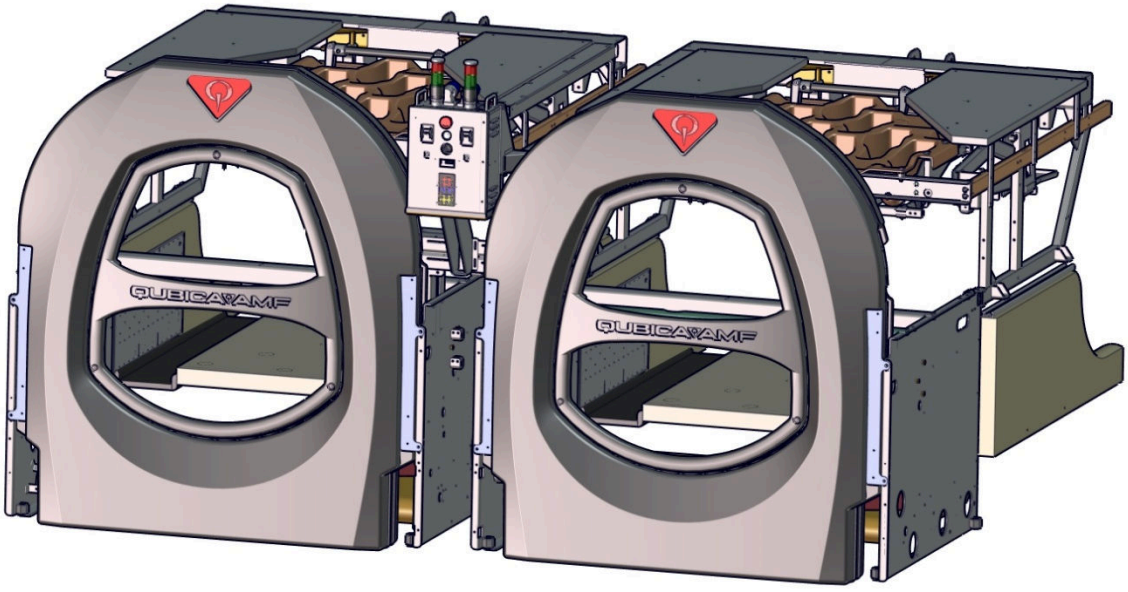
EDGE PERFORMANCE LIFT

EDGE FREE FALL Pinspotter Manual Supplement
Appendix F



These Original Instructions were written in English.

400-088-091-01 Rev. A
06/10/2022

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DOCUMENT UPDATES

This manual supersedes all previous versions of the EDGE Lift Owner's Manual. QubicaAMF Worldwide, LLC. reserves the right to revise and/or update this manual at any time without obligation to notify any person or entity of such revision. The document number, revision level, and date below indicate the edition of this manual.

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QubicaAMF

EDGE FREE FALL Performance Lift Manual

400-088-091-01 Rev. A

Summary of Changes

Change No.	ECR No.
Rev. A	22-0001

List of Effective Pages

Page	Change No.	Effective Date
All	Revision A	6/10/2022

Appendix F. EDGE Performance Lift Manual

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1. **SAFETY**

1.1. General Safety Guidelines

QubicaAMF believes strongly in its commitment to safety. Proper service and repair are important to the safety of the mechanic as well as the safe, reliable operation of the pinspotters. Please read, understand, and follow all of the recommended safety procedures presented in this manual.

The procedures recommended and described in this technical manual are effective methods of performing service and repair. Some of these procedures might require the use of tools specially designed for this purpose.

- **Properly trained personnel should be present whenever maintenance is being performed on a pinspotter.**
- **No unauthorized personnel should be allowed in the pit area.**
- **Keep in mind that the pinspotter performs a series of mechanical motions and electrical actions during each cycle, and that bodily injury could result should personnel enter the machine when power is on. When working on a pinspotter, it is recommended that power also be turned off on adjacent machines.**
- **Remember that safety must remain your first priority at all times.**
- **Safety goggles, ear protection, and steel-toed shoes are recommended whenever any work is being performed on a pinspotter.**
- **When using cleaners and lubricants, always follow the precautions on the product label.**
- **Wearing loose clothing or jewelry is <u>NOT RECOMMENDED</u> when operating or maintaining the machinery.**

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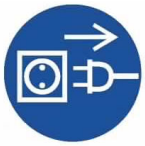
1.2. Safety Labels and Symbols

It is important to note that this manual contains various symbols and wording that provide information that must be carefully followed in order to reduce the risk of personal injury during service or repair, or that warn of the possibility that improper service or repair may damage the pinspotter or render it unsafe.

Additionally, the QubicaAMF **Error! Unknown document property name.** pinspotter has a number of built-in features and components as well as various warning labels that are designed to minimize and warn against the risks associated with this equipment. Heed all warnings and do not defeat the safety features that come with your pinspotters. Never place the machine into service with any of the guards removed.

Some of the warning labels you may observe on the pinspotter or within this manual are shown on the following pages.

	This symbol means STOP, DO NOT PROCEED, and is a warning that hazards could exist. It is often followed by other symbols.		This symbol means that the mechanic should read, understand, and follow the technical manual before servicing the machine.
	This symbol indicates a LOCKOUT/TAGOUT point for performing maintenance.		This symbol reminds the user to remove main power from the machine prior to performing maintenance.
	This symbol warns the mechanic to unplug the motor before servicing.		This symbol indicates STOP! NO ACCESS FOR UNAUTHORIZED PERSONS. Service should be performed by authorized, trained personnel only.
	This symbol indicates that eye protection is required.		This symbol indicates that hearing protection is required.
	This symbol is a warning against breaking a photo eye beam, which will cause the machine to cycle.		This symbol indicates that the machine may start or cycle automatically without warning.

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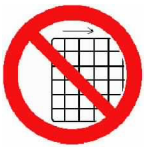
	This symbol states that a crushing hazard exists.		This symbol is a warning against operating the equipment with the guards removed.
	This symbol denotes that an entanglement hazard associated with gears exists.		This symbol denotes that an entanglement hazard associated with belts and pulleys exists.
	This symbol warns that a falling hazard exists.		This symbol warns that a tripping hazard exists.
	This symbol states that use of a pin hook is required.		This symbol warns that use of a dust mask is required.

The symbols on this and the previous page may be displayed as follows:

It is also important to understand that the use of these symbols and labels is <u>not</u> all-inclusive because it is impossible to warn of all the possible hazards and consequences that could result from failure to follow these instructions. Trained and competent bowling center mechanics are able to recognize and avoid potentially hazardous situations.

1.3. Guards and Safety Precautions

All safety guards must be in place before operating the machine. When maintenance is required, the following steps <u>must be followed:</u>

1. Place the Sweep in the 1st Guard position.
2. **<u>Disconnect power</u>** before working on the pinspotter.
3. **<u>Lockout/Tagout (LOTO)</u>** machines being worked on.

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4. Use lane barriers when working in front of machine.
5. Remove guards only as required to perform the maintenance.
6. Once maintenance is complete, replace all guards.

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2. **INTRODUCTION**

2.1. How To Use This Manual

This manual is provided for use by trained and authorized bowling center mechanics in conjunction with the adjustment, operation, and maintenance of EDGE Performance Lifts installed in QubicaAMF EDGE Free Fall pinspotters. The purpose of this manual supplement is to consolidate all of the applicable information into one easy-to-use document making finding the information you need simpler and faster when compared to having the information scattered throughout the pinspotter manual.

This manual does not cover initial installation of the pinspotter but does cover removal and reinstallation of the EDGE Performance Lift for maintenance and adjustment. Refer to the drawings at the back of this manual for detailed views of the Lift's construction.

There are six parts to this manual supplement: Safety, Introduction, Operation, Maintenance, Adjustment, and Drawings & Parts Lists.

- The Safety Section provides information on precautions that should be taken when working in and around the Lift, including examples of safety labels and symbols used on the pinspotter to indicate potential hazards.

- The Introduction Section outlines the manual.

- The Operation and Maintenance Sections describe how the lift works, including a description of its components as well as information relating to the type and frequency of maintenance required by the unit. Maintaining the Lift in accordance with this section can help attain maximum component life and trouble-free operation.

- The Adjustment Section provides drawings and step-by-step instructions for making the few adjustments required by the Edge Performance Lift. Additionally, there are procedures for the unit's removal, disassembly, and reassembly for repair or maintenance.

- The Drawings & Parts Lists Section is designed to be an invaluable tool for identifying parts and part numbers for maintenance and repair of the unit.

This manual is intended to be a supplement to, and is included with, the QubicaAMF *EDGE* Free Fall Pinspotter Manual Set.

Refer to the Safety Section of this manual before proceeding with Lift maintenance.

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3. **OPERATION, MAINTENANCE, & ADJUSTMENT**

3.1. Lift Operation

The EDGE *Performance Lift* transfers pins from the pin conveyor belt in the pit to the distributor for delivery to the bin assembly. The unit is driven by the backend motor using a belt and a pulley and sprocket assembly. Some of the lift's features include:

- A sprocket driven chain to which the pin flight cups and tabs are attached.
- A roller chain that travels within a replaceable track sandwiched between the front and rear panels.
- The removable plow assembly attached to the front panel.
- A fixed orientor pan (o-pan) Assembly that is attached near the top of the lift during pinspotter installation and that requires no adjustment.
- A set of carrier rails that guide the pins to the exit opening and pivot outward to prevent damage should a pin jam occur. Simply clear the jam and pop them back into place. No adjustment needed.

When the pins are knocked down or swept onto the pit conveyer belt, they are deflected by the plow assembly to the center of the lift where they are picked up by the chain-driven flight cups and carried to the top of the lift.

When a pin reaches the top of the lift, it is deposited onto the o-pan which orients it bottom first onto the distributor belt. As the pin reaches the end of the distributor, the weight of the pin causes the trip lever to pivot downward depositing the pin in the bin. The trip lever also causes the cam gear to index the distributor to the next bin position.

3.2. Maintenance

3.2.1. General Guidelines

- DO NOT use solvent-based cleaners on the Lift's components.
- NEVER use a parts washer to clean the Chain Assembly.
- DO NOT lubricate the chain while installed in the track. Remove the chain, apply LPS #2, allow it to dry, and reinstall. NEVER use grease as a chain or sprocket lubricant. Grease will lock up the chain rollers and cause excessive track wear.
- DO NOT use excessive force to remove a bowling pin if it is jammed in the lift's exit opening. Remove the distributor drive shaft and then carefully reverse the drive by pulling down on the pit conveyor drive belt**. Failure to remove the distributor drive shaft could result in damage to the distributor clutch**.

