

IOM – Micro EraserTM Primary Belt Cleaning System

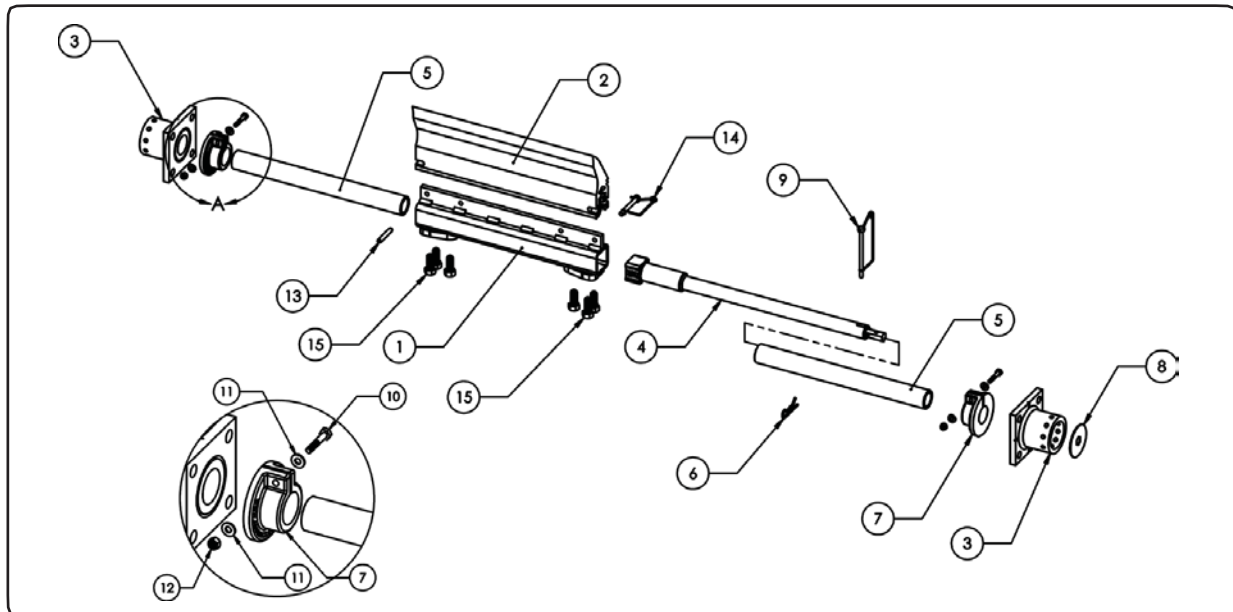
Kinder Australia product:	Micro Eraser TM Primary Belt Cleaner
Product category:	Conveyor Belt Cleaning System
Issue date:	29.07.20
Revision:	2



WARNING

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

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Number	Part Number	Quantity	Description
1	K-CLE-CP-MI-"XX" A	1	Mainframe
2	K-CLE-CP-MR-"XX"-G83	1	Raptor Blade
3	K-CLE-CP-MI-66D	2	Mounting Spool
4*	K-CLE-CP-MI-66DA-B93	NA	Mounting Spool Reline
	K-CLE-CP-MI-1550E-B93 or	1	Standard Perma-Torque™ Tensioner
	K-CLE-CP-MI-1350E-B93	1	Short Perma-Torque™ Tensioner
5	K-CLE-CP-MI-15B or	2	Standard Stub End
	K-CLE-CP-MI-10B	2	Short Stub End
6*	K-CLE-CP-MI-2125	1	Self-Locking Twist Pin
7	K-CLE-CP-MI-LC45-G83	2	Set Collar
8*	K-CLE-CP-MI-35-F	1	Retainer Washer
9*	K-CLE-CP-AR-4000	1	Tension Pin 1/4" x 4"
10	K-FAS-1/4x1.5HEXHD-Z	2	1/4" x 1.5" Long Hex Head Bolt UNC Zinc Plated
11	K-FAS-1/4FLATWASH-Z	4	1/4" Flat Washer Zinc Plated
12	K-FAS-1/4-NUT-NYLOC	2	1/4" Nyloc Nut Zinc Plated
13	K-CLE-CP-AR-303	1	Spring Pin 5/16" x 2"
14	K-CLE-CP-AR-275	1	Safety Snap Pin 5/16" x 2-3/4"
15	K-FAS-1/2x1.25HEXHD-SS	6	Stainless Hex Head Set Screw 1/2" x 1-1/4"

* Systems 36" and above come standard with dual tensioners and require two (2) of each of the noted parts.

