

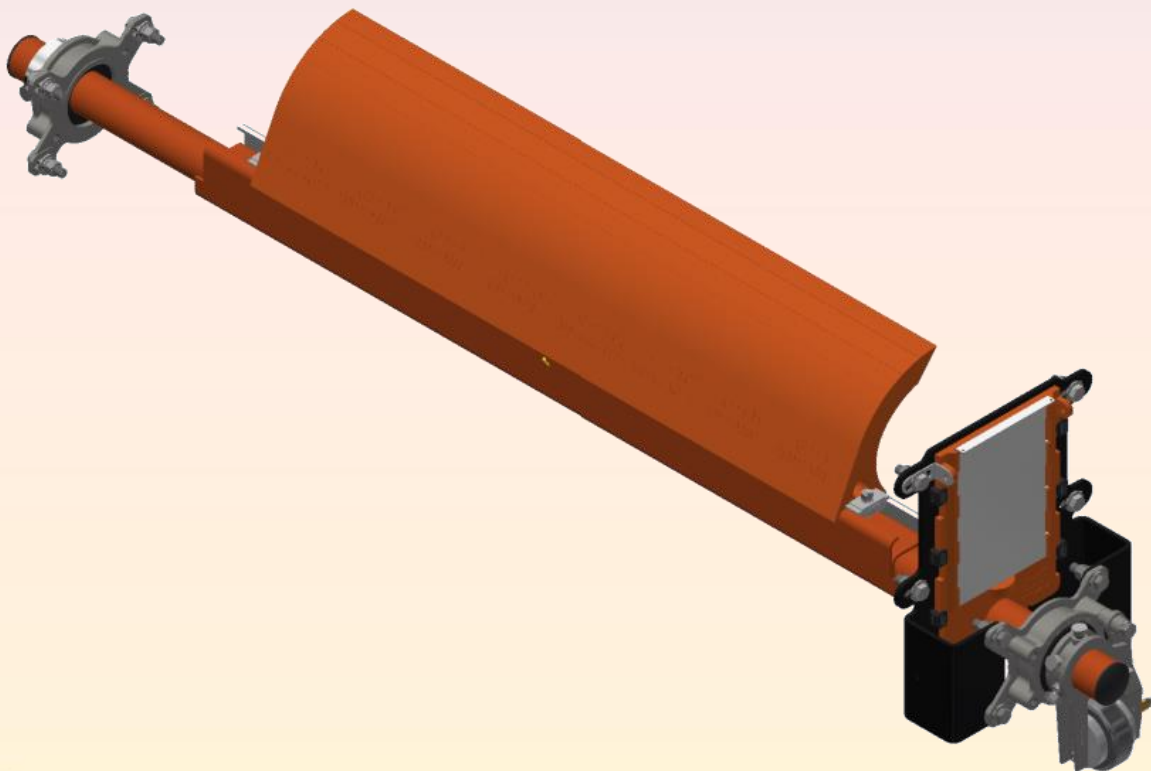


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XHD Primary Cleaner

Installation, Operation & Maintenance Manual





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WARRANTY

ESS warrants the **XHD 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 **XHD Series 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 XHD 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 XHD 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 **XHD Series Primary Cleaner** is a large and robust cleaner designed for use on conveyor belts having large head pulleys, wide head chutes, high speeds or handling abrasive materials.

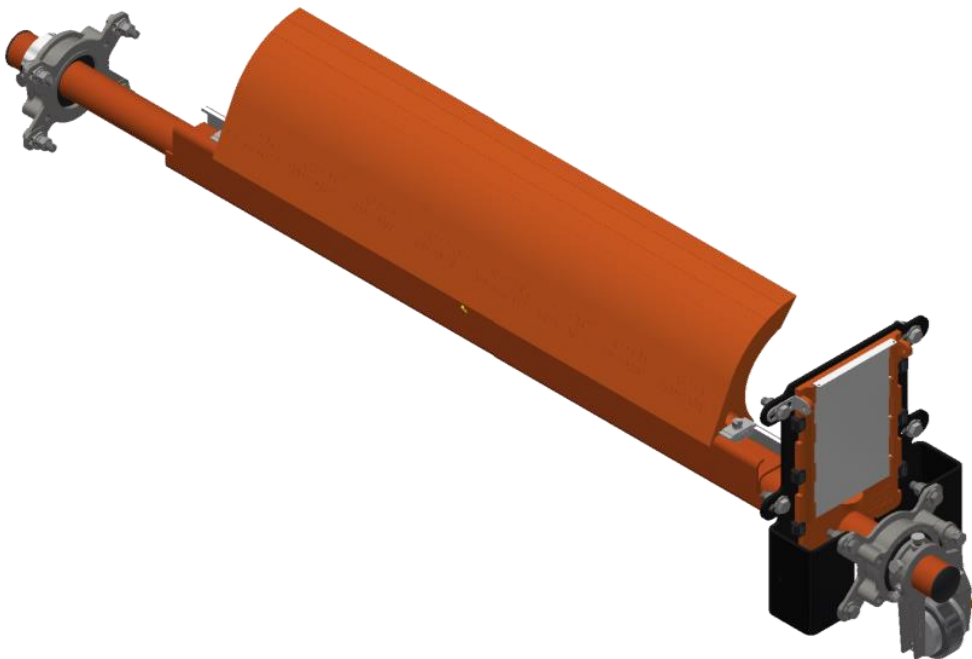


Figure 1 - Complete Single Tensioner Assembly

It is normally mounted on the face of the conveyor belt head pulley. The cleaner blades face against the direction of belt travel and are designed to peel off the thick layer of loosely adhering material that often accounts for up to 80-90% of carryback.

The XHD Series Primary Cleaner is normally used in conjunction with at least one secondary cleaner, such as the Inline Premium Secondary Cleaner and often with a water spraying system. One side of the track is removable for very tight or difficult applications, or if the blades become stuck due to material adhesion.

The blades are of cast urethane in a range of grades, shapes and sizes for various applications, plus a tungsten carbide tipped version for very abrasive materials. The blades slide into a steel track on the mainframe for ease of replacement.



Figure 2 - XHD with Green Low Profile Blades on a Sugar Mill Bagasse Belt

IMPORTANT

The cleaner is directional - it will only clean the belt travelling in the design direction. However, the cleaner will not be damaged or affected by belt direction reversal.

Using urethane blades, 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 cleaning pressure across the cleaning face.



Figure 3 – XHD with Orange Carp-2 Blades



2.1 KEYSAFE BLADE REMOVAL FEATURE

ESS has incorporated the patented Keysafe blade removal feature in the XHD Primary Cleaner to facilitate safe and easy blade replacement. This feature is now included in all current XHD blades.

2.1.1 ORIGINAL KEYSAFE

The Keysafe feature consists of a hole through the blade that changes from a round bore to a slot halfway through. This allows an extraction tool with a spade tip to be inserted through the slot into the round bore. The tool is then rotated 90° and withdrawn. The spade tip engages on the shoulder of the slot to pull the blade out of the track. The advantages of this system are many:

- Only one blade is withdrawn at a time.
- Works from either side of the belt.
- No confined space entry required.
- No heavy lifts.
- Hole is low on centre line of blade for best application of effort.
- Optional slide hammer available for tight blades.
- Tool is adjustable in length for wide belts or tight spaces.

The Keysafe feature is included in the blades at no cost to clients. The extraction tool is available for purchase from any ESS representative:

P/N 36900005 Keysafe Blade Extraction Tool

P/N 36900020 Keysafe Tool Slide Hammer

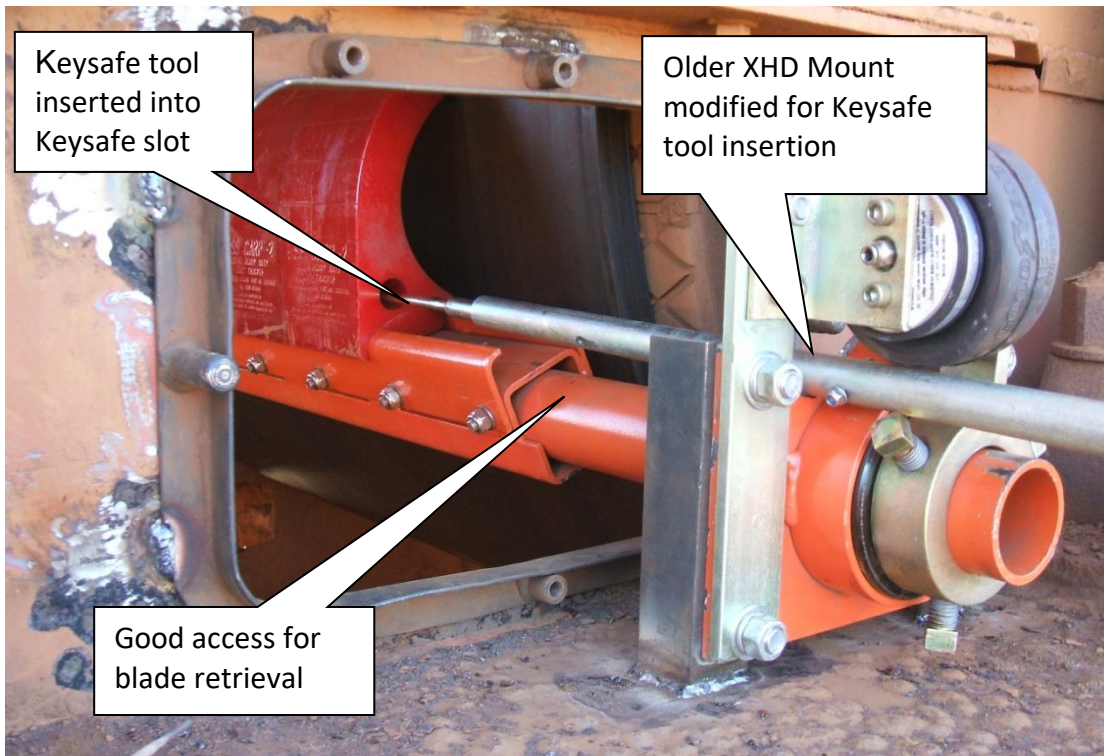


Figure 4 – Typical Cleaner Set-up for Keysafe

The Keysafe feature is provided free of charge to purchasers of genuine ESS blades, and has the potential to not only eliminate many of the safety hazards associated with belt cleaner blades changes, but also to dramatically reduce the time taken for a blade change.

Task duration reductions of the order of 90% are common, with the cost saving directly to the end user.

However, in order to take advantage of this feature, the installer must ensure that the service technician is able to use the Keysafe tool to remove the blades. This is accomplished very easily and at little or no additional cost, and with only a small amount of forethought during installation planning.

The main requirements for use of the Keysafe are:

- The tool must be able to be inserted into the Keysafe opening, in a relatively straight line.
- When the blade has been withdrawn to the end of the mainframe track, it must be retrievable by the service technician.
- A minimum of approx. 600mm clear space is required outside of the chute to enable the technician to manoeuvre the tool and slide hammer.

To facilitate the above, the ESS XHD mounts have been designed in a cutaway shape to allow alignment of the tool with the Keysafe opening. Additionally, cleaner accessories such



as the XHD Stand-off Bracket have also been redesigned with the top cut away also to facilitate access for the tool.

When combined with an *ESS* access Door, the mount and stand-off bracket will provide excellent access to use the tool and retrieve the blades. Clients are able to custom design similar access, and *ESS* can provide design assistance on tricky applications.

Material fines entering the Keysafe slot can be problematic, but measures can be taken to overcome this. For relatively easy to move materials such as coal, simply hosing water into the slot will clear it sufficiently.

The Keysafe tool has been recently redesigned to allow use of the slide hammer in the reverse direction. This means that the spade tip can be hammered in to the slot through the fines.



2.1.2 KEYSAFE 2

The Keysafe system has proven effective in a large variety of applications but has some limitations. Mainly that with some very fine/wet materials the Keysafe hole can become clogged. This material can be hard to remove and prevents insertion of the Keysafe tool. Additionally, the current Keysafe hole and slot requires the tool to be inserted almost directly in line with the hole while some applications do not have this level of access.

An alternate blade extraction arrangement has been devised to overcome these limitations. This involves a pair of recesses in each side of the blade, with a hole projecting through from the front recess to the back recess – see pictures following. This allows insertion of a simple bent bar tip that engages in the hole and allows withdrawal.

In the even of material accumulating in these holes, the tool can be used to simply tap the accumulated material and dislodge it, and then insert the tool.

P/N 36302095	XHD Carp-2 Blade Keysafe 2 Orange
P/N 36900005	Keysafe Blade Extraction Tool
P/N 36900035	Keysafe Blade Extraction Tool K2 Head

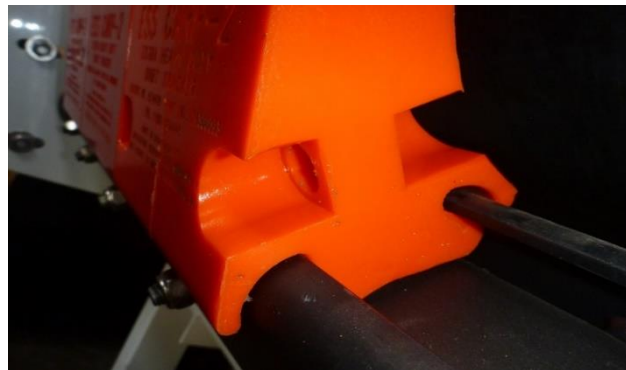


Figure 5 - Keysafe 2 Side View



Figure 6 - Keysafe 2 Front View



This system has all of the advantages of the original Keysafe, plus the following:

- Accumulated material is easily dislodged.
- Alignment of the access port with the edge of the blade is far less critical. The tool can be easily engaged in the hole even from a wider angle.



Figure 7 - Keysafe 2 with Tool Tip Engaged



Figure 8– Keysafe 2 with Tool Tip Engaged and attached to Extraction Tool



2.2 USE OF TUNGSTEN CARBIDE TIPPED BLADES

ESS has for many years promoted urethane as the preferred material for primary cleaner blades. This is due to the combined qualities of wear resistance, good cleaning performance and above all, safe application to the belt surface at an attack angle.

However, ESS also recognises that there are some applications where urethane is not the best material due usually to a specific property of the material being handled on the conveyor.

For example, some extremely sharp and abrasive materials may score the urethane surface and lead to excessive wear. Materials such as Bauxite can catch under the leading edge of urethane blades and cause erratic wear and material by-pass.

In these cases, the use of Tungsten Carbide tipped blades can provide a solution.

ESS offers Tungsten Carbide tipped blades for the XHD primary cleaner, and these blades are designed to slide directly into the XHD blade track.

In 2011, the ESS XHD Tungsten Carbide tipped blade was redesigned for better track fit, inclusion of the Keysafe feature, and to share a replaceable tip with other ESS cleaner models.

The new blade has exactly the same installation dimensions as previous versions, but cannot be mixed on the same cleaner. The new blade arrangement uses single blade units where previous versions required a joiner to form 2 or 3 blade assemblies.