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- DO NOT install the carrier rails upside down. The pointed end always faces down.
- DO NOT stand on the lower rim of the rear panel. It is not intended to be used as a step.
- DO NOT use excessive force when installing the center guard. Adjust in accordance with the instructions in Section 3.3.3.
- DO NOT run the pinspotter without the carrier rails installed. Pins repeatedly falling back into the unit could damage the chain track.
- DO NOT run the machine with the exit opening blocked. Pins repeatedly falling back into the unit could damage the chain track.
- NEVER place the machine in service without the guards in place.

3.2.2. Periodic Maintenance

Weekly:

1. Inspect the pin ejector springs – make sure both are in place.

2. Inspect the carrier rails for the correct installation direction - (pointed end down).

Every 25,000 Frames:

1. At the system controller, select the pinspotter to be serviced by pressing the EVEN/ODD button so the arrow is pointing toward that lane.
2. Press MODE button to place pinspotter into mechanic mode.
3. Press SWEEP RUN button until sweep is at 1st guard position.
4. Switch off both breakers on system controller.
5. Implement Lockout/Tagout (LOTO).
6. Deploy lane barriers.
7. Remove the center guard from the edge lift.
8. Disengage and remove the carrier rails.
9. Using a shop towel, spray with a water base cleaner.
10. Wipe the edge lift inner and outer shells, plows, flight cups, and tabs.
11. Spray additional water base cleaner on the shop towel as needed to keep damp. Replace with a clean shop towel as needed.
12. To clean the area of the edge lift chain assembly concealed by the o-pan, remove the light ball sensor (LBS) guard. Grab the corresponding pit conveyor drive belt just below the belt tensioner and pull downward. This will rotate the edge lift in the normal direction. Continue rotating until the area of chain lift not yet cleaned is easily reached. Wipe this area with the shop towel dampened with a water based cleaner.
13. Using a clean shop towel, spray with a vinyl type dressing such as Armor-All™.
14. Wipe the edge lift inner and outer shells, plows, flight cups, tabs, and carrier rails.

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15. Spray additional Armor-All™ on the shop towel as needed to keep damp. Replace with clean shop towel(s) as needed.
16. To apply Armor-All™ to the area of the edge lift chain assembly concealed by the o-pan, grab the corresponding pit conveyor drive belt just below the belt tensioner and pull downward. This will rotate the edge lift in normal direction. Continue rotating until area of chain lift not wiped with Armor-All™ is easily reached. Wipe this area with the shop towel dampened with Armor-All™.
17. Inspect for loose, missing, bent or broken parts and hardware. Make a note or repair as necessary.
18. Remove all tools and supplies.
19. Install the LBS Guard.
20. Install the carrier rails - pointed end facing downward.
21. Install the center guard.
22. Remove lane barriers.
23. Remove LOTO.
24. Switch on both breakers.
25. At system controller press the white e-stop RESET button.
26. Press TROUBLE CLEAR button.
27. Press HOME button.
28. Press CYCLE button.
29. Ensure a full set of pins is spotted and the distributor is filling the durabin in correct orientation.
30. Press MODE button to place pinspotter into standby mode.

Every 50,000 Frames:

1. At the system controller, select the pinspotter to be serviced by pressing the EVEN/ODD button so the arrow is pointing toward that lane.
2. Press MODE button to place pinspotter into Mechanic Mode.
3. Press SWEEP RUN button until sweep is at 1st Guard position.
4. Switch off both breakers on system controller.
5. Implement Lockout/Tagout (LOTO).
6. Deploy lane barriers
7. Remove the center guard from the edge lift.
8. Using a light, visually inspect the components (flight cups, tabs and track) of the chain assembly looking for worn, broken, cracked, or damaged parts. Note for repair.
9. Check for excessive rust/dirt accumulation on chain and in track. If excessive, note for repair.
10. Install the center guard.
11. Remove lane barriers
12. Remove LOTO.
13. Switch on both breakers.
14. At system controller press white e-stop RESET button.
15. Press TROUBLE CLEAR button.
16. Press HOME button.
17. Press CYCLE button.

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18. Ensure a full set of pins is spotted and the distributor is filling the Durabin in correct orientation.
19. Press MODE button to place pinspotter into standby mode.

Every 100,000 Frames:

1. Remove the lift. See **Lift Removal** page **19**.
2. Lay down or rest the edge lift against a wall / bench to allow access to the plow assembly.
3. Check and tighten the hardware holding the plow brackets to the front panel, plow brackets to the plows, center plow to the front panel, and outer plows to the center plow. Don't over torque the bolts – torque to a maximum of 50 in-lbs. Replace any missing or damaged hardware.
4. Check the drive belt for wear and cracking – replace as needed.
5. Ensure that the drive belt is placed over the drive pulley on the back end gearbox.
6. Reinstall the Lift. See **Lift Installation** page **22**.
7. Remove LOTO on lane being serviced.
8. Switch on breaker.
9. Press the EVEN/ODD button so arrow is pointing to lane being serviced.
10. At system controller press white e-Stop RESET button.
11. Press TROUBLE CLEAR button and let back end run for a couple of minutes.
12. Switch off breaker.
13. Perform LOTO.
14. Remove the LBS guard.
15. Loosen the clamping bolt securing the edge lift tension pulley and check adjustment pointer. Tighten if necessary to align pointer to bracket. Tighten the clamping bolt.
16. Remove lane barriers
17. Remove LOTO both lanes.
18. Switch on breakers.
19. Press TROUBLE CLEAR button.
20. Press HOME button.
21. Press the MODE button to place pinspotter into standby mode.
22. Press the EVEN/ODD button.
23. Press TROUBLE CLEAR button.
24. Press HOME button.
25. Press the MODE button to place pinspotter into standby mode.

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Every 200,000 Frames:

1. Remove the lift. See **Lift Removal** page **19**.
2. Disassemble the Lift. See **Lift Disassembly** page **20.**
3. Inspect all components thoroughly for excessive wear and damage. Replace components as needed.
4. Remove and clean the chain with LPS #2 only (this cleans, lubricates, and applies a rust inhibitor to the chain).
   LPS #2 is available from QubicaAMF as follows:
   20 oz trigger spray 715-021-912
   1 gallon can 715-022-013.
5. Spray LPS #2 on the chain and wipe between each roller with a cotton towel. Repeat for both sides of the chain. Wipe, but do not remove all of the LPS #2. Apply extra LPS #2 if any signs of rust are noticed around link pins or rollers.
6. Wipe down the attachment links, flight cups and flight tabs.
7. Clean the interior of the track (where the chain rollers ride).
8. Use dish detergent (like Dawn™) diluted 1 part dish detergent to 20 parts water and reach inside the track and rub off dirt buildup.
9. Dry or allow the track to dry before assembly.
10. Clean and inspect the drive assembly.
11. Check the drive sprocket teeth for excessive wear. Replace as needed.
12. Check the drive shaft for rust. If necessary, use steel wool to remove rust and treat with LPS #2.
13. Check the drive bearings for radial and axial play. Replace worn components if necessary.
14. Inspect metal brackets for cracks or rust. Repair or replace if necessary.
15. Replace bent, missing, or stripped hardware as needed.
16. Inspect the o-pan for bends, cracks, and excessive wear. Check the protective rubber edging on the support bracket. Replace if necessary.
17. Assemble the Lift. See **Lift Reassembly** page **21**.
18. Reinstall the Lift. See **Lift Installation** page **22**.
19. Install the LBS guard.
20. Install the edge lift center guard.
21. Remove LOTO on lane being serviced.
22. Switch on breaker.
23. Press the EVEN/ODD button so arrow is pointing to lane being serviced.
24. At system controller press white e-stop RESET button.
25. Press TROUBLE CLEAR button, let backend run for a couple of minutes.
26. Switch off breaker.
27. Perform LOTO
28. Remove the LBS guard.
29. Loosen the clamping bolt securing the edge lift tension pulley and check adjustment pointer. Tighten if necessary to align pointer to bracket. Tighten the clamping bolt.
30. Remove lane barriers.
31. Remove LOTO both lanes.
32. Switch on breakers.

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33. Press TROUBLE CLEAR button.
34. Press HOME button.
35. Press the MODE button to place pinspotter into standby mode.
36. Press the EVEN/ODD button.
37. Press TROUBLE CLEAR button.
38. Press HOME button.
39. Press the MODE button to place pinspotter into standby mode.

Note: NEVER use solvent-based cleaners or parts washers on the Lift or its components including the Chain Assembly.

3.3. Adjustments

The Edge Performance Lift is designed to require a minimum of adjustment. However, the few adjustments that are necessary are very important.

3.3.1. Hardware

Unless specified differently elsewhere, tighten all fasteners to a maximum of 50 in-lbs.

3.3.2. Drive Belt Tension

The drive belt tension must be high enough to ensure that the unit can transfer a full load of pins from the pit to the distributor and to ensure that the clutch (see section 3.7) slips before the belt does. This is accomplished by keeping the drive belt tension adjusted properly as follows:

To check/adjust belt tension:

Loosen the tension retaining bolt in the adjustment slot (see Figure 1). This bolt MUST be loosened to check or adjust belt tension.

If the washer on the Tension Adjustment Screw is touching the spacer, turn the adjustment screw in the counterclockwise direction until a gap appears between the washer and spacer, and then turn the screw clockwise until the washer just touches the spacer.

If a gap forms between the spacer and the washer on the Tension Adjustment Screw after loosening the Tension Retaining Bolt, turn the adjustment screw in the clockwise direction until the washer just touches the spacer.

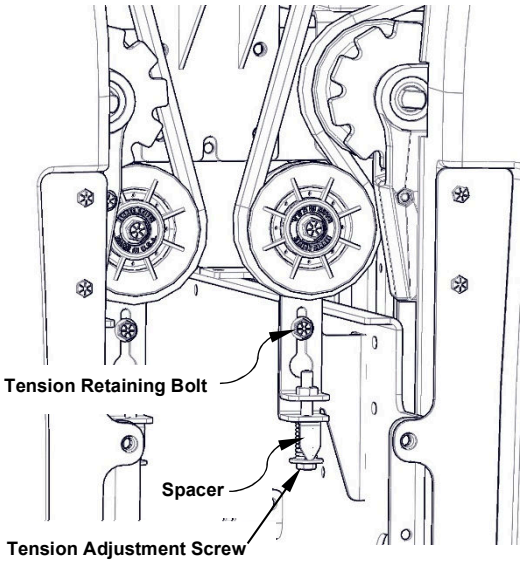

Figure 1, Drive Belt Tension Adjustment

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Tighten the Tension Retaining Bolt.