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Installation Tools Required

- Tape Measure
- Cutting Torch or Hole Saw (2½")
- Level
- Scribe or Chalk
- Welder or Drill
- ½" Open Ended Spanner
- 5/8" Open Ended Spanner
- String or Compass

Bolts, lock washers and nuts for mounting are not supplied

Note:

The Micro Eraser™ Primary Belt Cleaning System is designed to be used for conveyor pulleys of 432mm (17") in diameter and smaller. For pulleys larger than 406mm consider our Eraser™ as a more suitable cleaner for your conveyor system.

Step One: Layout

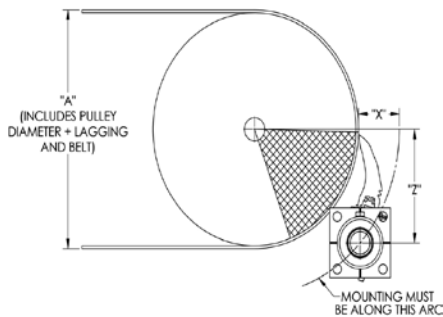
Note: Shaded areas in Figures 1 and 1a represent acceptable mounting locations. 1a represents a mounting location more suitable to systems with a slow belt speed to avoid burden build up on the cleaner.

Table 1 dimensions include lagging and belt thickness.

Dimension Table (mm) – Table 1

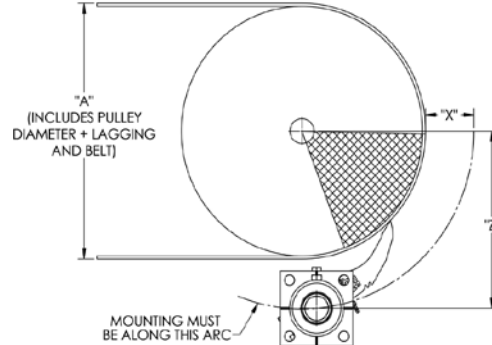
Dia. "A"	"X"	"Z" min
203 - 254	102	178
255 - 330	95	178
331 - 406	89	178
407 - 432	83	178

Figure 1



NOTE: Z dimension shown at 178mm (7")

Figure 1a



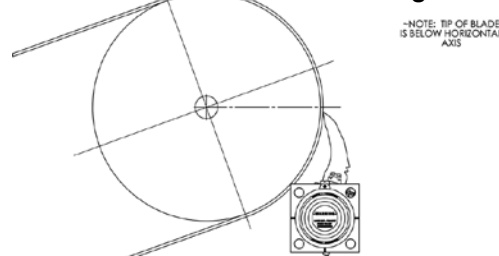
NOTE: Z dimension shown at 305mm (12")

Inclined belt mounting position

Figure 2 demonstrates the correct mounting location for inclined conveyors.

ATTENTION: Tip of blade is below horizontal axis

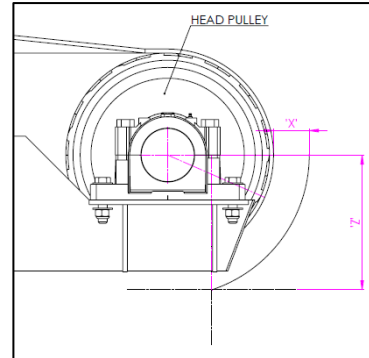
Figure 2



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Step Two: Alignment

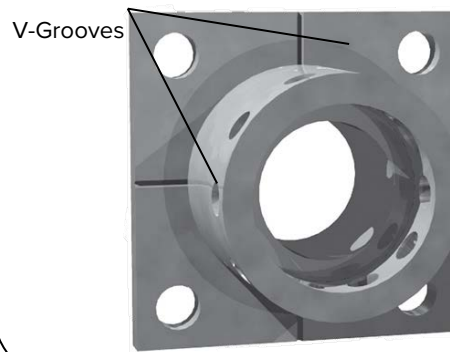
After you have calculated the dimensions required for the installation of your Micro EraserTM system use your scribe to mark on the mounting structure wall the 'Z' dimension as a horizontal line, then scribing the 'X' dimension curve, making a vertical line where the curve intersects the 'Z' dimension.



The Micro EraserTM System comes fully assembled. Remove the mounting spools from the system. The mounting spools are designed to be welded or bolted into position. Using a mounting spool as a template, line up the centring V-grooves machined into the flange of the mounting spool with the bisected horizontal and vertical lines on the mounting

structure wall. Transfer the center hole, bolt holes and perimeter onto the mounting structure with your scribe.

Figure 3

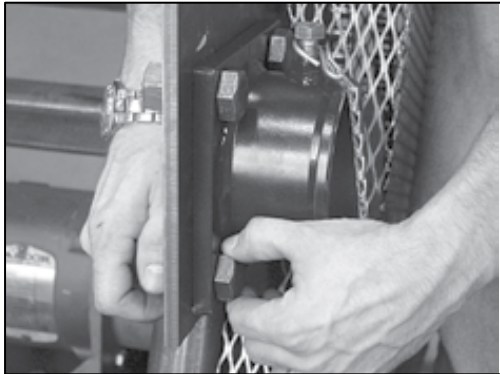


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Step Three: Installation

Cut a 64mm centre hole at the trace which was scribed on each side of the mounting structures.

