

Installation Instructions: Eraser SHD™ Primary Belt Cleaning System

Kinder Australia Product:	Eraser SHD™ Primary Belt Cleaner
Product Category:	Conveyor Belt Cleaning System
Issue Date:	27/07/2020
Revision:	1

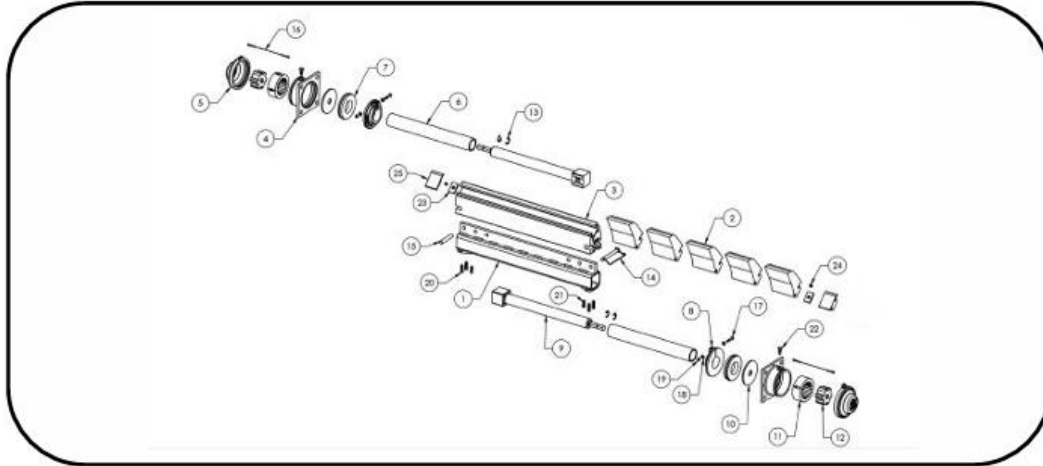


WARNING

Always obey all applicable safety rules.
Be sure all power to the conveyor has been disconnected and controls are locked out.

Installation Instructions: Eraser SHD™ Primary Belt Cleaning System

Safe Torque™ Ratchet System – Assembly Breakdown



Number	Part Number	Quantity	Description
1	K-CLE-CP-SE2-M"XX"A	1	SE2 Mainframe
2*	K-CLE-CP-MDE-RTT-06-G83	Varies	152mm Blade Tip
3	K-CLE-CP-SHD-RTB-"XX"-B93	1	Blade Base
4*	K-CLE-CP-SE2-P33R	2	SE2 Ratchet Mounting Spool
5*	K-CLE-CP-SE2-P75B-Y83	2	SE2 Dust Cap
6*	K-CLE-CP-SE2-P22B	2	SE2 Stub End
7*	K-CLE-CP-SE2-P33-RT-B93	2	SE2 Inner Snap Seal
8*	K-CLE-CP-SE2-PLC65-G83	2	SE2 Locking Collar
9*	K-CLE-CP-SE2-P2075-E-B93	2	SE2 Perma-Torque™ Tensioner
10*	K-CLE-CP-SE2-P56F	2	SE2 Ratchet Spool Washer
11*	K-CLE-CP-SE2-P52C-G83	2	SE2 Outer Ratchet Catch
12*	K-CLE-CP-SE2-P42C-G83	2	SE2 Inner Ratchet Catch
13	K-CLE-CP-AR-98407A156	4	Retaining Ring
14	K-CLE-CP-SE2-P550	1	Safety Snap Pin 0.625 x 5.5"
15	K-CLE-CP-AR-505	1	Spring Pin, 3/4" x 4 1/4"
16*	K-CLE-CP-AR-90312A720	2	Wire Rope Lanyard
17*	K-FAS-3/8x1.75HEXHD-Z	2	3/8" x 1 3/4" Long Hex Head Bolt Zinc Plated
18*	K-FAS-3/8-WASHER-Z	4	3/8" Zinc Plated Steel Washer
19*	K-FAS-3/8-NUT-Z	2	3/8" Zinc Plated Steel Nut
20	K-FAS-1/2x1.5HEXHD-SS	6	1/2" x 1 1/2" Stainless Steel Hex Head Bolt
21	K-FAS-1/2x1.25HEXHD-SS	2	1/2" x 1 1/4" Stainless Steel Hex Head Bolt
22	K-FAS-1/2x1.25HEXHD-Z	2	1/2" x 1 1/4" Zinc Plated Hex Head Bolt
23	K-CLE-CP-AR-153	2	Retainer Clip
24	K-CLE-CP-SHD-5075S	2	Set Screw, Cup Point
25	K-CLE-CP-SHD-P34A-B93	1	Retainer Cover

*Parts available as fully assembled SE2 Perma-Torque™ Tensioner (K-CLE-CP-SE2-RK33).

*Available in 305mm & 457mm sizes.

Installation Instructions: Eraser SHD™ Primary Belt Cleaning System

Installing the Eraser™ SHD Primary Belt Cleaner

Installation Tools Required

- Tape Measure
- Cutting Torch
- Level
- Scribe or Chalk
- Welder or Drill
- ½" & ¾" Open End Spanner
- 24mm Open End Spanner
- 1" Open End Spanner or Shifter

Bolts, lock washers and nuts for mounting are not supplied

Note:

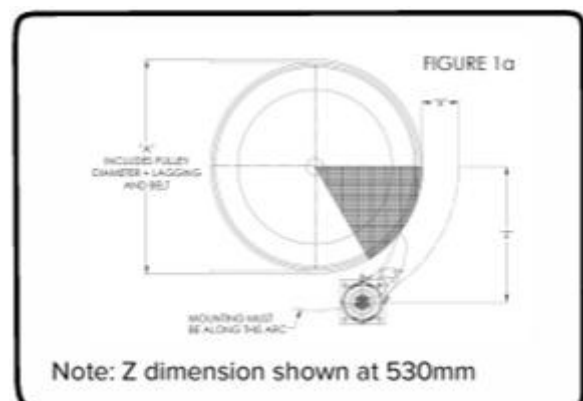
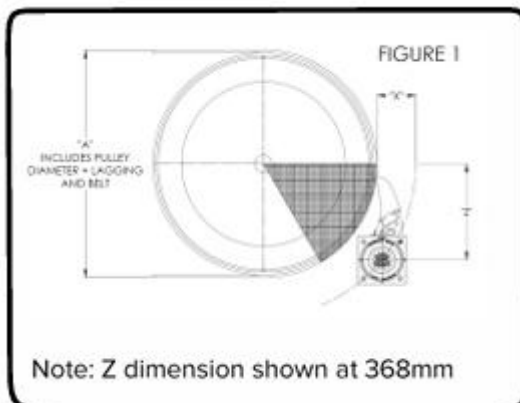
The Eraser SHD™ Primary Belt Cleaning System is designed to be used on conveyor pulleys of 610mm (24") in diameter and larger. Using this system on a pulley smaller than the recommended size will not provide proper cleaning of your conveyor system

Step One: Layout

Note: Shaded areas in Figures 1 and 1a represent acceptable mounting locations. 1a represents a mounting location more suitable to systems with a slow belt speed to avoid burden build-up on the cleaner

