



New Tech Machinery

OPERATION and MAINTENANCE MANUAL



MG5/MG6/MG56 Gutter Machines

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CHAPTER 1
SPECIFICATIONS

SPECIFICATIONS

DIMENSIONS:	Length-		
	MG5:	95 1/2"	(2430 mm)
	MG6:	119 1/2"	(3040 mm)
	M56:	119 1/2"	(3040 mm)
	Width at base		
	MG5/MG6/M56:	24"	(610 mm)
	Width Overall		
	MG5/MG6:	27"	(690 mm)
	M56:	31"	(790 mm)
	Height		
	MG5/MG6:	19"	(480 mm)
	M56:	23"	(580 mm)
Option Height - Cradle			
MG5/MG6/M56:	31"	(790 mm)	
Option Height – Reel			
MG5/MG6/M56:	48"	(1220 mm)	

WEIGHT:	MG5 Approx.	1078 lbs.	(490 Kg)
	MG6 Approx.	1240 lbs.	(564 Kg)
	M56 Approx.	1330 lbs.	(605 Kg)

POWER: 3/4 HP; 120VAC/60Hz Single phase TEFC. ; 15A
3/4 HP; 110 VAC/50 Hz Single phase TEFC. ; 15A
3/4 HP; 230 VAC/50 Hz Single phase TEFC. ; 10A
1 HP; 12VDC, 80.0A

DRIVE: Polyurethane rollers driven via chain and sprocket

FORMING ROLLERS: Free Floating, Stainless Steel

SHEAR: Forward Pulling Manual Rack and Gear w/ Hardened tool Steel Dies

SPEED: Approximately 50 ft/min (15m/min)

CONTROLS: Push button entry and exit end manual controls

MATERIALS FORMED:

Coil Width:		
MG5:	11 3/4" to 12 3/8"	(300 to 315 mm)
MG6:	15"	(380 mm)
Max: Aluminum:		.032" (0.8mm)
Steel:		24 gauge (0.6mm)
Galvanized Plus:		24 gauge (0.6mm)
Ternecoat SS:		26 gauge (0.5mm)
Copper:		20 oz. 3/4 hard (0.7mm)

CHAPTER 2
PRECAUTIONS

PRECAUTIONS

1. Make sure the operator of the machine has read and understands this manual in its entirety before attempting to operate this equipment.
2. **ALWAYS** keep covers, guards and lids mounted to machine during operation
3. **OBSERVE and OBEY** all safety and warning signs affixed to the machine.
4. **ALWAYS** adhere to and follow all local and national safety codes concerning the loading and un-loading of reeled coils.
5. **USE ONLY** properly rated devices for lifting reeled coils into or out of the reel stand assembly.
6. **DO NOT** wear loose clothing, jewelry etc. that could become entangled in the moving parts of the machine when operating.
7. **STOP THE MACHINE** and disconnect the power before attempting to make any adjustments, perform any maintenance or changeover procedures.
8. **AVOID** storing the machine outdoors for long periods of time. Cover with a tarp but provide good ventilation to prevent condensation and rust.
9. If the temperature of the machine is at 32°F (0°C) or below, set the **JOG/RUN** switch to “**RUN**” and run the machine empty for at least 10 minutes before attempting to run any material through the machine.
10. **DO NOT USE SOLVENTS TO CLEAN DRIVE ROLLERS!**
11. **ALWAYS EMPTY MACHINE OF MATERIAL BEFORE TRANSPORT AND STORAGE.**

CHAPTER 3
MACHINE ORIENTATION

MACHINE ORIENTATION

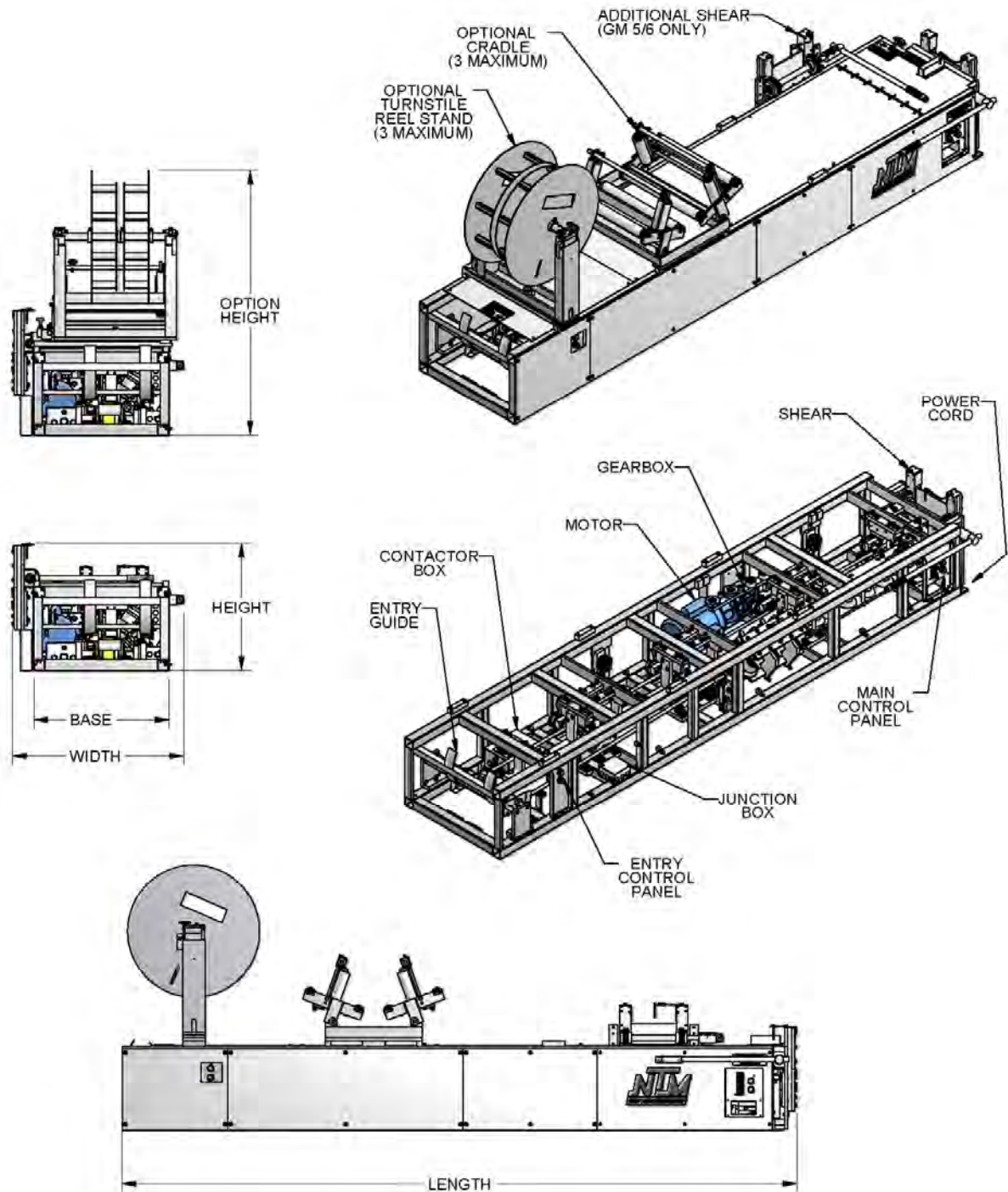


Figure 1: Machine Overview

CHAPTER 3
MACHINE ORIENTATION

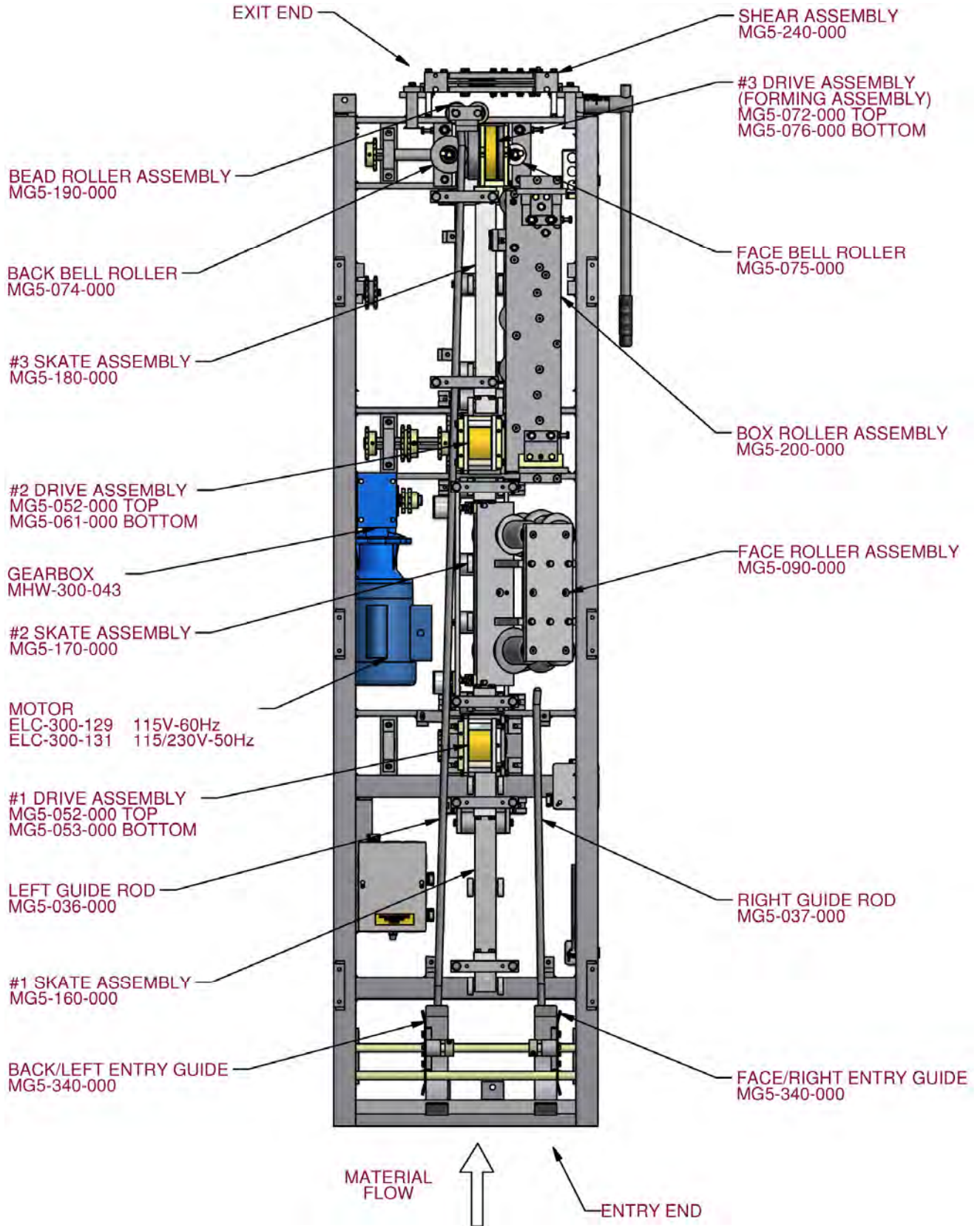


Figure 2: MG5 Machine Layout

CHAPTER 3
MACHINE ORIENTATION

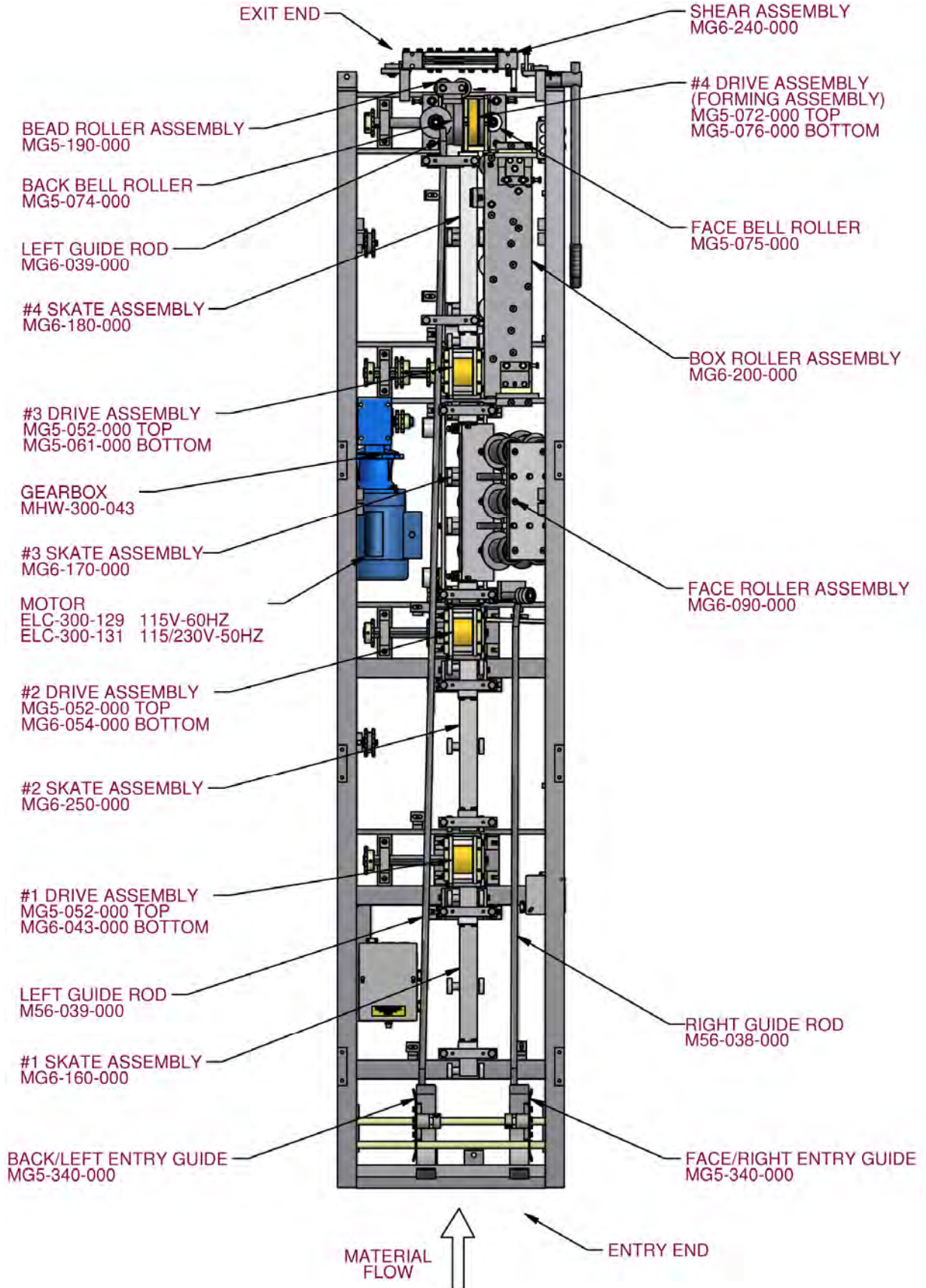


Figure 3: MG6 Machine Layout

CHAPTER 3
MACHINE ORIENTATION

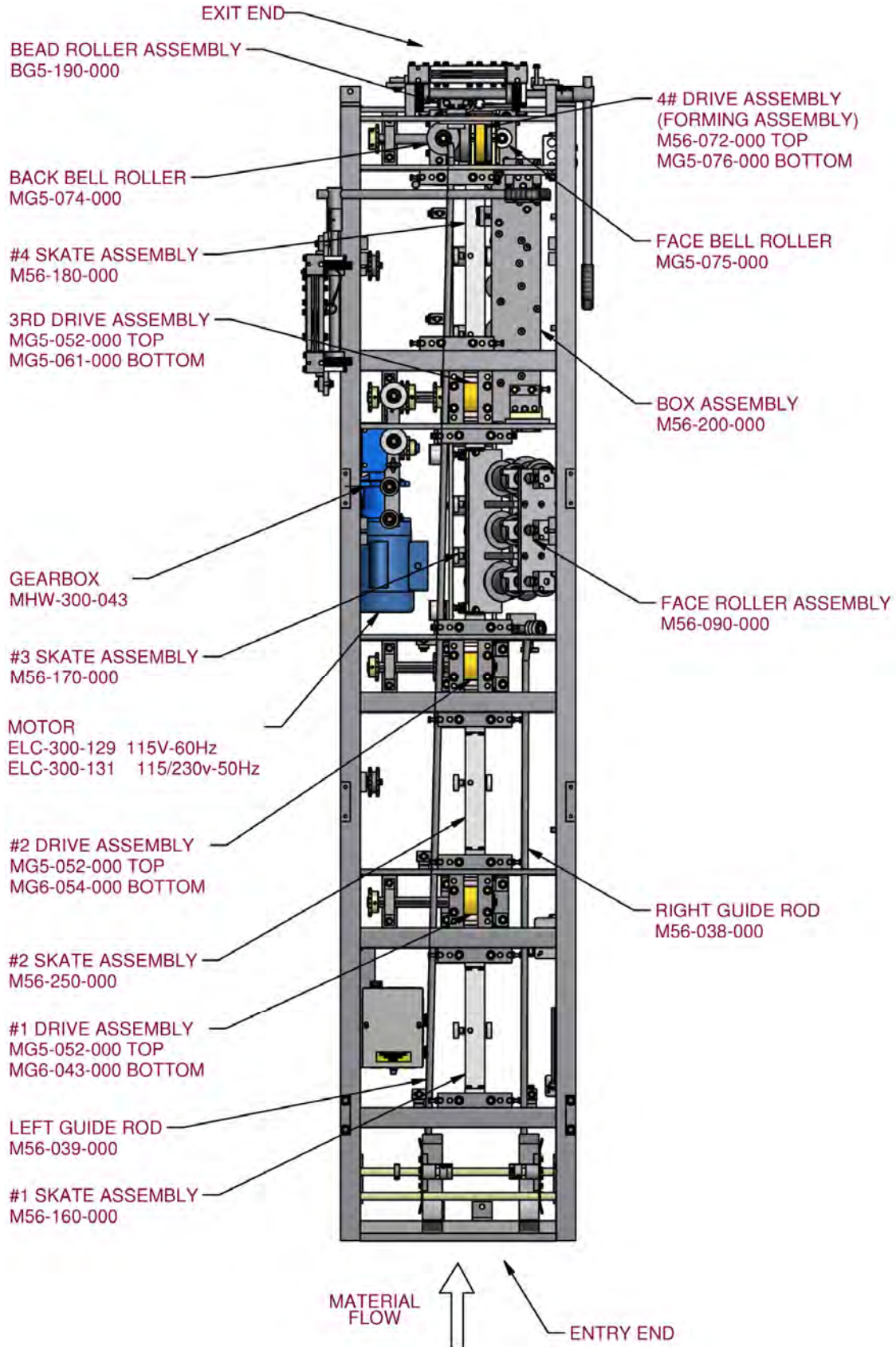


Figure 4: M56 Machine Layout

CHAPTER 4
GENERAL MAINTENANCE

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 or machine cover (optional) for protection. Provide good ventilation to prevent condensation and rust.
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.
6. Lubricate the chains a minimum of every 40 hours of operation. It is preferable to use a dry motorcycle chain lube or equivalent.
7. Keep Entry Guide Carriage clean and lubricate as needed with Spray Lube.
8. Keep cradles lubricated with Clear Grease (Figure 11 on page 19).
9. Clean Forming Rollers as needed with a Scotch Brite Pad and a small amount of solvent.
10. Clean Drive Rollers with soap and water or mild solvent free spray cleaner.
CAUTION: Do not use harsh chemicals or solvents or damage will occur.
11. Lubricate both faces of the Shear Blades and Dies a minimum of once daily with Spray Lube. More should be added as needed before the cut edges begin to deteriorate.

CHAPTER 4
GENERAL MAINTENANCE

Recommended Lubricants

Spray Lube for:

Shear Blades, Dies, Entry Guide, Bead Roller Carriage Shafts.

Super Lube - Multi-Purpose Synthetic Dri Film Aerosol Lubricant with Syncolon (PTFE)

Catalog No. 11016

11 oz. Aerosol Can

Available from:

MSC Supply at 1-800-645-7270

Clear Grease for:

Arbor Cradles

Synthetic Extreme Pressure, High Temperature Grease with Syncolon (PTFE)

Catalog No. 71160

400 gram container

Available from:

MSC Supply at 1-800-645-7270

Spray Lube for:

Chains

Super Lube - Multi-Purpose Synthetic Dri Film Aerosol Lubricant with Syncolon (PTFE)

Catalog No. 11016

11 oz. Aerosol Can

Available from:

MSC Supply at 1-800-645-7270

CHAPTER 5
MACHINE OPERATION SUMMARY

MACHINE OPERATION SUMMARY

This is a brief summary in the operation of the machine. However, this chapter is not a substitute for the rest of the manual. Read the entire machine operating manual before attempting to operate the machine.

Order of Procedure to Operate the Machine

- On the control panel near the exit end of the machine, turn the **JOG/RUN** switch to “**JOG**” and the **FORWARD/REVERSE** switch to “**FORWARD**”. Plug in the machine. Select the reel that has the material to be formed into a gutter profile. Loosen the brakes on the reel to be used. Leave some drag on the brake so that the coil will not unravel.
- For 5” gutter make a mark on the leading edge of the coil 5” from the right edge.
- For 6” gutter make a mark on the leading edge of the coil 6” from the right edge.
- Cut a 1” triangle off the 2 leading corners of the coil and feed it into the entry guides so that the mark on the leading edge of the coil lines up with the first Skate Bearing.
- Continue to push the material until it makes contact with the first Drive Roller.
- Press and Release the JOG button on the entry end of the machine to jog the material through the machine until the material is half way through the machine,
- Move to the exit end of the machine and use the JOG button on the main panel to finish jogging material through the machine. Pay close attention as the material enters the shear to prevent the material from crashing into the shear.
- Advance the gutter a few inches and cut off the end of gutter. Check the profile and especially the lip to be sure that the material was fed in straight, when it was guided into the machine. The machine is now ready to operate.
- Turn the **JOG/RUN** switch to “**RUN**”. Using the start and stop buttons at the exit end of the machine, run out about 2ft of gutter. Attach the end of a measuring tape to the end of the gutter and proceed to run out the first length of gutter. Set up run- out stands at approximately every 15ft as required until the acquired length is achieved.
- Stop the machine and cut the gutter with the shear.

NOTE: Always keep the shear blade well lubricated during use and when storing machine.

Remove coil material from machine when storing or transporting machine. The drive rollers will perform better if the machine is not stored with material.

In order to minimize material waste when completing a job or when switching colors of coil, precut the last piece of material to be run before it enters the machine.

MG6 or M56 Example:

If the last piece of the day to be run is 25’-0” , run approximately 15’-0” through the machine, leaving 10’-0” to be run. Then cut the material near the entry guide and run the remaining material through the machine. Shear the material at 25’-0” and there will be a minimal length of scrap left in the machine to be removed.

MG5 Example:

If the last piece of the day to be run is 25’-0” , run approximately 17’-0” through the machine, leaving 8’-0” to be run. Then cut the material near the entry guide and run the remaining material through the machine. Shear the material at 25’-0” and there will be a minimal length of scrap left in the machine to be removed.

CHAPTER 6
ELECTRICAL CONTROLS AND OPERATION

ELECTRICAL CONTROLS AND OPERATION

POWER CORD REQUIREMENTS

It is very important to follow the power cord requirement prescribed by the motor and electrical control manufacturers to maintain their respective warranties. 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 will void the warranty on motor and electrical controls.**

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. A **4500-5000 watt** generator is recommended.

Use of an improperly sized generator will cause a low voltage situation of the electric motor and controls which will void the warranty.

The minimum extension cord wire size for the $\frac{3}{4}$ or 1HP motor is as follows:

Up to 25 ft.	12AWG (4 mm ²)
25 ft. to 100 ft	10AWG (6 mm ²)

CONTROL PANEL OPERATION

(Figure 5)

The Main Control Panel is located at the exit end of the machine, on the right side. The Entry Control Panel is located at the entry end of the machine, on the right side.

A. FORWARD-REVERSE Switch

This selector switch controls the direction of movement of the material through the machine. Select forward to feed material and run gutter through the machine.

NOTE: For operator safety, the machine will not run continuously in reverse.

B. 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 until it clears the shear. Select run after material has cleared the shear and the machine is ready to run gutter.

C. START FEED (Green button)

This button is used to activate the drive system of the machine.

D. STOP FEED (Red button)

Pressing either the entry or exit button will stop the drive system of the machine.

CHAPTER 6
ELECTRICAL CONTROLS AND OPERATION



Figure 5: Remote and Main Control Panels

POWER INTERRUPTION SAFETY WIRING

When electrical power is interrupted to the machine, such as an unplugged extension cord, or tripped circuit breaker, it will not restart by simply restoring power to it. For safety, the operator must push the Start Feed pushbutton at either end of the machine to restart the forming process.

DUPLEX RECEPTACLE

120V~ 60 Hz machines are equipped with a standard 120V duplex outlet. All other models do not come equipped with an electrical outlet.

FUSE

(Figure 6)

The electrical logic circuit of this machine is protected by a 10A time delay fuse (Bussman type MDA or equivalent). The fuse holder is located in the entry end of the contactor box.

For CE marked units the fuse is located in an in-line fuse holder located inside the contactor box.

CHAPTER 6
ELECTRICAL CONTROLS AND OPERATION

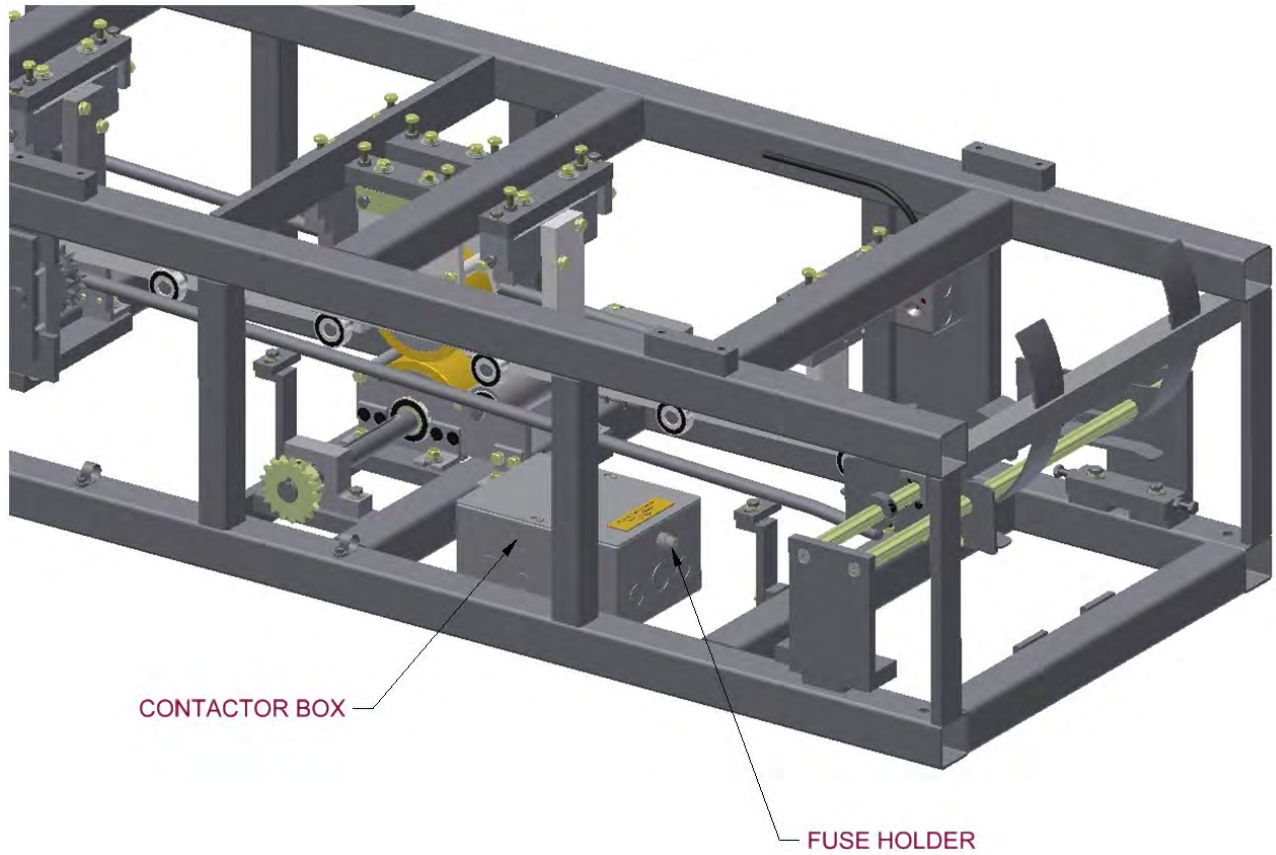


Figure 6: Fuse Holder

CHAPTER 7
MOUNTING MACHINE

MOUNTING MACHINE

(Figure 7)

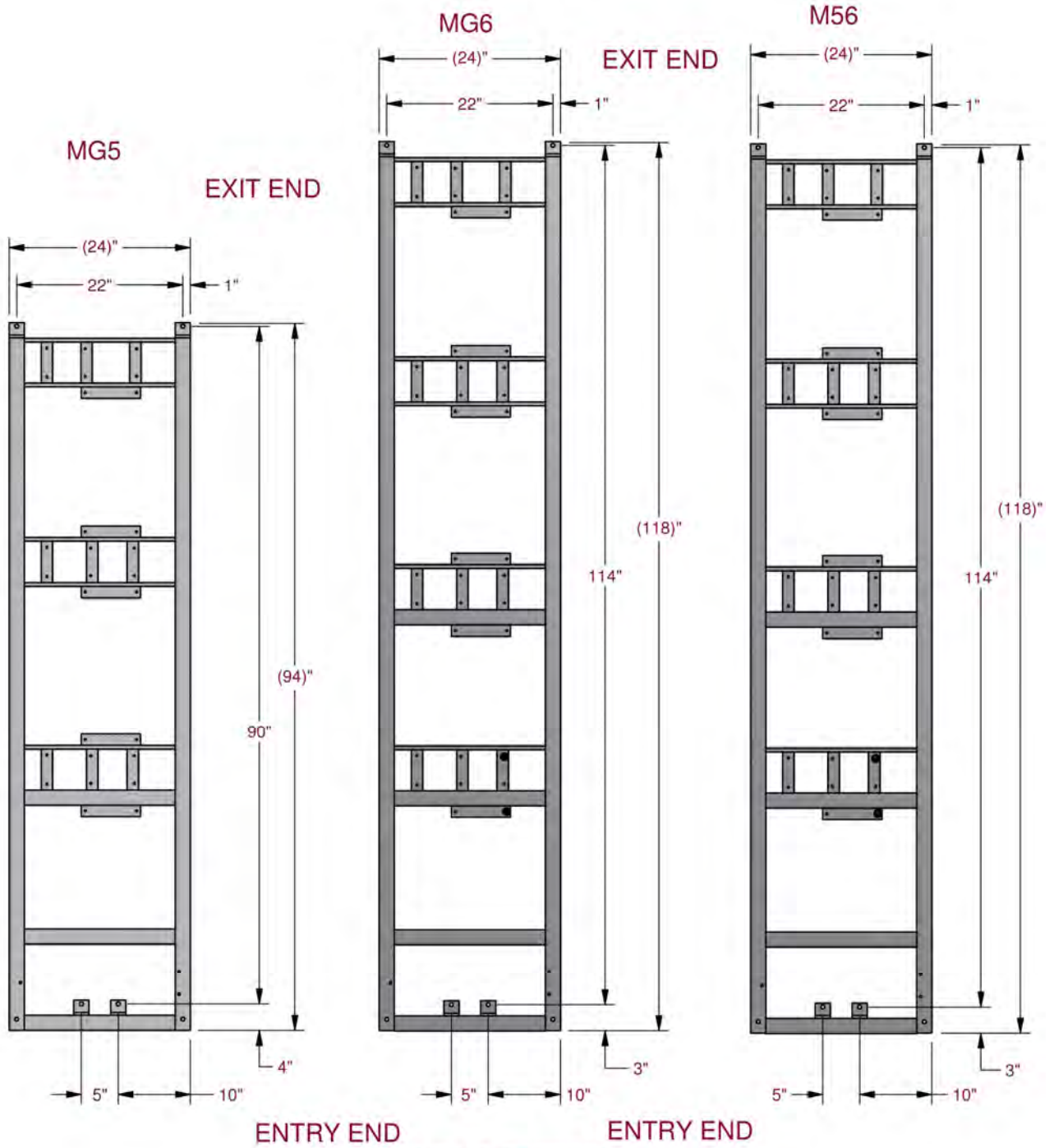
Before mounting the machine, inspect the platform on which the machine is to be mounted. Take into account the total weight of the machine with a full load of coil(s) on top. The platform should be solid and not corroded. Any repair to the platform should be made before mounting the machine. There are four (4) mounting brackets to secure the gutter machine to the platform. Do NOT add additional brackets to tie the machine down. Additional mounting bracket could result in a twisted frame.

Care must be taken when moving the machine from the shipping skid and installing the machine onto its final platform.

To secure the machine to the platform use 3/8" grade (8) bolts with lock and flat washers and nuts. Use a backing plate under the platform at each bolt to distribute the pressure over a larger area to prevent the bolt from pulling out of the platform. It is recommended that a minimum 4" x 4" x 1/8" thick galvanized steel plate can be used as a backing plate.

When lifting and moving the machine use proper equipment and safe techniques.

CHAPTER 7
MOUNTING MACHINE



MOUNTING PATTERN
 (ALL HOLES ARE 1/2" DIA)

Figure 7: Mounting Hole Layout

CHAPTER 8
CRADLES AND REELS

CRADLES AND REELS

The machine can be equipped with optional cradles or reels or a combination of both style decoilers.

Cradles

(Figure 8)

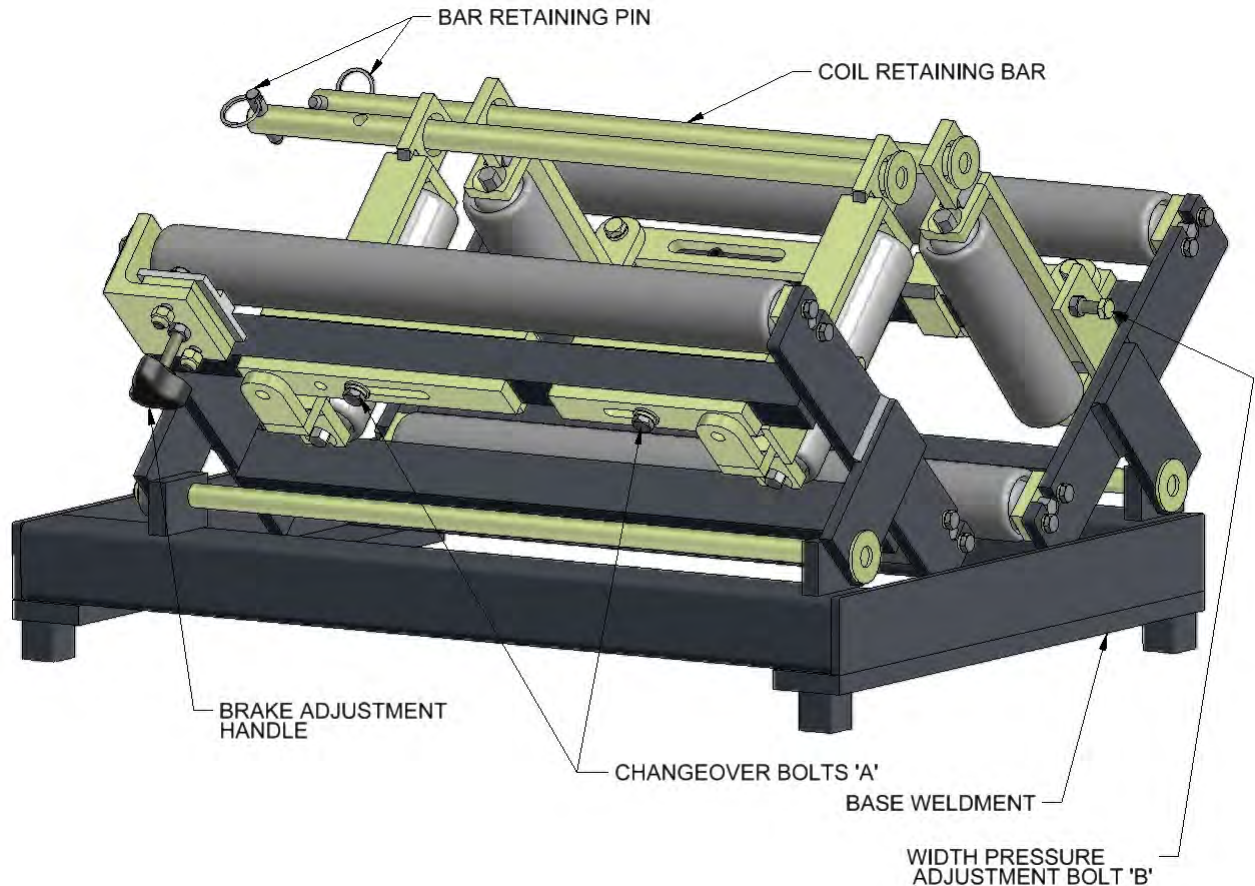


Figure 8: Cradle Assembly (5" Position Shown)

BRAKE:

The cradles are equipped with a braking mechanism under one of the conveyor rollers. The brake is used to keep the coil from turning during transporting of the machine, as well as, control the amount of drag on the reel and coil while the machine is in operation. It is very important that the brake adjustment is loose enough so that the loaded reel can be turned by hand, with just enough resistance to keep the coil from unwinding when the machine stops running.