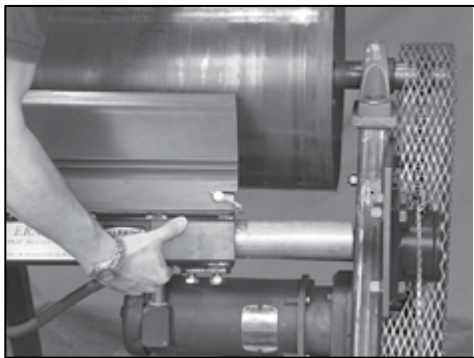
NOTE: For Bolt In Only - Using the bolt holes that you scribed as a guide, drill four 14mm diameter holes to accept ½" diameter grade 8 bolts.



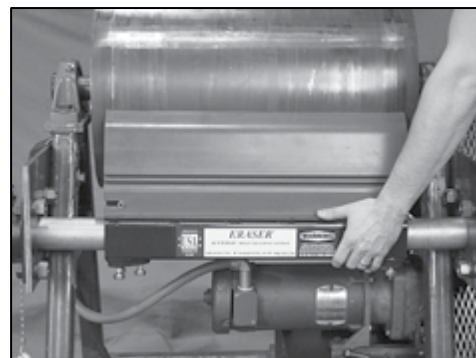
Place the mounting spool onto the side of the mounting structure wall. Use the scribed perimeter lines to line up the spool and then weld or bolt it into place. If welding; four stitch welds on the flats of the mounting spool will suffice.



Using a ½" end wrench, loosen the (3) set screws at each end of the mainframe. Remove the stub end pipes (and tensioner assembly) from the mainframe. Loosen the locking collar set screw and collapse unit as fully as possible.



Lift the mainframe into position. Telescope the stub ends and slide tensioner assembly through the holes in the mounting structure. Temporarily install tension pin through mounting spool.



Centre the blade with the belt and snug the mainframe set screws to secure the stub ends. Snug locking collars to inside wall and cinch the set screw. Instruction on how to trim the blade to suit the material path can be found on page 8.

IMPORTANT

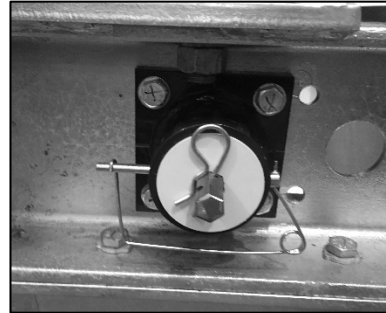
Check for free rotation, minimal lateral movement of the assembly shaft, and consistent contact of the blade to the belt. Adjust if necessary, realign, and tighten all mainframe set screws.

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Step Four: Tensioning

The Micro Eraser™ System is provided with our exclusive totally internal Perma-Torque™ Tensioner.

The Perma-Torque™ is an adjustable elastomeric tensioner. The tensioner may be adjusted from a recommended minimum force of 14Nm (10 foot pounds), to a maximum 61Nm (45 foot pounds).



To tension, first remove the tensioning pin, then use a

5/8" end wrench on the exposed hex bar.

Exceeding tensioning of 20 holes or 720° will damage the tensioner.

Five holes or 180° is our standard setting, which is recommended for most applications.

Turn the tensioner towards the pulley.

When you have reached the desired rating, replace the tensioning pin. The 1/4" diameter hole in the hex bar will be in line with the holes in the mounting spool and the hole in the tensioner. This helps to align the tensioning pin.

Tensioning Guide		
Belt Width (mm)	No. Of Holes	
450	4	Single Tensioner
600		
750	5	
900		
1000	4	Dual Tensioner
1200		
1400	5	

IMPORTANT

Do not over tension or excessive blade wear will occur.

Installation is now complete.

