

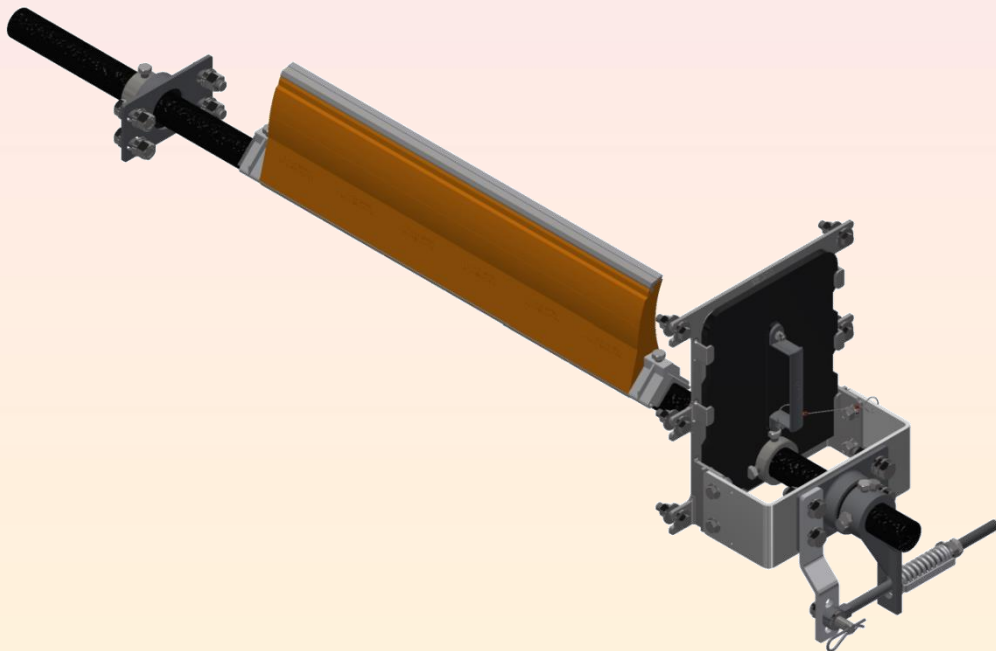


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Trac Mount Doctor Blade Primary Cleaner

Installation, Operation & Maintenance Manual





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WARRANTY

ESS warrants the **Trac Mount Doctor Blade Primary Cleaner** to be free of defects both in materials and workmanship for a period of 12 months from the date of despatch of the product from the ESS factory. The warranty given by ESS in this regard will extend only to replacing or repairing product shown to be defective.

The warranty is also subject to the following restrictions:

- a) Installation of the product contrary to the instructions contained in the supplied manual will void such warranty absolutely;
- b) The warranty will not extend to any liability for injuries incurred and which result from the use of the product contrary to the instructions in the manual;
- c) Save as prescribed by law, ESS will not be liable for any damage sustained by a purchaser or a third party by way of consequential loss arising out of defects in the product.

You are asked to note that ESS offers purchasers a service whereby either:

It will install the product and certify the correctness of such installation, or

Certify the correctness or otherwise of the installation of the product by third parties.

This certification service is designed to ensure that you obtain the full benefit of the ESS warranty hereby provided. If you would like to take advantage of the installation certification service provided, please contact ESS regarding the service.

Refer to the Final Checklist at the back of this manual.

Visit the ESS website www.esseng.com.au to register your product warranty.

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1.0 SAFETY

All equipment installed on or around a conveyor belt must comply with AS 1755 – 2000 Conveyors – Safety requirements.

Ensure that only suitably qualified and trained personnel install and service this product, and that all site and statutory safety procedures are followed.

The **Trac Mount Doctor Blade Primary Cleaner** is designed to be quickly and easily serviced by appropriate personnel, however under no circumstances should any personnel attempt installation or service of this equipment whilst the conveyor belt is running.

The conveyor belt drive and any associated equipment must be shut down and locked out according to plant safety procedures before attempting work requiring access to or opening of the chute or conveyor enclosure. **Contact with a moving conveyor belt and its drive components can result in serious injury or death.**

The Trac Mount Doctor Blade Primary Cleaner mainframe and blade assembly can be heavy and can require installation in awkward positions. Ensure that adequate personnel are available to safely lift the cleaner during installation, or use appropriate lifting gear.

The cleaner may be inspected or the tension adjusted with the belt running as long as suitable visual access is available, but the service person should never reach into or enter the conveyor enclosure. No other service work is able to be carried out with the conveyor running. Shut down and lock out the conveyor for any work requiring any part of the body to enter the conveyor enclosure, or be exposed to moving components.

The following are some of the hazards that may be present when installing this equipment:

Table 1 - Hazard Checklist

	Hazard	Hazard
X	Moving Conveyor - ISOLATE	Other:
	Hot Work	Other:
	Working at Heights	Other:
	Heavy Lift	Other:
	Persons Working Overhead	Other:
	Persons Working Below	Other:
	Electrical & Cabling	Other:
	Pinch Points	Other:
	Trip Hazards	Other:

Once hazards have been identified, the installer should undertake and document a comprehensive Job Hazard Analysis (JHA) according to site requirements and good safe-working practice. The installer must identify all hazards and apply appropriate controls before proceeding with the installation or servicing of this equipment.



1.1 SAFETY LABELS

Pictograph labels are used to show graphically where potential safety hazards exist around this product. These labels do not represent every possible hazard. They are not intended to be a substitute for safe work practices and good judgment. These labels and *ESS* technical manuals use specific words to identify the severity of the hazard. They are described below. Take time to read and understand the meaning of these words and symbols.



Danger labels call attention to imminently hazardous situations that will result in serious personal injury or death if not avoided. Injury from these hazards is immediate in nature and has a high probability of resulting in a serious or fatal accident if proper precautions are not followed.



Warning labels call attention to potentially hazardous situations that could result in serious personal injury or death if not avoided. Injury from these hazards is usually serious in nature, and a severe or fatal accident can occur if proper precautions are not followed.



Caution labels call attention to potentially hazardous situations that may result in minor or moderate personal injury if not avoided. Injury from these hazards is normally less serious than those from Danger or Warning hazards. However, there is still the potential for an accident resulting in serious injury if proper precautions are not followed.



2.0 INTRODUCTION

The Trac Mount Doctor Blade Primary Cleaner is normally mounted on the face of the conveyor head pulley and is designed to peel off the thick layer of loosely adhering material which often accounts for 80-90% of carryback.

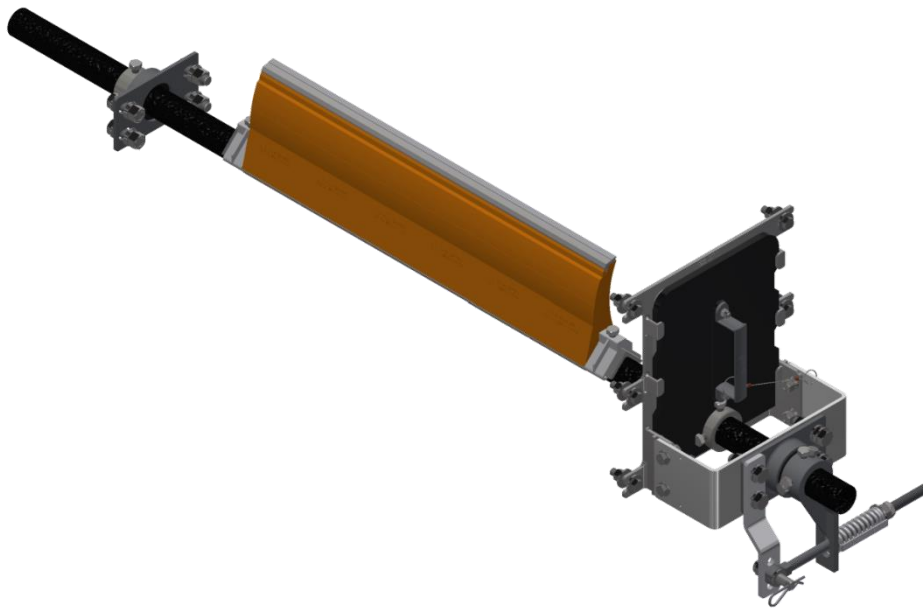


Figure 1 - Complete Single Tensioner Assembly

This primary cleaning system is generally used in conjunction with at least one secondary cleaner, such as the ESS Inline Premium Secondary Cleaner, often with a water spray system to further increase the removal of carryback. Each blade is a single urethane casting and these segmented blades can be easily removed by sliding on and off the mainframe track.

Before Installation, the following points should be considered:

- The cleaner is directional - it will only clean a belt travelling in the design direction - however, the cleaner will not be damaged or affected by belt direction reversal.
- The cleaner is suitable for use on crowned head pulleys and damaged or grooved belts. The urethane blades quickly conform to the belt profile.
- For slow moving belts, the cleaner should be positioned lower on the head pulley to ensure the blades are clear of the main material flow.
- For belts greater than 1500mm wide a tensioner is required on both sides to ensure equal pressure across the cleaning face.
- For belts greater than 1800mm wide, or for certain heavy duty applications, a mainframe stiffener is required.



3.0 PREPARATION FOR INSTALLATION

1. Check installation drawings

Ensure that you have the correct drawings and equipment for your conveyor(s).

2. Pre-assemble the cleaner(s) and mounts

Do this in your workshop or similar free area, rather than at the conveyor. This will enable you to:

- ✓ Verify all required equipment is present.
- ✓ Familiarise yourself with the cleaner assembly.
- ✓ Plan the installation and reduce installation time.

**3. Assemble the necessary tools & safety equipment required
For the installation**

4. Observe the conveyor while running and conveying material

- ✓ Observe the material trajectory.
- ✓ Observe the belt direction - does it reverse or roll back?
- ✓ Observe the belt splice condition.
- ✓ Does the belt run true, or track off to one side?
- ✓ Is the head pulley out-of-round?

Consult *ESS* if any UNUSUAL conditions are observed in the above. These conditions may result in recommendation of a different installation position or even a different cleaner.



4.0 INSTALLATION



CONVEYORS MUST BE SHUT DOWN AND LOCKED OUT BEFORE ANY INSTALLATION OR SERVICE WORK IS PERFORMED.



IF INSTALLATION IS TO BE DONE IN AN ENCLOSED AREA, TEST ATMOSPHERE FOR GAS LEVEL OR DUST CONTENT. FOLLOW ALL WELDING AND SAFETY GUIDELINES.