Compressing the spring of the adjustment assembly so that the washer just touches the spacer will result in the correct belt tension. The belt could stretch slightly after the first month or two of operation. Check and adjust the belt tension following the first 30 to 60 days of initial operation or belt replacement. Very little belt stretching should occur after that.

Whenever the belt has been removed (such as when the lift assembly is removed for pinspotter maintenance), following reinstallation and belt tensioning, run the lift for approximately 30 seconds and then recheck and adjust belt tension.

3.3.3. Center Guard Adjustment

The Lift's Center Guard is held in place at three points: at the top center and at approximately the 4:00 o'clock and 8:00 o'clock positions (see Figure 2). When correctly adjusted, the guard should be held firmly in place without rattling and should not be dislodged by vibrations from pin action or machine operation. The guard contains a magnetic interlock assembly that will function to shut down the pinspotter pair if the guard is removed. To prevent an unintentional shutdown of the pinspotter, it is important that the guard be adjusted properly.

- Remove the guard from the unit.
- Remove the plug from the outer surface of the guard.
- With a wrench or socket on the outer hex lock nut to keep it from turning, turn the elevator bolt to achieve the proper gap.
- Tighten the inner hex lock nut.
- Reinstall the plug.

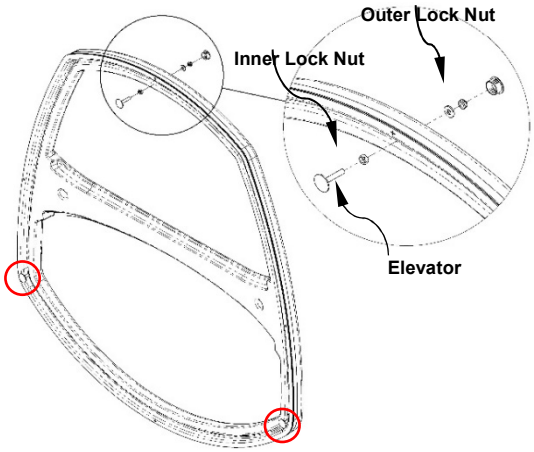

Figure 2, Center Guard Adjustment

Adjust the upper center guard bolt to approximately 7/16" (.425-.450") (Figure 3)

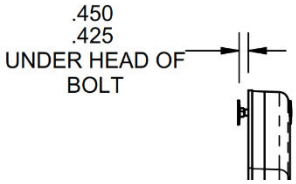

Figure 3 – Upper bolt gap

Adjust the lower center guard bolts to approximately 5/16" (.300-.350") – (Figure 4)

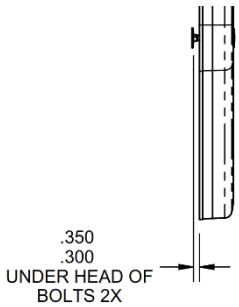

Figure 4 – Lower bolts gap

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3.4. Lift Removal

NOTE: Removing the lift is a two-person job.

Tools Needed

½-inch and 9/16-inch wrenches or sockets and ratchet

Wooden wedges - Make two wooden wedges 2' long by 4" wide by 4" high (this may vary due to floor depth from pin deck).

Some pinspotter installations include a safety guard enclosure system. It might be necessary to remove some of the guard panels or ladder assemblies before removing the Lift from the pinspotter. Refer to the documentation supplied with the safety guard enclosure for more information.

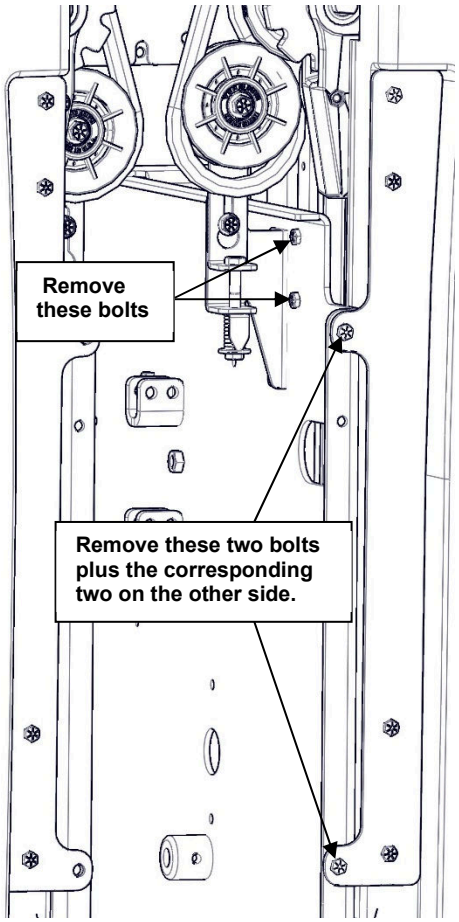

Figure 5, Lift Removal

1. At system controller select pinspotter to be serviced by pressing the EVEN/ODD button so arrow is pointing toward that lane.
2. Place pinspotter in mechanic mode by pressing MODE button.
3. Run sweep to 1st Guard position by pressing the SWEEP RUN button.
4. Press the EVEN/ODD button so arrow is pointing to opposite lane.
5. Place pinspotter in mechanic mode by pressing MODE button.
6. Run sweep to 1st Guard position by pressing the SWEEP RUN button.
7. Switch off breakers.
8. Perform Lockout/Tagout (LOTO).
9. Deploy lane barriers on both lanes.
10. Remove the Center Guard and store out of the way.
11. Loosen the clamping bolt securing the Light Ball Sensor (LBS) guard to the system controller mount. Lift guard upward to release bottom. Set guard aside.
12. Remove the nuts and bolts securing the controller guard and bracket to both rear end guards (bolted to the top of the edge lifts) - Do not remove the guards from the edge lifts. Set controller guard and bracket aside.
13. Remove the nut and bolt securing the rear end guard to the handrail.
14. Remove the ladder assembly from the handrails and from the feet and set aside. Do not remove the feet secured to the concrete floor.
15. Loosen the belt's tension retaining bolt (see Figure 1).
16. Turn the Tension Adjusting Screw counterclockwise to fully loosen the tensioning pulley.
17. Remove the Drive Belt from the Sprocket Drive Pulley.

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18. Remove the two bolts next to the Tensioning Bracket (see Figure 5).
19. Slide the wedges under the edge lift to support it and remove the four bolts (two on each side) that secure the unit to the pinspotter Kickback Plates.
20. Raise the unit several inches, tilt the top away from the pinspotter, and remove the unit. Raising and tilting are necessary to ensure the plow clears parts of the pinspotter that protrude inward behind the plow assembly.

3.5. Lift Disassembly and Reassembly

Disassembly is not required frequently and is designed to be accomplished with a minimum of tools and training. Things that require disassembly and their recommended frequencies are listed below. Your experience may dictate more or less frequent disassembly.

Maintenance/Repair	**Frequency**
• Inspect Track for wear	2 years or 200,000 frames
• Replace Track	As needed
• Clean inside of Track	When disassembled for any other reason
• Oil Chain (use LPS #2 only!)	2 years or 200,000 frames

The preferred orientation for disassembling and assembling the Lift is in the horizontal position, but the unit can be disassembled in the vertical position as well. Do not let the unit fall over during disassembly, **and be careful not to let any spacers (especially the six spacers along the top) fall into the interior of the front panel of the unit.**

3.5.1. Lift Disassembly

(Refer to the drawings on pages 22 through 27)

1. Remove the carrier rail assembly.
2. Remove the orientor pan by removing the four bolts and two braces from under the pan.
3. Remove the plow assembly.
   a) Remove the four bolts and nuts (two on each side at the lower end of the long mounting bracket) that attach the plow's side brackets to the housing.
   b) Remove the four long bolts and spacers located along the lower edge of the plow. **During disassembly, keep each group of spacers with their associated components. The different groups of spacers are of different lengths and are not interchangeable.**
5. Uncouple the two halves of the lift assembly.
   a) Remove the bolt from the center of the drive pulley and carefully remove the drive pulley and clutch components from the drive sprocket assembly.
   b) Remove the six bolts and spacers along the top of the lift. **Do NOT let the spacers fall into the double-walled inside half of the Lift.**

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c) Remove the four remaining bolts and nuts, the long and short mounting brackets, and the two lower spacers from the sprocket drive side of the unit.
d) Carefully separate the lift's two halves. The spacers passing through the sprocket drive assembly and the two spacers on the opposite side of the unit are tight-fitting and should remain with one half of the assembly.
e) Remove the track and chain assembly. The sprocket drive housing is attached to the track and chain assembly and is held in place by the two spacers that pass through the sprocket housing and lift panel.

6. Remove the chain assembly from the track:
   a) Remove the sprocket drive assembly. Four screws attach it to the track.
   b) Rotate the chain in the track until the connecting link (the link with cotter pins) is in the cutout opening below the sprocket drive location. The connecting link rollers are painted red to aide in identification.
   c) Remove the hardware on the upper track that attaches the two halves of the track together and push the two halves together (Figure 6). This will allow enough slack in the chain so that the connecting link can be pulled out of the opening below the sprocket location for link disassembly.
   d) Remove the connecting link.
   e) Separate the upper and lower chain tracks and carefully remove the chain assembly from the tracks.

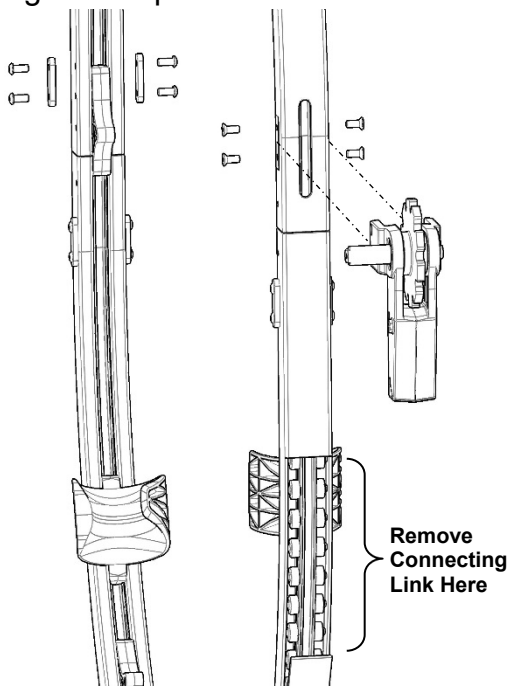

Figure 6, Track Disassembly

3.5.2. Lift Reassembly

(Refer to the drawings on pages 30 & 31 for part identification.)

1. Insert the chain assembly into the upper and lower tracks positioning the two ends as close to the opening at the track flap as possible.
   a) For ODD numbered machines (lanes), the flight cups point away when the drive assembly is on the left.
   b) For EVEN numbered machines, the flight cups point away when the drive assembly is on the right.