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

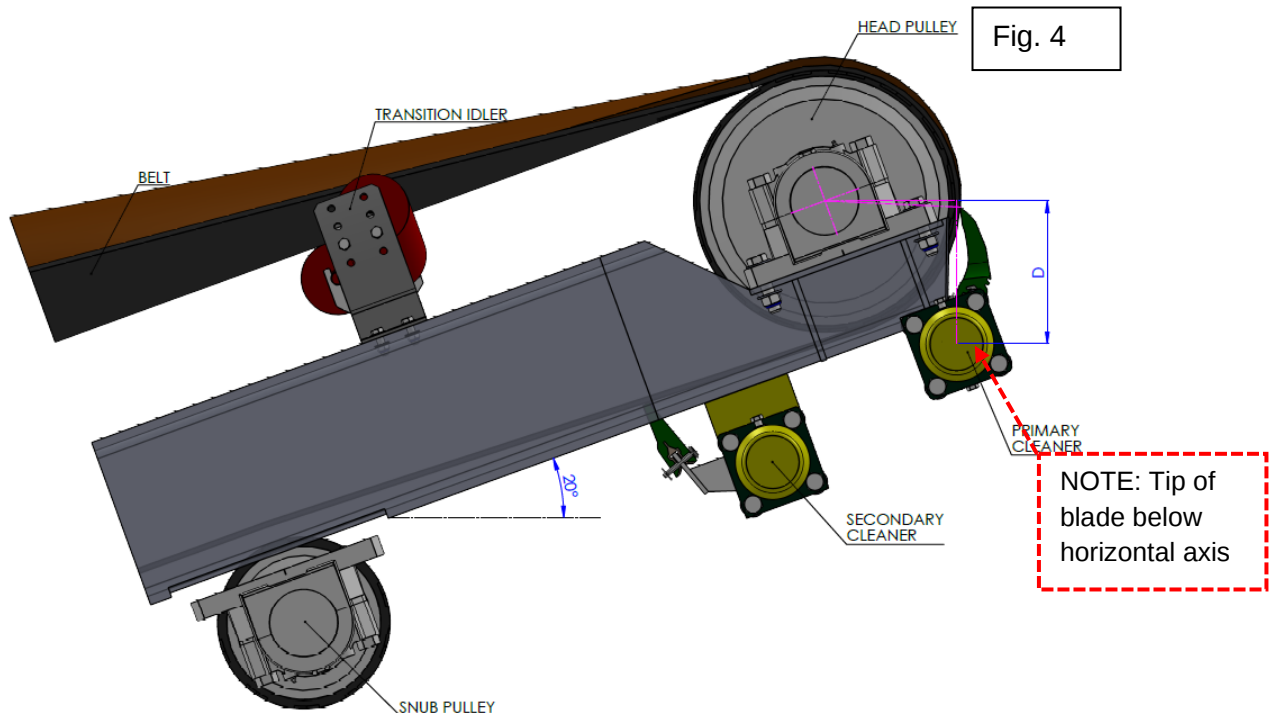
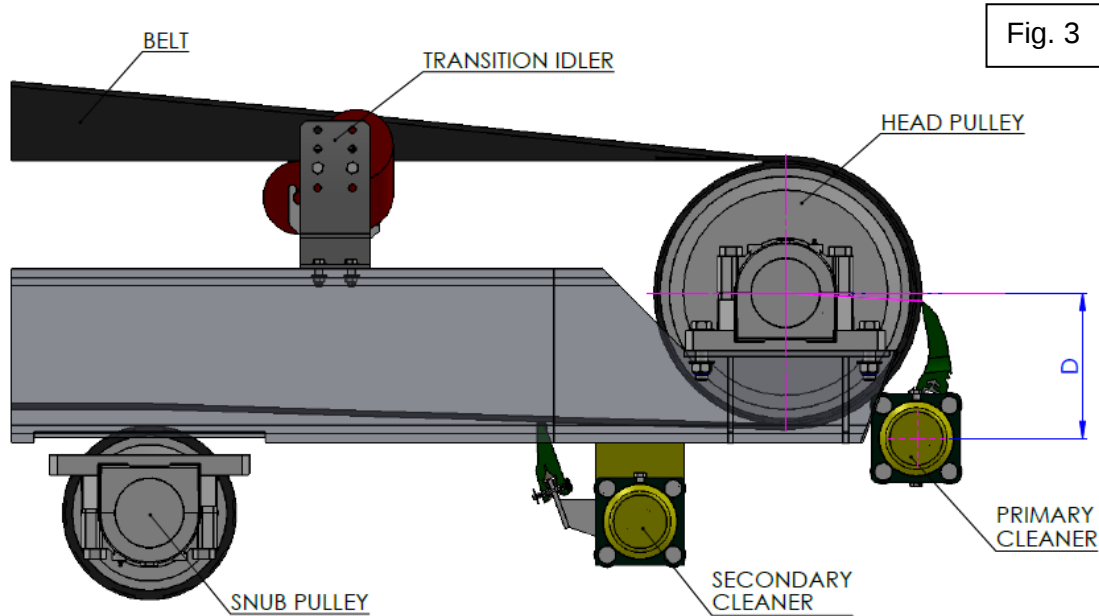
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TROUBLESHOOTING GUIDE

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. 10
	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
	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
Wear only on centre of blade (smile effect)	Blade wider than material path	Replace with shorter blade or cut excess to just outside material path - See page 16 & 17 for details
Vibration or noise	Cleaner at wrong distance	Use table on pg. 1 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. 10
	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. 10
	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 10 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
	Cleaner not set up correctly	Ensure tension, distance and position are correct and check bolts and nuts are tightened correctly.
Blade flipping through	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.