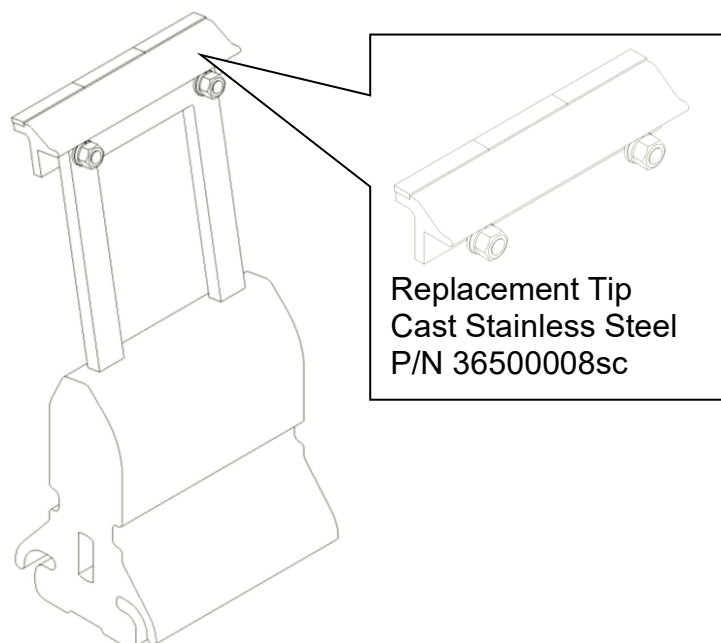


Figure 9 –Tungsten Tipped XHD Blade, P/N 36500080

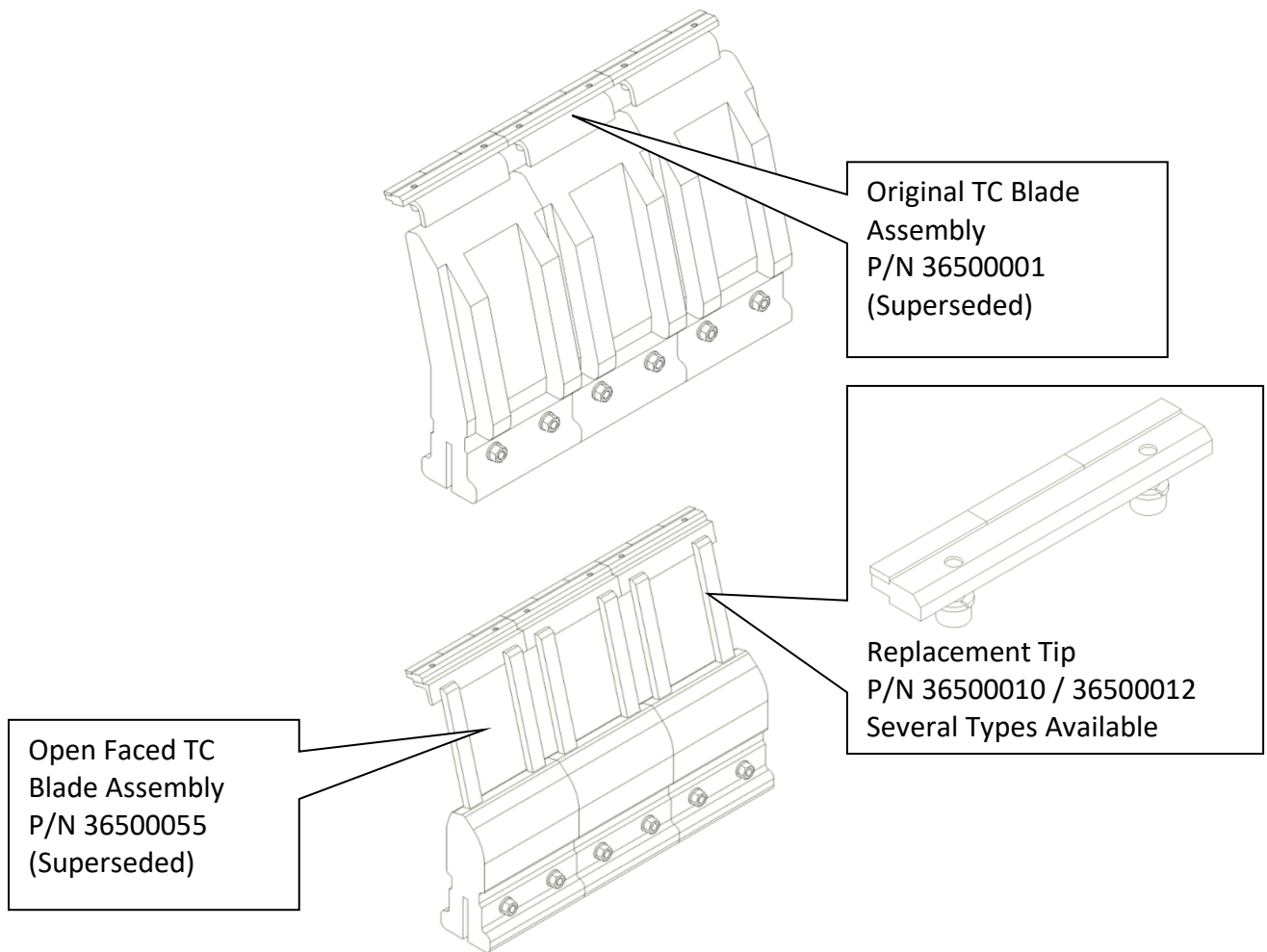


Figure 10 - Comparison of Tungsten Tipped XHD Blade models

IMPORTANT

The tip must be perpendicular to the belt at the contact point. To achieve this, the offset dimension, which determines the cleaner mainframe position in relation to the head pulley, must be adjusted.

Refer also to drawings at the back of this manual for parts details for Tungsten tipped blades.

Note

The XHD TC blade is taller than the standard urethane blades. This means that at some angles it does not withdraw through the access or Combi Safe doors. This will be overcome by ensuring that there is sufficient distance between the end of the blade track and the chute wall to allow the blade to disengage from the track for removal.



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, ENSURE THAT ALL CONFINED SPACE PERMITS ARE IN PLACE AND PROCEDURES FOLLOWED. IF WELDING OR CUTTING ARE REQUIRED, ENSURE THAT HOT WORK PERMITS ARE IN PLACE AND PROCEDURES FOLLOWED. PROTECT THE BELT SURFACE FROM WELD SPATTER WITH APPROPRIATE SHIELD.

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

Using the following sketches determine the blade type supplied or to be used on this application. The blade type sketch shows the vertical dimension H, and the radial offset 'Z' can be read from the table for the blade type and head pulley diameter.

Determine the contact point for the blade tips. This should be between 0-15° below the horizontal centre line of the head pulley. Very slow belts may require the cleaner to be installed lower to clear the material flow.

Measure radially the offset dimension 'Z' from the face of the belt. Through this point draw an arc using the pulley's centre-line as the centre point. From the tip contact point measure a distance 'H' and mark the intersection on the offset arc. This will represent the centre point of the cleaner mainframe. Repeat for both sides.

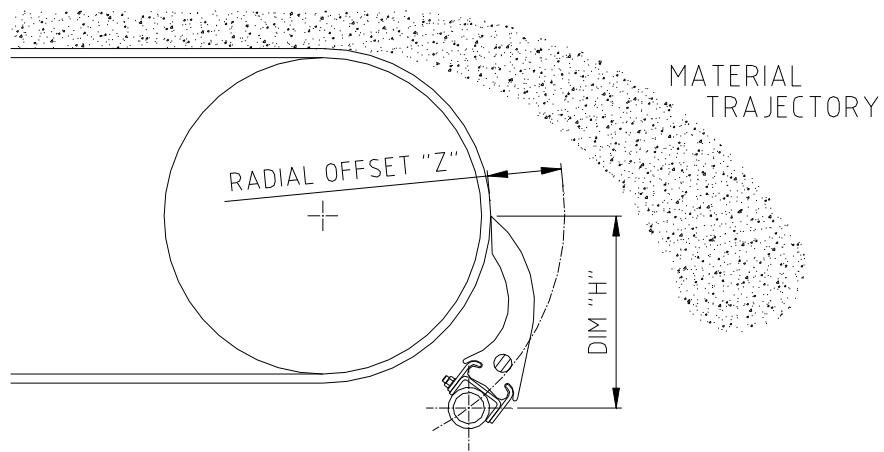
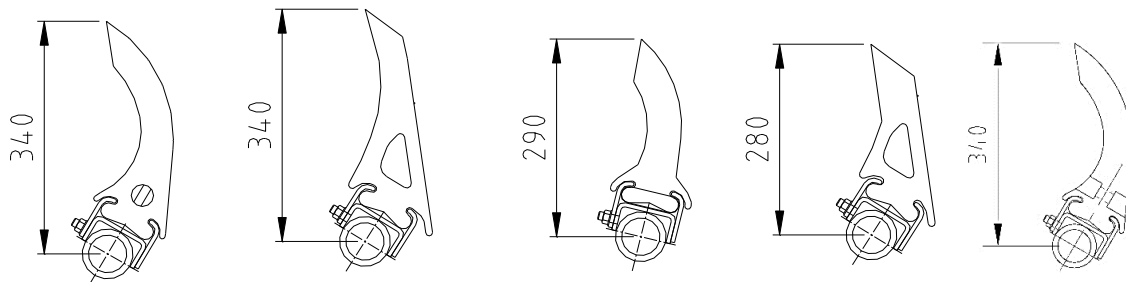


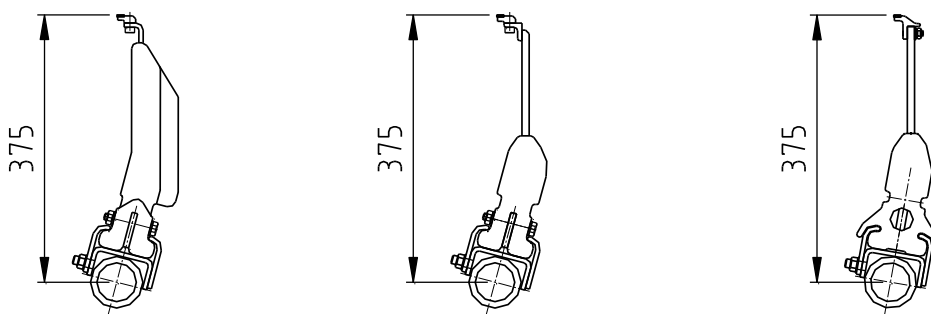
Figure 11 – XHD Installation Position

Note

- Material trajectory is defined as the path of the material being discharged from the belt.
- Radial setout distance varies by pulley size (see installation diagrams).



CARP-2 Blade P/N 36300095	Standard Blade P/N 36013095	CARP Blade P/N 36200095	Low Profile Blade	CARP-2 XHD Keysafe 2
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TC Tipped Blade P/N 36500001 (Superseded)	TC Tipped Open Face Blade P/N 36500055 (Superseded)	TC Tipped 2011 Blade P/N 36500080 (Current)
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Figure 12 - Blade Identification Information and Dimension 'H' Value



Table 2 - Cleaner Mainframe Offset Z for Different Head Pulley Diameters

		Head Pulley Diameter					
		450	600	750	900	1050	1200
B L A D E	CARP-2	145	135	125	120	110	100
	Standard	145	135	125	120	110	100
	CARP	135	125	115	110	100	95
	Low Profile	135	125	115	110	100	95
T Y P E	TC Tipped, TC Open Face and TC 2011 Blades	210	180	155	135	120	110

Contact *ESS* for head pulleys outside of this range.

Step 2 Verify Mainframe Position Before Proceeding

Position the selected mount and tensioner assembly over the centreline marks for the mainframe. Verify that the mounts fit, and that adequate room is available to tension the cleaner.

If used, position the access door frame / stand-off bracket to ensure they fit. If mounts, brackets or doorframe interfere with structural members, it may be necessary to locate the cleaner elsewhere on the offset radius, or rotate the mount / bracket / door assembly to any angle to suit.

If the tensioner only interferes, remember that the tensioner can be flipped to a reverse assembly on the mount bracket, or fitted to the other side of the conveyor for belt widths less than 1500mm. Ensure that the tensioner set-up is rotating the cleaner in the correct direction. The mounts now have slotted holes to allow some in-situ adjustment of mount position.

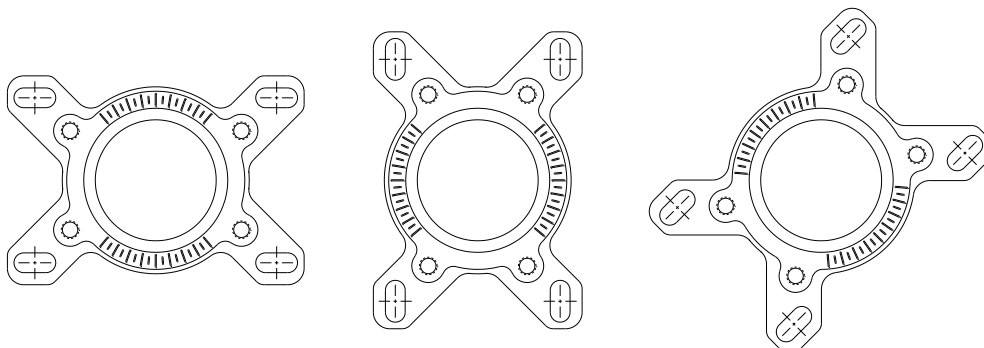


Figure 13 – Mount Position Options



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 and dimensions, refer to the installation drawing at the back of this manual.

If a Combi-Safe 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

Remove the blades from the mainframe by first loosening and removing the blade locks. Insert the bare cleaner mainframe through the cutouts in the chute wall. ESS recommends installing the cleaner with the studded side and removable track facing the pulley, as this keeps it away from the main material flow.



THE XHD IS A LARGE AND HEAVY CLEANER. USE HOISTING EQUIPMENT OR ENSURE ADEQUATE PERSONNEL ARE AVAILABLE TO SAFELY LIFT THE CLEANER INTO POSITION.

Step 5 Position the Mainframe

Slide the tensioner side and far side mounts onto the pipe ends of the mainframe and clamp or loosely bolt the mounts to the chute walls with the mainframe in the pre-selected position. If an access door is to be used and the cutout has been made, fit the tensioner side mount to the appropriate stand-off bracket and clamp or bolt the frame in the desired position.

Step 6 Check position of the mainframe

- Is the mainframe level, or equal to the pulley shaft?
- Does the centre-line of the mainframe lie the correct offset distance from the belt face? The offset can be checked using *ESS XHD Installation Gauges*.
- Is there at least 165mm clear at one end of the track to remove and replace blades?

Use of the XHD Installation Gauge

The XHD Installation Gauge is a urethane gauge that can be fitted to the cleaner track in a similar way to the blades. The curved surface of the gauge forms a radius of 120mm from the centre line of the cleaner mainframe. If the curved edge of the gauge just touches the belt, the mainframe offset is 120mm. For larger offsets, measure the gap between the gauge and the belt, and for smaller offsets, measure the distance the gauge overhangs the edge of the belt. See figure below.