CAUTION: Undo strain will be put on the electric motor and drive system if the BRAKE is not properly adjusted.

SECURING THE COIL TO THE CRADLE:

Be sure that the coil retaining bar(s) are inserted through the holes on the cradle ends and through the middle of the coil. To keep the retaining bars from falling out from vibration, ensure that the retaining pins are inserted in the holes on the retaining bar.

CHAPTER 8
CRADLES AND REELS

CRADLE POSITIONS

(Figure 9 and Figure 10)

The cradles can be setup in different positions depending on the gutter configuration that is to be ran through the machine.

To change the cradle position:

1. Loosen (2) changeover bolts "A" on each slider.
2. Move the sliders in and out as needed to the end of the slots.
3. Tighten all the changeover bolts.
4. Adjust the width pressure bolts "B" as needed to keep the material coiled neatly.

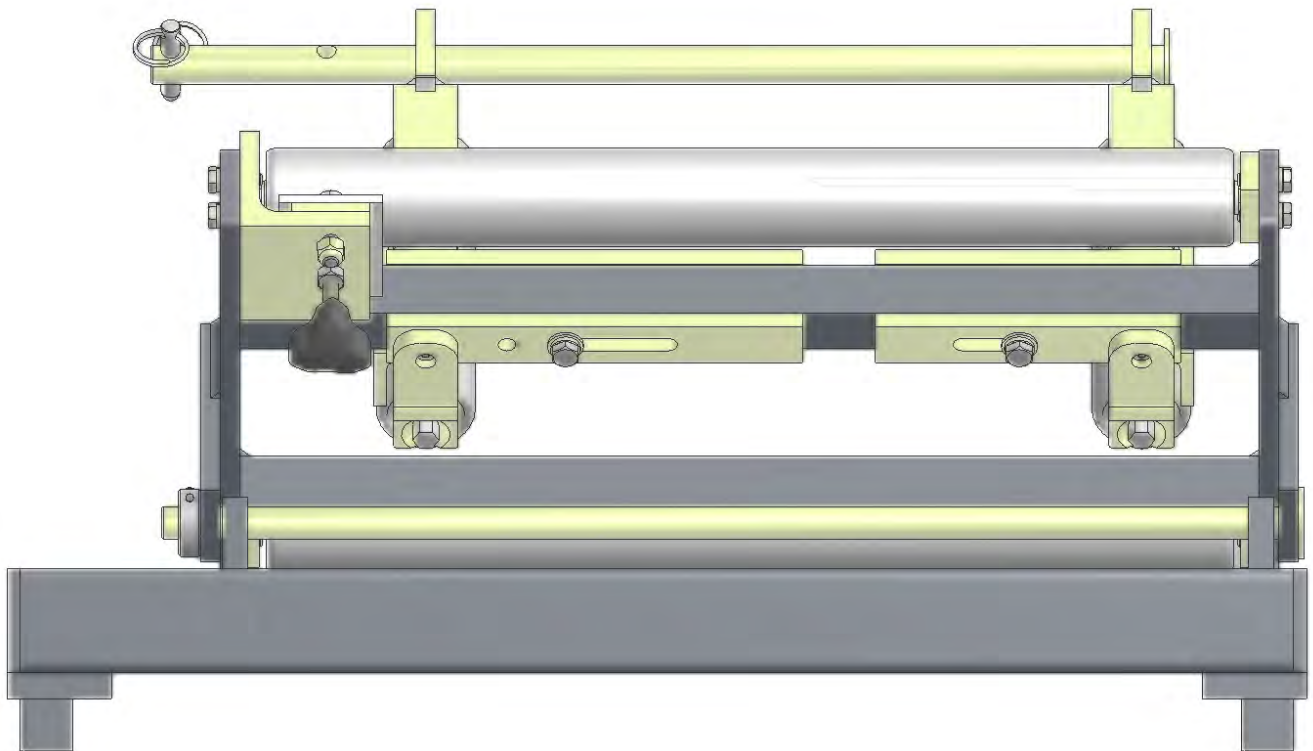


Figure 9: Cradle - 5 Inch Position

CHAPTER 8
CRADLES AND REELS

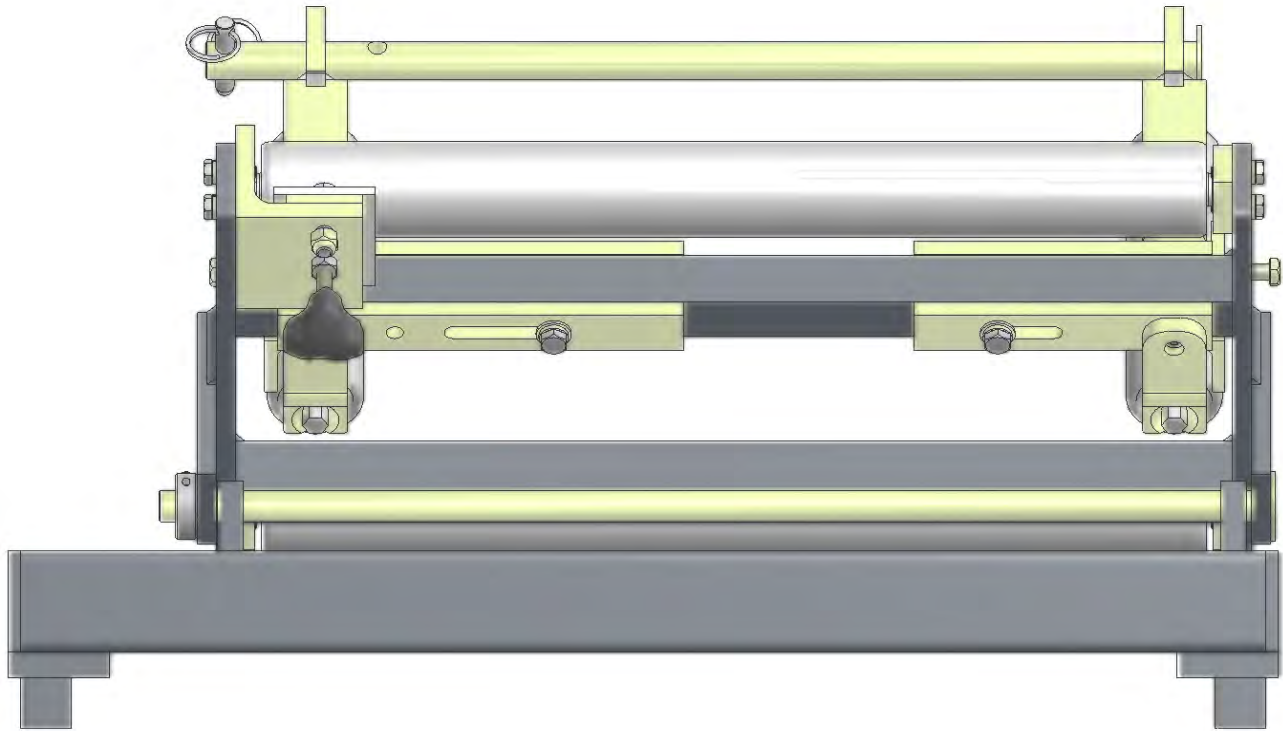


Figure 10: Cradle - 6 Inch Position

Loading Coil onto the Cradle

To load coil into the cradle:

1. Remove retaining bar pins and retaining bars from cradle.
2. Lower material into cradle.
3. Replace retaining bars and retaining bar pins.
4. Ensure brake is adjusted properly.

Turnstile Reel Stand

(Figure 11 and Figure 12)

REEL LOCK / BRAKE:

There is a **REEL LOCK / BRAKE mechanism** on both sides of each reel upright. These mechanisms serve three basic functions. First they are used to secure the reel assembly and coil up on the rack. Second they serve to act as a brake to keep the coil from turning during transporting of the machine. The third function is to control the amount of drag on the reel and coil while the machine is in operation.

SECURING THE REEL AND COIL:

To secure the reel and coil on the rack the reel lock/brake handles must be threaded into the cradle base see Figure 11. Turn and engage the threads on the knobs until the reel lock/ bar secures the shaft down into the cradle base.

To remove the reels from the machine, first turn the knobs counter clockwise until they are disengaged from the cradle base. Rotate the **REEL LOCK / BRAKE** bars out of the way so that the reels can be removed from the reel stands.

CHAPTER 8
CRADLES AND REELS

USING THE BRAKE FOR TRANSPORTING

To use the **REEL LOCK / BRAKE** assembly as a lock to stop the coil from unwinding during transportation, tighten the **REEL LOCK / BRAKE** bars tightly over the reel shafts, to prevent the reel coil from turning.

CAUTION: Do NOT transport the machine without having the reel locking device on the reel rack properly secured.

USING THE BRAKE DURING MACHINE OPERATION

Before operating the machine, it is very important that the **REEL LOCK / BRAKE** assembly be loose enough so that the loaded reel can be turned by hand, with just enough resistance to keep the coil from unwinding when the machine stops running.

CAUTION: Undo strain will be put on the electric motor and drive system if the REEL LOCK / BRAKE is not properly adjusted.

TURNSTILE OPERATION

(Figure 12)

The reel stands on the machine will turn 360 degrees to allow running two sided coils and also aid in the loading of the coils. To rotate reel stand:

1. Loosen the wing nut and turn the hand knob counterclockwise to loosen the clamp bar.
2. Pull back on the hand knob to move the clamp bar out from inside and clear the reel stand upright.
3. Turn the reel stand 180 degrees and push the clamp bar back into the opening located on the reel stand upright.
4. Turn the hand knob clockwise until the clamp bar is tight.
5. Tighten the wing nut down against the clamp bar to secure the assembly.

CAUTION: Make sure the clamp bar is completely engaged in the turnstile reel stand base before operation or transportation begins.

CHAPTER 8
CRADLES AND REELS

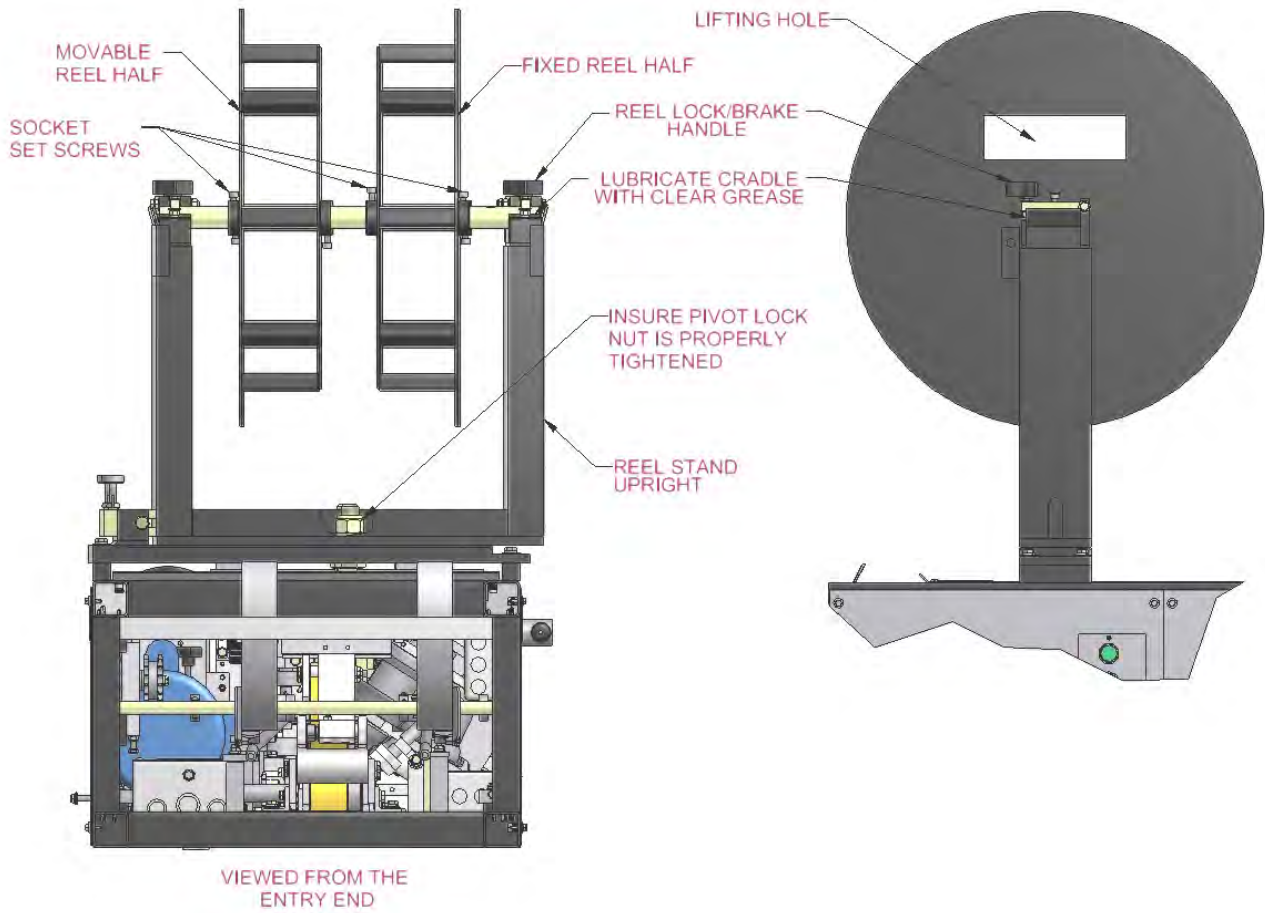


Figure 11: Reel Stand

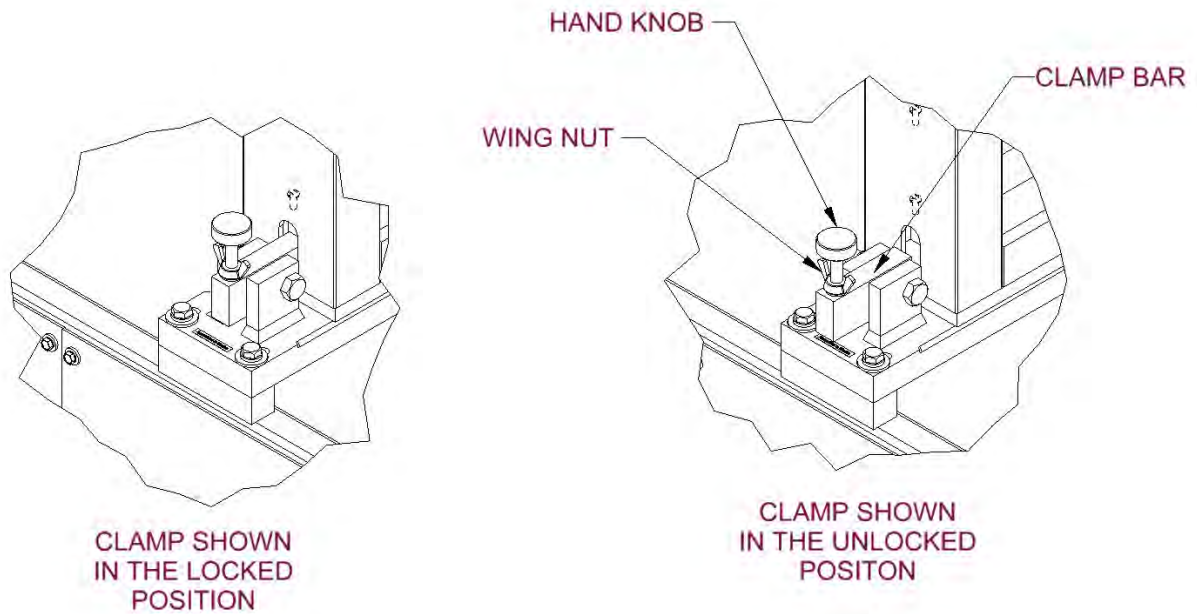


Figure 12: Reel Stand Clamp

CHAPTER 8
CRADLES AND REELS

Loading Coil onto the Reel

LOADING AND UNLOADING REELS FROM THE TURNSTILE REEL STAND:

Understand the procedure of loading and unloading coil properly before attempting to load the reel. Be sure to keep area clear around the machine while loading or unloading the coil. Improper loading can result in machine damage and/or bodily injury.

1. Before lifting the reel onto or off the turnstile reel stand, check to insure that the **LOCKING DEVICE** on the turnstile reel stand is securely in place and that the **REEL LOCK BRAKES** are in the open position to clear the reel shaft.
2. Rotate the reels so that the reel lifting holes are at the top of the reel.
3. Place an approved lifting device in the reel lifting holes.
4. Secure the lifting device onto the reel.
5. Lift the reel, slowly and safely and move the reel to its new destination. Set the reel down and block the reel before removing the lifting device.

CAUTION: Do NOT attempt to load or unload coil with the reel rack unsecured. The LOCKING DEVICE on the reel rack must be securely in place before loading or unloading the coil.

LOADING COIL ONTO THE REELS:

The reel assembly is made up of two reel halves. One reel half is removable and the other reel half is fixed in position on the shaft by seating a socket set screw down into a shaft divot. See Figure 14 through Figure 51 for configurations on 5", 6" or 5"/6" combo gutter reel assemblies.

1. To load the reel assembly, locate the reel half that does **NOT** have the shaft **divots**.
2. Remove this reel half from the shaft and load the coil onto the remaining reel half with the shaft attached.
NOTE: Do NOT move the fixed reel half. The fixed reel half locates the position of the material in line with the Face/Right Entry Guide of the machine.
3. The combo reel uses both the 5" and 6" divot located on the shaft. The inner most divot is for the 5" gutter position and the outer most position is for the 6" gutter position.
4. Slide the removable reel half back onto the shaft, so that it captures the coil between the two sides.
5. Lock the removable reel half into position with the socket head cap screw.

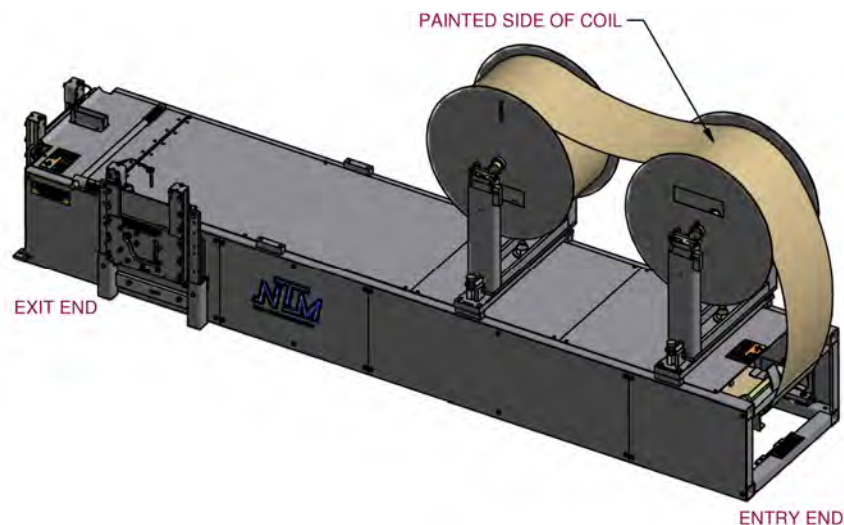


Figure 13: Coil Routing

CHAPTER 8
CRADLES AND REELS

MAXIMUM LOAD CAPACITY: 1000 lbs. for each reel.

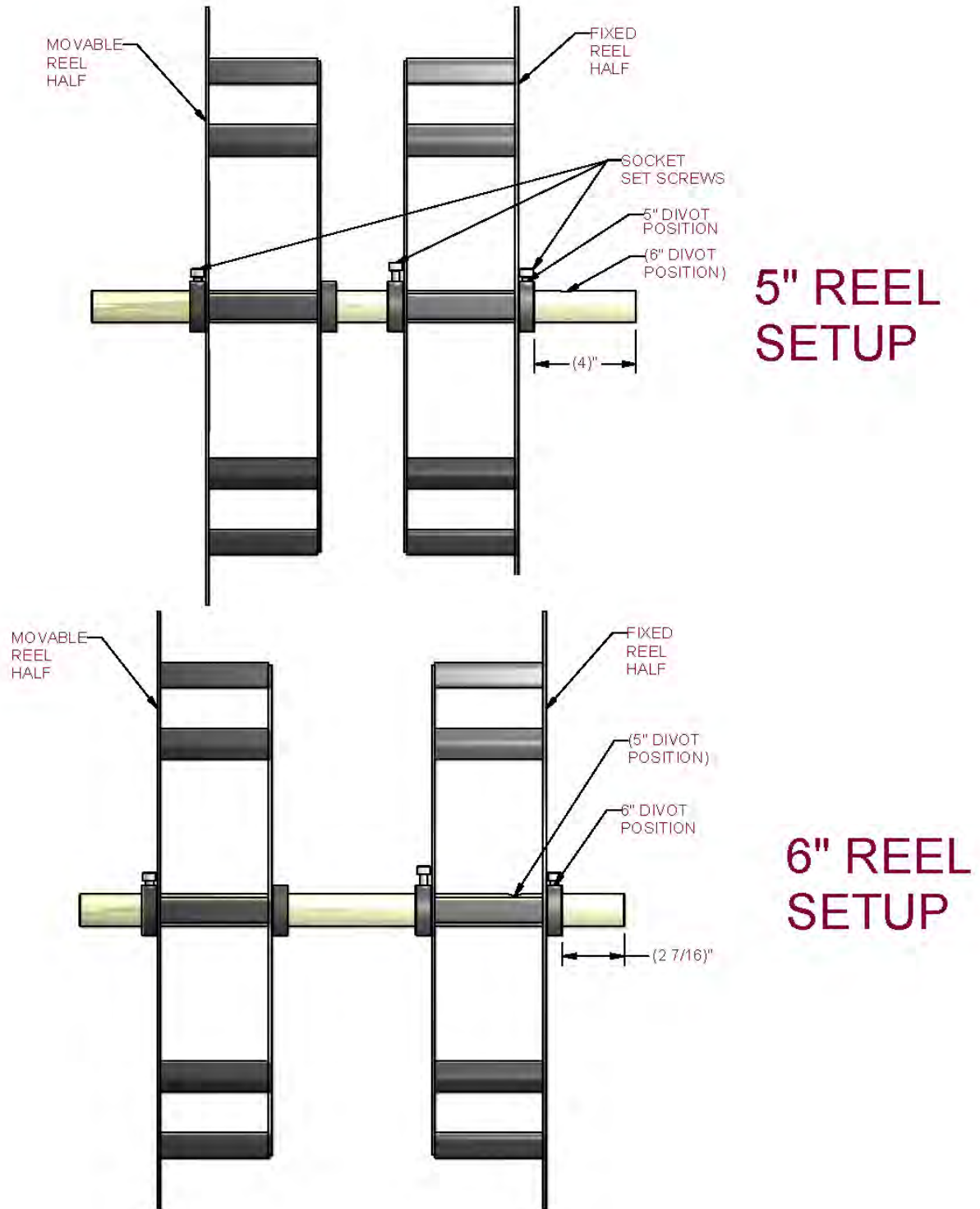


Figure 14: 5" and 6" Reel Settings

CHAPTER 9
ENTRY GUIDE ASSEMBLY

ENTRY GUIDE ASSEMBLY

Entry Guide Adjustment

(Figure 15 - Figure 18)

The Face/Right Entry Guide controls the amount of material that is fed into the face roller, and box assembly. It should be moved only to increase, or decrease the amount of lip turned under.

If an adjustment is made on the Face/Right Entry Guide, an adjustment must be made on the Back/Left Entry Guide, using coil as a guide. There should be no visible play between the entry guides and the coil. The guide should also not be so tight as to cause the gutter material to bind in the entry guide assembly.

ADJUSTMENT FOR THE MG5 or MG6 ENTRY GUIDE

1. Before moving the face/right entry guide, measure the distance between the face/right entry guide and the entry guide support shown as 2 7/8" in Figure 15 for the MG5 and 1 3/4" in Figure 16 for the MG6. This will give a reference point from which to start and a point to return to if the guide is moved in the wrong direction.
2. To move the guides, first loosen Screw "A" on the Face/Right Entry Guide and Screw "B" on the Back/Left Entry Guide.
3. To **increase** the amount of lip turned under, move the Face/Right Entry Guide toward the right side (face side) of the machine. To **decrease** the amount of lip turned under, move the Face/Right Entry Guide toward the left side (back side) of the machine.
4. Tighten Screw "A" on the Face/Right Entry Guide.
5. Using the coil as a gauge, engage the coil between the entry guide flanges and adjust the Back/Left Entry Guide. There should be no visible play between the entry guides and coil. The guide should not be so tight to cause the gutter material to bind in the entry guide assembly.
6. Tighten Screw "B" on the Back/Left Entry Guide.

ADJUSTMENT FOR THE M56 COMBO ENTRY GUIDE

The entry guide for the M56 COMBO includes factory set stop collars which allow the entry guide to be quickly repositioned between the 5" mode and the 6" mode. Changing the entry guides from 5" to 6" position or 6" to 5" position:

1. Loosen Screw "A" on the Face/Right Entry Guide and Screw "B" on the Back/Left Entry Guide.
2. Slide the Face/Right Entry Guide and the Back/Left Entry Guide either inboard for the 5" position or outboard for the 6" position until both entry guides are in contact with the clamp collars.
3. Tighten Screw "A" on the Face/Right Entry Guide and Screw "B" on the Back/Left Entry Guide.

ADJUSTING THE STOP COLLARS ON THE M56 COMBO ENTRY GUIDE

The stop collars should not be moved unless the lip needs to be increased or decreased. Before moving the stop collars, measure the distance between the face/right entry guide and the entry guide support as shown as 2 7/8" for the 5" position in Figure 15 and Figure 17, as well as, 1 3/4" for the 6" position in Figure 16 and Figure 18. This will give a reference point from which to start and a point to return to if the guide is moved in the wrong direction.

CHAPTER 9
ENTRY GUIDE ASSEMBLY

Increase the Amount of Lip Turned Under (5” Position)

1. Loosen Lock Collars #2 & #3 and Screw “A” on the Face/Right Entry Guide and Screw “B” on the Back/Left Entry Guide.
2. Move the Face/Right Entry Guide toward the right side (face side) of the machine.
3. Tighten Screw “A” on the Face/Right Entry Guide.
4. Slide Lock Collar #3 against the Face/Right Entry Guide and tighten Lock Collar #3.
5. Using the coil as a gauge, engage the coil between the entry guide flanges and adjust the Back/Left Entry Guide. There should be no visible play between the entry guides and coil. The guide should also not be so tight to cause the gutter material to bind in the entry guide assembly.
6. Tighten Screw “B” on the Back/Left Entry Guide.
7. Slide Lock Collar #2 against the Back/Left Entry Guide and tighten Lock Collar #2.

Increase the Amount of Lip Turned Under (6” Position)

1. Loosen Lock Collars #1 & 4 and Screw “A” on the Face/Right Entry Guide and Screw “B” on the Back/Left Entry Guide.
2. Move the Face/Right Entry Guide toward the right side (face side) of the machine.
3. Tighten Screw “A” on the Face/Right Entry Guide.
4. Slide Lock Collar #4 against the Face/Right Entry Guide and tighten Lock Collar #4.
5. Using the coil as a gauge, engage the coil between the entry guide flanges and adjust the Back/Left Entry Guide. There should be no visible play between the entry guides and coil. The guide should also not be so tight to cause the gutter material to bind in the entry guide assembly.
6. Tighten Screw “B” on the Back/Left Entry Guide.
7. Slide Lock Collar #1 against the Back/Left Entry Guide and tighten Lock Collar #1.

Decrease the Amount of Lip Turned Under (5” Position)

1. Loosen Lock Collars #2 & 3 and Screw “A” on the Face/Right Entry Guide and Screw “B” on the Back/Left Entry Guide.
2. Move the Face/Right Entry Guide toward the left side (back side) of the machine.
3. Tighten Screw “A” on the Face/Right Entry Guide.
4. Slide Lock Collar #3 against the Face/Right Entry Guide and tighten Lock Collar #3.
5. Using the coil as a gauge, engage the coil between the entry guide flanges and adjust the Back/Left Entry Guide. There should be no visible play between the entry guides and coil. The guide should also not be so tight to cause the gutter material to bind in the entry guide assembly.
6. Tighten Screw “B” on the Back/Left Entry Guide.
7. Slide Lock Collar #2 against the Back/Left Entry Guide and tighten Lock Collar #2.

Decrease the Amount of Lip Turned Under (6” Position)

1. Loosen Lock Collars #1 & 4 and Screw “A” on the Face/Right Entry Guide and Screw “B” on the Back/Left Entry Guide.
2. Move the Face/Right Entry Guide toward the left side (back side) of the machine.
3. Tighten Screw “A” on the Face/Right Entry Guide.
4. Slide Lock Collar #4 against the Face/Right Entry Guide and tighten Lock Collar #4.
5. Using the coil as a gauge, engage the coil between the entry guide flanges and adjust the Back/Left Entry Guide. There should be no visible play between the entry guides and coil.

CHAPTER 9
ENTRY GUIDE ASSEMBLY

The guide should also not be so tight to cause the gutter material to bind in the entry guide assembly.

6. Tighten Screw “B” on the Back/Left Entry Guide.
7. Slide Lock Collar #1 against the Back/Left Entry Guide and tighten Lock Collar #1

CHAPTER 9
ENTRY GUIDE ASSEMBLY

GM5 SETUP

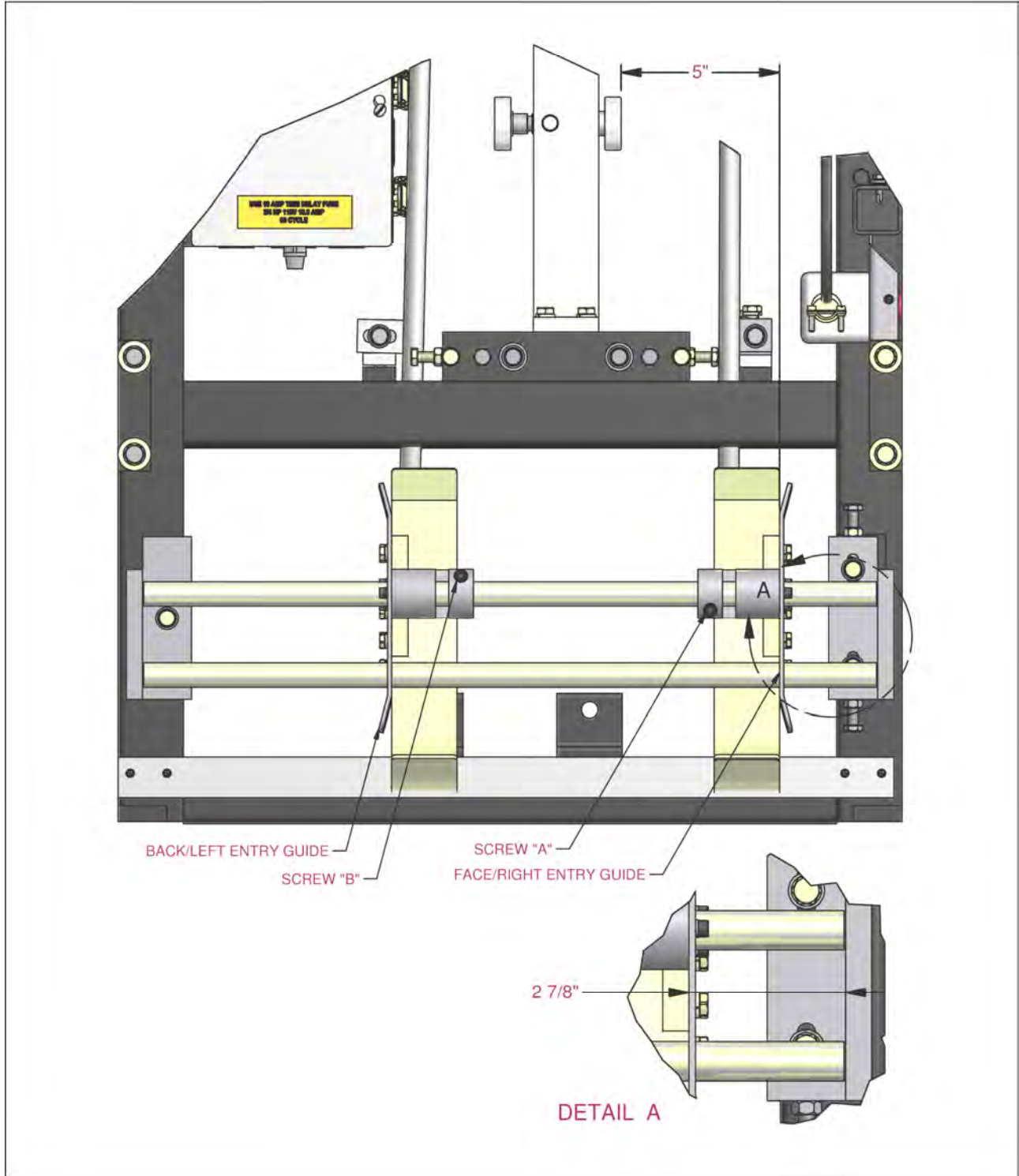


Figure 15: MG5 Entry Guide Setup

CHAPTER 9
ENTRY GUIDE ASSEMBLY

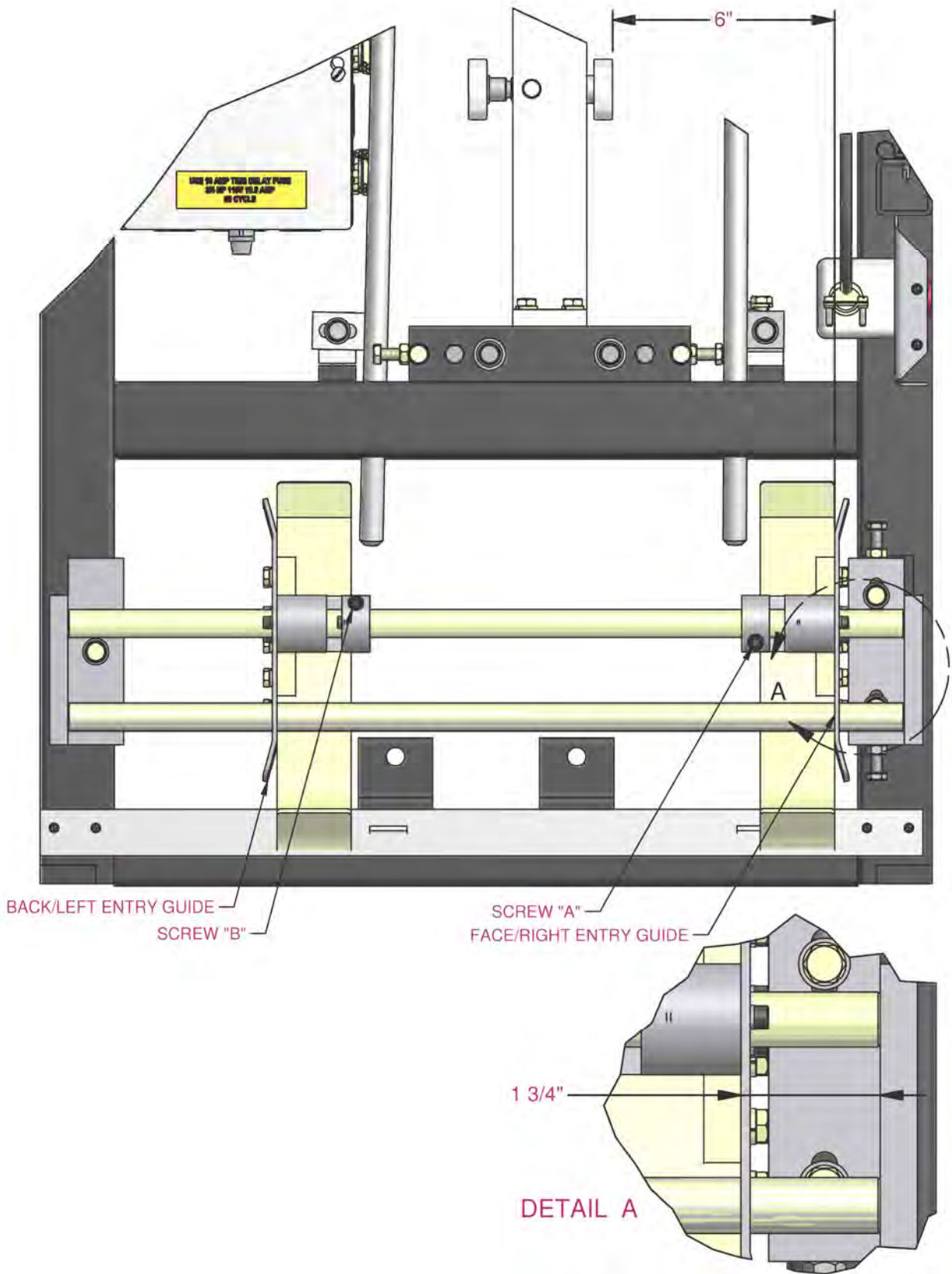


Figure 16: MG6 Entry Guide Setup

CHAPTER 9
ENTRY GUIDE ASSEMBLY

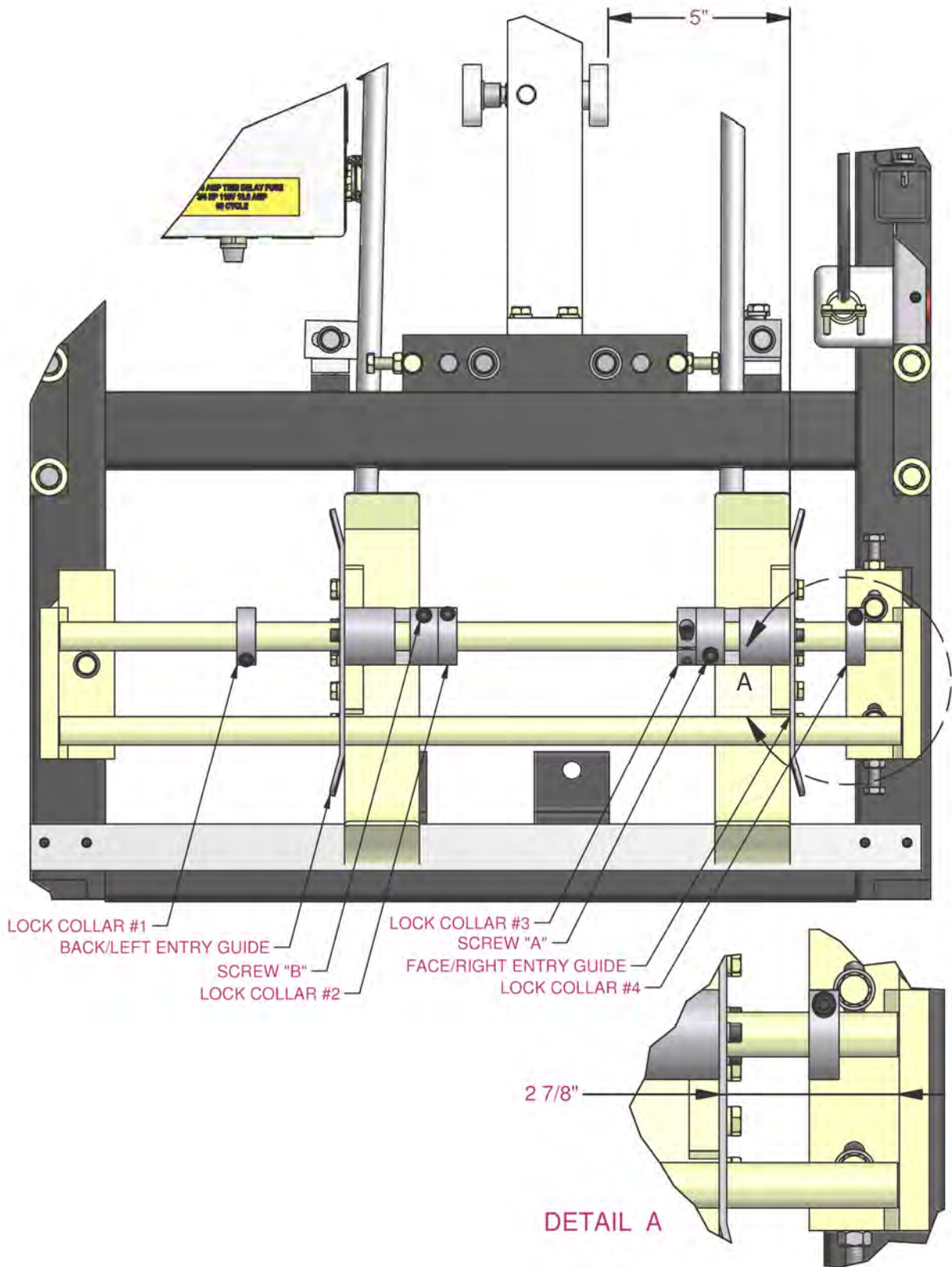


Figure 17: M56 Entry Guide Setup for 5"