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



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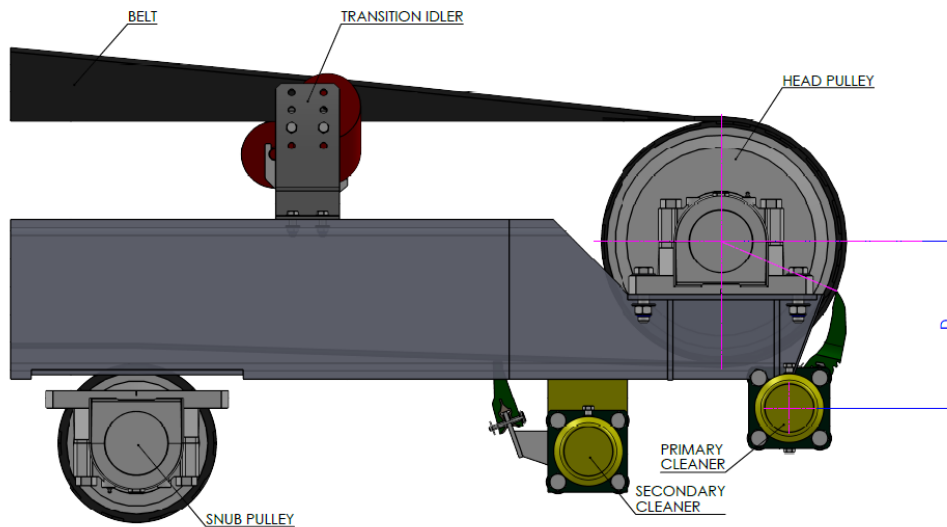
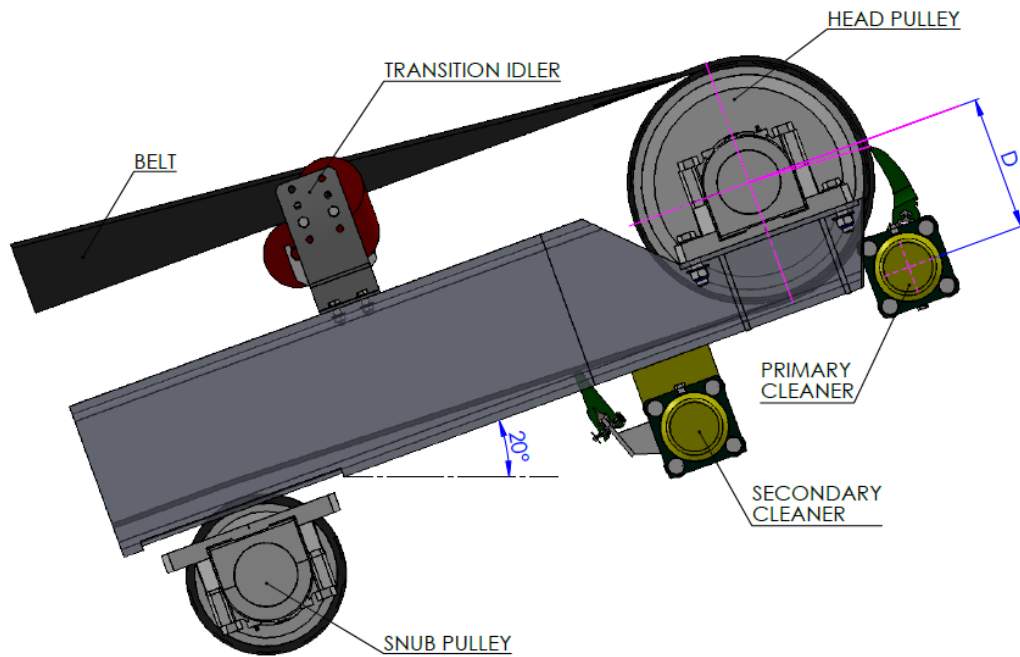


Fig. 5

- 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.

