

# **8542TBF OPERATION & MAINTENANCE MANUAL**

**Subject to change without notice.**



[www.trackstackuk.com](http://www.trackstackuk.com)

*Reaching New Heights*

Deliberately Left Blank



## DECLARATION OF CONFORMITY

Manufacturers: **Tesab Engineering Ltd.**  
9 Gortrush Industrial Estate, Omagh, Co. Tyrone  
Northern Ireland, United Kingdom BT78 5EJ

Description of Machinery: **Mobile Bulk Handling Plant**

Model: **TRACKSTACK 8542TBF**

The undersigned, authorized by Tesab Engineering Ltd., certifies that the machine described above, provided that it is installed, used and maintained in accordance with the instructions for use and the codes of practise, meets the essential safety and health requirements of the following directives:

- Machinery Directive 2006/42/EC

**IMPORTANT!** Read the installation, Operation and Maintenance manual for the above described machine before using the machine. If you require additional copies contact your local Tesab dealer.

A technical construction file for the above named machinery is retained at the above address:

Signed:

Name: Colin Wilson

Position: Technical Director

Date: 28.06.2014

Being the nominated representative of **TESAB ENGINEERING LTD.**

## **FOREWORD/RESERVATION OF RIGHTS:**

The TRACKSTACK 8542TBF Materials Handling Plant is a robust, skilfully engineered piece of equipment incorporating diesel, hydraulic and mechanical components of the highest quality.

In the interest of continuous plant reliability, it is essential that the machine is maintained with meticulous care and attention. This operation and maintenance manual has been produced to assist the user to obtain the maximum output from the machine and to trace and remedy faults, should they arise. Failure to do so could result in personal injury or equipment damage.

We strongly insist that the owners, operators, health & safety staff and all personnel associated with this machine, must read and understand all aspects of this manual and pay particular attention to the safety and maintenance sections.

**Keep a copy of this manual at the operational site at all times.**

While all the information, illustrations and specifications in this manual are based on the latest information available at the time of publication, some variations do exist between machine specifications. Therefore, some of the information may be slightly inaccurate.

Future updated issues of this manual or manuals belonging to other Tesab equipment, will not be specific to all machines. Tesab Engineering reserve the right to change the specification of their equipment and therefore reserve the right to alter any information contained in this manual without prior notice.

## **MACHINE DESIGNATED USE:**

This machine is a portable, self-contained, materials handling plant for stockpiling materials to various heights. Typical materials include rock, salt, gravel, sand, coal, iron ore, recycled materials and landfill. If you need to stockpile any other material not listed please contact Tesab Engineering Ltd.

## **COPYRIGHT:**

The copyright of this manual is reserved by Tesab Engineering Ltd.

No copies or reproductions in any form may be made of any part of this manual without prior written consent of Tesab Engineering Ltd. This manual, complete or in part, must not be loaned or given to a third party.

Future updated issues of this manual, or manuals belonging to other Tesab equipment, will not be specific to this machine. Tesab Engineering reserve the right to change the specification of their equipment and therefore reserve the right to alter any information contained in this manual without prior notice.

Additional copies of this manual are readily available, however, a charge may be payable to cover printing and administrative costs. To order additional copies contact your local dealer.

### **Copyright Protected:**

Tesab Engineering Ltd.  
Unit 9 Gortrush Ind. Estate  
Omagh, Co.Tyrone  
BT78 5EJ

# CERTIFICATE OF WARRANTY.

Tesab Engineering Ltd. warrants that the components within its products shall be free from defects for a period of 12 months, or 1000 hours of operation, from the date that the product has been put into service and in any case for a maximum period of 15 months from the date of despatch from Tesab Engineering Ltd.

The warranty period shall be proportionally reduced if the product is operated for more than one eight hour shift per working day or is operated in extreme environments or corrosive applications.

Warranty registration is mandatory and must be completed when the product is put into service. In the event that warranty has not been correctly registered with Tesab Engineering, the warranty period will begin from the date of despatch from Tesab Engineering Ltd.

Tesab Engineering's warranty is limited to:

- a) The repair or replacement of any defective Tesab component(s) plus warranty labour costs, travel time and mileage to repair the fault, for a period of 6 months and or up to 500 hours, whichever comes first, from the date of warranty registration.
- b) The replacement of any defective Tesab component for an additional 6 months (up to 1 year) and or up to 1000 hours, whichever comes first, from the date of warranty registration.

Tesab Engineering warranty is subject to acceptance of a defective component and provided that the following conditions are met:

- Written notice of the defect is given to Tesab Engineering Ltd. within seven days of the discovery of the defect.
- No unauthorised alteration or modification has been made to the product or to the individual component that is the subject of the claim.
- The product was correctly commissioned and the operation & safety induction was carried out at the time of commissioning.
- Warranty was correctly registered with Tesab Engineering and notice was given to Tesab that the operation & safety induction was carried out correctly.
- The product has not been used in any application that it was not intended or designed for.
- The defective component has been (when requested) returned, carriage paid, to Tesab Engineering Ltd. and shall, in the event of replacement, become Tesab Engineering's property.

Warranty does not extend to CAT or Deutz engines that may have been fitted to Tesab products. Both CAT and Deutz have dealers worldwide and where a problem occurs with the engine on your machine you must contact your local CAT or Deutz dealer. **IMPORTANT:** Engine warranty registration is mandatory.

Warranty will be null and void if the defect has been caused by improper or unsuitable use of the product, inadequate maintenance, carelessness, negligence or wilful damage.

Replacement parts will be sent by Tesab Engineering Ltd. on a standard ground shipping service, carriage paid, to the customer's nearest port of importation on a C.F.R. (Cost & Freight to port of destination) basis.

In the case of components not manufactured by Tesab Engineering Ltd. the customer shall be entitled to the benefits in so far as it may be transmitted to the customer, of any guarantees given by the manufacturer in respect thereof and Tesab Engineering Ltd. liability in respect of such goods is limited to making the benefits of the manufacturer's guarantees available to the customer to the extent aforesaid.

This understanding is in lieu of and excludes any other conditions, guarantees or warranties expressed or implied, statutory or otherwise. In no event shall Tesab Engineering Ltd. be liable (except to the extent of any of its undertaking as aforesaid) for any loss, injury or damage howsoever caused or arising.

The guarantee contained aforesaid is personal to Tesab Engineering's customer and may not be assigned.

## CONTENTS

Page No.

### SECTION 1.0: FAMILIARISATION.

8

- 1.1 MAIN ASSEMBLY DESCRIPTIONS & ORIENTATION. 8
- 1.2 TECHNICAL SPECIFICATION. 9
- 1.3 MAIN CONTROL PANEL FAMILIARISATION. 10 – 11
- 1.4 IMPORTANT FEATURES OF THIS MACHINE. 12 – 13
- 1.5 FAMILIARISATION OF OPERATION LABELS DISPLAYED ON THE MACHINE. 14 – 15

### SECTION 2.0: SAFETY.

16

- 2.1 SAFETY INTRODUCTION. 16
- 2.2 SAFETY WARNING LABELS. 17 – 20
- 2.3 SAFETY HAZARDS. 21
  - 2.3.1 WORKING AT HEIGHTS. 21
  - 2.3.2 NIP/CRUSH POINTS. 21
  - 2.3.3 MATERIAL FALLING FROM HEIGHTS. 21
  - 2.3.4 MOVING THE MACHINE. 21
  - 2.3.5 SLIPPERY SURFACES. 21
  - 2.3.6 DIESEL FUMES. 21
  - 2.3.7 ELECTRICAL SAFETY. 21
  - 2.3.8 NOISE. 22
- 2.4 HAZARD ZONE. 23
- 2.5 LOCKOUT PROCEDURE. 23
- 2.6 EMERGENCY STOPS LOCATIONS. 24
- 2.7 EMERGENCY SHUT DOWN. 24
  - 2.7.1 RE-START PROCEDURE AFTER EMERGENCY SHUT DOWN. 24
- 2.8 SAFETY BEFORE AND DURING SET-UP. 25
- 2.9 SAFETY BEFORE AND DURING OPERATION. 26
- 2.10 SAFETY BEFORE AND DURING MAINTENANCE. 27
  - 2.10.1 SAFETY WHEN WORKING WITH HYDRAULICS. 28
  - 2.10.2 SAFETY WHEN WORKING WITH BATTERIES. 28
  - 2.10.3 SAFE DISPOSAL OF WASTE PRODUCTS. 28

### SECTION 3.0: ENGINE START-UP INSTRUCTIONS.

29

- 3.1 IMPORTANT CHECKS PRIOR TO STARTING THE ENIGNE. 29
- 3.2 ENGINE START UP PROCEDURES . 30

### SECTION 4.0: TRACKING INSTRUCTIONS.

31

- 4.1 TRACKING THE MACHINE. 32

### SECTION 5.0: INSTALLATION.

33

- 5.1 INSTALLATION OVERVIEW. 33
- 5.2 INSTALLATION PROCEDURES. 33
- 5.3 STEP 1: UNLOAD THE MACHINE. 34
- 5.4 STEP 2: POSITION THE MACHINE INTO THE DESIRED LOCATION. 34
- 5.5 STEP 3: REMOVE TRANSPORT BRACKETS & ANY ITEMS PACKED ONTO THE MACHINE. 34
- 5.6 STEP 4: LOWER THE HOPPER JACKING LEGS. 35
- 5.7 STEP 5: UNFOLD THE PRODUCT CONVEYOR. 36
- 5.8 STEP 6: FIT THE SKIRTING RUBBERS. 37
- 5.9 STEP 7: ADJUST THE PRODUCT CONVEYOR BELT. 37
- 5.10 STEP 8: FIT THE E-STOP PULL CORDS. 38
- 5.11 STEP 9: RAISE THE PRODUCT CONVEYOR INTO THE WORKING POSITION. 39
- 5.12 STEP 10: SET UP THE VIBRATING GRID (Optional). 40

### SECTION 6.0: OPERATION.

42

- 6.1 OPERATION OVERVIEW. 42
- 6.2 IMPORTANT CHECKS PRIOR TO OPERATING THIS MACHINE. 42
- 6.3 MACHINE START-UP SEQUENCE. 43
- 6.4 CONTROLLING THE SPEED OF THE FEEDER CONVEYOR. 44
- 6.5 MACHINE SHUT-DOWN SEQUENCE. 44

### SECTION 7.0: MAINTENANCE.

45

- 7.1 GENERAL MAINTENANCE INFORMATION. 45
- 7.2 DAILY MAINTENANCE. 46
- 7.3 VISUAL CHECKS DURING OPERATION. 46
- 7.4 WEEKLY MAINTENANCE. 46
- 7.5 LUBRICATION POINTS. 47
- 7.6 LUBRICATION SCHEDULE. 47
- 7.7 SERVICE SCHEDULE: 48
  - 7.7.1 OIL & FLUID REPLACEMENT QUANTITIES: 48
  - 7.7.2 RECOMMENDED LUBRICANTS 49

**CONTENTS CONTINUED.**

**Page No.**

7.8 ENGINE MAINTENANCE.	50
7.8.1 ROUTINE DAILY ENGINE MAINTENANCE.	50
7.9 TRACKS MAINTENANCE:	51
7.9.1 TRACKS ADJUSTMENT:	51
7.9.2 TRACKS ADJUSTMENT SETTINGS.	51
7.9.3 INCREASING THE TRACK TENSION.	51
7.9.4 RELEASING THE TRACK TENSION.	51
7.9.5 TRACKS GEARBOX MAINTENANCE.	52
7.9.6 CHECKING AND FILLING THE GEARBOX OIL.	52
7.9.7 DRAINING THE GEARBOX OIL.	52
7.10 HYDRAULIC OIL SYSTEM MAINTENANCE.	53
7.11 CONVEYOR MAINTENANCE.	54
7.12 CONVEYOR BELT TENSIONING.	54
7.13 CONVEYOR BELT TRACKING.	55
7.14 CONVEYOR GEARBOX MAINTENANCE.	56
7.15 HYDRAULIC DIAGRAM.	57

**SECTION 8.0: TRANSPORTATION:**

**58**

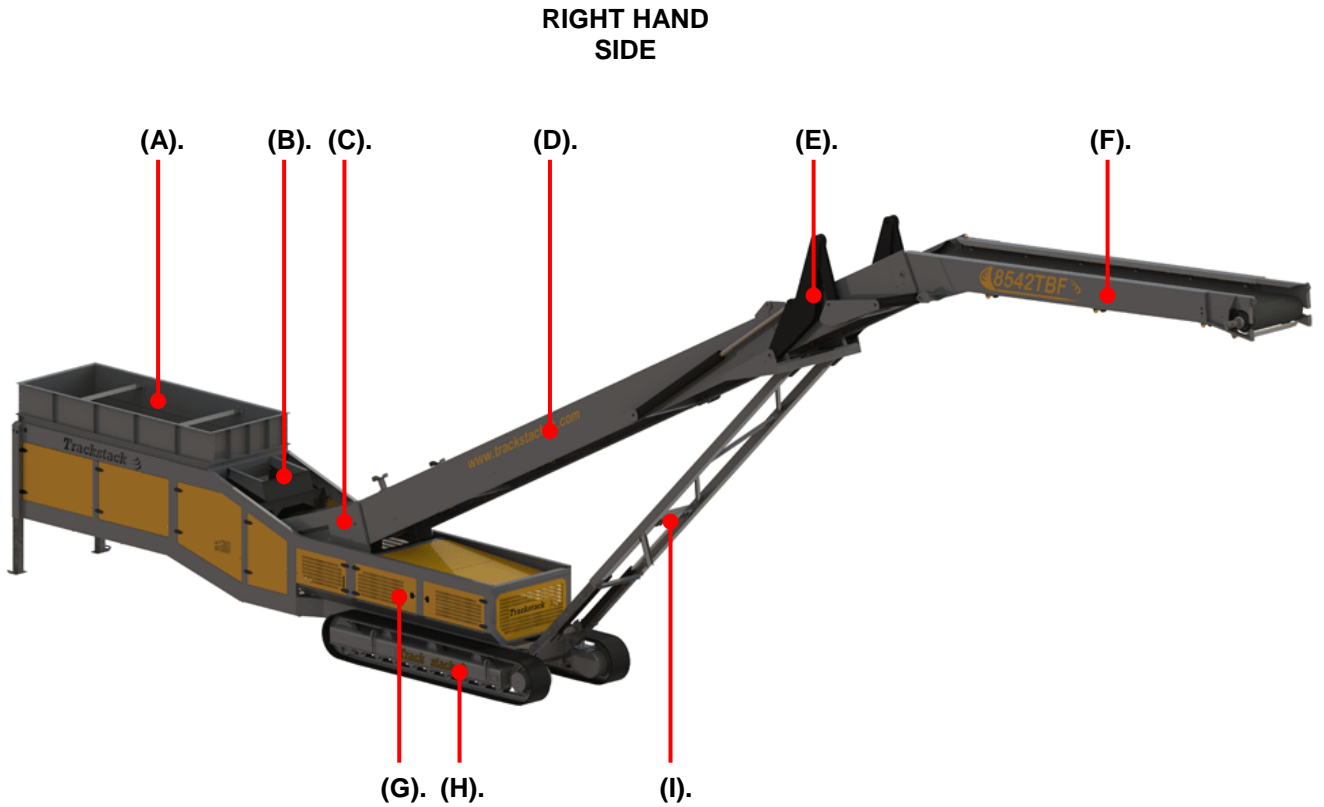
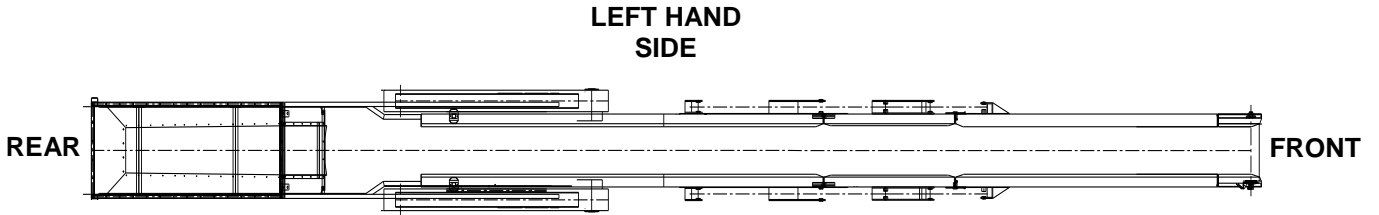
8.1 TRANSPORTATION OVERVIEW.	58
8.2 PREPARING FOR TRANSPORT SEQUENCE.	58
8.2.1 STEP 1: CLEAR THE MACHINE OF ALL MATERIAL.	59
8.2.2 STEP 2: LOWER THE PRODUCT CONVEYOR.	59
8.2.3 STEP 3: REMOVE THE SKIRTING RUBBERS.	60
8.2.4 STEP 4: DISCONNECT THE E-STOP PULL CORDS.	60
8.2.5 STEP 5: FOLD OVER THE PRODUCT CONVEYOR.	61
8.2.6 STEP 6: LOWER THE VIBRATING GRID (Optional).	62
8.2.7 STEP 7: RAISE THE HOPPER JACKING LEGS.	63

