

QE440

Operator's Manual

QE440-en-111012

QE440

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Machine Information:

Serial No:
Engine Serial No:
Date of build:



Declaration of Conformity



We hereby declare that the machinery

Machine Nomination, Type of machine:

QE440

In built Diesel

Screener

is in conformity with the following Directives, Standards and Codes

2006/42/EC Machinery Directive

2004/108/EC ElectroMagnetic Compatibility (EMC)

EC Type-examination and Certificates

ISO21873-2

Technical file

We assure that documentation have been compiled in accordance with 2006/42/EC Annex VII

Phil Coleman, PDC Group Engineering Manager , Swadlincote

is authorized to make the technical file available on request by competent authority of the EC Member States in accordance with 2006/42/EC. The documents will be delivered as electronic files.

Paul Colton, Operations Director, Swadlincote

confirms the manufacturing process to ensure compliance of the manufactured machinery with the technical file.

This declaration remains valid as long as no modification is carried out without the manufacturer's written agreement.

Date: 15 / 03 / 2010

Phil Coleman
PDC Group Engineering Manager

Paul Colton
Operations Director

Manufacturer:
COMPANY, ADDRESS

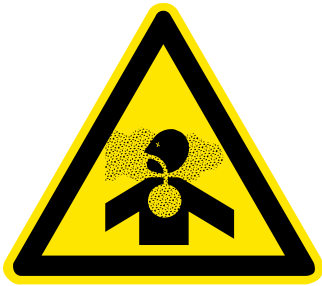
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1. SAFETY

SANDVIK PUT SAFETY FIRST.

This is to make sure that maximum safety measures are taken, ALWAYS read this section carefully BEFORE carrying out any work on the equipment or making any adjustments.

1.1 Safety Essentials

	 DANGER Breathing dust will cause death or serious injury. Always wear approved respirator.	
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- a. Breathing or inhaling silica dust particles will cause death or serious injury. ALWAYS work with a respirator approved by the respirator manufacturer for the job you are doing.
- b. This equipment is manufactured in accordance with the Machinery Directive 2006/42/EC (01-Jan-10). The customer should make sure that this equipment is in conformance with local and national legislation if used outside of the EU.
-  c. Read this manual and familiarize yourself with any associated documentation. If in doubt ask. Do not take personal risk.
- d. Only trained competent persons should be allowed to install, set, operate, maintain, and decommission this equipment. Make sure that a copy of this manual is available for any persons installing, using, maintaining or repairing this equipment.
-  e. Training should be provided to make sure that safe working practices are followed. Initial commissioning and starting must only be undertaken by a authorised person who has read and fully understands the information provided in the manual pack. ALWAYS follow the procedures outlined in the operating and maintenance instructions
-  f. To avoid the risk of electric shock, ALWAYS isolate this equipment from the supply source before removing any guards or covers or performing any maintenance or adjustment to the equipment.
- g. It is recommended that fire extinguishing equipment is stowed in the power pack or cabinet.

Note! *The manufacturer declines all responsibility for injury or damage if the instructions and precautions in this manual are not followed.*

1.2 Safety Signs and Labels

- a. The term  indicates a hazardous situation which, if not avoided, WILL result in death or serious injury.
- b. The term  indicates a hazardous situation which, if not avoided, COULD result in death or serious injury.



- c. All electrical control boxes are labelled. Make sure that these labels remain in place and are clearly visible at all times.
- d. Other hazards identified within this manual may also be marked on the equipment with safety labels. Make sure that these safety labels remain in place and are clearly visible at all times.

1.3 Safety Hazards Pertaining to the Equipment



The following safety symbols may be posted on the equipment and contained in the manuals. You **MUST** observe all safety symbols, labels, and instructions.

- a. **MAKE SURE** that safety instructions and safety labels attached to the equipment are **ALWAYS** complete and perfectly legible.
- b. Keep safety instructions and safety labels clean and visible at all times.
- c. Replace any illegible or missing safety instructions and safety labels before operating the equipment. refer to 1.15 Safety decal locations.
- d. Make sure replacement parts include safety instructions and labels.

1.3.1 Colour Coded Safety Signs

The signs are colour coded related to the information they state:



Prohibited - you **CANNOT** do.



Mandatory - you **MUST** do.

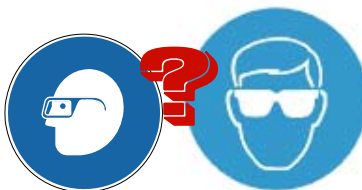


Hazard - you must be **AWARE** of.

1.3.2 Symbols for MANDATORY Actions



Wear Safety Gloves



Wear Eye Protection



Wear Safety Helmet



Wear Safety Harness



Wear Ear Protection



Wear Safety Boots



Wear Close Fitting Overalls



Wear Dust Mask



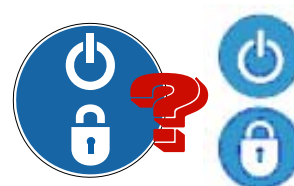
Wear High Visibility Vest



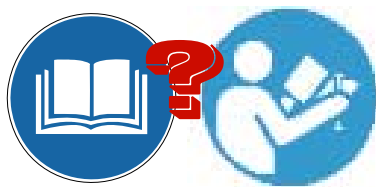
Wear Respirator



Disconnect Power Source From Supply



Switch Off and Lockout Equipment



Read the Manual



1.3.3 Symbols for PROHIBITED Actions



No Climbing



No Smoking



Do Not Touch



No Open Flames



Limited or Restricted Access



Do Not Weld



Do Not Remove Safety Guard

1.3.4 HAZARD Symbols



Crushing Hazard - Hands



Crushing Hazard - Feet



Chemical Burn Hazard



Electrical Hazard

Electrical Shock/Electrocution
Hazard

Entanglement Hazard



Entanglement Hazard



Falling Hazard



Falling Load Hazard



Flammable Hazard



Flying Material Hazard



Hazardous or Poisonous
Material Hazard



Lifting Hazard



Skin Injection Hazard



Silica or Other Dust Hazard



Trip Hazard



Magnet Hazard



Falling Material hazard



Impact Hazard

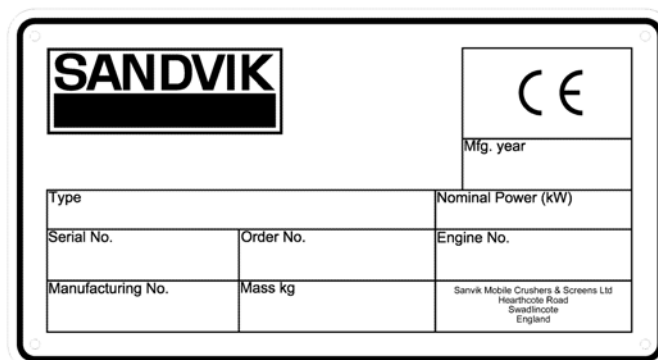


Tipping Hazard



Tipping Hazard

1.3.5 Machine Serial Number Plate



1.4 Component Safety Features



- a. **DO NOT** use this equipment if any safety guards or devices have been removed or **NOT** installed properly.



- b. Operating this equipment with any safety guards or devices which have been removed or installed improperly could result in death or serious injury.

1.5 Features for Operator Safety

- a. Safety features associated with this equipment have been assessed in accordance with ISO21873-2



- b. Emergency Stop buttons have been installed to prevent death or serious injury. Make sure that the Emergency Stop buttons are visible and are not obstructed in any way. Also make sure that all persons are trained in the operation and the location of the emergency stops.



- c. The Emergency Stop circuit is up to 30V DC series circuit and hard wired to remove power from the Electronic Control Unit (ECU) Engine management system and stop the engine. To avoid electric shock or cutting injury, you **MUST** wait at least ten full seconds after activating the Emergency Stop to allow the system to release its electrical charge.



- d. Safety guards have been installed to prevent death or serious injury. **DO NOT** remove, modify, or alter any safety guard. Make sure that all safety guards are secured in their correct positions.



- e. Steps, handrails, tread plates, and fixed guards are provided where persons are required to climb on the machine. For maintenance access **ONLY**
- f. If for any reason other areas of the machine need to be accessed, **DO** a full recorded risk assessment and take the appropriate safety measures.

1.6 Environmental Safety

To avoid unnecessary engine emissions, you **MUST** regularly service the machine as specified in the machine maintenance sections contained in this manual.

1.6.1 Hazardous Materials

 WARNING	
	• Potentially harmful waste used on this equipment includes items such as oil, fuel, coolant, filters, batteries, etc. • DO NOT store harmful waste in food or beverage containers that may mislead someone into drinking from them, which could cause death or serious injury • Use leak proof containers when draining fluids • DO NOT pour waste onto the ground, down a drain or into any water source.



a. Diesel spillage **MUST** be cleaned up immediately due to fire hazard. Refer to the site and country regulations.

b. **ONLY** use the lubricating oils recommended in the maintenance schedule.



c. **OBSERVE** the COSHH/MSDS information, refer to section 10. INFORMATION AND DATA SHEETS.

d. Local & National regulations **MUST** be observed when disposing of waste.

e. Improperly disposing of waste **CAN THREATEN** the environment and ecology and is illegal.

f. **MAKE SURE** that all hazardous and replaced parts are disposed of safely and with minimum environmental impact. Refer to the country regulations.

1.6.2 Machine Disposal

This equipment **MUST ONLY** be disposed of at a specialist machine breaker.

1.7 Personal Protective Equipment (PPE)

1.7.1 Entanglement Hazards

 DANGER	
 	ENTANGLEMENT HAZARD • Loose clothing, tools, jewellery, long hair, or body parts can get caught in running machinery, which will result in death or serious injury. • ALWAYS wear correctly fitting (CE approved) personal protective equipment. Garments must be close fitting and no jewellery such as rings may be worn. • DO NOT work close to machinery unless it is stopped.

1.7.2 Required Personal Protective Equipment

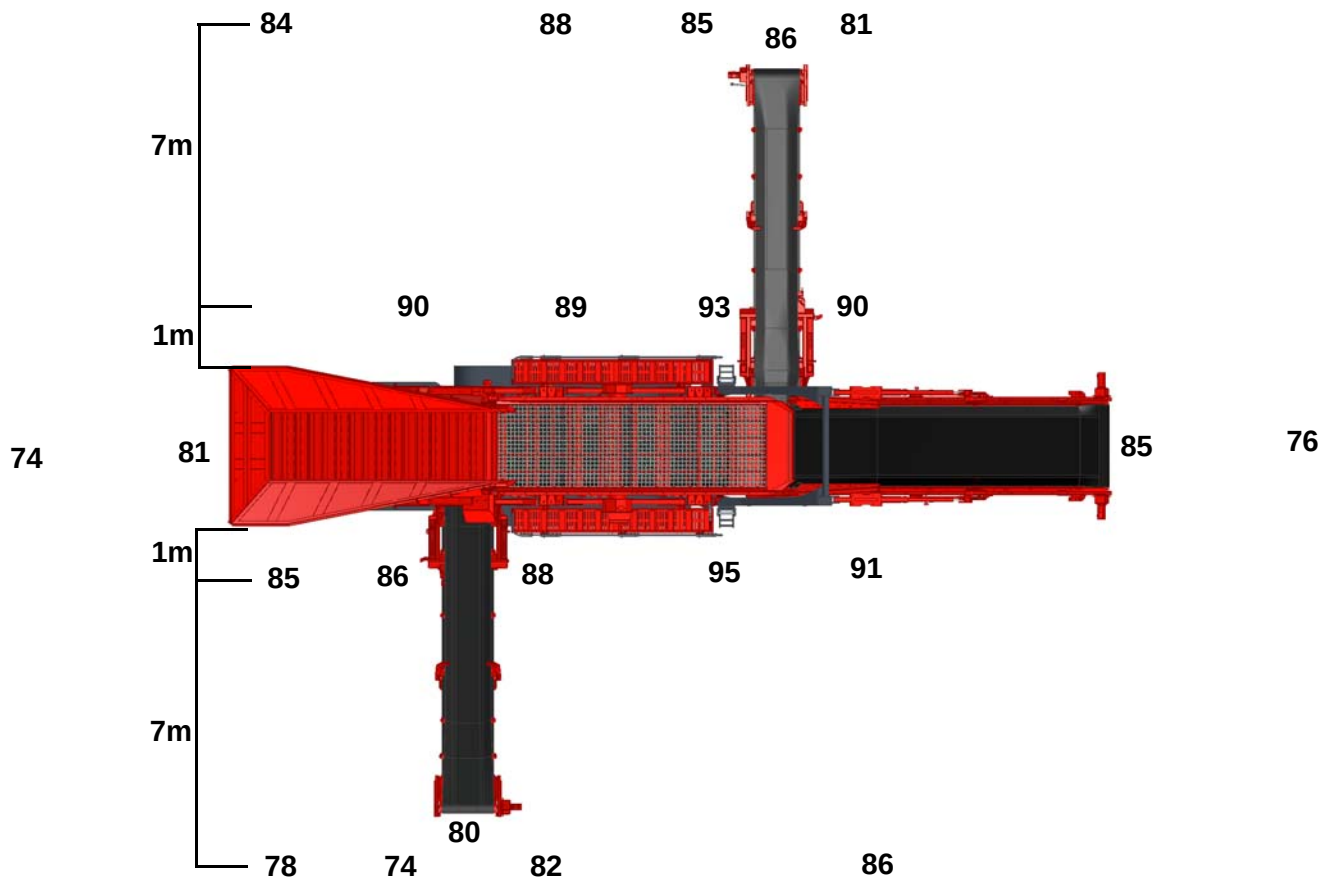
This includes:

- | | |
|---|----------------------------------|
|  | • Hard Hat |
|  | • Safety Glasses/Goggles |
|  | • Hearing Protection |
|  | • Dust Mask |
|  | • Close Fitting Overalls |
|  | • Safety Boots |
|  | • Industrial Gloves |
|  | • High Visibility Vest or Jacket |
|  | • Respirator |

1.8 Measured Noise Level



Ear protection must be worn if you are within 10 metres (approximately 33 feet) of the machine when the engine and other parts of the machine are running.



The above diagram indicates the measured noise levels at a measured distance; i.e. 7 m (23 feet) - 85 dB indicates that at 7 meters the sound measured was 85 decibels. The readings were measured using a Castle GA213 meter with a calibration date of 06/10/2010 and with all systems running situated on the factory assembly line.

The product and local conditions will affect the noise levels.

The equipment used during the test:

- Sound level meter No. GA213
- Integration/Averaging meter No. 2.222
- Individual dose meter No. GA256
- All equipment was calibrated at 94 and 104 dB at 1KHz both before and after the test

Note! The noise was measured with an empty machine

1.9 Vibration Levels

There are **NO** circumstances where an operator needs to be on or touching the machine when it is running.

1.10 Organisational Safety Measures



The following safety measures **MUST** be observed at all times:



- Understand the service procedure before doing work. Keep area clean and dry.
- **NEVER** lubricate, clean, service, or adjust machinery while it is moving.
- Allow the machinery to cool before performing any maintenance or adjustments.
- **MAKE SURE** that all parts are properly installed and are in good condition. Replace worn and broken parts **IMMEDIATELY**.
- Remove any build up of grease, oil and debris from equipment.



- Disconnect battery ground cable before making adjustments on electrical systems or welding on the equipment.
- During maintenance, **ONLY** use the correct tool for the job.



- **NEVER** make any modifications, additions, or conversions which might affect safety.



- If clothing, tools, or any body parts become entangled in machinery, **IMMEDIATELY PRESS AN EMERGENCY STOP BUTTON**. disengage all power and operate controls to relieve pressure. Stop the engine and implement lockout procedures.



- If the equipment exhibits any unusual movement or sound, stop the equipment, lock out **IMMEDIATELY**, and report the malfunction to a competent authority or persons.

1.11 Personnel qualifications, requirements and responsibilities



- a. All work involving the equipment **MUST ONLY** be performed by trained, competent, reliable and authorized persons only. Statutory minimum age limits must be observed.



- b. Study the Hydraulic/Electrical circuit diagrams, refer to section 9. ELECTRICAL AND HYDRAULICS.



- c. Work on electrical system and its equipment **MUST ONLY** be carried out by a skilled electrician or by instructed persons under the supervision and guidance of a skilled electrician and in accordance with electrical engineering rules and regulations.

- d. Work on the hydraulic system **MUST ONLY** be carried out by persons with training and authorisation to maintain the hydraulic equipment.

1.12 Safety advice regarding specific operational phases

1.12.1 Standard Operation

- a. Take the necessary steps to make sure that the equipment is used **ONLY** when it is in a safe and reliable state.



- b. Operate the equipment **ONLY** for its designed purpose, and only if all guarding, protective, and safety devices, emergency shut-off equipment, sound proofing elements and exhausts, are in place and fully functional.



- c. **MAKE SURE** that any local barriers are erected to stop unauthorised entry to the equipment or work area.



- d. **BEFORE** starting the engine make sure that it is safe to do so

1.12.2 Blockage or Malfunction



In the event of material blockage, any malfunction or operational difficulty, stop the equipment and lockout immediately. Repair any defects or hazardous conditions immediately. Refer to section 5. Operations or contact your nearest dealer.

1.12.3 Unguarded Areas



- a. Limit access to the equipment and its surrounds by erecting barrier guards, minimum distance 1.5m away, (5ft), to reduce the risk of other mechanical hazards, falling loads and ejected materials.



- b. Switch off and lockout the equipment before removing any safety devices or guarding

**DANGER****ENTANGLEMENT HAZARD**

- To avoid death or serious injury, **ALWAYS** keep your hands and other body parts away from pinch points on the machine.
- **DO NOT** reach into unguarded machinery.

1.13 Special work, including equipment maintenance, disposal of parts, and hazardous materials



- a. Observe the adjusting, maintenance, and service intervals set out in the operating instructions, except where:
Warning horns, lights, gauges, or indicators call for immediate action; or
Adverse conditions require more frequent servicing.
- b. **ALWAYS** only use Original Equipment Manufacturer's ("OEM") recommended replacement parts and equipment.
- c. Make sure that only properly trained competent persons undertake these tasks.

1.13.1 Securing the Equipment Before Performing Maintenance



When undertaking maintenance and repair work, the equipment must first be made safe.

- a. Switch off the engine using the ignition key. Switch off at isolation point and remove the ignition key.



- b. Implement lockout procedures.
- c. Attach hazard sign(s) to the equipment in appropriate positions to alert all persons of potential hazards.

1.13.2 Maintenance Site Conditions



Prior to starting any maintenance work, **MAKE SURE** the equipment is positioned on stable and level ground and has been secured against inadvertent movement and buckling.

1.13.3 Replacement & Removal of Components



- a. **ALWAYS** observe handling instructions itemized in this manual, the Original Equipment Manufacturer's (OEM's) manuals, or the spare parts suppliers' instructions. Do a full risk assessment and take all necessary safety measures.

- b. **NEVER** allow untrained staff to attempt to remove or replace any part of the equipment.



- c. The removal of large or heavy components without adequate lifting equipment is **PROHIBITED**.

- d. To avoid the risk of accidents, individual parts and large assemblies being moved for replacement purposes should be carefully attached to lifting equipment and secured. **ONLY** use suitable and technically adequate lifting equipment supplied or approved by Original Equipment Manufacturer.



- e. **NEVER** work or stand under suspended loads.



- f. **KEEP AWAY** from the feeder hopper and product conveyor discharge, where there is risk of serious injury or death from contact with ejected material.



- g. **LIMIT ACCESS** to the equipment and its surrounds by erecting barrier guards to reduce the risk of residual mechanical hazards, falling lifted loads, and ejected materials or debris.



1.13.4 Climbing, Falling



- a. Falling from and/or onto this equipment could result in death or serious injury.



- b. **NEVER** climb on the equipment while it is in operation or use equipment parts as a climbing aid.



- c. **ALWAYS** keep the area around the equipment clear of debris and trip hazards.

- d. Beware of moving haulage and loading equipment in the vicinity of the equipment.
- e. For carrying out overhead assembly work, **ALWAYS** use specially designed or otherwise safety-oriented ladders and maintenance platforms.



- f. **ONLY** use Maintenance Platforms provided on the equipment. **ALWAYS** perform work from an approved, safe and secure platform.



- g. When reaching any points 2m (6ft) or more above the ground level, **ALWAYS** use CE certified safety harness.



- h. Keep all handles, steps, handrails, platforms, landing areas, and ladders free from dirt, oil, snow and ice.

1.13.5 Safety Considerations During Maintenance



It is essential that you take the following steps to **MAKE SURE** you and others are safe. **DO** full risk assessments and take all necessary safety measures.



- a. During maintenance, **RESTRICT ACCESS** to essential staff only. Where appropriate, erect barrier guards and post warnings.



- b. The fastening of loads and instructing or guiding of crane operators should be entrusted to qualified persons only.



- c. The observers providing instructions must be within sight or sound of the operator and positioned to have an all around view of the operation.

- d. **ALWAYS** make sure that any safety device such as locking wedges, securing chains, bars, or struts are utilized as indicated in these operating instructions.

- e. Make sure that any part of the equipment raised for any reason is prevented from falling by securing it in a safe reliable manner.



- f. **NEVER** work under unsupported equipment.

- g. **NEVER** work alone.

1.13.6 Safety Considerations During Cleaning

- a. This equipment **MUST** be isolated prior to cleaning. Switch off the engine using the ignition key. Switch off at isolation point and remove the ignition key.
- b. **DO NOT** direct power washers near or into control boxes and devices.

- c. After cleaning, examine all fuel, lubricant, and hydraulic fluid lines for leaks, loose connections, chafe marks and damage. Any defects found **MUST** be repaired immediately.

1.13.7 Removal of Safety Devices and Guards



- a. Prior to operation, all safety devices (control devices or guards) temporarily removed for set-up, maintenance or repair purposes **MUST** be refitted and checked immediately upon completion of the maintenance and repair work.



- b. To avoid serious personal injury or death, **NEVER** operate the equipment with safety devices or guards removed or unsecured.
- c. **ALWAYS** report any defects regarding guards, safety devices or control devices.

1.13.8 Surrounding Structures



- a. This equipment **MUST ONLY** be operated in a position away from buildings, permanent structures or high ground to eliminate the risk of persons falling onto the equipment or its surrounds.
- b. All temporary maintenance platforms erected around the equipment **MUST** be removed prior to operation.

1.13.9 Safety When Re-fuelling

 WARNING	
  	FIRE HAZARD • Diesel fuel is flammable and creates a potential hazard which could result in death or serious injury. • To avoid spillage use drip trays. • ONLY refuel with diesel from approved storage and supply equipment. • NEVER remove the filler cap or refuel with the engine running. • NEVER add gasoline or any other fuels mixed to diesel due to increased fire or explosion risks and damage to the engine. • Smoking is PROHIBITED when refuelling or handling diesel fuel. • DO NOT carry out maintenance on the fuel system near naked lights or sources of sparks, such as welding equipment. • IMMEDIATELY clean up spilt fuel and dispose of correctly to minimize any environmental impact.

1.14 Specific Hazards

1.14.1 Electrical energy - External considerations and hazards



When working with the equipment, maintain a safe distance from overhead electric lines. If overhead cables are in the vicinity, a risk assessment **MUST** be completed prior to operating the equipment. Make sure you follow the local and national regulations

 DANGER	
	ELECTROCUTION HAZARD Contact with overhead electric lines will cause death or serious injury. If your equipment comes into contact with a live wire, you <i>MUST</i>: • Vacate the area; • Warn others against approaching and touching the equipment; • Report the incident and have the live wire shut off.

1.14.2 Electrical energy - Machine



- a. Work on the electrical system or equipment **MUST ONLY** be carried out by a skilled and qualified electrician or by specially instructed persons under the control and supervision of such an electrician and in accordance with applicable electrical engineering rules.



- b. Before starting any maintenance or repair work, the power supply to the equipment **MUST** be isolated. Check de-energized parts to make sure they do not have any power. In addition to insulating any adjacent parts or elements, ground or short circuit them to avoid the risk of electrical shock.



- c. The electrical equipment is to be inspected and checked at regular intervals. Defects such as loose connections or scorched or otherwise damaged cables **MUST** be repaired, or replaced immediately. A trained competent person must do this.
- d. Use **ONLY** original fuses with the specified current rating. Switch off the equipment **IMMEDIATELY** if trouble occurs in the electrical system.
- e. This machine is wired with a negative earth. **ALWAYS** observe correct polarity.

1.14.3 Battery



- a. **ALWAYS** wear appropriate personal protective equipment.
- b. **ALWAYS** Isolate and disconnect the battery leads before carrying out any maintenance to the electrical system.
- c. Recharge the battery in a well ventilated area.



- d. The battery contains sulphuric acid, an electrolyte which can cause severe burns and produce explosive gases.
- e. **AVOID** contact with the skin, eyes or clothing.



- f. Smoking is **PROHIBITED** when maintaining the battery.

1.14.4 Gas, Dust, Steam, Smoke and Noise



- a. **ALWAYS** operate internal combustion engines outside or in a well ventilated area.
- b. If, during maintenance, the equipment must be operated in an enclosed area, **MAKE SURE** that there is sufficient ventilation or provide forced ventilation.
- c. Observe the regulations in force at the respective site.
- d. Dust found on the equipment or produced during work on the equipment **MUST NOT** be removed by blowing with compressed air.
- e. Dust waste **MUST ONLY** be handled by authorized persons. When disposing of dust waste, the material must be dampened, placed in a sealed container and marked to make sure proper disposal.
- f. Breathing or inhaling silica dust particles will cause death or serious injury. **ALWAYS** work with a respirator approved by the respirator manufacturer for the job you are doing.

INHALATION, BREATHING HAZARD

	DANGER Breathing dust will cause death or serious injury. Always wear approved respirator.	
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1.14.5 Welding or Naked Flames

 WARNING	
  	FIRE HAZARD • Welding or naked flames on or around the equipment creates the risk of an explosion or fire, which could result in death or serious injury. • AVOID all naked flames in the vicinity of this equipment. • Welding, flame cutting and grinding work on the equipment MUST ONLY be carried out if this has been expressly authorized, as there may be a risk of explosion and fire. • Before carrying out welding, flame cutting and grinding operations, clean the equipment and its surroundings from dust and debris and other flammable substances and make sure the premises are adequately ventilated, as there may be a risk of explosion • The battery MUST BE isolated and Disconnected.

1.14.6 Hydraulic Equipment



- a. Work on hydraulic equipment must be carried out by persons with training and authorisation to maintain the hydraulic equipment. Do a full risk assessment and take all necessary safety measures

 WARNING	
	FIRE HAZARD • Splashed oil creates the risk of a fire, which could result in death or serious injury. • Check all lines, hoses and screwed connections regularly for leaks or other damage. • Repair damaged lines, hoses, or screwed connections IMMEDIATELY.



- b. **ALWAYS** relieve pressure from the hydraulic system before carrying out any kind of maintenance or adjustment.



- c. **BEFORE** carrying out any repair work, depressurize all system sections and pressure hoses (i.e. hydraulic system, compressed air system, etc.) requiring removal, in accordance with the specific instructions for the unit concerned.
- d. Hydraulic and compressed air lines **MUST** be laid and fitted properly. Make sure that no connections are interchanged. The fittings, lengths and quality of the hoses **MUST** comply with the technical requirements.
- e. **ONLY** fit replacement components of a type recommended by the manufacturer.
- f. **ALWAYS** practice extreme cleanliness when servicing hydraulic components. Make sure that all measures are taken to avoid spillage and leaks.



DANGER



SKIN PENETRATION HAZARD

- Hydraulic fluid under pressure can penetrate the skin, which will result in death or serious injury.
- If fluid is injected under the skin, it must be surgically removed or gangrene will result. GET MEDICAL HELP IMMEDIATELY.
- ALWAYS use a piece of cardboard to check for leaks. DO NOT USE YOUR HAND.

1.14.7 Hazardous Substances

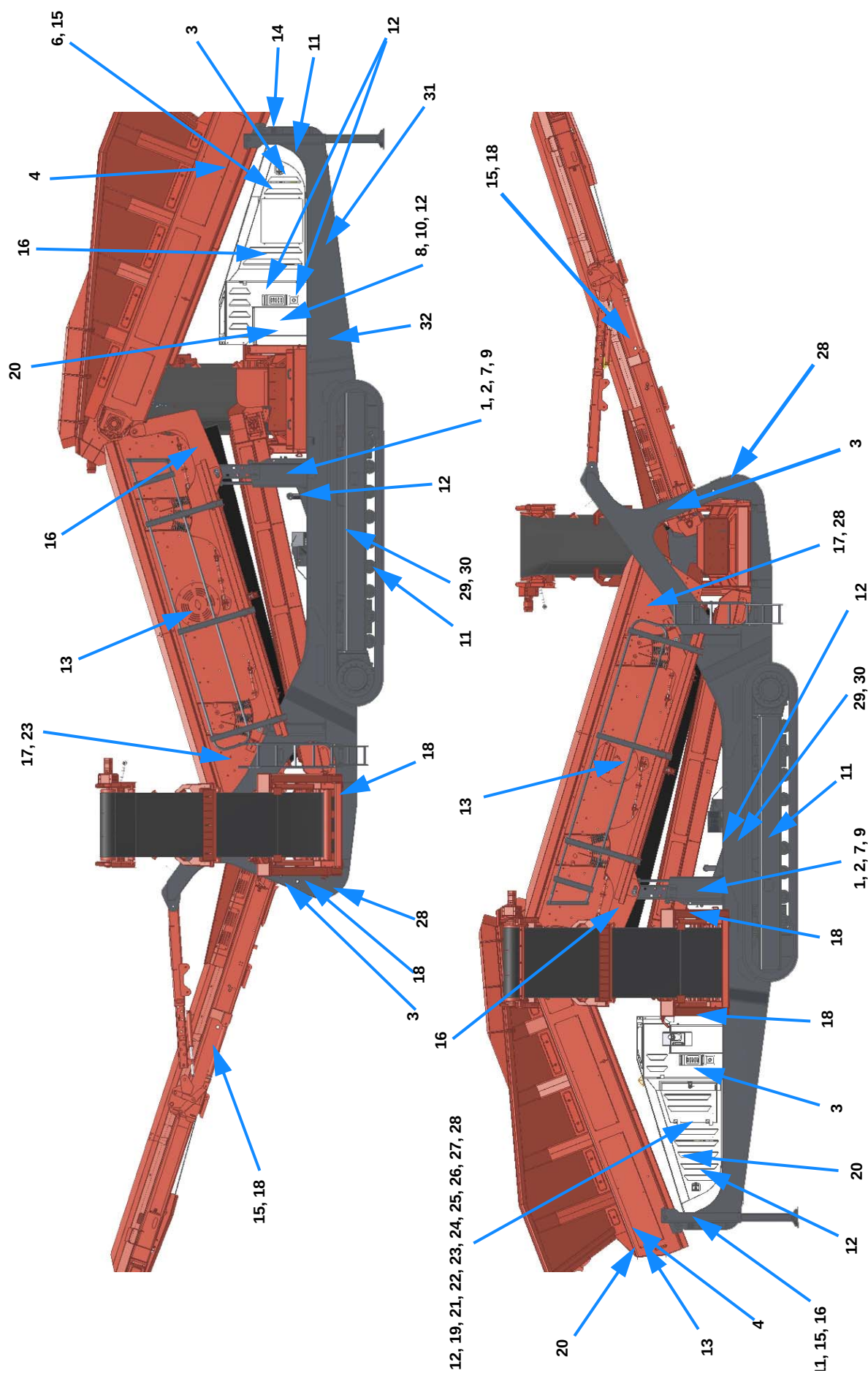


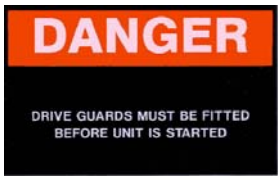
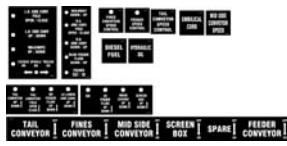
- a. **MAKE SURE** that correct procedures are formulated to safely handle hazardous materials in strict accordance with the manufacturer's instructions and all applicable regulations by correctly identifying, labelling, storing, using and disposing of the materials.



- b. A full list of Hazardous Substances associated with this equipment can be found in section 10.2 Hazardous substances.

1.15 Safety decal locations



 1 DE0023	 2 DE0025	 3 DE0027	 4 DE0038
 5 DE0039	 6 DE0042	 7 DE0051	 8 DE0053
 9 DE0054	 10 DE0057	 11 DE1007	 12 DE1037
 13 DE1038	 14 DE1043	 15 DE5001	 16 DE5006
 17 DE5009	 18 DE5010	 19 DE5012	 20 DE5013
 21 DE5014	 22 DE5016	 23 DE5018	 24 DE5019
 25 DE5020	 26 DE5021	 27 DE5022	 28 DE5023

 Danger Maximum tracking gradient 10 degrees port to starboard		 Danger Maximum tracking gradient 20 degrees front to back		QE440			
29	DE5024	30	DE5025	31	DE7037	32	DE7039

2. TRANSPORT & TECHNICAL DATA

2.1 Transport

This machine must only be transported between sites on a suitable licensed low loader trailer



DO NOT START TRANSPORT UNTIL YOU HAVE READ AND FULLY UNDERSTOOD THIS MANUAL.

2.1.1 Pre-Start Instructions (For Transport)

Follow the instructions listed below:



Make sure that the machine is OFF. Never do maintenance while the machine is ON



STOP THE MACHINE, ISOLATE, REMOVE THE IGNITION KEY, AND TAG-OUT, BEFORE ALL MAINTENANCE IS STARTED ON THIS MACHINE.

1. Make sure that this manual is read and understood.
2. Do not attempt to start this machine until you are aware of all aspects of its operation.
3. Make sure that there is no material or product (i.e stone) on the machine, in the screen box, feeder and on conveyor belts.
4. Lockout and tag the machine, refer to 4.10 Lockout and Tag Procedure.
5. Make sure all temporary sealing and transport straps are installed and all the conveyors and the doors are in the transport positions, refer to 2.5 Transport dimensions.
6. Check that the machine is in good mechanical condition and that there is no component damage or loss.
7. Make sure that all bolts and fixings are tight and that all safety devices operating correctly. Never start this equipment without the safety devices operating correctly.
8. Remove all tools and equipment from the transport area.
9. Make sure all persons are away from the machine, drives, tracks and auxiliary equipment.
10. Make sure that the pre-start checks outlined in the engine manufacturer's instruction manual are completed.
11. Check the oil levels in the engine.
12. Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.
13. Raise the jacking legs fully, refer to 4.7.7 Jacking leg operation.

2.2 Preparing machine for transportation

Make sure that the Machine is in the transport position:

1. Make sure the side conveyors are folded, refer to 2.2.1 Close up the right hand side conveyor for transport and 2.2.2 Close up the left hand side conveyor for transport.
2. Make sure that the Feeder is in the transport position, refer to 2.2.4 Close Up the Feeder for Transport.
3. Make sure the end conveyor is folded refer to 2.2.3 Close Up the end Conveyor for Transport.
4. Set the screen box height to the lowest position, refer to 4.7.6 Set Up the Screen Box Height.
5. Make sure the maintenance platforms are in the transport position, refer to 2.2.5 Close Up the Maintenance Platforms for Transport.

2.2.1 Close up the right hand side conveyor for transport



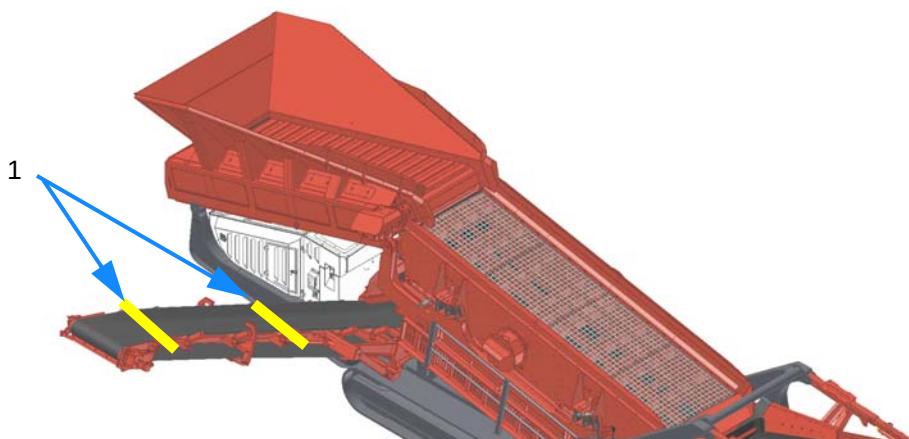
Make sure the machine is OFF, tagged and locked out before you do maintenance or work to the machine.



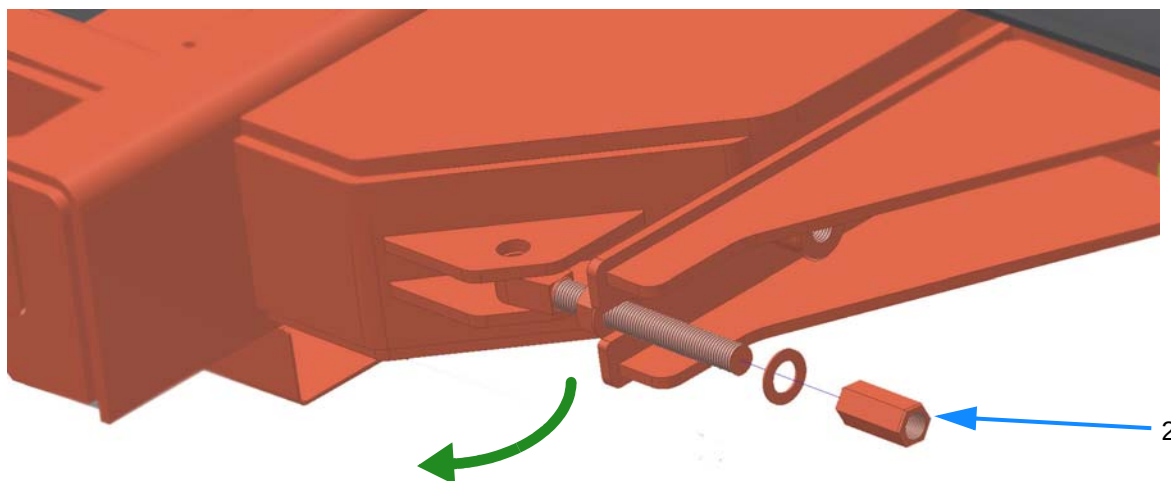
Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position which meets the local and national regulations.



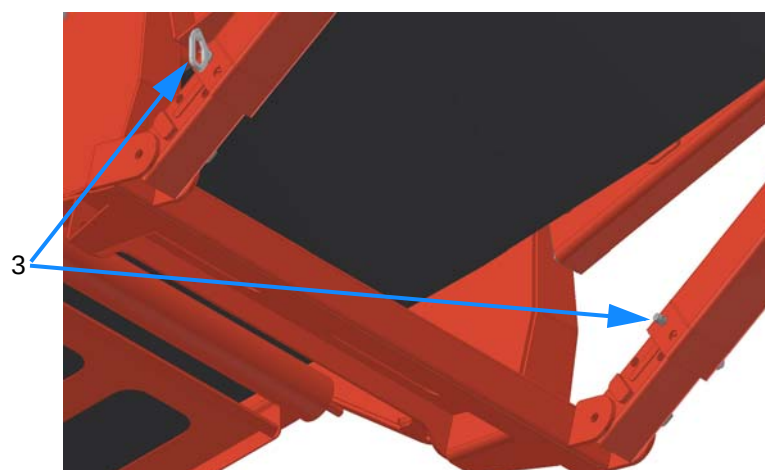
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



1. Install transport straps in the positions shown



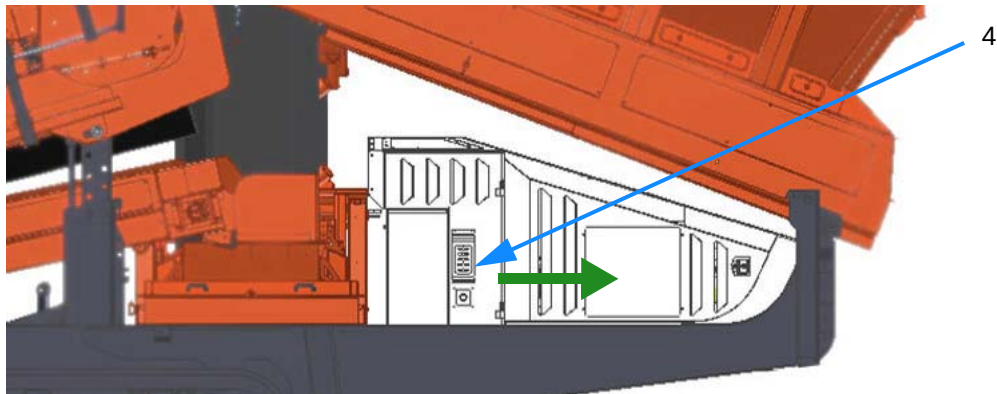
2. Loosen the nut and washers then pivot them out from the conveyor



3. Remove the locating pins from the supports



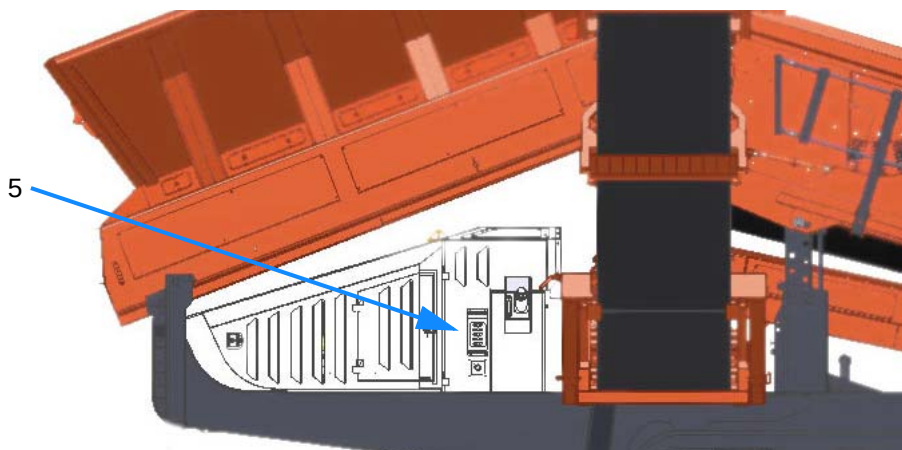
Make sure the area is clear of tools and persons. The conveyor will fold down and in covering a wide area, make sure that no one enters this area during the setup procedure, if necessary set up exclusion barriers.



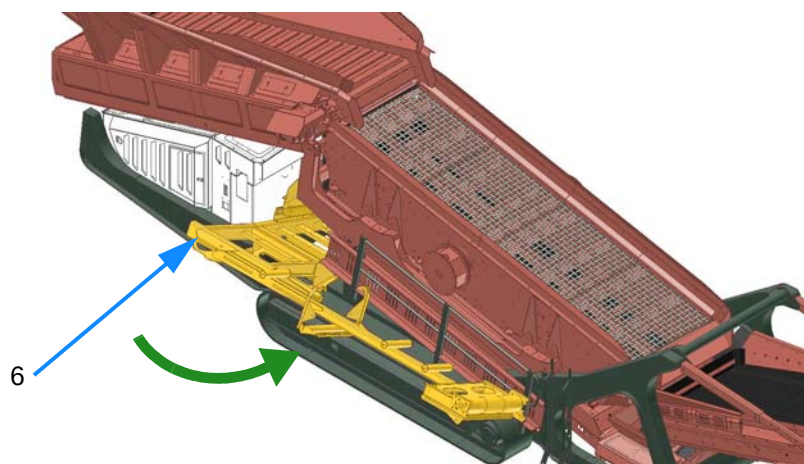
4. Set tracks lever off, to the right.

Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.

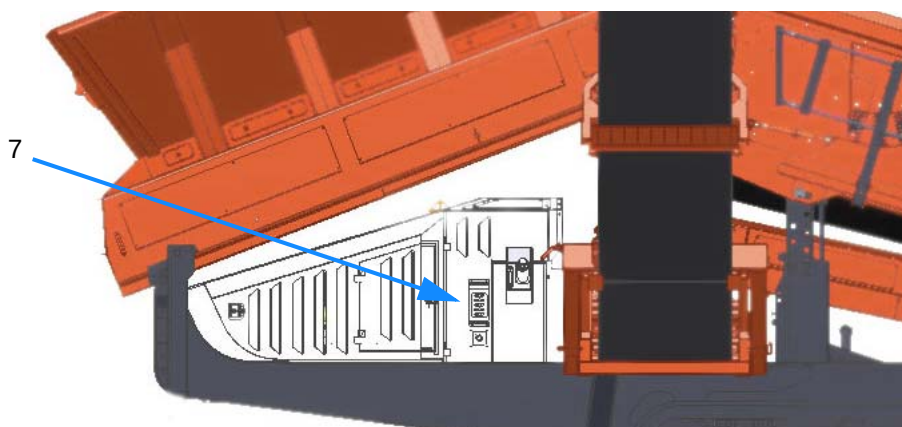
Start the Machine, refer to 4.4 Engine starting Procedure.



5. Activate 'R.H. Side Conveyor Fold' lever to move the conveyor towards the side of the machine.



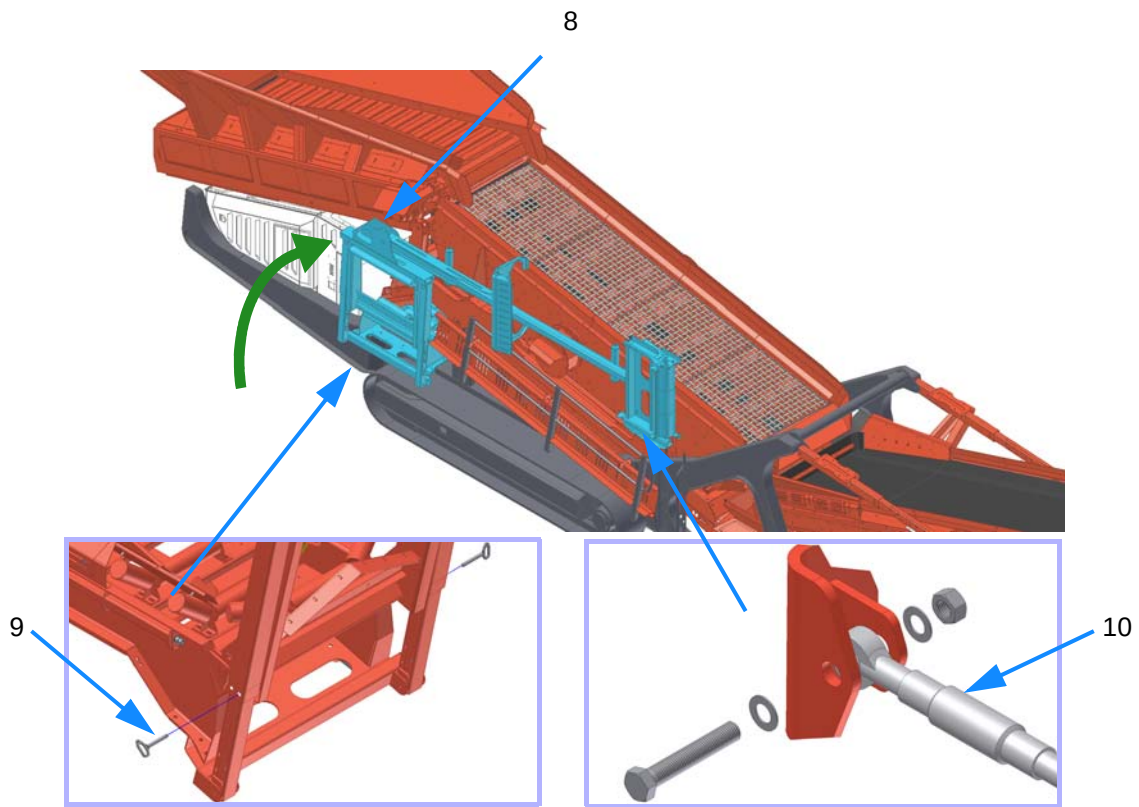
6. The R.H. side conveyor moved towards the machine.



7. Activate R.H. Side Conveyor Up/Down' lever to move the conveyor UP towards the side of the machine and into transport position.



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



8. The R.H. conveyor folded up for transport.
9. Move the supports up to the transport position and install the locating pins.
10. Install the R/H side conveyor link arms.

2.2.2 Close up the left hand side conveyor for transport



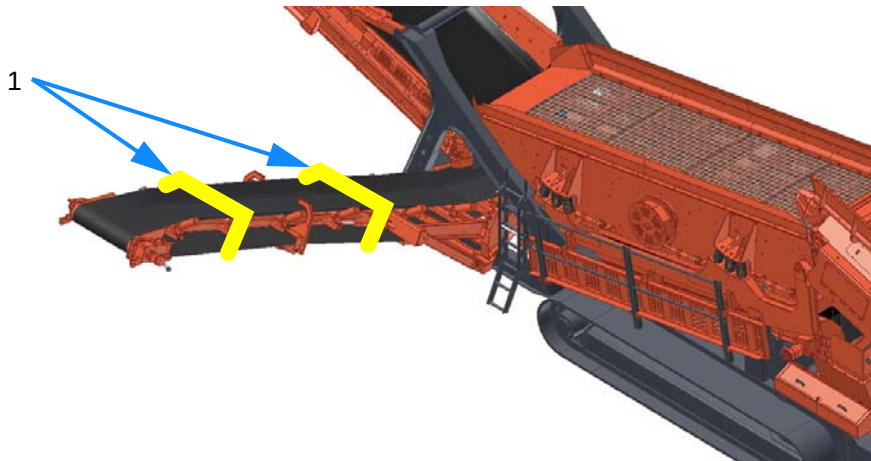
Make sure the machine is OFF, tagged and locked out before you do maintenance or work to the machine.



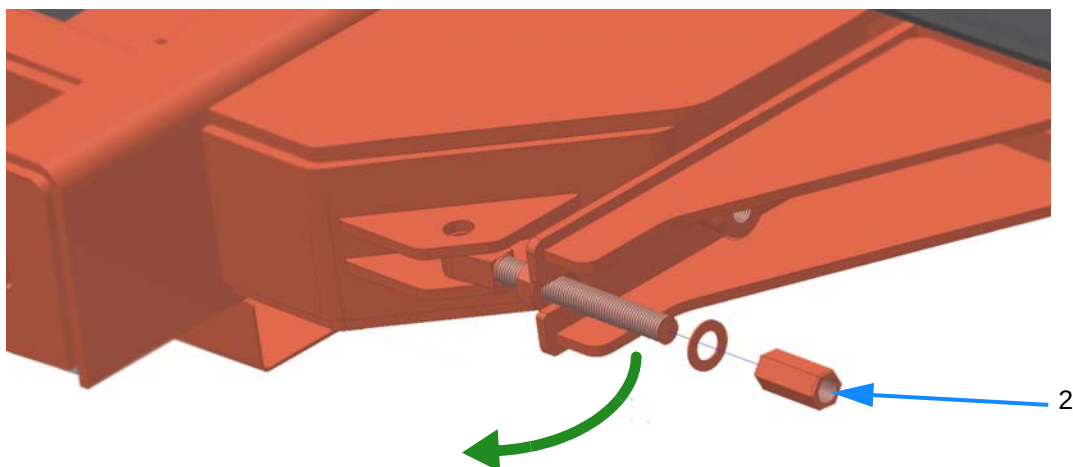
Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position which meets the local and national regulations.