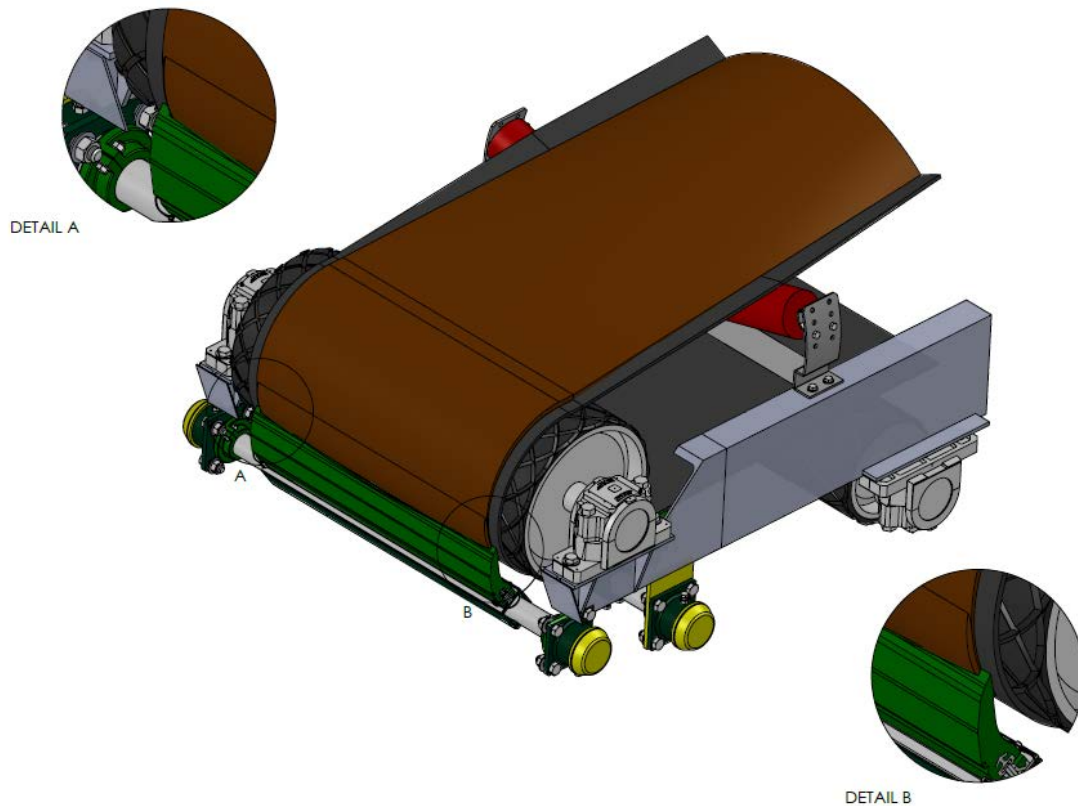
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⚠WARNING⚠

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

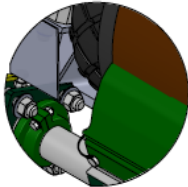
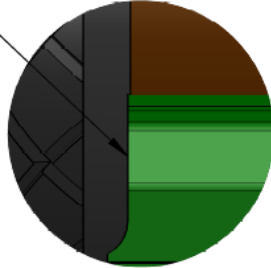
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- The figure above shows uneven wear across the blade length cause by the unworn section of the blade preventing the worn section from maintaining contact with the belt.
- To avoid uneven wear, the outer blade edges should be trimmed to suit just outside the width of the material path (dirty part) of the belt.

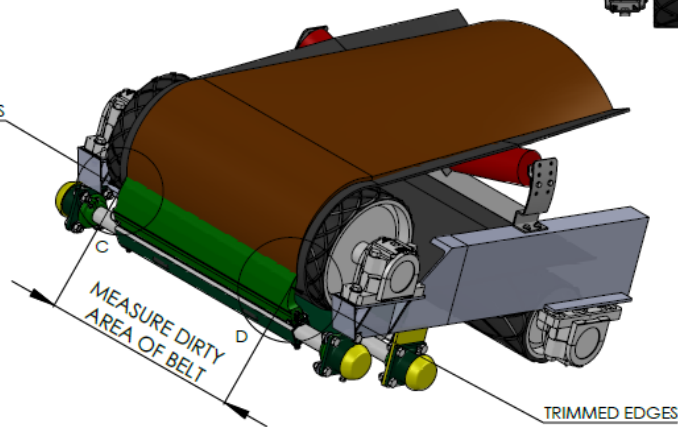
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TRIM TO SUIT
MATERIAL
BURDEN WIDTH

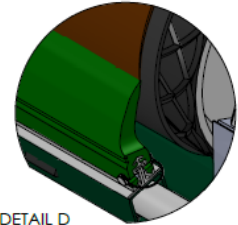
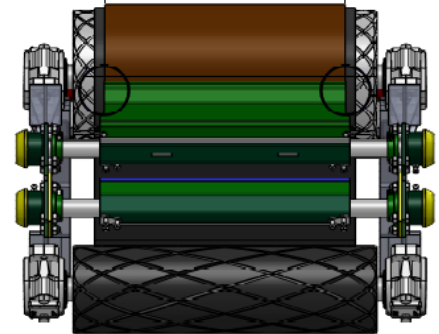


DETAIL C
SCALE 3 : 10

TRIMMED EDGES



MEASURE DIRTY
AREA OF BELT



DETAIL D
SCALE 3 : 10

- 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.