For original equipment installation, where cleaner cutouts and brackets have been fabricated into the chute during construction, ignore Steps 1 and 2.

For installation on enclosed head pulley chutework, draw all dimension lines on the chute wall. In applications where head pulley is not enclosed, custom designed brackets are necessary to ensure correct cleaner position.

Step 1 Locating mainframe's centreline

Measure radially from the face of the belt using the offset distance listed on the relevant installation drawing in Section 10. From this point draw an arc (radius 'Z') using the pulley's centreline as the centre point. The centreline of the mainframe can be located anywhere along the radius as long as the blades do not lie in the material trajectory. The optimum position for the blade tips is between 0° and 15° below the horizontal centreline.

Note

-Material trajectory is defined as the path of the material being discharged from the belt.

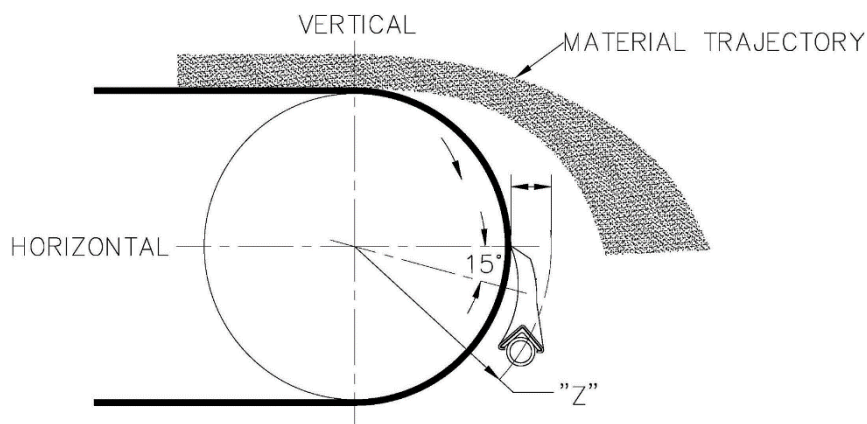


Figure 2 - Mainframe Setout Details



Step 2 Verify mainframe position

Position the mainframe assembly over the centreline marks. Verify that the mounts fit, and that adequate room is available to tension the cleaner. Position the access door frame to ensure it fits (where applicable). If the mounts or door frame interfere with structural members, it may be necessary to locate the cleaner elsewhere on the offset radius. In the case where only the tensioner interferes the tensioner can be rotated to several different mounting positions.

Step 3 Marking/cutting the mounting holes

At the nominated mainframe mounting position, mark out and cut the mainframe and mount fastener holes (if required) in each side of the chute. For further details, refer to the installation drawing at the back of this manual.

If an access door is to be installed, proceed as per the following section. While cutting the door hole, ensure that the marked centre lines of the cleaner are not totally removed as these will be required to position the mainframe.

Step 4 Insert the mainframe

The Trac Mount Doctor Blade Mainframe is fabricated from pipe and angle, and should be trimmed after installation.

Remove the blades if they have been mounted on the mainframe. Do this by loosening the blade lock screw from the end to be the operator side. Remove blade lock and blades by sliding them off the track.

Insert the mainframe without the blades through the inspection window.

Step 5 Position the mainframe

Slide the operator and far side mounts on to the mainframe, then tack weld, clamp, or loosely bolt the mounts to the chute walls. If a stand-off bracket is to be used over a access door, and the cut out has been made, fit the operator side mount to the appropriate stand-off bracket, and tack weld, clamp or bolt the stand-off bracket in the desired position.

Step 6 Check position of the mainframe

- Is the centreline of the mainframe positioned the correct distance from the belt face?
- Is the mainframe level, or equal to the pulley shaft?
- Is there at least 130mm clear at one end of the track to remove and replace blades?
- Ensure the far side blade lock is fitted. The lock must be sufficiently secure to hold the blades in place. Place operator side blade lock in the track, and



secure to finish blade installation. By hand, rotate the mainframe until the blade tips lightly contact the belt.

- Do the blade tips all touch the belt at the same time?

Note

Slight inconsistencies in belt thickness, and blade shape which cause small gaps between blade and belt that will quickly be taken up by blade flexure on tensioning.

- For crowned head pulleys, ensure that the outside blades on each side are an equal distance from the belt, whilst the centre blade is touching. Again, these gaps will quickly close on tensioning.

If any questions above have been answered “NO”, take appropriate action to correct the installation. If all questions are answered “YES”, proceed.

Step 7

Attach mounts, brackets and door frame

Fully weld or bolt the cleaner mounts, brackets and access door frame to the chute wall. If not already done, fit the tensioner assembly(ies) to the mount(s). Centre the blades on the belt. All ESS cleaners are designed to clean an area narrower than the actual belt width. This is to allow for a small amount of lateral movement of the belt and to protect the edge of the belt from possible damage. Loosen the lock screws on the bottom of the track and adjust the telescoping pipe ends to the required length. Firmly tighten the lock screws.

Lateral movement of the mainframe is prevented by the tensioner’s locking hubs, or a lock collar on the far side mount when only a single tensioner is used(i.e. on belt widths less than 1500mm). Lock these items in position, allowing about 1-2mm of end float in the cleaner mainframe.

Step 8

Install access door

Measure the position of the mainframe in relation to the access door frame. Mark this position on the access door rubber cover, and cut a neat hole, approximately 50mm diameter in the cover. Cut a straight line from this hole to the nearest edge of the rubber cover. Install the rubber cover over the mainframe pipe, and push into place on the door frame. Anchor the loose end of the cover with a lanyard of adequate length that allows the door to be completely removed from the opening.



4.1 COMBI-SAFE ACCESS DOOR

This access opening is designed to provide excellent inspection and maintenance access whilst being fully compliant with the guidelines of AS1755, Conveyors – Safety Requirements.

The Combi-Safe door comprises an outer frame with an integrated cleaner mount bracket, a lower cleaner seal, an inner mesh cover and seal that is lockable in place and a further steel outer cover.

The frame of the Combi-Safe door bolts to the chute wall. The cutout and bolt-hole pattern are shown in the following figure. Bolting of the frame allows adjustment of the cleaner position by loosening the bolts and moving the frame and cleaner as a unit. By doing this, the Combi-Safe cover and lower seal never need to be modified or damaged and a good seal is maintained.

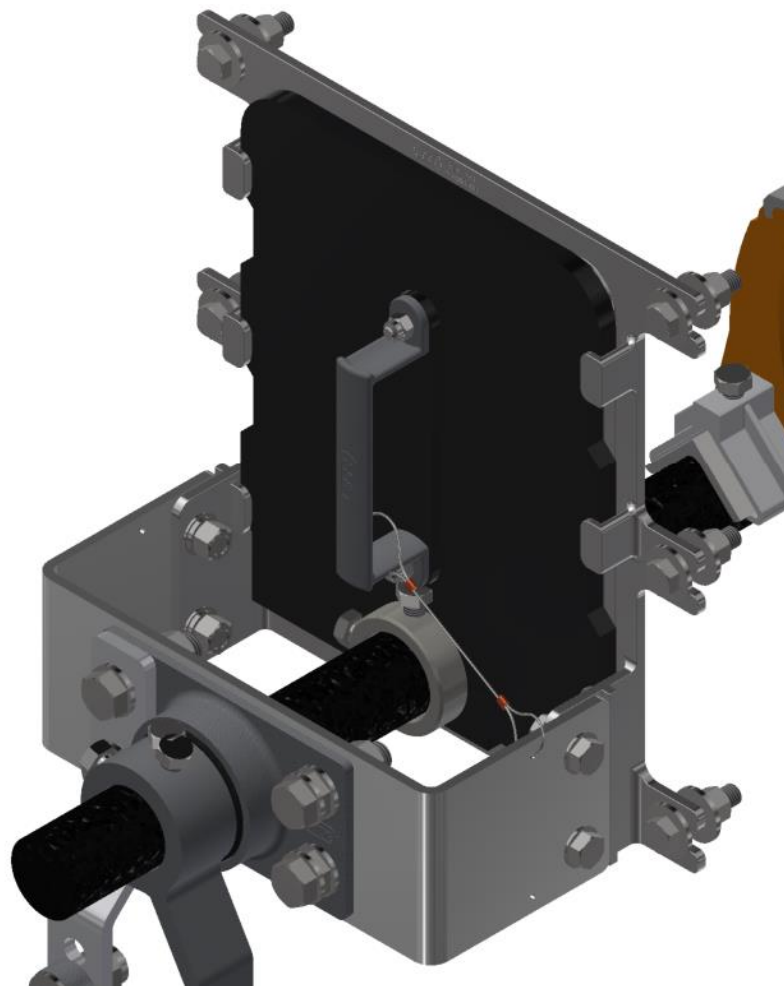


Figure 3 – Combi-Safe Access Door Installed on Cleaner



4.1.1 INSTALLATION OF COMBI-SAFE ACCESS DOOR

Step 1 As previously described in this manual, determine the centre line of the cleaner mainframe. Using this centre line as the start point, mark out the cleaner cutout and bolt holes as shown below. Check the marking out again, and then cut / drill the cutout and holes. Dress the edges of the cutout to remove burrs and slag and apply protective coating as required.

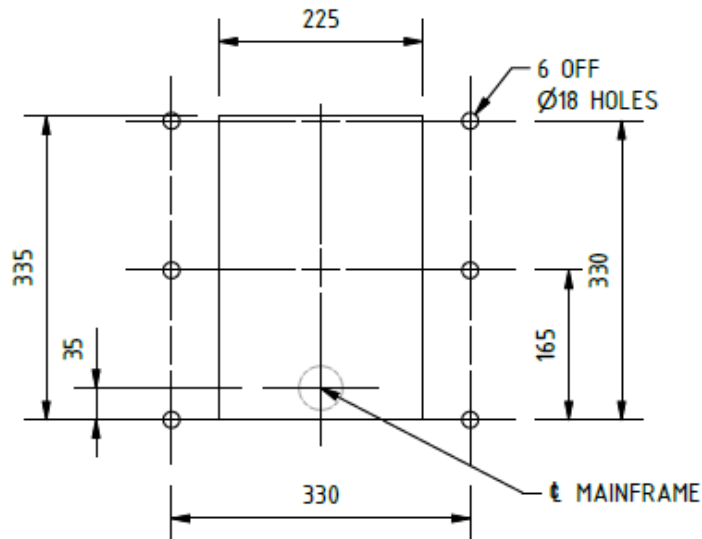


Figure 4 - Combi-Safe Cutout and Hole details

Step 2 If dual Combi-Safe doors are required, repeat step 1 for the opposite side of the chute. If not, use the far side mount cutout and holes as described previously in this manual.