   The Even and Odd Chain Assemblies are NOT interchangeable.
2. With the urethane sleeves installed in the cutout at the drive sprocket location, insert the track joiners into the upper track and bring the two track halves together.
3. Install the connecting link in the opening at the track flap.
4. Install the sprocket drive.
5. Pull the two halves of the track apart by hand (don't pry them) to tighten the chain and align the screw holes, and install the key plates and screws. If more or less

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chain tension is required, the lower track is slotted where the connection screws pass through to allow adjustment.

6. Install the track and chain assembly in the rear panel. You should be able to easily rotate the chain assembly.
7. Align and install the front panel making sure to use the spacers in their original locations. Tighten hardware to 50 in-lbs. Refer to the drawings in the parts section.
8. Install the plow assembly.
9. Install the orientor pan and support braces.
10. Install the pulley and clutch assembly on the sprocket drive shaft as shown in Figure 8. **Tighten the screw to 250 in-lbs**.

3.6. Lift Installation

This procedure should be performed by at least two people.

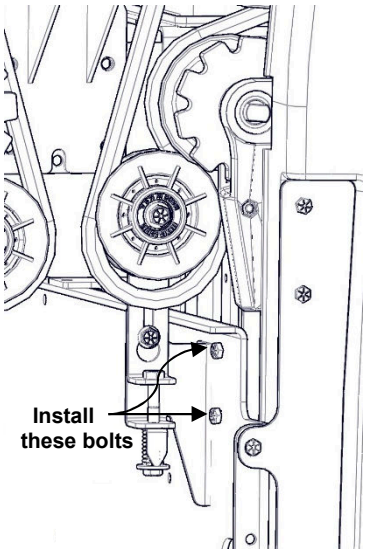

Figure 7, Lift Installation

1. Raise the unit several inches, tilt the top away from the pinspotter, and install the unit. Raising and tilting are necessary to ensure the plow clears parts of the pinspotter that protrude inward from the Kickback Plates.
2. Place the edge lift onto the two wooden wedges (see L page 19) and install the four bolts (two on each side) that secure the lift to the pinspotter kickback plates.
3. Install the two bolts next to the tensioning bracket (see Figure 7).
4. Install the drive belt onto the sprocket drive pulley.
5. Engage and turn the tension adjusting screw clockwise compressing the spring until the washer just touches the spacer. Refer to section 3.3.2 Drive Belt Tension page 17 for details concerning belt tension adjustment.
6. Tighten the belt's tension retaining bolt.
7. Install the center guard.
8. Install the LBS guard assembly.
9. Run the pinspotter back end for approximately 30 seconds and then recheck the drive belt tension in accordance with section 3.3.2.

3.7. Drive Clutch

The drive pulley & sprocket assembly contains an in-line clutch that is designed to slip whenever the drive chain stalls, such as when a pin jam occurs. This helps prevent damage to the o-pan assembly that could be caused by a pin jam, and it keeps the drive belt from slipping which could cause the belt to overheat, shortening its life.

The clutch assembly consists of spacers, a shim [where necessary], a series of stacked belleville washers (that maintain the necessary tension), a clutch plate, and a friction disc. Normally, all clutch components rotate in unison with the drive sprocket, so little if

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any wear is expected. If the drive chain stops for any reason while the backend motor is running, the friction plate, which is keyed to the sprocket shaft, stops while the drive pulley and friction disc continue to rotate. The amount of force it takes to cause the clutch to slip is determined by the amount of tension provided by the belleville washers. This varies slightly from clutch to clutch because of manufacturing tolerances, so shims are used when necessary to fine-tune the breakaway torque (125 -150 in-lbs).

Whenever disassembling a clutch assembly (the clutch plate and friction disc should be cleaned periodically) be sure to reassemble them in the same order and orientation as originally found. Be sure the original shim (if present) is reused and fully tighten the retaining screw. Changing components can result in too much or too little breakaway torque. Do not lubricate clutch components.

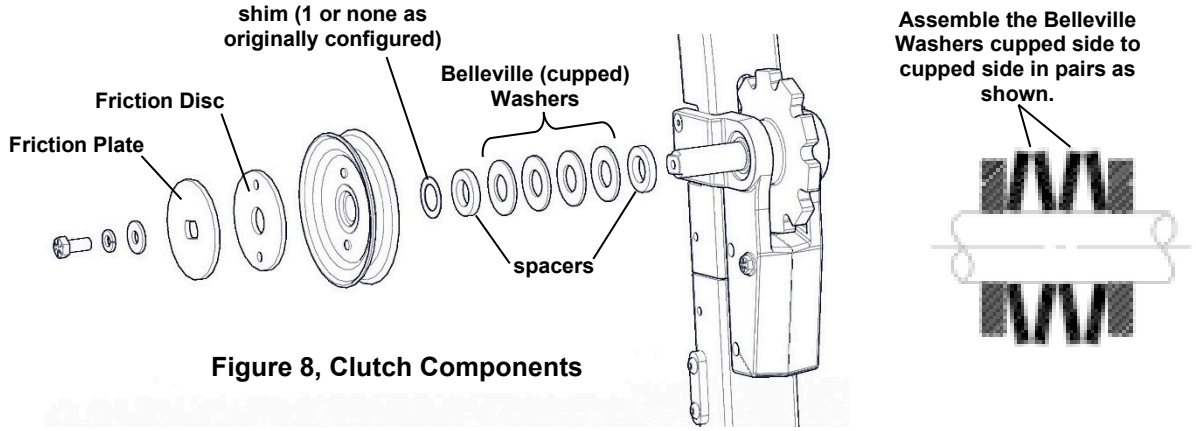

Figure 8, Clutch Components

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4. DRAWINGS AND PARTS LISTS

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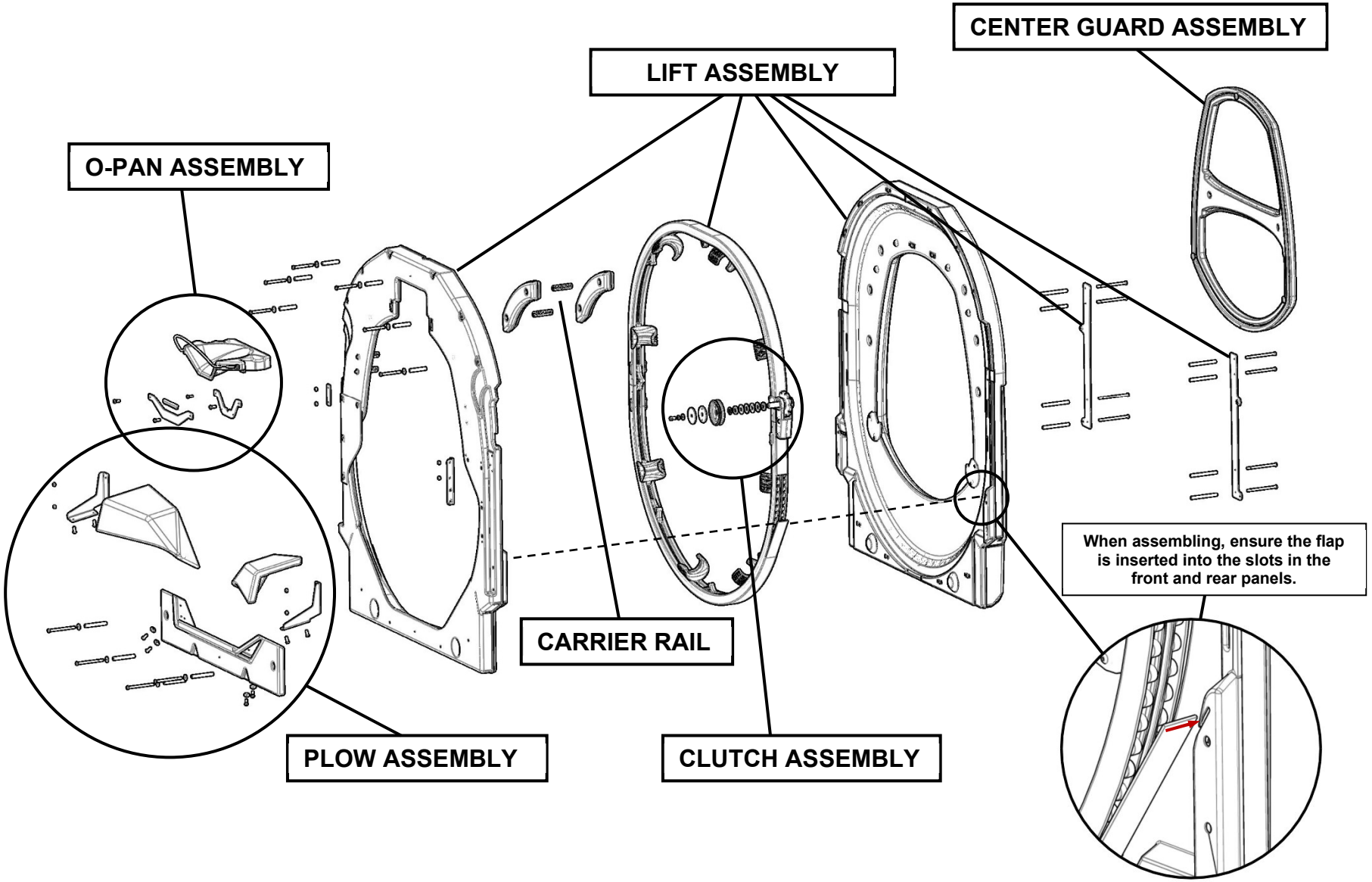