# SECTION 1.0

# FAMILIARISATION

	<h2 style="margin: 0;">CAUTION</h2>	<p>Ensure that all personnel are completely familiar with all aspects of this machine.</p>
-----------------------------------------------------------------------------------	-------------------------------------	--------------------------------------------------------------------------------------------

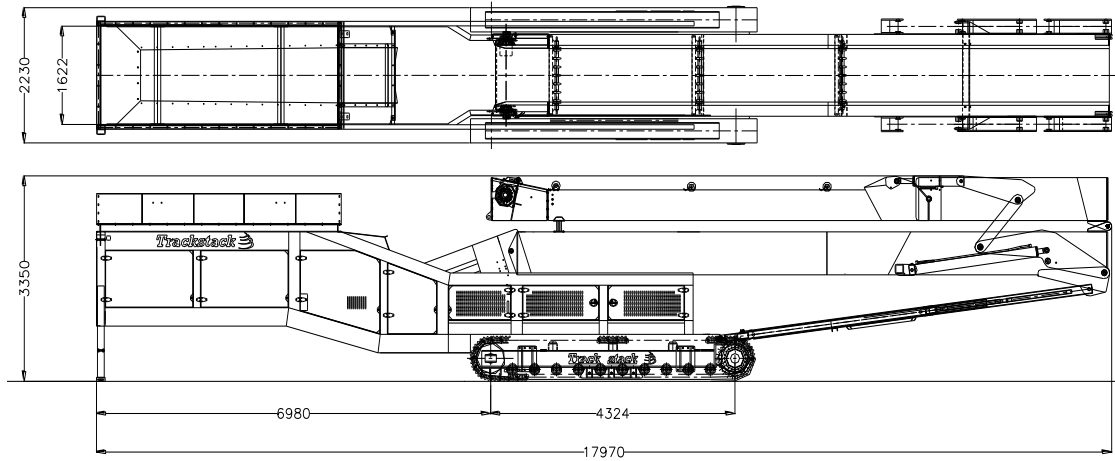
**1.1 MAIN ASSEMBLY DESCRIPTIONS & ORIENTATION.**



Main Assembly Descriptions:	
(A).	Hopper with 'Vibrating Grid' Option
(B).	Belt Feeder
(C).	Product Conveyor Bottom Section (Tail)
(D).	Product Conveyor Middle Section
(E).	Product Conveyor Top Section (Head) Folding
(F).	Product Conveyor Top Section (Head)
(G).	Engine Powerpack / Drive System
(H).	Tracks
(I).	Front Telescopic

**1.2 TECHNICAL SPECIFICATION.**

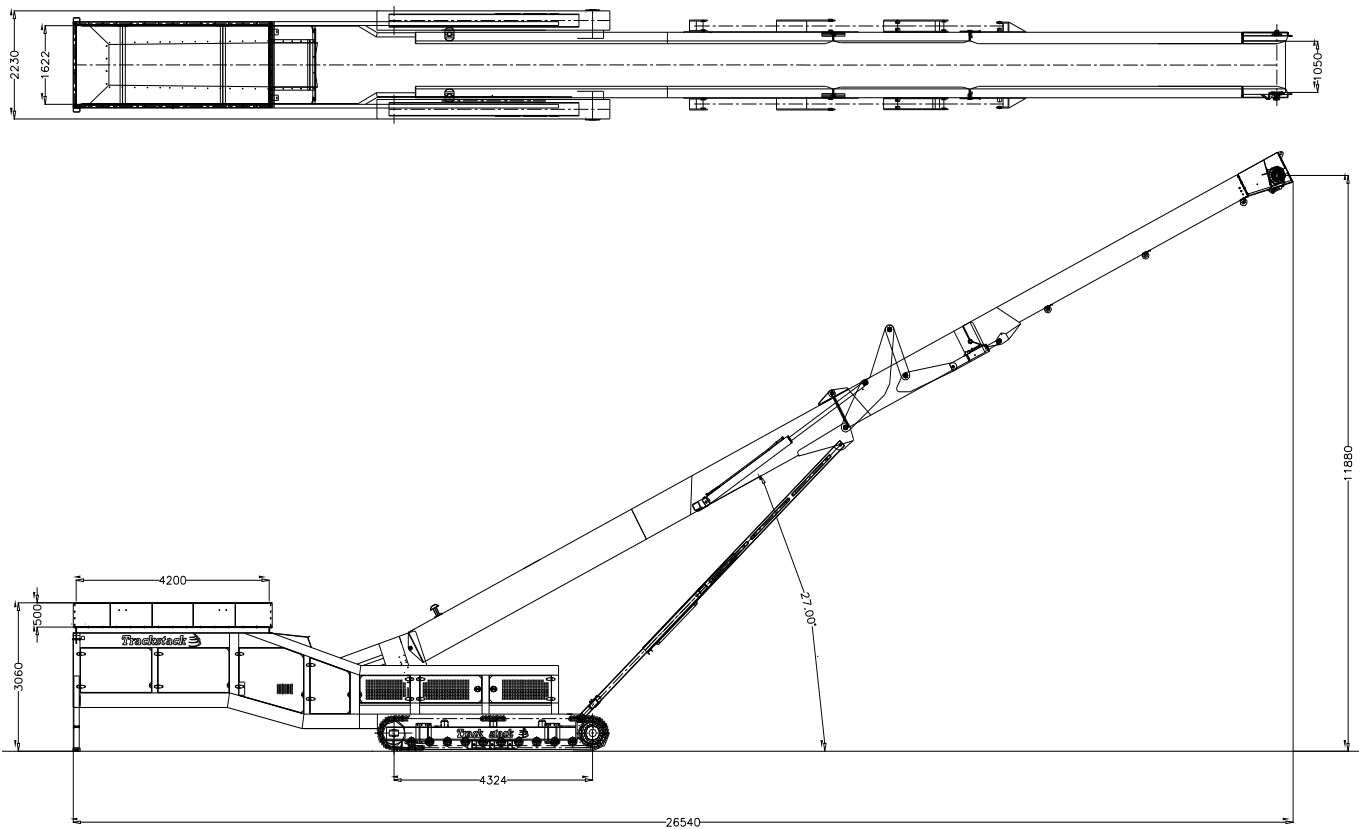
**TRANSPORT DIMENIONS (mm).**



Transport Length: 17970mm  
 Transport Width: 2230mm  
 Transport Height: 3350mm  
 Machine Weight: 22,000kgs (48,501lbs)

**NOTE:** The weights and dimensions stated here are given for a standard machine only. Optional extras fitted to the machine and/or transportation laws in force in various countries, may alter the transportation weight and dimensions of the machine.

**OPERATING DIMENIONS (mm).**



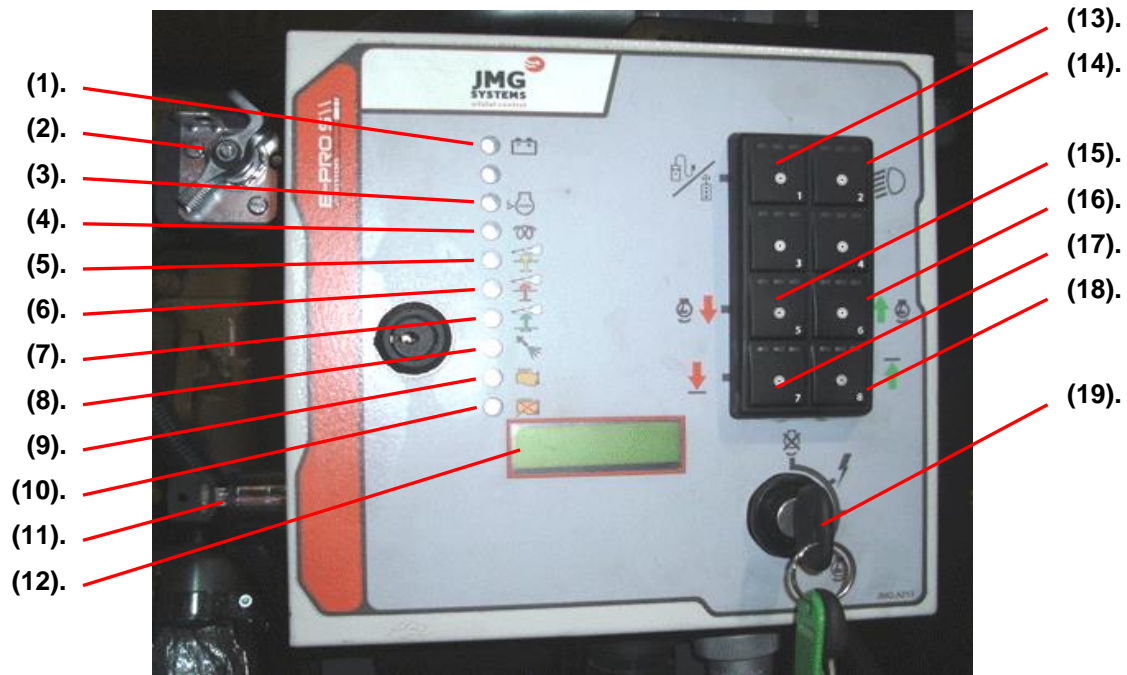
Operating Length: 26540mm  
 Operating Width: 2230mm  
 Operating Height: 11880mm



Tel: +44 (0) 28 82252781

8542TBF - P9.

### 1.3 MAIN CONTROL PANEL FAMILIARISATION.



- 1) **Battery Power Light.** This light should illuminate when the key switch is turned to the "on" position. As soon as the engine starts it should go out. If it fails to illuminate when the key is turned on or if it illuminates when the engine is running, it indicates that there is a fault in the charging circuit. Stop the engine and have the circuit checked
- 2) **Battery Isolator Switch.** Used to connect and disconnect power from the battery.
- 3) **Engine Oil Pressure Warning Light.** This light should illuminate when the key switch is turned to the "on" position. As soon as engine starts it should go out. If a fault occurs in the oil pressure system the light will illuminate and the engine will shut down after 3 seconds.
- 4) **Engine Pre-Heat Lamp.** This lamp will illuminate when the engine ECU detects that it requires pre-heat during start-up.
- 5) **Doglead Engine Stop 'Engaged' Light.** This light will illuminate when the engine stop has been pressed on the doglead. The engine will immediately shut down. The engine will NOT start if this light is on.
- 6) **Emergency Stop 'Engaged' Light.** This light will illuminate when the emergency stop has been pressed. The engine will immediately shut down. A flashing signal after shut down indicates that the one of the stops has been pressed. The engine will NOT start if this light is flashing.
- 7) **Engine Run Light.** This light should illuminate when the key is turned to the "on" position and will remain on at all times. If it goes out then an emergency stop has been pressed and the engine will shut down immediately.
- 8) **Fuel Light.** This light will illuminate when the ignition key is turned to the start position to indicate that the fuel solenoid circuit has been energized. The engine will not start if this light is not on. While the engine is running this light will remain on.
- 9) **Engine Warning Lamp.** This lamp will flash a code to indicate a problem is occurring with the engine. The engine will not shut down at this stage but it may shut down if action is not taken to rectify the fault. Flash codes can be found in CAT engine manual.
- 10) **Engine Fault Lamp.** If a fault has occurred in the engine and it has shut down, this lamp will flash a code to indicate what the fault is. Flash codes can be found in CAT engine manual.
- 11) **Doglead/Remote Control Key Switch.** This switch is used to select either the doglead or the remote control for tracking.
- 12) **LCD Display.** This display shows important information relating to the engine.

Continued on the next page.....

### **1.3 CONTINUED.....**

- 13) Tracks Activation.** This button must be pressed to activate the tracks.
- 14) Working Lights Operation.** This button starts and stops the working lights if they have been fitted to the machine.
- 15) Reduce Engine Speed.** This button is used to reduce the engine speed.
- 16) Increase Engine Speed.** This button is used to increase the engine speed.
- 17) LCD Display - Scroll Down.** This button is used to scroll down through the LCD display menu.
- 18) LCD Display - Scroll Up.** This button is used to scroll up through the LCD display menu.
- 19) Engine Ignition Switch.** This is used to start and stop the engine.