Step 3 Fit the Combi-Safe door frame in place and secure with M12 bolts at the 6 holes. A small folded steel bracket is supplied with the door. This is fitted via the slotted hole under either of the top bolts. This Lock Bracket will provide a locking point for the inner door mesh cover.

Centralise the door in the slotted holes. This should locate the mainframe in the position previously determined in this manual. Secure the bolts. Fit the far side Combi-Safe or mainframe mount to the cutout on the opposite side of the chute.

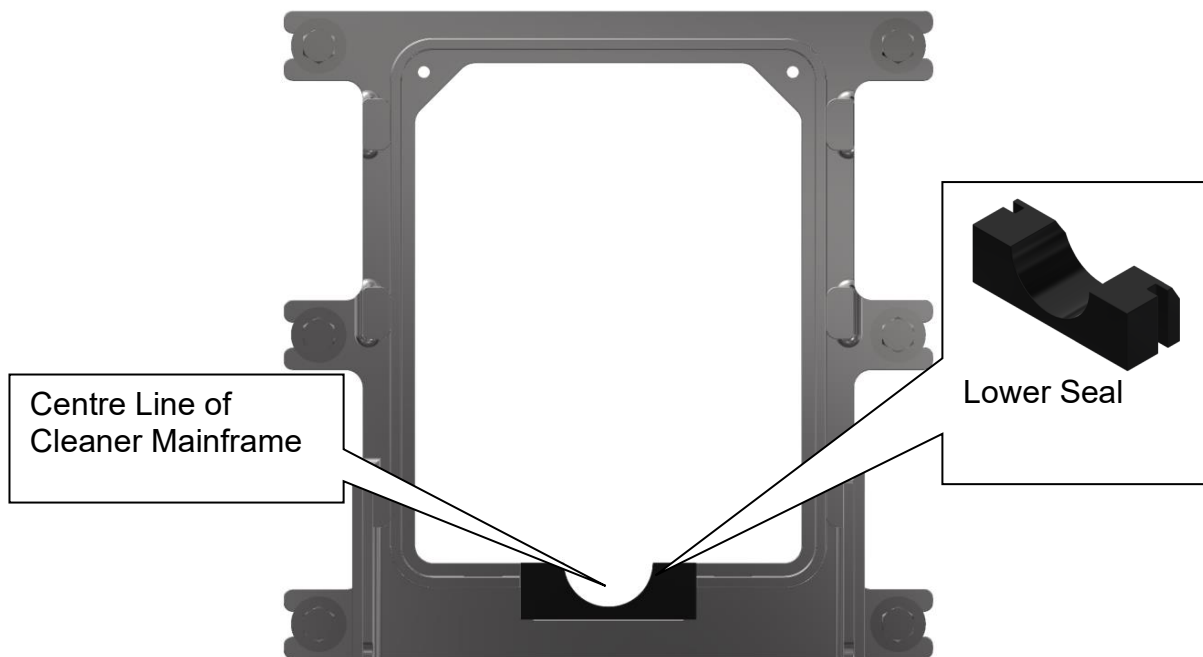


Figure 5 – Combi-Safe Frame Installation

- Step 4** Fit the lower seal into the door frame. This urethane piece simply locates in the square cutout in the base of the frame and is held by the recesses in either side of the seal.
- Step 5** Install the mainframe by inserting it through the Combi-Safe door opening and passing through the opening (door or mount) on the far side. Fit the mount and tensioner to the Combi-Safe bracket and secure the operating arm to the cleaner mainframe. Repeat for the far side if required. Fit the blades and end stops to the cleaner.
- Step 6** Fit the inner cover to the Combi-Safe door by inserting into the guide lugs and sliding down over the cleaner mainframe. Recesses in the sides of the cover allow it to be fitted and removed as little as 35mm above the secured position. This eliminates the need for excessive headroom above the door.

The inner cover can be secured to the locking bracket at the top of the door either by a fastener or by a padlock. This cover will now comply with the requirements of AS1755, as long as the nearest pinch or nip point is at least 200mm from the door.

The outer cover will fit to the inner cover to provide a final seal against water and dust. The outer cover is also recessed to allow fitting and removal with minimal head room.

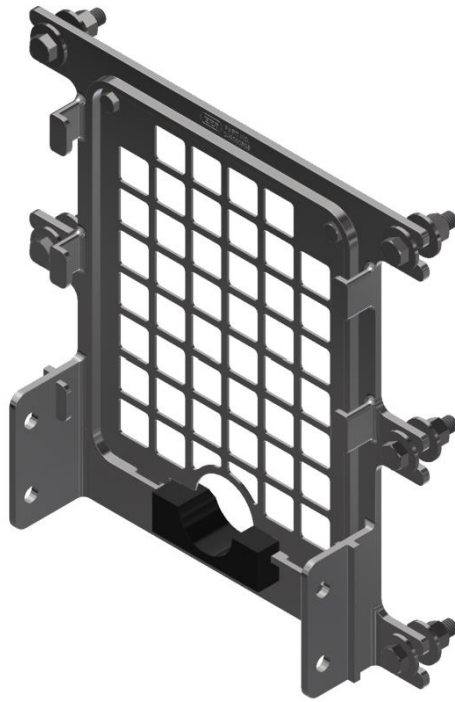


Figure 6 – Combi-Safe frame with inner cover



Figure 7 – Combi-Safe frame without inner cover



4.1.2 MAINTENANCE PROCEDURES AND ADVANTAGES

Visual Inspection

The Combi-Safe door allows inspection access by simply lifting and removing the outer cover plate. At this stage the inner mesh cover prevents contact with moving parts inside the chute, but will allow the service technician to visually inspect the belt cleaner or any other object within the line of sight.



TO PROCEED BEYOND THIS LEVEL OF ACCESS, THE CONVEYOR BELT MUST BE SHUT DOWN AND LOCKED OUT. ENSURE THAT ALL SAFETY PROCEDURES ARE FOLLOWED BEFORE ACCESSING THE AREA INSIDE THE CONVEYOR ENCLOSURE.

Maintenance Access

Remove the lock or fasteners from the top of the inner cover and lift the cover off the door frame. The cleaner blades are now able to be removed through the opening in the frame. If using genuine *ESS* blades with Keysafe feature, the blades may be removed safely, one at a time and with little effort. The Combi Safe door has been designed specifically to allow use of the Keysafe tool with no interferences.



WHEN THE LOCKSCREWS ARE LOOSENED, THE CLEANER MAINFRAME MAY SPIN. KEEP FINGERS CLEAR OF ANY PINCH POINTS.

WHEN WITHDRAWING THE TENSIONER, TAKE CARE THAT THE INDIVIDUAL PARTS OF THE TENSIONER ARE SUPPORTED. THE PARTS MAY RELAX / FALL WHEN COMING CLEAR AND COULD CAUSE IMPACT INJURY.

Lift the end of the cleaner mainframe and remove the lower seal. This will allow the mainframe to rest on the Combi-Safe frame at any time during withdrawal. Do not forget to re-fit the lower seal when re-installing the cleaner.

On completion of maintenance, re-fit the inner mesh cover and secure with the designated locking system. Set the tensioner(s) to the required setting and check the blade contact with the belt. Fit the outer cover, and remove locks or tags so that the conveyor can be returned to service.



5.0 TENSIONER SYSTEMS

ESS Trac Mount Doctor Blade Primary Cleaners are mounted to the conveyor structure via Shock Mounts or Flex Mounts.

The Shock Mount has a set of four threaded holes while the Flex Mount is a steel mount plate with a urethane insert.

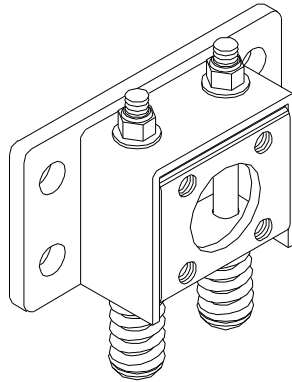


Figure 8 - Mild Steel Shock Mount

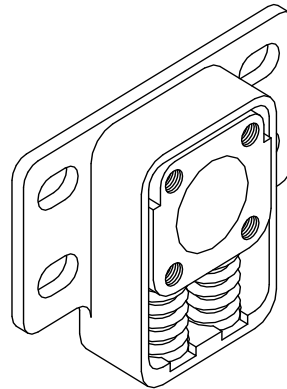


Figure 9 - Stainless Steel Shock Mount

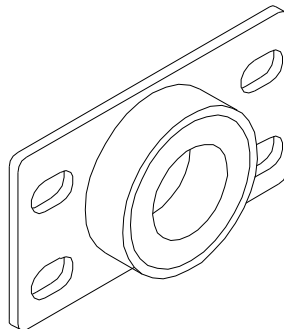


Figure 10 - Flex Mount



5.1 SPRING TENSIONER

The **40 NB Spring Tensioner** is a simple, robust and reliable blade tensioning unit.



Figure 11 - Spring Tensioner Assembly

The Spring Tensioner can be assembled to tension in either the clockwise or anti-clockwise direction and has multiple mounting positions for each direction.

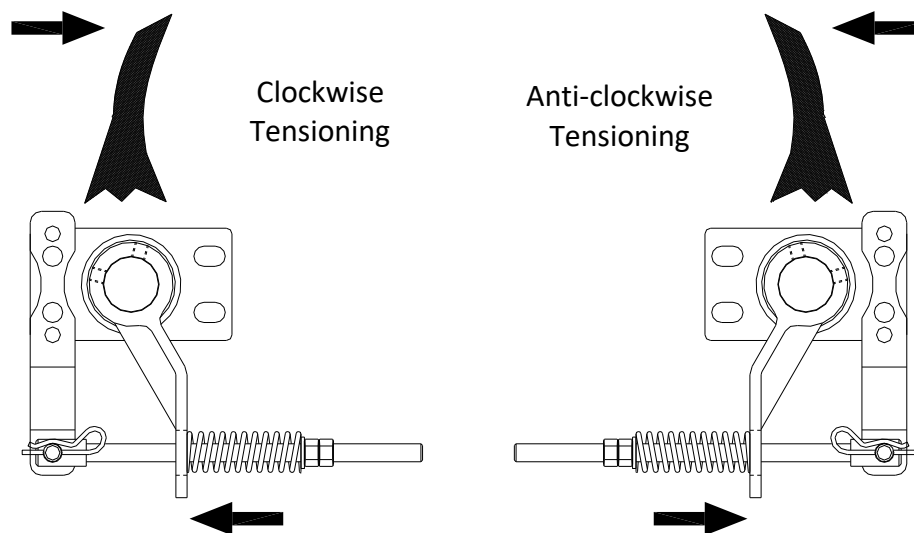


Figure 12 – Spring Tensioning Directions

The Spring Tensioner assembly is available in two variations:

- Part number 09010309s. Complete spring tensioner kit.
- Part number 09010310s. Spring tensioner kit without flex mount.