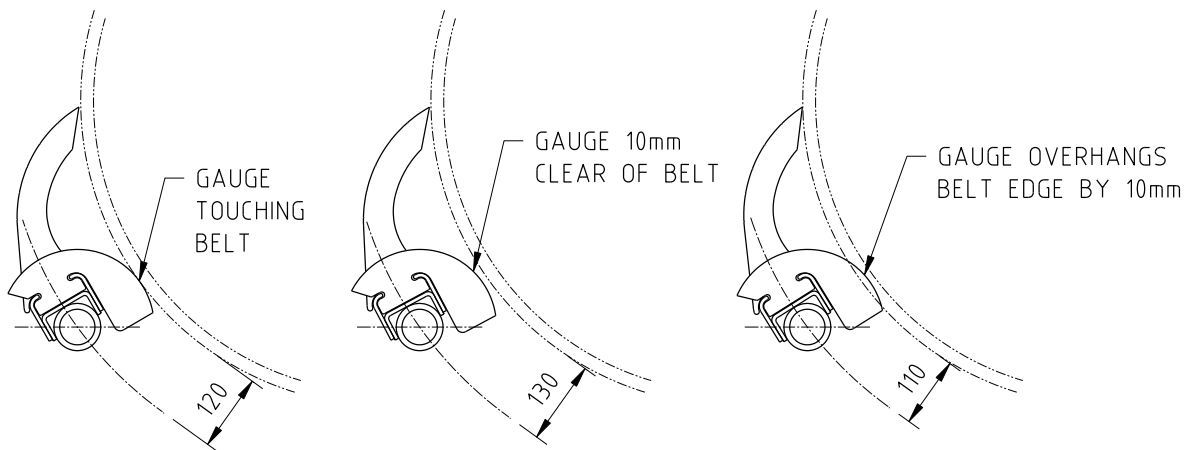


Figure 14 – Use of Installation Gauges

Slide the blades onto the track and fit an Installation Gauge to each end, leaving the blade locks off at this time. Check the offset as described above. Rotate the mainframe until the blade tips lightly contact the belt.

- Do the blade tips all touch the belt at the same time? ($\pm 1\text{mm}$).
- Do the tips contact the belt at the desired position, 0 to 15° below the pulley centre line, and level across the head pulley?

Note

Slight inconsistencies in the belt thickness and blade shape, accounting for small gaps between blade and belt, 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.

Remove the Installation Gauges, and fit the blade locks, ensuring that the blades are centred to the belt and pulley.

Step 7 Attach mounts, brackets and door frame

Fully secure the cleaner mounts, brackets and access doorframe (see next section) to the chute wall. The access doorframe is normally bolted to the chute wall, but may be welded if required. Check all blades and locks are centred on the belt surface or pulley face, and the locks are secured.

Step 8 Install access door

If a Combi-Safe Door is used, refer to the next section of this manual.



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 below. Bolting of the frame allows adjustment of the XHD 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 15 – Combi Safe Access Door and XHD 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 (or at the appropriate angle). 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.

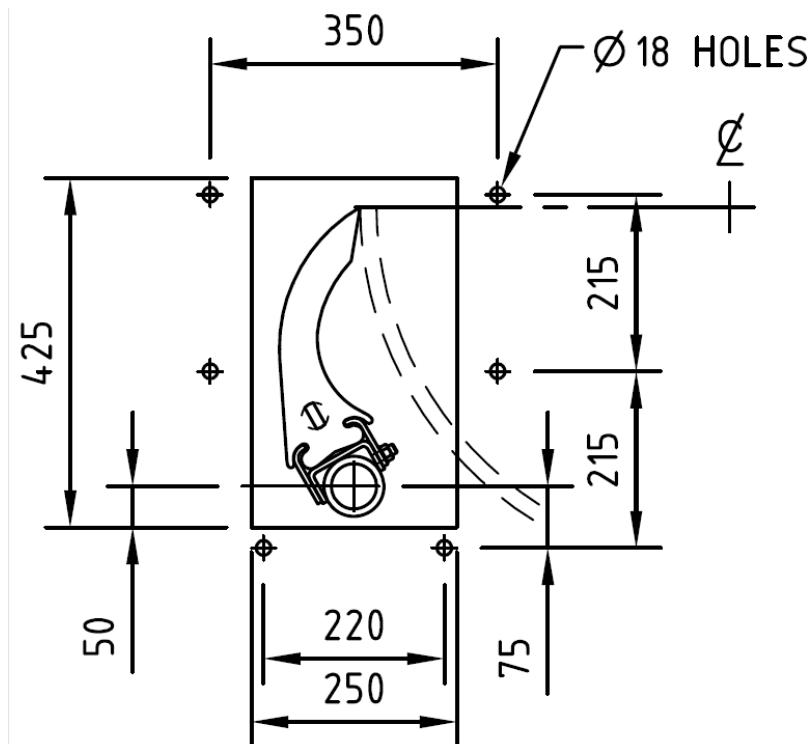


Figure 16 - Combi-Safe Cutout and Hole details

- 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 M16 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 XHD mainframe in the position previously determined in this manual. Secure the bolts. Fit the far side Combi-Safe or XHD Mount to the cutout on the opposite side of the chute.

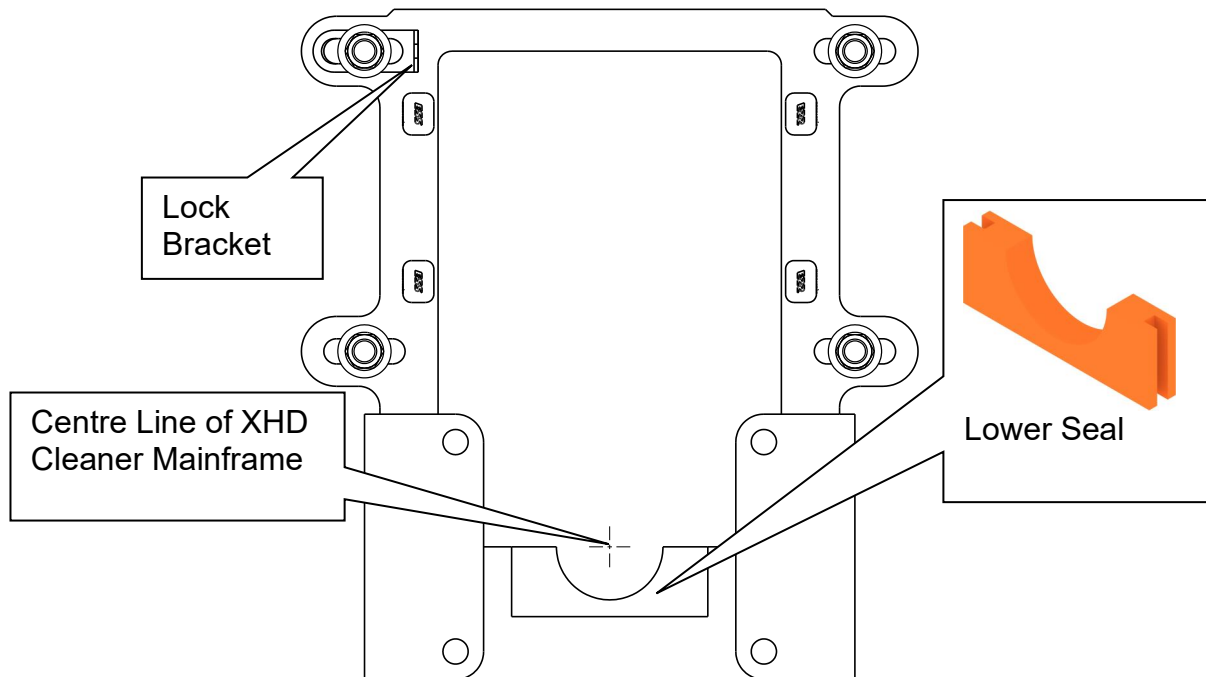


Figure 17 – Combi-Safe Frame Installation

- 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 XHD 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.

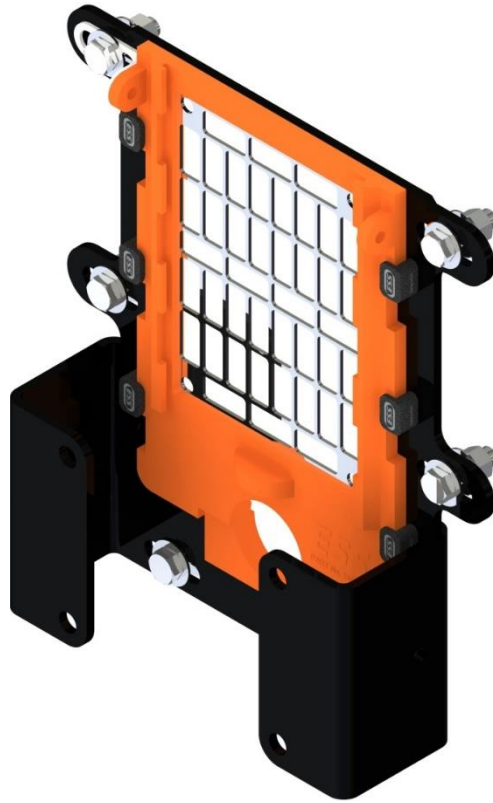


Figure 18 – Combi-Safe frame with inner cover



Figure 19 – 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 fastener from the top of the inner cover and lift the cover off the door frame. The XHD 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.

If the XHD cleaner has been fitted with an ESS XHD Mandrel, the complete cleaner may be withdrawn through the Combi-Safe door. Remove the tensioner and mount assembly from the Combi-Safe door by first removing the four bolts. Loosen the lockscrews securing the tensioner to the mainframe and slide the mount and tensioner assembly from the mainframe.



WHEN THE LOCKSCREWS ARE LOOSENEED, 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. Refer to the XHD Mandrel manual for more information.

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 XHD Primary Cleaners can be operated via a compression spring or pneumatic tensioning system. The XHD mounts differ from previous models in that the tensioner does not attach to the mounting bolts. Instead the pivot bracket of either tensioner type attaches to separate tapped holes in the mount hub.

This allows easy interchanging of tensioners without disturbing the mount installation, and also allows inclusion of slotted holes in the mount for minor positional adjustment.

5.1 SPRING TENSIONER

The XHD Spring Tensioner is a simple, robust and reliable tensioning unit. It can be assembled to tension in either the clockwise or anti-clockwise direction and has two mounting positions for each direction.

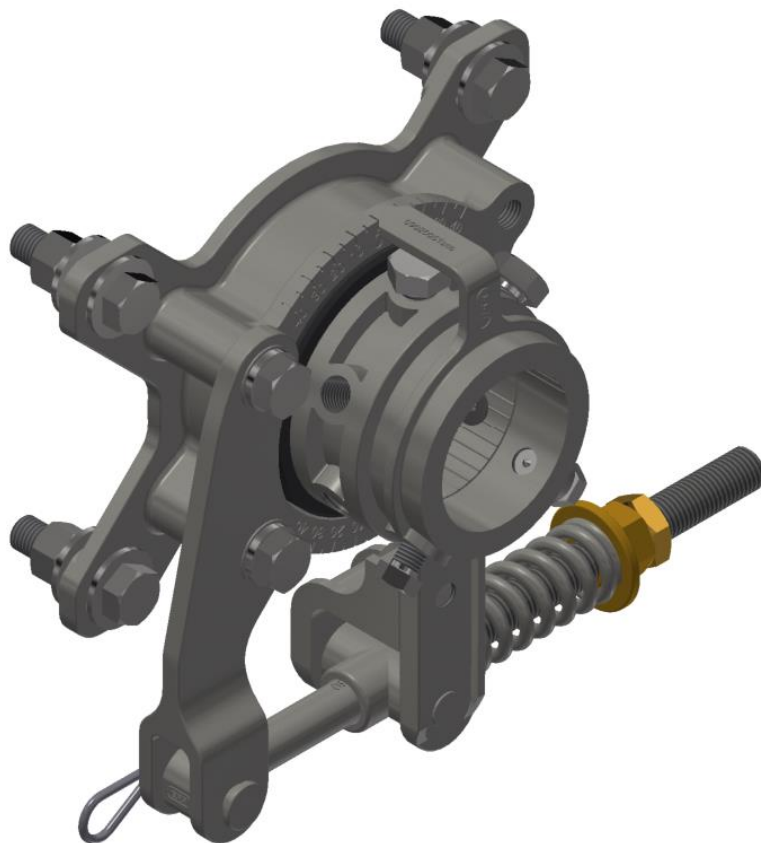


Figure 20 - Spring Tensioner Assembly



The four basic mounting positions for the mount and Spring Tensioner assembly are as follows. Remember that the mounts can also be rotated to other angles.

