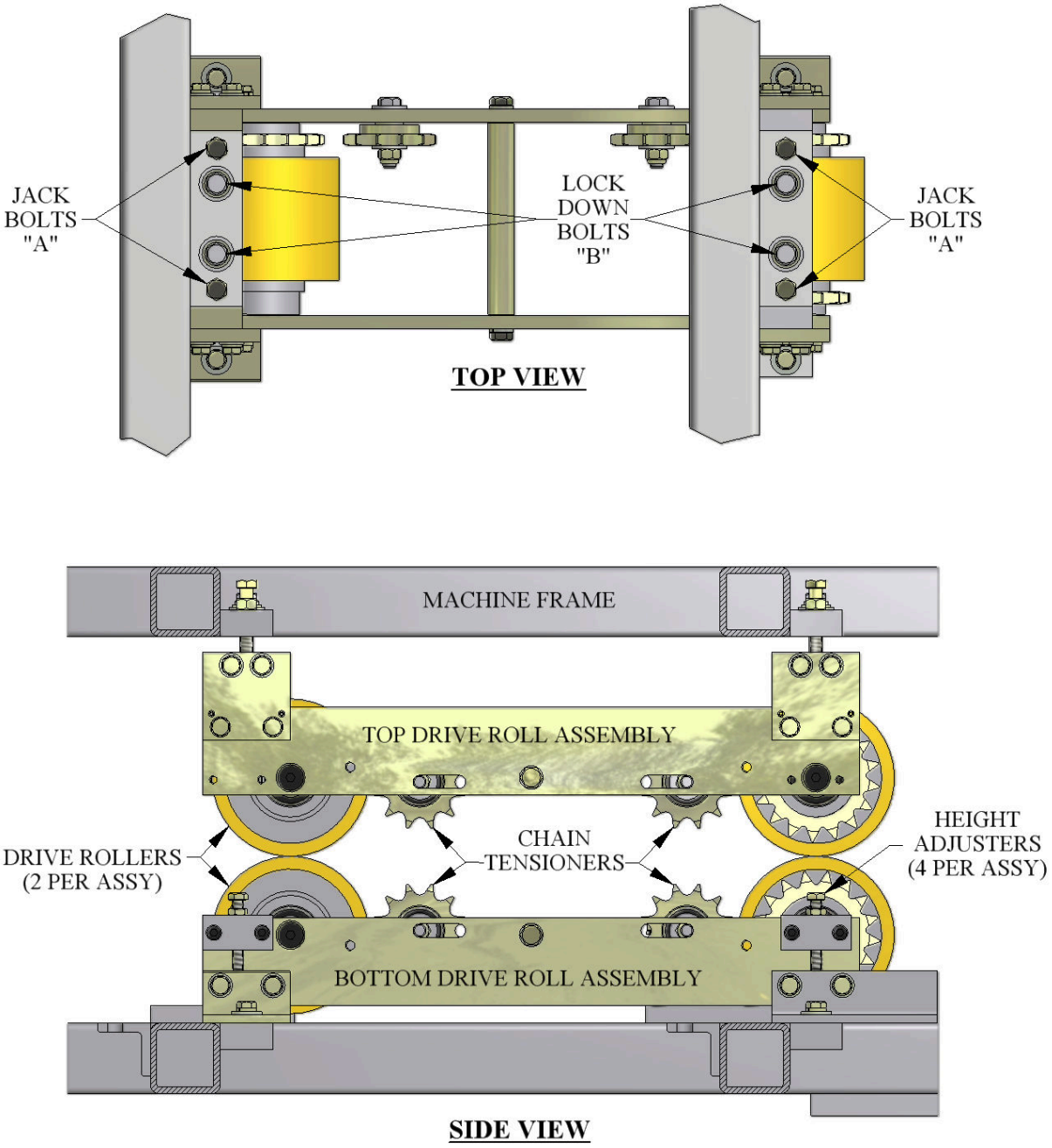


Figure 27: Drive Roll Assembly View

CHAPTER 8

DRIVE SYSTEM

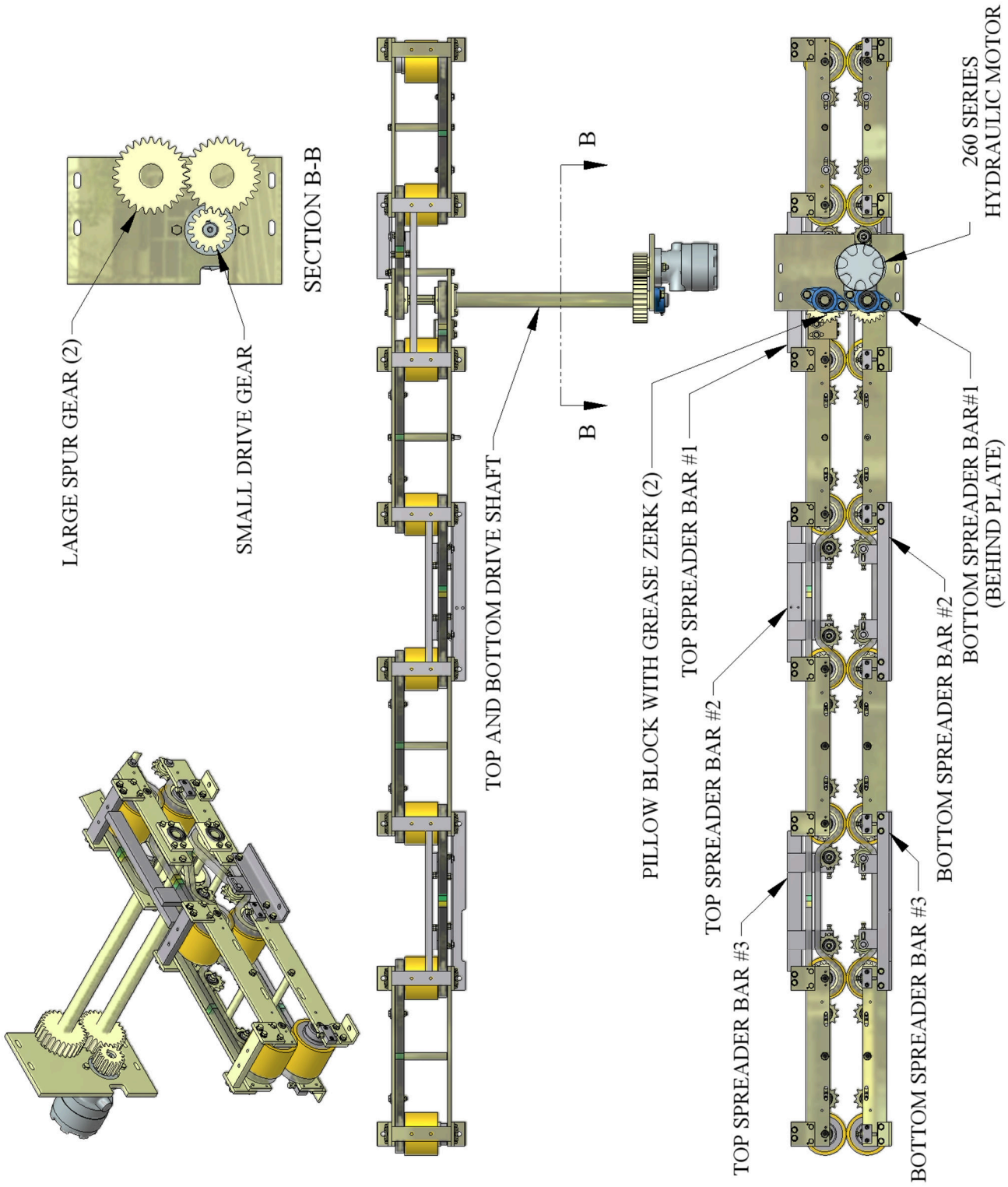
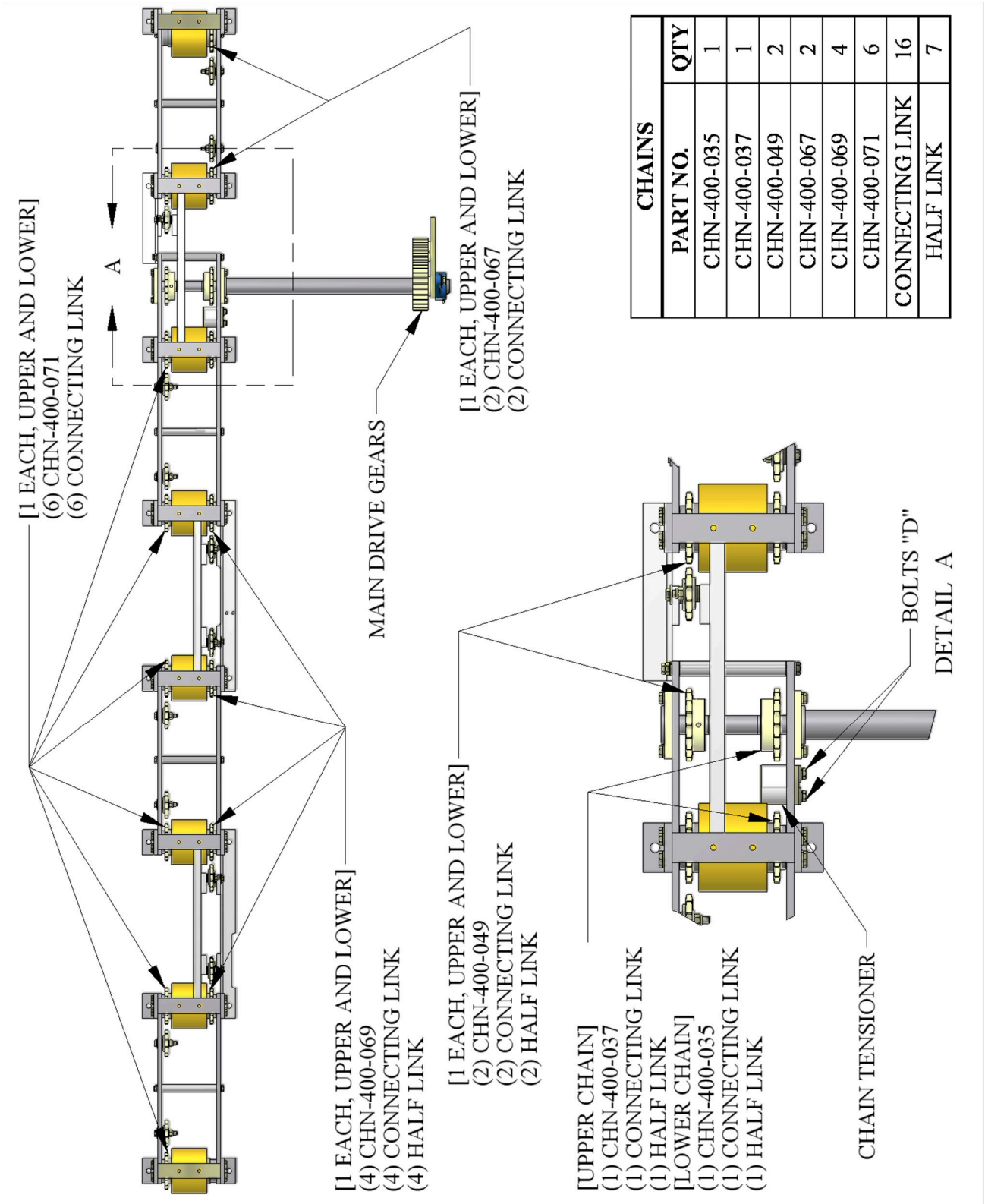


Figure 28: Gears and Shafts

DRIVE SYSTEM



CHAINS	
PART NO.	QTY
CHN-400-035	1
CHN-400-037	1
CHN-400-049	2
CHN-400-067	2
CHN-400-069	4
CHN-400-071	6
CONNECTING LINK	16
HALF LINK	7

Figure 29: Chains Upper and Lower

SHEAR ASSEMBLY

SHEAR GUARD

The shear is extremely dangerous and can cause serious bodily injury or death. For this reason, the machine is provided with a guard to prevent the operator from reaching into the shear. **It is very important that the guard remain in place at all times when the machine is in operation.** The guard should only be removed for maintenance and adjustment of the shear. Always lock out the machine before removing the shear guard.

Shear Guard Adjustment:
When changing the panel width or profile it may be necessary to adjust the position of the openings in the shear guard to allow the panel to exit the machine. Follow the procedure below and refer to Figure 30.

1. Jog the material forward until the panel is about 1-2" away from the shear guard.
2. Look through the opening in the shear guard. If it looks like either leg of the panel will hit the guard, loosen Bolts "A" and "B" and adjust the shear guard as needed.
3. Re-tighten Bolts "A" and "B".

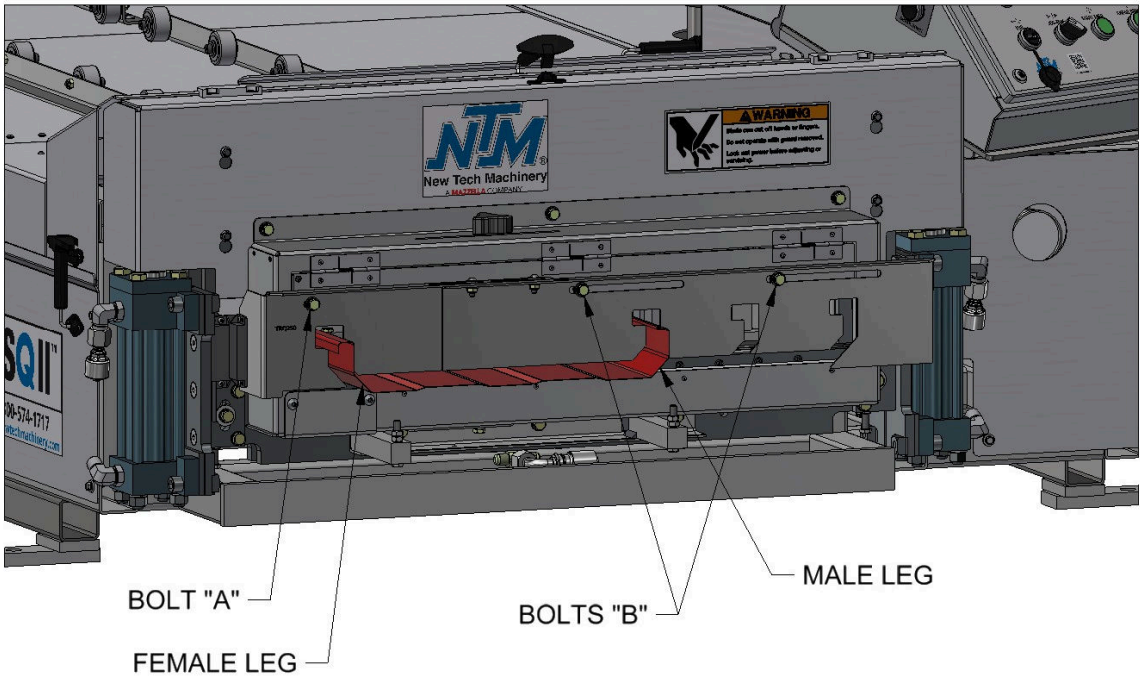


Figure 30: Shear Guard Adjustment

Shear Guard Hinge:
The shear guard is equipped with a spring-loaded hinge that allows it to pivot outward if the material catches on it as it exits the machine. If this happens the controller will stop the machine and put it into maintenance mode. To return to normal operation adjust the shear guard as needed and push it back into place to engage the latch.

CHAPTER 9

SHEAR ASSEMBLY

SHEAR ADJUSTMENTS

Bottom Shear Dies (**Figure 32** through **Figure 41**)

1. Bottom dies should be adjusted 1/32" below the bottom corners of the panel. Loosen the (2) "A" bolts on the left and right Front Vertical Plates. Loosen the (2) lock nuts on the (2) Height Adjustment bolts "B".
2. Tightening bolts "B" will lower the shear and loosening them will raise the shear. Adjust each side as needed to properly set the bottom dies to the correct spacing from the bottom corners of the panel.
3. After adjustments have been made, tighten (2) "A" bolts and (2) Lock Nuts on Height Adjustment Bolts "B".

CHANGING AND ADJUSTING SHEAR DIES AND BLADES

The Entry and Exit Shear Dies are specific to each roller set and they may need to be changed when changing profiles. The Dies must be adjusted to the proper distance from the vertical legs of the panel. The outside vertical leg of the male and female Entry Dies should be approximately 1/32" away from the outside of the vertical legs of the panel. The Exit Dies should be slightly to the outside of the male and female Entry Dies so that after a cut is made, the panel does not hang up on the Exit Dies. Follow the procedure below to make the adjustments.

ADJUSTING THE ENTRY AND EXIT SHEAR DIES

(**Figure 32** through **Figure 41**)

1. Run material through the machine until it is about 6 inches away from the shear, then shut off the machine and lock out the machine.
2. Sight down the legs of the panel to find the approximate location to install the **ENTRY SHEAR DIES**. Hold them in place with the "C" bolts but do not tighten them yet.
3. Start up the machine and carefully jog the material forward while looking through the dies. If it looks like the panel will hit the dies, shut off the machine and lock it out, then adjust the dies as necessary so the panel goes through cleanly.
4. Continue jogging the panel forward until it is about an inch or two past the shear dies, then shut off the machine and lock out the machine.
5. Adjust the **Entry Shear Dies** until they are about 1/32" away from the outside of the vertical leg of the panel, as shown in the figure for your panel found on Pages 43-47. Tighten the "C" bolts.
6. If the Entry Shear Die has a **Mandrel**, it should be positioned as shown in the figure for your panel on Pages 43, 46, and 47. If necessary, loosen the "E" bolts and adjust the Mandrels. Retighten the "E" bolts.
7. Install the **Exit Shear Dies** and adjust them so they are about 1/32" to the outboard of the Entry Shear Dies, as shown in the figure for your panel found on Pages 43-47. Tighten the "C" bolts.
8. Adjust the **Mandrel** on the Exit Shear Die as needed, if it has one.
9. In order to cut properly, the **Top Blades** need to be positioned so that one of the #2 Blade tips is just to the inside of the male leg, as shown in Figure 32-Figure 41 and also the tip of the #1 blade is positioned to the inside of the female leg as shown in Figure 32-Figure 41. The rake or angle of the blades should cut in a scissor action outward against the legs. If necessary, loosen the 7 "D" bolts and move the Top Blades left or right to get them in the correct position. Retighten the bolts.

10. Start the machine and shear off a piece of panel about 12 inches long, then jog the material forward a few inches. Make sure the panel is not scraping on the shear dies, and inspect the quality of the cut on both sides. If any corrections need to be made, shut off the machine and lock it out, then adjust the shear dies as needed.

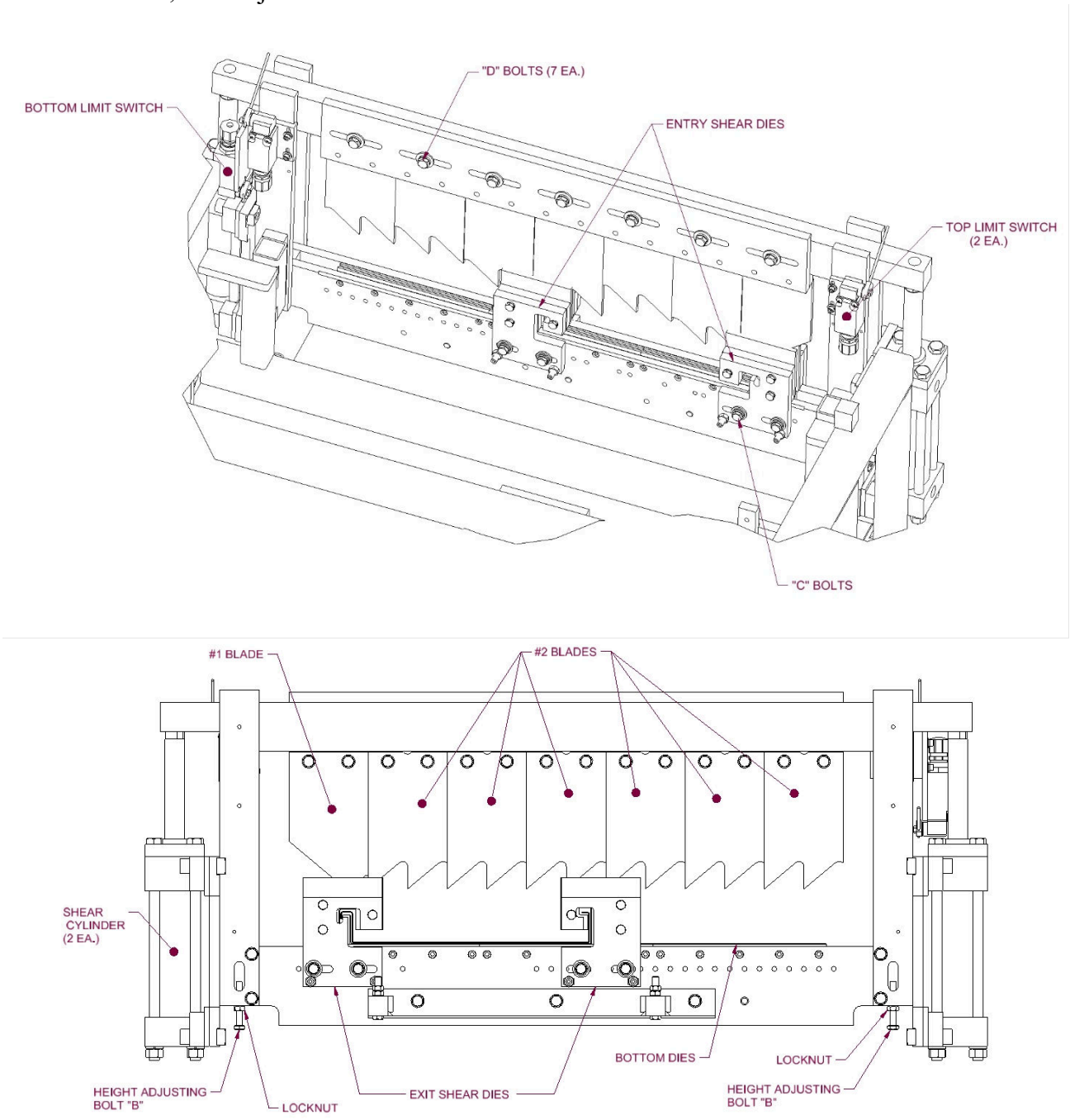


Figure 31: Entry/Exit Views

CHAPTER 9

SHEAR ASSEMBLY

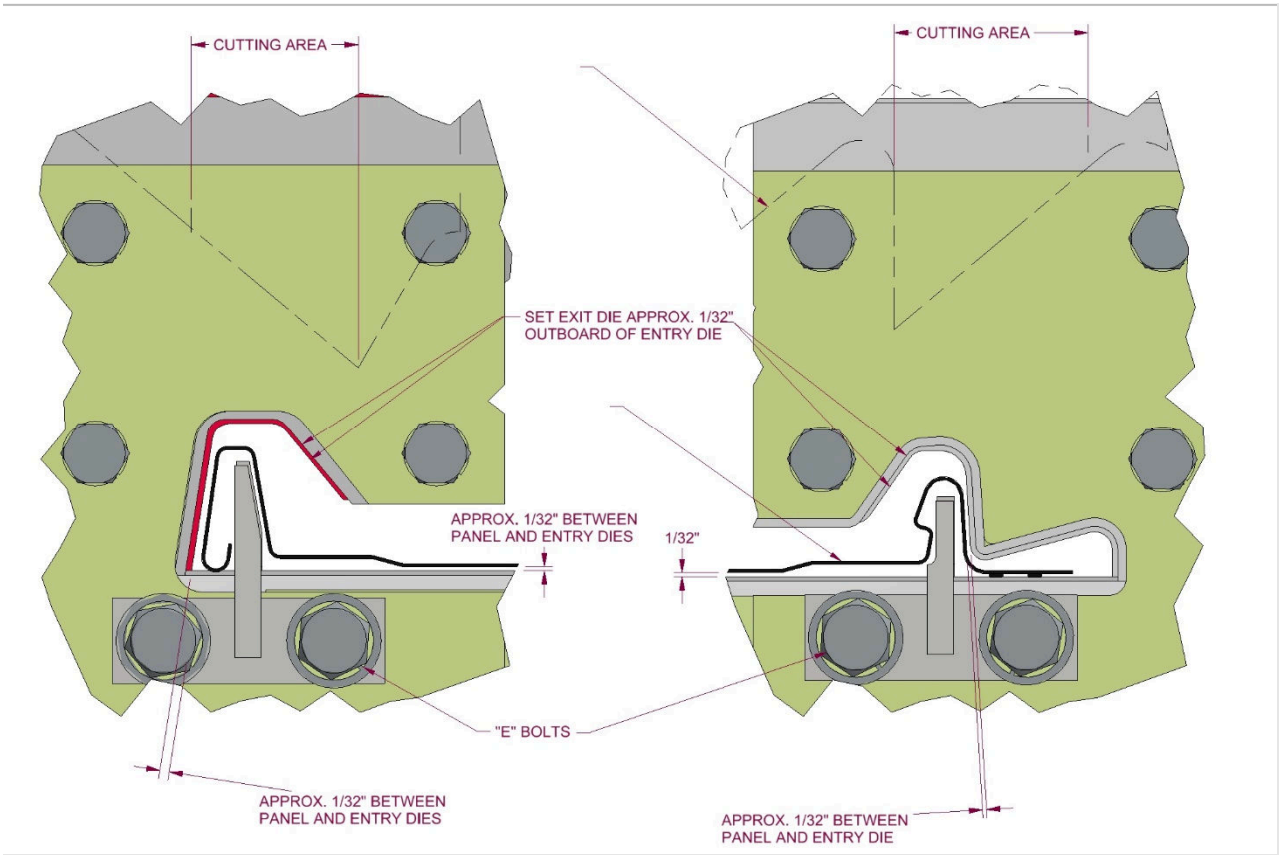


Figure 32: FF100 Shear Dies

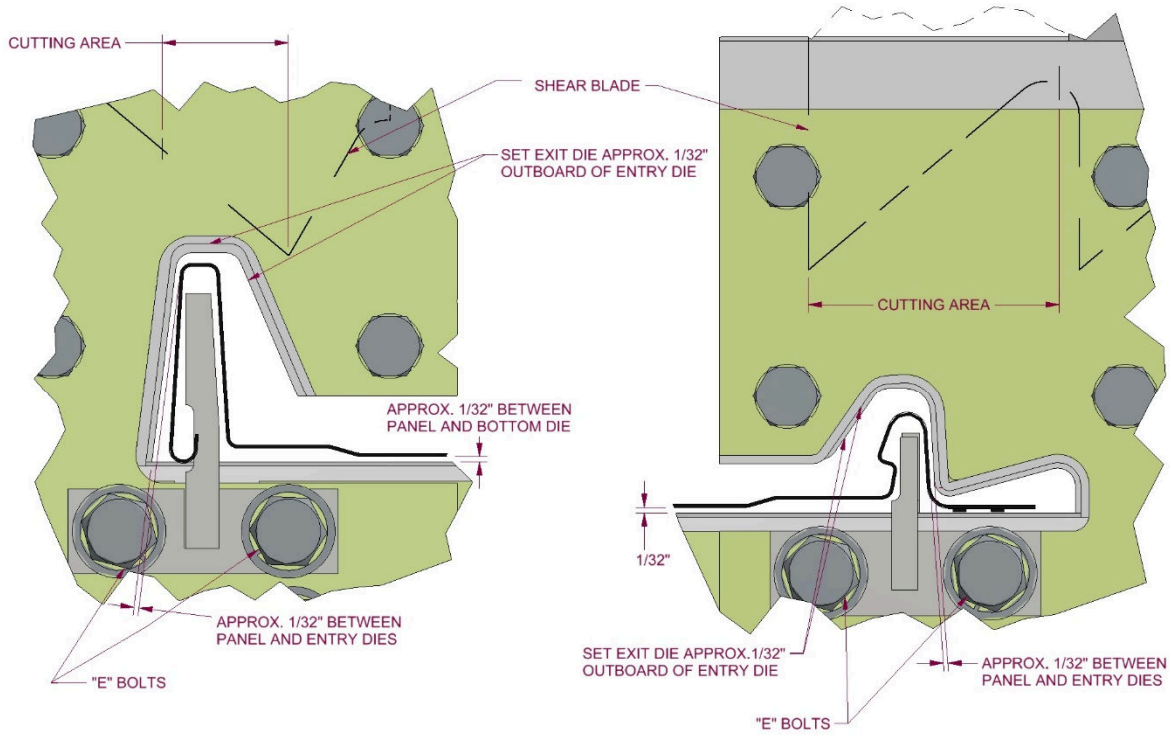


Figure 33: FF150 Shear Dies

CHAPTER 9

SHEAR ASSEMBLY

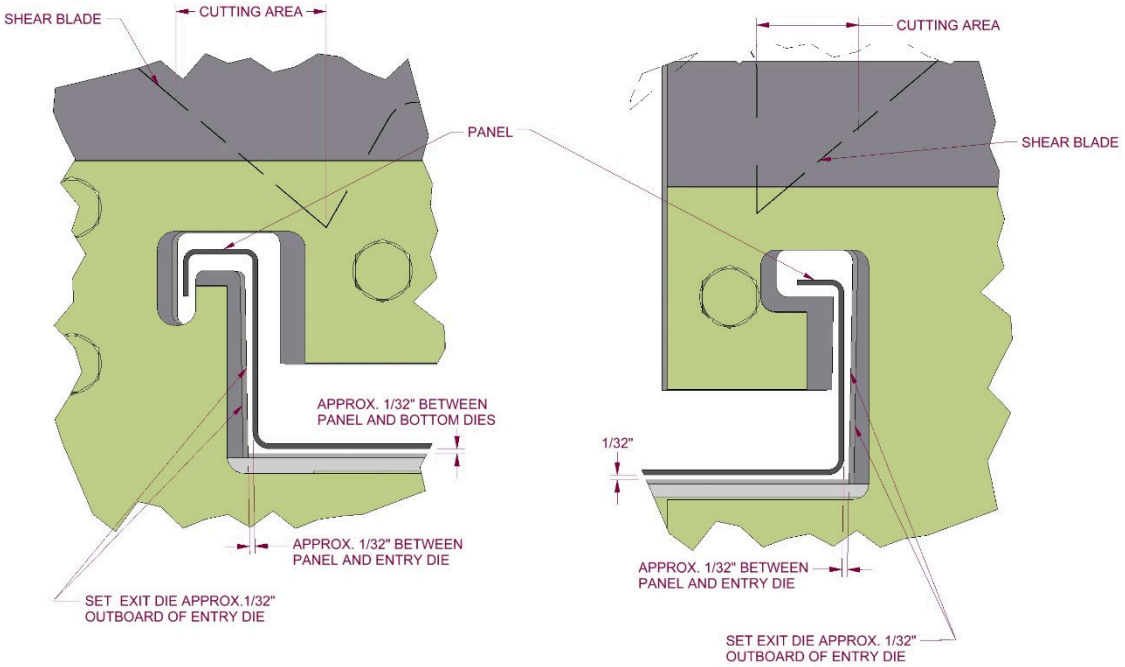


Figure 34: SS100 / 150 Shear Dies

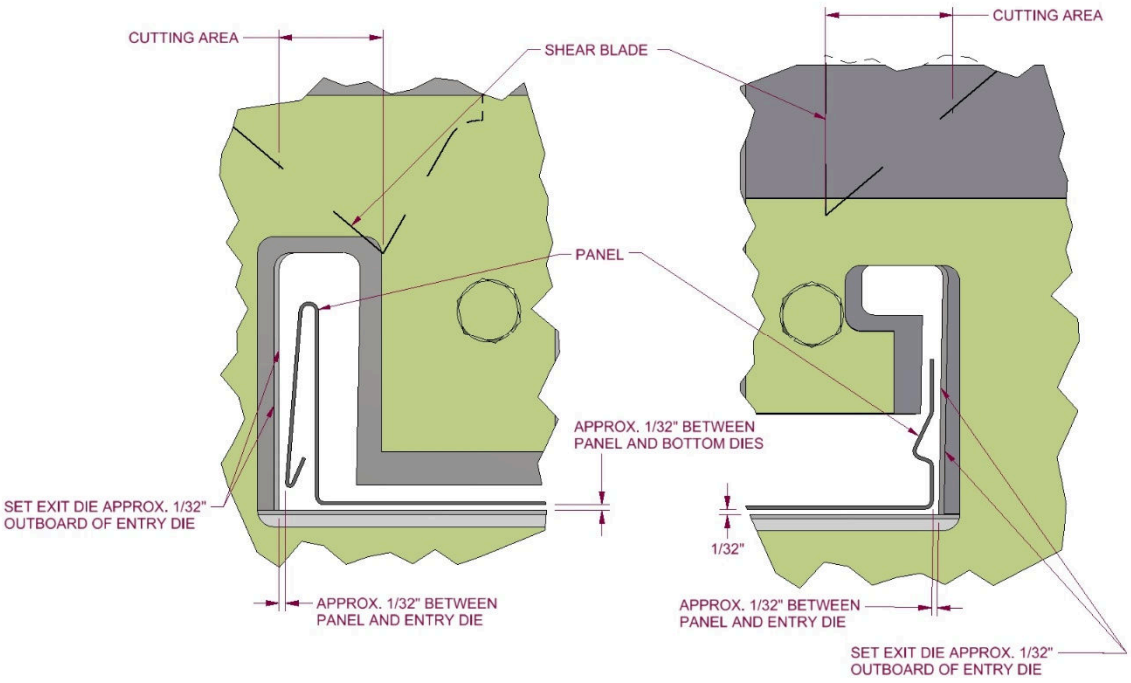


Figure 35: SS450 Shear Dies

CHAPTER 9

SHEAR ASSEMBLY

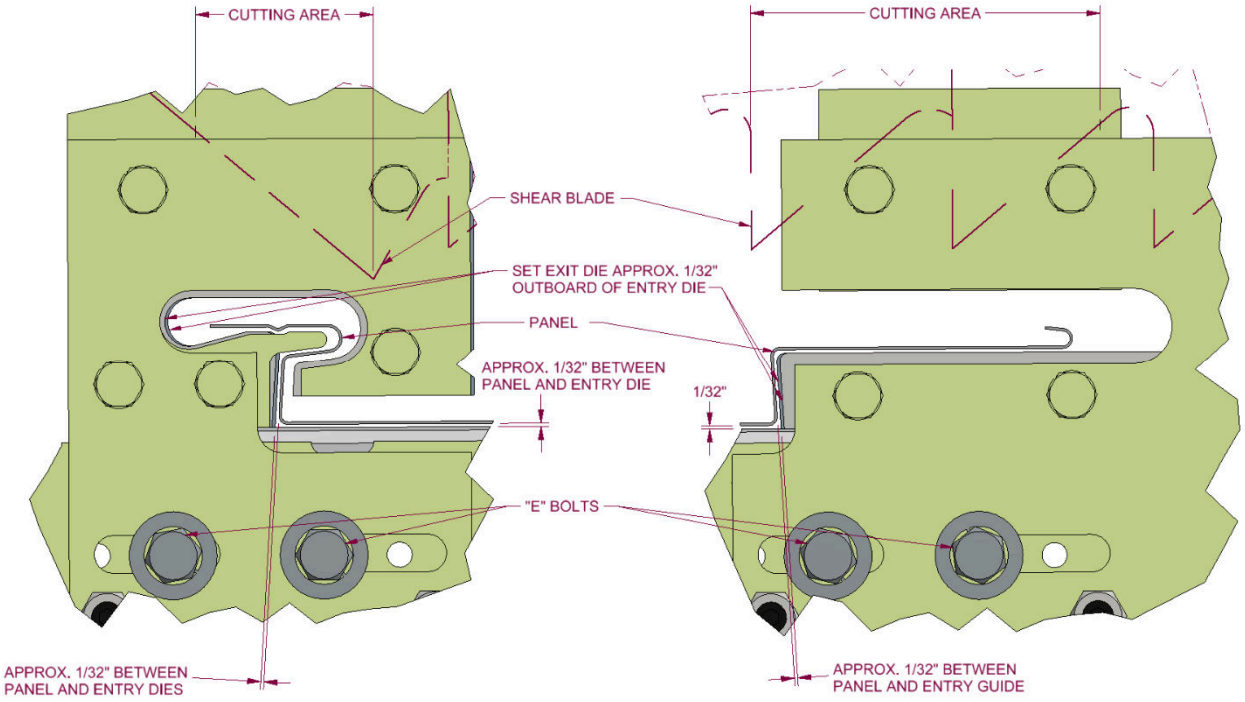


Figure 36: FWQ100 / FWQ150 Shear Dies

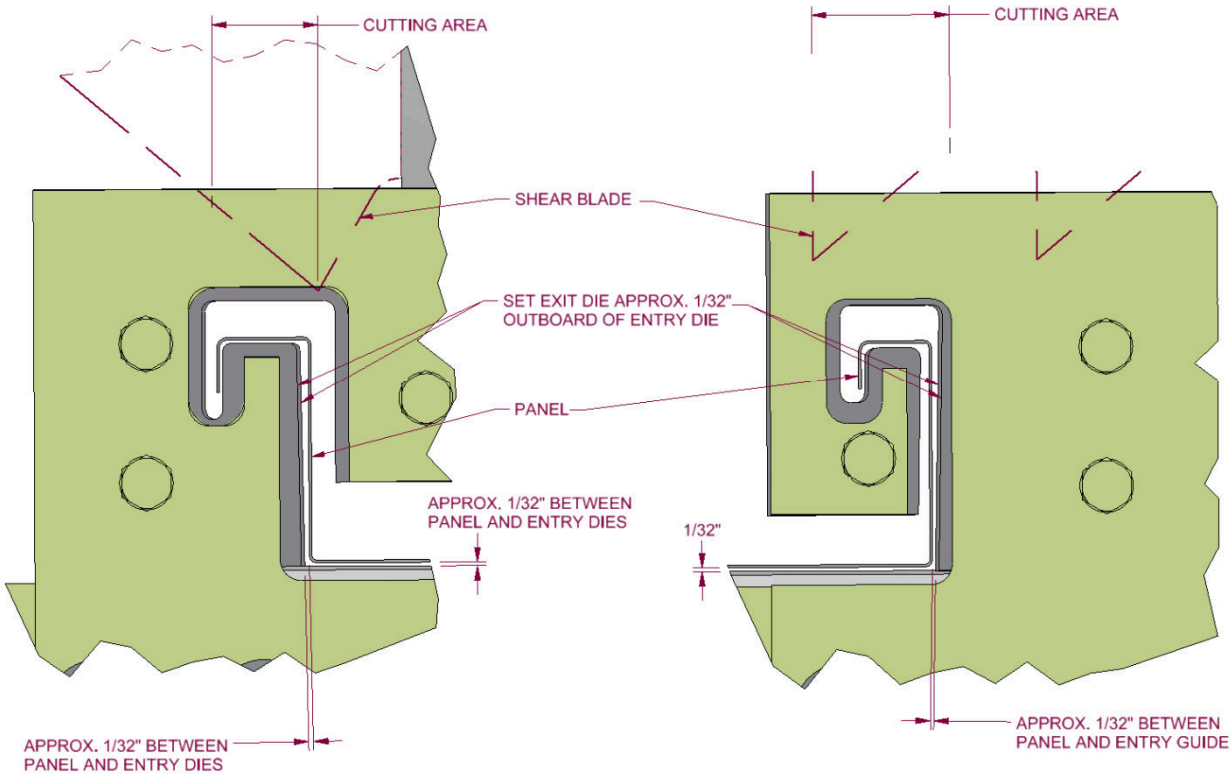


Figure 37: SS200 / SS210A Shear Dies

CHAPTER 9

SHEAR ASSEMBLY

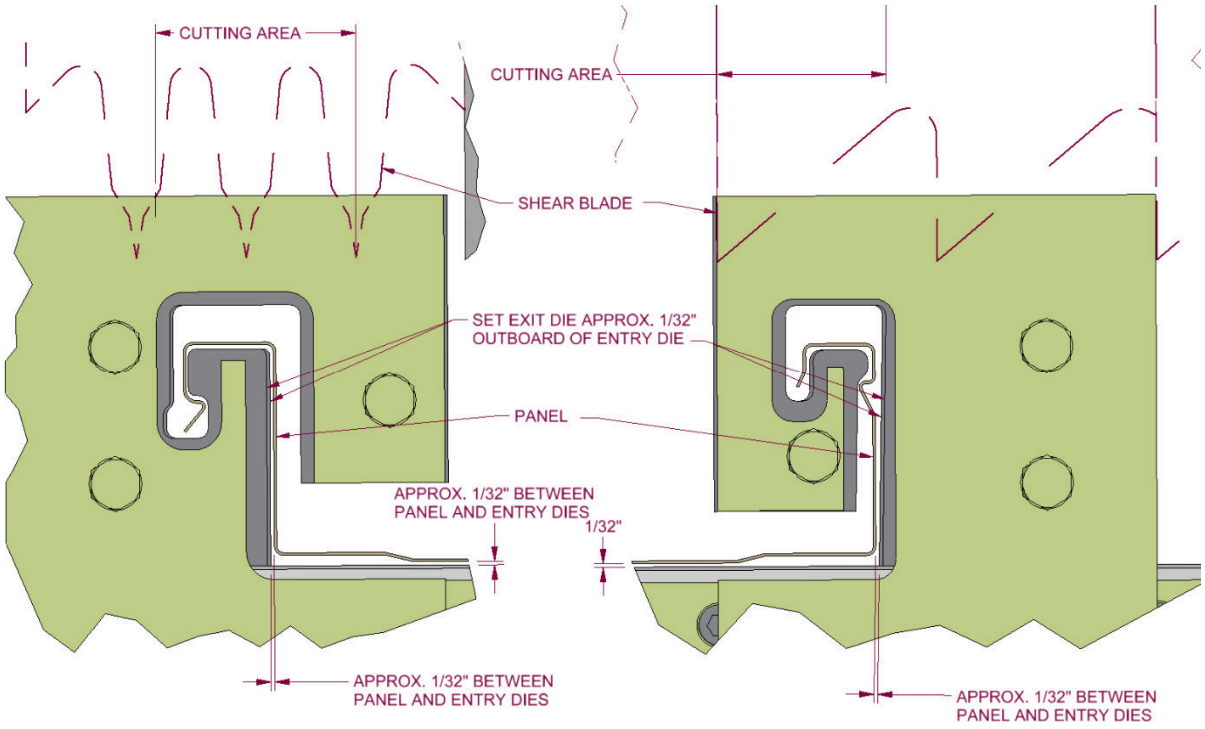


Figure 38: SS275 Shear Dies

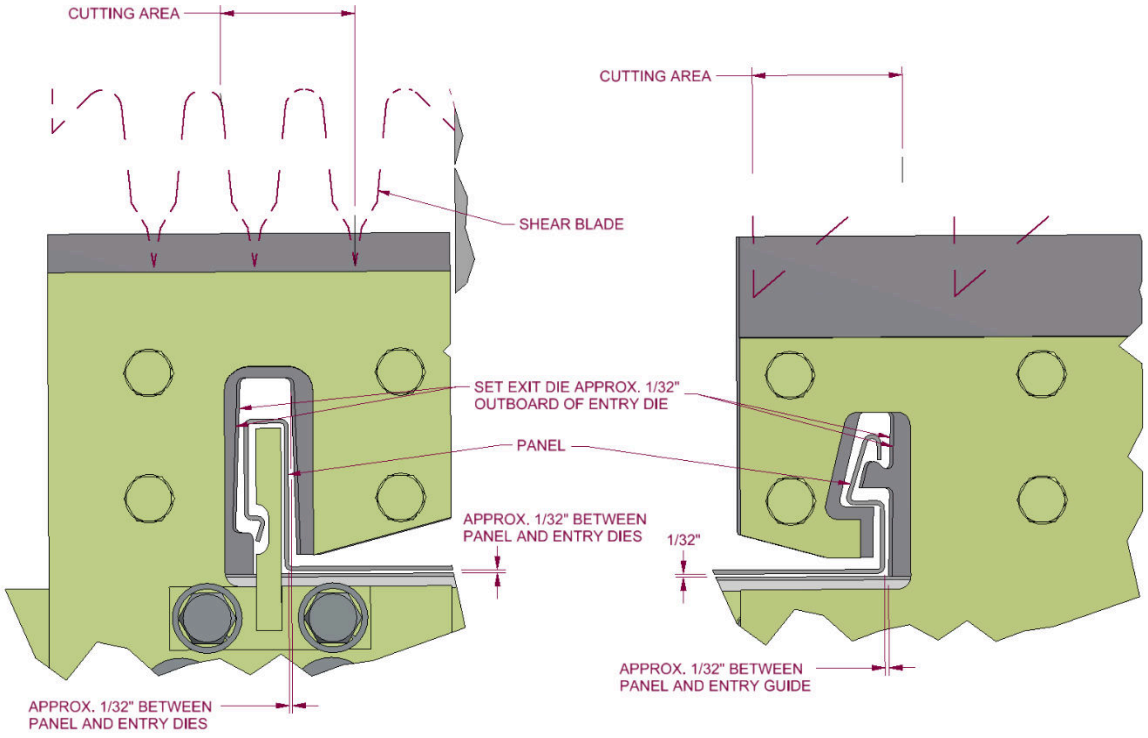


Figure 39: SS550 Shear Dies

CHAPTER 9

SHEAR ASSEMBLY

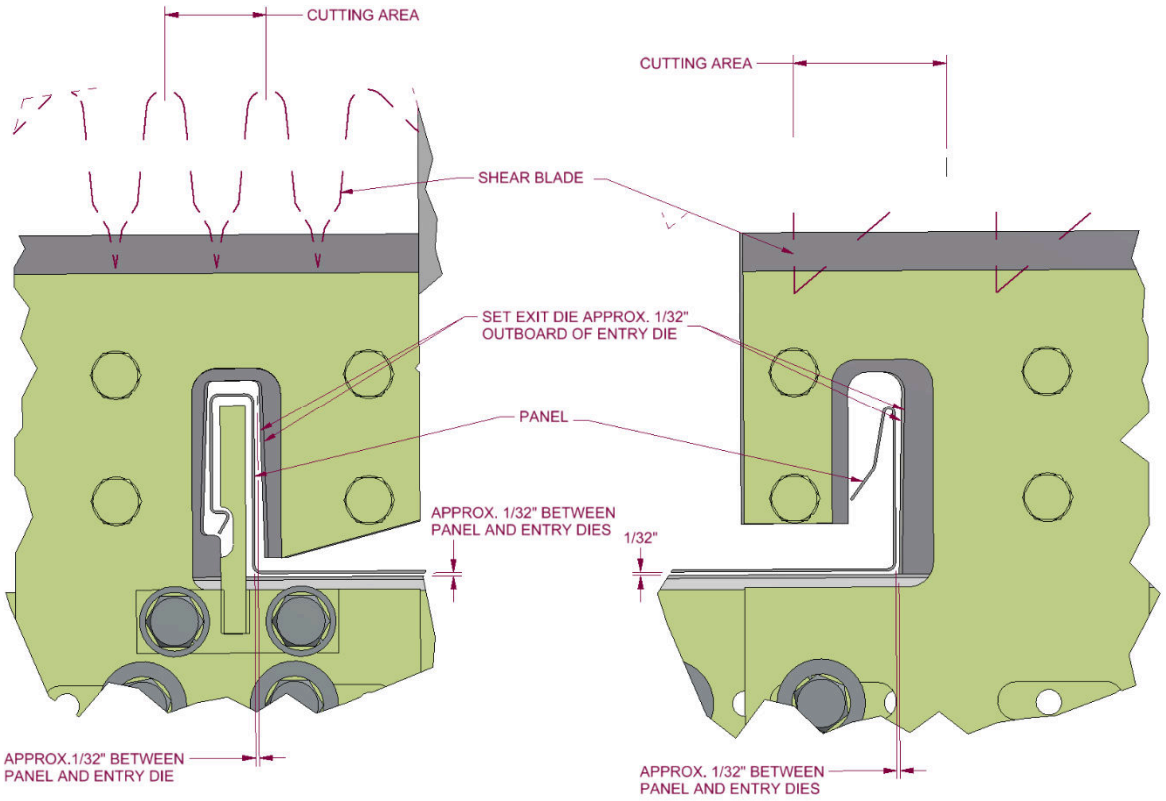


Figure 40: SS675 Shear Dies

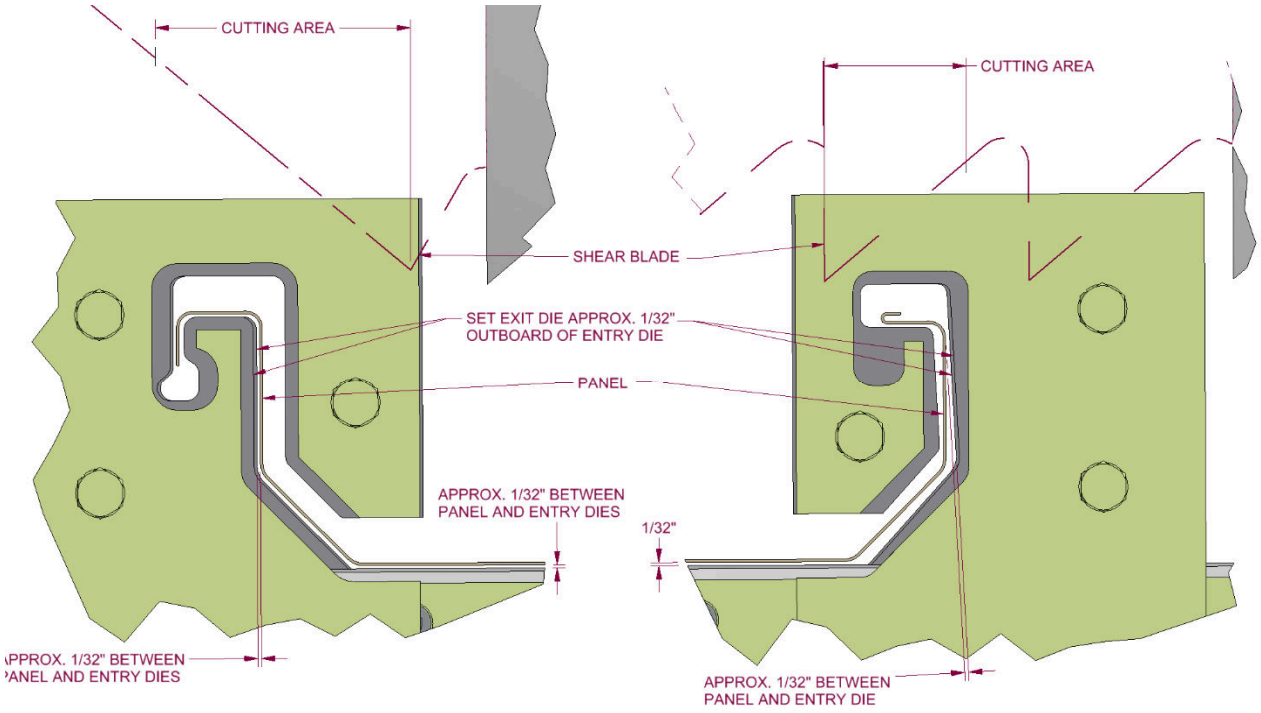


Figure 41: TRQ250 Shear Dies

CHAPTER 9

SHEAR ASSEMBLY

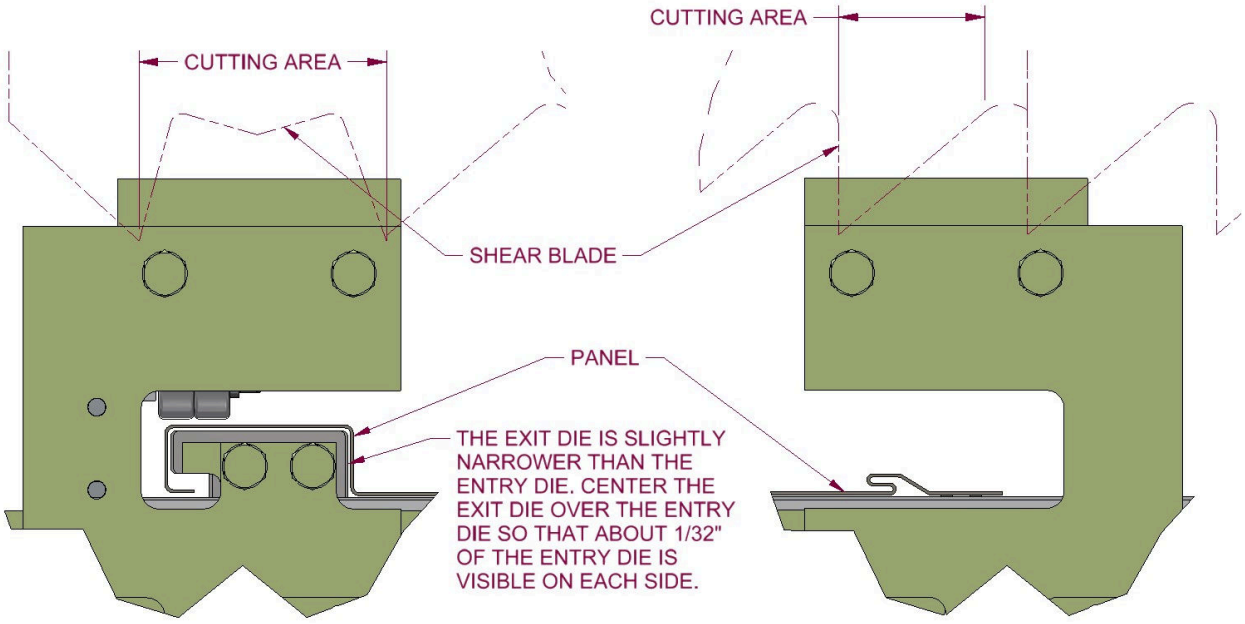


Figure 42: BB750 Shear Dies

MAINTENANCE

1. Clean and lubricate the Top Blades, Bottom Dies, and Male/ Female dies at least once a day during normal use, or whenever cutting surfaces look dry. Proper lubrication is essential to clean cuts, rust prevention, and longevity.

Super Lube - Multi-Purpose Synthetic Aerosol Lubricant with Syncolon (PTFE)
NTM PN: LUBE-SPRAY - 11oz can

CHAPTER 10

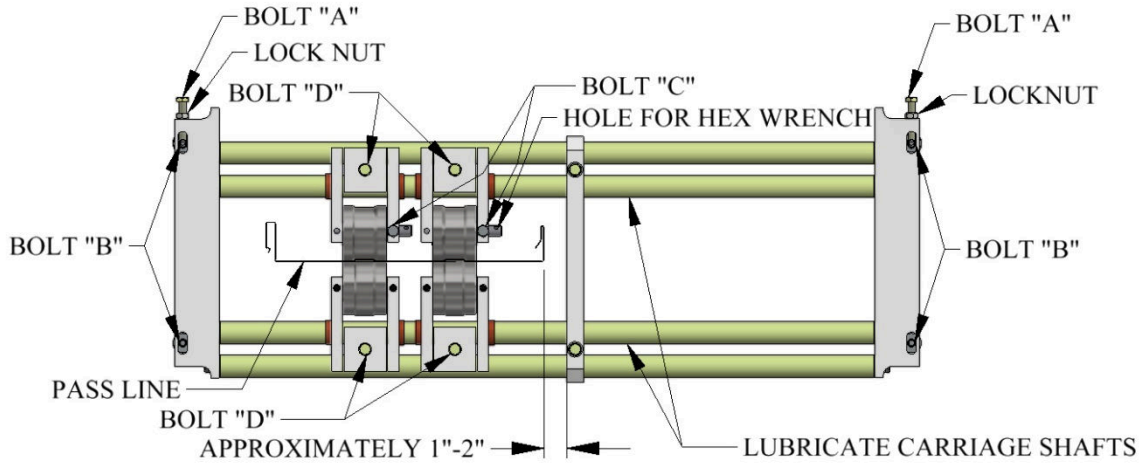
BEAD ROLLER ASSEMBLY

BEAD ROLLER ASSEMBLY

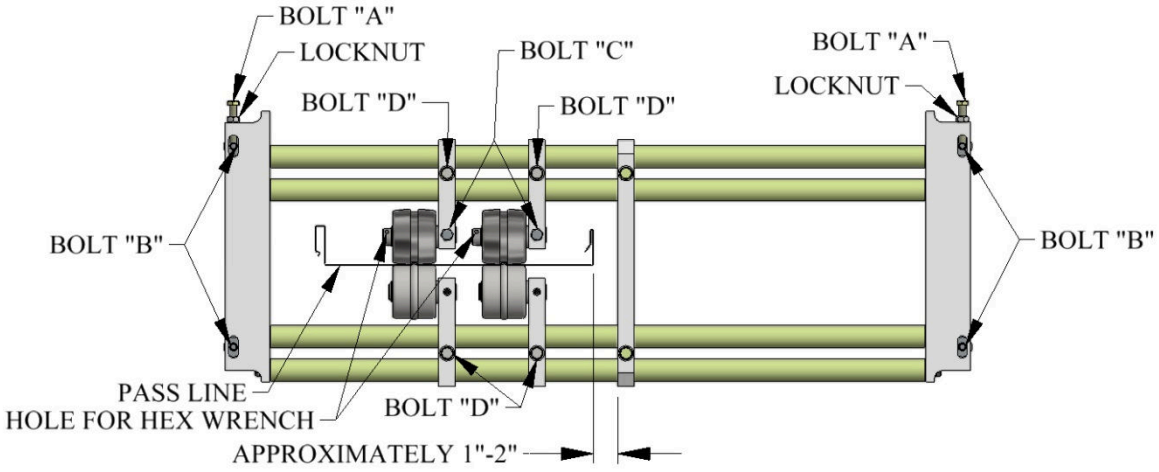
1. The Bead Roller assembly is located behind the shear and is accessed by removing top cover #3. These rollers can be engaged or disengaged as needed and can also be moved left or right to accommodate different panel widths.
2. The bottom bead forming roller should be set 1/32" above the drive roller to ensure proper entry into the shear. If adjustment is necessary, loosen the four frame mount bolts "B", and lock nuts on the two vertical adjustment bolts "A". Raise or lower the roller assembly by using the vertical adjustment bolts "A" to obtain the proper height. Then re-tighten the mount bolts and lock nuts on the two adjustment screws "A".
3. Next loosen the eccentric shaft lock down screw "C". Place a 5/32" Allen Wrench in the small hole at the end of the eccentric shaft, and rotate the top roller up until it clears the bottom roller. Loosen the two top and two bottom slide lock down screws "D". Bring the panel material up to the rollers but not past them. **SHUT OFF THE MACHINE AND LOCK IT OUT BEFORE CONTINUING.**
4. Locate the bottom rollers to the desired position by sliding the assembly on the bottom slide bars. Tighten the bottom slide lock-down screws "D". Restart the machine and back up the panel until access is gained to the top slide lock-down screws. **SHUT OFF THE MACHINE AND LOCK IT OUT BEFORE CONTINUING.**
5. Loosen the top slide lock-down screws, and slide them into position so the top roller is directly over the bottom roller. Tighten the top slide lock-down screws "D". Next rotate the eccentric shaft down to the desired bead depth. **DO NOT** go below .045" minimum clearance; excessive bead depth will distort the panel. Re-tighten screws "C".
6. Keep slide bars lightly greased to allow bead or striation assemblies to slide smoothly.

CHAPTER 10

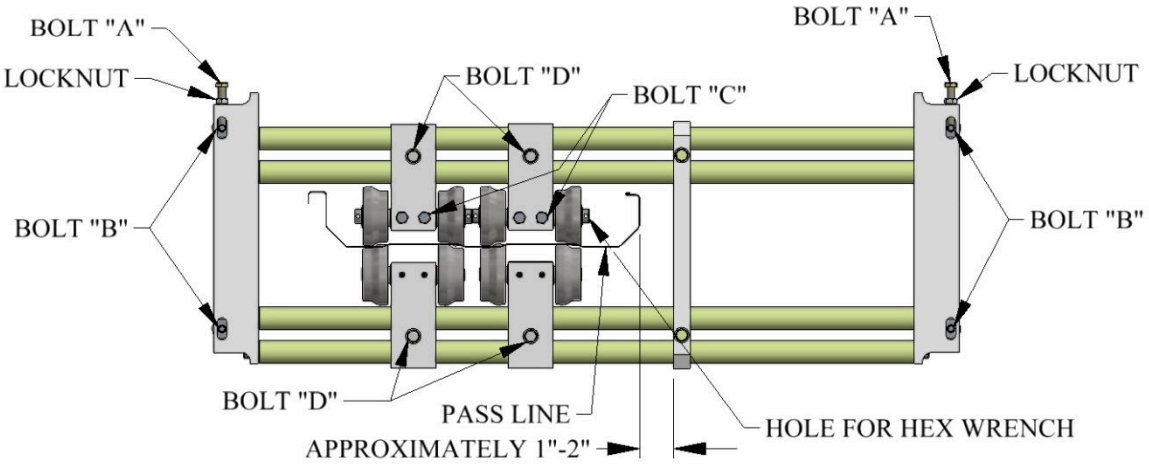
BEAD ROLLER ASSEMBLY



RR1, RR2, RR3, RR7



RR4, RR5



RR12

Figure 43: Bead Roller Assembly

CHAPTER 10

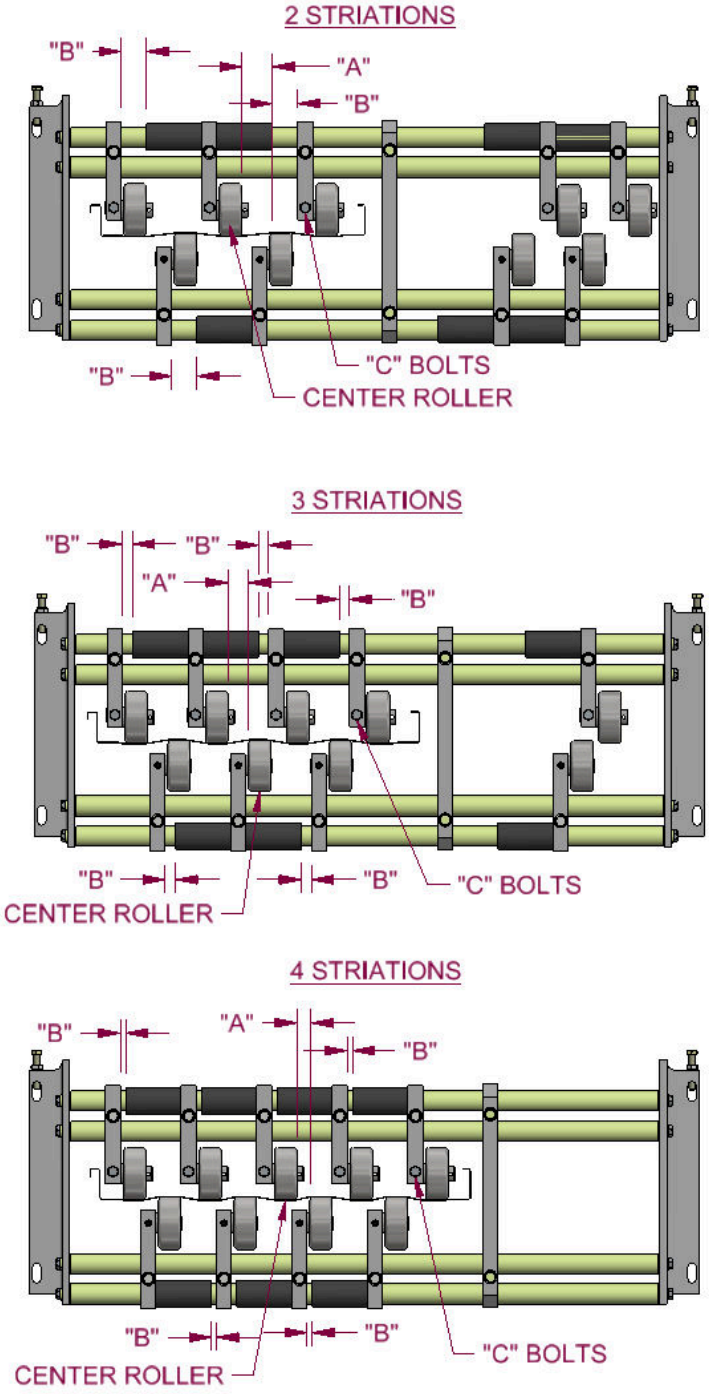
BEAD ROLLER ASSEMBLY

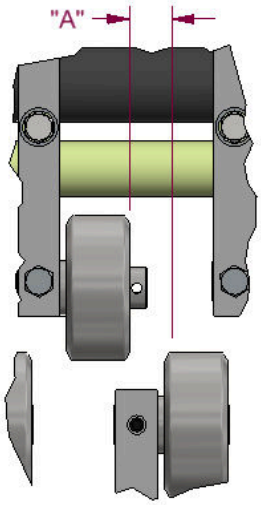
Striation Roller Adjustment

1. Jog the panel through the machine and stop a few inches before the striation rollers.
2. Measure the width of the panel and mark the center with a marker.
3. Look up your panel width in the striation spacing chart to determine if you need 2, 3, or 4 striations.
4. Referring to Figure 44, align the middle of the center roller with the center mark on the panel.
5. Position the remaining striation rollers as shown in Figure 44, using the “A” and “B” dimensions found in the striation chart.
6. Position the Stiffener Bars an inch or two outside of the panel as shown.
7. Jog the panel a few inches past the striation rollers and check if the striation appearance is acceptable. If not, adjust the positions of the striation rollers as needed. The striation depth can be adjusted by loosening the “C” bolts and rotating the eccentric shafts.