Dimension Table (mm) – Table 1

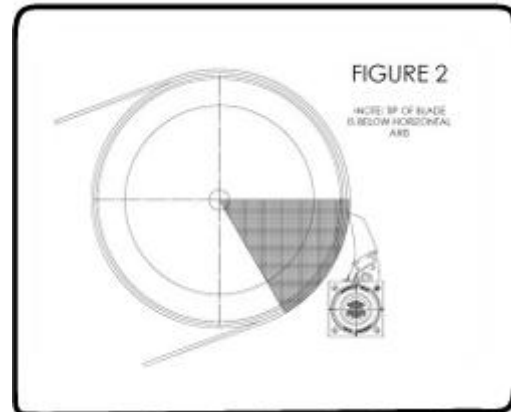
Dia. "A"	"X"	"Z"
610 – 787	178	368 (minimum)
788 – 1194	165	368 (minimum)
1195 & Larger	159	368 (minimum)



Installation Instructions: Eraser SHDTM Primary Belt Cleaning System

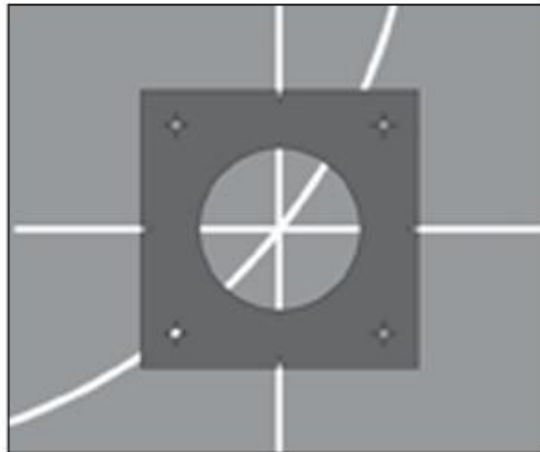
Inclined belt mounting position

Figure 2 demonstrates the correct mounting location for inclined conveyors. See pages 10-12 for mounting information with inclines and angles.



Step Two: Mounting Template

After you have determined the mounting location for your belt cleaning system, align the template (see page 9 of this guide) with your bisected horizontal and vertical on the mounting structure wall and transfer the centre hole, bolt holes and perimeter of the template to the chute wall using your scribe.



Repeat the layout procedure on the opposite mounting structure and ensure the mounts are level.

Installation Instructions: Eraser SHD™ Primary Belt Cleaning System

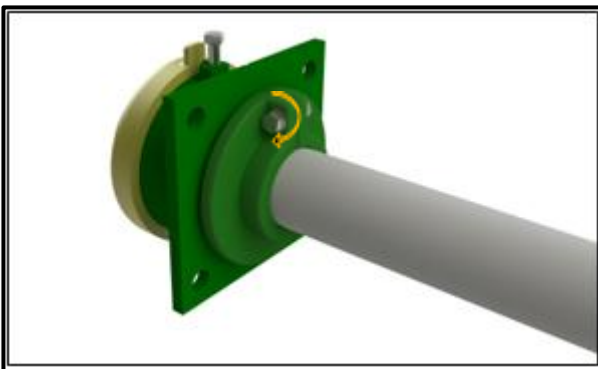
INSTALLATION - Tensioner

Step Three: Mounting the system's dual tensioners

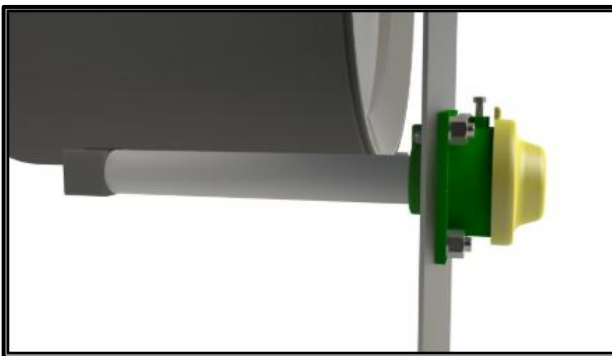
Cut the tensioner holes which were scribed on the mounting structure (your finished holes should be approx. 90mm in diameter).

NOTES:

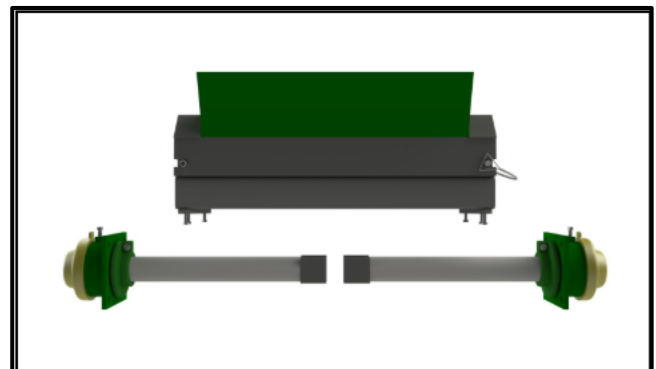
- For Bolt In Only - Using the bolt circles that you scribed as a guide, drill four 20mm diameter holes, to accept M16 diameter grade 8.8 bolts, per mounting spool.



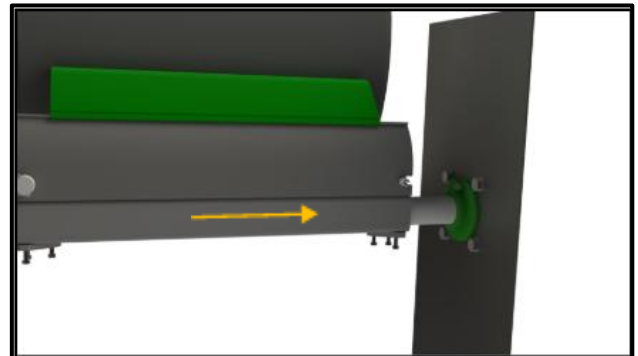
Remove the urethane locking collars from the stub ends.



If there is room, slide the first tensioner cartridge through the chute wall and line up the mounting spool with the template that was transferred to the chute wall. Now bolt or weld into place.

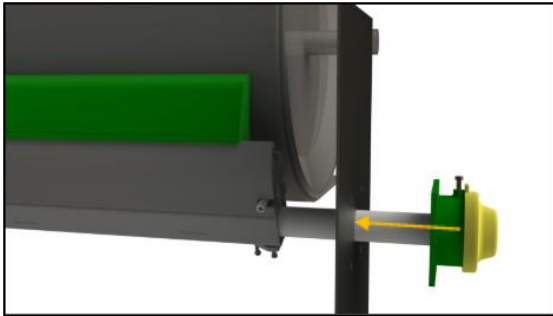


Remove both tension cartridges from the mainframe

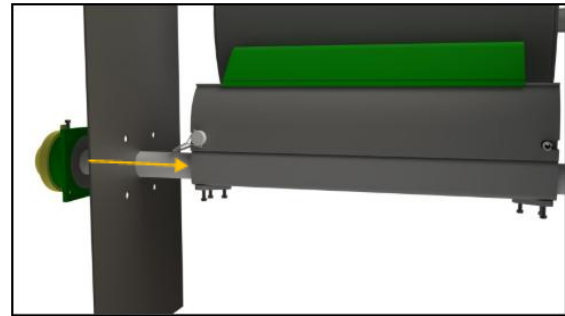


Lift the mainframe into position. Slide the mainframe onto the cartridge, then temporarily retighten the three setscrews on the tensioner side to stabilise the system.