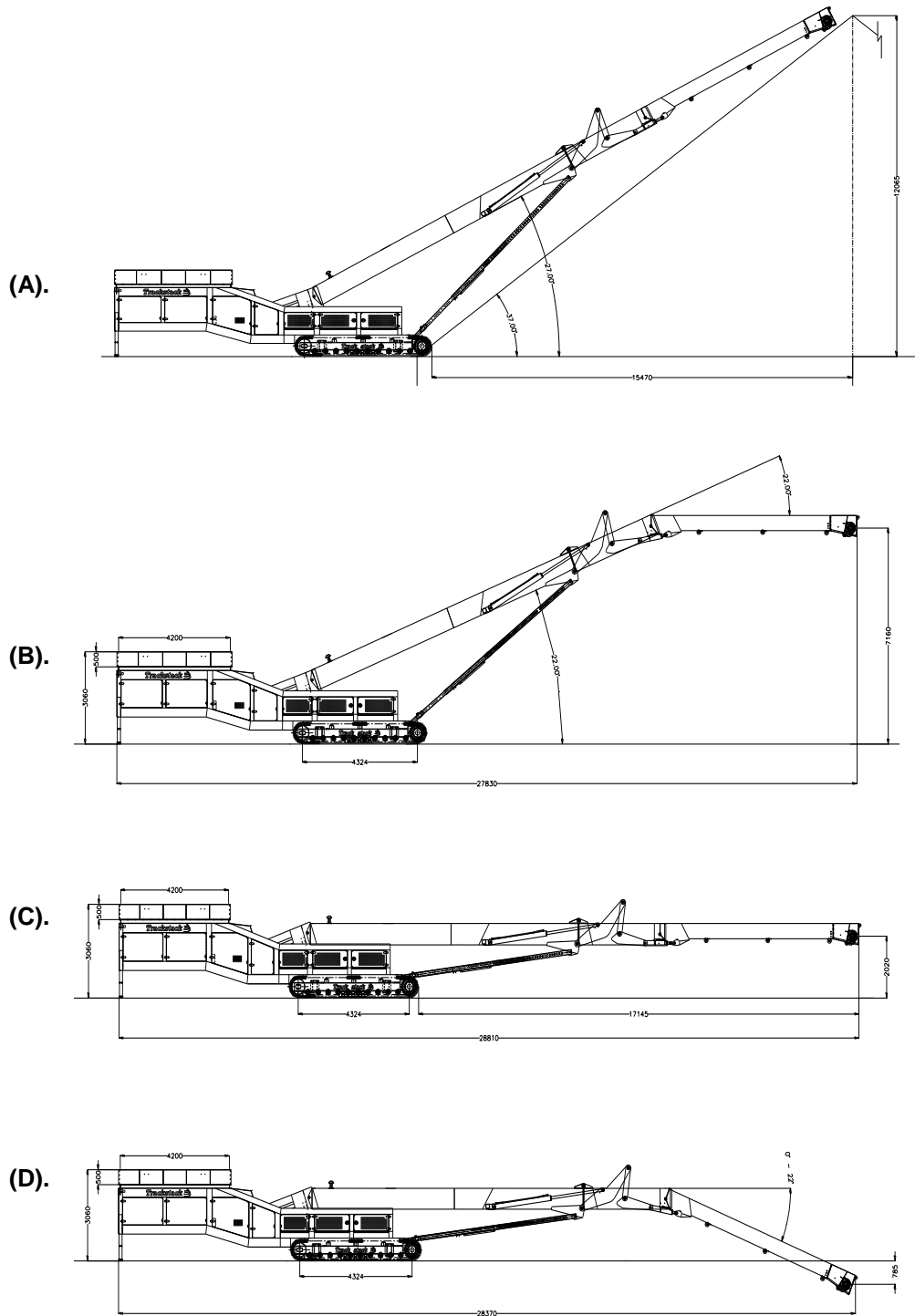
## 1.4 IMPORTANT FEATURES OF THIS MACHINE.

This machine is fitted with several important mechanisms and devices in order to provide various manoeuvring and operating features. Please ensure that you make yourself completely familiar with these devices so that you get the best performance and reliability from your machine.

### 1.) Variable Operating Heights:

A hydraulically operated telescopic frame is used to raise and lower the conveyor. The conveyor can operate at various heights by adjusting the telescopic.

The head section of the conveyor can also be hydraulically tilted in order to various loading position, as shown below:

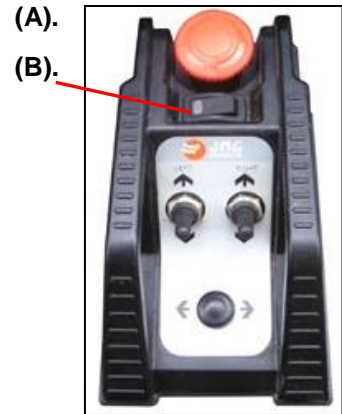


## 1.4 IMPORTANT FEATURES OF THIS MACHINE CONTINUED.

### 2.) Tracking:

Crawler tracks have been fitted to the machine so that it can be easily transported and manoeuvred into position. The tracks are operated through a doglead handset, as shown at (A). The handset is turned on by pressing the switch shown at (B).

**WARNING:** The machine must never be tracked when the product conveyor is in the elevated position!

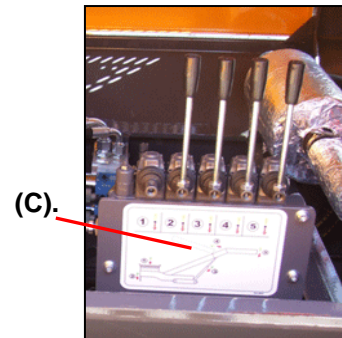


### 3.) Hydraulic Conveyor Folding:

In order to make the machine easily transportable, hydraulically operated folding mechanisms have been fitted to the product conveyor, as shown at (D).

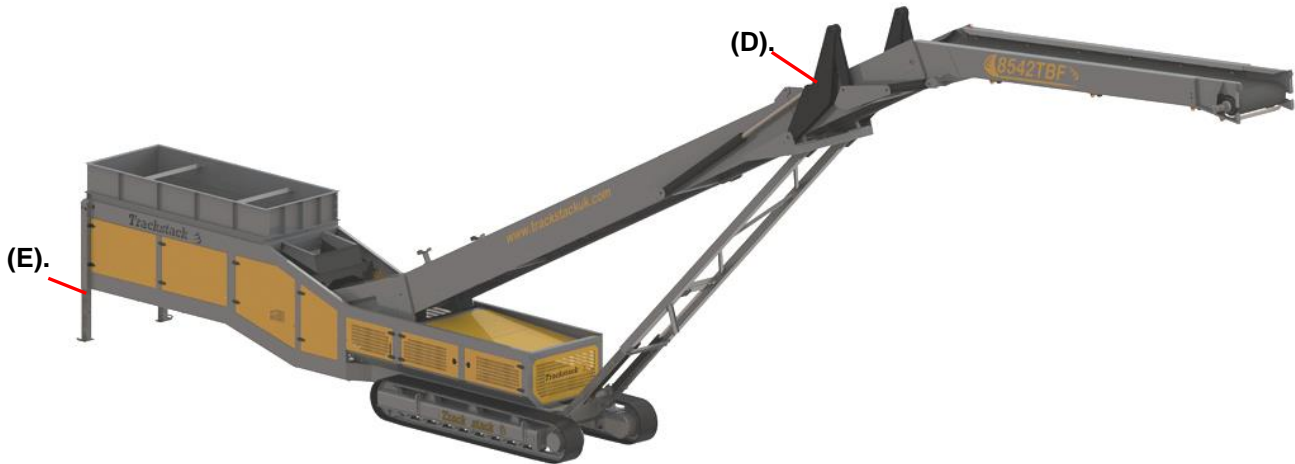
The folding of the conveyor is carried out using a hydraulic lever, located on side of the power pack, as shown at (C).

**WARNING:** The conveyor MUST NEVER be folded over when it is in the raised 'working' position. Always lower the conveyor down into the 'transport' position before folding it over.



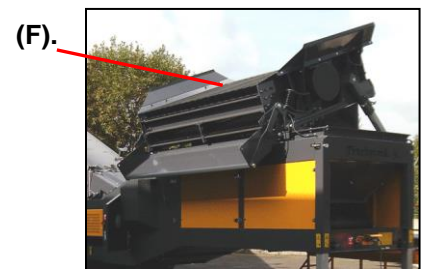
### 4.) Hydraulic Jacking Legs:

Two hydraulically operated jacking legs are fitted to the rear of the machine, as shown at (E). The jacking legs are operated using a hydraulic lever, located on side of the power pack, as shown at (C).



### 5.) Vibrating Grid (Optional):

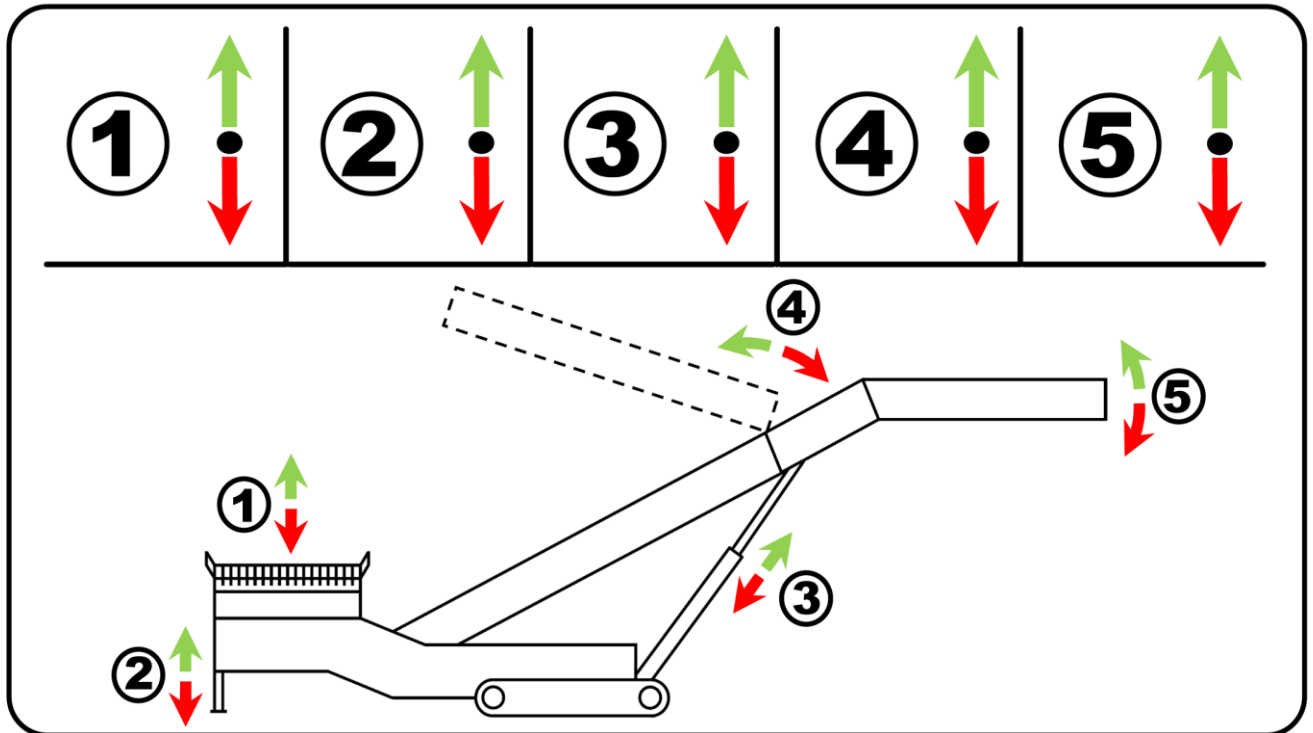
This machine has the option of having a vibrating grid fitted to the hopper, as shown at (F). The grid can be hydraulically adjusted to work at different angles.



### 1.5 FAMILIARISATION OF OPERATION LABELS DISPLAYED ON THE MACHINE.

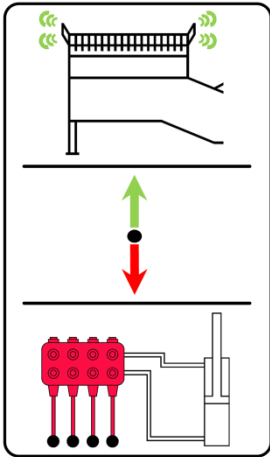
The following operation sign conventions are used throughout this manual and on the machine. Please read this section carefully to become familiar with the signs used.

**NOTE:** Hazard warning labels are shown in the safety section



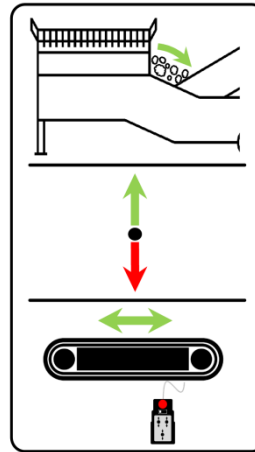
1. Vibrating Grid – Raise & Lower. (Optional)
2. Hopper Jacking legs – Raise & Lower.
3. Front Telescopic – Raise & Lower.
4. Conveyor Folding – Top Section Folding.
5. Conveyor Tilting – Top Section Raise & Lower.

**1.5 CONTINUED.....**



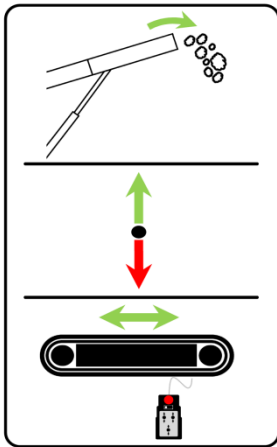
Vibrating Grid Operation – Up position to start / Neutral position to stop. (Optional)

Hydraulic Rams Function – Up position to activate rams / Neutral position to de-activate rams.



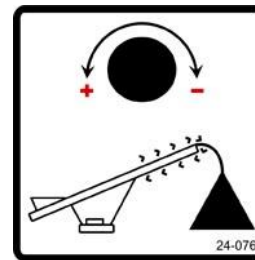
Belt Feeder Operation – Up position to start / Neutral position to stop.

Tracks Operation Function – Up position to activate / Neutral position to de-activate.



Product Conveyor Operation – Up position to start / Neutral position to stop.

Tracks Operation Function – Up position to activate / Neutral position to de-activate.



Product Conveyor speed control – Turn anticlockwise to decrease the conveyor speed. Turn clockwise to increase the conveyor speed.

# SECTION 2.0

# SAFETY

## 2.1 SAFETY INTRODUCTION.

It remains the responsibility of the owner and/or operator of this machine to ensure the Health & Safety of all persons who are inspecting, operating or carrying out any work on or close to the machine.

This safety section in no way replaces any laws or other binding accident prevention and environmental protection regulations.

All personnel who operate, maintain, repair or carry out any type of work on or near to Tesab equipment must be properly trained in the correct and safe procedures for the work they are to carry out.

They MUST:

- Be reliable, experienced and have a sound knowledge of materials processing equipment. Statutory minimum age limits must also be observed.
- Read and understand all aspects of this manual prior to carrying out any work.
- Be aware of all the hazards associated with this machine.
- Have received specific and adequate training for any particular task to be carried out.
- Be completely familiar with all parts of the machine.
- Be aware of all moving parts on the machine.
- Be aware of the operation and limits of performance of the machine.
- Know the location of safety features such as emergency stop buttons and safety guards etc.
- Have read and understood any 'on-site' safety manual produced by the site owner.
- Be prepared to carry out all safety instructions regardless of how unimportant they may seem.

**IMPORTANT:** All instructions given in this manual have been provided based on ideal site conditions and plant set-up. However, not all sites or machine set-ups will be the same, therefore, in the interests of safety the instructions given here should be adapted to suit the conditions and set-up of each particular machine.

The person carrying out work to the machine must assess all on-site risks and take these into account before performing any work. All efforts must be made to find and eliminate all on-site risks associated with this machine.