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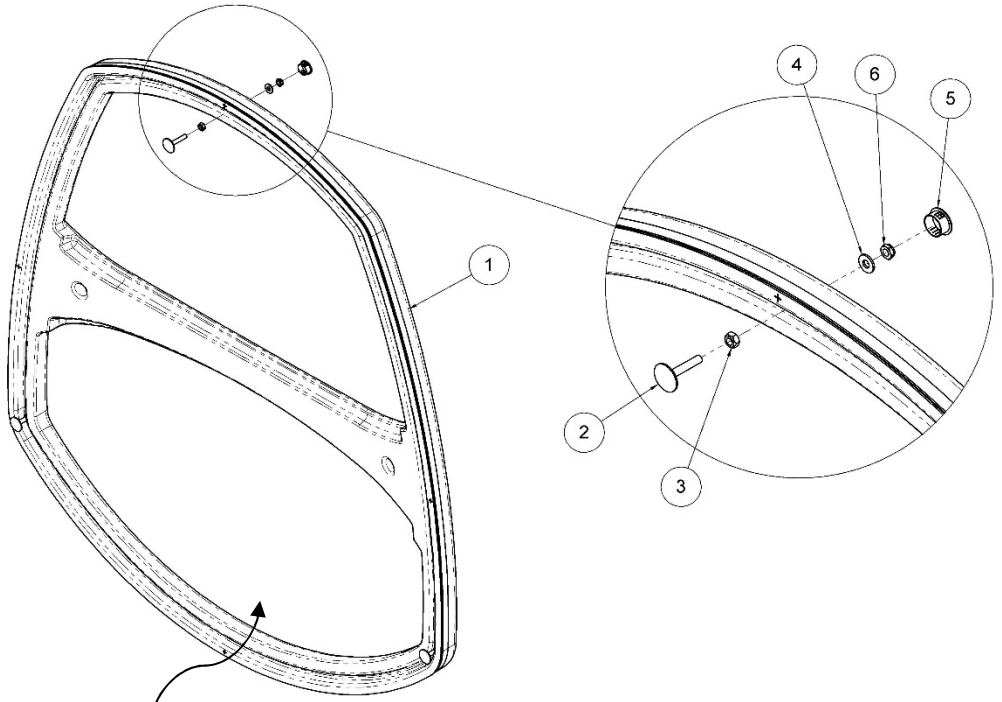

Mesh removed for clarity

CENTER GUARD ASSEMBLY

ITEM	PART #	DESCRIPTION
1	088-001-502	CENTER GUARD FRAME & MESH
2	801-548-241	ELEVATOR BOLT, ¼-20 X 1-1/ 2, BLACK
3	844-049-002	NUT, ¼-20, HEX, STOVER LOCK
4	948-753-102	FLAT WASHER, ¼, BLACK
5	719-024-009	PLUG, ¾, NYLON
6	838-849-007	NUT, ¼-20, HEX, LOCK, NYLON INSERT, THIN

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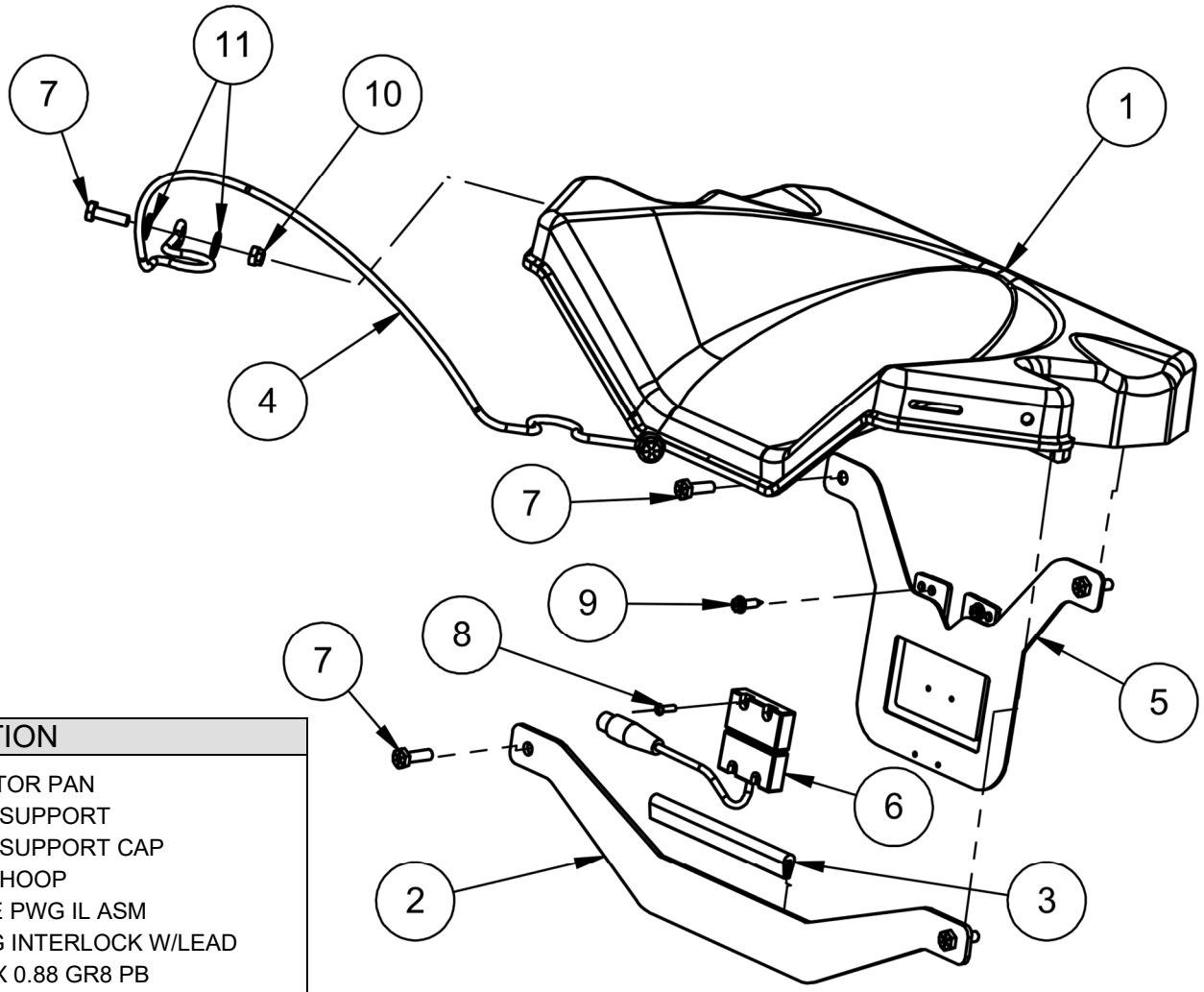

ORIENTOR PAN ASSEMBLY

ITEM	PART #	DESCRIPTION
1	088-001-504	EDGE ORIENTOR PAN
2	088-001-513	EDGE O-PAN SUPPORT
3	088-001-519	EDGE O-PAN SUPPORT CAP
4	088-001-576	EDGE O-PAN HOOP
5	088-201-006	CE2010 EDGE PWG IL ASM
6	770-060-250	SWITCH, MAG INTERLOCK W/LEAD
7	809-849-145	HHCS 1/4-20 X 0.88 GR8 PB
8	811-427-081	BHRCS 6-32 X 0.50 BO
9	839-549-002	HLN 1/4-20 FLX CAD L/F
10	948-753-102	FW 1/4 SAE NS

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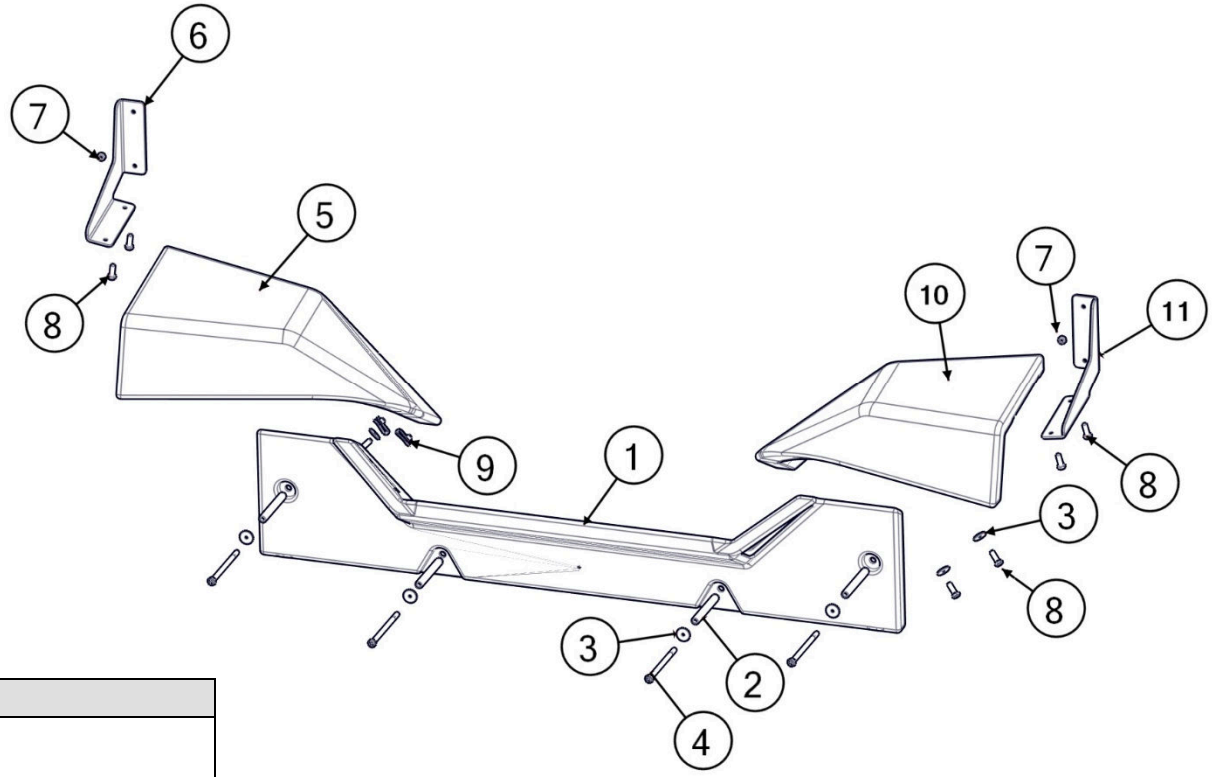

PLOW ASSEMBLY

ITEM	PART #	DESCRIPTION
1	088-001-508	CENTER PLOW
2	088-001-543	SPACER, 4.1” LONG
3	000-026-865	FLAT WASHER, ¼ X 7/8
4	809-849-805	SCREW, ¼-20 X 5, HEX
5	088-001-587	PLOW, 7-PIN SIDE
6	088-001-517	PLOW BRACKET, 7-PIN SIDE
7	844-049-022	NUT, ¼-20, HEX, STOVER LOCK
8	809-849-145	SCREW, ¼-20 X 7/8 HEX
9	088-001-541	U-NUT, ¼-20, LOCK
10	088-001-588	PLOW 10-PIN SIDE
11	088-001-516	PLOW BRACKET, 10-PIN SIDE