CHAPTER 9
ENTRY GUIDE ASSEMBLY

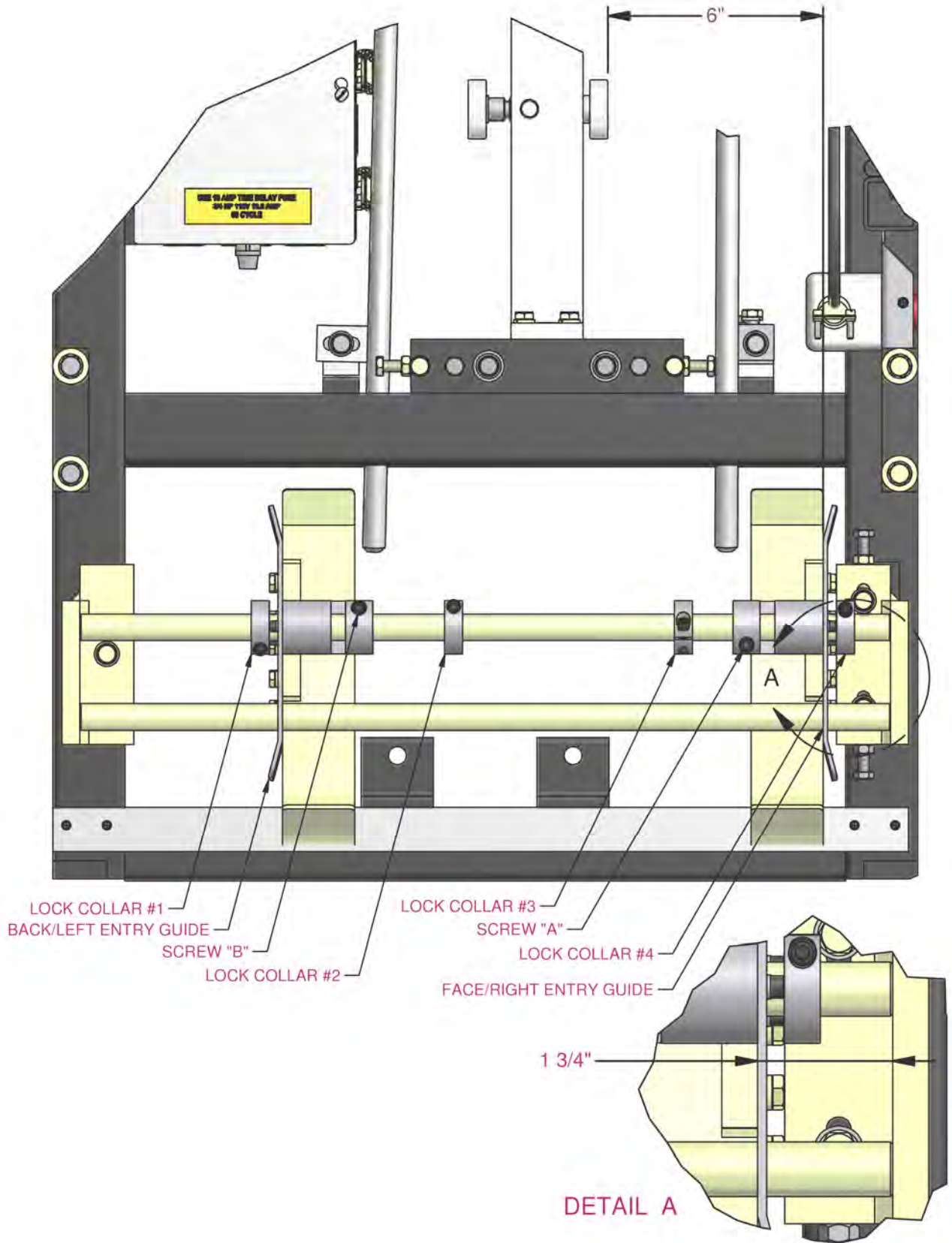


Figure 18: M56 Entry Guide Setup for 6"

CHAPTER 9
ENTRY GUIDE ASSEMBLY

Feeding Material

CAUTION: Be sure machine is in the “JOG” mode before feeding.

1. To help feed the material straight into the machine it is helpful to make a mark on the leading edge of the material that will line up the material under the first Skate Bearing.
For 5” gutter make a mark on the leading edge of the coil 5” from the right edge.
For 6” gutter make a mark on the leading edge of the coil 6” from the right edge.
2. Cut a 1” triangle off the 2 leading corners of the coil and feed it into the entry guides so that the mark on the leading edge of the coil lines up with the first Skate Bearing.
3. Continue to push the material until it makes contact with the first Drive Roller.
4. Press and Release the JOG button on the entry end of the machine to jog the material through the machine until the material is half way through the machine,
5. Move to the exit end of the machine and use the JOG button on the main panel to finish jogging material through the machine. Pay close attention as the material enters the Shear to prevent the material from crashing into the Shear.
6. Once the material has exited the machine, stop jogging the material and use the Shear to cut the leading end square.

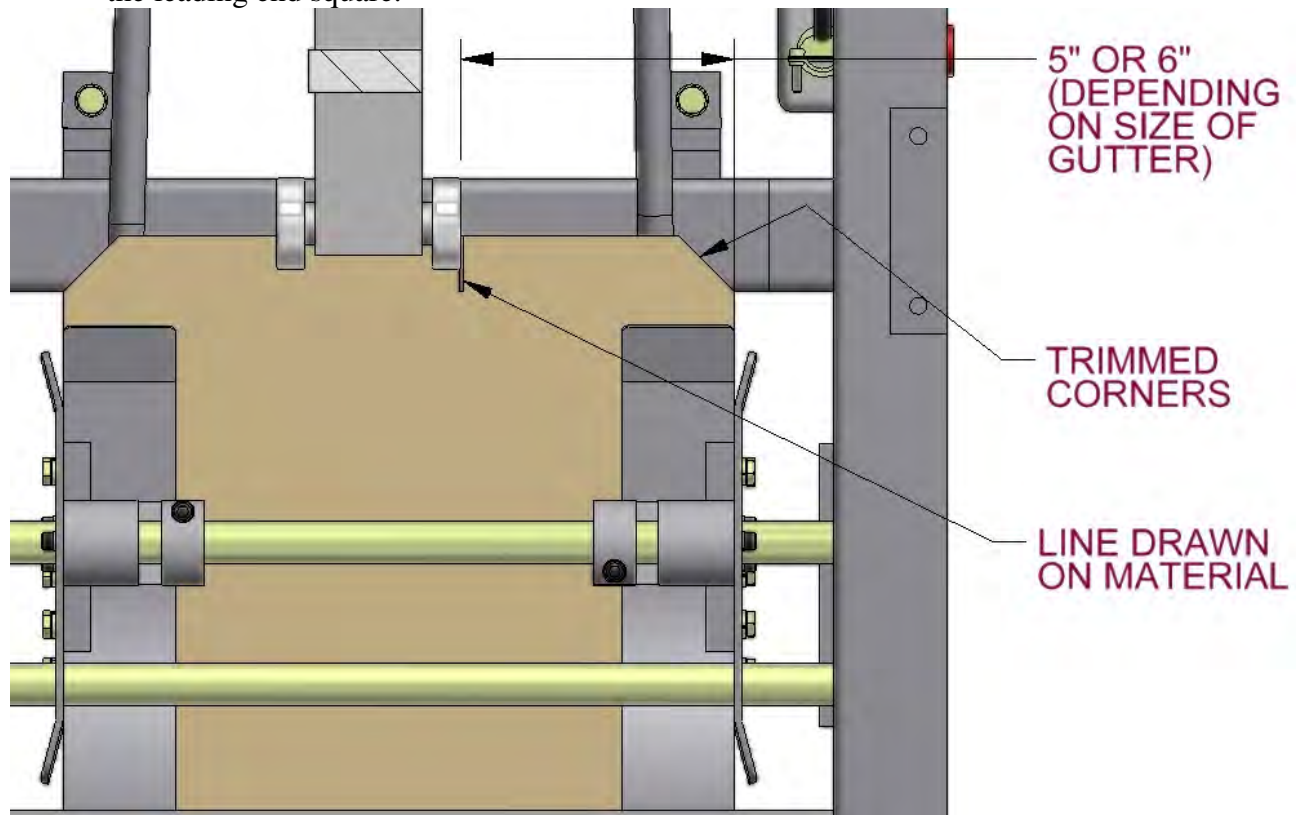


Figure 19: Feeding Material

CHAPTER 10
DRIVE ASSEMBLY

DRIVE ASSEMBLY

The drive system is mostly maintenance free. The roller pressures are factory set. To clean the drive rollers do NOT use any harsh chemicals. Use soap and water to remove any dirt or film from the surfaces of the drive roller.

If adjustment is necessary, because a roller was replaced or some slippage of the gutter material through the machine is being experienced, the top roller can be adjusted down.

DRIVE ROLLER ADJUSTMENT AND CLEANING

(Figure 20)

1. Adjust the drive system by starting with the #1 top drive roller. Loosen the lock nuts on jack screws "A".
2. Loosen bolts "B" just enough to break them loose.
3. Turn all four (4) Jack Screws "A", 1/8 of a turn clockwise. Re-tighten all bolts "B" and run the machine forward to see if traction has been gained.
4. If more traction is required, repeat the same steps with the #2 top drive roller.
5. Repeat the process until the proper traction is obtained by alternating between #1 and #2 for the 5" gutter machine or the #1, #2 and #3 top drive roller for the 6" and 5"/6" combo gutter machines.
6. Retighten lock nuts on jack screws "A".

NOTE: Do NOT over tighten drive rollers. Maximum pressure recommended is ¼ turn past factory setting.

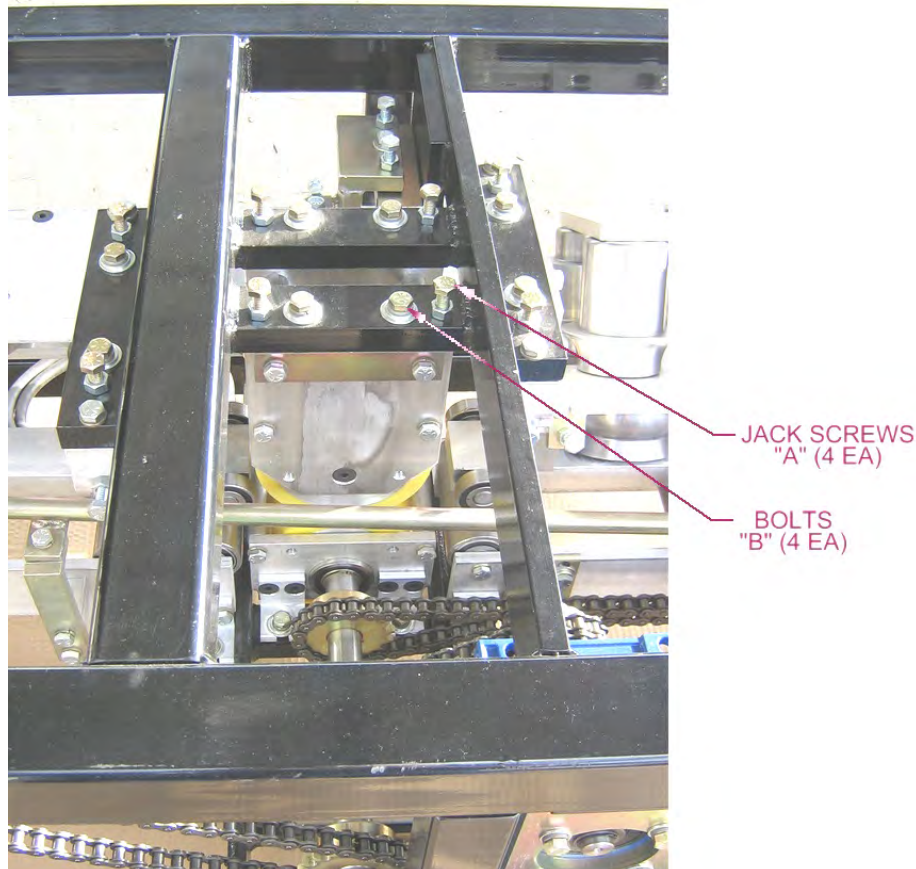


Figure 20: Top Drive Pressure Adjustment Screws

CHAPTER 10
DRIVE ASSEMBLY

The factory setting is $\frac{1}{2}$ to $\frac{3}{4}$ turn clockwise past the point of contact between the top and bottom drive roller

Do NOT use solvents such as paint thinners, acetone, etc. to clean drive rollers. Use of a cleaner such as 409 or mild soap and water is recommended.

CHAIN TENSION AND LUBRICATION

(Figure 21)

Check chain tension and adjust as necessary at least twice a year. Chains should have a minimum of $\frac{1}{16}$ " (1.6 mm) of play. Tighten loose chains using the chain tensioners.

CAUTION: Do not over tighten chains

Lubricate chains at least twice a year or whenever they appear dry. It is recommended that a dry lubricant be used to avoid sand, dirt, and foreign matter build up. See Recommended Lubricants section on page 8.

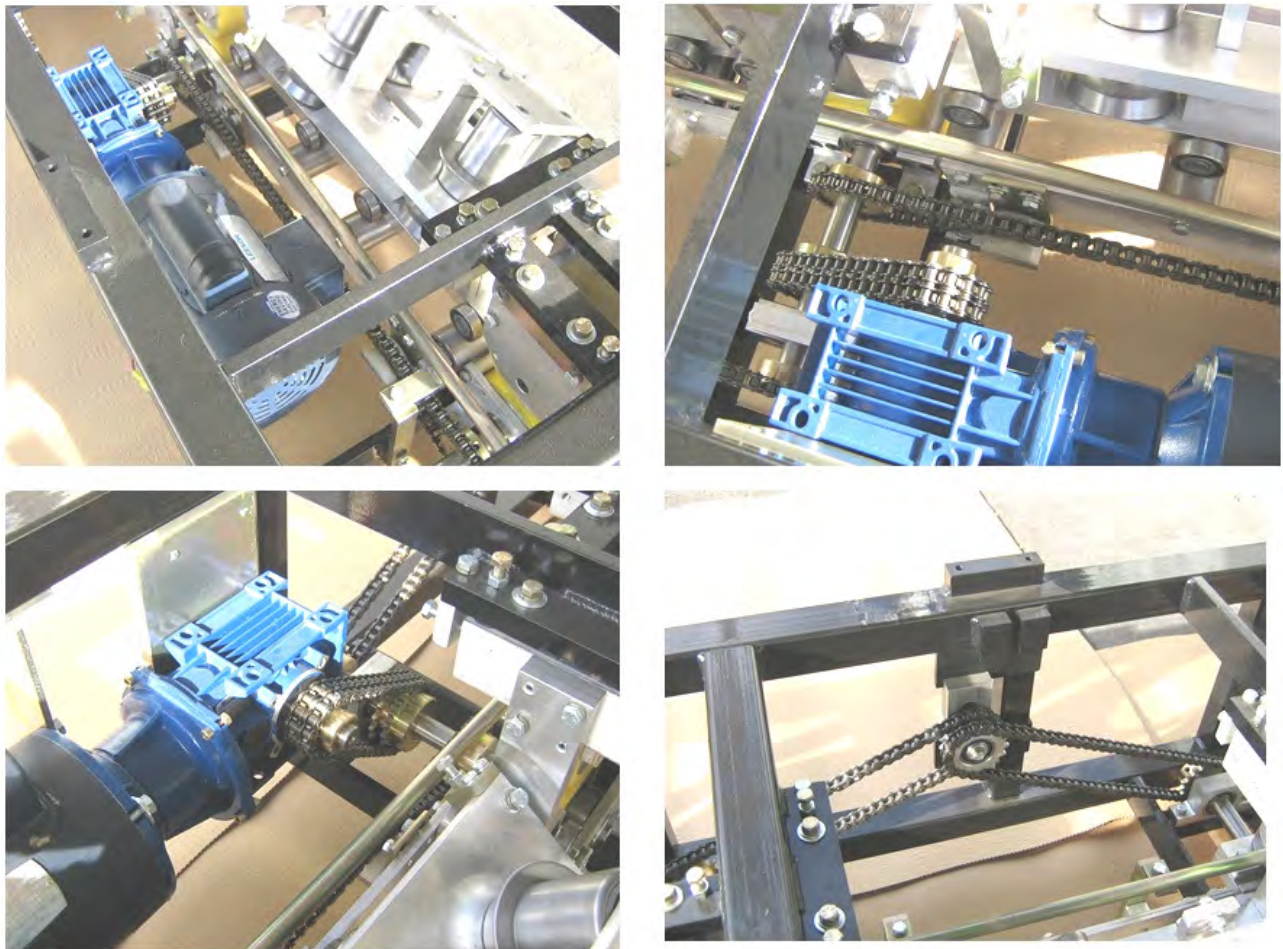


Figure 21: Chains and Tensioners

CHAPTER 11
GUTTER BOX ADJUSTMENTS

GUTTER BOX ADJUSTMENTS

(Figure 22)

The gutter box is state of the art and designed for ease of adjustment. The box consists of seven stations. There are three basic adjustment areas on the box. They are as follows:

- Entry mount adjustment
- Exit mount adjustment
- Swing shaft adjustment

CAUTION: The adjustments listed below are sensitive and care should be taken when making these adjustments. Never attempt to adjust with more than 1/8 turn at a time.

Entry Mount Adjustment Assembly

This adjustment is set at the factory and should not be changed.

Exit Mount Adjustment Assembly

NOTE: Refer to the TROUBLESHOOTING section on page 79 before making any adjustments. The Exit Mount Adjustment Assembly which is color coded **Blue** is used to control the “**Uphill**” and “**Downhill**” effect. The “**Width of the Gutter**” is also affected with this adjustment.

Uphill/Downhill

To adjust the vertical axis which is color coded **Blue**:

1. Loosen the bolts “F”.
2. Turn bolt “E” to raise or lower.
 - To raise the box turn bolt “E” clockwise.
 - To lower the box turn bolt “E” counterclockwise.
 - For each revolution of the bolt “E,” the box will move .056 (approx. 1/16”) up or down.
3. Retighten bolts “F”

Width of the Gutter

To adjust the horizontal axis which is color coded **Orange**:

1. Loosen the lock nut on bolt “G” and bolts “H”.
2. Using the adjustment bolt “G”, adjust the box from side to side.
 - To adjust the box IN and reduce the width of the gutter, turn bolt “G” clockwise.
 - To adjust the box OUT and increase the width of the gutter, turn bolt “G” counterclockwise.
 - For each revolution of the bolt “G,” the box will move .056 (approx. 1/16”) in or out.
3. While holding the box against bolt “G,” re-tighten the bolts “H” and the lock nut on bolt “G”.

Swing Shaft Adjustment Assembly

NOTE: Refer to the TROUBLESHOOTING section on page 79 before making any adjustments. The swing shaft adjustment assembly which is color coded **Green** is used to apply pressure to the head of the gutter. This will tend to cause the forming of the head of the gutter to go “**Into the**

CHAPTER 11
GUTTER BOX ADJUSTMENTS

House” or “Away From the House”. This is the most common adjustment used to straighten the gutter.

To adjust the swing shaft:

1. Loosen the bolts “J” just enough to allow the swing shaft assembly to slide.
2. Turn adjustment bolt “K” to move the swing shaft assembly.

To cause the gutter to form into the house, turn the bolt “K” clockwise.

To cause the gutter to form away from the house, turn bolt “K” counterclockwise.

For each revolution of the bolt “K” the swing shaft assembly will move .056 (approx. 1/16”) in or out.

3. While holding the swing shaft adjustment assembly so that the bolt “K” is against the box assembly, re-tighten bolts “J”.

NOTE: Adjusting the swing shaft **DOES** have an effect on the size of the lip. Always check the gutter lip before completing adjustments.

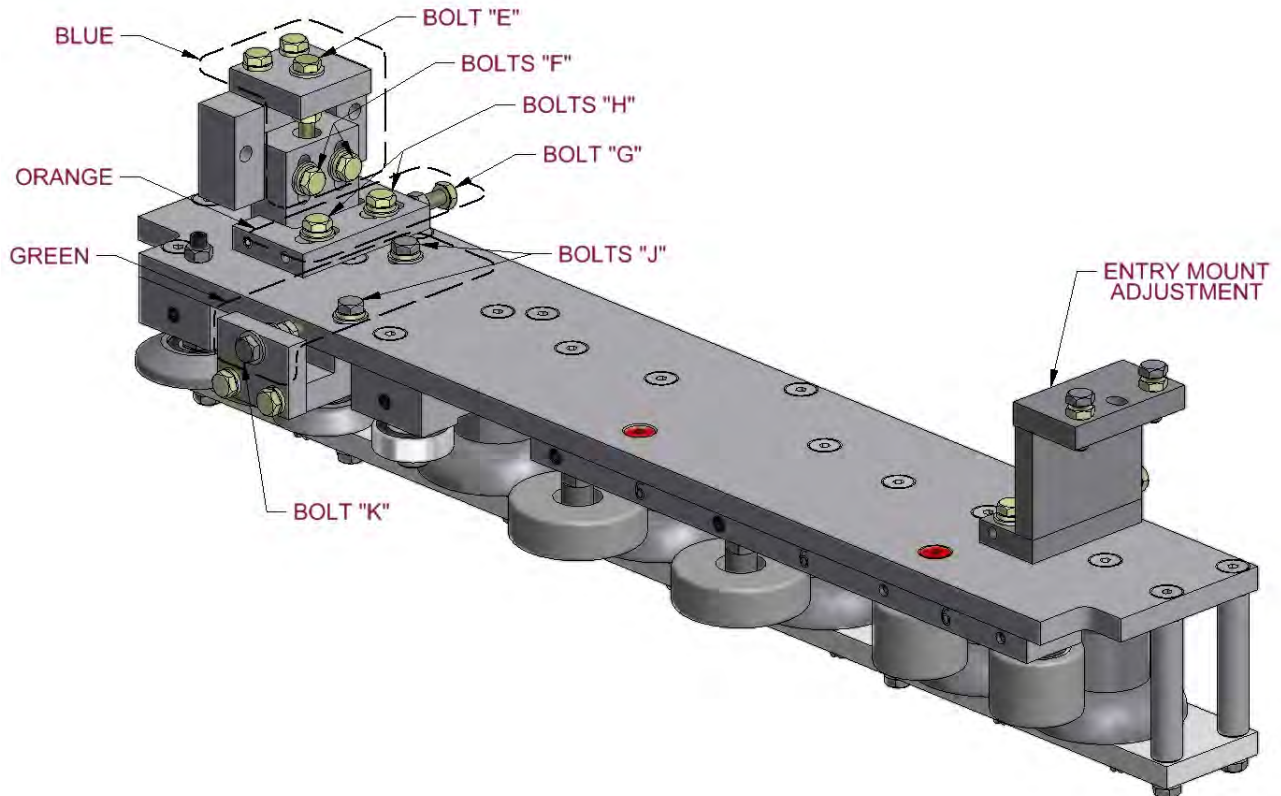


Figure 22: Gutter Box Assembly

CHAPTER 12
EXIT DRIVE AND FORMING STATION

EXIT DRIVE AND FORMING STATION

(Figure 23)

The adjustment screws on this assembly are color coded: **Yellow**. This assembly drives and forms at the same time. This station employs the polyurethane drive rollers for traction but works in harmony with the forming tools to provide maximum control over the gutter as it exits the machine.

The exit drive assembly is bolted to the last skate with bolts “A”. These bolts keep the exit drive assembly square with the last skate assembly. Before making any adjustments to this assembly be sure to loosen bolts “A” just enough to allow the Exit Drive Assembly to move without affecting the last skate assembly. Failure to do this will result in distortion of the last skate assembly and may affect how the gutter is formed. Be sure to re-tighten bolts “A” after making any adjustments to the Exit Drive Assembly.

NOTE: Refer to the TROUBLESHOOTING section on page 79 before making any adjustments.

NOTE: The following adjustments are very responsive and should be done in small increments

Adjusting the Exit Top Roller – Face Side

The adjustment at the exit top roller face side is used to affect “**Uphill**”, “**Downhill**”, “**Into the House**”, and “**Away From the House**” on the face.

To adjust the top face side of the roller:

1. Loosen bolts “A”, the lock-nuts on jackscrews “B”, bolts “C”, lock-nut on jackscrew “F” and jackscrew “F”.
2. Turn jackscrews “B” 1/8 of a turn in or out.
To cause the face of the gutter to form into the house, turn the screw “B” clockwise.
To cause the face of the gutter to form away from the house, turn screw “B” counterclockwise.
Each revolution of screw “B” is equal to .056” (approx. 1/16”) of movement.
3. Re-tighten all bolts and lock nuts.

Adjusting the Exit Top Roller – Back Side

The adjustment at the exit top roller back side is used to affect “**Uphill**”, “**Downhill**”, “**Into the House**”, and “**Away From the House**” on the back.

To adjust the top back side of the roller:

1. Loosen bolts “A”, the lock-nuts on jackscrews “D”, bolts “E”, lock-nut on jackscrew “G” and jackscrew “G”.
2. Turn jackscrews “D” 1/8 of a turn in or out.
To cause the back of the gutter to form away the house, turn the screw “D” clockwise.
To cause the back of the gutter to form into from the house, turn screw “D” counterclockwise.
Each revolution of screw “B” is equal to .056” (approx. 1/16”) of movement.
3. Re-tighten all bolts and lock nuts.

EXIT DRIVE AND FORMING STATION

Adjusting the Exit Face and Back Bell Rollers

The adjustment at the exit face and back bell rollers are used to affect “**Into the House**”, “**Away From the House**”, and squaring the front and back of the bottom corners.

To adjust the bell rollers:

1. Empty the material from the machine
2. Loosen bolt “H” slightly and loosen bolt “J”.
3. Turn jackscrew “K” to move the bell roller toward or away from the top face roller.
To move the bell roller toward the top face roller, turn jackscrew “K” counterclockwise.
To move the bell roller away from the top face roller, turn jackscrew “K” clockwise.
For each revolution of the jackscrew “K,” the bell roller will move .056 (approx. 1/16”) in or out.
4. Apply pressure on the bell roller mount towards the top face roller and retighten bolts “J” & “H” and retighten the lock-nut on jackscrew “K”.

Adjusting Pressure for the Exit Drive Roller

If adjustment is necessary, because a roller was replaced or some slippage of the gutter material through the machine is being experienced, the top roller can be adjusted down to add drive pressure.

To add pressure:

1. Loosen the lock nuts on jack screws “B” & “D” then loosen bolts “C” & “E”.
2. Turn jackscrews “B” & “D” clockwise 1/16 of a turn.
3. Retighten bolts “C” & “E”.
4. Test the machine for sufficient drive.
5. Repeat the process until the proper traction is obtained.
6. Retighten lock nuts on jack screws “B” & “D”.

NOTE: Do **NOT** over tighten drive rollers. Maximum pressure recommended is 1/8 turn past factory setting.

CHAPTER 12
EXIT DRIVE AND FORMING STATION

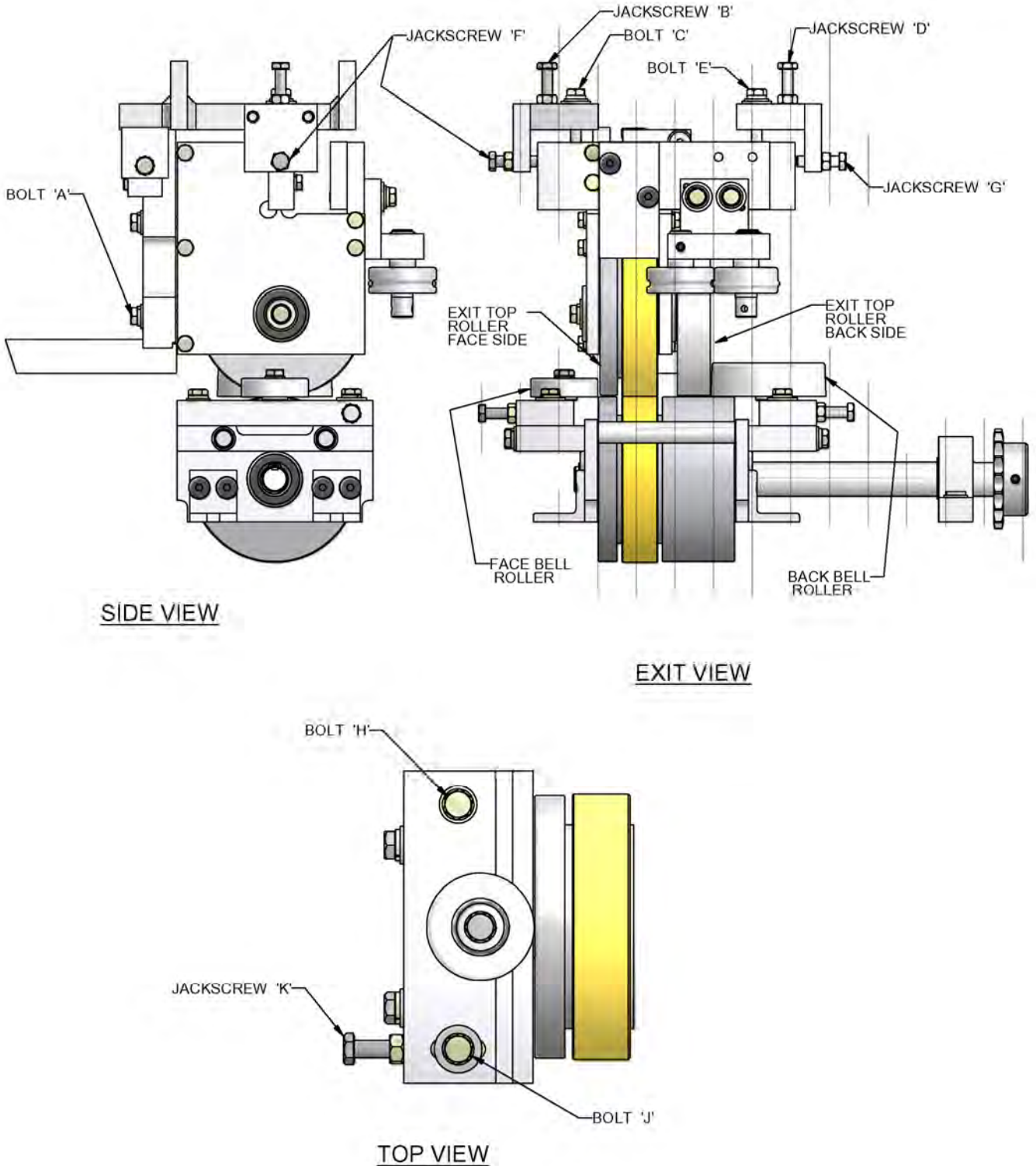


Figure 23: Exit Drive and Forming Station

CHAPTER 13
BEAD ROLLER ASSEMBLY

BEAD ROLLER ASSEMBLY

The bead roller assembly has three primary functions as follows:

- To stiffen the back or give the back structure.
- Controlling the back of the gutter during the forming process.
- Guiding the back of the gutter into the shear.

ADJUSTING BEAD ROLLER ASSEMBLY

(Figure 24 & Figure 25)

1. Feed material through the machine and up to the bead roller assembly. The bead should engage the gutter 3/8" down from the top of the gutter. The gutter should be pulled away from the back face of the exit top roller located just prior to the bead roller assembly. There should be a gap of 1/32" between the gutter and the back face of the exit top roller.
2. Loosen bolts "A" and align the bead roller assembly. Re-tighten bolts "A" before proceeding.
3. Run the gutter through the bead roller and stop the machine.
4. Loosen set screw "B" and using the adjustment hole and a 3/16" Allen wrench, turn the electric shaft to engage or disengage the bead roller.
5. Engaging or closing the gap between the two bead rollers, will have an uphill effect on the back of the gutter. Opening or disengaging the gap between the two bead rollers, will have a downhill effect on the back of the gutter.
6. Re-tighten set screw "B".