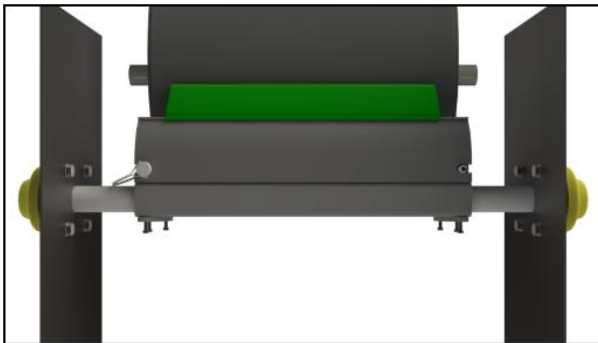
Installation Instructions: Eraser SHD™ Primary Belt Cleaning System



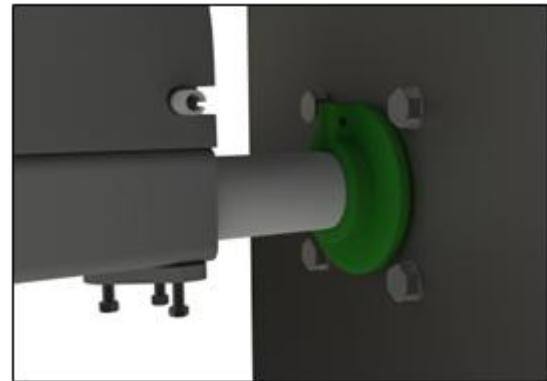
If there is insufficient room between the chute walls, hold the mainframe in place and slide the tension cartridge into the mainframe. Bolt or weld the mounting spool into position and tighten the setscrews.



Slide the second tensioner cartridge through the chute wall and insert into the mainframe. Temporarily retighten the setscrew on the tensioner side to stabilise the system. Bolt or weld the mounting spool on the tensioner cartridge to the chute wall.



Loosen the setscrews and centre mainframe and blade to belt material path (dirty area). If blade is too wide trim it until it is just wider than the material path (see page 13 & 14 for more). Tighten the set screws to secure the stub ends



Install the urethane locking collars by sliding them over the stub end, snugging them to the chute wall. Tighten the bolts to secure

IMPORTANT

Check for free rotation, minimal lateral movement of the assembly shaft, and consistent contact of the blade to the belt. Adjust if necessary, realign, and tighten all mainframe set screws.

IMPORTANT

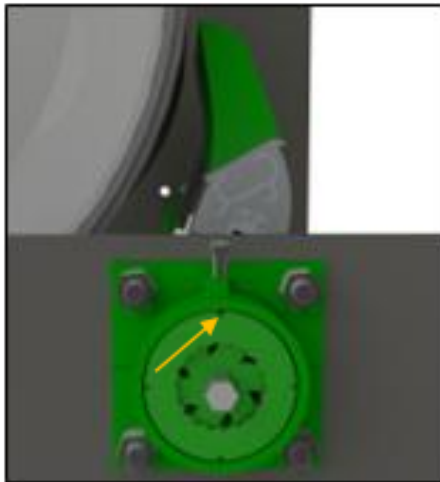
At the top point of the mounting spool, the inner ratchet catch must always point away from the load pulley.

Installation Instructions: Eraser SHD™ Primary Belt Cleaning System

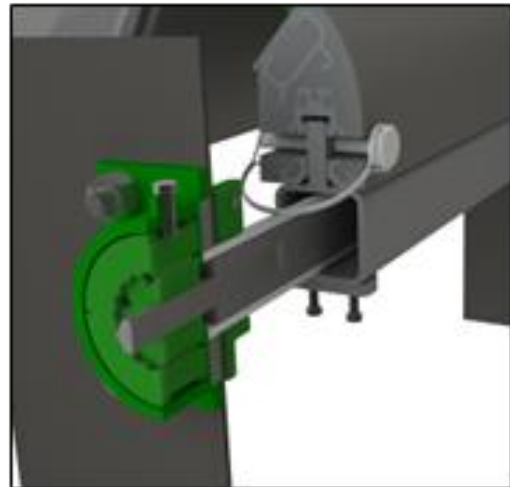
INSTALLATION – Tensioning

Step Four: Tensioning

The Eraser™ SHD Primary Belt Cleaning System is equipped with our patented internal Perma-Torque™ tensioner and our Safe Torque™ ratchet system. The Perma-Torque™ is an adjustable elastomeric tensioner. The tensioner may be adjusted from a recommended minimum of 30 Nm of force to a maximum of 105 Nm. Excessive tension could damage the blade as well as the Safe Torque™ ratchet system. The recommended level of tension can be seen in the table below.



To tension, first position the alignment notch on the outer ratchet catch with the mounting spool set screw. Grab the blade and rotate to align the ratchet notch

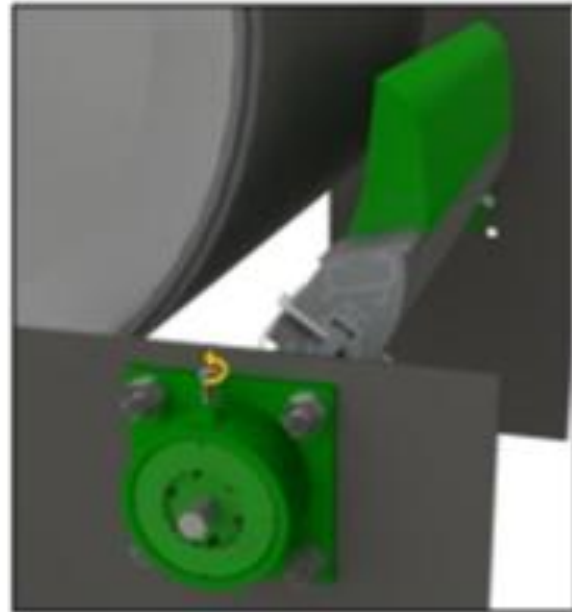
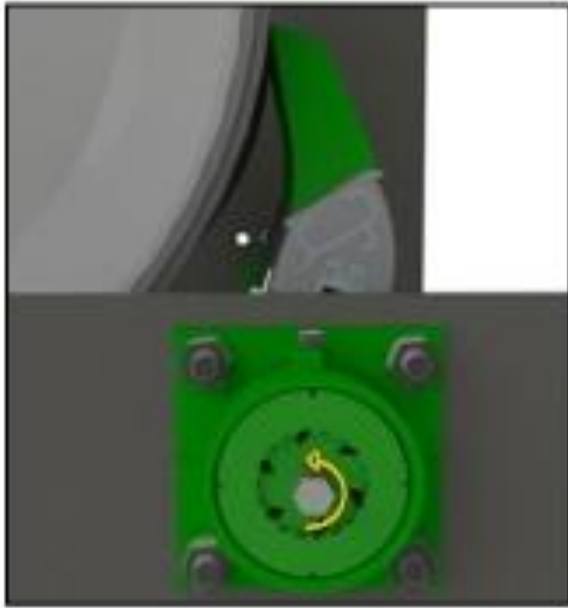


When notch is aligned, tighten the setscrew.
It will tighten all the way down so that the bottom of the screw sits in the locking slot.