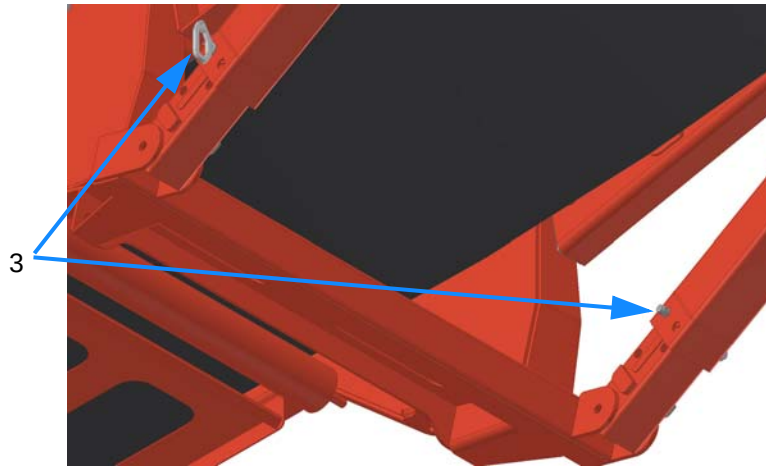
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



1. Install transport straps in the positions shown



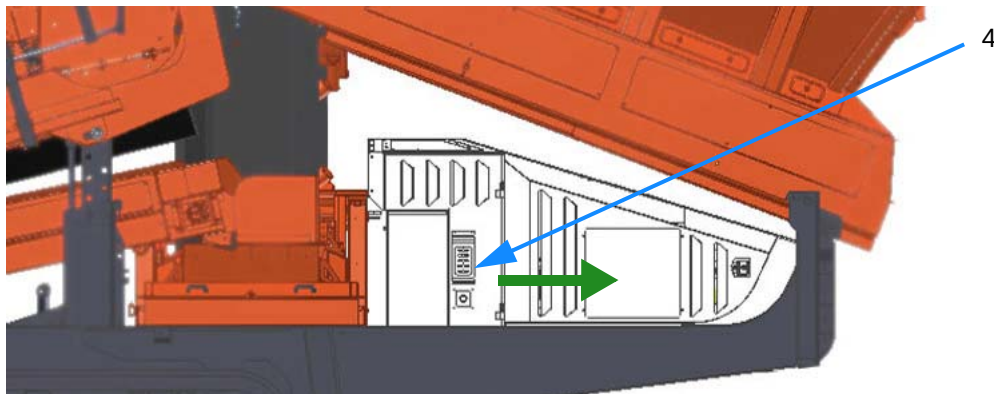
2. Loosen the bolt with the washers and move them out from the conveyor



3. Remove the locating pins from the supports



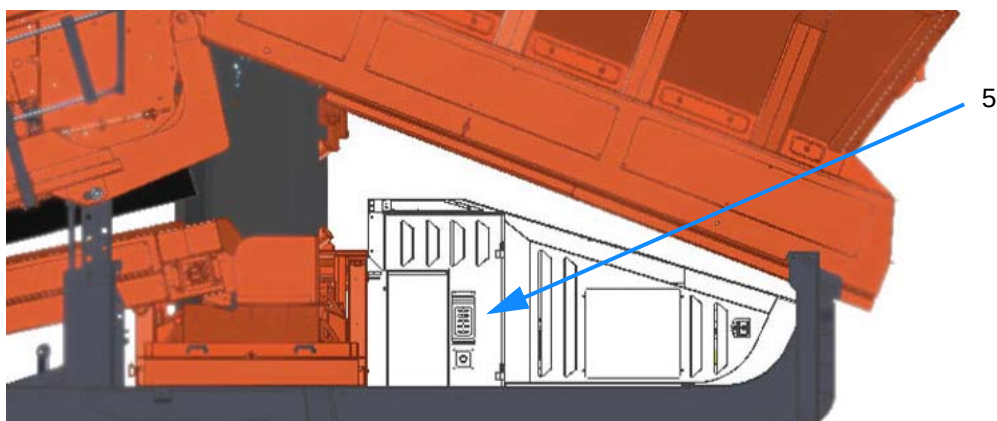
Make sure the area is clear of tools and persons. The conveyor will fold down and in covering a wide area, make sure that no one enters this area during the setup procedure, if necessary set up exclusion barriers.



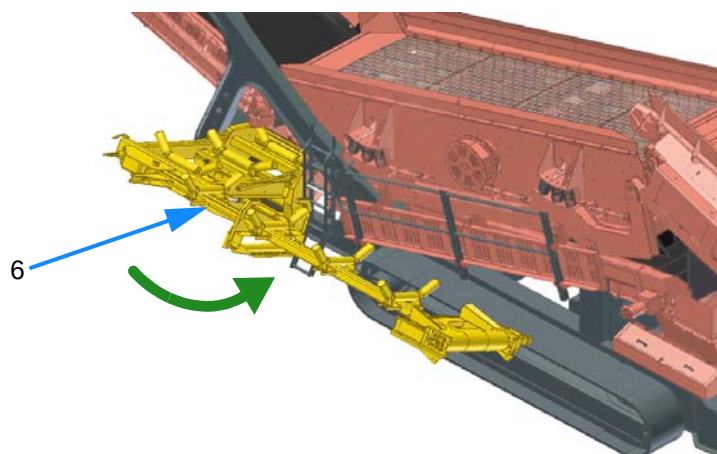
4. Set tracks lever off, to the right.

Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.

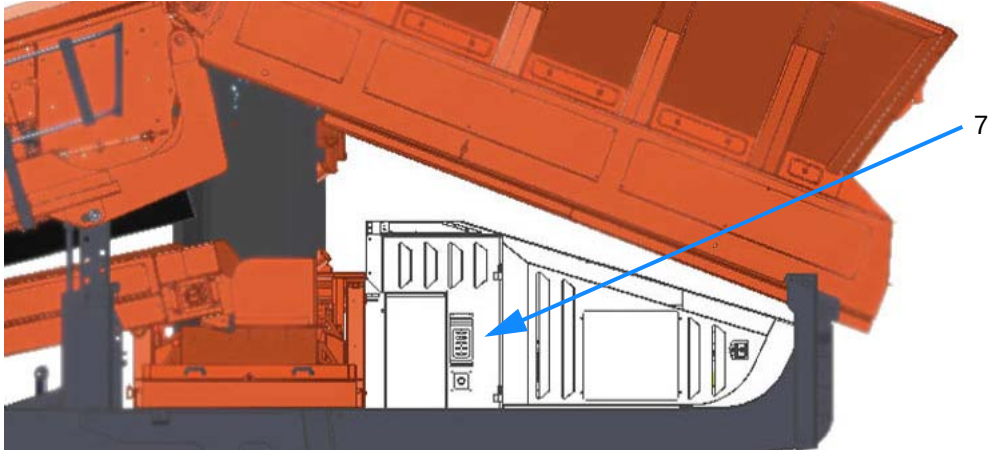
Start the machine, refer to 4.4 Engine starting Procedure



5. Activate 'L.H. Side Conveyor Fold' lever to move the conveyor towards the side of the machine.



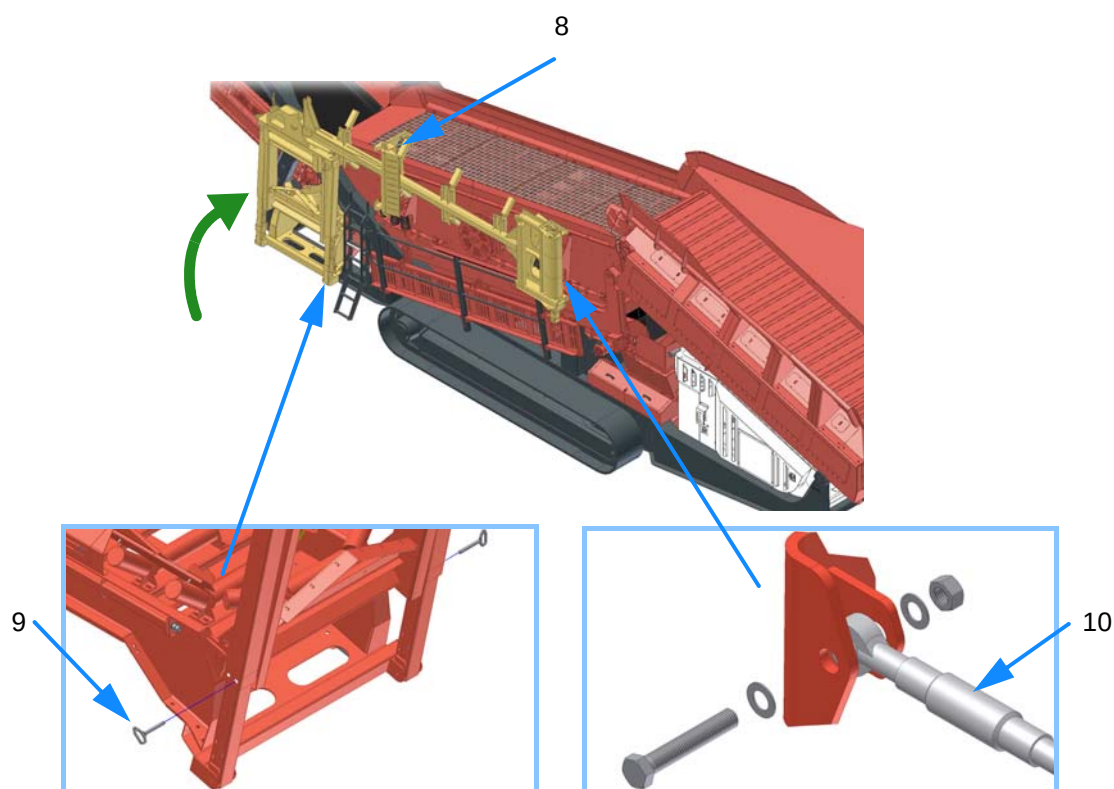
6. The L.H. side conveyor moved towards the machine



7. Activate 'L.H. Side Conveyor Up/Down' lever to move the conveyor UP towards the side of the machine and into transport position



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



- 8. The L.H. conveyor folded up for transport.
- 9. Move the supports up to the transport position and install the locating pins.
- 10. Install the L.H. side conveyor link arms.

2.2.3 Close Up the end Conveyor for Transport



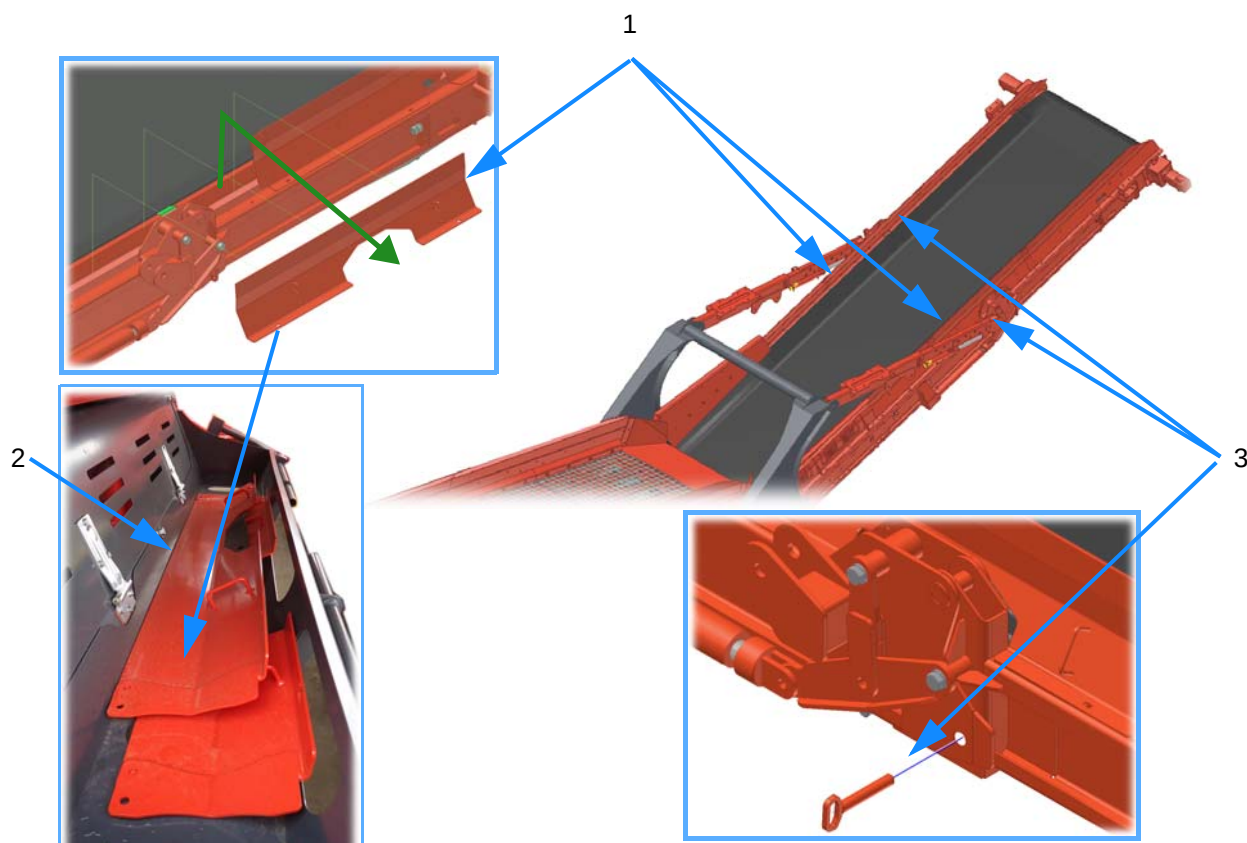
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



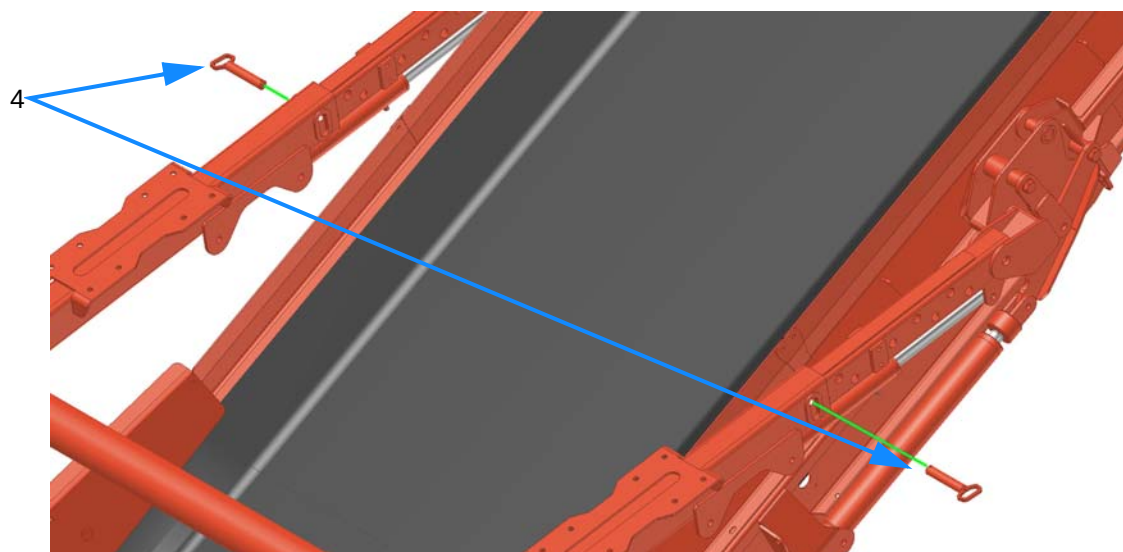
Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position which meets the local and national regulations.



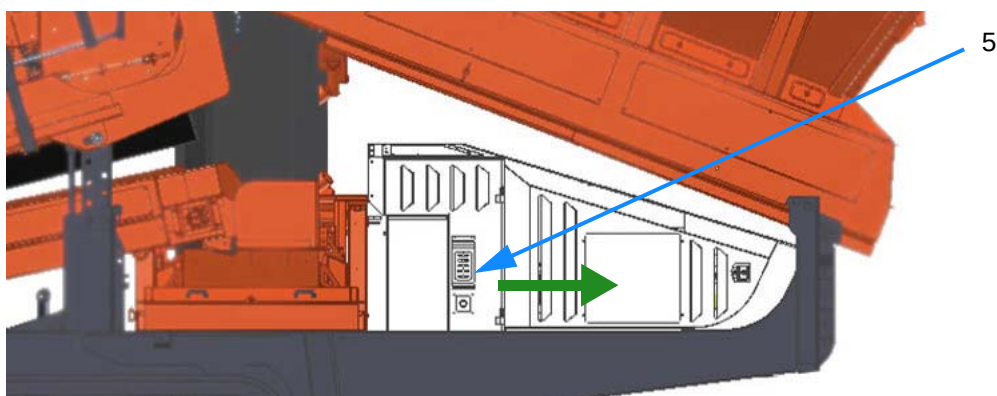
Make sure when safety guards are removed they are installed before operation begins, if not this may cause injury or death.



1. Remove the nuts, bolts and washers
2. Remove the guards and store for transport
3. Remove clips and the locking pins as shown



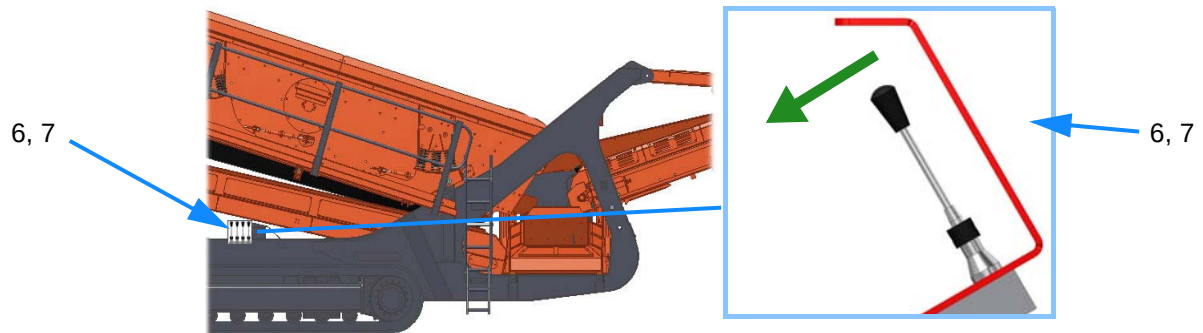
4. Remove the clips and locking pins as shown



5. Set tracks lever off, to the right.

Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.

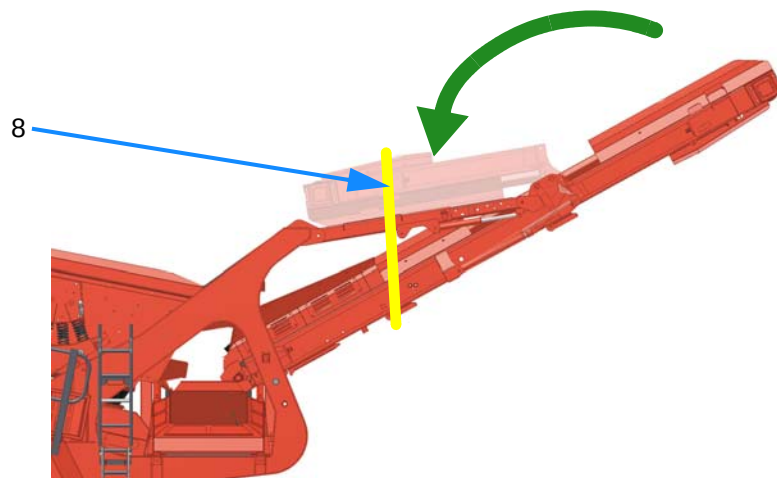
Start the machine, refer to 4.4 Engine starting Procedure.



6. Activate end conveyor down lever to set the conveyor to lowest height for transport
7. Activate the end conveyor fold lever to fold the end conveyor into the transport position



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



8. Install the transport straps to secure as shown and install the locking pins as necessary

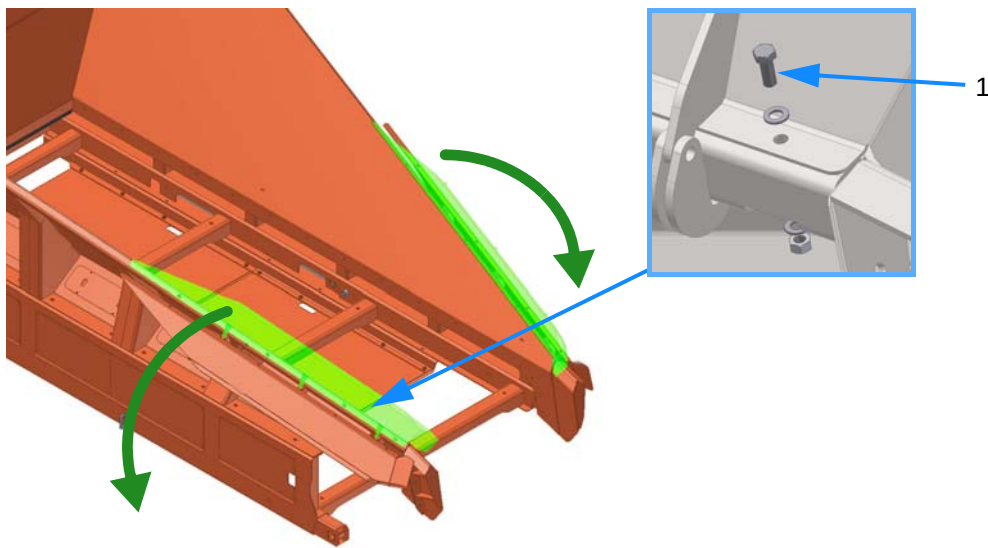
2.2.4 Close Up the Feeder for Transport



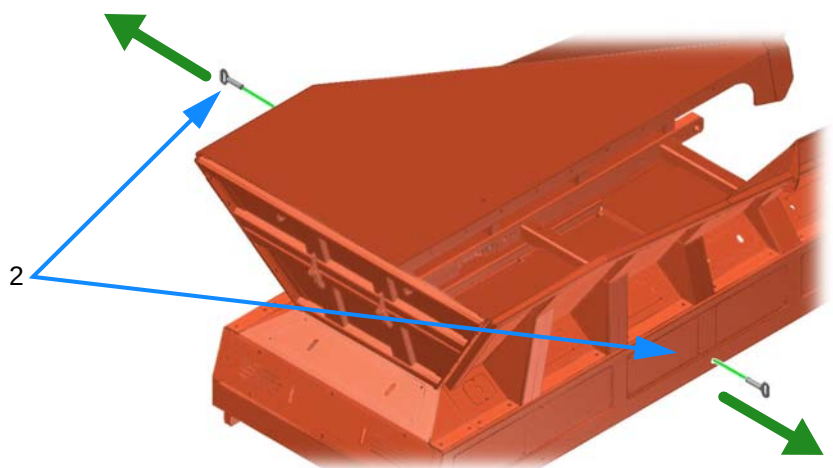
Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position which meets the local and national regulations.



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



1. Remove the nuts, washers and bolts then lower feeder extension plates

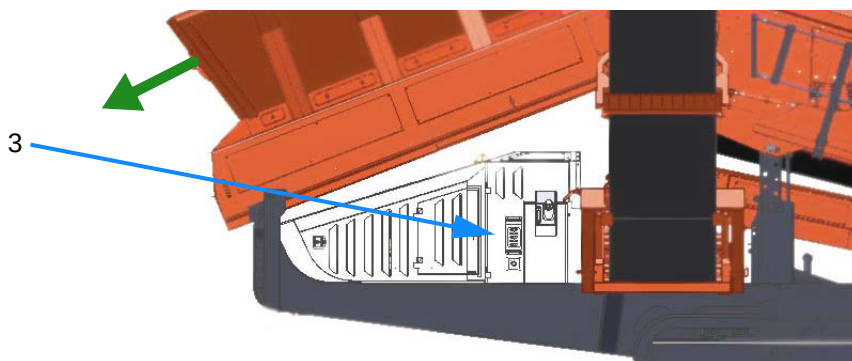


2. Remove the clips and locking pins

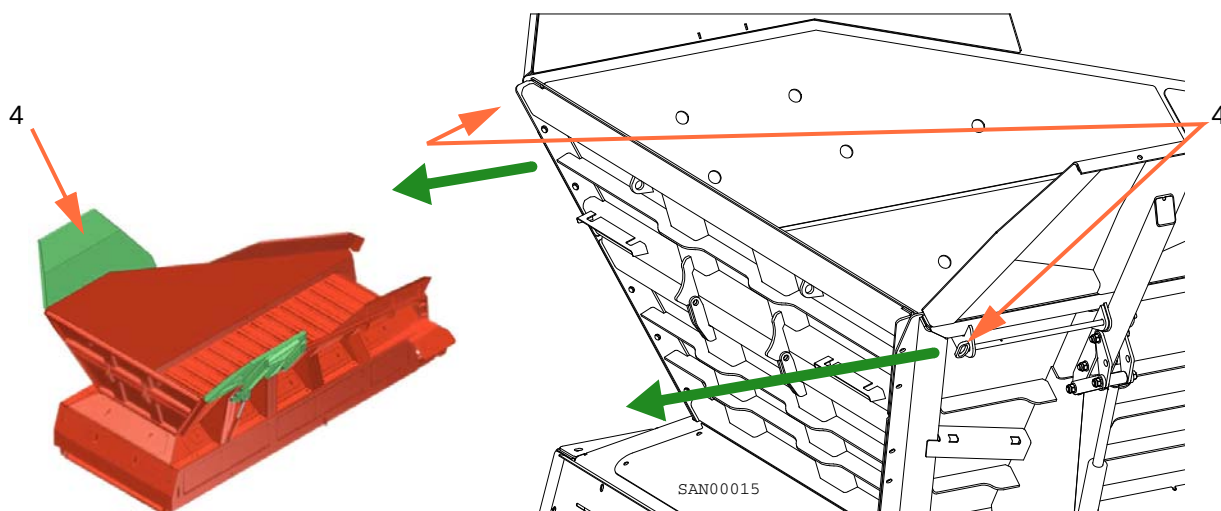
Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.

Start the machine, refer to 4.4 Engine starting Procedure.

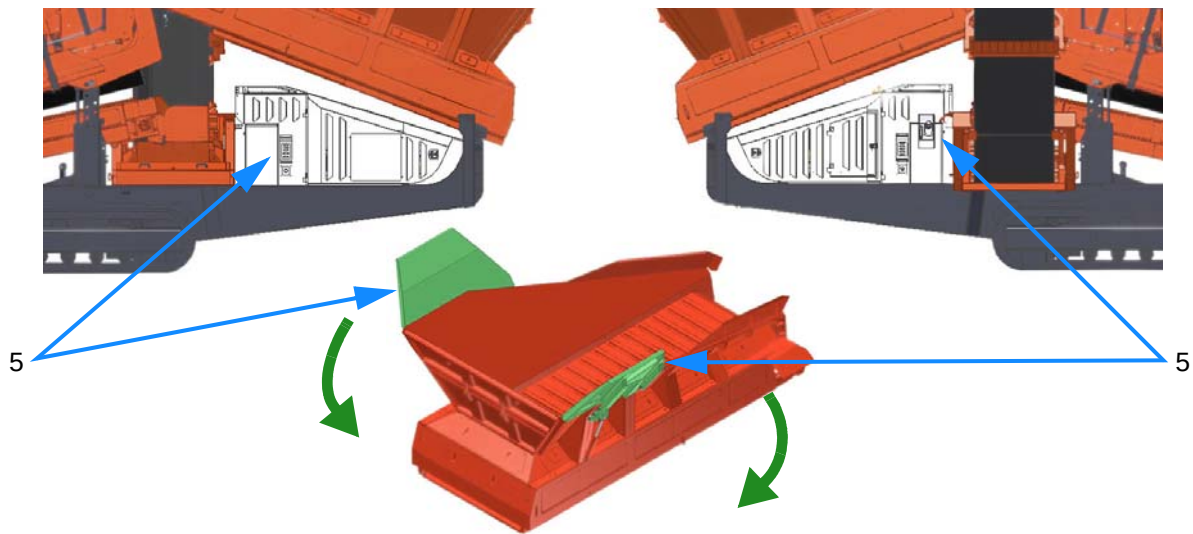
Turn the engine speed '  ' to position '2'  .



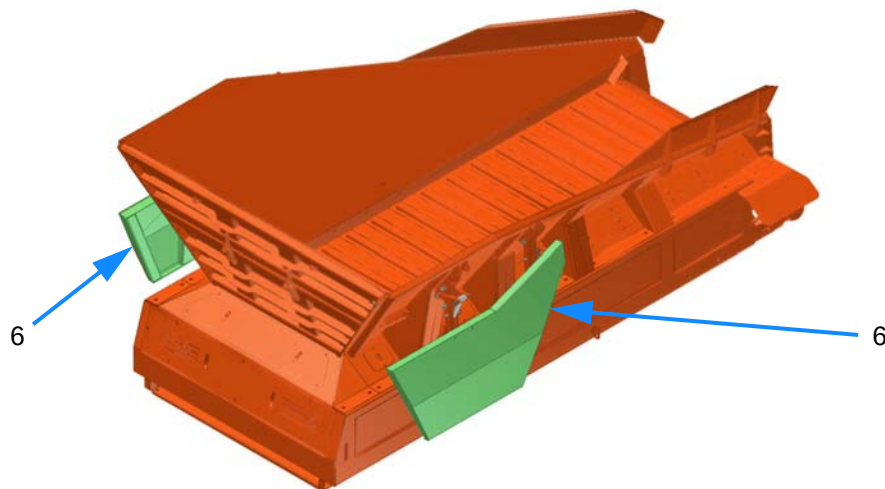
3. Activate the feeder out/in lever to lower the feeder to the transport position



4. If the optional feeder extension wings are fitted, remove both locking rods from rear



5. If optional feeder extension wings are fitted activate the levers on each side to lower the extensions into transport position



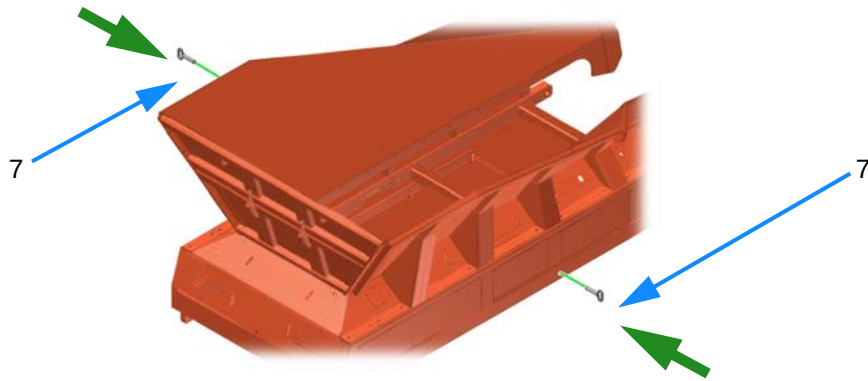
6. The feeder extension wings in transport position



Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position which meets the local and national regulations.



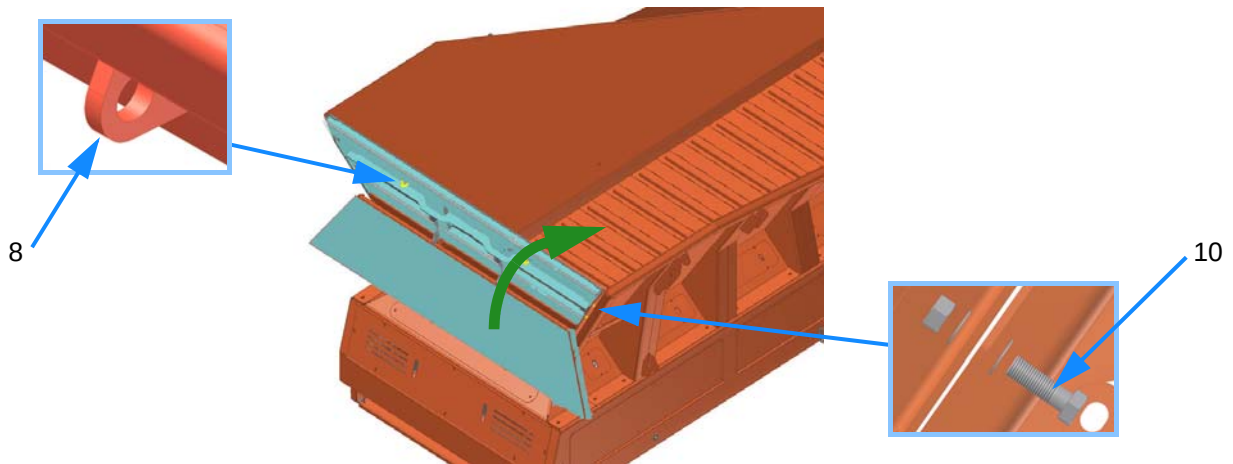
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



7. Install the locking pins both sides as shown



Make sure you DO NOT go in between the panel and the machine or under the panel as this may cause serious injury or death.



8. If the back panel is in the lowered position, attach a minimum of a 2 ton crane to the lifting points.

9. Lift the panel into position and hold it there with the crane attached.

10. Install the bolts, nuts and washers then remove the crane.

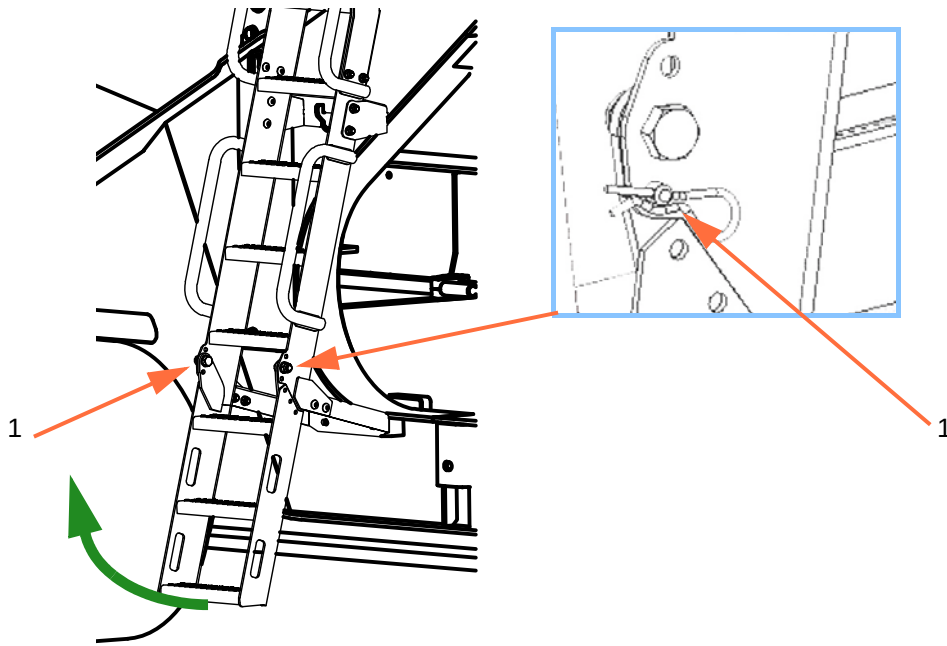
2.2.5 Close Up the Maintenance Platforms for Transport



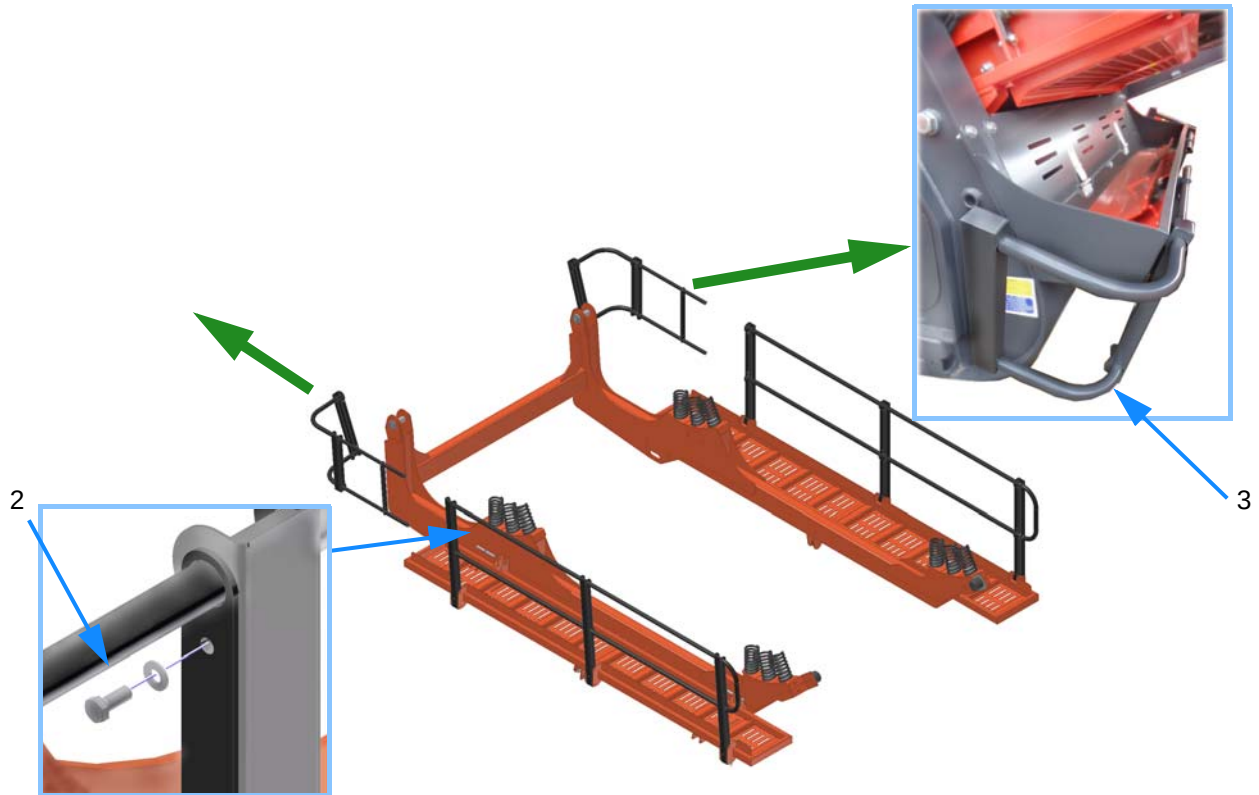
Make sure the machine is OFF, tagged and locked out before you do maintenance or work to the machine.



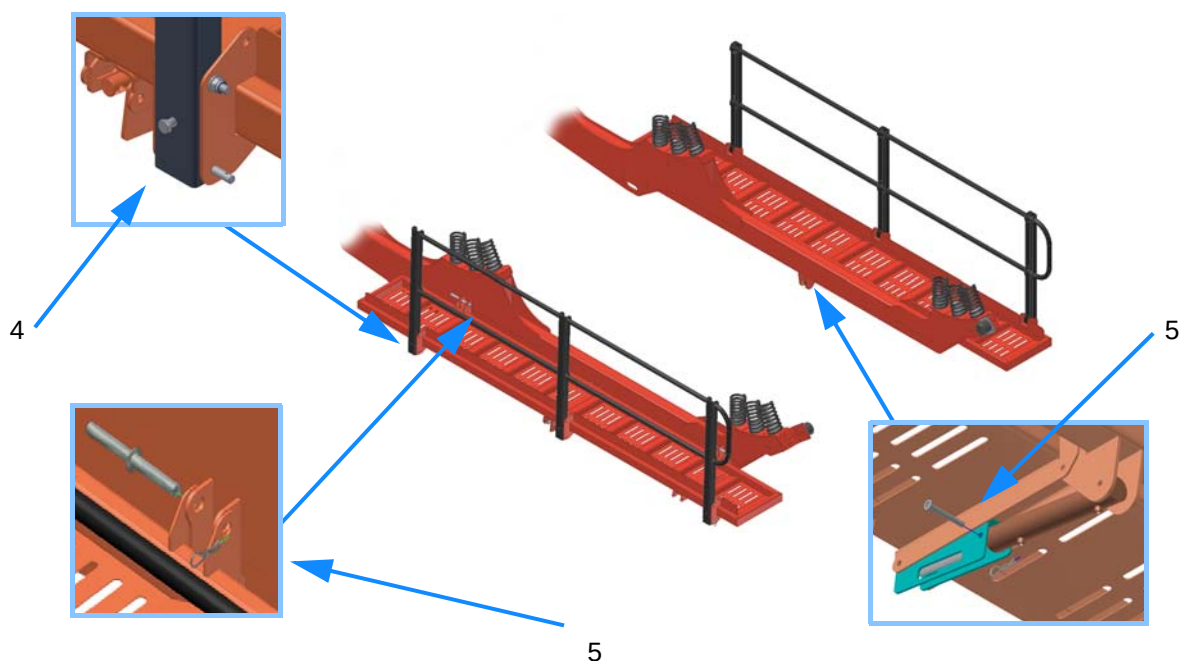
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



1. Fold up the ladders and install the locating pin with the clips on both sides



2. Loosen and remove the bolts with the washers
3. Remove handrail end sections and secure for transport

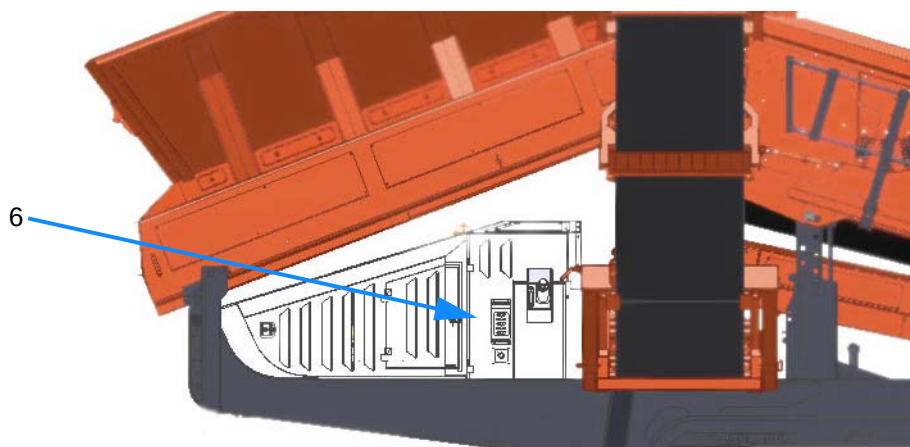


4. Loosen the support bracket bolts
5. Remove all the locating pins with the R-clips, as shown.

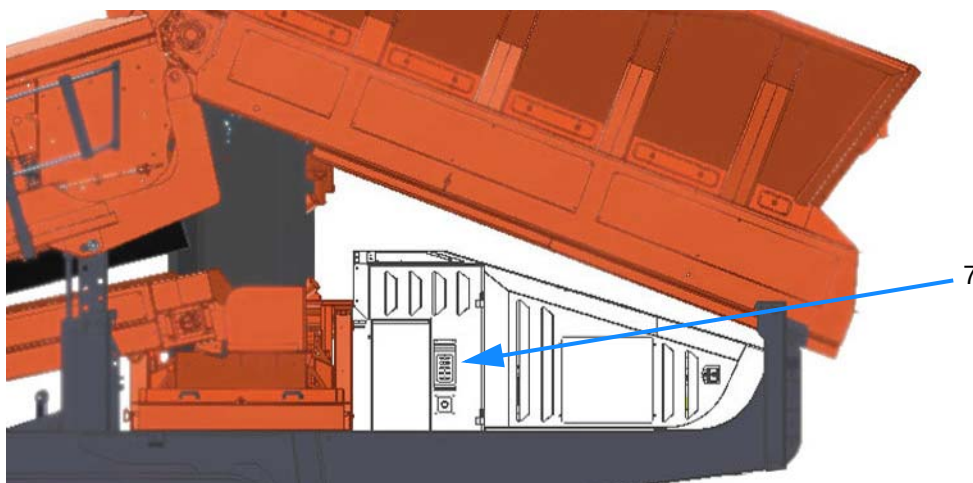
Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.

Start the machine, refer to 4.4 Engine starting Procedure

Turn the engine speed '  ' to position '2'.



6. Activate the lever to move the right hand maintenance walkway down for transport

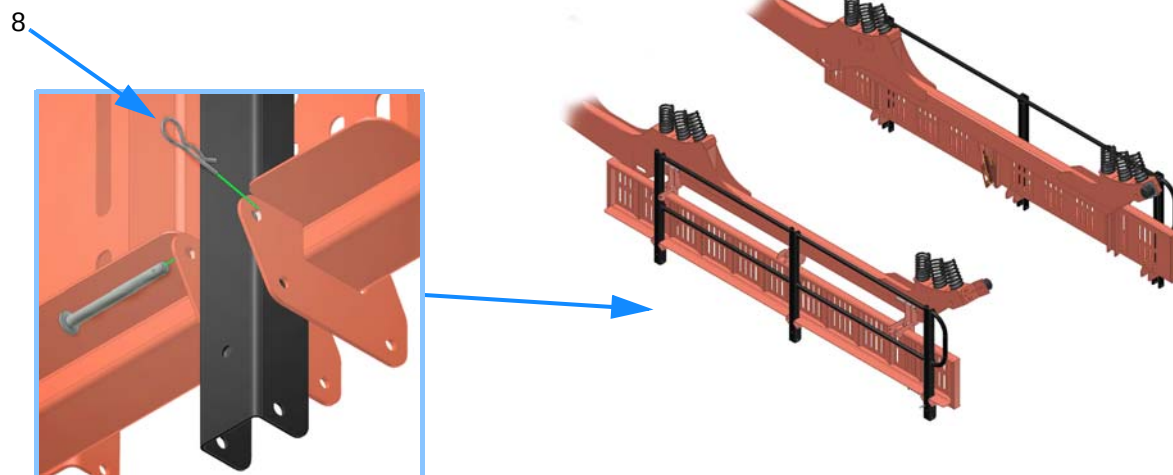


7. Activate the lever to move the left hand maintenance walkway down for transport

Raise the jacking legs fully, refer to 4.7.7 Jacking leg operation.



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



8. Fold up handrails and install all the locking pins with the clips



9. Place ladders in transport position and secure.

Inspect all around machine and secure all loose items with transport straps.

2.3 Moving the machine on or off transport vehicle

This machine must only be transported between sites on a suitable low loader trailer.

The machine must be moved using the tracks onto and off the low loader trailer using suitable ramps at the end of the trailer, refer to 4.6 Moving the machine on the tracks.

This equipment must never be moved on the tracks on gradients that are more than:



10 degrees left to right



20 degrees Front to Back.

Make sure that the loading/ unloading site is clear of non-essential personnel. Erect barriers around the area and post warning signs where site conditions warrant this, or perform necessary risk assessments.

Loading/ unloading must only be carried out on firm flat ground.

The operator must be fully trained in the operation of this equipment.

When moving using the tracks, the operator must be in a position to have an all round view of the operation. An observer should assist where this is not possible.

For the weight of the machine, refer to 1.3.5 Machine Serial Number Plate on the machine and section 2.6 Technical Specifications.

Before transporting on the road, the load dimensions must be checked to make sure that they are within the local and national legal transport limits, refer to 2.5 Transport dimensions.

2.4 Securing machine on transport vehicle

Lower the jacking legs sufficiently just to support the weight of the machine and spread the load, refer to 4.7.7 Jacking leg operation.



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.

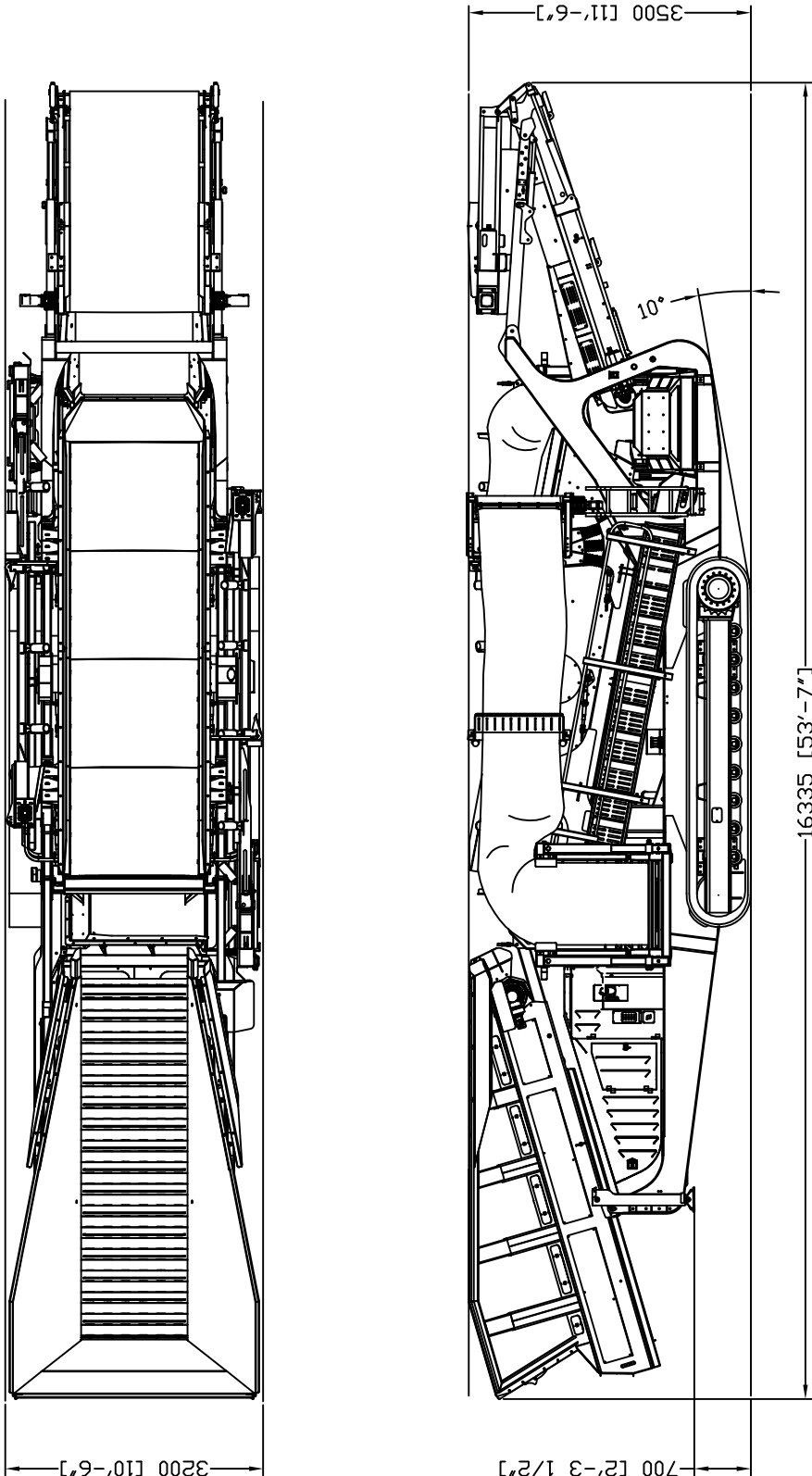
Lashing down the machine is the responsibility of the driver of the transport vehicle.



10. Use the four lashing brackets fitted on the chassis to secure the machine. DO NOT secure machine by the tracks,

When unloading the machine from the transport vehicle, the driver of the transport vehicle is responsible for removing the lashing down equipment.

2.5 Transport dimensions



2.6 Technical Specifications

2.6.1 Standard machine

Hopper

Capacity 8.5m³ (11.1yd³), Type One piece hardox construction.

Screen box

Screen Top Deck Measure 5480mm x 1750mm (18' x 6')

Screen Bottom Deck Measure 5000mm x 1750mm (16' 5" x 6')

Variable Screen Angles 11 to 17°

Feeder apron conveyor

Gearbox Ratio 15:1

Belt Speed (adjustable) 17m/min (56ft/min) maximum.

Oversize end conveyor

Width 1600mm (63in)

Discharge Angle (adjustable) 18 to 25°

Discharge Height (adjustable) 3500mm to 4150mm (11' 6" to 13' 7")

Drive Drum 289mm diameter (11.5")

Tail Drum diameter 273mm (10.5")

Mid size side conveyor

Width 900mm (36")

Discharge Angle (adjustable) 15 - 25°

Discharge Height (adjustable) 4000mm (13' 1")

Drive Drum diameter 232mm (9.1")

Tail Drum diameter 216mm (8.5")

Fines side conveyor

Width 1000mm (39")

Discharge Angle (adjustable) 20 to 25°

Discharge Height (adjustable) 4200mm (13.8')

Drive Drum diameter 232mm (9.1")

Tail Drum diameter 216mm (8.5")

Fines collector transfer conveyor

Width 1400mm (55")

Drive Drum diameter 289mm (11.4")

Tail Drum diameter 273mm (10.7")

Tracks

Length 3300mm (10' 10"))

Width 500mm (19.7")

3. PRODUCT OVERVIEW

3.1 Application & Limitations

This machine has been designed and constructed to separate a wide range of materials such as stone, top soil, coal, compost and recyclable waste. The machine must not be used for any other purpose without first contacting Sandvik Construction technical department.



The machine must not be operated until the instructions supplied with the machine are read and fully understood.

3.2 Common Applications

- Top Soil
- Crushed Stone
- Coal
- Sand and Gravel
- Compost
- Recycling/ Demolition
-

This list is by no means exhaustive. Please contact Sandvik Screens & Crushers Ltd. for further details of performance figures and advice on your material.

3.3 Description

This machine is a self contained tracked machine built to withstand the rigours and conditions of operating in quarries and within the construction industry. It utilises a diesel engine to provide the power to the hydraulic power pack and to generate electricity for the electrical systems of the machine.

The tracks, feeder, screen box, conveyors and all other working parts of the machine are all hydraulically driven.

Where possible all of the moving parts of this machine are guarded, where not, warnings are provided. The Safety Section of this manual must be read and fully understood. Any residual organisational, personal and environmental issues must be fully addressed as detailed in the safety section and necessary risk assessments as required.

This equipment has been manufactured and assessed to be in accordance with the Machinery Directive 2006/42/EC.

3.4 Operation Description

Section 2, 4 and 5 of this manual provides details of Transport, Commissioning and Operation. This must be read and fully understood before operating this equipment.

Material is loaded into the feeder where it is transferred towards the screen box.

The material passes over the screen box where smaller material will fall through the top deck screen and onto the bottom screen.

The larger material that has stayed on the top deck screen is fed to the end conveyor and is stockpiled at the end of the machine.

Material that has stayed on the bottom screen is fed to the mid size conveyor and is stockpiled at the side. (Applicable only if mid size conveyor is fitted).