CHAPTER 10

BEAD ROLLER ASSEMBLY





2 STRIATIONS		
Panel Coverage	"A" Dimension	"B" Dimension
12" to 12-15/16"	1-1/8"	3/4"
13" to 13-15/16"	1-3/8"	1-1/4"

3 STRIATIONS		
Panel Coverage	"A" Dimension	"B" Dimension
14" to 14-11/16"	3/4"	0"
14-3/4" to 15-7/16"	7/8"	1/4"
15-1/2" to 16-3/16"	1"	1/2"
16-1/4" to 16-15/16"	1-1/8"	3/4"
17" to 17-11/16"	1-1/4"	1"

4 STRIATIONS		
Panel Coverage	"A" Dimension	"B" Dimension
17-1/2" to 18-7/16"	3/4"	0"
18-1/2" to 19-7/16"	7/8"	1/4"
19-1/2" to 20-7/16"	1"	1/2"
20-1/2" to 21-7/16"	1-1/8"	3/4"
21-1/2" to 22-7/16"	1-1/4"	1"
22-1/2" to 23-7/16"	1-3/8"	1-1/4"
23-1/2" to 24"	1-1/2"	1-1/2"

Figure 44: Striation Spacing Chart

CHAPTER 11

ENTRY GUIDE ASSEMBLY

ENTRY GUIDE ADJUSTMENT

(Figure 45 & Figure 46)

The entry guides are used to set the material to the correct position in relation to the forming rollers of the machine. They also hold the material and feed it straight into the machine. If the entry guides are not set correctly the material will not feed into the machine properly.

1. The Right Entry Guide is set to the Tooling Rail Marker Plate mounted to the R1 Tooling Rail.
2. To align, loosen the Lock Down Handle on the Right Entry Guide (Figure 45). Slide the entry guide to the left or right until the Entry Guide Alignment Notch is directly under one of the notches on the Tooling Rail Marker Plate. Make sure to choose the notch on the Marker Plate that corresponds to the desired leg configuration as noted on the decal on the top of the Marker Plate. (Figure 46)

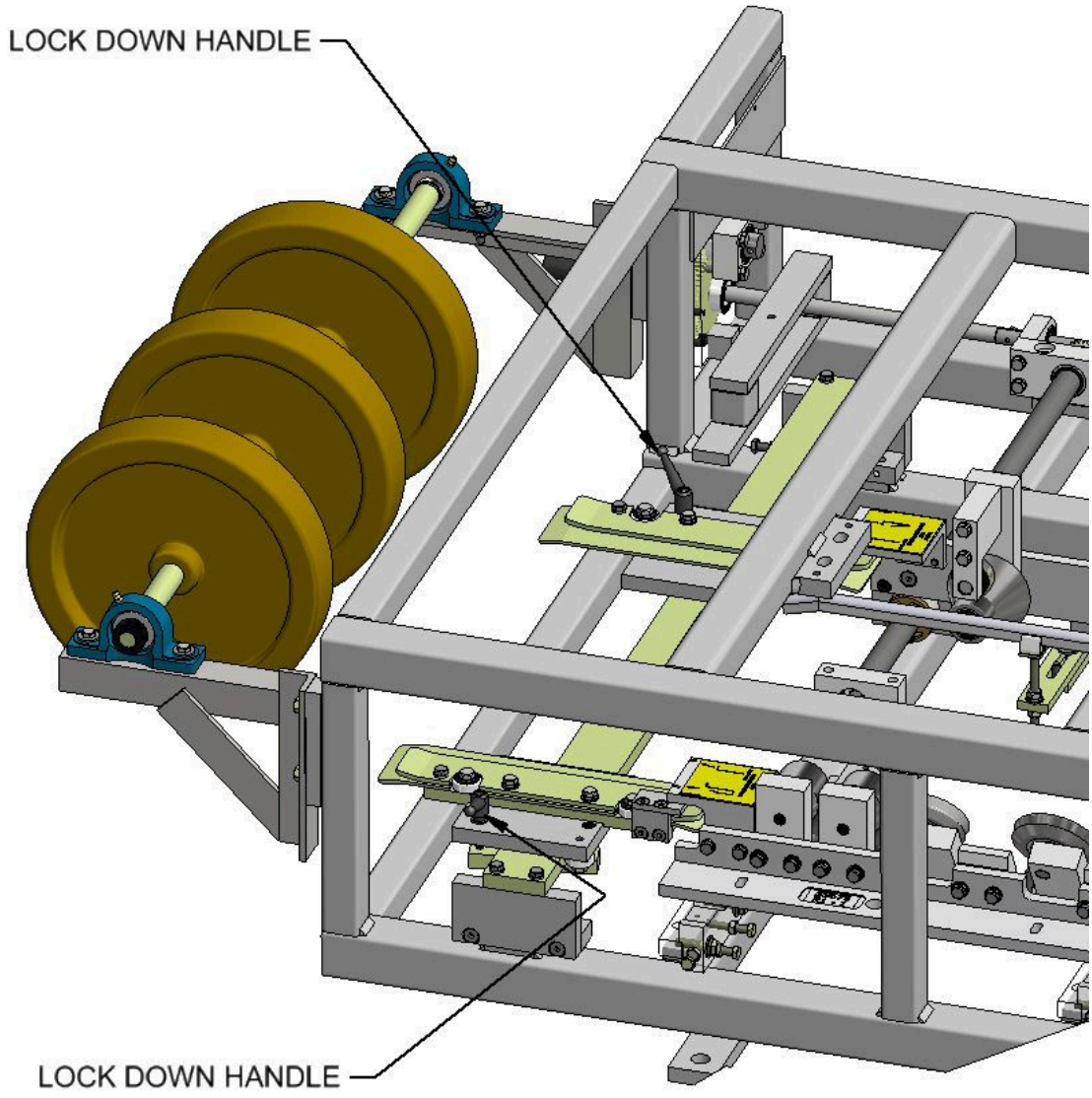


Figure 45: Entry Guide Lock Down Handles

3. Tighten the Lock Down Handle on the right entry guide.

4. Loosen the Lock Down Handle on the left entry guide.
5. Cut a 12” long piece of gage material from the coil that will be used in the machine.
6. Slide gage material between the left and right entry guides.
7. Slide the Left Entry Guide to the left or right to accept the new coil width. Make sure that the material is captured snugly between the entry guides and re-tighten the Lock Down Handle.

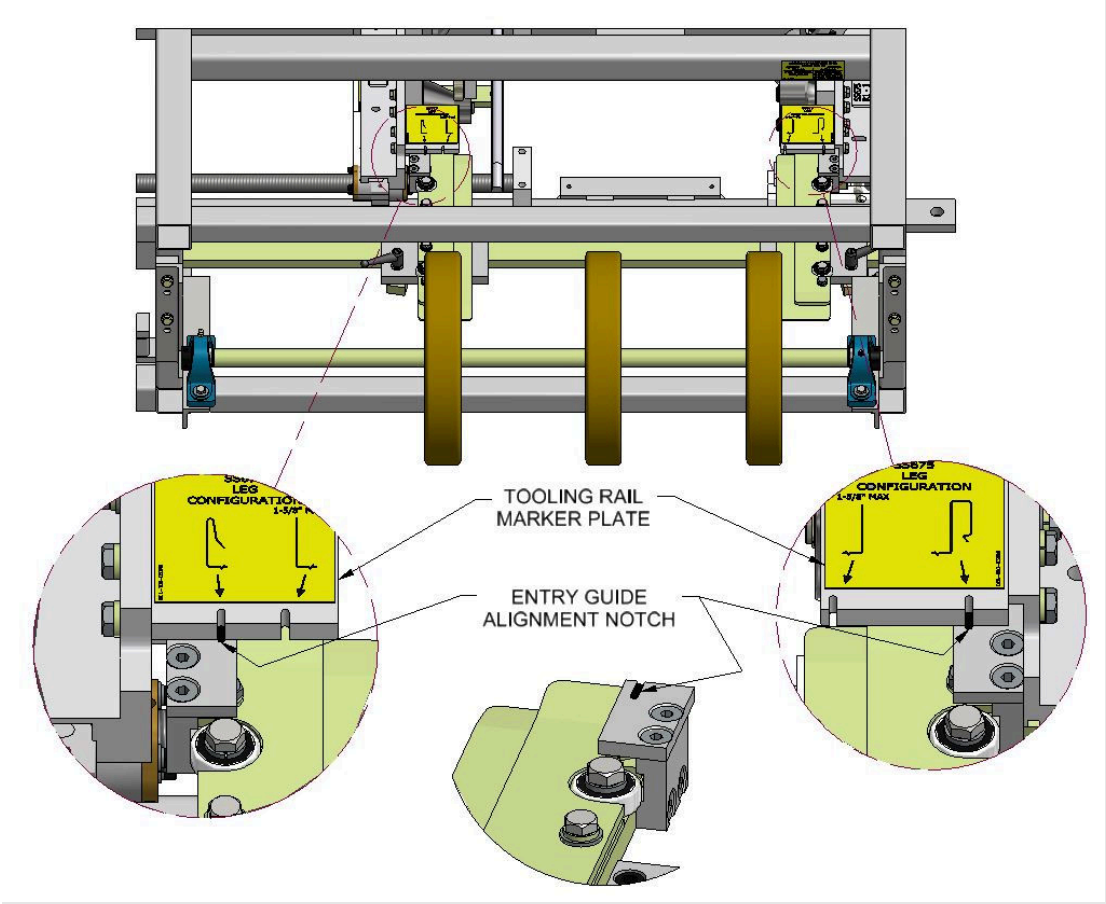


Figure 46: Entry Guide Alignment

LEFT TOOLING RAIL TO ENTRY GUIDE ALIGNMENT

(Figure 47 to Figure 49)

The Tooling Rail Adjustment Handle is used to move the Left Tooling Rails assemblies to the left or right to align them to the Left Tooling Rail Marker Plate whenever a width change or tooling change has been made.

1. Using the Tooling Rail Adjustment Handle (Figure 47) align the notch on the tooling rail marker plate to the alignment notch located on the Left Entry Guide. The Tooling Rail Adjustment Handle is spring loaded to allow it to disengage from the width adjustment gear (Figure 48). Press the handle inward (Figure 49) to engage the width adjustment gear and turn the handle clockwise to move the tooling outward or counter-clockwise to move it inward. Make sure to choose the notch on the marker plate that corresponds to the desired leg configuration as noted on the decal on the marker plate.

CHAPTER 11

ENTRY GUIDE ASSEMBLY

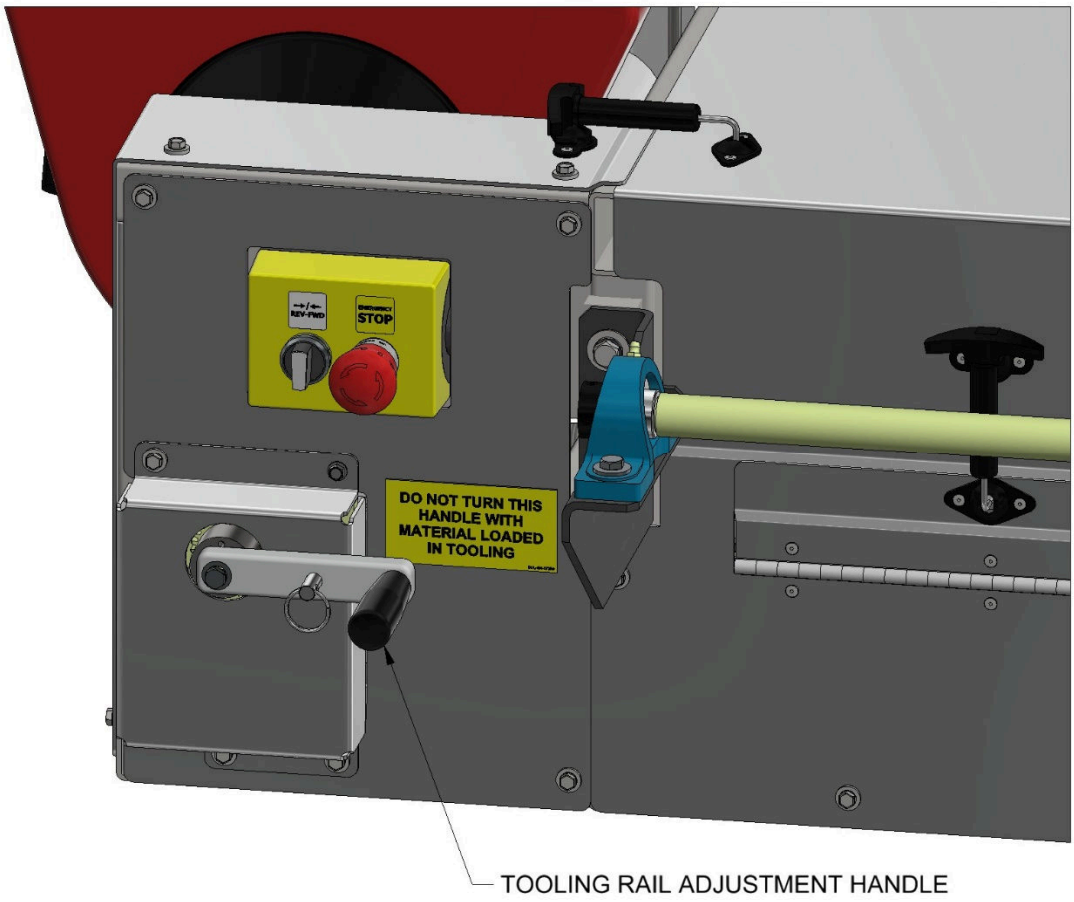


Figure 47: Tooling Rail Adjustment Handle

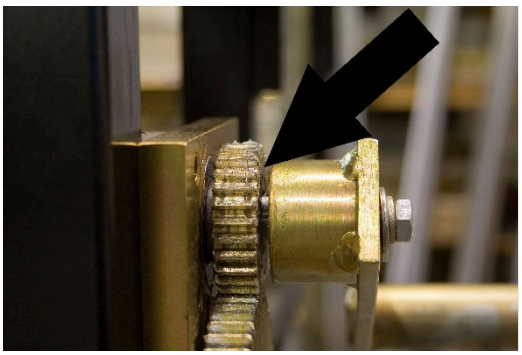


Figure 48: Disengaged

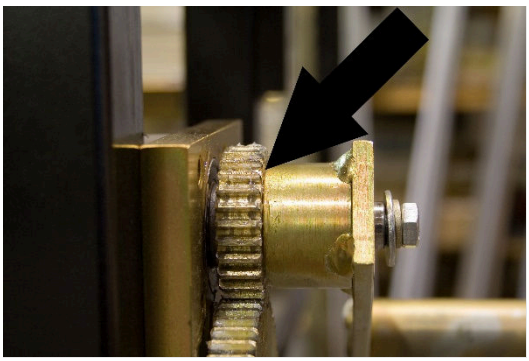


Figure 49: Engaged

CLIP RELIEF ROLLER ASSEMBLY

Clip Relief Rollers (Figure 50) provide a raised area next to the male and female legs of the panel. This helps hide the clip and screws used in installation. The rollers can be engaged or disengaged as needed. Refer to the Tooling Rail Sheet corresponding to the profile installed in the machine to find the location of the Clip Relief stations (Figure 92 - Figure 118).

To engage the clip relief rollers, loosen lock down screw “A” and insert a 5/32” Allen wrench into the small hole on the top eccentric shaft “B”. Rotate the eccentric shaft to engage or disengage the top roller assembly from the bottom roller assembly. Adjust both left and right bead assemblies to the desired depth using a feeler gage and retighten the screw. The recommended factory setting is 0.080 inches gap between top and bottom rollers.

NOTE: The FF100 and FF150 profiles must always be engaged for proper male/female lock to occur.

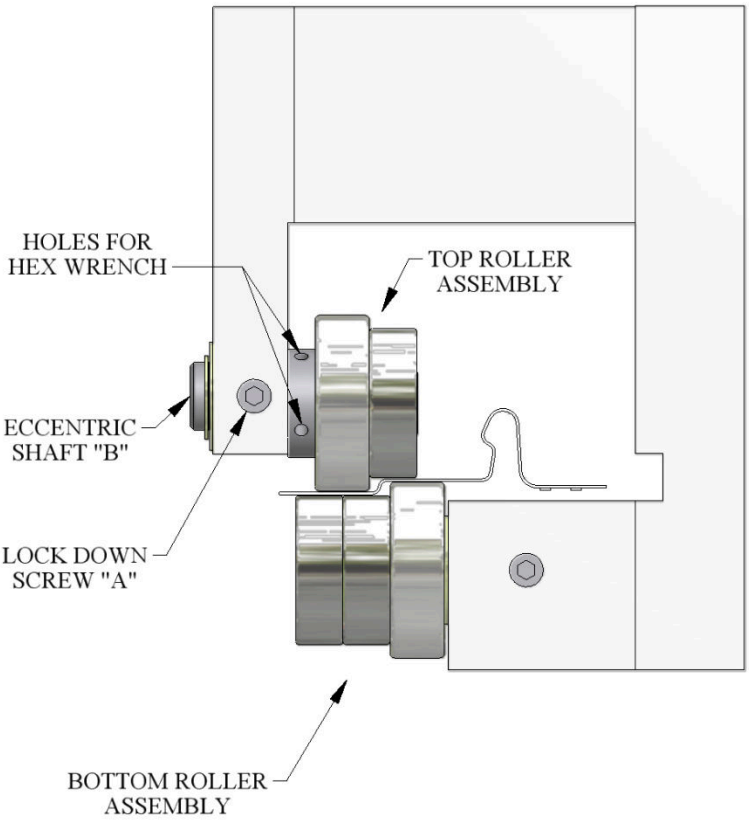


Figure 50: Clip Relief Roller Assembly

CHAPTER 13
PERFORATOR

PERFORATOR

Note: The perforator for the FWQ100 or FWQ150 Roller System is an optional accessory and is not included with these roller sets.

CAUTION

WHEN TRANSPORTING THE MACHINE, THE PERFORATOR ASSEMBLY MUST BE SET TO THE LOCKED POSITION. FAILURE TO DO THIS WILL DAMAGE THE PERFORATOR CUTTERS AND TOP ROLLERS.

PERFORATOR SET-UP

(Figure 51 & Figure 52)

The Perforator has four (4) independent adjustment screws; each set of screws is used to correctly align two critical parameters, the pass-line and the perforator depth for optimal operation.

The pass-line should be a one-time set-up and will be set from the factory. The correct pass-line is achieved when 24ga material is run through the machine and the TOP of the material runs tangent to the bottom of the Top Rollers. Should the perforator's pass-line no longer be set correctly, the Outboard Mounting Plates are used for adjustment. Perform the following:

WARNING: The perforator can crush and sever hands or fingers. Before making any adjustments always turn off and lock out the machine.

ADJUSTING THE PERFORATOR PASS-LINE

1. Loosen Crank Handles so that the lower Male Perforator cutters are disengaged to allow material to pass thru freely.
2. Loosen (do not remove) both Perforator Mounting Bolts "B", located on the Outboard Mounting Plates.
3. With a 1/2" wrench loosen the Lock Nuts (back off 1/4-1/2 of a turn as needed).
4. Turn the Jacking Bolts "A" until the desired height is achieved for the pass-line.
5. Tighten both Perforator Mounting Bolts "B".
6. Tighten both Lock Nuts on the Jacking Bolts "A".

The cutting depth (perforator depth) is an adjustment that will be made at the discretion of the operator. Should a nominal perforation depth setting satisfy all material thicknesses, then no additional adjustments will be needed.

CHAPTER 13

PERFORATOR

ADJUSTING THE PERFORATOR DEPTH

(See Figure 51)

1. Loosen the Crank Handles and push down on both handles to unclamp the perforator assembly.
2. Turn the Depth Adjustment Knobs CW to decrease cutting depth or CCW to increase cutting depth as needed, ¼ turn at a time to achieve the desired cutting depth.
3. Verify that the Top Rollers and Perforator Cutters (dies) are aligned before tightening the Crank Handles. If re-alignment of rollers is need continue with step 5 and 6, otherwise skip to step 7.
4. Using a 5/32 hex wrench, loosen (but do not remove) the Perforator Cutter Set Screws "C" and slide in position to achieve required alignment.
5. Tighten the Perforator Cutter Set Screws "C".
6. Re-tighten the Crank Handles.
7. Run material and check for desired perforation depth.
8. Once a ball-park depth is established, turn the Depth Adjustment Knobs CW/CCW using the "click" to set to final position more accurately.

   NOTE: Before turning the Depth Adjustment Knobs, loosen the Crank Handles.
9. Tighten the Crank Handles.
10. Reposition the two Shaft Supports (will move side-to-side by hand without material in the perforator). The preferred final position is as close to the sides of the top and bottom dies as possible without touching the dies.

ADJUST THE POSITION/SPACING OF THE PERFORATOR CUTTERS

1. Using a 5/32 hex wrench, loosen (but do not remove) the Perforator Cutter and Top Roller Set Screws "C".
2. Slide the Cutter and Roller as a unit(s) to the desired position.
3. Hand tighten the Top Roller Set Screw(s) "C".
4. Verify that the Perforator Cutter(s) are aligned. Re-align as stated above in steps 5, 6, 8 and 11.

CHAPTER 13

PERFORATOR

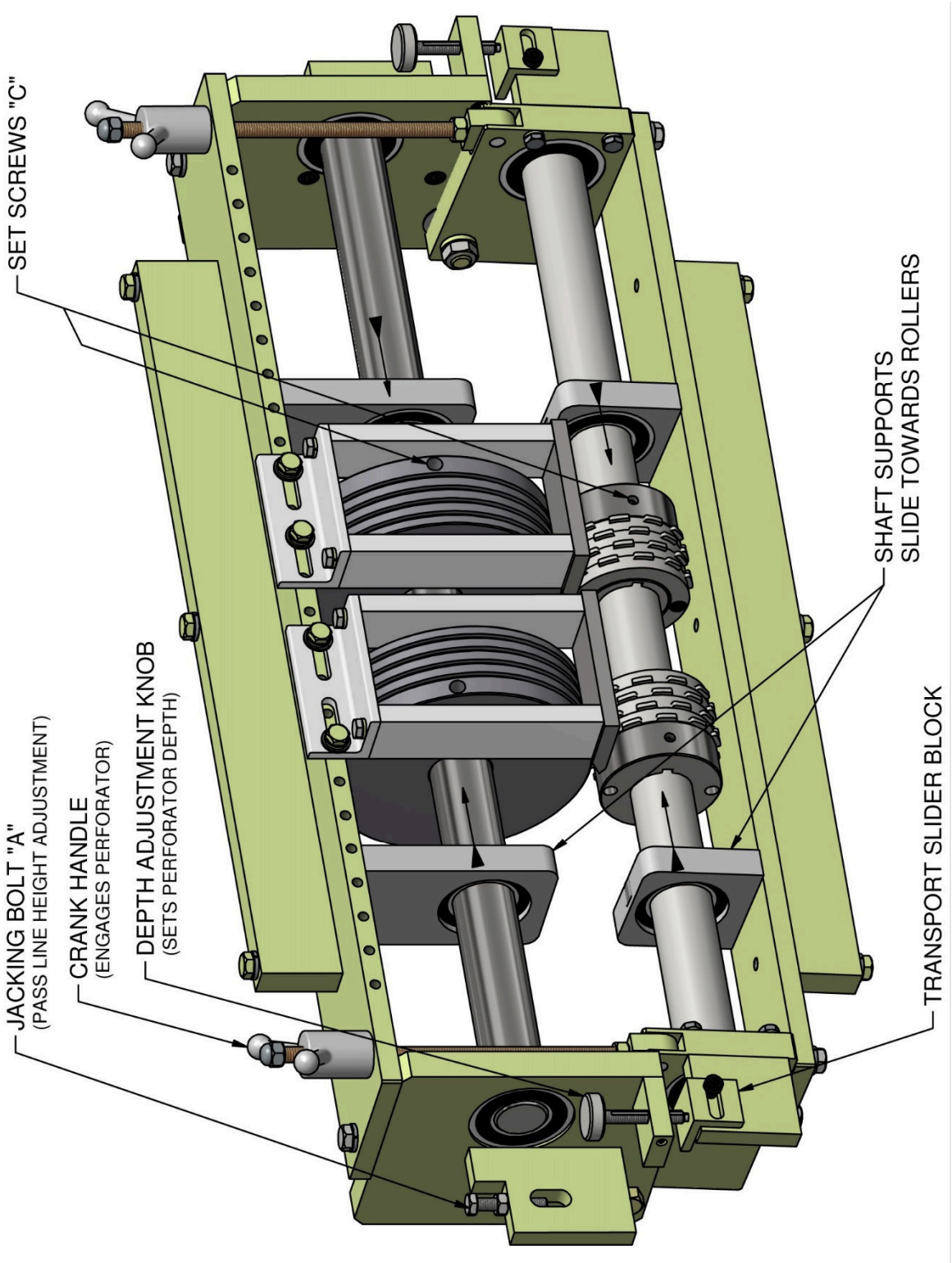


Figure 51: Perforator Assembly

CHAPTER 13

PERFORATOR

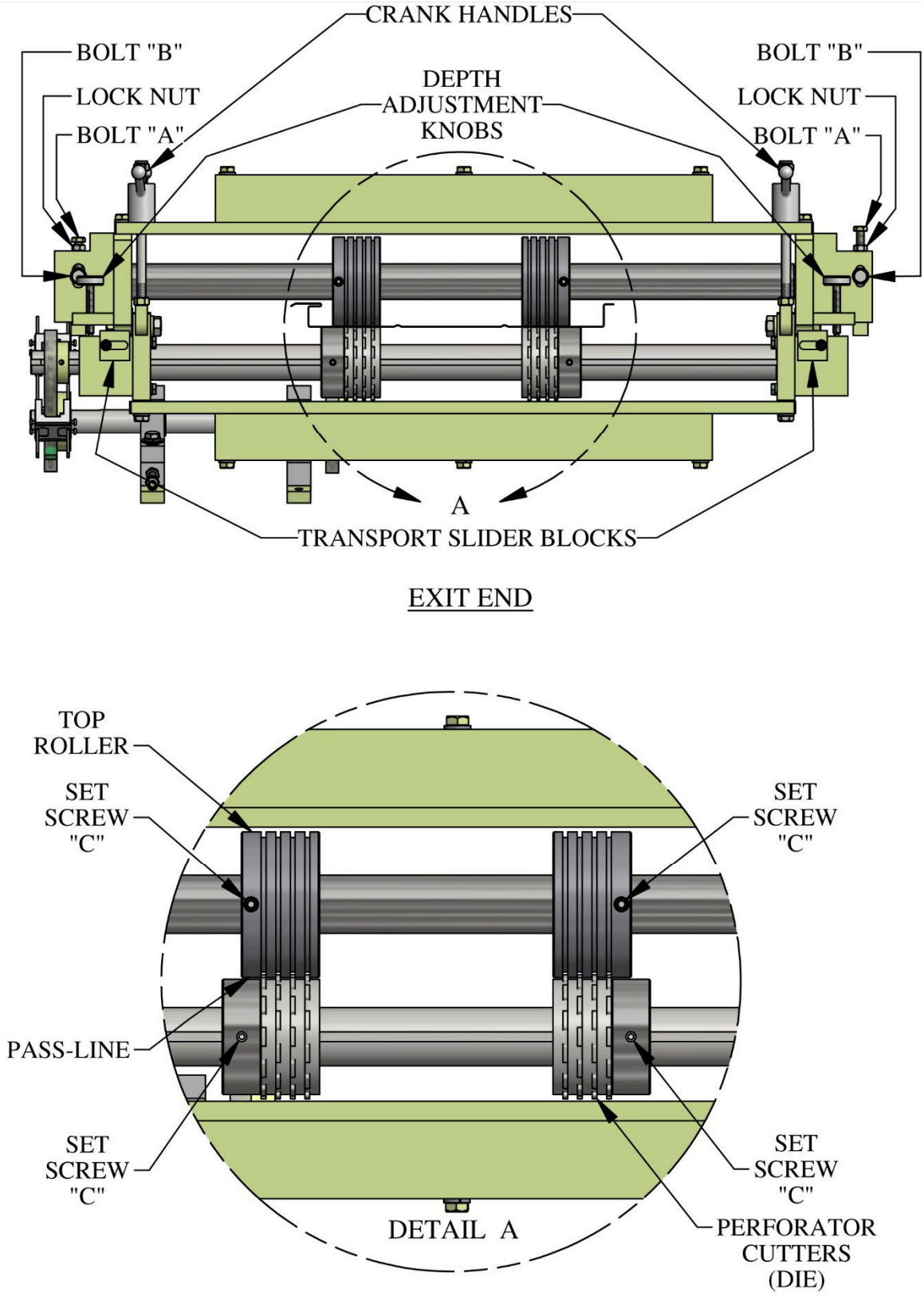


Figure 52: Perforator Adjustment

CHAPTER 13

PERFORATOR

LOCKING THE PERFORATOR FOR TRANSPORTATION

(Figure 53)

1. Turn the Crank Handles to disengage the Perforator Cutters from the Top Rollers as required to slide the Transport Slider Blocks underneath the Depth Adjustment Knobs. **DO NOT** turn the Depth Adjustment Knobs to provide this clearance.
2. Slide the Blocks under the ends of the Depth Adjustment Knobs.
3. Re-tighten the Crank Handles
4. Empty machine of material before transport/storage.

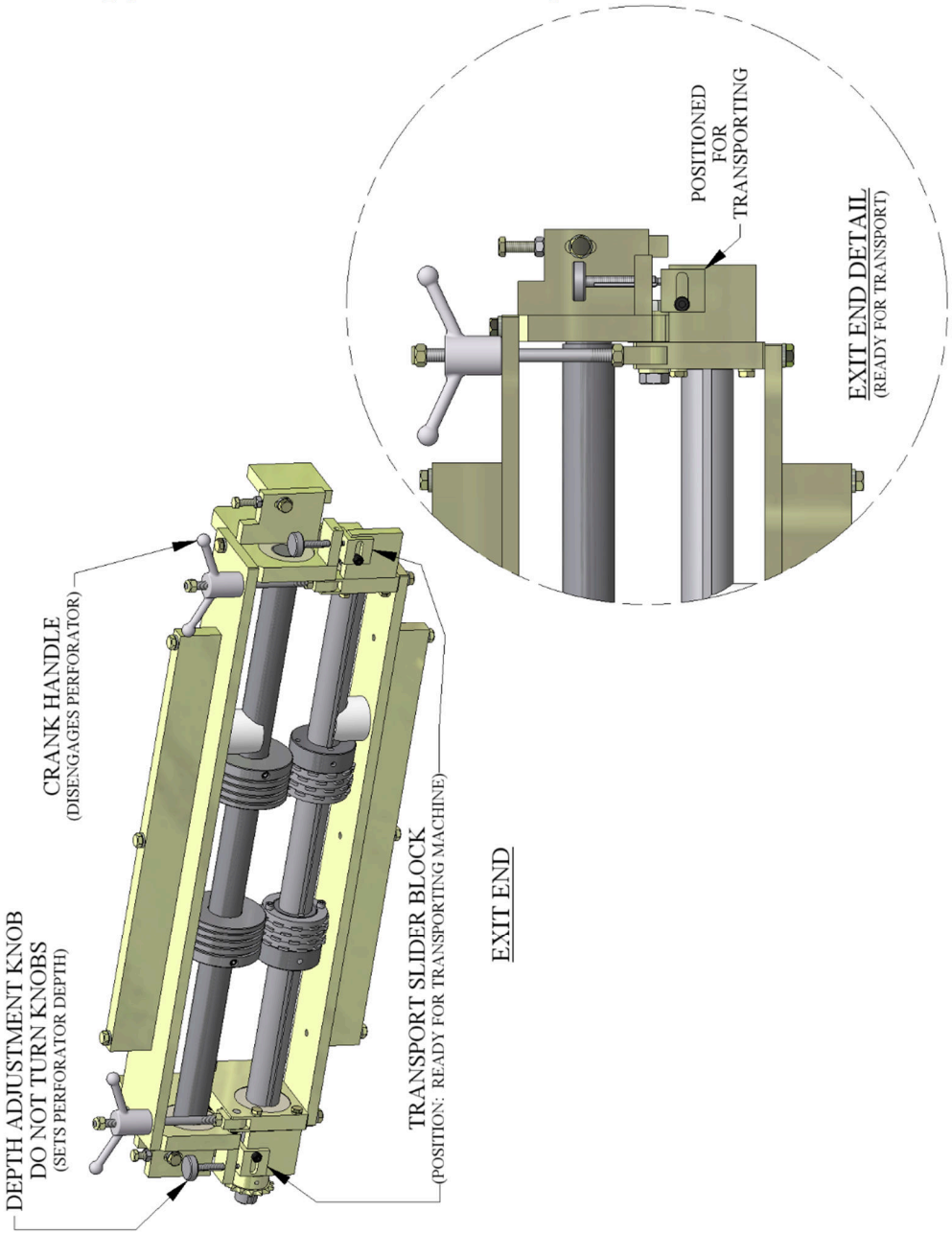


Figure 53: Perforator Locked for Transport

ENTRY DRUM ASSEMBLY

The Entry Drum Assembly is necessary when feeding coil off of the optional DR1/ Dual Overhead Reel Stand. The Entry Drums need to be adjusted whenever a width change is made and possibly when a profile change is made. The outside drums should be aligned with the edges of the material and the center drum should be centered on the material.
To adjust the entry drums:

1. Using a 3/16” Allen wrench, loosen the Shaft Collars “E”, on either side of the drum. (Figure 54)
2. Slide the drum over until it is lined up in the necessary position.
3. Slide the Shaft Collars “E” against the sides of the drum and lock them into place.

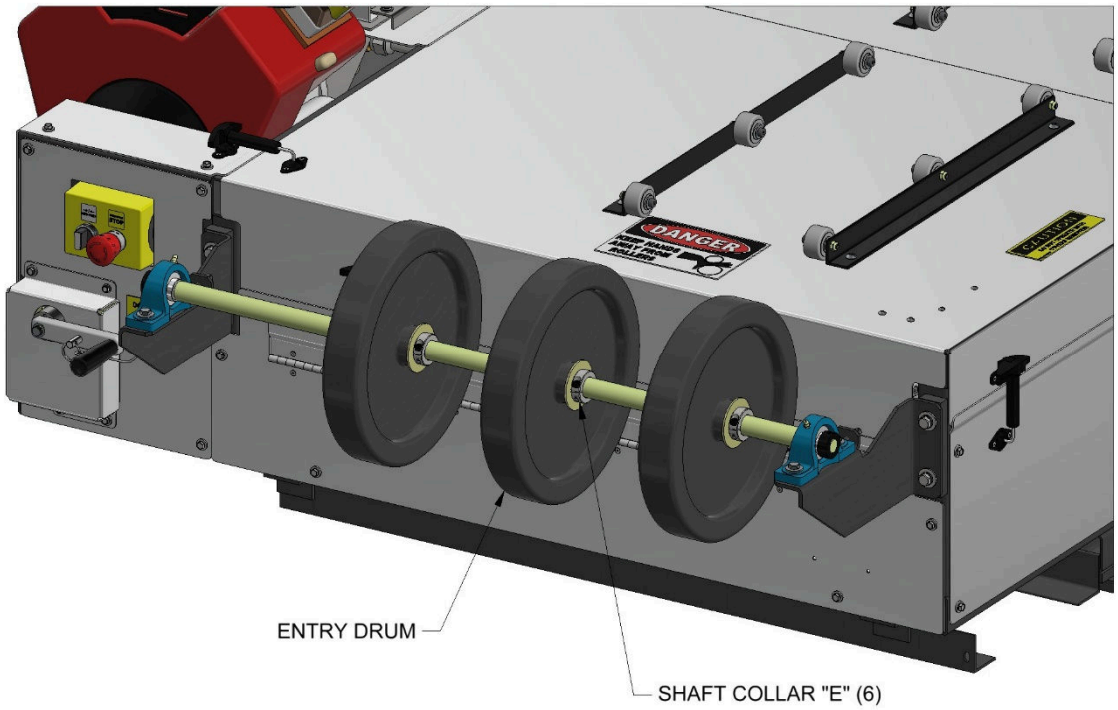


Figure 54: Entry Drum

WIDTH CHANGE PROCEDURE

WARNING: ***Always turn off and lock out the machine before performing any adjustments. DO NOT reach through the opening of the shear at any time. EVER! To do so could result in serious injury or death.***

1. Remove Top Covers #1, 2, 3, 4, and 5 (Figure 55) and the shear guard and set them aside.

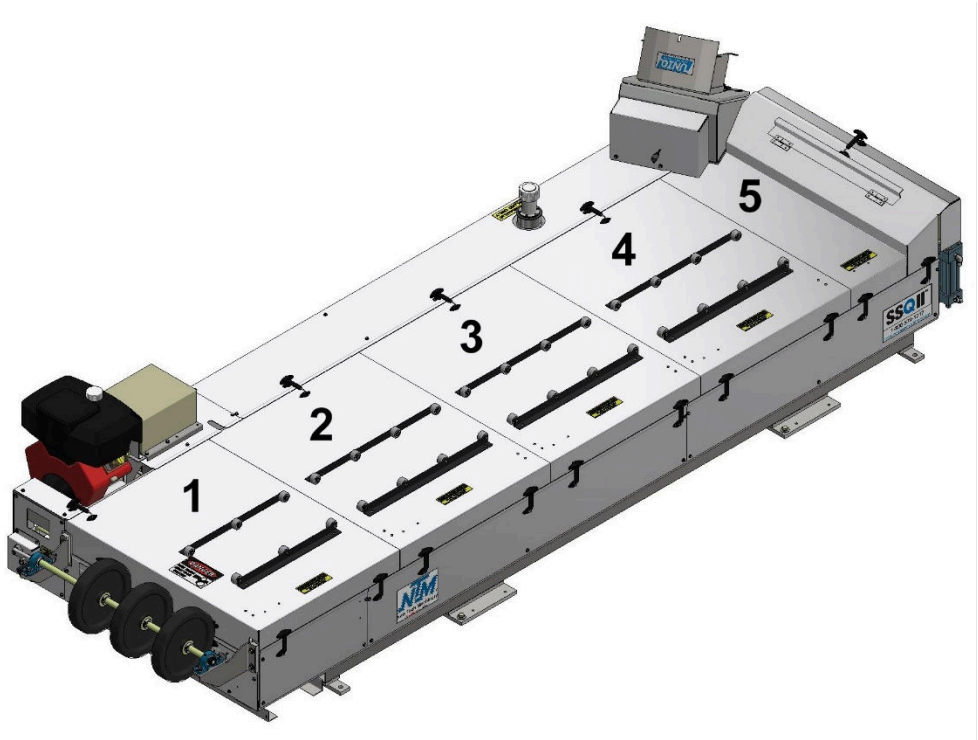


Figure 55: Top Cover Removal

2. Set the Entry Guides for the new coil width. See section ENTRY GUIDE ADJUSTMENT beginning on page 53 for details. If you have a Notcher System refer to the section Notcher Width Adjustment on page 86 instead.
3. Load material onto the Expandable Arbor and align it to the correct position using the chart in Figure 18 on Page 25. Note: See REEL STANDS AND EXPANDABLE ARBORS for more information.
4. Load the reeled coil onto the machine using a fork lift or other rated lifting device. Making sure the tail of the coil goes over the top and points toward the shear end of the machine. See coil routing diagram (Figure 20).
5. Cut a 1" triangle off of the 2 leading corners of the coil and feed it into the entry guides. (Figure 56)

CHAPTER 15

WIDTH CHANGE PROCEDURE

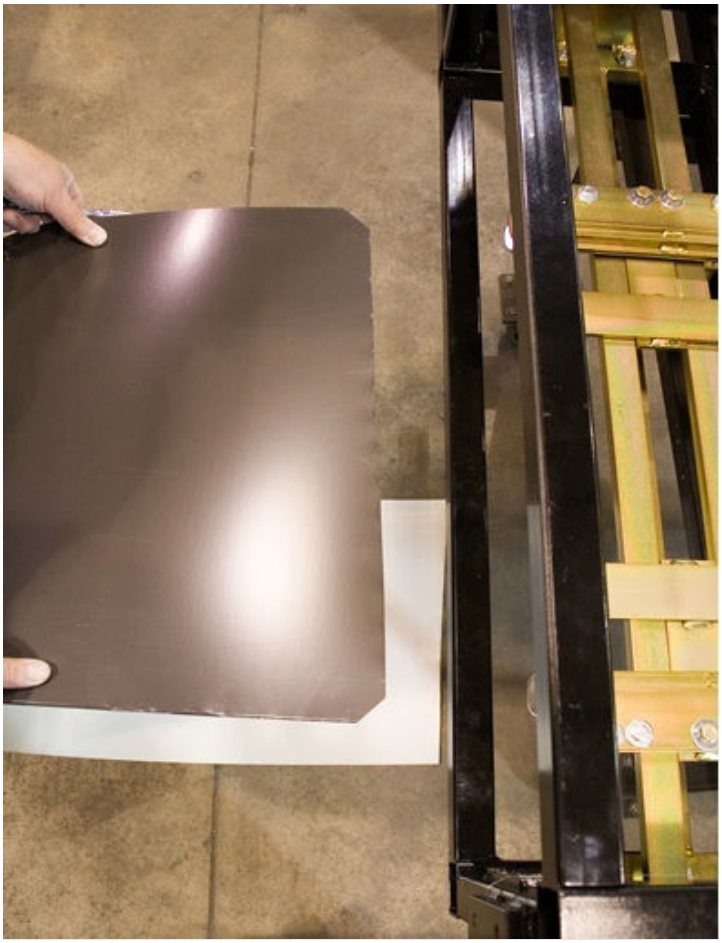


Figure 56: Loading Material

6. Start the machine and jog the material through the machine 6 to 8 inches at a time until it exits the last forming stations.
7. If there will not be beads or striations in the panel then continue jogging the material until it is about 2 to 3 inches from the entry shear dies, turn off and lock out the machine, and go to Step 19.

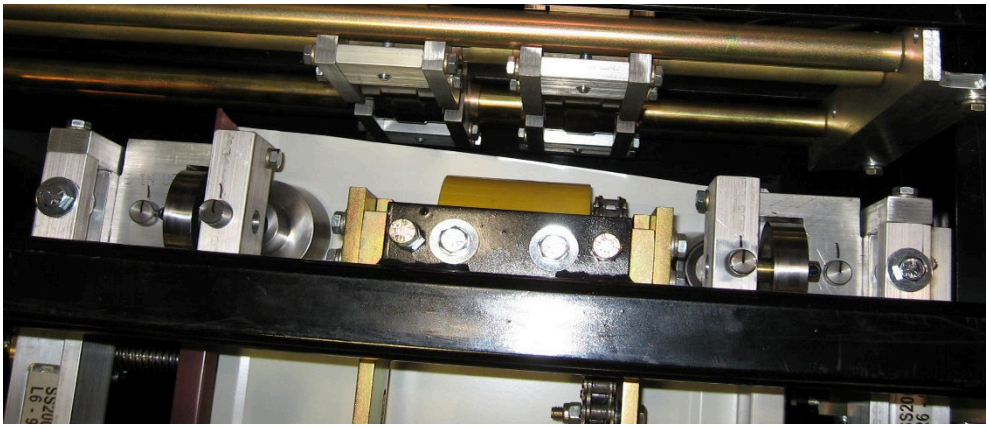


Figure 57: Bead Roller Alignment

WIDTH CHANGE PROCEDURE

8. If the panel requires beads, determine the spacing needed. For Example: a 12" wide panel with 2 beads centered on the panel would give 3 equal spaces or 12" divided by 3 equals 4" from center to center of each bead. Hook the end of the tape measure on the outside bottom corner of the female leg. Use a magic marker or grease pencil to mark the 4" and 8" locations on the panel. There will now be 3 equal spaces.

9. Loosen the slide lock bolts on the top and bottom bead assemblies (Figure 58 Bolt "D") and slide each bottom and top roll assembly left or right to center them on the 4" and 8" marks on the panel.

10. Lock the two top bead assemblies in the correct position by tightening the slide lock bolt "D" on each assembly. Next align the bottom bead rollers to the tops so that the ends of the top and bottom rollers are flush with each other and tighten the bottom slide lock bolts on these 2 assemblies.

CHAPTER 15

WIDTH CHANGE PROCEDURE

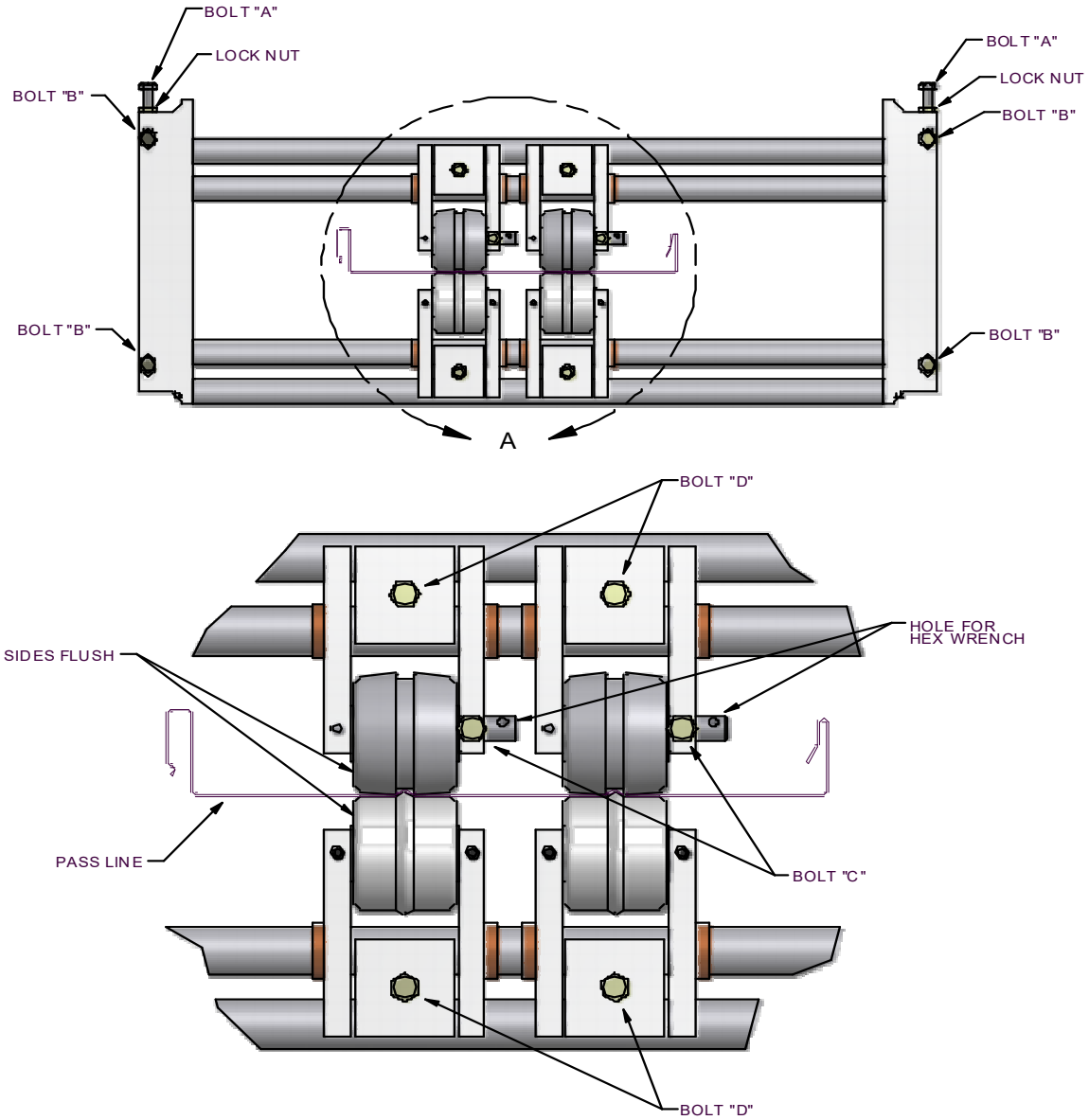


Figure 58: Bead Roller Width Change

11. Check the gap between the top and bottom bead rollers using a feeler gauge. An approximate setting of 1½ times the material thickness is recommended. This setting can be adjusted slightly in either direction according to preference.

12. To set or change the gap between top and bottom beads, loosen the "C" bolt on both top rollers (Figure 58).

13. Insert the correct feeler gage between one of the top and bottom rollers. Locate the feeler gage on the flat of the roller next to the side plate of the assembly.

14. Rotate the top shaft from the 12:00 position toward the shear to decrease the gap, or away from the shear to increase the gap until the feeler gage is captured.
15. Tighten the "C" bolt to lock the position of the shaft.
16. Repeat steps 11 through 15 for the remainder of the bead rollers.
17. Start the machine, jog the material through the bead assemblies and stop 2 to 3 inches from the entry shear dies.
18. Inspect the beads for depth and re-adjust as necessary.

SHUT THE MACHINE OFF AND LOCK IT OUT BEFORE PROCEEDING.

19. Remove the two "C" bolts located in the slotted holes at the bottom edge of the exit male shear die assembly and set the bolts and assembly aside. (Figure 59)

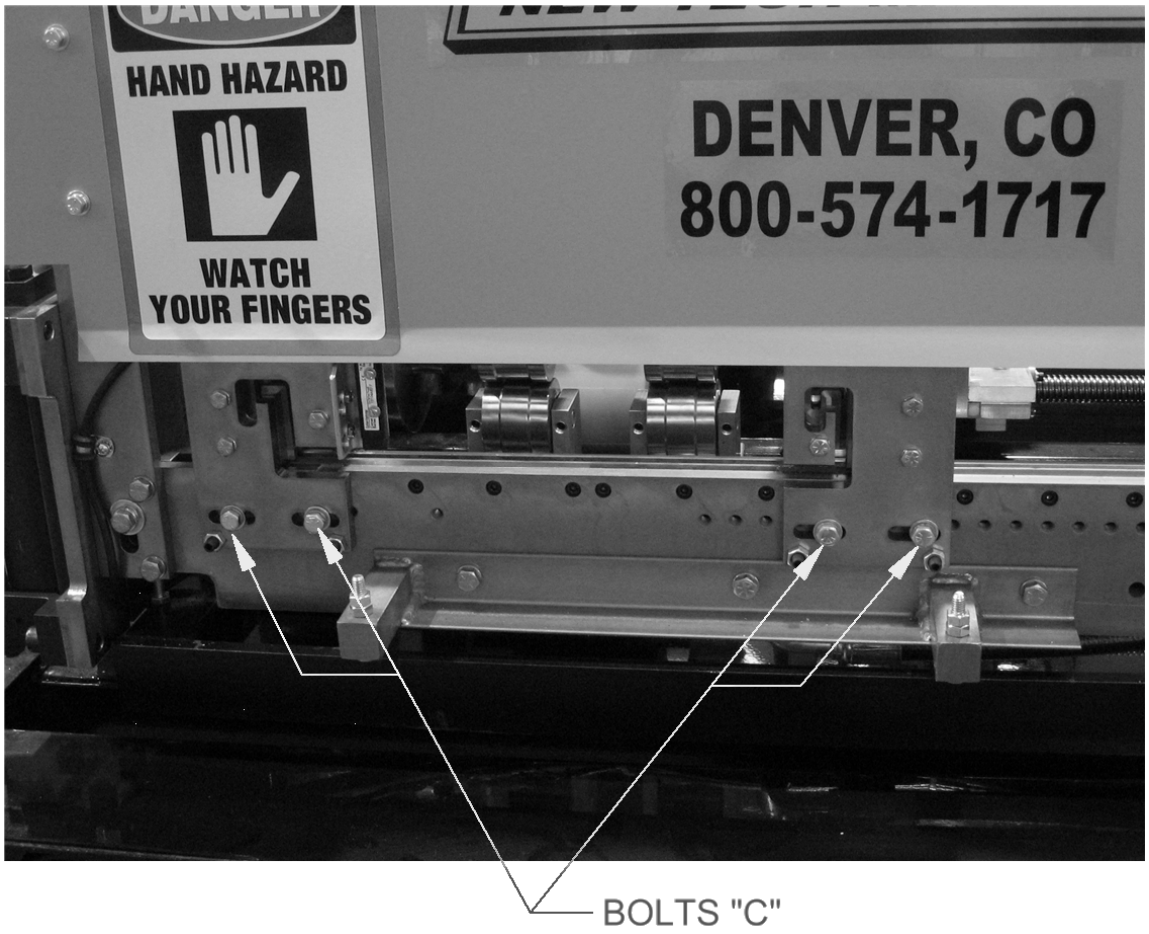


Figure 59: Shear Bolts

20. Remove the two "C" bolts in the slotted holes on the entry male shear die assembly.
21. Visually site through the male entry die and rough align it to the forming tool "line of fire" by sliding it left or right. Re-install the two "C" bolts into holes that correspond to the slots. Do not tighten the bolts at this time, just snug them up.

22. Install the male exit die in the same manner aligning it to the entry die and again, just snug the bolts.

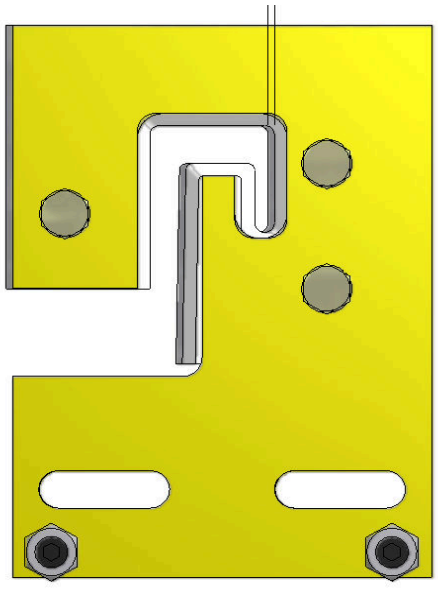
23. Start the machine and carefully jog the panel up to the shear. Check to see if the panel will pass through the entry shear dies. If not **FIRST SHUT THE MACHINE OFF AND LOCK IT OUT,** then move the entry dies so that the panel will pass through them.

24. Jog the panel forward until it is just into the entry shear dies. **SHUT THE MACHINE OFF AND LOCK IT OUT**, then adjust the entry dies so that it is as close to the outside vertical portion of the leg as possible without touching it. Once this is done, tighten the two "C" bolts on the entry male shear die assemblies.

25. Check the exit shear die to ensure that the material will pass through it. If not, shut the machine off and lock it out, then adjust as necessary.

26. Start the machine again and slowly jog the panel approximately 6" past the exit male shear die assembly and stop. Again, **TURN THE MACHINE OFF AND LOCK IT OUT.**

27. Adjust the exit male shear die assembly so that it is offset to the outside of the entry die by approximately 1/64" and lock down the two "C" bolts (Figure 60) ***This offset is necessary so that after a cut is made, the leading edge of the panel does not hang up on the exit die.***



EXIT VIEW

Figure 60: Exit Die Adjustment

28. Look down the leg of the panel and make sure that the entry and exit male shear die assemblies are not touching the panel as it passes through them.

29. Make sure that one of the points of the top shear blade is inboard of the vertical portion of the male leg. This part of the leg should be cut with the angle or rake of the blade to cut in a scissor action against the vertical die. See **TOP SHEAR BLADE ADJUSTMENT** (Figure 31 - Figure 41) if adjustment is necessary.

CHAPTER 15

WIDTH CHANGE PROCEDURE

30. Start the machine and press the shear down buttons to cut off the panel, then jog the material through the shear again and stop.

31. Inspect the two cuts and adjust the dies as necessary until an acceptable cut is made. Again, **TURN THE MACHINE OFF AND LOCK IT OUT BEFORE MAKING ANY ADJUSTMENTS.**

32. Once you are satisfied with the cut being made, replace the top covers and shear guard.

PROFILE CHANGEOVER PROCEDURE

WARNING: ***Always turn off and lock out the machine before performing any adjustments. DO NOT reach through the opening of the shear at any time. EVER! To do so could result in serious injury.***

1. Remove Top Cover #1, 2, 3, 4, and 5 (see Figure 55 on Page 63) and set aside.
2. Using a ½" wrench, remove the bolts holding the right and left Tooling Rails to the Fixed Rail Mounts (Figure 61). Store the tooling and set the hardware near the machine for use when installing the next profile. Note: the **SS100**, **SS150**, **SS450/450SL**, and **BP** profiles all share the same left-side rollers, so when changing between these profiles, only the right-side Tooling Rails will need to be changed. Likewise, the **FF100** and **FF150** profiles also share the same left-side rollers, so when changing between these profiles, only the right-side Tooling Rails will need to be changed.
3. If the profile being removed is the BB750, then the right side guide rods that were removed will need to be reinstalled into the machine. If the left side guide rods were removed then they will also need to be reinstalled.

Figure 61: Removing Tooling Rails

4. Refer to the SSQ Slide Block chart (Figure 62) and find the profile that will be installed into the machine. It will show if the Right Side Fixed Mount Rail #1 needs to be in the Inboard position or Outboard position (Figure 63).

IF THE RAIL IS NOT IN THE CORRECT POSITION, GO TO STEP 4.
IF THE RAIL IS IN THE CORRECT POSITION GO TO STEP 6.

SSQ SLIDE BLOCK CHART	
PROFILE	**RIGHT SIDE FIXED MOUNT RAIL #1**
BB750, FF100, SS100, SS150, SS275, FWQ100, FWQ150	INBOARD
FF150, SS200, SS275, SS450, SS275, SS275, SS550, SS675, TRQ250	OUTBOARD

Figure 62: Block Chart

CHAPTER 16

PROFILE CHANGEOVER PROCEDURE

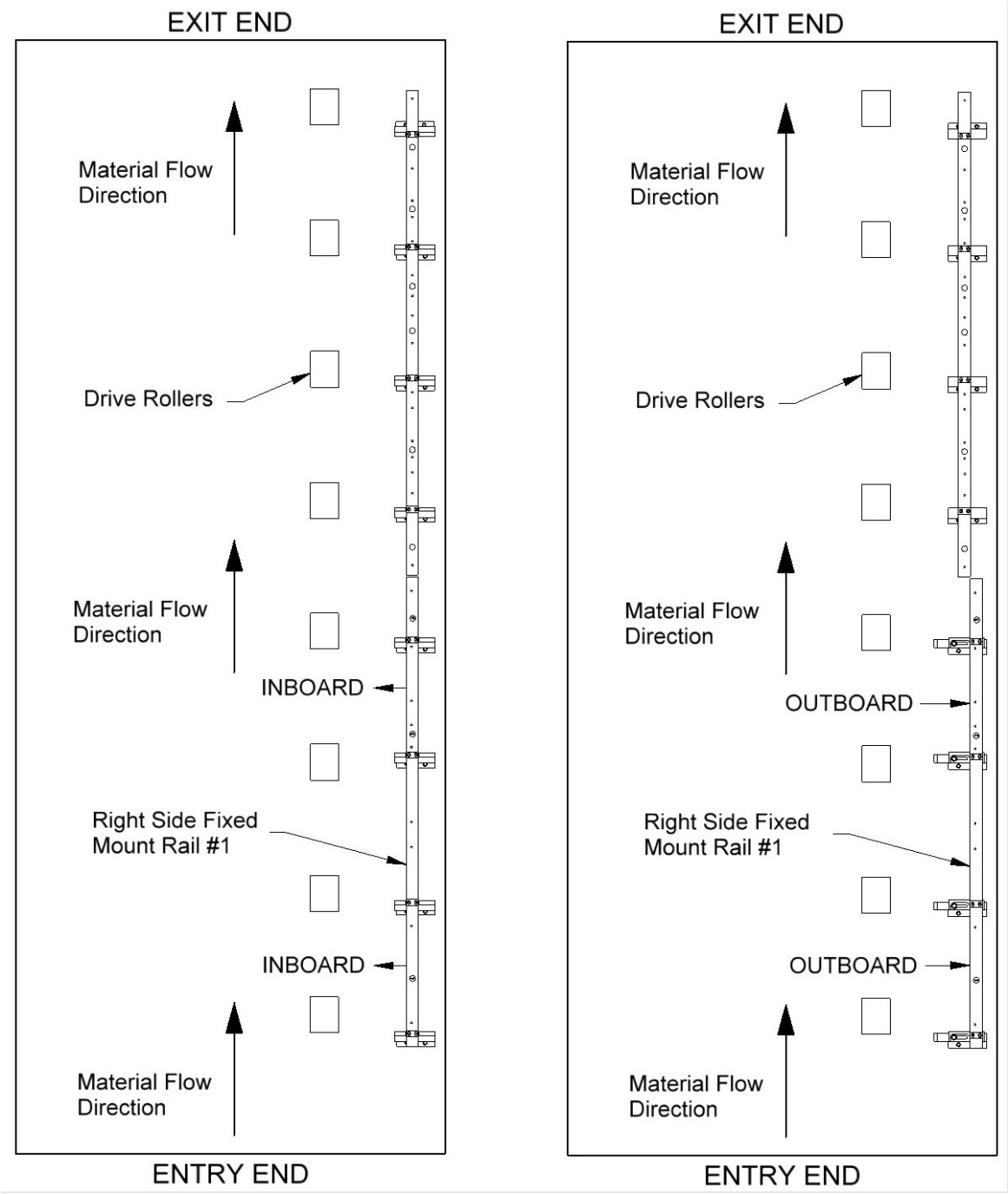


Figure 63: Inboard/Outboard Positions

5. Loosen bolt “C” on the first 4 Slide Block assemblies (Figure 64).

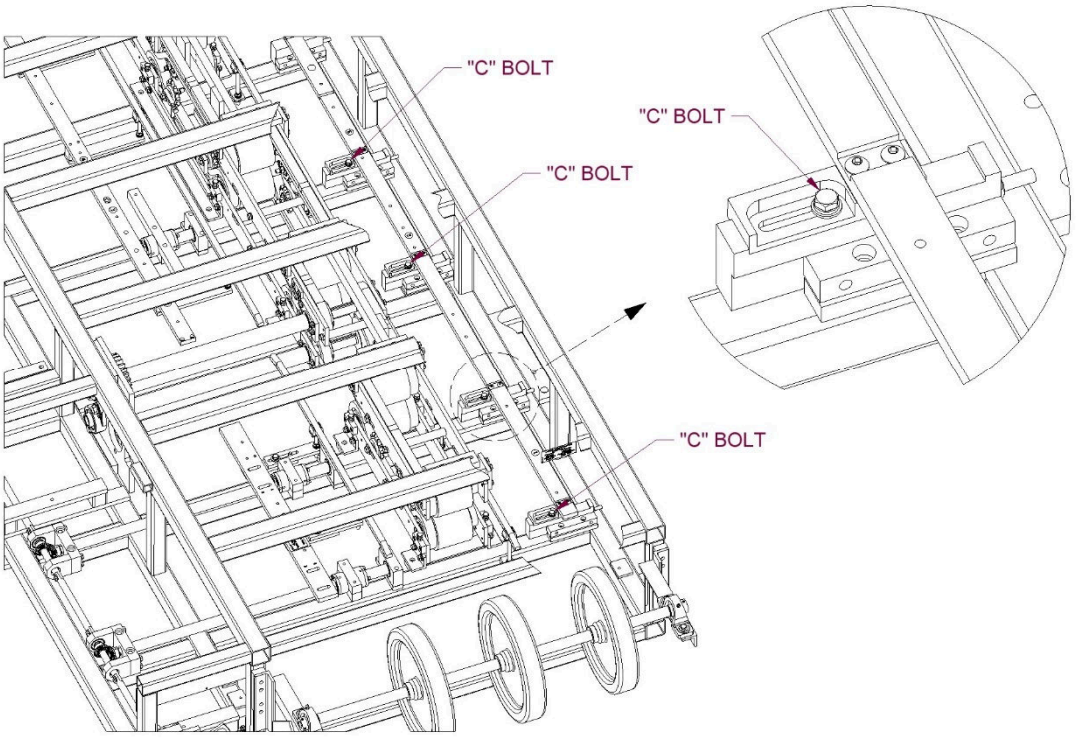


Figure 64: April 2009 and later

6. Once all 4 bolts are loose, slide the Right Side Fixed Mount Rail #1 to the correct position (Figure 65), either “inboard” or “outboard". Make sure that it is fully in position and then tighten the “C” bolts (Figure 64).