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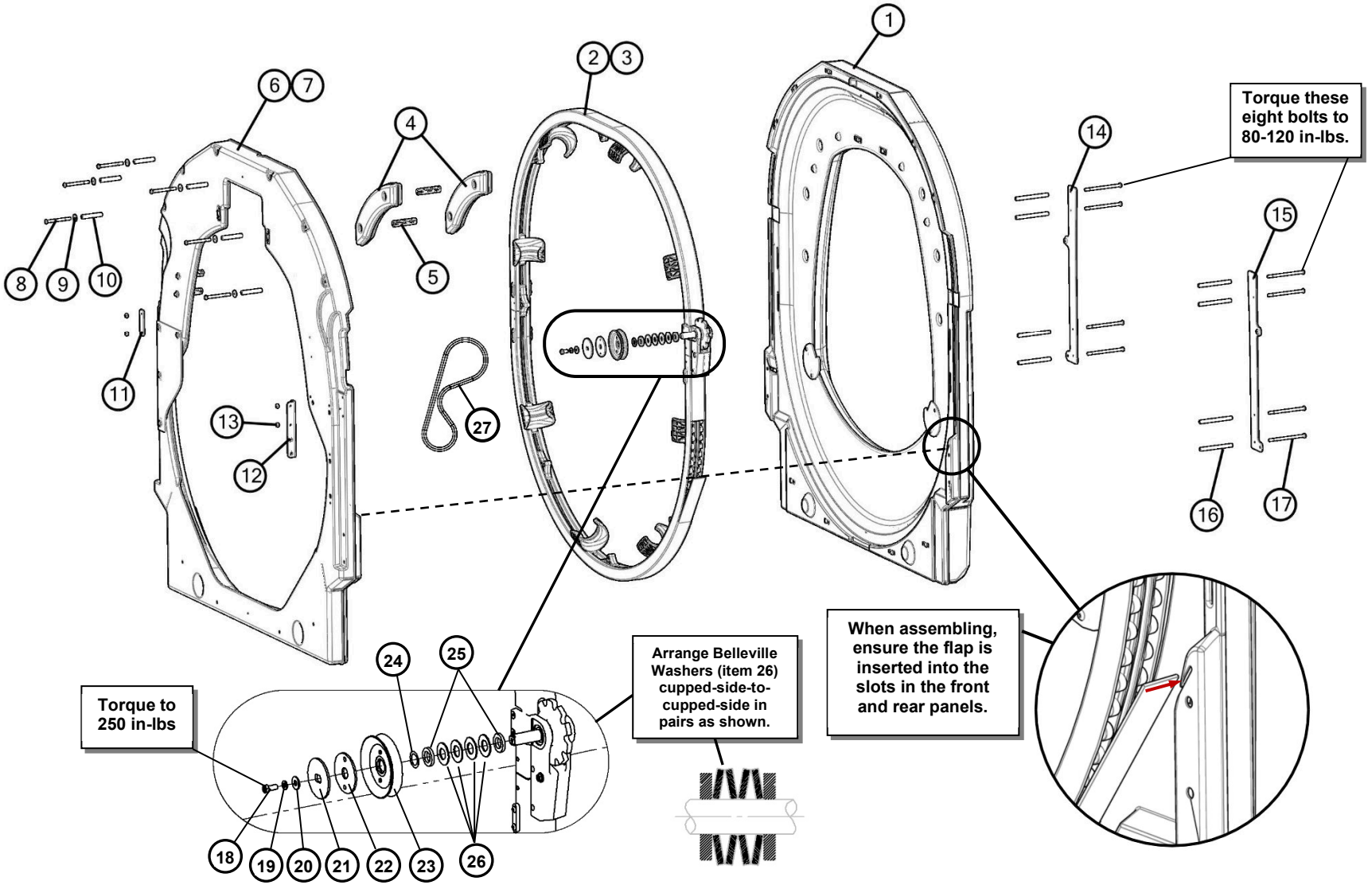
MAIN LIFT ASSEMBLY



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MAIN LIFT ASSEMBLY

ITEM	PART #	DESCRIPTION
1	088-001-585	REAR PANEL ASSEMBLY
2	088-001-565	CHAIN DRIVE ASSEMBLY, ODD
3	088-001-566	CHAIN DRIVE ASSEMBLY, EVEN
4	088-001-507	CARRIER RAIL
5	088-001-518	CARRIER RAIL SPRING
6	088-001-589	FRONT PANEL ASSEMBLY, ODD
7	088-001-586	FRONT PANEL ASSEMBLY, EVEN
8	809-849-605	SCREW, ¼-20 X 3-3/4, HEX
9	000-026-865	FLAT WASHER, ¼ X 7/8
10	088-001-542	SPACER, 3.1” LONG
11	088-001-515	MOUNT FLITCH PLATE
12	088-001-527	FLITCH BRIDGE WELDMENT
13	844-049-002	NUT, ¼-20, STOVER LOCK
14	088-001-579	MOUNTING PLATE, 7-PIN SIDE
15	088-001-580	MOUNTING PLATE, 10-PIN SIDE
16	088-001-544	SPACER, 5.0” LONG
17	809-849-885	SCREW, ¼-20 X 5-1/2, HEX
18	809-857-125	SCREW, 5/16-18 x ¾, HEX
19	951-156-002	LOCK WASHER, 5/16
20	947-356-617	FLAT WASHER, 5/16 USS
21	088-001-829	FRICTION PLATE
22	088-001-828	FRICTION DISC
23	088-001-820	SHEAVE ASSEMBLY
24	088-001-815	SHIM WASHER, .76 X 1.13 X.010
25	088-001-834	EDGE CLUTCH SPACER
26	088-001-818	BELLEVILLE WASHER, .76 X 1.50 X .072
27	088-001-528	HEX V-BELT, 35”

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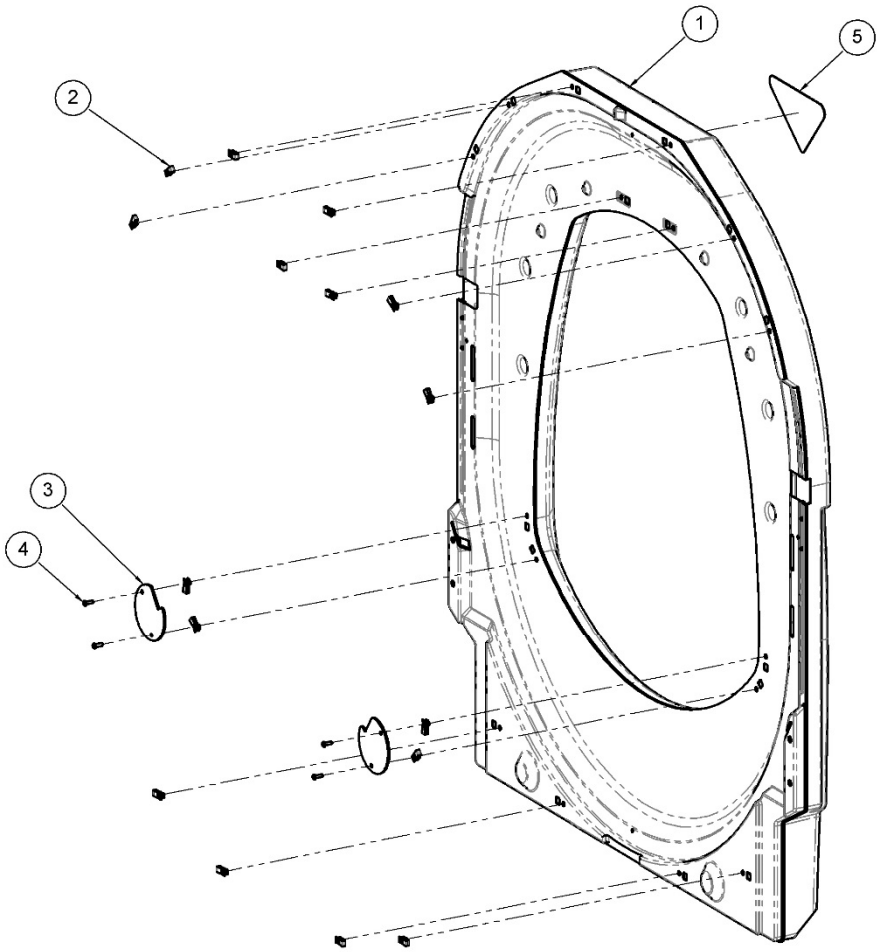

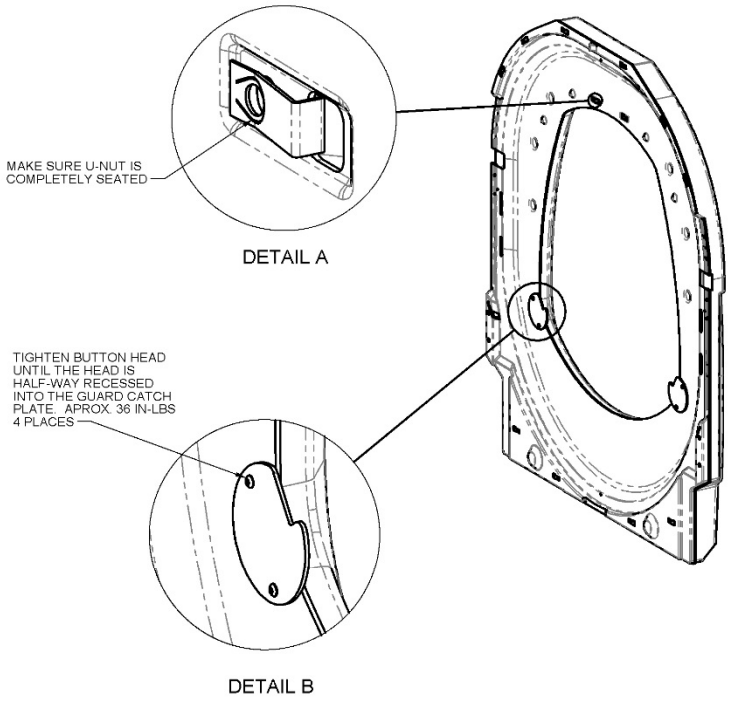

REAR PANEL ASSEMBLY

ITEM	PART #	DESCRIPTION
1	088-001-501	REAR PANEL
2	088-001-541	U-NUT, ¼-20, LOCK
3	088-001-564	GUARD CATCH PLATE
4	808-549-120	SCREW, ¼-20 X ¾, HEX SOCKET BUTTON HEAD
5	252-001-160	DOMETAG, QUBICAAMF LOGO