Adding an “S” as a suffix to the above part numbers denotes a stainless steel model. Both types are available as a set with the mounts included. Where a complete cleaner is ordered, it would normally be supplied with the Flex Mounts as the lower cost option.



5.1.1 SHOCK MOUNT SPRING TENSIONER INSTALLATION

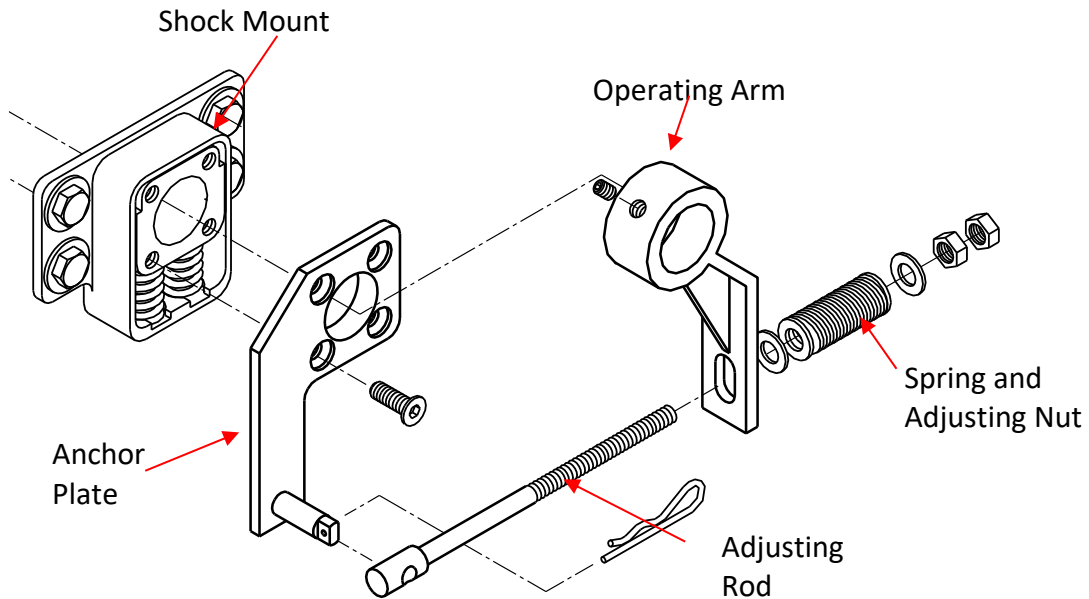


Figure 13 – Shock Mount Spring Tensioner Parts

- Step 1 Fit anchor plate**

Fit the anchor plate to the mount using the four countersunk head screws. Ensure that the plate is in the correct orientation for the desired tensioning direction. The anchor plate can be flipped over for the opposite direction, but the anchor pin must be removed and installed on the other side. The anchor plate and the tensioner assembly can also be rotated to four different angles through 360° to suit site restrictions.
- Step 2 Fit operating arm**

Slide the operating arm onto the cleaner mainframe, again ensuring that it is in the correct orientation for the desired tensioning direction.
- Step 3 Fit adjusting rod**

Insert the threaded end of the adjusting rod through the operating arm slot, with the clevis end toward the anchor plate. Fit the adjusting rod clevis onto the pivot plate pin and secure with clip provided.
- Step 4 Fit spring and adjusting/lock nuts**

Fit spring, nut and locknut to the threaded end of the adjusting rod. Only run the adjusting nut a few turns onto the adjusting rod. Do not try to adjust or compress the spring yet.
- Step 5 Position components**

Using a pipe wrench or similar, rotate the cleaner until the blade tips are lightly touching the belt. With the operating arm fully retracted against the spring, lock the operating arm onto the cleaner mainframe by tightening the



two lock screws. Ensure that the operating arm hub is 1-2mm clear of the mount to allow free rotation without excessive lateral movement of the mainframe.

Step 6 Adjust spring/nut

Whilst still supporting the cleaner with the pipe wrench, adjust the nut (not locknut) against the spring until the spring just begins to compress. Release the pipe wrench.

Step 7 Dual tensioners (where applicable)

For belts 1500mm and wider, tensioners are fitted to both sides. Repeat above procedure for other side. For cleaners with one tensioner only, fit the locking collar onto the far end of the cleaner mainframe, again locking it into position 1-2mm clear of the mount.



5.1.2 FLEX MOUNT SPRING TENSIONER INSTALLATION

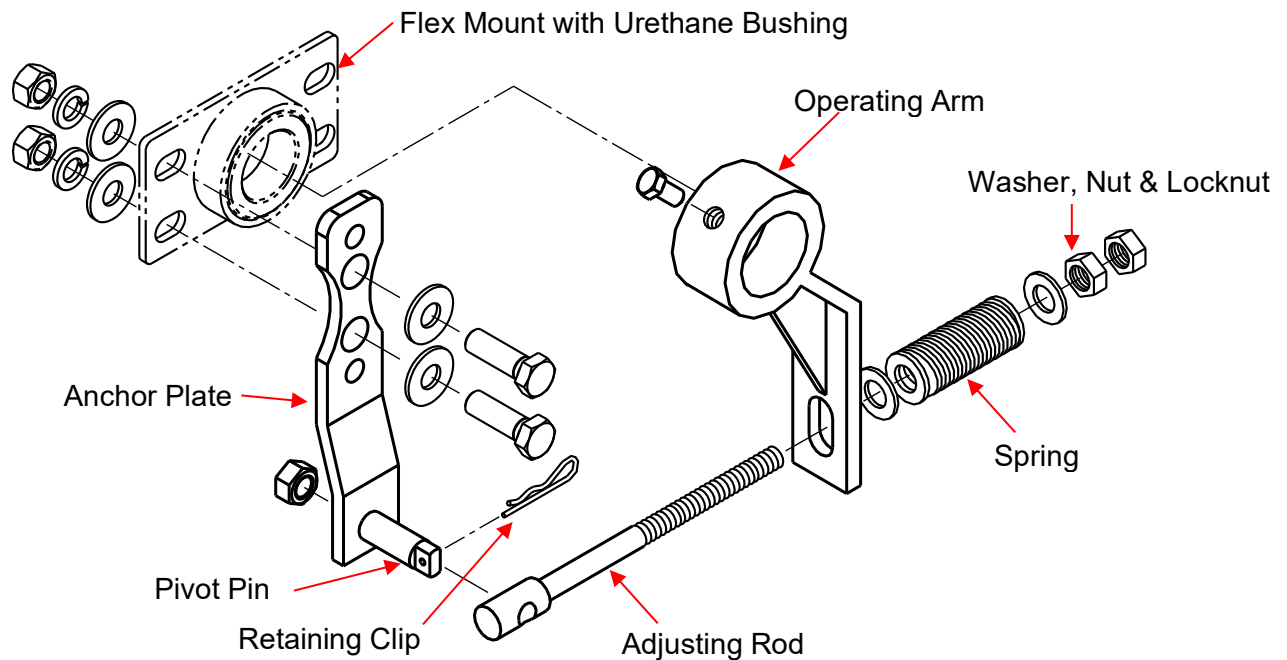


Figure 14 – Flex Mount Spring Tensioner Parts

Step 1 Fit anchor plate

Fit the Anchor Plate to the Flex Mount using two of the existing mount bolts. There are M16 bolt holes provided for the Primary Flex Mount and M12 bolt holes for the Secondary Flex Mount. Ensure that the plate is in the correct orientation for the desired tensioning direction. The Anchor Plate can be installed on the opposite side mount holes for tensioning in the opposite direction. The anchor plate and tensioner assembly can also be turned upwards to suit site restrictions.

Step 2 Fit operating arm

Slide the operating arm onto the cleaner mainframe, again ensuring that it is in the correct orientation for the desired tensioning direction.

Step 3 Fit adjusting rod

Insert the threaded end of the adjusting rod through the operating arm slot, with the clevis end toward the anchor plate. Fit the adjusting rod clevis onto the pivot plate pin and secure with clip provided.

Step 4 Fit spring and adjusting/lock nuts

Fit spring, nut and locknut to the threaded end of the adjusting rod. Only run the adjusting nut a few turns onto the adjusting rod. Do not try to adjust or compress the spring yet.



Step 5 Position components

Using a pipe wrench or similar, rotate the cleaner until the blade tips are lightly touching the belt. With the operating arm fully retracted against the spring, lock the operating arm onto the cleaner mainframe by tightening the two lock screws. Ensure that the operating arm hub is 1-2mm clear of the mount to allow free rotation without excessive lateral movement of the mainframe.

Step 6 Adjust spring/nut

Whilst still supporting the cleaner with the pipe wrench, adjust the nut (not locknut) against the spring until the spring just begins to compress. Release the pipe wrench.

Step 7 Dual tensioners (where applicable)

For belts 1500mm and wider, tensioners are fitted to both sides. Repeat above procedure for other side. For cleaners with one tensioner only, fit the locking collar onto the far end of the cleaner mainframe, again locking it into position 1-2mm clear of the mount.

5.1.3 SPRING TENSIONER ADJUSTMENT

Note

The Spring Tensioner is mounted externally to the conveyor chute, and as such is normally able to be adjusted with the conveyor in service. **Under no circumstances should any person reach into or enter a conveyor enclosure while the belt is running.** For any conveyor belt cleaner service, maintenance or adjustment that requires entry to the conveyor enclosure by any part of the body, first ensure that the conveyor is shut down and locked out to site safety procedures.