Figure 65: Right Side Fixed Mount Rail

7. Locate the profile in the chart below to see what position the Left Side Fixed Mount Rail #1 needs to be in.

PROFILE	LEFT SIDE FIXED MOUNT RAIL #1 POSITION
SS200/210A, SS275, SS550, SS675, TRQ250	POSITION "A", OUTBOARD
SS100, SS150, SS450, FF100, FF150, FWQ100, FWQ150, BB750	POSITION "B", INBOARD

Figure 66: Profile Chart

Now look at the machine to see what position the Left Side Fixed Mount Rail #1 is currently in. The stamped letter closest to the mounting bolts "C" indicates the position (Figure 68). If it is in the correct position proceed to Step 7, otherwise, loosen the four mounting bolts "C", slide the Left Side Fixed Mount Rail #1 as far as it will go in either the "inboard" or "outboard" direction, and re-tighten the bolts.

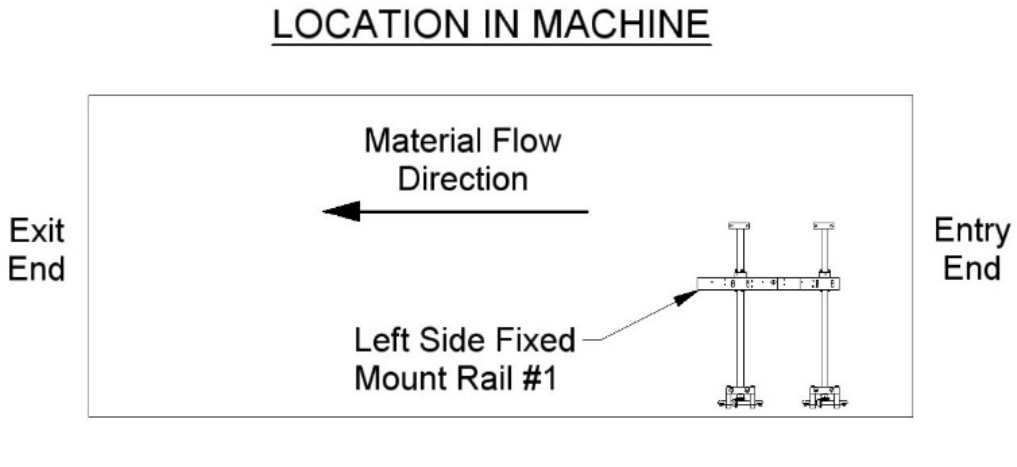


Figure 67: Left Side Fixed Mount Rail

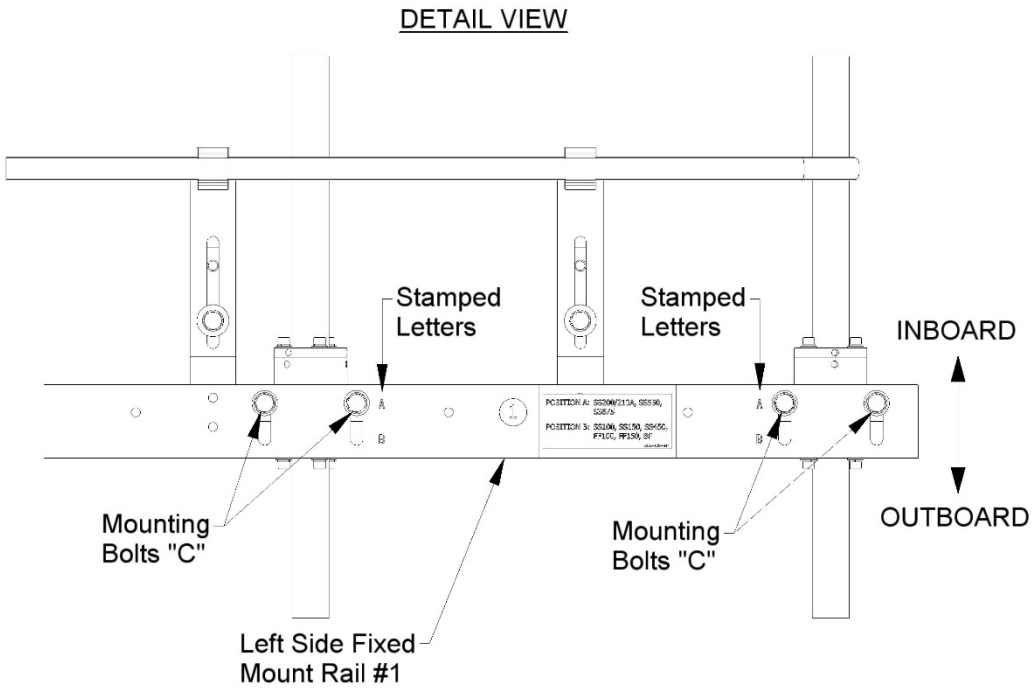


Figure 68: Shown in the "A" position

8. If the roller set being installed is the BBQ750, then the right side guide rods will need to be removed. Refer to the BBQ750 Installation and Setup Manual that was supplied with the roller set for instructions on how to do this and some additional information specific to this profile.

9. Find the R1 Tooling Rail and set it flat on top of the Right Side Fixed Mount Rail #1 making sure the correct number shows in Sight Hole "C" (Figure 69). Thread the two mounting bolts into the slots of the rail and finger-tighten them. Pull the Tooling Rail assembly toward the outside of the machine until the two Tooling Rail Spacers "D" (Figure 70) contact the face of the mounting rail. Hold it in place while tightening the mounting bolts.

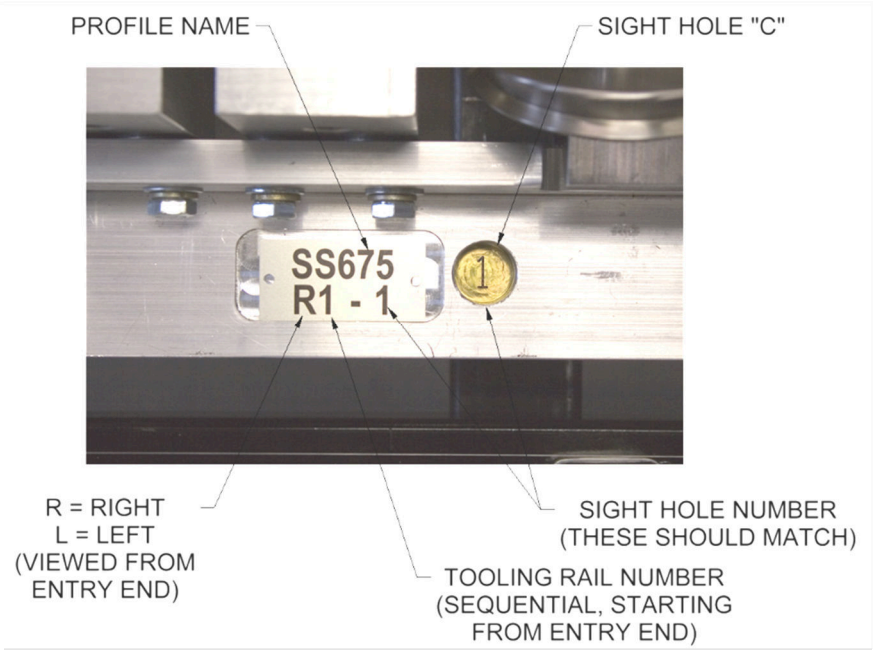


Figure 69: Tooling Rail Identification

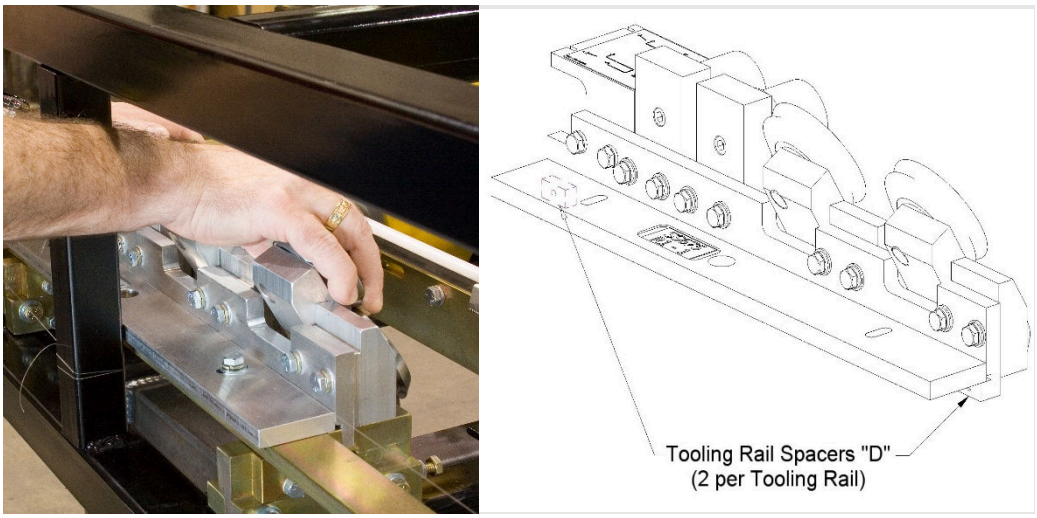


Figure 70: R1 Tooling Rail Spacers

10. Continue installing the remainder of the right and left tooling rails in sequence as described above.

Special Instructions for the SS100, SS150, SS450, and BP Profiles:

The Left #1 Tooling Rail Assembly (L1-1) for these profiles can be mounted in one of two possible positions based on the required height of the male leg. When mounting this Tooling Rail Assembly for use with the **SS150, SS450** or **BP 1½"** profiles pull it toward the outside of the machine until the two Tooling Rail Spacers “D” contact the face of the Left Side Fixed Mount Rail

#1 (Figure 71). When mounting the Tooling Rail Assembly for use with the **SS100** or **BP 1"** profiles push the Tooling Rail Assembly toward the center of the machine until the Tooling Rail Backstops "E" contact the Left Side Fixed Mount Rail #1. Once the Tooling Rail Assembly is positioned properly, tighten the two Mounting Bolts "F".

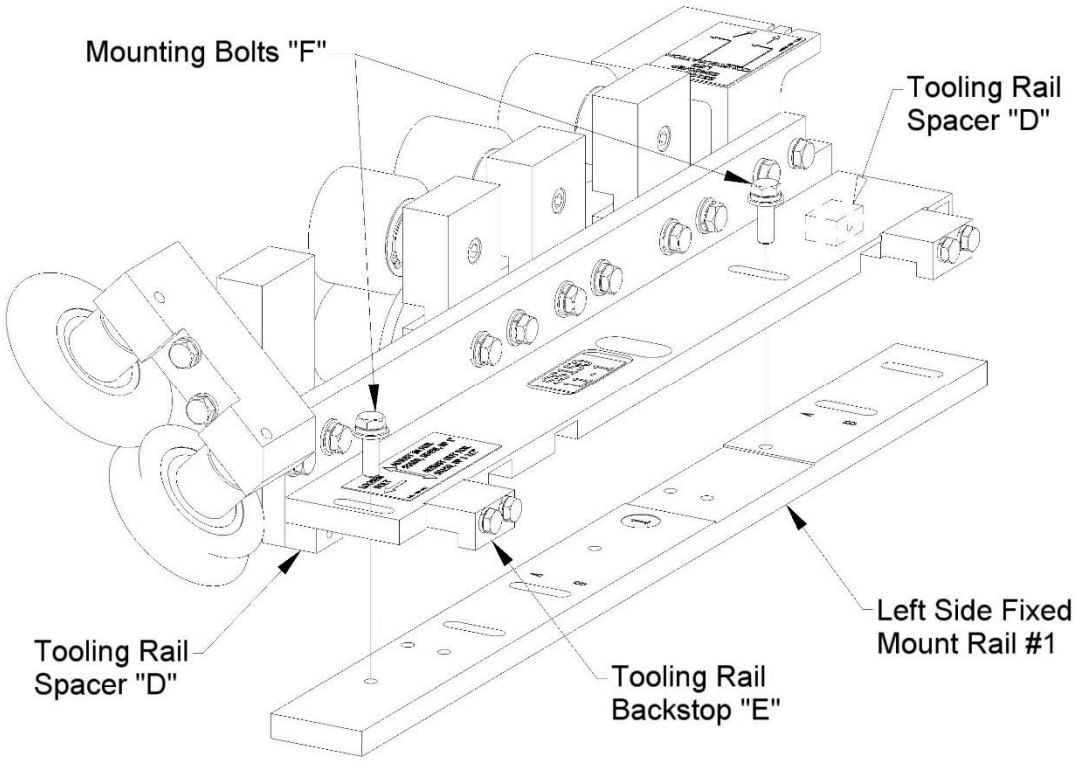


Figure 71: L1-1 Special Instructions

11. If you have a Notcher System in your machine you may need to change one or both Notcher Cartridges. See the section Notcher Cartridge Change on page 86 for more details.

12. To align the Right Entry Guide, loosen the Lock Down Handle on the Right Entry Guide (Figure 45). Slide the entry guide to the left or right until the Entry Guide Alignment Notch is directly under one of the notches on the Tooling Rail Marker Plate. Make sure to choose the notch on the Marker Plate that corresponds to the desired leg configuration as noted on the decal on the top of the Marker Plate (Figure 46). **Note: If you have a Notcher System installed you would instead loosen the Notcher Positioning Bolt "B" on the right notcher, slide it left or right until the marker lines up with the tooling, and retighten the bolt (see Figure 77).**

13. Tighten the Lock Down Handle on the right entry guide.

14. Loosen the Lock Down Handle on the left entry guide. **Note: For notcher systems loosen the Notcher Positioning Bolt "B" on the left notcher (see** Figure 77**).**

15. Cut a 12" long piece of gage material from the coil that will be used in the machine. Slide gage material between the left and right entry guides.

16. Slide the Left Entry Guide to the left or right to accept the new coil width. Make sure that the material is captured snugly between the entry guides and re-tighten the Lock Down Handle. **Note: For notcher systems slide the Left Notcher left or right to capture the material then tighten the Notcher Positioning Bolt "B" (see Figure 77).**

17. Using the Tooling Rail Adjustment Handle (Figure 47), align the notch on the tooling rail marker plate to the alignment notch located in the Left Entry Guide. Make sure to choose the notch that corresponds to the desired leg configuration as noted on the decal on the marker plate. Turning the handle clockwise moves the tooling out-ward, turning it counter-clockwise moves move it in-ward. The Tooling Rail Adjustment Handle is spring loaded to allow it to disengage from the width adjustment gear (Figure 48). Press the handle inward (Figure 49) to engage the width adjustment gear and turn the handle clockwise to move the tooling outward or counter-clockwise to move it inward.

18. Load material onto the Expandable Arbor and align it to the correct position (Figure 18).

19. Load the reeled coil onto the machine using a fork lift or other rated lifting device.

20. Cut a 1" triangle of material off the 2 leading corners of the coil and feed it into the entry guides.

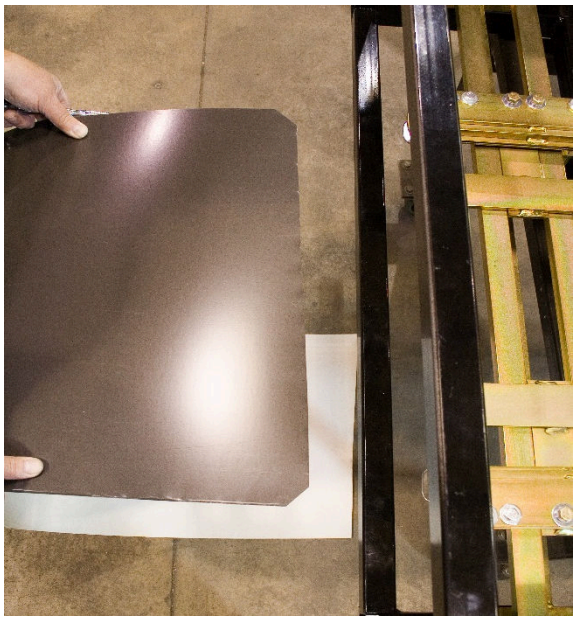


Figure 72: Preparing Coil for Loading

21. Start the machine and use the Jog button on the Manual Control Box or Computer to jog the material through the machine 6 to 8 inches at a time until it exits the last forming stations.

IF THERE WILL NOT BE BEADS OR STRIATIONS IN THE PANEL, GO TO STEP 26.

CHAPTER 16

PROFILE CHANGEOVER PROCEDURE

WARNING: ***Always turn off and lock out the machine before performing any adjustments. DO NOT reach through the opening of the shear at any time. EVER! To do so could result in serious injury.***

22. If the panel requires beads, determine the spacing needed. For Example: a 12" wide panel with 2 beads centered on the panel would give 3 equal spaces or 12" divided by 3, which equals 4" from center to center of each bead. **Shut the machine off and lock it out**, then hook the end of a tape measure on the outside bottom corner of the female leg. Use a magic marker or grease pencil to mark the 4" and 8" locations on the panel. There will now be 3 equal spaces. (Figure 73)

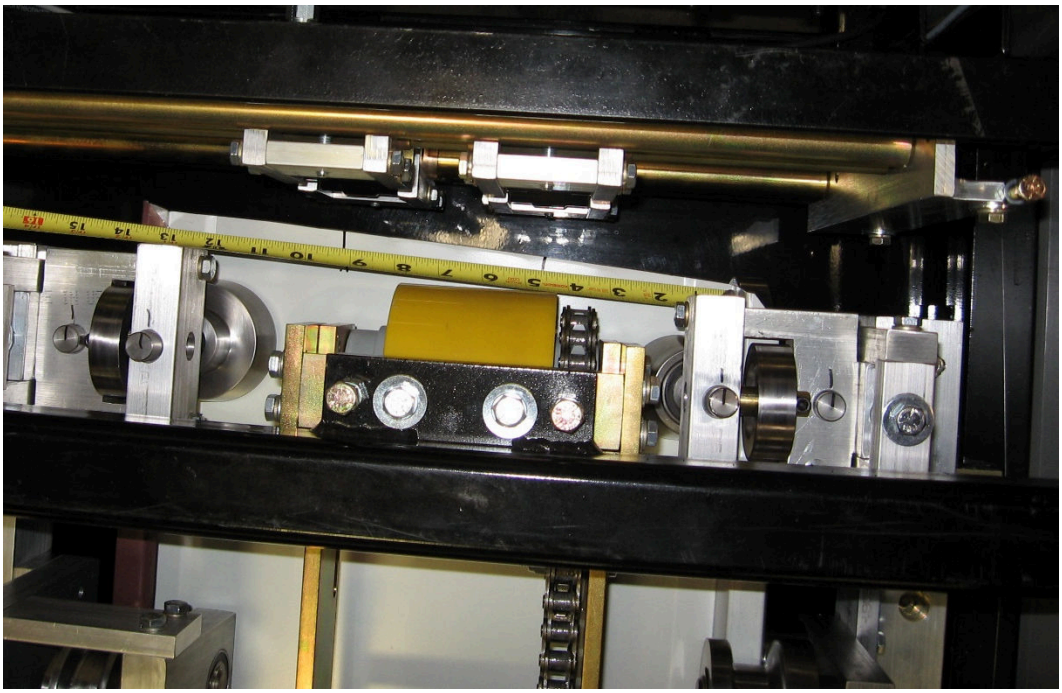


Figure 73: Spacing Bead Rollers

23. Loosen the Slide Lock Bolts "D" on the top and bottom bead assemblies (
24. Figure 43) and slide each bottom and top roll assembly left or right to center them on the 4" and 8" marks on the panel. Lock the two top bead assemblies in the correct position by tightening the "D" bolt on each assembly (Figure 43).
25. Next align the bottom bead rollers to the tops so that the ends of the top and bottom rollers are flush with each other and tighten the bottom "D" bolts on these 2 assemblies.
26. Using a 3/8" wrench, loosen the four (4) Shear Cover Bolts (Figure 74) about two turns and remove the Shear Cover.

CHAPTER 16

PROFILE CHANGEOVER PROCEDURE

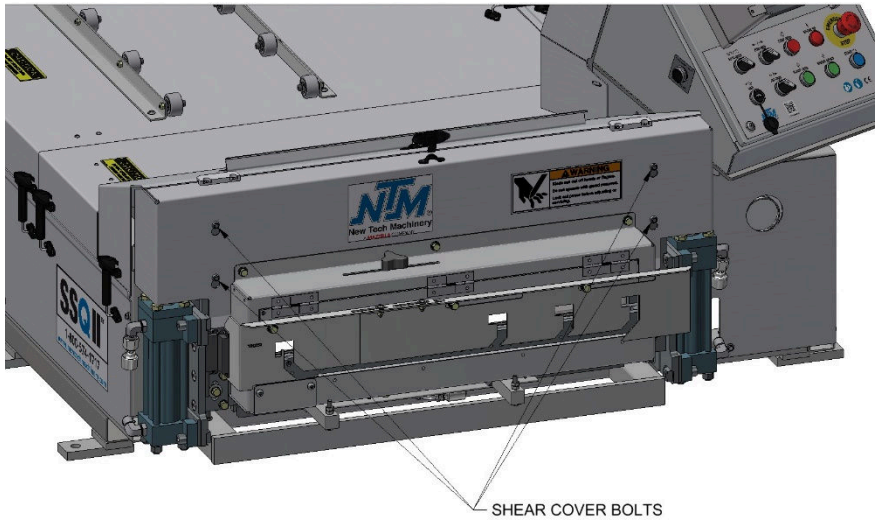


Figure 74: Removing Shear Cover

27. Remove the two "C" bolts on the exit male and female shear die assemblies located in the slotted holes at the bottom edge of the die holder (Figure 75). Store the shear dies with the profile just removed and set the bolts aside for use when installing the new shear dies.

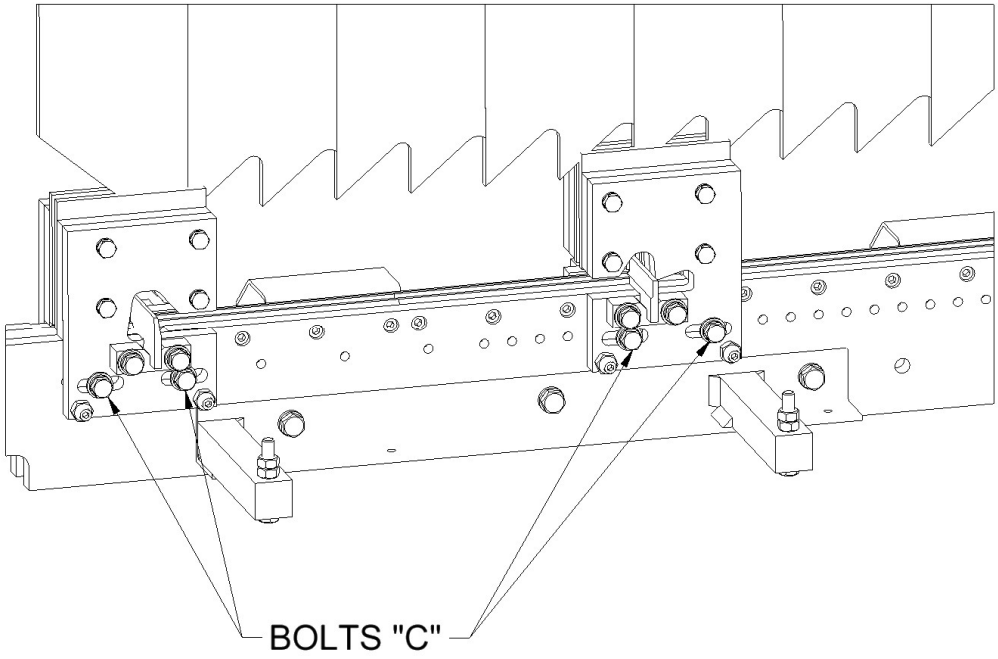


Figure 75: Remove Shear Bolts

28. Remove the two "C" bolts from the slotted holes on the entry male and female shear die assemblies as described previously.

29. If changing to or from a BBQ750, SSQ275, SSQ550 or SSQ675 profile, the #1 shear blade will need to be changed.

CHAPTER 16

PROFILE CHANGEOVER PROCEDURE

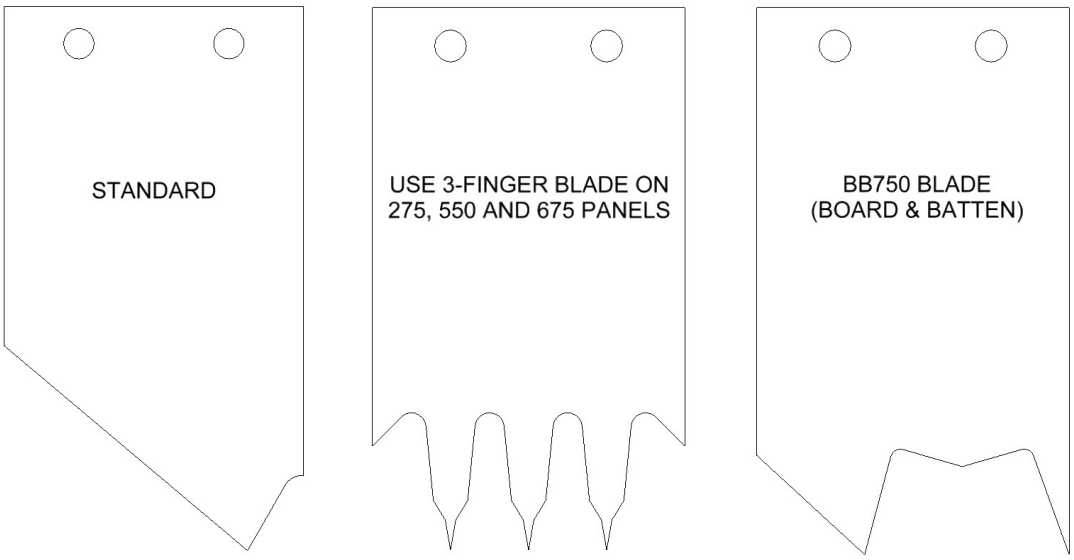


Figure 76: Shear Blade #1

30. Locate the shear dies that correspond to the profile installed. Separate the male and female entry and exit shear dies.

31. Set the Male Entry Die on top of the Bottom Die (Figure 31). Visually sight through the male entry die and roughly align it to the forming tool "line of fire" by sliding it left or right. Re-install the two "C" bolts into the holes that correspond to the slots. Do not tighten the bolts at this time, just snug them up.

32. Install the male exit die in the same manner aligning it to the entry die and again, just snug the bolts.

33. Repeat steps 31 and 32 for the Female Dies.

34. Start the machine and carefully jog the panel up to the shear. Check to see if the panel will pass through the entry male and female shear dies. If not, **FIRST SHUT THE MACHINE OFF AND LOCK IT OUT,** then move the male and/or female entry dies so that the panel will pass through.
Adjust the entry die so that it is as close to the outside vertical portion of the leg as possible without touching it. Once this is done, tighten the two "C" bolts on these assemblies.

35. Start the machine again and slowly jog the panel approximately 6" past the exit die and stop. Again, **TURN THE MACHINE OFF AND LOCK IT OUT.**

36. Adjust the male and female exit dies so that they are offset to the outside of the entry die by approximately 1/64" and lock down the two "C" bolts (Figure 60) on each assembly. ***This offset is necessary so that after a cut is made, the leading edge of the panel does not hang up on the exit die.***

37. Start the machine and press the shear down buttons to cut off the panel.

38. Inspect the two cuts and adjust the dies as necessary until an acceptable cut is achieved. Again, **TURN THE MACHINE OFF AND LOCK IT OUT BEFORE MAKING ANY ADJUSTMENTS! NEVER REACH THROUGH THE SHEAR WHILE THE MACHINE IS RUNNING. SERIOUS INJURY COULD RESULT!** When the cut is acceptable, the machine is ready to start panel production.

39. Reinstall the covers.

NOTCHER SYSTEM

Notcher Overview

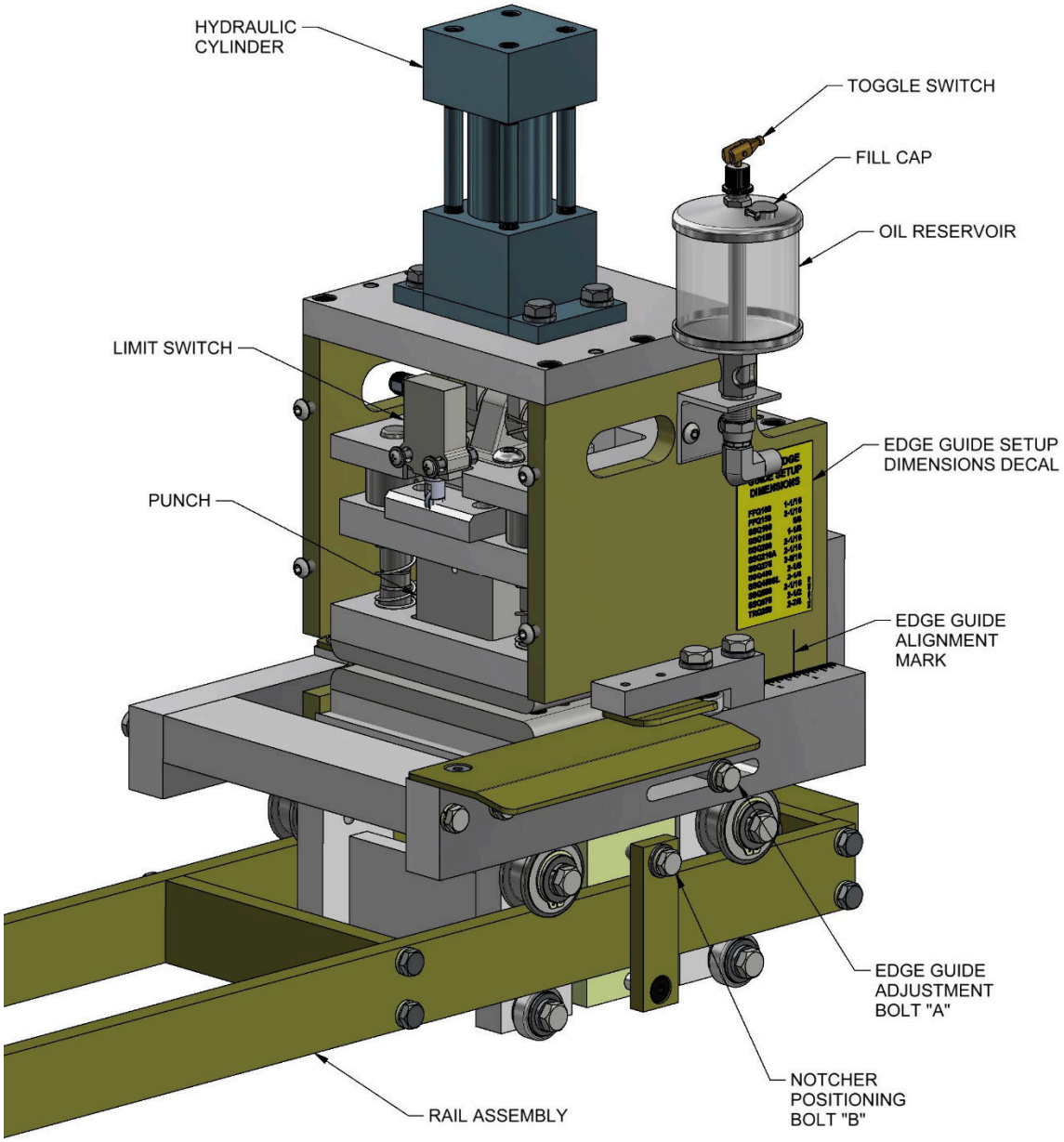


Figure 77: Notcher Overview #1

CHAPTER 17

NOTCHER SYSTEM

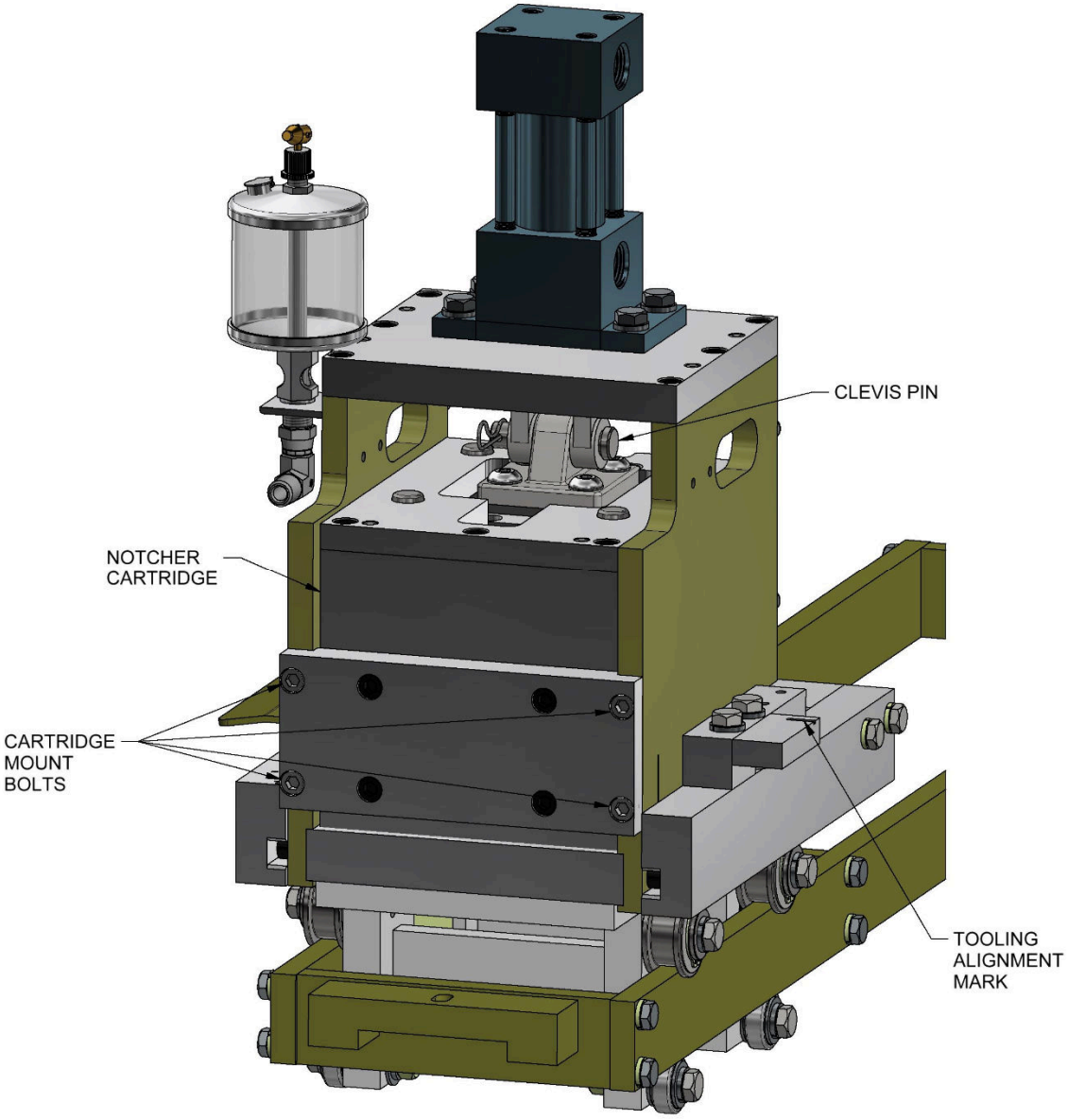


Figure 78: Notcher Overview #2

CHAPTER 17

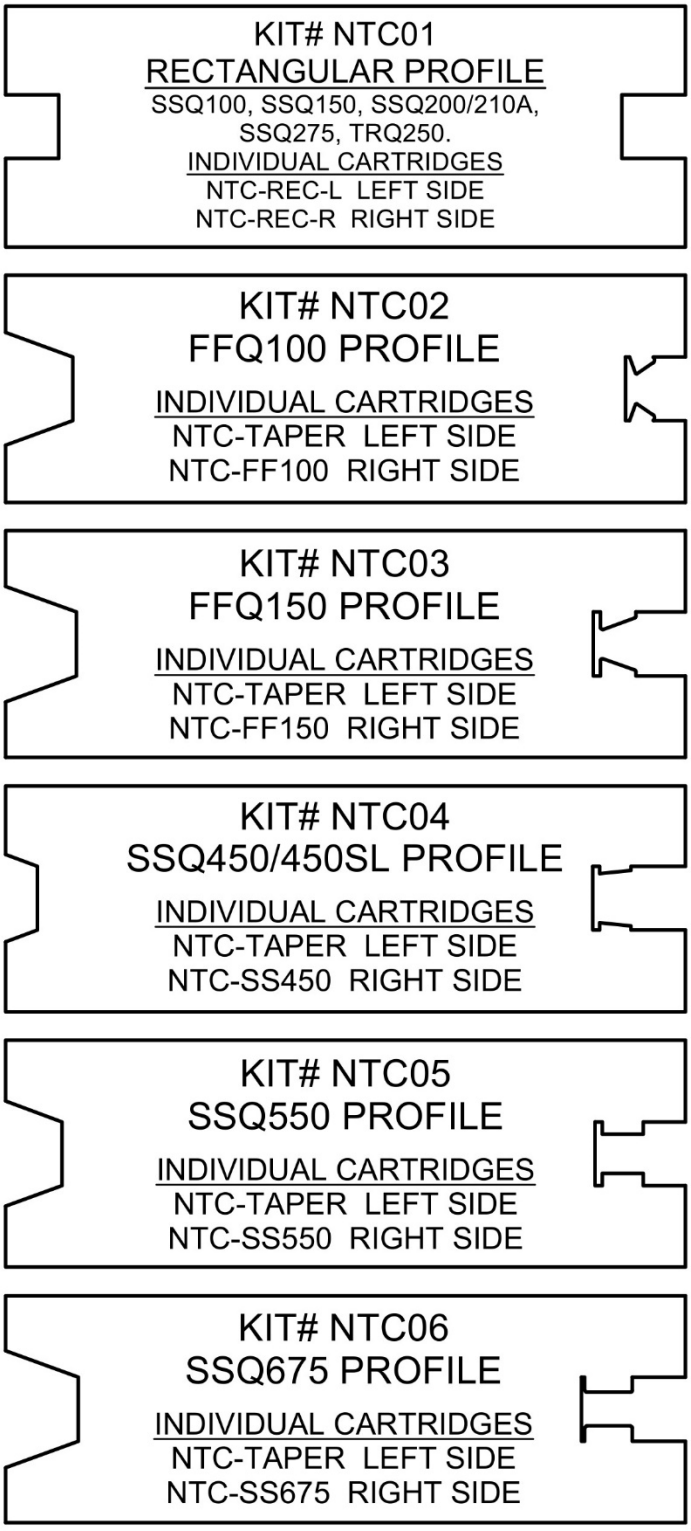
NOTCHER SYSTEM

Notcher Cartridge Profile Summary

We offer two basic types of notcher profiles – a rectangular profile and contoured profiles that provide a closure flap for the finished panel leg. The rectangular profile cartridges should always be used on the SSQ100, SSQ150, SSQ200, SSQ210A, SSQ275, SSQ450, SSQ450SL, SSQ550, and TRQ250 roller sets. They can also be used on FFQ100, FFQ150, and SSQ675 roller sets although you will not have a closure flap. The contoured profiles have a right side cartridge that is specific to the roller set, and a tapered left side profile that provides relief in the panel in order to prevent the flap from being pushed out. Note – the contoured profiles all share the same left side cartridge.

CHAPTER 17

NOTCHER SYSTEM



Note: The NTC02, NTC03, NTC04, NTC05, and NTC06 kits all share the same left side cartridge, so if you have one of these and would like to add another you only need the right cartridge.

Figure 79: Notcher Profiles

CHAPTER 17

NOTCHER SYSTEM

Oil Dispenser

Before running the machine, turn on the flow of oil from the reservoir by flipping the toggle up. During operation keep an eye on the oil level and refill if necessary, using an oil can. The dispensers are accessed by lifting the window up **(NOTE: Turn off the machine before lifting the window.)** It is recommended to use a punch and die oil or vanishing oil. The viscosity of the oil cannot exceed 1500 SSU. When you have finished running the machine, turn off the flow of oil by flipping the toggle down.

Toggle Valve Adjustment

MINIMUM LIFT CONDITION – FIG. 1

1. Loosen friction lock-ring
2. Raise toggle to "on" position and turn metering adjustment screw in until toggle and screw just clear each other.
3. The toggle is now in a no lift condition. Fluid will not flow since the port will not be open.
4. Gradually start turning metering adjustment screw out with the toggle in the "on" positions, and at the same time observe drip rate at the nozzle.
5. When proper drip rate is established, hold metering adjustment screw in place and turn down friction lock-ring to lock setting.
6. To stop flow, flip toggle to "off" position.
7. To start flow, raise toggle to "on" position. Drip rate, as previously set is retained.

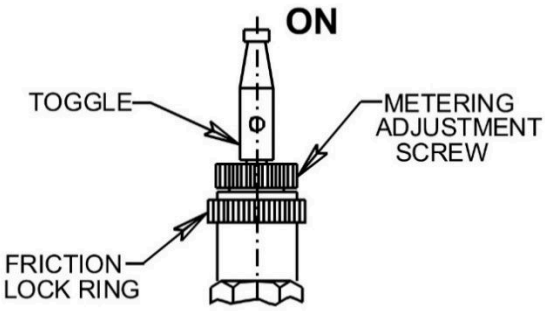


FIG. 1

Set until light can be seen between mating surfaces or until a slight free wiggle of toggle can be felt.

MAXIMUM LIFT CONDITION – FIG. 2

1. Loosen friction lock-ring.
2. Flip toggle to "off" position and turn metering adjustment screw out until toggle and metering adjustment screw just clear each other.
3. Do not turn metering adjustment screw beyond this point. Doing so will lift valve stem off of the seat, allowing uncontrolled flow of fluid and no shut-ff.
4. Raise toggle to "on" position and observe drip rate at the nozzle.
5. If flow is too great, turn metering adjustment screw in until desired drip rate is reached, hold metering adjustment screw in place and turn down friction lock-ring to lock setting.
6. To stop flow, flip toggle to "off" position.
7. To start flow, raise toggle to "on" position. Drip rate, as previously set is retained.

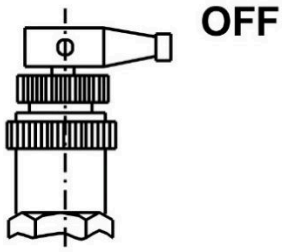


FIG. 2

Toggle valves are normally shipped with toggle in "off" position but with some lift when raised to "on" position. This setting may not be required. Please check and adjust the setting to your specific needs.

CHAPTER 17

NOTCHER SYSTEM

Notcher Width Adjustment

When adjusting the panel width, the location of the left Notcher will need to be adjusted as well. The right Notcher does not need to be moved. To position the left Notcher follow the steps below.

1. Turn off the machine and lock it out.
2. Remove Top Cover #1 and the Front Cover as shown below.

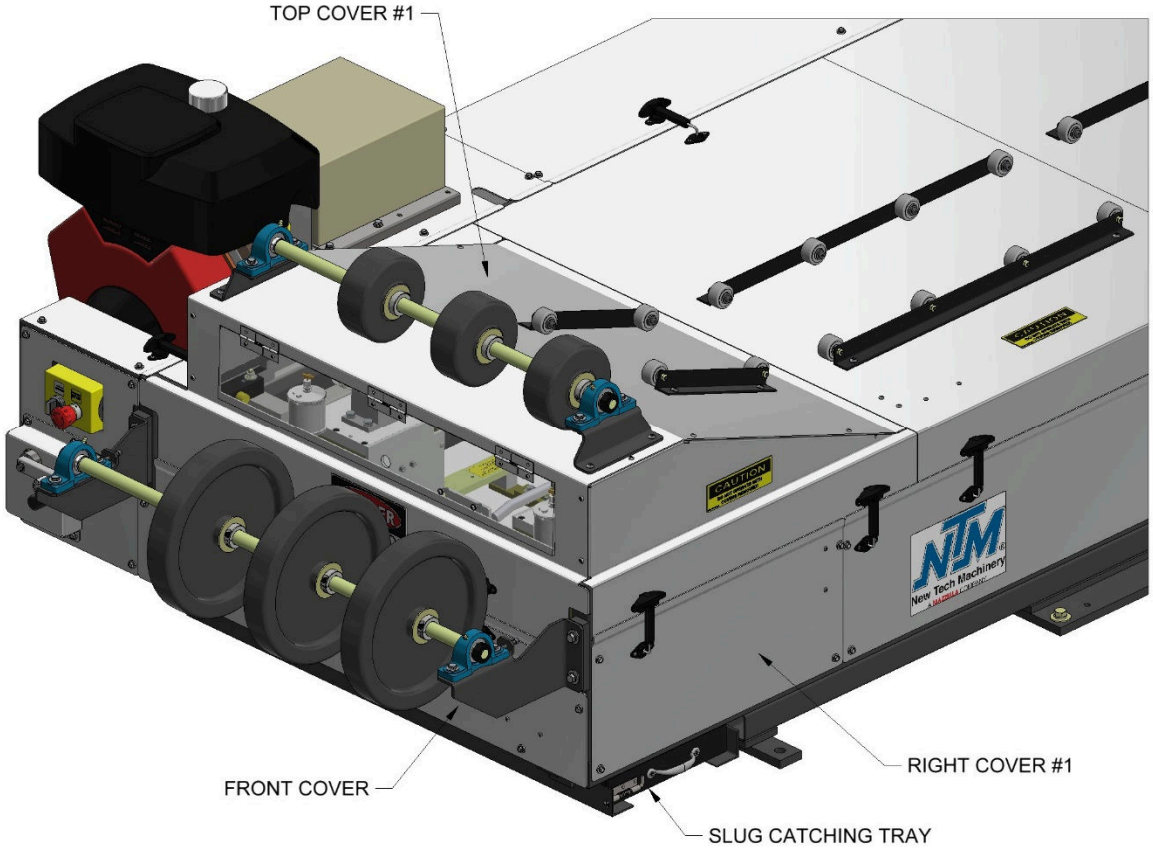


Figure 80: Notcher Covers

3. Cut off a 12” long piece of the coil you will be using.
4. Loosen the Notcher Positioning Bolt “B” on the left Notcher (see Figure 77). Slide the left Notcher left or right as needed and insert the piece of coil into the Notchers.
5. Push the left Notcher tight against the piece of coil and retighten bolt “B”.
6. Align the left Tooling Rail to the Tooling Alignment Mark on the left Notcher. See the section LEFT TOOLING RAIL TO ENTRY GUIDE ALIGNMENT on page 54 for details.

Notcher Cartridge Change

(Refer to Figure 77 through Figure 80)

When changing roller sets in your machine, you may also need to change one or both notcher cartridges. See the Notcher Cartridge Profile Summary section on page 83 for a description of the different profiles. If you are changing from rectangular notchers to one of the contoured notchers or vice versa, then you will need to change both cartridges. If

you are changing from a contoured notcher to one of the other contoured notchers, then you only need to change the right side cartridge. Follow the procedure below to change the cartridge(s).

1. Turn off the machine and lock it out.
2. Remove Top Cover #1, Right Cover #1, and the Front Cover as shown in Figure 80.
3. Shut off the oil reservoir by flipping the toggle down.
4. Remove the tube from the oil reservoir by pushing the retaining ring in and pulling the tube out.
5. Remove the Clevis Pin (see Figure 78).
6. Loosen the Edge Guide Adjustment Bolt "A" (see Figure 77).
7. Remove the four Cartridge Mount Bolts (see Figure 78) using a ¼" allen wrench.
8. Pull the Cartridge out of the housing.
9. Install the new Cartridge by reversing the steps above.
10. When changing cartridges you will also need to adjust the notcher depth. See the section Adjusting Notcher Depth below for details.

Adjusting Notcher Depth

(see Figure 77 and Figure 78)
The notcher depth is the distance from the edge of the panel to the inside of the notch. The correct depth is dependent on the panel profile being formed. When changing from one panel profile to another the depth of one or both notchers will likely need to be adjusted, which can be done by following the procedure below.

1. Turn off the machine and lock it out.
2. Loosen the Edge Guide Adjustment Bolt "A".
3. Find the correct roller set listed on the Edge Guide Setup Dimensions Decal and adjust the Edge Guide until the Edge Guide Alignment Mark is in line with the correct dimension.
4. Tighten the Edge Guide Adjustment Bolt "A".
5. Loosen the Notcher Positioning Bolt "B".
6. Slide the notcher left or right until the Tooling Alignment Mark lines up with the mark on the tooling.
7. Tighten the Notcher Positioning Bolt "B".

ANGLED SLITTER

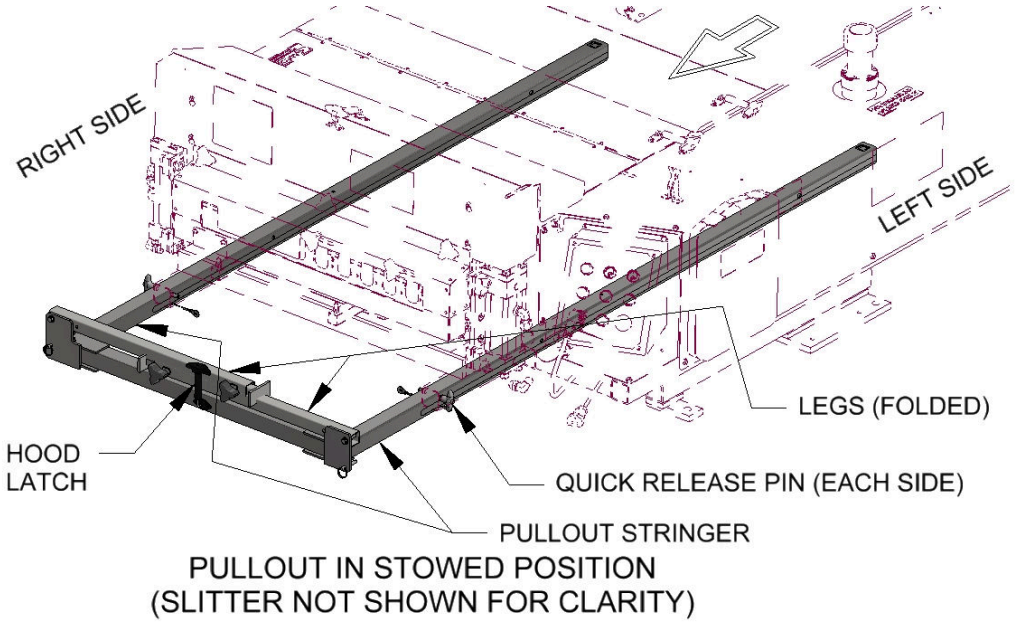


Figure 81: Pulling Slitter Out From Machine

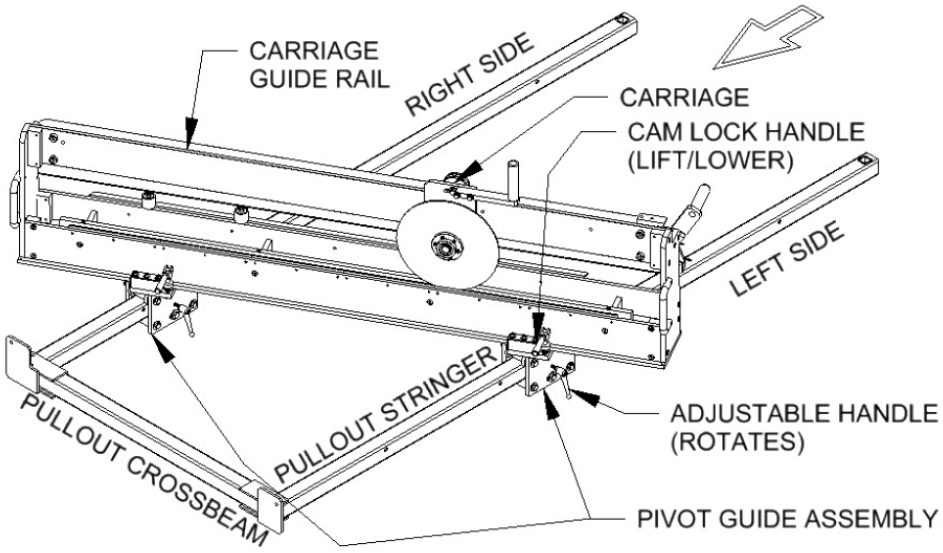


Figure 82: Pivot Guides and Stringers

Slitter Setup

To deploy the slitter, first remove the two T-Handle Quick Release Pins (see Figure 81). They are at the exit end of the machine down below the shear guard. One is on the left side and one is on the right side of the machine.

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ANGLED SLITTER

Note that there are two pivot guide assemblies and that each of them has two handles. The lower 'Adjustable Handle' rotates and controls the entire pivot guide assembly being able to roll along the pullout stringer. When this one is tightened down the pivot guide locks down on the stringer. The upper 'Cam Lock Handle' lifts and lowers by 90˚ and controls sliding of the entire slitter across the top surface of the pivot guide. Lifting the handle allows this motion while lowering the handle prevents it.

Loosen the adjustable handles on both Pivot Guide Assemblies (see Figure 82). Firmly grasp the Pullout Crossbeam, lift lightly, and pull away from the machine about 5 ft (1.5 m) until the Pullout Stops engage. Install both Quick Release Pins to lock the Pullout in this operating position. Fold down both legs and adjust the length of each to firmly support the end of the Pullout.

Determine the direction of cuts to be made with the slitter and move each Pivot Guide Assembly as far away from the shear guard as needed to approximate the expected angle. Lift both Cam Lock Handles and slide the slitter lengthwise until the overhangs at each end are about equal. Reach across and lower the Cam Lock Handle on the right side.

Five steps are required before running panels through the machine:

1. Raise the Pinch Bar.
2. Move the Hold-Down Bumpers along the length of the Pinch Bar to ensure the Bumpers will clear both the male and female legs of the panels to be run.
3. Pull the pin locking the Carriage to the Guide Rail.
4. Check that the slitter blade clears the path of the panel and both panel legs. Move the blade to clear if necessary.
5. Rotate the Panel Lifters to be in-line with the panel. They may need to be moved in or out to position them as near to the panel edges as possible

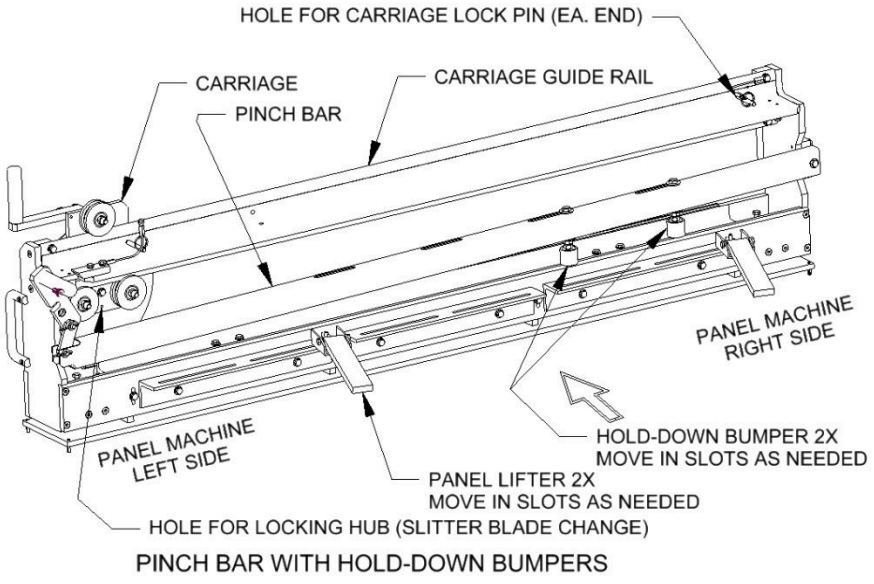

Figure 83: Pinch Bar

Panels may now be run. Run the first panel that requires an angled cut. The machine will pause for the cut to be made. Final adjustments can now be made to prepare for the cut (See Figure 83 and Figure 84). Slide the whole slitter along the length of the pullout until the edge of the Cut Indicator aligns with the corner of the right (female) notch. Clamp down the Adjustable Handle on the right side. This Pivot Guide will remain locked in position while adjustments are made on the left side Pivot Guide. Move the left

side Pivot guide along the Pullout until the Cut Indicator aligns with the notch on this side.

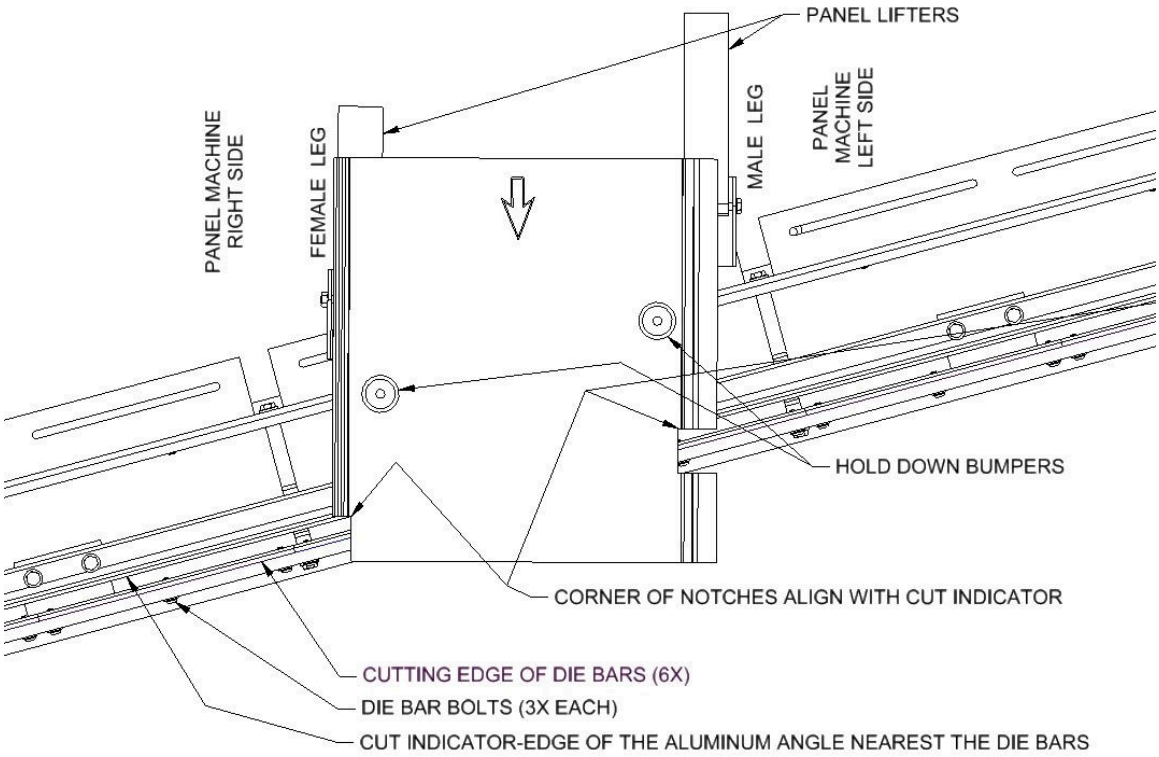

Figure 84: Cut Indicator, Hold-down Bumpers, and Panel Lifters

While adjusting the angle to align with the left side notch, the right-side (female) notch will have moved away from the corner of its notch. Move the left side Pivot Guide until the Cut Indicator is parallel to a line connecting the two notch corners. Lock down both Cam Lock Handles and the slitter will hold the angle needed for the slits.

Loosen both Adjustable Handles if needed and move the slitter along the Pullout until the Cut Indicator aligns with the corner of both notches. Make any additional adjustments to the angle and position as needed. Lock down both Cam Lock Handles and Adjustable Handles.

Prior to making the cut, the panel needs to be secured to the Slitter. Lower the Pinch Bar to clamp down on the panel. Push the Carriage across the Guide Rail to complete the cut and pull it back to its starting position. Raise the Pinch Bar. Remove the triangular piece of scrap and discard. Press Resume on the Control Panel.

Additional cuts should require few if any adjustments to the angle or position of the slitter. When all parts of one side of a hip or valley have been completed it will be necessary to flip the direction of cut. Lift both Cam Lock Handles and loosen both Adjustable Handles. Move both Pivot Guides and slide the slitter lengthwise as needed. Complete adjustments as described above to align the slitter with the notches. Lock down all Cam Lock and Adjustable Handles and lower the pinch bar prior to making a cut.

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Stowing the slitter for transport

Loosen both Cam Lock Handles and Adjustable Handles. Rotate the Slitter until it is parallel to the hydraulic shear. Raise the adjustable feet on each of the legs and lock them in the raised position. Rotate both legs up to the top side of the crossbeam to their storage position. Note that the leg with the lower pivot bolt must be put into storage position first. Engage the hood latch to keep the folded legs in position.

Remove both Quick-Release Pins from the Pullout Stringers. Grasp the Pullout Crossbeam and firmly push the Pullout toward the machine until it is about a foot [300] from the stowed position. Move the Slitter as close to the Pullout Crossbeam as it will go and secure both Adjustable Handles. Rotate both Edge Supports to the side so they are parallel to the shear. Push the Pullout the rest of the way in so that the Slitter rests adjacent to the shear guard. When the Pullout is fully stowed, the holes will align for insertion of the Quick Release Pins. Slide the entire slitter assembly lengthwise as needed until it aligns with the machine. Neither end of the slitter should project beyond the trailer or truck bed. Install the transport braces and both Pins locking the pullout in the stowed position. The transport braces mount on the quick-release pin at one end and bolt to the slotted holes of the panel lifter support angles at the other end.

Firmly lock down both Cam Lock Handles. Return the Carriage to one of the end positions and secure in place with the locking pin.

Panel machine usage when the Angled Slitter is not needed

When panels are square on both ends the Angled Slitter will not be used. The Slitter can remain locked in place adjacent to the hydraulic shear. Four steps are required before running panels through the machine:

1. Raise the Pinch Bar. Check it occasionally to make sure that it remains in this position while panels are being produced.
2. Lift both Cam Lock Handles and push the entire slitter assembly toward the right side of the machine to clear the area in front of the Control Panel. Lower both Cam Lock handles to keep the slitter in this position.
3. Move the Hold-Down Bumpers along the length of the Pinch Bar to ensure the Bumpers will clear both the male and female legs of the panels to be run.
4. Check that the slitter blade clears the path of the panel and both panel legs. If needed, pull the pin locking the Carriage to the Guide Rail. Move the Carriage to the other end of the Guide Rail and secure in place with the pin provided.

Pinch Bar Adjustment

The function of the Pinch Bar is to hold the panel firmly in place so it can't move while the cut is made. The Hold Down Bumpers have two adjustments:

1. They may be moved along the length of the Pinch Bar. They should be spaced as far apart as possible while also being clear of the moving panel legs. Move them to different slots if needed.
2. Pressure exerted by the bumper to hold the panel in place may be increased or decreased as needed. Raise the pinch bar before making any adjustments. Loosen the jam nut at the top of the bumper. Turn the bumper 'down' to increase pressure or 'up' to decrease. Tighten the jam nut to hold the setting. The upper nut holds the assembly from moving in the slot.

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It is best to have equal pressure exerted on both bumpers. This can be estimated by looking at the bulge on the sides of the bumper when the pinch bar is locked down. If one bulges more than the other, adjustments should be made until they both bulge about the same amount. If the panel slides during a cut pressure on both bumpers should be increased.