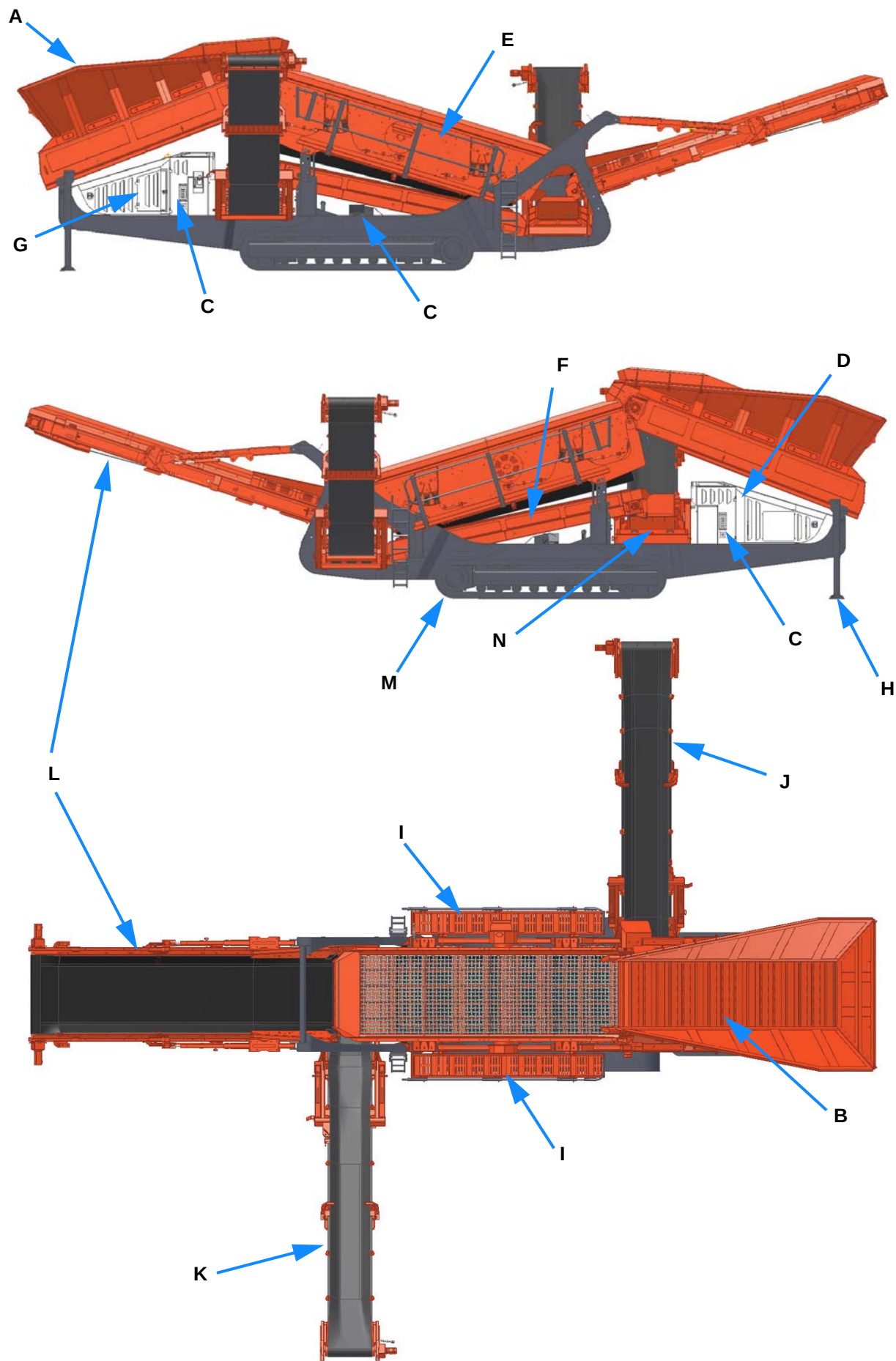
The smallest material that has fallen through to the bottom deck screen is transferred to the fines conveyors and is stockpiled at either side of the machine.

3.5 Key Features of the Track Mounted Screener

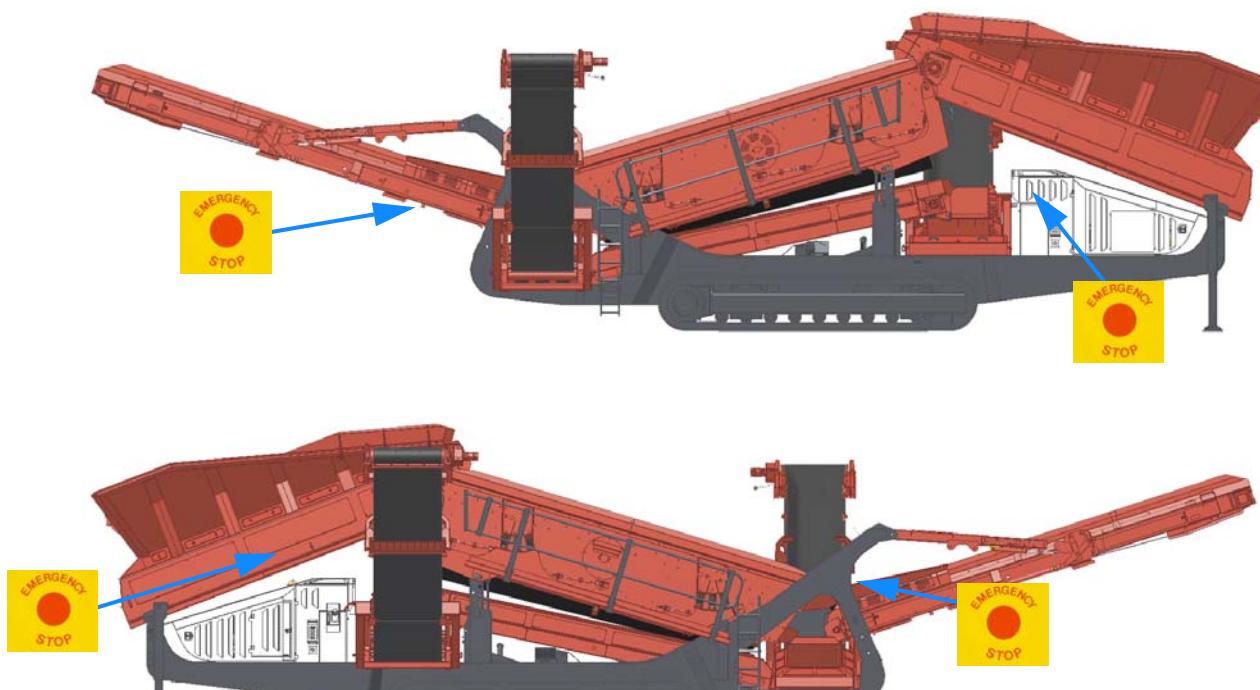
- Hydraulic power via Diesel engine.
- Feeder with automatic control to regulate the feed into the screen box. The hydraulic system automatically coordinates the flow of material from the feeder over the screen box to the conveyors.
- Fast set-up time on site.
- Low loading feeder.
- Heavy duty screen box with aggressive throw, also generous clearance between decks to maximise screening potential.
- Adjustable screening angle.
- Large stockpile capacity with all conveyors.
- Numerous screen box options, the top deck to quick changing mesh and on the bottom deck.
- Hydraulic speed adjustment system to regulate the product output.
- Maintenance walkways.
- Machine is self propelled by Remote Control or Umbilical Control Hand Set.

3.6 Machine Layout Indicating Main Components

- | | |
|-----------------------------|--------------------------------------|
| A. Hopper | B. Feeder apron conveyor |
| C. Hydraulic control levers | D. Power pack |
| E. Screen box | F. Fines collector transfer conveyor |
| G. Operation controls | H. Jacking legs |
| I. Maintenance platform | J. Fines conveyor |
| K. Mid size conveyor | L. End conveyor (oversize) |
| M. Tracks | N. Tool box |



3.7 Emergency Stop Positions



3.8 Machine options

- Hopper Hardox Liner Plates Back & Sides
- Hopper feeder Extension wings
- Central Auto Lube (conveyors/screen)
- Dust Suppression Including Canvas Covers
- Remote Diesel Pump
- Water Pump
- Arctic Package for -20°C (-4°F)
- Arctic Package for -30°C (-22°F)
- Tropical / High Ambient Package
- Screening Media
- Side Conveyor Feed Boot Hardox Lined
- Lighting Masts
- Punched Plate on Top Deck
- Bofar Steel Grizzly on Top Deck Punched Plate
- Heavy Duty Tines on Top Deck
- Cascade Fingers on Bottom Deck
- One Bofar Steel Grizzly and Top Deck Tines
- Intelligent Line Multi-Machine Combination

4. COMMISSIONING & SHUT DOWN

4.1 Pre-Commissioning Instructions



DO NOT START COMMISSIONING UNTIL YOU HAVE READ AND FULLY UNDERSTOOD THIS MANUAL.

4.2 Pre-Start Instructions

Follow the instructions listed below:



Make sure that the machine is OFF. Never do maintenance while the machine is ON.



STOP THE MACHINE, ISOLATE, REMOVE THE IGNITION KEY, AND TAG-OUT, BEFORE ALL MAINTENANCE IS STARTED ON THIS MACHINE.

1. Make sure that this manual is read and understood.
2. Do NOT attempt to start this machine until you are aware of ALL aspects of its operation.
3. Lockout and tag the machine, refer to 4.10 Lockout and Tag Procedure.
4. Remove any temporary sealing and transport straps.
5. Check that the machine is in good mechanical condition and that there is no component damage or loss.
6. Make sure that all bolts and fixings are tight and that all guards are in place with all safety devices operating correctly.



NEVER start this machine without guards and safety devices operating correctly.

7. Make sure that the feeder, screen box and conveyors are all free of material.
8. Remove all tools and equipment from the operational area.
9. Make sure all persons are away from the machine, drives, tracks and auxiliary equipment.
10. Make sure that the checks and pre-start procedures outlined in the engine manufacturer's instruction manual are complied with.
11. Check all fluid levels.
12. Make sure that all the locating pins are in the correct positions.
13. Make sure all operating levers are in an off position.
14. Make sure that the conveyor belts, skirting rubbers and scrapers are in good condition and working properly.
15. Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.

4.3 Main Control Devices

4.3.1 Radio remote Control



**Instructions on the back to program the remote



Start Feeder



Stop Feeder



Engine Kill



Sound Alarm whilst held

4.3.2 Control Box warnings and information

- A. Power
- B. Battery charge
- C. Coolant temperature
- D. Oil pressure
- E. Water in fuel / Air filter blockage
- F. Coolant level
- G. Air inlet temperature
- H. Error / Fault
- I. Feeder
- J. Radio signal
- K. Remote stop operated
- L. Emergency stop operated



A



B



C



D



E



F



G



H



I



J



K



L

The machine is equipped with safety shutdown control panel. With this type of system, switches set to factory preset limits, operate such that if during operation, either the oil pressure or engine temperature reaches its preset limit, the system will experience a safety shutdown and turn the engine off. An error code is displayed on the screen, refer to 6.9 Machine Fault Codes.

If a safety shutdown occurs, the condition causing the engine to shut down must be corrected before any attempt is made to restart it.

4.3.3 Machine hydraulic controls



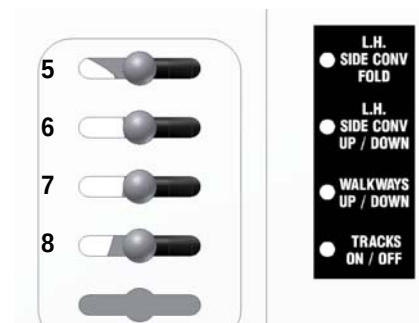
Hydraulic fluid under pressure can cause serious injury.

Standard controls layout

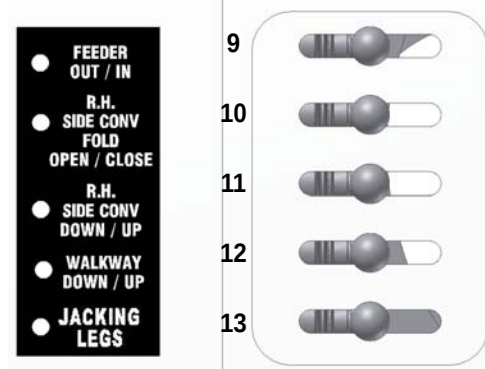
1. Screen box up / down
2. Mesh change up / down
3. End conveyor up / down
4. End conveyor fold open / close



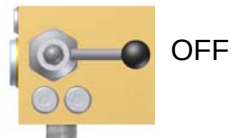
5. Left hand side conveyor fold
6. Left hand side conveyor up / down
7. Maintenance walkway up / down
8. Tracks on / off



- 9. Feeder out / in
- 10. Right hand side conveyor fold open / close
- 11. Right hand side conveyor down / up
- 12. Maintenance walkway down / up
- 13. Jacking legs



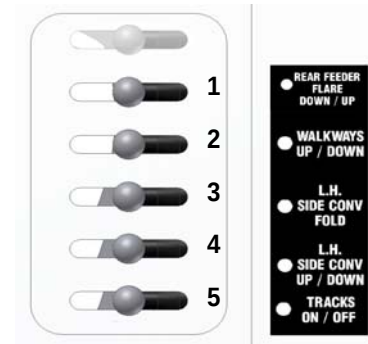
- 14. End, oversize conveyor
- 15. Fines side and collector conveyors
- 16. Mid grade side conveyor
- 17. Screen box



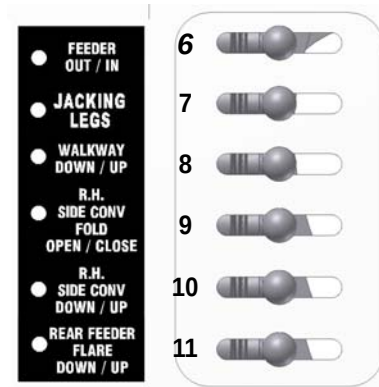
The control levers may change as options are included or excluded always check the machine and the decals for the correct lever.

Optional controls layout

1. Rear feeder flair (extension wing) down / up
2. Maintenance walkways up / down
3. Left hand side conveyor fold
4. Left hand side conveyor up / down
5. Tracks on / off



6. Feeder out / in
7. Jacking legs
8. Maintenance walkways down / up
9. Right hand side conveyor fold open / close
10. Right hand side conveyor down / up
11. Rear feeder flair (extension wing) down / up



4.4 Engine starting Procedure



WARNING

Make sure that there are NO persons on the machine before it is started. Also make sure there are NO persons doing maintenance on the machine. This may cause injury or death to persons on the machine IF started



Make sure all manual hydraulic valves are set to the OFF or NEUTRAL position, refer to 4.3.3 Machine hydraulic controls.

Make sure the scheduled maintenance checks are done refer to 6. Routine maintenance.

Set all conveyor and screen valves are OFF, refer to 4.9 Shut Down the Machine.

1. Make sure that the engine speed  is on position '1' .
2. Insert the ignition the key into the ignition switch and turn it clockwise to the first position indicated '⚡'.
3. Press the alarm button  on the remote or  on the control panel for 7 seconds.
4. Turn the key clockwise to the next position '00' until lights stop flashing.

5. Turn the key clockwise to the position '  until the engine starts, then release the key.
6. If starting from cold, allow the engine to warm up for 5 minutes before operating the machine.

Note! *The engine speeds are preset at the factory and must not be tampered with.*

Note! *When the machine is switched off wait a minimum of 60 seconds before the start sequence is run again - An error code may show if started before this time has expired.*

NOTICE

The machine **MUST** be set up on firm, level ground before being operated. Failure to comply with this or any other instructions in this manual may cause damage to the machine and may invalidate any warranty.

4.5 Stopping Machine in an Emergency



THE MACHINE CAN BE STOPPED IN AN EMERGENCY BY PRESSING ANY OF THE 4 EMERGENCY STOP BUTTONS LOCATED ON BOTH SIDES OF THE POWER PACK CANOPY AND AT THE FRONT OF THE CHASSIS.

MAKE SURE THAT ALL PERSONS IN THE VICINITY OF THE MACHINE ARE FULLY AWARE OF THE LOCATION OF THE EMERGENCY STOPS.

4.5.1 Emergency Stop Locations

Refer to 3.7 Emergency Stop Positions.

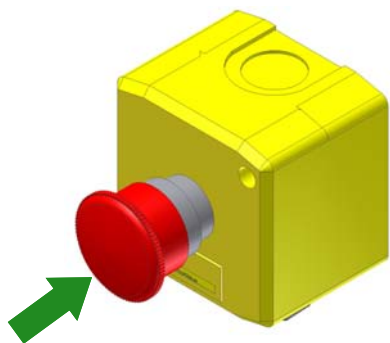
4.5.2 How to Operate an Emergency Stop

Note! *Emergency Stop Switches should only be used in an emergency situation. Do not use for normal stopping as frequent use will cause damage to hydraulic components. Emergency Stop Switches must be reset before the machine can be restarted.*



Make sure the reason for the emergency has been cleared before the emergency stop is reset.

To reset an emergency stop:



Push the emergency stop to STOP the machine.



To reset the emergency stop. Turn the emergency stop knob clockwise and release.

4.6 Moving the machine on the tracks

The operator must be fully trained in the operation of this equipment. When moving the operator must be in a position to have an all round view of the operation. An observer should assist where this is not possible.

Make sure the site is clear of non essential personnel. Erect barriers around the area and post warning signs where site conditions warrant this.

Moving must only be carried out on firm flat ground.

This equipment must never be moved on the tracks on gradients that are more than:



10 degrees left to right



20 degrees Front to Back

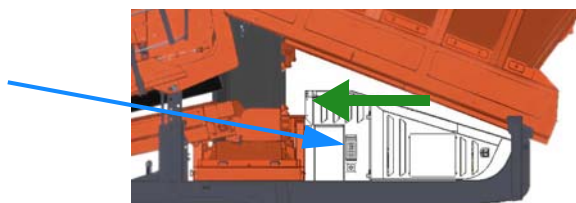
Start the Machine, refer to 4.4 Engine starting Procedure.

Set the engine speed '  ' to position '2'  for the machine to be moved to the desired position.

Turn ON the hydraulic flow to the tracks:

Left position = Tracks on

Right position = Track off



Use either the radio remote handset or the umbilical handset control to move the machine to the required position.



There is a slight possibility that the radio frequency on the remote control handset may operate other machinery. Please use the umbilical connected controller if this is a problem.

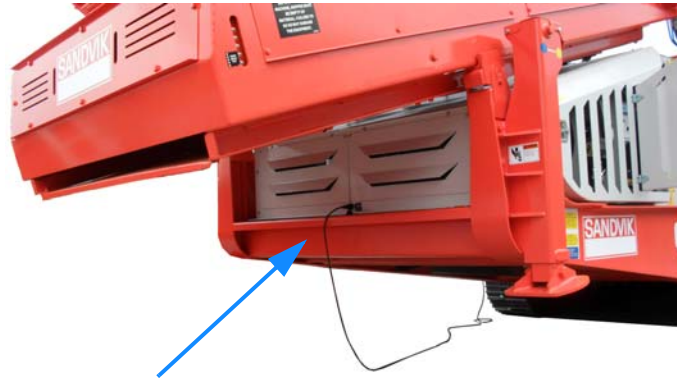
4. Commissioning & Shut Down

QE440

The Remote radio Handset must be fully recharged at regular intervals.



Remote control



Plug in umbilical cable at the rear



Umbilical control

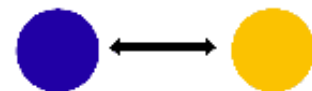


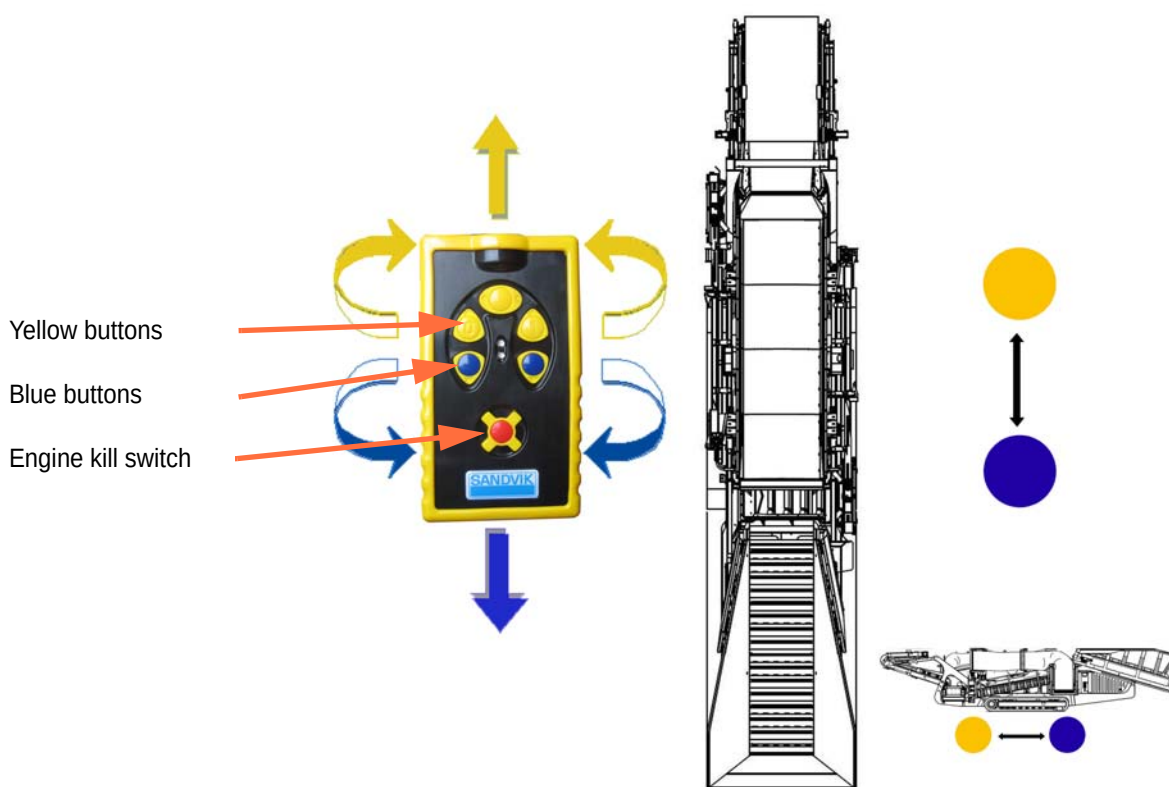
Under NO circumstances try to move the machine when ANY persons are standing on the machine or in the danger zones. No persons are allowed on the machine or in the danger zone while it is NOT locked and tagged out. This may cause injury or death.

For safety reasons, it is essential to check all around machine for obstacles or personnel which may be endangered by moving the machine.

When moving machine, Make sure that it is only moved over firm ground suitable for carrying the weight of the machine. Prior to operating the machine, it is **ESSENTIAL** that both tracks are in contact with firm level ground to avoid excessive vibration or rocking of the machine. **DO NOT MOVE THE MACHINE ACROSS EXCESSIVELY SLOPING GROUND.**

When operating the track control, the yellow buttons are for forward movement and the blue ones for reverse. These correspond to coloured direction indicators on the machine.



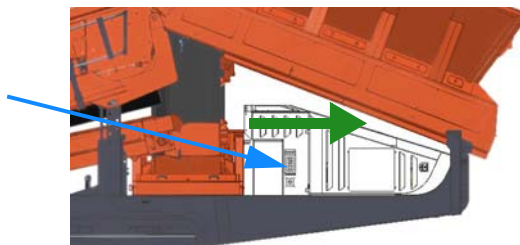


When the machine is moved to the required operating position, turn the machine OFF refer to 4.9 Shut Down the Machine.

Turn OFF the hydraulic flow to the tracks:

Left position = Tracks on

Right position = Track off



The machine must always be on flat, solid ground when operating in its normal screening mode.

4.7 Preparing the machine for screening operation

1. Set up the right hand side conveyor, refer to 4.7.1 Set Up the R.H. Side conveyor).
2. Set up the left hand side conveyor, refer to 4.7.2 Set Up the L.H. Side Conveyor.
3. Set up the end conveyor, refer to 4.7.3 Set Up the end Conveyor.
4. Unfold and set up the maintains platforms, refer to 4.7.5 Set up the maintenance walkways.
5. Set the up the screen box, refer to 4.7.6 Set Up the Screen Box Height.
6. Set up the feeder, refer to 4.7.4 Set up the feeder.
7. Set up the stabilising legs, refer to 4.7.7 Jacking leg operation.
8. If necessary set up the machine configuration, refer to 4.8.2 Set Up the 2-way Configuration or 4.8.3 Set Up the 3-way Configuration.

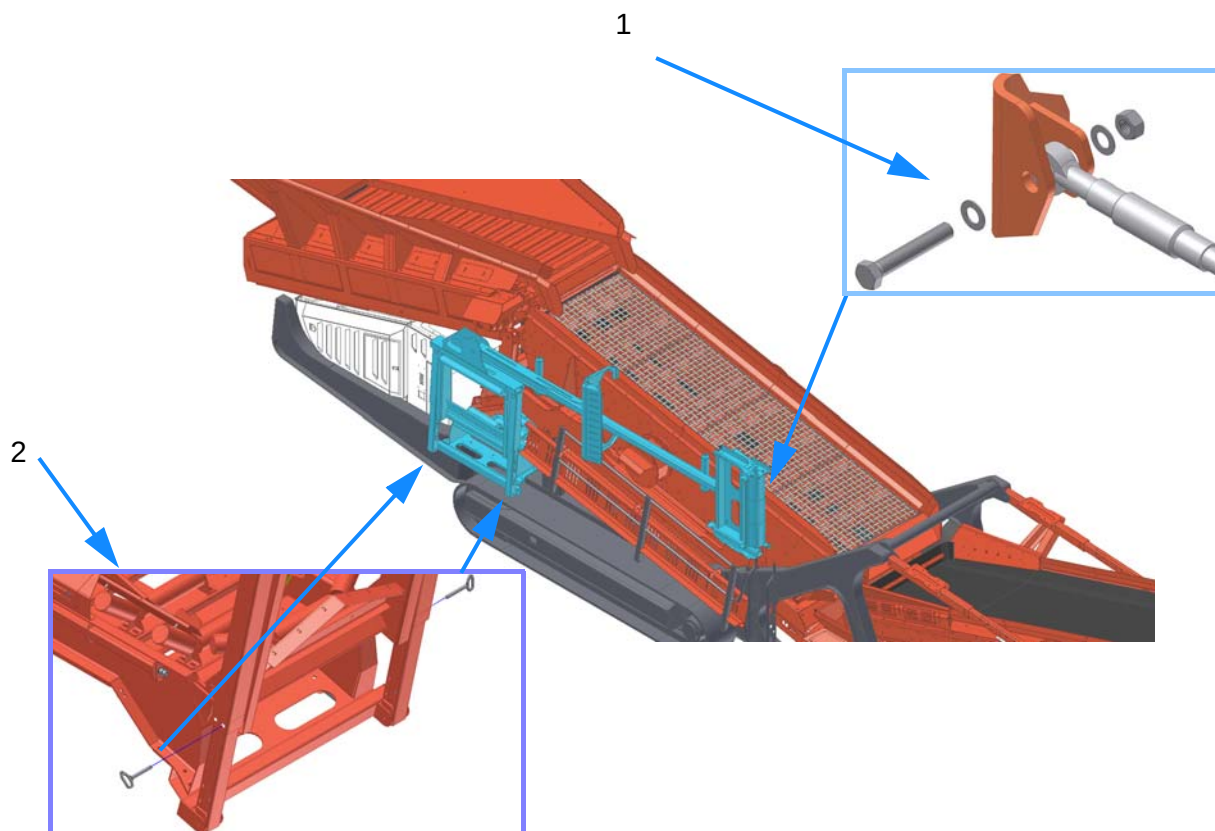
4.7.1 Set Up the R.H. Side conveyor



Make sure the machine is OFF, tagged and locked out before you do maintenance or work to the machine.



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



1: Remove the link arm and all other transport equipment

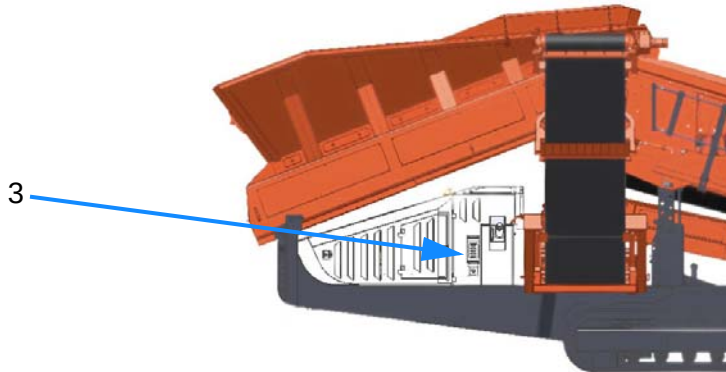
2: Remove the locking pins and move the supports down



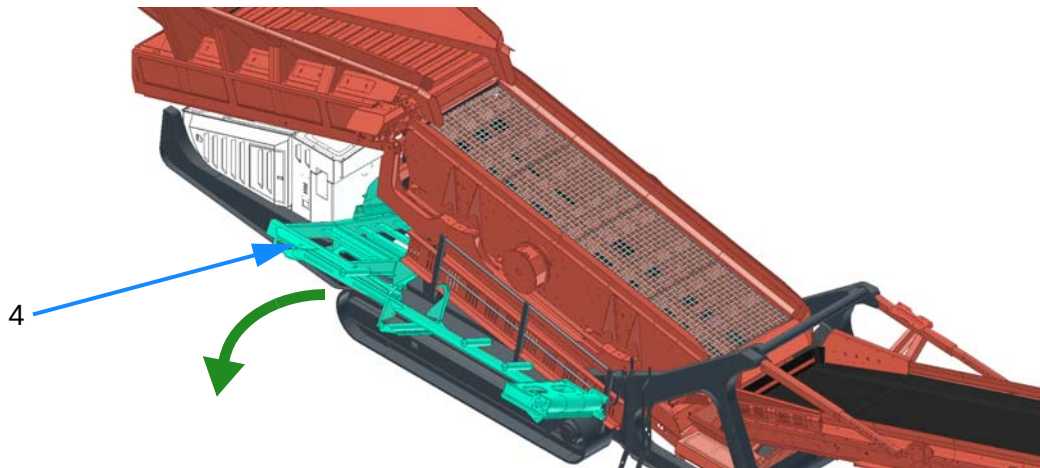
Make sure the area is clear of tools and persons. The conveyor will fold down and out covering a wide area, make sure that no one enters this area during the setup procedure, if necessary set up exclusion barriers.

Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.

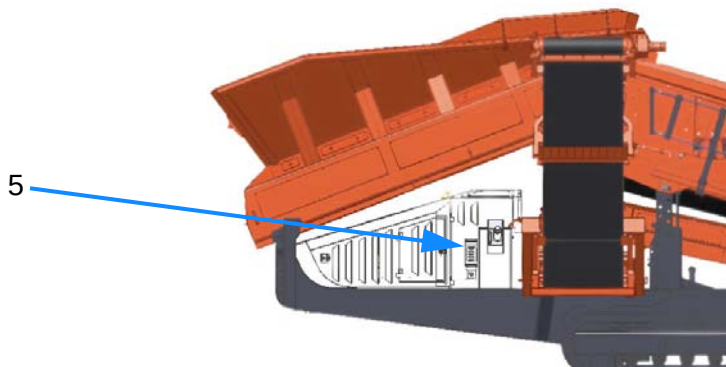
Start the machine, refer to 4.4 Engine starting Procedure.



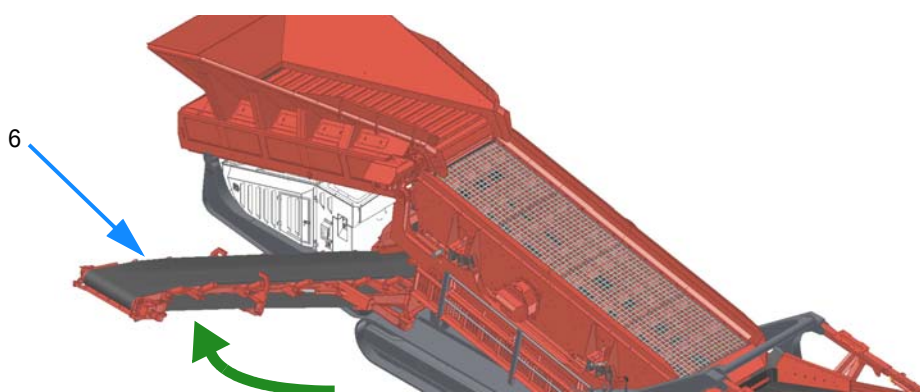
3: Activate R.H. Side Conveyor Up/Down' lever to move the conveyor away from the side of the machine.



4: The R.H. side conveyor moved down



5: Activate 'R.H. Side Conveyor Fold' lever, and un-fold the conveyor



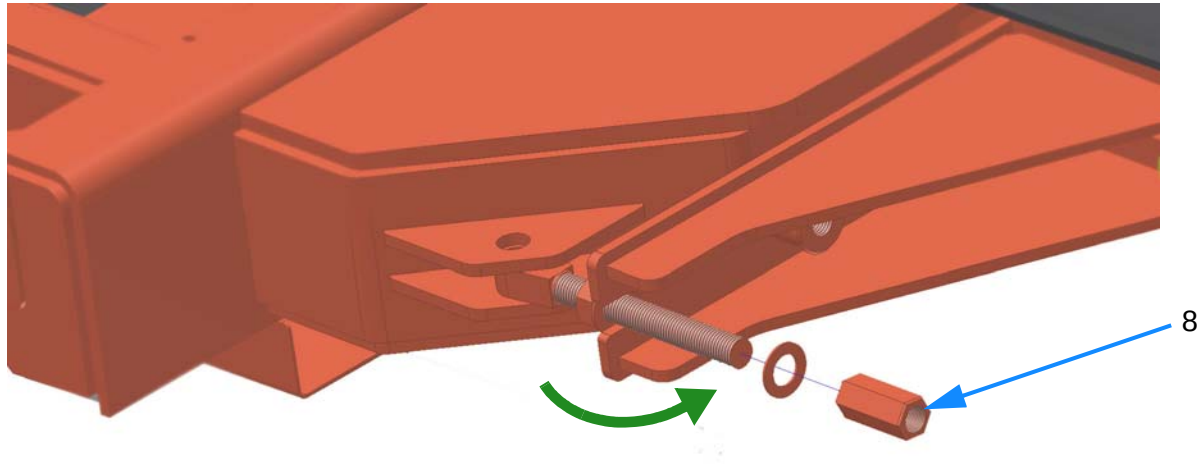
6: The R.H. side conveyor unfolded into working position



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



7: Move the supports to the correct position and install the locking pins. Three positions are available.



8: Rotate swing bolts into the correct position, install nuts and washers and tighten the nuts

Un-tag the machine refer to 4.10.1 The Un-Tag Procedure.



NEVER TRY TO OPERATE THE SIDE CONVEYORS WHEN THEY ARE IN THE TRANSPORT POSITION, AS THIS WILL CAUSE DAMAGE TO THE CONVEYOR BELT.

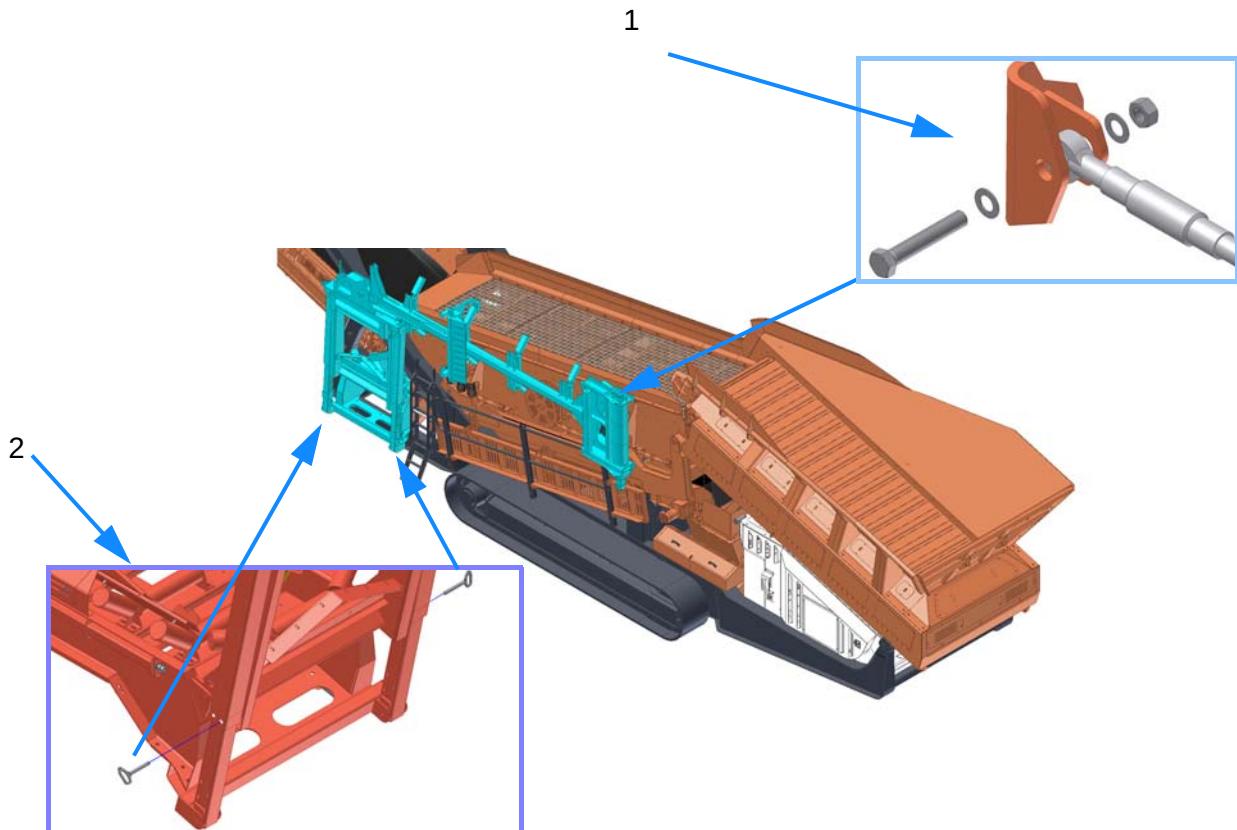
4.7.2 Set Up the L.H. Side Conveyor



Make sure the machine is OFF, tagged and locked out before you do maintenance or work to the machine.



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



1: Remove L.H. side conveyor link arm and all other transport equipment

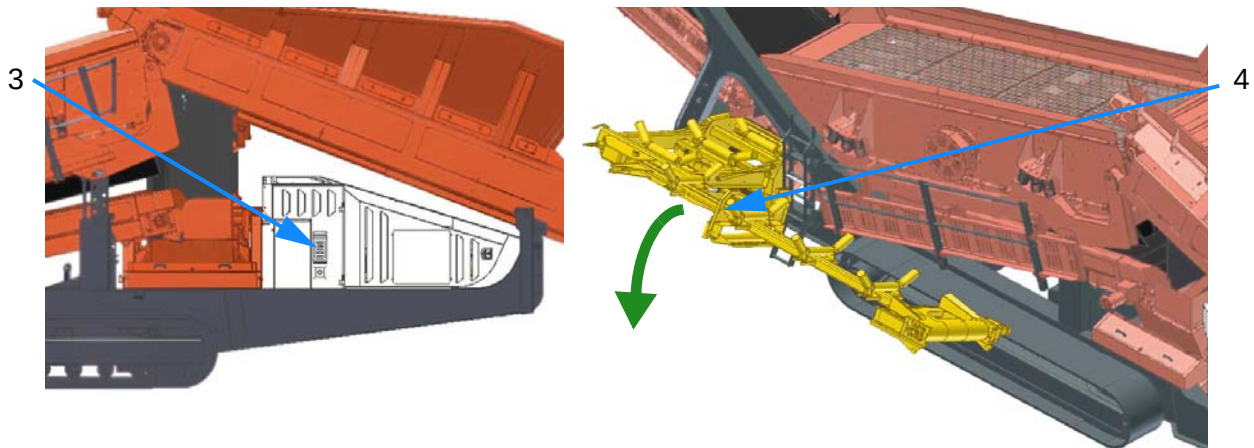
2: Remove the locating pins and move the supports down



Make sure the area is clear of tools and persons. The conveyor will fold down and out covering a wide area, make sure that no one enters this area during the setup procedure, if necessary set up exclusion barriers.

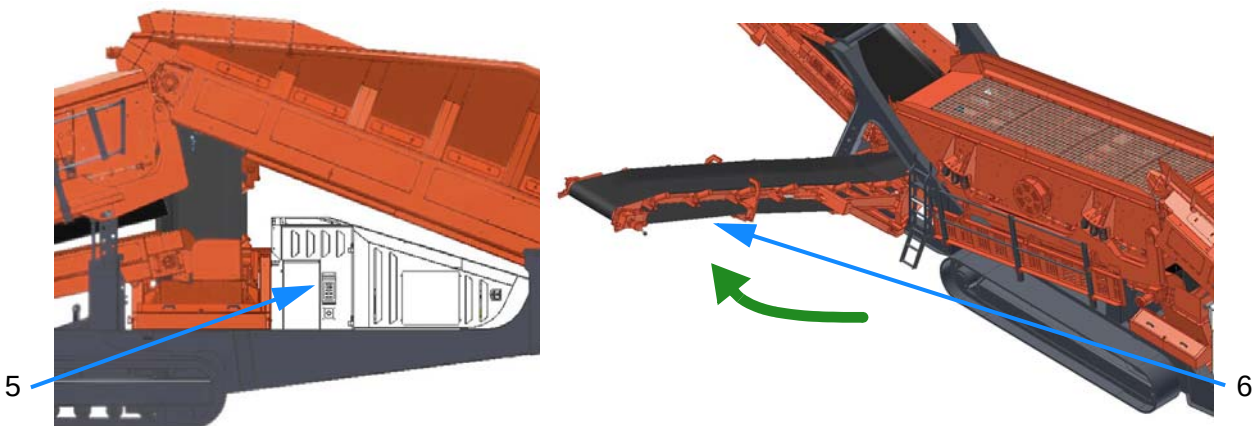
Un-tag the machine refer to 4.10.1 The Un-Tag Procedure.

Start the Machine refer to 4.4 Engine starting Procedure.



3: Activate L.H. Side Conveyor Up/Down' lever to lower conveyor away from side of machine

4: The L.H. side conveyor moved down



5: Activate L.H. Side Conveyor Fold' lever and unfold the conveyor

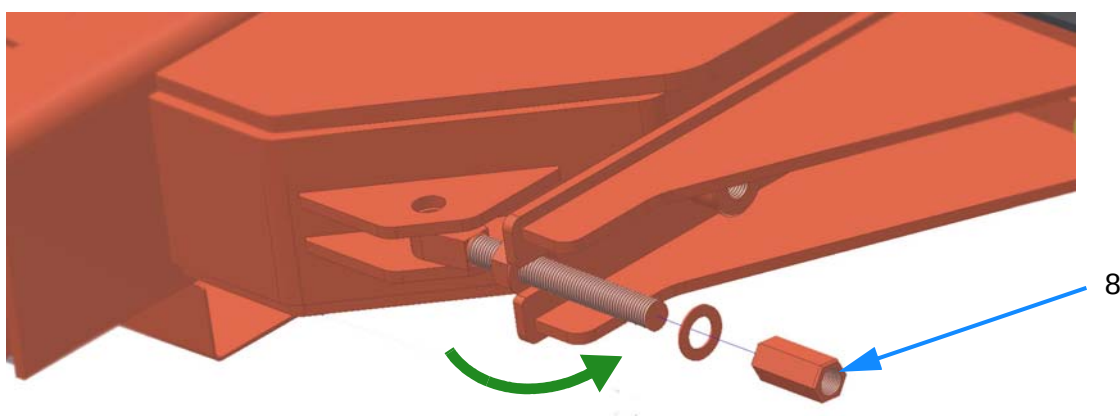
6: The L.H. side conveyor unfolded



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



7: Move the supports to the correct position and install the locking pins. Three positions are available



8: Rotate swing bolts into the correct position, install nuts and washers and tighten the nuts

Un-tag the machine refer to 4.10.1 The Un-Tag Procedure.

4.7.3 Set Up the end Conveyor

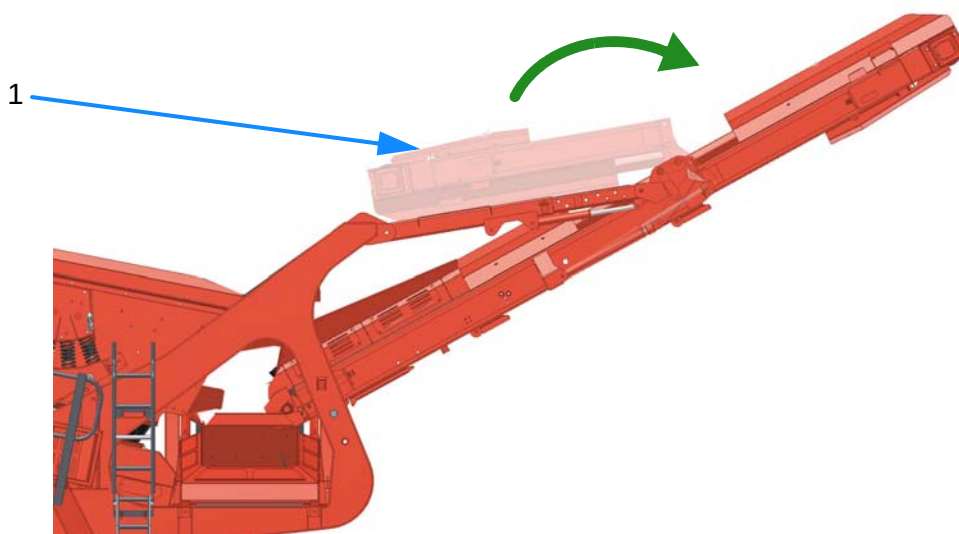


Make sure the machine is OFF, tagged and locked out before you do maintenance or work to the machine.



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.

Make sure that all transport equipment (straps etc.) is removed from the end conveyor.



1: Make sure the end conveyor is free to unfold. Set up the safety barriers if necessary

Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure and start the machine, refer to 4.4 Engine starting Procedure.



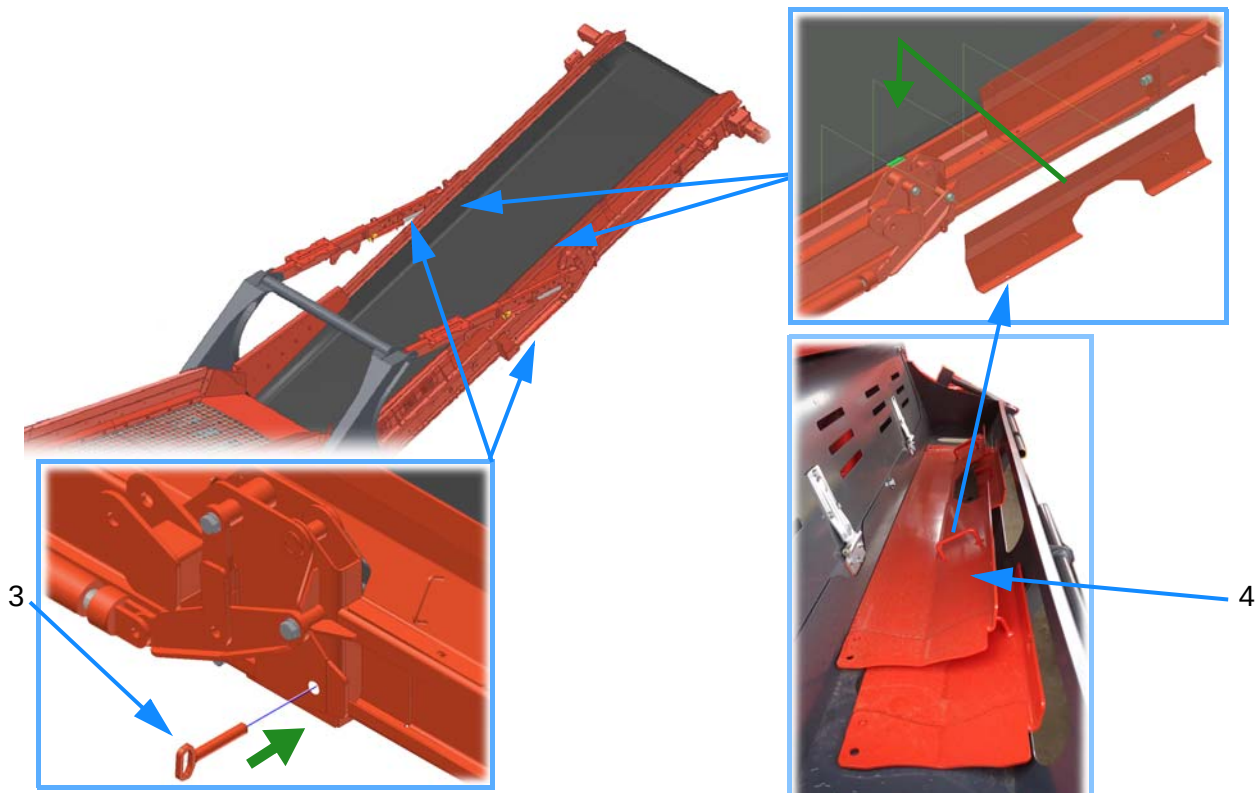
2: Activate the end conveyor fold lever to unfold the end conveyor into the working position



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.

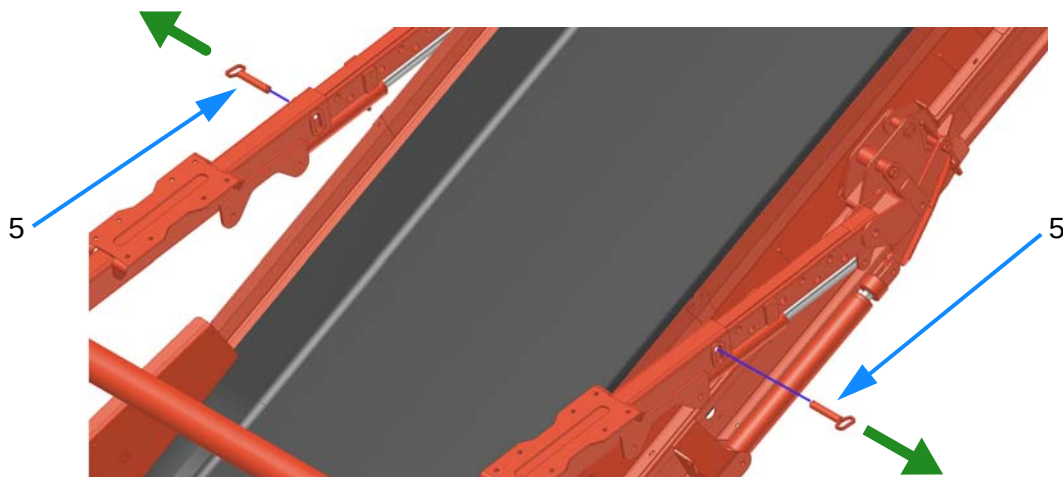


Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position, which conforms with the local and national regulations.



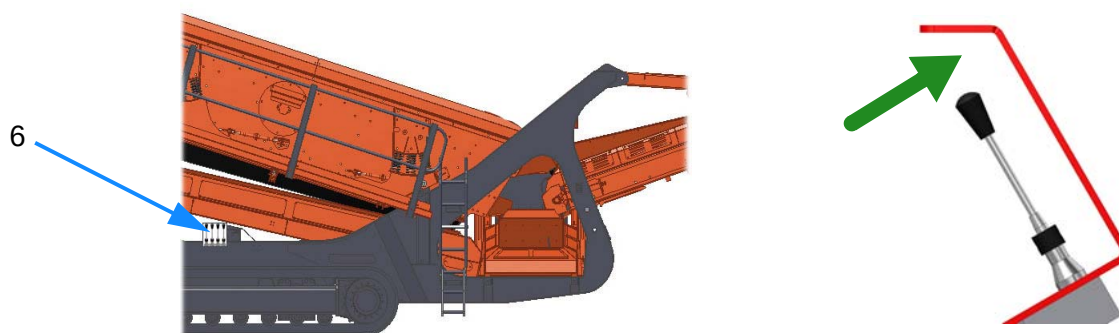
3: Install the conveyor locking pins in position and secure with clips

4: Install the side guards into correct position and install bolts, nuts and washers then tighten



5: Remove both the conveyor cylinder locking pins

Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure and start the machine, refer to 4.4 Engine starting Procedure..



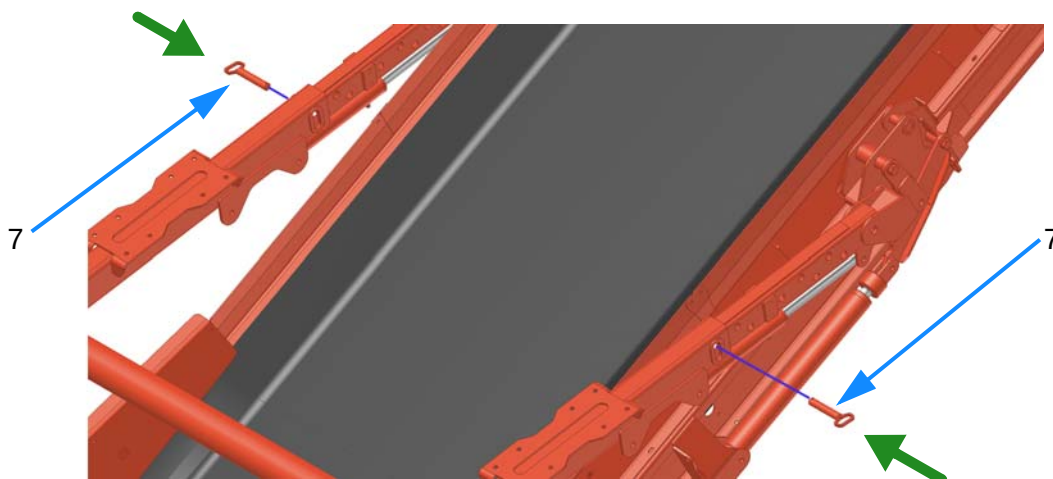
6: Activate the conveyor up/down lever to set the conveyor height required, there are four positions



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position, which conforms with the local and national regulations.