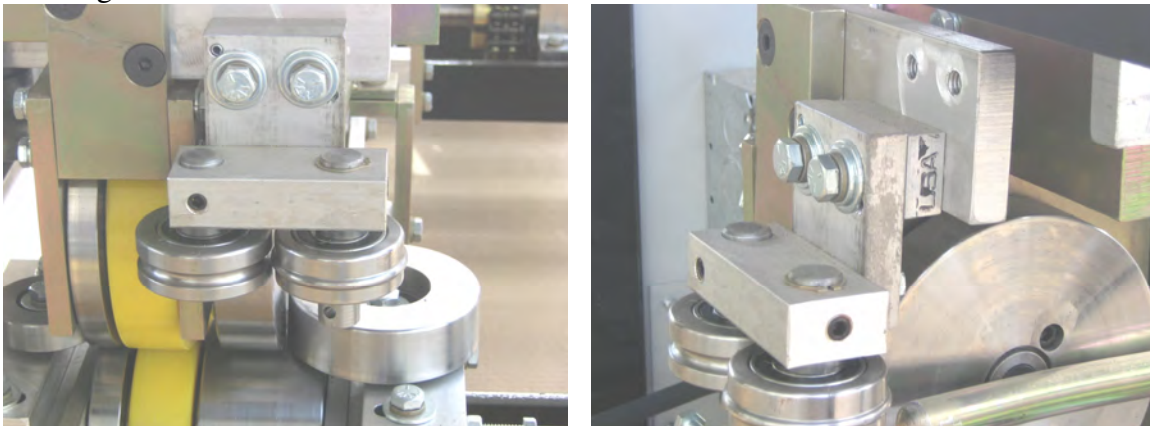


Figure 24: Bead Roller

CHAPTER 13
BEAD ROLLER ASSEMBLY

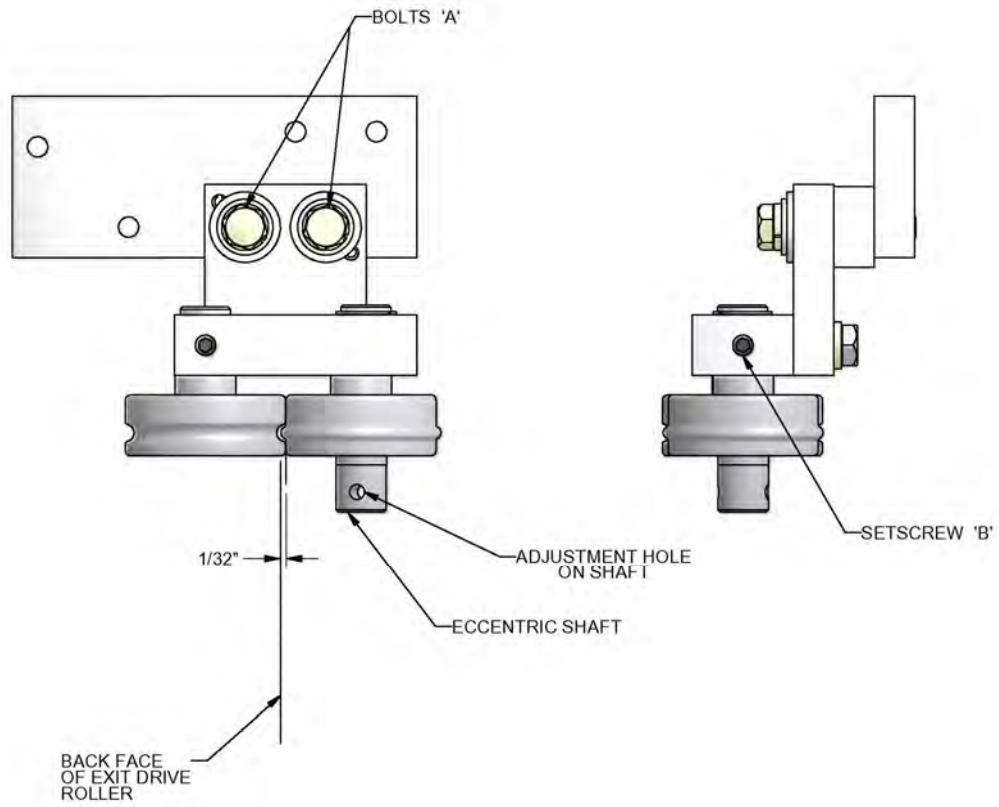


Figure 25: Bead Roller

CHAPTER 14
SHEAR ASSEMBLY

SHEAR ASSEMBLY

(Figure 26)

The shear is a unique rack and pinion design. This design requires less force than the pulling action associated with the guillotine dies. The shear is designed to cut 24 gauge steel easily. The shear is adjustable up and down or side to side.

UP OR DOWN ADJUSTMENT

1. Loosen lock-nuts on jackscrews “A” then loosen bolts “B”.
2. Adjust the shear up or down using jackscrews “A”. The best way to adjust is with the gutter material advanced through the shear.
3. Check all around the gutter for height clearance.
4. Retighten lock-nuts on jackscrews “A” and retighten the bolts “B”.

SIDE TO SIDE ADJUSTMENT

1. Loosen bolts “B”.
2. Slide the shear from side to side to obtain proper clearance.
3. Retighten the bolts “B”.

NOTE: The shear has a safety pin to prevent the shear handle from rotating when transporting the machine or removing the shear from the machine.

DANGER:

THE SHEAR IS A VERY DANGEROUS APPARATUS. THE SAFETY PIN MUST BE IN PLACE WHEN REMOVING THE SHEAR FROM THE MACHINE. FAILURE TO DO SO WILL ALLOW THE BLADE TO PROTRUDE THROUGH THE BOTTOM OF THE SHEAR AND CAN CAUSE SEVERE INJURY.

MAINTENANCE

Keep the Blade and Dies well lubricated. Lubricate the blade and dies at least once a day during normal use, or whenever cutting surfaces look dry. Clean the blade and dies at least once a week during normal use. Failure to do so will cause premature failure of the blade and dies. With proper care the shear will perform trouble free and prevent rust formation for years. See Recommended Lubricants section on page 8.

CHAPTER 14
SHEAR ASSEMBLY

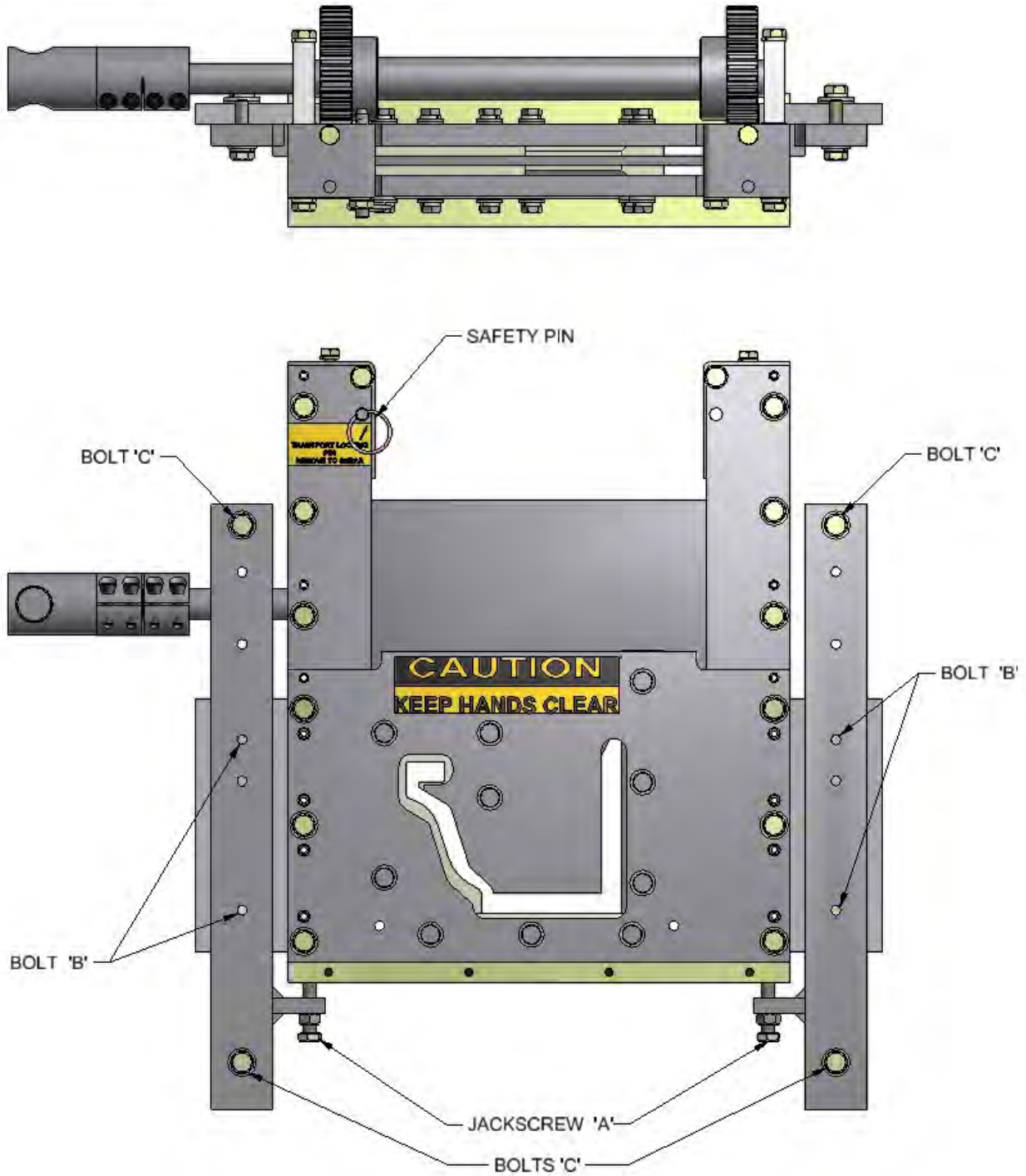


Figure 26: Shear Alignment

CHAPTER 15
BASIC SETUP DIMENSIONS

BASIC SETUP DIMENSIONS

(Figure 27)

The basic set up dimensions are for establishing a reference point and may require further adjustment to finalize the positioning of each component on the machine. The dimensions for the entry skate, bottom drive roller and bottom keel rail are dimensioned from a string that is used to align the machine.

Use a 30lb. fishing line as the alignment string. The string is attached to either end of the machine as shown. Use two (2) 5/16" diameter set screws and place them at either end between the string and the vertical upright on the frame as shown in Figure 27.

“A” DIMENSION

The dimension for the entry guide is the starting point for any type of gutter material used. Start with the right guide first and then bring the left guide over until it is snug but not binding the gutter material.

“B” & “C” DIMENSIONS

The horizontal dimension for the box assembly is measured from the vertical supports on the last skate.

“D” DIMENSION

The swing shaft dimension is the starting point for both steel or aluminum gutter.

“E” & “F” DIMENSIONS

The vertical measurements are measured from the top of the skate to the top of the box.

ENTRY SKATE DIMENSIONS

The entry skate is dimensioned from the top face of the bottom frame cross-member to the bottom of the skate rollers on the skate assembly.

EXIT DRIVE CLEARANCE

See Figure 28 for clearance and location.

CHAPTER 15
BASIC SETUP DIMENSIONS

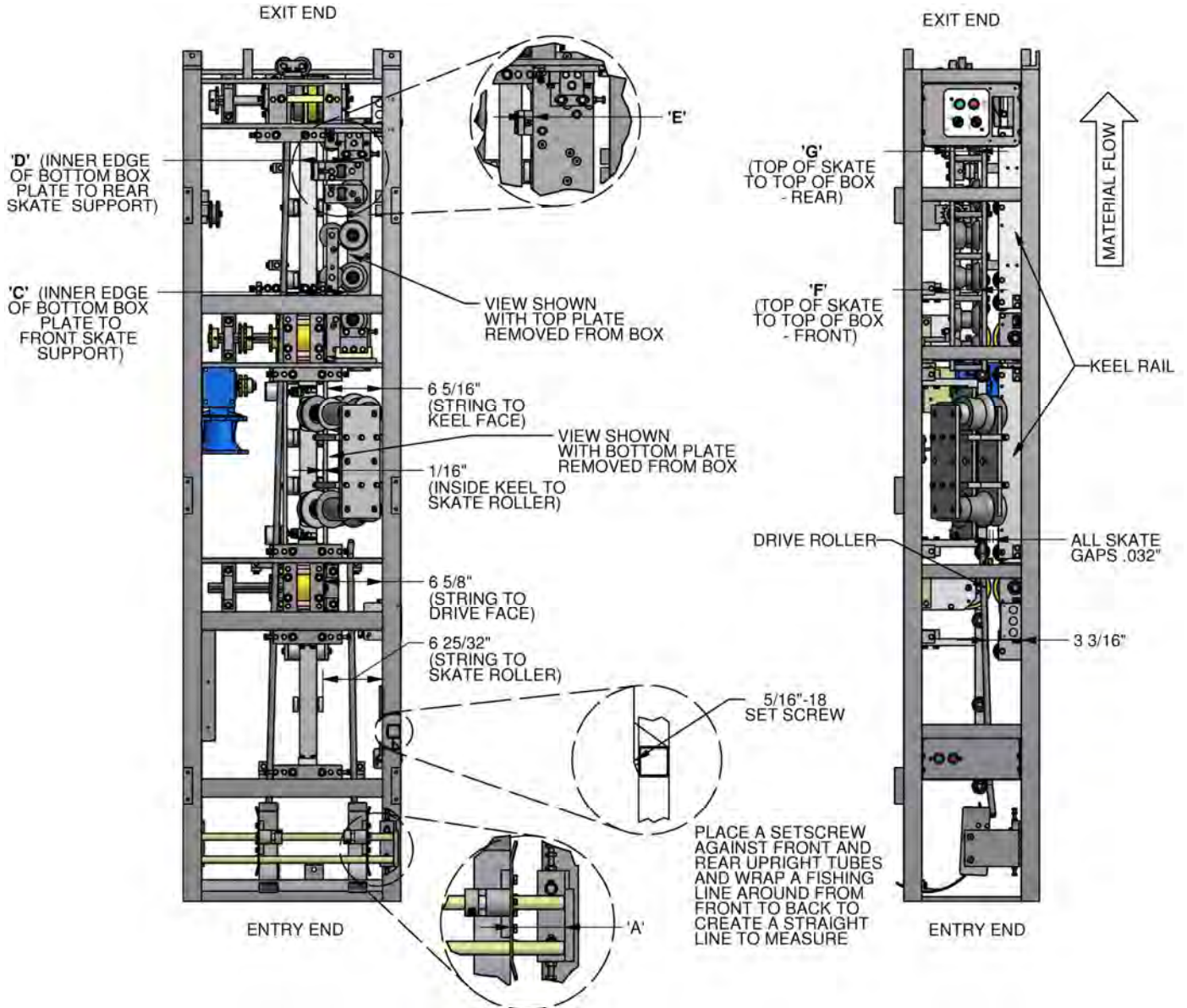


Figure 27: Basic Setup Dimensions (See table below)

Table 1: Basic Setup Dimensions

	A	C	D	E	F	G
MG5	2 7/8"	5 3/8"	5"	11/16"	3 9/16"	3 3/4"
MG6	1 3/4"	5 13/16"	5 7/16"	11/16"	4 5/8"	4 7/8"
M56 - 5"	2 7/8"	5 3/8"	5"	11/16"	3 9/16"	3 3/4"
M56 - 6"	1 3/4"	5 13/16"	5 7/16"	11/16"	4 5/8"	4 7/8"

CHAPTER 15
BASIC SETUP DIMENSIONS

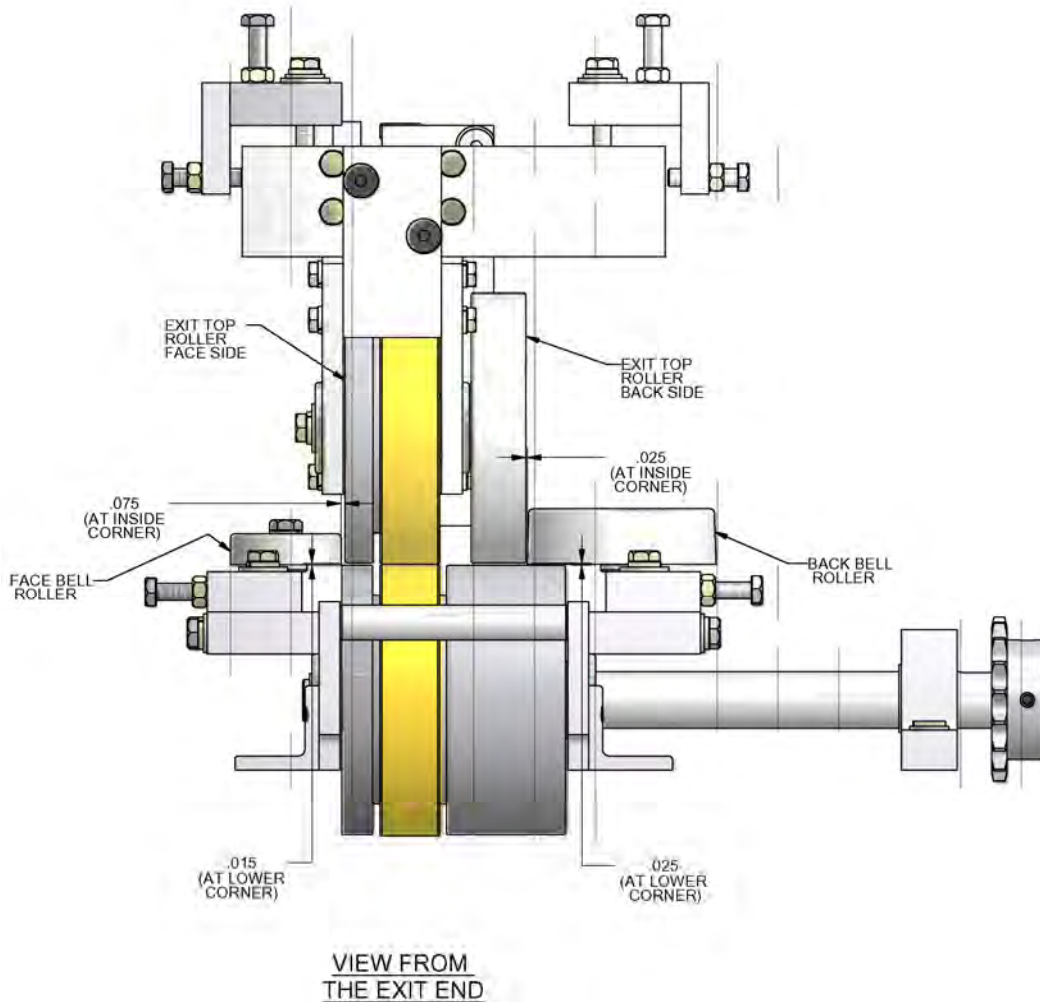


Figure 28: Exit Drive Clearances

Machine Specific Dimensions

(Figure 29 through Figure 35)

The following figures and numbers are filled in at the factory and are specific to this particular gutter machine and manual. All figures show the M56 machine, however, the MG5 and MG6 are similar.

CHAPTER 15
BASIC SETUP DIMENSIONS

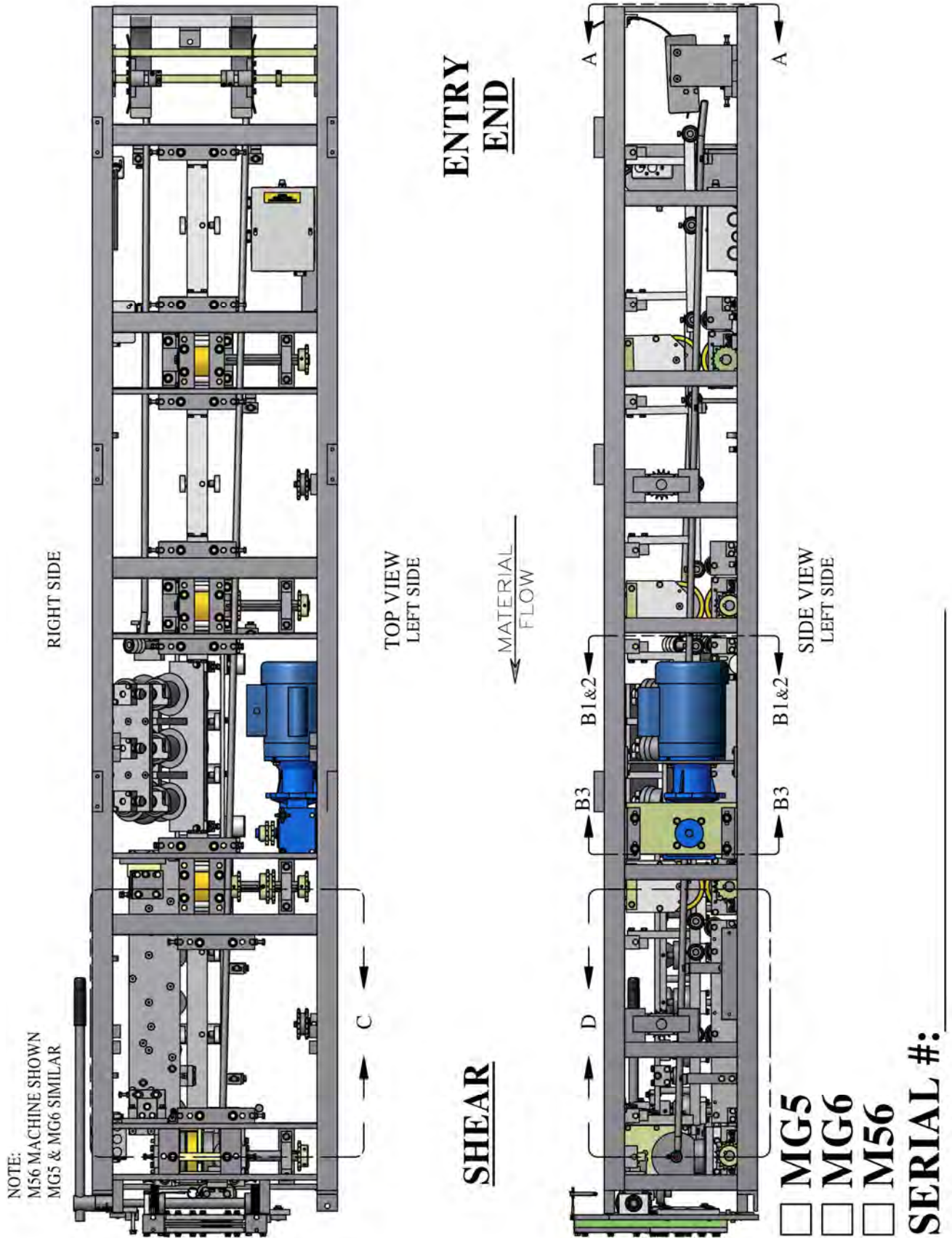


Figure 29: Setup Dimensions

BASIC SETUP DIMENSIONS

RIGHT ENTRY GUIDE SET-UP

DETAIL A

NOTE:
PERFORM MEASUREMENTS
FROM THE TIPS OF THE
ARROWHEADS

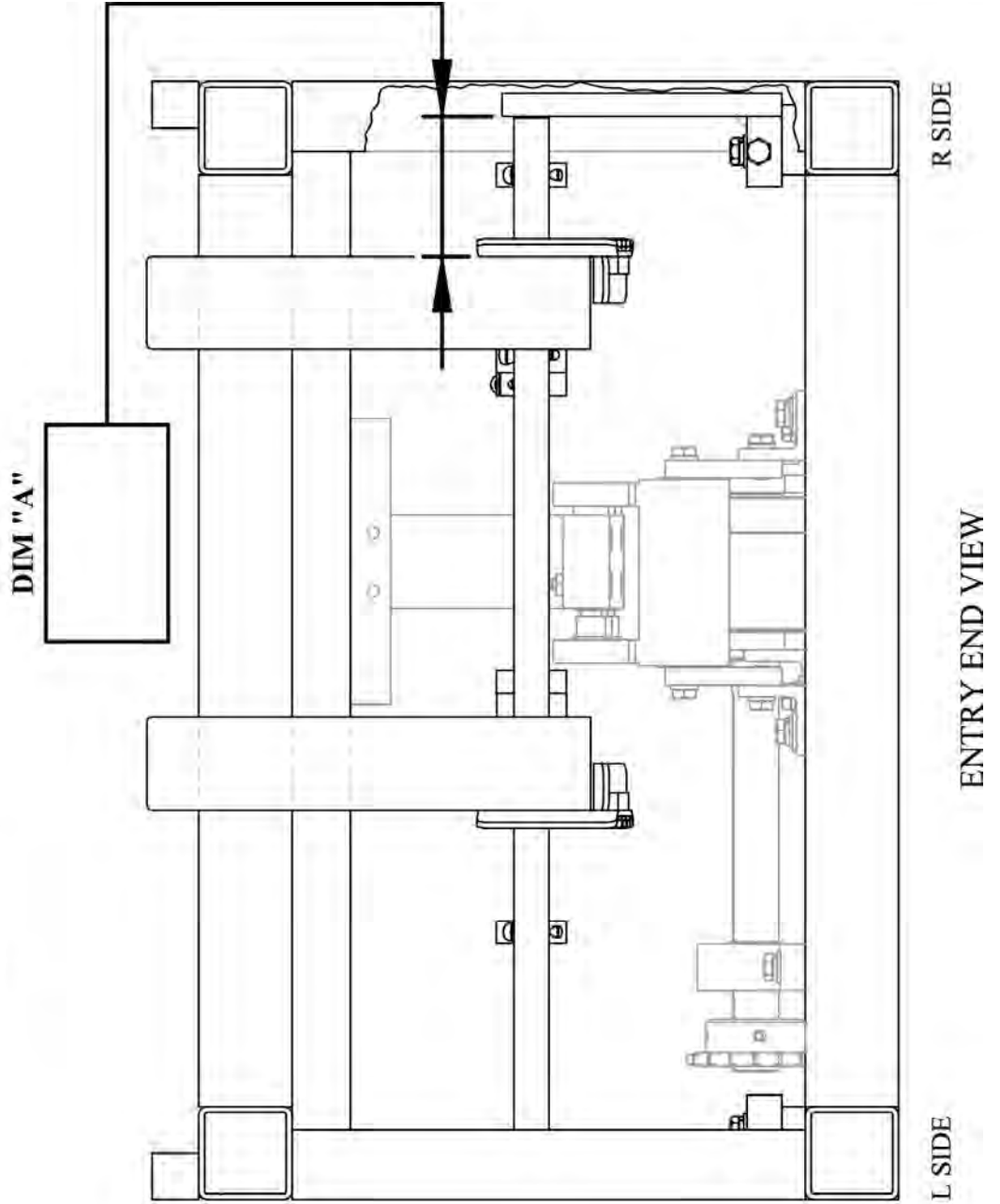


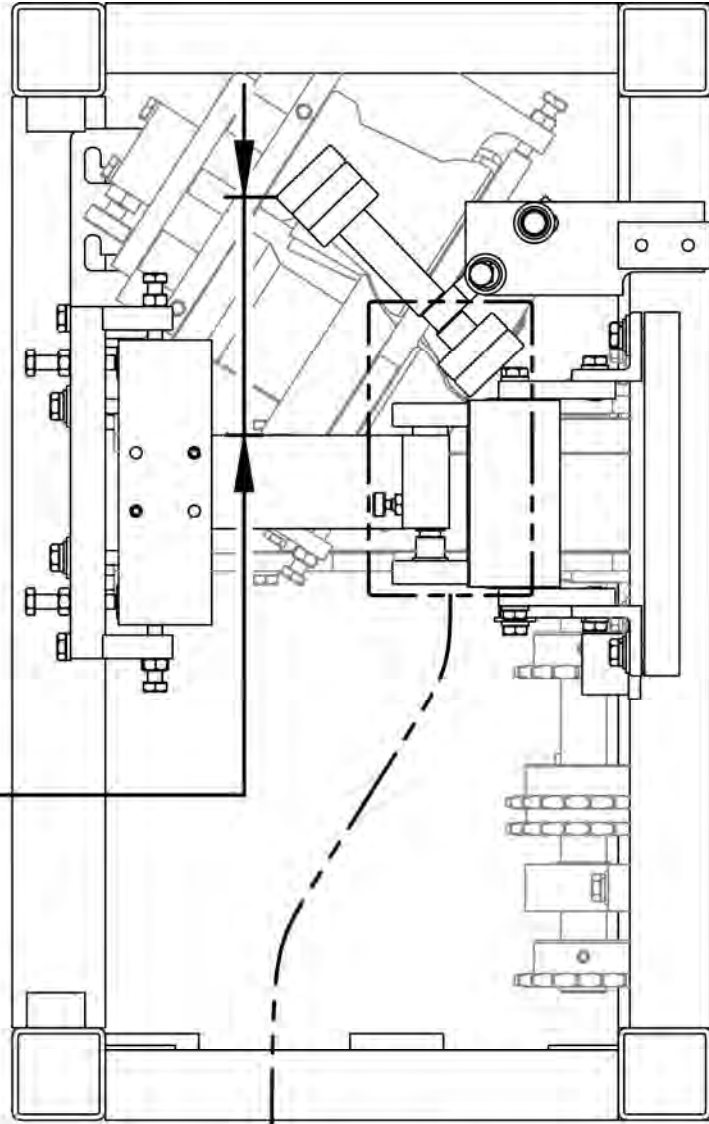
Figure 30: Setup Dimension – Entry Guide

BASIC SETUP DIMENSIONS

**AUX. FACE ASSEMBLY SET-UP
DETAIL B-1**

NOTE:
PERFORM MEASUREMENTS
FROM THE TIPS OF THE
ARROWHEADS

DIM "B"