Changing the Slitter Blade

When the blade is dull it may be flipped over to use the other cutting edge. To change the blade first move the carriage to one end of the guide rail and secure it in place with the hitch pin. Rotate the blade until the punch mark on the face of the hub is at the Bottom Dead Center (BDC) position. Two hex keys will be needed. One is inserted into the hole at the bottom-rear edge of the carriage body under the guide rail (See Figure 83). If needed rotate the blade slightly until this hex key bottoms out and the hub is locked from rotating. The other hex key is used to remove the screws from the blade retainer. Pull the blade retainer off and replace the blade. The edge of the blade contacting the die bars must be a sharp edge. Replace the retainer and screws and securely tighten. Remove the hex key and pull the hitch pin to resume operation. Care should be taken when handling the slitter blade to maintain its sharpness and flatness.

Changing the Die Blades

Each of the die blades is held in place with 3 socket head screws. Remove the screws. Each die blade has two cutting edges so the blade may be turned over and reinstalled. Replace all blades that are dull and reinstall all screws finger tight. Note that a gap between die bars is not acceptable. Start installation in the center and work outward. Tap the end of each bar as it is installed to remove any gap. After all bars are in place with all screws finger-tight, proceed to torque down all screws. Order new die blades and a slitter blade so a fresh set can be installed as needed.

Carriage is loose on the guide rail

The carriage body is guided along the guide rail by three wheels. The guide wheel on the top side of the guide rail is used to make adjustments. Two wrenches are needed to hold the bolt head and loosen the nut securing this wheel. With the nut slightly loosened, tap the bolt head with a wrench until the bolt moves a small amount. The bolt slides in an inclined slot. Moving the bolt to the left will tighten the wheel grip on the guide rail while moving the other direction will loosen it. Repeat making small adjustments until the carriage glides freely along the guide rail without binding.

PROFILE ADJUSTMENTS

Care must be taken when making any adjustments to the roller systems. A slight change can have dramatic effects.

Eccentric Shafts

Every roller set is equipped with eccentric shafts on selected sub stations for adjusting the angles and gaps in the panel.

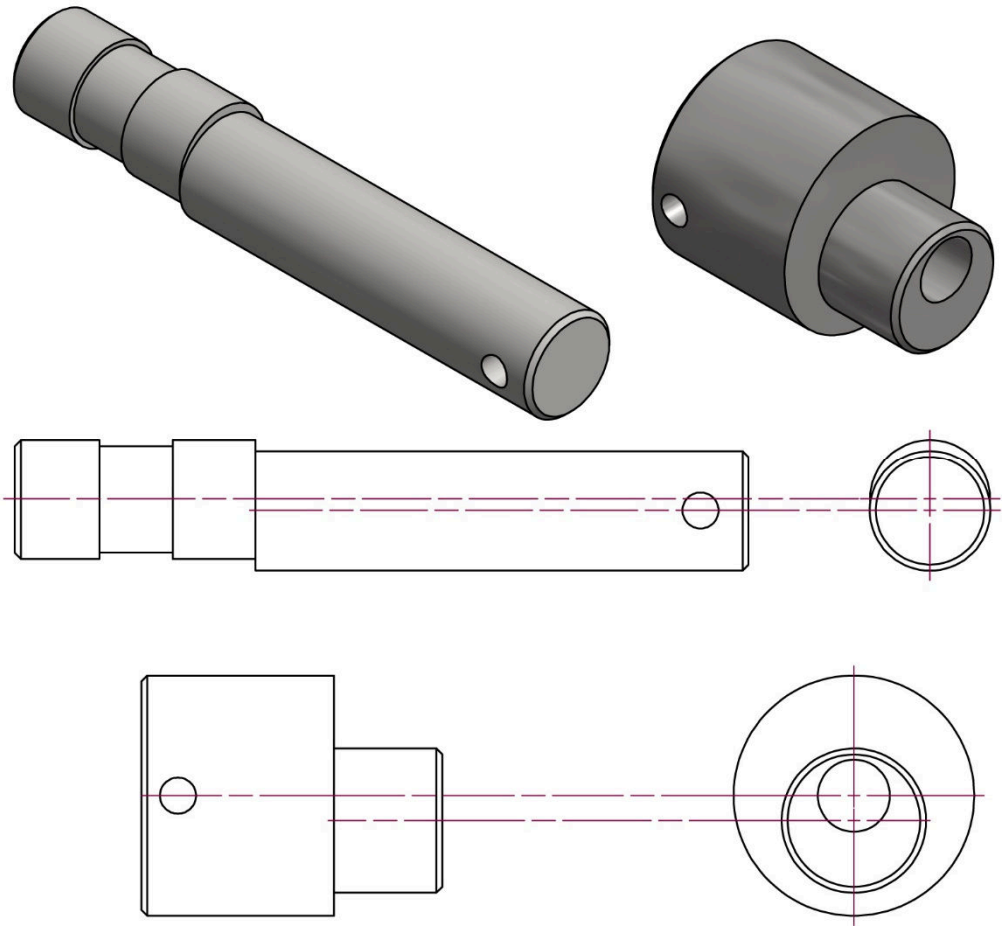

Figure 85: Eccentric Shafts

To adjust an eccentric shaft, use the following procedure:

1. Mark the current orientation of the shaft to serve as a starting point of reference and a point to return to if the adjustment yields negative results.
2. Loosen the set screw and/or bolt that holds the shaft in place.
3. Rotate the shaft to the desired angle. (See Figure 87 - Figure 89).
4. Re-tighten the set screw and/or bolt.

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PROFILE ADJUSTMENTS

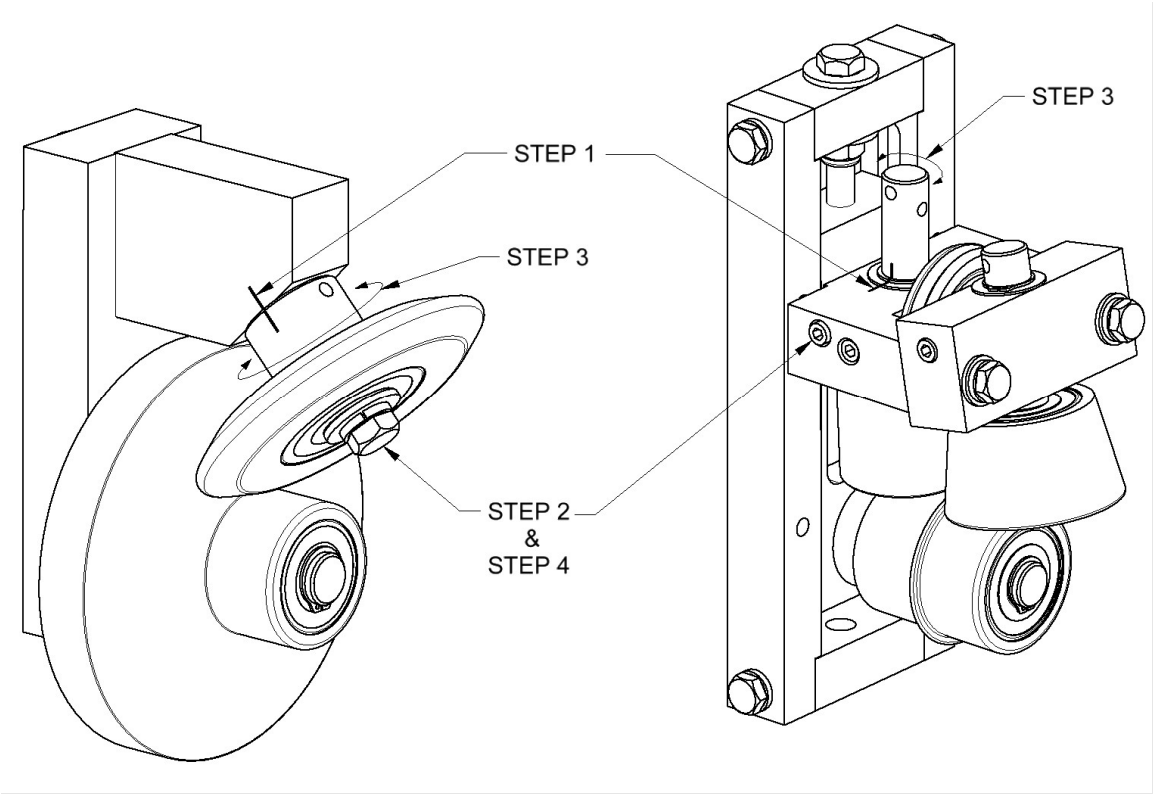

Figure 86: Adjusting Eccentric Shafts

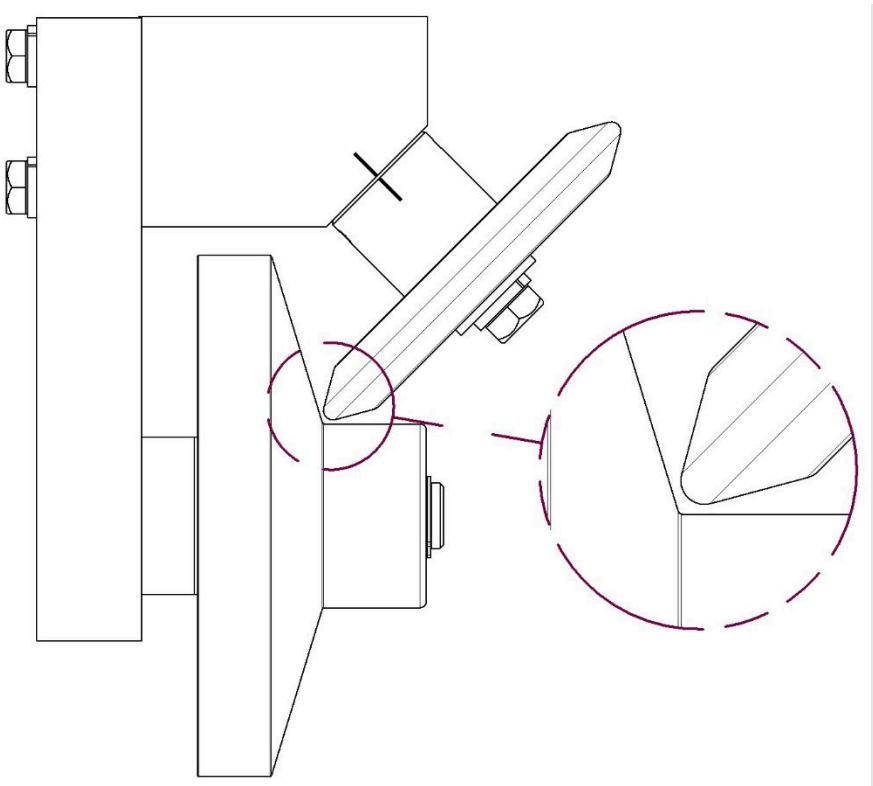

Figure 87: Eccentric Shaft Proper Adjustment

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PROFILE ADJUSTMENTS

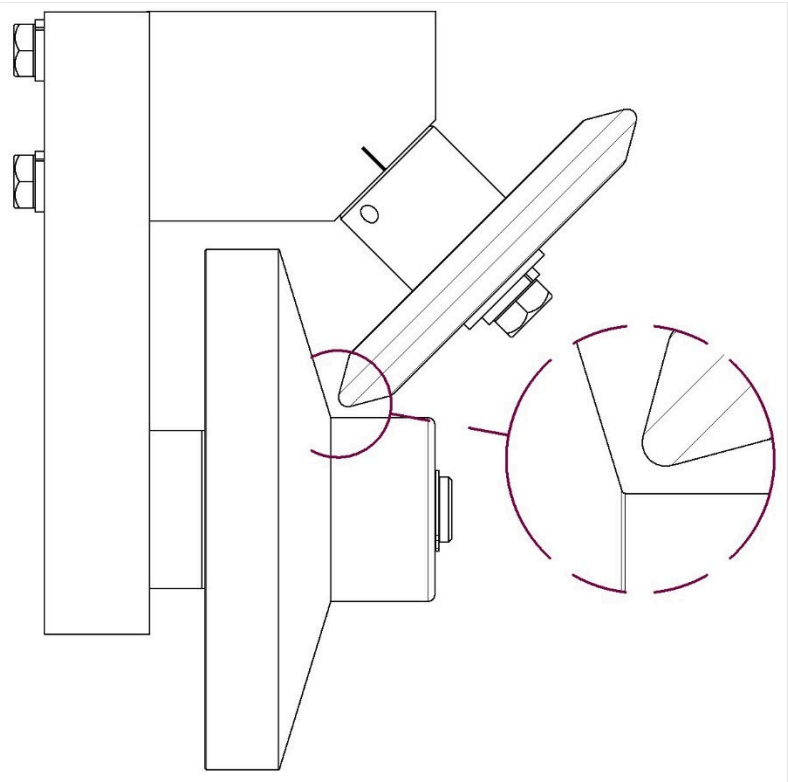

Figure 88: Eccentric Shaft Too Loose

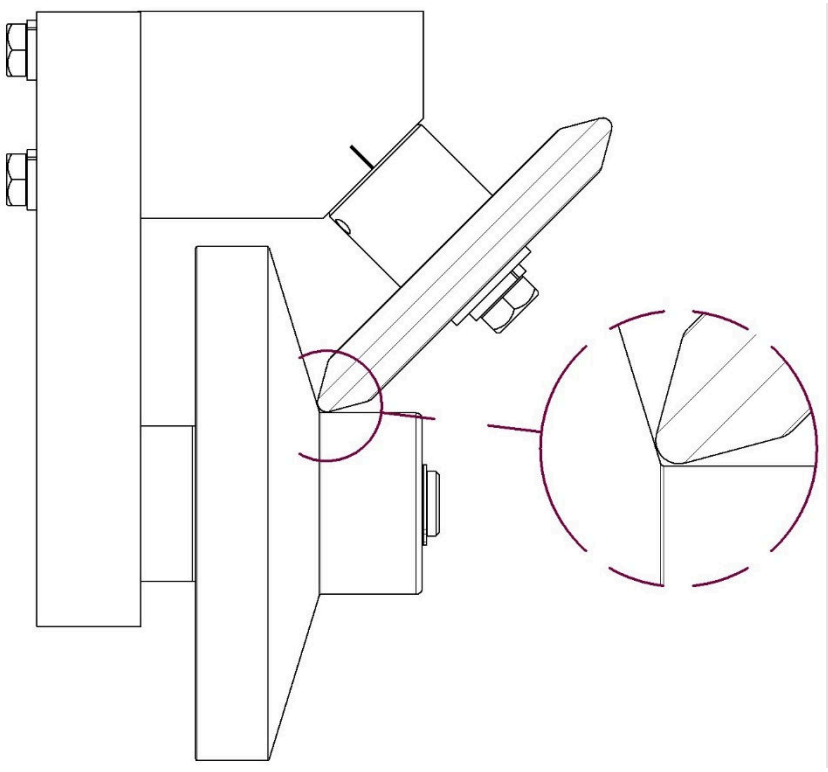

Figure 89: Eccentric Shaft Too Tight

CHAPTER 19

PROFILE ADJUSTMENTS

Camber Stations

Every roller set is equipped with one or more camber stations toward the exit end of the machine. The camber station adjustment can be used to make the panel run straight if it is going uphill or downhill.

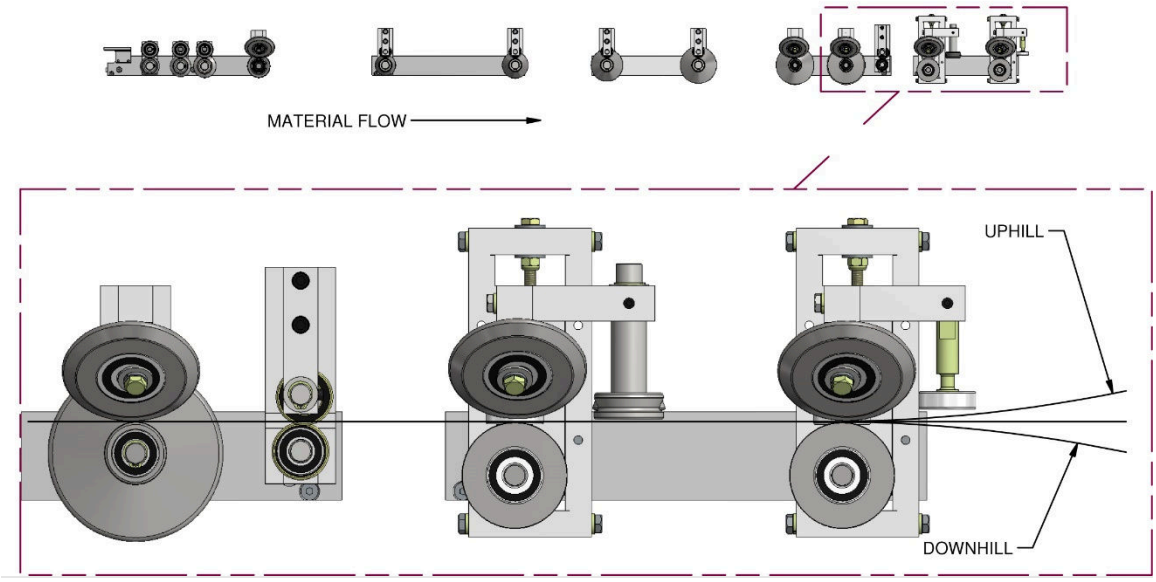

Figure 90: Camber Adjustment - Uphill/Downhill

If the panel is going uphill or downhill, ensure that the run-out stands are properly adjusted for height and that the panel is able to run straight out of the machine. If the run-out stands are in the correct alignment, adjust the camber stations as necessary using the following procedure:
(See Figure 91)

1. Create a base point to start from by marking the top camber bolt as well as scribing a line across the center block and the two uprights.
2. If the panel is running downhill, adjust the 2nd to last station down by turning the top bolt counter-clockwise. If the panel is running uphill, adjust the 2nd to last station up by turning the top bolt clockwise.

Note: It is recommended to make small adjustments such as a 1/8 turn. Then run a panel to see the results after each adjustment. Over adjusting the stations can have unpredictable results.

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PROFILE ADJUSTMENTS

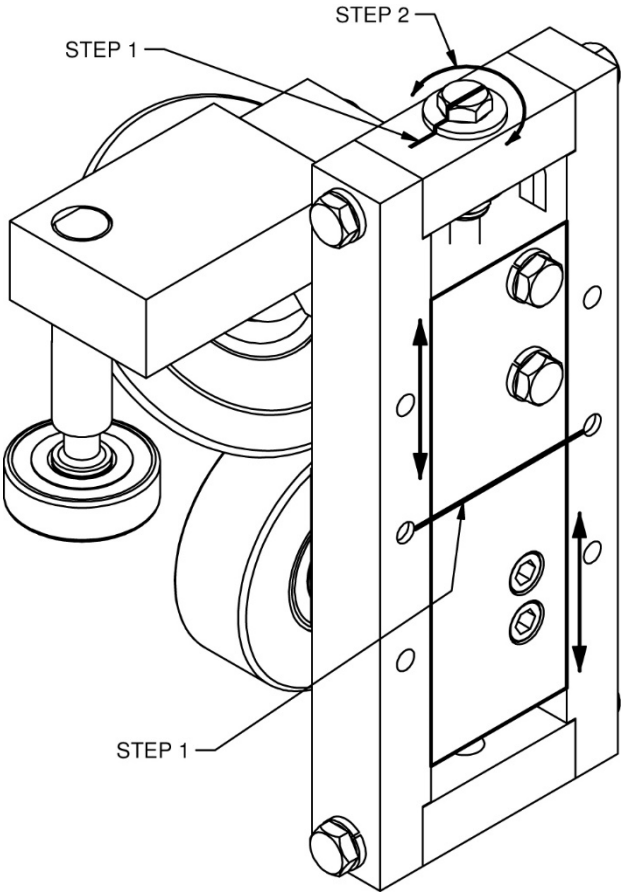

Figure 91: Camber Adjustment

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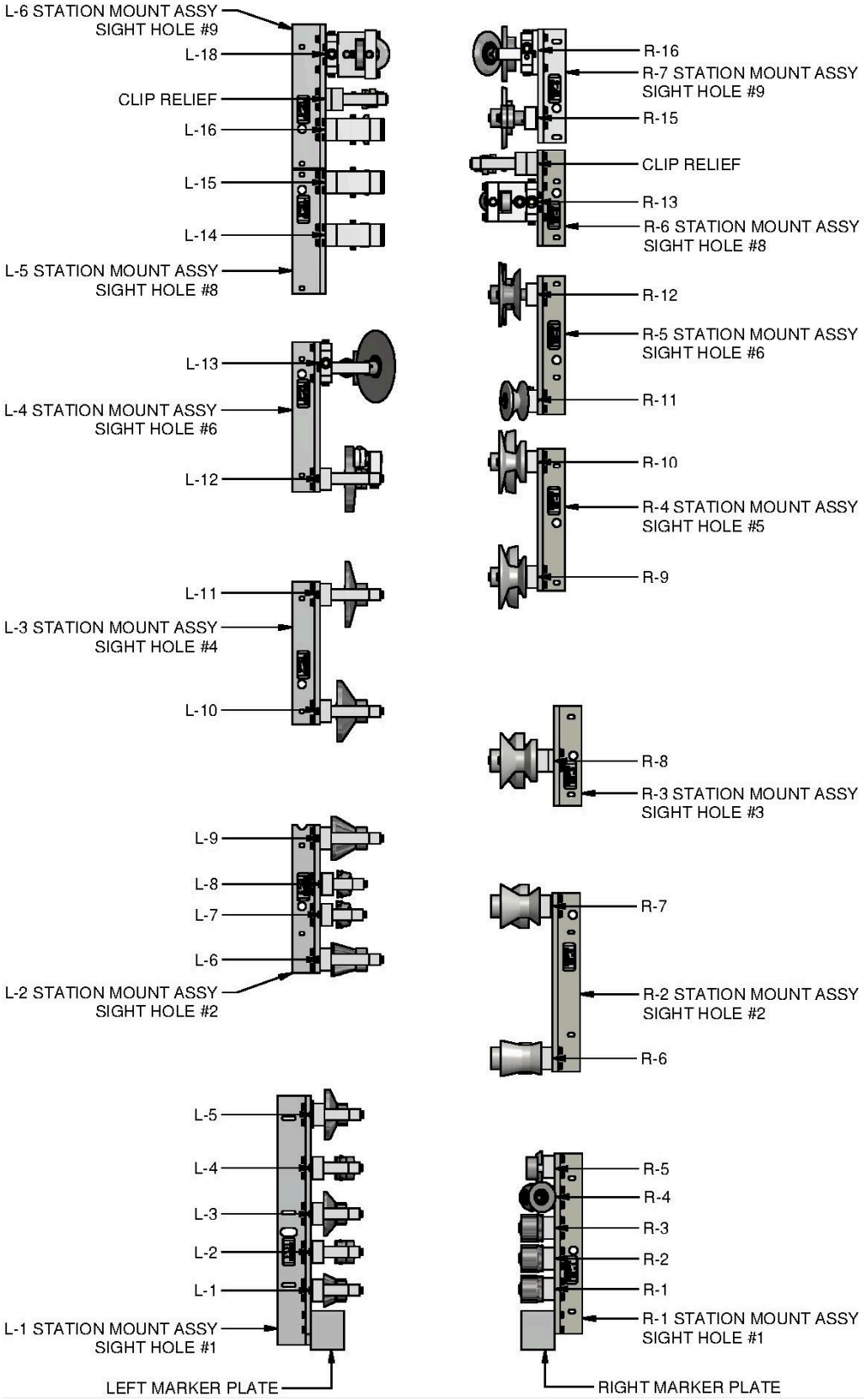

Figure 92: 275 Roller System

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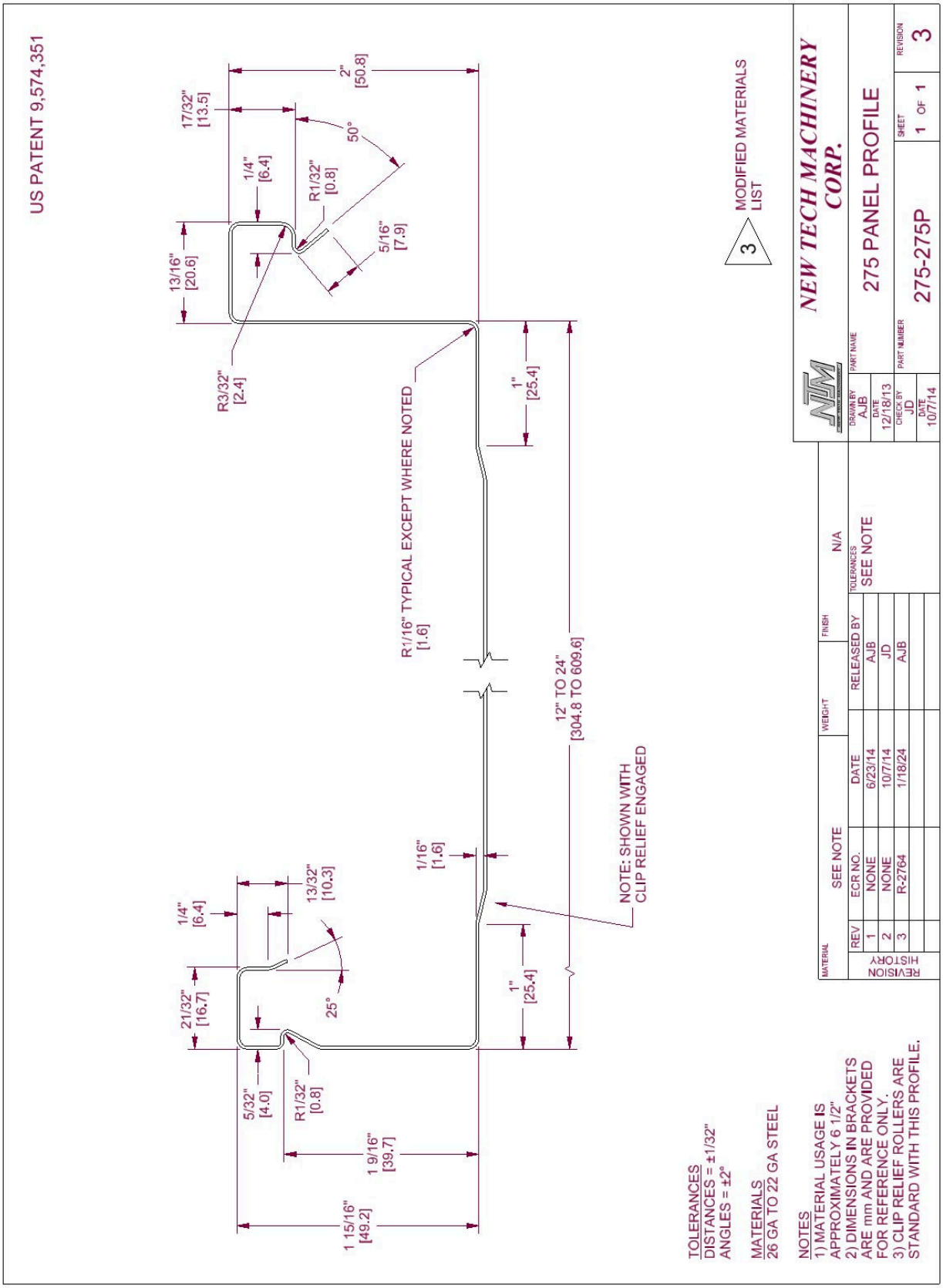

Figure 93: 275 Panel Profile

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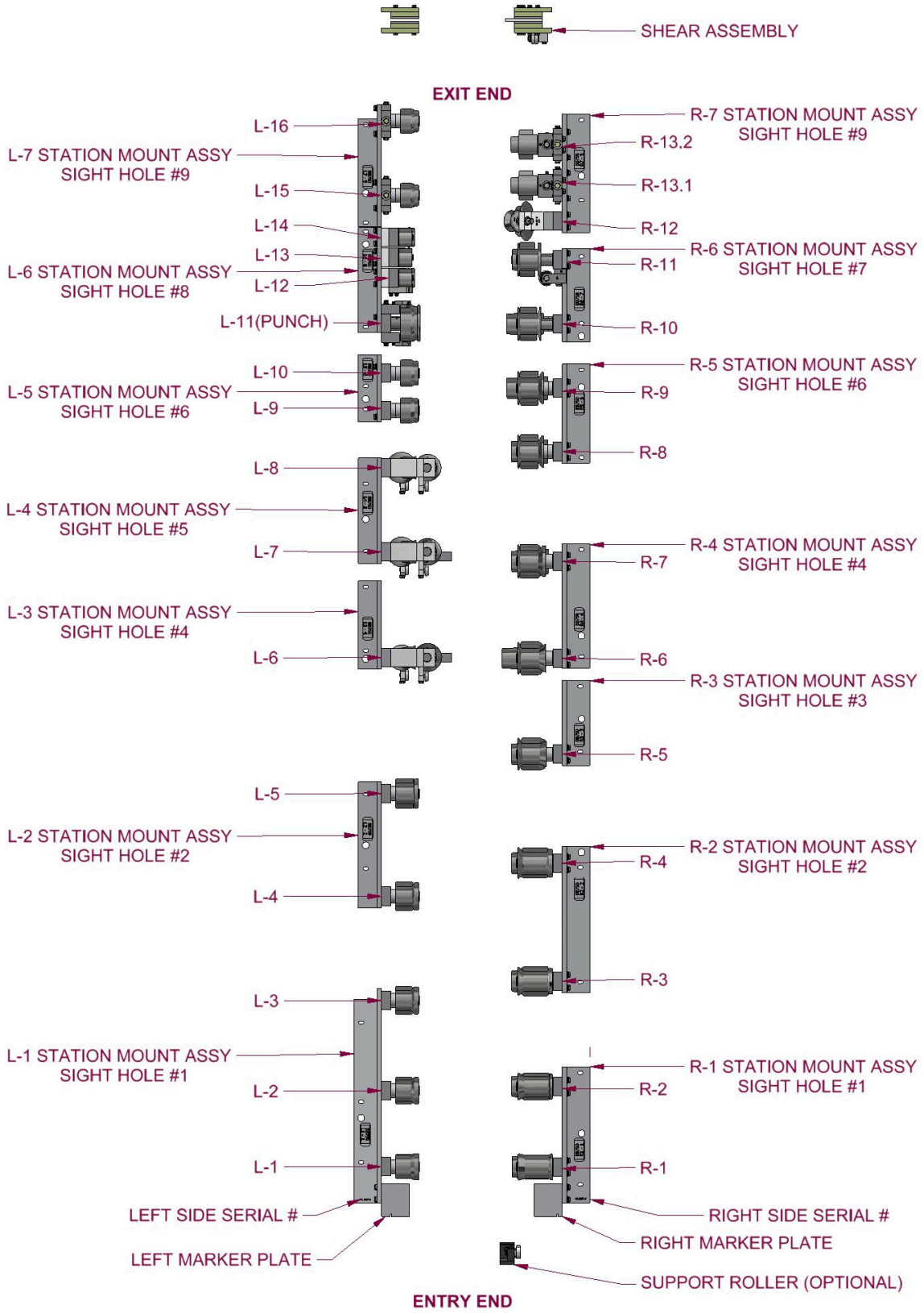

Figure 94: BBQ750 Roller Set

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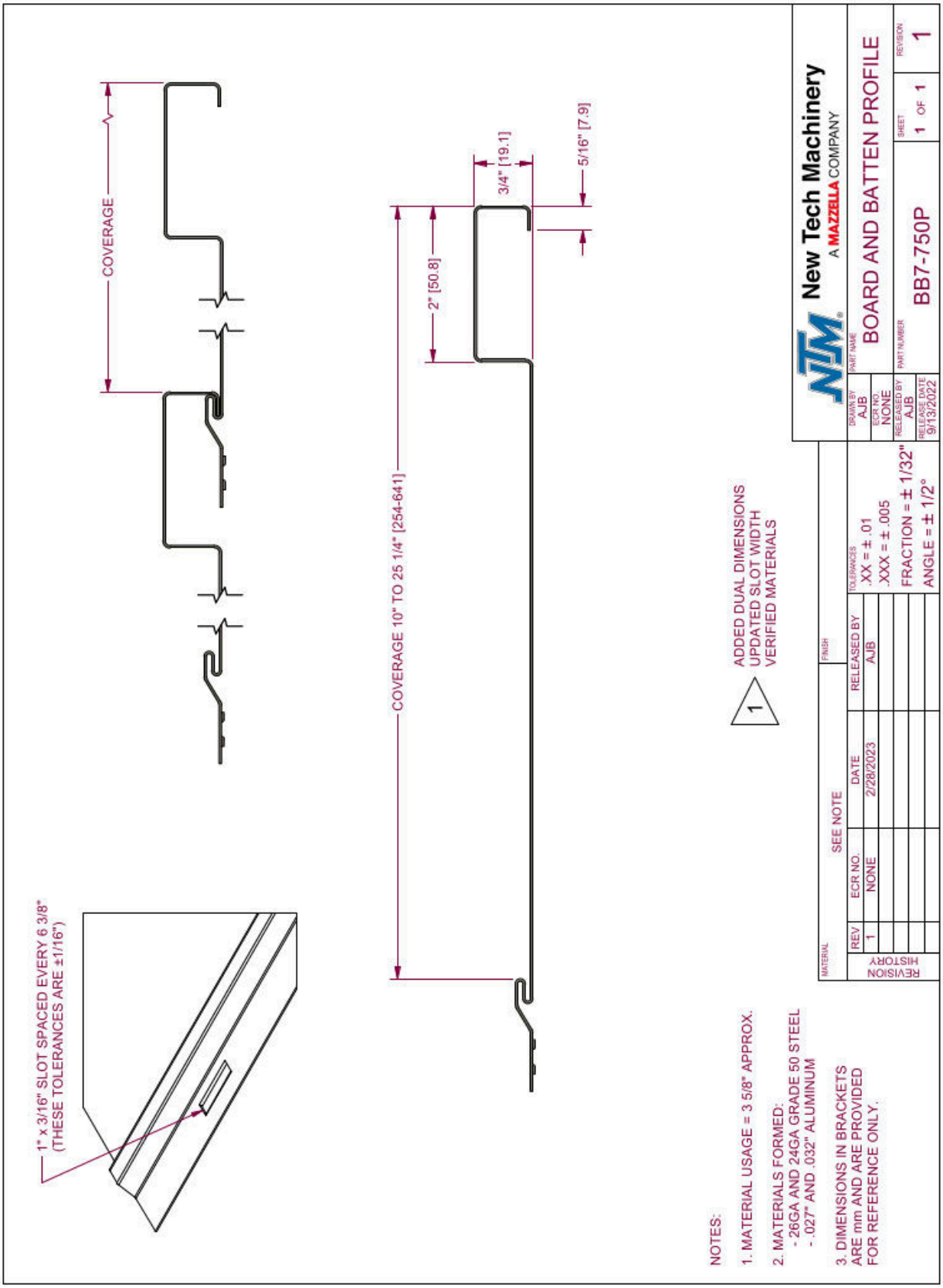

Figure 95: BB750 Profile

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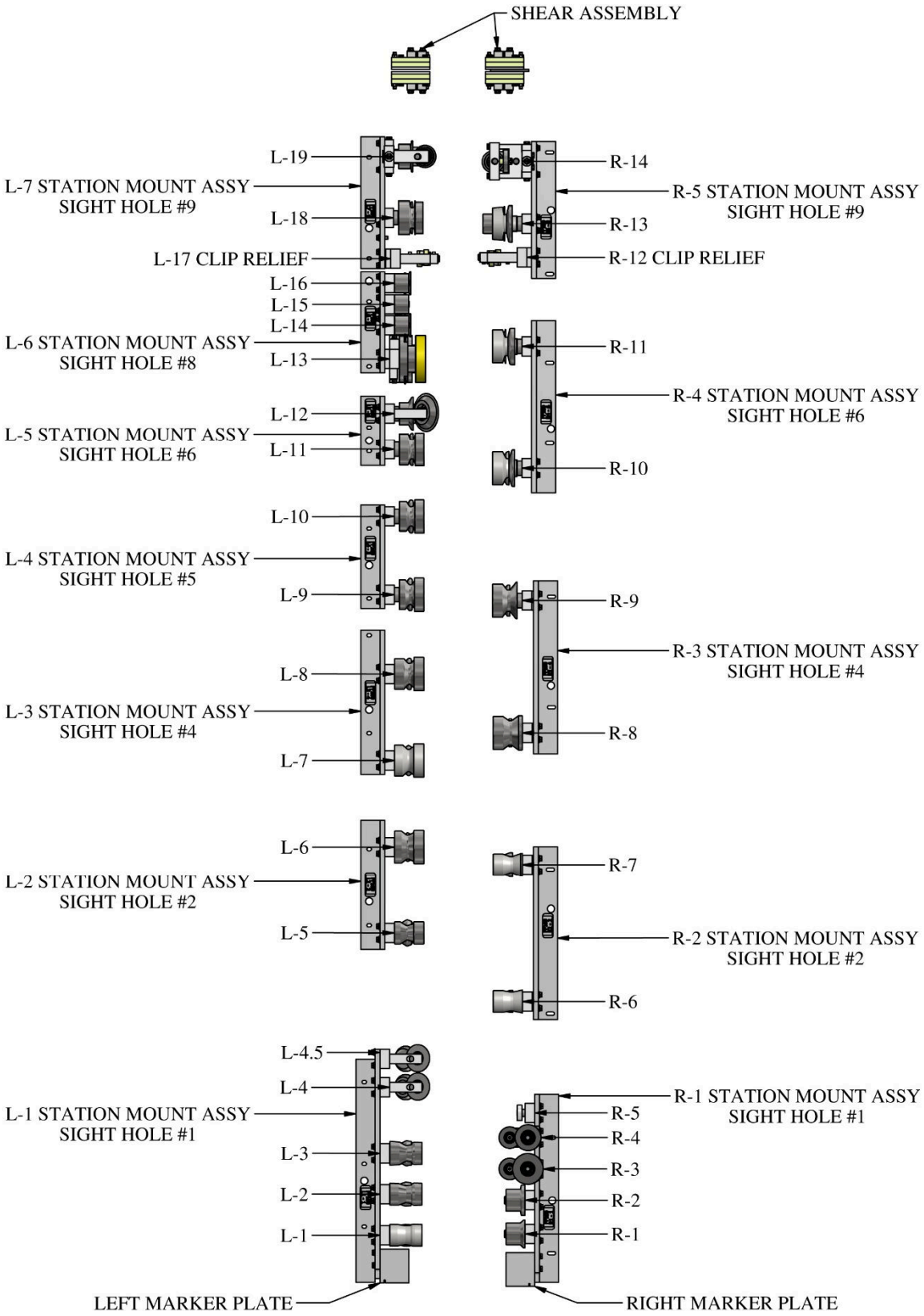

Figure 96: FFQ100 Roller System

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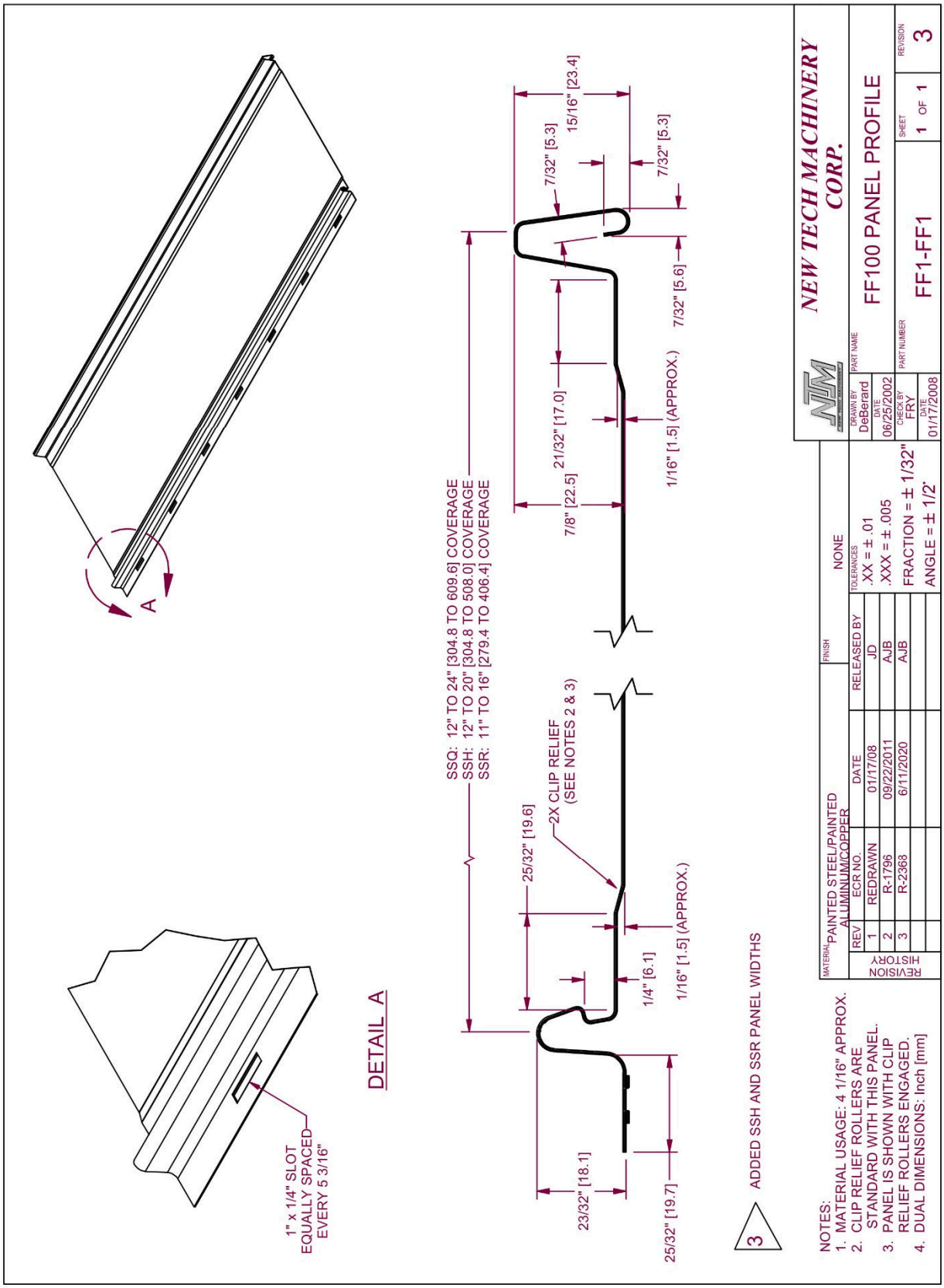

Figure 97: FF100 Panel

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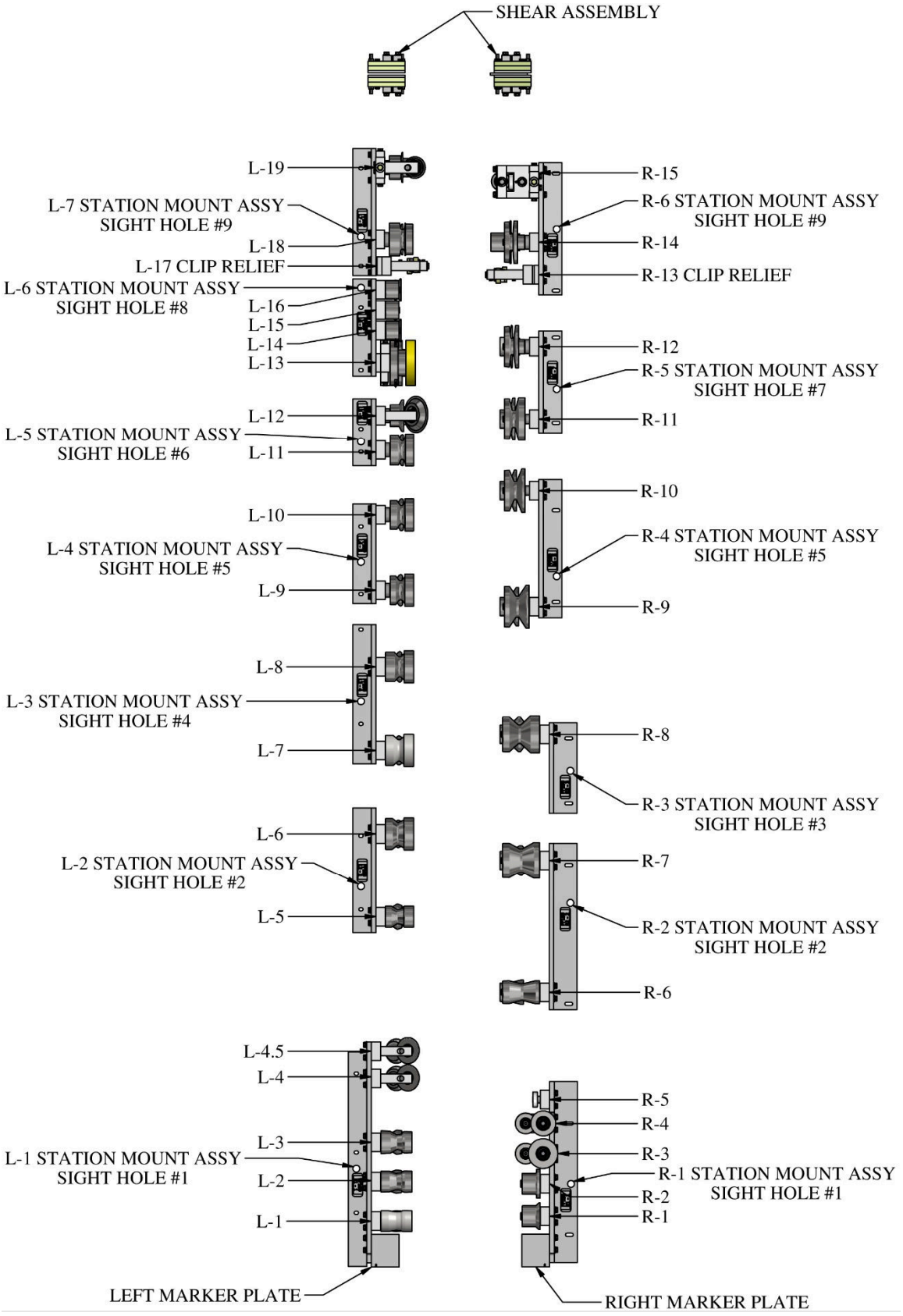

Figure 98: FFQ150 Roller System

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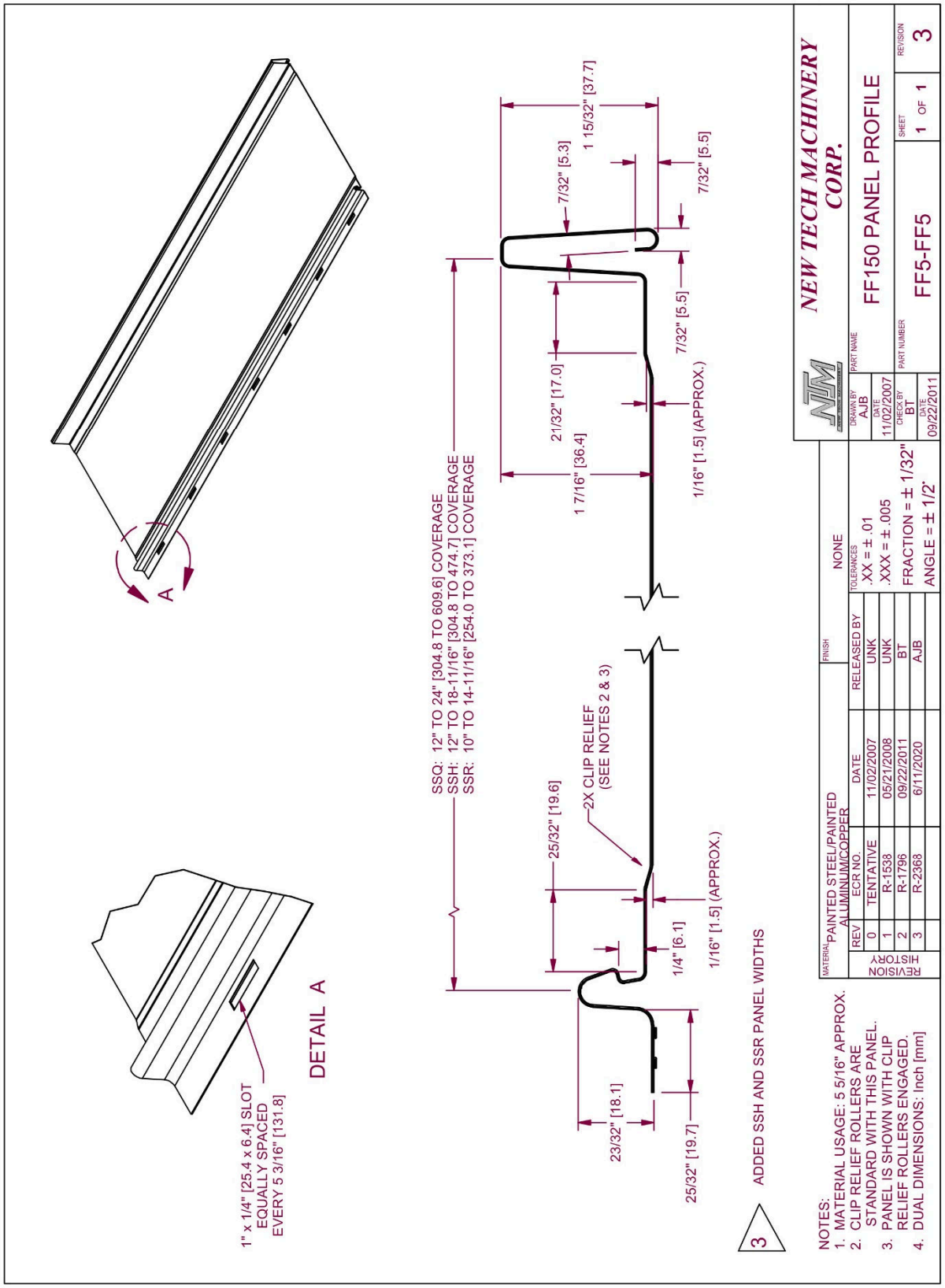

Figure 99: FF150 Panel Profile

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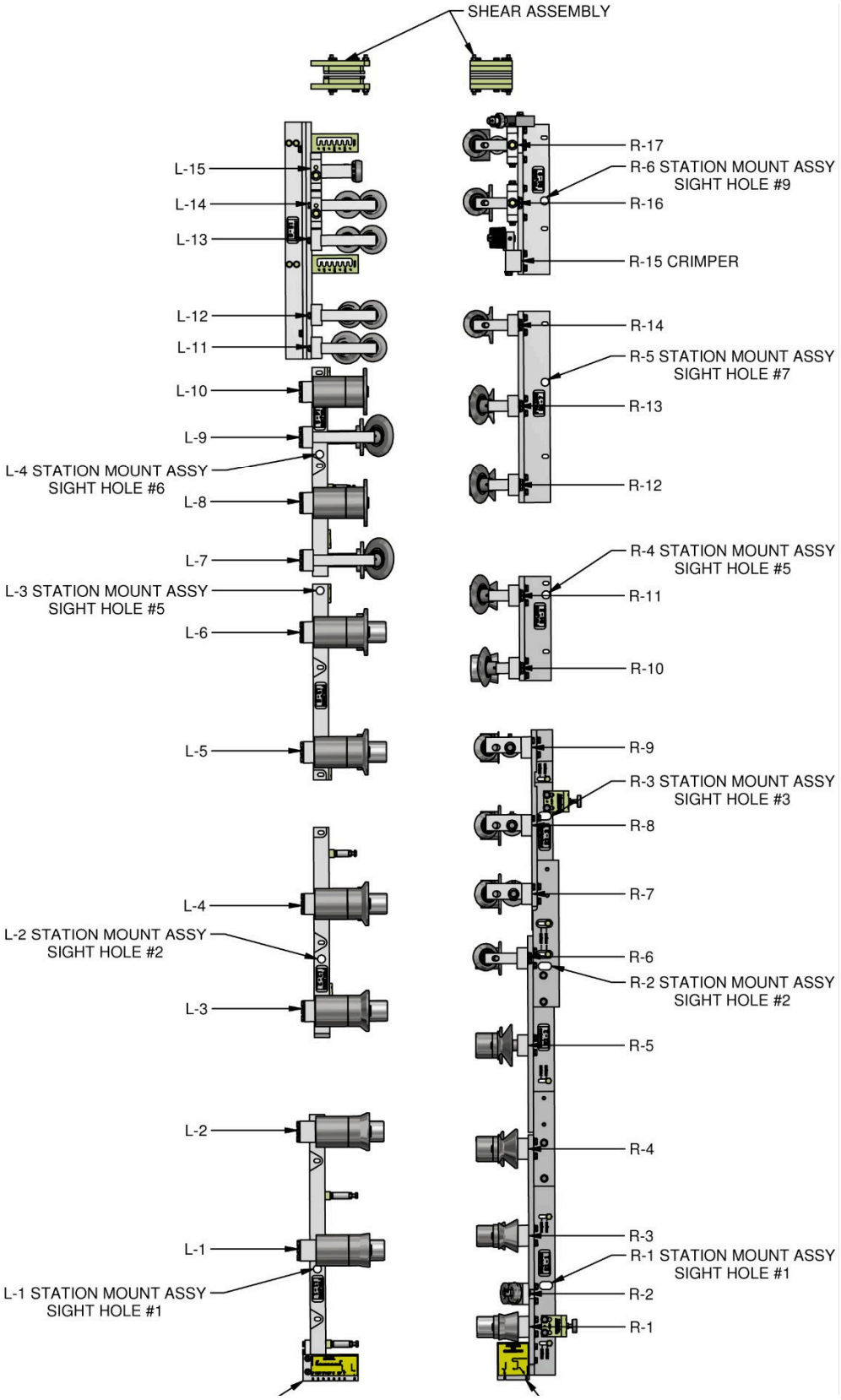

Figure 100: FWQ100 Roller System

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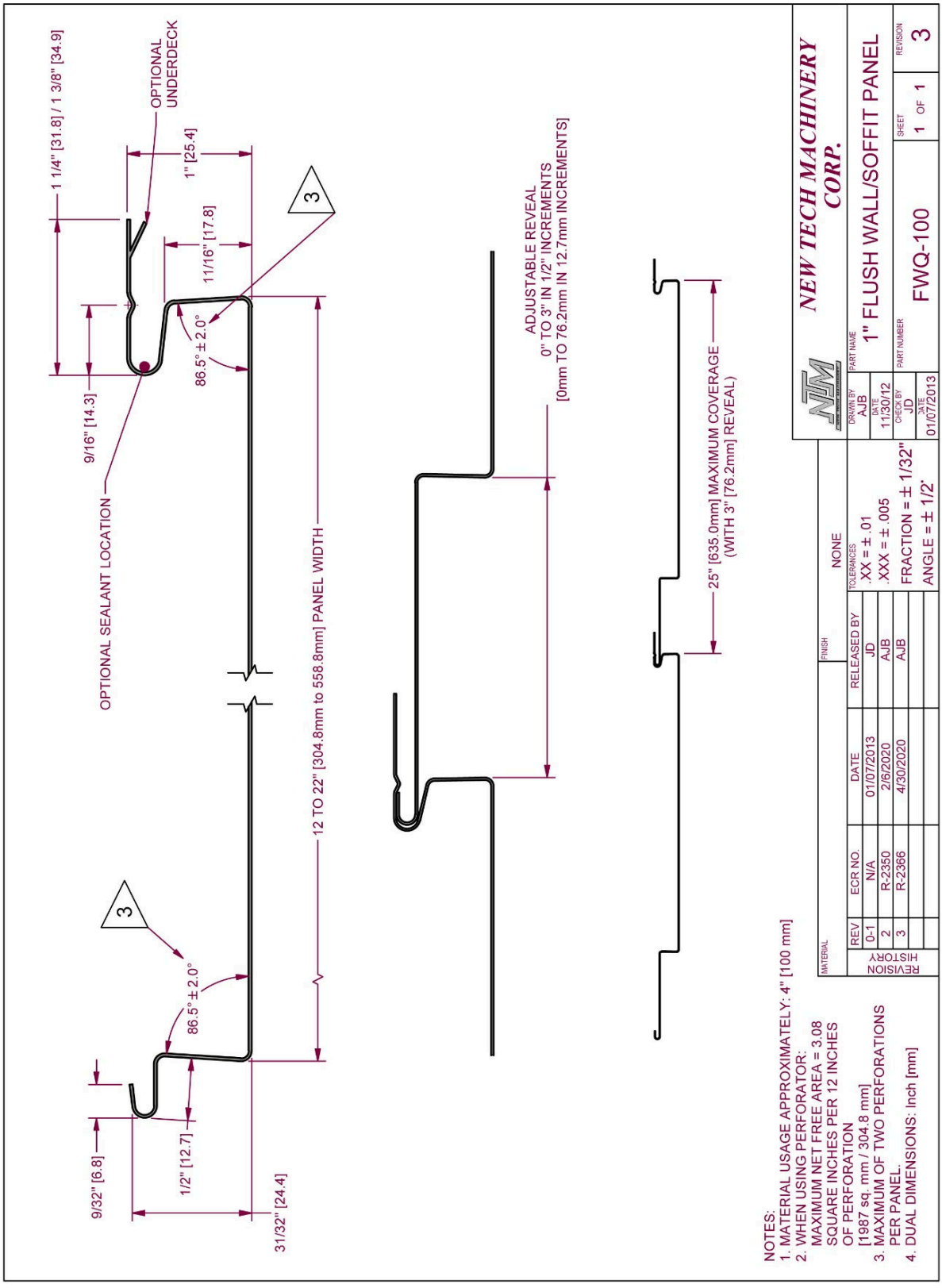

Figure 101: FWQ100 Panel Profile

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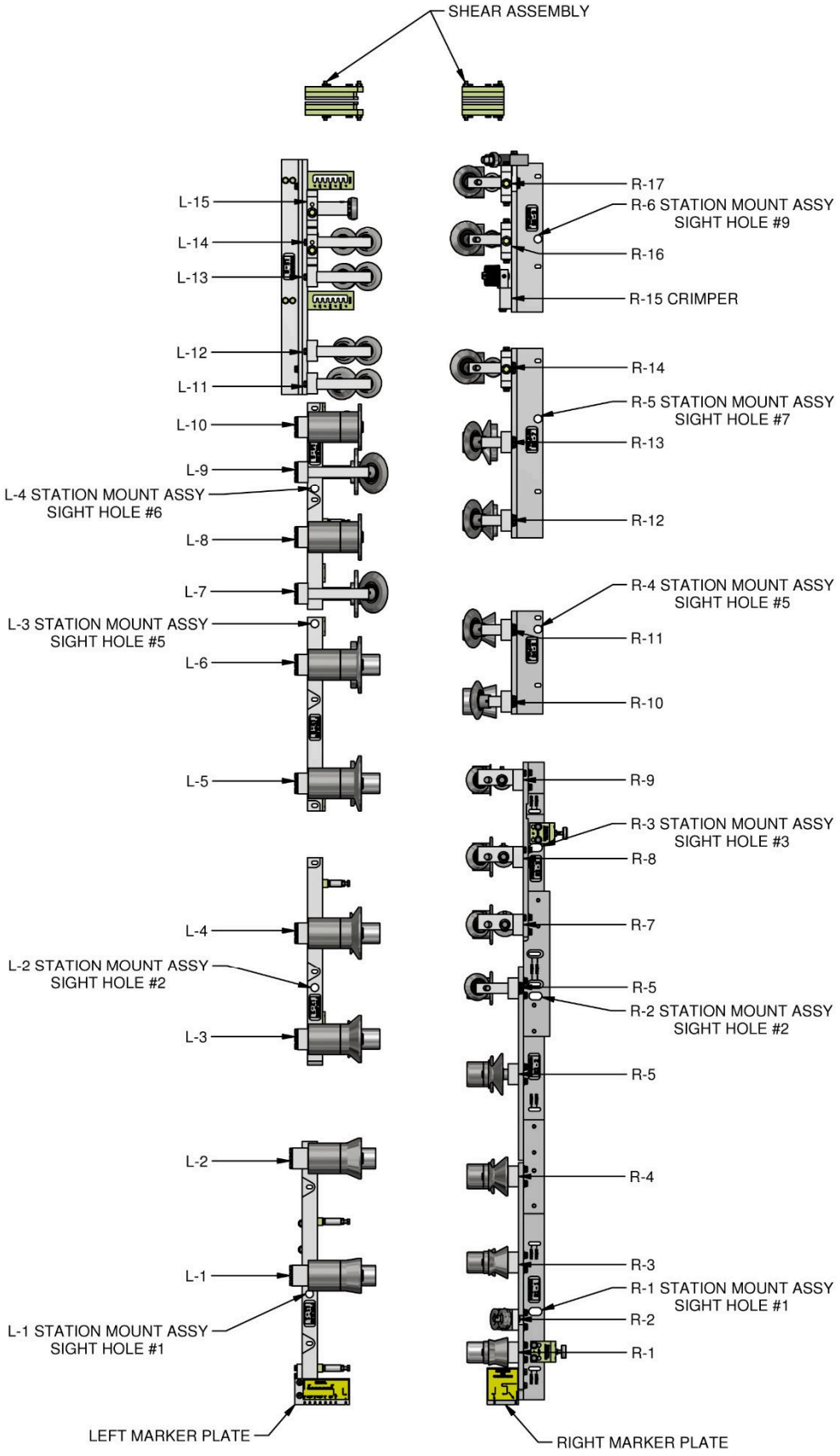

Figure 102: FWQ150 Roller System

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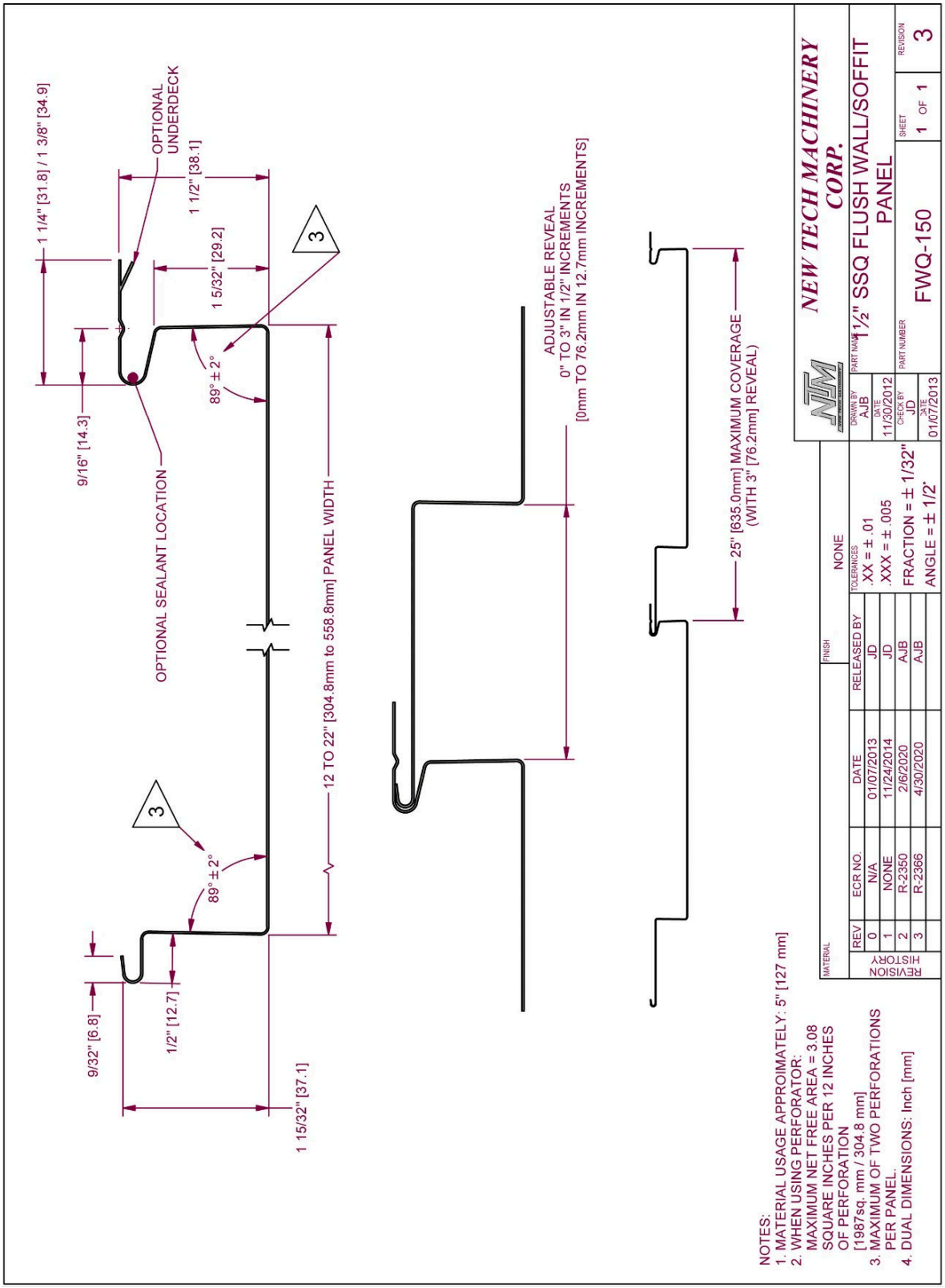