Guideline for tensioning belt cleaning systems – Table 2			
Blade width (mm)	No. of clicks	Tensioning Force (Nm)	
725-1750	4	68	Dual Tensioner
1775-2700	5	81	
2725-3000	6	95	

IMPORTANT
Do not over tension or excessive blade wear will occur.

Installation Instructions: Eraser SHDTM Primary Belt Cleaning System



Use a 1" socket wrench on the exposed tensioner hex rod and turn the tensioner up and towards the pulley until the blade contacts the belt. Start tensioning by counting the clicks until you have reached the desired rotation. See the guideline chart for the recommended setting. Repeat the same number of clicks on the opposite side for a dual tensioner system. Re-attach the dust cap(s).

When you need to release tension, just loosen the mounting spool setscrew. You will see the outer ratchet rotate as the tension is released.

Note

As the blade wears re-tensioning should occur to maintain an adequate cleaning performance.

Installation Instructions: Eraser SHD™ Primary Belt Cleaning System

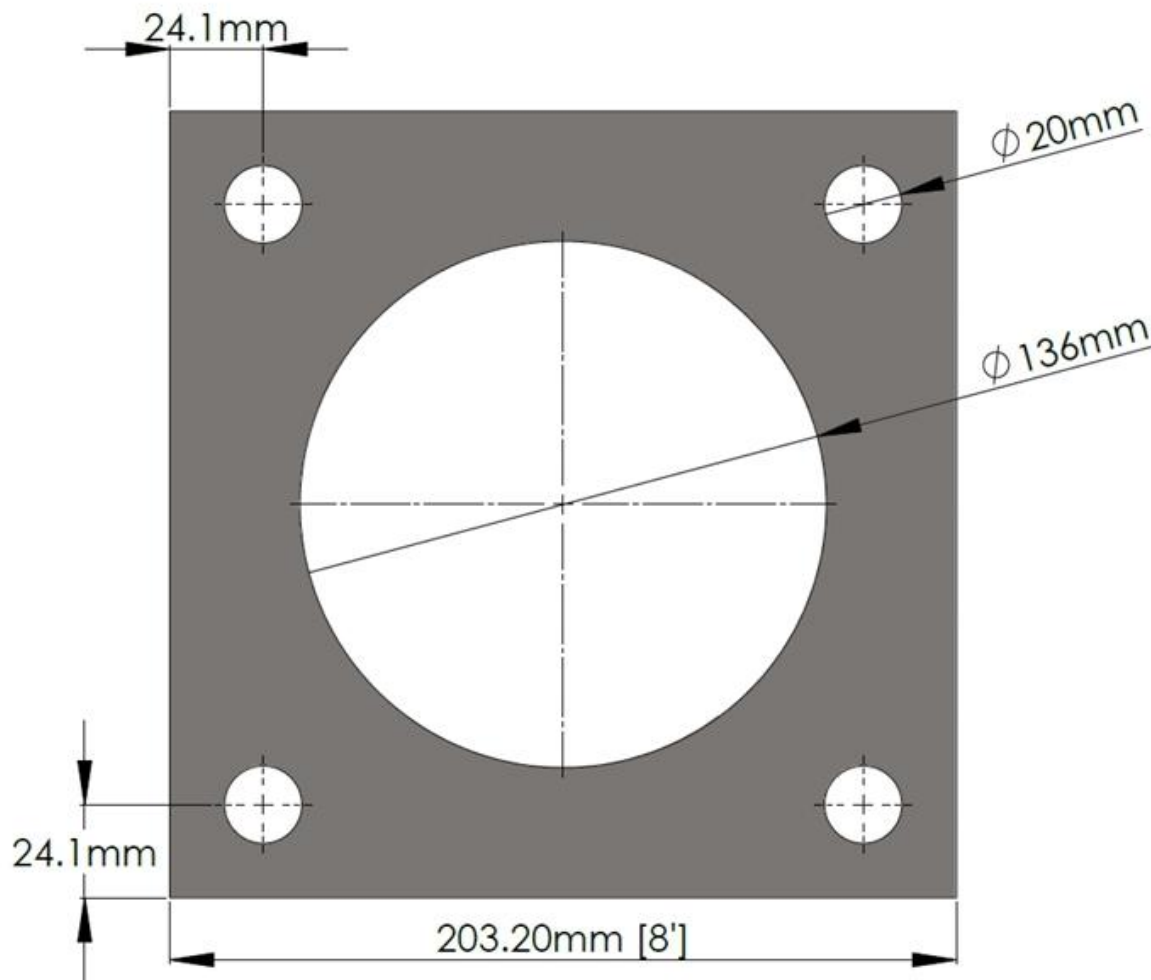
TROUBLESHOOTING GUIDE

Problem	Probable Cause	Suggested solution
Excessive/Uneven blade wear or damaged blade	Cleaner under/over tensioned	Ensure tension was set correctly – See tensioning table on pg. 7
	Cleaner installed in wrong location	Ensure the blade is the correct “X” distance from the pulley and adjust if necessary – See table 1 on pg. 3
	Wrong urethane for operation	Consult Kinder for proper urethane selection
	Mechanical splice damaging blade	Repair, skive or replace splice
	Damaged belt	Fix damaged area or replace belt
Wear only on centre of blade (smile effect)	Cleaner not square to head pulley	Ensure the “X” dimension is correct, adjust if necessary, and that the mounting points are level – See table 1 on pg. 3 for correct “X” distance
	Blade wider than material path	Replace with shorter blade or cut excess to just outside material path - See page 13 & 14 for details
Vibration or noise	Cleaner at wrong distance	Use table 1 on pg. 3 to ensure that the correct “X” distance has been used. Adjust if necessary.
	Cleaner running on empty belt	Use a spray pole to lubricate belt when running dry
	Cleaner under/over tensioned	Ensure tension was set correctly – See tensioning table on pg. 7
	Cleaner not securely fastened	Check all bolts and nuts for damage and ensure they are securely fastened.
	Cleaner not square to head pulley	Ensure the “X” dimension is correct, adjust if necessary, and that the mounting points are level – See table 1 on pg. 3 for correct “X” distance
	Material build-up in chute	Clean up build-up on cleaner and in chute
Poor cleaning performance	Cleaner under/over tensioned	Ensure tension was set correctly – See tensioning table on pg. 7
	Cleaner installed too high	Ensure “Z” dimension is above minimum using table 1 on pg. 3
	Urethane blade worn out or damaged	Install a new blade and check for possible causes of wear/damage
Blade pushed away from pulley	Cleaner tension too low	Increase tension or add a second tensioner if required.
	Sticky material is overpowering cleaner	Ensure that set screw is seated in the notch of the outer ratchet catch (see page 7 for install guide)
		Increase tension or add a second tensioner if required
		Replace with shorter blade (just outside material path), use a harder urethane and increase tension of system
		Replace with larger sized cleaner
Blade flipping through	Cleaner not set up correctly	Ensure tension, distance and position are correct and check bolts and nuts are tightened correctly.
	Cleaner installed too far from pulley	Ensure the “X” dimension is correct and adjust if necessary - See table 1 on pg. 3 for correct “X” distance
	Cleaner too small for pulley	If cleaner does not reach just outside material path, then replace with larger sized cleaner.