L SIDE

R SIDE

ENTRY END VIEW

BASIC SETUP DIMENSIONS

Figure 31: Setup Dimension – Face Assembly 1

**ROLLER FACE ASSEMBLY SET-UP
DETAIL B-2**

NOTE:
PERFORM MEASUREMENTS
FROM THE TIPS OF THE
ARROWHEADS

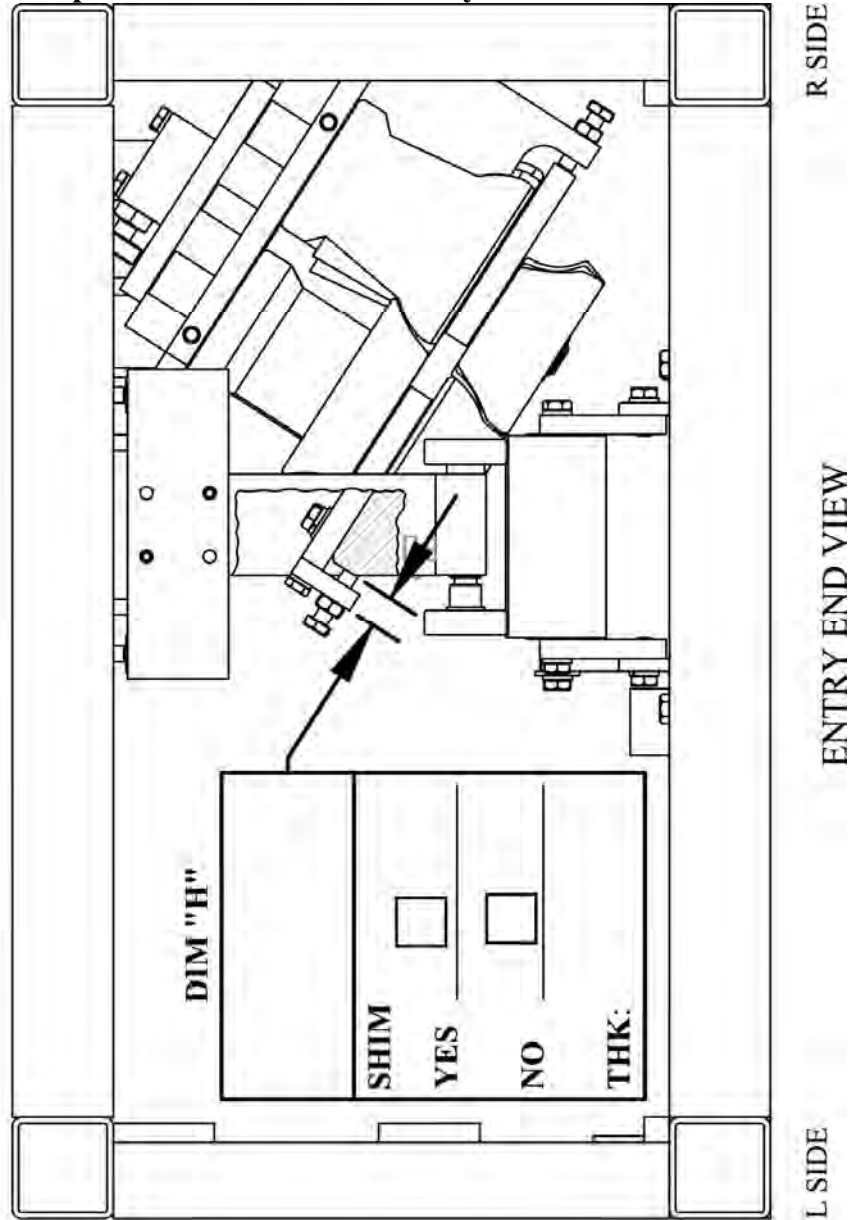


Figure 32: Setup Dimension – Face Assembly 2

BASIC SETUP DIMENSIONS

ROLLER FACE ASSEMBLY SET-UP

DETAIL B-3

NOTE:
PERFORM MEASUREMENTS
FROM THE TIPS OF THE
ARROWHEADS

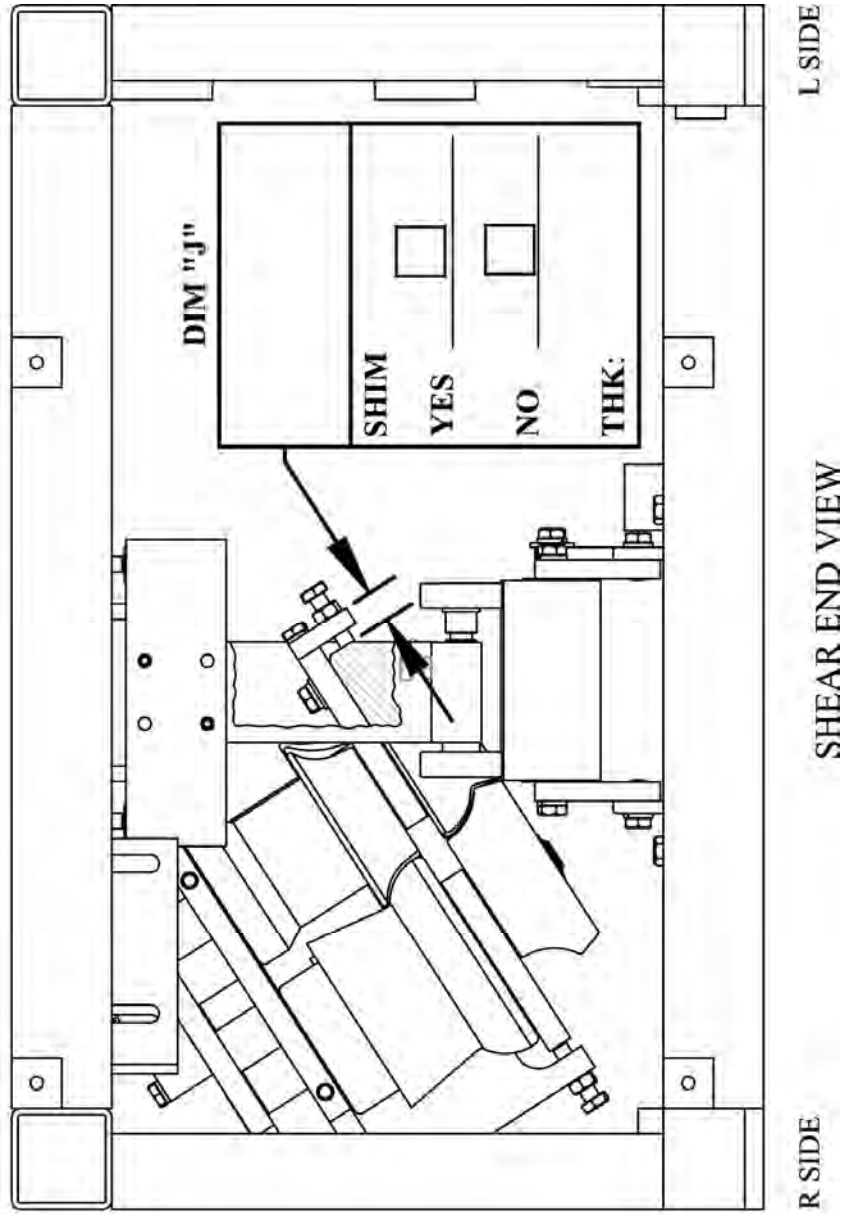


Figure 33: Setup Dimensions – Face Assembly 3

BASIC SETUP DIMENSIONS

**BOX ASSEMBLY SET-UP
DETAIL C**

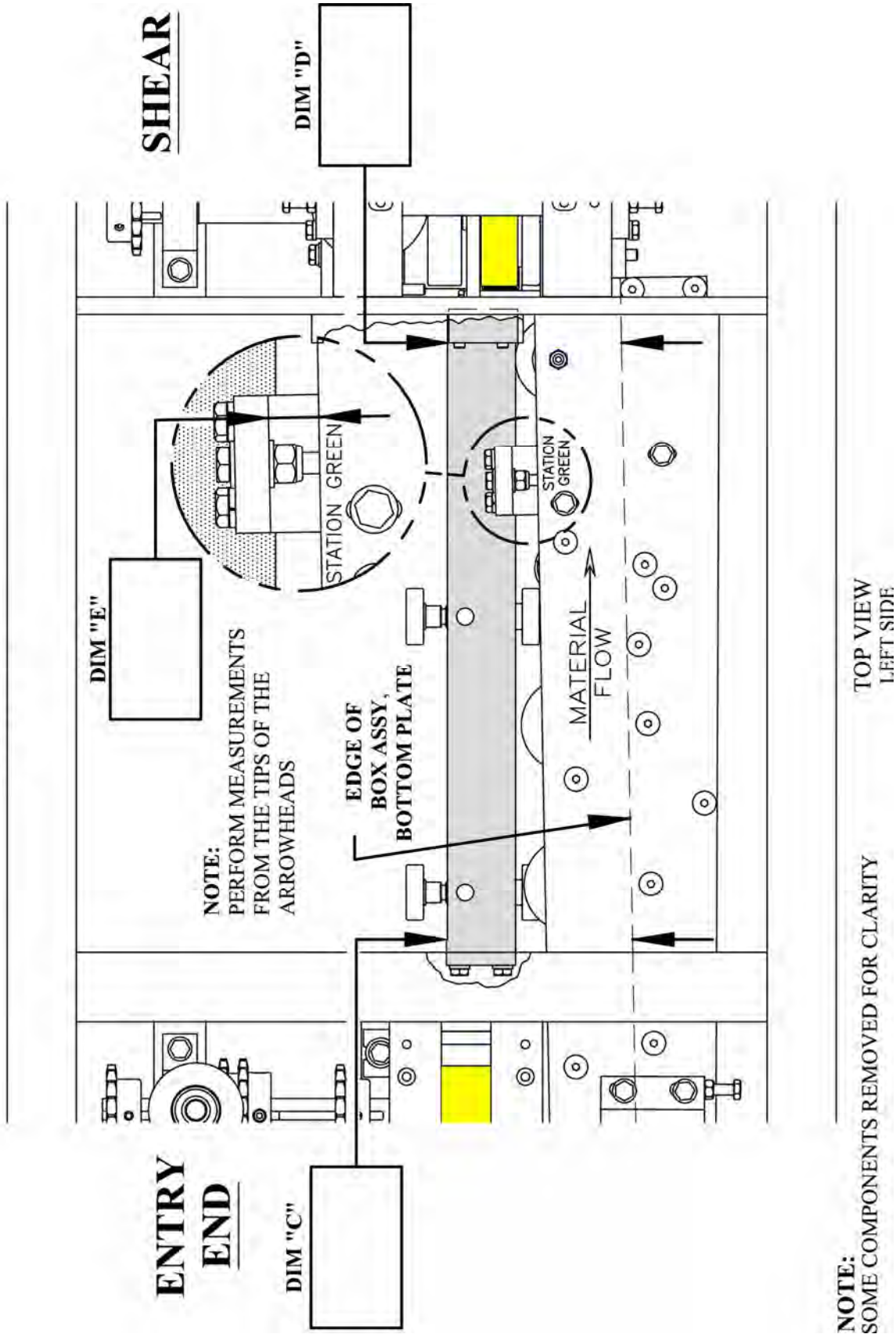


Figure 34: Setup Dimensions – Box Assembly 1

BASIC SETUP DIMENSIONS

**BOX ASSEMBLY SET-UP
DETAIL D**

NOTE:
AS VIEWED FROM RIGHT SIDE!
SOME COMPONENTS REMOVED FOR CLARITY

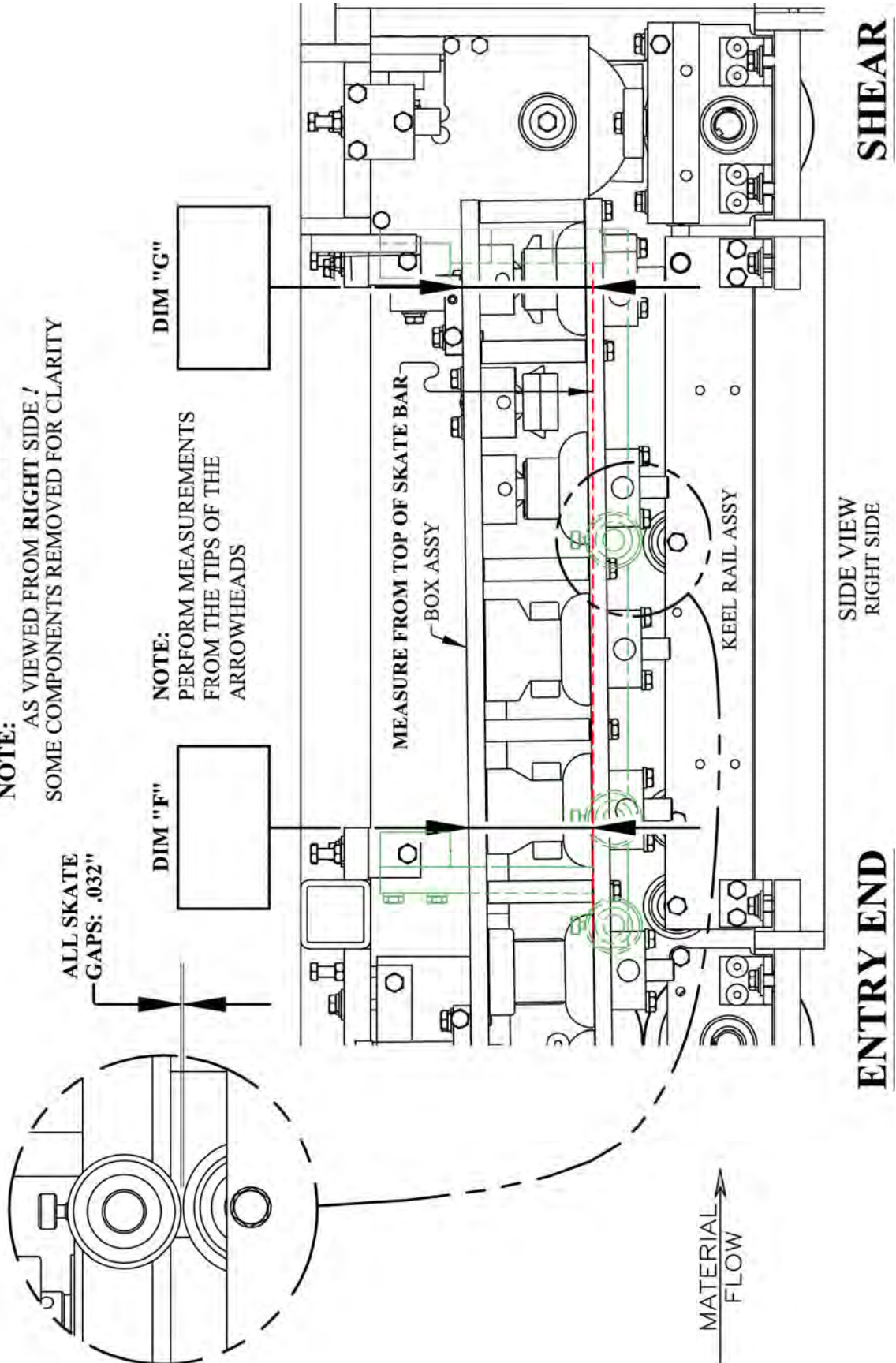


Figure 35: Setup Dimensions – Box Assembly 2

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

COMBO CHANGEOVER PROCEDURE

CAUTION: Disconnect machine from power source before proceeding with changeover.

The procedure to change from a 5” gutter configuration to a 6” configuration and back again is greatly simplified by the use of locator pins with two fixed positions which provide a quick change to either gutter size. There is a tool kit included with every combo machine. It is located inside the left side cover at the exit end of the machine.

It is important that while changing the machine from one gutter size to another that the proper sequence be followed. Failure to do so may result in wasted time. The sequence to change from 5” to 6” or 6” to 5” is similar but not exactly the same. Reference the changeover checklists on page 65 and 66.

REMOVE COVERS

The following covers that are removed to change the combo are fastened to the machine with quarter turn screws. To unfasten using a flat blade screwdriver, turn the screw counterclockwise one quarter turn. Remove the lids “A”, “B” & “C” on the top of the machine and remove the side cover “D”.

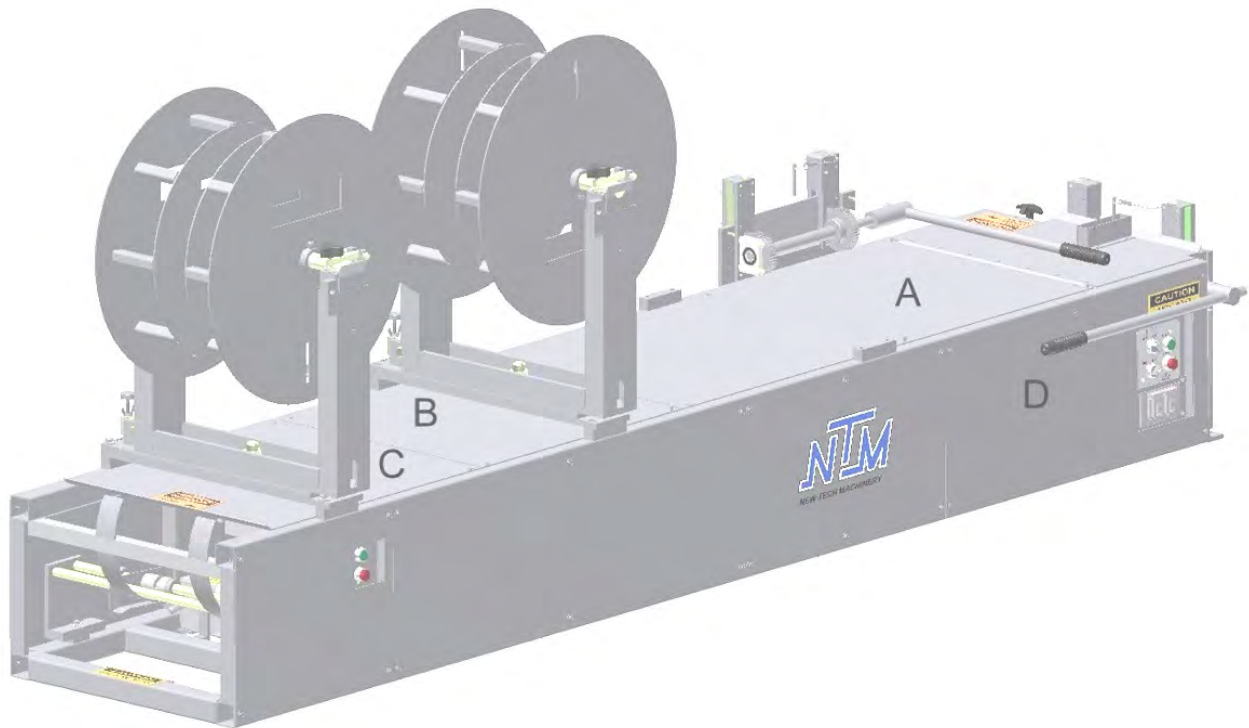


Figure 36: Remove Covers

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

REMOVE SHEAR

CAUTION: BE SURE THE SAFETY PIN IS PROPERLY INSERTED INTO THE SHEAR BEFORE REMOVING THE SHEAR FROM THE MACHINE.

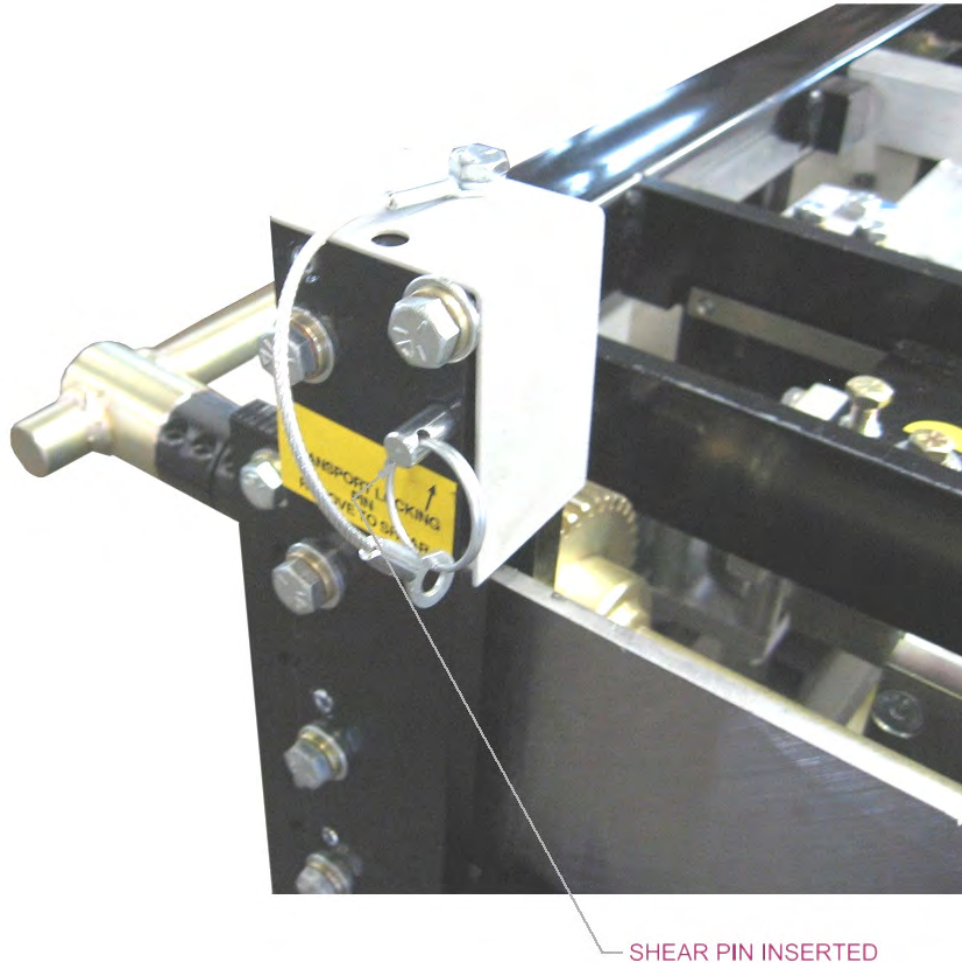


Figure 37: Shear Pin

Remove the shear with the four (4) bolts “C” that secure the shear to the frame and set the shear aside (Figure 26).

MOVE BEAD ASSEMBLY

(Figure 38)

Loosen the two (2) screws marked “L” and slide the assembly up for the 6” position or down for the 5” position. The positions are scribed on the mounting block for ease of placement. Re-tighten screws “L”.

NOTE: Do not over tighten “L” screws.

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

COMBO BEAD ROLLER ASSEMBLY
SHOWN IN THE 5" POSITION

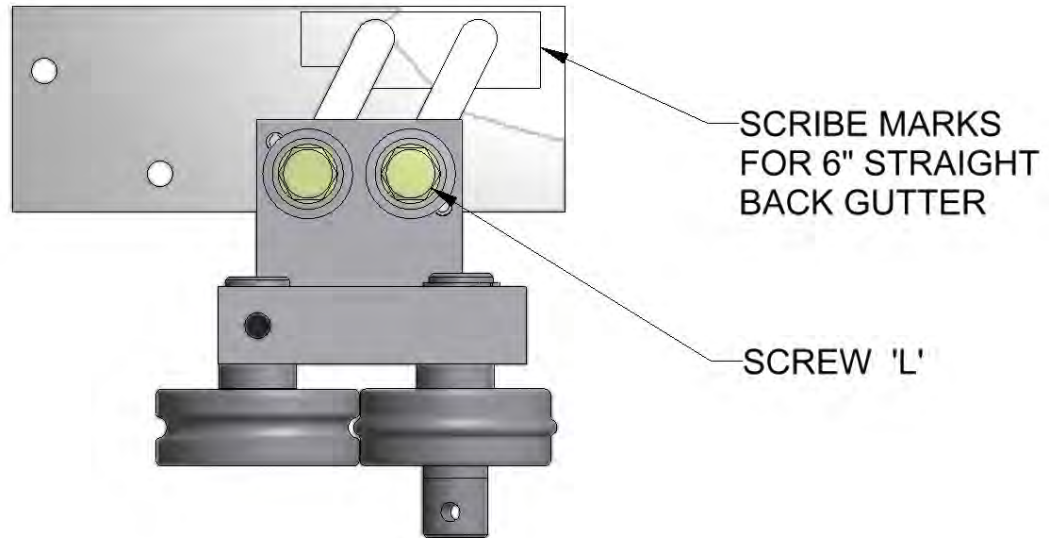


Figure 38: Combo Bead Roller Adjustment

REMOVE BACK BELL ROLLER

(Figure 39)

Remove the back bell roller with the bolt "M" that holds the center shaft in place. Set this assembly aside.

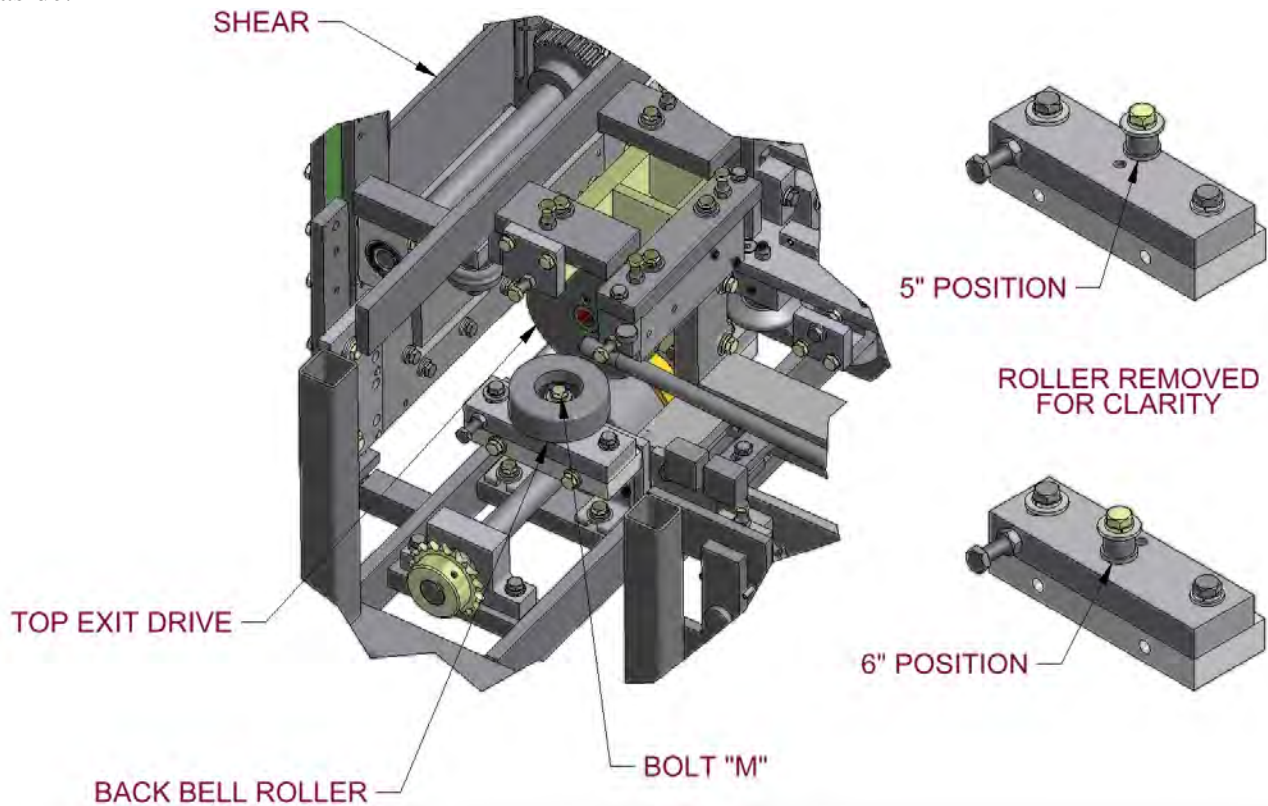


Figure 39: Back Bell Roller

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

MOVE BACK GUIDE ROD

(Figure 40)

Loosen the five (5) bolts on the back guide rod, move it away from the skate for the 6" position or closer to the skate for the 5" position. Re-tighten the five (5) bolts.

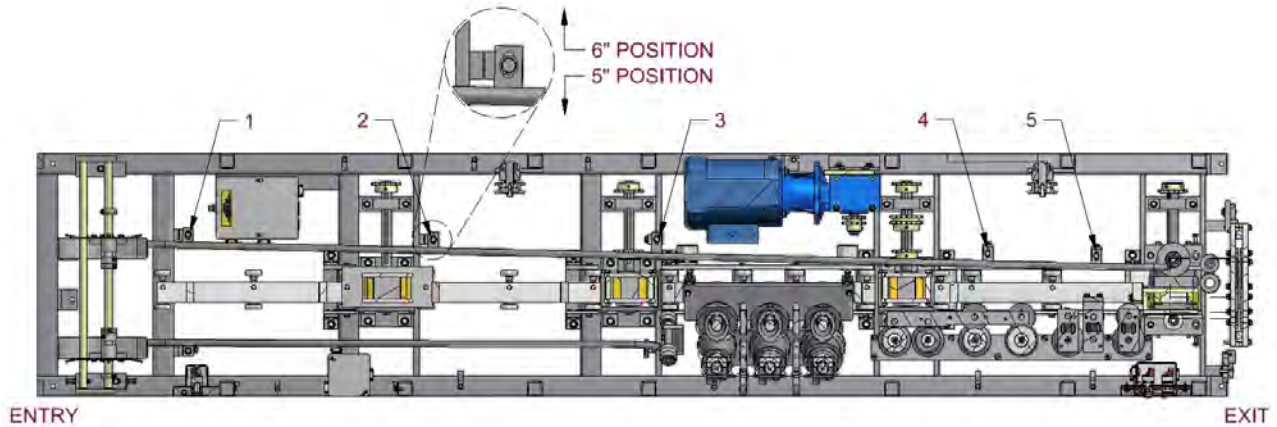


Figure 40: Back Guide Rod

FLIP EXIT TOP ROLLER BACK SIDE

(Figure 41)

Remove the exit top back roller by removing the red flat head socket screw “N” and beveled washer located at the center of the roller. Turn the roller end for end and re-install it back onto the shaft by aligning the locating pin attached to the shaft with the locator hole on the exit top roller backside, before tightening the center screw “N”. Failure to align the roller properly will cause damage.

NOTE: Do not over tighten “N” screws.

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

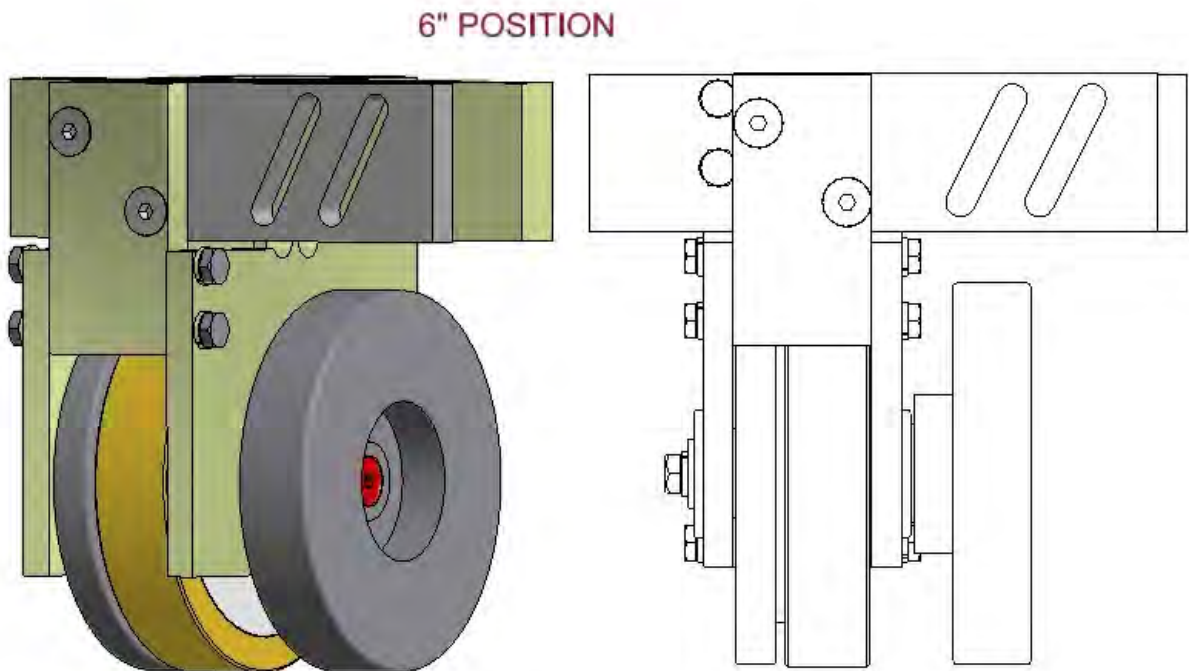
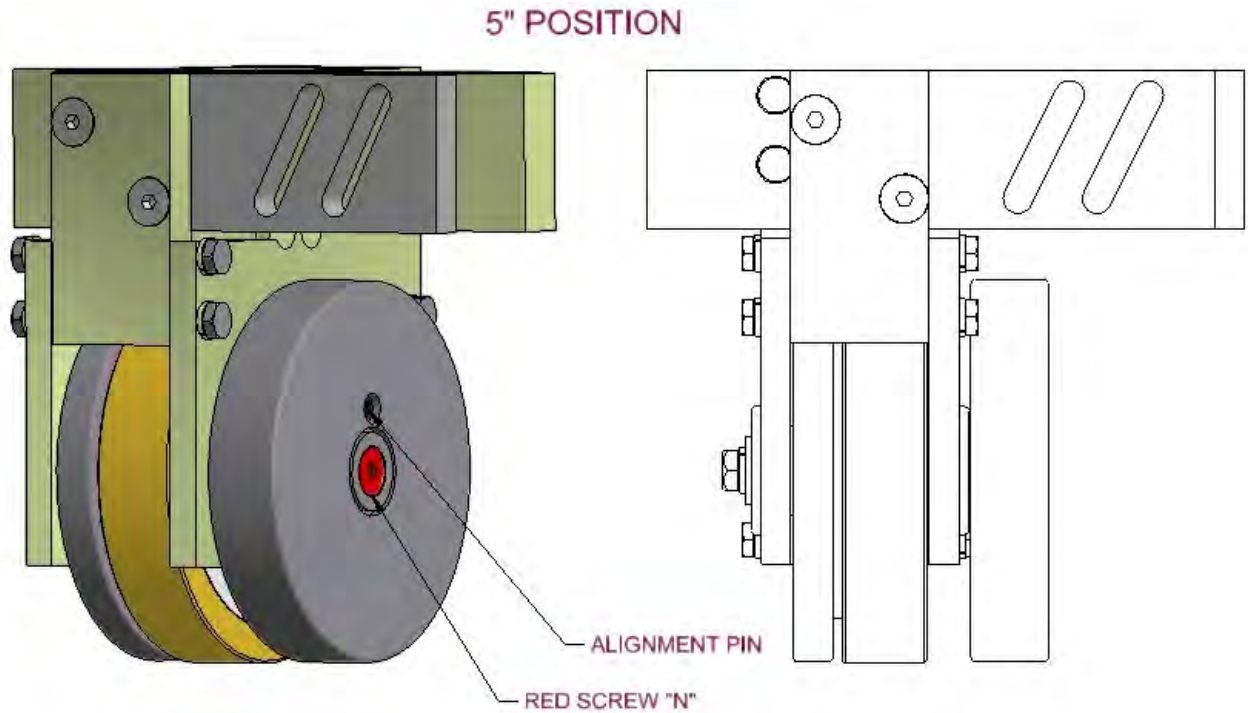


Figure 41: Exit Top Roller

RE-INSTALL BACK BELL ROLLER

Re-install the back bell roller with the bolt "M". Push outward on bell roller while tightening bolt "M". Check the clearance between the Back Bell Roller and the Top Back Roller to be sure they are properly gaped. See Figure 28 and Figure 39

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

INSTALL SHEAR

CAUTION: BE SURE THE SAFETY PIN IS PROPERLY INSERTED INTO THE SHEAR BEFORE REMOVING THE SHEAR FROM THE MACHINE. SEE Figure 37.

Remove the shear located on the side of the machine and install this shear on the frame with the four (4) bolts “B”. The shear is preset and should not need any adjustment.

STORE EXTRA SHEAR

Store the unused shear on the side of the machine.

MOVE SKATE ROLLERS

There are four (4) center skates in the combo machine. Each of these skates have retractable rear skate forming rollers that expand between 5” and 6” gutter. To change, pull the spring loaded pin up at each skate bearing until the pin disengages. Move the forming roller away from the skate for the 6” position OR in towards the skate for the 5” position. Return the spring loaded pin back into place. Repeat this for all thirteen (13) rear skate forming rollers.

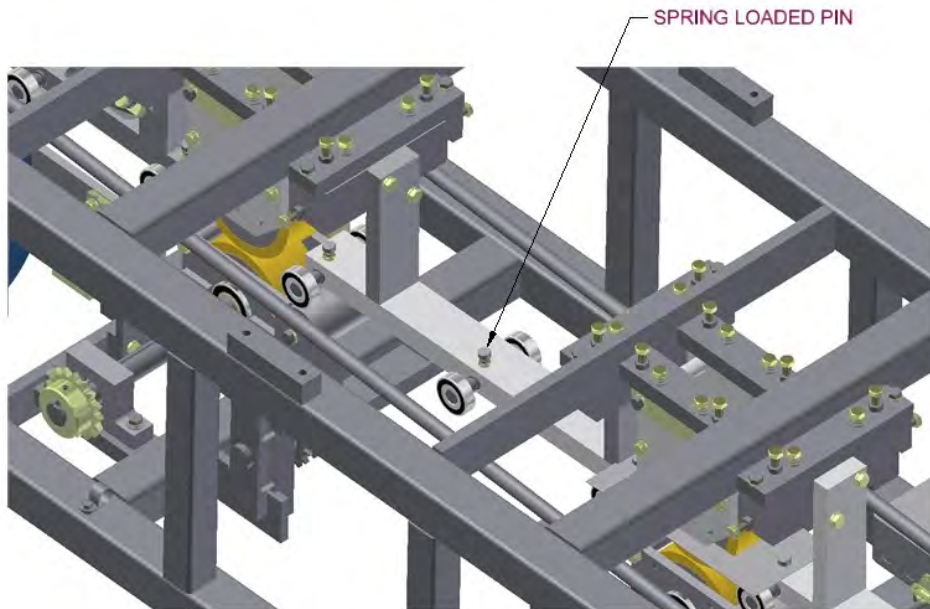


Figure 42: Skate Roller Pin

MOVE ENTRY GUIDES

(Figure 17 and Figure 18)

The entry guide for the M56 COMBO includes factory set stop collars which allow the entry guide to be quickly repositioned between the 5” mode and the 6” mode. Change the entry guides to the correct position:

1. Loosen Screw “A” on the Face/Right Entry Guide and Screw “B” on the Back/Left Entry Guide.
2. Slide the Face/Right Entry Guide and the Back/Left Entry Guide either inboard for the 5” position or outboard for the 6” position until both entry guides are in contact with the clamp collars.
3. Tighten Screw “A” on the Face/Right Entry Guide and Screw “B” on the Back/Left Entry Guide.

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

Refer to the ADJUSTING THE STOP COLLARS ON THE M56 COMBO ENTRY GUIDE section on page 22 for stop collar adjustment procedure.

MOVE FACE GUIDE ROD

(Figure 43)

Loosen only the guide rod mount bolt nearest to the face roller assembly and move the guide rod up and away from the skate for the 6" position OR down and in towards the skate for the 5" position. Re-tighten the bolt.

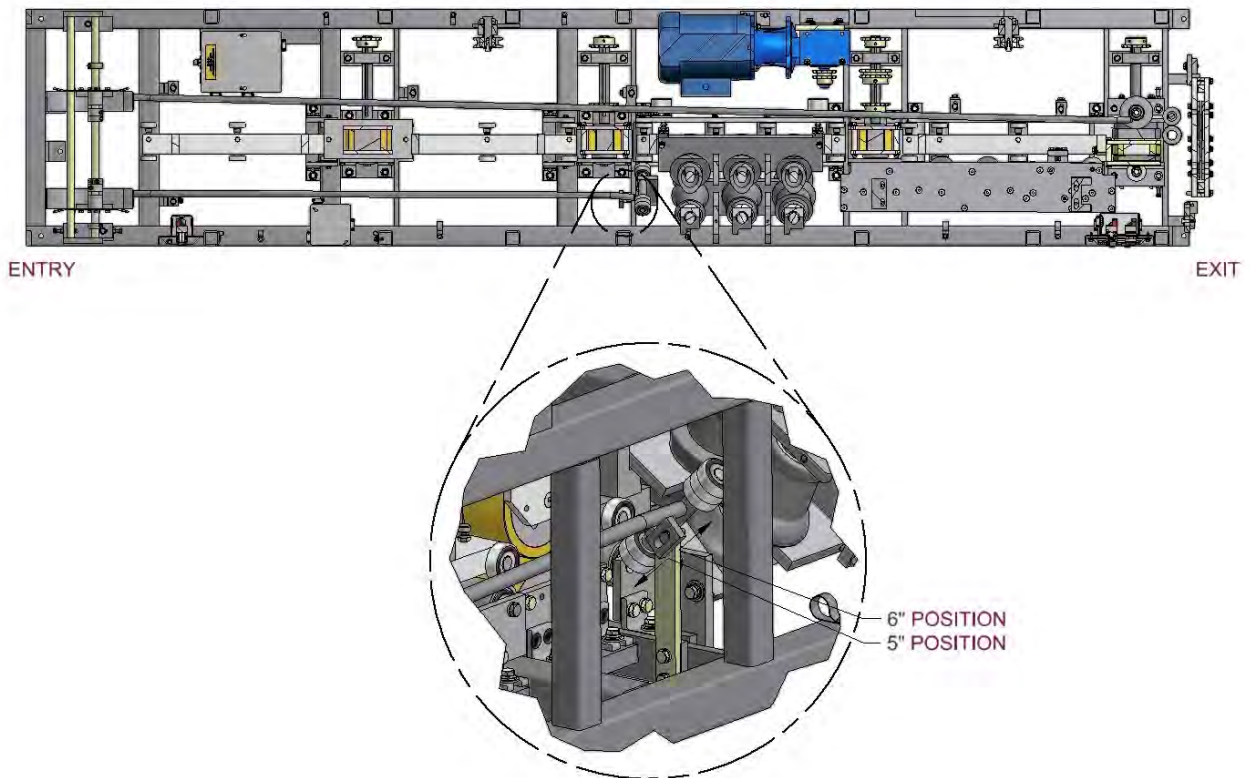


Figure 43: Face Guide Rod

MOVE FACE ASSEMBLY STATIONS

(Figure 44)

To move the three (3) face roller assemblies, pull the Spring Loaded Pin, located at the top of each assembly. Pull the roller assembly up for the 6" position OR down for the 5" position and release the pin back into the groove in the shaft. Repeat this for all three (3) face roller assemblies.