**WARNING:** Because of the design of this machine, certain components are positioned to provide balance and stability to the machine. For example, if a vibrating grid is fitted to the machine it will also act as a counterbalance to prevent the machine from toppling forward. Therefore, it is imperative that no major components are removed from the machine without taking the necessary steps to support the machine correctly. If in any doubt please contact Tesab Engineering.

### 2.1.1 CALIFORNIA PROPOSTION 65 WARNINGS:

Battery Posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. WASH HANDS AFTER HANDLING.

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

**2.2 SAFETY WARNING LABELS.**

The following safety sign conventions are used throughout this manual and on the machine. Please read this section carefully and become familiar with the signs used.



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

- Keep all guards in place!
- Do not operate the machine without all guards fitted.



**WARNING!**  
**IMPACT HAZARD.**

- Stand clear of machine when conveyor is being folded.



**WARNING!**  
**FALL HAZARD.**

- Do not climb onto high areas of the machine.
- Use a suitable lift to access high areas of the machine.



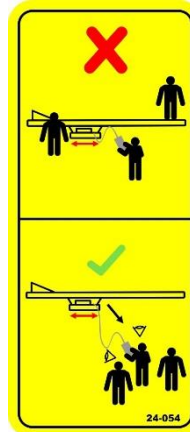
**WARNING!**  
**POTENTIAL HAZARD.**

- Before folding conveyor you **MUST** read the folding instructions in the operation manual.



**WARNING!**  
**CRUSH HAZARD.**

- Stand clear of tracks when the machine is being moved.



**WARNING!**  
**CRUSH HAZARD.**

- Stand clear of the machine when tracking.
- Ensure that no one is on or close to the machine when tracking.
- Keep a look out on all sides of the machine when tracking.



**WARNING!**  
**NIP HAZARD.**

- Keep hands clear of moving components.
- Do not use fingers to line up holes.



**WARNING!**  
**IMPACT HAZARD.**

- Risking of falling objects.
- Stand clear of machine when it is being operated.

**2.2 SAFETY WARNING LABELS CONTINUED.**



**WARNING!**  
**PENETRATION HAZARD.**

- If hydraulic hose bursts stand clear.
- Stop machine immediately.
- Read maintenance manual.



**WARNING!**  
**CRUSH HAZARD.**

- Before tracking the machine ensure that you read the operation manual.



**WARNING!**  
**ELECTROCUTION HAZARD.**

- Keep clear of overhead cables when moving or setting up the machine.



**WARNING!**  
**POTENTIAL HAZARD.**

- Before starting the engine ensure that you read the operation manual.



**WARNING!**  
**DUST HAZARD.**

- During operation high levels of dust may be created.
- Ensure that a suitable dust suppression system is being used.



**WARNING!**  
**POTENTIAL HAZARD.**

- Before carrying out any maintenance ensure that the engine has been stopped and the machine has been locked out.



**WARNING!**  
**EXPLOSION HAZARD.**

- If carrying out welding on or close to the machine ensure that the batteries have been isolated.



**WARNING!**  
**POTENTIAL HAZARD.**

- Before carrying out any maintenance ensure that you read the maintenance manual.

## 2.2 SAFETY WARNING LABELS CONTINUED.



### **WARNING!**

#### **ENTANGLEMENT HAZARD.**

- Before opening the engine canopy ensure that engine has been switched off and locked out.



### **WARNING!**

#### **EXPLOSION & BURN HAZARD.**

- Battery acid can burn.
- Keep naked flames away from batteries.



### **WARNING!**

#### **BURN HAZARD.**

- Ensure that the engine has been switched off and has cooled down before carrying out any maintenance.



### **WARNING!**

#### **POTENTIAL HAZARD.**

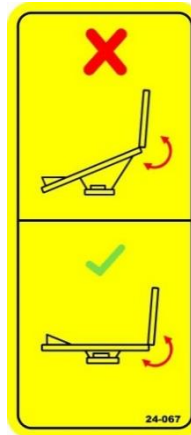
- Before tracking the machine lower the conveyor down to the lowest position.



### **WARNING!**

#### **ROTATING COMPONENT HAZARD.**

- When engine is running keep all canopy doors closed.
- Switch off engine before opening canopy doors.



### **WARNING!**

#### **POTENTIAL HAZARD.**

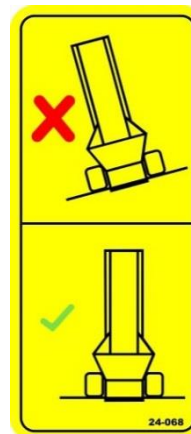
- Never fold the conveyor over when it's raised into the working position.
- Always lower the conveyor down to the lowest position before folding.



### **WARNING!**

#### **CRUSH HAZARD.**

- Keep feet and limbs clear when lowering jacking legs.



### **WARNING!**

#### **POTENTIAL HAZARD.**

- Never track or operate the machine on uneven ground.
- Always ensure that the ground is level in all directions before tracking the machine onto it.

## 2.2 SAFETY WARNING LABELS CONTINUED.



### **MANDATORY!**

- Head protection must be worn.



### **MANDATORY!**

- Ear protection must be worn.



### **MANDATORY!**

- Eye protection must be worn.



### **MANDATORY!**

- Protective gloves must be worn.



### **WARNING!**

#### **BURN HAZARD.**

- Do not touch hot surfaces.



#### **EMERGENCY STOP BUTTON.**

- In cases of emergency press the emergency stop button.



### **MANDATORY!**

- Protective clothes must be worn.



### **MANDATORY!**

- Protective boots must be worn.



### **MANDATORY!**

- Dust mask must be worn.



### **MANDATORY!**

- High visibility vest must be worn.



### **Noise Levels!**

## **2.3 SAFETY HAZARDS.**

The following hazards have been identified on this machine and therefore precautions must be taken to avoid injury or death. Note, these are not all the risks associated with this machine. A complete and comprehensive risk assessment should be carried out by the site owner before operating this machine.

### **2.3.1 WORKING AT HEIGHTS.**

Falling from a TESAB machine can cause serious injury or even death. Some maintenance tasks will necessitate that persons work on the machine at a height where fall hazards exist. In these cases it is the responsibility of the machine owner to provide adequate safe working access. Even when using safe platforms an EN/ANSI Safety Harness must be worn by all personnel when working above heights of 2 metres (7ft). Always keep access ladders and walkways clean and free from debris, material, snow, ice, rags and tools. Never use machine parts as climbing aids. Access platforms only be used by authorised personnel. If any work or adjustments, of any kind, are to be carried out the machine must be shut down and "Locked out". etc.

### **2.3.2 NIP/CRUSH POINTS.**

Travelling belts, rotating drums & rollers, vibrating mechanisms and various moving parts on this machine create potentially serious nip points. No one should ever reach into any part of the machine, for whatever reason, while it is running. Always stop the machine and 'lock out' when maintenance, repairs or adjustments are required. Loose clothing, jewellery and long hair should be tied back or removed to avoid entanglement with the components. Guards are provided at certain high risk nip points on the machine. These guards must be kept in place at all times. The machine must not be operated while any guards are missing or damaged. The machine should only be started when the operator has checked that everyone is clear of the machine.

### **2.3.3 MATERIAL FALLING FROM HEIGHTS.**

Material is fed on to, and discharged off the machine at great heights. Therefore, it is imperative that no one is permitted to stand or walk close to the machine when it is operating. In some situations material can roll back down conveyor belts and even fall off the side of the conveyors. It is also important that, even when the machine is not operating, personal protective equipment is worn at all times. Loose material can easily fall from the machine even when it is stopped.

### **2.3.4 MOVING THE MACHINE.**

Major hazards exist when moving and manoeuvring this machine which could cause serious injury or death. All personnel authorised to move this machine must be trained on the operation of the track drives. Extreme care must be taken before and during moving of this machine.

### **2.3.5 SLIPPERY SURFACES.**

Due to environmental and operating conditions, some parts of the machine can become very slippery when wet, especially metal surfaces. Extra care should be taken during wet conditions. Proper footwear should always be worn and walkways and ladders should always be kept clean and free from obstructions.

### **2.3.6 DIESEL FUMES.**

Diesel engine exhaust emissions contain products of combustion which may be harmful to your health. Ensure the machine is in a well ventilated area. If the machine is operating in an enclosed area ensure that emissions are vented outdoors.

### **2.3.7 ELECTRICAL SAFETY.**

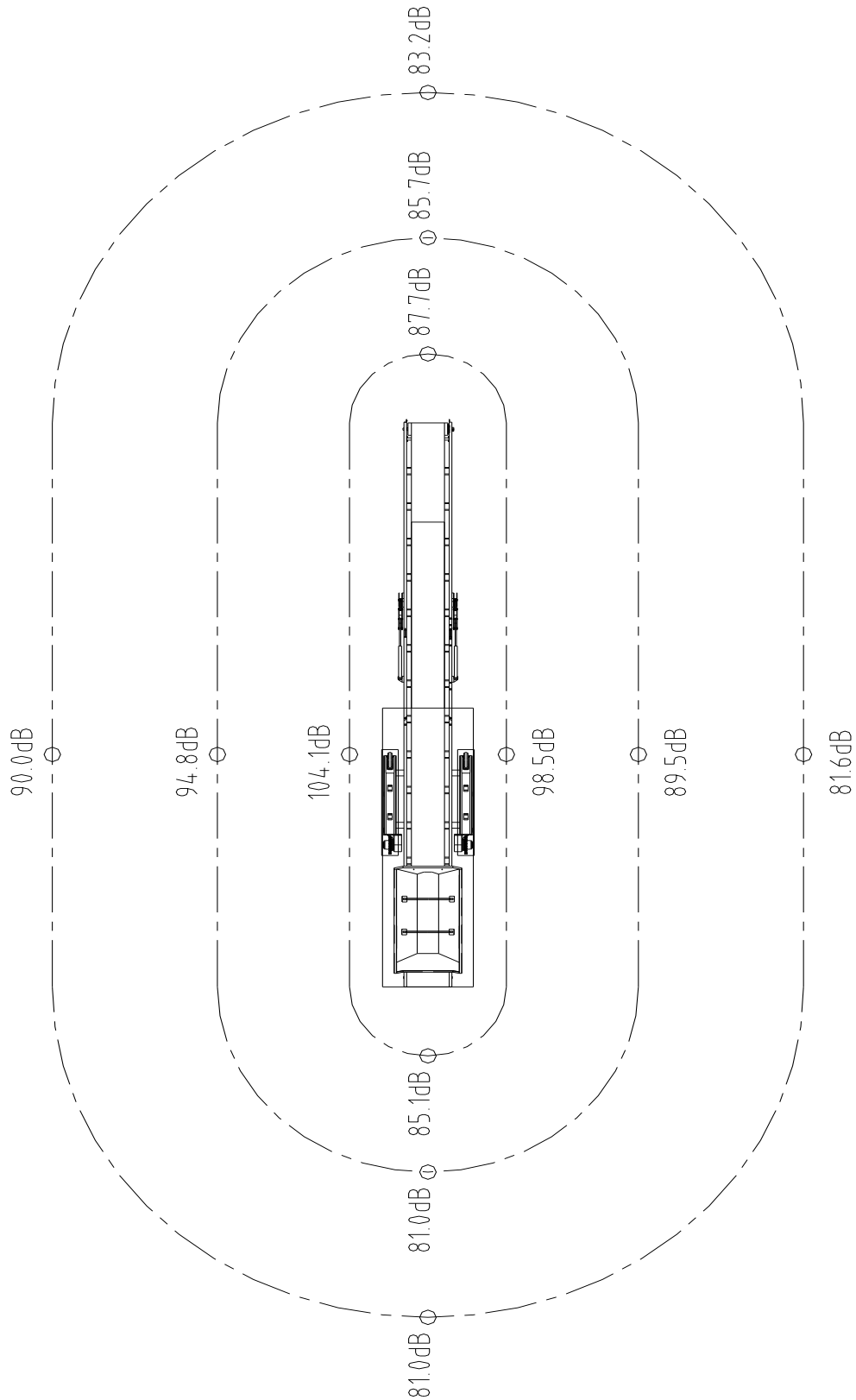
While the electrical equipment on this machine is rated at only 24 volts, safety should not be taken lightly. If components are connected wrongly or are tampered with, serious burns or injuries can be caused.

- Work on the electrical system must only ever be carried out by a fully qualified electrician.
- Never work on the electrical system unless you are thoroughly familiar with the system details.
- Special care must be taken when disconnecting, replacing and /or charging the batteries. Ensure that the batteries are re-connected correctly. Contact across the terminals on the batteries can cause sparks or explosions.
- The electrical equipment on this machine must be inspected at regular intervals. Damaged cables or loose connections must be repaired immediately. Use only genuine replacement parts with the correct load rating especially fuses.
- Always isolate the batteries if welding on the machine.

### 2.3.8 NOISE.

Due to the type and nature of this machinery, excessive noise levels will occur. Over time exposure to noise can cause serious injury, therefore, precautions must be taken including the wearing of adequate ear protection. The length of exposure to such noise levels should be kept to a minimum. Adequate noise risk assessments must be carried out.

The diagram below shows the noise rating at 2m, 6m & 12m



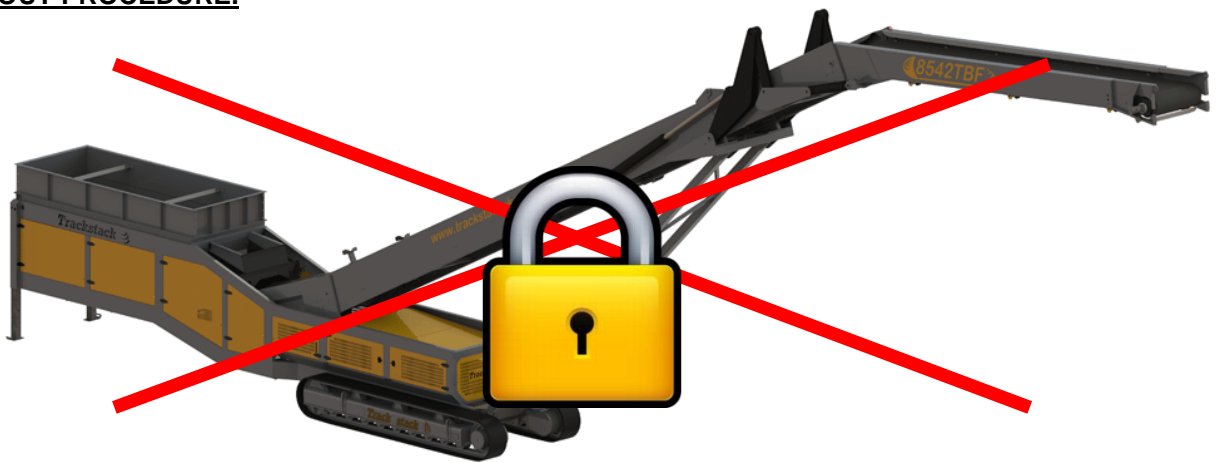
## 2.4 HAZARD ZONE.