Installation Instructions: Eraser SHD™ Primary Belt Cleaning System

Mounting Template

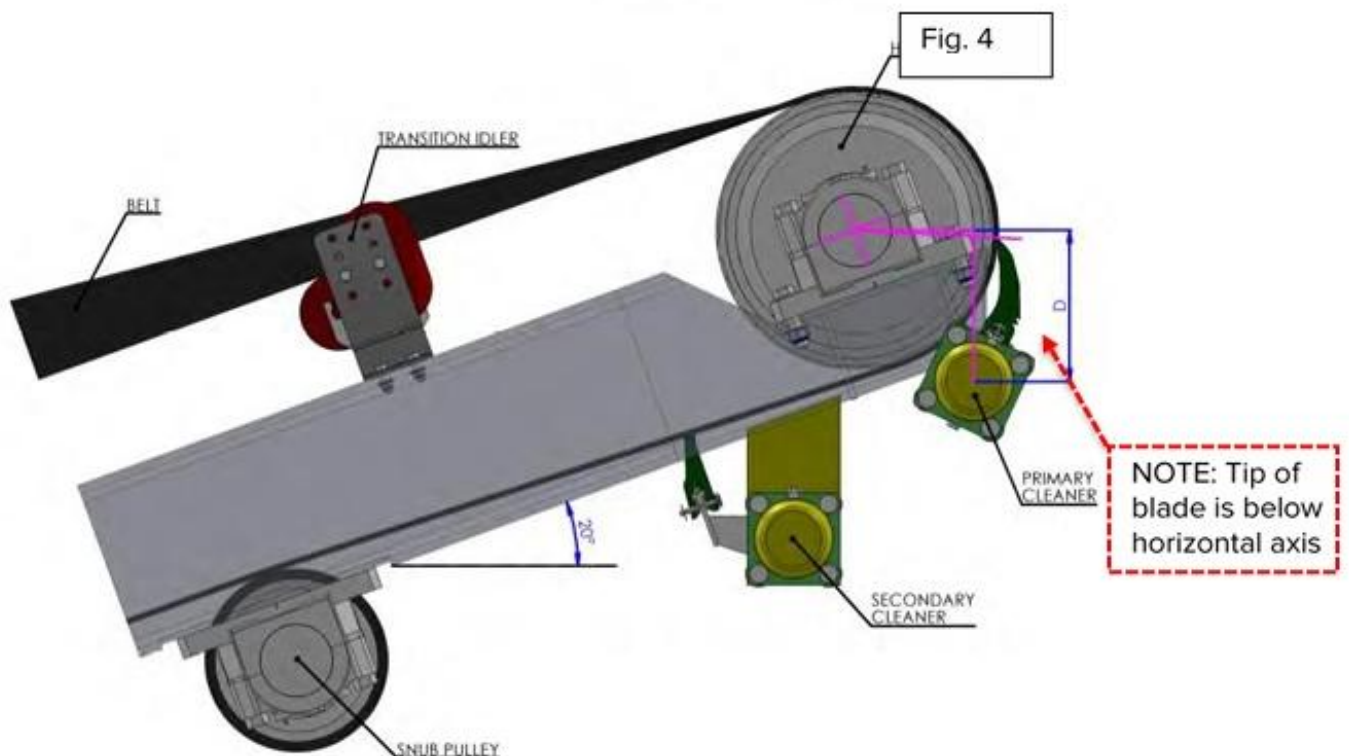
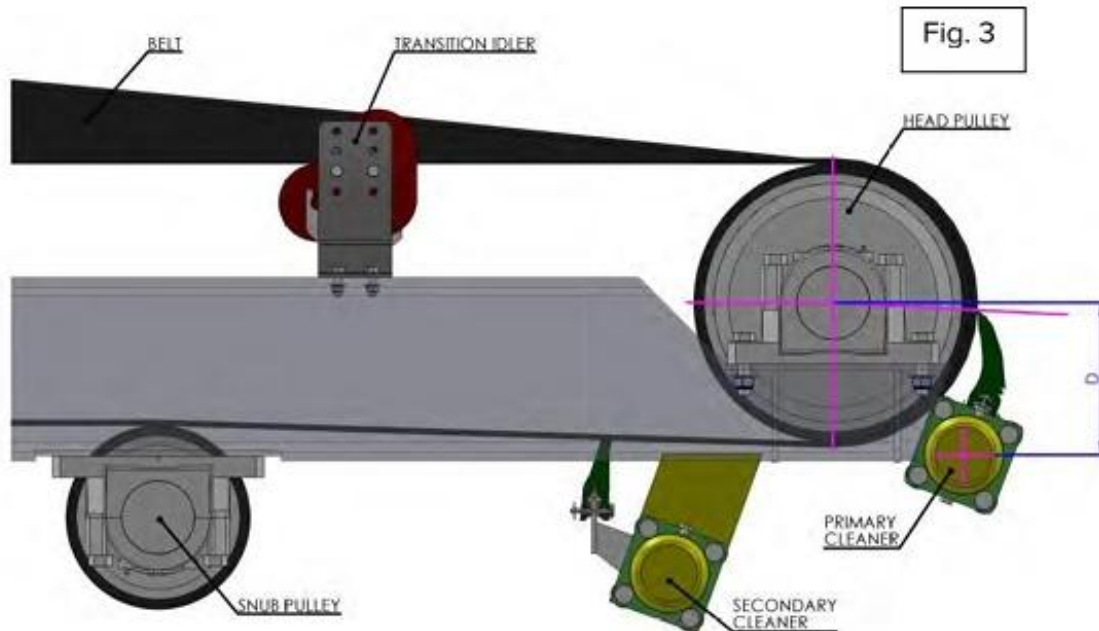
Use the drawing below to create a cardboard template to use as your mounting spool template.