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

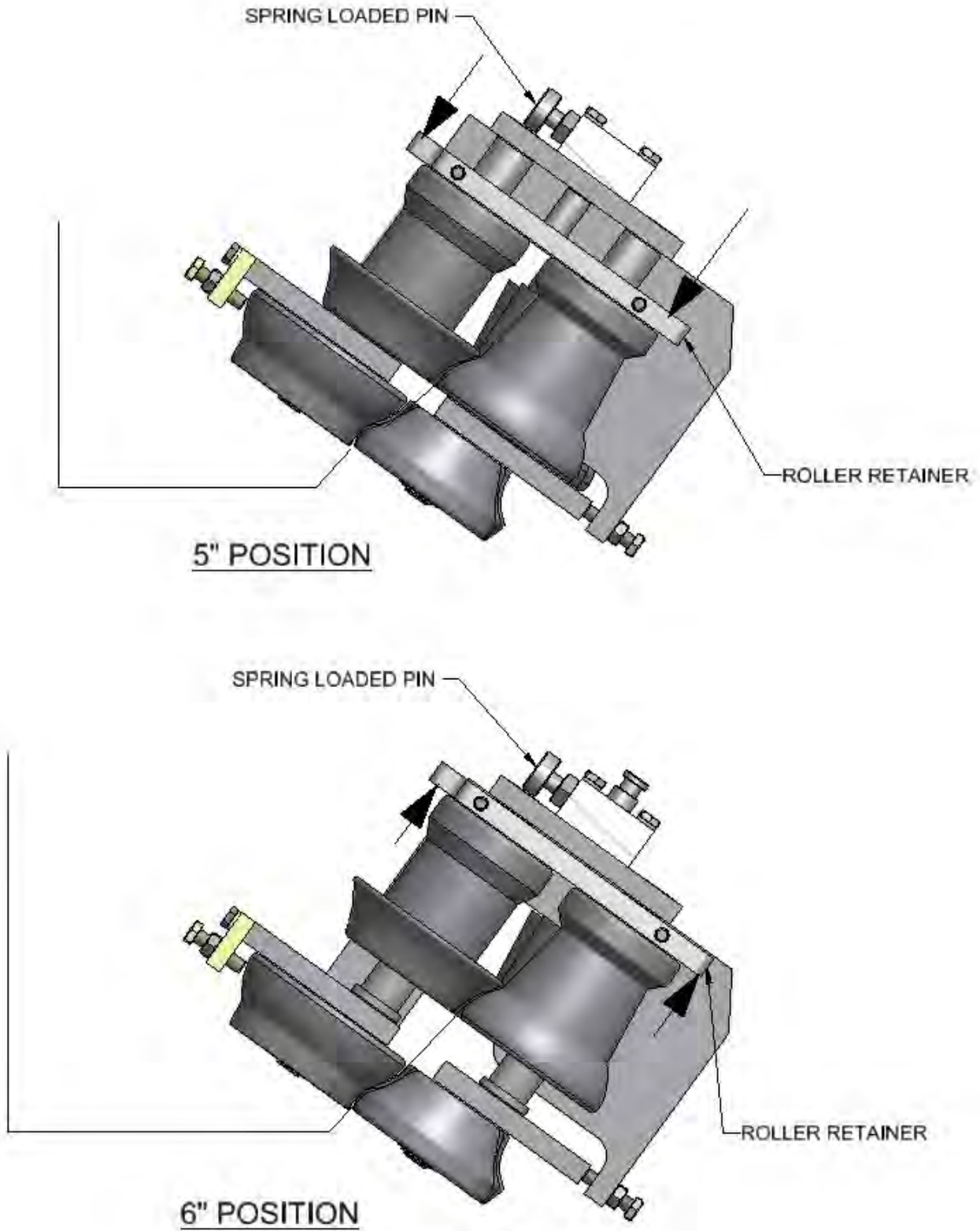


Figure 44: Face Assembly

COMBO CHANGEOVER PROCEDURE

MOVE BOX ASSEMBLY

(Figure 45 & Figure 46)

Loosen the two (2) bolts at the **White** station “C” and the two (2) bolts at **White** station “D”. Move box up and away from the skate for the 6” position OR down and towards the skate for the 5” position. Retighten “C” & “D”.

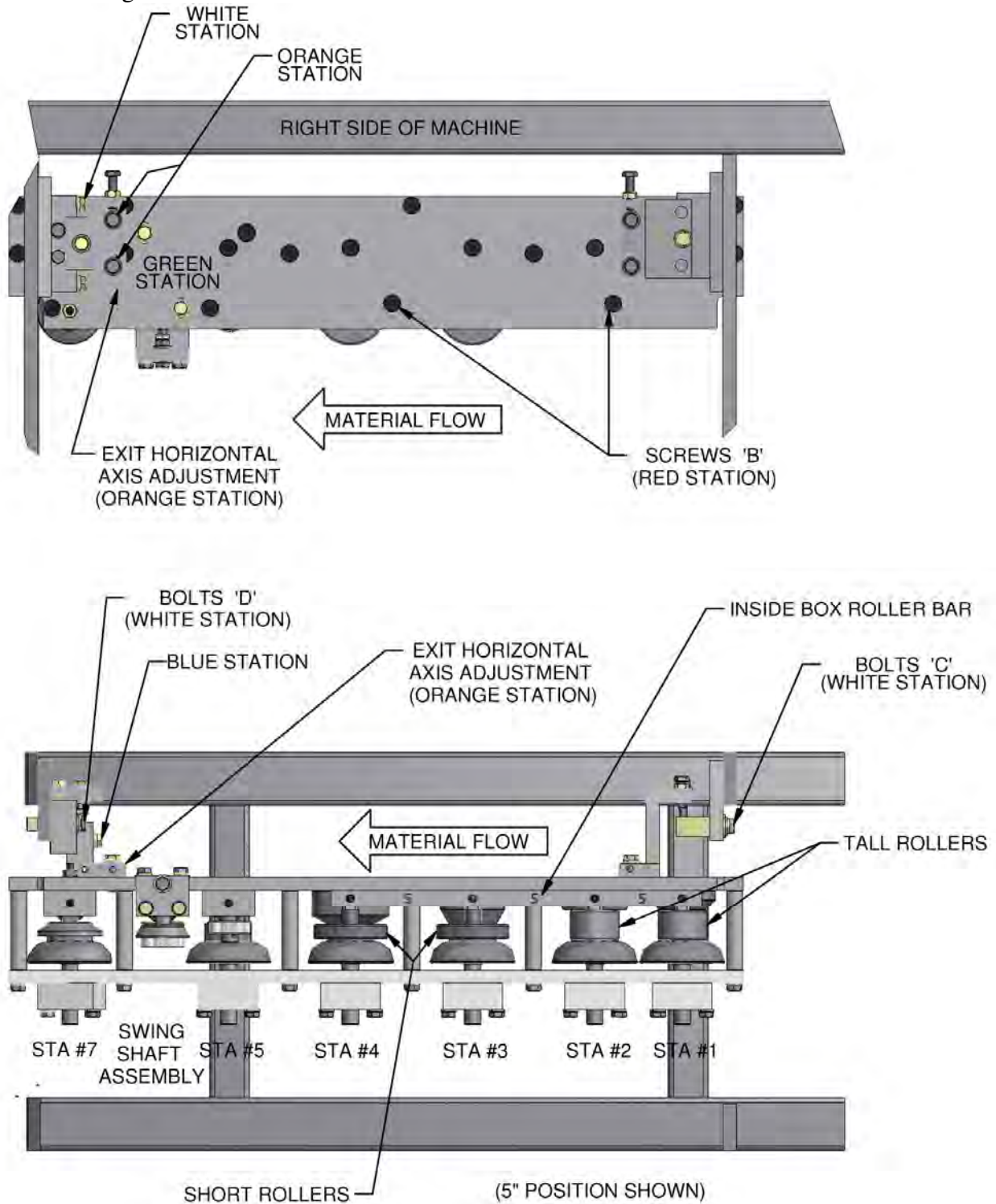


Figure 45: Combo Box Assembly

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

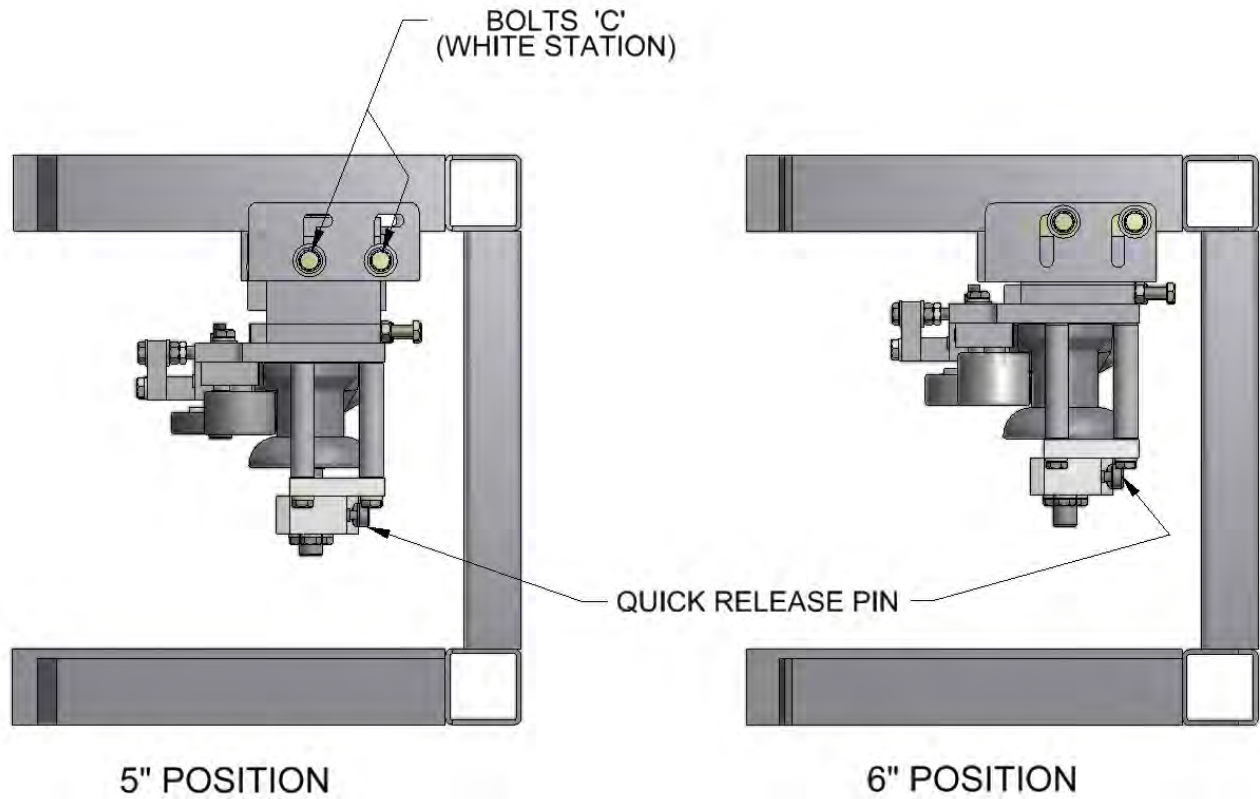


Figure 46: Combo Box Assembly Positions

REMOVE THE INSIDE BOX ROLLER BAR

(Figure 47 and Figure 48)

Remove the inside box roller bar assembly by removing the two (2) **red** marked screws "B", located on the top of the box (Figure 45). Set this assembly aside.

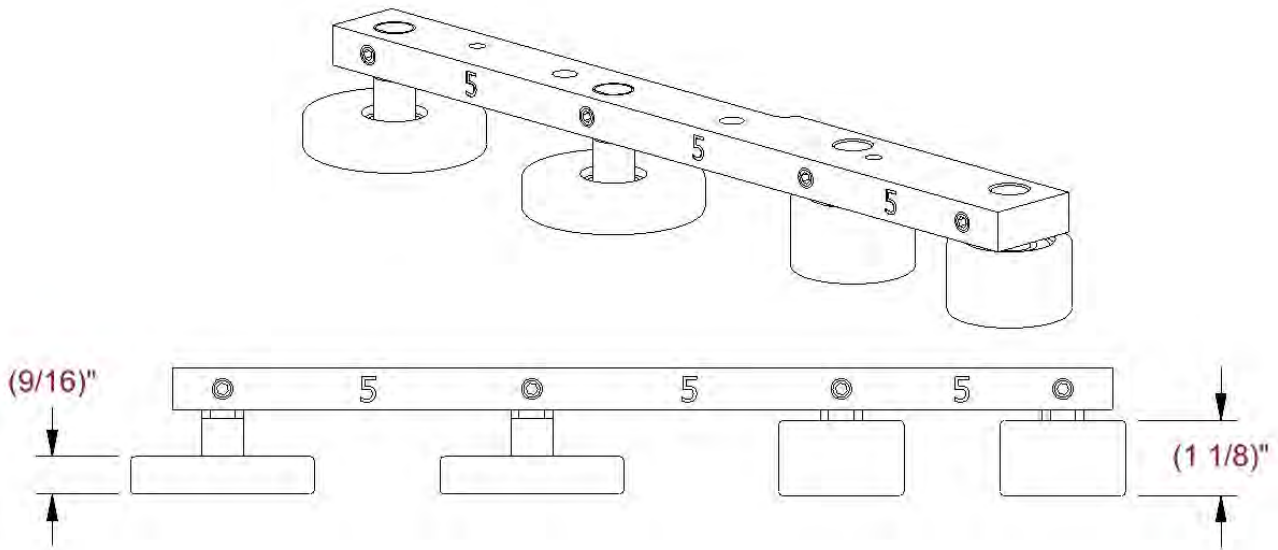


Figure 47: 5" Roller Bar

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

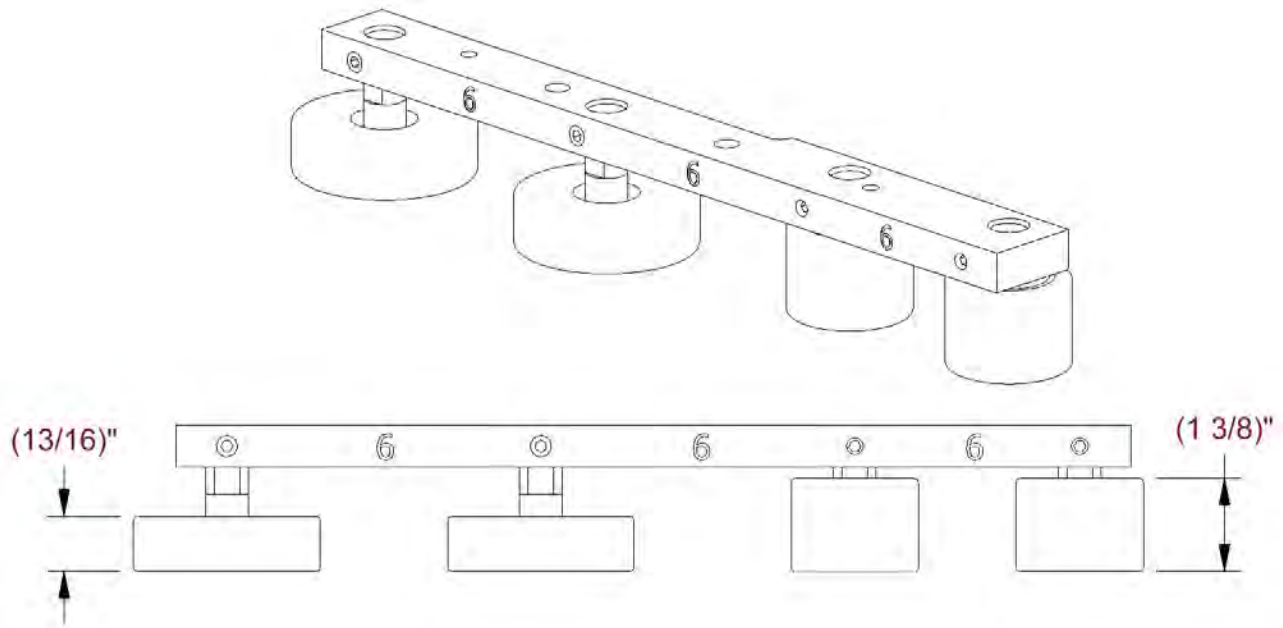


Figure 48: 6" Roller Bar

MOVE OUTSIDE BOX ROLLERS

(Figure 46)

There are a total of six (6) quick release pins at the bottom of the box. Retract each pin and move the bottom portion of the outside roller down for the 6" position OR up for the 5" position. Release the quick release pins back into the shaft grooves.

INSTALL THE INSIDE BOX ROLLER BAR

(Figure 47 and Figure 48)

Remove the replacement inside box roller bar from the storage location and install. See Figure 47 and Figure 48 to ensure that the correct roller bar is installed. The tall rollers locate in the station #1, and #2 positions while the short rollers locate in the station #3, and #4 positions. Re-install the 2 (two) **red** marked screws "B" and tighten (Figure 45). Store the unused roller bar assembly (Figure 49).

NOTE: Do not over tighten red screws "B"

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

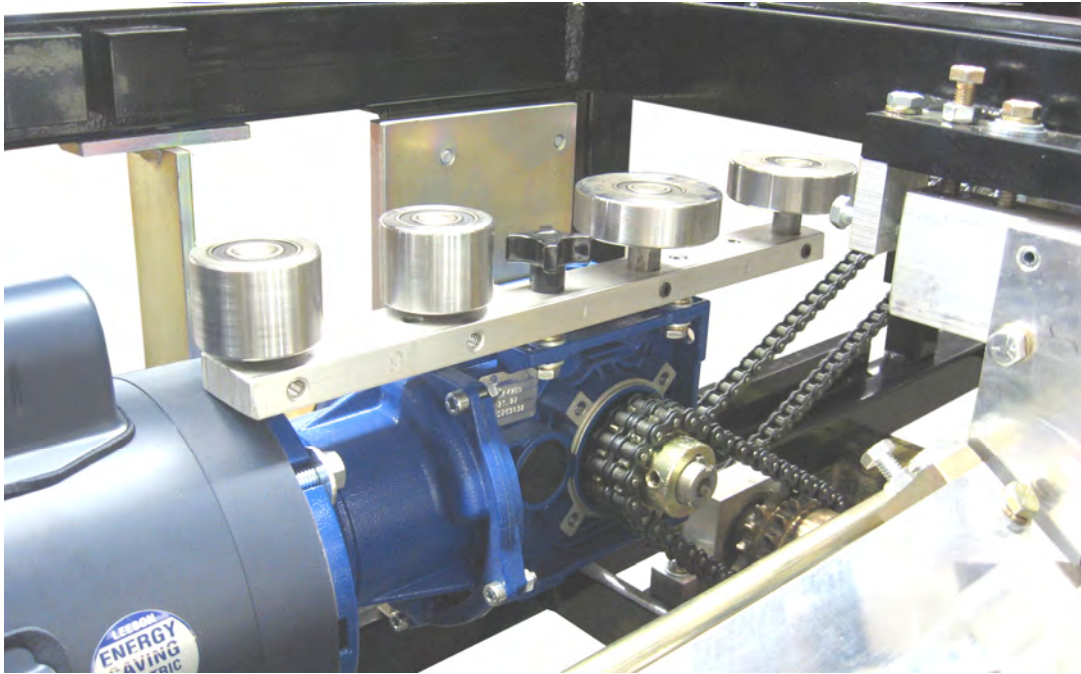


Figure 49: Unused Inside Box Roller Stored

REPLACE COVERS

(Figure 36)

Replace the covers “A”, “B”, and “C” on the top of the machine. Replace the side cover “D”. To refasten, turn the cover screws one quarter turn clockwise.

POSITION REEL RACK ASSEMBLY

(Figure 50 and Figure 51)

If the machine is equipped with Reels, loosen the (4) “H” screws. Slide the reel rack assembly to the appropriate position. Retighten the screws.

CONFIGURE CRADLE ASSEMBLY

(Figure 9 and Figure 10)

If the machine is equipped with Cradles, loosen the (2) changeover bolts “A” and (2) changeover bolts “B”. Move the slides on the cradle into the appropriate position. Retighten the screws “A” and “B”.

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

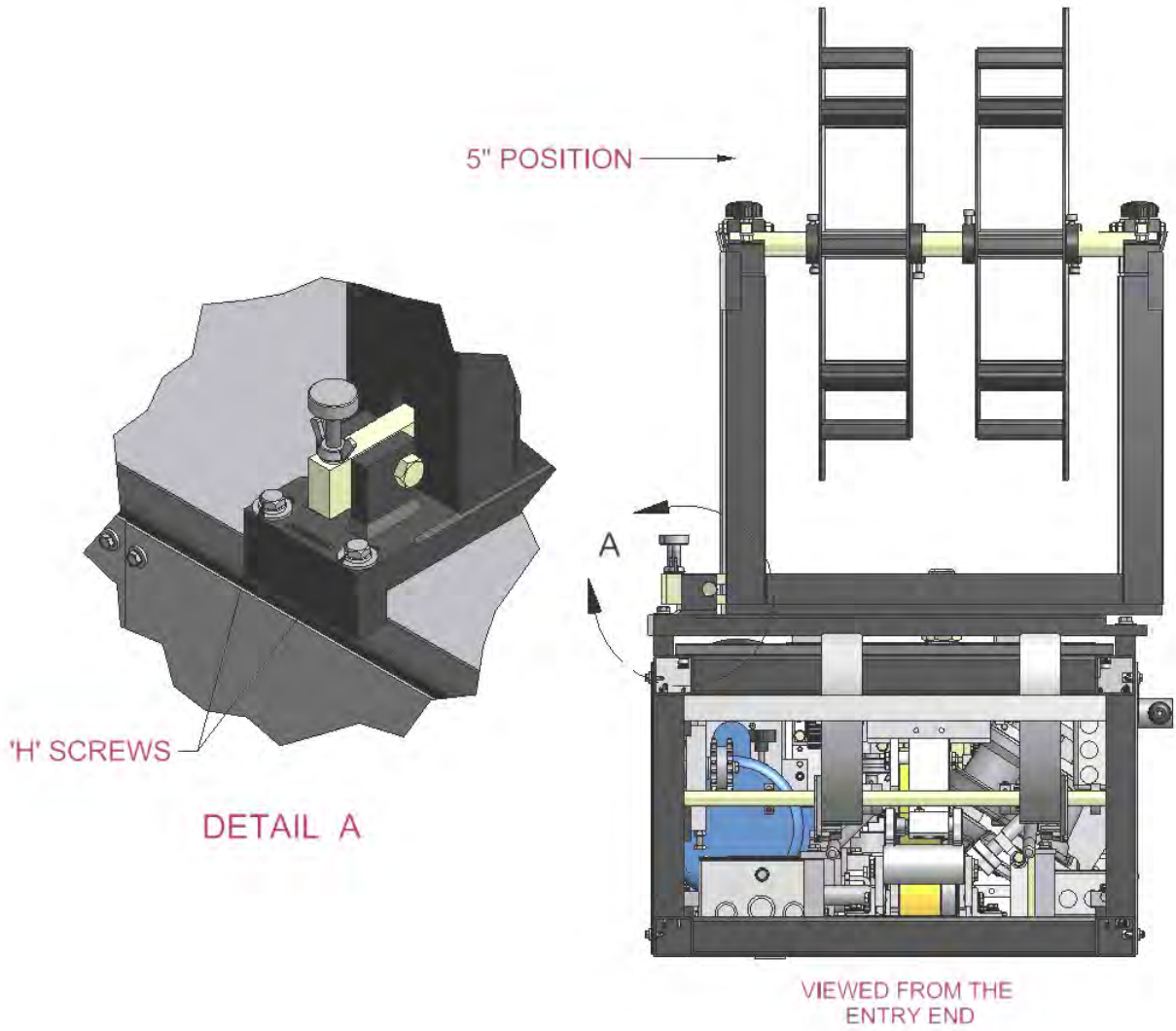


Figure 50: Reel Stand - 5" Position

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

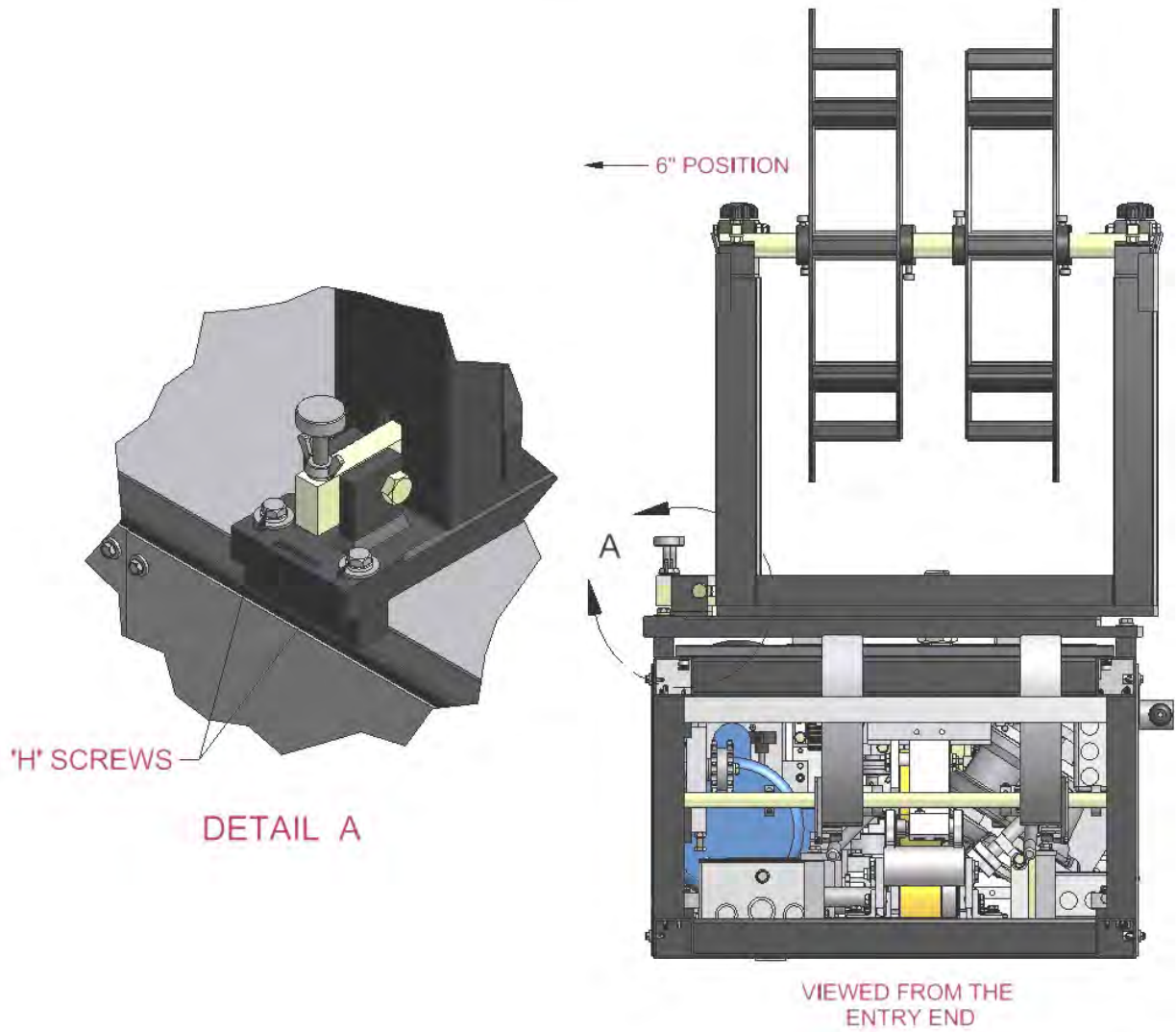


Figure 51: Reel Stand - 6" Position

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

Changeover from 5”to 6” Checklist

CAUTION: Unplug machine before proceeding

- **REMOVE COVERS** – Remove the covers.
- **REMOVE 5” SHEAR** – Remove the 5” shear from the machine and set aside.
CAUTION: BE SURE THE SAFETY PIN IS PROPERLY INSERTED INTO THE SHEAR BEFORE REMOVING THE SHEAR FROM THE MACHINE.
- **MOVE BEAD ASSEMBLY** – Move up to the 6” position.
- **REMOVE BACK BELL ROLLER** – Remove from the machine.
- **MOVE BACK GUIDE ROD** - Move it away from the skate bar.
- **FLIP EXIT TOP ROLLER BACK SIDE** – Remove from the exit drive assembly. Turn the roller end for end and re-install it back onto the shaft.
- **RE-INSTALL BACK BELL ROLLER** – Re-install in the 6” position.
- **INSTALL 6” SHEAR** – Install the 6” shear on the machine.
CAUTION: BE SURE THE SAFETY PIN IS PROPERLY INSERTED INTO THE SHEAR BEFORE INSTALLING THE SHEAR ONTO THE MACHINE.
- **STORE 5” SHEAR** – Store in the shear holder on the side of the machine.
- **MOVE SKATE ROLLERS** – Move the outward to the 6” position. There are a total of thirteen skate rollers.
- **MOVE ENTRY GUIDES** – Move both to the 6” position.
- **MOVE FACE GUIDE ROD** – Loosen and move up to the 6” position.
- **MOVE FACE ASSEMBLY STATIONS** – Move up to the 6” position.
- **MOVE BOX ASSEMBLY** – Move it from the 5” position up to the 6” position.
- **REMOVE 5” INSIDE BOX ROLLER BAR ASSEMBLY** – Remove it and set aside.
- **MOVE OUTSIDE BOX ROLLERS** – Move the bottom portion down to the 6” position.
- **INSTALL 6” INSIDE BOX ROLLER BAR ASSEMBLY** – Install it in the box assembly.
- **STORE 5” INSIDE BOX ROLLER BAR ASSEMBLY** – Store it in the appropriate place on the machine.
- **REPLACE COVERS** – Replace back onto the machine.
- **MOVE 6” REEL RACK ASSEMBLY** – Move reel rack to the left for the 6” position (if machine is equipped with reel(s))
- **MOVE CRADLE TO 6” POSITION** – (If machine is equipped with cradle(s))

CHAPTER 16
COMBO CHANGEOVER PROCEDURE

Changeover from 6”to 5” Checklist

CAUTION: Unplug machine before proceeding

- **REMOVE COVERS** – Remove the covers.
- **REMOVE 6” SHEAR** – Remove the 6” shear from the machine and set aside.
CAUTION: BE SURE THE SAFETY PIN IS PROPERLY INSERTED INTO THE SHEAR BEFORE REMOVING THE SHEAR FROM THE MACHINE.
- **REMOVE BACK BELL ROLLER** – Remove from the machine.
- **FLIP EXIT TOP ROLLER BACK SIDE** – Remove from the exit drive assembly. Turn the roller end for end and re-install it back onto the shaft.
- **RE-INSTALL BACK BELL ROLLER** – Re-install in the 5” position.
- **MOVE BEAD ASSEMBLY** – Move down to the 5” position.
- **INSTALL 5” SHEAR** – Install the 5” shear on the machine.
CAUTION: BE SURE THE SAFETY PIN IS PROPERLY INSERTED INTO THE SHEAR BEFORE INSTALLING THE SHEAR ONTO THE MACHINE.
- **STORE 6” SHEAR** – Store in the shear holder on the side of the machine.
- **MOVE SKATE ROLLERS** – Move the inward to the 5” position. There are a total of thirteen skate rollers.
- **MOVE BACK GUIDE ROD** - Move it toward the skate bar.
- **MOVE ENTRY GUIDES** – Move both to the 5” position.
- **MOVE FACE GUIDE ROD** – Loosen and move up to the 5” position.
- **MOVE FACE ASSEMBLY STATIONS** – Move down to the 5” position.
- **REMOVE 6” INSIDE BOX ROLLER BAR ASSEMBLY** – Remove it and set aside.
- **MOVE OUTSIDE BOX ROLLERS** – Move the bottom portion up to the 5” position.
- **INSTALL 5” INSIDE BOX ROLLER BAR ASSEMBLY** – Install it in the box assembly.
- **STORE 6” INSIDE BOX ROLLER BAR ASSEMBLY** – Store it in the appropriate place on the machine.
- **MOVE BOX ASSEMBLY** – Move it from the 6” position down to the 5” position.
- **REPLACE COVERS** – Replace back onto the machine.
- **MOVE 5” REEL RACK ASSEMBLY** – Move reel rack to the right for the 5” position (if machine is equipped with reel(s))
- **MOVE CRADLE TO 5” POSITION** – (If machine is equipped with cradle(s))

CHAPTER 17
HOOK ASSEMBLY

HOOK ASSEMBLY (OPTIONAL)

The Hook Assembly is a self-contained assembly which can be added to a gutter machine. The New Tech machine is capable of running a straight back (with a bead) or hook type gutter profile from the same machine. The hook assembly and bead roller assembly can be moved in or out of position depending on the type of gutter desired.

5" Gutter Machine

(Figure 52)

Before changing profiles, empty material from the forming area of the machine. To engage or disengage the hook assembly, simply loosen both "B" screws. Slide the hook assembly toward the center of the machine to make a straight back profile or toward the back guide rod to make a hook profile. Retighten the "B" screws

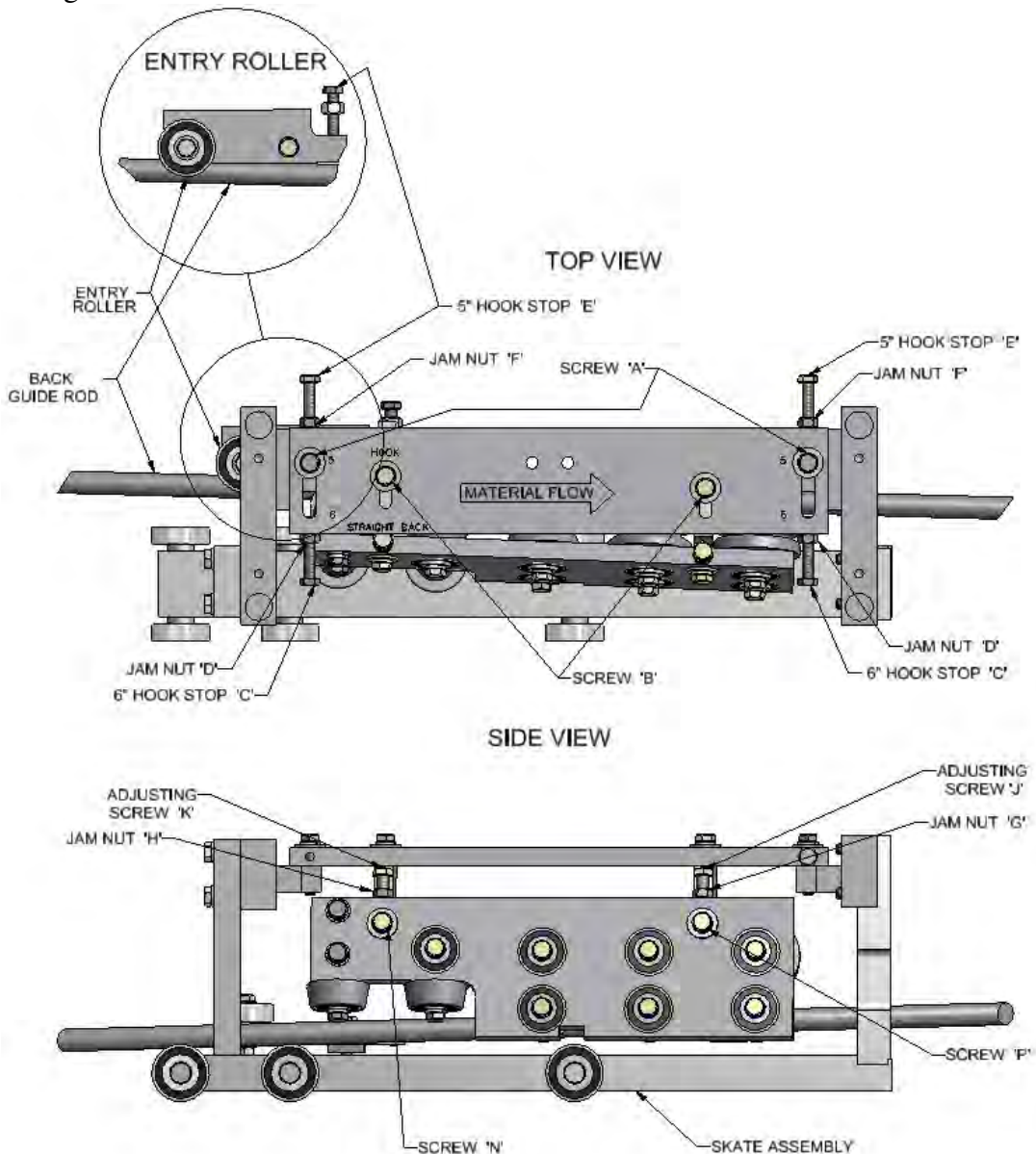


Figure 52: 5" Hook Assembly

CHAPTER 17
HOOK ASSEMBLY

MOVE THE BEAD ROLLER – MG5

(Figure 53)

The bead roller assembly must be moved up and out of the way for the hook profile on the mounting plate for a straight back profile. To move the bead roller assembly, remove both “L” screws and move the assembly up when running the hook profile and down when running the straight back profile. Re-install the “L” screws.