7: Install the cylinder conveyor locking pins and secure with clips

Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.

4.7.4 Set up the feeder



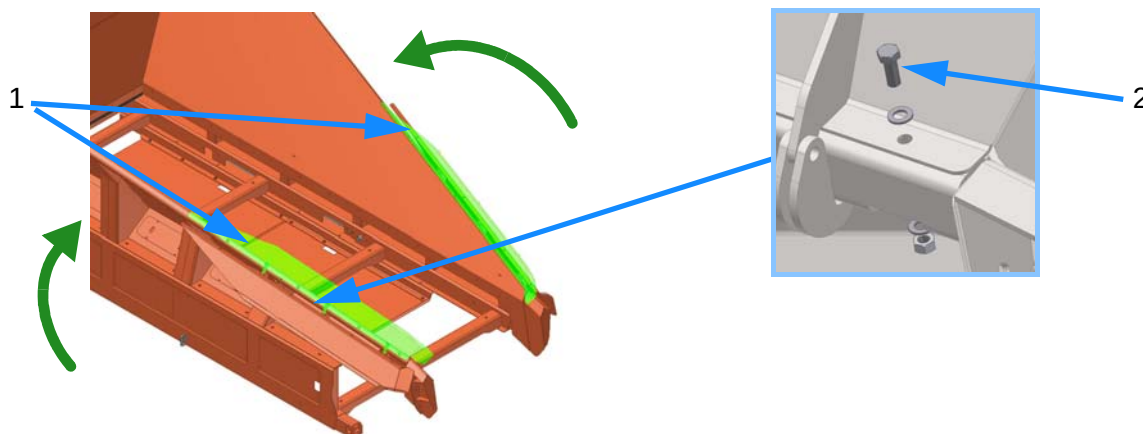
Make sure the machine is OFF, tagged and locked out before you do maintenance or work to the machine.



Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position, which conforms with the local and national regulations.

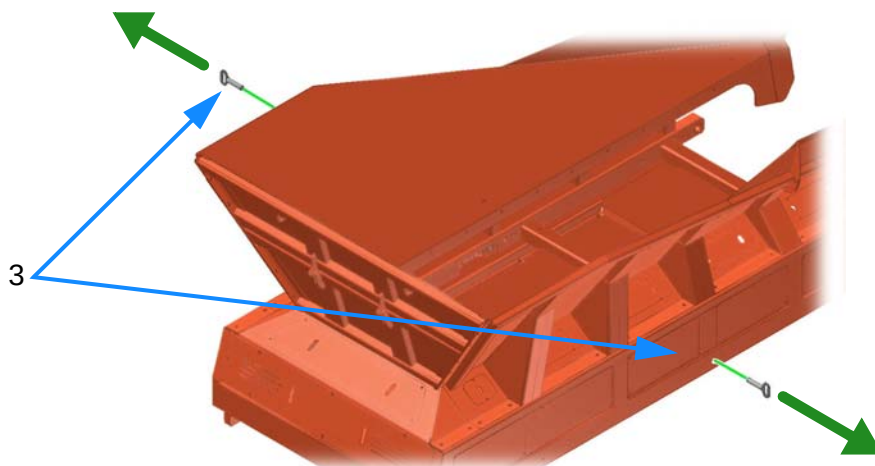


Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



1: Raise the feeder extension plates into the correct position

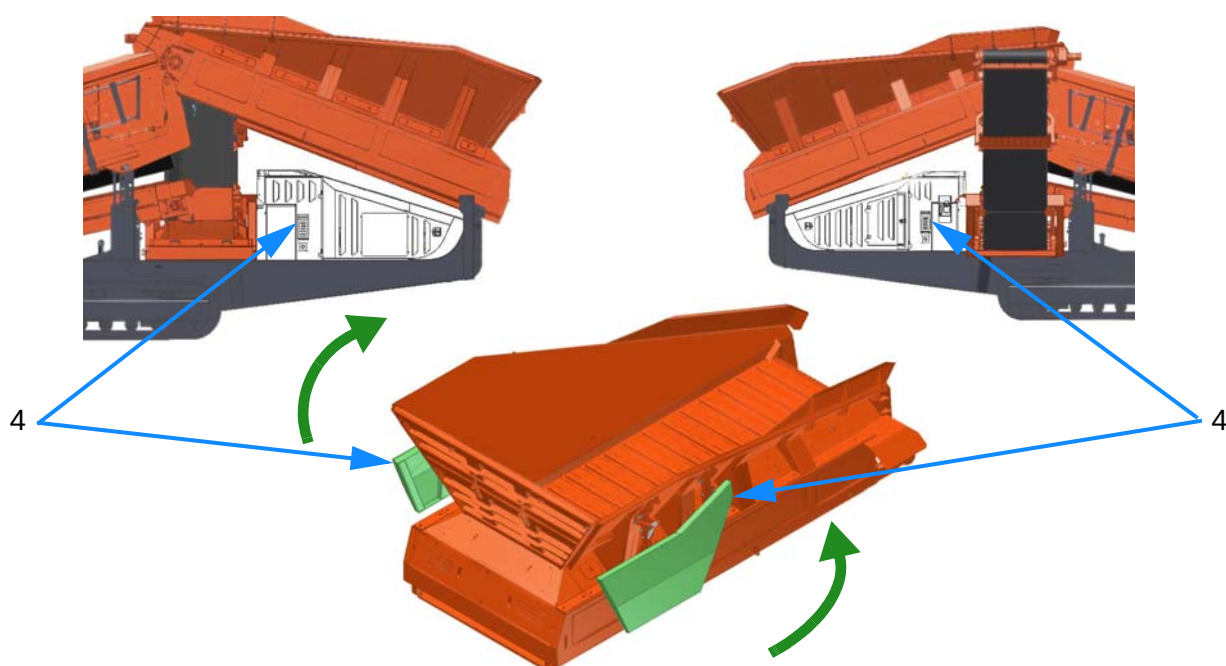
2: Install the bolts, nuts and washers then tighten



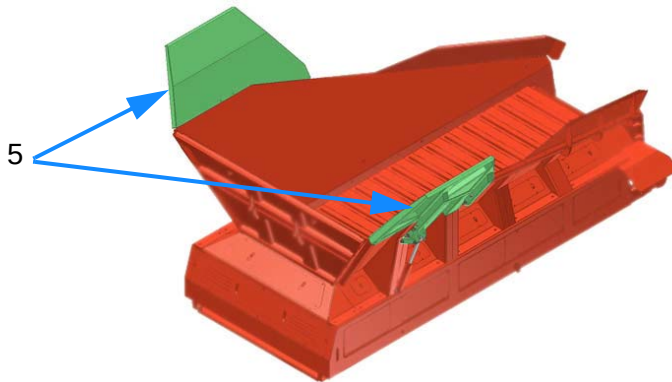
3: Remove the feeder locking clips and pins

Un-tag the machine (refer to 4.10.1 The Un-Tag Procedure) and start the machine (refer to 4.4 Engine starting Procedure).

Turn the engine speed '  ' to position '2' .



4: If optional feeder extension wings are fitted activate the levers on each side to raise the extensions into working position



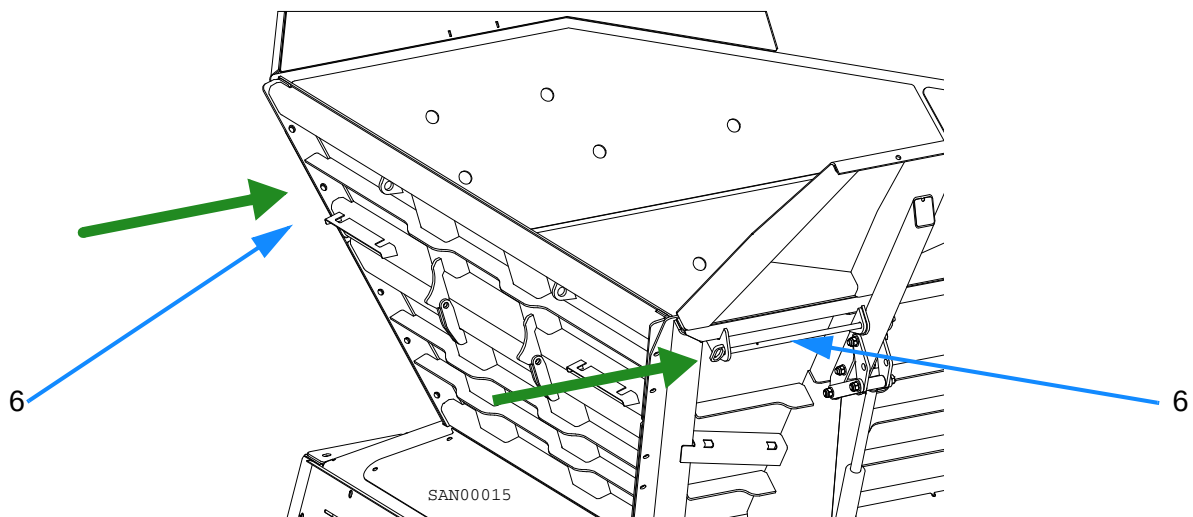
5: The hopper feeder extension wings in the working position



Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position, which conforms with the local and national regulations.



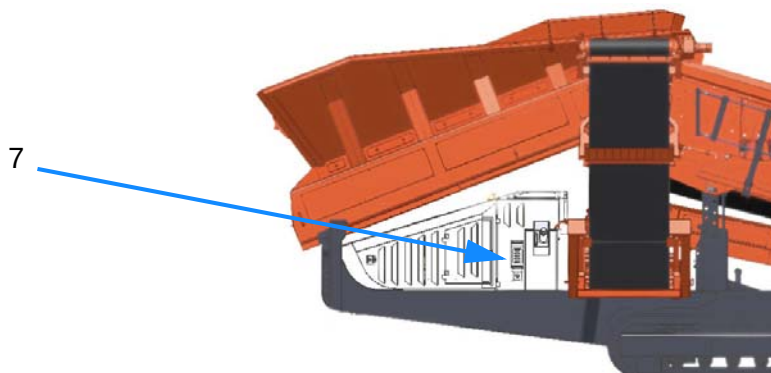
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



6: If feeder extension wings are fitted, install the locking rods on both sides from the rear

Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.

Start the machine, refer to 4.4 Engine starting Procedure.



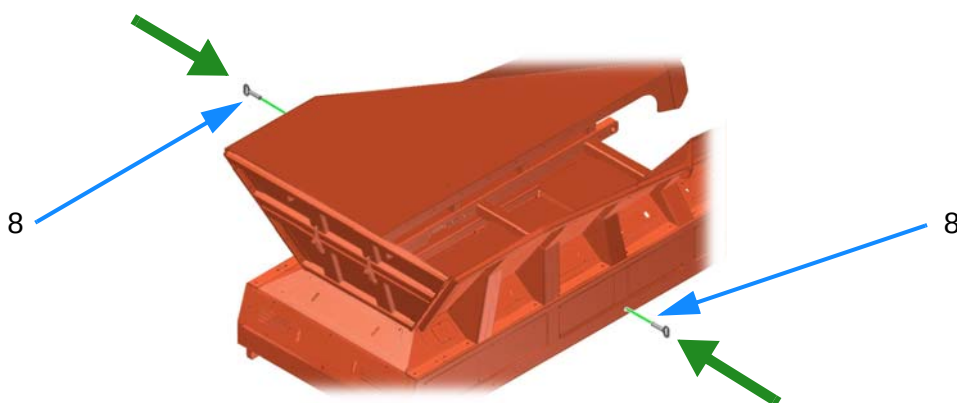
7: Activate the Feeder Out/In lever to position the feeder in the working position



Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position, which conforms with the local and national regulations.



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.

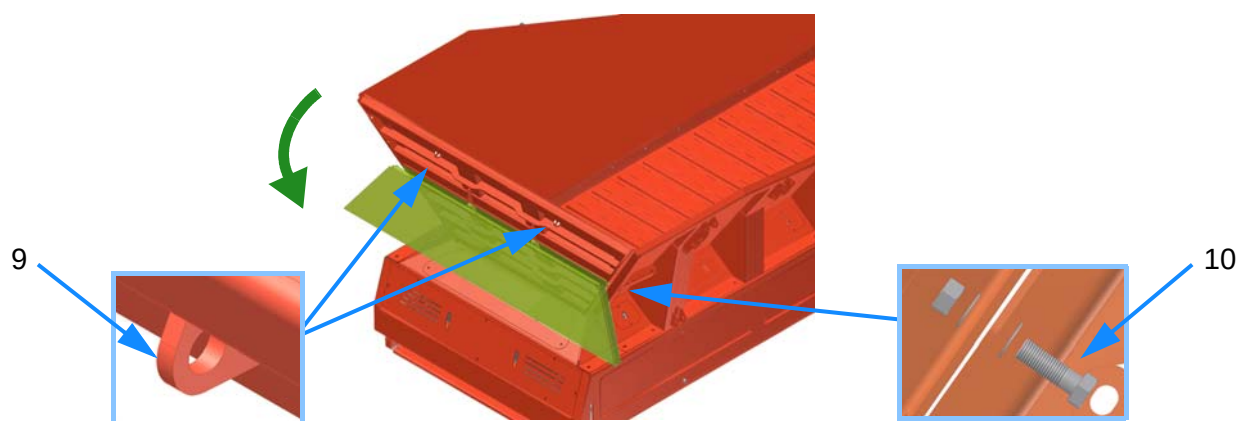


8: Install the feeder locking pins and clips on each side to secure feeder in working position

If necessary to load the feeder, lower the back panel of the feeder as follows.



Make sure you do NOT go in between the panel and the machine or under the panel as this may cause serious injury or death.



9: Attach a minimum of a 2 ton crane to the lifting points and raise to remove slackness in lifting equipment

10: Remove the nuts, washers and bolts at each side

11: Slowly move the panel down with the crane. Remove the crane from the panel

4.7.5 Set up the maintenance walkways



Make sure the machine is OFF, tagged and locked out before you do maintenance or work to the machine.



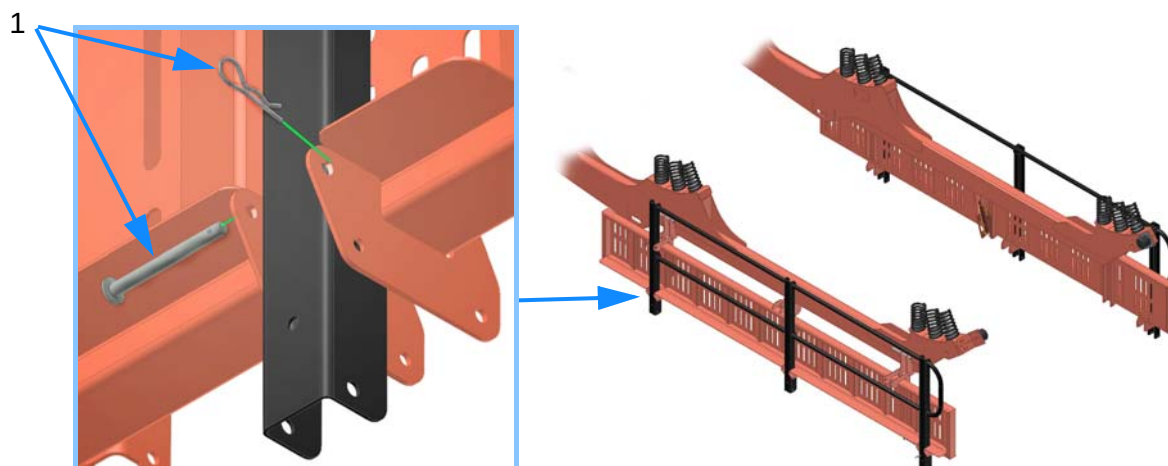
Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position, which conforms with the local and national regulations.



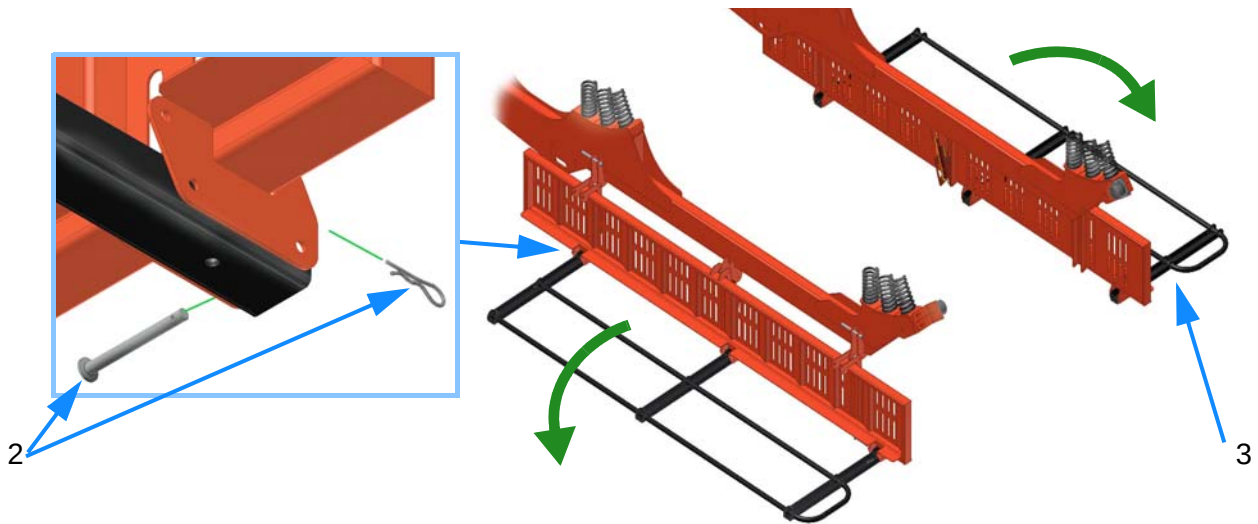
Make sure that person are clear of the folding zone of the maintenance walkways as this may cause injury or trapped limbs.



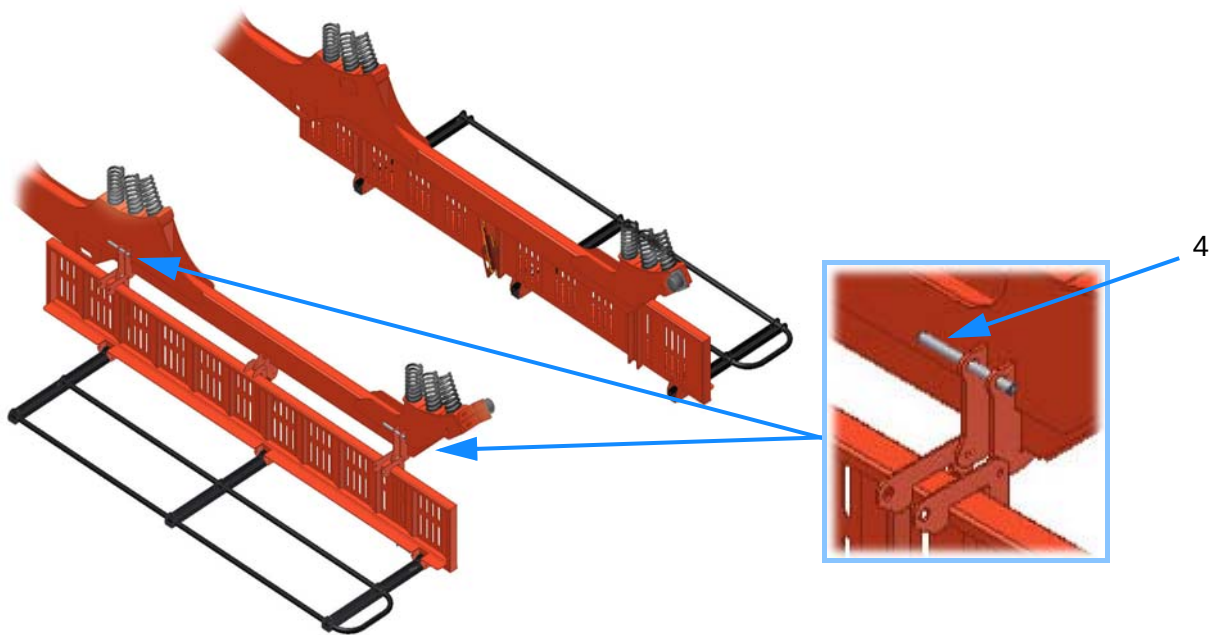
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



1: Support the handrail then remove the clips and the locking pins on one side



- 2: Fold down the handrail and install the locking pins with the clips
3: Repeat to lower the handrail on the other side

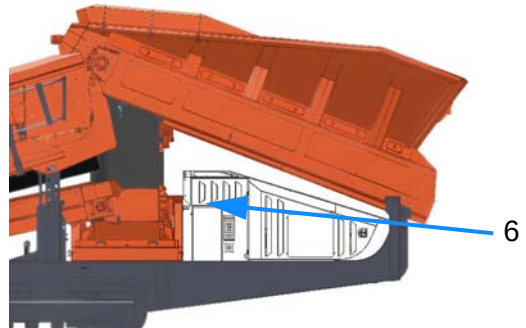
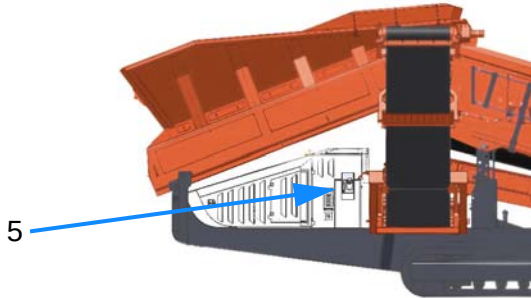


- 4: Remove all the maintenance walkway locking pins

Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.

Start the machine, refer to 4.4 Engine starting Procedure.

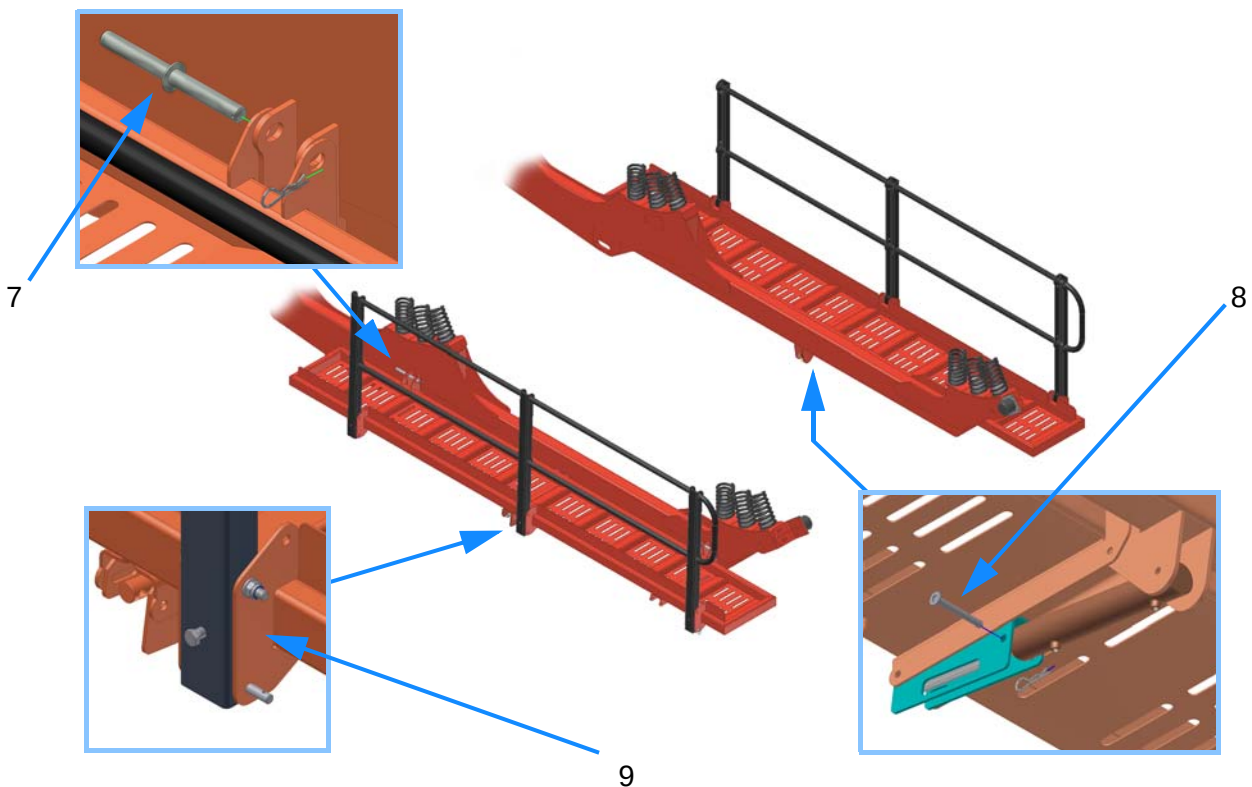
Turn the engine speed '  ' to '2' .



- 5: Activate the right hand maintenance walkway Down/Up lever to raise the platform into the working position
- 6: Activate the left hand maintenance walkway Up/Down lever to raise the platform into the working position



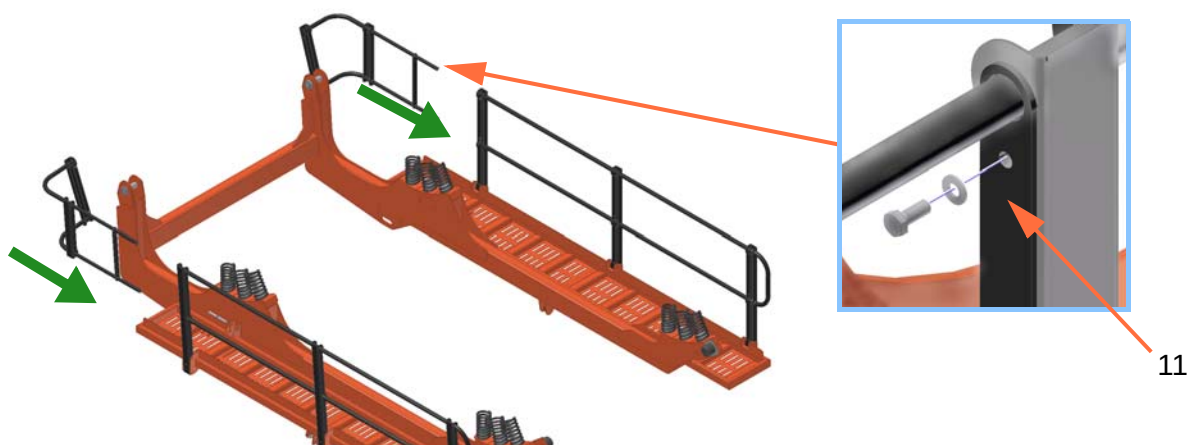
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



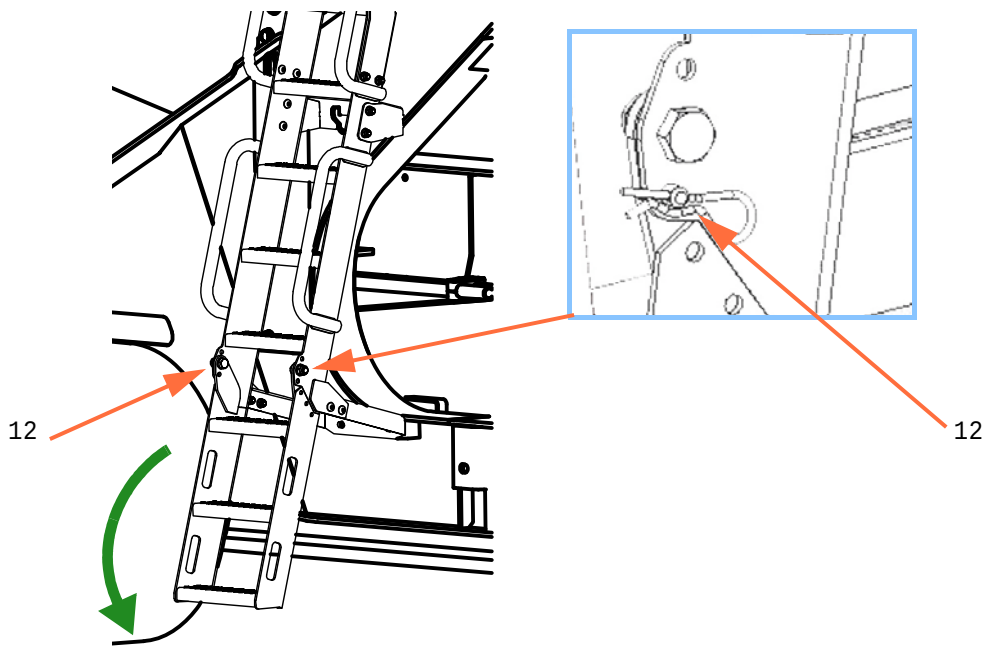
- 7: Install all the platform locking pins and clips
- 8: Install the cylinder locking pins and clips
- 9: Tighten the handrail support bracket bolts



10: Remove handrail ends from transport position



11: Install both handrail end sections into position and tighten bolts and washers.



12: Remove the clips and the pin and fold down the ladder for use, on both sides

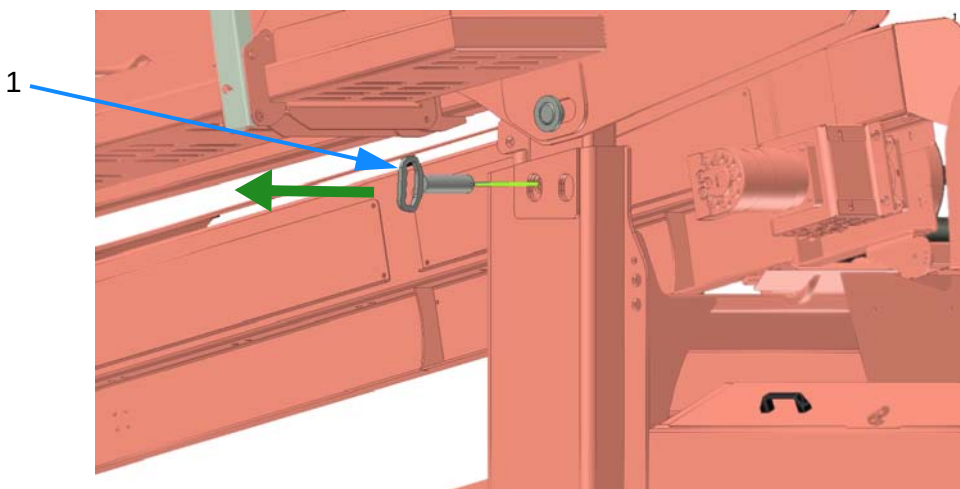
4.7.6 Set Up the Screen Box Height



Make sure the machine is OFF, tagged and locked out before you do maintenance or work to the machine.



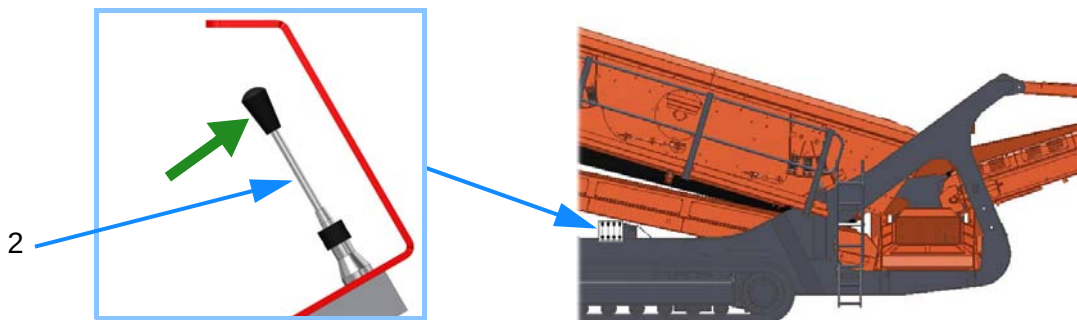
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



1: Remove the clips and pins from both the screen box support legs

Un-tag the machine (refer to 4.10.1 The Un-Tag Procedure) and start the machine (refer to 4.4 Engine starting Procedure)

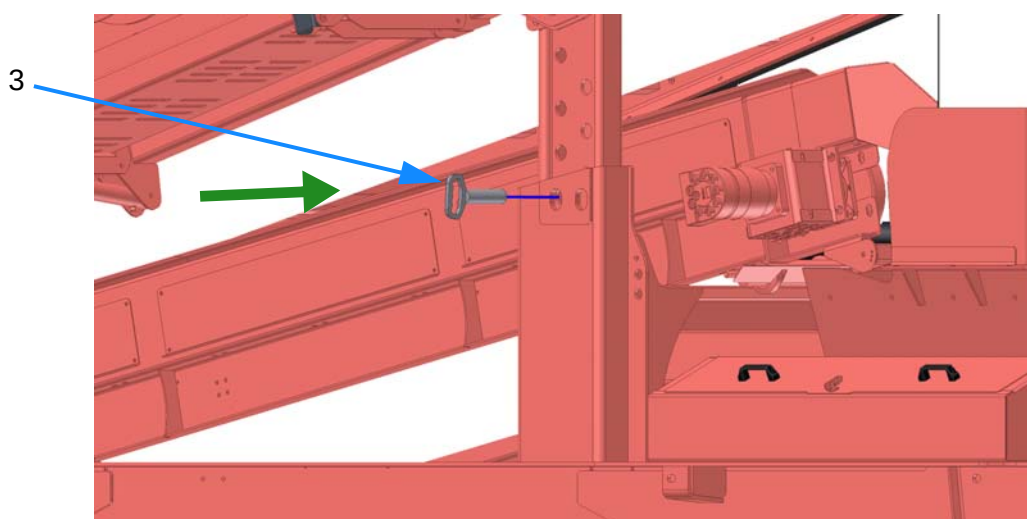
Turn the engine speed ' ' to '2' .



2: Activate the screen box up/down lever to position the screen box to the required height, seven positions are available



Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



3: Install the pins and clips in both the screen box support legs

Un-tag the machine, refer to 4.10.1 The Un-Tag Procedure.

4.7.7 Jacking leg operation



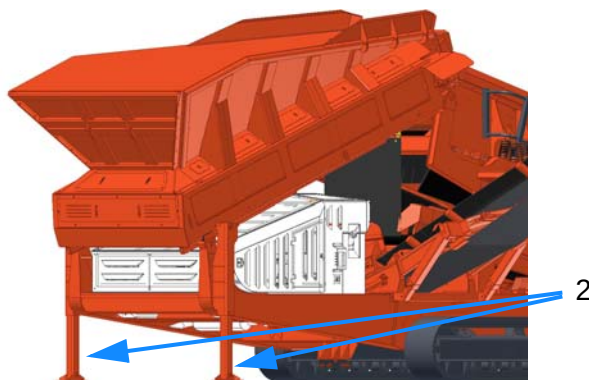
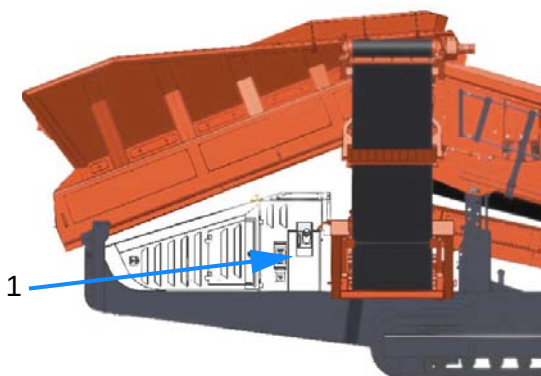
Make sure the procedure is done on level ground. Make Sure that TWO persons do the operation, an operator and an observer.



Make sure the area is free from persons and tools before you lower the jacking legs, as this may cause serious injury.

Start the machine, refer to 4.4 Engine starting Procedure.

Turn the engine speed '  ' to '2' )



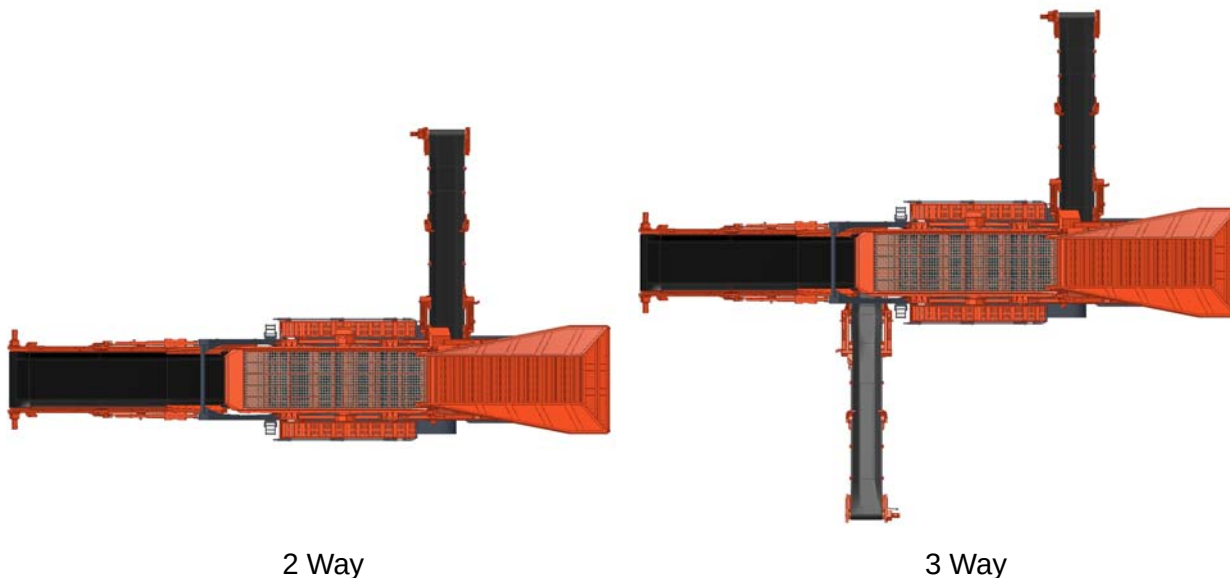
- 1: Activate the jacking leg lever to lower or lift the jacking legs as necessary
- 2: The jacking legs are down stabilizing the machine

Make sure the machine is OFF, refer to 4.9 Shut Down the Machine.

4.8 Set Up the Machine Configuration

4.8.1 Machine Configurations

The machine can be set to two different modes:



4.8.2 Set Up the 2-way Configuration



Make sure the procedure is done on level ground. Make Sure that TWO persons do the operation, an operator and an observer.

Make sure the machine is OFF, tagged and locked out before you do maintenance or work to the machine.



Make sure you do NOT go in between the panel and the machine or under the panel as this may cause serious injury or death.

Make sure the left hand side conveyor is folded out, refer to 4.7.2 Set Up the L.H. Side Conveyor.

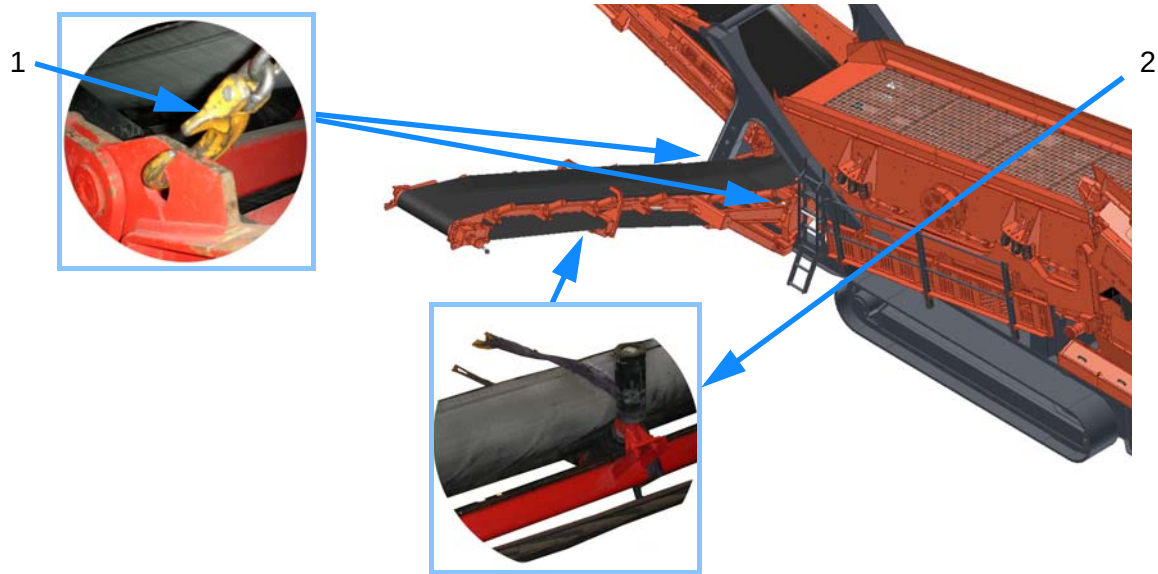
Make sure the screen box is UP to for access, refer to 6.7.26 Access to the Screen box.



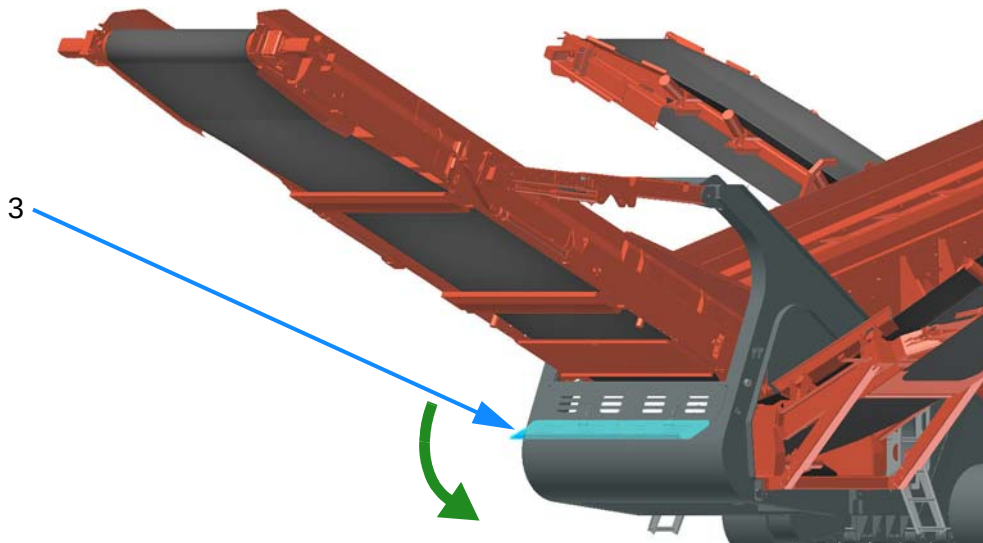
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



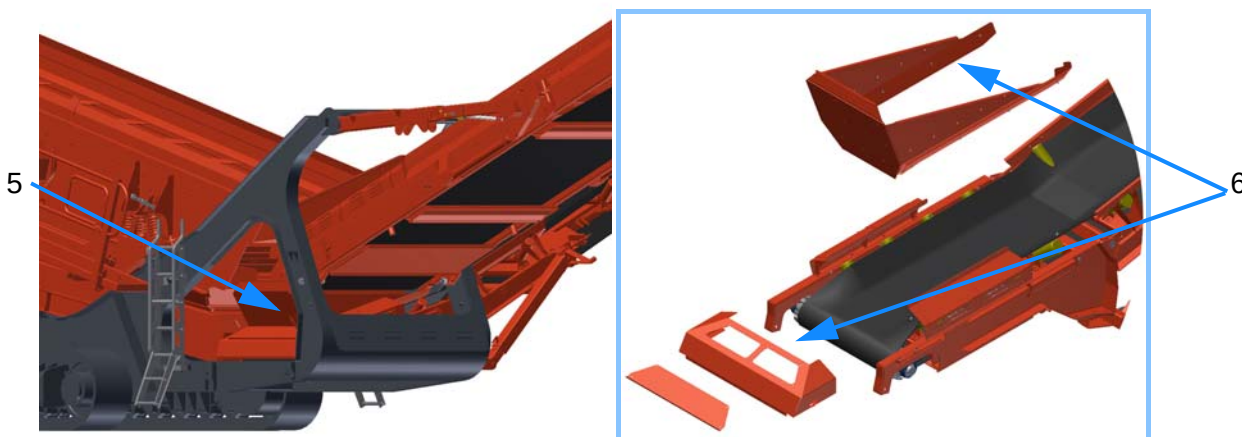
Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position, which conforms with the local and national regulations.



- 1: Attach a minimum of a 5 ton crane to the lift points on the mid grade L.H. conveyor
- 2: Attach the lifting sling as shown



- 3: Remove the bolts and washers and move the guard down
- 4: If necessary remove the guard



- 5: Remove the nuts bolts and washers
6: Remove the guards and the feed-boot as shown



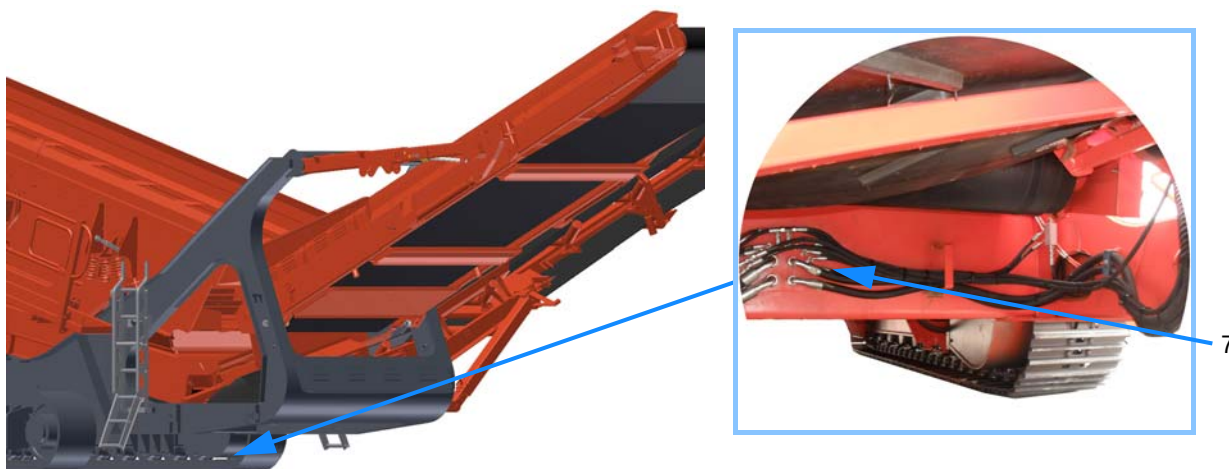
Make sure that the hydraulic system is **NOT** pressurized as this may cause serious injury and that **ONLY** trained and authorized persons do maintenance on the hydraulic system.



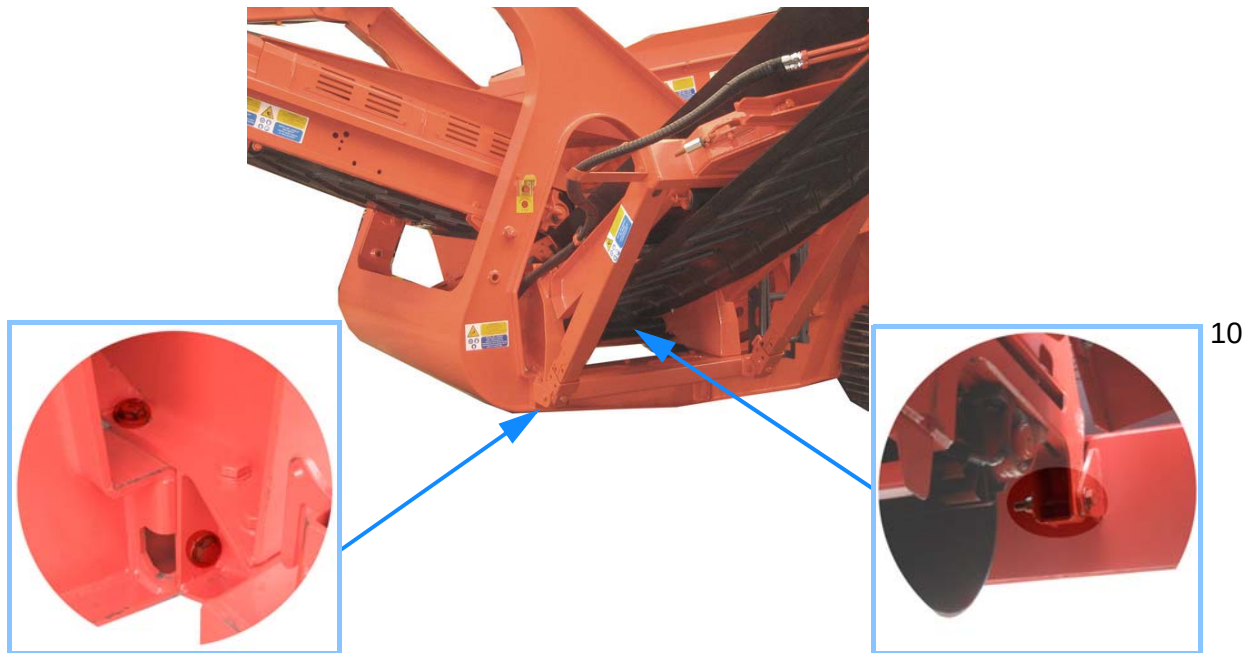
Confined Space, make sure you are careful as this may cause injury or death.



Never enter the confined space without the machine **OFF, LOCKED, TAGGED OUT** and locating pins in position.



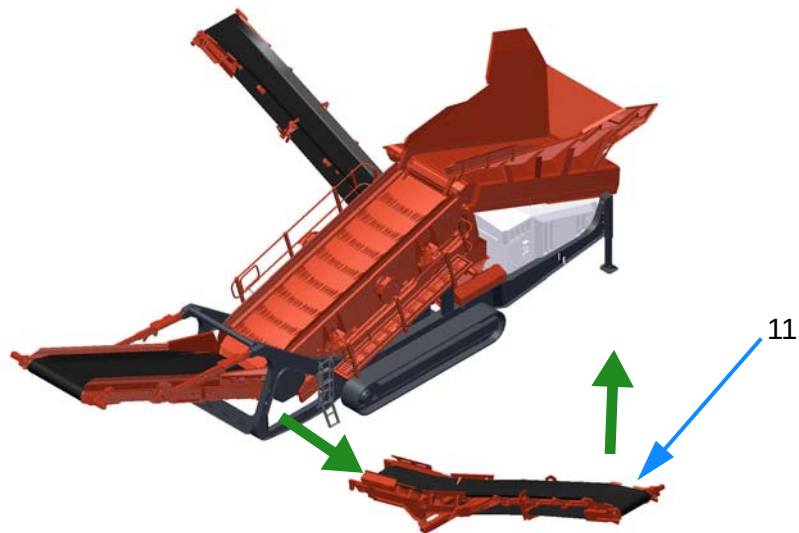
- 7: Disconnect and put blanking caps on the hydraulic hoses
8: Make sure they are free and **NOT** attached to the machine (remove cable ties, brackets etc.)



9: Make sure the mid grade L.H. conveyor is supported by the crane

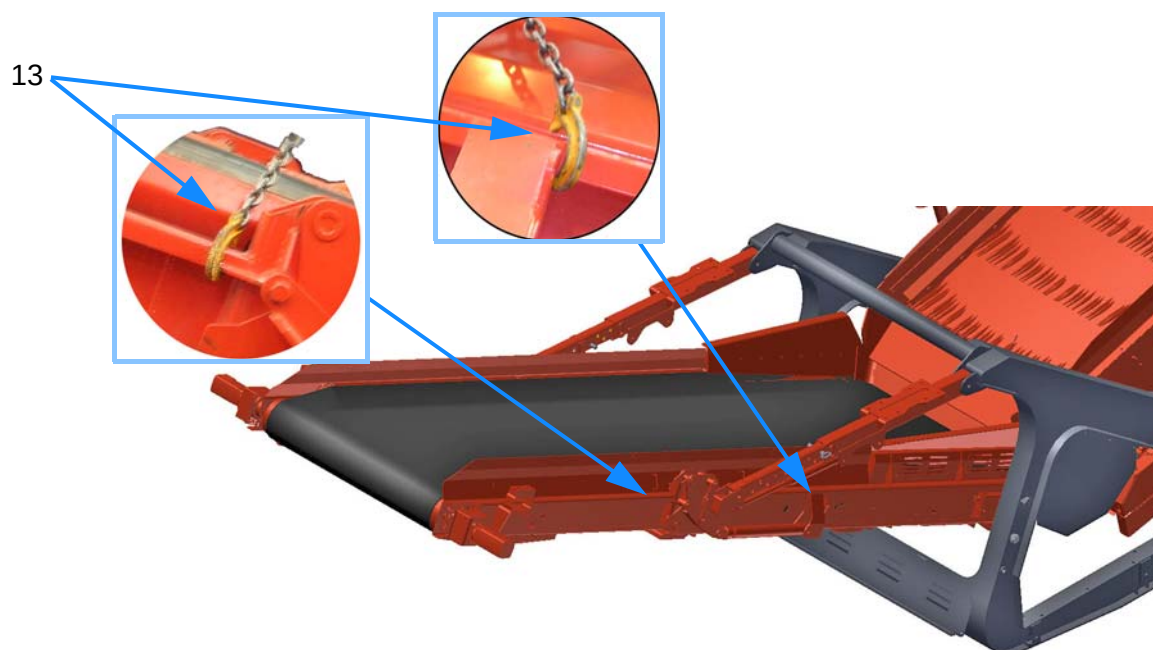
10: Loosen and remove the nuts, the bolts with the washers

Make sure the area in front of the conveyor is clear of tools and persons use barriers if necessary.