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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.

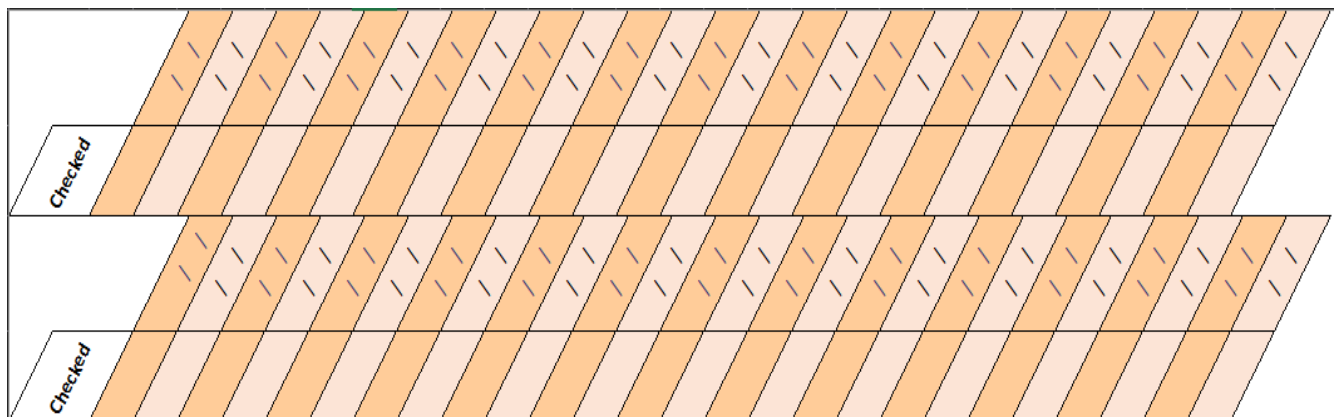
Step Two: Inspect the condition of the belt, using the inspection door if safety compliant, as well as the condition of the cleaner and blades. If the blades are excessively worn or damaged schedule a blade change at the next available opportunity. (See Maintenance – Replacement on pg. 17 for procedure)

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.

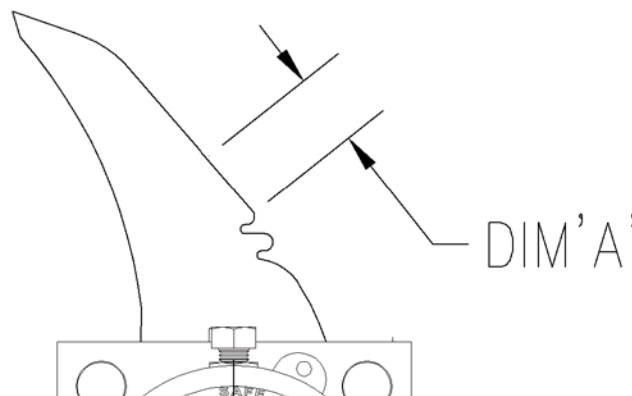
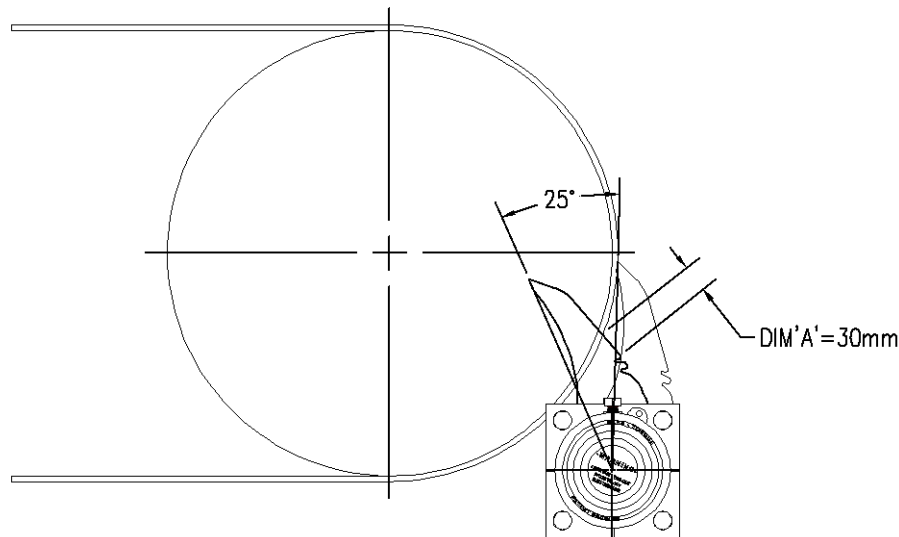
MAINTENANCE – SCHEDULE

After a fresh installation inspection of the Micro Eraser™ 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.