It is strongly recommended that a hazard or restriction zone should be placed at least 10 metres around the entire machine. Access to this restricted zone should only be permitted to those people who meet all the criteria listed below. This procedure, if enforced at all times, even when the machine is shut down, will significantly reduce the potential for accidents and injuries.

Those permitted to enter the hazard zone should comply with all of the following:

- They must have authorisation from the machine supervisor to enter the restricted zone.
- They must have read and understood the safety section of this manual.
- They must carry out all safety procedures required.
- They must be fully trained and qualified in the work they are carrying out.
- They must have experience in working with this type of plant.
- They must be wearing the required 'Personal Protective Equipment'.
- They must be accompanied by another person who also meets this criteria.

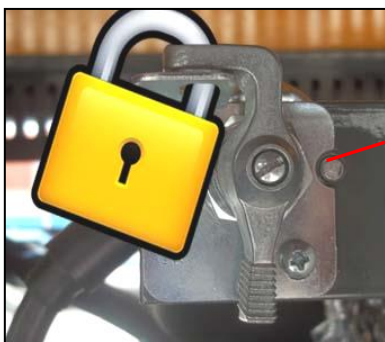
## 2.5 LOCKOUT PROCEDURE.



When carrying out maintenance, repairs, adjustment or work of any kind on this machine, ensure that the following lockout procedure is followed:

- Deactivate all controls, switch the engine off and remove the key.
- Activate at least one emergency stop.
- Relieve all pressures in the hydraulic system.
- The person doing the work on the machine must keep the keys with them at all times.
- Ensure that the isolator switch, as shown at **(A)**, is in the OFF position and is padlocked.
- Tag the control panel to indicate to operators that the machine has been locked-out.

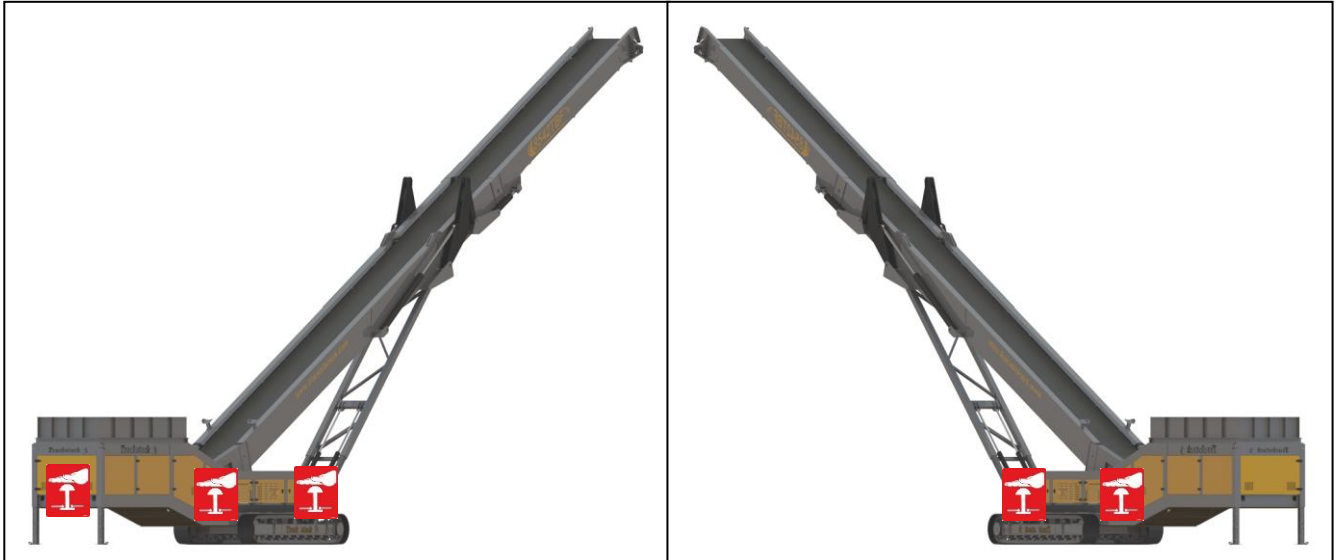
(A).



## 2.6 EMERGENCY STOPS LOCATIONS.

There are five emergency stops and one engine stop located on a standard 8542TBF machine. Their locations are given below. Optional extras fitted to the machine may require additional emergency stops to be fitted.

Ensure that everyone who operates, maintains or is anyway associated with this machine, makes themselves completely familiar with the location of all the emergency stops on the actual machine. Emergency stops are clearly marked on the machine with a red safety label, as shown at (A).



## 2.7 EMERGENCY SHUT DOWN.

**IMPORTANT:** In the case of any major incident on the machine the following procedure must be followed immediately. **NOTE:** Do not use the 'Emergency Stop' procedure to stop the machine under normal situations.

- Engage the nearest emergency stop.
- Stop all other equipment feeding or working near the machine.
- Perform the 'Lock Out' procedure.
- Inform all other operators working on or close to the machine.
- Only when all parts of the machine are stationary and the 'Lockout' procedure has been performed, should any attempt be made to repair the fault.
- Ensure that at least two people are present when fault finding or accident investigation is being carried out.

### 2.7.1 RE-START PROCEDURE AFTER EMERGENCY SHUT DOWN.

**IMPORTANT:** Only authorised, competent and fully trained personnel should be permitted to re-start the machine after an emergency shut down.

- Ensure that the problem has been rectified.
- Replace all guards correctly.
- Ensure that all personnel are clear of the machine.
- Ensure that all tools etc. have been cleared from around the machine including the walkways.
- Release all emergency stops.
- Follow the correct engine start up procedure as shown in section 3.0.
- Do not leave the machine until you are sure the problem will not re-occur.
- If the problem persists carry out the emergency shut down procedure again and carry out further fault finding.

## **2.8 SAFETY BEFORE AND DURING SET-UP.**

**IMPORTANT:** All instructions given in this manual regarding installation, operation, maintenance and replacement of parts have been provided based on ideal site conditions and machine set-up. However, not all sites or machine set-ups will be the same, therefore, in the interests of safety, the instructions given should be adapted to suit the conditions and set-up of each particular machine.

The person carrying out work on the machine must assess all on-site risks and take these into account before performing any work. All efforts must be made to find and eliminate all on-site risks associated with this machine.

- The set-up of this machine must only be carried out by competent and well trained staff.
- Ensure that the area where the machine is to be set-up is stable, level and has adequate all-round clearance etc.
- Always request and observe the regulations that are in force at the site.
- Ensure that at least two people are present when set-up of this machine is being carried out.
- Ensure that all personal protective equipment is worn. Loose clothing, jewellery and long hair must be tied back or removed to avoid entanglement in the machinery.
- Before beginning set-up ensure that all loose items and packaging materials have been removed from the machine.
- Ensure that there are no overhead cables in the area where the machine is being set up and that there is adequate clearance above the machine so that the conveyors etc. can be unfolded safely.
- Before starting the machine and operating any of the hydraulic levers ensure that you have removed all transport bolts, fixtures and fittings.
- When working on areas of the machine where no walkways have been provided, an approved lifting platform must be used. Never climb onto the machine to reach areas not accessible from the ground or from the walkways. Never use unauthorised or unsafe platforms to reach inaccessible areas of the machine. If working above heights of 2 metres, even when using the walkways provided, an EN/ANSI Safety Harness must be worn.
- Never work under unsupported equipment.
- Only use lifting equipment, including slings and chains, that are in good working order, have been adequately tested and have the required lifting capacity for the job at hand.
- Do not stand beneath equipment as it is being raised or lowered into position.
- Do not use fingers to check hole alignments as this can cause serious injury.
- Before testing the machine ensure that all tools, parts and components have been removed from the machine and walkways. Ensure that no one is on or near the machine before testing.
- Test the machine to ensure that it is functioning properly. If problems occur during testing shut down the machine and carry out fault finding to rectify the problem.

## **2.9 SAFETY BEFORE AND DURING OPERATION.**

**IMPORTANT:** All instructions given in this manual regarding installation, operation, maintenance and replacement of parts have been provided based on ideal site conditions and machine set-up. However, not all sites or machine set-ups will be the same, therefore, in the interests of safety, the instructions given should be adapted to suit the conditions and set-up of each particular machine.

The person carrying out work on the machine must assess all on-site risks and take these into account before performing any work. All efforts must be made to find and eliminate all on-site risks associated with this machine

Keep all parts of this machine in good condition and properly installed. Fix any damage immediately and replace any broken parts with genuine TESAB parts. Remove any build up of grease, oil or debris before operating the machine.

- Ensure that all operators of this machine are reliable, experienced and have a sound knowledge of this type of equipment. Statutory minimum age limits must also be observed.
- Ensure that you have read and understand all safety hazards and operating procedures before starting the machine.
- Study all safety and hazard warning signs on the machine.
- Ensure that all personal protective equipment is worn. Loose clothing, jewellery and long hair must be tied back or removed to avoid entanglement in the machinery.
- Ensure that onlookers and untrained or inexperienced persons are well away from the machine.
- Prior to operation check the condition of the machine for worn, broken, missing or damaged parts, water leaks or obstructions etc. Ensure that all safety guards and emergency stops are correctly fitted and in good working order. Carry out any daily maintenance required - see maintenance schedule.
- Before starting walk completely around the machine. Ensure no one is under it, on it, or close to it.
- Let other workers and bystanders know you are starting up and do not start until everyone is clear of the machine.
- In the event of malfunctions or operational difficulty stop the machine immediately and lockout. Have any defects rectified immediately.
- While the machine is running only use the ladders, steps or walkways supplied to visually inspect the plant.
- Never attempt to carry out repairs, maintenance or adjustments of any type while the machine is running.
- Never stand or work beneath the machine while it is being loaded with material.
- Never stand or work beneath the machine while it is being fed or is discharging material.
- Only use emergency stops in emergency situations or during safety drills.

## **2.10 SAFETY BEFORE AND DURING MAINTENANCE.**

**IMPORTANT:** All instructions given in this manual regarding installation, operation, maintenance and replacement of parts have been provided based on ideal site conditions and machine set-up. However, not all sites or machine set-ups will be the same, therefore, in the interests of safety, the instructions given should be adapted to suit the conditions and set-up of each particular machine.

The person carrying out work on the machine must assess all on-site risks and take these into account before performing any work. All efforts must be made to find and eliminate all on-site risks associated with this machine. Never alter any equipment or parts of any equipment which may affect safety without consulting and gaining permission from TESAB ENGINEERING LTD.

- Before performing any maintenance of any kind the "Lock Out" procedure **MUST** be carried out.
- Ensure that all moving parts of the machine have come to a stand still before attempting any repairs or maintenance.
- Ensure that at least two people are present when maintenance or service work is being carried out.
- Ensure that all personal protective equipment is worn. Loose clothing, jewellery and long hair must be tied back or removed to avoid entanglement in the machinery.
- Ensure that the personnel carrying out the service or repair have a good understanding of the job they are about to undertake.
- Use caution when removing filler caps, filters, drain plugs or hydraulic fittings, hold a rag over the connection to prevent being sprayed or splashed with liquids.
- Repairs, maintenance or adjustments to the machine must never be performed while it is running especially the lubrication of bearings and moving parts etc.
- Guards or access doors should be replaced or closed before leaving the machine unattended, even for short periods of time. Onlookers or bystanders should be kept well away during maintenance.
- When performing maintenance or repairs to areas of the machine where no walkways have been provided, an approved lifting platform must be used. Never climb onto the machine to reach areas not accessible from the ground or from the walkways. Never use unauthorised or unsafe platforms to reach inaccessible areas of the machine. If working above heights of 2 metres, even when using the walkways provided, an EN/ANSI Safety Harness must be worn.
- Never work under unsupported equipment.
- All damaged, missing or dirty safety signs that cannot be read should be cleaned or replaced.
- Even though the machine has been designed to operate at various temperatures some parts may reach high temperatures on warm days. Always wait until all the equipment has cooled before working on the machine especially around the engine exhaust system.
- Always observe the maintenance intervals set out in these operating instructions, except where a warning light or indicator calls for immediate action or adverse conditions require more frequent servicing.
- Avoid smoking whilst refuelling or in the refuelling area.
- Dust found on the machine or produced during operation should be removed by extraction not blowing.
- During or after repair or maintenance inspect all other parts of the machine for damage or wear.
- When maintenance or repair has been completed ensure that all bolts, fittings and connections have been replaced and tightened. Re-fit all parts, guards and covers before testing or operating the machine.
- Before testing the machine ensure that all tools, parts and components have been removed from the machine. Ensure that no one is on or near the machine before testing.
- Test the machine to ensure that it is functioning properly. If problems occur during testing shut-down and carry out all the safety procedures listed above before trying to rectify the problem.
- After testing shut down the machine and check for loose or missing bolts, washers or nuts, etc.
- After operating the machine for a few hours shut down and check for any further problems.
- Only use lifting equipment, including slings and chains, that are in good working order, have been adequately tested and have the required lifting capacity for the job at hand.

### **2.10.1 SAFETY WHEN WORKING WITH HYDRAULICS.**

- Work on the hydraulic system must only be carried out by personnel with special knowledge and experience of hydraulic equipment.
- Never, under any circumstances, disconnect any hydraulic line or component while the engine or main hydraulic pumps are running.
- Relieve all pressure in hydraulic systems before any lines, fittings or components are disconnected or removed.
- Hydraulic lines must be laid and fitted properly. Ensure that no connections are interchanged. The fittings, lengths and quality of the hoses must comply with the technical requirements.
- Always practice extreme cleanliness when servicing hydraulic components.
- Where the hydraulic system is used to carry suspended loads, ensure that these loads are mechanically supported prior to disconnecting or servicing any hydraulic component.
- Hydraulic fluid under pressure is very dangerous. It can penetrate the skin causing serious injury. Pinhole jets are most dangerous.
- If fluid is injected under the skin seek medical attention immediately.
- Always use a piece of cardboard or similar to check for leaks. Do not use your hands.
- Do not work on oil flooded surfaces. Apply an "oil dry" material and clean up before starting work.

### **2.10.2 SAFETY WHEN WORKING WITH BATTERIES.**

- Disconnect the battery leads and tape the leads to prevent accidental start up when performing maintenance or servicing.
- Battery electrolyte contains acid and can cause serious injury. Avoid contact with skin and eyes. Use gloves and protective glasses.
- Batteries give off flammable fumes which can explode. Ensure that there is proper ventilation. Avoid the formation of sparks and naked lights in the vicinity of the batteries. Do not smoke when working in this area.

### **2.10.3 SAFE DISPOSAL OF WASTE PRODUCTS.**

- Improperly disposing of waste can threaten human health and the environment. Potentially harmful waste created from TESAB machines include oil, fuel, coolant, filters and batteries. Always dispose of waste in a safe and environmentally friendly manner. Seek advice from your local government environmental department regarding the safe disposal of waste products.
- Use leak proof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.
- Do not pour the fluids onto the ground, down a drain or into any water source.
- Ensure that all consumables and replaced parts are disposed of correctly and with the minimum environmental impact.