Figure 103: FWQ150 Panel Profile

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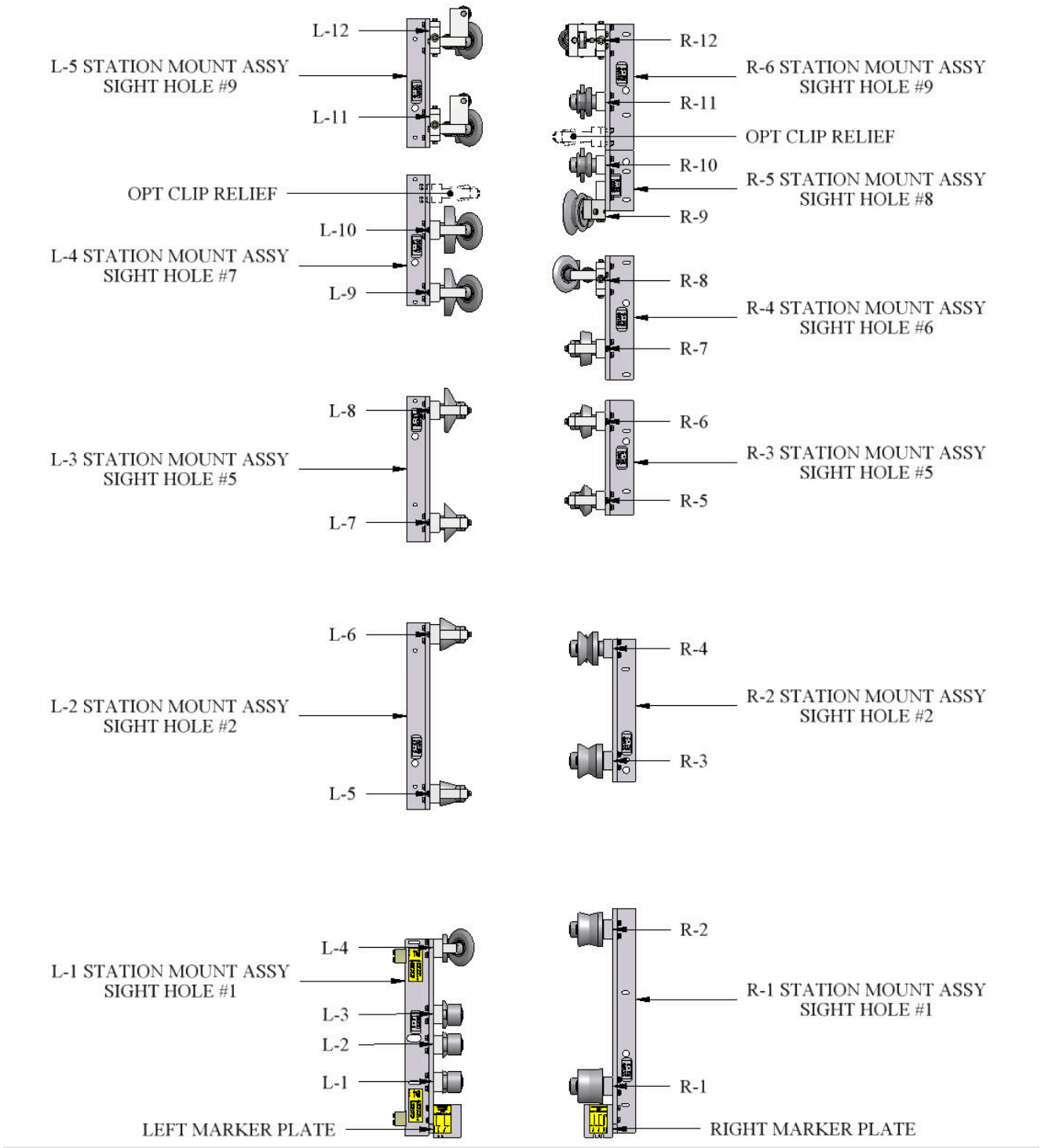

Figure 104: SSQ100 Roller System

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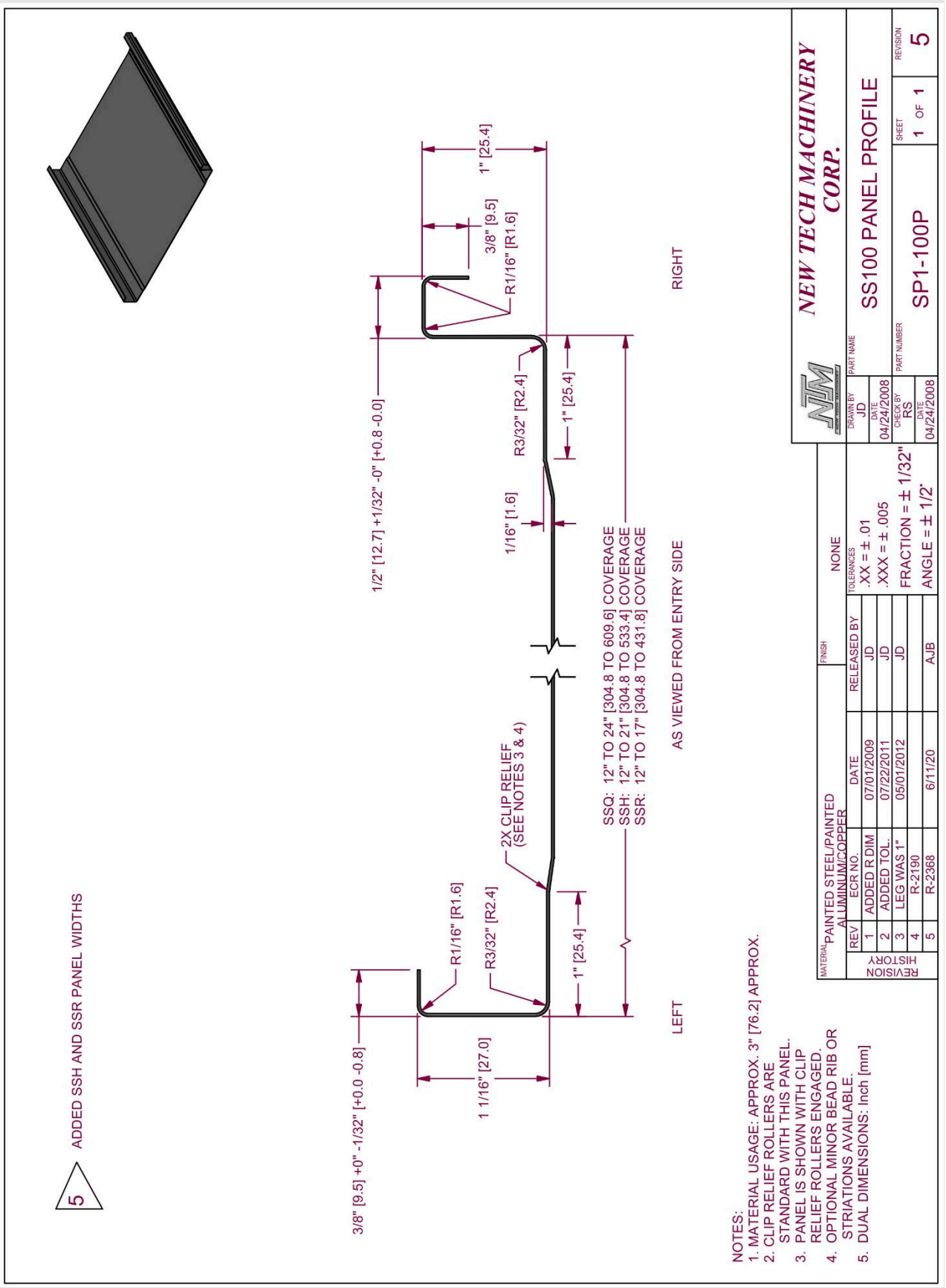

Figure 105: SS100 Panel Profile

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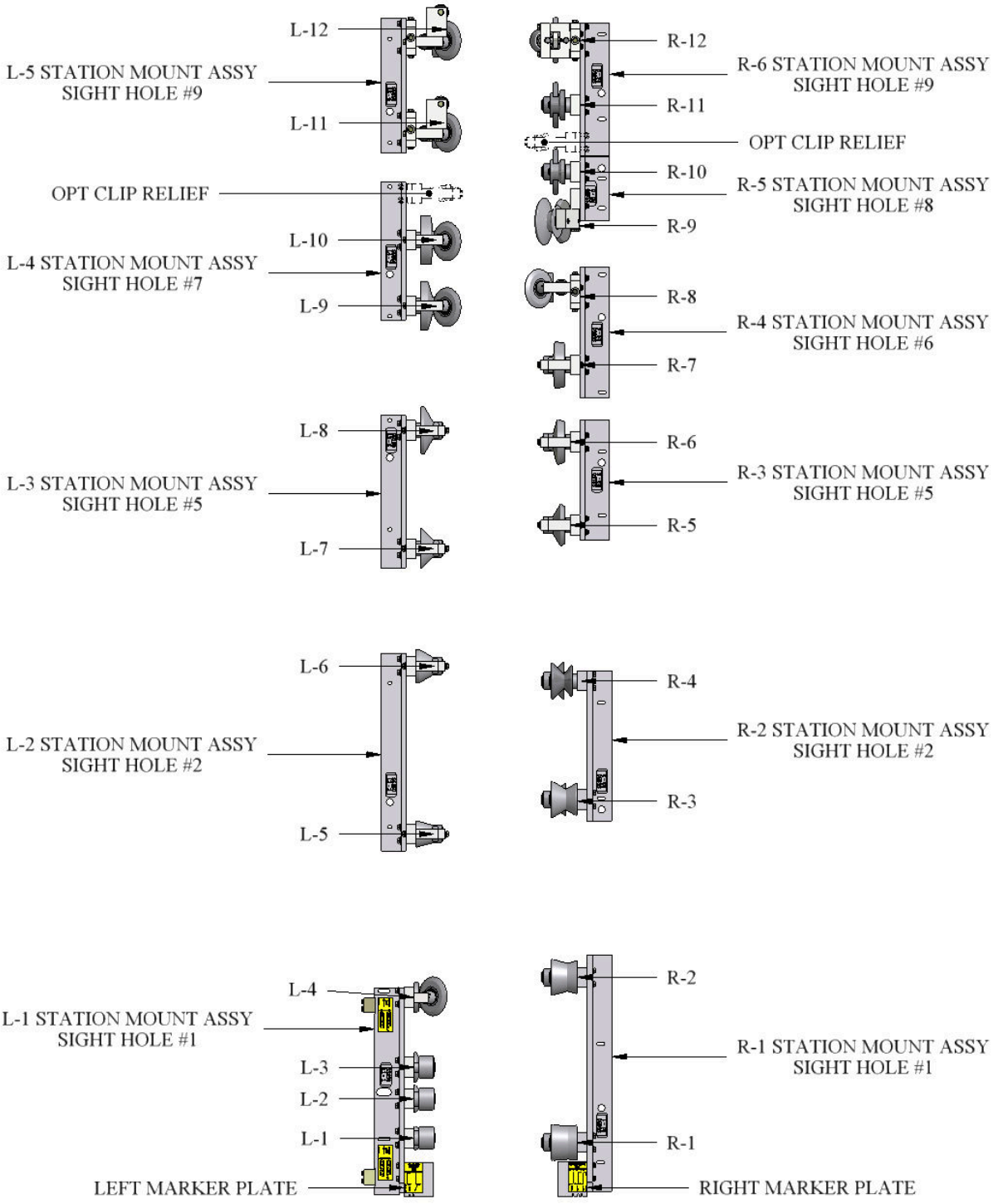

Figure 106: SSQ150 Roller System

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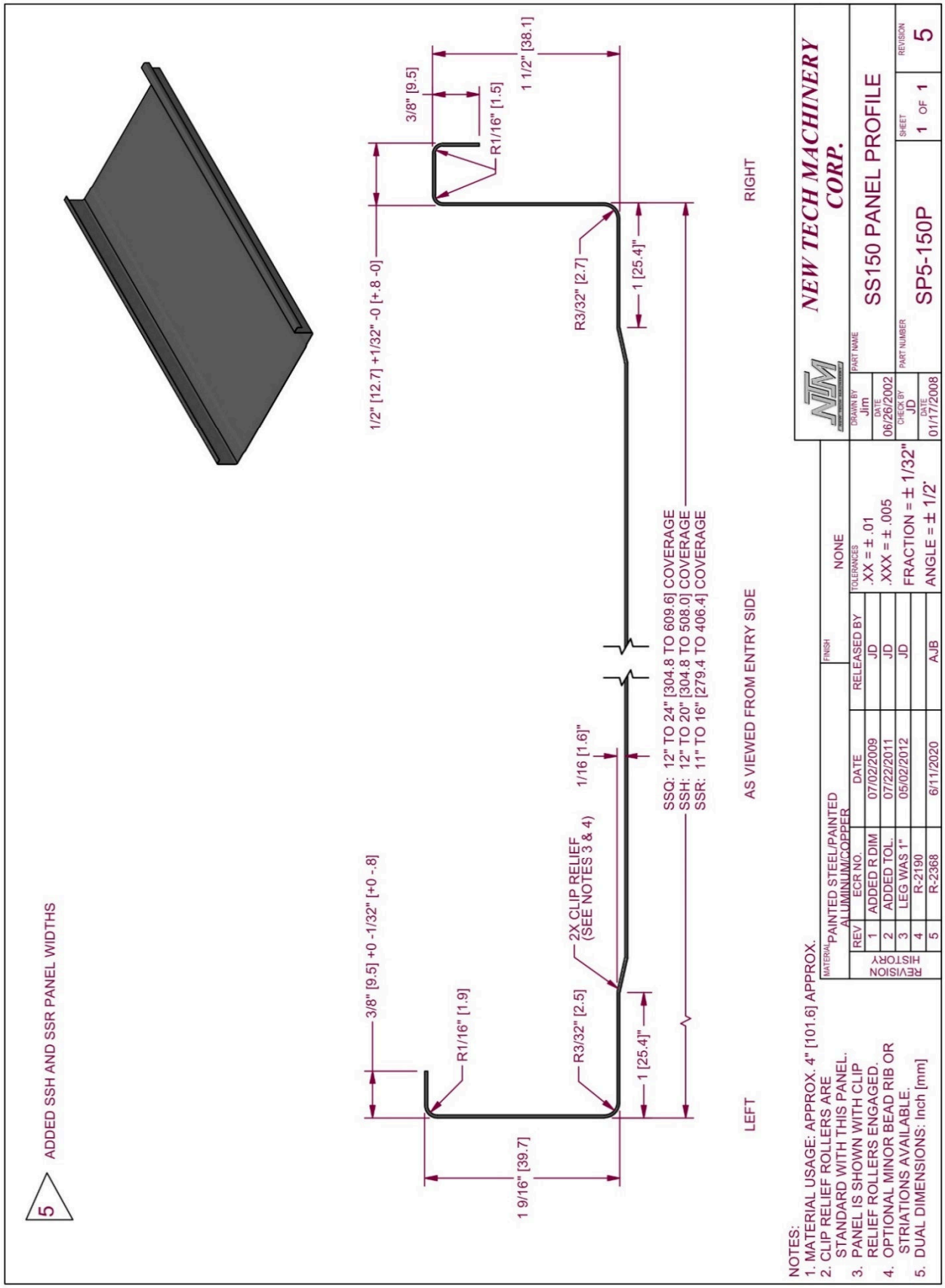

Figure 107: SS150 Panel Profile

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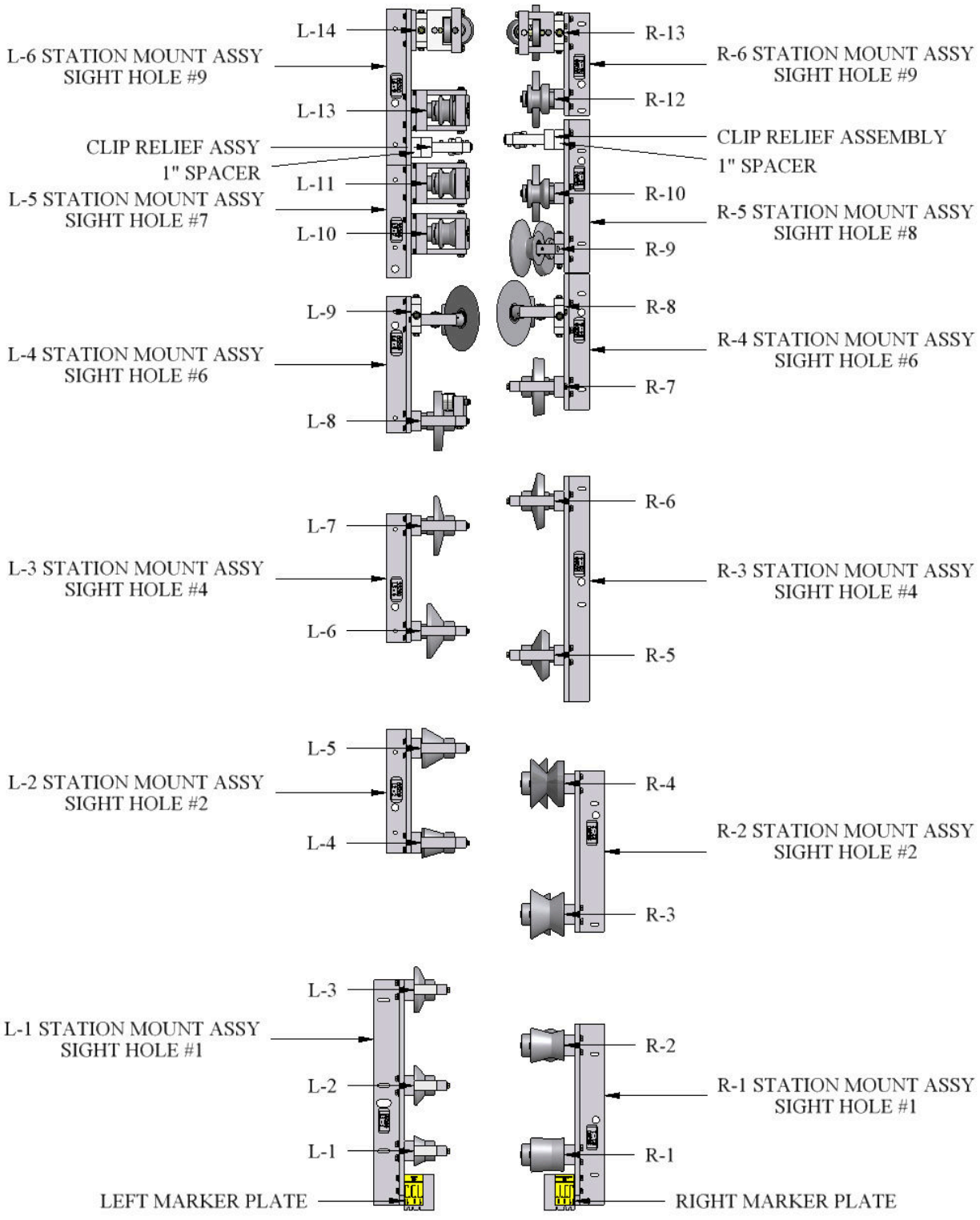

Figure 108: SSQ200/210A Roller System

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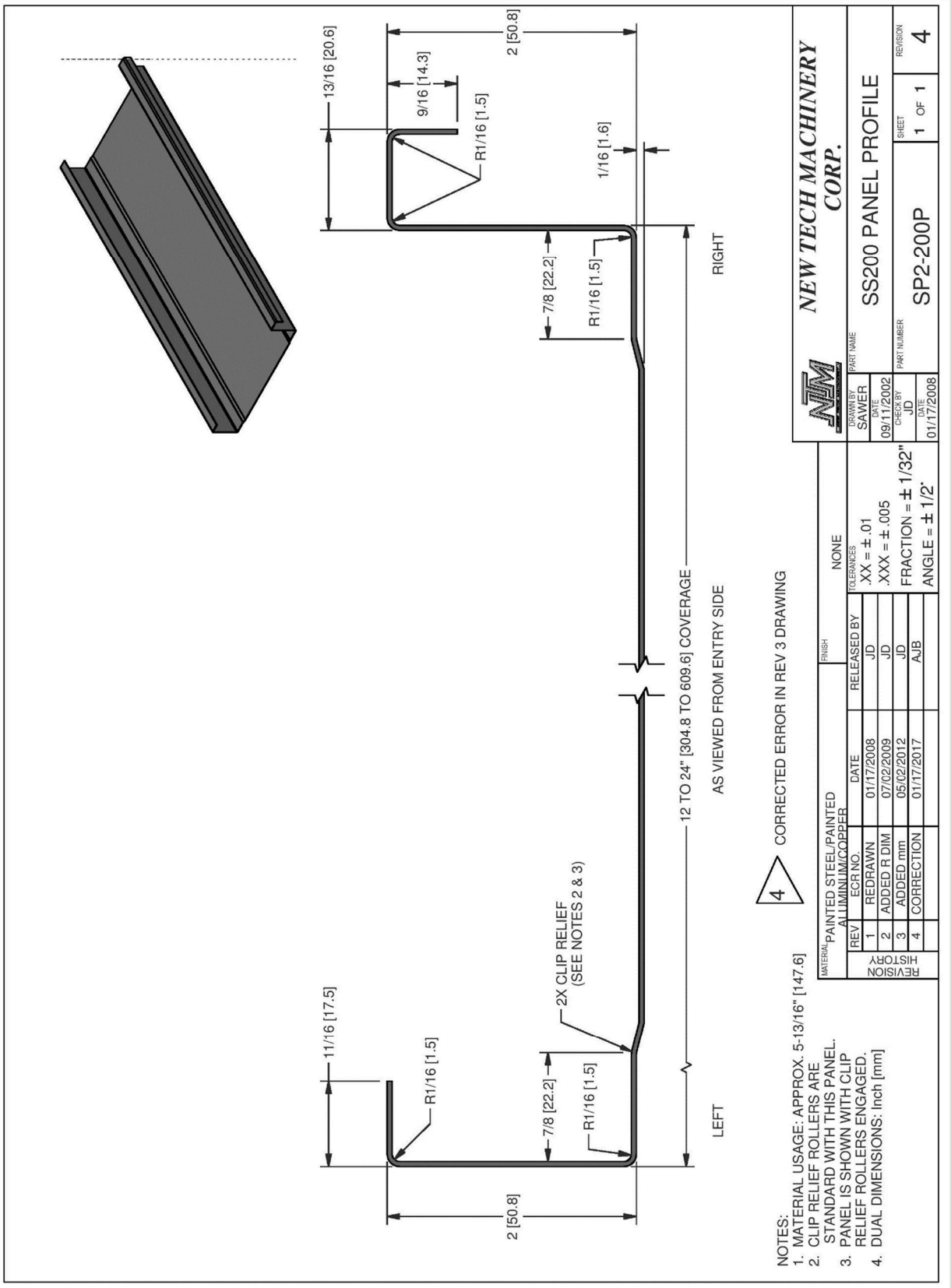

Figure 109: SS200 Panel Profile

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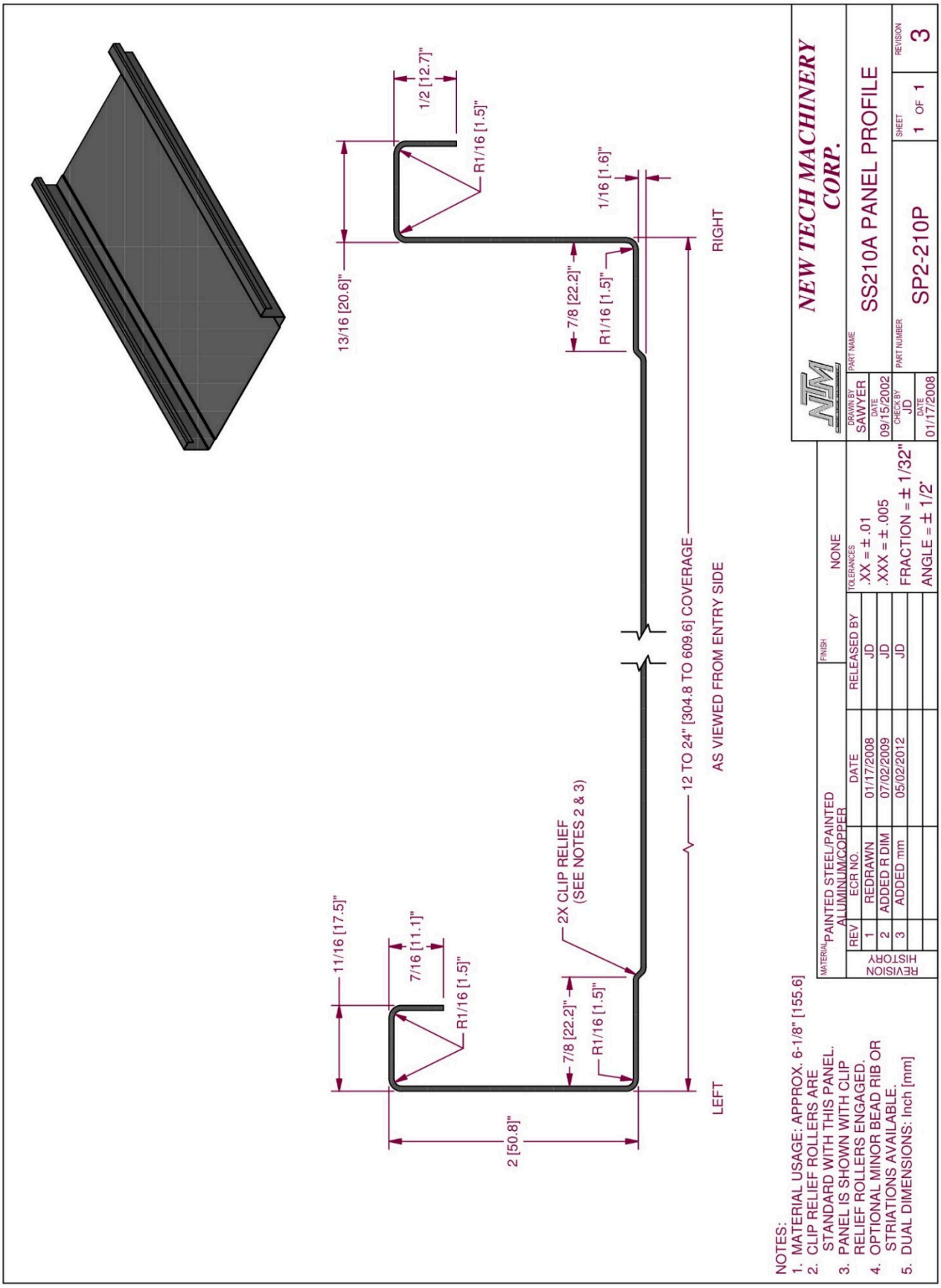


Figure 110: SS210 Panel Profile

CHAPTER 20

ROLLER SYSTEMS AND PANEL PROFILE DRAWINGS

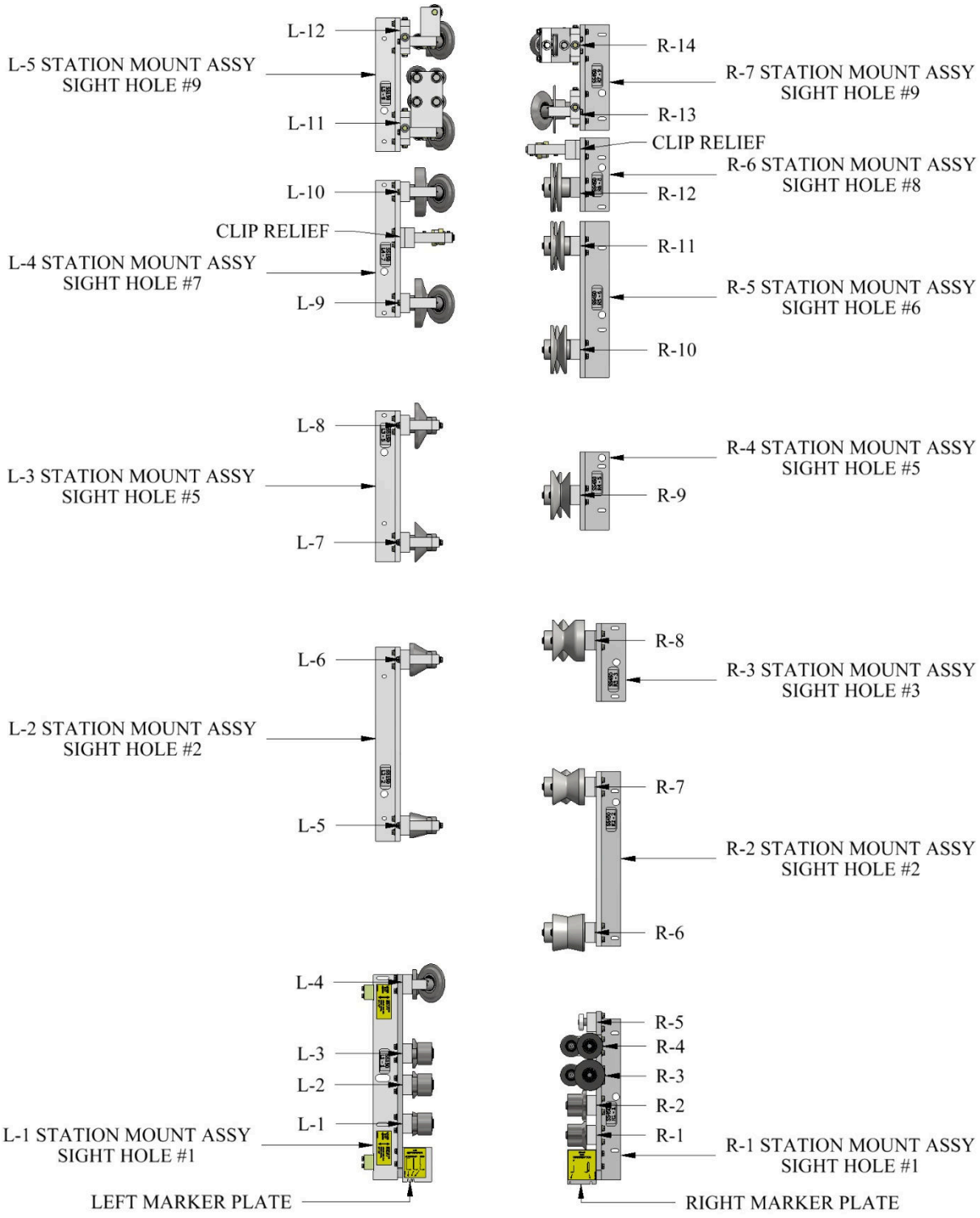


Figure 111: SSQ450/450SL Roller System

CHAPTER 20

ROLLER SYSTEMS AND PANEL PROFILE DRAWINGS

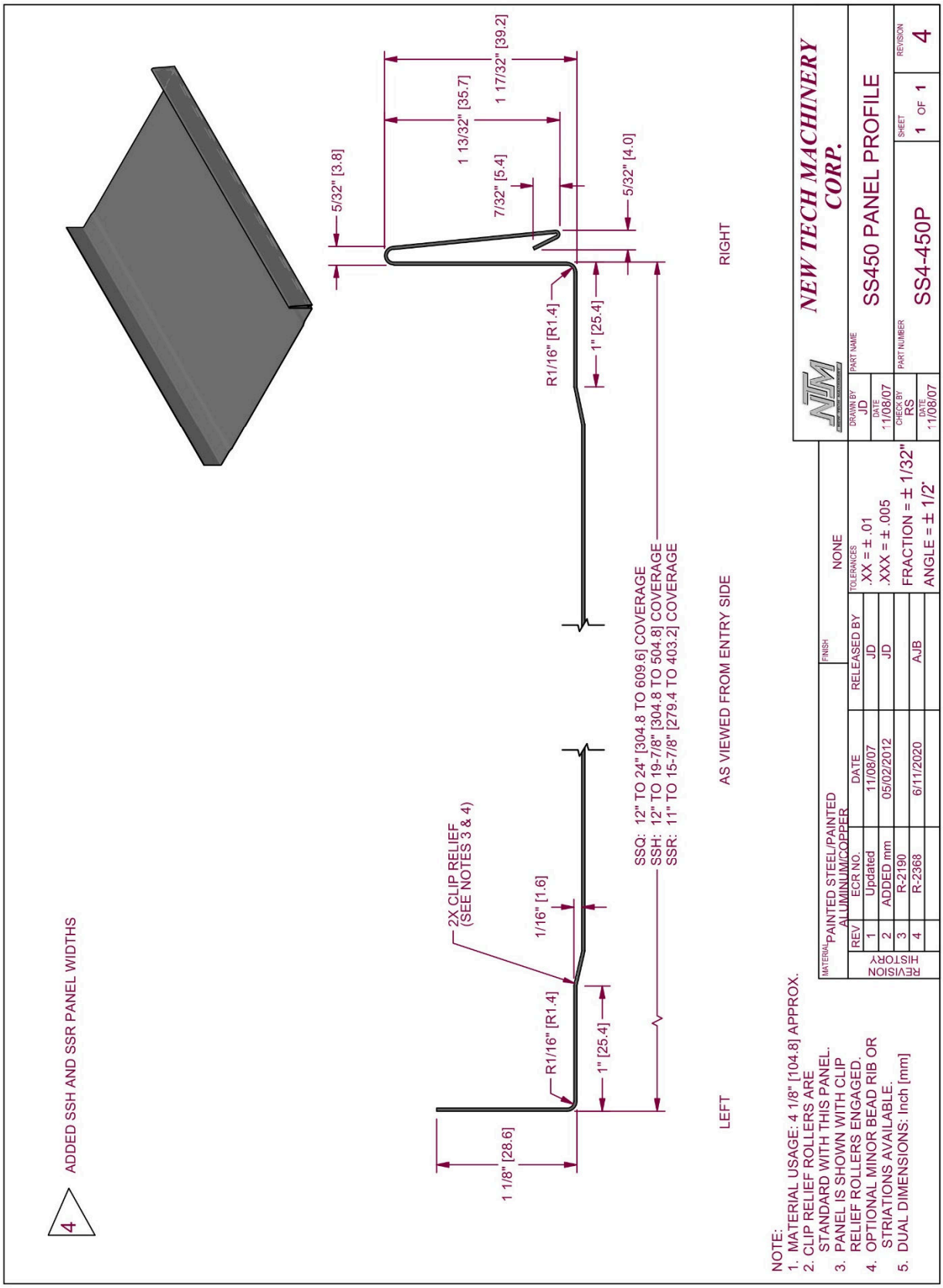


Figure 112: SS450 Panel Profile

CHAPTER 20

ROLLER SYSTEMS AND PANEL PROFILE DRAWINGS

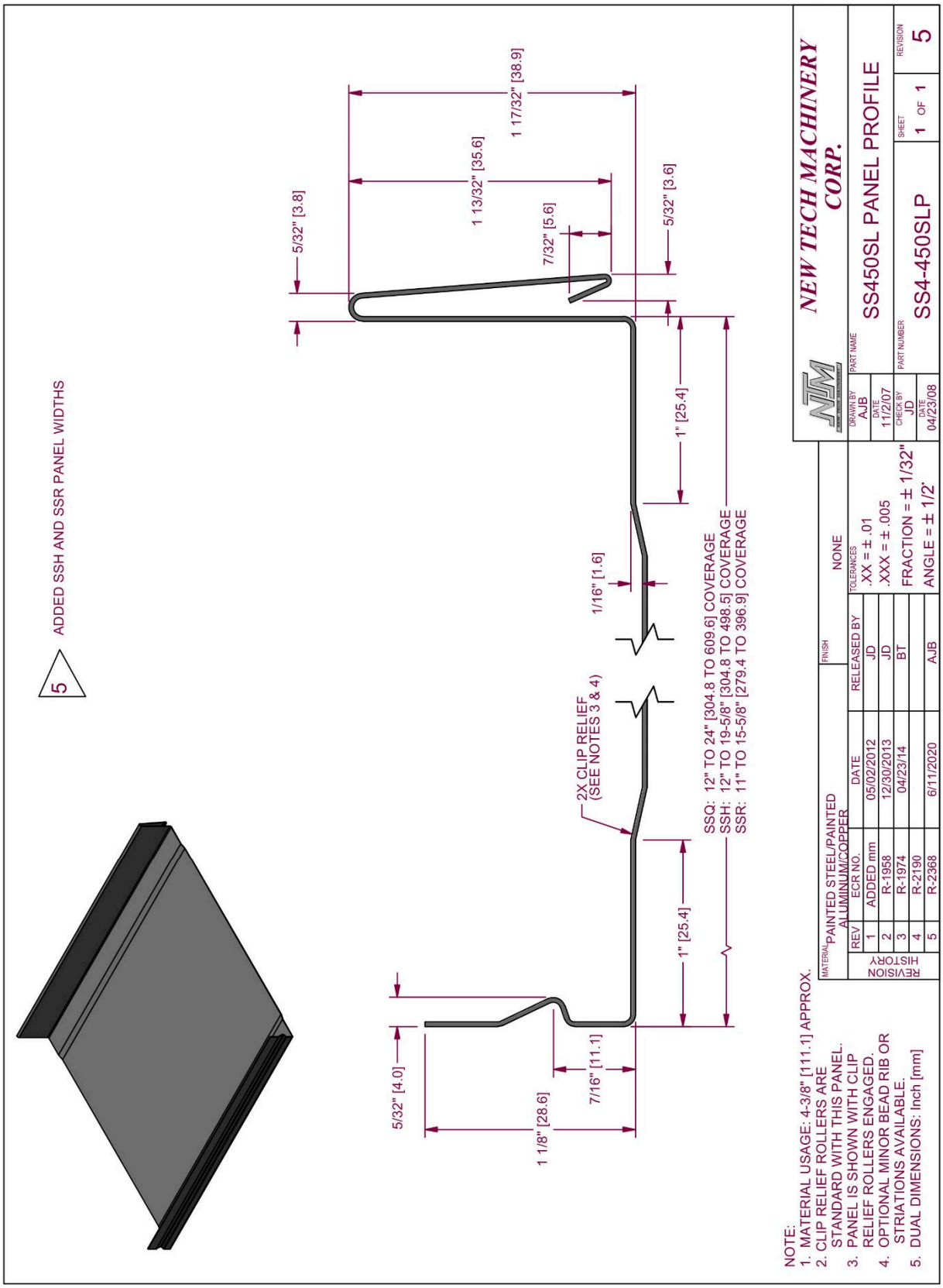


Figure 113: SS450SL Panel Profile

CHAPTER 20

ROLLER SYSTEMS AND PANEL PROFILE DRAWINGS

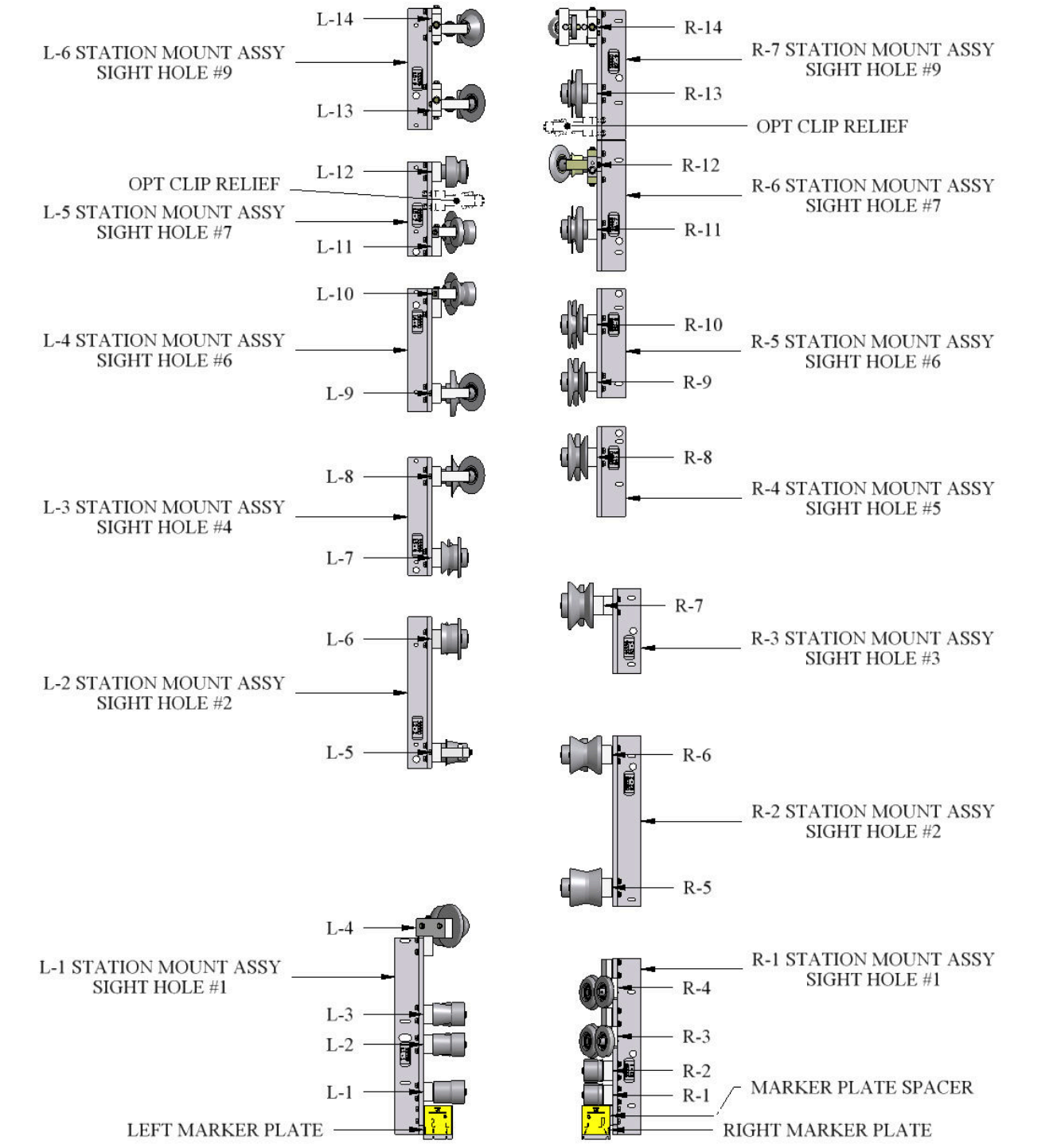


Figure 114: SSQ550 Roller System

CHAPTER 20

ROLLER SYSTEMS AND PANEL PROFILE DRAWINGS

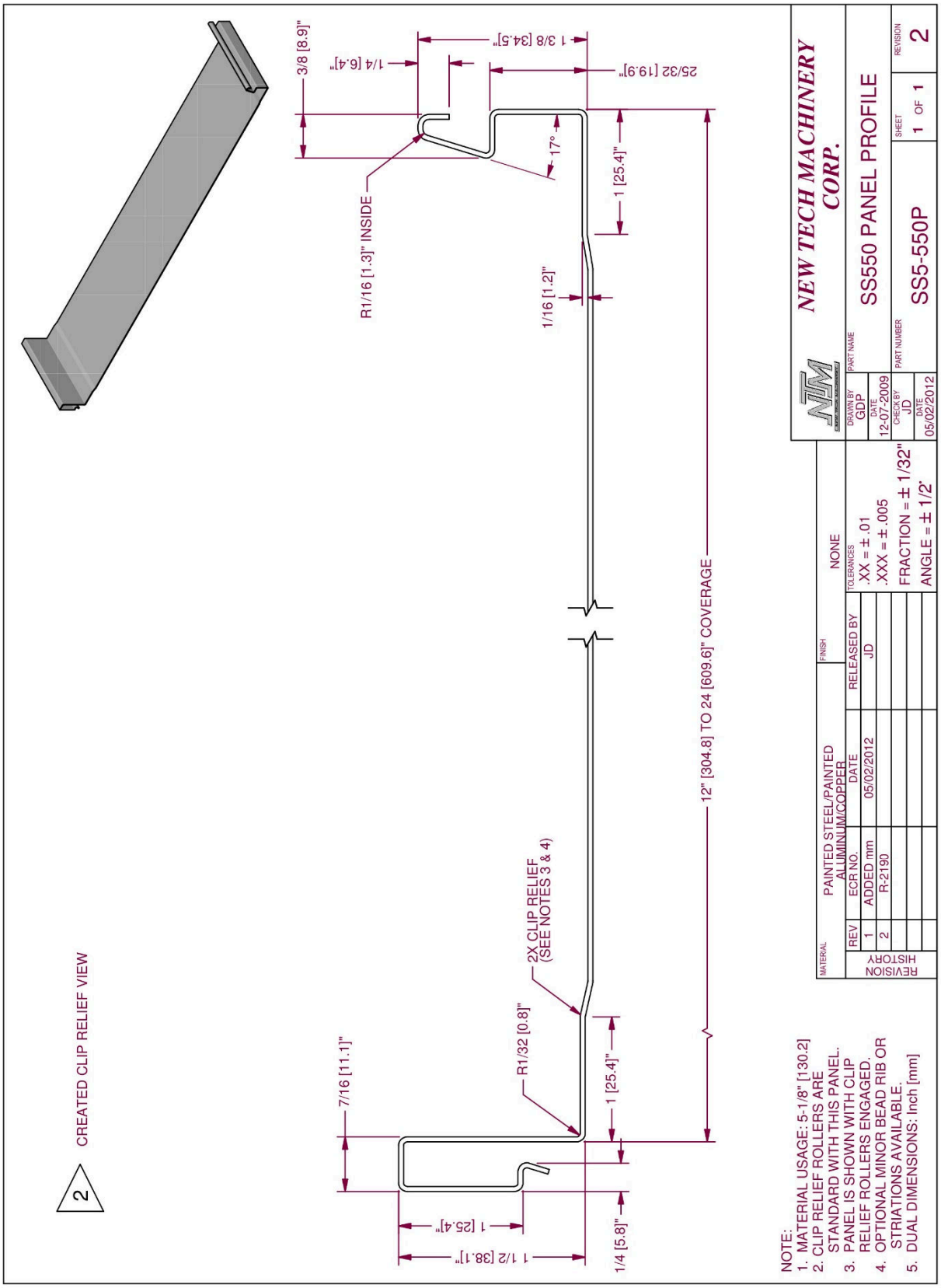


Figure 115: SS550 Panel Profile

CHAPTER 20

ROLLER SYSTEMS AND PANEL PROFILE DRAWINGS

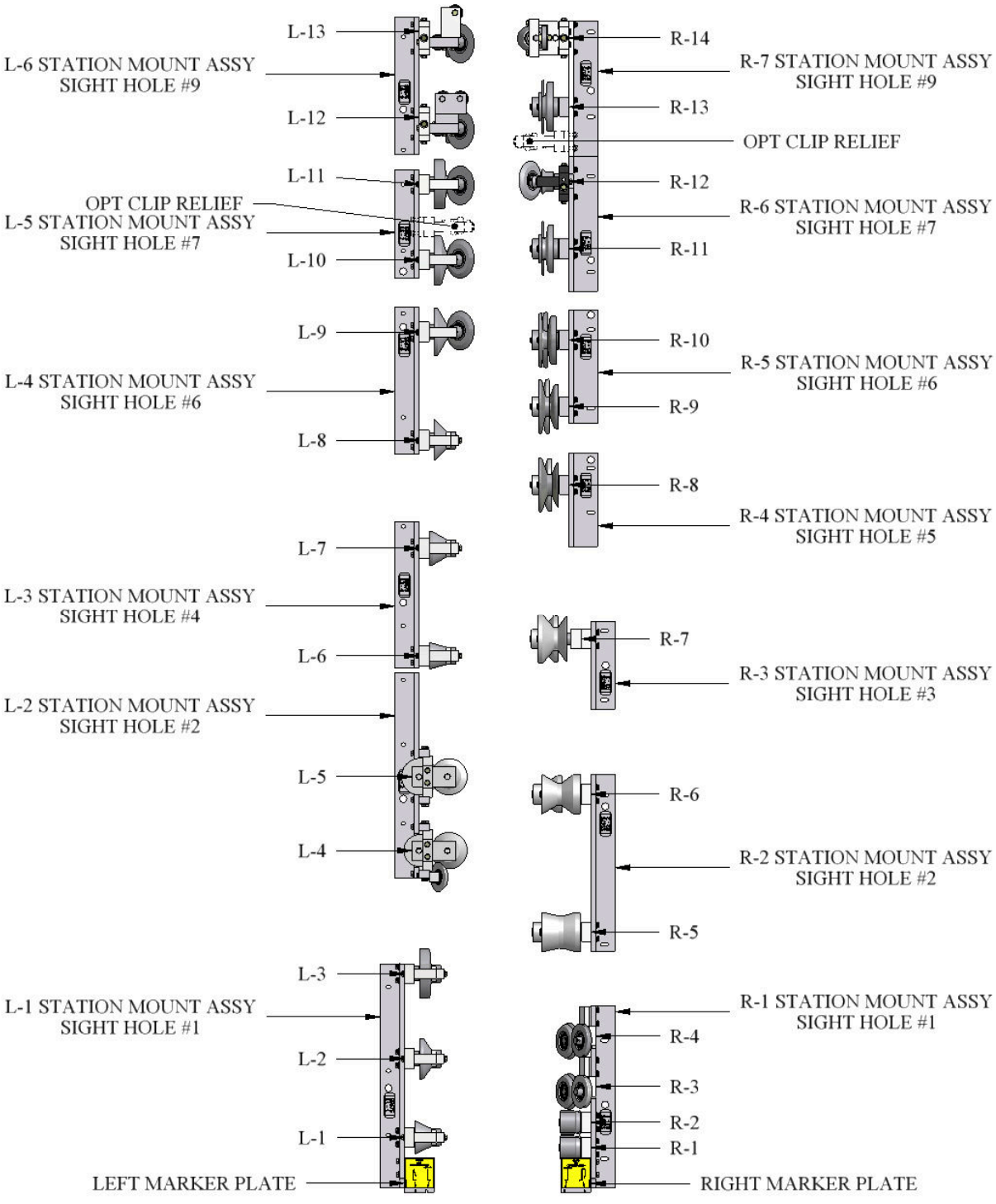


Figure 116: SSQ675 Roller System

CHAPTER 20

ROLLER SYSTEMS AND PANEL PROFILE DRAWINGS

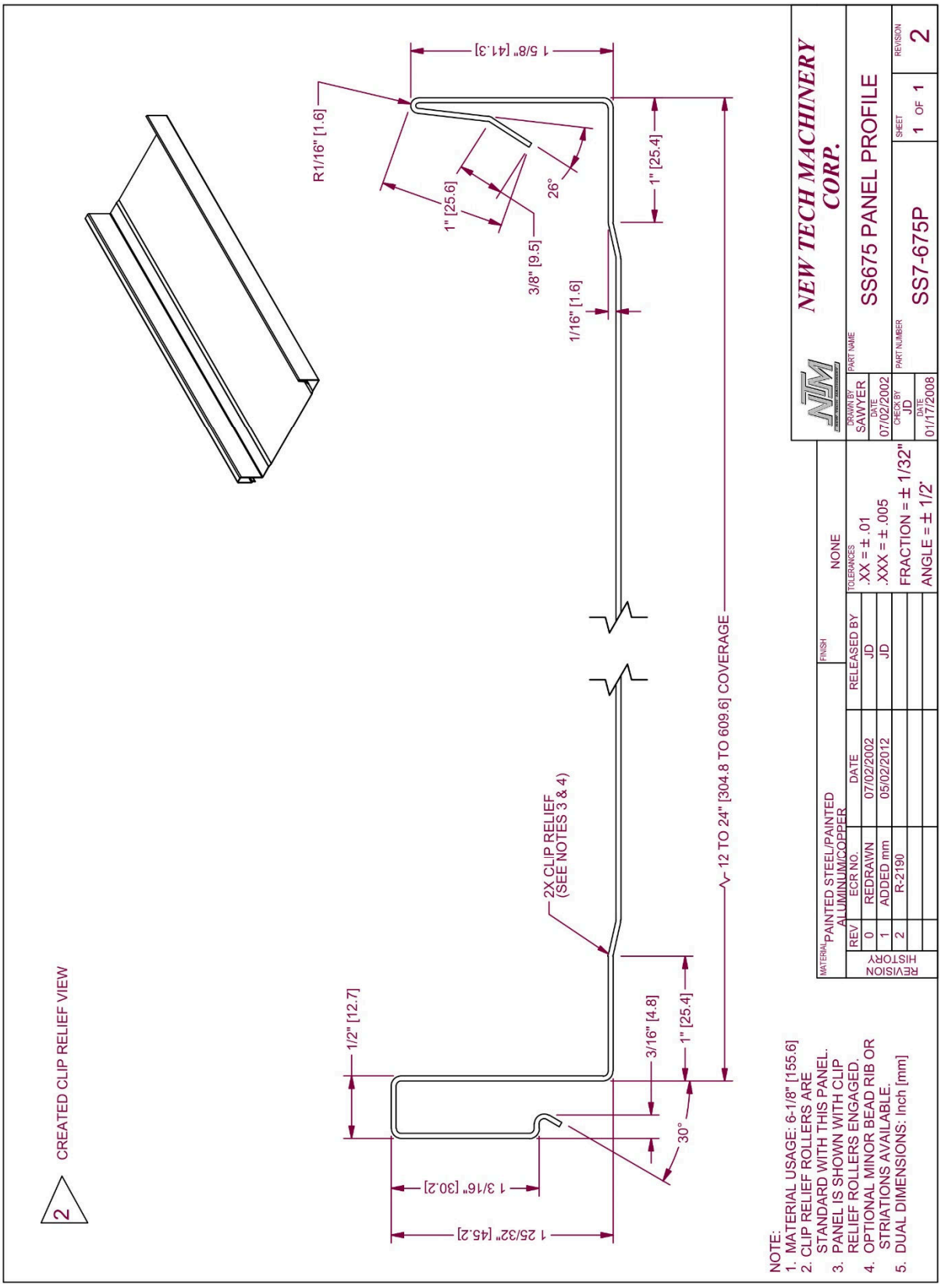


Figure 117: SS675 Panel Profile

CHAPTER 20

ROLLER SYSTEMS AND PANEL PROFILE DRAWINGS

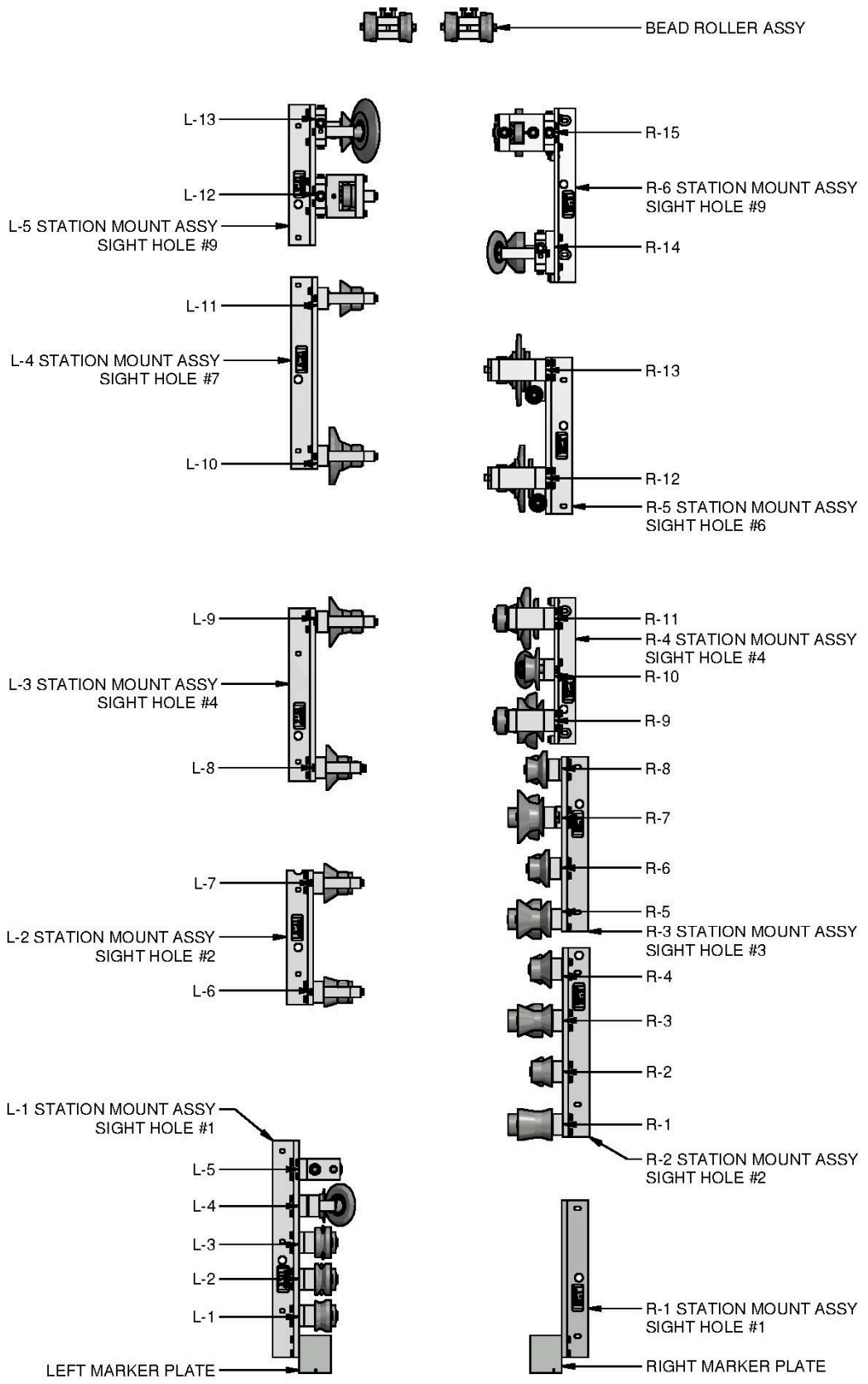


Figure 118: TRQ250 Roller System

CHAPTER 20

ROLLER SYSTEMS AND PANEL PROFILE DRAWINGS

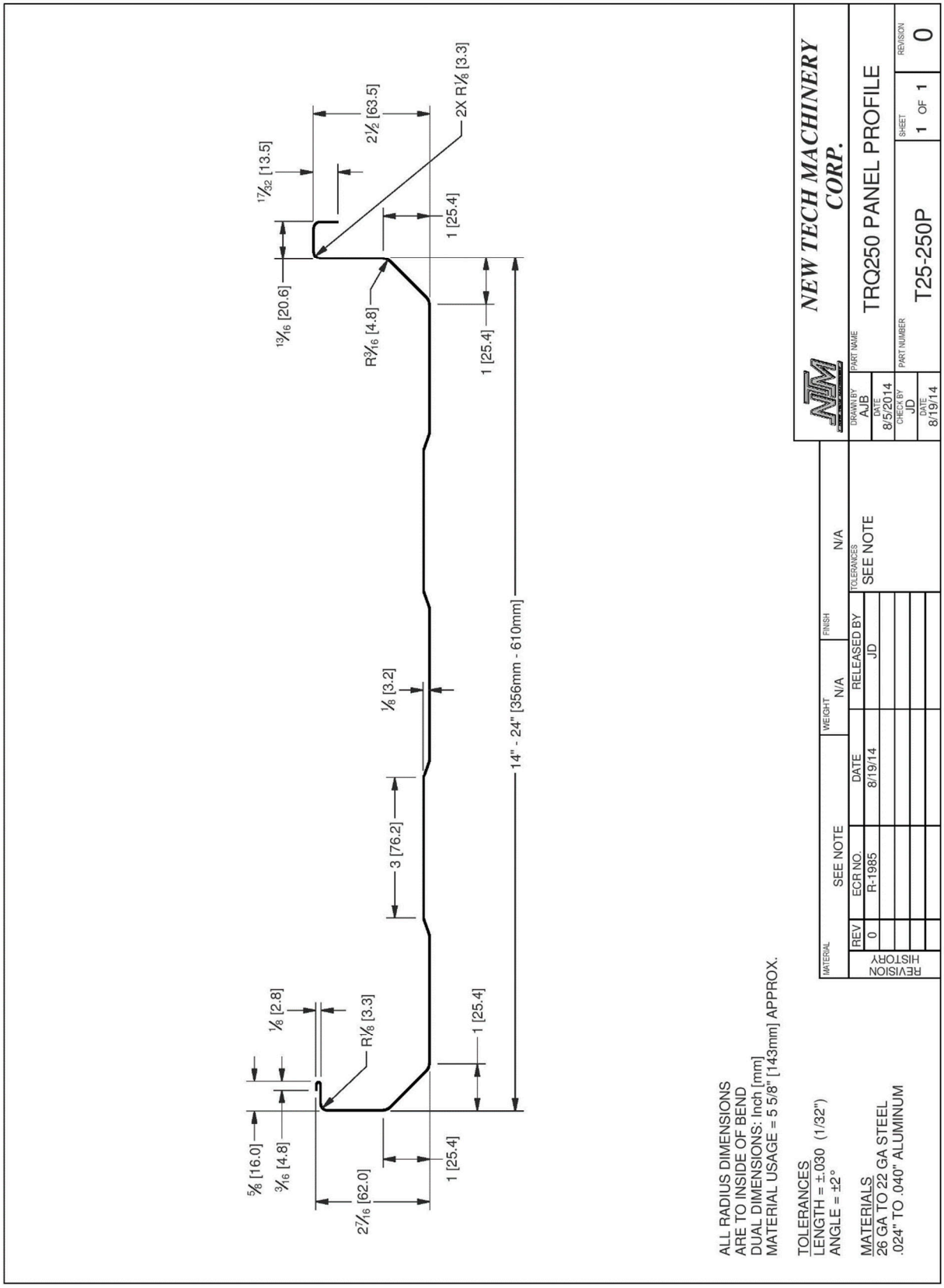


Figure 119: TRQ250 Panel Profile

RUN OUT TABLES

(Figure 120 & Figure 121)

The Run-Out Table attaches to the Exit End of the Shear assembly and is used to support the panel as it exits the machine. The Run Out Tables are available in 10 ft. long sections that fasten together and have adjustable legs so they can be set to the correct height. The Remote Limit Switch (Figure 124 on page 132) is designed to be used with the run out tables for controlling panel length.

1. Set the first Run-Out Table on its side and in front of the machine with the leg assembly away from the shear.
2. Open the leg assembly and set it upright on the ground.
3. Lift the attachment end of the table and drop it over the 2 threaded bolts on the Shear Run-Out Table Bracket.
4. Loosen the 2 knob-handles on the leg assembly and allow the legs to fall free. Sight the height of the table on the left and right side adjusting it level to the machine using the knob-handles to lock the legs in place. See Figure 121 for correct and incorrect set up and details.
5. Repeat the above procedures for each succeeding table and attach it to the bracket on the end of the previous table.