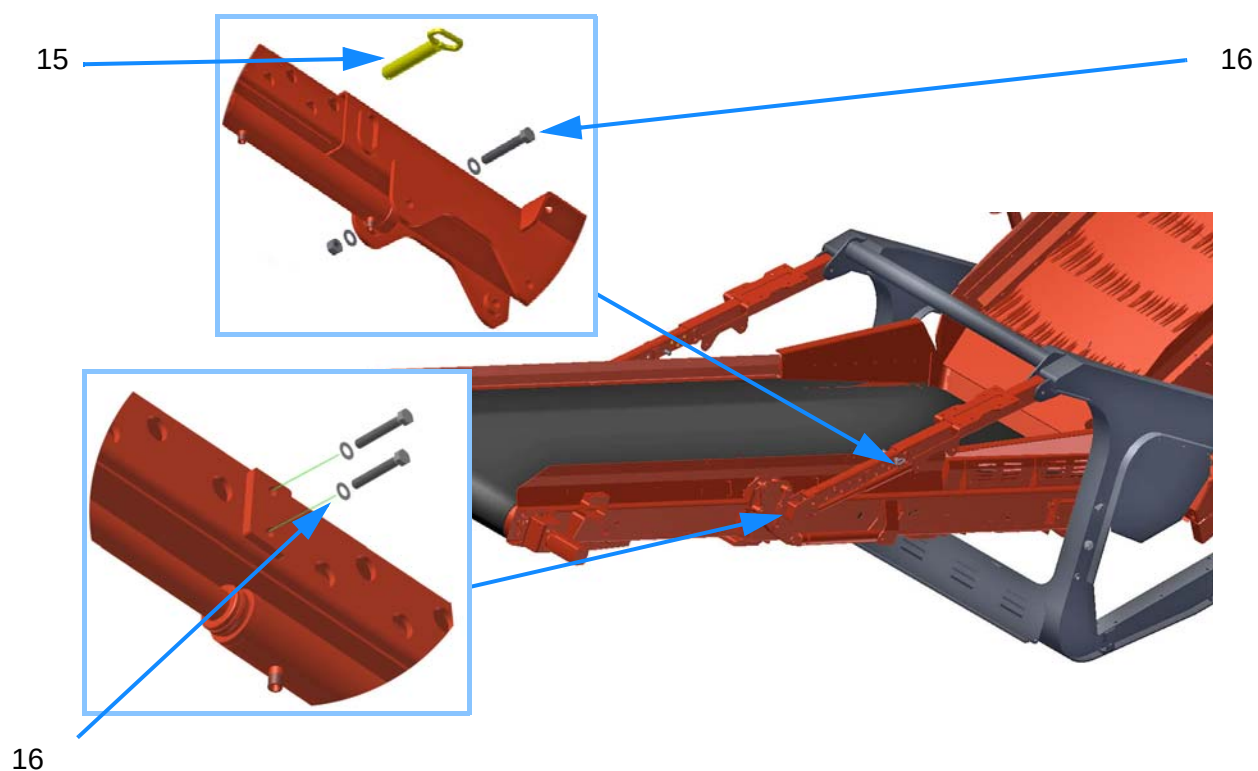


11: Move the side conveyor UP and AWAY from the machine, and put it down in a suitable location

12: Remove the crane lifting equipment



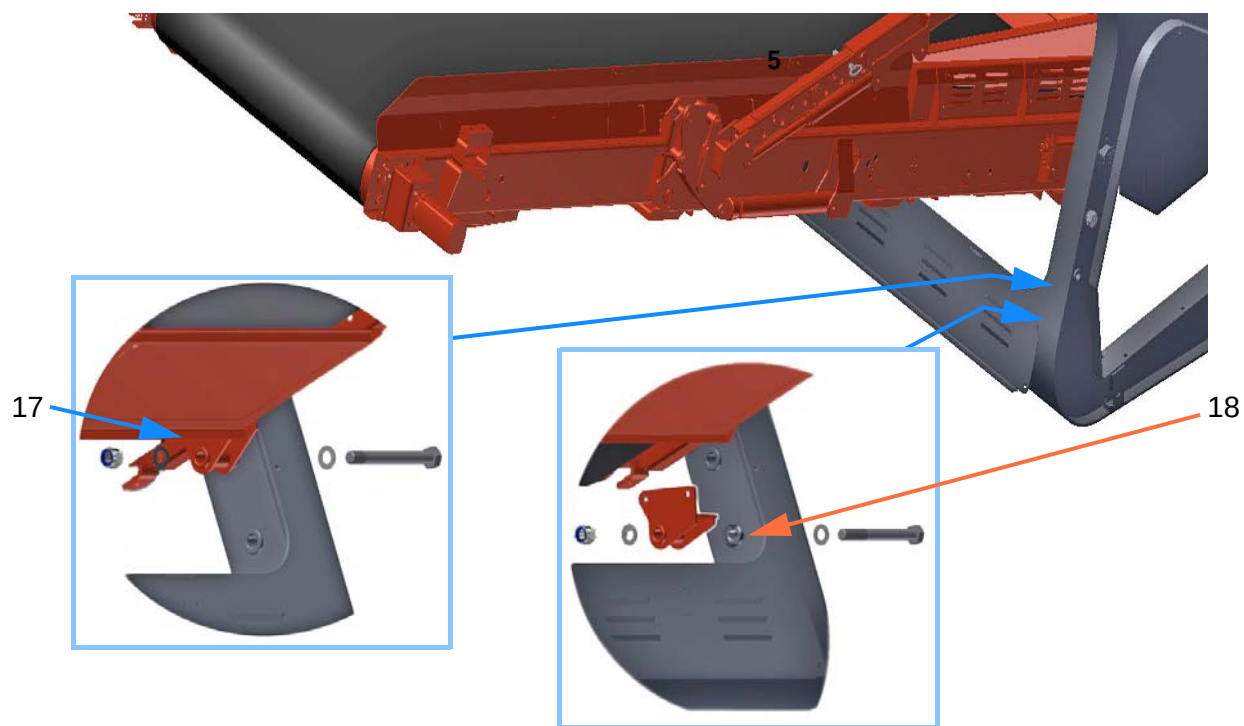
13: Attach minimum 5 ton lifting equipment and crane to the lift points on the end conveyor



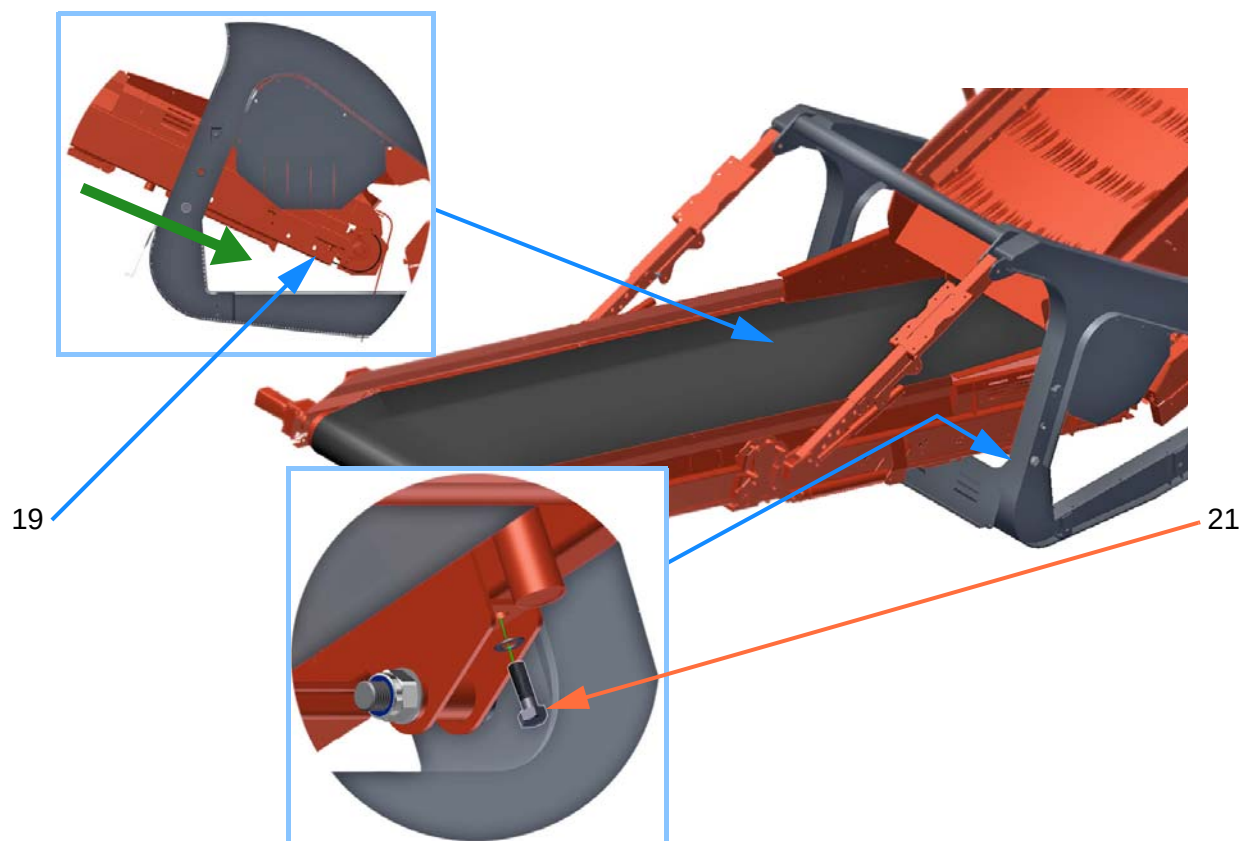
14: Make sure the end conveyor is fully supported in position by the crane

15: Remove the clip and locking pin

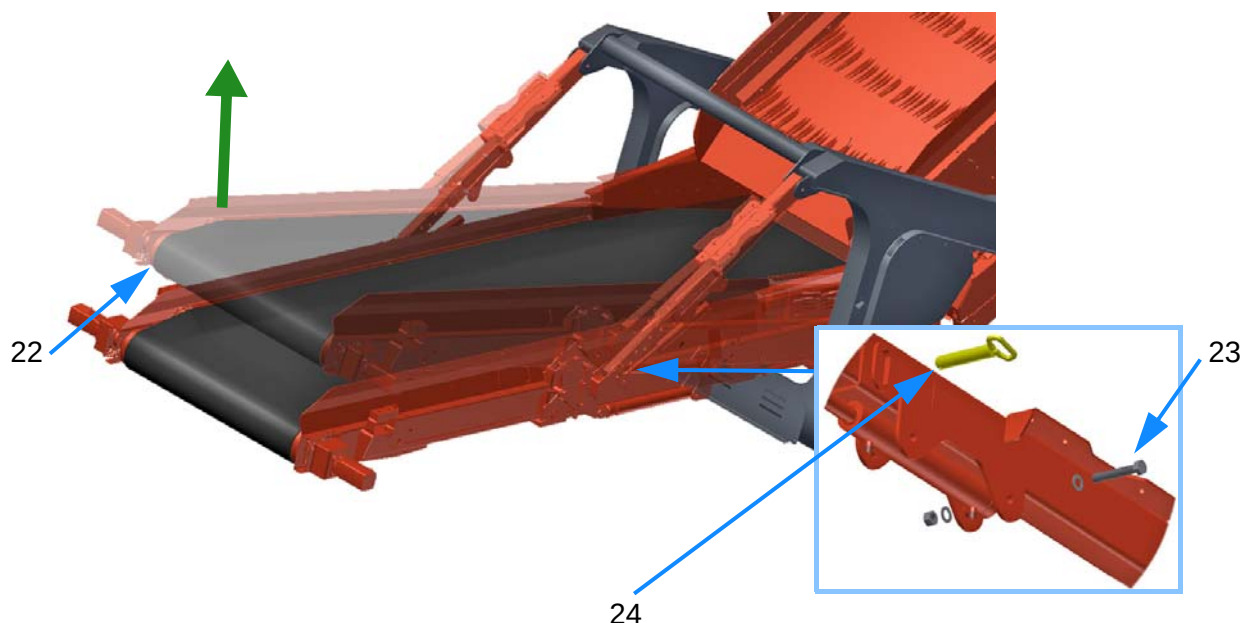
16: Remove the nuts, washers and bolts from the stop plates and the hydraulic rams



- 17: Remove mounting brackets, nuts, washers and bolts from the upper position
 18: Install the brackets in the lower position and secure with bolts, washers and nuts



- 19: Lower and move the end conveyor back into the machine
 20: Make sure that the end conveyor is aligned correctly with the lower fixing points
 21: Install bolts and tighten the nuts with the washers to secure the end conveyor to the bracket



- 22: Lift the end conveyor up with the crane
- 23: Install the hydraulic rams into position and tighten the nuts, bolts with the washers
- 24: Install the locking pins and clips
- 25: Remove the lifting equipment and crane

Set the end conveyor to the necessary operation position, refer to 4.7.3 Set Up the end Conveyor.

Set the screen box to the operation position, refer to 6.7.29 Set Screen Box to Working Position.

4.8.3 Set Up the 3-way Configuration



Make sure the procedure is done on level ground. Make Sure that TWO persons do the operation, an operator and an observer.



Make sure the machine is OFF, tagged and locked out before you do maintenance or work to the machine.

Make sure you do NOT go in between the panel and the machine or under the panel as this may cause serious injury or death.

Make sure the mid grade L/H side conveyor is folded out, refer to 4.7.2 Set Up the L.H. Side Conveyor.

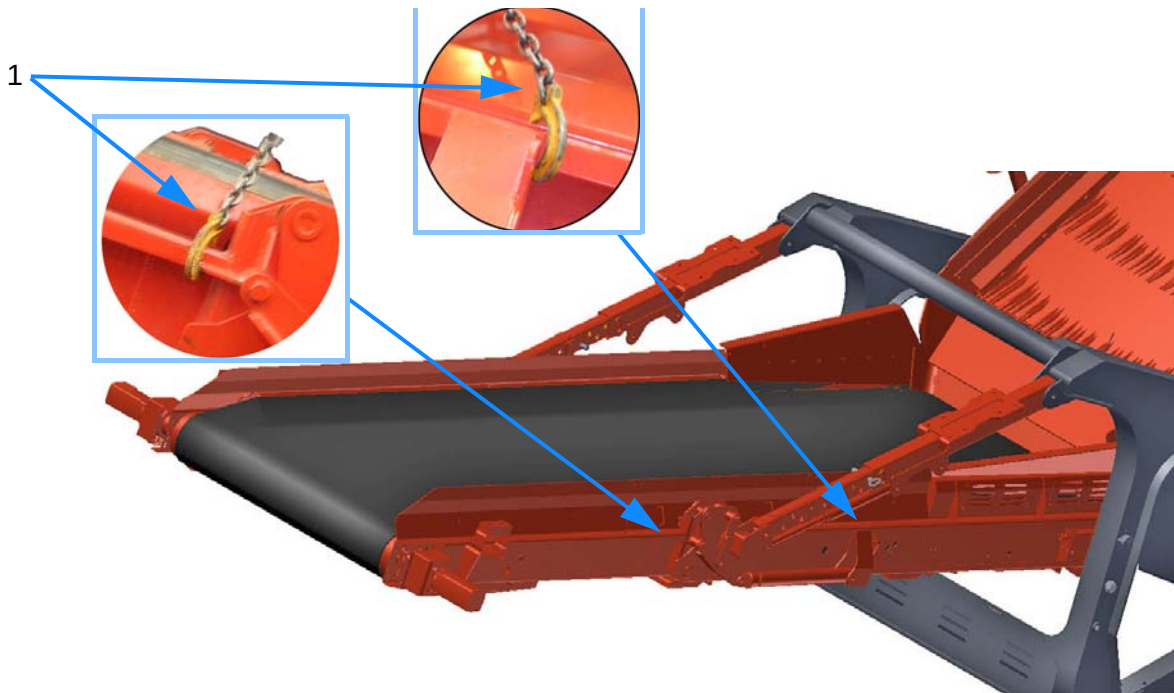
Make sure the screen box is UP to for access, refer to 6.7.26 Access to the Screen box.



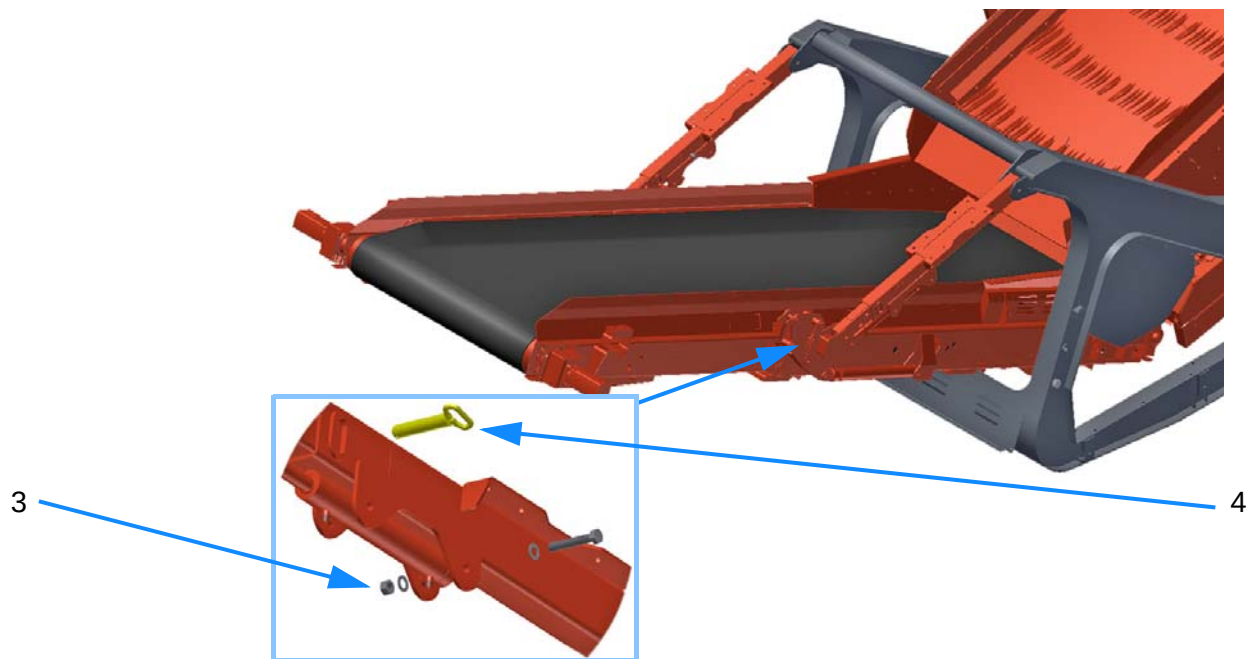
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.



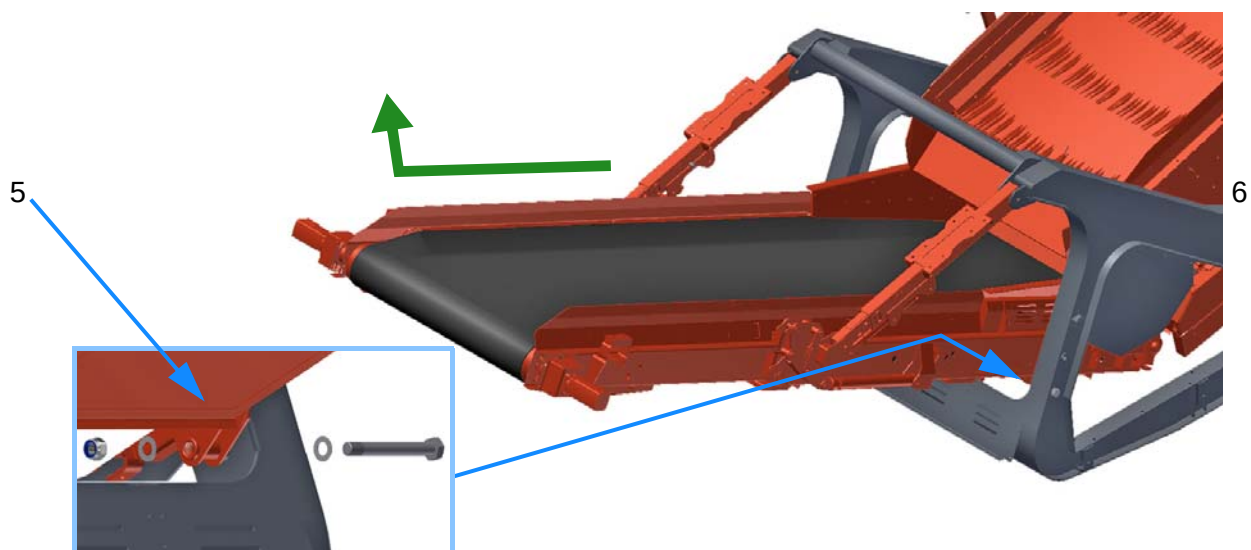
Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death. Make sure that a correct working platform is used with the correct anchor points and safety rails in position, which conforms with the local and national regulations.



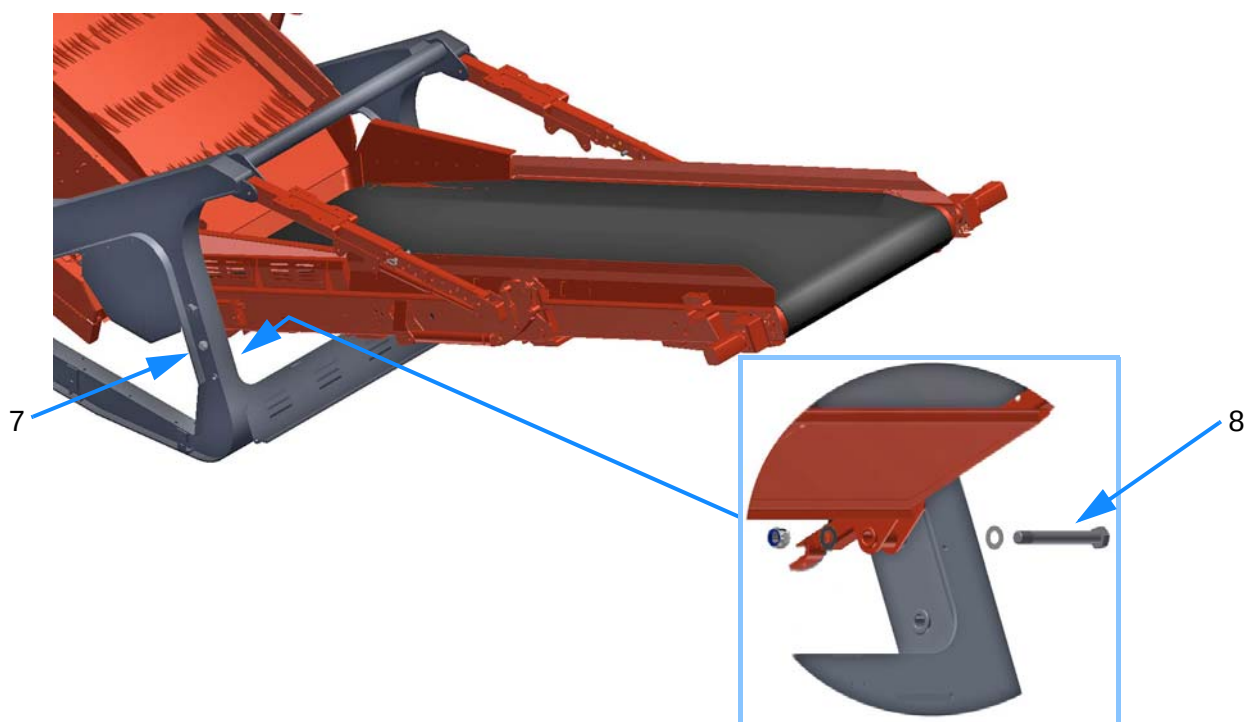
1: Attach minimum 5 ton lifting equipment and crane to the lift points on the end conveyor



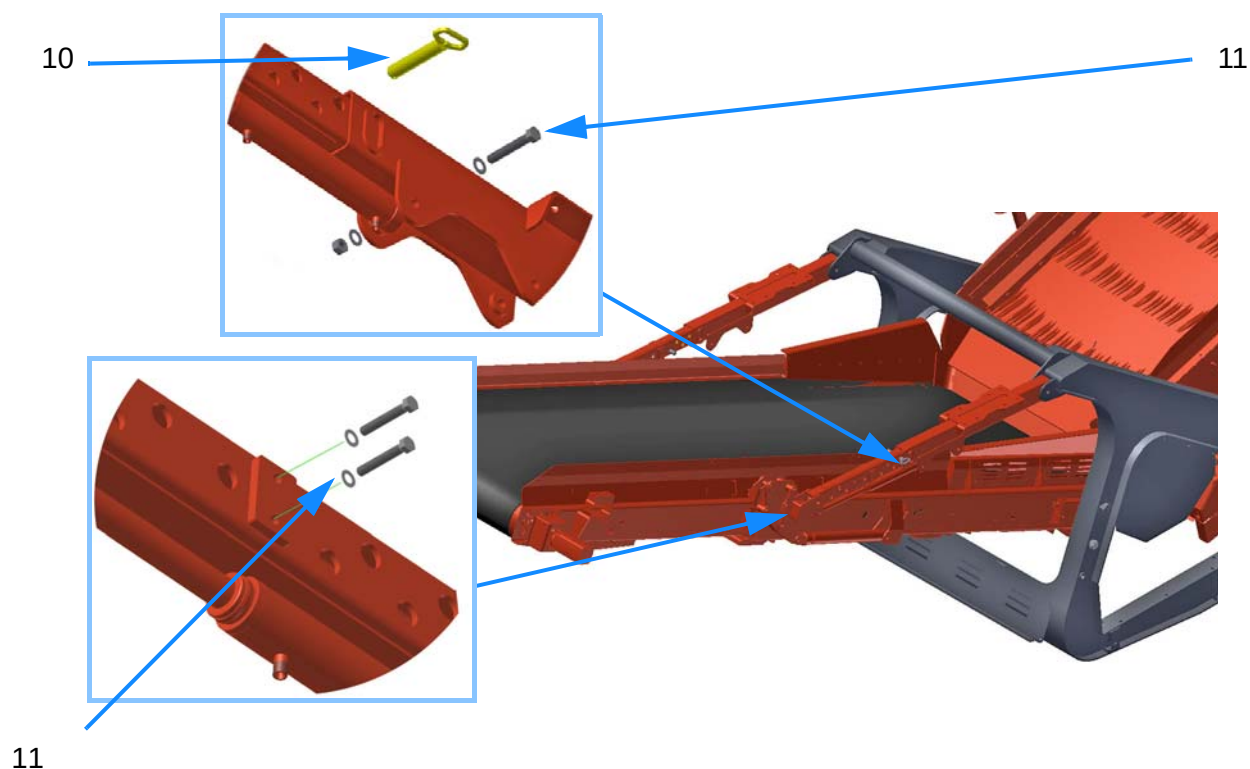
- 2: Make sure the end conveyor is fully supported in position by the crane
- 3: Remove the nuts, washers and bolts from the hydraulic rams
- 4: Remove the clips and locking pins



- 5: Remove the nuts, washers and bolts from the brackets and lower mounting points in the chassis
- 6: Lift and move the end conveyor out of the machine



- 7: Make sure that the end conveyor is aligned correctly with the upper fixing points
8: Install bolts and tighten the nuts with the washers to secure the end conveyor bracket to the chassis

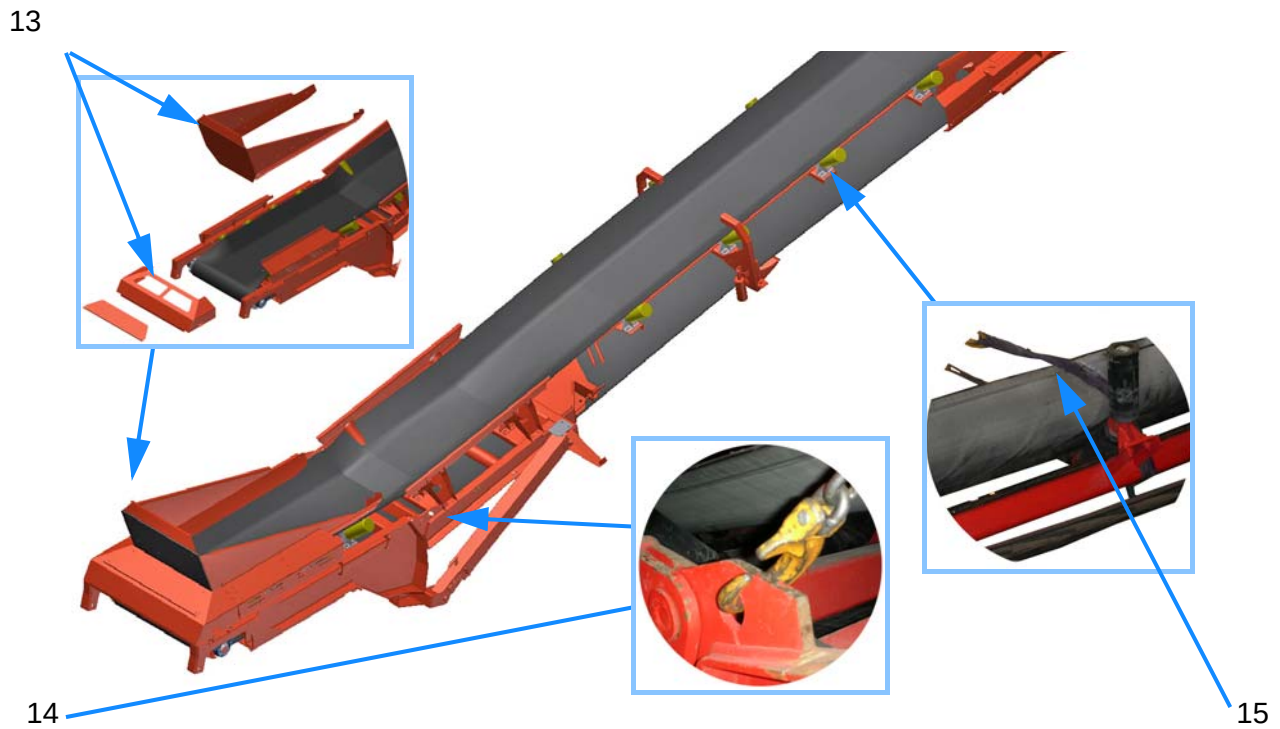


9: Make sure the end conveyor is fully supported in position by the crane.

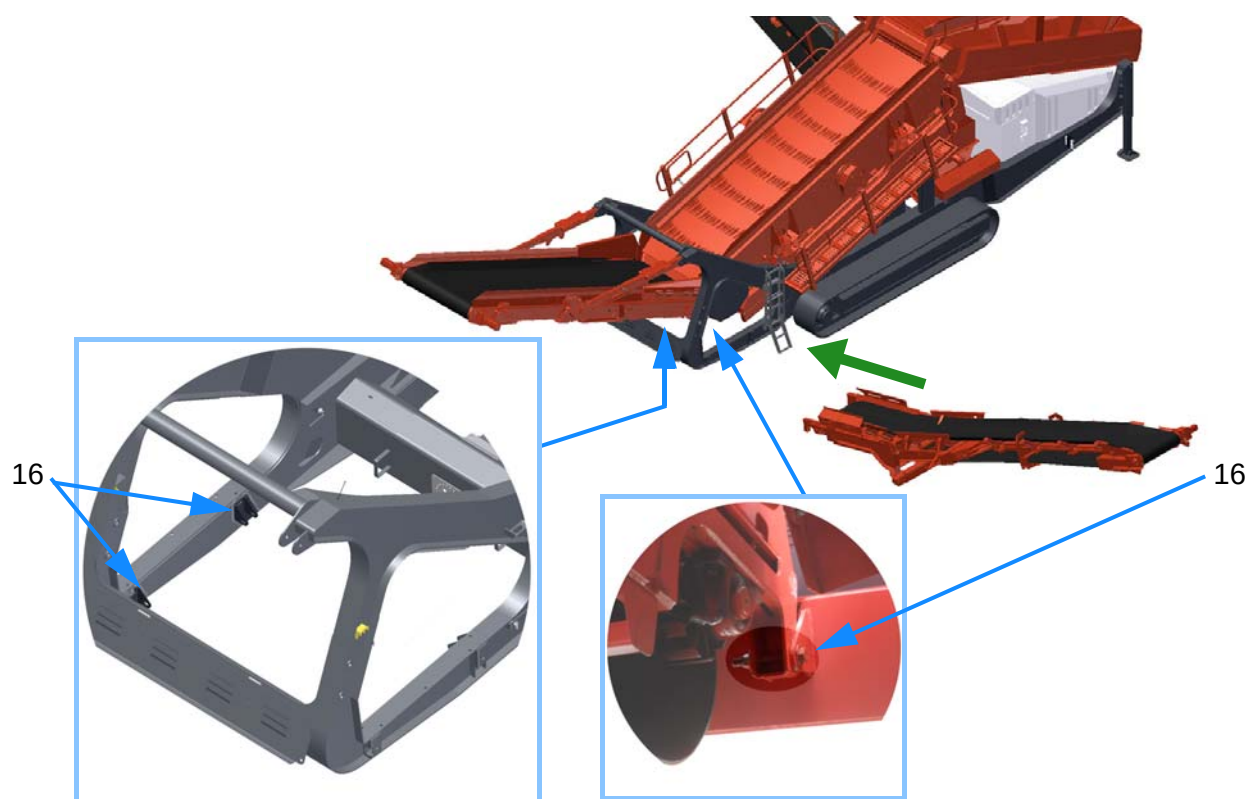
10: Install the locking pins and clips

11: Install the bolts and tighten the nuts with the washers at the stop plates and the hydraulic rams

12: Remove the lifting equipment and crane

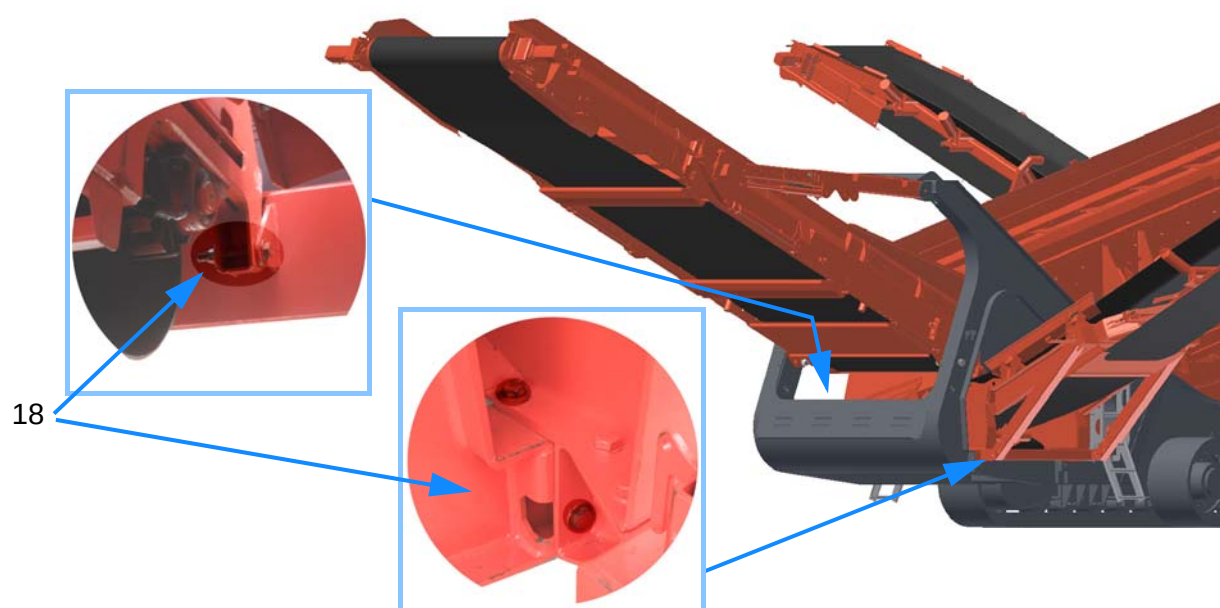


- 13: Make sure the feed-boot and the rear guard on the side conveyor are removed
 14: Attach a minimum of a 5 ton crane to the lift points on the mid grade L.H. conveyor
 15: Attach the lifting sling as shown



16: Move the conveyor up and into the machine and locate it into the chassis brackets

17: Hold the side conveyor in position with the crane



18: Install the bolts and tighten the nuts with washers

19: Remove the lifting equipment and crane



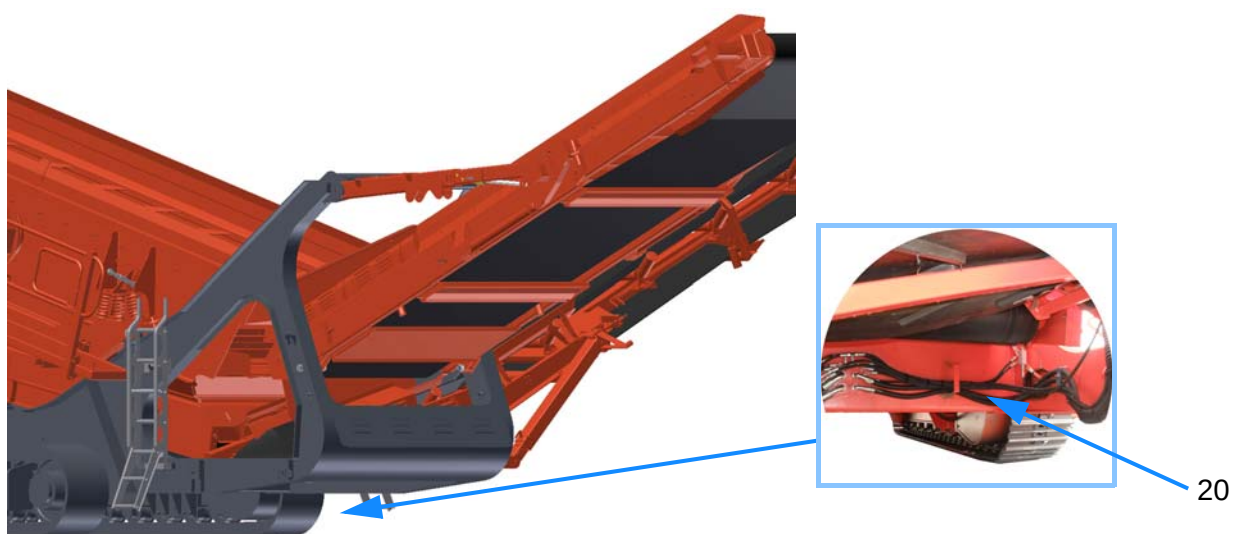
Make sure that the hydraulic system is **NOT** pressurized as this may cause serious injury and that **ONLY** trained and authorized persons do maintenance on the hydraulic system.



Confined Space, make sure you are careful as this may cause injury or death.



Never enter the confined space without the machine **OFF, LOCKED, TAGGED OUT** and locating pins in position.

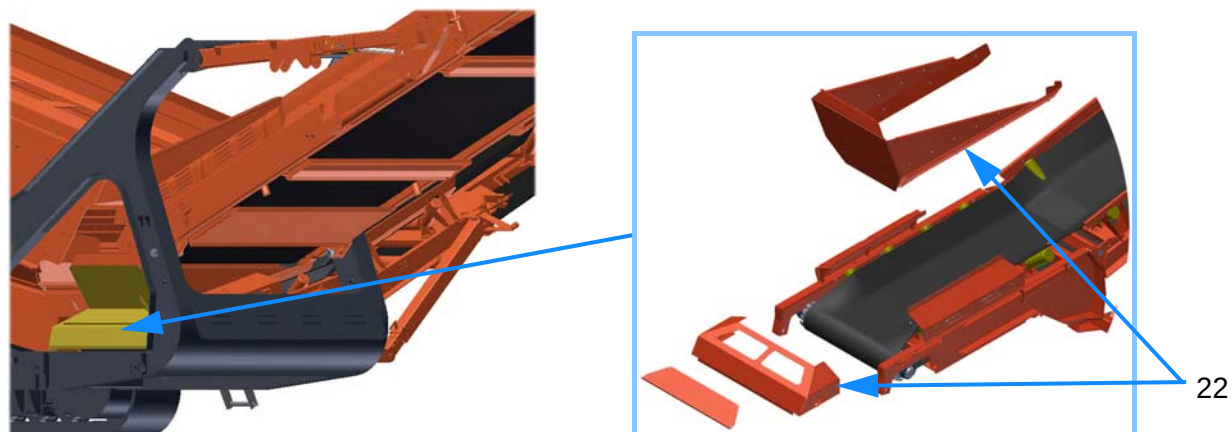


20: Remove the blanking caps, and connect the hydraulic hoses

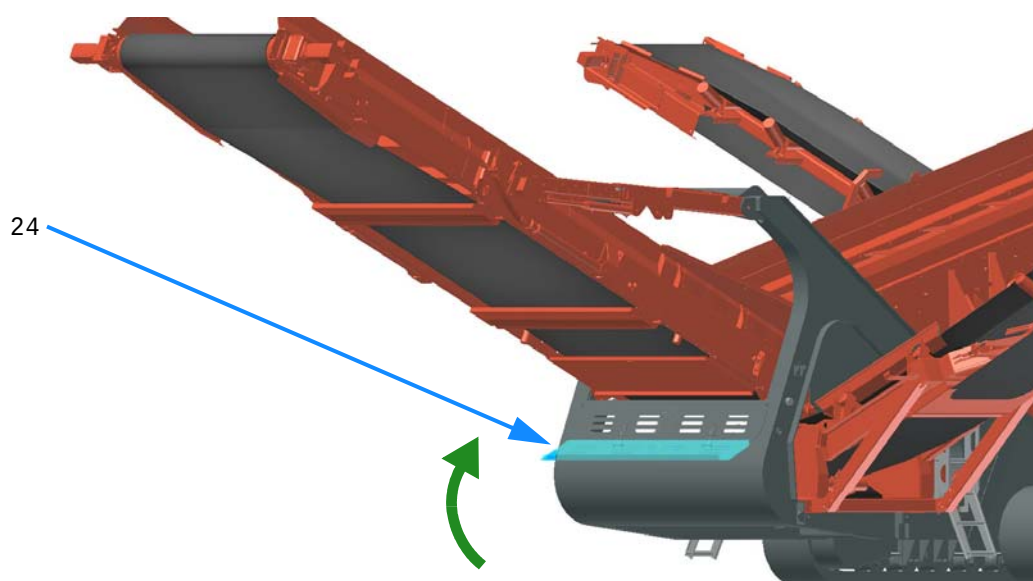
21: Make sure they are installed/routed through correctly, install cable ties, and put through brackets etc.

NOTICE

Make sure that the hydraulic hoses do **NOT** touch the sides (use cable ties if necessary) as this can damage the hoses when they move against the surface.



- 22: Install the rear guards and the feed-boot as shown
23: Install the bolts and tighten the nuts, with washers



- 24: Raise or fit the guard as necessary
25: Install the bolts and tighten the nuts with the washers to secure the guard

Set the end conveyor to the necessary operation position, refer to 4.7.3 Set Up the end Conveyor.

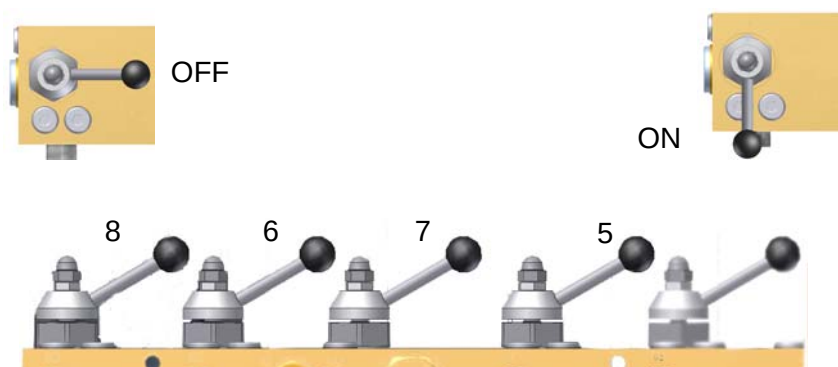
Set the screen box to the operation position, refer to 6.7.29 Set Screen Box to Working Position.

4.9 Shut Down the Machine

NOTICE

To stop the machine, it is **ESSENTIAL** that the following steps be followed in order to prevent damage to the machine:

1. Stop feeding material into the feeder.
2. Wait for all material to fully discharge from feeder, screen box and all conveyors.
3. Shut down the feeder conveyor first from the control box or the radio remote.
4. Shut down the systems in the order shown below using the station control block located in the Power Pack. Fully turn the lever to OFF to close the valve.



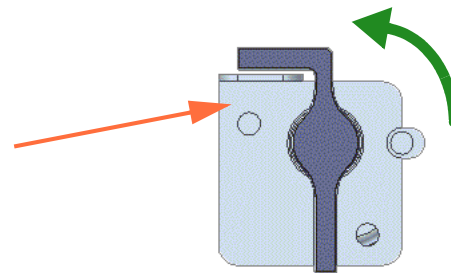
5. Screen Box off.
6. Fines side conveyor off, including collector conveyor.
7. Mid grade side conveyor off.
8. End, oversize conveyor off.
9. Wait for each system to come to a complete stop.
10. Put the engine speed switch '1' to position '1' and allow engine to idle briefly.
11. Stop engine by turning ignition key to  'OFF' position.

4.10 Lockout and Tag Procedure

1. Make sure that the ignition key is in the  'OFF' Position.
2. Remove the ignition key and keep it with you.



3. Turn the battery isolation switch to the OFF position.



4. Put a lock or gang tag through the two holes in the isolation switch to prevent the machine being started and show maintenance has started. Use a gang tag if more than one person is at work on the machine, refer to 4.10.2 How to Use a Gang Tag.

4.10.1 The Un-Tag Procedure

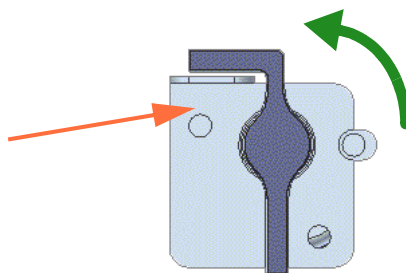


Make sure that NO persons are on the machine or in the danger zones as this may cause injury or death.

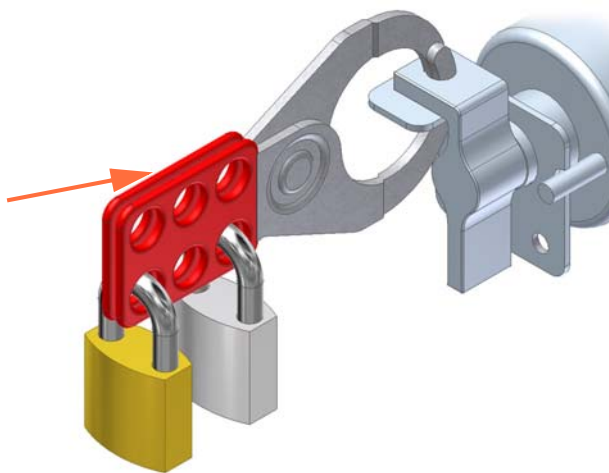
1. Make sure that all maintenance and work has been completed and stopped.
2. If a gang tag is used refer to (4.10.2 How to Use a Gang Tag).
3. Remove the lock or tag from the battery isolation switch.
4. Put the ignition key into the key hole.

4.10.2 How to Use a Gang Tag

1. Make sure the battery isolation switch is in OFF position.



2. Attach the gang tag through the holes in the isolation switch as shown.



3. Each person attaches a lock to the gang tag before they start work.
4. Once the work is finished; remove ONLY your lock.
5. When you remove the last lock:



Make sure that NO persons are on the machine or in the danger zones as this may cause injury or death.

- a. Remove the last lock.
- b. Remove the gang tag.
- c. Continue with the un-tag procedure, refer to 4.10.1 The Un-Tag Procedure.

5. OPERATIONS



DO NOT START COMMISSIONING UNTIL YOU HAVE READ AND FULLY UNDERSTOOD THIS MANUAL.

The machine must always be on flat, solid ground when operating in its normal screening mode.

5.1 Start Up The Machine (for Operation)

Make sure the machine is set for operation refer to 4.7 Preparing the machine for screening operation and the scheduled maintenance checks are done refer to 6. Routine maintenance.

COLD START: When starting the machine in temperatures of 0°C (32°F) or below, run the screen box for 15 minutes to allow hydraulic oil to reach working temperature. **DO NOT** feed material into machine during this time. **DO NOT** operate systems contrary to these instructions.

Follow these instruction to feed material through the machine:

1. Make sure the mesh is installed as required, refer to 6.7.28 Bottom Screen Mesh - Install and 6.7.31 Top Screen Mesh - Install.
2. Set up the exclusion zones with safety barriers and appropriate decals, for stock piles from:
 - The end conveyor.
 - The side conveyor(s).
3. Make sure you know the control panel information and navigation, refer to 5.2 The Control Box Panel.
4. Adjust the speed of the conveyors as necessary, refer to 5.4 Set Up the Conveyor Speeds.
5. Control the feeder as necessary, refer to 5.5 Control of the feeder.
6. Follow the sequence to start the conveyors and the screenbox, refer to 5.3 Operating The Machine (screening).
7. Load the machine with the material.
8. If it becomes blocked.
 - a. Make sure the feeder has stopped.
 - b. Make sure the screenbox is OFF.
 - c. Make sure the end, mid and fines side conveyors have no material on them and are OFF.



Make sure NO persons are on the machine when it is ON, as this may cause injury or death.



Make sure correct safe procedures are followed FOR the tasks that are done at height. Falling may cause injury or death.



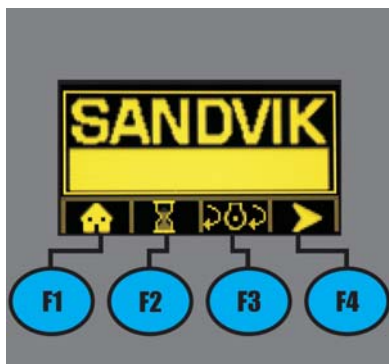
Make sure the machine is OFF, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.

- d. When the material is removed start step '6' again (refer to 4.10.1 The Un-Tag Procedure).

When the operations are complete shut down the machine (refer to 4.9 Shut Down the Machine).

5.2 The Control Box Panel

Follow the figures below to navigate through the control panel screen displays:



Home screen



Engine and machine data screen



Fault or error code screen

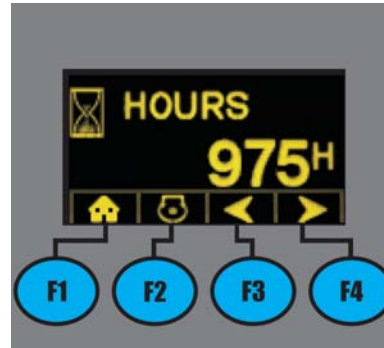
Press 'F4' to scroll through the options

At the 'home' screen:

Press F2 - Engine hours:



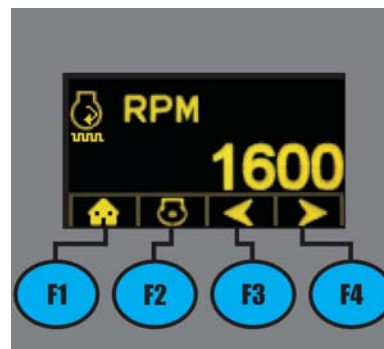
Scroll using F3 or F4 for more information.



Press F3 -Engine speed:



Scroll using F3 or F4 for more information.



Scroll using F3 or F4 '◀▶' through as necessary.

Press the 'soft keys' (F1,F2,F3, F4) as required.

Press F1 to return to 'home' screen from other screen displays.