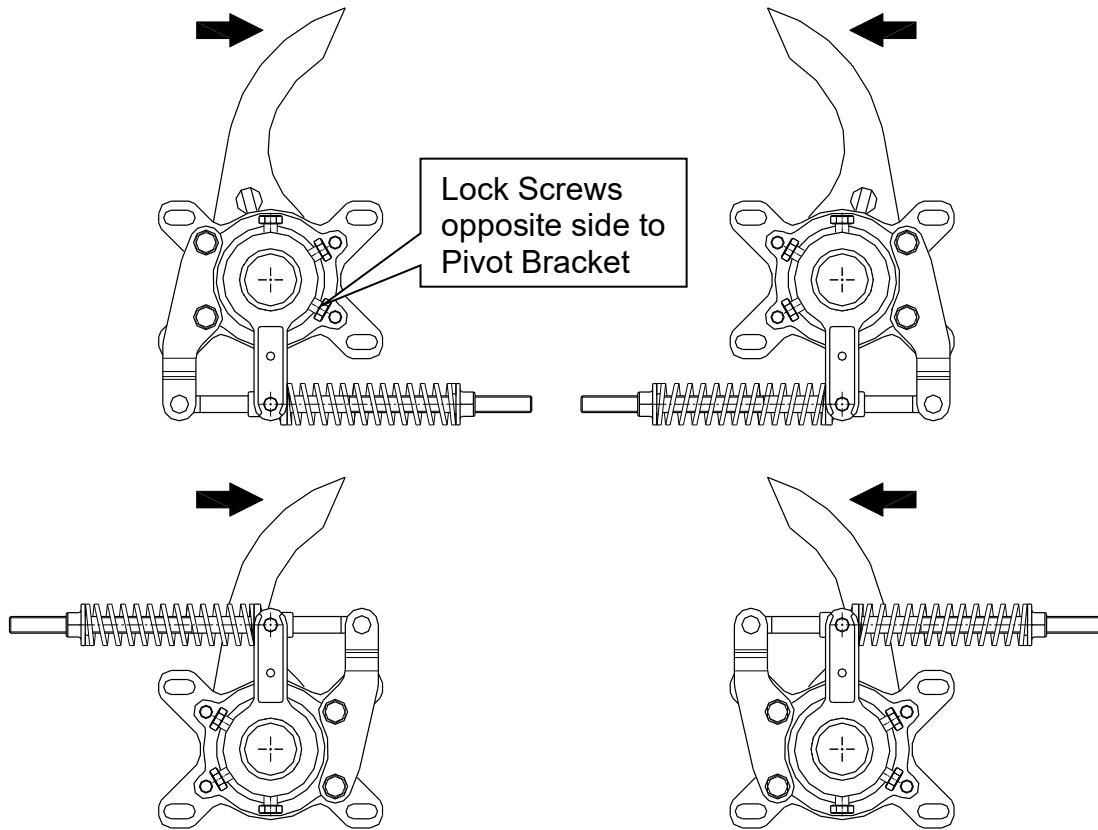


Figure 21 - Spring Tensioner Options



5.1.1 SPRING TENSIONER INSTALLATION

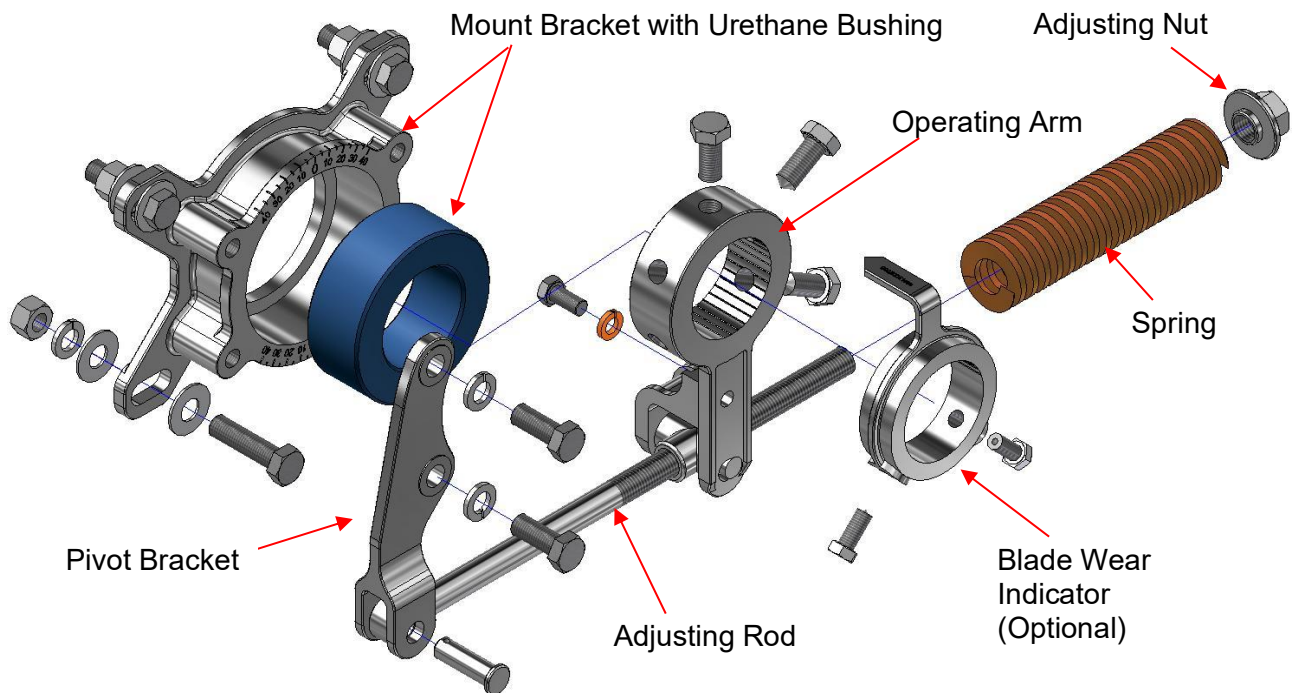


Figure 22 – Spring Tensioner Components

- Step 1** Fit the cleaner mounts as previously described, checking that position and offset are correct.
- Step 2** Determine the tensioning direction required.
- Step 3** Using 2 x M16 bolts supplied, fit the Pivot Bracket to the mount in the determined position and orientation, and tighten securely.
- Step 4** Fit the Operating Arm onto the end of the cleaner mainframe with the Swivel inwards, leaving the hub of the Operating Arm 1-2 mm clear of the mount bush. Ensure that the three lock screws are installed in the top threaded hole, and the two threaded holes furthest from the Pivot Bracket.
- Step 5** Remove the Adjusting Nut and Spring from the Adjusting Rod, and insert the threaded end of the Adjusting Rod through the small end of the Swivel in the Operating Arm from the Pivot Bracket side. Fit the Adjusting Rod Clevis and Clevis Pin to the Pivot Bracket and secure with clip provided.
- Step 6** Fit the Spring and Adjusting Nut (3 or 4 turns only) to the threaded end of the Adjusting Rod. Do not try to adjust or compress the spring yet.
- Step 7** Using a pipe wrench or similar, rotate the cleaner until the blade tips are lightly touching the belt. With the Operating Arm fully rotated against the



Spring, lock the Operating Arm onto the cleaner mainframe by tightening the three lock screws. Ensure that the Operating Arm hub is 1-2mm clear of the mount bush to allow free rotation without excessive lateral movement of the mainframe.

- Step 8** Adjust the Nut against the Spring until the Spring just begins to compress, ensuring that the Spring has located on the raised shoulders on the Adjusting Nut and the Swivel.
- Step 9** 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.
- Step 10** Tension the cleaner by rotating the Adjusting Nut until the Spring is compressed to the length shown in table following: For dual tensioner cleaners, repeat both sides.



5.1.2 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 3 - Spring Tensioner Adjustment Values

Belt Width	Compressed Spring Length	
	Part No. 02780010s (100mm Free Length)	Part No. 09020333 (203mm Free Length)
mm	mm	
450	95	197
600	92	193
750	89	190
900	86	187
1050	84	184
1200	84	184
1350	81	180
**1500	**89	**190
**1600	**88	**188
**1800	**86	**187
**2000	**85	**185
**2200	**84	**184
**2400	**82	**182



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

5.2 AIR TENSIONER

The XHD 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.

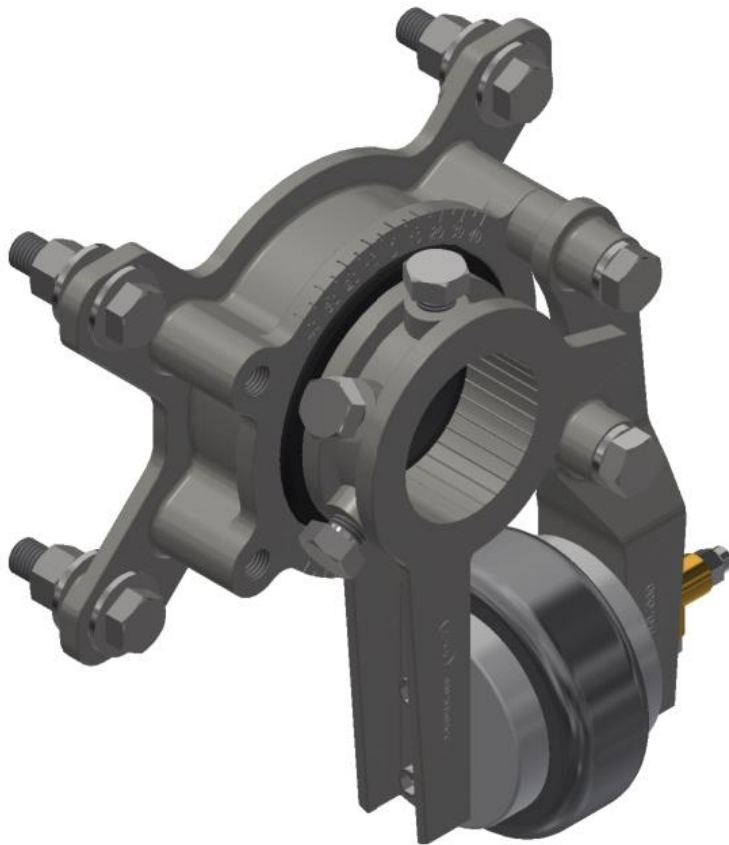


Figure 23 - Air Tensioning Assembly



The Air Tensioner can also be assembled to tension in either direction and has two mounting positions for each direction.

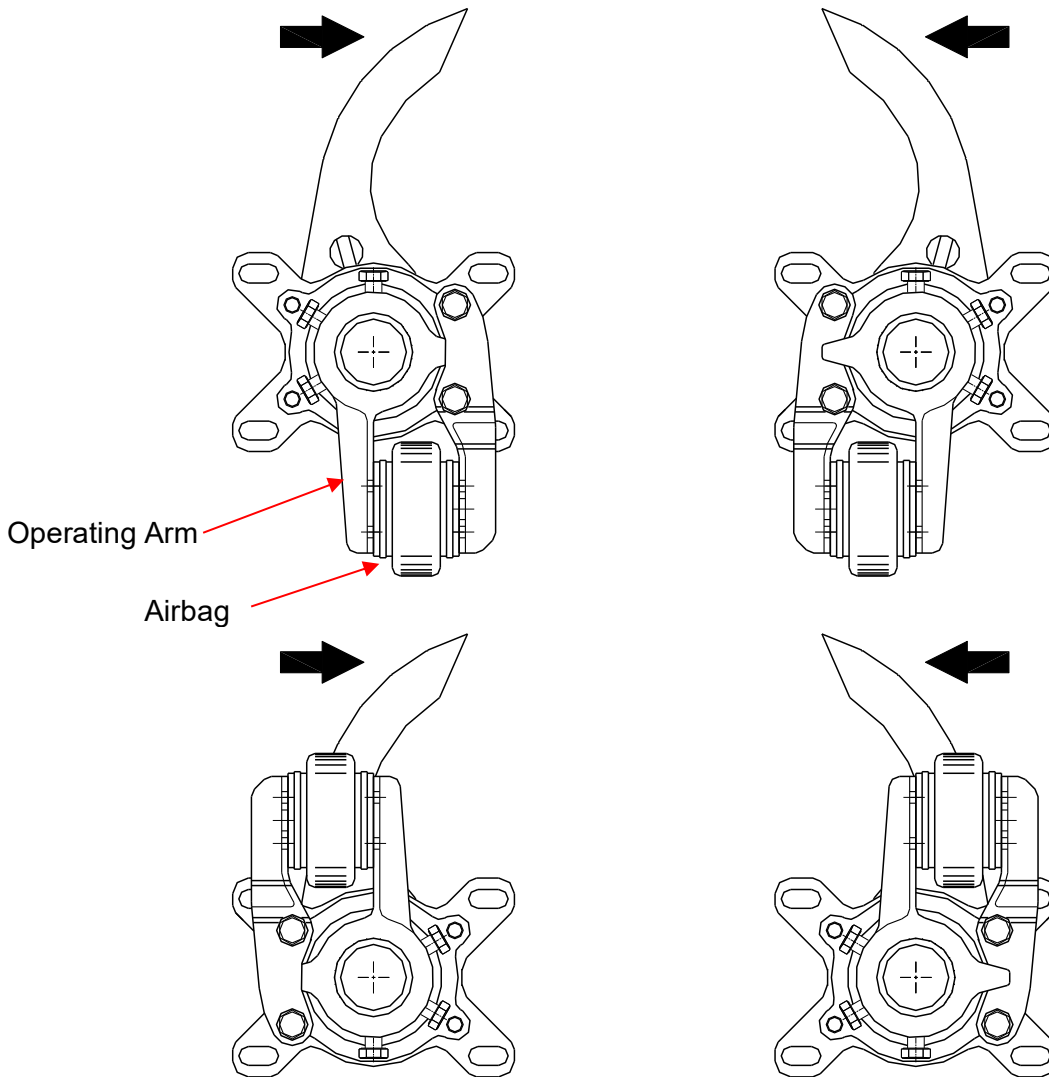


Figure 24 - Airbag Tensioning Directions



5.2.1 AIR TENSIONER INSTALLATION

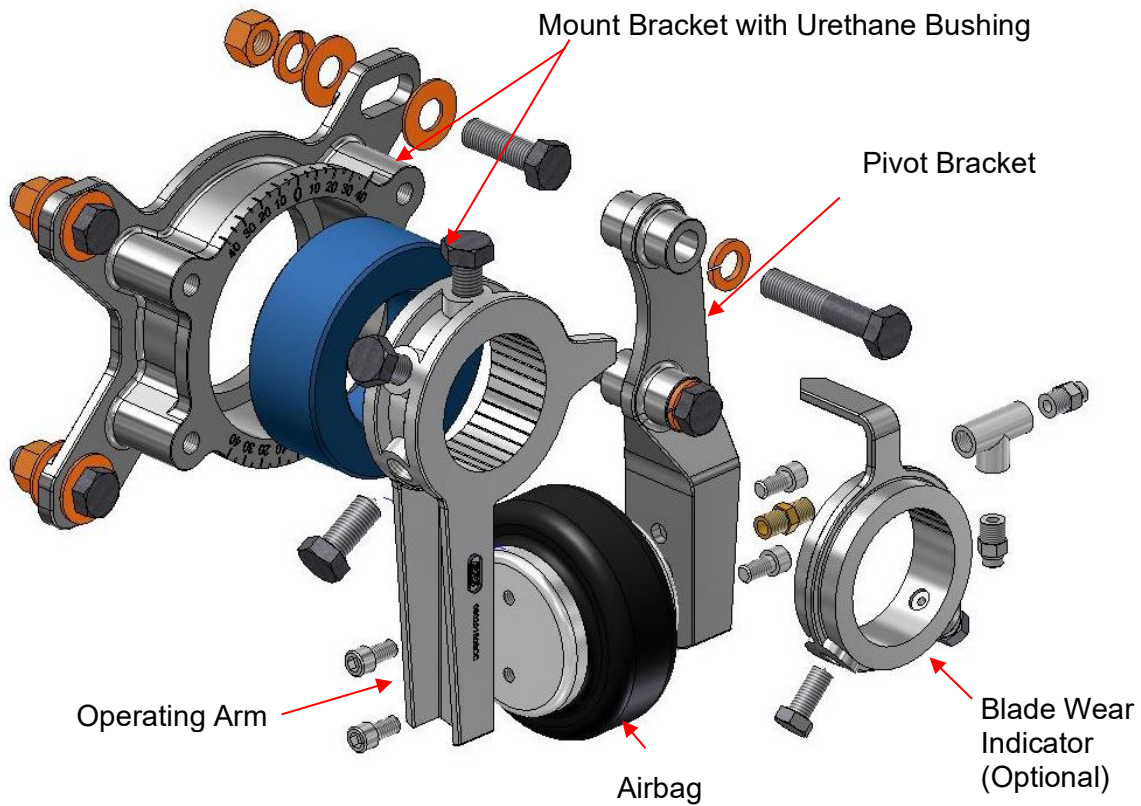


Figure 25 - Air Tensioner Components

- Step 1** Fit the cleaner and mounts as previously described, checking that position and offset are correct.
- Step 2** Attach the blank end of the airbag to the Operating Arm using two only 3/8" UNC socket head screws.
- Step 3** Attach the open end of the airbag (this end has 3 tapped holes) to the Pivot Bracket, using two only 3/8" UNC socket head screws. The Air Tensioner is now assembled and can be fitted to the mount.
- Step 4** After determining the correct tensioning direction, slide the Operating Arm of the tensioner onto the cleaner mainframe until the Pivot Bracket aligns with the two threaded holes in the mount. Secure the Pivot Bracket with the two M16 bolts supplied.
- Step 5** The Operating Arm has an inbuilt Travel Limiter to protect the Air Bag from over extension. The Travel Limiter lug locates between the two raised bosses



on the Pivot Bracket. Depending on tensioning direction, the lug will be above or below the Pivot Bracket centre web.