CONTACT WITH MOVING CONVEYOR COMPONENTS CAN RESULT IN SEVERE INJURY OR DEATH

To adjust the Spring Tensioner:

1. Loosen the locknut away from the adjusting nut on the adjusting rod.
2. Turn the adjusting nut until the cleaner blades are pressed against the belt, and the spring begins to compress.
3. Continue until the spring is compressed to the height shown in the following table. Ensure that the correct height is used for the appropriate belt cleaner and belt width. If in doubt, contact ESS.
4. Once the correct spring compression is achieved, run the locknut up against the adjusting nut, and use two wrenches to tighten the nuts together.
5. For cleaners with dual tensioners, repeat this procedure on the opposite side.



Table 2 - Spring Tensioner Adjustment Values

Belt Width	Compressed Spring Length
mm	mm
450	96
600	95
750	93
900	92
1050	91
1200	89
1350	87
**1500	**93
**1600	**92
**1800	**91
**2000	**90
**2200	**89
**2400	**88

** Cleaners for belts 1500mm and wider have dual tensioners. The settings shown are for each spring/tensioner.



5.2 AIR TENSIONER

The Air Tensioner is a robust tensioner capable of delivering very precise blade to belt contact force, whilst allowing the cleaner to respond and absorb belt or pulley irregularities.



Figure 15 - Air Tensioning Assembly

The Air Tensioner can be assembled to tension in either direction and can be rotated to several positions through 360° to overcome site restrictions. Ensure that the tensioner is assembled to operate in the desired direction before mounting onto the mainframe.

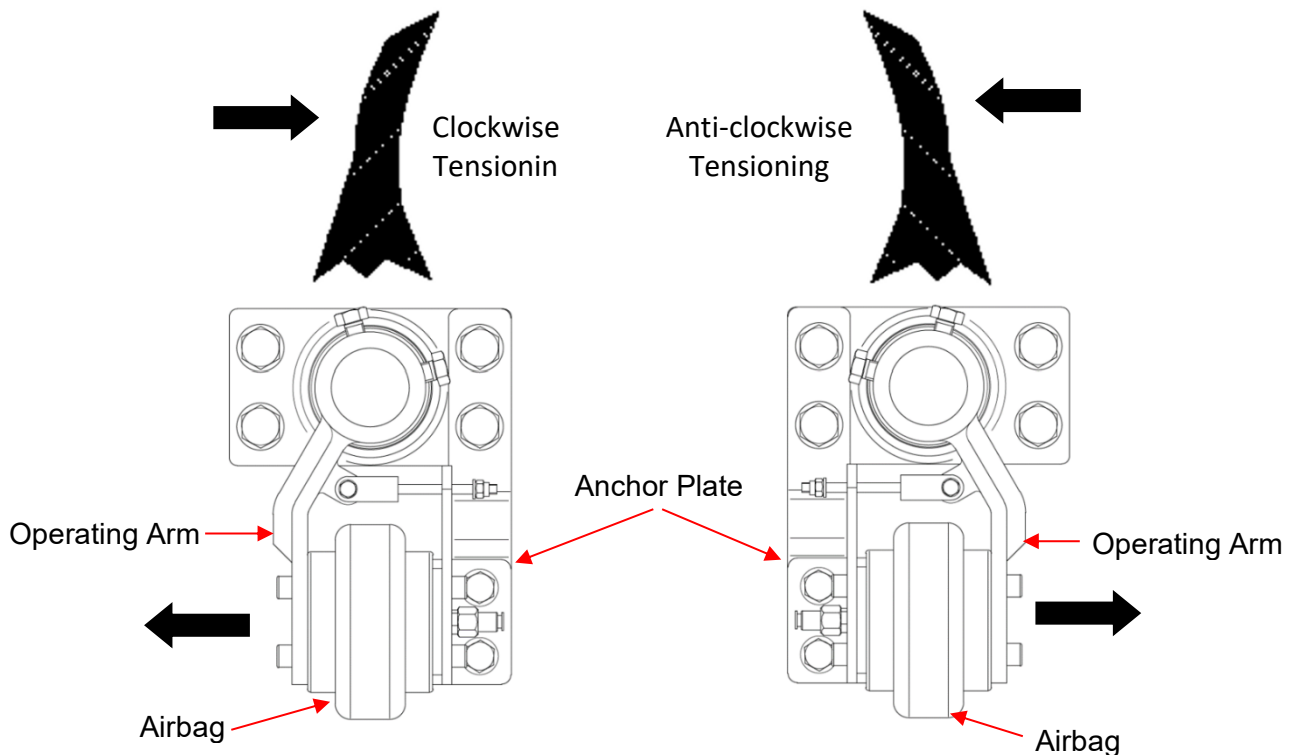




Figure 16 - Airbag Tensioning Directions

5.2.1 AIR TENSIONER INSTALLATION

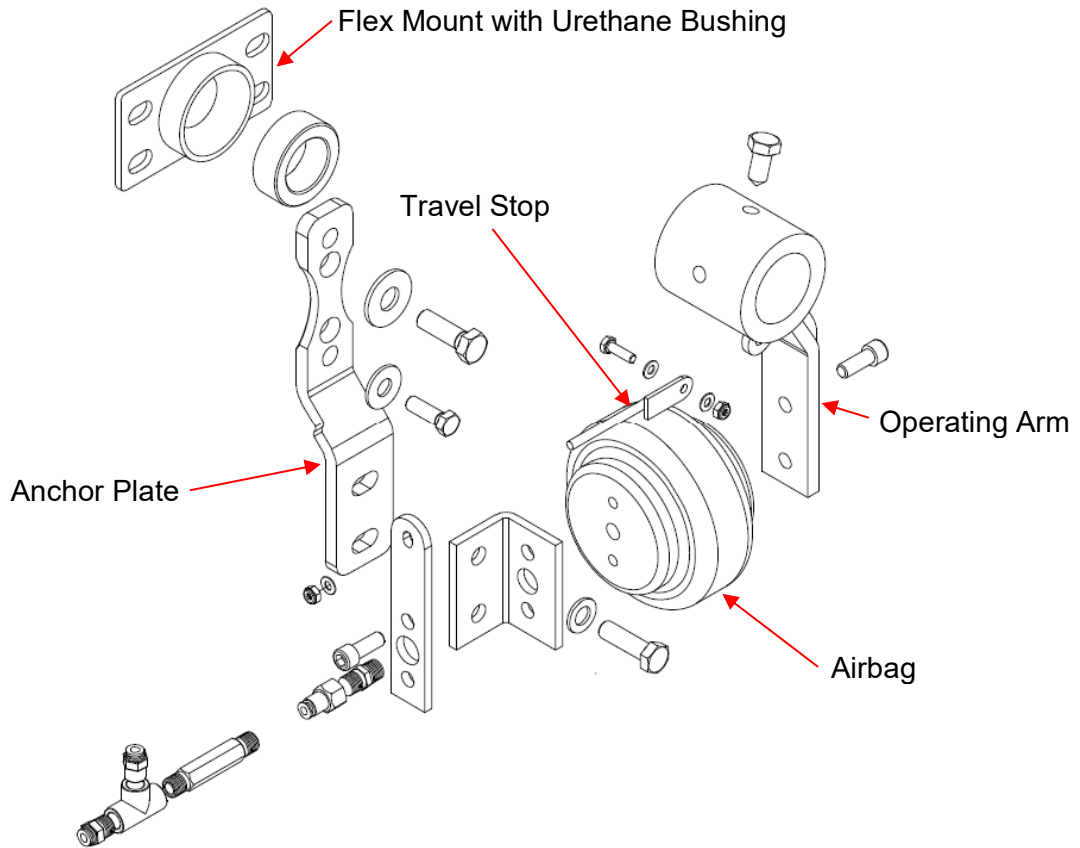


Figure 17 - Air Tensioner Parts

The Air Tensioner assembly is normally despatched from the factory fully assembled and may only require the installer to slide the assembly onto the mainframe and secure the Air Tensioner bracket to the Flex Mount using 2 hex head screws. Disassembly will only be required if the tensioner is set-up to tension in the wrong direction.

Step 1 Fit tensioner
 Fit the air tensioner bracket to the Flex Mount using the 2 hex head screws.

Step 2 Attach airbag
 Attach the airbag bracket to the air tensioner bracket. Bolt the blank end of the airbag to the operating arm. Slide the operating arm onto the mainframe with the airbag towards the airbag bracket side of the mount. Attach the open end of the airbag (this end has 3 tapped holes) to the airbag bracket.

Step 3 Position mainframe
 No air supply fittings should be connected at this point. Using a pipe wrench or similar, rotate the cleaner mainframe until the blade tips lightly touch the



belt surface at the cleaning position. With the airbag fully compressed, secure the operating arm to the cleaner using the locking screws. Allow 1-2mm clearance between the operating arm and the Flex Mount to enable free rotation whilst minimising lateral movement.

Step 4 Dual tensioners (where applicable)

For cleaners on belts 1500mm or wider, repeat the above for the far side. For belts less than 1500mm, simply fit the lock collar onto the far side of the cleaner, again allowing 1-2mm lateral clearance.

Step 5 Connect air supply

The cleaner is now ready for attachment of the air supply system. Connect all air fittings using a high quality liquid compound or gas seal thread tape.

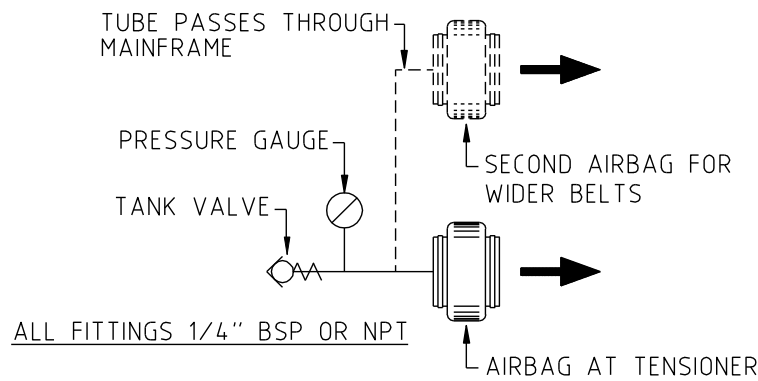


Figure 18 – Air System 1 – No Plant Air Available

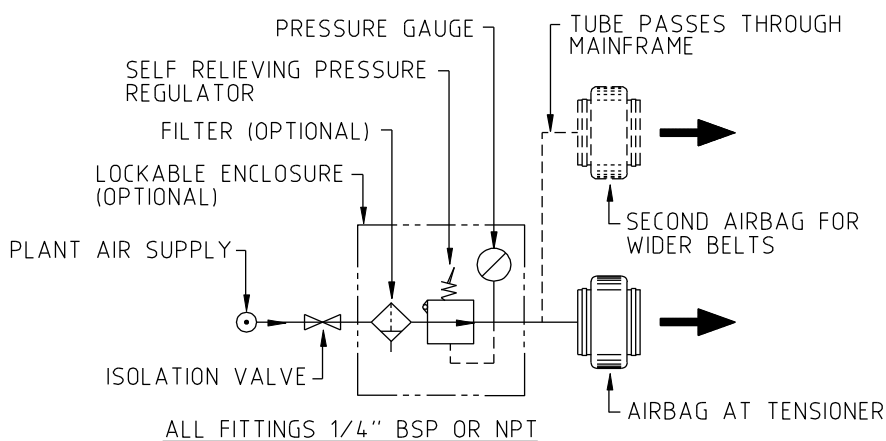


Figure 19 - Air System 2 - Plant Air Available

Step 6 Pressurize tensioner

Once all fittings are connected and secured, the air tensioner may be pressurised. Pressures are indicated in the following table.