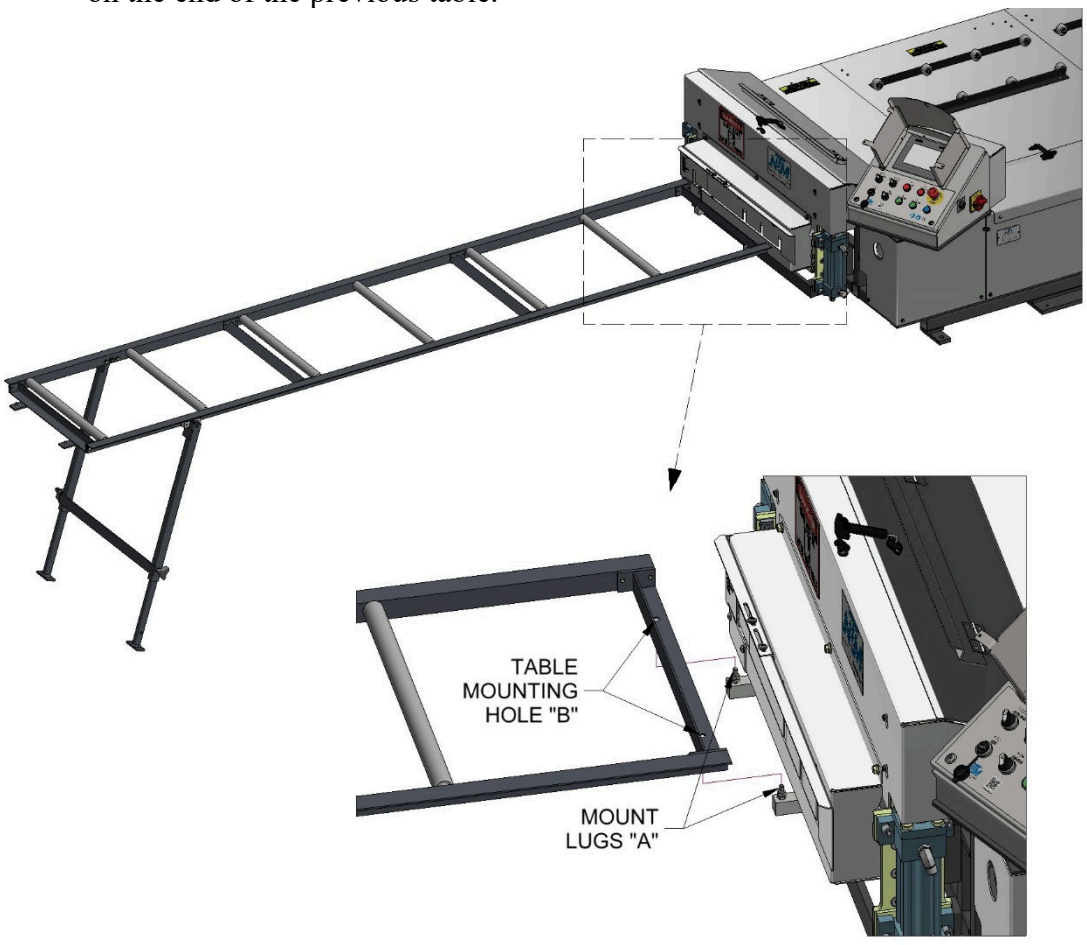


Figure 120: Run Out Table

CHAPTER 21

RUN OUT TABLES

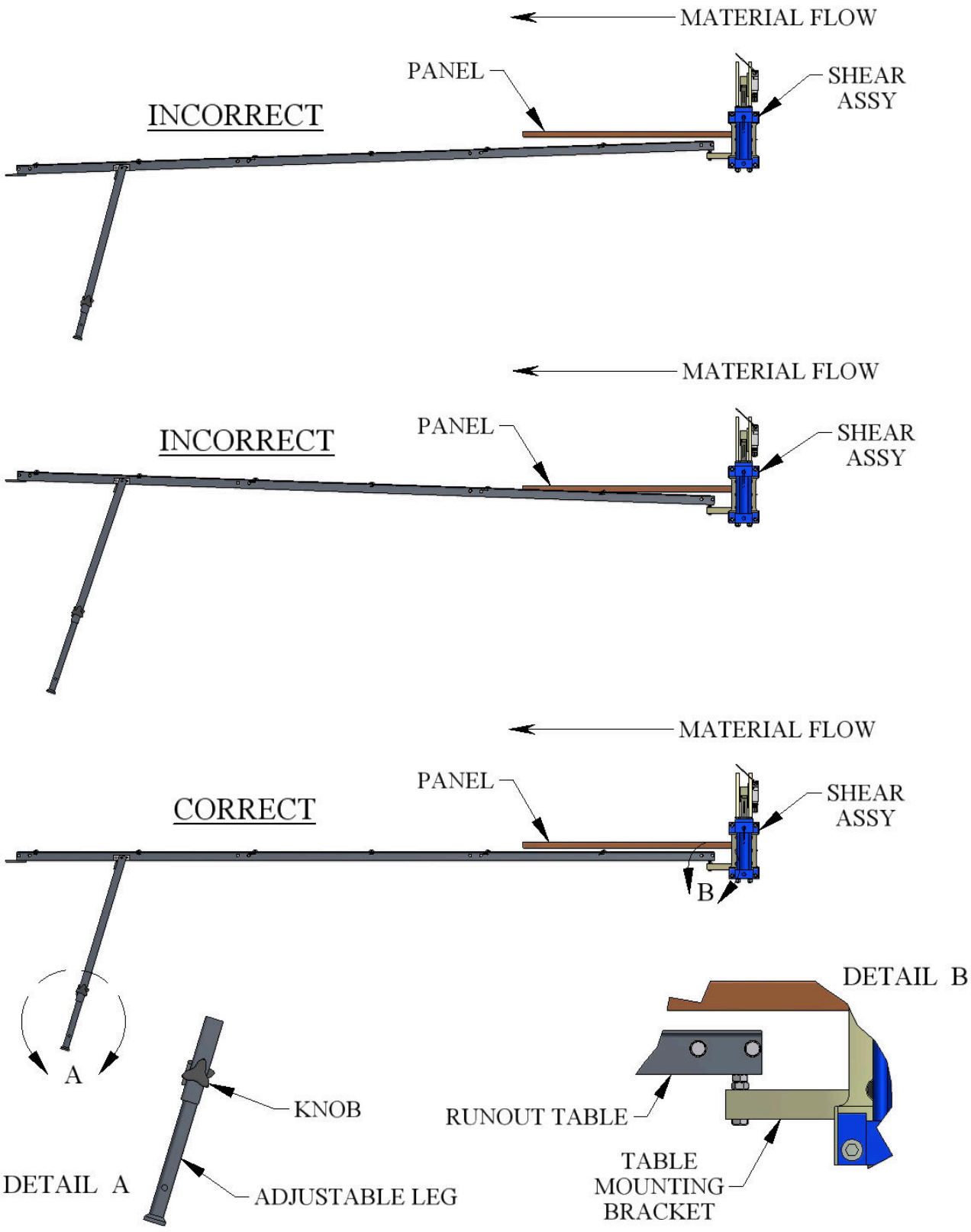


Figure 121: Run Out Table Setup

QUICK CHANGE POWER PAC

The Quick Change Power Pac for the machine allows a change from one power source to another very quickly. For example, it is useful to run the machine at the jobsite with a gas engine and use it in a factory or indoor setting as well. **It weighs up to about 160 lbs. and requires two people to lift the Power Pac out of and into the machine.** To change the power pac see below.
Refer to Figure 122

POWER PAC REMOVAL

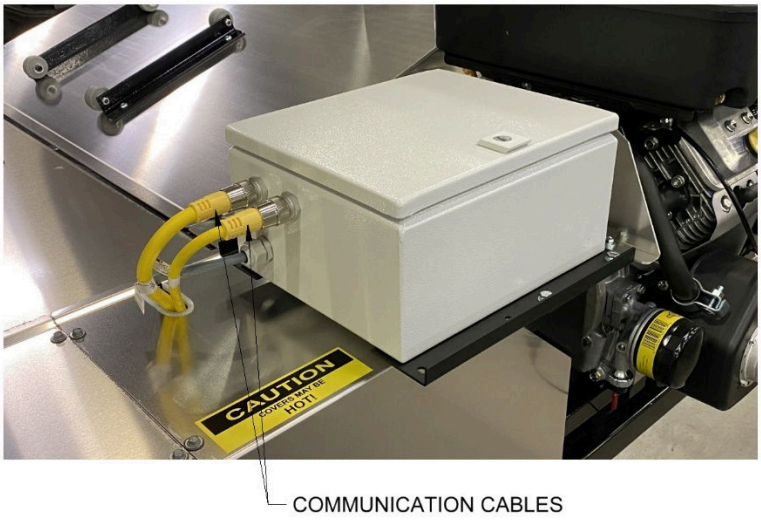
1. Remove the screws holding the #1 Left Cover on the machine. Set cover aside.
2. Using a 9/16" wrench, remove the two "A" bolts and set aside for later use.
3. Separate the Male /Female Connectors of the Main Communication Cable by unscrewing them from each other.
4. Un-couple the Large and Small Quick Disconnect hydraulic fittings.
5. Using the two handles, lift the Quick Change Power Pac out of the machine and set it aside.

POWER PAC INSTALLATION

1. Using the two handles provided, lift the new Power Pac into position on the machine.
2. Align the two mounting holes under the handles of the Power Pac to the threaded holes in the frame of the machine. Use the two mounting bolts "A" removed above to fasten the Power Pac into place and tighten with the 9/16" wrench.
3. Locate the Male and Female Main Communication Cable and fasten them together. Note that there is a notch in one and a key in the other that must be aligned for the two to mate together correctly.
4. Connect the Large and Small Quick Disconnect fittings.

CHAPTER 22

QUICK CHANGE POWER PAC



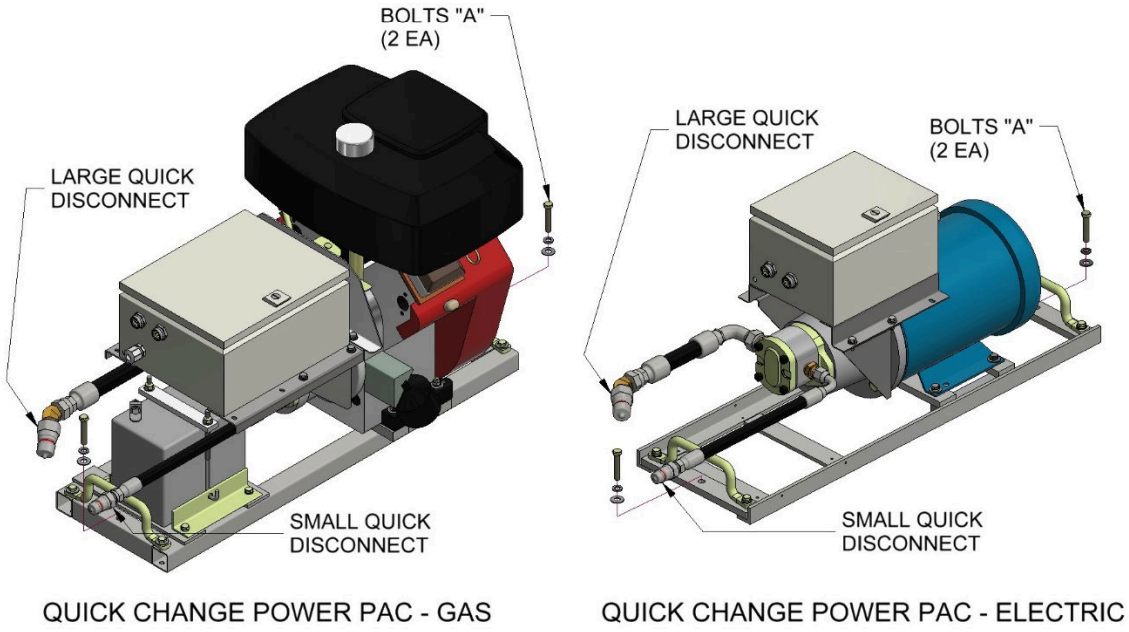


Figure 122: Cable Connections and Fasteners

TROUBLESHOOTING

The hydraulic system operates the Shear and Drive assemblies. They are interfaced together and electronically activated. The hydraulic system pressure is factory set at 2000 psi and should not be changed. Some of the common problems that occur and their solutions follow below.

1. **Shear travels to the bottom of the stroke and does not return to the top of the stroke, and the hydraulic system continues laboring.**

   SOLUTION: The most likely cause of this problem is that the bottom of stroke limit switch is too low and needs to be raised. Shut off the machine and lock it out before proceeding. Loosen Screws "A" (Figure 123) and move the switch up about 1/16". Tighten the screws, turn on the machine and test the shear. Repeat the above steps if necessary. **Note:** If the limit switch is adjusted too far up, problem #2, below, will be seen on the next cut made.

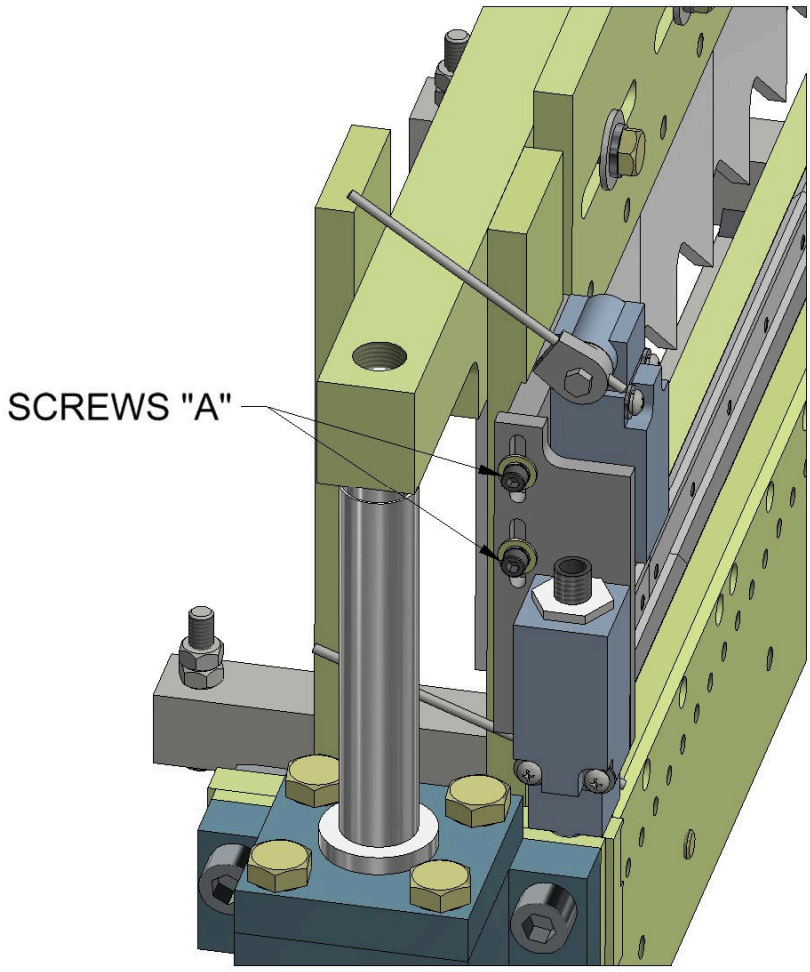


Figure 123: Bottom of Stroke Limit Switch

2. **Shear travels to the bottom of the stroke and returns to the top of the stroke without cutting the panel completely through.**

   SOLUTION: Shut off the machine and lock it out before proceeding. Loosen Screws "A" (Figure 123). Lower the Bottom of Stroke Limit switch about 1/16" and tighten the screws. Turn on the machine and test the shear. Repeat the above steps if necessary. **Note:** If the limit switch is adjusted too far down, problem #1, above, will be seen on the next cut made.

3. **Shear is at the top of the stroke, the hydraulic system continues laboring and the next panel cannot be run.**

   SOLUTION: Remove the Shear Cover. Lift the arms on the limit switches (Figure 124) one at a time. If one of them stops the hydraulic system laboring then that Limit Switch arm needs to be adjusted. If neither of them stops it, lift both arms at the same time to see if it stops. If it does then both arms need adjusting. ADJUSTMENT: Shut off the machine and lock it out. Loosen the Top Limit Switch Adjustment Screws (Figure 124) just enough so that the Mount Plate can be moved, and slide the Mount Plate all the way up. Slowly lower it back down until the switch clicks. Re-tighten the screws. Adjust one or both sides as required from the test above. Start the machine. If the adjustment(s) were done correctly, the hydraulic system should no longer be laboring and the next panel can be produced.

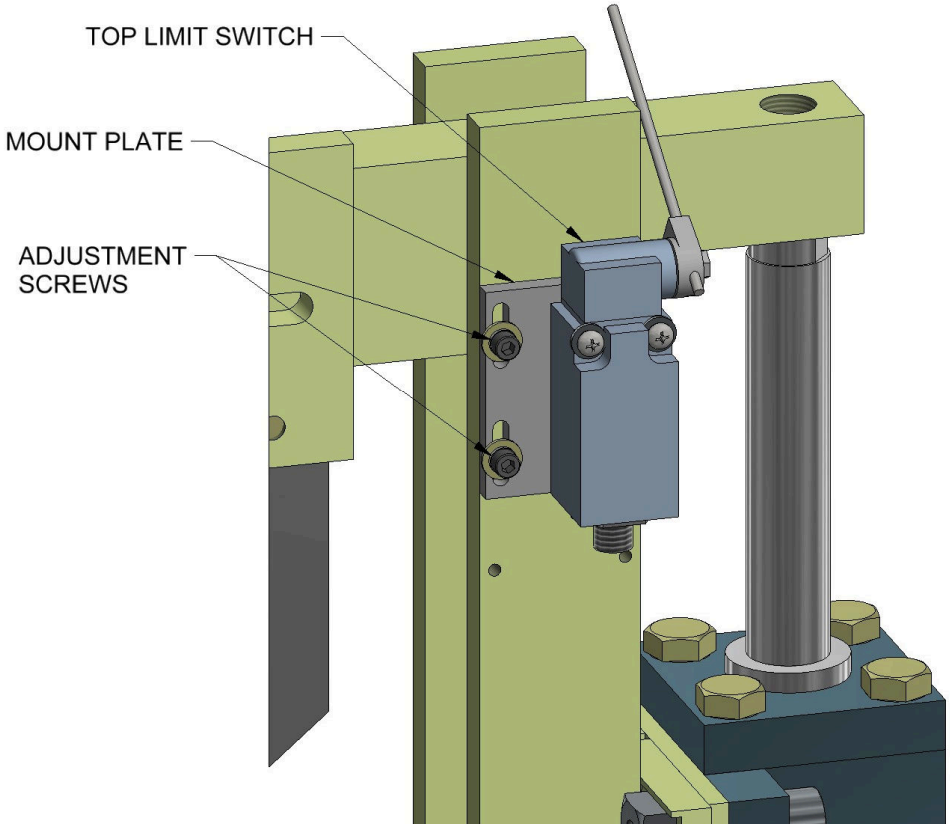


Figure 124: Limit Switch Adjustment

4. **After making a cut, the male or female leg of the next panel gets caught on the exit shear die and damages the panel.**

   SOLUTION: This problem normally shows up after making a roller system/shear die change. The entry dies both male and female should be as close to the vertical leg of the panel as possible without touching. Once this is achieved, the exit die should be set just outside the vertical leg of the entry die so that as the fresh cut edge of the panel passes by the exit die it doesn't getting caught. See the section Adjusting the Entry and Exit Shear Dies on page 41 for more information.

5. **The male and or female leg gets crushed when shearing.**

   SOLUTION #1: Check the Shear Blades directly over the male and female legs to make sure that the points of the blades are in the correct position. See the section Adjusting the Entry and Exit Shear Dies on page 41 for more information.

   SOLUTION #2: Make sure that the shear blades and dies are well lubricated on both sides with the proper lubricant (See GENERAL MAINTENANCE on page 9).

6. Control Panel buttons do not work.

SOLUTION #1: Check the circuit breakers inside of Control Panel and Power Supply Box. If one is tripped return it to the normal position (Figure 15 on page 22).

SOLUTION #2: If the machine is equipped with a gasoline engine, check the condition of the battery. The control system requires 12 volts to operate properly. Replace or charge battery as required.

UNIQ AUTOMATIC CONTROLLER

Introduction

This guide covers the operation of Version 2 (V2) of the software on the touchscreen panel of the UNIQ Control. The software allows the user to enter quantities and lengths of panels to be run, import and export cut lists, perform calibration, and other features as shown on the following pages.

Navigation

Along the left edge of screen are navigation buttons that will bring up the primary screens of the controller. Pressing any of these buttons will display the associated screen.

Machine State Display

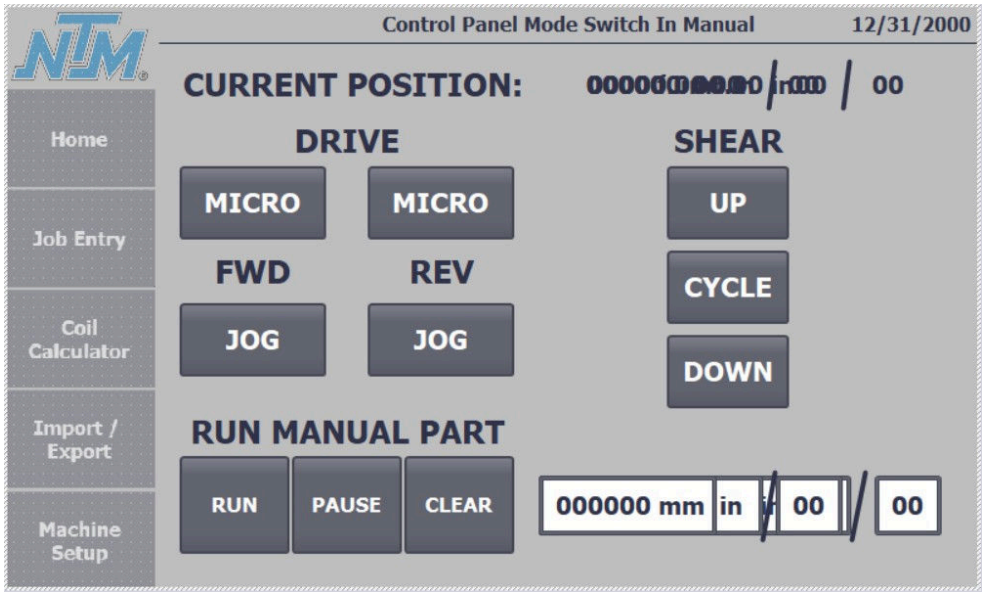
The top of the screen displays what state the controller is in and can be a helpful reference if the machine is not behaving as expected. The possible states are listed below.

- Control Panel Mode Switch In Manual
- No Hydraulic Pressure
- System Idle
- Manual Mode – Run Part
- Manual Mode – Shear Down
- Manual Mode – Shear Up
- Auto Mode – Run Part
- Auto Mode – Shear Down

- Auto Mode – Shear Up
- Auto Mode – Wait for Material Removal
- Auto Mode – Delay Before Next Part
- Auto Mode – Decide Next Part
- Auto Mode – Request Next Part
- Maintenance Mode
- Emergency Stop

Home Screen

The Home Screen is the first screen to appear after powering up and it allows for simple control of the machine as described below.



Current Position: This displays how much material is currently out past the shear. When loading a new coil, it will not display the correct length until after the leading edge has been jogged past the shear and the shear has been cycled.

Jog Forward and Reverse: Pressing these buttons will activate the drives in either the forward or reverse direction while the button is held down. When the button is released, the drives will stop.

Micro Jog: These buttons will advance the material a small distance in either the forward or reverse direction.

Shear Up: The shear will travel up while the button is held and stop when it is released.

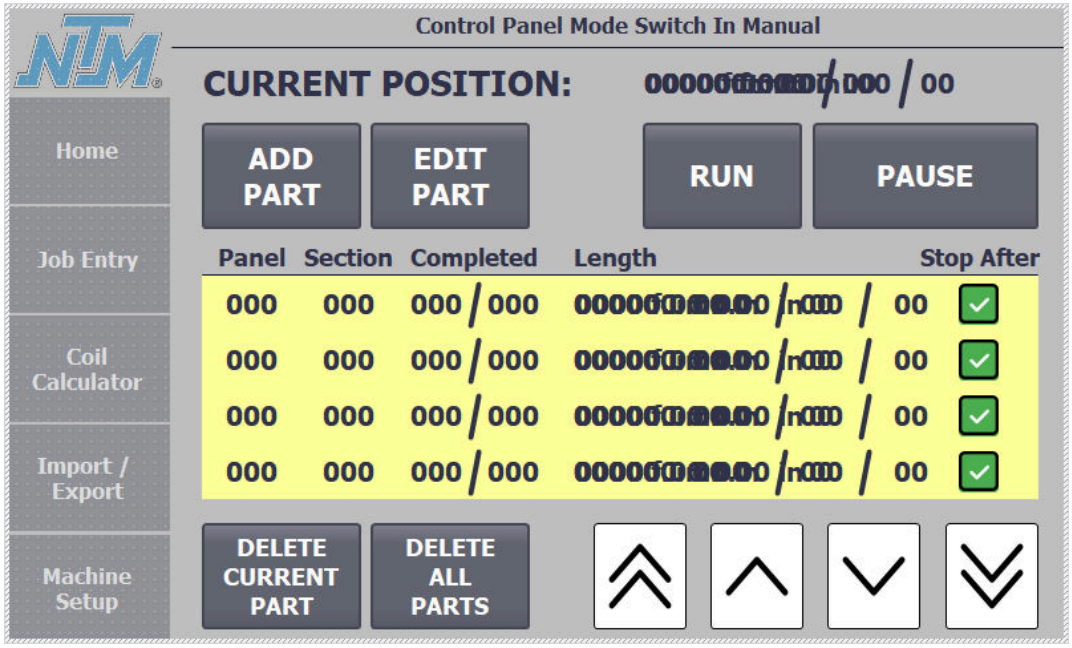
Shear Cycle: Pressing this button while cause the shear to make one complete down and up cycle.

Shear Down: The shear will travel down while the button is held and stop when it is released.
Note: The Shear buttons will not operate if one of the machine guards has been removed. If the shear must be operated with the guards removed switch the machine into manual mode and use the two-button controls on the sides of the control panel. Ensure that the shear path is clear before pressing the buttons.

Run Manual Part: This is a convenient way to produce a single panel of a specified length. Enter the desired length in the adjacent box and press **Run**. The machine will drive forward until the length is reached and then cycle the shear. Pressing the **Pause** button will stop the drives if it becomes necessary and pressing Run again will continue the part. The **Clear** button resets the part length to zero.

Job Entry

This screen is used to enter and edit the cut list, and to run the machine in Auto mode.



Current Position: This displays how much material is currently out past the shear. When loading a new coil, it will not display the correct length until after the leading edge has been jogged past the shear and the shear has been cycled.

Add Part: This will add a new part to the cut list. When pressed, a popup screen will appear allowing the user to select if the part should be added above the currently selected part, below it, or at the end of the list. The Part Entry screen will then appear, which is described below. As an alternative to Add Part, the user can also select a blank line and press Edit Part.

Edit Part: Pressing this button will bring up the Part Entry Screen, described below, where the panel properties can be modified.

Run: This button will run the currently selected panel. As the panel is produced, input from a rotary encoder measures the length. When the specified length is reached, the controller stops the drives, cycles the shear, then waits until the panel has been removed from the exit area of the machine. Once it is removed, the next panel will start to run automatically unless the Stop After Last Part feature prevents it. See the Part Entry section for more information.

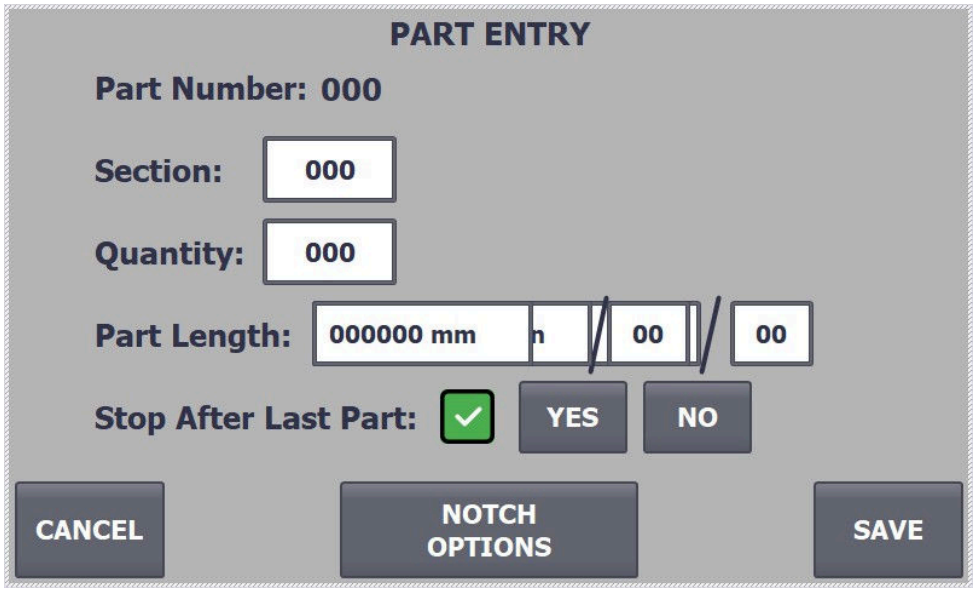
Pause: While a job is running, the Pause button will stop the drives if they are running or prevent them from starting again if the shear was cycling or if the controller was waiting for the user to remove a panel. The motor will continue to run, and the machine will stay paused until the Run button is pressed. While paused, the cut list can be edited, including the part that is currently being produced. The Pause button is not meant to be used in an emergency. In an emergency, the E-Stop button should be used instead since it will immediately shut off power to the drives and shear.

Delete Current Part: Deletes the currently selected part.

Delete All Parts: Deletes all the parts in the list. A confirmation will pop up first asking the user to confirm they want to delete all the parts.

Scroll Arrows: The single up and down arrows will move through the cut list one part at a time. The double arrows will move through the list four parts at a time.

Part Entry



Section: This is an optional field that can be used to help organize panels by roof section. It does not affect the operation of the machine and can be left blank.

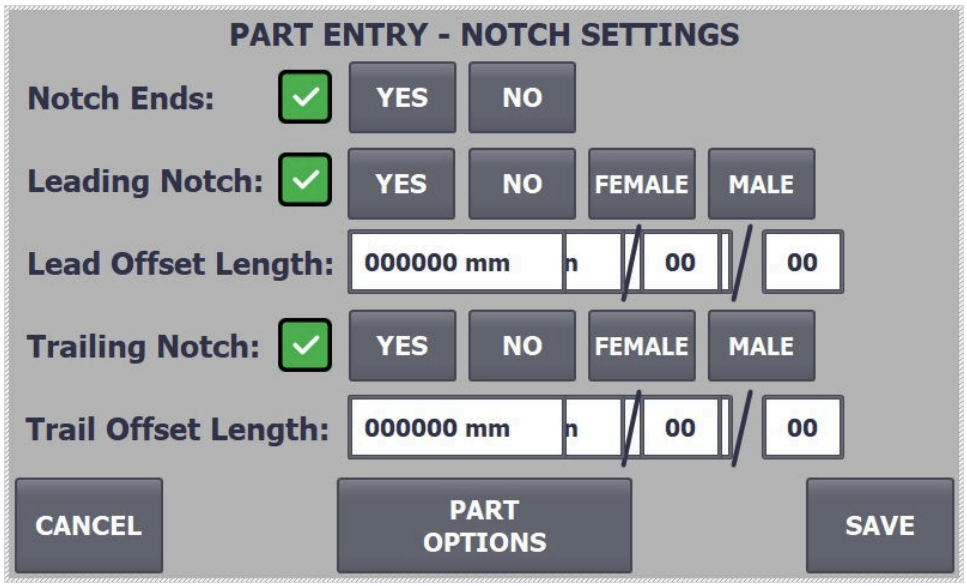
Quantity: The quantity to be produced. The maximum that can be entered is 255.

Part Length: The length to be produced.

Stop After Last Part: If "Yes" is selected, the machine will stop after the job is done running. The user will then need to press Run to start the next job. If "No" is selected, the machine will automatically start running the next job.

Notch Options: Pressing this button will bring up additional part entry options related to notching. This button only appears if Yes is selected on the Notching Installed option under Machine Setup>Notching Settings. See the section below for detailed information on the panel notching settings. Note: The optional Notching System needs to be installed in order for the machine to notch panels.

Part Entry - Notch Settings



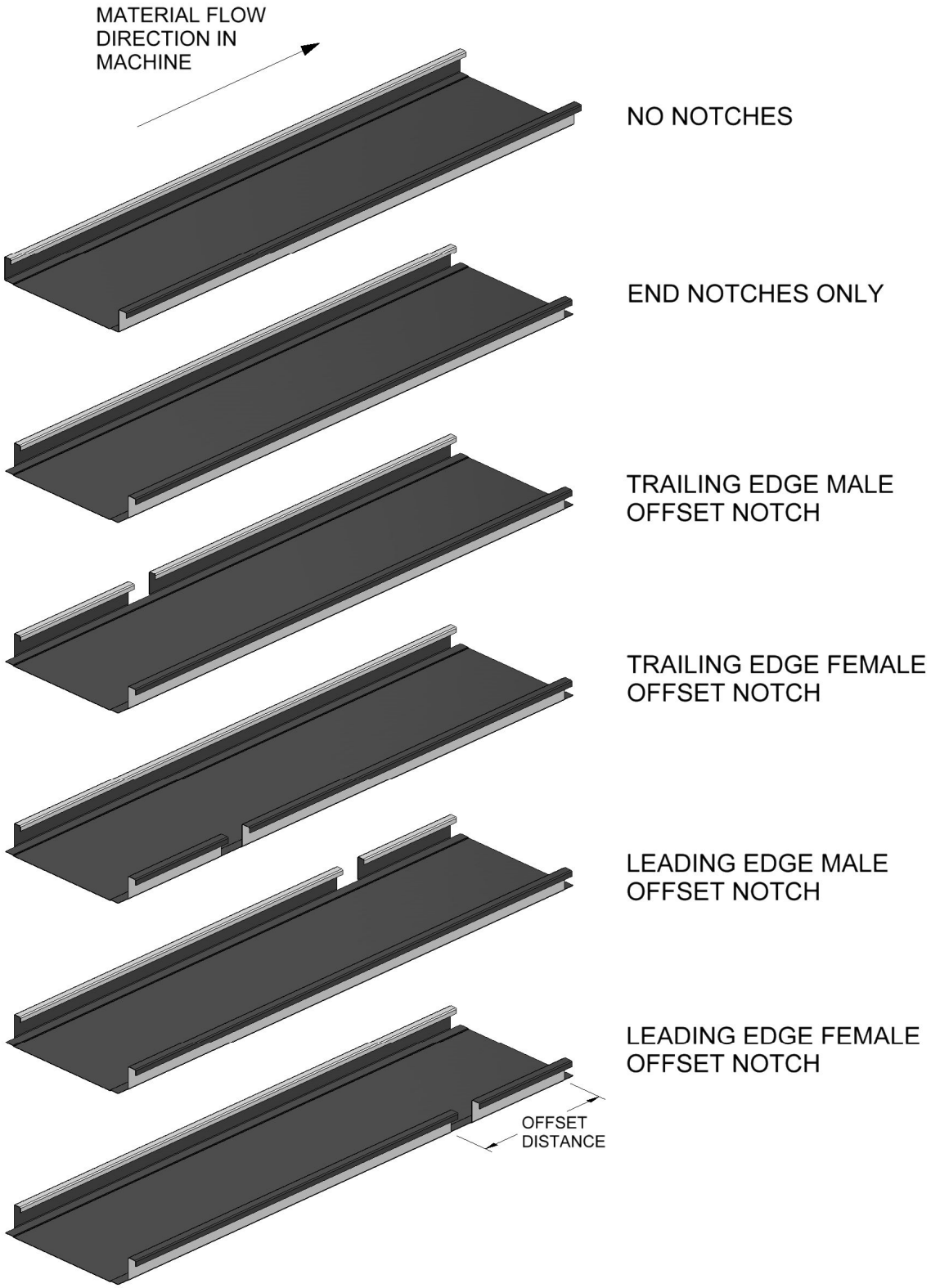
Notch Ends: This will add a 1" deep notch to each end of the panel.

Leading/Trailing Offset Notches: This refers to the additional notch that can be added to the panel to make cutting them at an angle easier. The additional notch can be added to either the leading or trailing edge of the panel and the male or female leg as needed. See the figure below for more information on notch locations. When offset notches are used, the machine will pause to allow the operator to make the angled cut. Once the cut is made press the Run button to resume.

Lead/Trail Offset Length: This is the distance from the end notch to the offset notch as shown in the figure below.

APPENDIX A

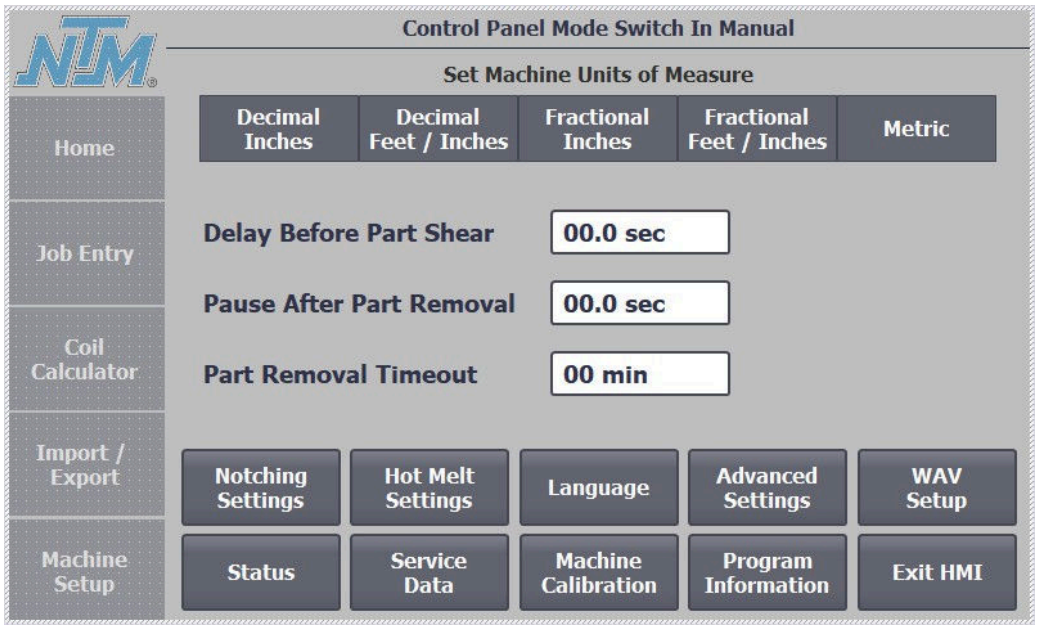
UNIQ AUTOMATIC CONTROLLER



Stopping Distance

In order to produce accurate lengths, the controller needs to adjust for variations in the stopping distance of the machine. The stopping distance is the distance that the machine coasts after the drives are shut off and is usually about 0.25 to 1.0 inches. The controller will stop the drives just before reaching the specified length in order to account for this coasting. The stopping distance varies based on the type of material being formed and the thickness, the outside temperature, the hydraulic fluid temperature, and other reasons. The controller automatically updates the stopping distance as panels are produced by comparing the current stopping distance to the actual coasting distance. If they differ it will make an adjustment to the stopping distance, but to prevent over-correction it only changes it by a small amount at a time. If the stopping distance is off by a large amount, it may take five or even ten panels for it to get dialed back in.

Machine Setup



Units: Select the preferred units of length here. When changing units, the cut list will automatically update so nothing will need to be re-entered.

Delay Before Part Shear: This is the delay between when the drives stop and when the shear starts to come down. The default is 0.1 seconds.

Pause After Part Removal: This is the delay from when a part is removed from the outfeed area to when the drives start again. The default is 1.0 seconds.

Part Removal Timeout: This is the time after which a warning will appear if the part is not removed from the outfeed area. The default is 1 minute.

Notching Settings:

- **Notching Installed Yes/No –** Set this to Yes if a notching system is installed on your machine (only available on the SSQ2) and you would like to notch panels. If you do not want to notch panels, it is recommended to set this to No.
- **Always Notch Ends Yes/No –** Setting this to Yes will notch the ends of every panel by default.
- **Enable Angle Slitter Yes/No –** If you have the optional Angled Slitter set this to Yes. It will cause the machine to pause at a fixed location in order to allow the operator to slit the panel.

Hot Melt Settings:

- **Enable Hot Melt Yes/No –** This turns on the hot melt interface relay to run while material is moving forward.
- **Hot Melt Purge –** Pressing this button will cause sealant to flow out of the hot melt nozzle while the button is held down. It is disabled when the emergency stop is pressed or when the drives are running.

Language: Selects between English and Spanish

Advanced Settings:

- **BOS Relay Installed –** This is a piece of hardware installed in earlier UNIQ Control System panels. Inside the control panel on the door, there is a serial number. If the serial number is earlier than UNIQ1-0016 then YES should be selected for the panel to function properly. Otherwise, NO should be selected.

WAV Setup: These are settings that are specific to the WAV Wall Panel Machine

- **WAV VFD Enable Yes/No –** Set this to Yes if you have a WAV Machine with a Variable Frequency Drive (VFD). All WAV Machines with an electric motor have a VFD.
- **VFD Jog/Manual Speed –** This sets the speed that the machine will run at while jogging and when running a manual part from the Home Screen. The maximum is 50%.
- **VFD Auto Part Run Speed –** This sets the speed that the machine will run at while producing panels in Auto Mode. 20% is about 30 ft/min and 100% is about 150 ft/min.
- **VFD Error Code –** If the VFD has faulted an error code will be displayed here.
- **VFD Fault Status and Reset Button –** During normal operation this will display Status OK in a gray box. If the VFD has faulted this will turn red. Press the Reset button to clear the fault.

Status: This button will open another screen displaying information on the current state of the machine.

- **Sensor Status Indicators –** These display the current state of the various sensors throughout the machine. Green is on and black is off.

- **Hydraulic Pressure –** This senses if there is hydraulic pressure present and should be on whenever the motor or engine is running.
- **Shear Top of Stroke –** There are two limit switches at the top of the shear that sense if the shear is up. This indicator should be on whenever the shear is up.
- **Shear Bottom of Stroke –** The shear has a single limit switch at the bottom of the cross bar that tells the machine when to stop the downward stroke and start the upward stroke. This indicator should be off unless the shear is all the way down.
- **Proximity Switch –** This is a small cube-shaped sensor at the exit end of the machine that senses if material is present above it. It is used to prevent the machine from starting the next panel until the previous one has been removed from the exit area of the machine.
- **Male/Female Notch TOS (Top of Stroke) –** The optional Notching System uses a limit switch inside of each notcher to verify that the punch is up before activating the drive. The status should show on when the notchers are up.

- **Encoder Wheel Circumference –** This displays the calculated value of the encoder wheel circumference based on the machine calibration. The default value is 7.902 inches. If your machine is producing panels that are off by a large amount and this value is greatly different than the default value you should reset this to default. See the Machine Calibration section below.
- **Stopping Distance -** The stopping distance is the distance that the machine coasts after the drives are shut off and is usually about 0.25 to 1.0 inches. It updates automatically based on feedback from the encoder.
- **Length of Last Part (via Encoder) –** This displays what the length of the last part produced should be based on the encoder counts and is useful for troubleshooting problems with panel length.
- **Service Data:** This section displays information that is helpful for servicing the machine, such as the total length of material that has been run, the total hours that the machine has been running, and the number of times the shear has been cycled.

Machine Calibration: See the next section for calibration instructions.

Program Information: Pressing this button will display the current version of the controller software.

Exit HMI: This button is only needed when updating the controller software. Refer to the instructions that come with the update for more information.

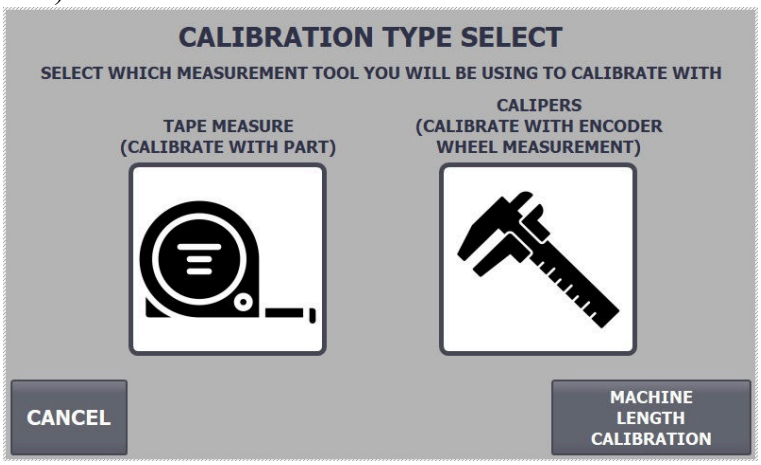
Machine Calibration

Machine calibration refers to calibrating the encoder so that the controller can produce accurate panel lengths. It is important to note that there are several possible causes for the lengths to be wrong, and calibration may not solve the problem. If a panel comes out at the wrong length, go to the Status Screen under Machine Setup and check the Encoder Length of Last Part reading. If it matches the length of the panel, then the encoder is correctly measuring the panel length and calibration should not be performed. **Only calibrate if the Encoder Length of Last Part does not match the actual length of the panel produced.**

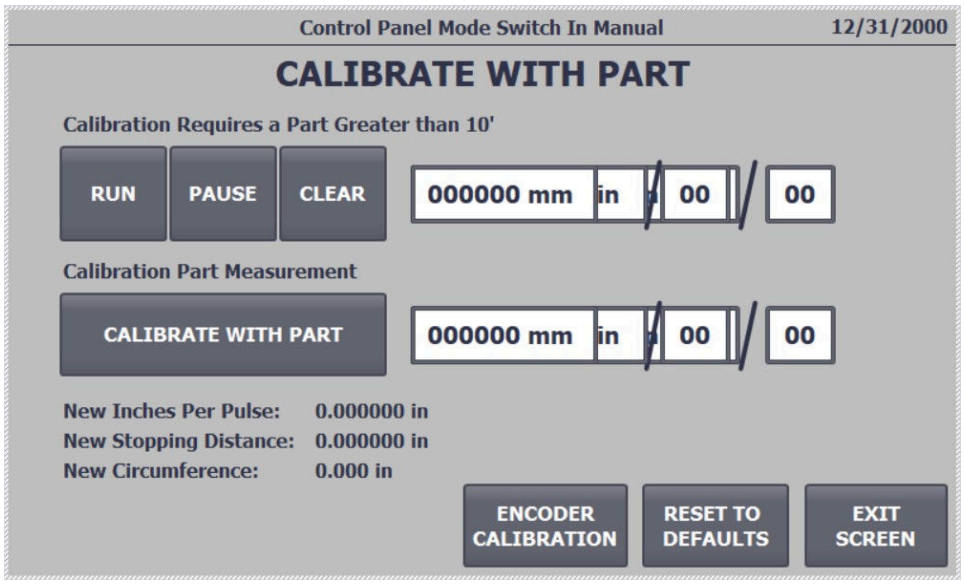
We provide two different methods for performing calibration – measuring a panel with a tape measure and measuring the encoder wheel diameter with calipers. See below for instructions on how to calibrate with either method.

Calibrate with Panel Measurement

1. If it is not already, load the machine with material by jogging it past the shear and cutting off the excess.
2. Go to Machine Setup then press Machine Calibration. **Note – the motor must be running and the covers must be on in order to continue.**
3. The Calibration Type Select screen pops up. Press Tape Measure (Calibrate With Part).



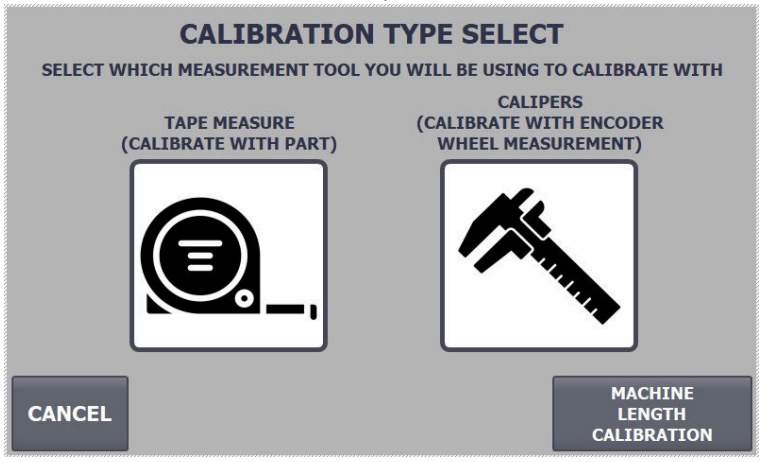
4. Enter a length to run in the upper field. The panel must be at least 10 feet long.



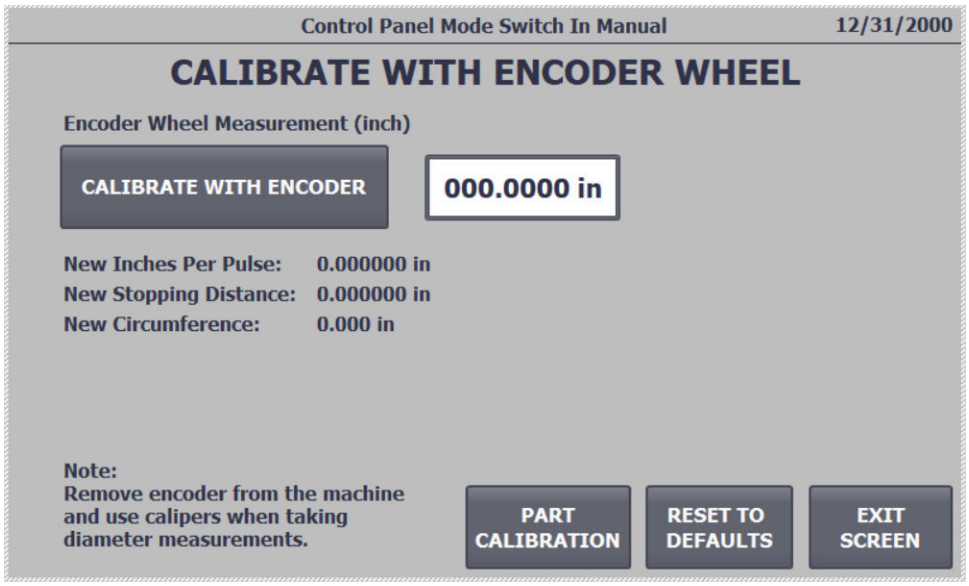
5. Press RUN.
6. Measure the panel carefully and enter the length into the lower field.
7. Press CALIBRATE WITH PART.

Calibrate with Encoder Wheel Measurement

1. Go to Machine Setup then press Machine Calibration.
2. The Calibration Type Select screen pops up. Press Calipers (Calibrate with Encoder Wheel Measurement).



3. Remove the encoder from the machine.
4. Measure the encoder wheel diameter with a pair of calipers. Check it in a few different places to make sure the wheel does not have a slight oval shape. If the measurements are not consistent then the Panel Measurement method above should be used instead.
5. Enter the diameter measurement into the field.

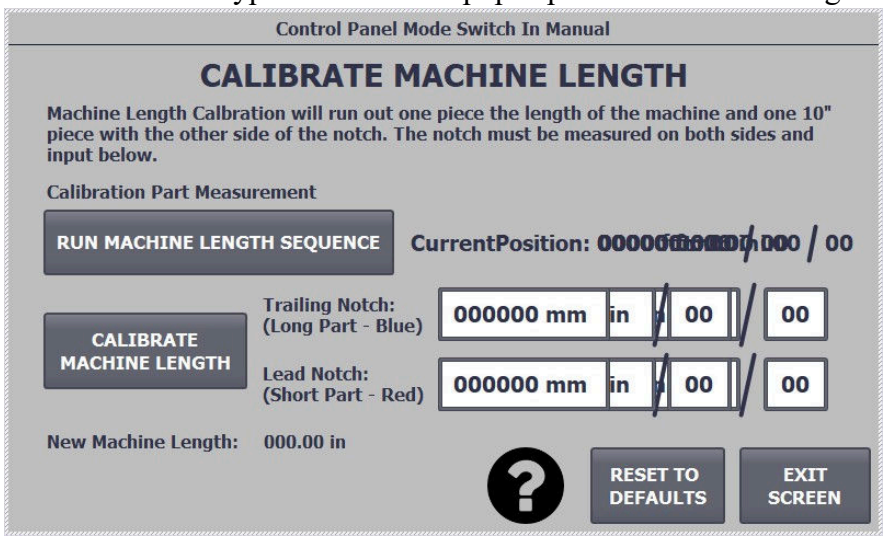


6. Press Calibrate With Encoder.

Machine Length Calibration

For machines with the optional Notching System, the controller needs to know the distance between the notchers and the shear in order to cut the panel in the center of the notch. This is referred to as the Machine Length. It is set at the factory and should not need to be adjusted, but if the machine is **consistently** missing the center of the notch then follow the procedure below to recalibrate it.

1. If it is not already, load the machine with material by jogging it past the shear and cutting off the excess.
2. Go to Machine Setup then press Machine Calibration. **Note – the motor must be running and the covers must be on in order to continue.**
3. The Calibration Type Select screen pops up. Press Machine Length Calibration.



4. Press Run Machine Length Sequence. The machine will run out a part that is about 12 feet long with a notch on the trailing end.
5. Slide this part out of the way but do not discard it. The machine will then run a 10 inch long part.
6. Measure the length of the notch on the trailing end of the 12 foot panel and enter the measurement into the Trailing Notch field.
7. Measure the length of the notch on the leading end of the 10 inch panel and enter the measurement into the Lead Notch field.
8. Press Calibrate Machine Length.

Reset to Defaults

Note – on the Calibrate With Part, Calibrate With Encoder Wheel, and Calibrate Machine Length screens there is a Reset To Defaults button. Pressing this will set the controller back to the default settings.

Maintenance Mode

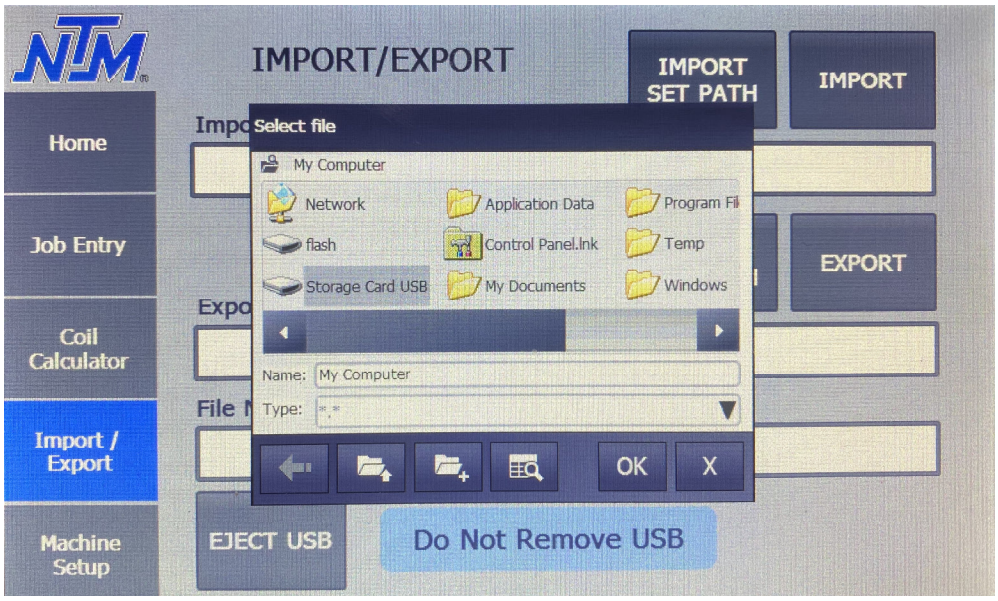
As a safety precaution, if any of the machine covers are removed the controller will go into Maintenance Mode. In this mode the Status page will be displayed, and the machine cannot be controlled from the touchscreen. If it is necessary to run the machine with the covers removed, for setup or maintenance for example, move the Manual/Auto switch to the Manual position and use the push buttons below the touchscreen. Replace the covers to return the machine to normal operation.

Import/Export

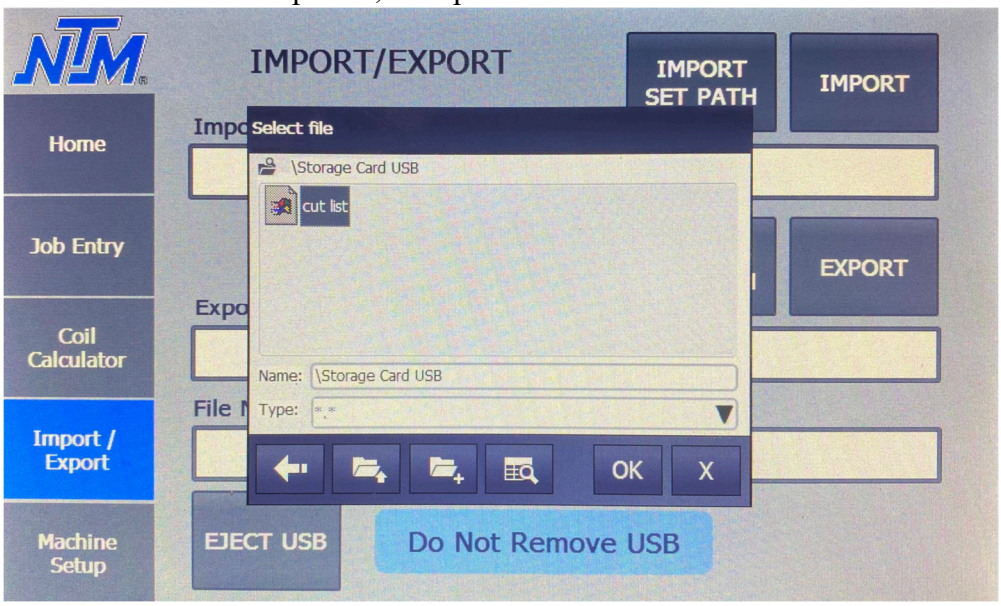
Importing a Cut List

A cut list can be imported into the controller from a USB drive. This can speed up the process of entering data by allowing the user to type it into the Excel spreadsheet we provide. The spreadsheet can be found on our website by going to the Resources section then clicking Cut List Generator, or by following this link: https://newtechmachinery.com/learning-center/resource/cutlist-generator/. The roofing software Applicad can also export a cut list into a format that the Uniq controller can import. Follow the instructions below to import a cut list from a USB drive.

1. Save the cut list to a USB drive by following the directions in the Cut List Generator spreadsheet or in Applicad.
2. Insert the USB drive into the USB port on the front of the control panel.
3. Press the Import/Export button on the left side of the screen.
4. Press the Import Set Path button.
5. Press Storage Card USB, then press OK.



6. Select the file to be imported, then press OK.

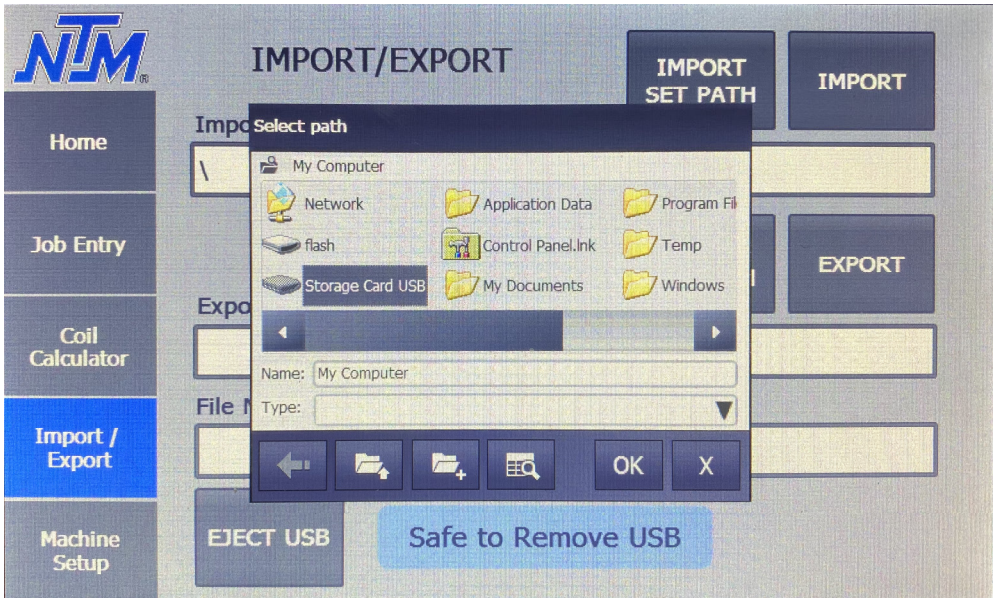


7. After a moment the message “Import completed, no errors” will appear.
8. Press the Eject USB button, then remove the USB drive.

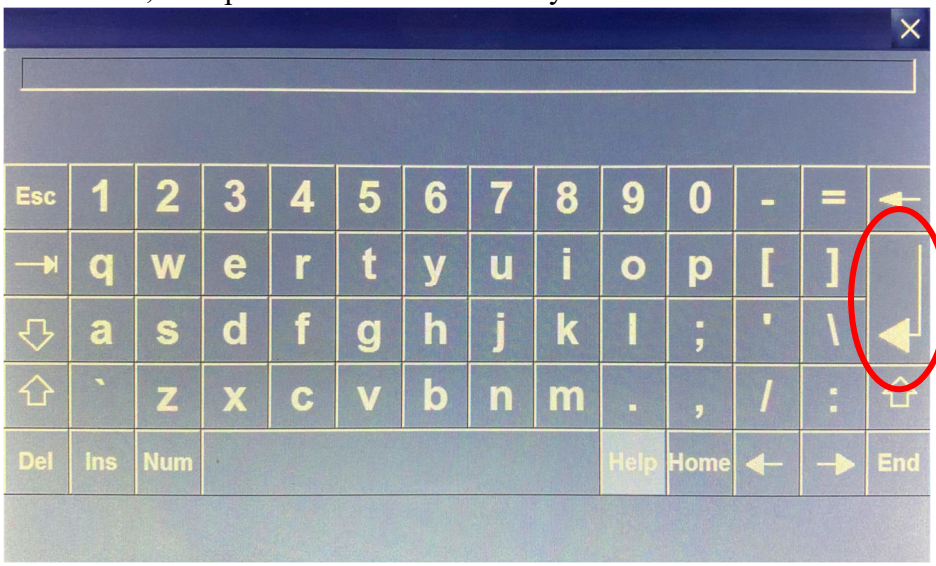
Exporting a Cut List

The cut list on the Uniq controller can also be exported to a USB drive for later use or for record-keeping purposes. To export follow the steps below.

1. Insert a USB drive into the USB port on the front of the control panel.
2. Press the Export Set Path button.
3. Press Storage Card USB, then press OK.



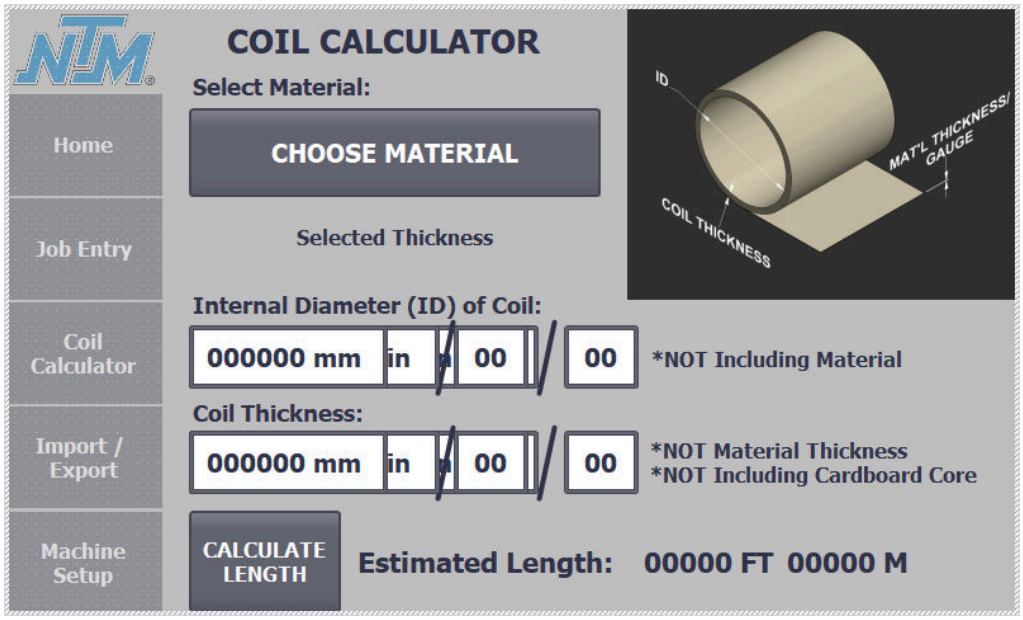
4. Press the empty field under File Name. A keypad will appear on the screen. Enter a file name, then press Enter. The Enter key is circled in red.