Step 6 For cleaners with dual tensioners, repeat for the other side. For belts with only one tensioner, simply fit and secure the locking collar onto the other end of the cleaner, allowing 1-2mm clearance between collar and mount bush.

Step 7 **Do not install or connect air supply fittings at this stage.** Using a pipe wrench or similar, grip and 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 mainframe using the three locking screws. Ensure a clearance of 1-2mm between the operating arm and the mount bush to enable free rotation whilst minimising lateral movement. For dual tensioners, repeat for the other side.

Step 8 The cleaner is now ready for the attachment of the air supply system.



5.2.2 AIR SUPPLY CONNECTION

The XHD Air Tensioner Assembly is supplied with a ¼" BSP / 6mm push fit tube connector. This fitting is simply screwed into the air bag, and the 6mm air supply tube pushed into the fitting.

For cleaners with dual tensioners, additional fittings are supplied to allow the air supply to be connected to both air bags via a tee. The 6mm tube is passed through the cleaner mainframe to provide air to the far side airbag.

Connect all air fittings using a good quality liquid compound or gas seal thread tape.

5.2.3 AIR SUPPLY CONTROLS

ESS recommends the use of an ESS Air Tensioner Control Box to deliver the correct air pressure to the tensioner(s). A number of models are available. Refer to the ESS Air Tensioner Control Box manual for further installation and operation details.

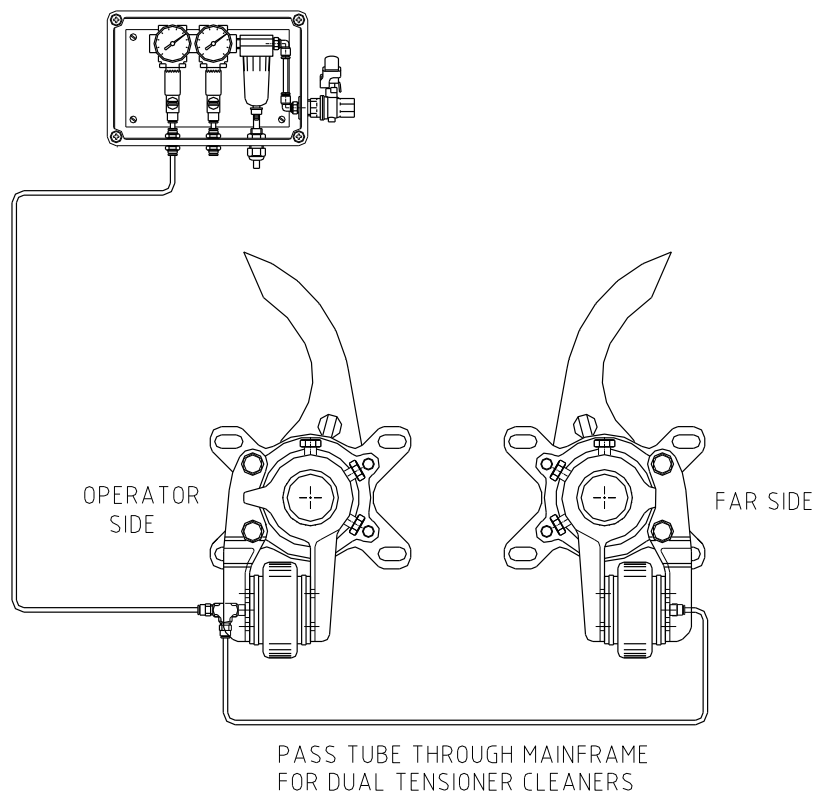


Figure 26 - Air Supply Arrangement



Table 4 - Control Box Part Numbers

Part Number	Description	Enclosure Material
09000123M	Air Ten Compact Control Box – 1 Cleaner	Plastic
09000124M	Air Ten Compact Control Box – 2 Cleaners	Plastic
09000125M	Air Ten Compact Control Box – 3 Cleaners	Plastic
09000126M	Air Ten Compact Control Box – 4 Cleaners	Plastic
09000115M	Air Ten Control Box – 1 Cleaner	Stainless Steel
09000116M	Air Ten Control Box – 2 Cleaners	Stainless Steel
09000117M	Air Ten Control Box – 3 Cleaners	Stainless Steel
09000118M	Air Ten Control Box – 4 Cleaners	Stainless Steel

5.2.4 AIR TENSIONER ADJUSTMENT

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

On completion, pressure check all fittings and connections using soapy water or equivalent to ensure no leaks are present. Rectify any leaks found – compressed air losses can account for substantial plant running costs.

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 5 - Airbag Tensioner Pressures

Belt Width	Pressure	
	KPa	PSI
mm		
450	55	8
600	69	10
750	83	12
900	97	14
1050	110	16
1200	124	18
1350	138	20
**1500	**96	**14
**1600	**96	**14
**1800	**110	**16
**2000	**124	**18
**2200	**138	**20
**2400	**138	**20

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



5.3 OPTIONAL WEAR INDICATOR

The XHD mount set includes an optional blade wear indicator. The wear indicator will provide the operator with an instant visual estimate of the wear status of the cleaning blades. It is important to note that the wear indicator should not replace or reduce the need for regular inspection of the cleaning blades.

The Wear Indicator functions as a pointer that rotates with the cleaner mainframe as the blades wear, with the amount of rotation indicated on a scale cast into the mount bracket. The scale is set out in 5° increments from 0° to 40°.

Different ESS XHD blades have varying amounts of rotational wearlife, and these can vary further with operating conditions. For example, the Standard, CARP and Low Profile blades will have approximately 25° of wearlife, whilst the CARP-2 blade can achieve up to 40° in many applications. The Wear Indicator is not used with Tungsten Carbide tipped blades, which have minimal rotation.

It is therefore essential that the operator know what type of blade is being used, and have some experience of the wearlife achieved on the belt in question. Allowing the blades to wear too far can result in blade pull-through (potentially damaging the mainframe). Changing the blades too early will increase blade replacement costs.



5.3.1 SETTING THE WEAR INDICATOR

With a new set of blades installed and tensioned against the belt, install the indicator over the end of the cleaner mainframe with the pointer aimed at the 0 mark on the mount. Tighten the lockscrews.

As the blades wear, the indicator will rotate and show the amount of rotation on the scale. It is recommended that the operator determine the amount of rotation expected from the blades being used, and mark with paint or permanent marker the expected maximum wear life point on the scale.

It is essential that regular blade inspections are carried out, especially as the wear life approaches the expected limit.

Where the Wear Indicator is used with an Air Tensioner, and the Air Tensioner is reset during the blade wear life, do not reset the Wear Indicator. It must remain at the original position in order to indicate total travel from the start point.

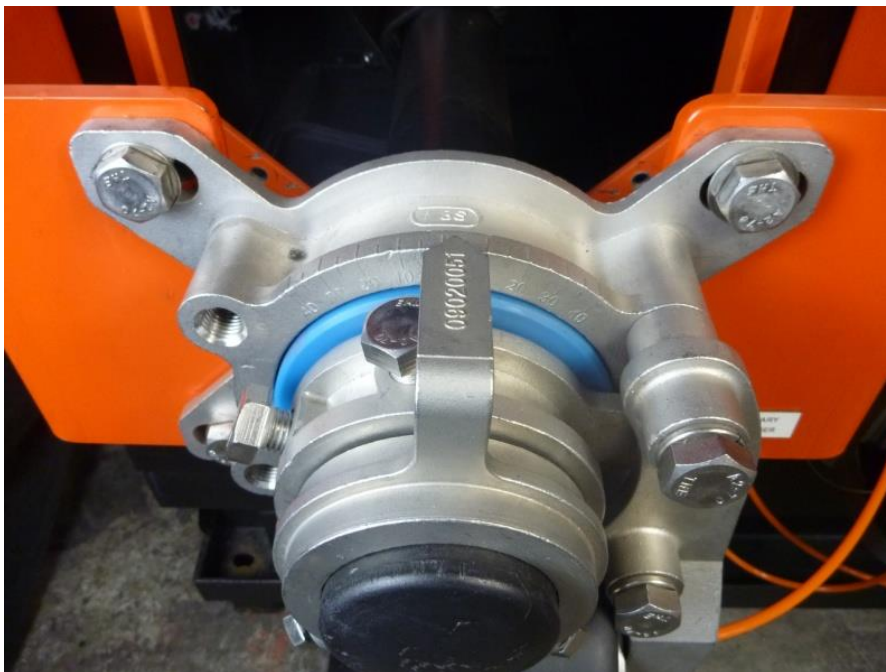


Figure 27 – Fitting the Wear Indicator



5.4 CENTRE PIVOT MAINFRAME

In some applications, the migration of very abrasive fines to the centre of the belt will result in excessive wear rates on the centre blades of the XHD cleaner. This will in turn result in the centre blades losing contact with the belt surface. The outer unworn blades effectively hold the worn centre blades away from the belt.

To overcome this, *ESS* developed the Centre Pivot Mainframe. This mainframe has a separate portion of the blade track, usually 3 blades wide, that can be rotated against the belt independently of the rest of the blade set. This separate track section has its own air bag tensioner mounted in a protected position under the mainframe.

The Centre Pivot Mainframe is available for air tensioned cleaners only. In the rest position, or without any air applied, the centre blades will align with all other blades in the blade set. When air pressure is applied to the centre tensioner, the centre blades will pivot forward against the belt to take up excessive wear. On release of air pressure a spring retractor will return the blades to the base position.

The set-up of the Centre Pivot Mainframe is exactly the same as described previously for the standard air tensioned XHD cleaner. Room must be available to insert the mainframe with centre tensioner into the chute, but otherwise cleaner installation is unchanged. To further compensate for centre wear, *ESS* offers an enlarged one-piece blade called the Mega-Blade. This blade is available in Standard and Carp-2 blade shapes. The Mega-blade has increased volume in the blade tip to reduce wear rates, plus reinforcing ribs to resist deflection under load.

The Mega-blade is equivalent to 3 blades wide (about 490mm), and is designed to fit as a single unit into the Centre Pivot mainframe. The installation position of the mainframe when using Mega-blades is the same as that for the original blade type.

The Mega-blade is usually combined with an equal number of standard sized blades either side to make up a complete blade set for the required belt width. Refer to the drawing at the back of this manual.



5.4.1 AIR CONNECTIONS AND SETTINGS FOR CENTRE PIVOT MAINFRAMES

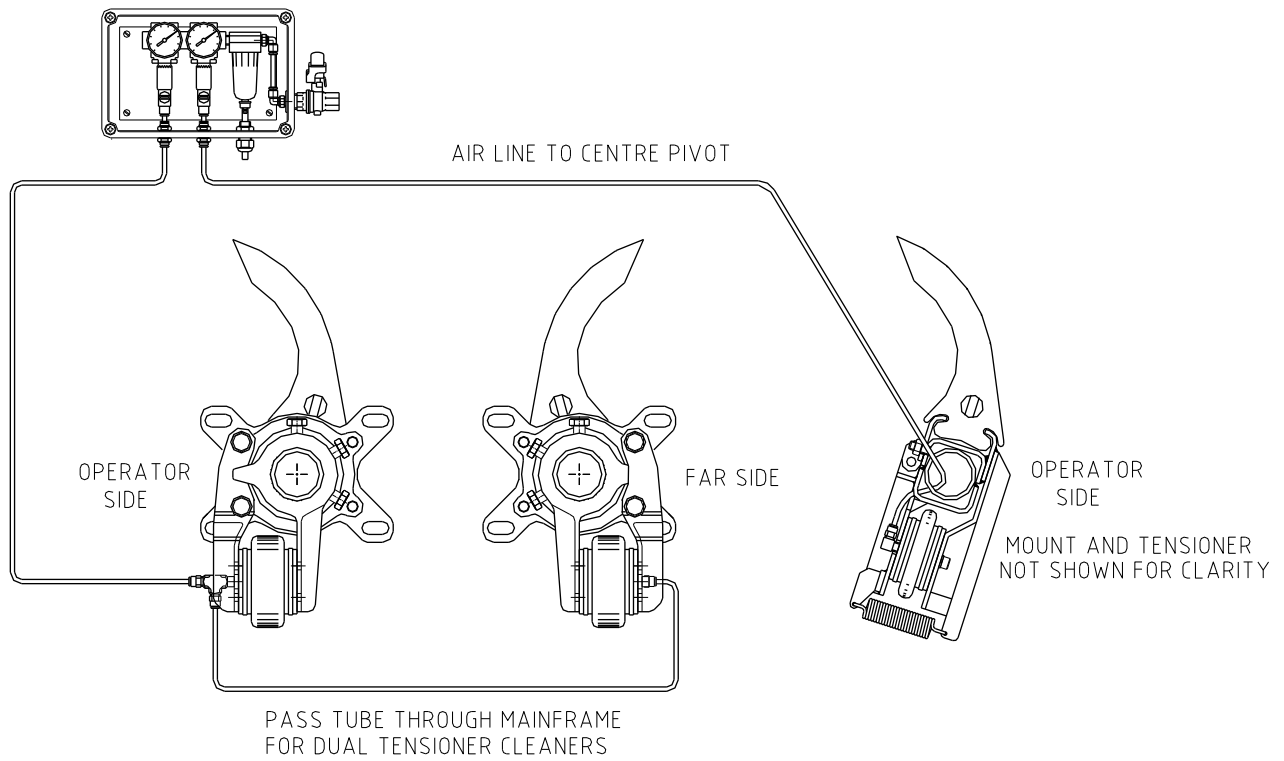


Figure 28 - Centre Pivot mainframe Air Connections

The Centre Pivot airbag connection will also have a separate pressure regulator that must be set to the appropriate pressure. This means that the blade set is being adjusted against the belt by three airbags instead of two, but the centre airbag may also act against the main airbags if it is over-pressurised. Care must be taken to set the pressures correctly.

Because the Centre Pivot Mainframe is usually operating under arduous conditions with heavy material loading, the air pressure to the outer airbags is unchanged from the recommendations in the air tensioner section, even though it is actually tensioning fewer blades against the belt. The centre pivot airbag is then set to the same pressure, but never more than the main tensioner air bags.



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 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.
- Step 4** For Air Tensioned cleaners only - Carefully inspect the air tensioner to determine the position of the safety stop lug. If the lug is close to the raised hub of the pivot bracket, but the blades still have substantial wear life, the air tensioner will need to be reset. This job will require the conveyor to be shut down, and should be programmed for the next available opportunity.

8.2 BLADE SERVICING

8.2.1 BLADE SERVICING PROCEDURE

- Step 1 Shut down and lock out the conveyor.** Never try to replace the blades on an XHD Primary Cleaner with the conveyor running. Severe injury or death can result from contact with a moving conveyor belt.
- Step 2** Release the tension and back blades away from the belt. For the Spring Tensioner, release the adjusting nut. For the Air Tensioner, close the isolation valve for the cleaner in the air control box.
- Step 3** Remove the safety screen to access the cleaner, then release and remove the operator side blade lock.



- Step 4** Slide the blade assemblies off the cleaner mainframe, utilising the Keysafe feature where possible.
- Step 5** Clean and inspect the blades – if worn excessively or otherwise damaged, replace with new blades. Always replace blades as a full set.
- Step 6** Re-install (new) blades onto cleaner, followed by lock.
- Step 7** Re-tension cleaner onto the belt as previously described in the Tensioners section.
- Step 8** Remove all tools or debris from belt. Replace all access screens and guards.
- Step 9** Remove locks or tags and restart belt. Observe cleaner action and blade effectiveness. Replace access door rubber cover if installed. Clean up work area.