5.2.2 AIR TENSIONER ADJUSTMENT

Note

Use these inflation pressures as a rough guide only. Belt speed, material, number of cleaners on belt and acceptable blade wear should be taken into account when setting pressures. DO NOT EXCEED 275 kPa (40 psi).

IF YOU HAVE NEED OF ASSISTANCE, CONTACT YOUR LOCAL ESS OFFICE.

Table 3 - Airbag Tensioner Pressures

Belt Width	Pressure	
	KPa	PSI
450	36	5
600	46	7
750	57	8
900	67	10
1050	77	11
1200	87	13
1350	107	15
**1500	**58	**8
**1600	**63	**9
**1800	**67	**10
**2000	**76	**11
**2200	**80	**12
**2400	**89	**13

**Dual tensioners fitted - pressure per tensioner given (Generally connected by balance tube).



6.0 COMMISSIONING

Step 1 Back the cleaners away from the belt

Double check the items in previous sections, Safety, Preparation and Installation.

Step 2 Is the belt empty?

Make sure there are no foreign objects such as tools or clean-up debris left on the belt as they may damage the belt cleaners or clog up the conveyor systems.

Step 3 Place conveyed product on the belt

Place some material on the belt before starting up system. This helps to quickly “wear in” the blades and reduce the initial friction between the belt and the blades. Handfuls of conveyed material spaced along the belt will do. The belt may also be moistened with water.

Step 4 Start the conveyor

Follow the established safety rules.

Step 5 Adjust the Primary Cleaner evenly onto the belt

Adjust the cleaner so that all of the blades are touching the belt with even pressure - DO NOT OVER-ADJUST. Each blade should be in contact and flexing back and forth with the irregularities of the belt surface. The blade is designed to lightly ride on the surface of the belt and remove a large percentage of the carryback. Excessive pressure unnecessarily reduces the life of the blades without any increase in cleaner efficiency.

Step 6 Observe the cleaning action

Using a light, observe the belt and the action of the cleaner. Place material on the belt. Look for blades that are not touching the belt. Run for 5 minutes to get a good idea of the action and the effect of the splices on the belt cleaner.

Step 7 Demonstrate the system to the operating supervisors and crew

Call the supervisors responsible for maintenance and operation to the site. Make a short run of the system, putting material on the belt. Show the operator how to adjust and operate the system.

Step 8 Secure the system for production

Follow plant procedure to secure the conveyor for actual production.



7.0 OPERATOR TRAINING

The decision to purchase ESS cleaning equipment has put within easy reach the reality of a clean plant. The last step is the correct training of personnel to maintain and service the equipment or employ ESS on a contract basis to maintain the cleaners so that they remain at optimum efficiency.

The benefits of efficient cleaners outweigh the cost of maintaining the cleaners many times.

If you wish to have your cleaning system maintained on a regular contract basis, contact ESS. If not, train your own personnel as follows:

1. **Ensure that personnel working around conveyors are thoroughly trained to recognise existing and potential hazards involved, and that a Job Safety Analysis is conducted to identify and control those hazards.**
2. **Ensure personnel are trained in correct equipment isolation and lock-out procedures.**
3. **Ensure that personnel have all required safety equipment and are thoroughly trained in the use of that equipment.**
4. **Ensure that all appropriate permits are in place, and that personnel involved are qualified to undertake the required work.**
5. Provide the trainee with a copy of this manual and ensure that they read and understand the contents.
6. Provide the trainee with all relevant conveyor data, such as belt speed, width and material handled, and ensure that they understand the required belt cleaner settings and adjustments that pertain to the conveyor.
7. Instruct the trainee to look for problems existing or developing in the belt cleaning system, such as increasing carryback, irregular or excessive blade wear, blade vibration and the like. Encourage them to **safely** observe and try to determine the cause of the problem.
8. Ensure that the trainee is given hands-on instruction in maintenance procedures during down-time, in the company of an experienced service technician.
9. Ensure that the trainee is provided additional support and instruction at regular future intervals to ensure that all information has been understood and retained.
10. Encourage the trainee to look for and report other problems developing on the conveyor system such as excessive belt tracking, belt damage, seized idlers, missing bolts and the like.



8.0 MAINTENANCE

Regular inspection and servicing is the key to effective conveyor belt cleaning. It is recommended that the cleaner be inspected once per week. Actual service intervals will vary considerably from plant to plant.



DO NOT REACH INSIDE THE CONVEYOR CHUTE UNDER ANY CIRCUMSTANCES WHILST THE CONVEYOR IS RUNNING

8.1 INSPECTION & TENSIONING

Step 1 Inspect the condition of the cleaner

Open the inspection door (if fitted) and observe the condition and action of the blades and cleaner.

Step 2 Clean blades and mainframe

If necessary (and if plant rules allow it), hose any material build-up from the blades or mainframe - DO NOT REACH INTO THE CHUTE WHILST CONVEYOR IS RUNNING.

Step 3 Re-tension

If necessary, re-tension the cleaner - refer to Section 5.

8.2 BLADE SERVICING

Step 1 Shut down and lock out the conveyor

Step 2 Release blades

Release the tension and back the blades away from the belt. Sharply rap the blades against the belt to dislodge any build-up. Visually inspect the blades.

- If blades are clean, and not excessively worn, re-tension the cleaner.
- If material build-up is still present or blades are excessively worn, proceed.

Step 3 Remove blade locks

Remove the operator side blade lock and slide the blade assemblies from the track. The blades may require a slight rap with a hammer to loosen before sliding.

Step 4 Clean and inspect the blades

If blades are worn past the wear line on the back of the blade, replace with new (or refurbished) blades.



Step 5

Re-install

Re-install blades into mainframe track, followed by blade lock. Re-tension the cleaner as previously described.

Step 6

Remove locks or tags and restart belt

Observe cleaner action and blade effectiveness. Replace access door cover (where applicable). Clean up work area.



9.0 TROUBLE SHOOTING

PROBLEM	CAUSE	SOLUTION
Blades fold through on start-up	Incorrect angle of attack / installation dimensions	Relocate mounts so that the shaft is the correct radial distance from the belt face on the head pulley
	Excessive tension	Relax blade tension to maximum tension recommended in installation instructions
	Belt running dry	Always place material on the belt for start-up or a little water if material is unavailable
	Poor belt condition	Repair belt, dress splices to smooth contour
	New belt with sticky surface	Fit low friction blades – contact ESS for assistance.
Mounts do not fit	Structural members in the way	Relocate the cleaner elsewhere on the offset radial. Consult ESS if unsure. Modify structural members only as a last resort, and only with plant engineer approval
	Obstructions prevent mounting to chute wall	Provide gussets or spacers to secure mounts away from obstructions
Mainframe bent	Mainframe undersized	Stiffened mainframe required. Contact ESS for assistance
	Excessive tension	Relax blade tension to maximum tension recommended in installation instructions
	Blades folded through	See above
	Material build-up between blades/ mainframe and belt	Increase frequency of inspection and service once a week
	Normal deflection	A small amount of deflection is considered normal. Contact ESS if excessive deflection occurs
Poor blade life	Cleaner over-tensioned	Tension cleaner enough to clean the belt only
	Incorrect blade material	Contact ESS for re-appraisal
Insufficient cleaning (excessive carryback)	Cleaner under-tensioned	Re-tension cleaner
	Build-up on blade	Rap blades against belt. Increase service frequency
	Cleaner overloaded	Add additional secondary cleaner
	Secondary cleaner not functioning correctly	Service the secondary cleaner

F0306 C/W FLEX MOUNT AND SPRING TENSIONER

DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED. REMOVE ALL BURRS AND SHARP CORNERS

HEAD PULLEY DIAMETER	100	150	205	255	300
RADIAL OFFSET	121	108	94	81	70

COMBI-SAFE DN40 DOOR P/N 23600060S/F - OPTIONAL

330
165
35
225 DOOR CUT OUT
HEAD PULLEY

MAX. FRAME LENGTH
BELT WIDTH
BLADE COVER
BLADE
125
FAR SIDE
OPERATOR SIDE
BLADE LOCK
167
TRACK LENGTH

1 NOM. CLEAR
FLEX MOUNT
LOCK COLLAR (SEE NOTE 3)

SECTION

CAST URETHANE BLADES
RADIAL OFFSET

140
80
50
50
4 HOLES $\phi 18$ FOR M16 BOLTS

140
50
50
4 HOLES $\phi 18$ W/O STIFFENER

140
50
50
4 HOLES $\phi 18$ W/ STIFFENER

CHUTE CUTOUT DETAIL FOR ENCLOSED CHUTES AND WHERE A COMBI-SAFE DOOR IS NOT USED

BELT WIDTH	450	600	750	900	1050	1200	1350	1500	1600	1800	2000	2200	2400
TRACK LENGTH	475	600	725	850	1100	1225	1475	1600	1830	1955	2205	2330	2500
No. BLADES	3	4	5	6	7	8	10	11	12	13	15	16	18
BLADE COVER	375	500	625	750	875	1000	1250	1375	1500	1625	1875	2000	2250
FRAME LENGTH	1250	1400	1600	1800	1950	2100	2300	2450	2600	2800	3000	3300	3600
STIFFENER LENGTH	-	-	-	-	-	-	1350	1550	1700	1/5 HEADCHUTE OR STRINGER DIMENSION REQUIRED			

NOTES

- THE OPTIMUM INSTALLATION OF THE TM DOCTOR BLADE PRIMARY CLEANER IS WITH ITS TIP BETWEEN 0° & 15° BELOW THE HORIZONTAL & OF THE HEAD PULLEY. MAINTAIN THE RADIAL OFFSET DIMENSION AND ENSURE THE CLEANER IS CLEAR OF MATERIAL FLOW.
- OPTIONAL ESS COMBI-SAFE DOOR & STAND OFF BRACKET ALLOW FOR EASY INSPECTION AND BLADE REPLACEMENT ON ENCLOSED HEADCHUTES.
- FOR BELTS UP TO 1500 WIDE THE FAR SIDE FLEX MOUNT IS COUPLED WITH A SIMPLE LOCK COLLAR TO PREVENT AXIAL MOVEMENT. BELTS 1600 AND WIDER REQUIRE TENSIONERS ON BOTH SIDES.
- FOR BELTS 1200 AND WIDER A STIFFENER IS REQUIRED FOR THE MAINFRAME.
- HIGH TEMPERATURE AND MINES DEPARTMENT APPROVED ASSEMBLIES ARE AVAILABLE.