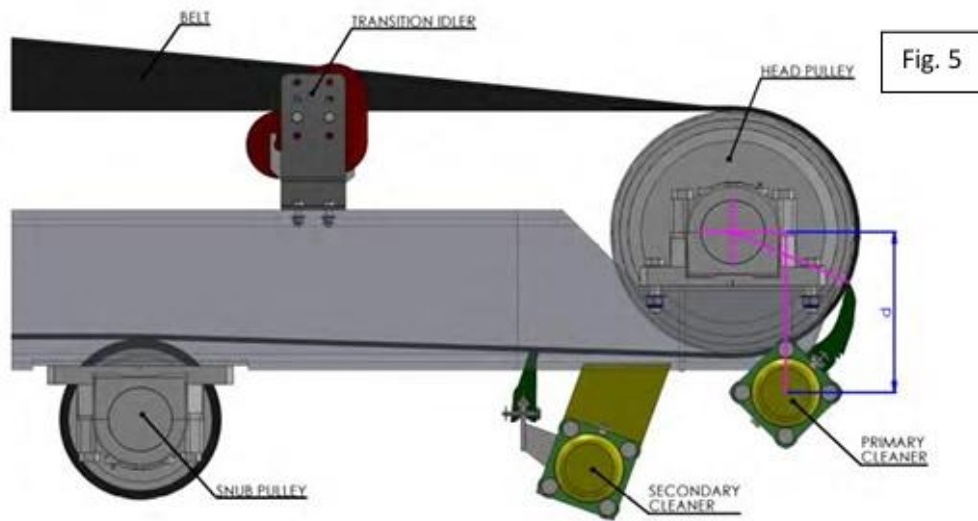
Template is not to scale, use as a base design with given dimensions.

Installation Instructions: Eraser SHDTM Primary Belt Cleaning System

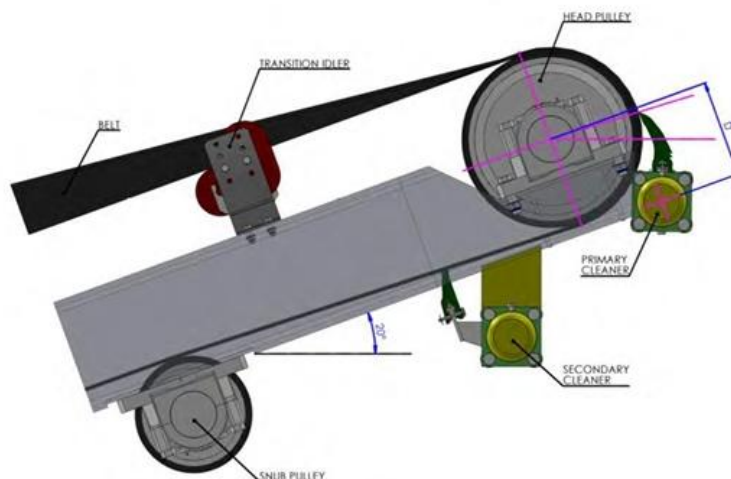
See below for correct mounting arrangements, allowing for different conveyor inclines:



Installation Instructions: Eraser SHDTM Primary Belt Cleaning System

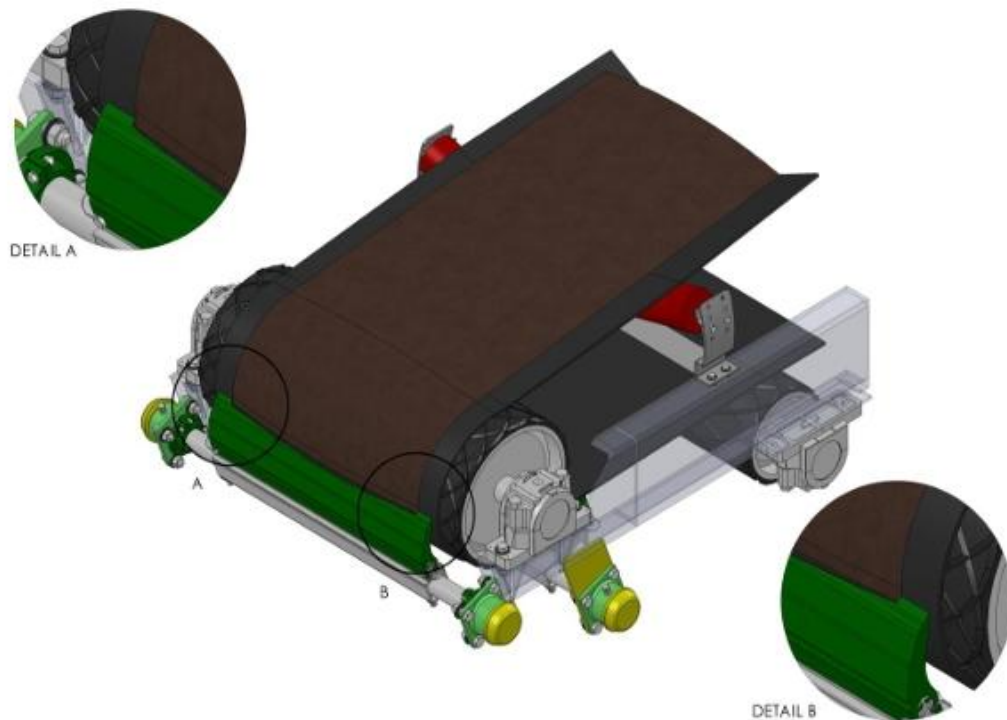


- Blade tip always sits just below the horizontal axis of the pulley, parallel to the ground surface, below the flow of material.
- Fig. 4 shows the contact location of the blade on the inclined conveyor belt. This is parallel to the ground surface and not parallel to the inclination angle.
- Fig. 5 shows the contact location of a slow speed system with minimal trajectory.



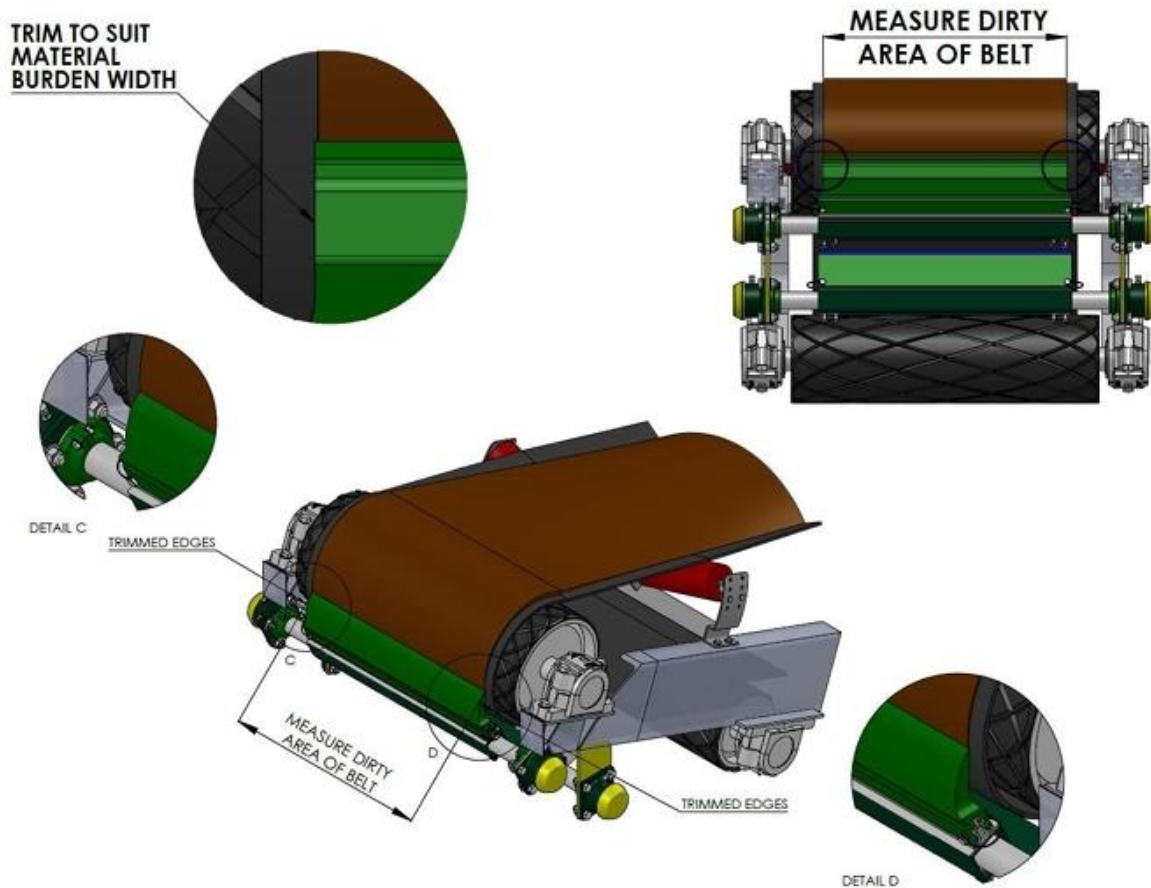
WARNING
The above mounting may cause premature wear on the blades and uneven tension across the belt surface.