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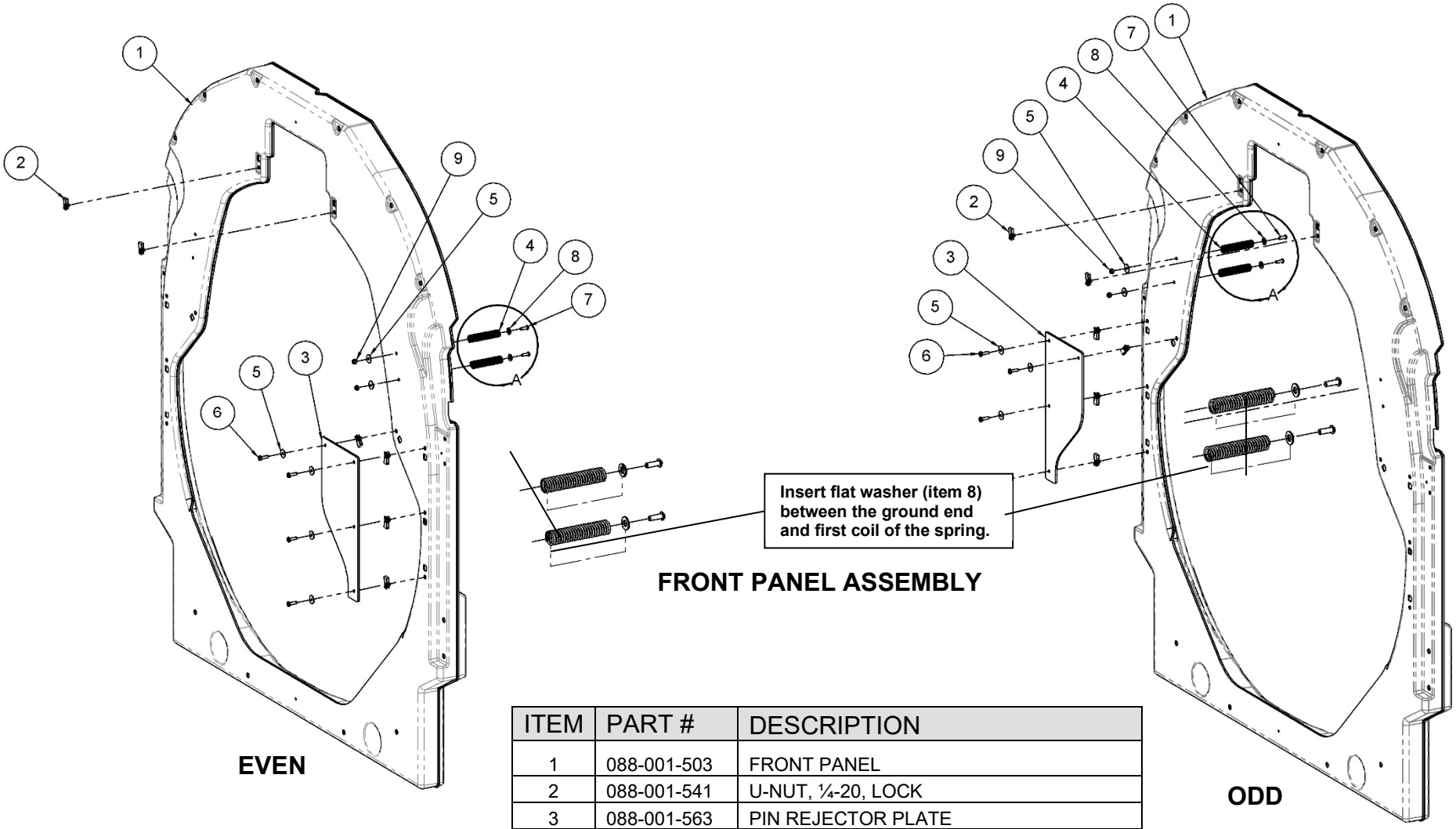

EVEN

FRONT PANEL ASSEMBLY

ODD

ITEM	PART #	DESCRIPTION
1	088-001-503	FRONT PANEL
2	088-001-541	U-NUT, ¼-20, LOCK
3	088-001-563	PIN REJECTOR PLATE
4	088-001-518T	KICKOUT SPRING
5	000-026-865	FLAT WASHER, ¼ X 7/8
6	809-849-145	SCREW, ¼-20 X 7/8, HEX
7	808-549-120	SCREW, ¼-20 X ¾, HEX SOCKET BTN HD
8	948-722-111	FLAT WASHER, 5/16, SAE
9	839-549-002	NUT, ¼-20, FLEXLOC

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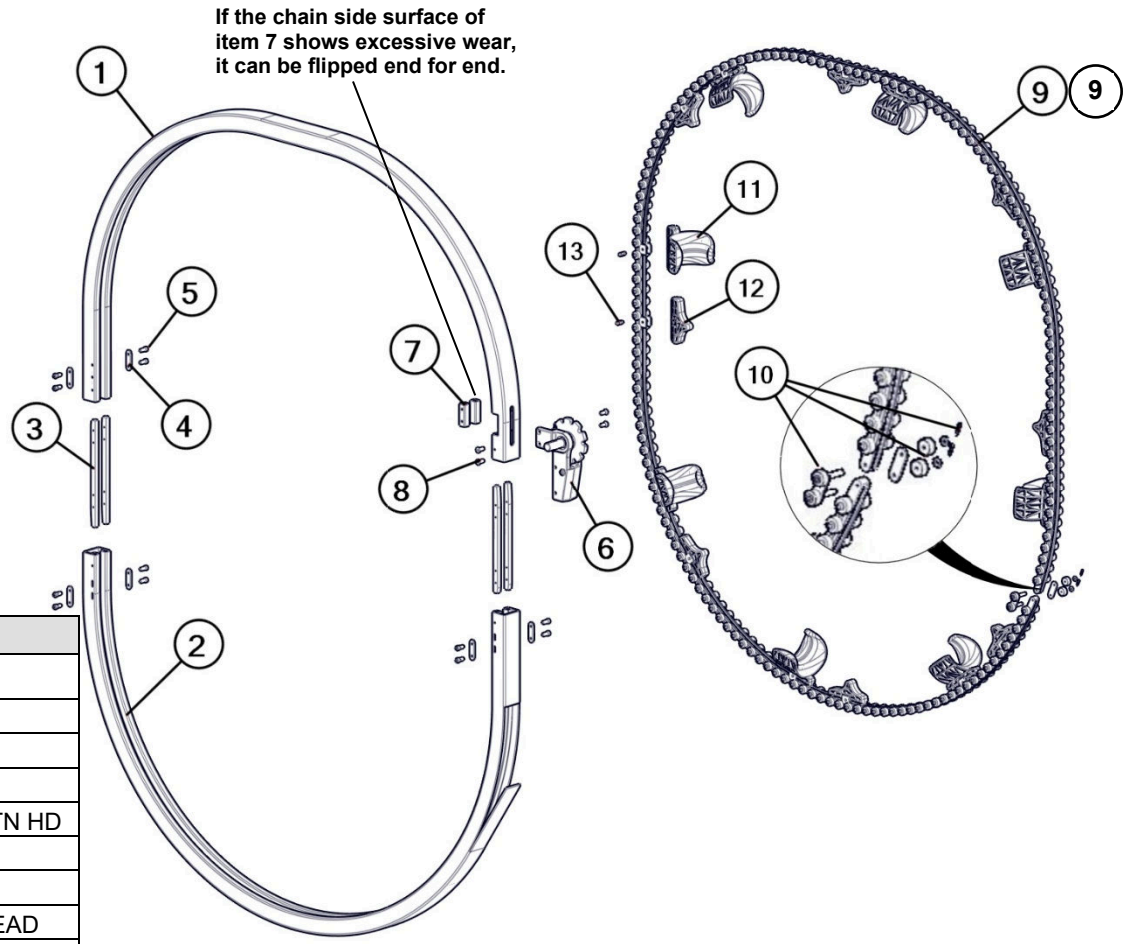

CHAIN DRIVE ASSEMBLY - ODD

ITEM	PART #	DESCRIPTION
1	088-001-553	CHAIN TRACK TOP
2	088-001-554	CHAIN TRACK BOTTOM
3	088-001-556	TRACK JOINER
4	088-001-552	TRACK KEY PLATE
5	808-549-120	SCREW, ¼-20 X 3/4, HEX SOCKET BTN HD
6	088-001-559	DRIVE ASSEMBLY, ODD
7	088-001-555	DRIVE SLEEVE
8	808-849-120	SCREW, ¼-20 X 3/4, HEX SOCKET HEAD
9	088-001-526	ROLLER CHAIN (CHAIN ONLY)
9A	088-001-561	ROLLER CHAIN ASSY, ODD, (INCL 9 -13)
10	088-001-590	CONNECTING LINK
11	088-001-524	FLIGHT CUP
12	088-001-525	FLIGHT TAB
13	908-040-121	GROOVE PIN, ¼ X 3/4

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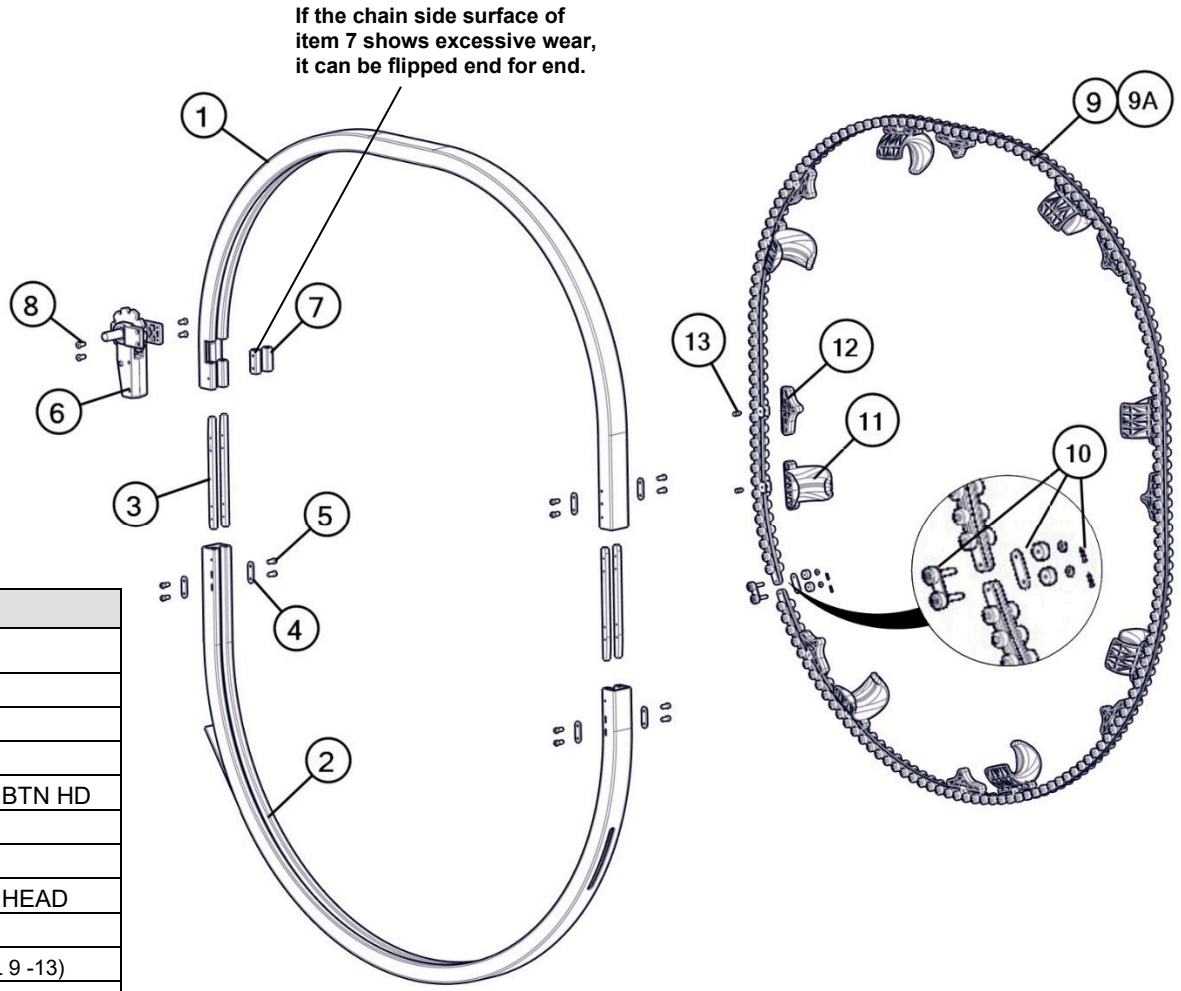