8.2.2 PROCEDURE USING REMOVABLE TRACK (IF BLADES STUCK)

- Step 1** **Shut down and lock out the conveyor.** Never try to replace the blades on an XHD Primary Cleaner with the conveyor running. Severe injury or death can result from contact with a moving conveyor belt.
- Step 2** Release the tension and back blades away from the belt. For the Spring Tensioner, release the adjusting nut. For the Air Tensioner, close the isolation valve for the cleaner in the air control box.
- Step 3** Remove the safety screen to access the cleaner.
- Step 4** Release the screws securing the mainframe, and rotate the cleaner. For cleaners with the studs on the pulley side, rotate approximately 180° away from the belt, so the blades are now upside down and the studs are facing away from the belt. For cleaners with studs on the outside, there is no need to rotate the cleaner more than during Step 2.
- Step 5** Release and remove the operator side blade lock.
- Step 6** Partially undo the nuts securing the side plate, and slightly pull the side track away from the cleaner, enough to allow the blades to break free and be removed.
- Step 7** Slide worn blades out from cleaner track.
- Step 8** Reinstall side track, and tighten nuts to 70Nm.



- Step 9** Install new blades. Always replace blades as a full set. Reinstall operator side blade lock.
- Step 10** Re-tension cleaner onto the belt.
- Step 11** Remove all tools or debris from belt. Replace all access screens and guards.
- Step 12** Remove locks or tags and restart belt. Observe cleaner action and blade effectiveness. Replace access door rubber cover if installed. Clean up work area.

8.2.3 RE-SETTING THE AIR TENSIONER

This procedure is used when the Air Tensioner travel limiting lug is in contact or close to contacting the Pivot Bracket hub, but substantial wear life remains in the blades.

- Step 1** **Shut down and lock out the conveyor.** There is no need to enter the chute to perform this task, but the technician will be required to release the lockscrews to the mainframe and may be exposed to a twisting hazard if the blades are impacted by a moving belt or material load.
- Step 2** Release the air pressure by closing the isolating valve in the control box.
- Step 3** Release the lockscrews securing the Operating Arm to the mainframe, but do not release the blade wear indicator (if fitted).



FOR SINGLE TENSIONER CLEANERS, THE MAINFRAME MAY ROTATE SHARPLY – KEEP FINGERS CLEAR. ON DUAL TENSIONER CLEANERS, THE OPPOSITE SIDE TENSIONER WILL HOLD THE MAINFRAME IN PLACE.

- Step 4** An assistant may be required for this step. Using a pipe wrench or similar, rotate the mainframe until the blades touch the belt, and hold in that position. Fully compress the air bag, and secure the lockscrews in the Operating Arm onto the mainframe while the air bag is compressed. Release the mainframe.
- Step 5** For dual tensioner cleaners, repeat for the other side.
- Step 6** Turn on the air supply and adjust the pressure.
- Step 7** Remove locks or tags and return the belt to service. Observe the cleaner in operation, then replace the access door cover.



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

10.0 INSTALLATION ARRANGEMENT DRAWINGS

F0543 c/w Carp 2 Blades, Spring Tens & Combi Safe Access Door

F0453

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

NOTES

- THE OPTIMUM INSTALLATION OF THE XHD 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.
- FOR BELTS UP TO 1350mm WIDE THE FAR SIDE MOUNT IS COUPLED WITH A SIMPLE LOCK COLLAR TO PREVENT AXIAL MOVEMENT.
- BELTS 1500mm AND WIDER REQUIRE TENSIONERS ON BOTH SIDES.
- HIGH TEMPERATURE AND MINES DEPARTMENT APPROVED ASSEMBLIES ARE AVAILABLE.
- KEYSAFE BLADE EXTRACTION TOOL AVAILABLE SEE RAWING F0355.
- NON-STANDARD LENGTHS AVAILABLE - CONTACT ESS FOR DETAILS.
- ESS RECOMMENDS INSTALLATION WITH THE STUDS FACING THE PULLEY, OUT OF THE MAIN MATERIAL FLOW.

OTHER BLADE TYPES AVAILABLE

SECTION **B**

CHUTE CUT OUT FAR SIDE - 0° SETUP

ANGLE OF CUT OUT TO BE THE SAME AS DOOR CUT OUT TO ALLOW FOR CLEANER ADJUSTMENT
 COMBI-SAFE DOORS MAY BE USED BOTH SIDES IF REQUIRED

CHUTE CUT OUT - 10° SETUP

CHUTE CUT OUT FOR XHD COMBI-SAFE DOOR

ALTERNATIVE VIEWS ON A

- XHD COMBI-SAFE DOOR WITH MESH & OUTER COVER PLATE INSTALLED
- XHD COMBI-SAFE DOOR WITH LOCKABLE MESH COVER ONLY INSTALLED
- XHD COMBI-SAFE DOOR WITH COVERS REMOVED

TABLES:

HEAD PULLEY Ø INCLUDING BELT	450	600	750	900	1050	1200
RADIAL OFFSET	145	135	125	120	110	100

BELT WIDTH	600	750	900	1050	1200	1350	1500	1600	1800	2000	2200	2400
TRACK LENGTH	500	650	800	950	1100	1250	1400	1550	1700	1850	2000	2150
No. BLADES	2	3	4	5	6	6	7	8	9	10	11	13
BLADE COVER	330	495	660	825	990	1155	1320	1485	1650	1815	1980	2145
MAINFRAME LENGTH	1250	1400	1600	1800	1950	2100	2300	2450	2600	2800	3000	3600
STIFFENER LENGTH	-	-	-	-	-	-	-	1600	1800	1950	2150	2400

CLIENT: _____
LOCATION: _____

KEYSAFE BLADE EXTRACTION TOOL

COMBI-SAFE ACCESS DOOR C/W SPRING TENSIONER ARRANGEMENT

XHD 20-TEN C/W CARP 2 BLADES, AIR TENS & COMBI-SAFE ACCESS DOOR

XHD 20-TEN DIRT TRACKER PRIMARY CLEANER SPRING TENSIONER EXPLODED PARTS

XHD 20-TEN DIRT TRACKER PRIMARY CLEANER EXPLODED PARTS

REFERENCE DRAWINGS

XHD COMBI-SAFE ACCESS DOOR - PART NUMBER 23600020

ESS ENGINEERING SERVICES & SUPPLIES
 CUSTOMER SERVICE No. 1800 074446

TITLE: XHD 20-TEN DIRT TRACKER PRIMARY CLEANER C/W CARP-2 BLADES, SPRING TENS AND COMBI-SAFE ACCESS DOOR INSTALLATION ARRANGEMENT

SCALE: NTS
DATE: 24/11/11
DRAWING No.: F0453

REV.: E



F0542 c/w Carp-2 Blades, Air Tensioner & Combi Access Door

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

HEAD PULLEY Ø INCLUDING BELT	450	600	750	900	1050	1200
RADIAL OFFSET	145	135	125	120	110	100

NOTE: FOR HEAD PULLEYS OUTSIDE OF THIS RANGE CONTACT ESS AIRBAG NOTES

1. WHERE DUAL AIR TENSIONERS ARE USED (500 BELTS AND WIDER) A BALANCE TUBE PASSED THROUGH THE PIPE FRAME JOINS THE AIRBAGS TO ALLOW INFLATION FROM ONE POINT AND ENSURE EQUAL PRESSURE.

2. OPTIONAL CONTROL BOX CAN BE SUPPLIED.

NOTES

1. THE OPTIMUM INSTALLATION OF THE XHD PRIMARY CLEANER IS WITH ITS TIP BETWEEN 0° & 15° BELOW THE HORIZONTAL C_g OF THE HEAD PULLEY. MAINTAIN THE RADIAL OFFSET DIMENSION AND ENSURE THE CLEANER IS CLEAR OF MATERIAL FLOW.

2. OPTIONAL ESS STAND-OFF BRACKET AND CYA1218 ACCESS DOOR ALLOW FOR EASY INSPECTION AND BLADE REPLACEMENT ON ENCLOSED HEAD CHUTES.

3. FOR BELTS UP TO 950mm WIDE THE FAR SIDE MOUNT IS COUPLED WITH A SIMPLE LOCK COLLAR TO PREVENT AXIAL MOVEMENT.

4. BELTS 950mm AND WIDER REQUIRE TENSIONERS ON BOTH SIDES.

5. HIGH TEMPERATURE AND MINES DEPARTMENT APPROVED ASSEMBLIES ARE AVAILABLE.

6. KEYSAFE BLADE EXTRACTION TOOL IS AVAILABLE SEE DRAWING F0355

7. ESS RECOMMENDS INSTALLATION WITH THE STUDS FACING THE PULLEY, OUT OF THE MAIN MATERIAL FLOW.

OPERATOR SIDE
FAR SIDE
BLADE LOCK
1 NOM. CLEAR
LOCK COLLAR (SEE NOTE 3)
55 MOUNT
40
116
14.4
FABRICATED MAINFRAME - 65NB PIPE
TRACK LENGTH
BLADE COVER
BLADE
165
Belt width
MAINFRAME LENGTH

SEE NOTE 1
RADIAL OFFSET
HEAD PULLEY Ø
340
ONE PIECE URETHANE CARP 2 BLADE SEGMENTS

CHUTE CUT OUT FAR SIDE - 0° SETUP
ANGLE OF CUT OUT TO BE THE SAME AS DOOR CUT OUT TO ALLOW FOR CLEANER ADJUSTMENT
COMBI-SAFE DOORS MAY BE USED BOTH SIDES IF REQUIRED

CHUTE CUT OUT - 10° SETUP

CHUTE CUT OUT 30° SETUP

CHUTE CUT OUT 45° SETUP

XHD COMBI-SAFE DOOR WITH MESH & OUTER COVER ONLY INSTALLED

XHD COMBI-SAFE DOOR WITH LOCKABLE MESH COVER ONLY INSTALLED

XHD COMBI-SAFE DOOR WITH KEYSAFE BLADE EXTRACTION TOOL

XHD COMBI-SAFE DOOR WITH COVERS REMOVED

XHD COMBI-SAFE DOOR FRAME BOLTED TO CHUTE WALL

ALTERNATIVE VIEWS ON A

CLIENT: ESS
LOCATION: CURRIEMUNJIN
REV: F WAS XHD DIRT TRACKER CR 7077 KO MH LS 24.2.18
E VIEWS UPDATED KR SD RED 10/7/18
D CUT OUT WAS 410 LG KR SD RED 16/6/18
C DIM ADDED - CLEANER HEIGHT SD KR RE 1/1/12
G ADDED NOTE 7 WD SD MH 1/12/18
REV APP DATE
BY CHKO
DOCS REF

JOB No. 108
DRAWN BY: KR
SCALE: NTS
DATE: 29.08.12
DRAWING No. F0452
CHKD: SD
APPD: TT
REV. G

ESS ENGINEERING SERVICES & SUPPLIES
CUSTOMER SERVICE No. 1800 074446

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TITLE: XHD 20-TEN PRIMARY CLEANER
C/W CARP-2 BLADES, AIR TENSIONER AND COMBI-SAFE ACCESS DOOR
INSTALLATION ARRANGEMENT

BELT WIDTH	450	600	750	900	1050	1200	1500	1600	1800	2000	2200	2400	
TRACK LENGTH	500	450	800	950	1100	1250	1400	1550	1700	1850	2000	2150	2300
No. BLADES	2	3	4	5	6	6	7	8	9	10	11	12	
BLADE COVER	330	495	660	825	990	1155	1320	1485	1650	1815	1980	2145	
MAINFRAME LENGTH	1250	1400	1600	1800	1950	2100	2300	2450	2600	3000	3300	3600	
STIFFENER LENGTH	-	-	-	-	-	-	-	-	1600	1800	1950	2150	2400



F0421 c/w Carp-2 Blaes, Spring Tensioner & CYA Door

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

HEAD PULLEY DIAMETER	450	600	750	900	1050	1200
RADIAL OFFSET	14.5	135	125	120	110	100

NOTE: FOR HEAD PULLEYS OUTSIDE OF THIS RANGE CONTACT ESS

NOTES

- THE OPTIMUM INSTALLATION OF THE XHD PRIMARY CLEANER IS WITH ITS TIP BETWEEN 0° & 15° BELOW THE HORIZONTAL ϵ OF THE HEAD PULLEY. MAINTAIN THE RADIAL OFFSET DIMENSION AND ENSURE THE CLEANER IS CLEAR OF MATERIAL FLOW.
- OPTIONAL ESS STAND-OFF BRACKET AND CYA1218 ACCESS DOOR ALLOW FOR EASY INSPECTION AND BLADE REPLACEMENT ON ENCLOSED HEAD CHUTES.
- FOR BELTS UP TO 1350mm WIDE, THE FAR SIDE MOUNT IS COUPLED WITH A SIMPLE LOCK COLLAR TO PREVENT AXIAL MOVEMENT.
- BELTS 1500mm AND WIDER REQUIRE TENSIONERS ON BOTH SIDES.
- HIGH TEMPERATURE AND MINES DEPARTMENT APPROVED ASSEMBLIES ARE AVAILABLE.
- KEYSAFE BLADE EXTRACTION TOOL AVAILABLE SEE DRAWING F0355
- ESS RECOMMENDS INSTALLATION WITH THE STUDS FACING THE PULLEY, OUT OF THE MAIN MATERIAL FLOW.

CHUTE CUTOUT DETAIL FOR ENCLOSED CHUTES AND WHERE A CYA DOOR IS NOT USED

VIEW ON ARROW 'A'

BELT WIDTH	450	600	750	900	1050	1200	1350	1500	1600	1800	2000	2200	2400
TRACK LENGTH	500	650	800	950	1100	1250	1400	1550	1700	1850	2000	2150	2300
No. BLADES	2	3	4	5	6	7	8	9	10	11	12	13	
BLADE COVER	330	495	660	825	990	1155	1320	1485	1650	1815	1980	2145	
MAINFRAME LENGTH	1250	1400	1600	1800	1950	2100	2300	2450	2600	2800	3000	3300	3600
STIFFENER LENGTH	-	-	-	-	-	-	-	1600	1800	1950	2150	2400	2600

ESS ENGINEERING SERVICES & SUPPLIES
 CUSTOMER SERVICE No. 1800 074446

CLIENT: _____ LOCATION: _____

REV	DESCRIPTION	ISSUED	BY	CHKD	APPD	DATE
A	ISSUED	EDCR0282	GG	SD	CW	08/03/11
B	STIFFENER BELT 1600 WAS 1700					
C	GENERAL REVISION					
D	ADDED NOTE 7	052250	WD	SD	MH	07/07/09

JOB No. _____

REV	REV	ISSUED	BY	CHKD	APPD	DATE
A	ISSUED	EDCR0282	GG	SD	CW	08/03/11
B	STIFFENER BELT 1600 WAS 1700					
C	GENERAL REVISION					
D	ADDED NOTE 7	052250	WD	SD	MH	07/07/09

REFERENCE DRAWINGS

F0414 20-TEN XHD DIRT TRACKER PRIMARY CLEANER EXPLODED PARTS
 F0453 XHD 20-TEN DIRT TRACKER PRIMARY CLEANER C/W CARP-2 BLADES, SPRING TENS & COMB-SAFE DOOR
 F0420 XHD 20-TEN DIRT TRACKER PRIMARY CLEANER C/W CARP-2 BLADES, AIR TENS & CYA DOOR

FILE: C:\VIBAL\ESS\DRAWINGS\GENERAL\INSTALLATION\DRAWINGS\F0400\F0421.dwg, 12/12/2010 3:26:20 PM, vhb01



F0419 c/w Centre Tensioner & Combi-Safe Access Door

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

HEAD PULLEY Ø INCLUDING BELT RADIAL OFFSET

450	600	750	900	1050	1200
145	135	125	120	110	100

NOTE: FOR HEAD PULLEYS OUTSIDE OF THIS RANGE CONTACT ESS

AIRBAG NOTES

- WHERE DUAL AIR TENSIONERS ARE USED (500 BELTS AND WIDER) A BALANCE TUBE PASSED THROUGH THE PIPE FRAME JOINS THE AIRBAGS TO ALLOW INFLATION FROM ONE POINT AND ENSURE EQUAL PRESSURE.
- A TUBE IS PASSED THROUGH THE PIPEFRAME FOR A SEPARATE AIR SUPPLY TO THE CENTRE TENSIONER
- OPTIONAL CONTROL BOX CAN BE SUPPLIED.