# SECTION 3.0

# ENGINE START-UP INSTRUCTIONS



## WARNING

Before attempting to start this machine you must read and understand all safety instructions listed in section 2.0

### 3.1 IMPORTANT CHECKS PRIOR TO STARTING THE ENGINE.

Only fully trained and authorised personnel should be given permission to start the engine on this machine.

Before starting the engine ensure that the following checks are carried out. Failure to do so may result in substantial damage to the machine or injury to persons.

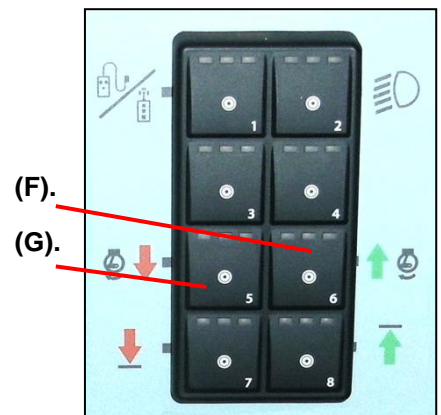
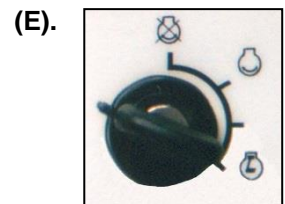
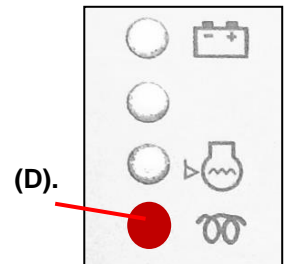
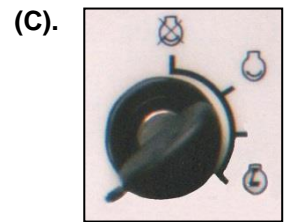
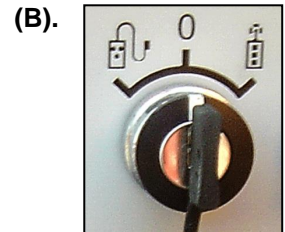
- Do not start the engine or move any of the controls if there is a “DO NOT OPERATE” warning tag or similar warning tag attached to the control panel or hydraulic levers.
- Before starting the engine ensure that all switches on the control panel are in the ‘OFF’ or ‘NEUTRAL’ position.
- Check that all hydraulic levers are in the neutral position. The engine MUST NOT be started under load.
- Check that no emergency stops are pressed.
- Check that there is sufficient diesel in the diesel tank to run the machine.
- Check the hydraulic oil level and top up if necessary.
- Check the engine oil level and top up if necessary.
- Check around the machine for oil leaks.
- Check that the air filters are clean.
- Check that the hydraulic oil cooler is clean and free from dirt.
- Do a final check around the machine to ensure that no one is on or near the machine.
- Consult the engine manufacturer’s operation & maintenance manual for further information on running the engine.

### 3.2 ENGINE START UP PROCEDURES.

**IMPORTANT:** If starting the engine first thing in the morning or where the machine has been inactive for a period of one day or more, you MUST ALWAYS check the engine oil level and air filters prior to starting the engine.

**IMPORTANT:** Before starting the engine on this machine you must consult the engine manufacturer's operation & maintenance manual supplied along with this machine.

- The engine starter panel is located on the right hand side of the machine, as shown at **(A)**.
- Before starting the engine, ensure that all hydraulic levers and switches on the control panel are in the 'off' or 'neutral' position.
- Ensure that the 'Doglead / Remote Control' switch is turned to the neutral position, as shown at **(B)**, otherwise the engine will not start.
- Turn the ignition key to the 'on' position, as shown at **(C)**.
- When the ignition is turned on the engine ECU will automatically detect if the engine temperature is at a level that will allow the engine to start. If 'pre-heating' of the engine is required the heater lamp, as shown at **(D)**, will illuminate. Wait until the heater lamp goes out before proceeding to start the engine. If the heater lamp does not illuminate when the ignition is turned on then no 'pre-heat is required and you can therefore proceed to start the engine.  
For more information on starting the engine in cold weather conditions consult the engine operation manual supplied along with the machine.
- To continue to start the engine turn the ignition key to the 'START' position, as shown at **(E)**.
- At this point the safety siren will sound. Hold the ignition key in this position until the engine cranks and starts.  
**NOTE:** For safety reasons there is a 10 second delay before the engine will start.
- Immediately release the ignition key once the engine has started.  
**IMPORTANT:** Do not activate the starter for more than 20 seconds at a time. You will protect the batteries if you wait at least one minute between each starting attempt.
- Allow the engine to warm up before increase the engine speed.
- To increase the engine speed, press and hold the 'Engine Speed Increase' button, as shown at **(F)**.
- To decrease the engine speed, press and hold the 'Engine Speed Decrease' button, as shown at **(G)**.
- To switch the engine off reduce its speed to low idle. If the engine has been working under load, allow it to idle for 5 minutes in order to cool the engine. Once the engine has cooled, turn the ignition key to the vertical 'off' position to stop the engine.



## SECTION 4.0

# TRACKING INSTRUCTIONS



**WARNING**

Before attempting to move this machine you must read and understand all safety instructions listed in section 2.0

#### 4.1 TRACKING THE MACHINE.

**WARNING:** NEVER track this machine when the conveyor is in the elevated position. The conveyor MUST be lowered down into the tracking position before tracking the machine, even for short distances.

When tracking the machine for short distances and over level ground, it will not be necessary to fold the conveyor over. However, if tracking for long distances or on uneven ground, ensure that the conveyor is folded over as well as lowered down.

- Tracking of this machine can be only carried out using the dog lead handset controls, as shown at **(A)**.

**IMPORTANT:** You must make yourself completely familiar with the operation of the doglead before attempting to manoeuvre this machine.

- Ensure that the doglead is connected to the machine, as shown at **(C)**.

**NOTE:** Do not turn the doglead handset on at this stage. The doglead function must be activated on the main control panel before the doglead handset is turned on.

**IMPORTANT:** Ensure that the controls on the doglead handset are in the neutral position and are operating freely.

- Start the machine as per the start-up procedures shown in section 3.0.
- Activate the hydraulics for the tracks. To do this put both hydraulic levers, as shown at **(D)**, in the 'down' position.

**IMPORTANT:** Ensure that both levers are activated otherwise both tracks will not operate.

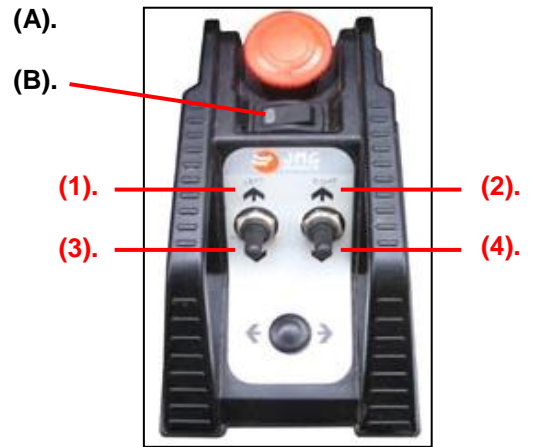
- On the main control panel activate the tracks by pressing the 'Tracks' button, as shown at **(E)**.
- Insert the key into the 'Doglead/Remote' switch, located on the main control panel, and turn it to the 'Doglead' position, as shown at **(F)**.
- Turn on the doglead handset. To do this, press the 'On/Off' switch, located on top of the doglead, as shown at **(B)**.

At this point a tracking buzzer will sound. After a 10 second tracking delay the machine can be tracked using the controls on the doglead handset.

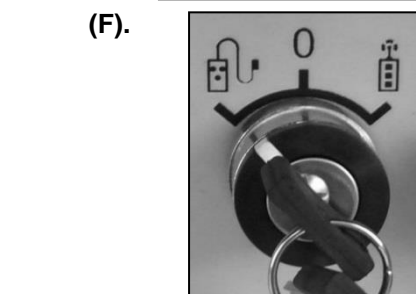
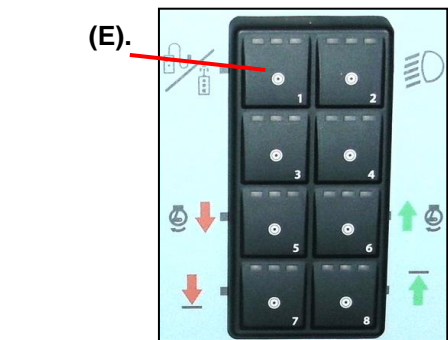
**WARNING:** When moving the machine, ensure that you use the entire length of the doglead. This will allow you to stay as far from the machine as possible and will improve your view around the entire machine. Constantly check all sides of the machine for clearance.

**WARNING:** The machine must only be tracked using low engine revs, especially in confined spaces.

- When you have finished tracking the machine; return the 'Doglead/Remote' switch, to the OFF ('0') position and return the tracks activation levers to the neutral position. Switch the engine off and remove the doglead from the machine.



- (1).** Left Hand Side Track – Forward.
- (2).** Right Hand Side Track – Forward.
- (3).** Left Hand Side Track – Reverse.
- (4).** Right Hand Side Track – Reverse.



# SECTION 5.0

# INSTALLATION



## WARNING

Before attempting to install this machine you must read and understand all safety instructions listed in section 2.0

### 5.1 INSTALLATION OVERVIEW.

- This section will guide you through the installation procedures for this machine. Ensure that you carry all the listed procedures in order to prevent injury and/or damage to your machine.

**IMPORTANT:** Due to different transport and shipping regulations throughout the world this machine may be delivered in different packing arrangements. For the purposes of this manual it will be considered that the machine is delivered in its most unassembled configuration, therefore, some of the installation sections may not be applicable. If this is the case ignore that particular instruction/section and proceed to the next section.

- Before installing this machine ensure that you have read all sections of this manual in order to completely familiarise yourself with the machine and its function, paying particular attention to the safety section.
- The installation of this machine **MUST** be carried out by authorised personnel only. They must be fully trained and be competent to carry out the procedures listed. At least two people must be present during installation and statutory minimum age limits must be observed.
- TESAB ENGINEERING LTD. strongly recommend that the installation of this machine is carried out by a recommended TESAB dealer and/or service agent.

### 5.2 INSTALLATION PROCEDURES.

The following procedures must be carried out in the sequence given in order to set-up the machine correctly. Details of each procedure are given on the following pages.

- Step 1:** Unload the machine from the transportation vehicle.
- Step 2:** Position the machine in the desired location.
- Step 3:** Remove transport brackets and items packed onto the machine.
- Step 4:** Lower the hopper jacking legs.
- Step 5:** Unfold the product conveyor.
- Step 6:** Fit the skirting rubbers.
- Step 7:** Adjust the product conveyor belt.
- Step 8:** Fit the e-stop pull cords.
- Step 9:** Raise the product conveyor into the working position.
- Step 10:** Set up the vibrating grid (optional).
- Step 11:** Adjust the hopper feed-out plate.

### 5.3 **STEP 1: UNLOAD THE MACHINE.**

- Unloading of the machine from the transport trailer must be carried out by experienced personnel.
- For Tracking procedures refer to section **4.0** of this manual.

### 5.4 **STEP 2: POSITION THE MACHINE IN THE DESIRED LOCATION.**

- Before the machine is positioned ensure that the site surface is level and has spacious surroundings.
- The ground must be solid and be capable of carrying the weight of the machine when fully loaded.
- Manoeuvre the machine into the desired location ensuring that it is left in a level position in all directions. Use a spirit level to check along and across the chassis, as shown at **(A)** and **(B)**.
- Once in position switch off the engine and remove the doglead from the machine.



### 5.5 **STEP 3: REMOVE TRANSPORT BRACKETS AND ANY ITEMS PACKED ONTO THE MACHINE.**

In preparation for transport, components or additional parts may have been packed onto the machine. Tie straps and/or transport brackets may have also been used in certain areas of the machine. These must all be removed.

- Ensure that all parts plus straps and any other transport brackets are removed from the machine.
- Do a final check around the entire machine to ensure that no parts or transport ties remain on the machine prior to unfolding.

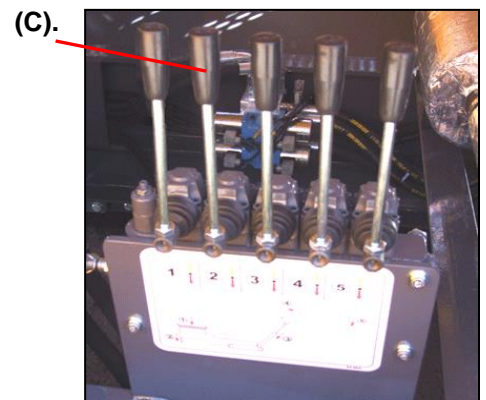
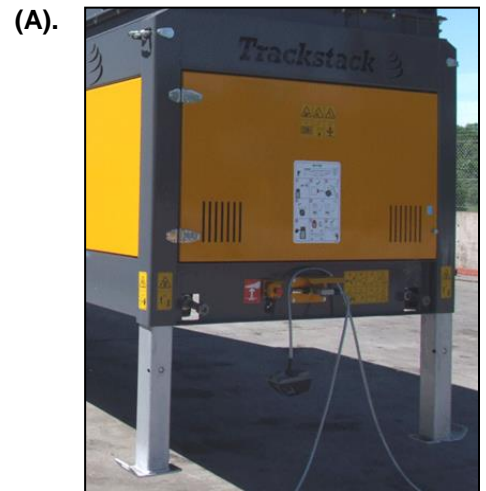
## 5.6 STEP 4: LOWER THE HOPPER JACKING LEGS.

Jacking legs, as shown at (A), have been fitted to the hopper to support its weight when material is loaded. The jacking legs are raised and lowered hydraulically. They must be lowered at all times during operation.

- Ensure that the ground on which the jacking legs will rest is stable and capable of carrying the weight of the hopper when fully loaded.
- Initiate the hydraulic rams by activating the hydraulic rams lever, as shown at (B).
- Using the jacking legs hydraulic lever, as shown (C), gently lower the jacking legs until they are resting on the ground.

**WARNING:** DO NOT lower the jacking legs so far that they raise the chassis or the tracks up off the ground. The jacking legs must only be used to 'support' rather than carry the weight of the chassis and hopper.

- Return the rams activation lever to the neutral position.
- Switch the engine off and lock-out.



## 5.7 STEP 5: UNFOLD THE PRODUCT CONVEYOR.

**WARNING:** The product conveyor top section MUST be unfolded from the 'transport' position before the conveyor is raised up into the 'working' position!