Installation Instructions: Eraser SHDTM Primary Belt Cleaning System



- The figure above shows uneven wear across the blade length caused by the unworn section of the blade preventing the worn section from maintaining contact with the belt.
- To avoid uneven wear, use a smaller blade or trim the blade edges to suit just outside the width of the material path (dirty part) of the belt.

Installation Instructions: Eraser SHD™ Primary Belt Cleaning System



- The above figures show a blade that has been cut to suit the width of the belt. Therefore, the blade tip only contacted the material, increasing its effectiveness and prolonging its life.

Installation Instructions: Eraser SHD™ Primary Belt Cleaning System

MAINTENANCE – INSPECTION

The following process should be considered when preparing the job and work instruction sheets

IMPORTANT

Under no circumstances should a physical inspection of any belt cleaner be undertaken with the conveyor in operation.

Step One: Ensure all personnel are qualified and competent. Identify the conveyor and its associated equipment. Isolate, lock and danger tag the conveyor at the main positive isolator in accordance to the appropriate health and safety regulations in force at your site to prevent unauthorised starting.

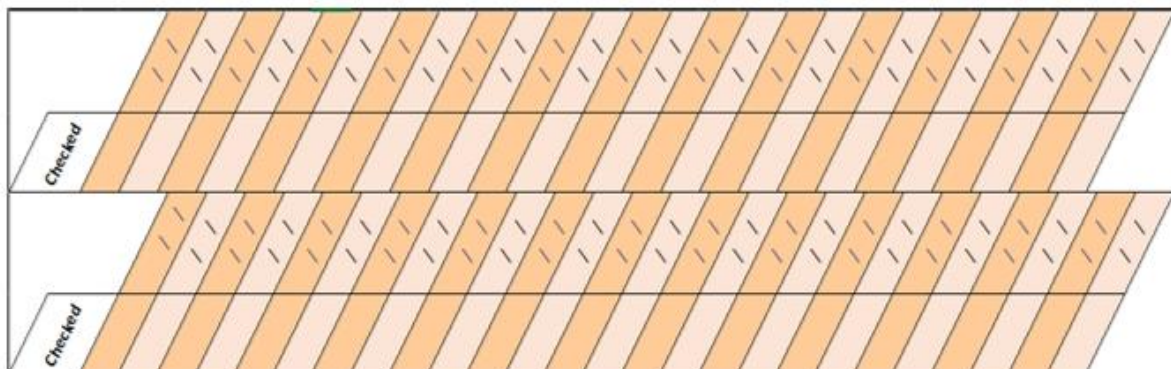
Step Two: Inspect the condition of the belt, using the inspection door if safety compliant, as well as the condition of the cleaner and blades. If the blades are excessively worn or damaged schedule a blade change at the next available opportunity. (See Maintenance – Replacement on pg. 17 for procedure)

Step Three: If necessary, and if plant rules allow, hose any material build-up from the blades and mainframe. Do this through the safety mesh screen.

Step Four: Check the Perma-Torque™ tensioner settings and adjust if necessary. These tensioners are designed to be tensioned once for the duration of a blade's lifetime.

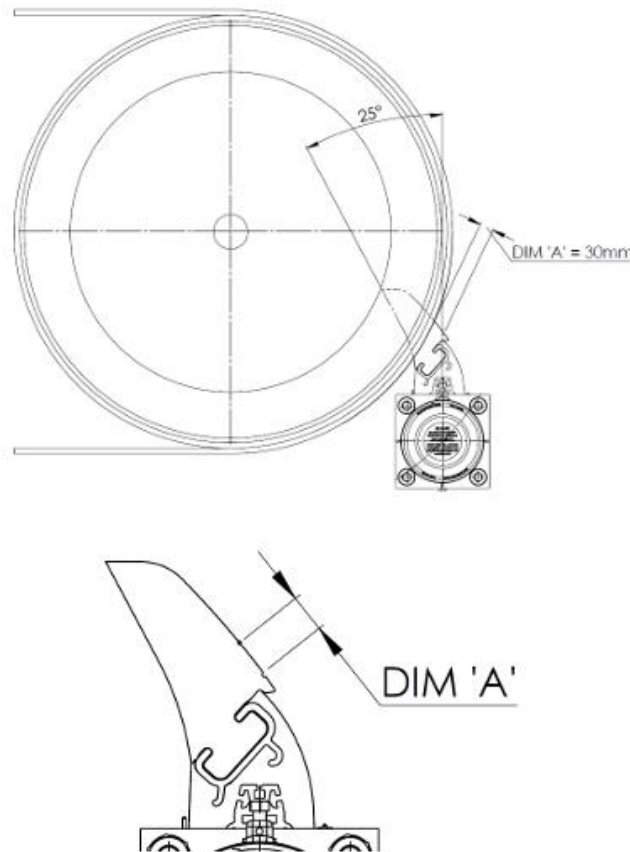
MAINTENANCE – SCHEDULE

After a fresh installation inspection of the Eraser SHD™ Primary Belt Cleaning System should occur **every day** for the first **3** days, then **once per week** for the **first month**, and then **monthly** until the next installation period. Use the chart below to help track of inspections.



Installation Instructions: Eraser SHD™ Primary Belt Cleaning System

MAINTENANCE – WHEN TO REPLACE



As Per the diagrams above, the blade should be replaced when it has degraded to the point where the system has rotated approximately 25°. To determine whether this distance has been reached use the dimension “A”; which is the distance between the belt and the marker indent in the blade. Blade replacement procedures should be scheduled such that the blade is replaced slightly before or just as dimension “A” reaches 30mm.