NOTES

- THE OPTIMUM INSTALLATION OF THE XHD PRIMARY CLEANER IS WITH ITS TIP BETWEEN 0° & 15° BELOW THE HORIZONTAL ϕ OF THE HEAD PULLEY. MAINTAIN THE RADIAL OFFSET DIMENSION AND ENSURE THE CLEANER IS CLEAR OF MATERIAL FLOW.
- FOR BELTS UP TO 1350mm WIDE THE FAR SIDE MOUNT IS COUPLED WITH A SIMPLE LOCK COLLAR TO PREVENT AXIAL MOVEMENT.
- BELTS 1500mm AND WIDER REQUIRE TENSIONERS ON BOTH SIDES.
- HIGH TEMPERATURE AND MINES DEPARTMENT APPROVED ASSEMBLIES ARE AVAILABLE.
- KEYSAFE BLADE EXTRACTION TOOL AVAILABLE SEE DRAWING F0355
- ESS RECOMMENDS INSTALLATION WITH THE STUDS FACING THE PULLEY, OUT OF THE MAIN MATERIAL FLOW.

SECTION B

SEE NOTE 1

ROBUST FABRICATED MAINFRAME ASSEMBLY AVAILABLE IN M/S OR S/S

ANGLE OF CUT OUT DETERMINED BY INSTALLATION POSITION

CHUTE CUT OUT - 0° SETUP

CHUTE CUT OUT - 10° SETUP

CHUTE CUT OUT FAR SIDE - 0° SETUP

ANGLE OF CUT OUT TO BE THE SAME AS DOOR CUT OUT TO ALLOW FOR CLEANER ADJUSTMENT. COMBI-SAFE DOORS MAY BE USED BOTH SIDES IF REQUIRED

CHUTE CUT OUT FOR XHD COMBI-SAFE DOOR

CHUTE CUT OUT FAR SIDE - 0° SETUP

ANGLE OF CUT OUT TO BE THE SAME AS DOOR CUT OUT TO ALLOW FOR CLEANER ADJUSTMENT. COMBI-SAFE DOORS MAY BE USED BOTH SIDES IF REQUIRED

CHUTE CUT OUT FAR SIDE - 0° SETUP

ANGLE OF CUT OUT TO BE THE SAME AS DOOR CUT OUT TO ALLOW FOR CLEANER ADJUSTMENT. COMBI-SAFE DOORS MAY BE USED BOTH SIDES IF REQUIRED

CHUTE CUT OUT FAR SIDE - 0° SETUP

ANGLE OF CUT OUT TO BE THE SAME AS DOOR CUT OUT TO ALLOW FOR CLEANER ADJUSTMENT. COMBI-SAFE DOORS MAY BE USED BOTH SIDES IF REQUIRED

CHUTE CUT OUT FAR SIDE - 0° SETUP

ANGLE OF CUT OUT TO BE THE SAME AS DOOR CUT OUT TO ALLOW FOR CLEANER ADJUSTMENT. COMBI-SAFE DOORS MAY BE USED BOTH SIDES IF REQUIRED

CHUTE CUT OUT FAR SIDE - 0° SETUP

ANGLE OF CUT OUT TO BE THE SAME AS DOOR CUT OUT TO ALLOW FOR CLEANER ADJUSTMENT. COMBI-SAFE DOORS MAY BE USED BOTH SIDES IF REQUIRED

CHUTE CUT OUT FAR SIDE - 0° SETUP

ANGLE OF CUT OUT TO BE THE SAME AS DOOR CUT OUT TO ALLOW FOR CLEANER ADJUSTMENT. COMBI-SAFE DOORS MAY BE USED BOTH SIDES IF REQUIRED

BELT WIDTH	1350	1500	1600	1800	2000	2200	2400
TRACK LENGTH	1370	1370	1690	1690	2010	2010	2350
No. BLADES	7	7	9	9	11	11	13
BLADE COVER	1155	1155	1485	1485	1815	1815	2145
MAINFRAME LENGTH	2300	2150	2600	2800	3000	3300	3600
STIFFENER LENGTH	1450	1600	1800	1950	2150	2400	2600

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CUSTOMER SERVICE No. 1800 074446

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TITLE: XHD 20-TEN DIRT TRACKER PRIMARY CLEANER
 C/W CENTRE TENSIONER & COMBI-SAFE ACCESS DOOR
 INSTALLATION ARRANGEMENT

DRAWN BY: KR SCALE: NTS DATE: 7/9/12 APPD: TT
 CHKD: SD DRAWING No. F0419 REV. D

REV	REVISIONS	REF	BY	CHKD	APPD	DATE
A	ISSUED FOR MANUFACTURE	EDCR0282	KR	SD	TT	7/9/12
B	GENERAL REVISION		KR	SD	TT	14/9/12
C	CUT OUT WAS 4.10 LG		KR	SD	RED	19/6/18
D	ADDED NOTE 6	Q52250	WD	SD	NH	10/7/19

CLIENT: _____ LOCATION: _____

JOB No. _____

REFERENCE DRAWINGS

FILE: C:\NAME\ESS\G\DRAWINGS\GENERAL\INSTALLATION\DRAWINGS\F0419\F0419.dwg, 12/7/2019 3:34:42 PM, v14.0



F0476 c/w 2011 Open Face TC Blades, Air Tensioner

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

HEAD PULLEY Ø INCLUDING BELT	450	600	750	900	1050	1200	1400 & LARGER
APPROXIMATE RADIAL OFFSET	210	180	155	135	120	110	CONTACT ESS ENG DEPARTMENT

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.

NOTES

- THE OPTIMUM INSTALLATION OF THE XHD PRIMARY CLEANER IS WITH ITS TIP BETWEEN 0° & 15° BELOW THE HORIZONTAL ζ OF THE HEAD PULLEY.
- TIP IS PERPENDICULAR TO BELT AND CYAT218 ACCESS DOOR ALLOW FOR EASY INSPECTION AND BLADE REPLACEMENT ON ENCLOSED HEAD CHUTES.
- FOR BELTS UP TO 1350mm WIDE, THE FAR SIDE MOUNT IS COUPLED WITH A SIMPLE LOCK COLLAR TO PREVENT AXIAL MOVEMENT.
- BELTS 1500mm AND WIDER REQUIRE TENSIONERS ON BOTH SIDES.
- HIGH TEMPERATURE AND MINES DEPARTMENT APPROVED ASSEMBLIES ARE AVAILABLE.
- KEYSAFE BLADE EXTRACTION TOOL AVAILABLE SEE DRAWING F0355
- ESS RECOMMENDS INSTALLATION WITH THE STUDS FACING THE PULLEY, OUT OF THE MAIN MATERIAL FLOW.

CHUTE CUT OUT FOR FAR SIDE AT 0° SETUP
ANGLE OF CUT OUT IS TO BE THE SAME AS DOOR CUT OUT TO ALLOW FOR CLEANER ADJUSTMENT COMBI-SAFE DOORS MAY BE USED BOTH SIDES IF REQUIRED

CHUTE CUT OUT AT 10° SETUP
COMBI SAFE DOOR FRAME MUST BE INSTALLED AT SAME ANGLE TO ALLOW FOR WITHDRAWAL OF TUGSTEN TIPPED BLADES

CHUTE CUT OUT FOR XHD COMBI-SAFE DOOR

ALTERNATIVE VIEWS ON A
XHD COMBI-SAFE ACCESS DOOR - PART NUMBER 23600020

BELT WIDTH	450	600	750	900	1050	1200	1350	1500	1600	1800	2000	2200	2400
TRACK LENGTH	500	650	800	950	1100	1250	1400	1550	1700	1850	2000	2150	2300
No. BLADES	2	3	4	5	6	7	8	9	10	11	12	13	14
BLADE COVER	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100
MAINFRAME LENGTH	1250	1400	1600	1800	1950	2100	2300	2450	2600	2800	3000	3300	3600
STIFFENER LENGTH	-	-	-	-	-	-	-	-	1600	1800	1950	2150	2400

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TITLE: XHD 20-TEN DURT TRACKER PRIMARY CLEANER
C/W 2011 OPEN FACE TC BLADES, AIR TENSIONER & COMBI-SAFE ACCESS DOOR - INSTALLATION ARRANGEMENT

DRAWN BY: KR SCALE: NTS DATE: 14/11/12
CHKD: SD APPD: RED F0476 REV: F

REV	REVISIONS	REF DOCS	BY	CHKD	APPD	DATE



11.0 EXPLODED PARTS DRAWING

F0477 c/w 2011 Open Face TC Blades, Spring Tensioner

F0477

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

NOTES

- THE OPTIMUM INSTALLATION OF THE XHD PRIMARY CLEANER IS WITH THE TIP ON THE HORIZONTAL CL OF THE HEAD PULLEY BUT CAN BE INSTALLED BETWEEN 0° & 15° BELOW THE HORIZONTAL CL OF THE HEAD PULLEY
- THE TIP SHOULD BE PERPENDICULAR TO THE BELT FOR BELTS UP TO 1950 WIDE THE FAR SIDE MOUNT IS COUPLED WITH A SIMPLE LOCK COLLAR TO PREVENT AXIAL MOVEMENT
- BELTS 1500 & WIDER REQUIRE TENSIONERS ON BOTH SIDES
- HIGH TEMPERATURE & MINES DEPARTMENT APPROVED ASSEMBLIES ARE AVAILABLE
- KEYSAFE EXTRACTION TOOL AVAILABLE SEE DRAWING F0355
- ESS RECOMMENDS INSTALLATION WITH THE STUDS FACING THE PULLEY, OUT OF THE MAIN MATERIAL FLOW.

HEAD PULLEY Ø

450	600	750	900	1050	1200	1400 & LARGER
REPLACEABLE TUNGSTEN CARBIDE BLADE TIP	APPROXIMATE RADIAL OFFSET	210	180	155	135	120
CONTACT ESS	ENG DEPARTMENT	110	110	110	110	110

CHUTE CUT OUT AT 10° SETUP

CHUTE CUT OUT FOR FAR SIDE - 0° SETUP

ANGLE OF CUT OUT IS TO BE THE SAME AS DOOR CUT OUT TO ALLOW FOR CLEANER ADJUSTMENT

COMBI-SAFE DOORS MAY BE USED BOTH SIDES IF REQUIRED

BELT WIDTH	450	600	750	900	1050	1200	1350	1500	1600	1800	2000	2200	2400
TRACK LENGTH	500	650	800	950	1100	1250	1400	1550	1700	1850	2000	2150	2300
No. BLADES	2	3	4	5	6	7	8	9	10	11	12	13	14
BLADE COVER	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100
MAINFRAME LENGTH	1250	1400	1600	1800	1950	2100	2300	2450	2600	2800	3000	3300	3600
STIFFENER LENGTH	-	-	-	-	-	-	-	1600	1800	1950	2150	2400	2600

CLIENT: ESS CAD
LOCATION:

D	PULLEY DIA TABLE REVISED	CAO 598	AW	MH 8/1/11
C	ADDED NOTE 7	G52250	WD	MH 11/2/11
B	NOTES & VIEWS UPDATED		KR	SD 19/2/11
A	CHUTE CUT OUT WAS 250x410		KR	SD 19/2/11

TITLE: XHD 20TEN DURT TRACKER PRIMARY CLEANER
C/W 2011 OPEN FACE TC BLADES, SPRING TENSIONER & COMBI-SAFE ACCESS DOOR - INSTALLATION ARRANGEMENT

DRAWN BY: KR
SCALE: NTS
DRAWING No.: F0477
DATE: 14/11/12
CHKD:SD APPD:RED

REVISIONS

REV	ISSUED	BY	DATE
1			

JOB No

F0355	KEYSAFE EXTRACTION TOOL
F0475	COMBI-SAFE ACCESS DOOR C/W SPRING TENSIONER ARRANGEMENT
F0476	XHD 20-TEN C/W 2011 OPEN FACE TC BLADES, JAR TENS & COMBI SAFE ACCESS DOOR ARRGT
F0477	XHD 20-TEN SPRING TENSIONER EXPLODED PARTS
F0478	XHD 20-TEN DURT TRACKER EXPLODED PARTS

DRAWING No. REFERENCE DRAWINGS

ESS ENGINEERING SERVICES & SUPPLIES
CUSTOMER SERVICE No. 1800 074446

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12. EXPLODED PARTS DRAWINGS

F0355 Keysafe Blade Extraction Tool

ITEM	QTY	DESCRIPTION	DRG. No.	PART No.
1	1	HANDLE	D1206	36900015
2	1	EXTENSION BAR TYPE 1	D1330	36900030
3	1	EXTENSION BAR TYPE 2	D1327	36900025
4	1	TOOL END	D1207	36900010
5	1	KEYSAFE BLADE EXTRACTION TOOL SLIDE HAMMER (OPTIONAL)	D1209	36900020
6	1	KEYSAFE 2 BLADE EXTRACTION TOOL	D1834	36900035

ESS Customer Service 1 800 074446	Client: ESS	Location: QUEENSLAND			
Title: KEYSAFE BLADE EXTRACTION TOOL EXPLODED PARTS			Revision		
P/N 36900005 - KEYSAFE - P/N 36900006 - KEYSAFE 2			E		
Drawn: A. MASEYK	Scale: (A3)	Drawn No.: (A3)	Date: 15/07/10	F0355	
Chkd: S.D.	Appd: C.W.				