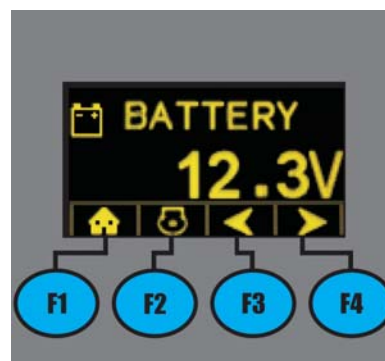
At the engine and machine data screen:

Press F2 - Engine data



Scroll '◀ ▶' to find information:

- Coolant
- Oil temp.
- Engine Load
- Hydraulic oil temp.
- Battery
- Oil Pressure
- Fuel consumption
- Turbo pressure
- Engine speed
- Turbo temperature
- Engine hours
- Fuel Pressure

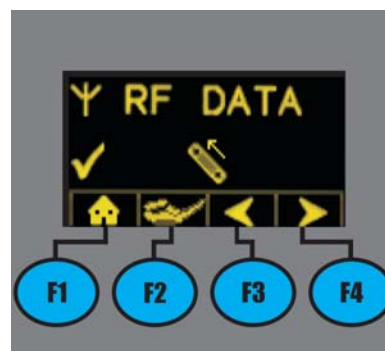


At the engine and machine data screen:

Press F3 - Machine data



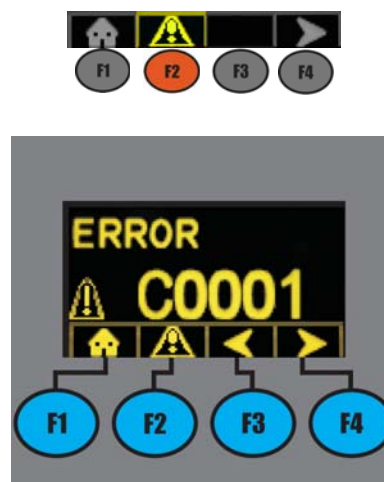
- Scroll '◀ ▶' to find:
- RF codes for the radio remote
 - Feeder Status ON or OFF
 - Feeder Speed UP or DOWN
 - Remote engine Stop Status (on, off)
 - Track Status: ON/OFF & Direction



At the fault and error code screen:

Press F2 - Faults/Errors

Scroll '◀ ▶' to find:
All Error or Fault codes, refer to 6.9 Machine
Fault Codes.



5.3 Operating The Machine (screening)

NOTICE

**DO NOT START THESE SYSTEMS IF THEY ARE FULL OF MATERIAL.
CLEAR ANY MATERIAL AWAY BEFORE STARTING.**

1. To operate machine, start the systems in the sequence that follows:
2. Start the machine, refer to 4.4 Engine starting Procedure.

3. Turn the engine speed switch to position 3.



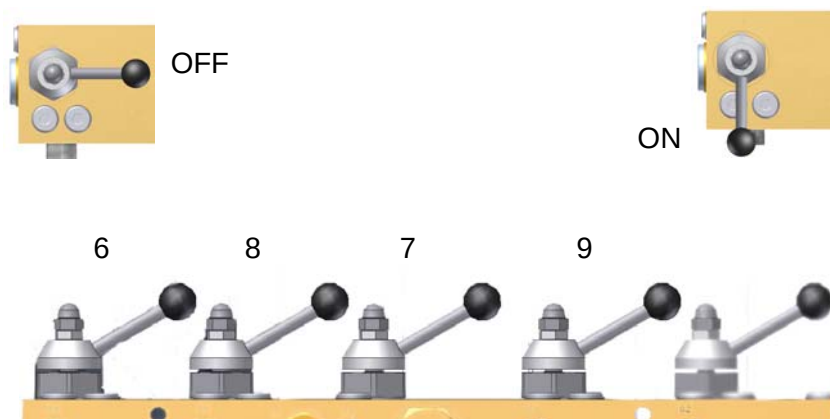
Note! *The engine speeds are factory preset. Alterations to the set limit, to increase speed, may lead to premature failure and subsequent warranty loss.*

4. Press the alarm button  on the remote or  on the control panel for 7 seconds before you turn ON each of the following valves.
5. Start systems in this sequence:



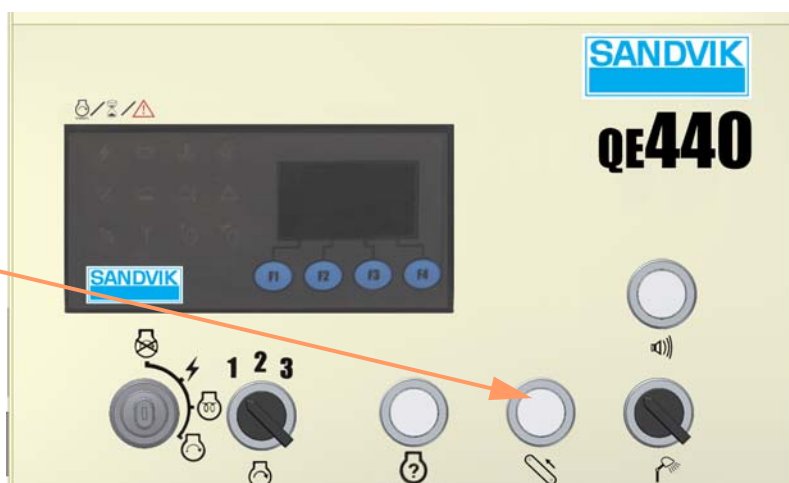
DO NOT start feeder or conveyors unless they are empty.

Note! *TURN FULLY ON to open the valve.*



6. End, oversize conveyor on.
7. Mid grade side conveyor on.
8. Fines side conveyor, including collector conveyor on.
9. Screen box on.

10. Press feeder start button.



Before loading material into the machine, Make sure that the machine is not vibrating excessively.

If the machine is not stable, shut down the machine, refer to 4.9 Shut Down the Machine. Stabilise with the jacking legs if necessary.

5.3.1 Loading Material Into Machine



NO persons are allowed ON the machine or in the danger zones when the machine is ON, also while the machine is loaded as this may cause serious injury or death.



Make sure ALL necessary precaution are taken to reduce the risk of breathing in dust or particles, as this may cause serious injury or death.

1. Make sure the feeder is ON, BEFORE the material is put on it.
2. DO NOT put material which is too large in the hopper. If larger material is ON the hopper, **STOP, ISOLATE AND TAG THE MACHINE** and remove the large pieces of material with the

appropriate equipment. DO NOT use excavators to force the material into feeder as all damage from this action will invalidate all Sandvik Construction warranty.

3. Material should be fed carefully, (not dropped onto feeder) from about 300 mm above feeder. Ensure that feeder is evenly loaded over its entire length. This is to help with screening fines material and to maximise production.
4. As you load material into the feeder make sure you DO NOT over fill it.
5. For maximum output and minimum wear, it is recommended that the screen box is fed consistently with the supply of material being steady and constant. STOP/ START OPERATION OF THE FEEDER SHOULD BE AVOIDED.
6. Pressure sensors are fitted to the hydraulic circuit such that, if either fines collector conveyor should become over loaded with material or jammed, then the feeder will stop until the material is reduced to an acceptable level. If the conveyor cannot clear itself then the material will have to be cleared manually.



If the conveyor cannot clear itself then the machine should be shut down, the ignition key removed, locked out and tagged; remove the material before the machine can be started for screening.

5.4 Set Up the Conveyor Speeds



Make sure that NO material is on the machine as this may fall and cause injury or death.

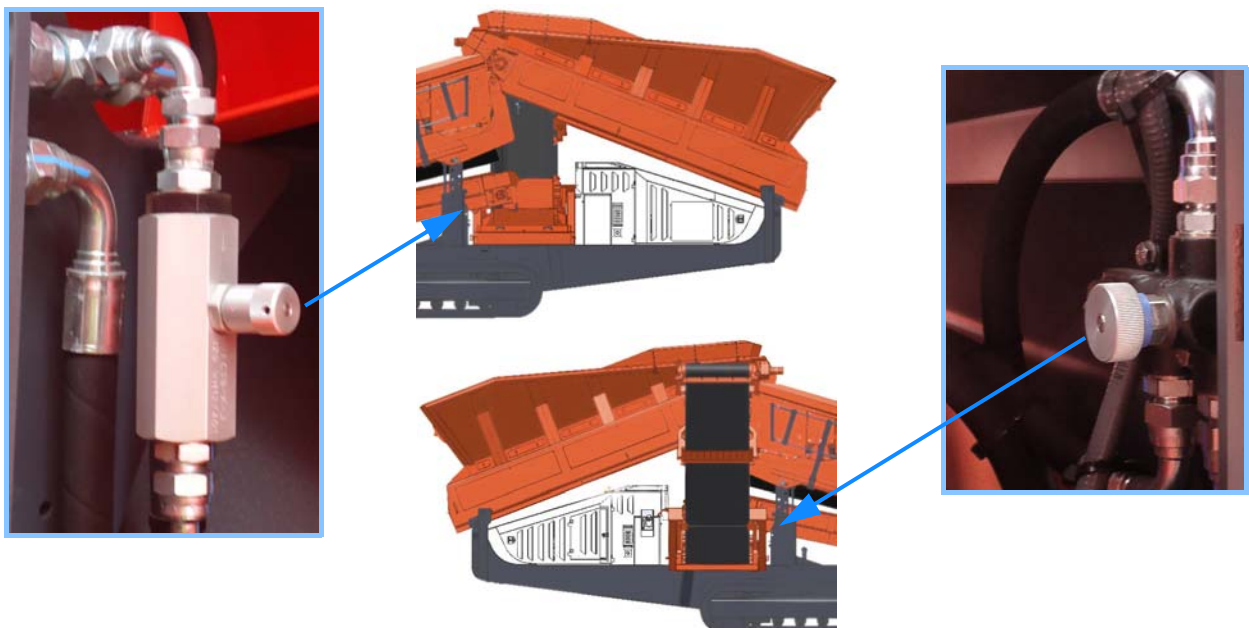
Make sure that all material is OFF the machine and DO NOT load the feeder with material.

Start the machine for screening, refer to 5.3 Operating The Machine (screening).

5.4.1 Adjust the fines and collector conveyors speed

1. Turn the flow controller as necessary to change to speed.
2. Adjust conveyor speeds as follows: Clockwise = Slower / Anti-Clockwise - Faster.

Note! *The fines side conveyor will also change speed as the fines collector conveyor is adjusted.*



5.4.2 Adjust the mid grade conveyor speed

1. Turn the flow controller as necessary to change to speed.
2. Adjust conveyor speeds as follows: Clockwise = Slower / Anti-Clockwise - Faster.
3. Turn Mid Grade Side Conveyor flow controller to adjust speed as necessary.



5.4.3 Adjust the end conveyor speed

1. Turn the flow controller as necessary to change to speed.
2. Adjust conveyor speeds as follows: Clockwise = Slower / Anti-Clockwise - Faster.
3. Turn end conveyor flow controller (2) to adjust speed as necessary



5.4.4 Adjust the Feeder Speed

1. Turn the flow controller as necessary to change to speed: (Clockwise = Slower / Anti-Clockwise = Faster.



2. After the conveyors have been adjusted load the material refer to 5.3.1 Loading Material Into Machine
3. If you need to re-adjust the conveyor speeds, STOP loading the material, wait until the material has completely passed through the machine, and do the procedure again.

5.5 Control of the feeder

The feeder conveyor can be operated on or off at the control panel.

The feeder may also be controlled from the radio remote control.

The radio remote control allows the load operator to control the feeder from their station. Only use the remote in the event of overload or possible obstruction occurring.

5.5.1 Feeder stop and start

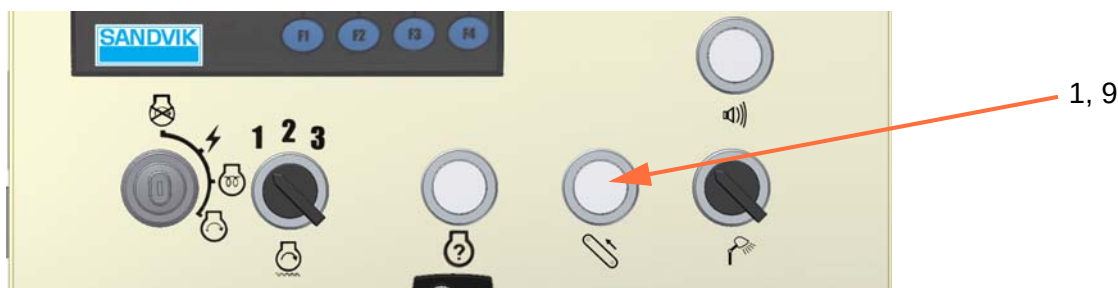
Start the machine, refer to 4.4 Engine starting Procedure.

Make sure it is set for screening refer to 5.3 Operating The Machine (screening).

Using the control panel

Note! *There is an 8 second delay and an alarm will sound before the feeder starts*

1. To start the feeder press the feeder button on the control panel.
2. To stop the feeder press the button again.



Using the radio remote



There is a small possibility that the radio frequency on the remote control handset may operate other machinery. Please use the umbilical connected controller if this is a problem.

Please check all radio frequencies and codes for clashes, contact the Sandvik dealer if a re-program of the remote is necessary.

3. Start the feeder initially by pressing feeder button on the control panel, as above.
4. The remote control can now be used to stop and start the feeder.



Start Feeder



Stop Feeder



Engine Kill switch



Sound Alarm whilst held

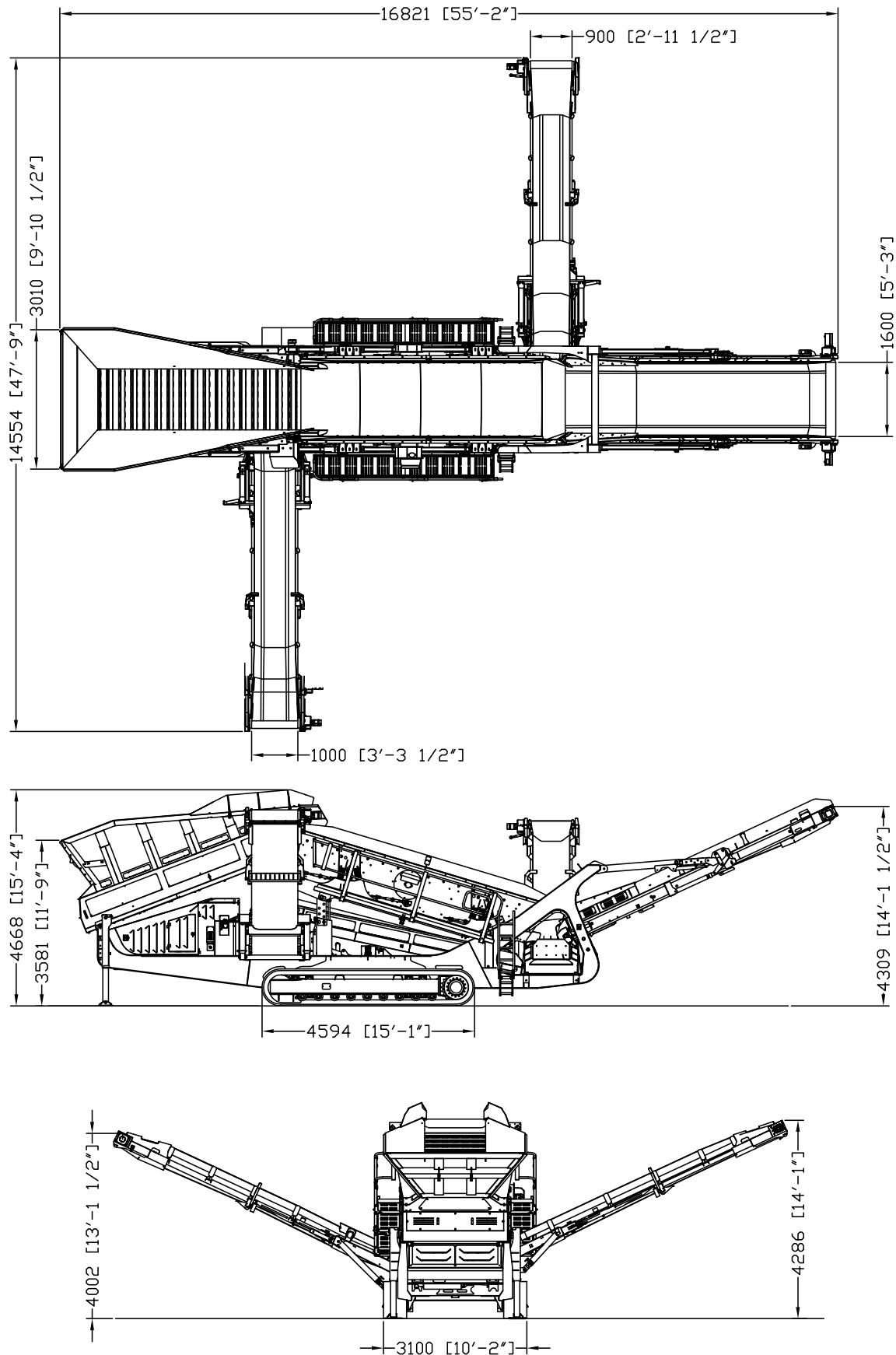
5. Before each START or STOP of the feeder use the alarm  (press and hold down for 8 seconds) to give a warning of a change in operation.
6. To stop the feeder PRESS and HOLD the OFF  until it stops.
7. To start the feeder PRESS and HOLD the ON  until it starts fully.
8. If necessary use the engine stop  to stop the complete machine.



NEVER Load the feeder when you use the control panel, levers or ball valves as this may cause serious injury or death.

9. To stop the feeder at the control panel press and HOLD the feeder button.

5.6 Working Dimensions



6. ROUTINE MAINTENANCE

6.1 Maintenance Safety

The following safety notices apply to all maintenance procedures throughout and are a minimum requirement. Additional safety measures may be required for specific tasks, which will be detailed in the relevant text.

Maintenance is essential for safety and to ensure the best possible performance from your machine, which reduces the chances of potential breakdowns.

 **DANGER**

 	PERSONNEL HAZARD! Working in close proximity to running machinery could cause serious injury or death. Ensure machine is stopped, isolated and tagged with the ignition key removed before ANY maintenance is started, Refer to 4.10 Lockout and Tag Procedure.
--	---

 **WARNING**

 	PERSONNEL HAZARD! Lack of knowledge or understanding could cause severe injury or death. If you DO NOT understand ANY information in ANY part of this manual you MUST seek clarification from your supervisor or a Sandvik representative, before attempting ANY maintenance. ALWAYS wear (CE approved) minimum Personal Protective Equipment (P.P.E.) when carrying out ANY maintenance, refer to 1.7 Personal Protective Equipment (PPE).
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ANY adjustments must ONLY be carried out by trained personnel.

ANY modifications to ANY component or system must ONLY be carried out by trained Sandvik service engineers.



If during maintenance ANY items require rectification work, rectification work MUST be completed before attempting ANY machine operations.

6.2 Daily Maintenance Schedule

**DANGER****PERSONNEL HAZARD!**

Failure to adhere to relevant safety measures could cause serious injury or death.

Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.

NOTICE

The following tasks **MUST** be carried out **BEFORE** the machine is started each day!

1. Carry out engine daily checks as recommended by the engine manufacturer, refer to engine manual.
2. Check air pre-cleaner and control panel display for air filter blockage warning and carry out air filter service, refer to 6.7.4 Air Cleaner Service.
3. Inspect rubber seals of air cleaner for wear or damage.
4. Check / top up diesel fuel tank.
5. Check / top up hydraulic fluid tank level.
6. Inspect hydraulic / coolant / diesel / grease hoses for leaks or damage.
7. Check / drain the diesel water trap filter.
8. Check oil levels in tracks and feeders.
9. Check all rollers and drums move freely.
10. Check all safety guards are correctly installed and secure.
11. Clear all obstructions from screen box.
12. Check all emergency stops are working correctly, refer to 4.5.2 How to Operate an Emergency Stop.



Ensure oils and fluids are disposed of in accordance with local and national environmental regulations.

6.3 Weekly Machine Maintenance

 DANGER	
	PERSONNEL HAZARD! Failure to adhere to relevant safety measures could cause serious injury or death. Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.

1. Carry out all daily maintenance checks and procedures, refer to 6.2 Daily Maintenance Schedule.
2. Carry out engine weekly maintenance schedule, refer to the engine manual.
3. Carry out the weekly checks in the engine manual.
4. Check all bolts, guards and panels are present and secure.
5. Clear all build up of dust from the oil cooler and radiator.
6. Check the condition of conveyor belts, rollers and other moving parts.
7. Clear all obstructions from the screen box.
8. Lubricate all screen box bearings, refer to 6.7.10 Bearings - Grease
9. Check screen mesh for tension, and increase if necessary, refer to 6.7.5 Screen Mesh Tension - Adjust.
10. Check condition of service indicators on hydraulic filters, water trap and air breather. Replace if necessary.
11. Examine impact bars in lower section of oversize end conveyor for excessive damage. Replace if necessary.
12. Check pads on feeder conveyor for damage and clear any debris to ensure free movement of the material. Replace pads if necessary.
13. Check all bearings for any damage or wear. Replace if necessary.
14. Check the centralised grease system (if fitted).
15. Check feeder rear wing fixing bolts. Tighten if necessary.
16. Check feeder conveyor gearbox oil level.
17. Inspect and adjust all belt scrapers and sealing rubbers. Replace if necessary.
18. Track machine 10 meters (33ft) in both directions to prevent chain seizure, refer to 4.6 Moving the machine on the tracks.
19. After the first 50 hours of operation clean all the material off the screen box and check ALL the bolts, ensure they are tight.

6.4 Machine Maintenance - Every 250 Hours

**DANGER****PERSONNEL HAZARD!**

Failure to adhere to relevant safety measures could cause serious injury or death.

Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.

NOTICE

Ensure oil / filters are disposed of in accordance with local and national environmental regulations.

1. Carry out all daily and weekly maintenance checks and procedures.
2. Carry out engine maintenance schedule for 250 hours service, if required, refer to engine manual.
3. Change the hydraulic water trap - regardless of condition of service indicator.
4. Check for leaks on hydraulic hoses.
5. Remove the return hydraulic filters and install new filters, refer to 6.7.9 Replacing hydraulic filters.
6. Inspect condition of conveyor belts and belt tracking.
7. Inspect condition of all belt drums and rollers.
8. Inspect all bearings.
9. Check drive v-belts for wear, swelling, softening & tension - Replace if necessary.
10. Clean out water trap on fuel pre-filter. Follow procedure printed on the side of the filter.

Note: When diesel water trap is cleaned out, the fuel system will have to be primed.

6.5 Machine Maintenance - Every 500 Hours

 DANGER	
	PERSONNEL HAZARD! Failure to adhere to relevant safety measures could cause serious injury or death. Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.

NOTICE

Ensure oil / filters are disposed of in accordance with local and national environmental regulations.

1. Carry out all daily, weekly and 250 hours maintenance checks and procedures.
2. Carry out engine maintenance schedule for 500 hours service, engine oil, breathers, filters etc., refer to engine manual.
3. Replace hydraulic air tank breather, refer to 6.7.9 Replacing hydraulic filters.

6.6 Machine Maintenance - Every 1000 Hours

 DANGER	
	PERSONNEL HAZARD! Failure to adhere to relevant safety measures could cause serious injury or death. Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.

NOTICE

Ensure oil / filters are disposed of in accordance with local and national environmental regulations.

1. Carry out all daily, weekly, 250 and 500 hours maintenance checks and procedures.
2. Carry out engine maintenance schedule for 1000 hours service, refer to engine manual.
3. Change oil in feeder conveyor gearbox, refer to 6.7.11 Feeder gearbox.
4. Change diesel fuel filters.
5. Change hydraulic fluid, refer to 6.8 Lubricants and fluids.
6. Change oil in tracks, Refer to 6.7.15 Track Gearbox.
7. Check track tension, adjust only if necessary, refer to 6.7.16 Track Adjustment.

6.7 Maintenance procedures

**DANGER****PERSONNEL HAZARD!**

Failure to adhere to relevant safety measures could cause serious injury or death.

Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.

NOTICE

Ensure oil / filters are disposed of in accordance with local and national environmental regulations.

6.7.1 Engine oil level check

NOTICE

If filling or topping up oil, ensure no contamination enters the engine as this may cause damage!



Ensure engine is cool before carrying out this procedure!

Ensure oil is disposed of in accordance with local and national environmental regulations.

Ensure ALL measures in 6.1 Maintenance Safety are adhered to as a minimum safety requirement, during maintenance work!

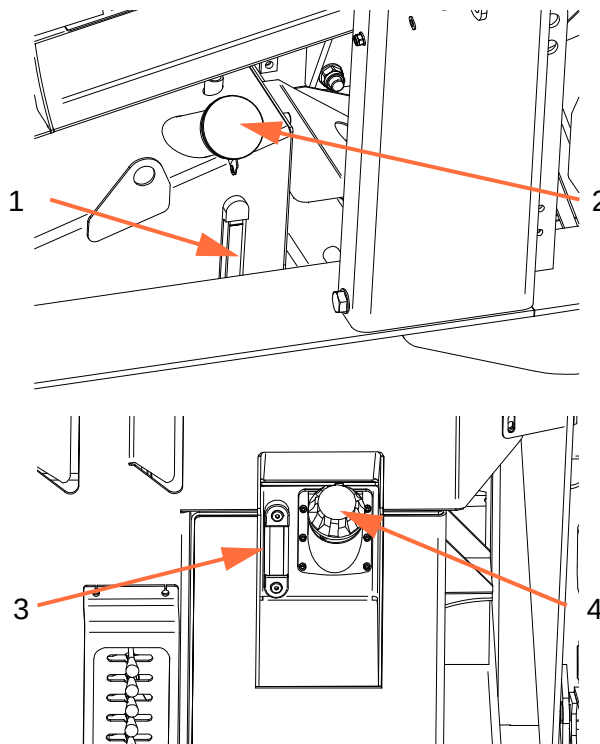
Refer to 6.8 Lubricants and fluids or engine manufacturer's handbook for engine oil specification.

6.7.2 Diesel Fuel and Hydraulic Fluid

NOTICE

If filling or topping up oil, ensure no contamination enters as this may cause damage!

1. Check diesel fuel level; gauges on each side.
2. Remove filler cap and top up. Clean around filler cap before removal to avoid contamination and use a suitable funnel to avoid spillage.
3. Check hydraulic fluid level on the level / temperature gauge.
4. Remove filler cap and top up if necessary. Clean around filler cap before removal to avoid contamination.



Ensure engine is cool before carrying out this procedure!



Ensure all fluids are disposed of in accordance with local and national environmental regulations.

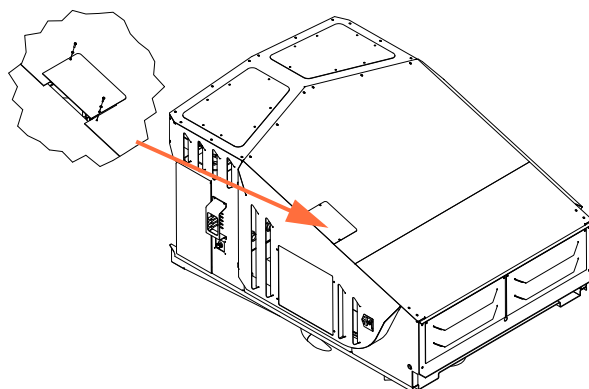
Ensure ALL measures in 6.1 Maintenance Safety are adhered to as a minimum safety requirement, during maintenance work!

6.7.3 Check Engine Coolant Level

NOTICE

If filling or topping up coolant, ensure no contamination enters the radiator as this may cause damage!

1. Remove radiator service cover.
2. Remove radiator cap and check coolant level, top up if necessary. Refer to 6.8 Lubricants and fluids.
3. Install radiator service cover.





Ensure coolant is cool before carrying out this procedure!

Ensure ALL measures in 6.1 Maintenance Safety are adhered to as a minimum safety requirement, during maintenance work!

6.7.4 Air Cleaner Service

NOTICE

The following guidelines assume the machine is being operated under normal environmental conditions. If environmental conditions are extremely dusty or dirty, more frequent servicing may be necessary.



DANGER



DUST HAZARD!

Breathing dust will cause serious injury or death.

ALWAYS wear (CE approved) minimum Personal Protective Equipment (P.P.E.), including a respirator. Refer to 1.7 Personal Protective Equipment (PPE).

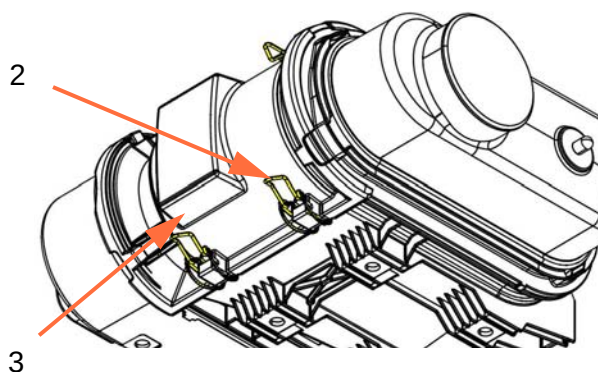
Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.

Note: Service indicator illuminates red when filters need to be replaced, not cleaned. Both, air filter cleaning and replacement is explained below. Where differences exist, it is indicated in the text. Regardless of service indicator status, air filters **MUST** be cleaned and replaced every fifth service. Renew filters at least once a year.

1. Prior to maintenance work and whilst machine is running, check water in fuel / blocked air filter service indicator on control box display. If illuminated red, air filters must be replaced during maintenance.



2. Release air filter box clips
3. Remove the cover.

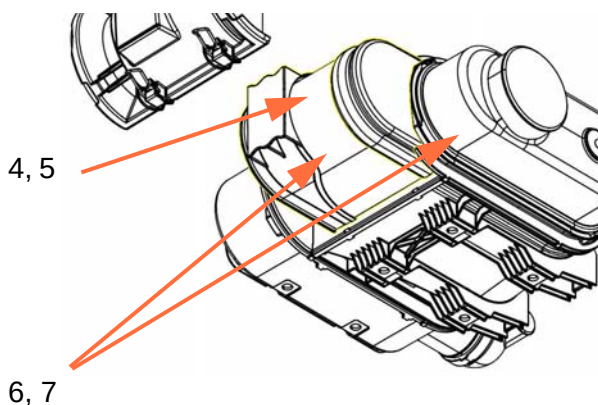


Cleaning primary filter:

4. Remove primary filter and thoroughly clean, away from filter housing, (to avoid contamination) using an industrial vacuum cleaner.

Cleaning or Replacement primary filter:

5. Thoroughly clean inside filter housing using a dry lint free cloth and an industrial vacuum cleaner



Note: Do not remove or clean secondary filter.

If replacing both filters:

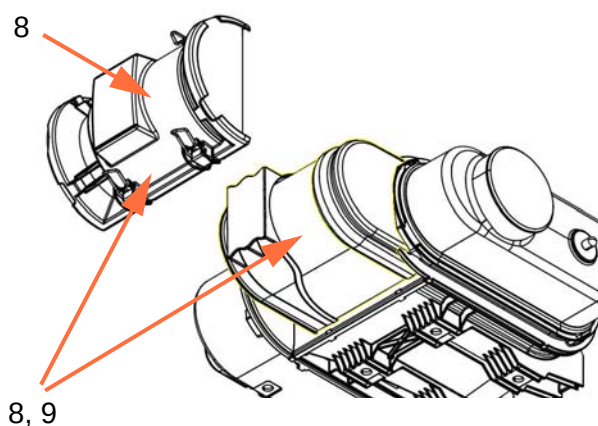
6. Remove primary filter and discard.
7. Remove secondary filter and discard.

After cleaning primary filter:

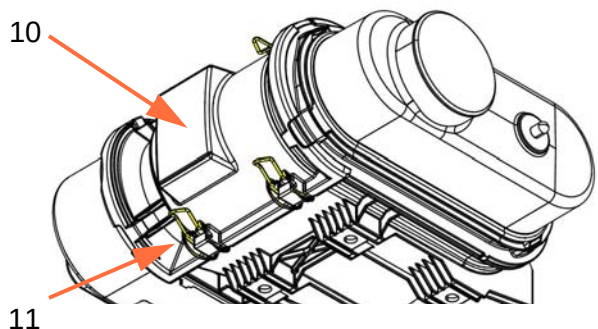
8. Install primary filter.

Replacement of both filters.

9. Install new secondary filter then primary filter.

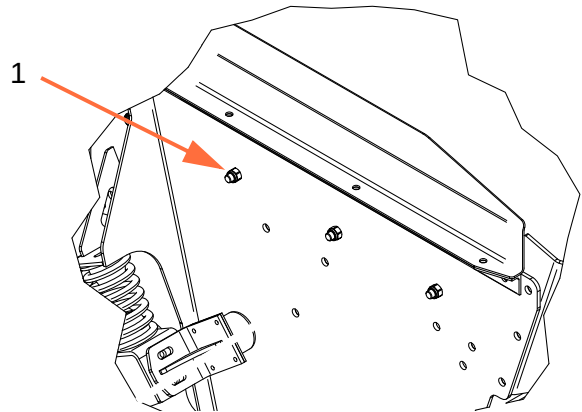


10. Install cover.
11. Secure air filter box with clips.

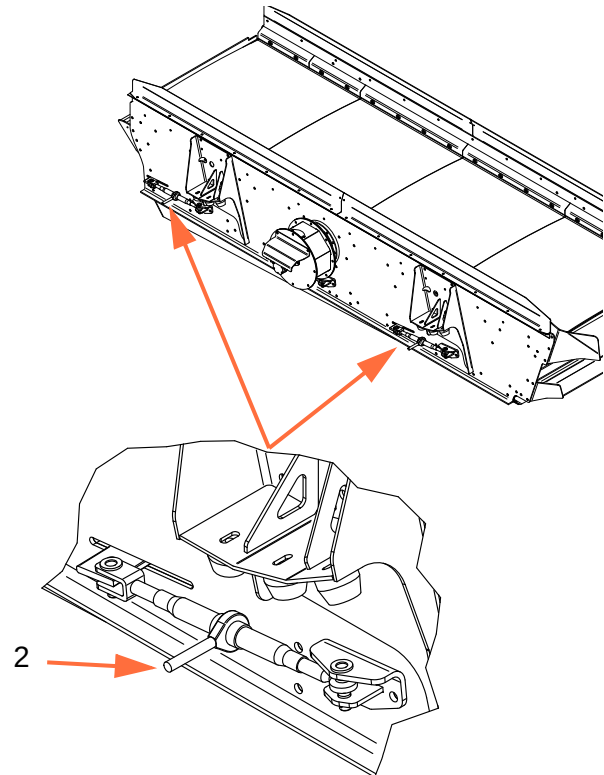


6.7.5 Screen Mesh Tension - Adjust

1. Check condition of screen top mesh and tension by tightening nuts as necessary, equally on both sides.



2. Bottom mesh, tighten all ratchets equally on both sides.

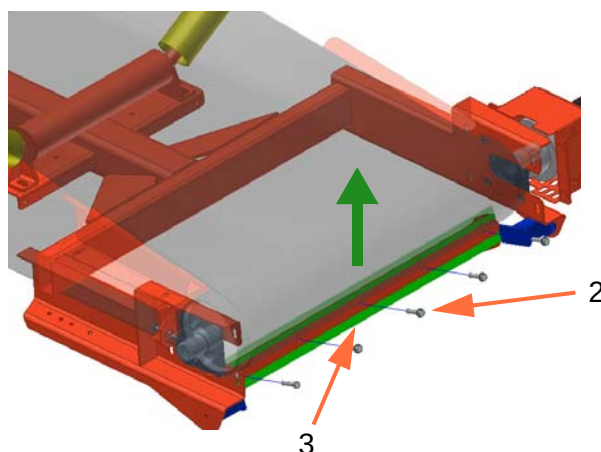
**TRAPPING / ENTANGLEMENT HAZARD!**

Getting trapped or entangled in machinery could cause serious injury or death.

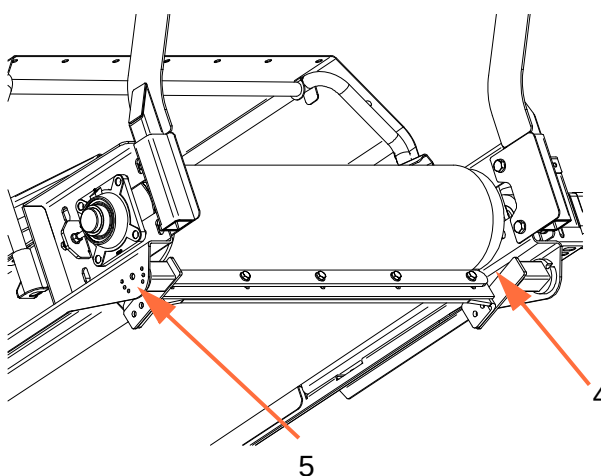
Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.

6.7.6 Belt Scrapers - Adjust

1. Check belt scrapers on all the conveyors and adjust if necessary.
2. Loosen all bolts.
3. Move scraper rubber up as necessary. Tighten all bolts.



4. Use a spanner on adjuster arm to hold in position.
5. Remove positioning nut and bolt.
6. Pivot the adjuster arm with spanner until next hole and slot are aligned. Adjust scraper rubber as above if necessary.
7. Install and tighten nut and bolt in new position.



FALLING HAZARD!

Falling from height could cause serious injury or death.

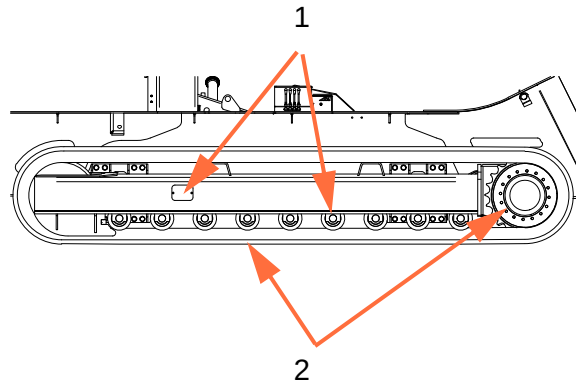
Ensure working platform is installed including safety rails and anchor points.

Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.



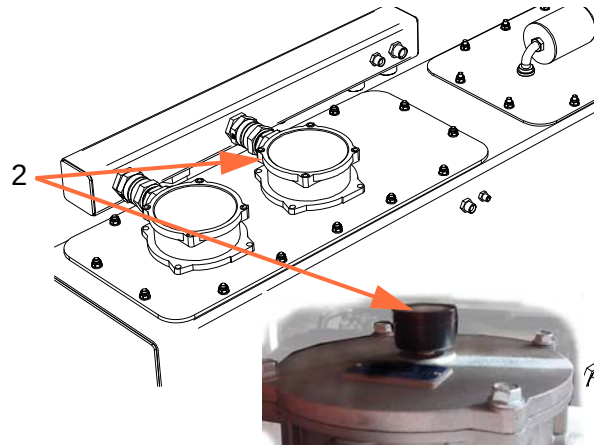
6.7.7 Inspection of the Tracks

1. Check track idler rollers and relief valve area for any signs of leakage.
2. Check track idler rollers, track shoes and drive sprockets for any signs of wear and or loose mounting bolts.
3. Following maintenance, listen for abnormal noises when the machine is moving slowly.
4. If track adjustment is necessary, refer to 6.7.16 Track Adjustment.



6.7.8 Hydraulic return filter service indicator

1. The machine hydraulic system must be on to carry out this procedure, refer to 4.4 Engine starting Procedure.
2. Check service indicator on top of filter, if it the indicator is red replace return filter.
3. Alternatively, if an electronic sensor is installed check control panel for fault code, refer to 6.9.1 Screener Fault Codes.
4. Stop machine before replacing filter, refer to 4.9 Shut Down the Machine.



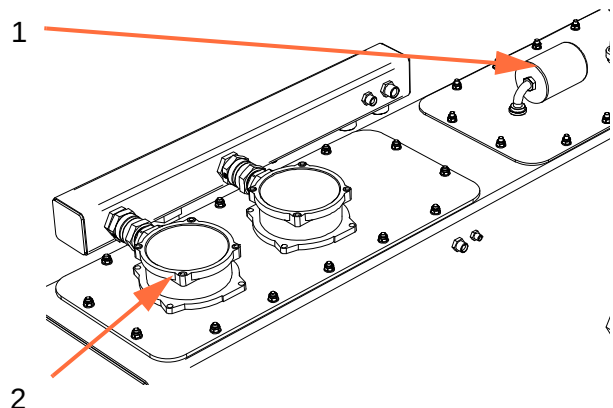
6.7.9 Replacing hydraulic filters

NOTICE

Clean around return and vent filters before removal to ensure no contamination enters as this may cause damage!

Ensure filters are disposed of in accordance with local and national environmental regulations.

1. Turn to unscrew and remove then renew hydraulic air tank vent filter.
2. Remove cover bolts and cover then remove filter.
3. Install new filter ensuring 'O' rings are in place.
4. Refit cover, install and tighten the bolts.

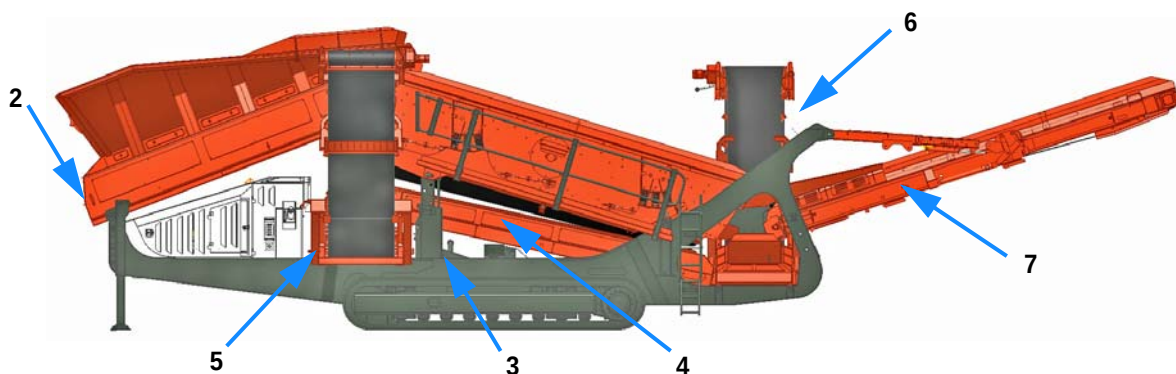


6.7.10 Bearings - Grease

NOTICE

Never use grease containing molybdenum!

This may cause damage to the machine components and will invalidate the warranty.



1. Apply grease where indicated >

Refer to 6.8 Lubricants and fluids for specification.

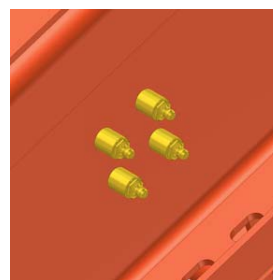
2. Feeder bearings grease points on both sides.



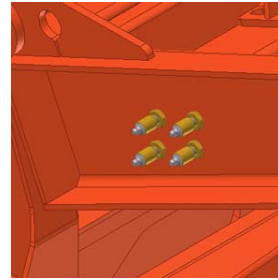
3. Screen box bearing grease points on both sides.



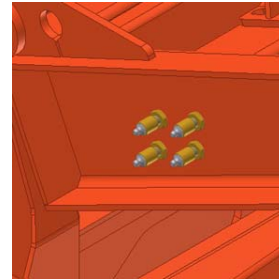
4. Fines collector bearing grease points.



5. Fines side conveyor bearings grease points.



6. Mid grade side conveyor bearings grease points. (On far side)



7. End oversize conveyor bearing grease points.



6.7.11 Feeder gearbox

1. 6.8 Lubricants and fluidsCheck oil level at level plug which is positioned level with the centre line of the gearbox, oil should be level with the centre line of the gearbox.
2. Remove the uppermost filler plug and top up as necessary.
3. When changing the oil, unscrew the uppermost plug then remove the lowest plug to drain the oil.
4. Inspect and clean the magnetic drain plug before installing.
5. Fill to level plug which is positioned level with the centre line of the gearbox, oil should be level with the centre line of the gearbox, refer to 6.8 Lubricants and fluids.



FALLING HAZARD!

Falling from height could cause serious injury or death.

Ensure working platform is installed including safety rails and anchor points.

Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.

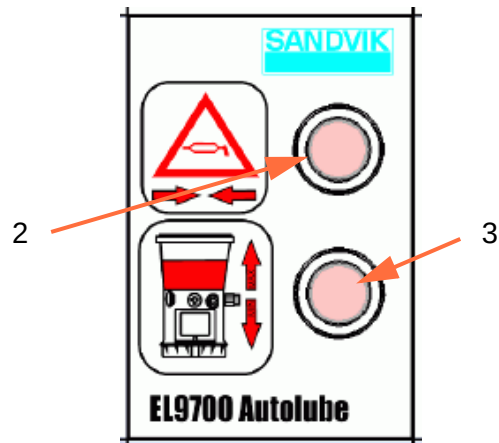


6.7.12 Optional centralised grease system

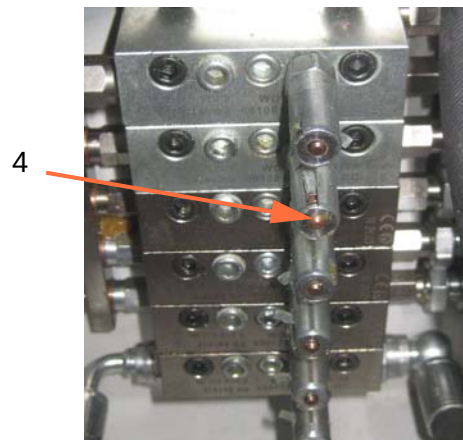
 WARNING	
	SKIN PENETRATION HAZARD! Grease under pressure, entering the skin, could cause serious injury or death. Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement. ALWAYS wear (CE approved) minimum Personal Protective Equipment (P.P.E.) when carrying out ANY maintenance.

Note: Grease system is used to lubricate all major parts, it is factory set and just needs periodic topping up.

1. Check warning indicator on control box which identifies the following:
2. High pressure warning light; Grease hose line/s are blocked and or system failure and shut down.
3. Low pressure warning light; Grease is low.



4. If blocked - Pop-up indicator/s identifies the blocked line. Remove blockage and reset indicator.



5. Top up grease level as necessary.
6. Press the 'Reset' button on completion.

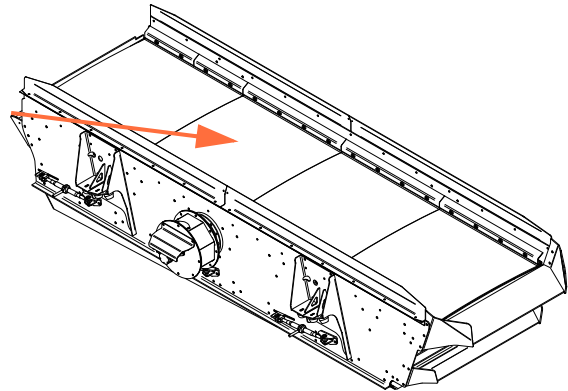


6

6.7.13 Screen Box

Inspect screen box and remove all blockages.

Note: After first 50 hours of operation clean all the material off the screen box and check ALL the bolts, ensure they are tight.



FALLING HAZARD!

Falling from height could cause serious injury or death.

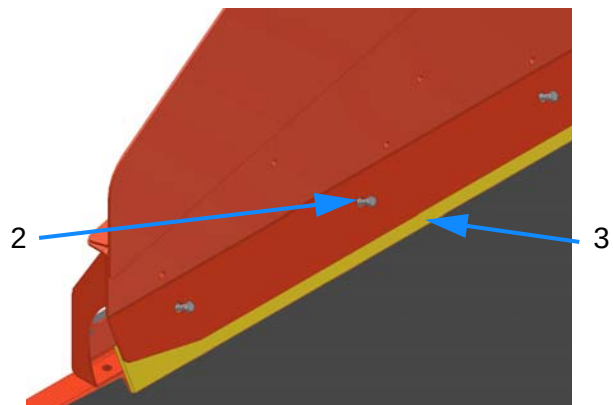
Ensure working platform is installed including safety rails and anchor points.

Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.



6.7.14 Inspecting/ Adjusting Belt Sealing Rubbers

1. Inspect the following:
 - Fines Collector Conveyor.
 - Oversize end conveyor.
 - Fines Side Conveyors.
 - Mid Grade Side Conveyor.
2. If necessary: Loosen the bolts
3. Move sealing rubber ensuring there is no clearance between belt and rubber.
4. Tighten the bolts.



FALLING HAZARD!

Falling from height could cause serious injury or death.

Ensure working platform is installed including safety rails and anchor points.

Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.



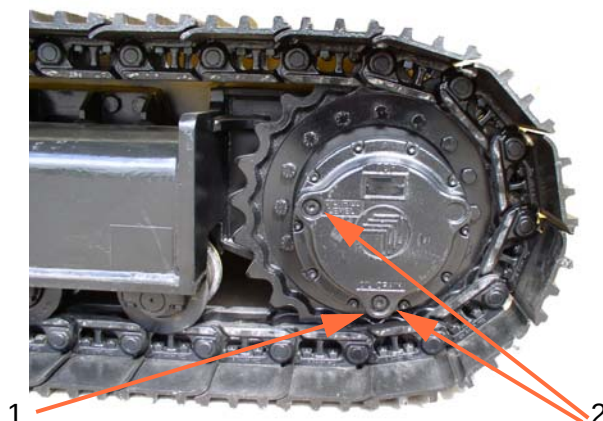
6.7.15 Track Gearbox

Track Gearbox Oil - Drain

1. To drain oil from track gearbox, drive the machine until the oil drain plug is at the bottom.

Note: Machine must be on level horizontal ground.

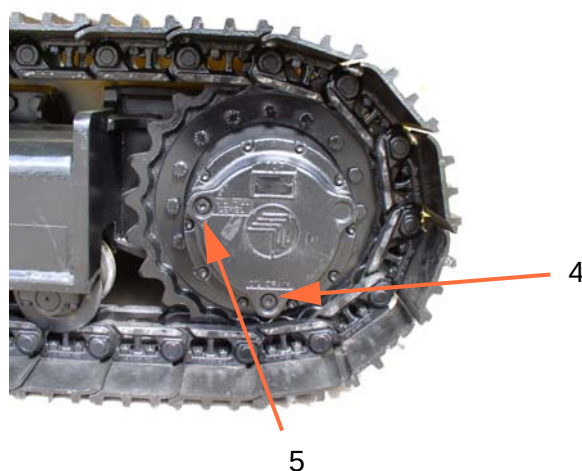
2. Remove filler and drain plugs.
3. Allow oil to thoroughly drain into a suitable container.

**NOTICE**

Ensure oil is disposed of in accordance with local and national environmental regulations.

Track Gearbox Oil - Fill

4. Install and tighten oil drain plug
5. Using a suitable gearbox oil, refer to 6.8 Lubricants and fluids, fill gearbox to level of filler plug hole. Do not overfill.
6. Install and tighten oil fill plug.

**NOTICE**

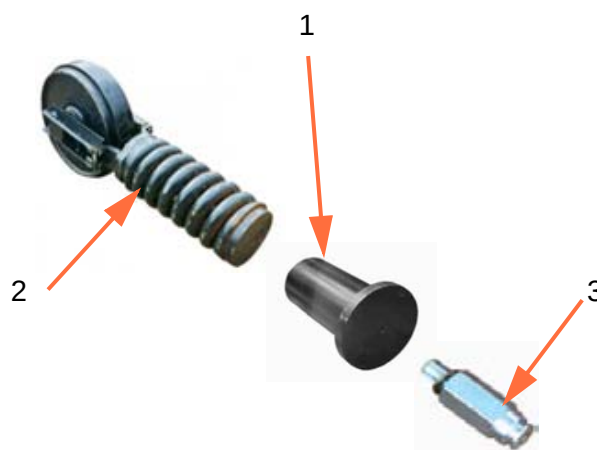
When filling up gearbox oil, ensure no contamination enters the gearbox as this will cause damage!

6.7.16 Track Adjustment

 WARNING	
	SKIN PENETRATION HAZARD! Grease under pressure, entering the skin, could cause serious injury or death. Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement. ALWAYS wear (C.E. approved) minimum Personal Protective Equipment (P.P.E.) when carrying out ANY maintenance. NEVER unscrew a track adjuster valve more than half a turn, when track adjuster is under tension.

Note: After maintenance or over time the track will become slack and will have to be adjusted.

1. The adjustment of the tracks operates through a grease tensioning cylinder.
2. When the cylinder is filled with grease it extends and pushes the spring tension and the idler, forward.
3. The grease is filled through the track adjuster grease valve.



6.7.17 Track tension check

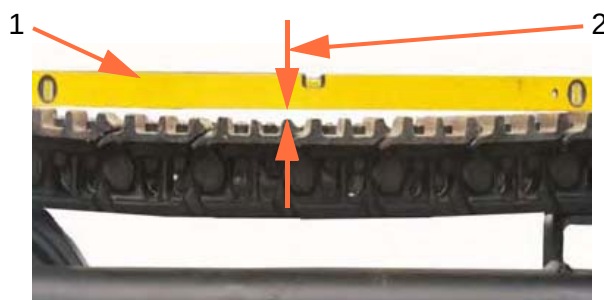
In order to establish if the track requires tensioning, move machine 10m (33ft) forwards and backwards on level ground to allow the tracks to adopt their natural degree of tension. Refer to 4.6 Moving the machine on the tracks.

Note: Do not slew the machine.