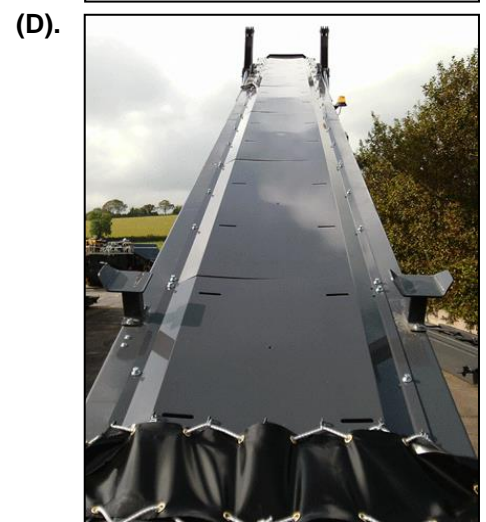
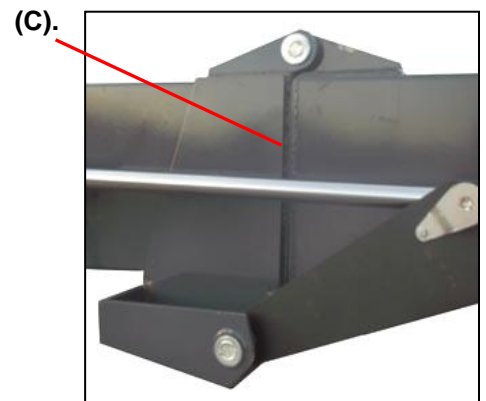
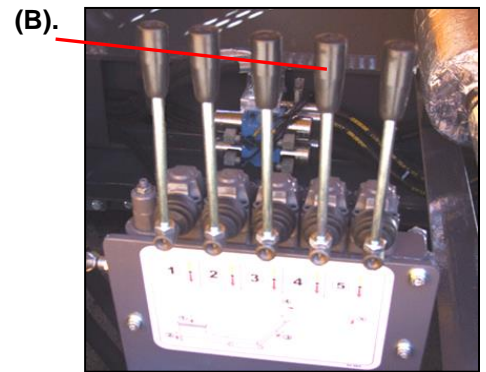
**NEVER** attempt to fold or unfold the conveyor while it is in the raised 'working' position!

**WARNING:** ENSURE that there are no overhead cables in the area where the conveyor is being unfolded and that there is adequate clearance above the conveyor so that it can be unfolded safely.

Care must be taken when folding the product conveyor to avoid damaging any hydraulic hoses.

- Ensure that there is adequate room for the product conveyor top section to fold out fully.
- Remove any ropes or brackets that may have been used to tie the product conveyor belt during transport.
- Start the engine as per the engine start up procedure.
- Initiate the hydraulic rams by activating the hydraulic rams lever, as shown at **(A)**.
- With the engine at low revs, gently operate the 'conveyor folding' control lever, as shown at **(B)**.
- Unfold the conveyor in a constant motion. Unfolding the conveyor too quickly or jerking it suddenly, may result in damage to the machine.
- Pay particular attention to the conveyor belt while the conveyor is unfolding. Ensure that it does not catch or snag on any part of the machine.
- Continue to unfold the conveyor until it is fully extended in the horizontal position.
- Return the rams activation lever to the neutral position.
- Switch the engine off and lock-out.
- Bolt the top and middle sections of the conveyor together. The bolting points are located on the inside of the conveyor frame behind the folding mechanism, as shown at **(C)**.
- Some machines will have the options of having dust covers, as shown at **(D)**, and a top end discharge chute and rubber sock, as shown at **(E)**. If these components have been supplied along your machine they must be fitted now as shown.

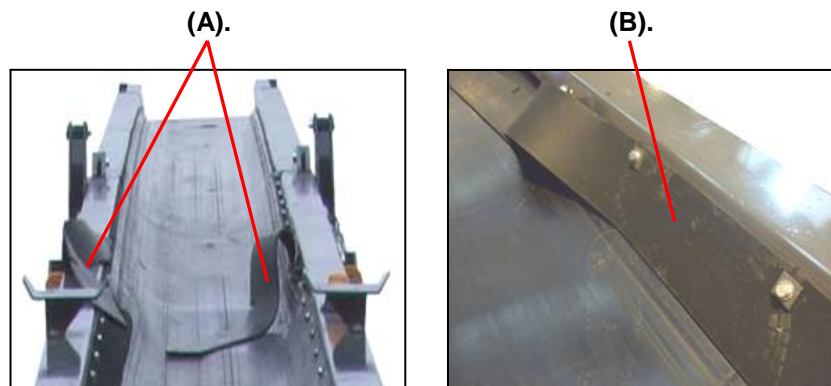
**WARNING:** NEVER attempt to fold the conveyor over while the dust covers and/or top end discharge chute and rubber sock are fitted.



## 5.8 **STEP 6:** FIT THE SKIRTING RUBBERS.

Before folding the conveyors over for transport the skirting rubbers have to be removed from the top section of the conveyor, as shown at **(A)**. This must be done in order to prevent damage to the skirting rubbers and belt during folding.

The skirting rubbers must be refitted along the entire conveyor, as shown at **(C)**, before the conveyor belt is run.



## 5.9 **STEP 7:** ADJUST THE PRODUCT CONVEYOR BELT.

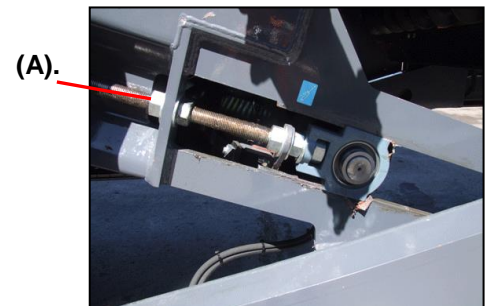
In order for the product conveyor belt to run efficiently, it must be tensioned and tracked correctly.

After loading material into the machine, and over time, the belt may require further tensioning or tracking. However, prior to loading the machine for the first time the belt's tension and alignment should be checked during the 'set-up' process.

**WARNING:** In the interests of safety, belt tensioning or tracking must NOT be performed while the belt is running.

**IMPORTANT:** The belt must be sufficiently tight in order to prevent slippage on the drive drum when the belt is loaded with material. However, an over-tight belt will cause reduced life on the drums, bearings and belts.

**WARNING:** Belt tensioning will require the removal of side guards, therefore, the machine must be shut down and locked out during this procedure. After the procedure is completed ensure that all guards are fitted correctly before the machine is re-started.



- Belt tensioning is carried out at the idle drum on each conveyor.
- Adjuster bars are fitted to each conveyor, as shown at **(A)**.
- The belt can be tightened or loosened by rotating the nuts on the adjuster bars. It may only require a small rotation of the adjuster nut to adequately adjust the belt.
- Ensure that both adjuster bars are adjusted the same amount in order to keep the drum and bearings square on the conveyor.

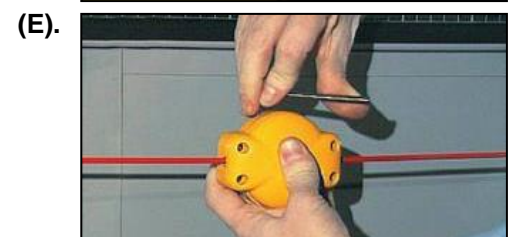
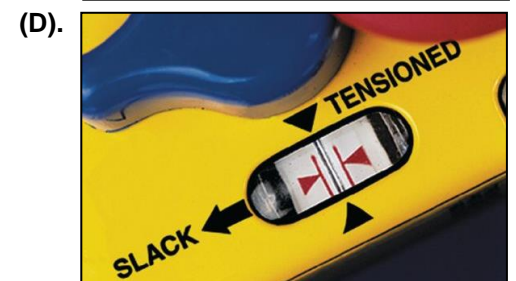
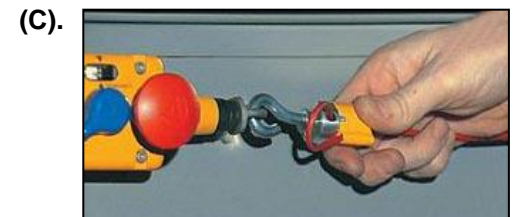
**NOTE:** A natural 'stretching' of the belt will occur over time. Therefore, belt tensioning may be required regularly.

### 5.10 STEP 8: FIT THE E-STOP PULL CORDS.

If e-stop pull cords have been supplied with the machine they must only be connected up after the conveyor has been folded out into the working position.

**WARNING:** Never operate the conveyor until the e-stop pull cords are active.

- Connect the spring to the last eyebolt at the top end of the conveyor.
- Connect the gripper hook to the spring, as shown at **(A)**, and insert one end of the pull cord through the gripper. Ensure that the cord is adequately fixed.
- Guide the cord through all the mounting eyebolts along the side of the conveyor.
- Before guiding the cord through the last eyebolt at the bottom end of the conveyor, fit the tensioner, as shown at **(B)**. Place the tensioner half way between the first and second eyebolt.
- Connect the other gripper hook to the e-stop pull switch, as shown at **(C)**. Fit the cord through the gripper hook and take as much sag out of the cord as possible. Ensure that the cord is adequately fastened into the gripper hook.
- The e-stop cord must be tensioned correctly otherwise the machine will not operate. The cord will be tensioned correctly when the tension indicator, as shown at **(D)**, is lined up against the tension arrows.
- To tension the cord insert the allen key into the tensioner and rotate it. Continue to tension the cord until the arrows on the switch line up, as shown at **(D)**.
- Flip the blue reset switch to the 'on' position to engage the e-stop.
- Repeat the above steps when fitting the pull cord on the other side of the conveyor.



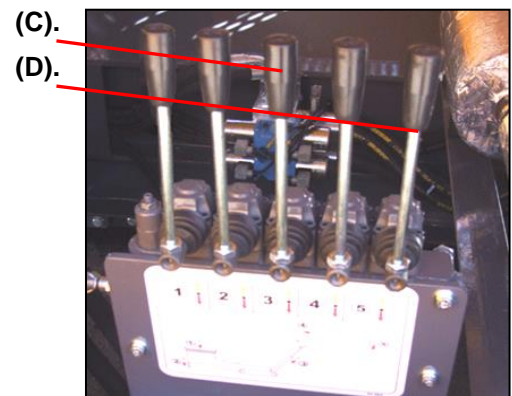
## 5.11 STEP 9: RAISE THE PRODUCT CONVEYOR INTO THE WORKING POSITION.

**WARNING:** The product conveyor MUST be fully unfolded from the 'transport' position before it is raised up into the 'working' position!

**NEVER** attempt to fold or unfold the conveyor while it's in the raised 'working' position!

A hydraulically operated telescopic frame, as shown at (A), is used to raise and the lower the conveyor. The conveyor can operate at variable heights by adjusting the telescopic.

- Care must be taken to ensure that the hydraulic hoses do not become entangled during the raising or lowering of the conveyor.
- Start the engine as per the start up procedure.
- Initiate the hydraulic rams by activating the hydraulic rams lever, as shown at (B).
- With the engine at low revs, gently operate the 'conveyor folding' control lever, as shown at (C).
- Raise the telescopic until the conveyor has reached the desired loading height.
- It is possible to tilt the top section of the conveyor in order to achieve various loading positions. In order to tilt the top section of the conveyor, operate the 'conveyor tilt' control lever, as shown at (D).
- After you have achieved the desired loading position, return the hydraulic rams lever to the neutral position, switch off the engine and lock-out the machine.



**IMPORTANT:** The hydraulic rams on the product conveyor have been fitted with check valves to prevent the conveyor from lowering unintentionally. However, if the machine has not been used for some time and the product conveyor has been left in the raised working position, some natural oil leakage through the hydraulic system may occur. The conveyor could therefore drop slightly over a period of time.

If the machine is not being used for some time it is imperative to carry out checks every 3 – 4 days to determine if the conveyor has lowered from its original working position.

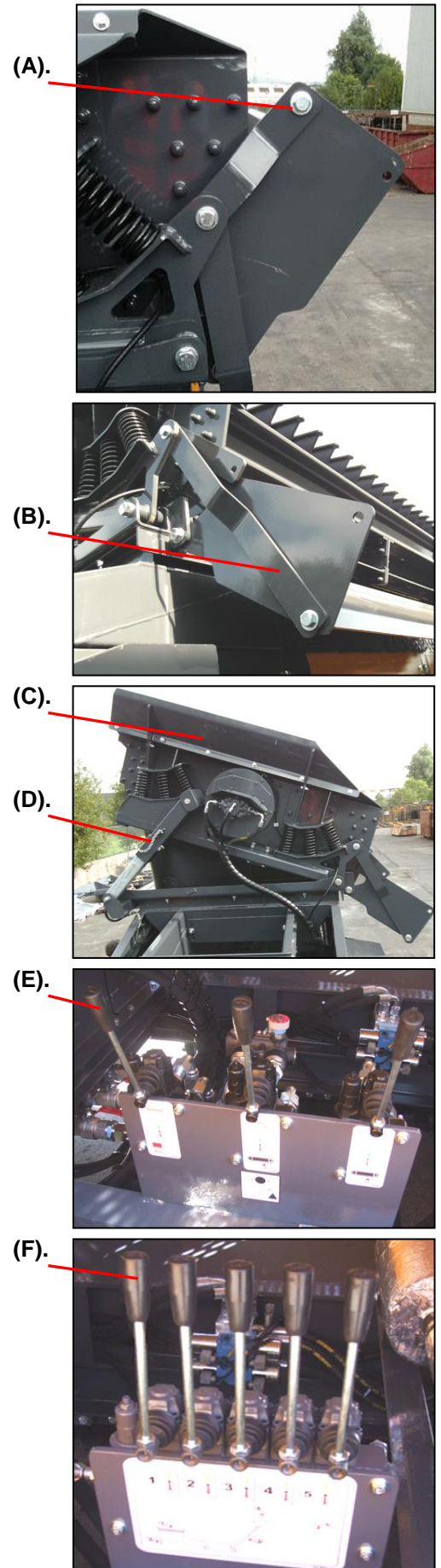
If the conveyor has lowered, start the engine, activate the hydraulic lever and raise the conveyor back to the correct working position.

## 5.12 STEP 10: SET UP THE VIBRATING GRID (Optional).

**NOTE:** The vibrating grid is an optional extra and may not be fitted to all machines.

The vibrating grid can operate at several different angles. The required angle will depend on the type and density of material.

- Using lifting equipment, lower the front chute into the working position. To do this, firstly attach the lifting equipment to the front chute. Then, remove the short arm mounting bolts from both sides of the chute, as shown at **(A)**.
- Lower the chute down and fit both long arms to the chute, as shown at **(B)**.
- Fold up both of the grid wings, as shown at **(C)**. Ensure that the wings are bolted correctly to the grid frame.
- Start the engine as per the start up procedure.
- Initiate the hydraulic rams by activating the hydraulic rams lever, as shown at **(E)**.
- With the engine at low revs, gently operate the 'vibrating grid raise / lower' control lever, as shown at **(F)**.
- Raise the grid until it has reached the desired loading angle.
- Insert both mounting pins, as shown at **(D)**.
- Return the hydraulic rams lever to the neutral position, switch off the engine and lock-out the machine.



### 5.13 **STEP 11:** ADJUST THE HOPPER FEED-OUT PLATE.

In order to control the flow of material exiting the hopper, a feed-out levelling plate, as shown at **(A)**, has been fitted. The height of this plate can be adjusted in order to control the flow of material travelling up the conveyor.

- To adjust the levelling plate, loosen the side mounting bolts and slide the plate up or down as required.
- Once the levelling plate is set to the correct height, tighten both mounting bolts.