CHAIN DRIVE ASSEMBLY - EVEN

ITEM	PART #	DESCRIPTION
1	088-001-553	CHAIN TRACK TOP
2	088-001-554	CHAIN TRACK BOTTOM
3	088-001-556	TRACK JOINER
4	088-001-552	TRACK KEY PLATE
5	808-549-120	SCREW, ¼-20 X 3/4, HEX SOCKET BTN HD
6	088-001-560	DRIVE ASSEMBLY, EVEN
7	088-001-555	DRIVE SLEEVE
8	808-849-120	SCREW, ¼-20 X 3/4, HEX SOCKET HEAD
9	088-001-526	ROLLER CHAIN (CHAIN ONLY)
9A	088-001-562	ROLLER CHAIN ASSY, EVEN, (INCL 9 -13)
10	088-001-590	CONNECTING LINK
11	088-001-524	FLIGHT CUP
12	088-001-525	FLIGHT TAB
13	908-040-121	GROOVE PIN, ¼ X 3/4

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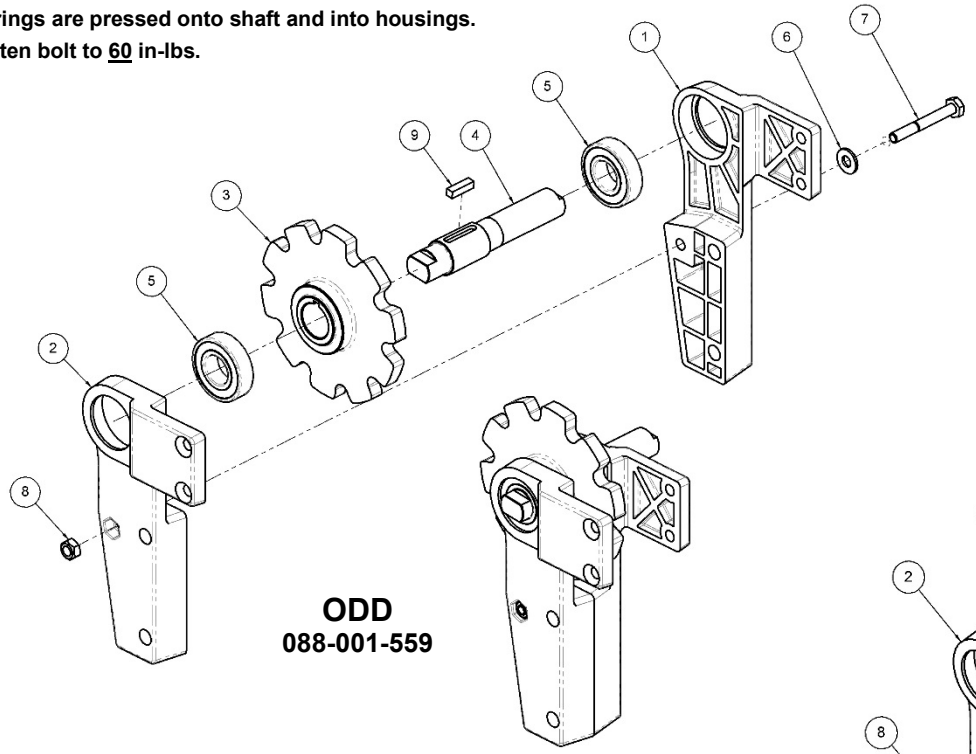
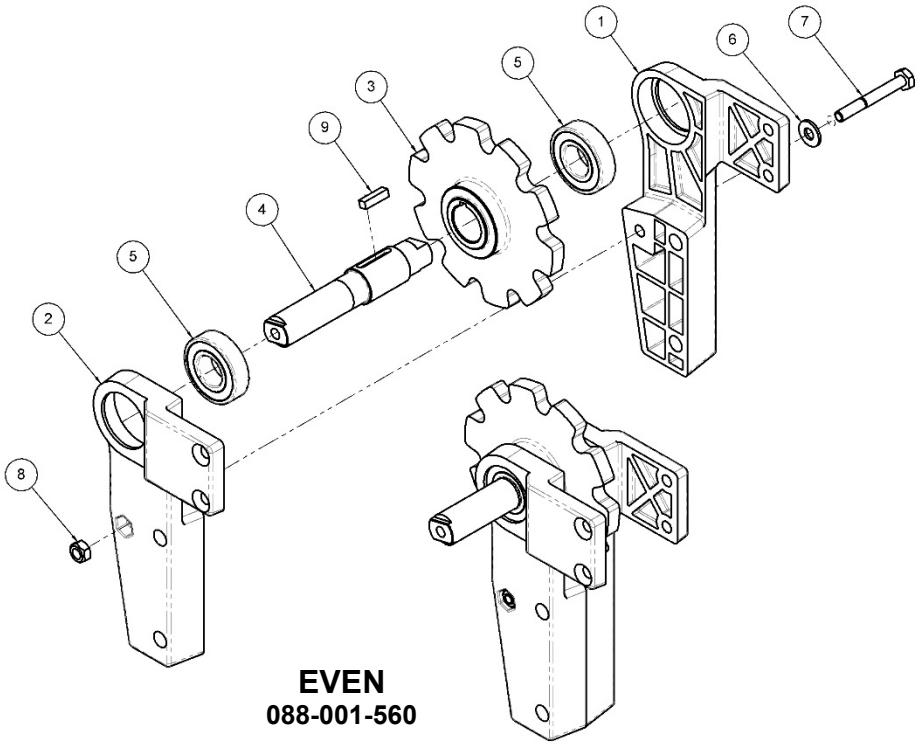
Bearings are pressed onto shaft and into housings.
Tighten bolt to 60 in-lbs.



ODD
088-001-559



EVEN
088-001-560

DRIVE ASSEMBLY

ITEM	PART #	DESCRIPTION
1	088-001-529	SPROCKET YOKE, LEFT HAND
2	088-001-530	SPROCKET YOKE, RIGHT HAND
3	088-001-584	SOLID SPROCKET
4	088-001-532	DRIVE SHAFT
5	088-001-551	RADIAL BEARING, DOUBLE SHIELDED
6	948-753-102	FLAT WASHER, ¼, BLACK
7	809-849-325	SCREW, ¼-20 X 2, HEX
8	844-049-002	NUT, ¼-20, HEX, STOVER LOCK
9	907-200-800	KEY, 3/16 SQUARE X .720

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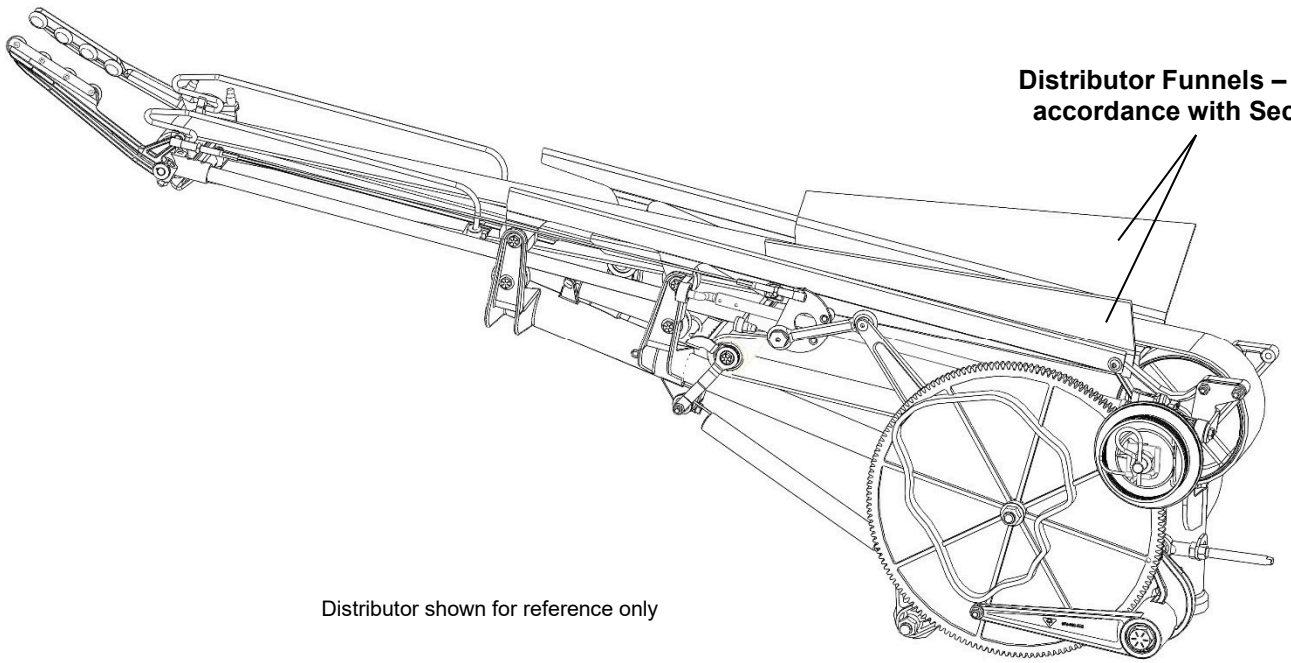
Edge Free Fall Distributor



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