NOTICE

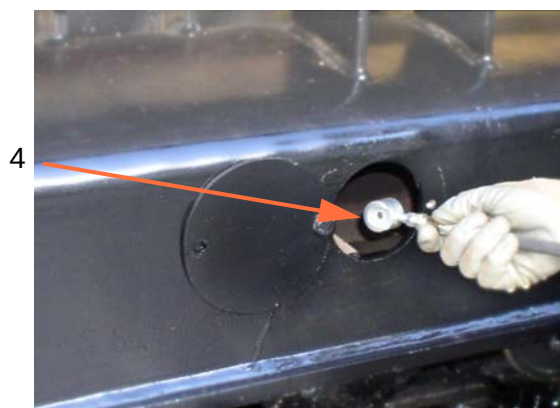
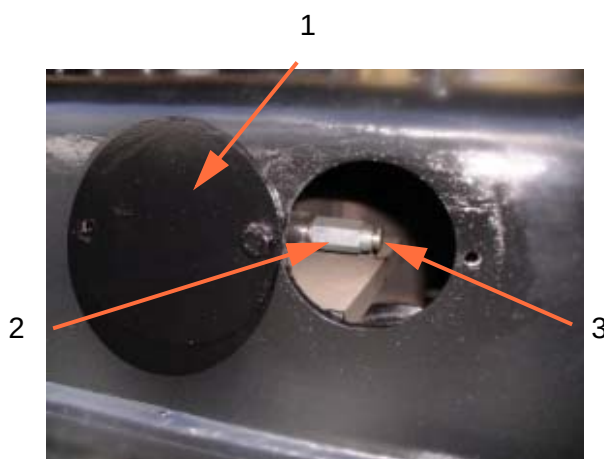
It is important the track is not tensioned too tightly as this places excessive loads on the gearbox and idler bearings. It will also lead to accelerated wear and premature failures.

1. Use a straight edge and measure the maximum droop of the track.
2. Droop should not exceed 30mm (1.2in).



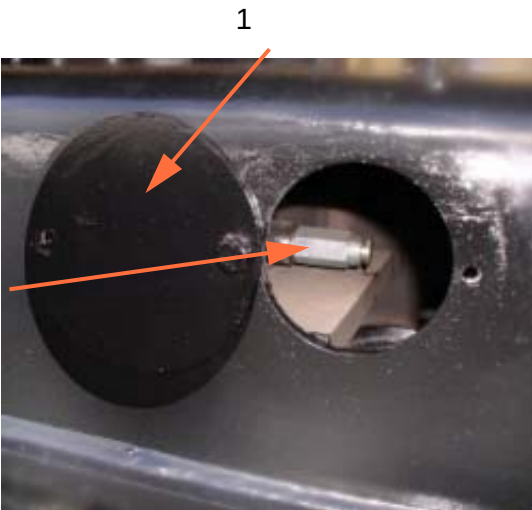
6.7.18 Increasing The Track Tension

1. Remove inspection cover on side of track frame.
2. Ensure track adjuster valve is tight.
3. Attach special grease gun connector to a grease gun and fit it onto the track adjuster valve.
4. Pump grease into adjuster valve until droop of the track is correct, Refer to 6.8 Lubricants and fluids.
5. Recheck the track tension, refer to 6.7.17 Track tension check.
6. Clean off any excess grease and install the inspection cover.



6.7.19 Releasing The Track Tension

- 1. Remove inspection cover on side of track frame.
- 2. Check droop of track, refer to 6.7.17 Track tension check.
- 3. Loosen track adjuster valve, by turning it **ONLY A HALF** turn anti-clockwise.
- 4. Grease should slowly escape from track tensioning cylinder and the track slacken.
- 5. When satisfactorily tensioned, tighten track adjuster valve.
- 6. Install inspection cover.



6.7.20 Conveyor Belt - Safety

- 1. The following safety precautions must be adhered to when working on the conveyor belts.

**DANGER**



PERSONNEL HAZARD!

Working in close proximity to running machinery could cause serious injury or death.

Ensure machine is stopped, isolated and tagged with the ignition key removed before ANY conveyor work is started, refer to 4.10 Lockout and Tag Procedure.

Ensure ALL measures in 6.1 Maintenance Safety are adhered to throughout ALL maintenance procedures as a minimum requirement.

**WARNING**



PERSONNEL HAZARD!

Lack of knowledge or understanding could cause severe injury or death.

If you DO NOT understand ANY information in ANY part of this manual you MUST seek clarification from your supervisor or a Sandvik representative, before attempting ANY maintenance.

ALWAYS wear (C.E. approved) minimum Personal Protective Equipment (P.P.E.) when carrying out ANY maintenance, refer to 1.7 Personal Protective Equipment (PPE).

**WARNING****ENTANGLEMENT HAZARD!**

Getting clothing or your self trapped in belt or rollers could cause serious injury or death.

Take necessary precautions to ensure you **DO NOT** get clothing or yourself trapped between belt and rollers.

**WARNING****FALLING HAZARD!**

Falling from height could cause serious injury or death.

Ensure working platform is installed including safety rails and anchor points.

NOTICE

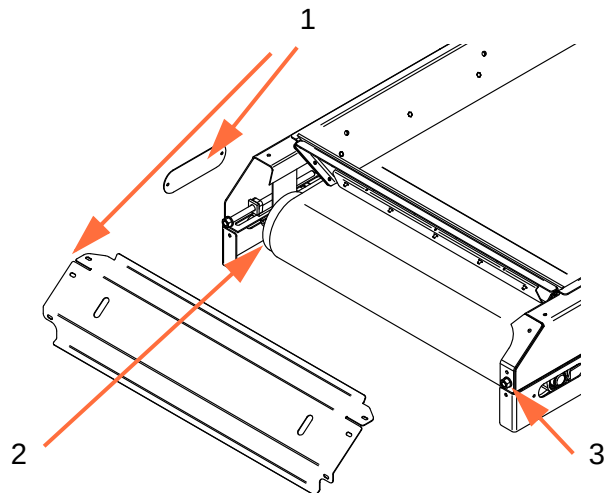
DO NOT over tighten the belt/s as this will cause damage to the drum bearings.



Ensure feeder, screen box and conveyors are clear of all material before making **ANY** adjustments.

6.7.21 Fines Collector Conveyor Belt

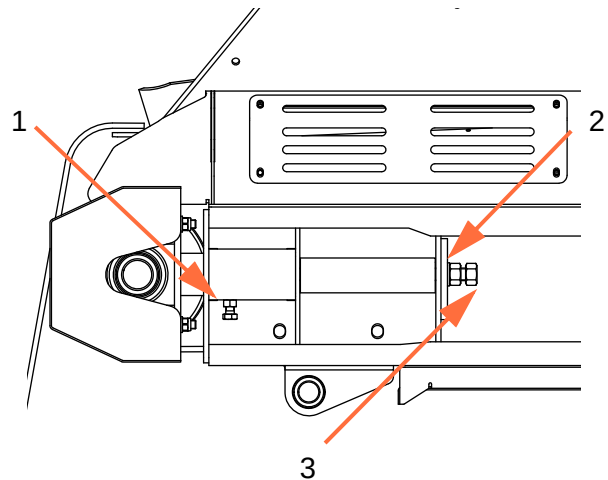
1. Remove covers.
2. Loosen bearing clamp bolts.
3. Adjust tension screws as necessary.
4. Ensure both sides are adjusted equally and tail drum is aligned correctly.
5. Ensure conveyor belt is central to drum.
6. Tighten bolts and install covers when belt is central and slack reduced.
7. Repeat procedure if necessary.



Ensure ALL measures detailed at the start of this section, Refer to 6.7.20 Conveyor Belt - Safety are adhered to as a minimum safety requirement, during this maintenance work!

6.7.22 Oversize Conveyor Belt

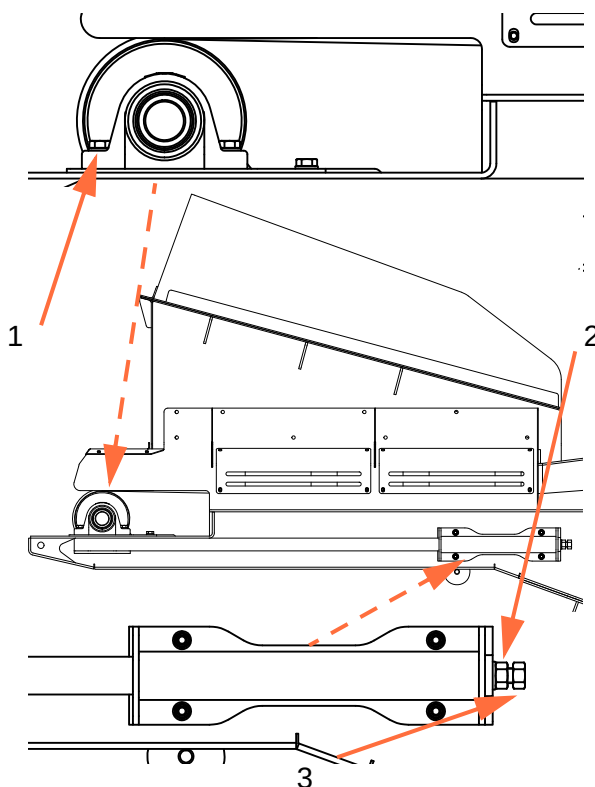
1. Loosen clamp bolts.
2. Loosen locking nuts.
3. Adjust tension screw as necessary.
4. Ensure both sides are adjusted equally and tail drum is aligned correctly.
5. Ensure conveyor belt is central to drum.
6. Tighten bolts when belt is central and slack is reduced.
7. Repeat procedure if necessary.



Ensure ALL measures detailed at the start of this section, Refer to 6.7.20 Conveyor Belt - Safety are adhered to as a minimum safety requirement, during this maintenance work!

6.7.23 Side Conveyor Belts

1. Loosen bearing clamp bolts.
2. Loosen locking nuts.
3. Adjust tension screw as necessary.
4. Ensure both sides are adjusted equally and tail drum is aligned correctly.
5. Ensure conveyor belt is central to drum.
6. Tighten bolts when belt is central and slack is reduced.
7. Repeat procedure if necessary.



Ensure ALL measures detailed at the start of this section, Refer to 6.7.20 Conveyor Belt - Safety are adhered to as a minimum safety requirement, during this maintenance work!

6.7.24 Screen Mesh Safety

The following safety precautions must be adhered to when working on screen mesh.



DANGER



PERSONNEL HAZARD!

Working in close proximity to running machinery could cause serious injury or death.

Ensure machine is stopped, isolated and tagged with the ignition key removed before ANY screen mesh work is started. Refer to 4.10 Lockout and Tag Procedure.

 WARNING	
 	PERSONNEL HAZARD! Lack of knowledge or understanding could cause severe injury or death. If you DO NOT understand ANY information in ANY part of this manual you MUST seek clarification from your supervisor or a Sandvik representative, before attempting ANY maintenance. ALWAYS wear (CE approved) minimum Personal Protective Equipment (P.P.E.) when carrying out ANY maintenance, refer to 1.7 Personal Protective Equipment (PPE).

 WARNING	
	FALLING HAZARD! Falling from height could cause serious injury or death. Ensure working platform is installed including safety rails and anchor points.

6.7.25 Screen mesh - general

The top mesh is the first filter material will go through and will exit on to bottom mesh, or if above the size will exit through the oversize conveyor.

The bottom mesh is the final filter material will go through and will exit on to fines collector and on to the fines side conveyor, or if above the mesh size will exit through mid grade conveyor.

Change mesh if It is damaged or worn or if It is necessary to output a different size of material.

6.7.26 Access to the Screen box



Ensure ALL measures detailed at the start of this section, Refer to 6.7.24 Screen Mesh Safety are adhered to as a minimum safety requirement, during this maintenance work!



Ensure no persons are on or near machine as this may cause serious injury or death.

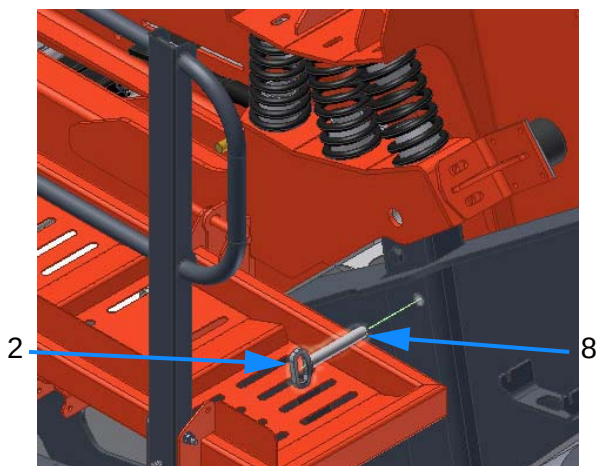


Ensure all locating pins are in correct positions before you start work or do maintenance on the machine.

1. Set screen box to its highest position before lifting at the front.->

Refer to 4.7.6 Set Up the Screen Box Height.

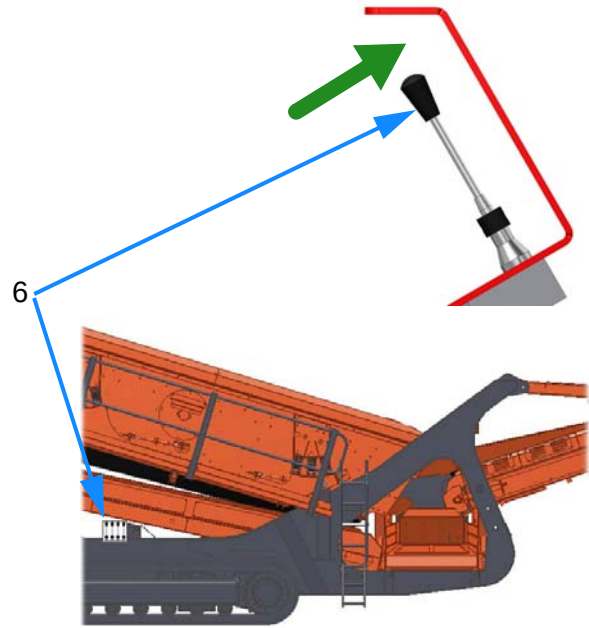
2. Remove pins from both screen box mesh changing legs.
3. Un-tag machine, refer to 4.10.1 The Un-Tag Procedure.
4. Start machine, refer to 4.4 Engine starting Procedure.



5. Turn engine speed switch to position 2.

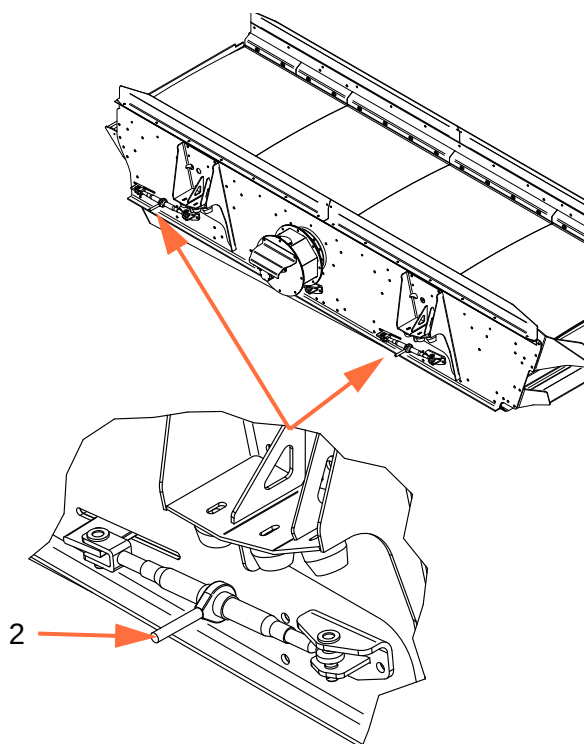


6. Push Mesh Change Up/Down lever to lift screen box to necessary height.
7. Ensure machine is off, locked and tagged out. Refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.
8. Install pins previously removed to both screen box mesh changing legs.

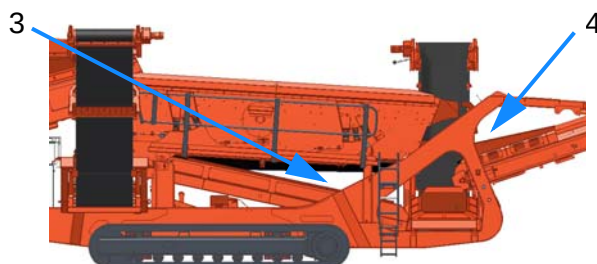


6.7.27 Bottom Screen Mesh - Remove

1. If necessary remove top mesh, refer to 6.7.30 Top Screen Mesh - Remove.
2. Position ratchet latch then move levers to loosen mesh tensioning ratchet.



3. Access the bottom of the screen box through the area shown.
4. Slowly and carefully move the meshes through the screen box to the oversize conveyor.
5. Remove meshes from the oversize conveyor.

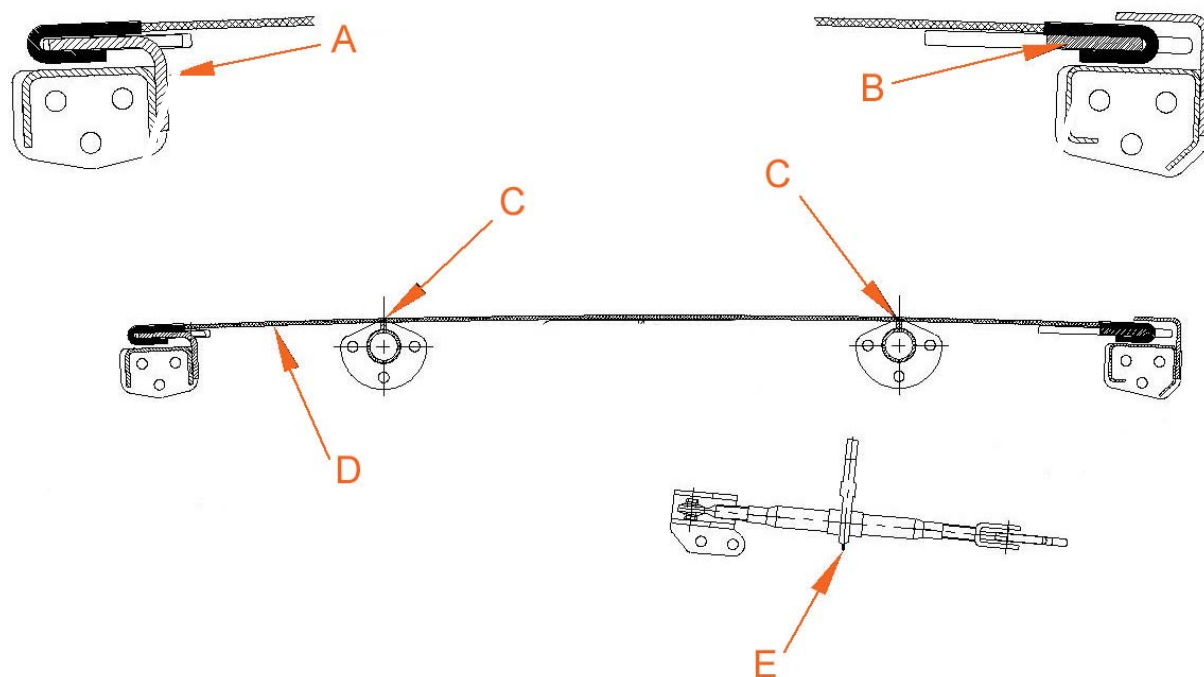


Ensure ALL measures detailed at the start of this section, Refer to 6.7.20 Conveyor Belt - Safety are adhered to as a minimum safety requirement, during this maintenance work!

6.7.28 Bottom Screen Mesh - Install



Ensure ALL measures detailed at the start of this section, Refer to 6.7.20 Conveyor Belt - Safety are adhered to as a minimum safety requirement, during this maintenance work!



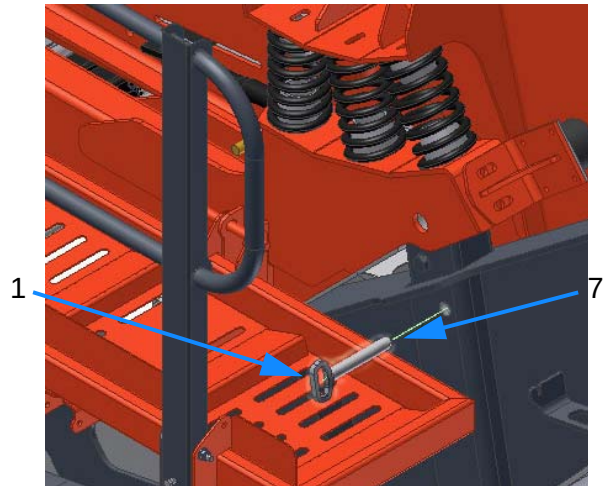
- A Fixed mesh hook
- B Tension adjusting bar
- C Rubber capping

- D Screen mesh
- E Tensioning ratchet

1. Inspect rubber 'C'. Replace if necessary.
2. Place screen mesh 'D' on the oversize conveyor.
3. Move screen mesh through the conveyor into the correct position.
4. Install screen mesh as shown between the fixed mesh hook 'A' and tension adjusting bar 'B'.
5. Position ratchet latch then move levers 'E' to tighten mesh against support bars using tensioning ratchet.

6.7.29 Set Screen Box to Working Position

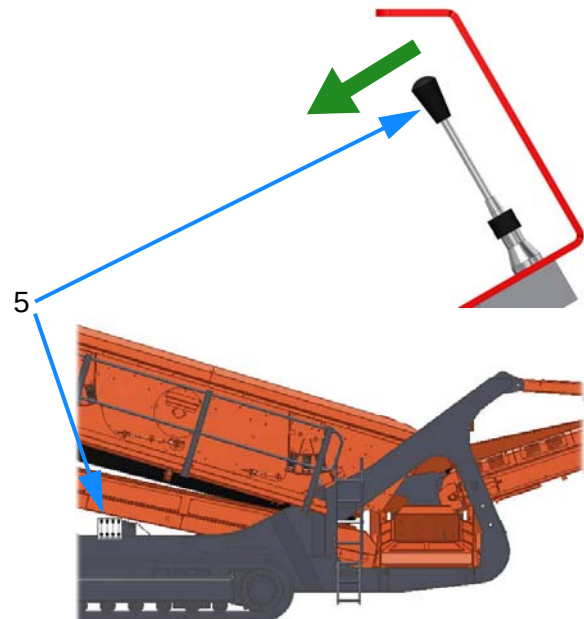
1. Remove pins from both screen box mesh changing legs.
2. Un-tag machine, refer to 4.10.1 The Un-Tag Procedure.
3. Start machine, refer to 4.4 Engine starting Procedure.



4. Turn engine speed switch to position 2.



5. Pull Mesh Change Up/Down lever to lower screen box to working height.
6. Ensure machine is off, locked and tagged out, refer to 4.9 Shut Down the Machine and 4.10 Lockout and Tag Procedure.
7. Install pins to both screen box mesh changing legs.
8. Un-tag machine, refer to 4.10.1 The Un-Tag Procedure.



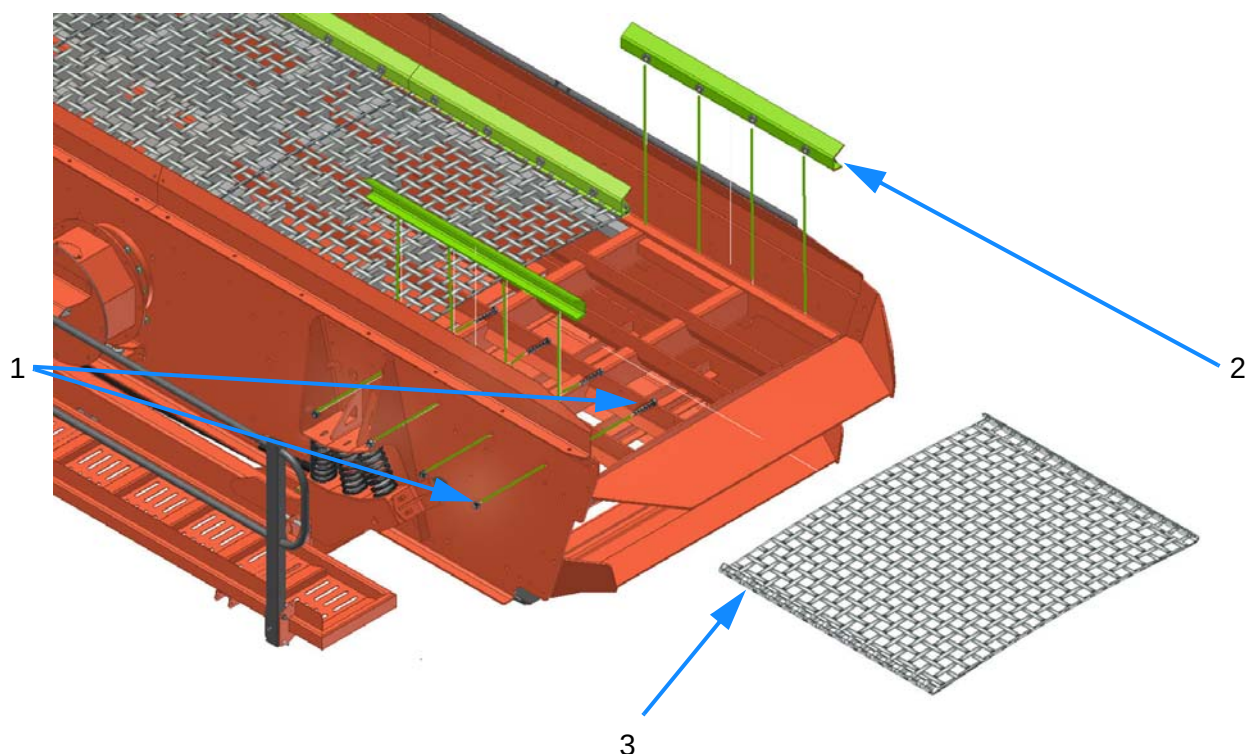
Ensure ALL measures detailed at the start of this section, Refer to 6.7.20 Conveyor Belt - Safety are adhered to as a minimum safety requirement, during this maintenance work!!

6.7.30 Top Screen Mesh - Remove

1. Remove nuts and bolts holding support strips.
2. Remove the support strips.
3. Remove screen mesh sections.



Ensure ALL measures detailed at the start of this section, Refer to 6.7.20 Conveyor Belt - Safety are adhered to as a minimum safety requirement, during this maintenance work!

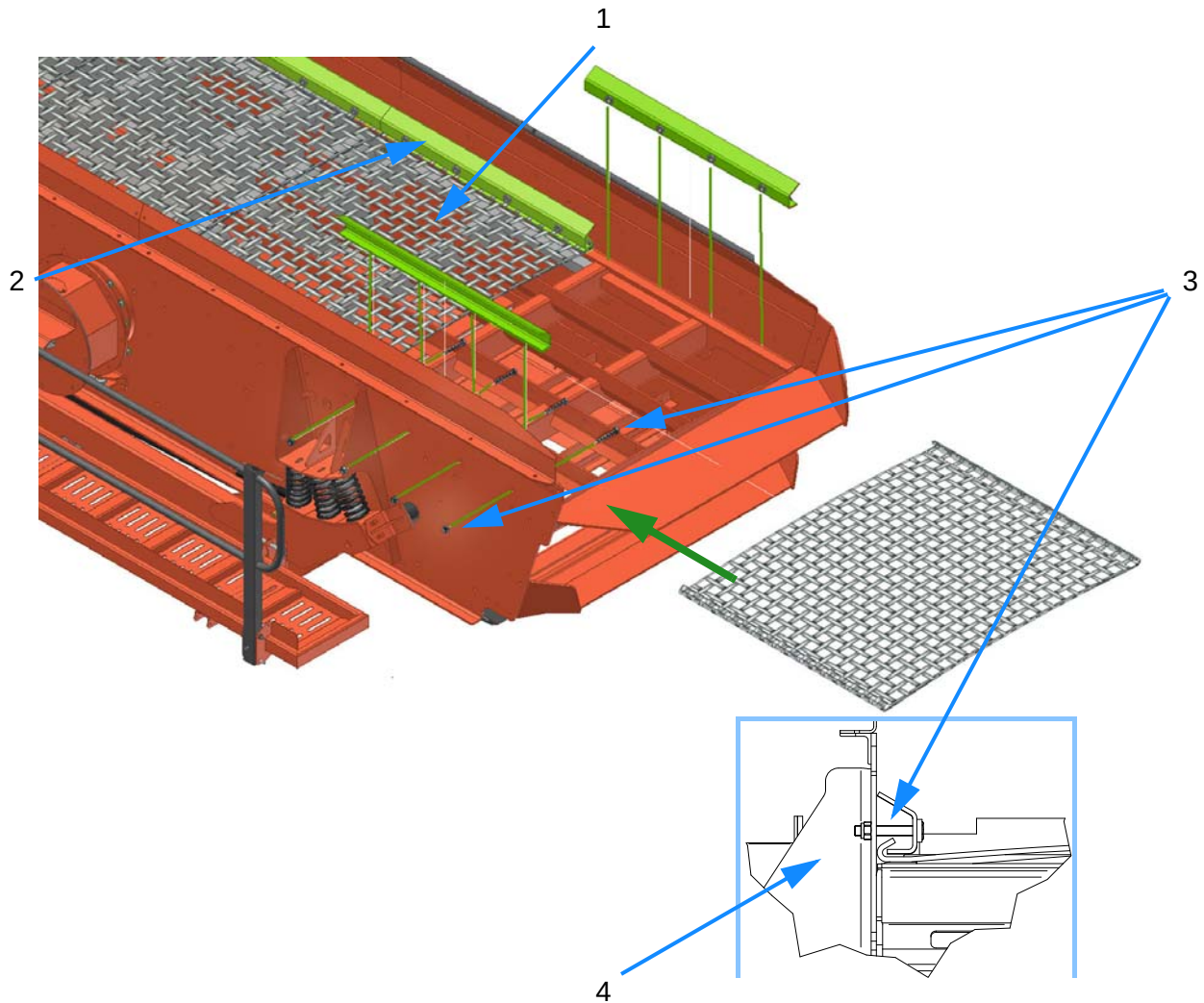


6.7.31 Top Screen Mesh - Install

1. Install screen mesh section into position.
2. Install support strips.
3. Install bolts and nuts then tighten.
4. Adjust to the tension required in the screen mesh, see inset end view.



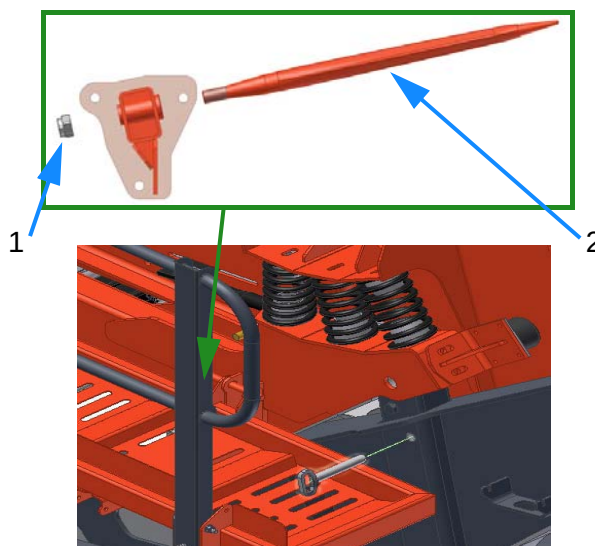
Ensure ALL measures detailed at the start of this section, Refer to 6.7.20 Conveyor Belt - Safety are adhered to as a minimum safety requirement, during this maintenance work!



6.7.32 Top Screen Tine Bars (Option)

If a tine bar is bent or damaged replace as follows:

1. Remove nut.
2. Remove tine bar.
3. When fitting replacement bar, check all other tine bars for security, tighten if required.



Ensure ALL measures detailed at the start of this section, Refer to 6.7.20 Conveyor Belt - Safety are adhered to as a minimum safety requirement, during this maintenance work!

6.8 Lubricants and fluids

Reference	Maximum volume or qty.	Ambient temperature range	Manufacturer - equivalent specification	Sandvik part No
Engine coolant		All	Univar Caflon HDA pre-mixed	CN8015
Diesel fuel	230Lt (60 USgal)	-	Low sulphur Diesel	CN6004 ? CN7834 ?
Engine Oil	10Lt (2.6 USgal)	-10 to +50°C (14 to 122°F)	Shell Rimula RT4 15W-40	CN7898
		-35 to +25°C (-31 to +77°F)	Shell Rimula R6 LME 5W-30	CN7998
Engine oil alternative		-	See engine manufacturer's manual	-
Feed hopper conveyor drive gearbox		5 to 30°C (41 to 86°F)	Shell Omala S4 WE 460	-
Hydraulic System	460Lt (121 USgal)	-10 to +50°C (14 to 122°F)	Shell Tellus S2 V46	CN6070 ? CN6074 ?
		-25 to +25°C (-13 to +77°F)	Shell Tellus S2 V32	CN5700 ? 825.0156-00
		-	Shell Tellus S2 V68	CN7739

Reference	Maximum volume or qty.	Ambient temperature range	Manufacturer - equivalent specification	Sandvik part No
General grease lubrication and track tension	-	-	Shell Gadus S3 V220C 2 grease	CN6073
Screen box	20g (0.7oz)	-	Exxon Unirex N 3 Grease	CN6012
Track gearbox	5Lt (1.3 USgal)	-	Exol Athena EP90 Gear Oil	-
Track gearbox alternative		-	Shell Spirax S6 GXME 75W-80	CN5703 ? CN6100 ?

A full list of substances hazardous to health associated with this equipment can be found in section 10.2 Hazardous substances.

6.9 Machine Fault Codes

6.9.1 Screener Fault Codes

Code	Fault	Output	Connector
C0001	ESTOP		
C0002	Engine Remote Stop activated by handset		
C0003	Communication problem - Engine interface unit not receiving messages from rest of crusher electronics		
C0004	Communication problem - Engine interface unit not receiving messages from engine		
C0005	Communication problem - Crusher electronics is not receiving any messages from radio receiver		
C0011	Communication problem - Electronics not receiving any message from I/O unit		
C0033	Electrical problem with Valve output on EL9614 unit	Left Track Forward	EL9614 Unit, Grey 12Way Connector Pin 2, Wire ID ?
C0034	Electrical problem with Valve output on EL9614 unit	Left Track Reverse	EL9614 Unit, Grey 12Way Connector Pin 3, Wire ID ?
C0035	Electrical problem with Valve output on EL9614 unit	Right Track Forward	EL9614 Unit, Grey 12Way Connector Pin 4, Wire ID ?
C0036	Electrical problem with Valve output on EL9614 unit	Right Track Reverse	EL9614 Unit, Grey 12Way Connector Pin 5, Wire ID ?
C0037	Electrical problem with Valve output on EL9614 unit	Feeder Valve	EL9614 Unit, Grey 12Way Connector Pin 6, Wire ID ?
C0129	Belt speed sensor on discharge conveyor is turning at less than 10m/min. Feeder will be disabled		
C0131	Hydraulic Temperature transducer not connected (reading below 4mA)		
C0132	Hydraulic Oil over temperature - warning level 1, oil > 75degrees		
C0133	Hydraulic Oil over temperature - warning level 2, oil > 80degrees, Feeder disabled		

Code	Fault	Output	Connector
C0134	Hydraulic Oil over temperature - warning level 3, oil > 90degrees, Engine shutdown		
C0140	Hydraulic Oil Level Low - Warning Level 1, Level below set-point for <30seconds, Feeder disabled		
C0141	Hydraulic Oil Level Low - Warning Level 2, Level below set-point for >30seconds, Engine shutdown		
C0144	Blocked Hydraulic Oil Filters - Warning Level 1, Warning only no action taken		

6.9.2 Engine Fault Codes (Caterpillar C4.4 engine)

CDL Code	Description	CAT ET J1939 code	3rd Party Device J1939 Code	Flash Code
N/A	No Diagnostic Code Detected	N/A	N/A	551
0001-02	Cylinder # 1 Injector erratic, intermittent, or incorrect	J651-2	651-2	111
0001-05	Cylinder # 1 Injector current below normal	J651-5	651-5	111
0001-06	Cylinder # 1 Injector current above normal	J651-6	651-6	111
0001-07	Cylinder # 1 Injector not responding properly	J651-7	651-7	111
0002-02	Cylinder # 2 Injector erratic, intermittent, or incorrect	J652-2	652-2	112
0002-05	Cylinder # 2 Injector current below normal	J652-5	652-5	112
0002-06	Cylinder # 2 Injector current above normal	J652-6	652-6	112
0002-07	Cylinder # 2 Injector not responding properly	J652-7	652-7	112
0003-02	Cylinder # 3 Injector erratic, intermittent, or incorrect	J653-2	653-2	113
0003-05	Cylinder # 3 Injector current below normal	J653-5	653-5	113
0003-06	Cylinder # 3 Injector current above normal	J653-6	653-6	113
0003-07	Cylinder # 3 Injector not responding properly	J653-7	653-7	113
0004-02	Cylinder # 4 Injector erratic, intermittent, or incorrect	J654-2	654-2	114
0004-05	Cylinder # 4 Injector current below normal	J654-5	654-5	114
0004-06	Cylinder # 4 Injector current above normal	J654-6	654-6	114
0004-07	Cylinder # 4 Injector not responding properly	J654-7	654-7	114
0005-02	Cylinder # 5 Injector erratic, intermittent, or incorrect (C6.6 engine only)	J655-2	655-2	115
0005-05	Cylinder # 5 Injector current below normal (C6.6 engine only)	J655-5	655-5	115
0005-06	Cylinder # 5 Injector current above normal (C6.6 engine only)	J655-6	655-6	115
0005-07	Cylinder # 5 Injector not responding properly (C6.6 engine only)	J655-7	655-7	115
0006-02	Cylinder # 6 Injector erratic, intermittent, or incorrect (C6.6 engine only)	J656-2	656-2	116
0006-05	Cylinder # 6 Injector current below normal (C6.6 engine only)	J656-5	656-5	116

CDL Code	Description	CAT ET J1939 code	3rd Party Device J1939 Code	Flash Code
0006-06	Cylinder # 6 Injector current above normal (C6.6 engine only)	J656-6	656-6	116
0006-07	Cylinder # 6 Injector not responding properly (C6.6 engine only)	J656-7	656-7	116
0041-03	8 Volt DC Supply voltage above normal	J678-03	678-03	517
0041-04	8 Volt DC Supply voltage below normal	J678-04	678-04	517
0091-02	Throttle Position Sensor erratic, intermittent, or incorrect	J91-02	91-02	154
0091-03	Throttle Position Sensor voltage above normal	J91-03	91-023	154
0091-04	Throttle Position Sensor voltage below normal	J91-04	91-04	154
0091-08	Throttle Position Sensor abnormal frequency, pulse width, or period	J91-08	91-08	154
0100-03	Engine Oil Pressure Sensor voltage above normal	J100-03	100-03	157
0100-04	Engine Oil Pressure Sensor voltage below normal	J100-04	100-04	157
0100-10	Engine Oil Pressure Sensor abnormal rate of change	J100-10	100-10	157
0110-03	Engine Coolant Temperature Sensor voltage above normal	J110-03	110-03	168
0110-04	Engine Coolant Temperature Sensor voltage below normal	J110-04	110-04	168
0168-00	Electrical System Voltage high	J168-00	168-00	511
0168-01	Electrical System Voltage low	J168-01	168-01	511
0168-02	Electrical System Voltage erratic, intermittent, or incorrect	J168-02	168-02	511
0171-03	Air Ambient Temperature Sensor voltage above normal	J171-03	171-03	-
0171-04	Air Ambient Temperature Sensor voltage below normal	J171-034	171-034	-
0172-03	Intake Manifold Air Temperature Sensor voltage above normal	J105-03	105-03	133
0172-04	Intake Manifold Air Temperature Sensor voltage below normal	J105-04	105-04	133

CDL Code	Description	CAT ET J1939 code	3rd Party Device J1939 Code	Flash Code
0190-08	Engine Speed Sensor abnormal frequency, pulse width, or period	J190-08	190-08	141
0247-09	SAE J1939 Data Link abnormal update rate	-	-	514
0247-12	SAE J1939 Data Link failure	-	-	514
0253-02	Personality Module erratic, intermittent, or incorrect	J631-02	631-02	415
0261-11	Engine Timing Offset fault	J637-11	637-11	143
0262-03	5 Volt Sensor DC Power Supply voltage above normal	J1079-03	1079-03	516
0262-04	5 Volt Sensor DC Power Supply voltage below normal	J1079-04	1079-04	
0268-02	Programmed Parameter Fault erratic, intermittent, or incorrect	J630-02	630-02	527
0342-08	Secondary Engine Speed Sensor abnormal frequency, pulse width, or period	J723-08	723-08	142
0526-05	Turbo Waste-gate Drive current below normal	J1188-05	1188-05	177
0526-06	Turbo Waste-gate Drive current above normal	J1188-06	1188-06	177
0526-07	Turbo Waste-gate Drive not responding properly	J1188-07	1188-07	177
0774-02	Secondary Throttle Position Sensor erratic, intermittent, or incorrect	J29-02	29-02	155
0774-03	Secondary Throttle Position Sensor voltage above normal	J29-03	29-02	155
0774-04	Secondary Throttle Position Sensor voltage below normal	J29-04	29-02	155
0774-08	Secondary Throttle Position Sensor abnormal frequency, pulse width, or period	J29-08	29-02	155
1639-09	Machine Security System Module abnormal update rate	J1196-09	1196-09	426
1743-02	Engine Operation Mode Selector Switch erratic, intermittent, or incorrect	J2882-02	2882-02	144
1779-05	Fuel Rail # 1 Pressure Valve Solenoid current below normal	J1347-05	1347-05	162
1779-06	Fuel Rail # 1 Pressure Valve Solenoid current above normal	J1347-06	1347-06	162

CDL Code	Description	CAT ET J1939 code	3rd Party Device J1939 Code	Flash Code
1785-03	Intake Manifold Pressure Sensor voltage above normal	J102-03	102-03	197
1785-04	Intake Manifold Pressure Sensor voltage below normal	J102-04	102-04	197
1785-10	Intake Manifold Pressure Sensor abnormal rate of change	J102-10	102-010	197
1797-03	Fuel Rail Pressure Sensor voltage above normal	J157-03	157-03	159
1797-04	Fuel Rail Pressure Sensor voltage below normal	J157-04	157-04	159
1834-02	Ignition Key Switch loss of signal	J158-02	158-02	429
2246-06	Glow Plug Start Aid Relay current above normal	J676-06	676-06	199

6.9.3 Event codes

CDL Code	Description	CAT ET J1939 code	3rd Party Device J1939 Code	Flash Code
E172-1	High Air Filter Restriction	J107-15	107-15	151
E194-1	High Exhaust Temperature	J173-15	173-15	185
E232-1	High Fuel/Water Separator Water Level	J97-15	97-15	-
E360-1	Low Engine Oil Pressure - Warning	J100-17	100-17	157
E360-3	Low Engine Oil Pressure - Shutdown	J100-01	J100-01	157
E361-1	High Engine Coolant Temperature - Warning	J110-15	110-15	168
E361-2	High Engine Coolant Temperature - Derate	J110-16	110-16	168
E361-3	High Engine Coolant Temperature - Shutdown	J110-00	110-00	168
E362-1	Engine Over-speed	J190-15	190-15	141
E396-1	High Fuel Rail Pressure	J157-00	157-00	159
E398-1	Low Fuel Rail Pressure	J157-01	157-01	159
E539-1	High Intake Manifold Air Temperature - Warning	J105-15	105-15	133
E539-2	High Intake Manifold Air Temperature - Derate	J105-16	105-16	133
E2143-3	Low Engine Coolant Level	J111-01	111-01	169

7. TROUBLE SHOOTING

7.1 Fault finding tables

Use the tables following to assist in finding a solution to the problem.

7.1.1 Starting and running

Fault	Problem	Solution - Action
Does NOT crank	Damaged electrical Cables	Repair or replace the cable
	Isolation switch is in the Off position	Turn the Isolation switch to the ON position (make sure it is NOT tagged out)
	No charge in the battery	Replace or recharge the battery
	Starter or alternator malfunction	Repair or replace the part/s
	E-Stop engaged	Disengage the E-Stop (make sure there is no problems first)
The engine cranks but will NOT start or shuts down	No fuel in the engine	Check the fuel tank level re-fill as necessary check the pipes for leaks repair or replace
	Blocked filters: Air, Oil, Fuel	Clean or replace the filters as necessary.
	The glow plugs or the injectors malfunction	Replace or repair as necessary
	Oil level low	Check for leaks repair as necessary. Refill engine with oil
	Extreme - Temperature conditions	Make sure the oils and Fluids are correct for the temperature conditions
	The Battery is NOT fully charged	Replace or recharge the battery
Loose's power or low RPM	High Oil pressure	Check for a blockage in the system
	Blocked Filters: Air, Oil, Fuel	Clean or replace the filters as necessary.
	Over heating	see "Over heats quickly"
Over heats quickly	Hydraulic Fluid low	Check hydraulic fluid system for leaks repair as necessary. Refill hydraulic fluid
	Engine Oil level Low	Check engine for leaks repair if necessary. Refill the oil
	Blockages	Check all filters and Fans, replace and clean as necessary
	Sensor malfunction	Check the wiring and the sensor replace as necessary.
	Coolant level low	Check the coolant system for leaks repair if necessary. Refill coolant level.

7.1.2 Tracking the Machine

Fault	Problem	Solution - Action
Does NOT track / or one of the Tracks does NOT move	The engine is OFF	Start the machine
	The Remote/Controller Failure	See "Remote Controls/Control Panels"
	Motor Ceased	Repair or replace as necessary
	No hydraulics	Make the machine is in track mode (Set the lever to tracks ON). Check for leaks, or damaged components repair or replace as necessary
	Solenoid failure	Repair or replace
	Tracks plates/chain damaged	Replace or repair
Slow or NON uniform speed	Stabilising legs down	Check the legs for damage repair or replace if necessary. Lift UP the legs
	The track tension is low	Tighten the tracks
	Low hydraulic pressure/flow	Check for leaks and refill as necessary. Check hydraulic system
Tracks do NOT move at the same speed	One of the tracks tension is not correctly set	Tighten the Track to the correct tension
	Hydraulic system failure	Check the hoses, pumps, valves and connections for leaks or damage replace as necessary

7.1.3 Conveyors/maintenance platforms/Stabilising legs

Fault	Problem	Solution - Action
Do NOT fold/Do NOT lift up or down	Hydraulic system failure	Check the filters, hoses, valves, pumps for damage. Make sure the hydraulic fluid above the minimum level refill if necessary
	The engine is OFF	Start the engine
	The locating pins or other locking equipment is still installed	Remove the pins or equipment
	The equipment is damage or blocked.	remove the blockage or repair the equipment
	Lever Failure	Check the valve block, hoses and lever for damage replace or repair
	Hydraulic Ram Failure	Check the hoses, the connections and the seals, repair or replace as necessary
The belt does NOT move	The engine is OFF	Turn the machine ON
	The ball valve is in the OFF position	Turn ON the ball valve
	Hydraulic system failure	Check the filters, hoses, valves, pumps and the motors for damage. Make sure the hydraulic fluid above the minimum level refill if necessary
	The belt is too loose	Tighten the belt
	The belt is blocked or stuck	Remove the blockage or align the bet as necessary
Fold/Lift slow or at a NON uniform speed/The belt moves slow or at a NON uniform speed	Blocked or stuck	Remove the blockage or repair as necessary
	Hydraulic system malfunction	Check the filters, hoses, valves, pumps and the motors for damage. Make sure the hydraulic fluid above the minimum level refill if necessary
The belt is slipping	The belt tension is low	Tighten the belt
	The rollers/bars are damaged	Replace or repair as necessary
Rocking/moving while in operation.	The locating pins or locking equipment is not installed	Installed the locating pins or locking equipment
The belt is making too much noise	The bearing are damaged	Replace the bearings
	The belt tension is too high	Reduce the tension in the belt
	The belt is scraping against the sides	Align the belt as necessary
	There is a blockage	Remove the blockage

7.1.4 Loading the Machine

Fault	Problem	Solution - Action
NO or little material is output	The machine is NOT set for operation	Set the Machine for operation
	No Material on the Feeder	Load material on the machine
	Blocked	Check the feeder, screen box and conveyors for blockages. Remove the blockage
The Feeder is full of material	The screen box is blocked	Remove the blockage
	The screen box is OFF	See "The screen box"
The material slips/moves down the conveyors	The conveyor speed is too low	Increase the conveyor speed
	The product is too light of slippery	Use a chevron belt
	Conveyor angle is too high	Adjust the angle down as necessary
The Machine is unstable or rocking from side to side	The ground is not level	Move the machine to level ground or make the ground level
	The ground is not firm	Move the machine to firm ground or make the ground more suitable
	The Stabilising legs are NOT set correctly	Set the stabilising legs on firm level ground to help support the machine
	Uneven or excessive loading	Load the machine correctly
The screen box does NOT output material or small output of the material	The screen box is blocked/ or OFF	Clear the blockage check both levels and make sure the screen box is ON
Only exits from one conveyor	The screen box mesh is damaged or blocked	Replace the mesh or clear the blockage
	The other conveyors are OFF	Make sure the conveyors are set for operation
	No smaller product is loaded	N/A

7.1.5 The screen box

Fault	Problem	Solution - Action
Does NOT vibrate	The engine is OFF	Turn the engine ON
	The screen box ball valve is set to the OFF position	Turn the screen box ball valve ON
	Hydraulic system Failure	Check the filters, hoses, valves, pumps and the motors for damage. Make sure the hydraulic fluid above the minimum level refill if necessary
Excessive noise	The bearings are damaged	Replace the bearings
	The screen box is damaged	Repair the screen box
	The screen box is blocked	Remove the blockages
	The springs are damaged	Check all the springs and replace as necessary
Vibrates slow or at non-uniform speed	Hydraulic system Malfunction	Check the filters, hoses, valves, pumps and the motors for damage. Make sure the hydraulic fluid above the minimum level refill if necessary
	The drive shaft system malfunction	Make sure the system is greased correctly and inspect the parts for damage,. Repair or replace as necessary
	The screen box is blocked	Remove the blockage

7.1.6 Remote Controls/Umbilical Controls/Control Panels

Fault	Problem	Solution - Action
The buttons do NOT work	The machine is OFF	Start the machine
	The batteries in the remote are not charged	Recharge the batteries
	The remote control is NOT programmed to the machine.	Follow the instruction on the back of the remote
	The umbilical cord is not connected	connect the umbilical connector
	Electrical malfunction	Check the wires and components in the control box/controllers/machine repair or replace as necessary
	The buttons are stuck or blocked	Remove the blockage and clean the buttons
	Equipment malfunction	Check the equipment under control (tracks, conveyors, feeder, etc.)
The remote is not communicating with the machine	The remote control is NOT programmed to the machine.	Follow the instruction on the back of the remote
	The batteries are not charged	Replace or recharge the batteries
The warning lights or the display do NOT work or intermittent	The machine is OFF	Turn On the Machine
	The lights are damaged	Replace the lights
	Electrical malfunction	Check the wires and components in the control box and machine repair or replace as necessary
	Sensor malfunction	Check the wires and the sensors for damage replace or repair as necessary

7.1.7 Problems not listed

If any problem persists after carrying out the recommended solution, or a problem arises that is not on this list, contact your local Sandvik service department for further assistance.

8. ENGINE

8.1 Engine in power pack

8.1.1 Engine manual

The engine manufacturer supplies a manual which should be referred to for further information on the engine fitted to the power pack of the machine.

8.1.2 Alternative Caterpillar engines

Alternative engines can be fitted to the machine power pack Caterpillar C4.4 or Caterpillar ???.

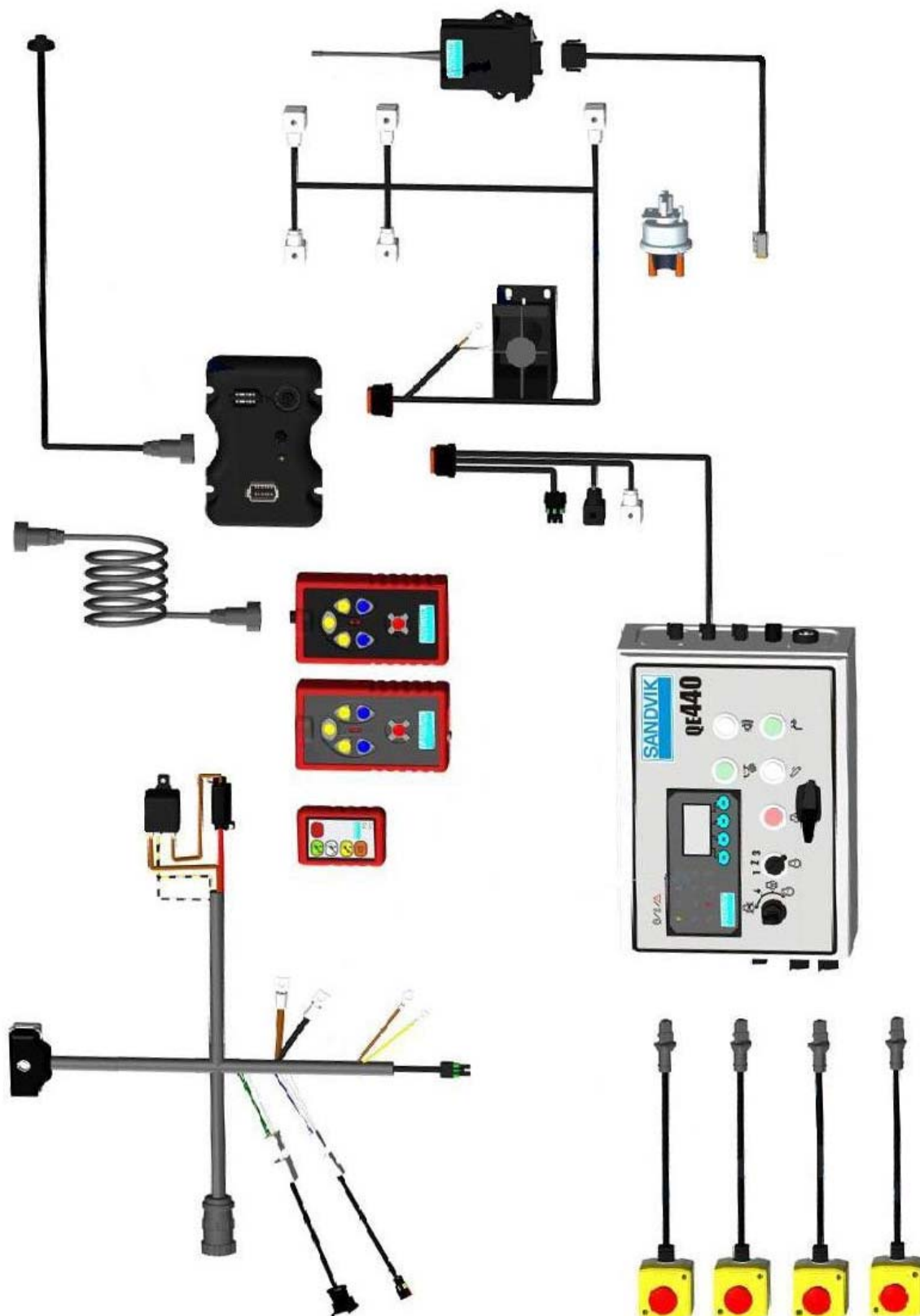
Make sure any information regarding servicing requirements, reported faults and spare parts are correct and applicable to the engine fitted.