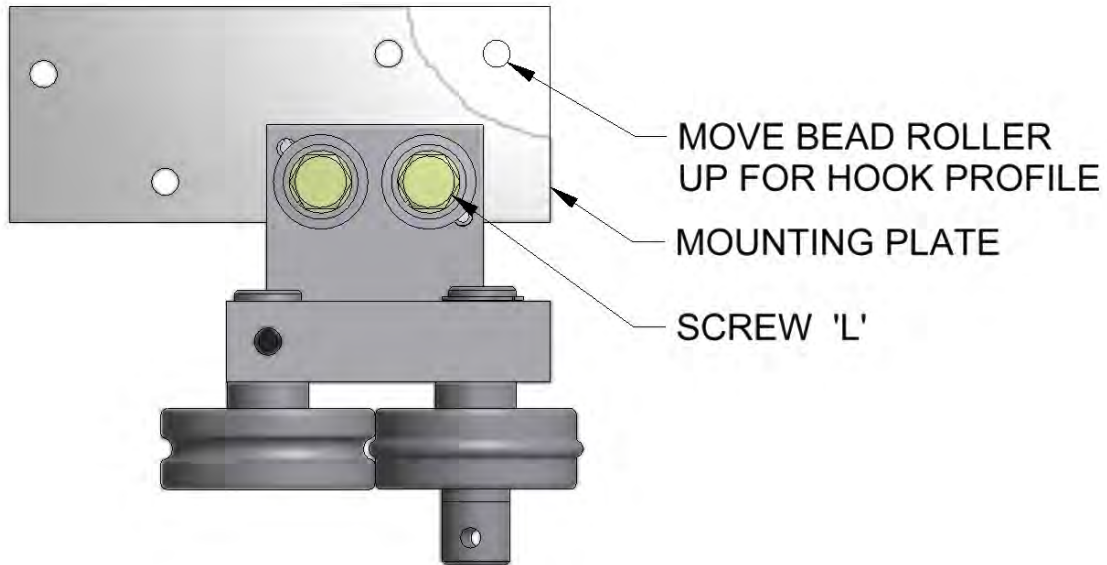


Figure 53: Bead Roller Assembly - MG5

6” Gutter Machine

(Figure 54)

Before changing profiles, empty the forming area of the machine. To engage or disengage the hook assembly, simply loosen both “B” screws. Slide the hook assembly toward the center of the machine to make a straight back profile or toward the back guide rod to make a hook profile. Retighten the “B” screws.

CHAPTER 17
HOOK ASSEMBLY

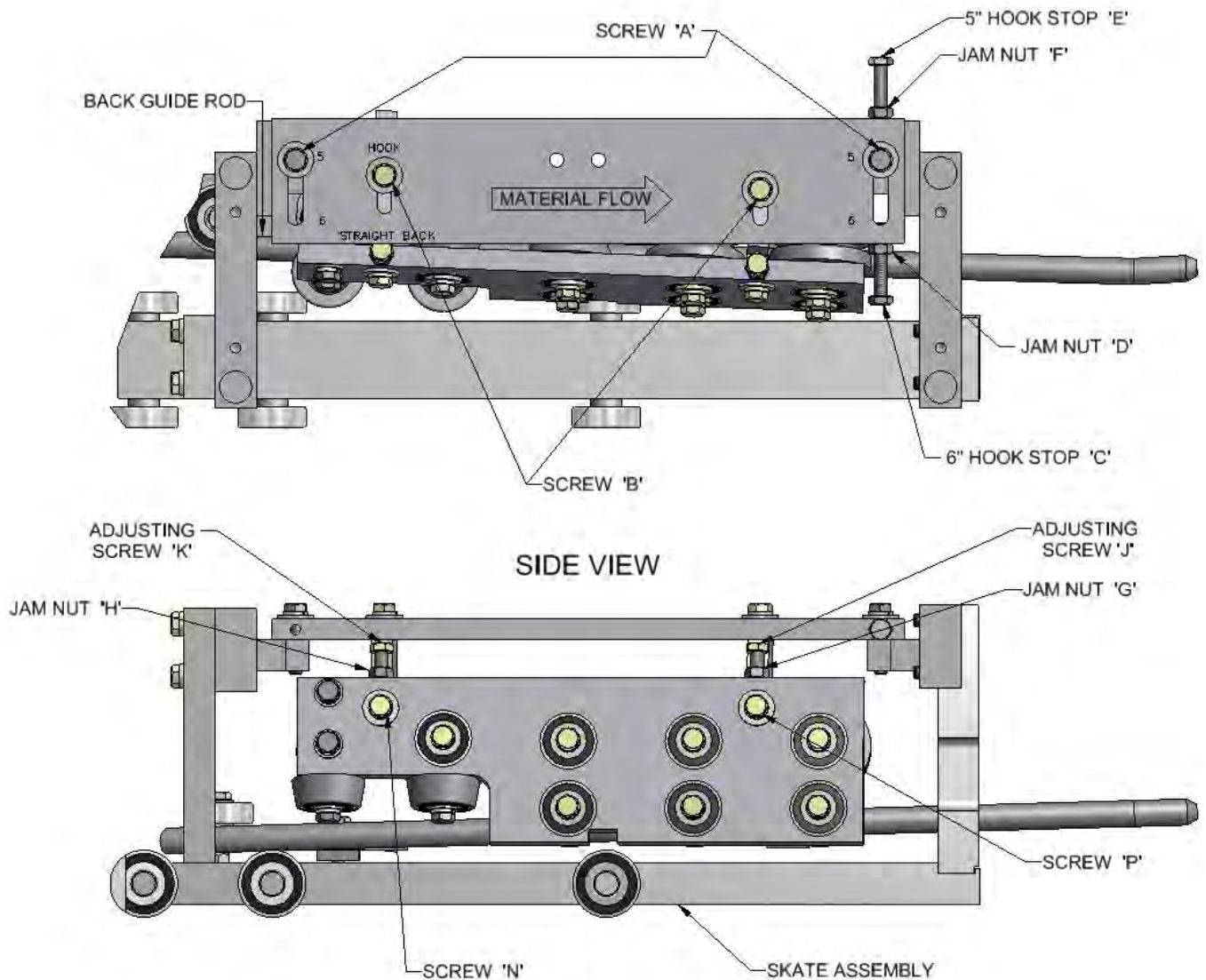


Figure 54: 6" Hook Assembly

MOVE THE BEAD ROLLER – MG6

(Figure 55 & Figure 58)

The bead roller assembly must be removed and stowed away on the Hook Assembly as shown in Figure 58 for the hook profile or aligned with the scribed marks on the mounting plate for a straight back profile. To remove the bead roller assembly, remove both “L” screws and bead roller assembly and stow it away on the hook assembly. After the bead roller is stowed as shown, retighten the “L” screws.

CHAPTER 17
HOOK ASSEMBLY

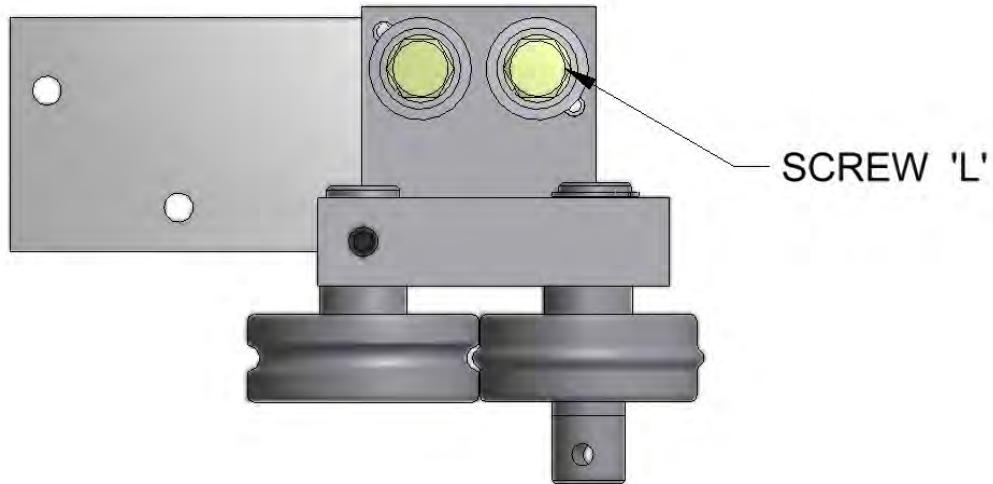


Figure 55: Bead Roller Assembly – MG6

Combo Gutter Machine

MOVE THE HOOK ASSEMBLY – M56

(Figure 56)

Before changing profiles, empty the forming area of the machine. To engage or disengage the hook assembly, simply loosen both “B” screws. Slide the hook assembly toward the center of the machine to make a straight back profile or toward the back guide rod to make a hook profile. Retighten the “B” screws.

CHAPTER 17
HOOK ASSEMBLY

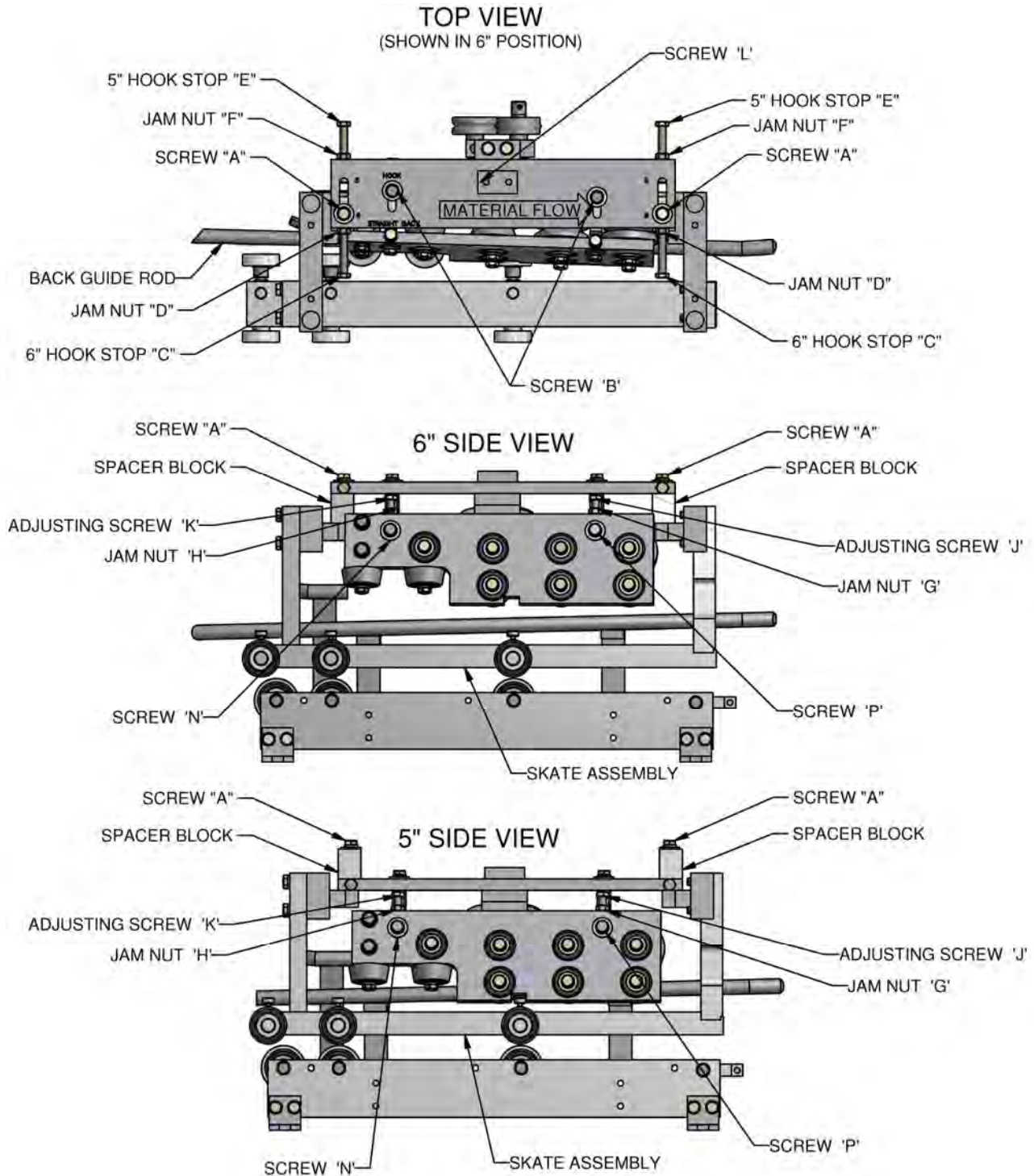


Figure 56: Combo Machine Hook Assembly

MOVE THE BEAD ROLLER – M56

(Figure 57 & Figure 58)

The bead roller assembly must be in the proper position to run the straight back gutter. Move the bead roller assembly up for 6" straight back gutter and down for 5" straight back gutter. To form the hook profile gutter, the bead roller assembly must be stowed away on the Hook Assembly. To remove the bead roller, loosen and remove both screws "L" along with the retainer plate and the

CHAPTER 17
HOOK ASSEMBLY

bead roller assembly. Using the same screws “L” re-mount the bead roller assembly under the hook assembly with the retainer plate on top of the hook assembly.

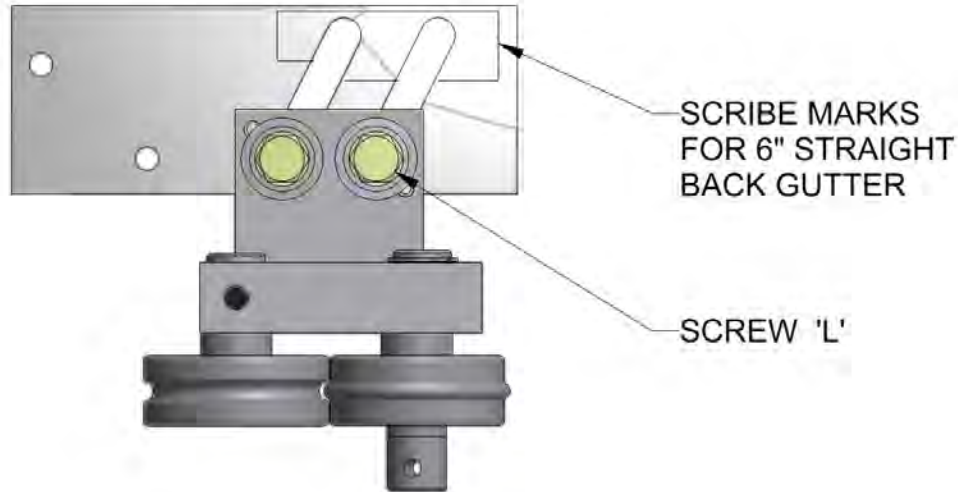


Figure 57: Bead Roller Assembly – M56 (Shown in 5” Position)

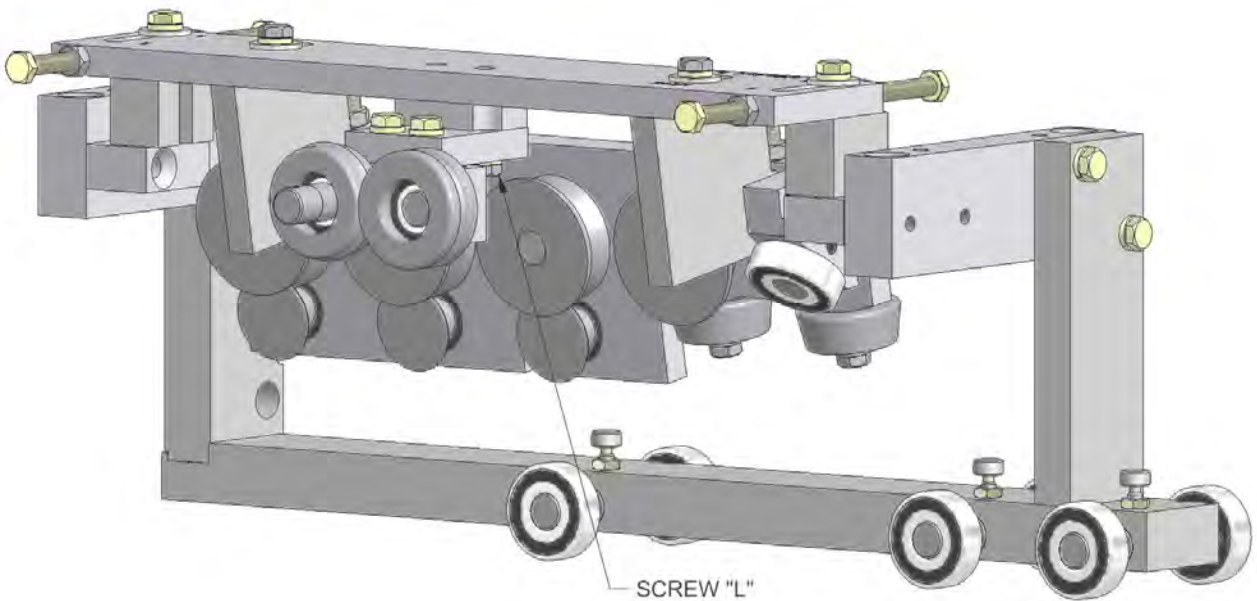


Figure 58: Bead Assembly Stored

NOTE: The scribe marks on the bead roller assembly mounting plate shown in Figure 57 are factory settings for 11 7/8” wide material for 5” gutter and 15” wide material for 6” gutter. Adjust the height accordingly for other widths.

CHANGING FROM 5” TO 6” HOOK GUTTER PROFILE

(Figure 56)

Loosen the screws “A” and remove the spacer blocks located under the screws. Relocate the spacers to the 6” hook position below the top plate. Push the hook assembly against the 6” hook stop “C” and tighten screws “A”.

CHANGING FROM 6” TO 5” HOOK GUTTER PROFILE

CHAPTER 17
HOOK ASSEMBLY

(Figure 56)

Loosen the screws “A” and remove the spacers located under the screws. Relocate the spacers to the 5” hook position above the top plate. Push the hook assembly against the 5” hook stop “D” and tighten screws “A”.

Adjustment for Hook Assembly

There are four (4) adjustment locations for the hook assembly. The “C” or “E” adjusting screws and the top screws “A” are to align the hook with the pass line of the gutter profile. The “D” or “F” jam nut and the “C” or “E” adjusting screw are **FACTORY SET** and changing the “C” or “E” adjusting screw can result in improper operation of the hook assembly.

Adjustment screws “K” and “J” affect:

- The size of the Hook lip.
- The up and down hill of the back bottom corner of the gutter.

ADJUST FOR HEM

Before making any adjustments, clear the gutter coil out of the forming area of the machine. To increase or decrease the hem, loosen both jam nuts “G” and “H” and loosen the screws “N” and “P”. Turn both screws “J” and “K” evenly to raise or lower the entire hook assembly. Raising the assembly will decrease the hem size and lowering will increase the hem size.

To raise the hook assembly, turn both screws clockwise and to lower turn both screws counterclockwise. Retighten all screws and jam nuts before running gutter coil through the machine.

TO CORRECT UP OR DOWN HILL OF THE BACK BOTTOM CORNER

NOTE: Do not turn adjusting screws more than $\frac{1}{8}$ of a turn at a time for uphill or downhill correction.

Before making any adjustments, clear the gutter coil out of the forming area of the machine. To adjust for uphill or downhill, loosen jam nut “G” and screw “P”. To correct uphill in the back of the gutter, turn screw “J” clockwise. To correct downhill in the back of the gutter, turn screw “P” counterclockwise. Be sure the assembly is seated down on the adjusting screw “J” before retightening the “P” screw. Retighten all screws before running gutter coil through the machine.

CHAPTER 18
BOTTOM BEAD ROLLER

BOTTOM BEAD ROLLER (OPTIONAL)

(Figure 59, Figure 60 and Figure 61)

The bottom bead roller set is an optional add-on to the gutter machine to create a unique look to the bottom of the gutter.

ENGAGING/DISENGAGING BEAD ROLLER

The bottom bead roller assembly can easily be engaged or disengaged by the following:

1. Loosen screws "C"
2. Rotate engagement lever clockwise to the UP position to engage the bead roller or counter clockwise to the DOWN position to disengage the bead roller.
3. Re-tighten screws "C".

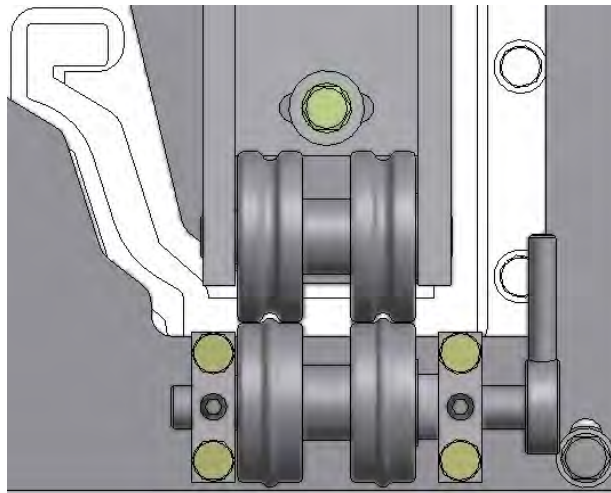


Figure 59: Bottom Bead Roller - Engaged

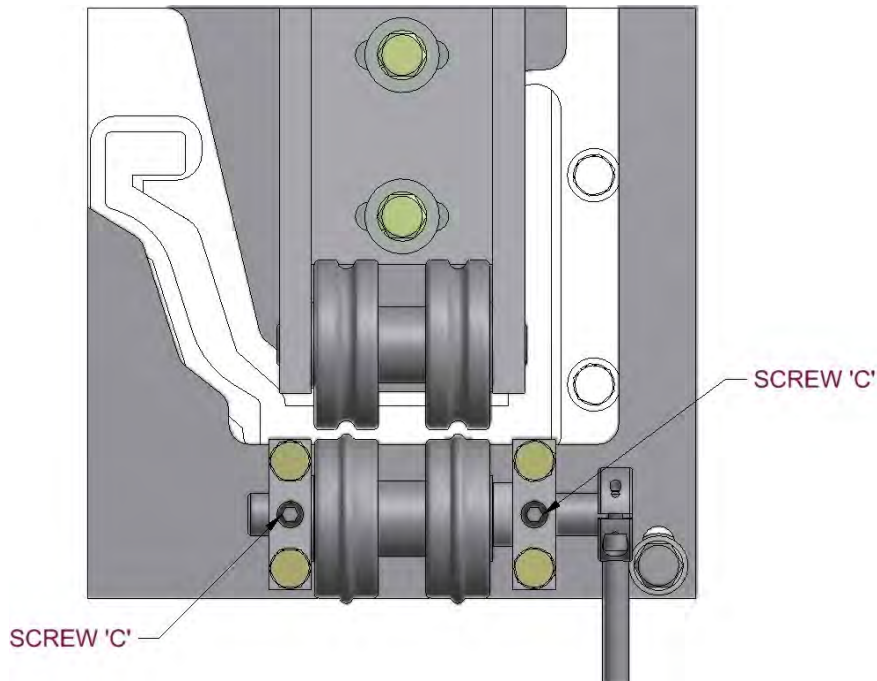


Figure 60: Bottom Bead Roller - Disengaged

CHAPTER 18
BOTTOM BEAD ROLLER

ADJUSTING ASSEMBLY LOCATION

The bottom bead roller assembly must be in the correct location in relation to the formed gutter exiting the machine. The top rolls on the bottom bead roller assembly should just contact the gutter material without pressure.

NOTE: If the bottom bead roller is too high, too low, or not aligned correctly, the gutter may be deformed by running through the bead roller.

To adjust the location of the bead roller assembly:

1. Slightly loosen (4) bolts "B".
2. Loosen the locking nuts on jackscrews "A"
3. Turn jackscrews "A" clockwise to raise the bottom bead roller assembly UP and turn jackscrews "A" counter clockwise to lower the assembly. Ensure that the rollers are horizontal with the bottom tray of the gutter so that one side does not engage higher than the other.
4. Lock down the nuts on jackscrews "A" and tighten bolts "B"
5. Loosen screws "D" and bring the upper rollers down to the same height as the gutter exiting the shear. Be sure that the upper rollers are in proper alignment with the bottom rollers.
6. Tighten screws "D"

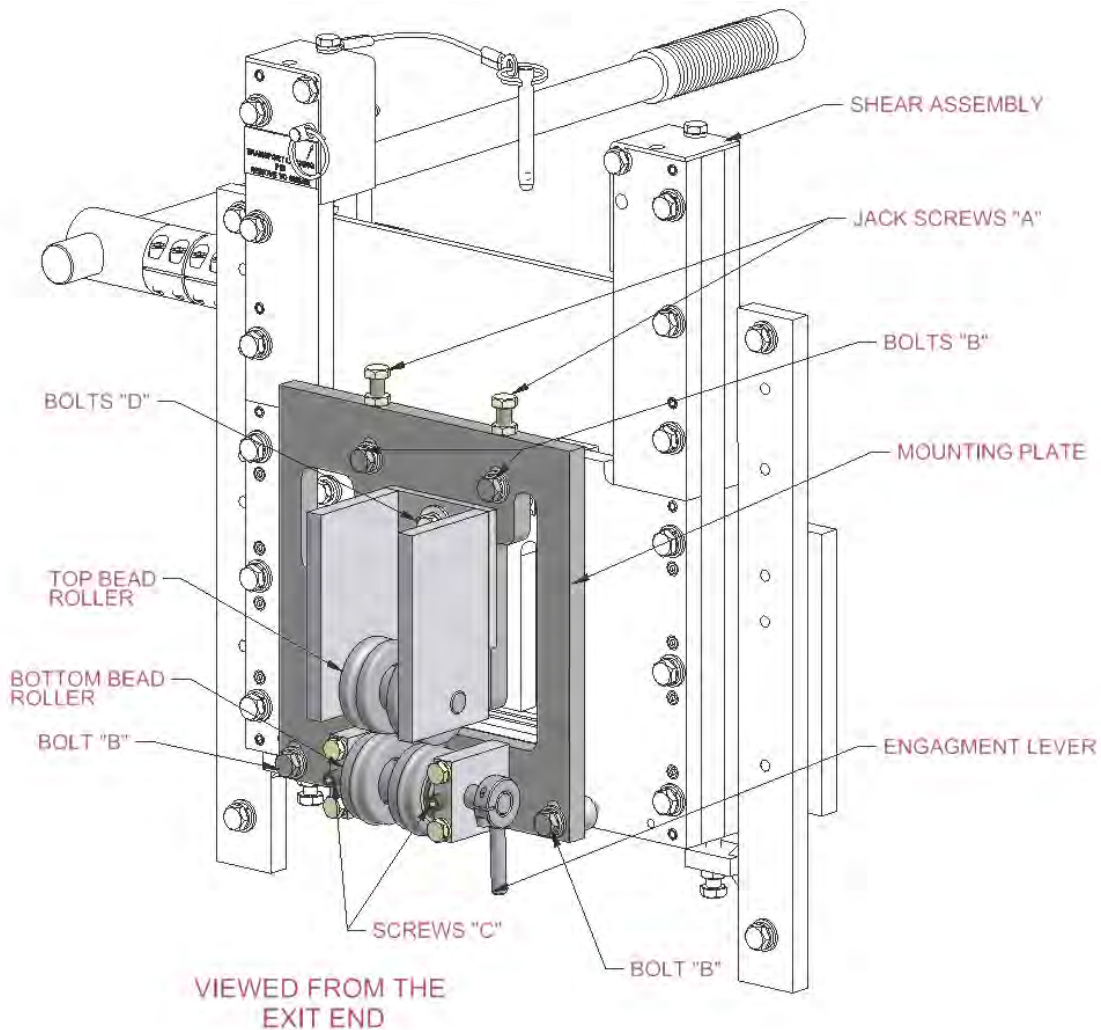


Figure 61: Bottom Bead Roller Assembly

CHAPTER 19
TRANSFER RACK ASSEMBLY

TRANSFER RACK ASSEMBLY (OPTIONAL)

(Figure 62)

The transfer rack is used to move a coil from one reel rack to another. The rack can remain in place while the machine is in use. Removal of the racks is required only to rotate a turnstile reel rack in order to change direction of the coil.

NOTE: The rack must be installed with the FLANGE facing in toward the coil and the “caution” label on the transfer rack facing out. Always be sure that the safety pins are fully secured in position before using the rack.

CAUTION: Never transport the machine with coil resting on the transfer rack. The coils must be secure in the reel rack before transporting. See Turnstile Reel Stand section on page 17

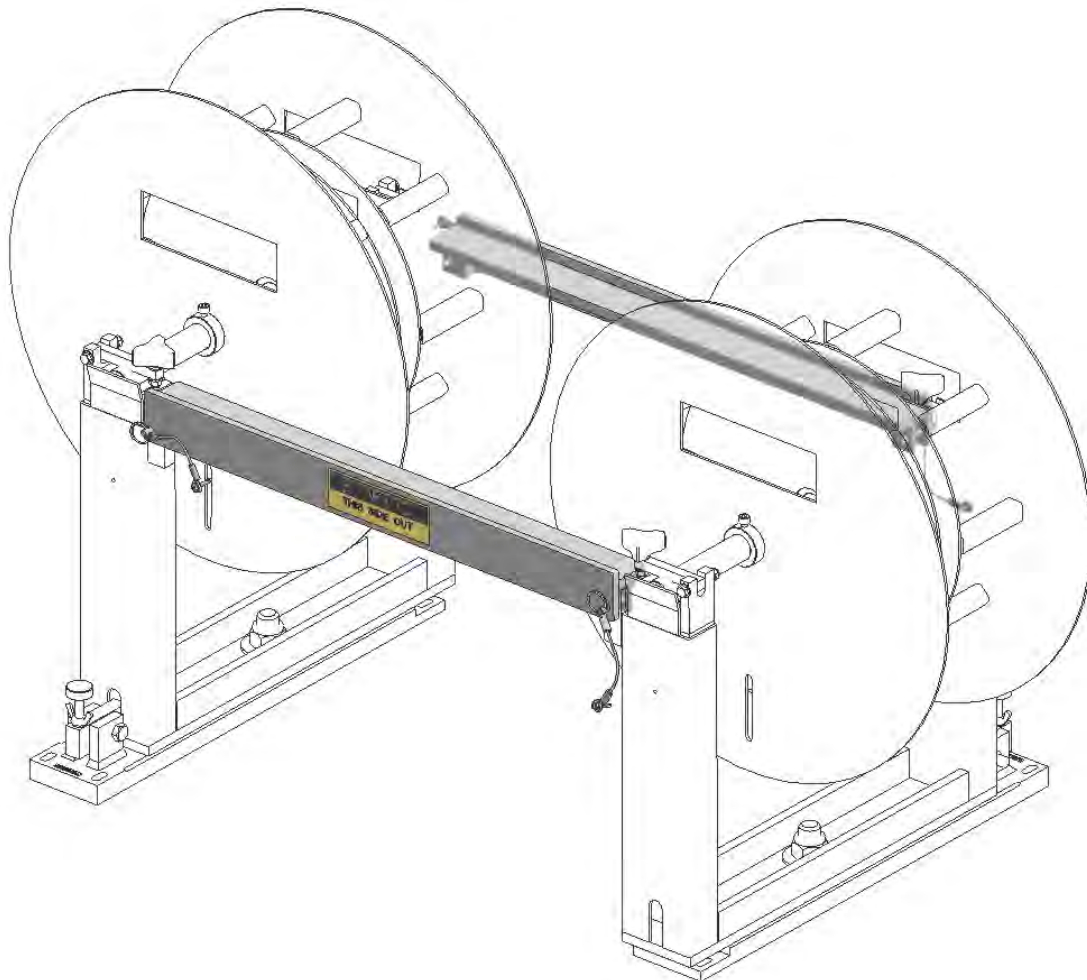


Figure 62: Transfer Rack

CHAPTER 20
CE INFORMATION

CE INFORMATION

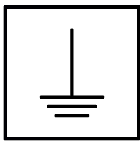
The following information only pertains to CE Certified machines. Refer to Figure 70 for the MG230-50CE wiring diagram.

SYMBOLS

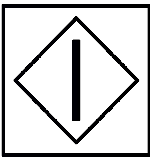
The following information and warning symbols are used on CE Certified machines:



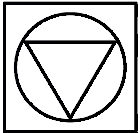
Protective Earth (Ground)



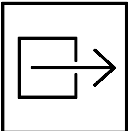
Earth (Ground)



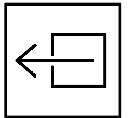
Start (of action)



Stop (of action)



Output (Forward)



Output (Reverse)



Warning: "FINGER CUTTING HAZARD"



"READ ACCOMPANYING DOCUMENTS" before operating the equipment.

CHAPTER 20
CE INFORMATION

TECHNICAL SPECIFICATIONS

- The machine is suitable for indoor or outdoor use.
- Enclosure Protection: IP52 (Protected against dust limited ingress (no harmful deposit) and Protection against direct sprays of water up to 15° from the vertical)
- Class I Equipment (Grounded Type).
- The machine shall be connected to a grounded outlet.
- Electrical Rating: 230V~ 50Hz 10A
- The mains supply voltage fluctuations are not to exceed $\pm 10\%$ of the nominal supply voltage.
- Operating temperature range: 0-50°C
- Sound Pressure Level emitted by the machine does not exceed 70dBA.
- Machine is suitable for continuous operation.

SERVICE

Contact a European Agent or New Tech Machinery should machine repair be required.

CHAPTER 21
TROUBLESHOOTING

TROUBLESHOOTING

This will machine will run most materials without adjustments, however, minor adjustments may be necessary. The following are the most commonly encountered conditions that will be experienced with the machine. In order to address the various conditions, some common terms are used as follows:

Common Terms

Into the House

The term “**Into the House**” means that with the gutter placed against the house, both ends will come in contact with the house first. This means that the gutter is bowing in toward the house.

Away From the House

The term “**Away From the House**” means that, with the gutter placed against the house, neither end will come in contact with the house. This means that the gutter is bowing out and away from the house.

Uphill

The term “**Uphill**” means that the ends of the gutter are bowing toward the sky.

Downhill

The term “**Downhill**” means that the ends of the gutter are bowing towards the ground.

Head of Gutter Up and Into the House

This term means that when viewing down what would otherwise be considered a straight piece of gutter, the head of the gutter (Points A, B, C, D) goes up and into the house.

Head of Gutter Down and Away From the House

This term means that when viewing down what would otherwise be considered a straight piece of gutter, the head of the gutter (Points A, B, C, D) goes down and away from the house.