E	ADDN OF ITEM 6	JMS	15/2/10	JMS	15/2/10	JMS	15/2/10	JMS	15/2/10
D	ORIG'D & SWAPPED	JMS	15/2/10	JMS	15/2/10	JMS	15/2/10	JMS	15/2/10
C	REVISED DESIGN	JMS	15/2/10	JMS	15/2/10	JMS	15/2/10	JMS	15/2/10
B	SLIDE HAMMER OPTIONAL	JMS	15/2/10	JMS	15/2/10	JMS	15/2/10	JMS	15/2/10
A	ISSUED	JMS	15/2/10	JMS	15/2/10	JMS	15/2/10	JMS	15/2/10
Rev	Revision Description	Drawn	Checked	App'd	Date	Issued	Date	Issued	Date
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F0414 XHD 20-Ten Durt Tracker Primary Cleaner

F0414

SUFFIX NOTES

GENERAL

s = S.S. (STAINLESS STEEL)
 f = FRAS (FIRE RETARDANT-ANTI STATIC)

XHD PRIMARY BLADES

none = STANDARD ORANGE
 bl = BLUE
 bl = BROWN LOW FRICTION
 g = GREEN
 g = FRAS CLIP GRADE
 fh = FRAS HARD GRADE
 fh = FRAS MEDIUM GRADE

FLEX MOUNT BUSH

g = GREEN
 p = UHMWPE
 pf = PA99 FRAS
 fh = FRAS HARD GRADE

NOTES

- CLEANERS FOR BELTS 1500MM & WIDER REQUIRE TENSIONER ASSEMBLIES ON BOTH SIDES. CLEANERS FOR BELTS UNDER 1500MM REQUIRE A LOCK COLLAR ON THE FAR SIDE FOR CLOSED CHUTE CONVEYORS. ESS RECOMMENDS THE USE OF COMBI-SAFE DOORS FOR EASE OF BLADE INSPECTION AND REPLACEMENT.
- A HANGAR POINT TO ENABLE TOTAL CLEANER REMOVAL IS ALSO AVAILABLE. CONTACT ESS FOR MORE INFORMATION.
- MINES DEPARTMENT APPROVED FRAS, HIGH TEMPERATURE, CHEMICAL RESISTANT & ABRASION RESISTANT URETHANE BLADES & TUNGSTEN CARBIDE TIPPED BLADES ARE AVAILABLE. CONTACT ESS FOR MORE INFORMATION.
- VARIOUS BLADE PROFILES AVAILABLE - CONTACT ESS FOR MORE INFORMATION.

FAR SIDE ARRANGEMENT FOR BELT WIDTHS UNDER 1500 mm SHOWN REFER NOTE 1

BELT WIDTH	450	600	750	900	1050	1200	1350	1500	1600	1800	2000	2200	2400
TRACK LENGTH	500	650	800	950	1100	1250	1400	1550	1700	1850	2000	2150	2300
NO. BLADES	2	3	4	5	6	7	8	9	10	11	12	13	14
BLADE COVER	330	485	640	795	950	1105	1260	1415	1570	1725	1880	2035	2190
FRAME LENGTH	1250	1400	1550	1700	1850	2000	2150	2300	2450	2600	2750	2900	3050
STIFFENER LENGTH	-	-	-	-	-	-	-	-	-	-	-	-	-

PART NOS FOR COMPLETE CLEANER ASSEMBLIES

35 [XXX] [XXX] [XX]

TENSIONER

000 = NONE
 302 = AIR TENSIONER
 305 = SPRING TENSIONER

BELT WIDTH IN CM

AVAILABLE IN ALL STD BELT WIDTHS SUBSTITUTE 'xxx' WITH WIDTH IN CM

MATERIAL SUFFIX

NONE = MILD STEEL
 f = MILD STEEL /FRAS
 s = STAINLESS STEEL
 sf = STAINLESS STEEL /FRAS

XHD DT BLADE XHD 2011 O/FACE TC BLADE
 OTHER BLADE TYPES AVAILABLE - REFER ITEM 2

SPRING TENSIONER SEE F0422

AIR TENSIONER SEE F0418

SPRING TENSIONER AVAILABLE

ALTERNATIVE MOUNTING ARRANGEMENT C/W CYA DOOR & STAND-OFF BRACKET

ESS Customer Service
 1 800 074448

Title: XHD 20-TEN DURT TRACKER PRIMARY CLEANER EXPLODED PARTS ASSEMBLY

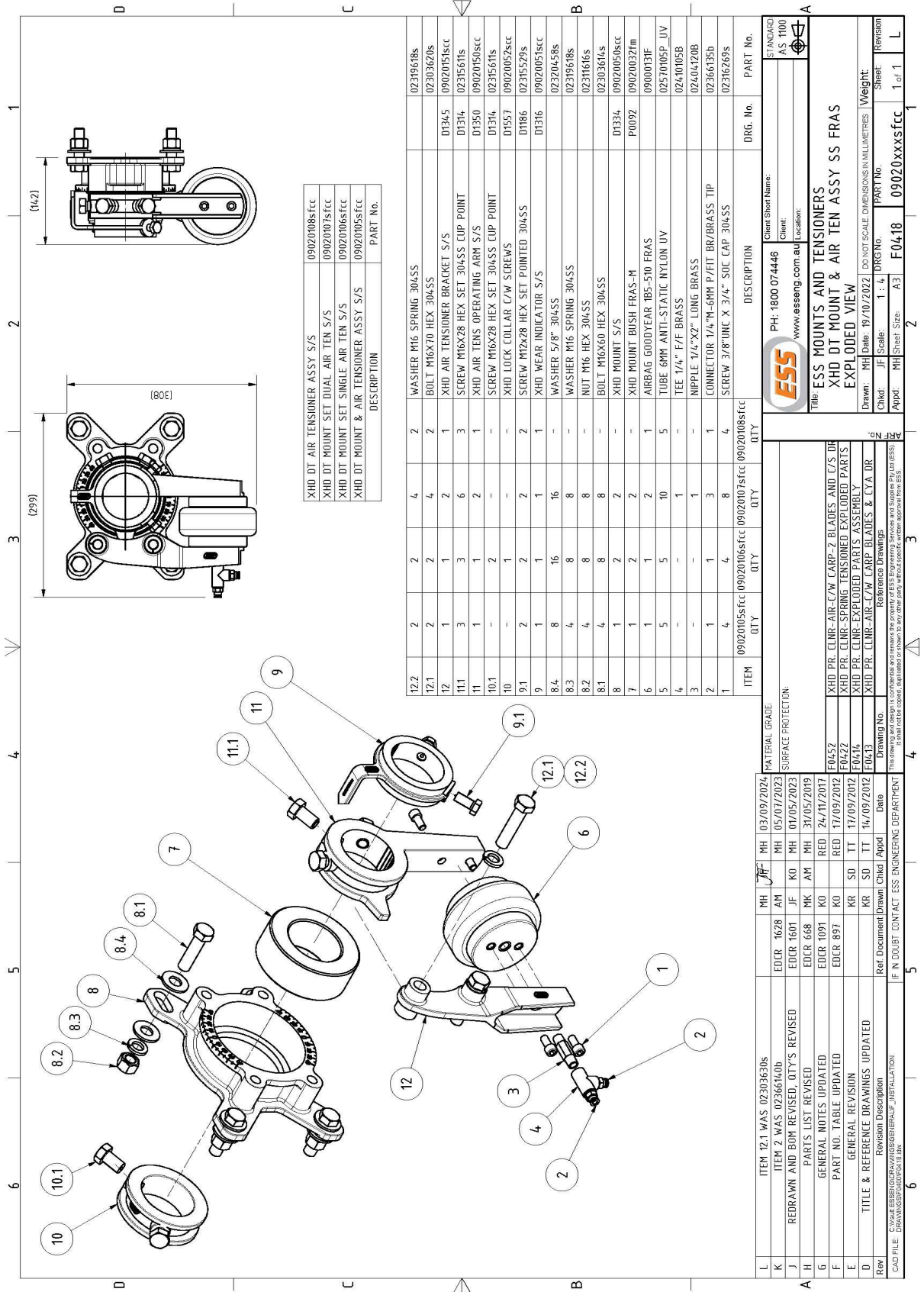
Client: _____
Location: _____

Drawn: BG
Scale: NTS (A3)
Appr: CW
Chkd: SD
Date: 04/03/11
Rev: F

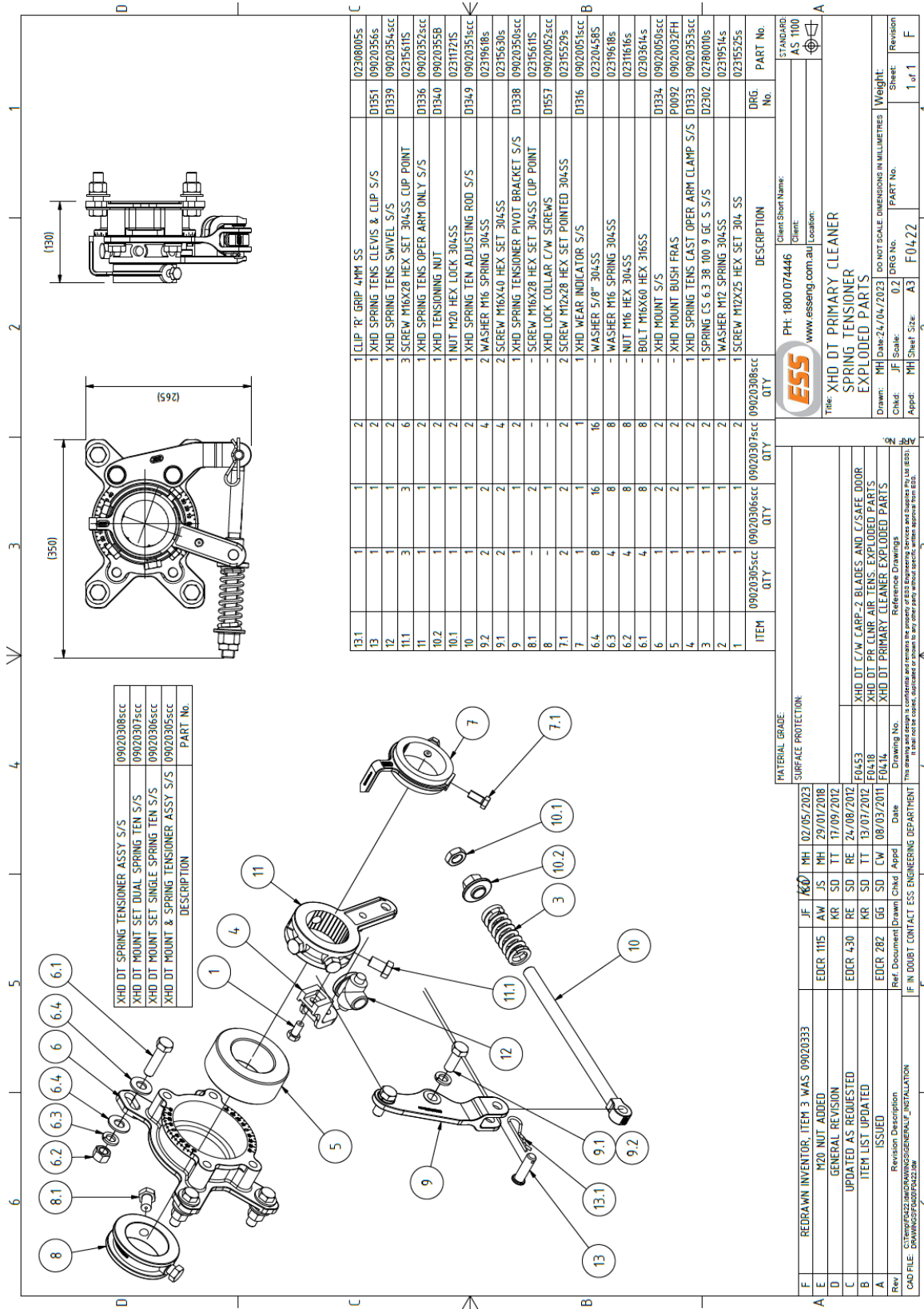
Revision

ITEM	DESCRIPTION	ORG. No.	PART No.
8.2	XHD 20TEN SPRING TENSIONER ASSY SS NO MNTS	F0422	09020308SCC
8.1	XHD 20TEN AIR TENSIONER ASSY SS NO MNTS	F0418	09020308SCC
7.3	CYA ACCESS DOOR ASSY 300X450	F0045	23011218/s
7.2	XHD STAND-OFF BRACKET	D0157	090203036
7.1	COMBI SAFE XHD COMPLETE	F0455	23600020s/f
6	XHD 20TEN BLADE LOCK C/W FASTENERS SS	D0556	36052025S
5	XHD LOCK COLLAR 65NB S/S C/W SET SCREWS	D0848	09020035S
4	XHD MOUNT BUSH	P0092	09020032xx
3	XHD 20TEN MOUNT SS WITHOUT BUSH	D1314	09020050SCC
2.8	XHD DT BLADE LOW PROFILE	P0046	360132951xx
2.7	XHD BLADE WING	P0145	360930951xx
2.6	XHD BLADE CARP-2 MEGA	P0196	363001951xx
2.5	XHD BLADE MEGA 500MM	P0045	360730051xx
2.4	XHD DT CARP BLADE	P0222	362000951xx
2.3	XHD DT BLADE	P0044	360130951xx
2.2	XHD 2011 O/FACE TC BLADE ASSY	F0479	365000801xx
2.1	XHD DT CARP-2 BLADE	P0123	363000951xx
1	XHD DTDB MAINFRAME	D0256	15350xxx(s)

F0418 XHD Mount & Air Ten Assembly SS FRAS



F0422 XHD DT Primary Cleaner Spring Tensioner





F0479 2011 Open Face Tungsten

ITEM	QTY	DESCRIPTION	DRG. No.	PART No.
2.3	1	PRIMARY XLTC BLADE (DZ12) TIP SS	D1628	36500007SD_12
2.2	1	PRIMARY TC BLADE (DZ12) TIP&STRIP SS	D1832	36500009SD_12
2.1	1	PRIMARY TC BLADE (DZ12) TIP SS	D1241	36500008SD_12
1.2	1	XHD TC BLADE FR. M-GR W/O TIP	P0231	36500015fm
1.1	1	XHD TC BLADE W/O TIP	P0231	36500075

ESS Customer Service 1 800 074446		Client:
XHD PRIMARY CLEANER		Location:
2011 OPEN FACE TUNGSTEN CARBIDE BLADE ASSEMBLY		
Drawn:	GG	Scale: NTS (A3)
Checked:	SD	Date: 30/11/2012
Rev:		Doc No.: F0479

COMPLETE PART NUMBERS

36500080D_12 XHD TC BLADE ASSY DZ12
 36500080FMD_12 XHD TC BLADE ASSY FR M-GR DZ12
 36500085D_12 XHD TC TIP&STRIP BLADE ASSY DZ12
 36500085FMD_12 XHD TC TIP&STRIP BLADE ASSY FR M-GR DZ12
 36500090D_12 XHD XLTC BLADE ASSY DZ12
 36500090FMD_12 XHD XLTC BLADE ASSY FR M-GR DZ12

Rev	Revision Description	Drawn	Checked	Approved	Date
	REMOVED COPY/DZ12, ADDED DZ12	JF	SD	MH	16/11/12
	CAST BODY REDESIGN, 3 TIP TYPES SHOWN	GG	SD	TT	28/11/12
	ISSUED	GG	SD	RED	16/12/12
	REF DOCUMENT	GG	SD	RED	16/12/12

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13.0 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: _____