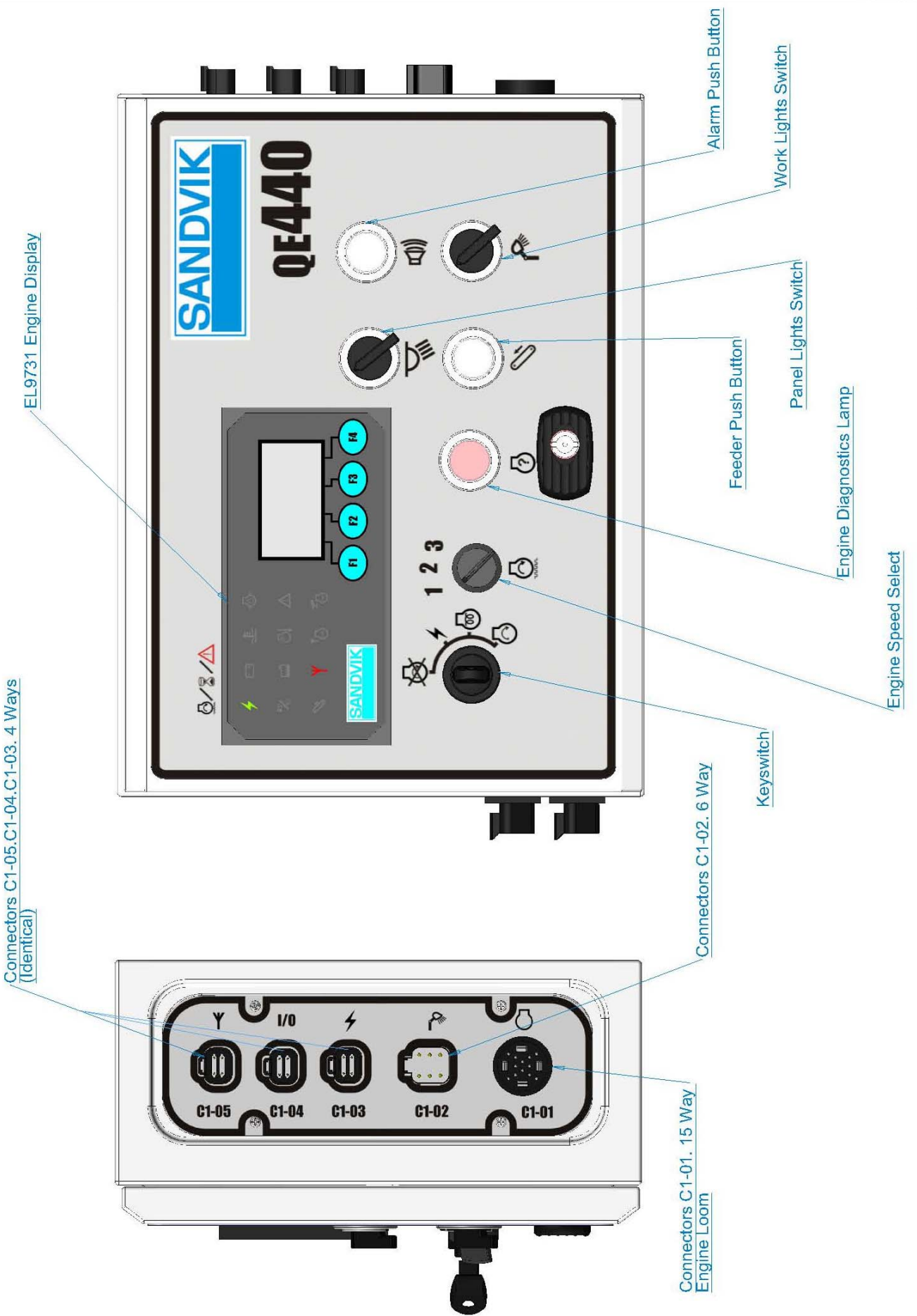
9. ELECTRICAL AND HYDRAULICS

9.1 Electrical Diagrams

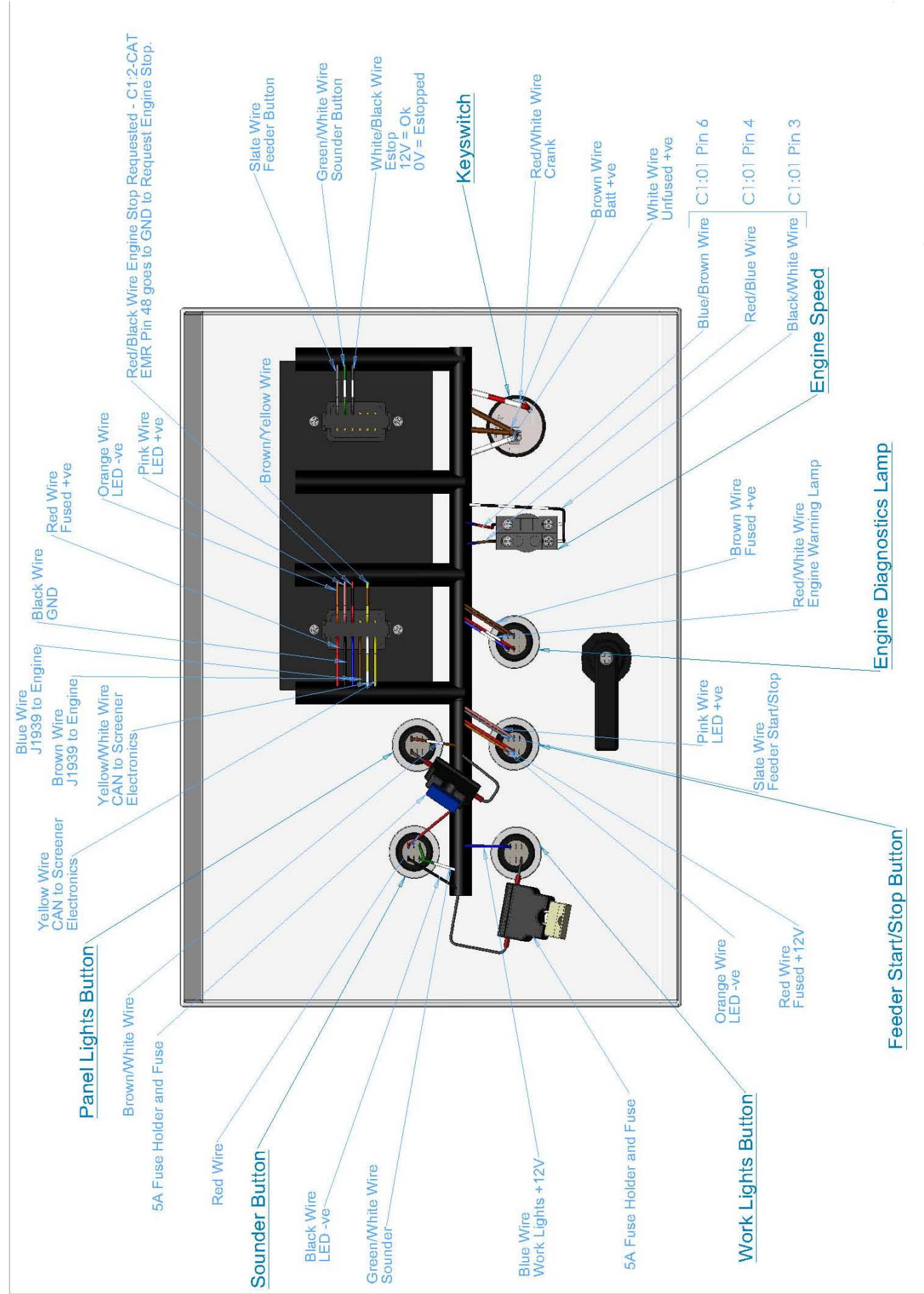
9.1.1 EL9721 Electrical Kit



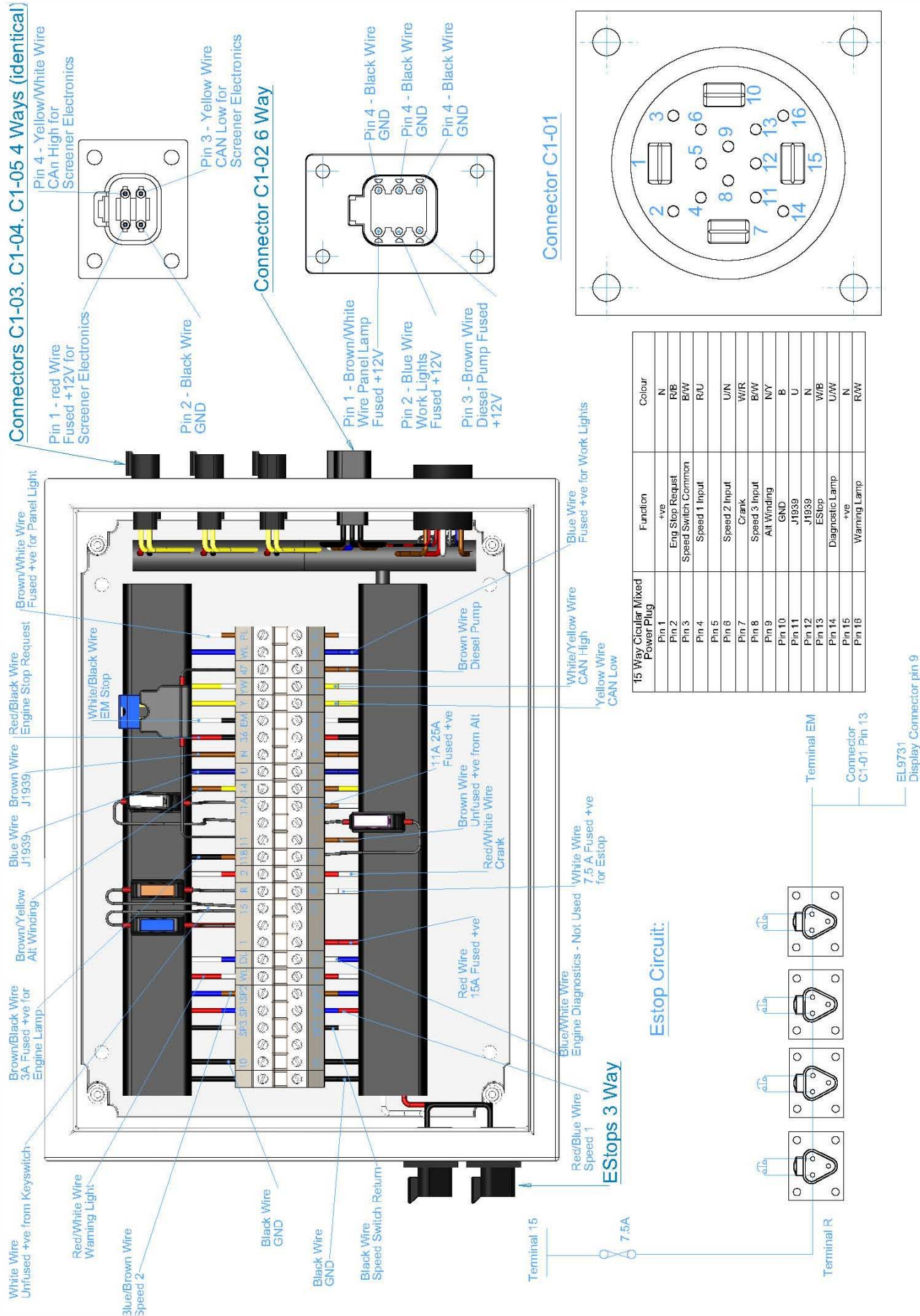
9.1.2 EL9766_1 - Control Panel



9.1.3 EL9766_2 - Control Panel



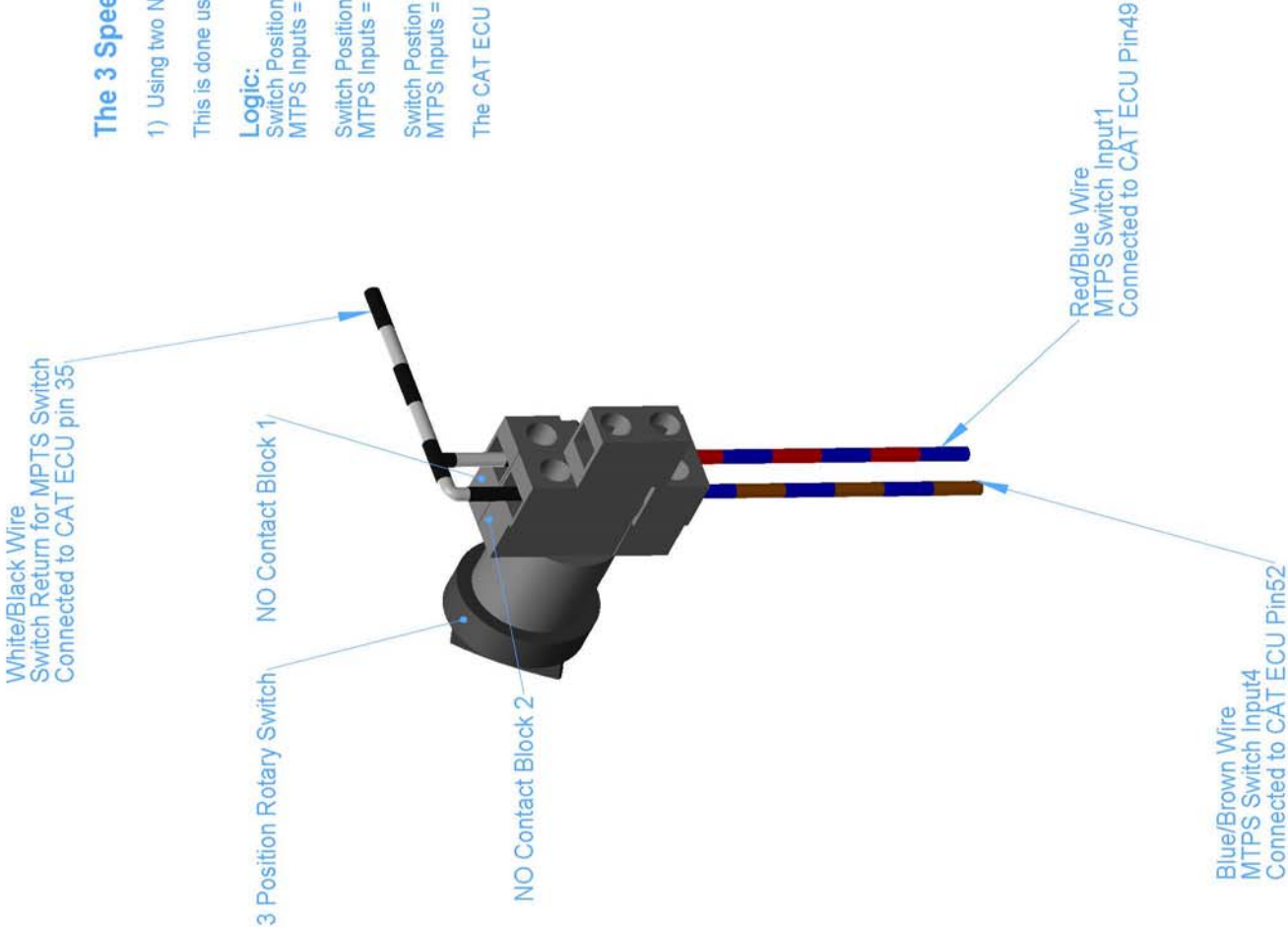
9.1.4 EL9766_3 - Control Panel



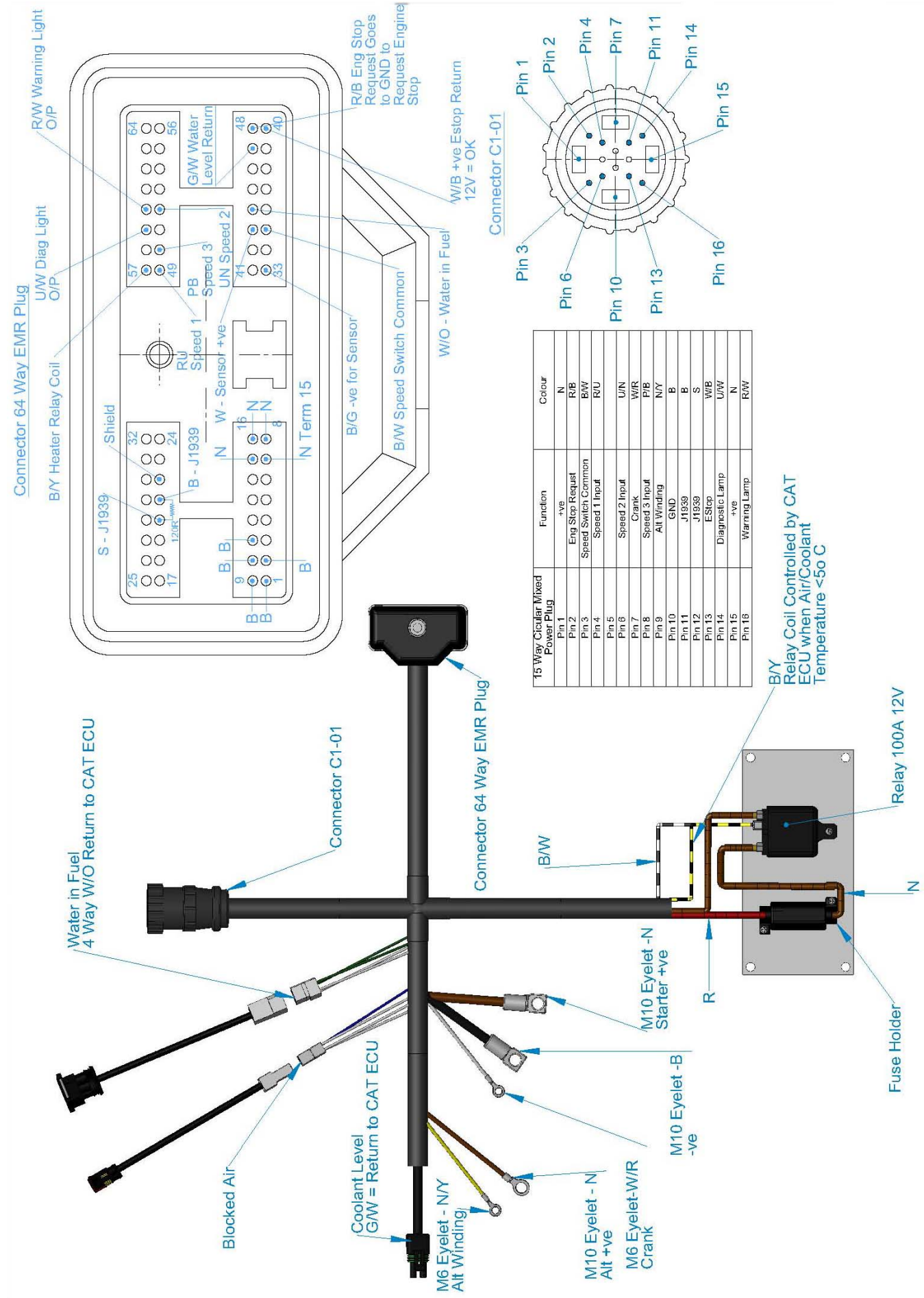
9.1.5 EL9766_4 - Control Panel

The 3 Speed Switch Provides Engine Speed Request to the CAT ECU.

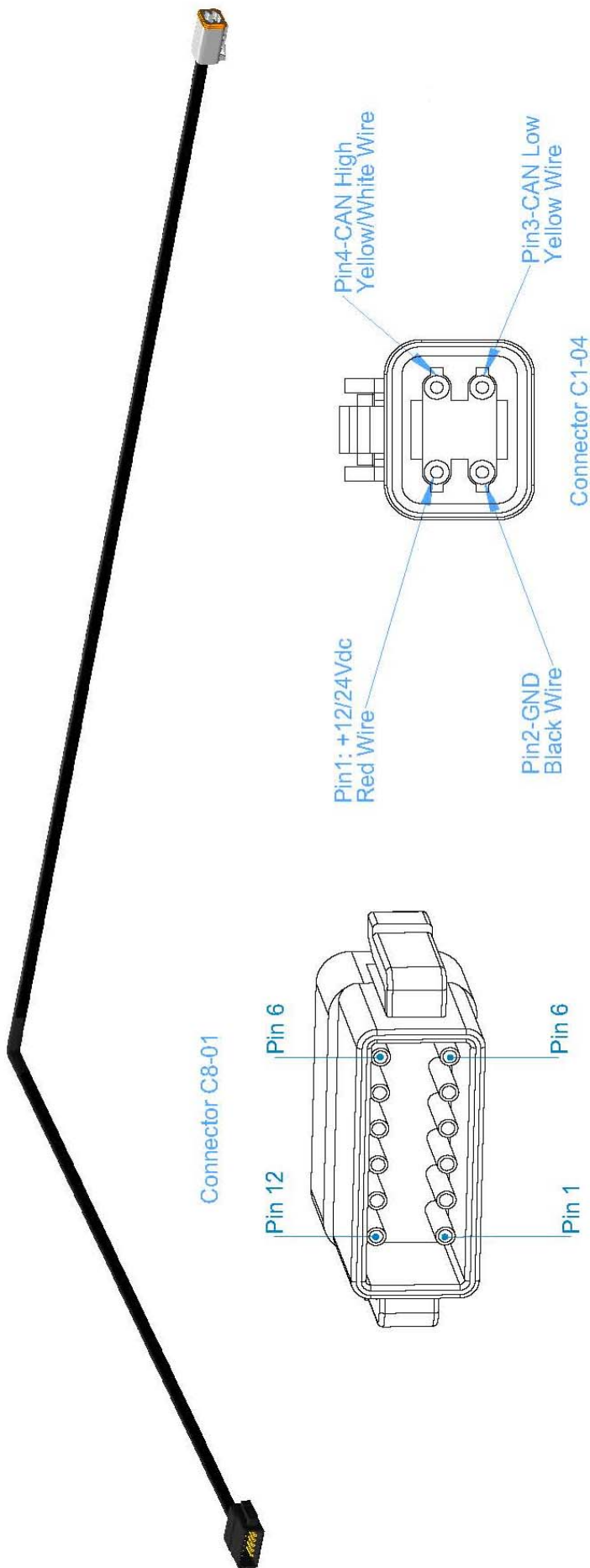
- 1) Using two NO contact blocks it provides 3 engine speed requests to the CAT ECU.
- This is done using the Multi-Position Throttle Switch (MTPS) Inputs (CAT ECU Inputs 49-52 and 35)
- Logic:**
- Switch Position 1: NO Contact Block 1 is closed, MTPS Input1 (Red/Blue Wire) is connected to White/Black Wire, MTPS Inputs = 0001
- Switch Position 2: Both NO Contact Block1 and NO Contact Block 2 are open, MTPS Inputs = 0000
- Switch Position 3: NO Contact Block 2 is closed, MTPS Input4 (Blue/Brown Wire) is connected to White/Black Wire, MTPS Inputs = 1000
- The CAT ECU is programmed such that the 3 possible MTPS inputs correspond to the 3 desired engine speeds.



9.1.6 EL9768 - Electronic Engine Loom



9.1.7 EL9770 - RF Comms Loom

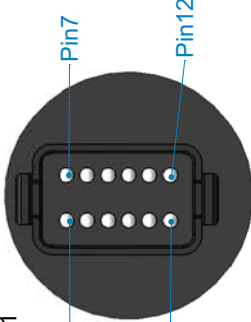


Pin Number	Function	Wire Colour
1	CAN High	Yellow/White
2		
3	CAN Low	Yellow
4		
5	GND	Black
6	+12/24V dc	Red
7		
8		
9		
10		
11		
12		

9.1.8 EL9614 - Screen IO Module



DETAIL C3-01
SCALE 1 : 1





P3-01 L3-01

C3-02

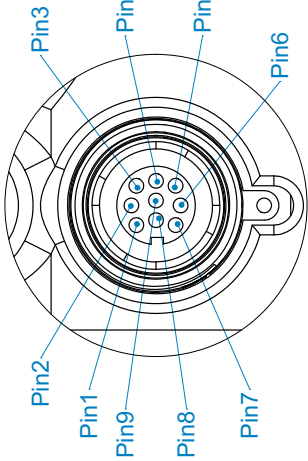
C3-01

C3-03

C3-03

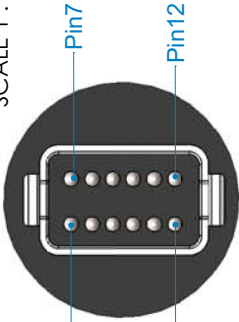
Pin Number	Function	Wire Colour
1	GND	Black
2	+12/24 DC	Red
3	CAN H	Yellow/White
4	CAN L	Yellow
5	Hyd Temp Return	Green/Brown
6		
7	Belt Speed Return	Green/Yellow
8	Hyd Level Return	Green/Purple
9		
10		
11		
12	GND	Blue

DETAIL C3-02
SCALE 1 : 1



Pin Number	Function	Wire Colour
1		
2		
3	Track FL	White
4	Track RL	Yellow
5	Track FR	Black
6	Track RR	Red
7	Remote Stop Return	Green
8	+12/24V dc	Brown
9	+12/24V dc	Blue

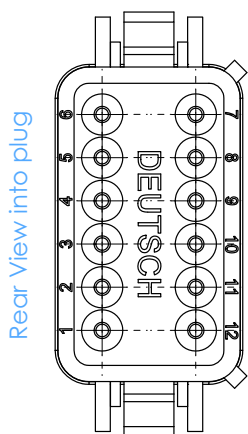
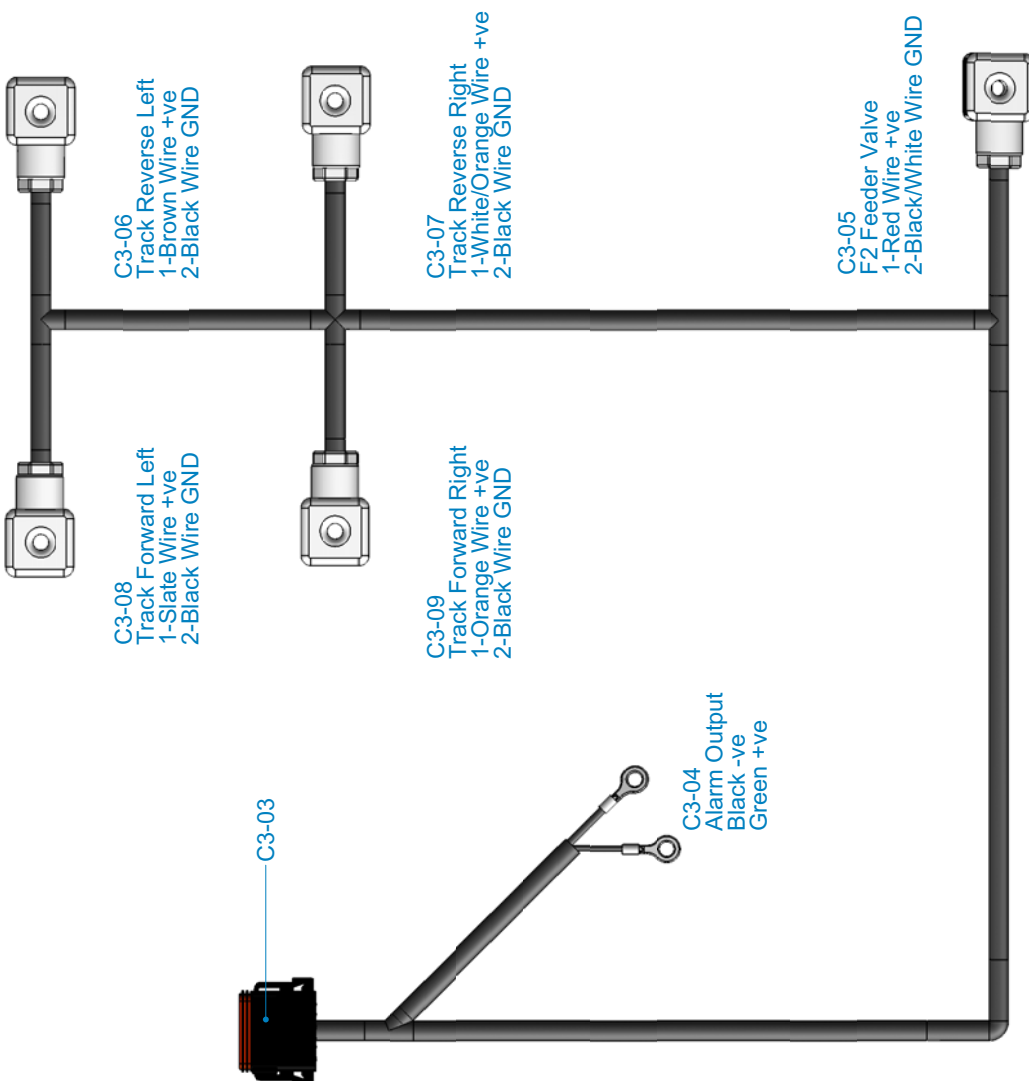
DETAIL C3-03
SCALE 1 : 1



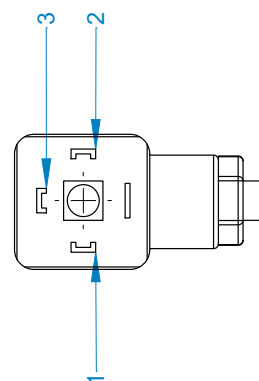
Pin Number	Function	Wire Colour
1	Track GND	Black
2	Track RR	White/Orange
3	Track FL	Slate
4	Track RL	Brown
5	Track FR	Orange
6	Feeder +ve	Red
7		
8		
9	Alarm +ve	Green
10		
11		
12		

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS	FINISH:	DO NOT SCALE DRAWING	REVISION
TOLERANCES:	LINEAR:		
ANGULAR:			
DRAWN	NAME	SIGNATURE	DATE
CHK'D			
APP'D			
MFG			
QA			
TITLE:			
EL9614 Screener IO Module			
DWG NO. EL6914 Screener IO Module			
A3			
SCALE: 1 OF 1			

9.1.9 EL9632 - Solenoids Loom

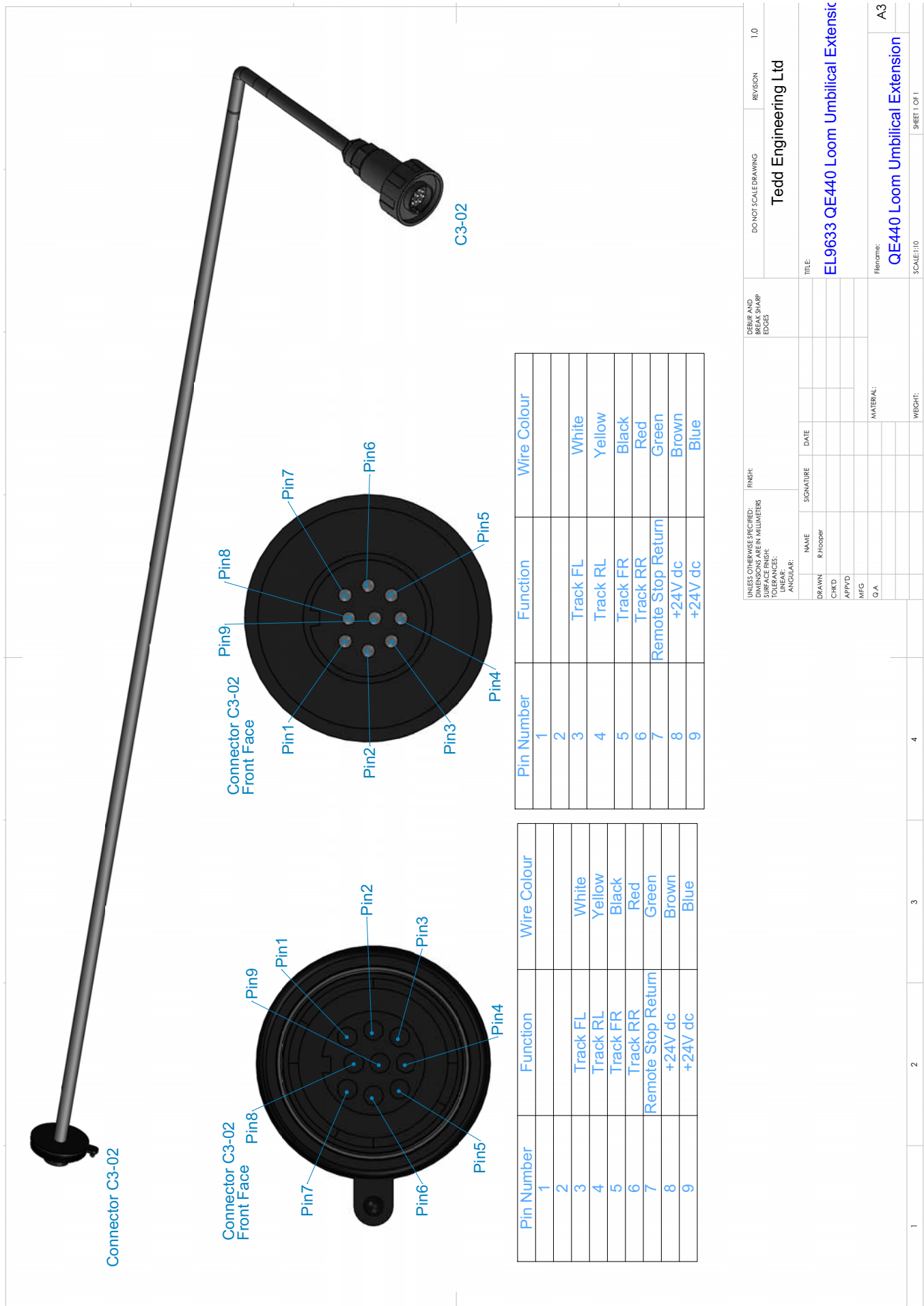


Pin Number	Function	Wire Colour
1	Track GND	Black
2	Track RR	White /Orange
3	Track FL	Slate
4	Track RL	Brown
5	Track FR	Orange
6	Feeder +ve	Red
7		
8		
9	Alarm +ve	Green
10		
11		
12		



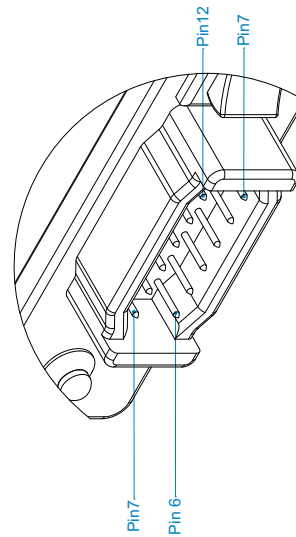
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS				FINISH:		DEBUR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING		REVISION	
SURFACE FINISH:				LINEAR:		ANGULAR:		Tedd Engineering			
NAME		SIGNATURE		DATE		TITLE:		EL9632 QE440 Solenoid Loom			
DRAWN											
CHKD											
APPVD											
WFG											
QA						MATERIAL:		QE440 Solenoid Loom			
						DWG NO.		A3			

9.1.10 EL9633 - Umbilical Extension Loom



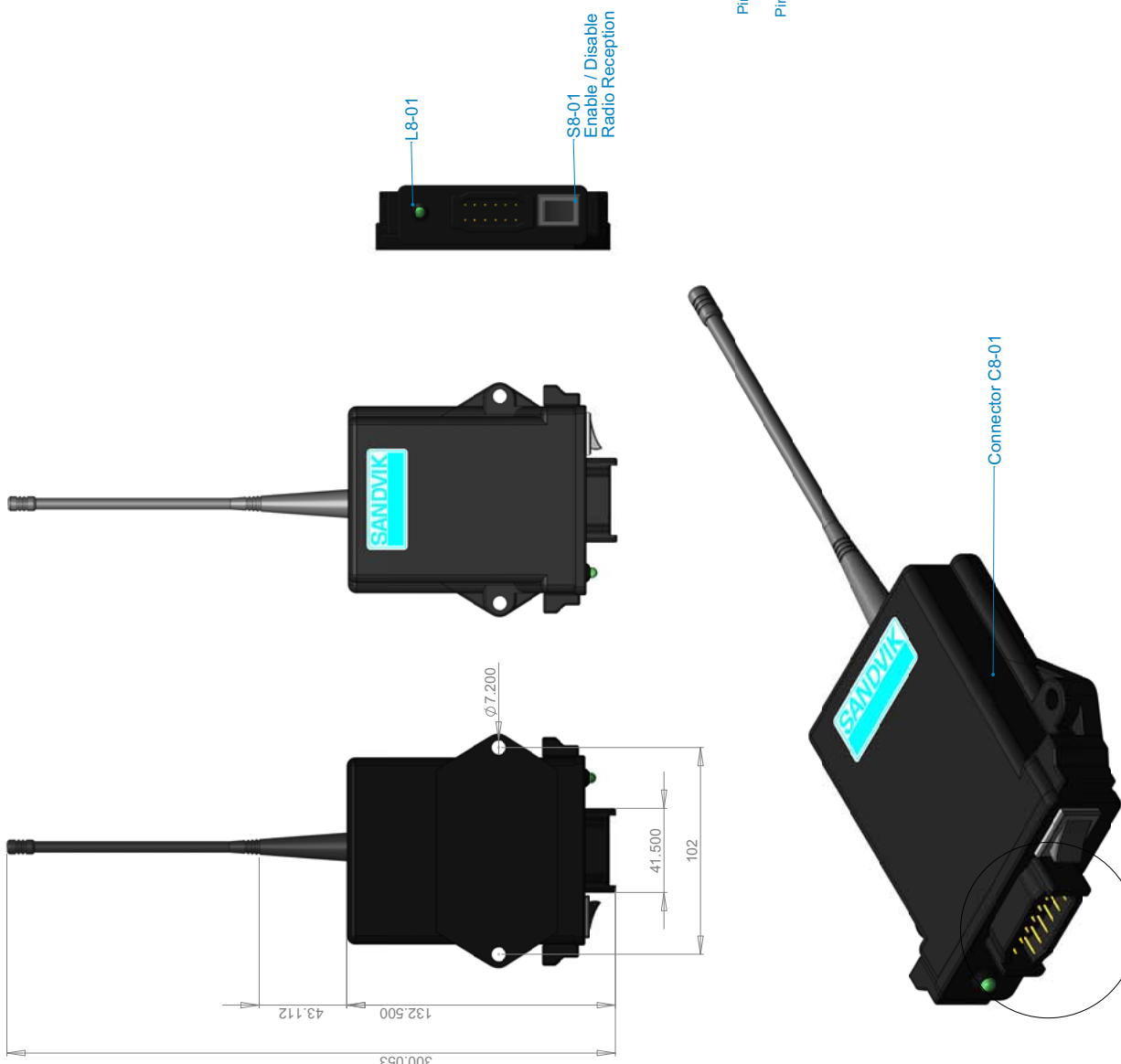
9.1.11 EL9636 - Small Receiver

Pin Number	Function	Wire Colour
1	CAN High	Yellow/ White
2	CAN High	
3	CAN Low	Yellow
4	CAN Low	
5	GND	Black
6	+12/24V dc	Red
7	Beacon Output1	
8	Beacon Output2	
9	Beacon Output3	
10	Beacon Output4	
11	Input1	
12	Input2	

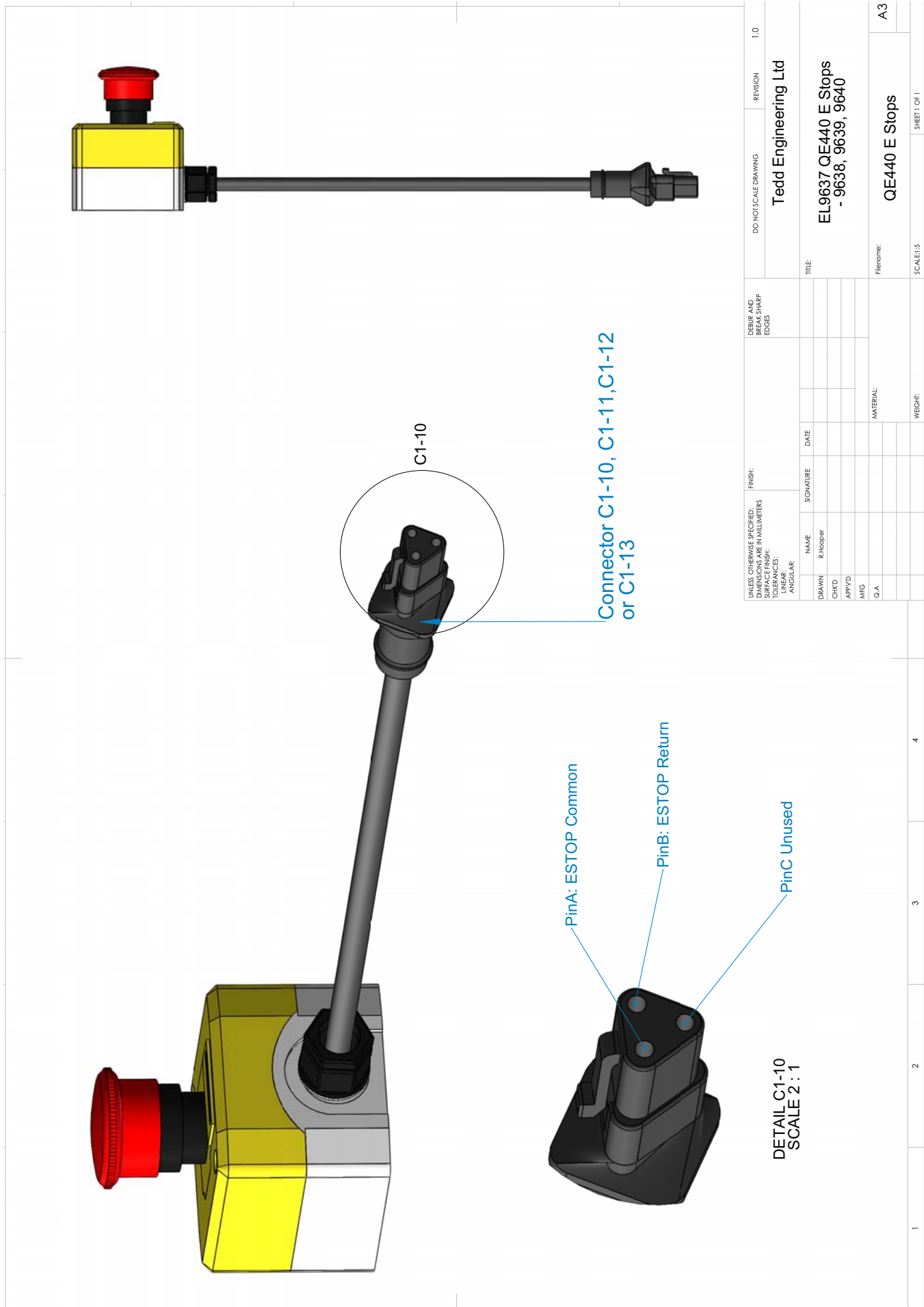


DETAIL Connector C8-01
SCALE 2 : 1

FILE NUMBER UNIVERSITY OF KENT	FISH: FISHING TOLERANCES AND ANGLING	DRAWN R Hooper	NAME	SIGNATURE	DATE	TITLE	DO NOT SCALE DRAWING	REVISION
						EL9636 QE440 Small Receiver		
						MATERIAL	REFERENCE:	A2
						WEDGE	SCALE 1:2	SHEET 1 OF 1

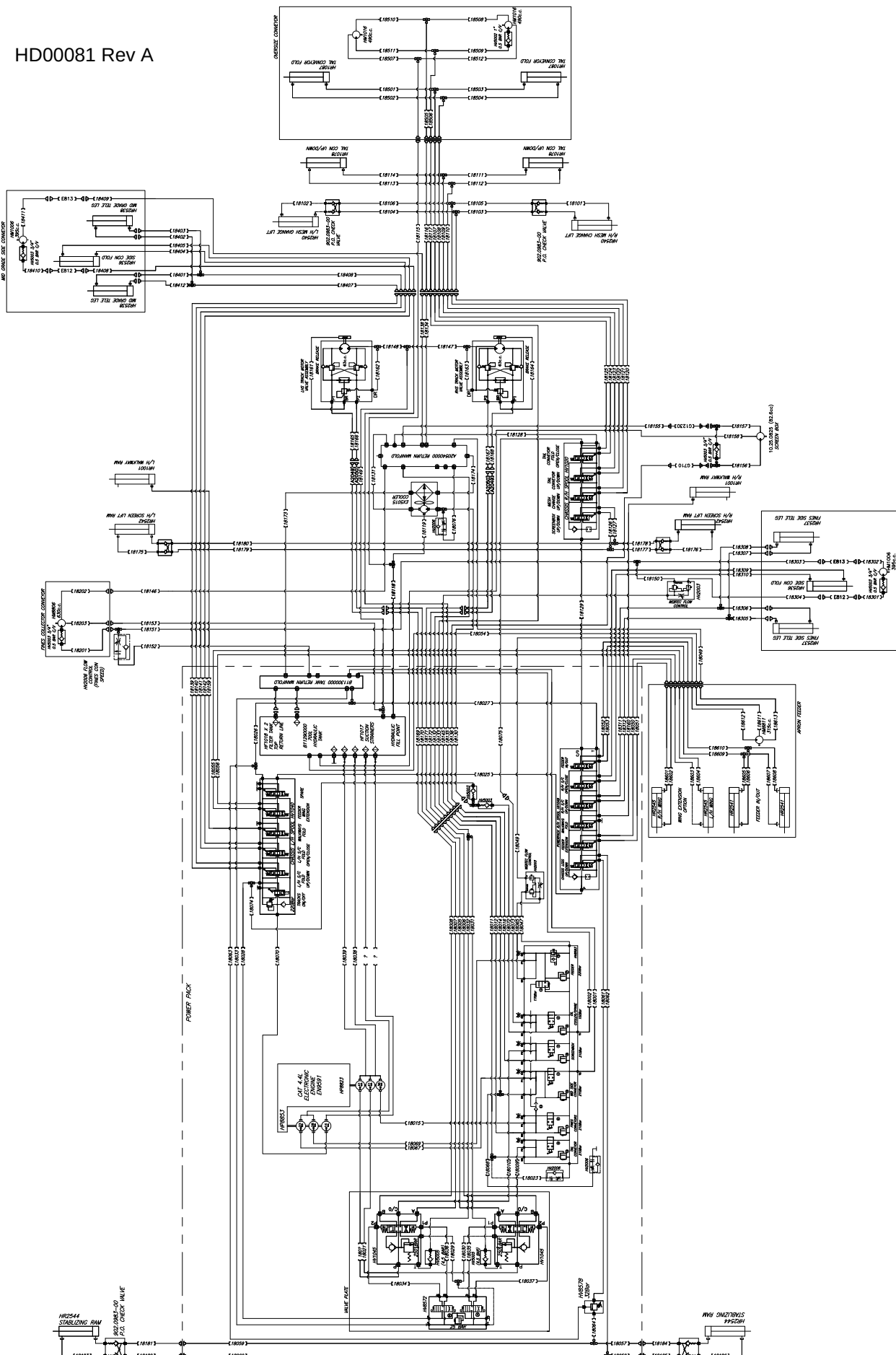


9.1.12 EL9637 - Loom E-Stops

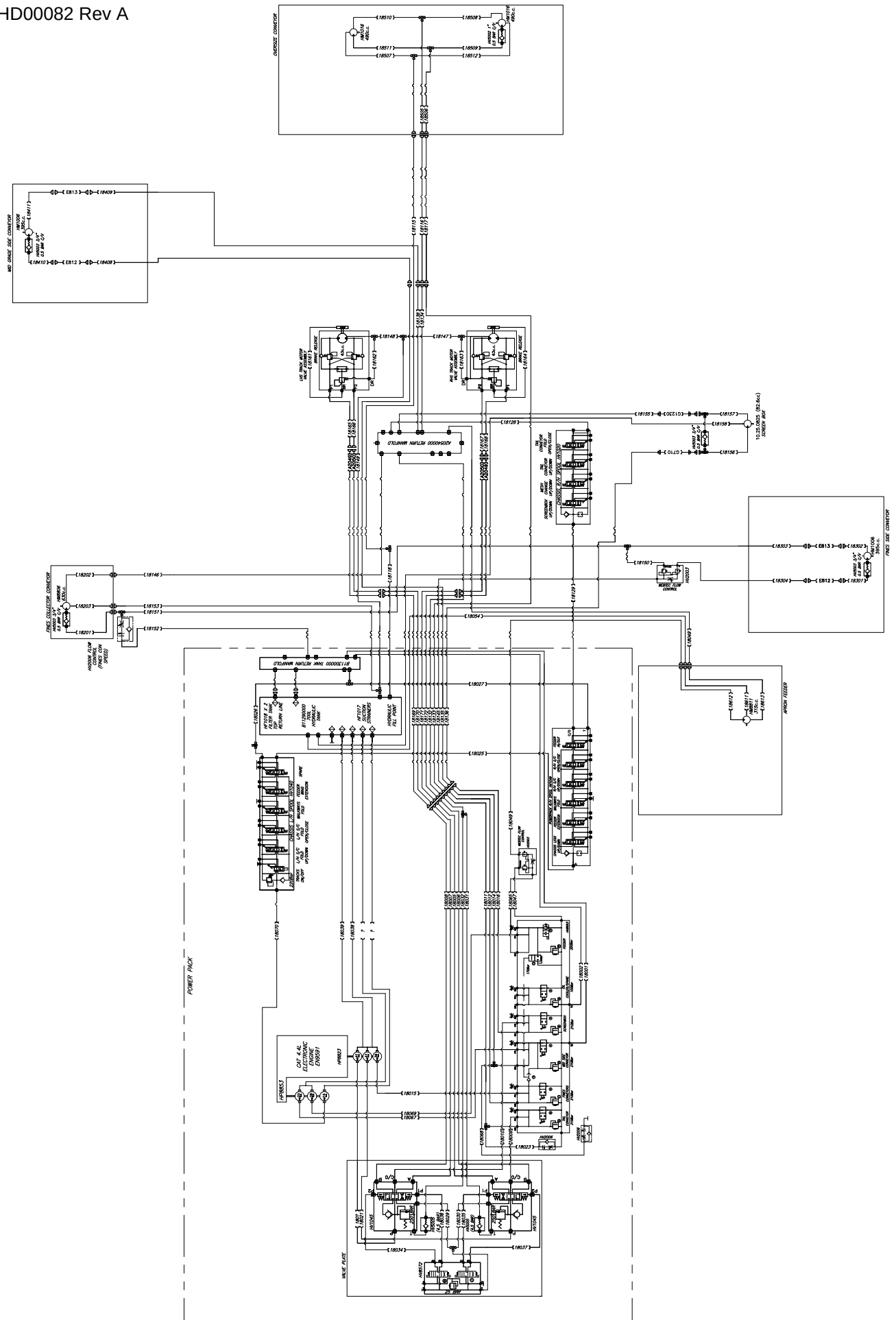


9.2 Hydraulic Schematics

HD00081 Rev A



HD00082 Rev A



QE440



10. INFORMATION AND DATA SHEETS

10.1 Original equipment manufacturer information

Note! Please ensure you read this section carefully. It contains information supplied by original equipment manufactures of components used in the machine, therefore Sandvik has reservations for misprints.

- Strickland tracks
- Engine (manual supplied separately)

10.2 Hazardous substances

- Univar Caflon pre-mixed engine coolant
- Low sulphur Diesel fuel oil
- Shell Rimula - engine lubrication oil
- Shell Omala - feeder gear oil
- Shell Tellus S2 - hydraulic fluid
- Shell Tellus S4 VX - hydraulic fluid
- Shell Gadus S3 V220 C2 - grease
- Exxon Unirex N3 grease
- Exol Athena EP90 - track gear oil
- Shell Spirax S6 GXME 75W-80 - track gear oil

10.3 Variations and options (if applicable)

- ???