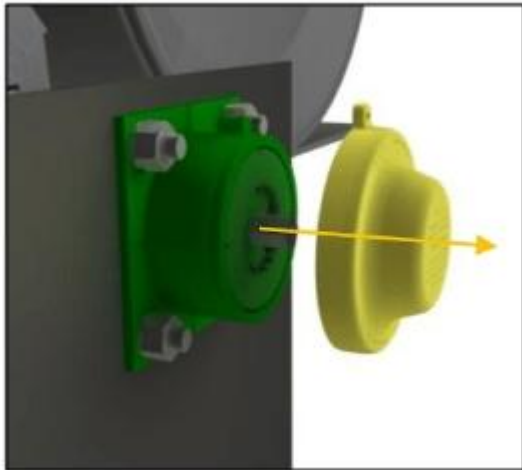
If the blade has been in operation for some time and is found to no longer be cleaning properly, and an effective solution cannot be found from the troubleshooting steps from pg. 8, a replacement blade may be required to be installed prior to the designated conditions being met.

If any blade segments are found to no longer be in contact with the belt is likely a sign that the blade segments need to be replaced.

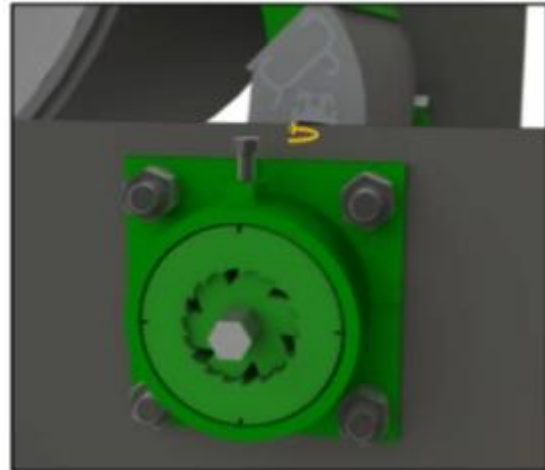
Installation Instructions: Eraser SHD™ Primary Belt Cleaning System

MAINTENANCE – REPLACEMENT

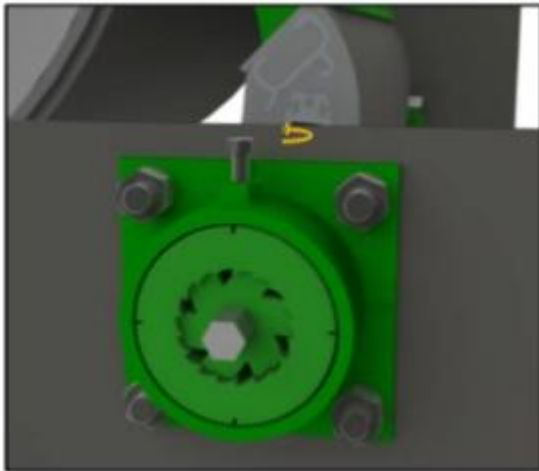
Shut down and lock out conveyor as per steps 1-3 of Maintenance – Inspection



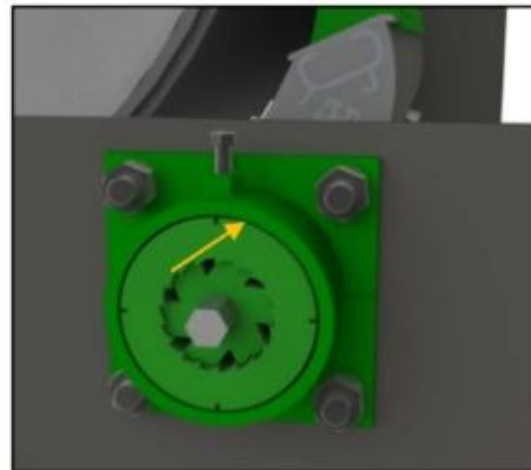
Remove the polyurethane dust caps and safety screen inside inspection door.



Use a $\frac{3}{4}$ " socket wrench to loosen the mounting spool set screw to release the tension.



Use a 1" socket wrench to back the blades away from the belt.

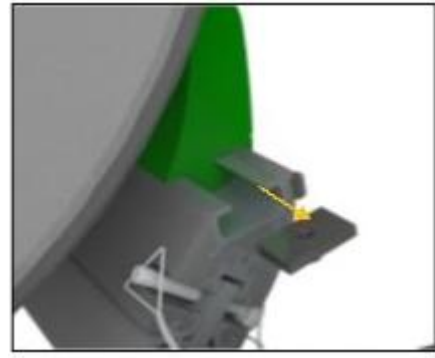
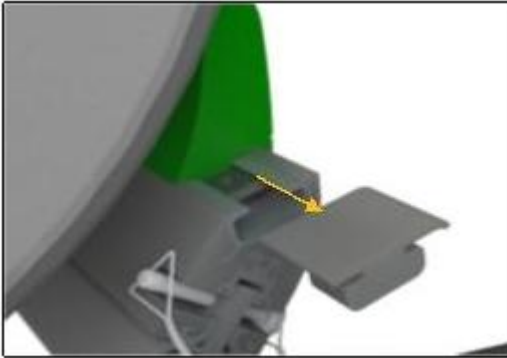


Tighten the mounting spool set screw when a notch is aligned to lock into one of the four locking positions.

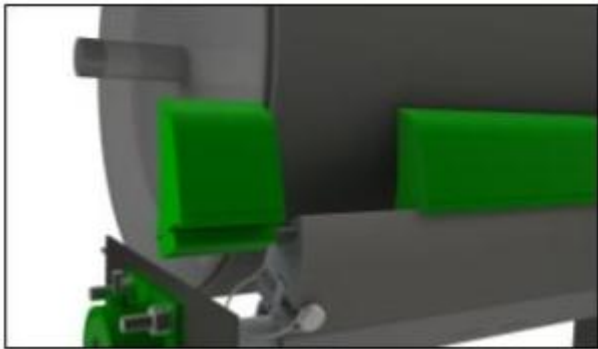
IMPORTANT

Tightening the screw when the notch is not aligned may damage the tensioning system.

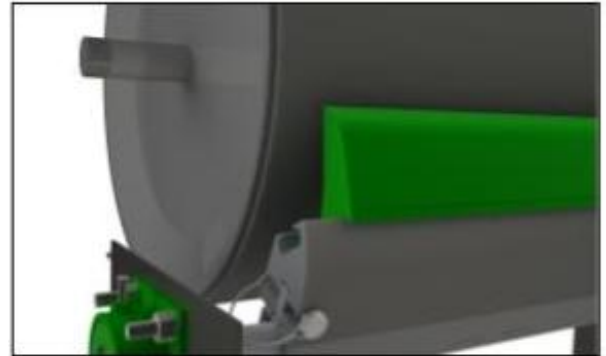
Installation Instructions: Eraser SHD™ Primary Belt Cleaning System



Remove the retainer cover then unscrew the internal retainer set screw and remove the retainer.



Remove the worn blade segments from the Eraser SHD™ Primary Belt Cleaning System mainframe.



Clean and inspect the segments. If worn excessively or otherwise damaged, replace with new.

Upon completion of replacement secure the retainer and retainer cover and re-tension the system as per the

tensioning instructions on pg. 7.

Remove all tools and debris from the belt and replace all access screens and guards.

Remove locks and tags and restart belt. Observe the belt to ensure expected action and effectiveness.