5. Press the Export button.

6. The message “Export in progress” is displayed. When it is complete, press the Eject USB button.
7. Remove the USB drive.

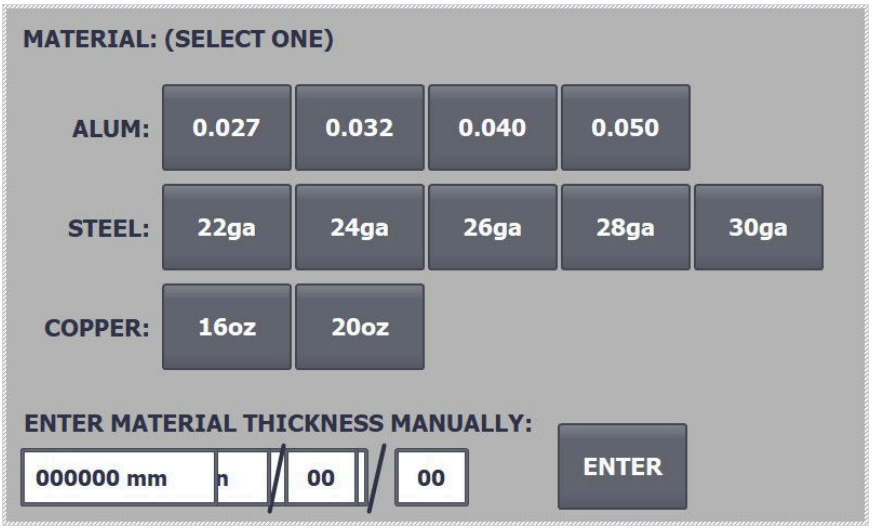
Coil Length Calculator



The controller has a built-in calculator to estimate the length of a coil based on the dimensions of the coil. To use it follow the steps below.

1. Press Choose Material to select the material thickness. The thickness can also be entered manually if none of the options are suitable.

UNIQ AUTOMATIC CONTROLLER



2. Enter the Internal Diameter (ID) of the coil. Measure to the metal coil itself and not the core.
3. Enter the coil thickness which is the distance from the outside of the coil to the internal diameter.
4. Press the Calculate Length button and the estimated length remaining on the coil will be displayed.

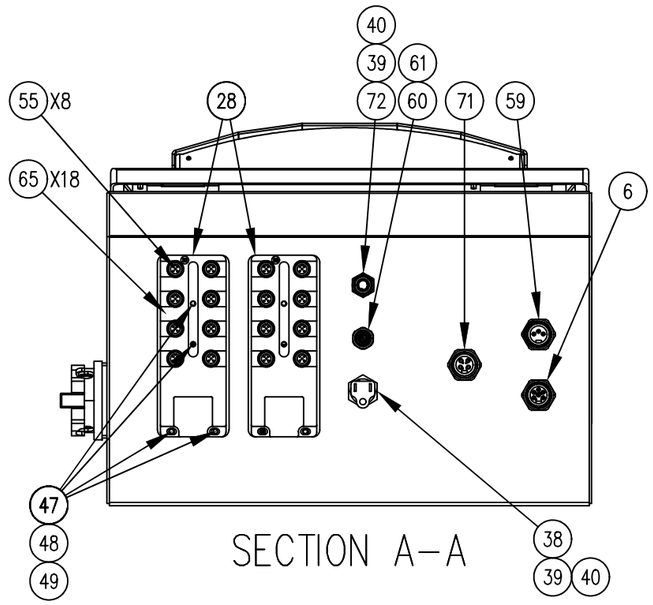
ELECTRICAL SCHEMATICS

ELECTRICAL SCHEMATICS FOR THE UNIQ CONTROL PANEL

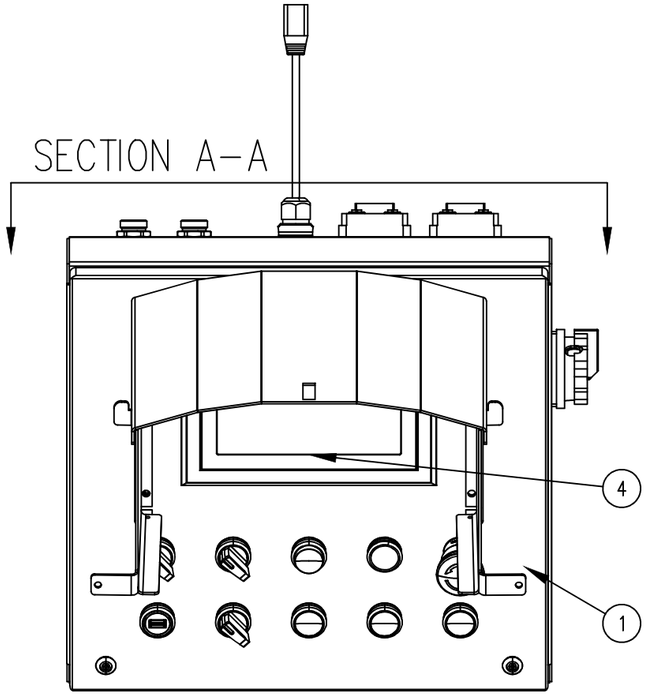
Drawing Number	Description
HTA-NTM-030220-009-00	Automatic Control Panel
HTA-NTM-030220-008-00	Manual Control Panel
HTA-NTM-030220-104-00	Entry End Push Button Box

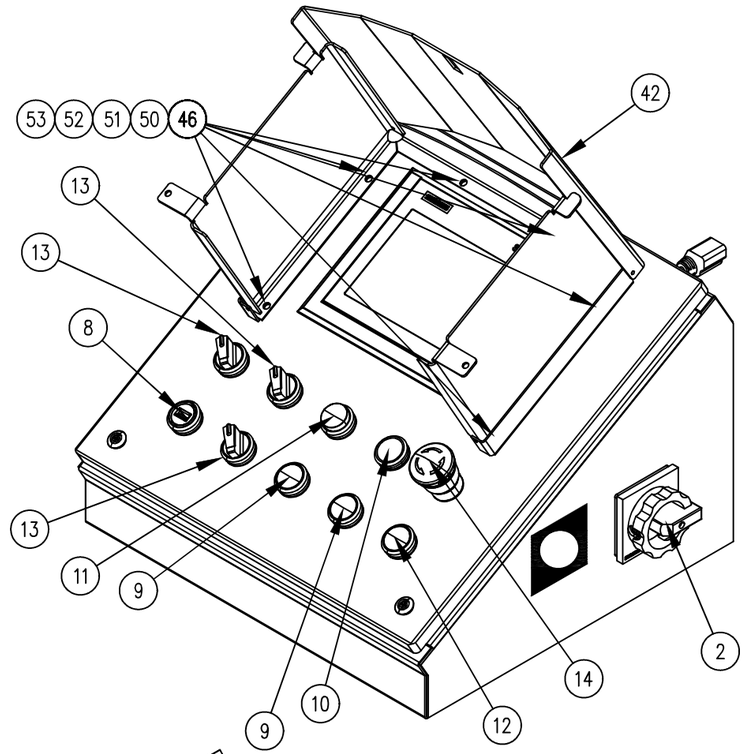
ELECTRICAL SCHEMATICS FOR THE POWER SUPPLY BOXES

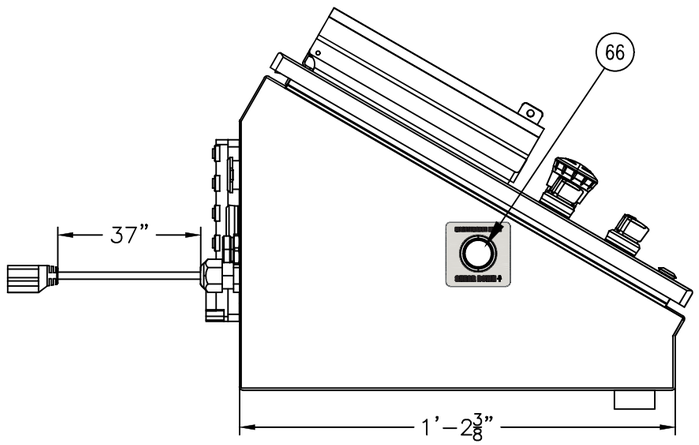
Drawing Number	Description
HTA-NTM-030220-400-00	Gas Engine Power Supply Box
HTA-NTM-030220-401-00	230V 1PH Power Supply Box
HTA-NTM-030220-402-00	230V 3PH Power Supply Box
HTA-NTM-030220-403-00	380V/480V 3PH Power Supply Box

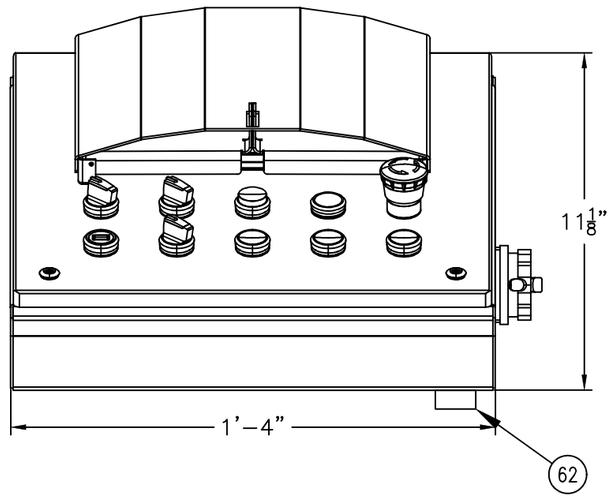


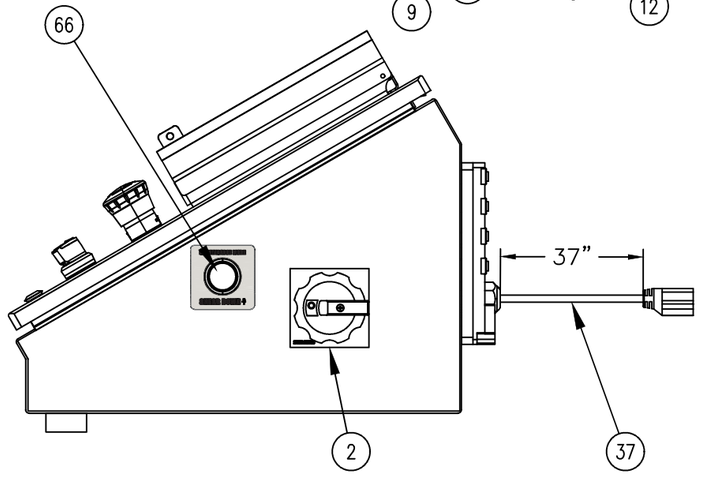
SECTION A–A











GENERAL NOTES:

1. CONTROL PANEL ENCLOSURE RATING: TYPE 4
2. MINIMUM SCCR RATING: 10KAIC.
3. IF USING WEIDMULLER M12 CONNECTORS REFER TO SHEETS 4B, 5B, AND 6B FOUND AT THE BACK OF THE DRAWING

BY	REV	DATE	DESCRIPTION
BSP	A	03/12/2024	MODIFIED FROM ORIGINAL AUTO PANEL DRAWING

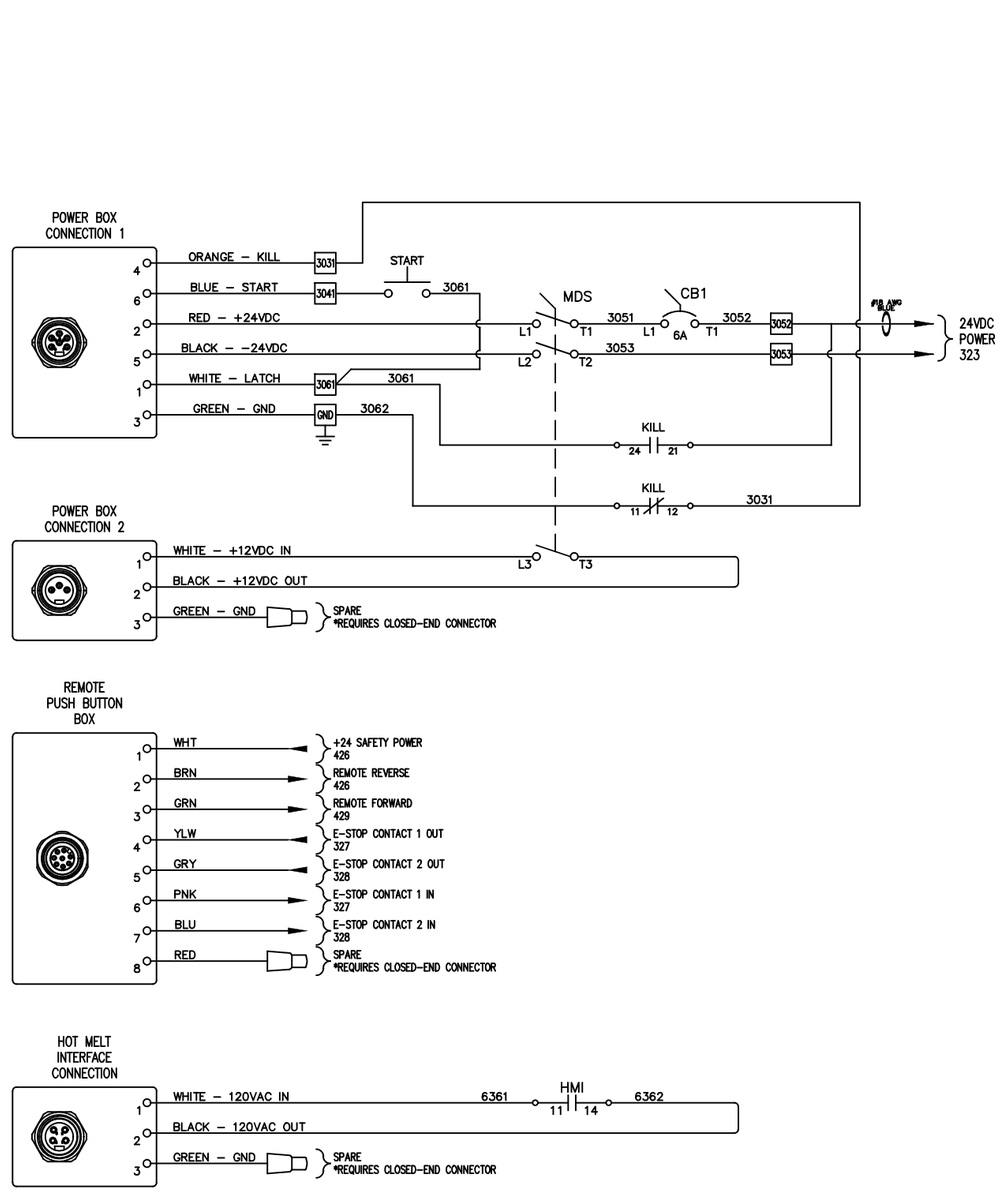
PLC CONTROL PANEL LAYOUT OVERVIEW

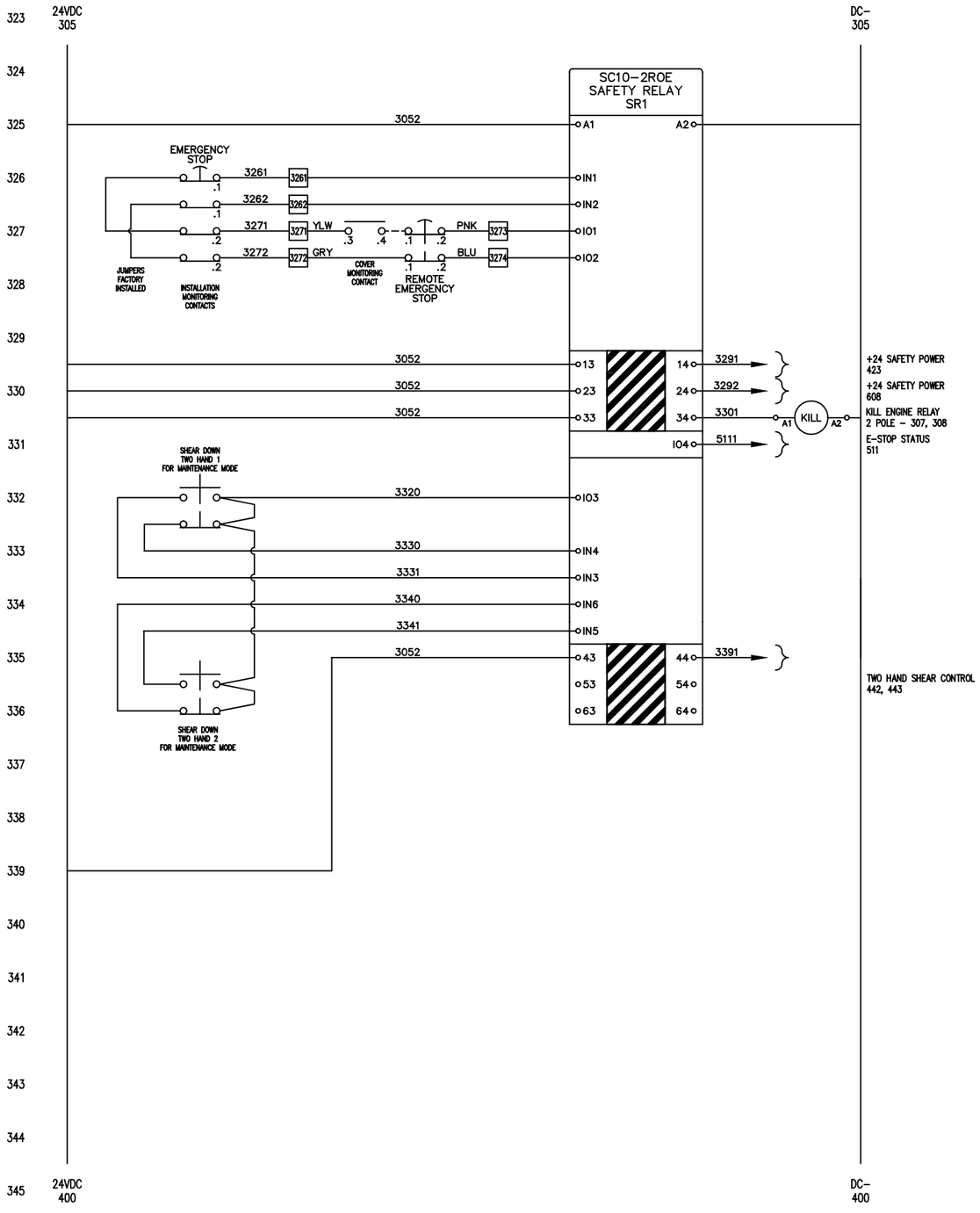
NEW TECH MACHINERY
UNIQ AUTO PANEL
PRE CUT PANEL WITH WDM

DRAWN BY	B. PARKER
DRAWN DATE	03/12/2024
SCALE	1:5
CHECKED BY	BJM
CHECKED DATE	03/13/2024
SHEET	1 OF 9

New Tech Machinery
A MAZZELLA COMPANY

DWG NO. HTA-NTM-030220-009-00 REV. A





BSP	A	03/12/2024	MODIFIED FROM ORIGINAL AUTO PANEL DRAWING
BY	REV	DATE	DESCRIPTION

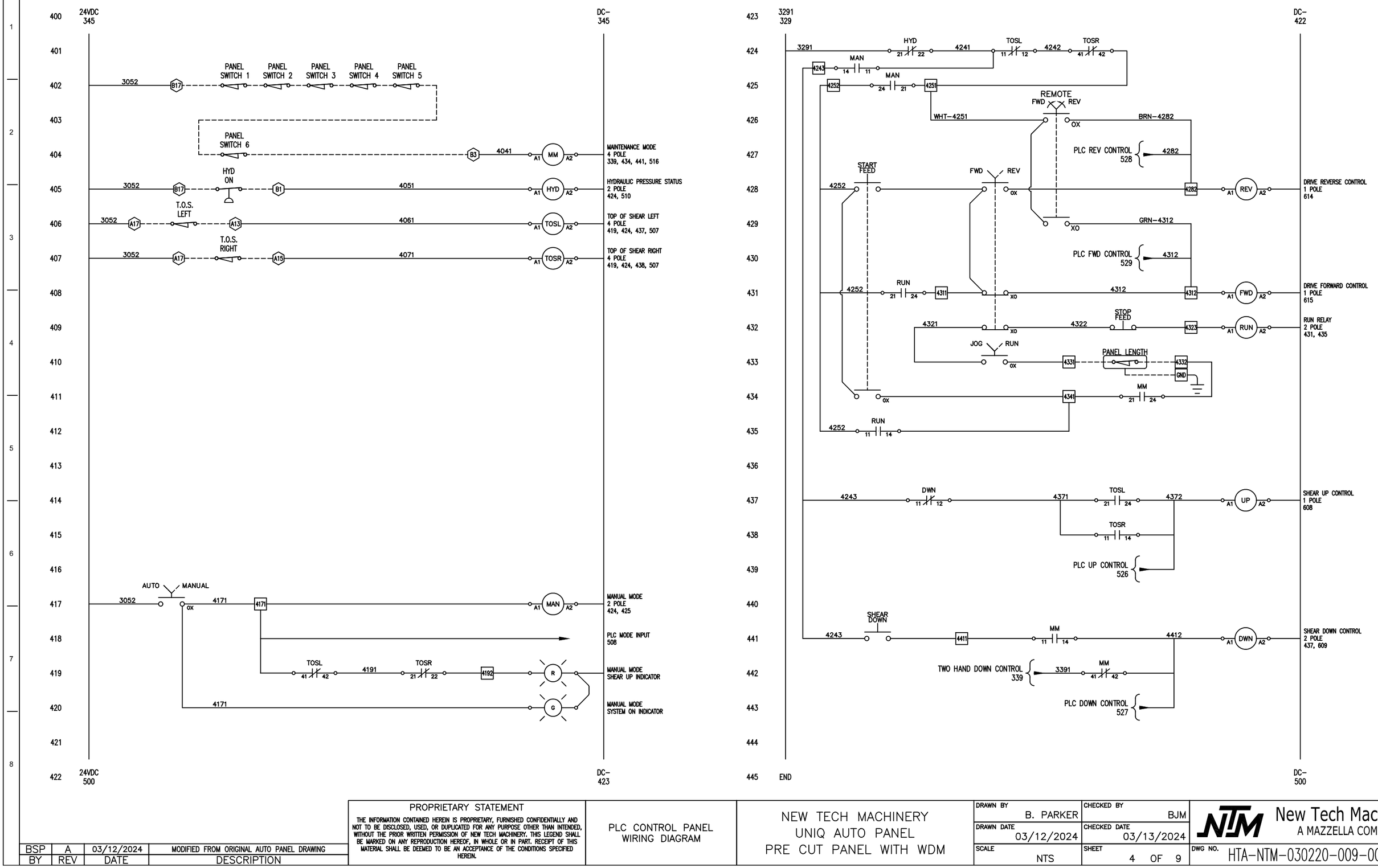
PLC CONTROL PANEL WIRING DIAGRAM

NEW TECH MACHINERY
UNIQ AUTO PANEL
PRE CUT PANEL WITH WDM

DRAWN BY	CHECKED BY
B. PARKER	BJM
DRAWN DATE	CHECKED DATE
03/12/2024	03/13/2024
SCALE	SHEET
NTS	3 OF 9

New Tech Machinery
A MAZZELLA COMPANY

DWG NO.	REV.
HTA–NTM–030220–009–00	A



BSP	A	03/12/2024	MODIFIED FROM ORIGINAL AUTO PANEL DRAWING
BY	REV	DATE	DESCRIPTION

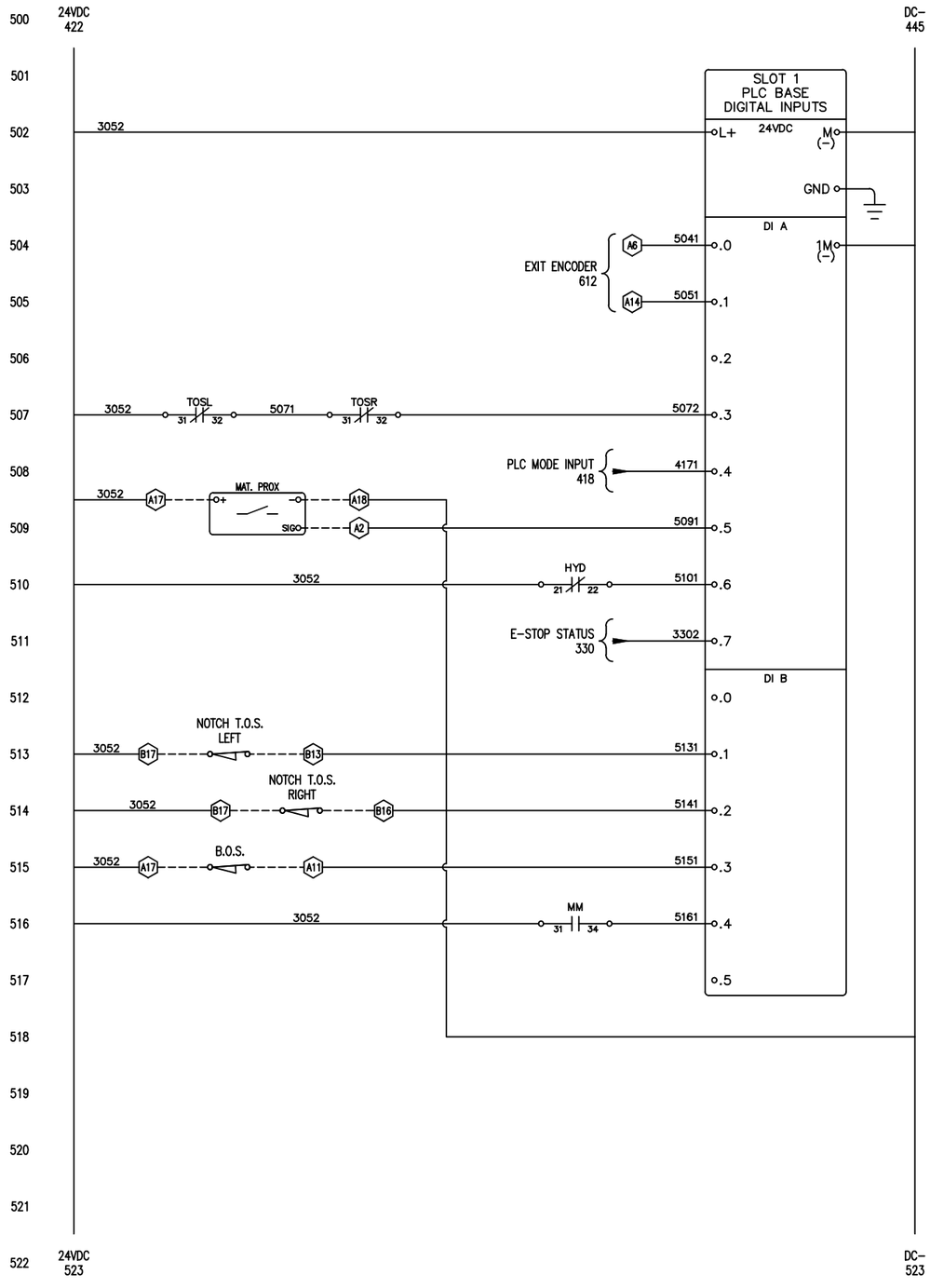
PLC CONTROL PANEL
WIRING DIAGRAM

NEW TECH MACHINERY
UNIQ AUTO PANEL
PRE CUT PANEL WITH WDM

DRAWN BY: B. PARKER	CHECKED BY: BJM
DRAWN DATE: 03/12/2024	CHECKED DATE: 03/13/2024
SCALE: NTS	SHEET: 4 OF 9

New Tech Machinery
A MAZZELLA COMPANY

DWG NO. HTA-NTM-030220-009-00 REV. A



BY	REV	DATE	DESCRIPTION
BSP	A	03/12/2024	MODIFIED FROM ORIGINAL AUTO PANEL DRAWING

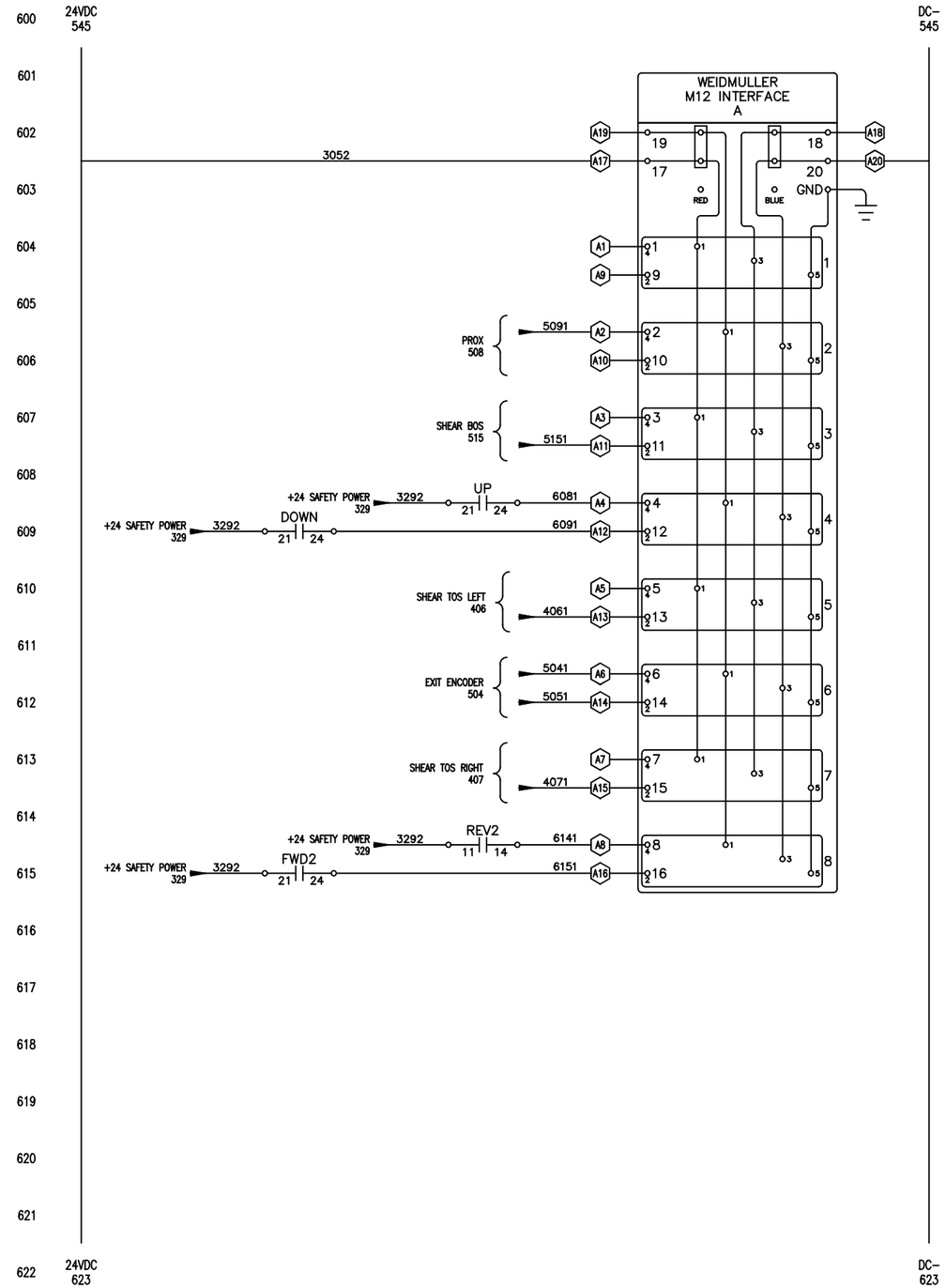
PLC CONTROL PANEL
WIRING DIAGRAM

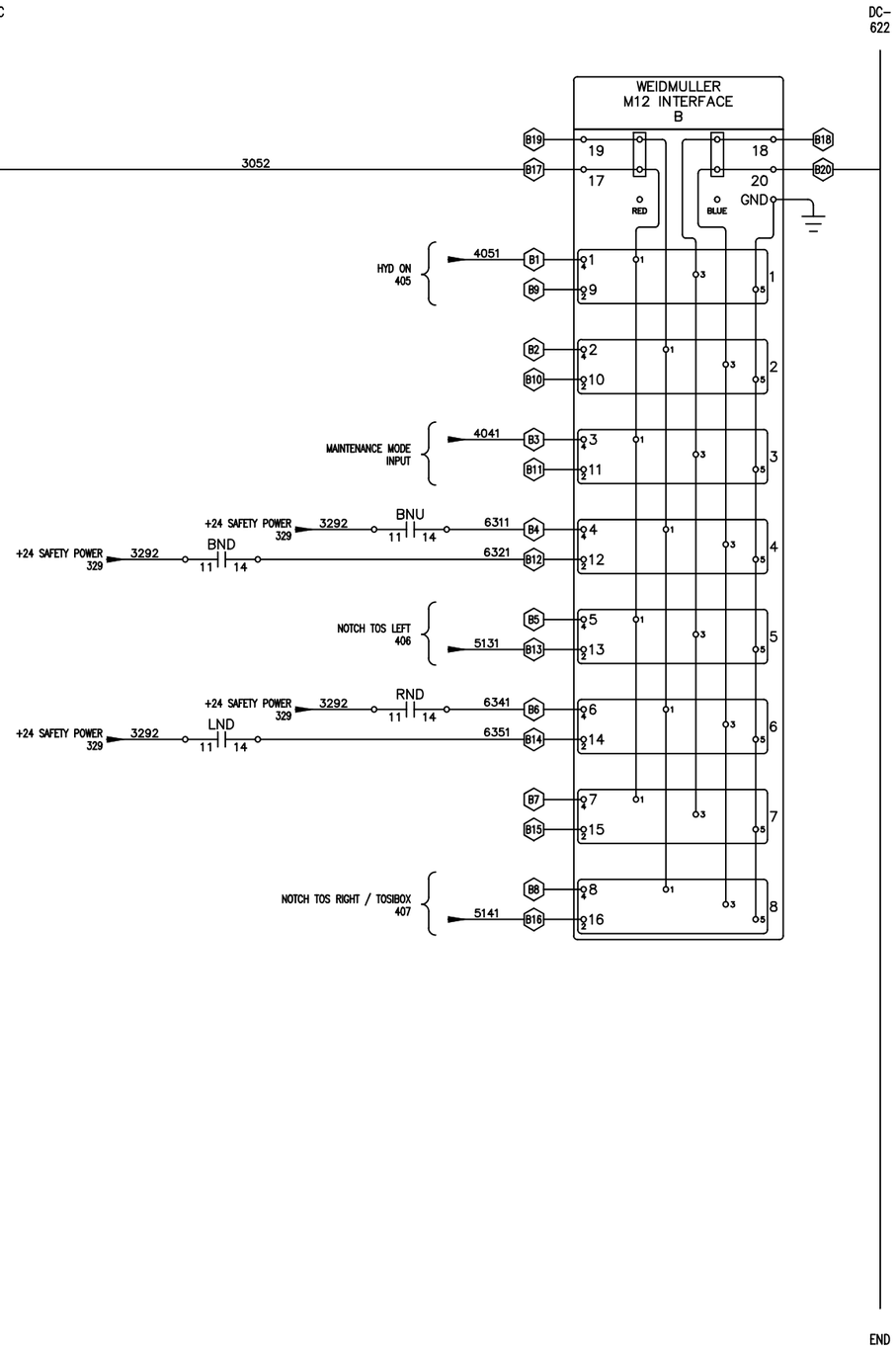
NEW TECH MACHINERY
UNIQ AUTO PANEL
PRE CUT PANEL WITH WDM

DRAWN BY: B. PARKER	CHECKED BY: BJM
DRAWN DATE: 03/12/2024	CHECKED DATE: 03/13/2024
SCALE: NTS	SHEET: 5 OF 9

New Tech Machinery
A MAZZELLA COMPANY

DWG NO. HTA-NTM-030220-009-00 REV. A





BY	REV	DATE	DESCRIPTION
BSP	A	03/12/2024	MODIFIED FROM ORIGINAL AUTO PANEL DRAWING

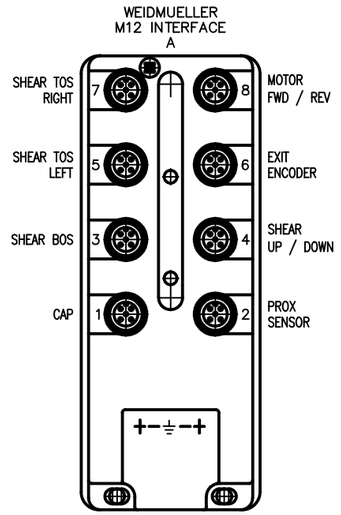
PLC CONTROL PANEL
WIRING DIAGRAM

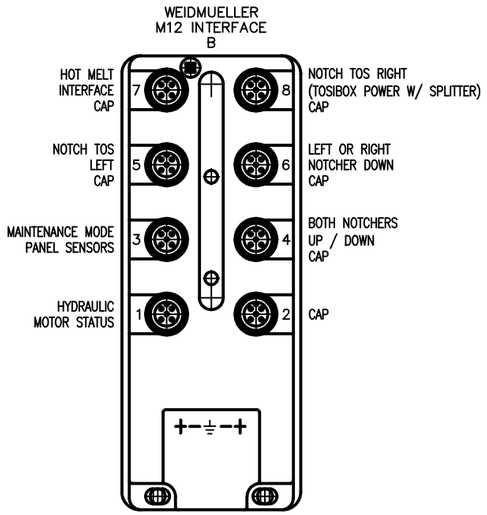
NEW TECH MACHINERY
UNIQ AUTO PANEL
PRE CUT PANEL WITH WDM

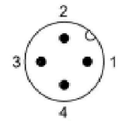
DRAWN BY	B. PARKER	CHECKED BY	BJM
DRAWN DATE	03/12/2024	CHECKED DATE	03/13/2024
SCALE	NTS	SHEET	6 OF 9

New Tech Machinery
A MAZZELLA COMPANY

DWG NO. HTA-NTM-030220-009-00 REV. A

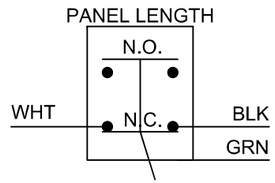


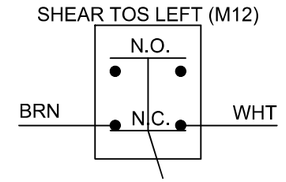


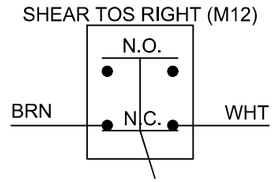


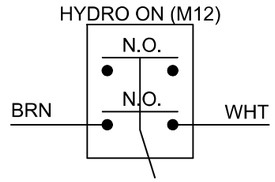
PIN 1: brown
PIN 2: white
PIN 3: blue
PIN 4: black

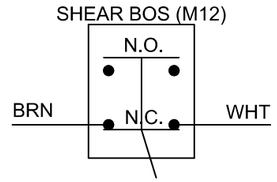
COMPONENTS



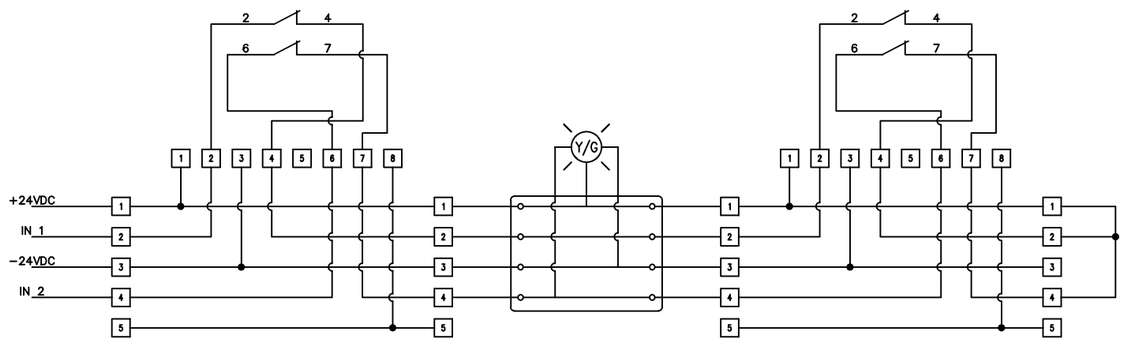




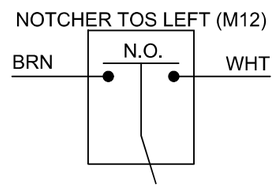


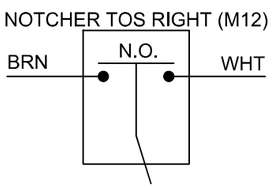


PANEL SENSORS



NOTCHER COMPONENTS





BY	REV	DATE	DESCRIPTION
BSP	A	03/12/2024	MODIFIED FROM ORIGINAL AUTO PANEL DRAWING

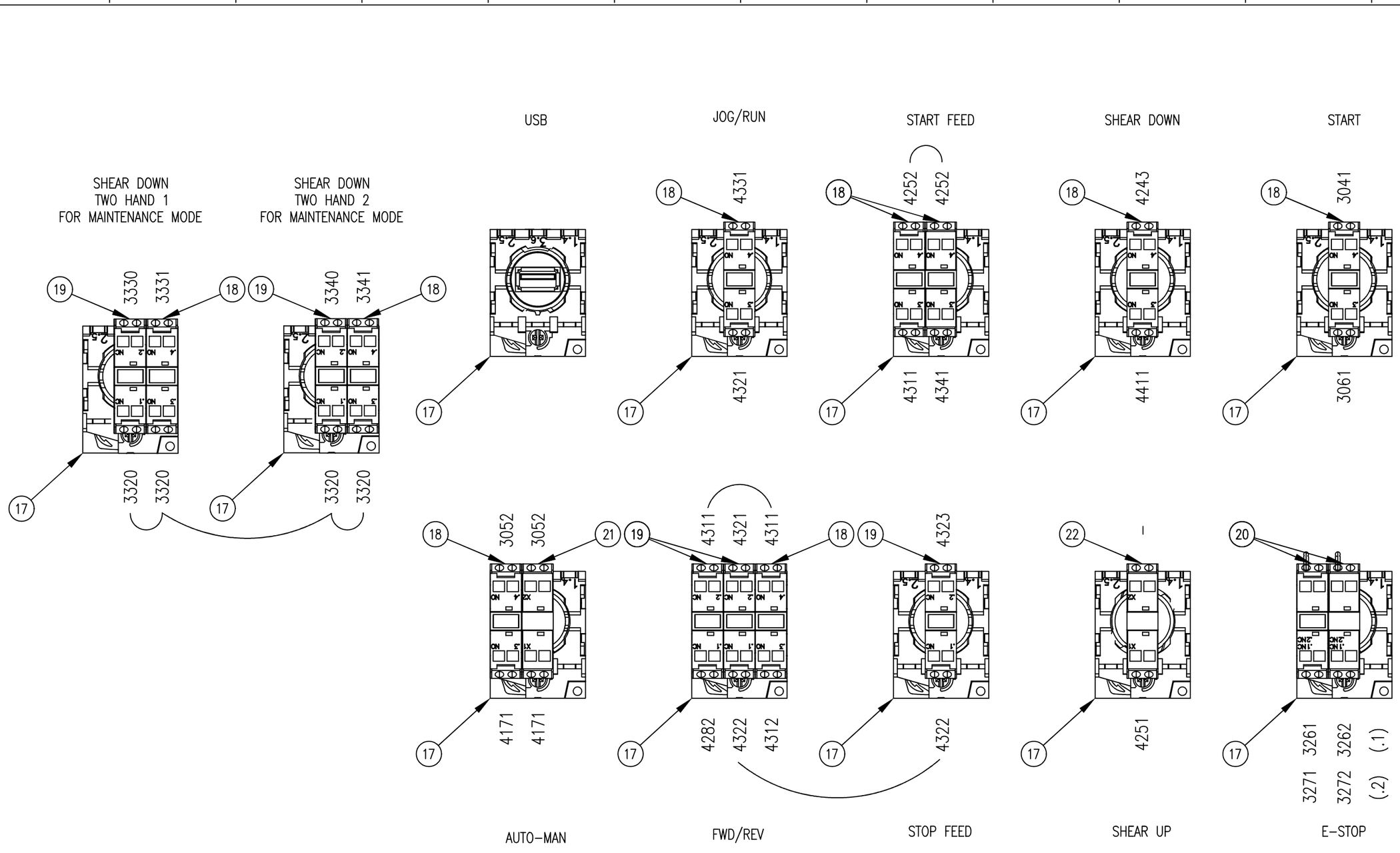
ACCESSORY REFERENCE
WIRING DIAGRAMS

NEW TECH MACHINERY
UNIQ AUTO PANEL
PRE CUT PANEL WITH WDM

DRAWN BY	B. PARKER	CHECKED BY	BJM
DRAWN DATE	03/12/2024	CHECKED DATE	03/13/2024
SCALE	NTS	SHEET	7 OF 9

New Tech Machinery
A MAZZELLA COMPANY

DWG NO. HTA-NTM-030220-009-00 REV. A



Home Run Wires	
Wire Number	**Wire Type**
GND	16AWG Green
DC-	18AWG White w Blue Stripe
3041	18AWG Blue
3061	18AWG Blue
3052	18AWG Blue
4171	18AWG Blue
4192	18AWG Blue
3261	18AWG Blue
3262	18AWG Blue
3271	18AWG Blue
3272	18AWG Blue
4243	18AWG Blue
4252	18AWG Blue
4282	18AWG Blue
4311	18AWG Blue
4411	18AWG Blue
4323	18AWG Blue
4331	18AWG Blue
4341	18AWG Blue

Jumper Wires	
Wire Number	**Wire Type**
3052	18AWG Blue
4171	18AWG Blue
4244	18AWG Blue
4311	18AWG Blue
4311	18AWG Blue
4321	18AWG Blue
4322	18AWG Blue
3061	18AWG Blue
DC-	18AWG White w Blue Stripe
DC-	18AWG White w Blue Stripe
GND	16AWG Green w Yellow Stripe

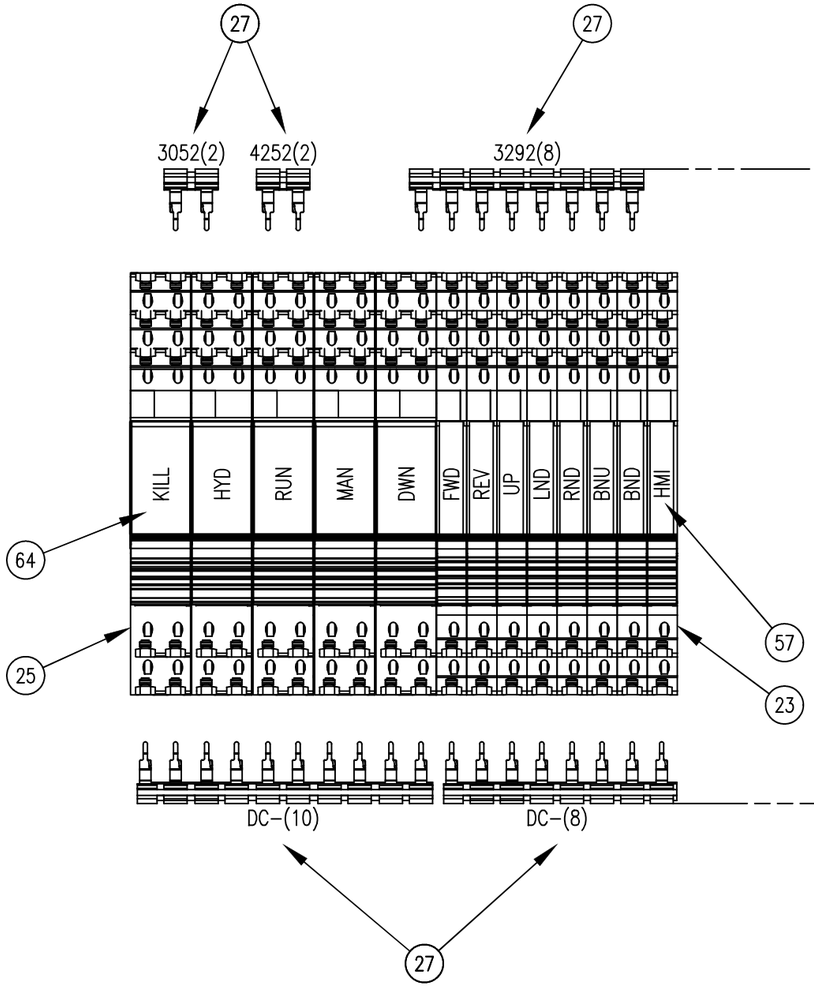
BY	REV	DATE	DESCRIPTION
BSP	A	03/12/2024	MODIFIED FROM ORIGINAL AUTO PANEL DRAWING

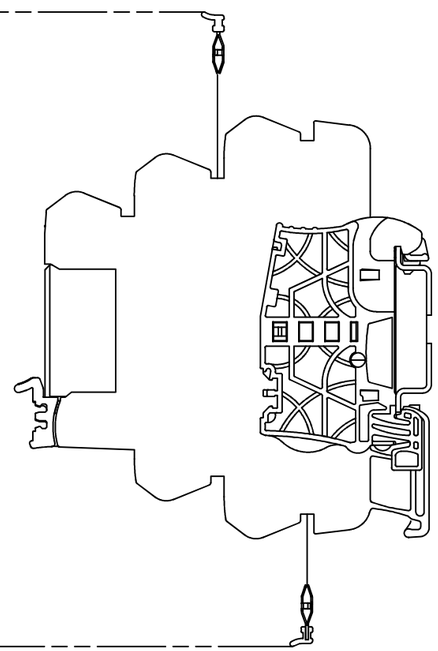
DOOR COMPONENT
WIRING DETAIL

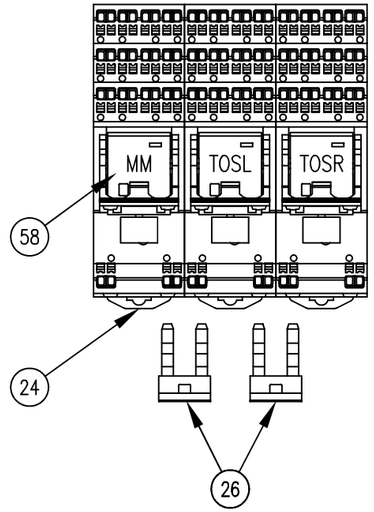
NEW TECH MACHINERY
UNIQ AUTO PANEL
PRE CUT PANEL WITH WDM

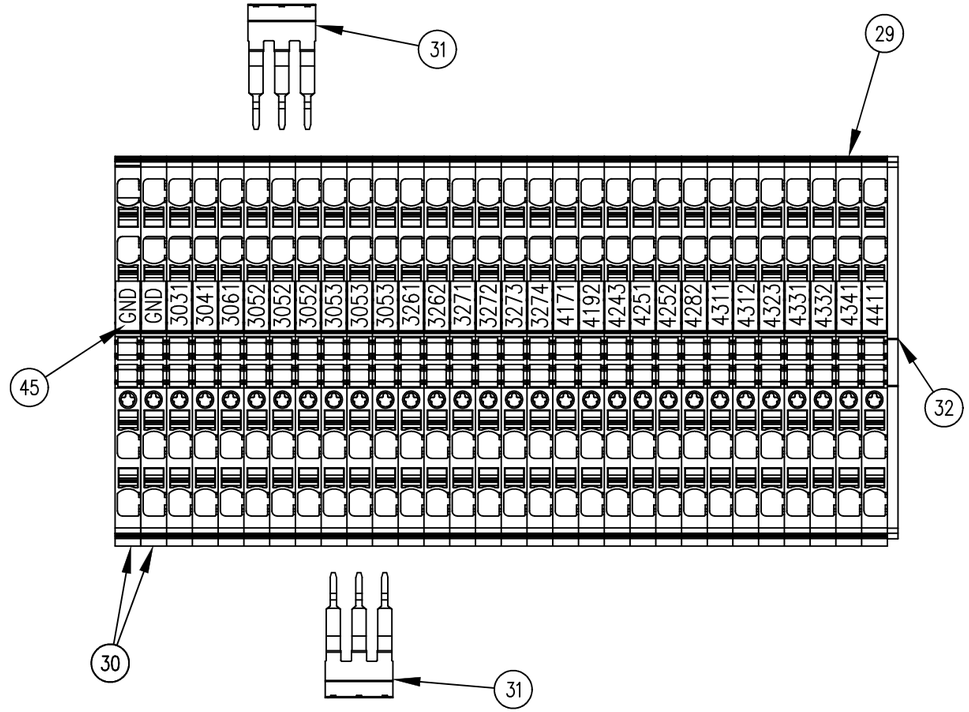
DRAWN BY	B. PARKER
DRAWN DATE	03/12/2024
SCALE	NTS
CHECKED BY	BJM
CHECKED DATE	03/13/2024
SHEET	8 OF 9
DWG NO.	HTA-NTM-030220-009-00
REV.	A

New Tech Machinery
A MAZZELLA COMPANY









BSP	A	03/12/2024	MODIFIED FROM ORIGINAL AUTO PANEL DRAWING
BY	REV	DATE	DESCRIPTION

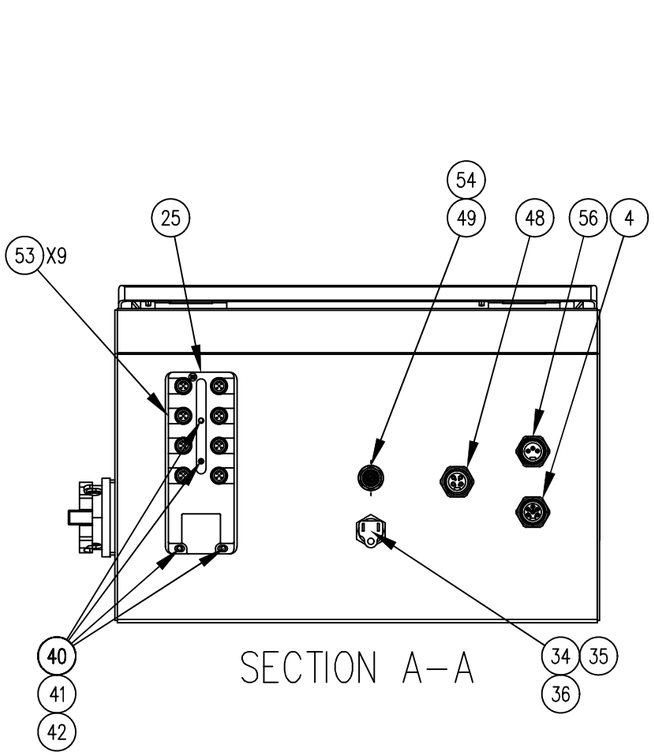
RELAY AND TERMINAL DETAIL

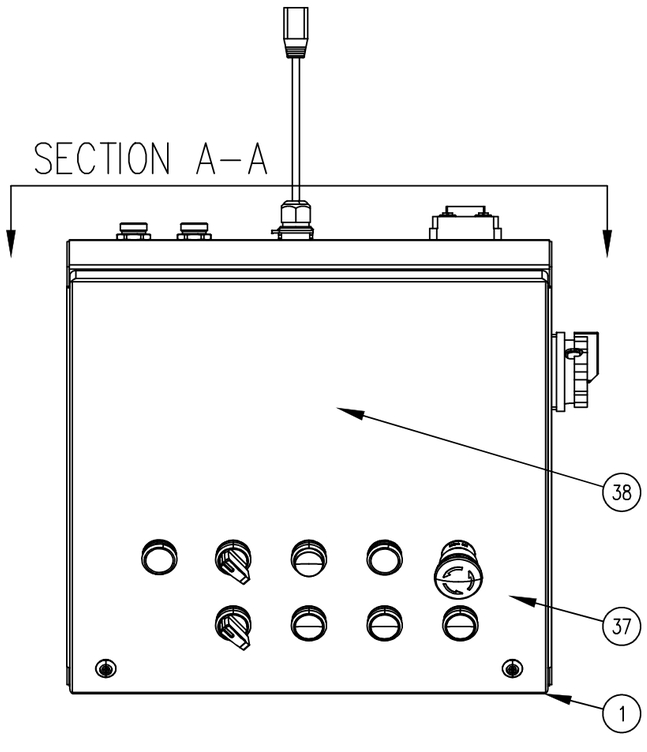
NEW TECH MACHINERY
UNIQ AUTO PANEL
PRE CUT PANEL WITH WDM

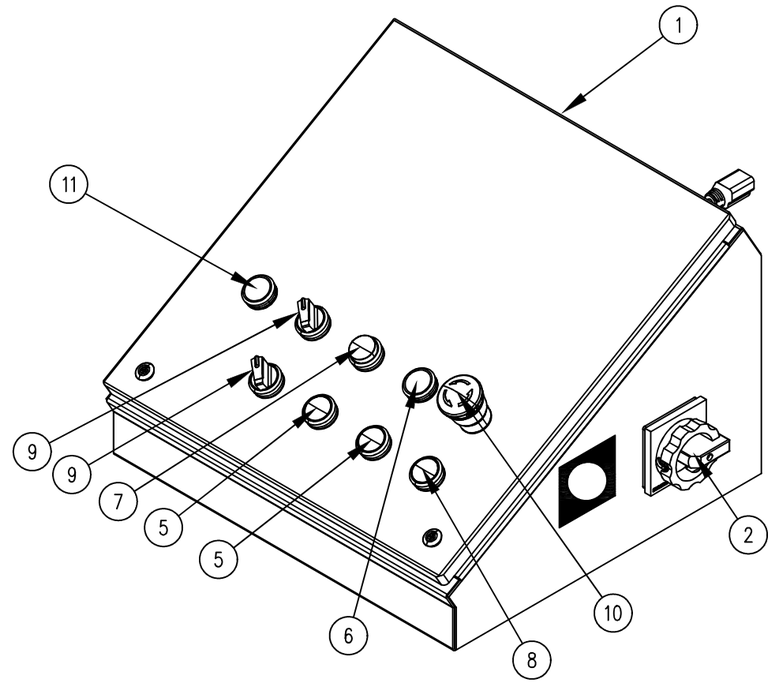
DRAWN BY	CHECKED BY
B. PARKER	BJM
DRAWN DATE	CHECKED DATE
03/12/2024	03/13/2024
SCALE	SHEET
NTS	9 OF 9

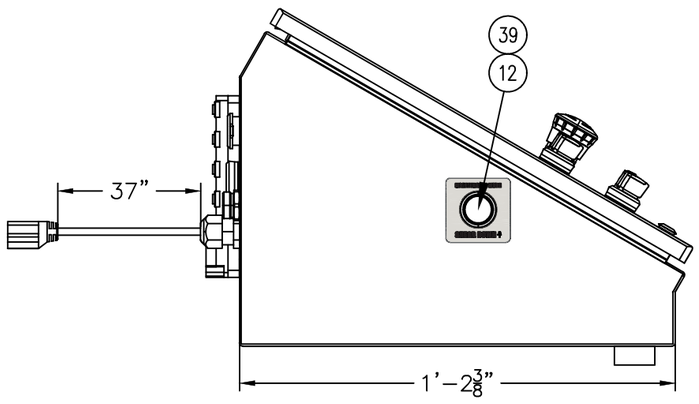
New Tech Machinery
A MAZZELLA COMPANY

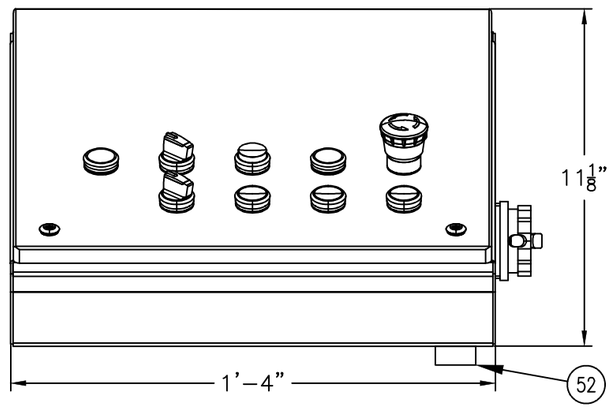
DWG NO. HTA-NTM-030220-009-00 REV. A

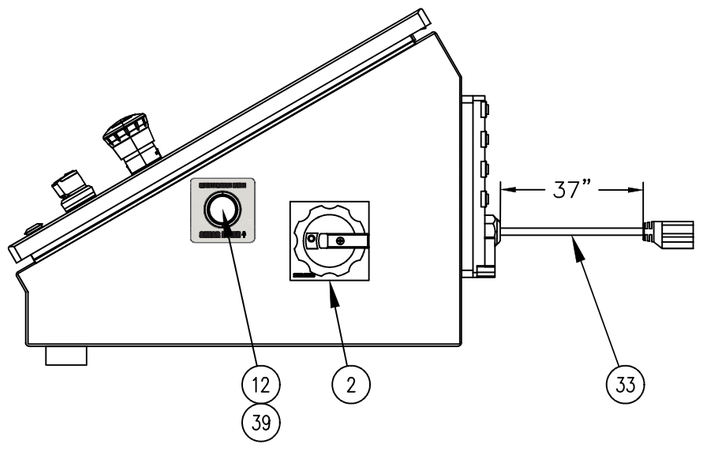












GENERAL NOTES:

1. CONTROL PANEL ENCLOSURE RATING: TYPE 4
2. MINIMUM SCCR RATING: 10KAIC.

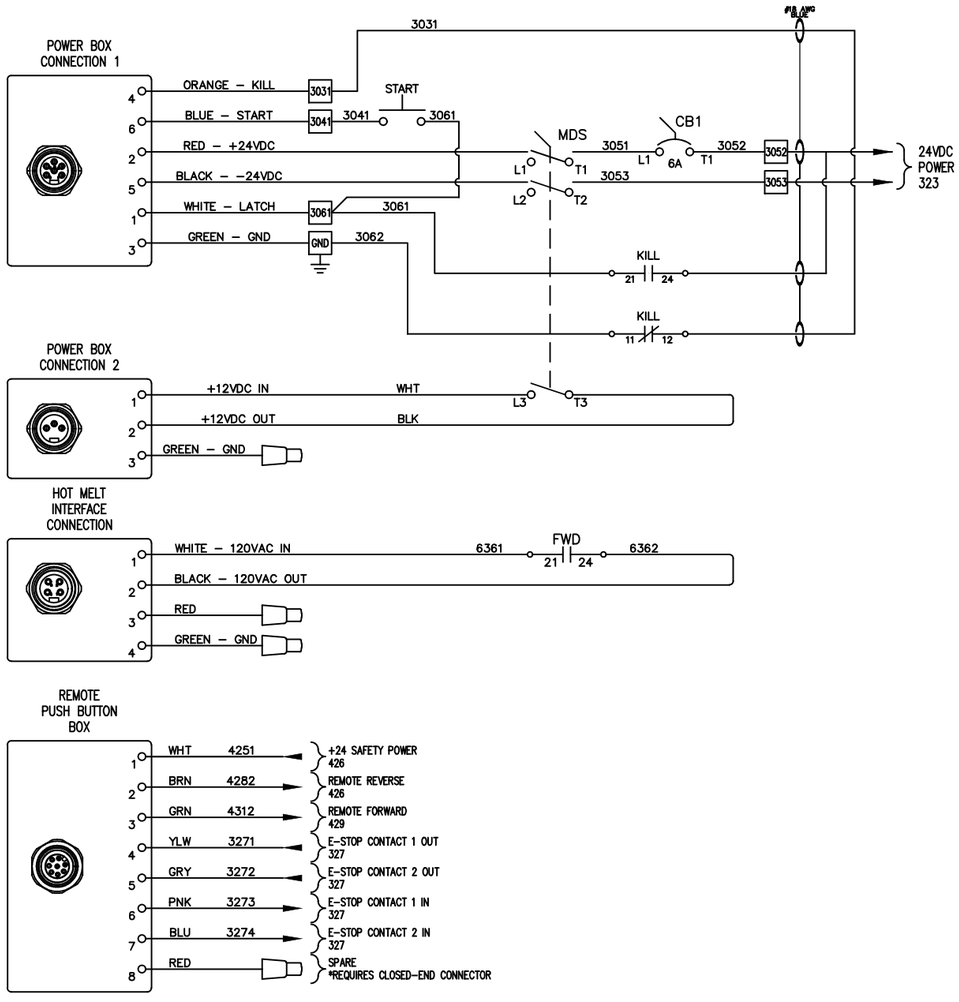
BY	REV	DATE	DESCRIPTION
BSP	B	01/31/2024	CHANGED FROM PRODUCTION
BSP	A	01/11/2024	CONVERTED FROM MANUAL PANEL