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MAINTENANCE – WHEN TO REPLACE



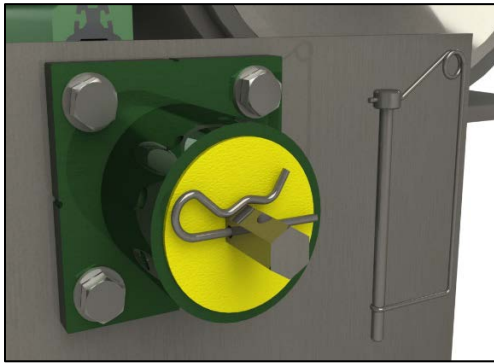
As Per the diagrams above, the blade should be replaced when it has degraded to the point where the system has rotated approximately 25°. To determine whether this distance has been reached use the dimension “A”; which is the distance between the belt and the first indent in the blade. Blade replacement 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 a solution cannot be found from the troubleshooting steps from pg. 7, a replacement blade may be required to be installed prior to the designated conditions being met.

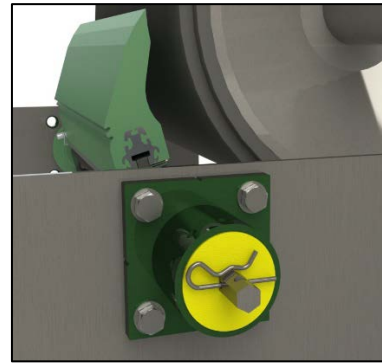
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MAINTENANCE – REPLACEMENT

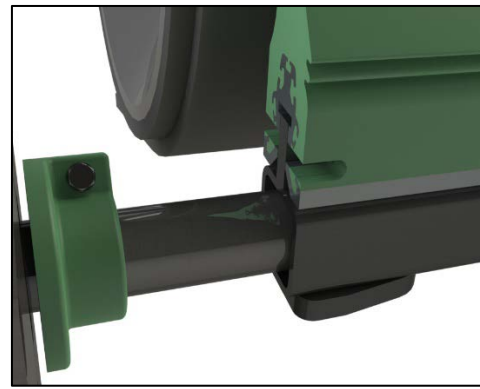
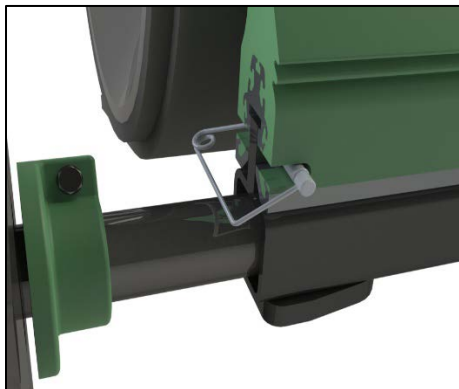
Shut down and lock out conveyor as per steps 1-3 of Maintenance – Inspection.



Remove the tension pin from the cleaner's tensioner(s) to relieve tension from the belt.



Use a 5/8" socket wrench to back the blades away from the belt.

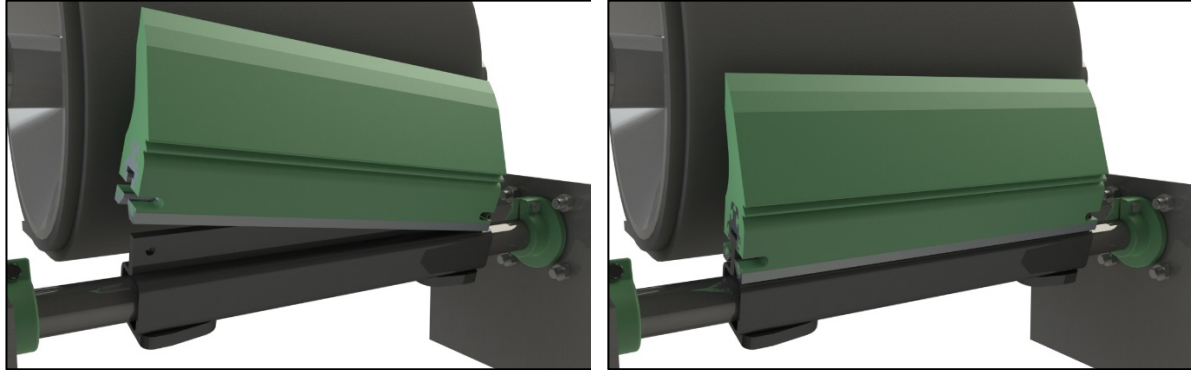


Loosen and remove the safety snap pin.

IMPORTANT

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

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Remove the blade from the Micro EraserTM Primary Belt Cleaning System mainframe.

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

Upon completion of replacement resecure the retaining clips, re-tension the system as per the tensioning instructions on pg. 6.

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.