CLIENT:	ESS
LOCATION:	CURRUMBIN
DESIGNER:	GR 267
CHECKER:	EDC/ALZ
APPROVED:	CAC/325
DATE:	G.G. S.D. T.T. 25/10/16
REV	REVISIONS
BY	CHKD
DATE	APP
DOCS	BY

ESS ENGINEERING SERVICES & SUPPLIES
CUSTOMER SERVICE No. 1800 074446

TITLE: TM DOCTOR BLADE PRIMARY CLEANER WITH FLEX MOUNT AND SPRING TENSIONER INSTALLATION ARRANGEMENT

SCALE: NTS
DRAWN BY: G.C.
CHKD: S.D.
DATE: 2/8/04

REV. E



F0330 C/W AIR TENSIONER, COMBI-SAFE DOOR & MANDREL

DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED. REMOVE ALL BURRS AND SHARP CORNERS

SECTION 1

CAST URETHANE BLADES
RADIAL OFFSET

COMBI-SAFE DOOR P/N 236000605/F - OPTIONAL

REGULATED AIR SUPPLY. CONTROL BOXES AVAILABLE.

HEAD PULLEY

225 DOOR CUT OUT

330

165

55

299 REF

4 HOLES $\phi 18$ FOR M16 BOLTS

TRIM ENDS TO SUIT

275

OPERATOR SIDE

BLADE LOCK

BLADE COVER

125

BLADE

TRACK LENGTH

FABRICATED MAINFRAME

68 REF

FLEX MOUNT

MANDREL MOUNT

TRACK LENGTH CAN BE TRIMMED TO SUIT SITE RESTRICTIONS

NOTES

- THE OPTIMUM INSTALLATION OF THE TM DOCTOR BLADE PRIMARY CLEANER IS WITH ITS TIP BETWEEN 0" & 15" BELOW THE HORIZONTAL & UP OF THE HEAD PULLEY. MAINTAIN THE RADIAL OFFSET DIMENSION AND ENSURE THE CLEANER IS CLEAR OF MATERIAL FLOW.
- FOR BELTS 1200 AND WIDER A STIFFENER IS REQUIRED FOR THE MAINFRAME.
- HIGH TEMPERATURE AND MINES DEPARTMENT APPROVED ASSEMBLIES ARE AVAILABLE.

HEAD PULLEY DIAMETER	100	150	205	255	>300
RADIAL OFFSET	121	108	94	B1	70

BELT WIDTH	450	600	750	900	1050	1200	1350	1500
TRACK LENGTH	475	600	725	850	1100	1225	1475	1600
NO. BLADES	3	4	5	6	7	8	10	11
BLADE COVER	375	500	625	750	875	1000	1250	1375
FRAME LENGTH	1250	1400	1600	1800	1950	2100	2300	2450
STIFFENER LENGTH	-	-	-	-	-	1375	1625	1750

CLIENT: ESS
LOCATION: CURRUMBIN

VIEW REVISED TO SKIN COMBI-SAFE EDCR 1372 AW
PRESSURE GAUGE REMOVED
WAS TRAC-MOUNT ER 247 KD
COMBI-SAFE WAS C/A EDCR147 AW JS
STIFFENER CUTOUIT ADDED CACT035 CW GG
ISSUED SD GC TT W/105

REV REVISIONS REF DOCS BY CHD APP DATE

ESS CAD

CHUTE CUTOUT DETAIL FOR ENCLOSED CHUTES AND WHERE A COMBI-SAFE DOOR IS NOT USED

4 HOLES $\phi 18$ W/O STIFFENER

4 HOLES $\phi 18$ W/ STIFFENER

ESS ENGINEERING SERVICES & SUPPLIES
CUSTOMER SERVICE No. 1800 074446

TITLE: TM DOCTOR BLADE PRIMARY CLEANER WITH AIR TENSIONER, COMBI-SAFE DOOR & MANDREL INSTALLATION ARRANGEMENT

DRAWN BY: SD SCALE: NTS DRAWING No. F0330
CHKD: GC APPD: TT DATE: 16/09/05

REV. E



F0351 C/W T.C. BLADES & FLEX MOUNT WITH SPRING TENSIONER

DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED. REMOVE ALL BURRS AND SHARP CORNERS

MAX. FRAME LENGTH

BELT WIDTH

BLADE LOCK OPERATOR SIDE

BLADE COVER

125 BLADE

FAR SIDE

1 NOM. CLEAR

FLEX MOUNT

LOCK COLLAR (SEE NOTE 3)

COMBI-SAFE DN40 DOOR P/N 23600060S/F - OPTIONAL

335 DOOR CUT OUT

225 DOOR CUT OUT

VIEW ON ARROW 'A'

4 HOLES Ø18 FOR M16 BOLTS

165 35 35

330

167

140

4 HOLES Ø18 W/O STIFFENER

4 HOLES Ø18 W/STIFFENER

CHUTE CUTOUT DETAIL FOR ENCLOSED CHUTES AND WHERE A COMBI-SAFE DOOR IS NOT USED

SECTION 1

140 80 50 50

140

90°

RADIAL OFFSET

TUNGSTEN CARBIDE TIP CAST INTO URETHANE BLADE BODY

HEAD PULLEY DIAMETER	450	600	750	900
RADIAL OFFSET	82	70	62	57

NOTE: DUE TO VARIANCES IN HEAD PULLEY DIAMETER, BELT THICKNESS AND LAGGING, IT IS ESSENTIAL THAT THE INSTALLATION DIMENSIONS BE USED AS AN INDICATION ONLY. THE INSTALLATION SHOULD BE CHECKED TO ENSURE THE BLADE TIP CONTACTS THE BELT AT 90° WHEN TENSIONED AGAINST THE BELT.

NOTES

- THE OPTIMUM INSTALLATION OF THE TM DOCTOR BLADE PRIMARY CLEANER IS WITH ITS TIP BETWEEN 0° & 15° BELOW THE HORIZONTAL & OF THE HEAD PULLEY. MAINTAIN THE RADIAL OFFSET DIMENSION AND ENSURE THE CLEANER IS CLEAR OF MATERIAL FLOW.
- OPTIONAL ESS COMBI-SAFE DN40 ACCESS DOOR & STAND OFF BRACKET ALLOW FOR EASY INSPECTION AND BLADE REPLACEMENT ON ENCLOSED HEADCHUTES.
- FOR BELTS UP TO 1500 WIDE THE FAR SIDE FLEX MOUNT IS COUPLED WITH A SIMPLE LOCK COLLAR TO PREVENT AXIAL MOVEMENT. BELTS 1600 AND WIDER REQUIRE TENSIONERS ON BOTH SIDES.
- FOR BELTS 1200 AND WIDER A STIFFENER IS REQUIRED FOR THE MAINFRAME.
- HIGH TEMPERATURE AND MINES DEPARTMENT APPROVED ASSEMBLIES ARE AVAILABLE.

BELT WIDTH	450	600	750	900	1050	1200	1350	1500	1600	1800	2000	2200	2400
TRACK LENGTH	475	600	725	850	1100	1225	1475	1600	1830	1955	2205	2330	2500
No. BLADES	3	4	5	6	7	8	10	11	12	13	15	16	18
BLADE COVER	375	500	625	750	875	1000	1250	1375	1500	1625	1875	2000	2250
FRAME LENGTH	1250	1400	1600	1800	1950	2100	2300	2450	2600	2800	3000	3300	3600
STIFFENER LENGTH	-	-	-	-	-	-	1350	1550	1700	1/3 HEADCHUTE OR STRINGER DIMENSION REQUIRED			

CLIENT: ESS

LOCATION: CURRUMBIN

REV	ISSUED	BY	CHKD	APPD	DATE
D	WAS TRAC-MOUNT	KO	MH	ASJ	
C	COMBI-SAFE WAS C/A	EDCR747	AW	JS	MH 8/9/19
B	STIFFENER CUTOUT ADDED	COA1325	CW	GG	SD 2/10/19
A	ISSUED	SD	GC	TT	17/0/19

REV REVISIONS REF DOCS

CHKD: S.D. APPD: T.T. DATE: 2/8/24

DRAWN BY: G.C. SCALE: NTS

TITLE: TM DOCTOR BLADE PRIMARY CLEANER C/W T.C. BLADES & FLEX MOUNT WITH SPRING TENSIONER INSTALLATION ARRANGEMENT

DRAWING No. F0351

ESS ENGINEERING SERVICES & SUPPLIES CUSTOMER SERVICE No. 1800 074446

FOR M16 BOLTS

SHOCK MOUNT RETRO FIT

SPRING TENSIONER FOR FLEX MOUNT

REFERENCE DRAWINGS

ESS CAD

ESS ENGINEERING SERVICES & SUPPLIES PTY LTD

F0446 AIR TENSIONER & FLEX MOUNT

DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED. REMOVE ALL BURRS AND SHARP CORNERS.