CHAPTER 21
TROUBLESHOOTING

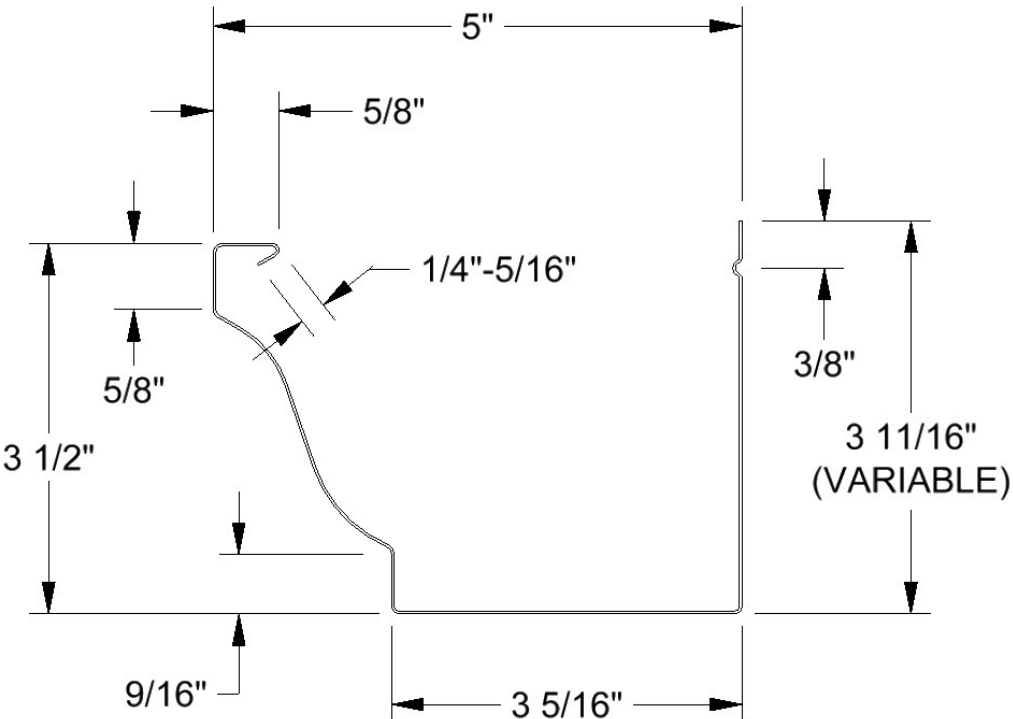


Figure 63: 5" Gutter Profile

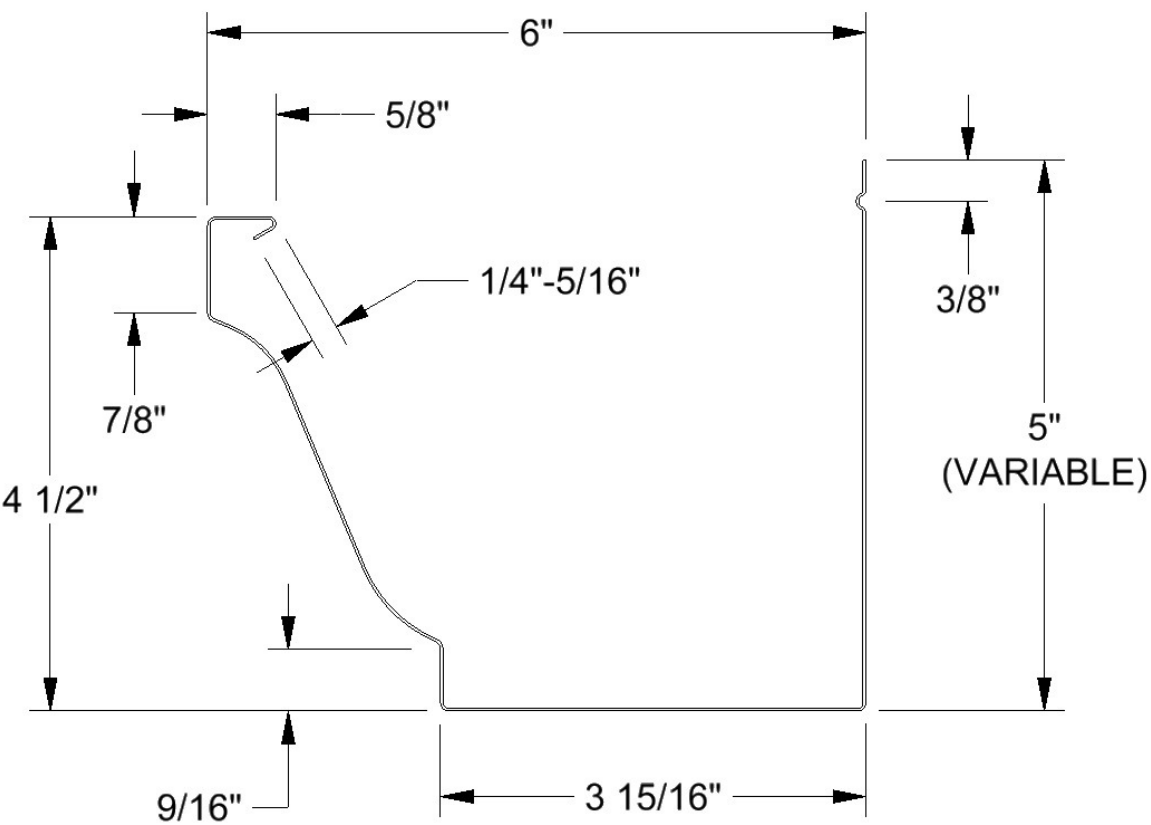


Figure 64: 6" Gutter Profile

CHAPTER 21
TROUBLESHOOTING

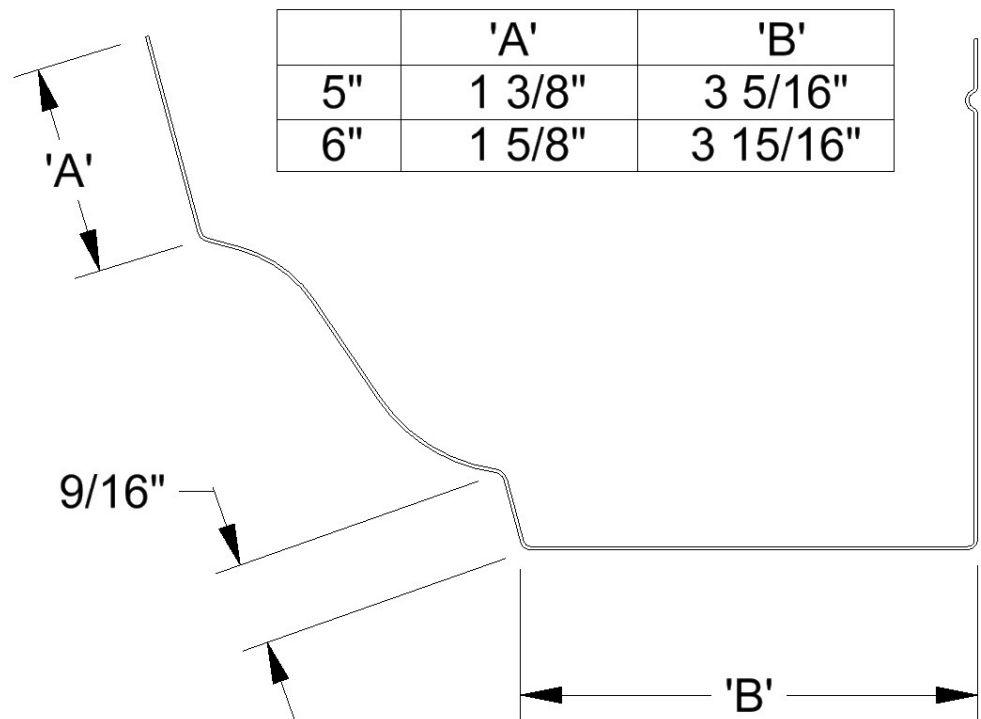


Figure 65: Gutter Profile Between Face and Box Roller Assemblies

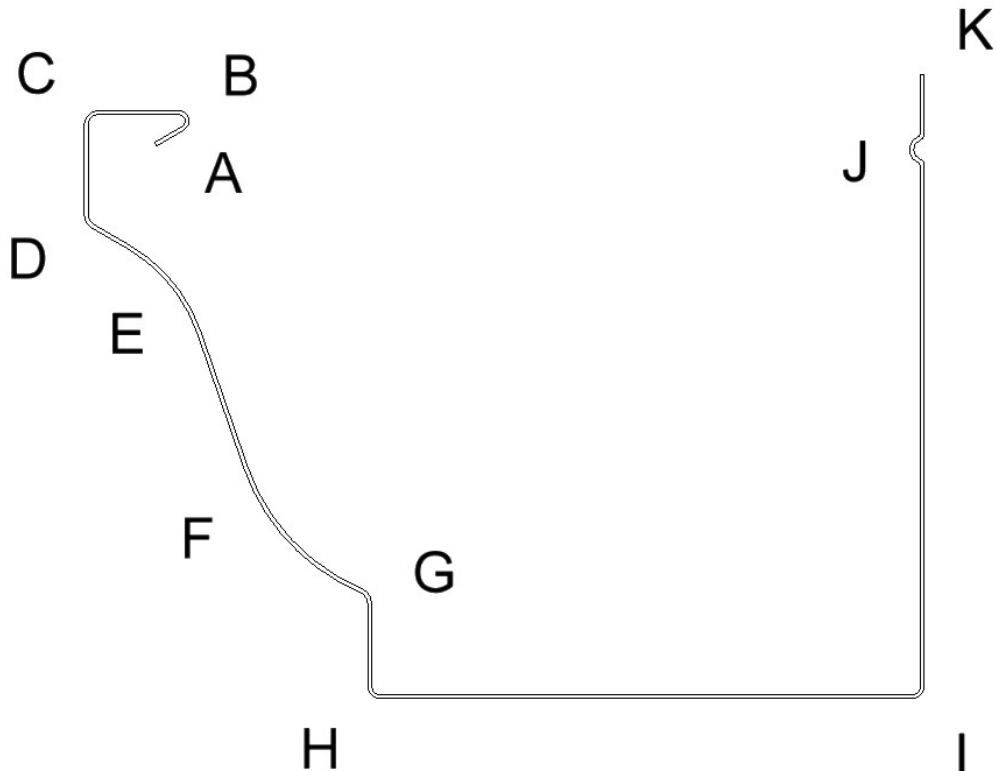


Figure 66: Points on Gutter Profile

CHAPTER 21

TROUBLESHOOTING

Analyzing the Gutter

Before analyzing the gutter run a piece of material at least as long as the machine so that it engages all the rollers in the machine.

STEP #1

- With the coil fully engaged in the machine, back up the material approximately 2 inches.
- Check the inside of the gutter at points “H”, “I” & “D” (Figure 66) for any double track cause by the skate forming rollers and face assembly.
- While viewing the gutter between the face rollers and the box, the dimension between point “A” & “D” is 1 3/8” for the 5” gutter and 1 5/8 for the 6” gutter as shown in Figure 65

STEP #2

- Run an eight (8) ft. length of gutter out of the machine. This piece will be used to determine what steps must be taken to correct the gutters appearance.
- Inspect the width of the gutter. This dimension should be 5” +/- 1/16” for the 5” gutter (Figure 63) and 6” +/- 1/16” for the 6” gutter (Figure 64).
- Check the back of the gutter at point “I” to be sure it is at approximately 90 degrees to the bottom of the gutter.
- Check the bottom face of the gutter at point “H” to be sure it is at approximately 90 degrees to the bottom of the gutter.
- Check gutter lip. This should be between ¼” and 5/16” wide for both 5” and 6” gutter.
- Sight down gutter at point “D” and “H” and determine if they are parallel to each other and straight.

Head Goes Up and Into the House OR Down and Away From the House

All conditions checked above are satisfied except “D” & “H” are not parallel and “H” appears to be straighter than point “D”. The swing shaft will be used to correct this problem. This is a common condition an operator will experience. While the bottom corner “H” will appear correct the top point “D” will appear to go **Up and Into the House** or **Down and Away From the House**. Either condition will require adjusting the swing shaft assembly and is color coded **Green**.

Refer to the Swing Shaft Adjustment Assembly section on page 32 for swing shaft adjustment procedure.

Face Goes Up and Into the House OR Down and Away From the House

All conditions checked above are satisfied but the bottom corner “H” will appear parallel to point “D” and the whole gutter will appear to go either, **Up and Into the House** or **Down and Away From the House**. The Gutter Box Exit Mount Adjustment can fix this problem. Either condition will require adjusting the exit end of the box assembly and is color coded **Blue**.

Refer to the Exit Mount Adjustment Assembly section on page 32 for adjustment procedure. Refer to the EXIT DRIVE AND FORMING STATION section on page 34 combined with the Exit Mount Adjustment as an alternative method.

CHAPTER 21

TROUBLESHOOTING

Drive Rollers Slip

If the gutter is slipping the following items should be checked first.

- Check the brakes on the reel stand to be sure they are not too tight. Adjust as necessary.
- Check to see if the material is just slipping as the end of the material is exiting the machine.

If the two (2) previous conditions do not exist then proceed to add pressure to the main top drive rollers. **DO NOT** adjust the exit top drive roller unless the material is slipping as the material exits the machine.

Refer to the DRIVE ROLLER ADJUSTMENT AND CLEANING section on page 30 for adjustment procedure.

NOTE: Do NOT over tighten the top drive roller assemblies. Do not go beyond ¼” turn past the factory setting. Call a distributor or factory representative for further diagnostics on this matter.

Too Much or Too Little Lip

The entry guide assembly will be adjusted to increase or decrease the lip. The lip can be very critical for the following reasons:

- A lip that is too long or short can cause **Up and Into the House** or **Down and Away From the House**.
- The amount of lip can affect how fasteners fit into the gutter.

Refer to the Entry Guide Adjustment section on page 22 for adjustment procedure.

NOTE: This adjustment can affect the swing shaft adjustments or condition #1. Always check the straightness of the gutter after making an entry guide adjustment.

Rippling or Indentation

Ripple on the bottom of the gutter is not an inherent condition on the New Tech Machinery gutter machines. Always check gutter coil to be sure it is not damaged

An indentation in the gutter on the face or bottom of the gutter that repeats itself can easily be found. It is either foreign material, such as tape, caulking, etc., stuck to a top or bottom roller, or an object has been run through the machine such as a zip screw, spike, ferrule, etc. gouging a roller.

Determine if the indentation is from the inside out, or the outside in. If the dent is from the inside then there is something stuck or damaged on a top drive roller, face inside roller, or skate bearing. An indentation from the outside means there is something stuck or damaged on a bottom drive roller, bottom keel roller, or outside face roller.

To correct this problem, locate the foreign material, or burr, and clean, file or remove with emery cloth as required to smooth out the roller.

Scratches or Other Outside Marks

Inspect the gutter for any continuous scratches on the profile out of the entire gutter where paint is either marked or removed. There are generally two (2) places to look when trying to find where the scratch is occurring on the machine.

- The guide rod can scratch the gutter if the guide rod itself had been marked.
- If the gutter touches anywhere on the shear dies while moving through the shear.

Refer to the SHEAR ASSEMBLY section on page 39 for adjustment procedure.

CHAPTER 22
WIRING DIAGRAMS

WIRING DIAGRAMS

The MG5/MG6/M56 Mach II Gutter Machines are available with the following electrical configurations.

<u>Electrical Configuration</u>	<u>Wiring Diagram</u>
110VAC, 60Hz	MG5110-60/MG6110-60
110VAC, 50Hz	MG110-50
220VAC, 50Hz	MG220-50
230VAC, 50Hz CE	MG230-50CE
12VDC	MG12V

Refer to the electrical diagram that matches the machine electrical configuration.

CHAPTER 22

WIRING DIAGRAMS

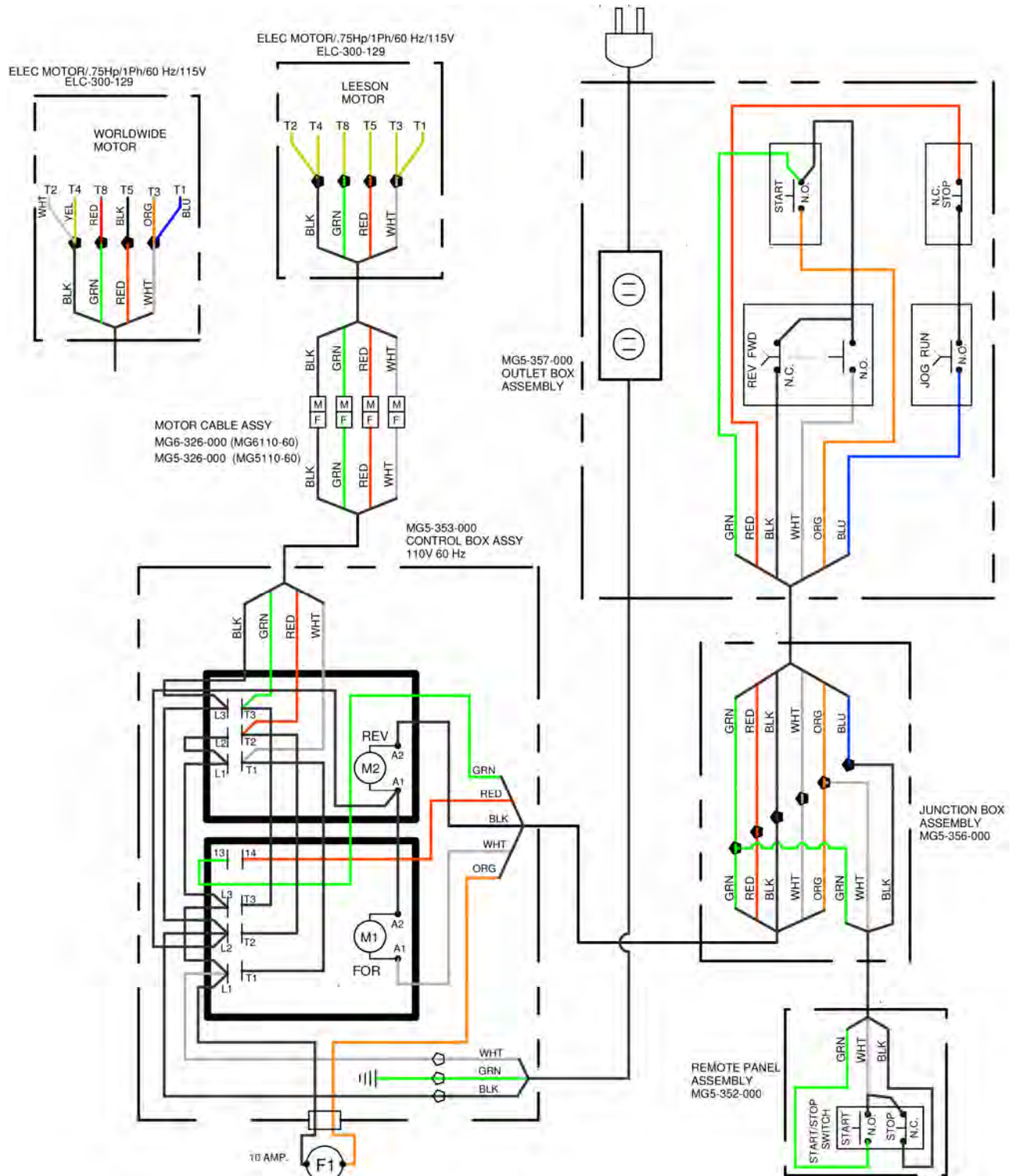


Figure 67: MG5110-60/MG6110-60 – 110VAC 60Hz Wiring Diagram

CHAPTER 22

WIRING DIAGRAMS

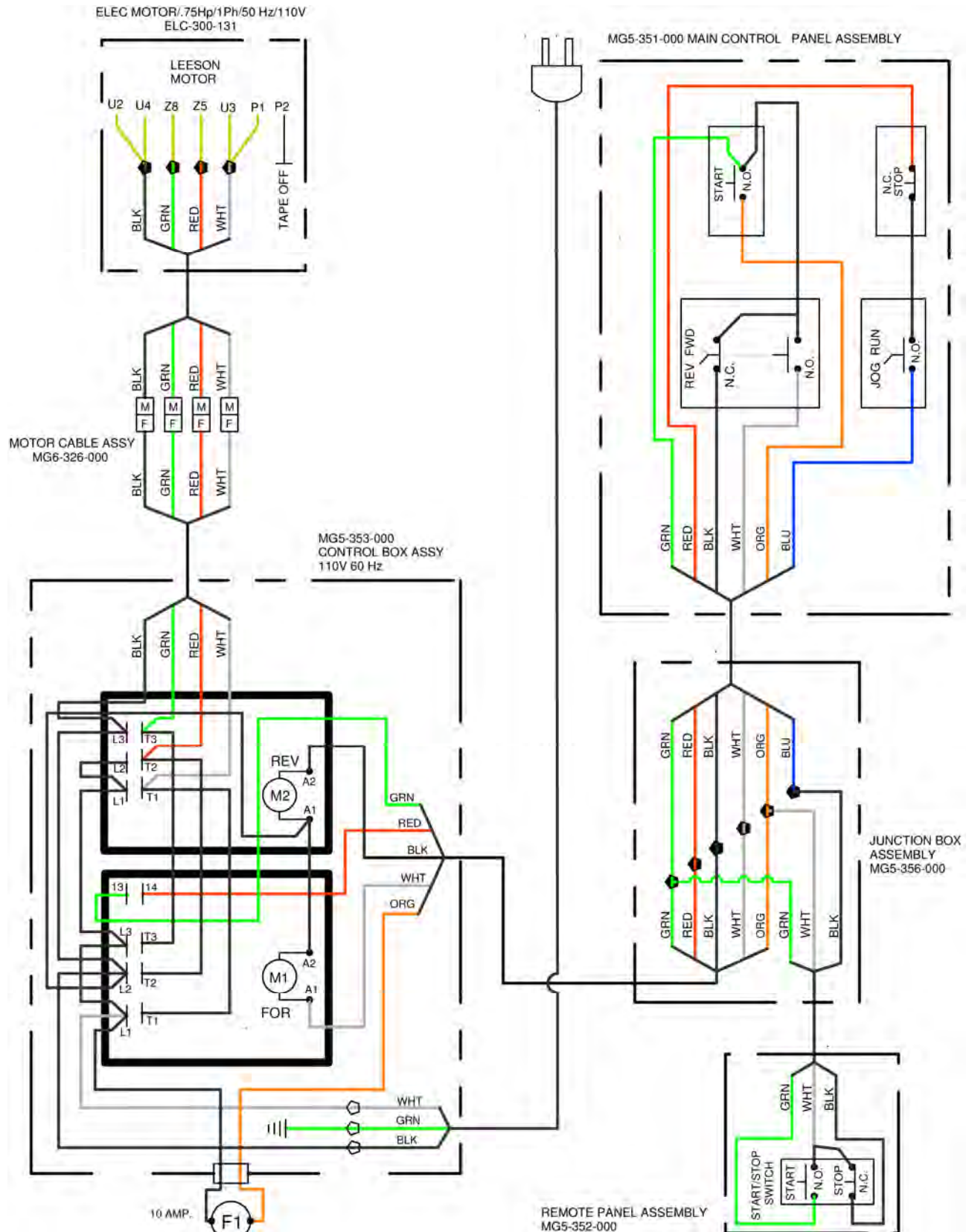


Figure 68: MG110-50 – 110VAC, 50Hz Wiring Diagram

CHAPTER 22

WIRING DIAGRAMS

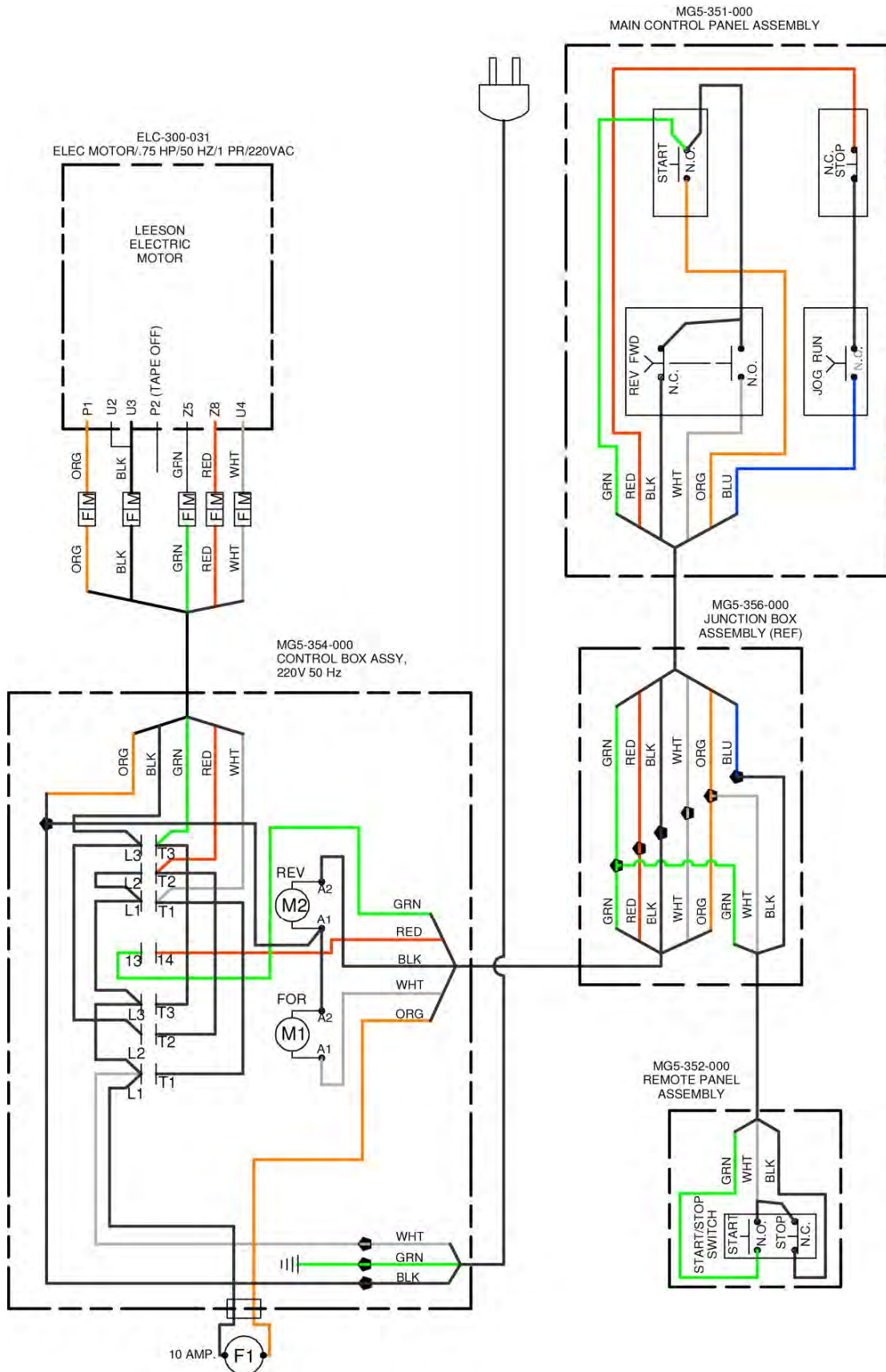


Figure 69: MG220-50 – 220VAC, 50Hz Wiring Diagram

CHAPTER 22

WIRING DIAGRAMS

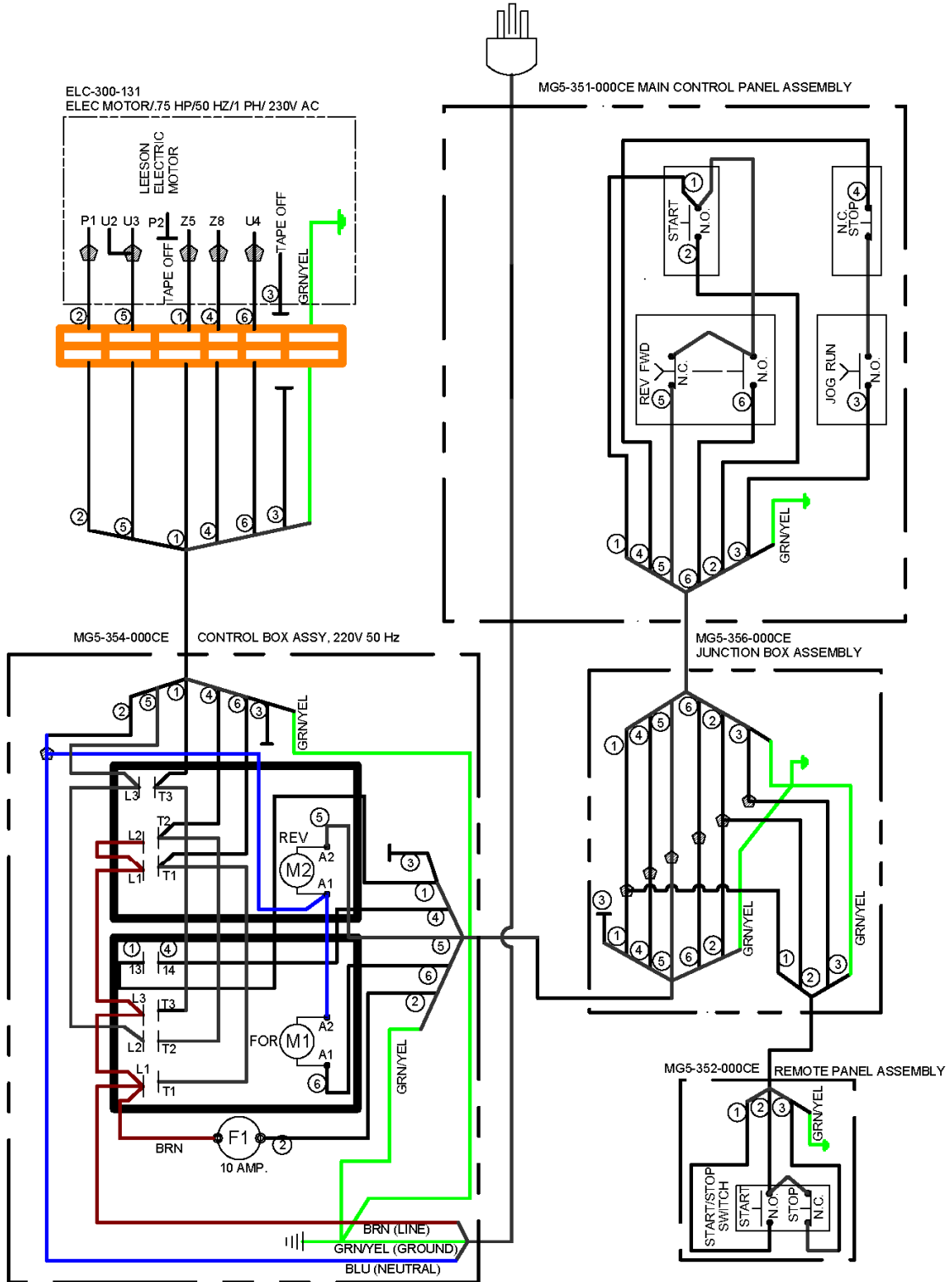


Figure 70: MG230-50CE – 230VAC, 50Hz CE Wiring Diagram

CHAPTER 22
WIRING DIAGRAMS

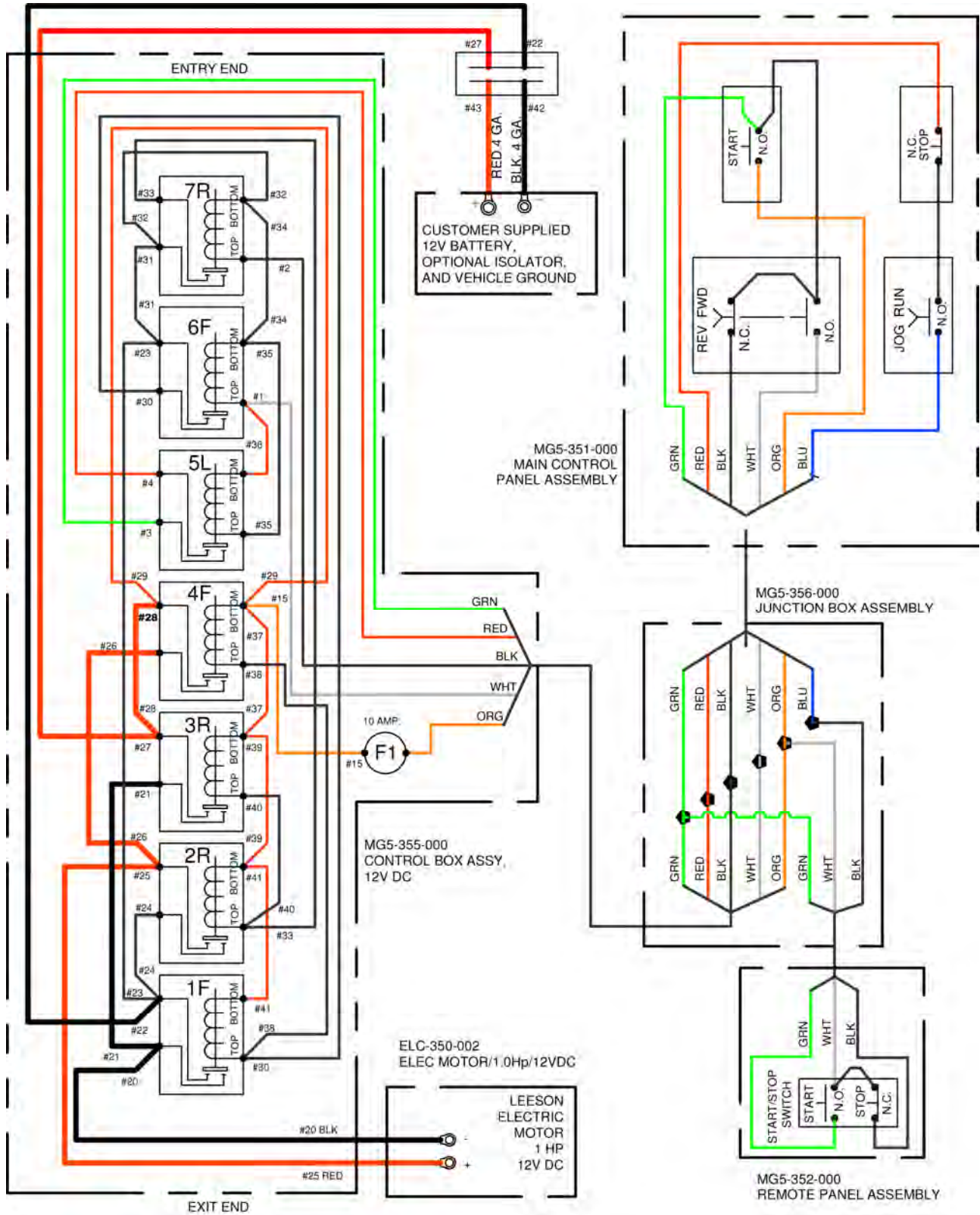
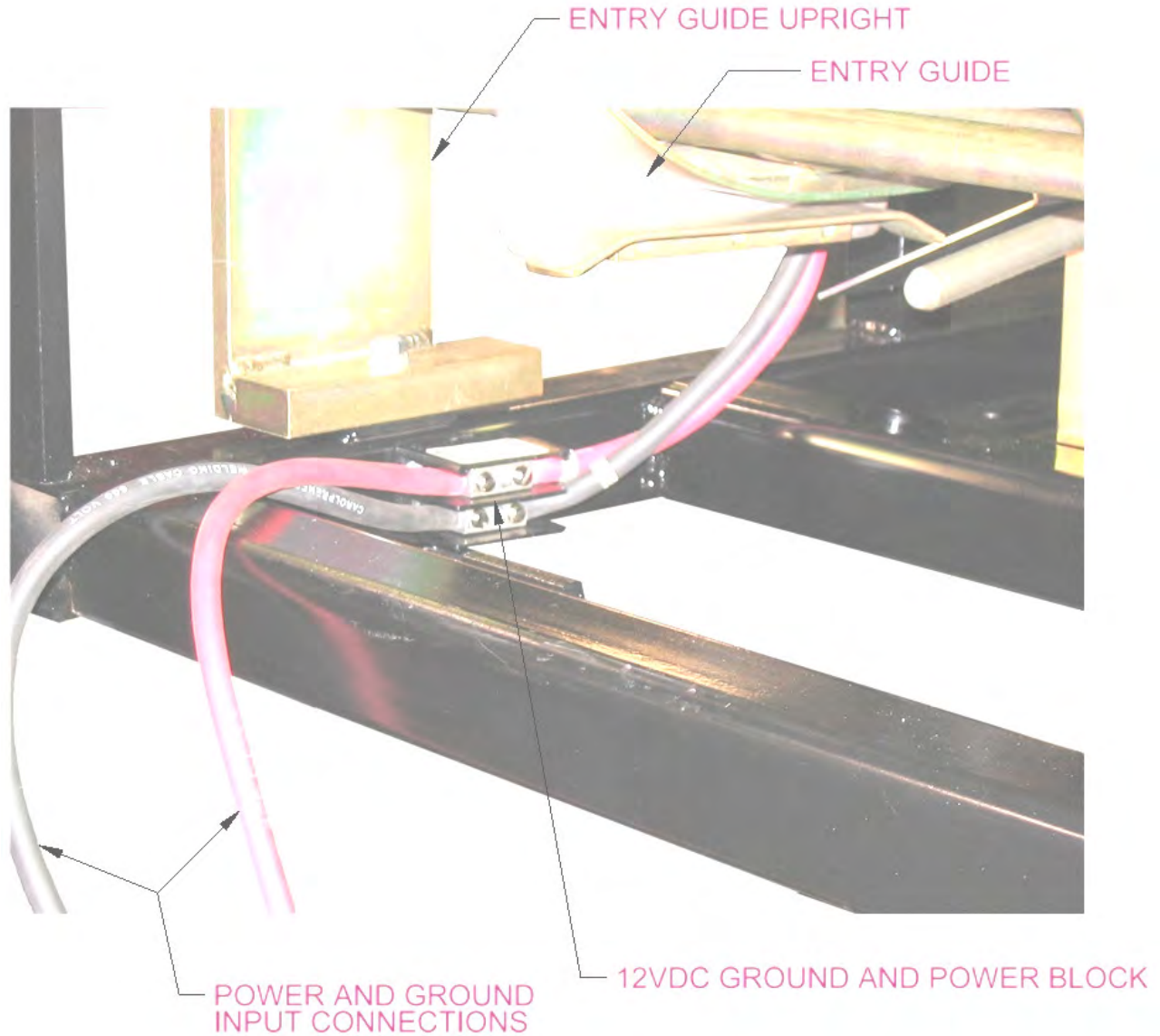


Figure 71: MG12V - 12VDC Wiring Diagram

CHAPTER 22
WIRING DIAGRAMS

The 12VDC powered machines are supplied with approximately 3' (.9m) of 4ga power and ground wire terminated with ring lugs. If the installation of the 12VDC machine requires longer cables, or different terminations, replace as necessary. Be sure the size of the wire is sufficient for the application.



VIEW FROM ENTRY END

Figure 72: 12VDC Power and Ground Connections



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