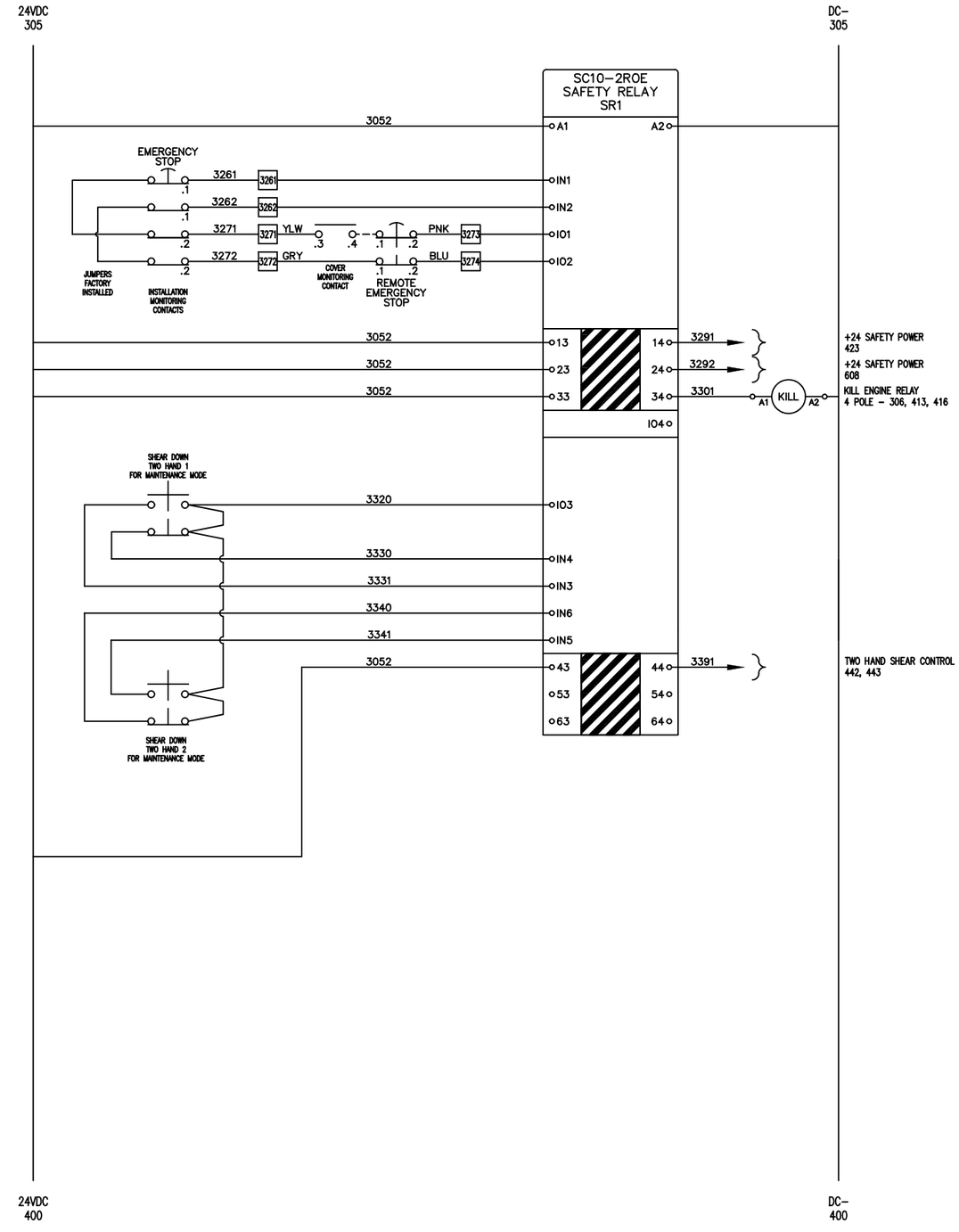
PLC CONTROL PANEL LAYOUT OVERVIEW

NEW TECH MACHINERY
UNIQ CONTROL SYSTEM
MANUAL CONTROL PANEL

DRAWN BY	BENNETT PARKER
DRAWN DATE	01/11/2024
SCALE	1:5
CHECKED BY	BRADEN MULLEN
CHECKED DATE	01/31/2024
SHEET	1 OF 7
DWG NO.	HTA-NTM-030220-008-00
REV.	B

New Tech Machinery
A MAZZELLA COMPANY





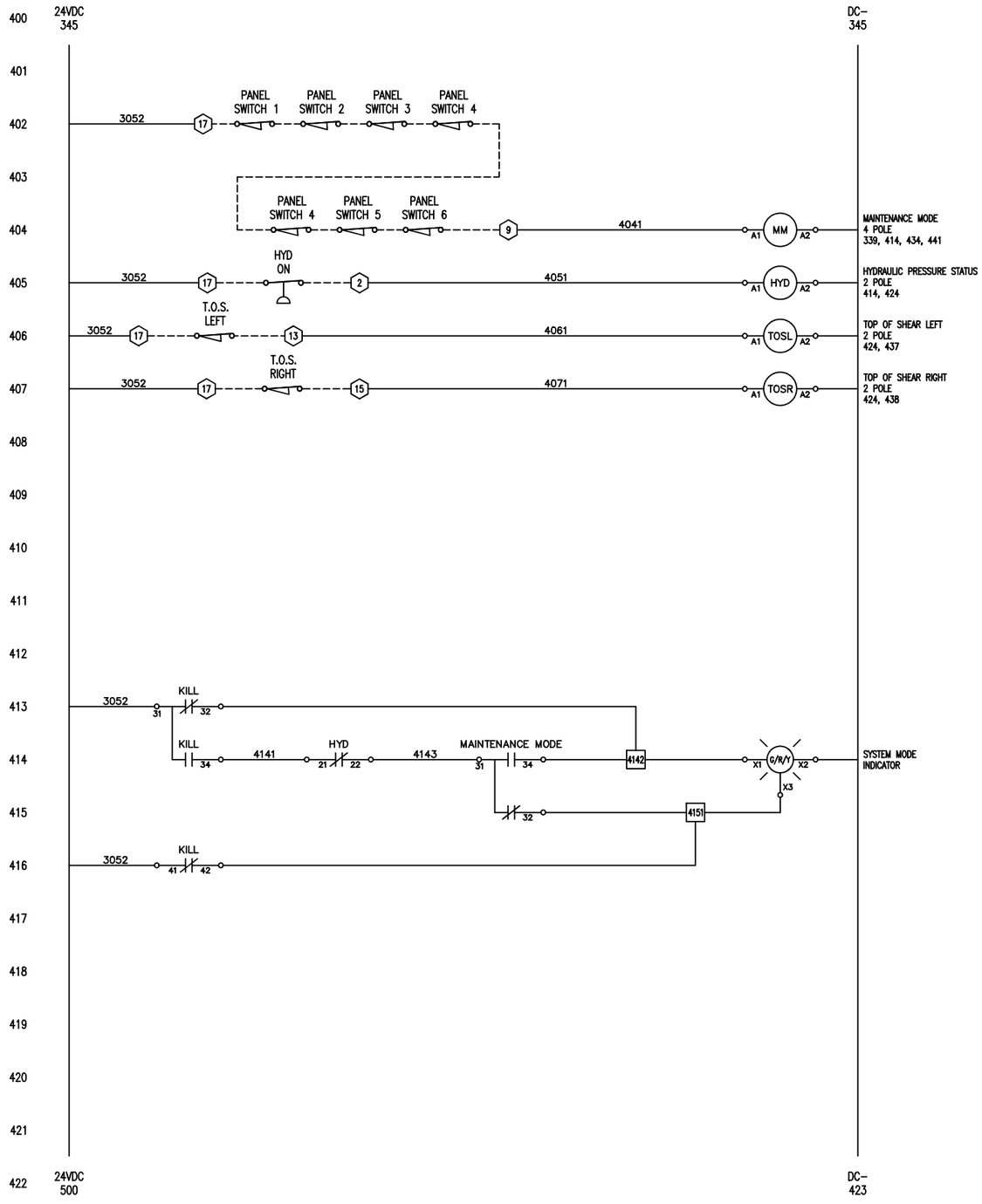
BY	REV	DATE	DESCRIPTION
BSP	B	01/31/2024	CHANGED FROM PRODUCTION
BSP	A	01/11/2024	CONVERTED FROM MANUAL PANEL

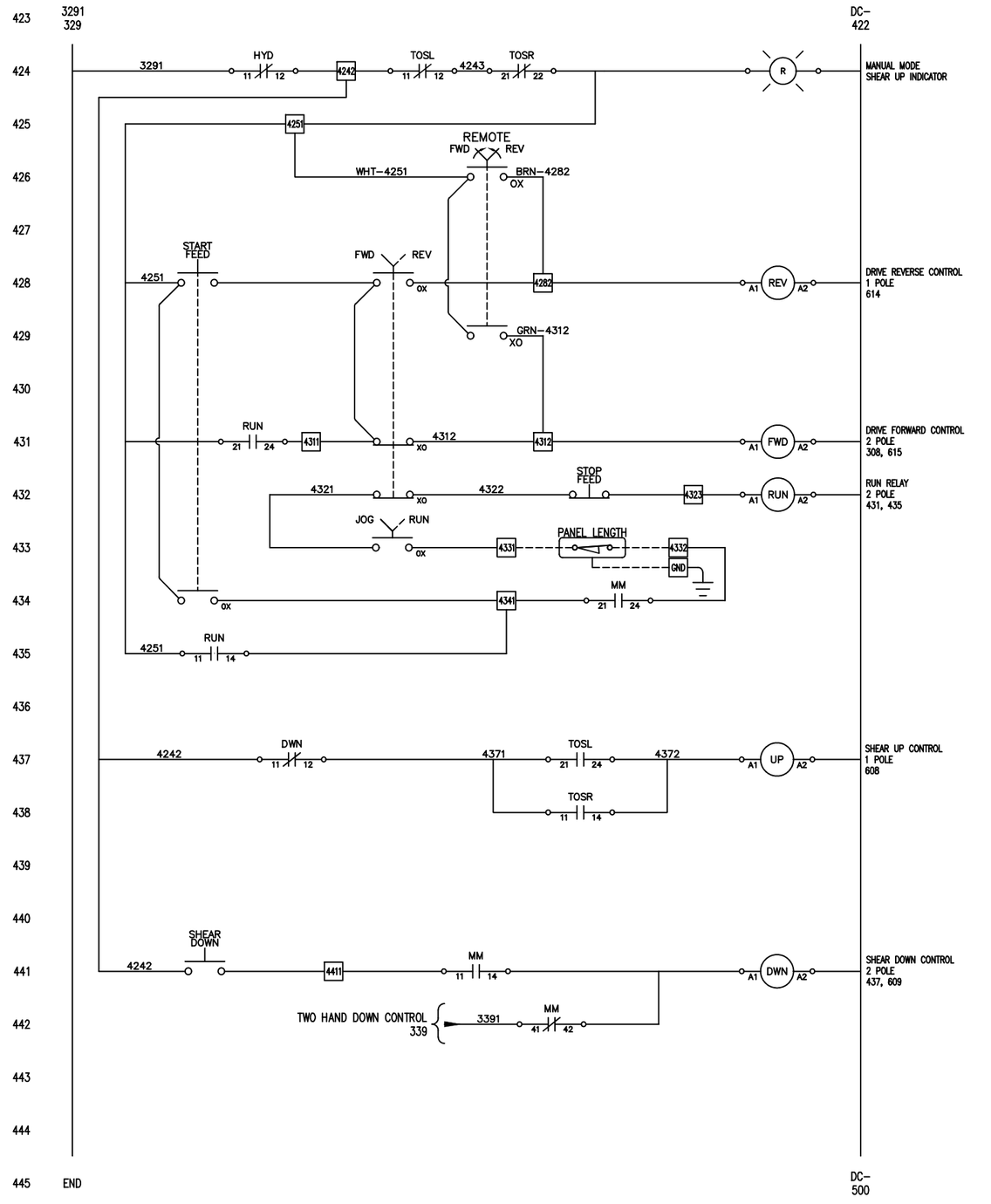
CONTROL PANEL WIRING DIAGRAM

NEW TECH MACHINERY
UNIQ CONTROL SYSTEM
MANUAL CONTROL PANEL

DRAWN BY	BENNETT PARKER
DRAWN DATE	01/11/2024
CHECKED BY	BRADEN MULLEN
CHECKED DATE	01/31/2024
SCALE	NTS
SHEET	3 OF 7
DWG NO.	HTA-NTM-030220-008-00
REV.	B

New Tech Machinery
A MAZZELLA COMPANY





BY	REV	DATE	DESCRIPTION
BSP	B	01/31/2024	CHANGED FROM PRODUCTION
BSP	A	01/11/2024	CONVERTED FROM MANUAL PANEL

CONTROL PANEL
WIRING DIAGRAM

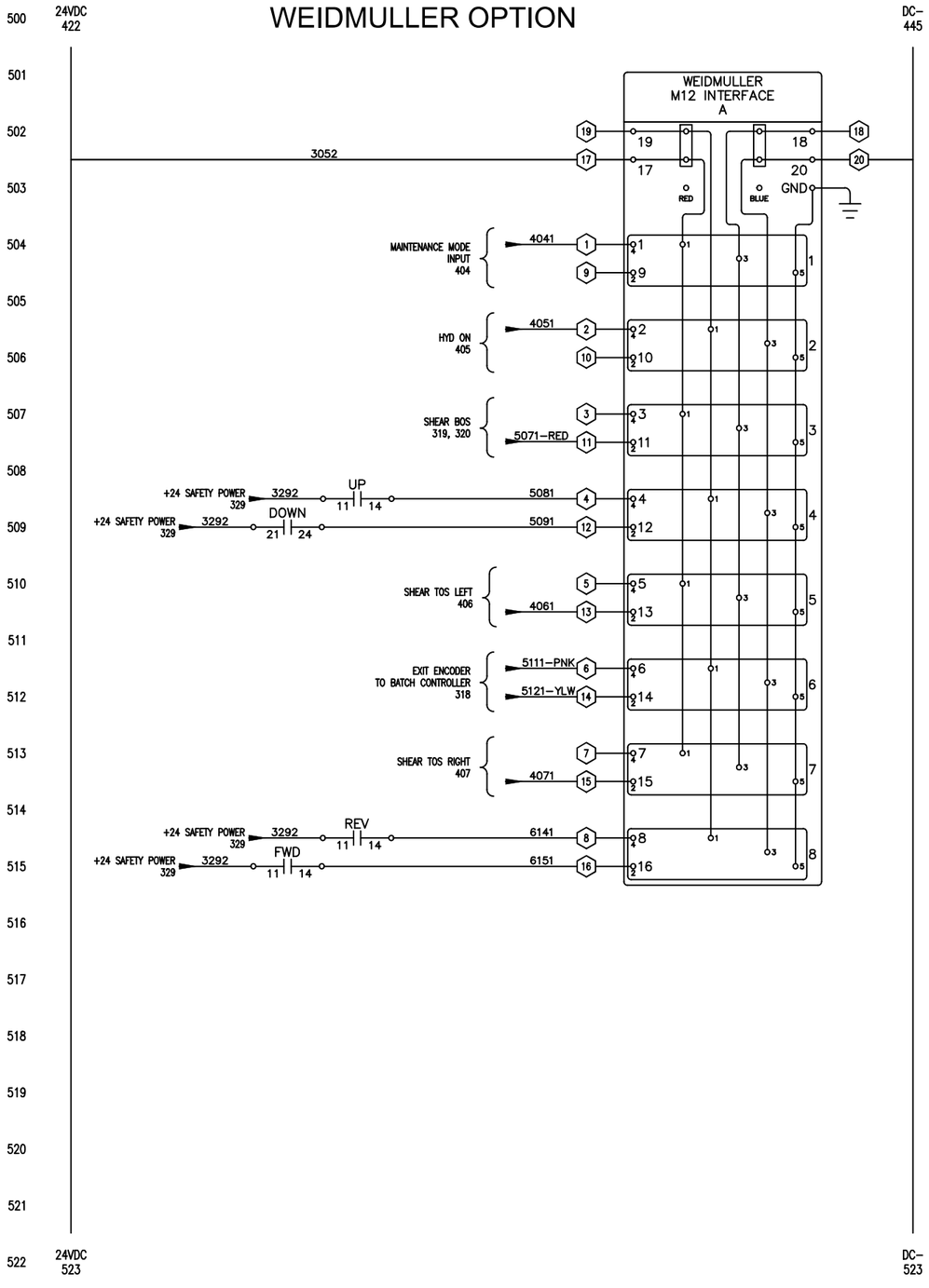
NEW TECH MACHINERY
UNIQ CONTROL SYSTEM
MANUAL CONTROL PANEL

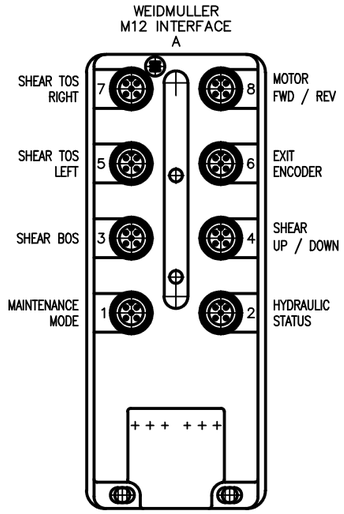
DRAWN BY: BENNETT PARKER	CHECKED BY: BRADEN MULLEN
DRAWN DATE: 01/11/2024	CHECKED DATE: 01/31/2024
SCALE: NTS	SHEET: 4 OF 7

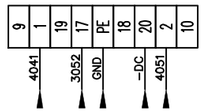
New Tech Machinery
A MAZZELLA COMPANY

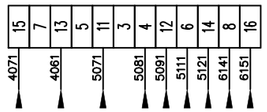
DWG NO. HTA-NTM-030220-008-00 REV. B

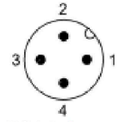
WEIDMULLER OPTION





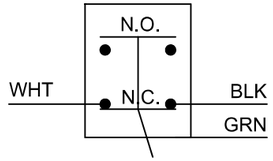




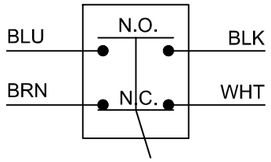


PIN 1: brown
PIN 2: white
PIN 3: blue
PIN 4: black

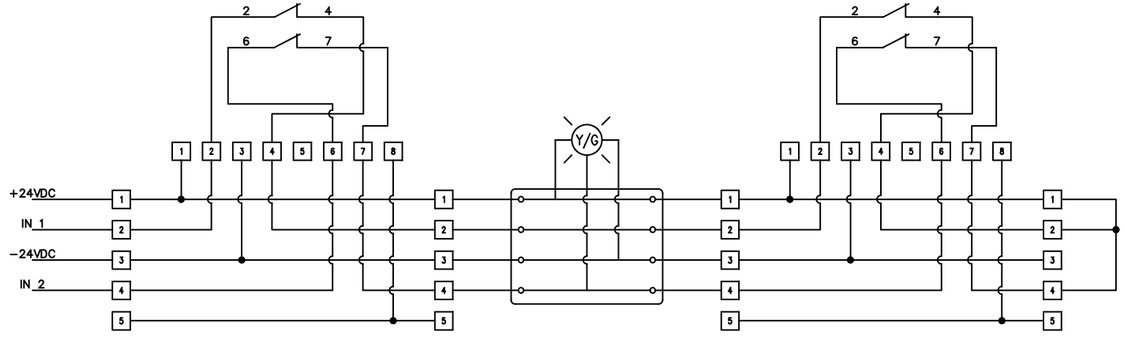
PANEL LENGTH
LIMIT SWITCH



M12 LIMIT SWITCH



PANEL SENSORS



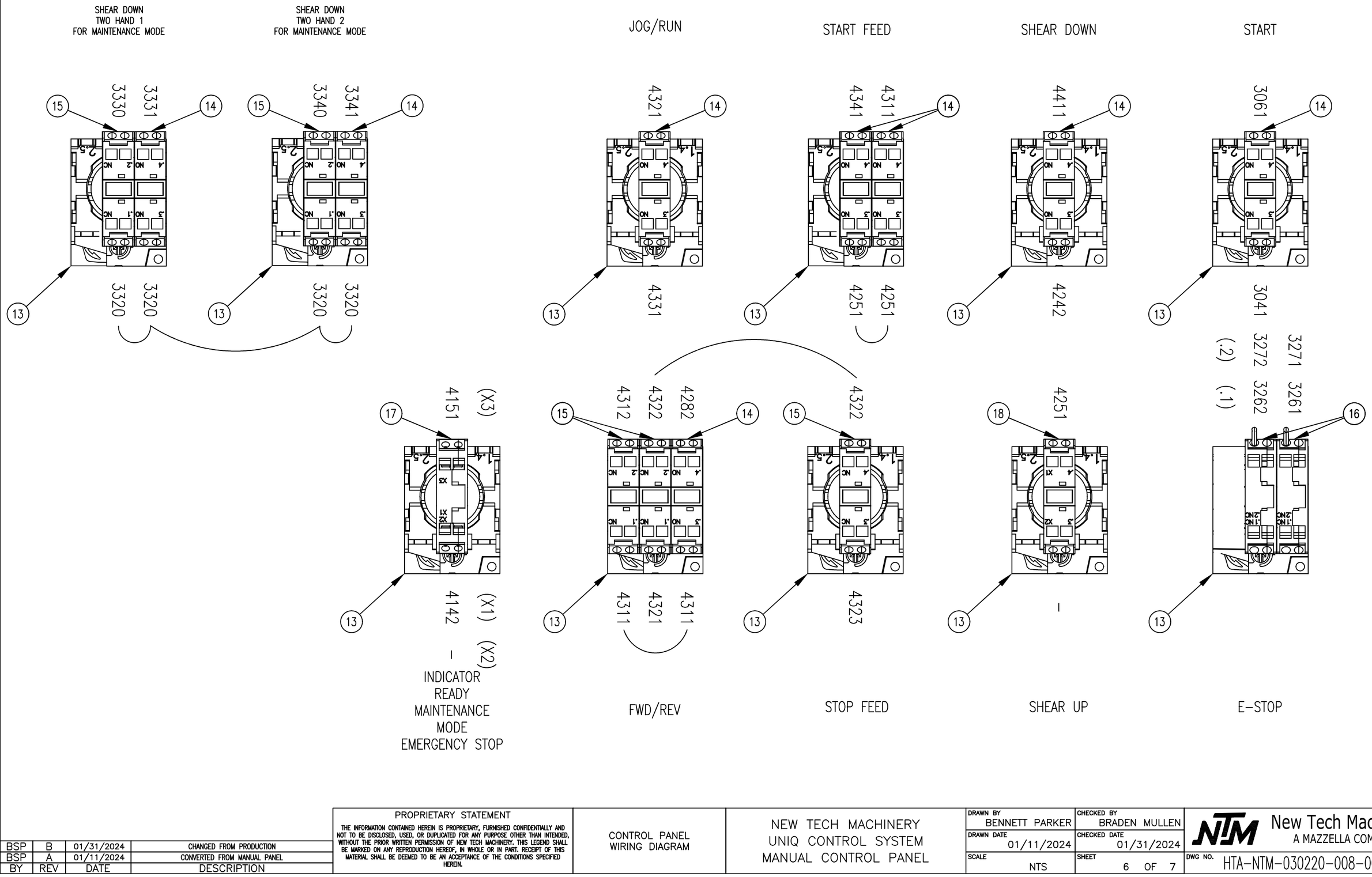
BY	REV	DATE	DESCRIPTION
BSP	B	01/31/2024	CHANGED FROM PRODUCTION
BSP	A	01/11/2024	CONVERTED FROM MANUAL PANEL

CONTROL PANEL
WIRING DIAGRAM

NEW TECH MACHINERY
UNIQ CONTROL SYSTEM
MANUAL CONTROL PANEL

DRAWN BY	BENNETT PARKER
CHECKED BY	BRADEN MULLEN
DRAWN DATE	01/11/2024
CHECKED DATE	01/31/2024
SCALE	NTS
SHEET	5 OF 7
DWG NO.	HTA-NTM-030220-008-00
REV.	B

New Tech Machinery
A MAZZELLA COMPANY



BY	REV	DATE	DESCRIPTION
BSP	B	01/31/2024	CHANGED FROM PRODUCTION
BSP	A	01/11/2024	CONVERTED FROM MANUAL PANEL

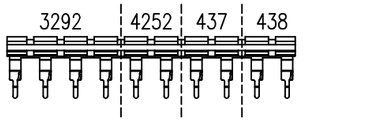
CONTROL PANEL
WIRING DIAGRAM

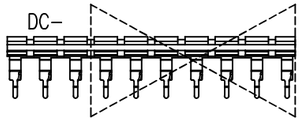
NEW TECH MACHINERY
UNIQ CONTROL SYSTEM
MANUAL CONTROL PANEL

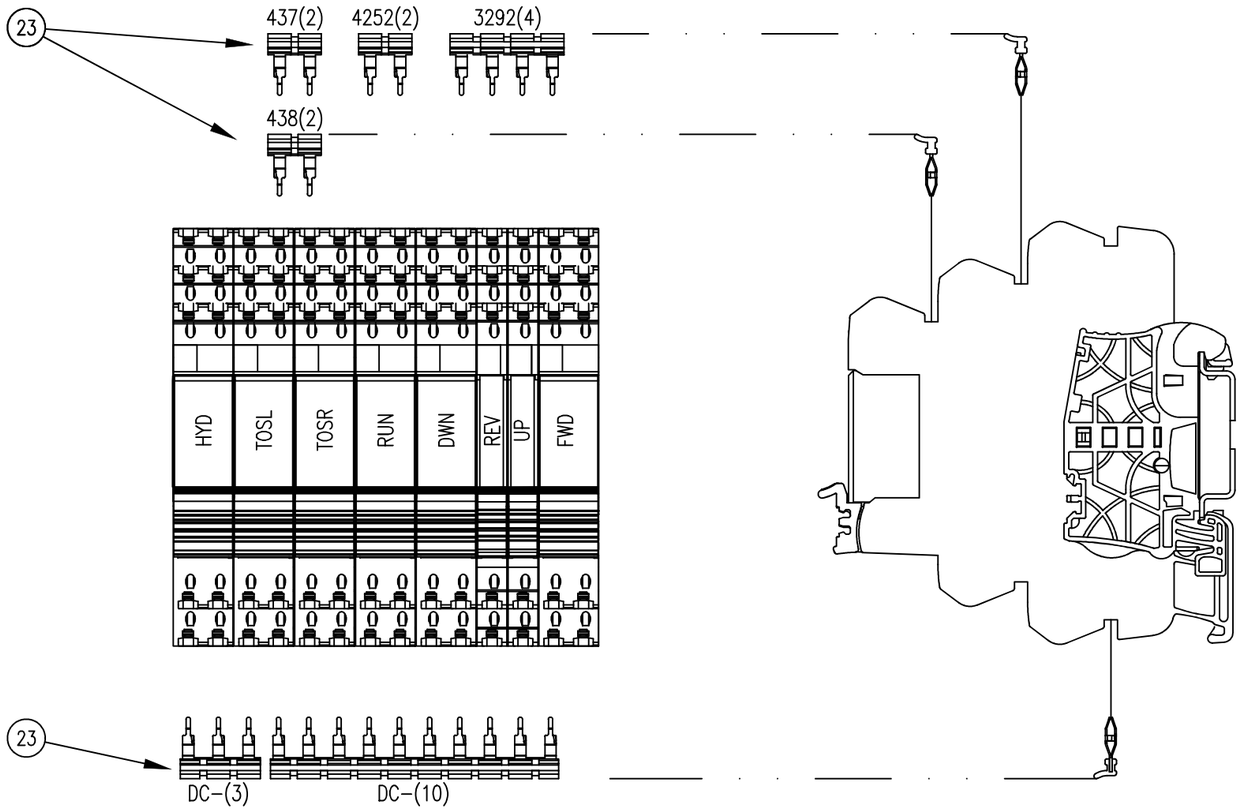
DRAWN BY: BENNETT PARKER	CHECKED BY: BRADEN MULLEN
DRAWN DATE: 01/11/2024	CHECKED DATE: 01/31/2024
SCALE: NTS	SHEET: 6 OF 7

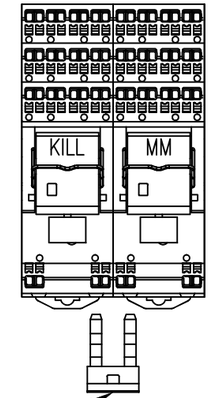
New Tech Machinery
A MAZZELLA COMPANY

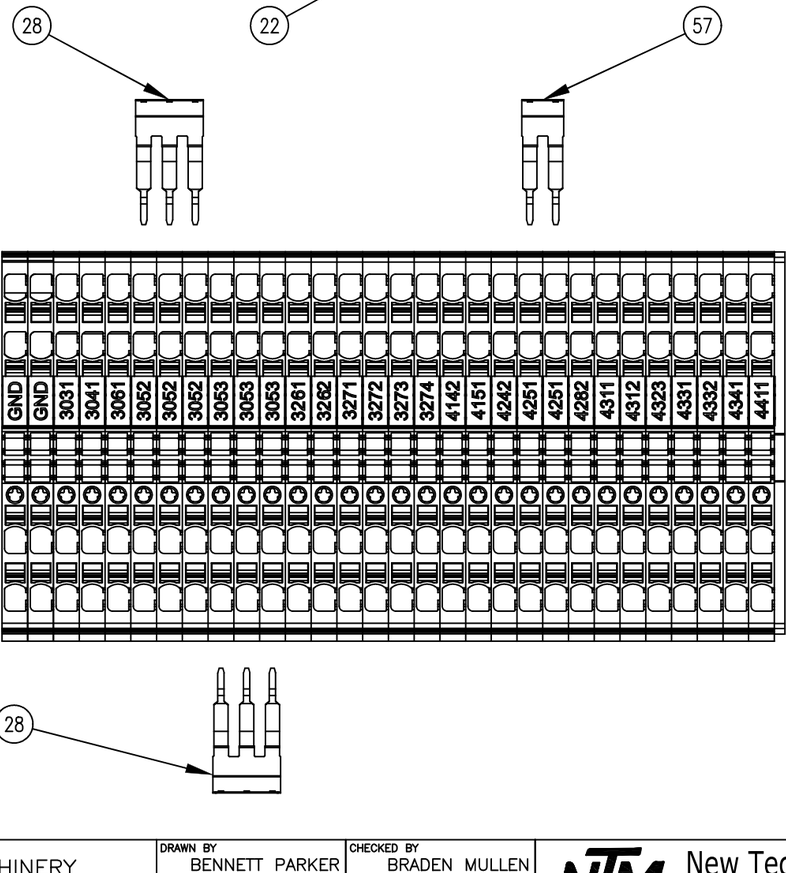
DWG NO. HTA-NTM-030220-008-00 REV. B











BY	REV	DATE	DESCRIPTION
BSP	B	01/31/2024	CHANGED FROM PRODUCTION
BSP	A	01/11/2024	CONVERTED FROM MANUAL PANEL

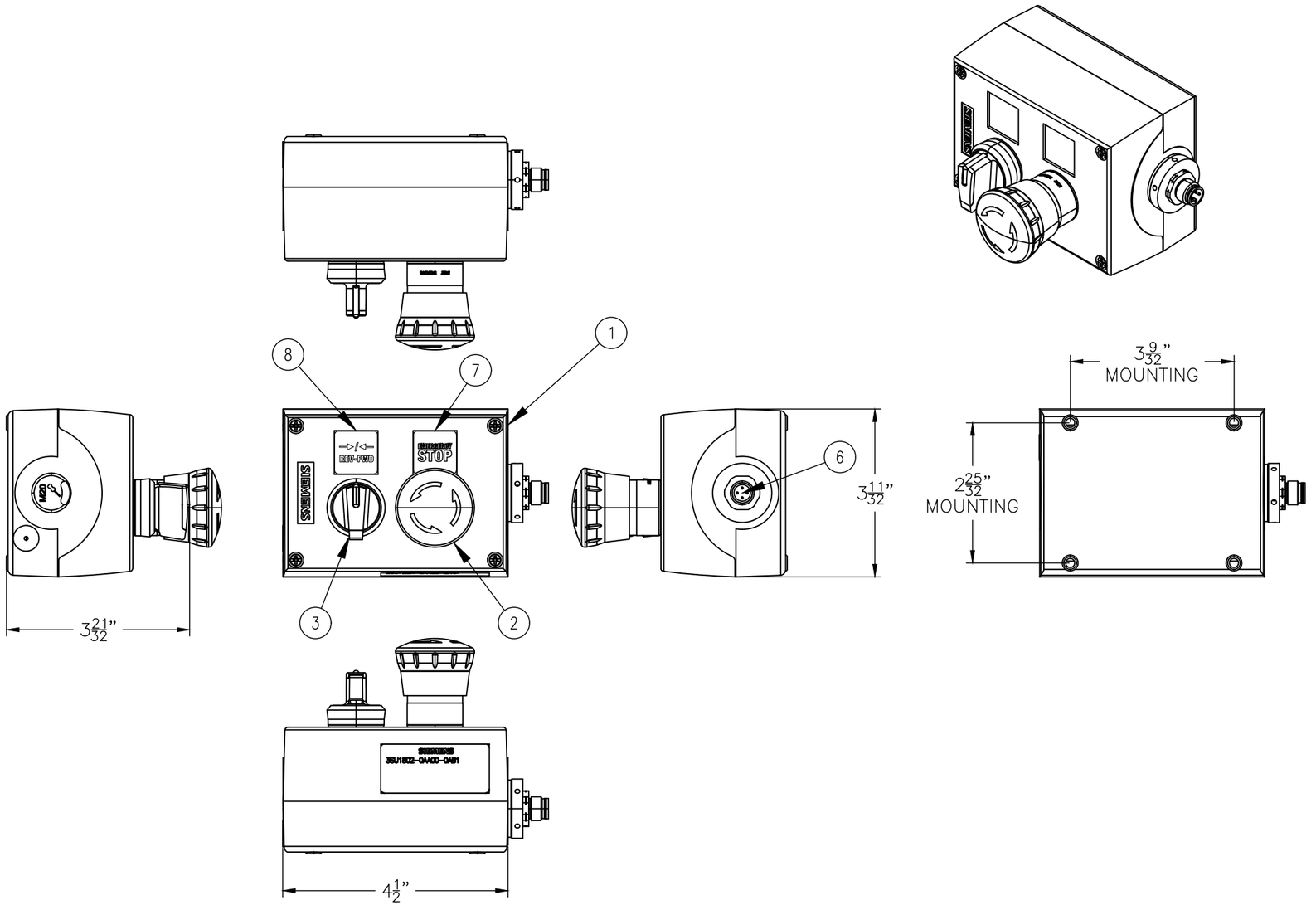
TERMINAL DETAIL

NEW TECH MACHINERY
UNIQ CONTROL SYSTEM
MANUAL CONTROL PANEL

DRAWN BY: BENNETT PARKER	CHECKED BY: BRADEN MULLEN
DRAWN DATE: 01/11/2024	CHECKED DATE: 01/31/2024
SCALE: NTS	SHEET: 7 OF 7

New Tech Machinery
A MAZZELLA COMPANY

DWG NO. HTA-NTM-030220-008-00 REV. B



GENERAL NOTES:

1. CONTROL PANEL ENCLOSURE RATING: TYPE 4/12
2. MINIMUM SCCR RATING: 10KAIC.

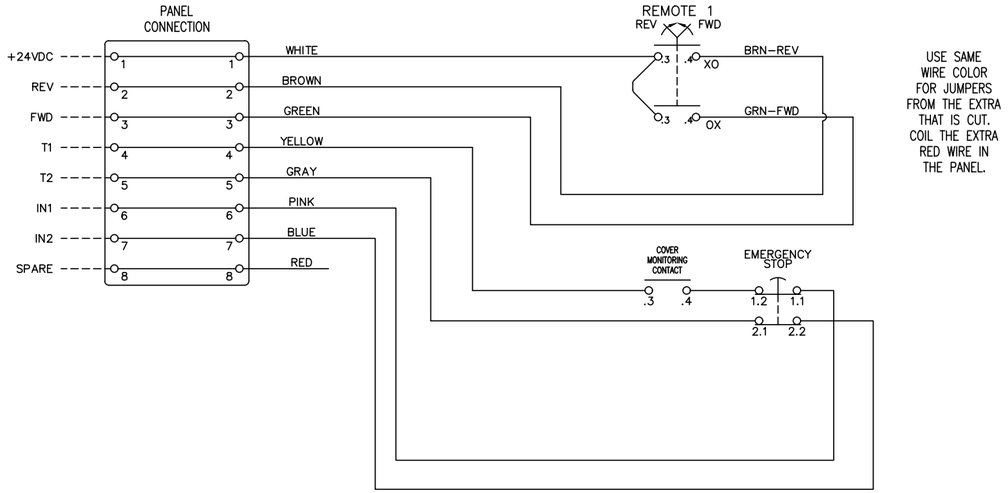
BY	REV	DATE	DESCRIPTION
ELN	G	05/25/2023	CHANGED PILOT DEVICES
ELN	E	2/16/2021	CHANGE TO SAFETY DESIGN W/ E-STOP
ELN	D	1/13/2021	CHANGED FWD AND REV AFTER FIELD TESTING
ELN	C	8/14/2020	ADDED DETAIL AND PICTURES
ELN	B	7/15/2020	SWAPPED FWD/REV TO MATCH NTM 200

PUSH BUTTON BOX
LAYOUT OVERVIEW

NEW TECH MACHINERY
UNIQ CONTROL SYSTEM
REMOTE CONTROL PB BOX

DRAWN BY	ELN
CHECKED BY	SAL
DRAWN DATE	07-10-2020
CHECKED DATE	06-23-2021
SCALE	1:5
SHEET	1 OF 3
DWG NO.	HTA-NTM-030220-104-00
REV.	G

New Tech Machinery
A MAZZELLA COMPANY



USE SAME WIRE COLOR FOR JUMPERS FROM THE EXTRA THAT IS CUT. COIL THE EXTRA RED WIRE IN THE PANEL.

WORK INSTRUCTIONS

1. INSTALL COVER PLUNGER TO UNDER SIDE OF COVER
2. INSTALL DEVICES IN CORRECT HOLES
3. ATTACH DEVICE HOLDERS TO BACK OF DEVICES
4. TIGHTEN HOLDERS
5. APPLY DECALS IN CORRECT LOCATIONS
6. INSTALL M12 RECEPTACLE WITH KEY FACING UP AND TIGHTEN
7. INSTALL SPACER BLOCK IN CENTER POSITION FROM COVER MONITORING KIT
8. INSTALL CONTACT BLOCKS IN CORRECT LOCATIONS
9. COIL RED WIRE AROUND CONTACT BLOCKS IN THE BOTTOM OF THE BOX
10. WIRE WHITE WIRE TO THE TOP OF THE FWD CONTACT BLOCK
11. CUT WIRE JUMPERS FROM LEFT OVER BROWN WIRE AND JUMPER THE THE FWD CONTACT TO THE REV
12. WIRE BROWN WIRE TO BOTTOM SIDE OF REV CONTACT
13. WIRE GREEN WIRE TO BOTTOM SIDE OF FWD CONTACT
14. WIRE YELLOW WIRE TO TOP SIDE OF N/O COVER MONITORING CONTACT
15. CUT JUMPER OUT OF YELLOW WIRE AND JUMP BOTTOM OF COVER MONITORING CONTACT TO BOTTOM OF EMG 1 CONTACT
16. WIRE GRAY WIRE TO TOP OF EMG 2 CONTACT
17. WIRE PINK WIRE TO TOP OF EMG 1 CONTACT
18. WIRE BLUE WIRE TO BOTTOM OF EMG 2 CONTACT
19. PUSH WIRE DOWN
20. MOUNT COVER AND TIGHTEN SCREWS

BY	REV	DATE	DESCRIPTION
ELN	G	05/25/2023	CHANGED PILOT DEVICES
ELN	E	2/16/2021	CHANGE TO SAFETY DESIGN W/ E–STOP
ELN	D	1/13/2021	CHANGED FWD AND REV AFTER FIELD TESTING
ELN	C	8/14/2020	ADDED DETAIL AND PICTURES
ELN	B	7/15/2020	SWAPPED FWD/REV TO MATCH NTM 200

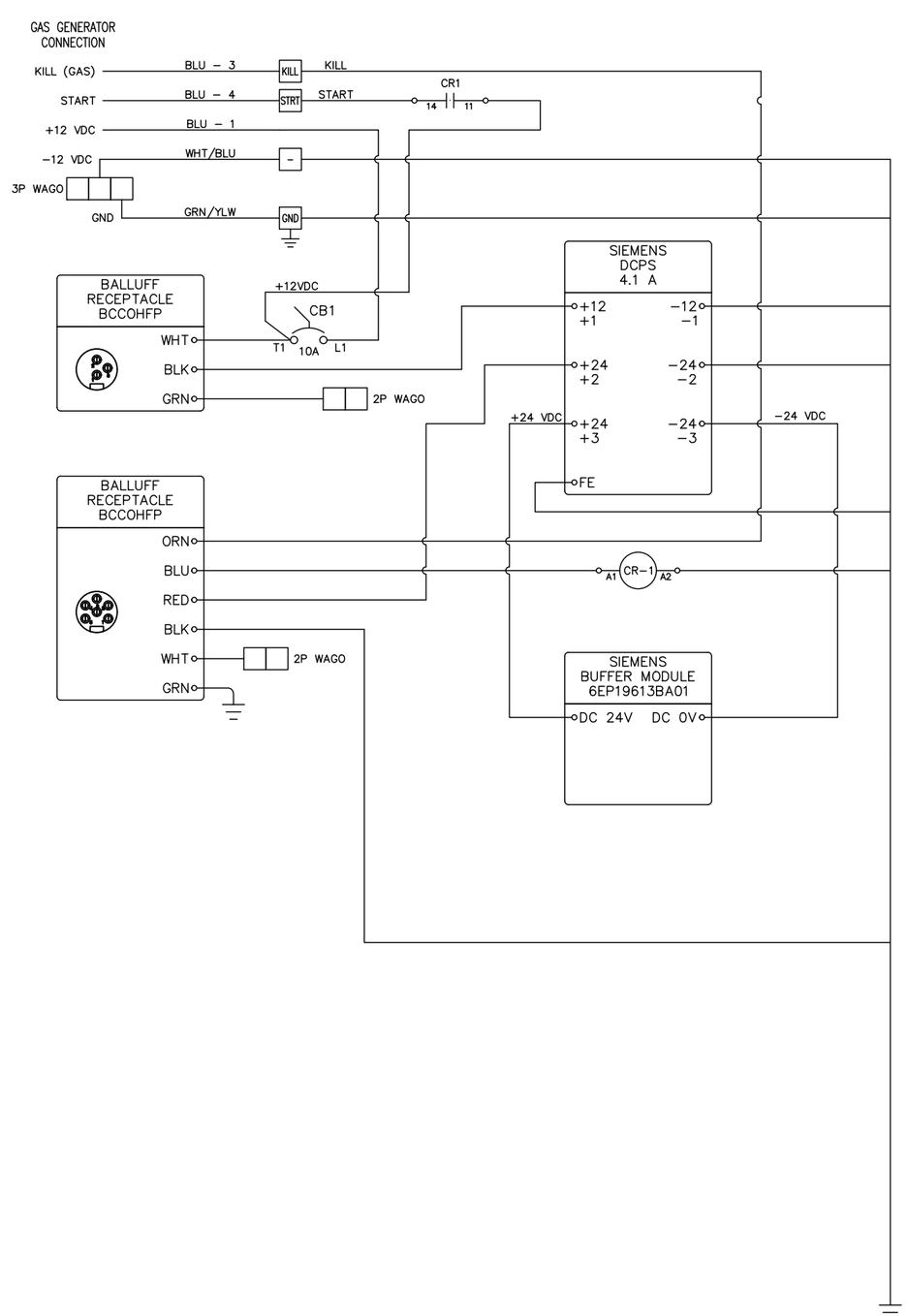
PUSH BUTTON BOX
WIRING DIAGRAM

NEW TECH MACHINERY
UNIQ CONTROL SYSTEM
REMOTE CONTROL PB BOX

DRAWN BY	ELN	CHECKED BY	SAL
DRAWN DATE	07–10–2020	CHECKED DATE	06–23–2021
SCALE	NTS	SHEET	3 OF 3

New Tech Machinery
A MAZZELLA COMPANY

DWG NO. HTA–NTM–030220–104–00 REV. G



GENERAL NOTES:

1. WIRE PREPARATION
   - 1.1. CUT LENGTH 72”
   - 1.2. STRIP WIRE 12” ON OUTSIDE END
   - 1.3. STRIP WIRE 18” ON INSIDE END
   - 1.4. INSULATED LENGTH IS 42”
   - 1.5. GDN AND –12VDC TO BE CONNECTED TOGETHER IN 3–POLE WAGO CLIP
   - 1.6. KILL TO HAVE 1/4” STUD RING LUG INSTALLED
   - 1.7. +12VDC TO HAVE 5/16” STUD RING LUG INSTALLED
   - 1.8. START TO HAVE FEMALE QUICK DISCONNECT INSTALLED

WIRE COLOR AND SIZING
- CONTROL – 16AWG BLUE LABELED UNLESS NOTED OTHERWISE
- DC– – 16AWG BLUE W/ WHITE STRIPE UNLABELED
- GROUND – GREEN UNLABELED
- DO NO LABEL COLOR CODED RECEPTACLE WIRES

BY	REV	DATE	DESCRIPTION
BCB	L	09/09/2022	UPDATED BOM AND SCHEMATIC ADDED BUFFER MODULE
ELN	K	6/25/2021	UPDATED BOM AND CABLE ENTRY LOCATIONS
ELN	J	5/1/2021	ADDED UPS AND RELAY
ELN	I	2/16/2021	ADDED SECOND RECEPT. FOR 12VDC DISCONNECT
ELN	H	12/11/2020	ADDED BUFFER MODULE

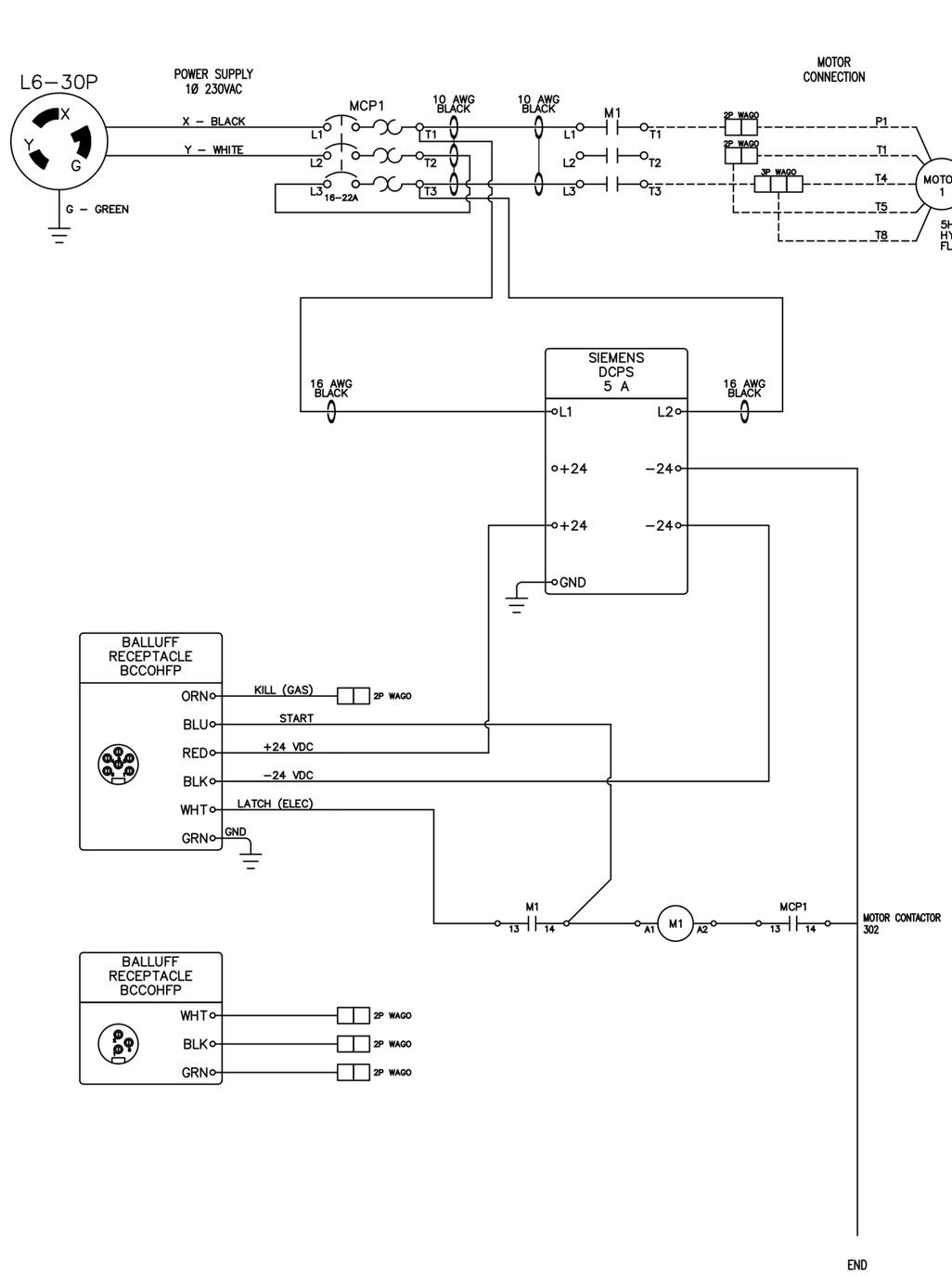
CONTROL PANEL WIRING DIAGRAM

NEW TECH MACHINERY
POWER BOX
12VDC

DRAWN BY: ELN	CHECKED BY: SAL
DRAWN DATE: 03–10–2020	CHECKED DATE: 6–25–2021
SCALE: NTS	SHEET: 3 OF 3

New Tech Machinery
A MAZZELLA COMPANY

DWG NO. HTA–NTM–030220–400–00 REV. L



CONSTRUCTION NOTES:

1. SET FLA DIAL
   1.1. 230 VAC – 20A
2. TURN MCP ON
3. WIRE PREPARATION
   3.1. MOTOR CABLE TO BE STRIPPED 11MM AND WAGO CLIPS INSTALLED ON THREE POWER CONDUCTORS, NO FERRULES
   3.2. MOTOR CABLE GROUND CONDUCTOR TO HAVE RING LUG INSTALLED
   3.3. SPARE WAGO CLIPS TO SHIP LOOSE IN PANEL (PUT IN BAG WITH WEATHER TIGHT WASHERS)
4. REMOVE ALL DOCUMENTATION AND EXTRA HARDWARE EXCEPT FOR WEATHER TIGHT WASHERS
5. SHIP QTY 2 – 2P LARGE AND QTY 1 – 3P LARGE WAGOS LOOSE IN WASHER BAG

WIRE COLOR AND SIZING
- POWER – CALLED OUT SIZE, BLACK UNLABELED
- CONTROL – 16AWG BLUE LABELED UNLESS NOTED OTHERWISE
- DC– – 16AWG BLUE W/ WHITE STRIPE UNLABELED
- GROUND – GREEN UNLABELED
- DO NO LABEL COLOR CODED RECEPTACLE WIRES

BY	REV	DATE	DESCRIPTION
SAL	K	6/30/2021	UPDATED BOM CONTENT
ELN	I	4/12/2021	ADDED 3 POLE RECEPTABLE FOR CONSISTENCY
ELN	F	12/10/2020	UPDATED BOM, WIRE SIZE, AND CIRCUIT
ELN	E	8/27/2020	CHANGED CABLE ENTRY LOCATIONS
ELN	D	7/22/2020	ADDED CABLE AND PLUG DETAIL

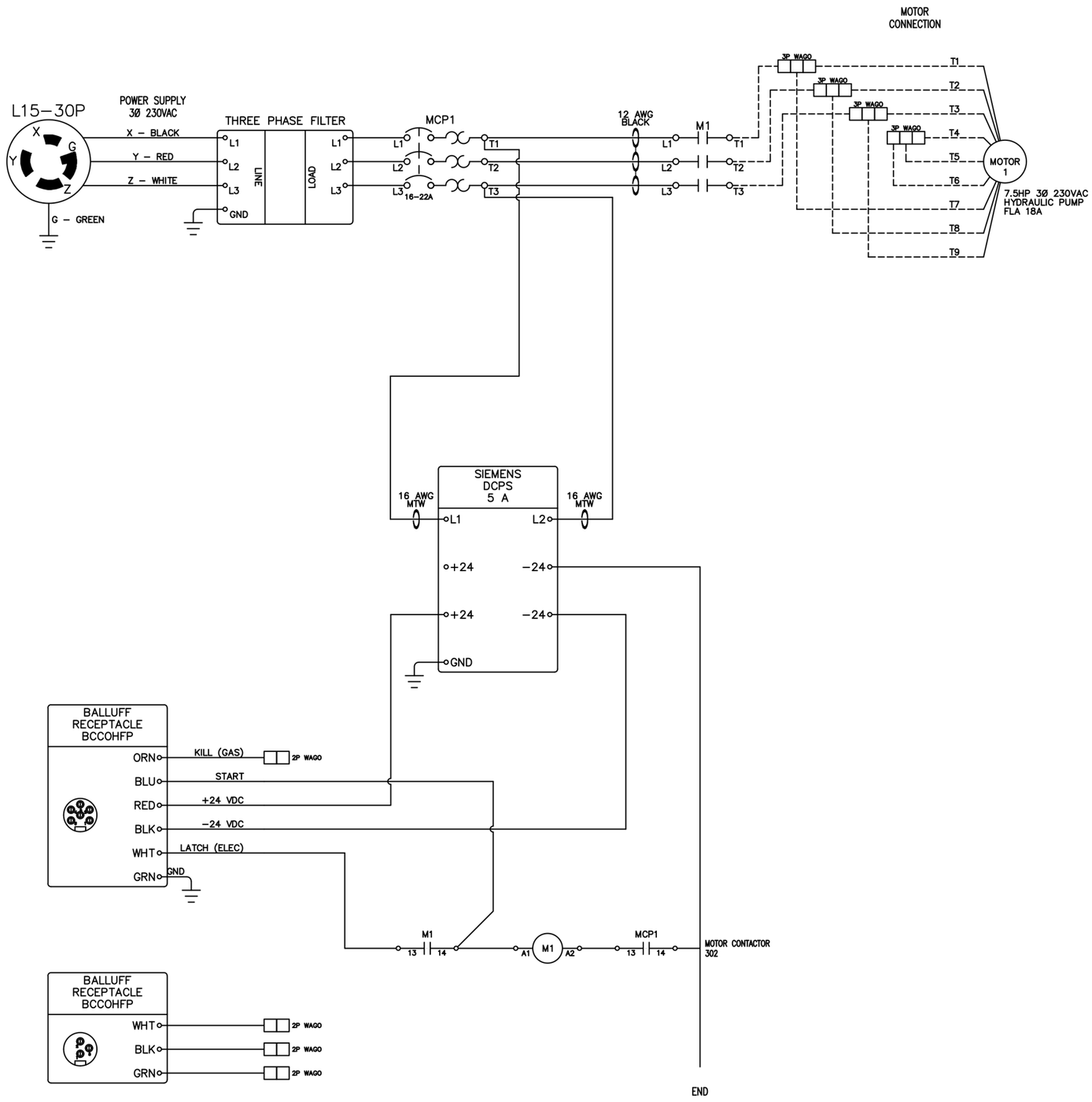
CONTROL PANEL
WIRING DIAGRAM

NEW TECH MACHINERY
POWER BOX
220/230VAC SINGLE PHASE

DRAWN BY: ELN	CHECKED BY: SAL
DRAWN DATE: 03-10-2020	CHECKED DATE: 06-30-2021
SCALE: NTS	SHEET: 3 OF 3

New Tech Machinery
A MAZZELLA COMPANY

DWG NO. HTA-NTM-030220-401-00 REV. K



GENERAL NOTES:

1. FLA SETTING:
   1.1. 230VAC – 19A
2. WIRE PREPARATION
   2.1. MOTOR CABLE TO BE STRIPPED 11MM AND WAGO CLIPS INSTALLED ON THREE POWER CONDUCTORS, NO FERRULES
   2.2. MOTOR CABLE GROUND CONDUCTOR TO HAVE RING LUG INSTALLED
   2.3. SPARE WAGO CLIPS TO SHIP LOOSE IN PANEL (PUT IN BAG WITH WEATHER TIGHT WASHERS)
3. REMOVE ALL DOCUMENTATION AND EXTRA HARDWARE EXCEPT FOR WEATHER TIGHT WASHERS
4. SHIP QTY 4 – 3P WAGOS LOOSE IN WASHER BAG

WIRE COLOR AND SIZING
- POWER – CALLED OUT SIZE, BLACK UNLABELED
- CONTROL – 16AWG BLUE LABELED UNLESS NOTED OTHERWISE
- DC– – 16AWG BLUE W/ WHITE STRIPE UNLABELED
- GROUND – GREEN UNLABELED
- DO NOT LABEL COLOR CODED RECEPTACLE WIRES

BY	REV	DATE	DESCRIPTION
ELN	L	1/4/2022	CHANGED ENCLOSURE SIZE
SAL	K	6/30/2021	ADD LINE FILTER & UPDATED BOM
ELN	I	4/21/2021	ADDED RECEP / MOVED POWER LOCATION
ELN	G	12/9/2020	UPDATED BOM, WIRE SIZE, AND CIRCUIT
ELN	F	8/27/2020	CHANGED CABLE ENTRY LOCATIONS

CONTROL PANEL WIRING DIAGRAM

NEW TECH MACHINERY
POWER BOX
230VAC THREE PHASE

DRAWN BY	ELN
CHECKED BY	SAL
DRAWN DATE	03-10-2020
CHECKED DATE	6-30-2021
SCALE	NTS
SHEET	3 OF 3
DWG NO.	HTA-NTM-030220-402-00
REV.	L

New Tech Machinery
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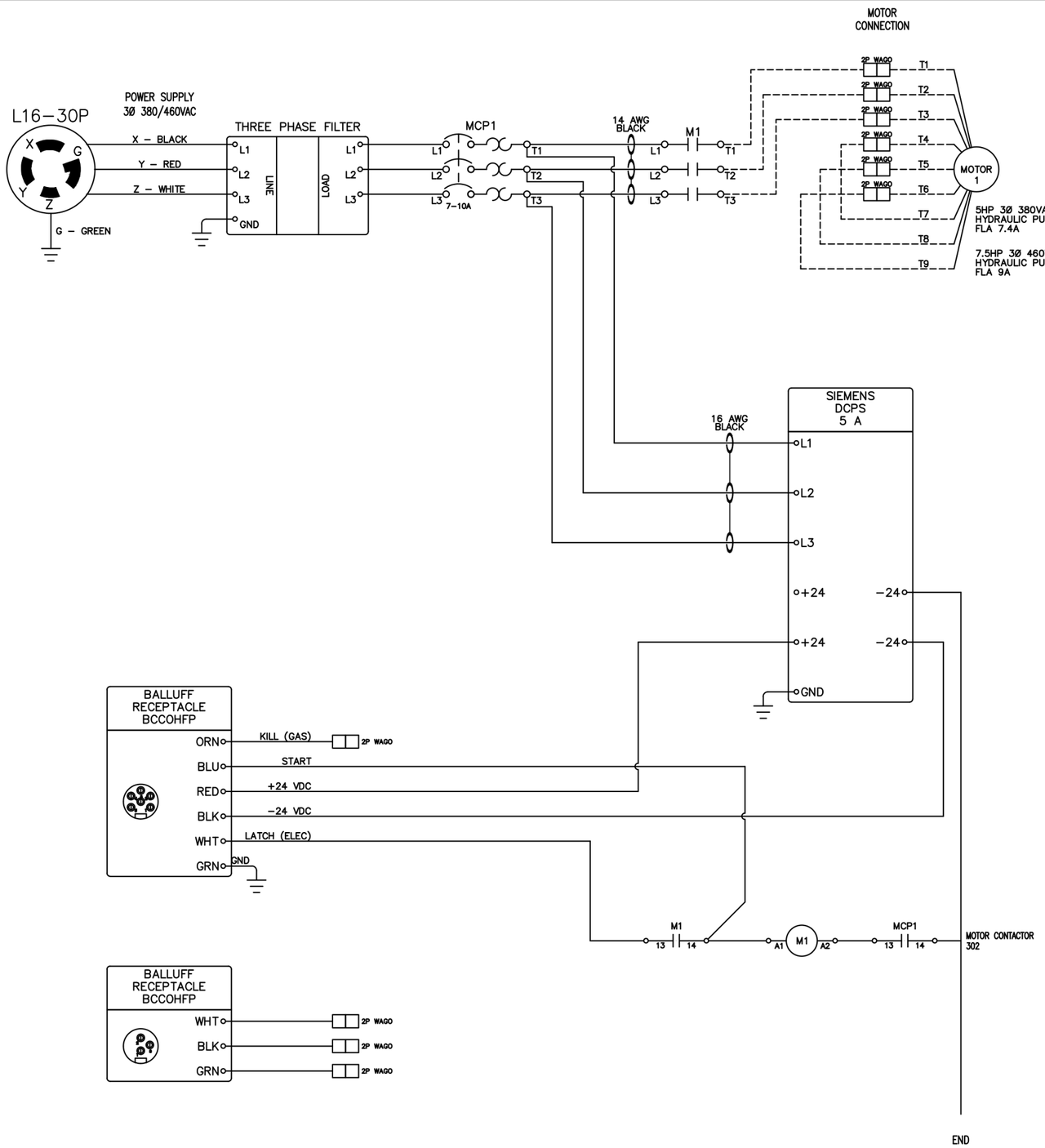

GENERAL NOTES:

1. FLA SETTING:
   - 1.1. 380VAC/5HP – 8A
   - 1.2. 460VAC/7.5HP – 10A
2. WIRE PREPARATION
   - 2.1. MOTOR CABLE TO BE STRIPPED 11MM AND WAGO CLIPS INSTALLED ON THREE POWER CONDUCTORS, NO FERRULES
   - 2.2. MOTOR CABLE GROUND CONDUCTOR TO HAVE RING LUG INSTALLED
   - 2.3. SPARE WAGO CLIPS TO SHIP LOOSE IN PANEL (PUT IN BAG WITH WEATHER TIGHT WASHERS)
3. REMOVE ALL DOCUMENTATION AND EXTRA HARDWARE EXCEPT FOR WEATHER TIGHT WASHERS
4. SHIP QTY 6 – 2P WAGOS LOOSE IN WASHER BAG

WIRE COLOR AND SIZING

- POWER – CALLED OUT SIZE, BLACK UNLABELED
- CONTROL – 16AWG BLUE LABELED UNLESS NOTED OTHERWISE
- DC– – 16AWG BLUE W/ WHITE STRIPE UNLABELED
- GROUND – GREEN UNLABELED
- DO NOT LABEL COLOR CODED RECEPTACLE WIRES

BY	REV	DATE	DESCRIPTION
SAL	K	6/30/2021	ADD LINE FILTER & UPDATE BOM
ELN	J	5/29/2021	UPDATED BOM FOR AS BUILT
ELN	I	4/21/2021	ADDED RECEP / CHANGED POWER LOCATION
ELN	H	12/10/2020	UPDATED BOM, WIRE SIZE, AND CIRCUIT
ELN	G	9/16/2020	CHANGED 480VAC TO 7.5HP AND UPDATED OVERLOAD SETTINGS

CONTROL PANEL WIRING DIAGRAM

NEW TECH MACHINERY
POWER BOX
480VAC THREE PHASE

DRAWN BY	ELN
CHECKED BY	SAL
DRAWN DATE	03-10-2020
CHECKED DATE	06-30-2021
SCALE	NTS
SHEET	3 OF 3
DWG NO.	HTA-NTM-030220-403-00
REV.	K

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