HEAD PULLEY DIAMETER	100	150	205	255	>300
RADIAL OFFSET	121	108	94	81	70

RADIAL OFFSET (SEE TABLE)

CAST URETHANE BLADES

SECTION 1

W/O STIFFENER

W/ STIFFENER

4 HOLES ϕ 18

4 HOLES ϕ 18

CHUTE CUTOUT DETAIL FOR ENCLOSED CHUTES AND WHERE A COMBI-SAFE DOOR IS NOT USED

OPERATOR SIDE

BLADE LOCK

BLADE COVER

BLADE

TRACK LENGTH

STIFFENER LENGTH

225 DOOR CUT OUT

335 DOOR CUT OUT

ϕ HEAD PULLEY

COMBI-SAFE DN40 DOOR P/N 23600060S/F - OPTIONAL

4 HOLES ϕ 18 FOR M16 BOLTS

NOTES

- THE OPTIMUM INSTALLATION OF THE TM DOCTOR BLADE PRIMARY CLEANER IS WITH ITS TIP BETWEEN 0° AND 15° BELOW THE HORIZONTAL ϕ OF THE HEAD PULLEY, AS LONG AS THE RADIAL OFFSET DIMENSION IS MAINTAINED AND THE CLEANER IS CLEAR OF THE MATERIAL FLOW.
- OPTIONAL ESS COMBI-SAFE DN40 ACCESS DOOR & STAND-OFF BRACKET ALLOW FOR EASY INSPECTION AND BLADE REPLACEMENT ON ENCLOSED HEADCHUTES.
- FOR BELTS UP TO 1500 WIDE THE FAR SIDE FLEX MOUNT IS COUPLED WITH A SIMPLE LOCK COLLAR TO PREVENT AXIAL MOVEMENT. BELTS 1500 AND WIDER REQUIRE TENSIONERS ON BOTH SIDES.
- FOR BELTS 1200 AND WIDER A STIFFENER IS REQUIRED FOR THE MAINFRAME.
- HIGH TEMPERATURE AND NINES DEPARTMENT APPROVED ASSEMBLIES ARE AVAILABLE.

AIRBAG NOTES

- WHERE DUAL AIR TENSIONERS ARE USED (1500 BELTS AND WIDER) A BALANCE TUBE PASSED THROUGH THE PIPE FRAME JOINS THE AIRBAGS TO ALLOW INFLATION FROM ONE POINT AND ENSURE EQUAL PRESSURE.
- OPTIONAL CONTROL BOX CAN BE SUPPLIED.

BELT WIDTH	450	600	750	900	1050	1200	1350	1500	1600	1800	2000	2200	2400
TRACK LENGTH	475	600	725	850	1100	1225	1475	1600	1830	1955	2205	2330	2500
No. BLADES	3	4	5	6	7	8	10	11	12	13	15	16	18
BLADE COVER	375	500	625	750	875	1000	1250	1375	1500	1625	1875	2000	2250
FRAME LENGTH	1250	1400	1600	1800	1950	2100	2300	2450	2600	2800	3000	3300	3600
STIFFENER LENGTH	-	-	-	-	-	-	1350	1550	1700	1/5 HEADCHUTE OR STRINGER DIMENSION REQUIRED			

CLIENT: ESS

LOCATION: QUEENSLAND

JOB No. _____

REV	REVISIONS	REF DOCS	BY	CHKD	APP	DATE
D	TRAC-MOUNT	CR 267	KO	SPR	MH	18/03
C	COMBI-SAFE WAS CYA	EDICR747	AW	JIS	RH	09/08
B	FLEX MOUNT ADDED		SD	GG	TT	18/07
A	ISSUED		SD	AM	CW	04/01

ESS ENGINEERING SERVICES & SUPPLIES
CUSTOMER SERVICE No. 1800 074446

TITLE: TM DOCTOR BLADE PRIMARY CLEANER AIR TENSIONER AND FLEX MOUNT ARRANGEMENT

SCALE: NTS DRAWING No. F0446

DATE: 8/4/11

APPD: CW

REV. D



11.0 EXPLODED PARTS DRAWING

F0015 BASIC CLEANER & MOUNTS

PART No's FOR BELT CLEANER ASSEMBLIES

20 xxx xxx xx - SUFFIX LETTERS - SEE SUFFIX NOTE

TENSIONER
100-1400
102-AIR TENSIONER

BELT WIDTH (mm)
e.g. 400-1400
(AS ABOVE)

SPRING TENSIONED CLEANER MUST BE ORDERED AS MAINFRAME, TENSIONER AND BLADES SEPARATELY

DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED. REMOVE ALL BURRS AND SHARP CORNERS

BELT WIDTH	450	600	750	900	1050	1200	1350	1500	1600	1800	2000	2200	2400
TRACK LENGTH	475	600	725	850	1100	1225	1475	1600	1850	1955	2205	2350	2500
No. BLADES	3	4	5	6	7	8	10	11	12	13	15	16	18
BLADE COVER	375	500	625	750	875	1000	1250	1375	1500	1625	1875	2000	2250
FRAME LENGTH	1250	1400	1600	1800	1950	2100	2300	2450	2600	2800	3000	3300	3600
STIFFENER LENGTH	-	-	-	-	-	1375	1625	1750	1/5 HEADCHUTE OR STRINGER DIMENSION REQUIRED				

ITEM PART Nos. DESCRIPTION

1	15200xwkel	MAINFRAME x BELT WIDTH (SEE NOTES)
2	21015095kxk	STANDARD BLADE (xx SUFFIX SPECIFICS TYPE)
	21015095kxk	CARP-2 BLADE (xx SUFFIX SPECIFICS TYPE)
	21010101w	TUNGSTEN CARBIDE BLADE (x SUFFIX SPECIFICS TYPE)
3	21052010s	LOCK SLEEVE C/W M12 x 20 SCREW
4	09100057s	FLEX MOUNT PRIMARY 40NB W/O BUSH S/S
5	236000605F	COMBI-SAFE DOOR ASSY DN60 FRAS SUIT PRIM
6	09100057H1P1M1G1	FLEX BUSH 40NB
7A	091001025	AIR TENS 40NB ASSY FOR FLEX S/S
7B	091001025H1S1F1	SPR TENS 40NB PRIM FLEX MOUNT SET S/S

NOTES:

- CLEANERS FOR BELT MOUNTING AND GREATER REQUIRE TENSIONER ASSEMBLIES ON BOTH SIDES.
- THE FLEX MOUNT CAN ONLY BE USED IN CONJUNCTION WITH COUNTERWEIGHT TENSIONERS. (FLEX MOUNT REPLACES ITEM 4)
- FOR ENCLOSED CHUTE CONVEYORS ESS RECOMMENDS THE USE OF TENSIONERS AND BUSHES FOR OTHER TENSIONERS FOR EASE OF BLADE INSPECTION AND REPLACEMENT.
- MANDELS, MOUNTS ARE ALSO AVAILABLE CONTACT ESS FOR MORE INFORMATION.

GENERAL:
S = STAINLESS STEEL / FRAS (FIRE RETARDANT - ANTI STATIC)
F = FRAS (FIRE RETARDANT - ANTI STATIC)

FASTENERS / FITTINGS:
S = STAINLESS STEEL
Z = ZINC PLATED

TM DOCTOR BLADE PRIMARY CLEANERS COMPLETE:
F = FRAS
S = STAINLESS STEEL / FRAS
SF = STAINLESS STEEL / TUNGSTEN CARBIDE
T = TUNGSTEN CARBIDE

TM DOCTOR BLADE PRIMARY CLEANER BLADES:
G = GOLD
B = BLUE
P = PEEK
C = CLIP GRADE
H = FRAS HARD GRADE
FM = FRAS MEDIUM GRADE

TUNGSTEN CARBIDE TIP BLADES:
G = TUNGSTEN CARBIDE TIP GREEN

PART No'S FOLLOWED BY xxx INDICATE THAT THE PART IS AVAILABLE IN ALL STANDARD BELT WIDTHS. SUBSTITUTE xxx WITH BELT WIDTH MEASURED IN cm.

SUFFIX NOTES:

GENERAL:
S = STAINLESS STEEL / FRAS (FIRE RETARDANT - ANTI STATIC)
F = FRAS (FIRE RETARDANT - ANTI STATIC)

FASTENERS / FITTINGS:
S = STAINLESS STEEL
Z = ZINC PLATED

TM DOCTOR BLADE PRIMARY CLEANERS COMPLETE:
F = FRAS
S = STAINLESS STEEL / FRAS
SF = STAINLESS STEEL / TUNGSTEN CARBIDE
T = TUNGSTEN CARBIDE

TM DOCTOR BLADE PRIMARY CLEANER BLADES:
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FM = FRAS MEDIUM GRADE

TUNGSTEN CARBIDE TIP BLADES:
G = TUNGSTEN CARBIDE TIP GREEN

PART No'S FOLLOWED BY xxx INDICATE THAT THE PART IS AVAILABLE IN ALL STANDARD BELT WIDTHS. SUBSTITUTE xxx WITH BELT WIDTH MEASURED IN cm.

CLIENT: _____

LOCATION: _____

F	ARLINE ADDED	ARF1979	SD	GC	TT	EAIVE
E	REVISED		G.C.	S.D.	T.T.	EAIVE
J	WAS TRAC-MOUNT	GR 267	KO	SD	MH	EAIVE
H	MULTIPLE REVISIONS	EDCR1274	AW	JS	MH	EAIVE
G	FLEX MOUNTS ADDED	ARF2765	CW	GG	SD	EAIVE
REV	REVISIONS	REF	BY	CHKD	APPD	DATE
		DOCS				

ESS ENGINEERING SERVICES & SUPPLIES
CUSTOMER SERVICE No. 1800 074446

TM DOCTOR BLADE PRIMARY CLEANER
BASIC CLEANER AND MOUNTS
EXPLODED PARTS LIST

DRAWN BY: T.THEW
SCALE: NTS
DRAWING No. F0015
DATE: 5/21
APPD: _____
REV: J



12.0 FINAL CHECKLIST

Site: _____ Number: _____ Date: _____

Site Equipment No./Location: _____ Site Contact: _____

Completed By: _____ (Circle Yes or No Below)

1. Was equipment to ESS Specification? _____ Yes/No

Drawing No. Ref: _____ Attached? Yes/No

If No, WHY _____

Will this affect performance? Yes/No

If Yes, WHY _____

2. Was this a standard service inspection installation? Yes/No

If No, WHY _____

3. Was work carried out as per procedure and JSA? Yes/No

If No, WHY _____

4. Is equipment fit for commissioning? Yes/No

If No, WHY _____

5. Was a final inspection carried out while plant was running? Yes/No

If No, WHY _____

6. Has anything changed from previous service / inspection / installation? Yes/No

If Yes, WHAT _____

7. Is equipment performance to Client expectations? Yes/No

If No, WHY _____

ESS Signature: _____ Client Signature: _____