# SECTION 6.0

# OPERATION



## WARNING

Before attempting to operate this machine you must read and understand all safety instructions listed in Section 2.0

### 6.1 OPERATION OVERVIEW.

All material processing applications differ due to material composition and customer requirements.

There are numerous adjustments that can be made in order to achieve the required results, therefore, we recommend that you contact TESAB ENGINEERING LTD. or your local Tesab dealer to advise you on the best customized Tesab arrangement to suit your particular application.

### 6.2 IMPORTANT CHECKS PRIOR TO OPERATING THIS MACHINE.

Only fully trained and authorised personnel should be given permission to operate this machine. Before starting the engine ensure that the following checks are carried out. Failure to do so may result in substantial damage to the machine or injury to persons.

- Check that there are no people, objects or tools etc. on the machine, especially on the product conveyor.
- Ensure that all guards and safety devices are fitted and are working correctly.
- Ensure that all down-stream machines have been started and are running correctly.
- Before starting the engine ensure that all switches on the control panel are in the 'OFF' or 'NEUTRAL' position.
- Check that all hydraulic levers are in the neutral position.
- Check that no emergency stops are pressed.
- Check that there is sufficient diesel in the diesel tank to run the machine for a sustained period.
- Check the hydraulic oil level and top up if necessary.
- Check the engine oil level and top up if necessary.
- Check that the air filters are clean.
- Check around the machine for oil leaks.
- Check that the hydraulic oil cooler is clean and free from dirt.
- Do a final check around the machine to ensure that no one is on or near the machine.

### **6.3 MACHINE START-UP SEQUENCE.**

**IMPORTANT:** The hydraulic rams on the product conveyor have been fitted with check valves to prevent the conveyor from lowering unintentionally. However, if the machine has not been used for some time and the product conveyor has been left in the raised working position, some natural oil leakage through the hydraulic system may occur. The conveyor could therefore lower slightly over a period of time.

If the machine is not being used for some time it is imperative to carry out checks every 3 – 4 days to determine if the conveyor has lowered from its original working position. If the conveyor has lowered ensure that it's raised back to the correct working position before operating the conveyor belt.

The machine must be started in the following sequence:

**Step 1:** Start the engine

**Step 2:** Start the product conveyor

**Step 3:** Start the feeder conveyor

**Step 4:** Start the live head (if fitted)

It is imperative that the machine is started in the correct sequence, otherwise blockages will occur which may damage the machine.

#### **STEP 1: START THE ENGINE.**

- Start the engine as the engine start-up procedure given in section 3.0.
- Wait for the engine to warm up before increasing the engine speed.
- Increase the engine speed to 2200 RPM.

#### **STEP 2: START THE PRODUCT CONVEYOR.**

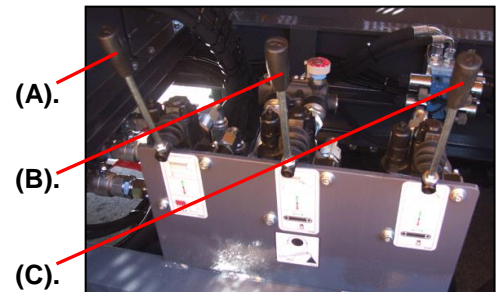
- Activate the product conveyor hydraulic lever, as shown at (C).
- At this point the product conveyor will operate.

#### **STEP 3: START THE FEEDER CONVEYOR.**

- Activate the feeder conveyor hydraulic lever, as shown at (B).
- At this point the feeder conveyor will operate.

#### **STEP 4: START THE VIBRATING GRID (If fitted).**

- Activate the vibrating grid hydraulic lever, as shown at (A).
- At this point the vibrating grid will operate.



Once both conveyors and the vibrating grid are running and fully up to speed, material can be loaded onto the machine.

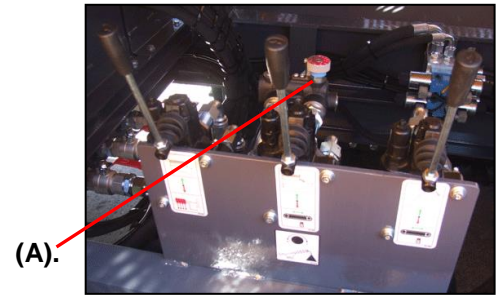
After material has been run on the belt for a few minutes visually check the alignment of the conveyor belts. If the belts require re-alignment, stop the machine and carry out the belt alignment instructions given in the maintenance section.

## **6.4 CONTROLLING THE SPEED OF THE FEEDER CONVEYOR.**

The speed of the feeder conveyor can be varied during operation by turning the 'Variable Control' dial, as shown at **(A)**.

- Turning the dial clockwise will decrease the speed of the conveyor. Turning it anti-clockwise will increase the speed of the conveyor.
- Varying the speed of the feeder conveyor will help to maintain efficient throughput of the machine. For example; depending on the material density, the speed of the feeder belt may be increased to allow faster material feed. Or, the speed may be decreased to ensure a uniform, consistent flow of material up the product conveyor.

**NOTE:** It may be necessary to test different speeds of the feeder belt in order to get the best results from the machine. It may also be necessary to adjust the 'feed out' door on the feed hopper to achieve the required results.



## **6.5 MACHINE SHUT-DOWN SEQUENCE.**

This machine must be shut-down in the correct sequence. Stopping the machine in any other sequence may cause damage to the machine!

**IMPORTANT:** Stopping the engine immediately after it has been working under load, can result in overheating and accelerated wear of the engine components. Avoid accelerating the engine prior to shutting it down.

**STEP 1** Stop feeding material into the hopper.

- Run all the material off the machine.

**STEP 2** Shut-down the vibrating grid (If fitted).

**STEP 3** Shut-down the feeder conveyor.

- Only continue to shut-down when the product conveyor is running clear.

**STEP 4** Shut-down the product conveyor.

**STEP 5** Reduce the engine speed to low idle speed.

**STEP 6** Allow the engine to idle for 5 minutes in order to cool the engine.

**STEP 7** After the engine has cooled shut down the engine.

- Switch off the engine and return all levers and switches to the 'off' or 'neutral' positions.

# SECTION 7.0

# MAINTENANCE



## WARNING

Before attempting maintenance on this machine you must have read and understand all the safety instructions listed in Section 2.0

### 7.1 GENERAL MAINTENANCE INFORMATION.

- This section provides detailed maintenance instructions and guidelines. These guidelines are based on the assumption that the machine will be operated under normal conditions and in a normal material processing environment. If this machine is to be operated for long periods in extreme conditions, either climatic (-15°C to 33°C) or extremely dusty, these maintenance guidelines must be altered to suit. If this arises you must consult your local Tesab dealer or Tesab Engineering technical/service department.
- When performing maintenance on your machine you must adhere to the safety information listed in the safety section.
- It is important to note that high repair costs and lengthy downtime will occur if inadequate or improper maintenance is performed on your machine. Regular maintenance is imperative.
- The performance, reliability and throughput of this machine depends on regular and correct maintenance.
- Good housekeeping pays untold dividends with increased production and extended plant life!

**WARNING:** Because of the design of this machine, certain components are positioned to provide balance and stability to the machine. For example, if a vibrating grid is fitted to the machine it will also act as a counterbalance to prevent the machine from toppling forward. Therefore, it is imperative that no major components are removed from the machine without taking the necessary steps to support the machine correctly. If in any doubt please contact Tesab Engineering.

### IMPORTANT:

It is important to note that certain items on this machine are classed as 'Wear or Service Parts'. These parts will naturally deteriorate during the normal operation of the machine and will need replacing regularly.

The deterioration, failure or replacement of these items, are not covered under the terms of the warranty policy. It is therefore imperative that these items are regularly checked and serviced to ensure that they remain within acceptable working parameters. Failure to do so may result in significant damage to the machine as well as expensive repair costs.

The items classed as 'Wear or Service Parts' are, but are not limited to, the following:

- Hopper liner plates
- Skirting, scraper & protection rubbers
- Conveyor belts
- Coupling inserts
- Oil & air filters
- Oils & fluids
- Track shoes and track drive components
- Screen meshes & grid bars

## **7.2 DAILY MAINTENANCE.**

The purpose of daily maintenance is to discover minor irregularities on your machine before they develop into major problems.

- Check the machine for loose parts and check that all nuts and bolts are secure.
- Check all oil levels and top up if necessary.
- Ensure that all safety systems are intact i.e. all emergency stops and all wires to sensors etc.
- Check the fuel level in the diesel tank.
- Check all hydraulic motors, pumps, cylinders and hoses for oil leaks and tighten if necessary.
- Ensure that the idle and return rollers on the conveyor are turning freely and are clear of obstructions.
- Check for material build-up, especially around the bottom end drum on the conveyor.
- Check the conveyor belt for tension and alignment.
- Inspect the conveyor belting for damage and wear.
- Check the air filter for clogging and clean if necessary.
- Carry out all other lubrication as per the daily lubrication schedule given in the next section.
- Drain any water from the fuel separator.
- Inspect the engine cooling system hoses for cracks and loose clamps.
- Check the oil cooler radiator pack for clogging. These must be kept clean to prevent over heating.
- Check all drive belts, including the fan drive belts, for wear, cracks or other damage.

When all checks have been made, close and fasten all guards before operating the machine. At the end of each working day carefully clear all excess material and debris build-up from the machine and the ground immediately around the machine.

## **7.3 VISUAL CHECKS DURING OPERATION.**

**WARNING:** These are visual checks only. Never attempt to adjust any setting while the machine is running and never put yourself in any form of danger while carrying out the checks.

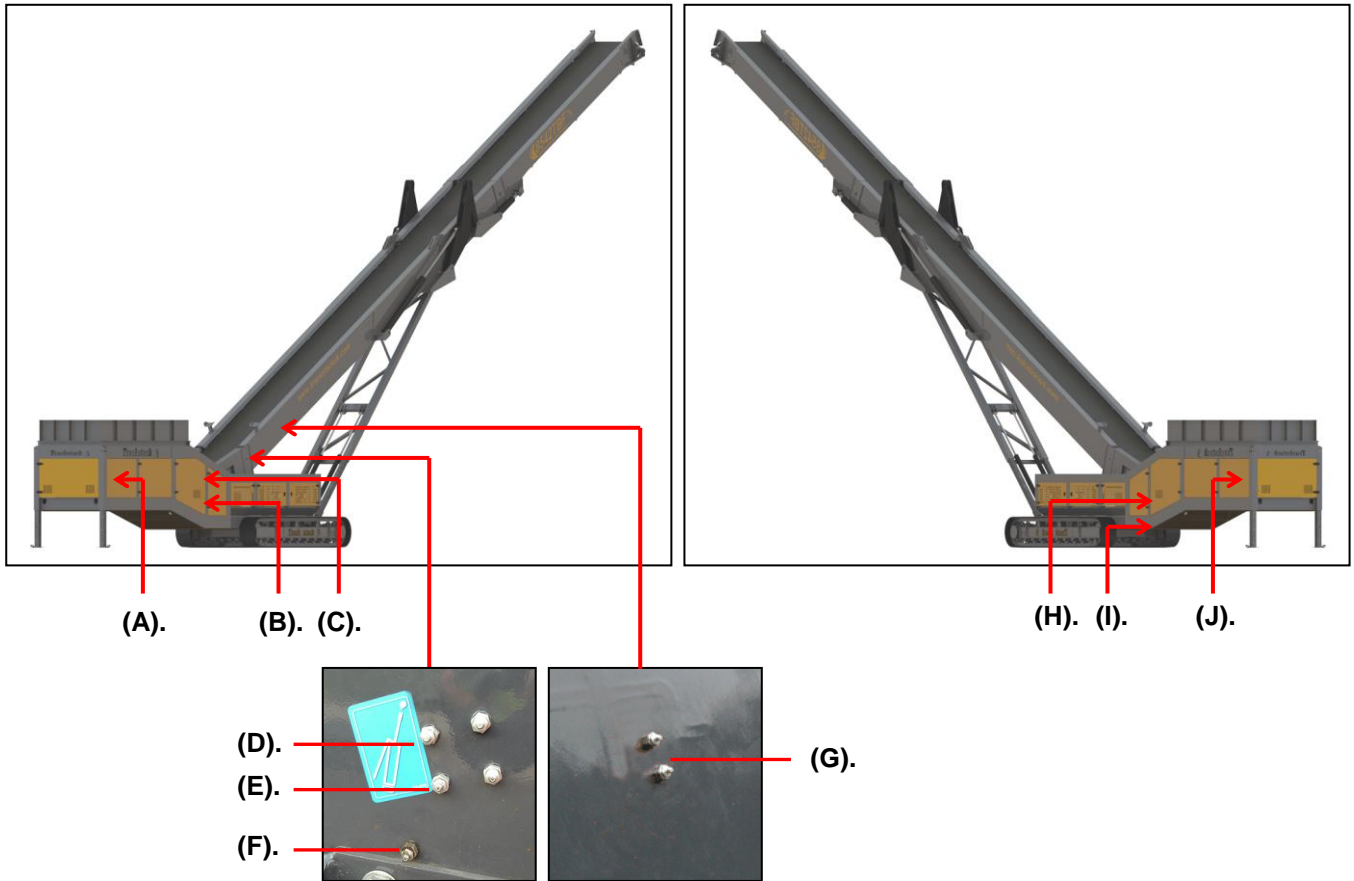
- Check that the machine is sitting level and is stable during operation.
- Check for oil and water leaks.
- Check for excessive spillage or build up of material around the machine.
- Check the alignment of the conveyor belt.
- Check for the required throughput of material.

## **7.4 WEEKLY MAINTENANCE.**

In addition to the carrying out daily maintenance the following weekly maintenance should be carried out once per week:

- Grease all bearings as per the lubrication schedule using the correct lubricant.
- Check all skirting rubbers i.e. check that they bear down lightly onto the conveyor belt.
- Check the acid level in the batteries.
- Inspect all belt scrapers on the product conveyor. Adjust or renew if necessary.
- Check the oil level in the product conveyor reduction gear unit.

## 7.5 LUBRICATION POINTS.



## 7.6 LUBRICATION SCHEDULE.

Grease points on the machine have been fitted at easily accessible locations on both sides of the conveyor, as shown above. The grease points are highlighted on the machine with a blue 'grease point' sticker, as shown opposite.

**NOTE:** 4g (grams) of grease is equivalent to 3 shots (pumps) from a standard grease gun.

**IMPORTANT:** Do not over grease the bearings!



Grease Point	Description	No. of Grease Points	Frequency	Qty.
(A)	Feeder RHS – Idle Drum Bearing	1	50 Hours	4g
(B)	Product Conveyor RHS – Idle Drum Bearing.	1	50 Hours	4g
(C)	Feeder RHS – Drive Drum Bearing	1	50 Hours	4g
(D)	Product Conveyor – Lower End Snub Drum Bearings.	2	50 Hours	4g
(E)	Product Conveyor – Lower End Snub Drum Bearings.	2	50 Hours	4g
(F)	Product Conveyor – Drive Drum Bearing	1	50 Hours	4g
(G)	Product Conveyor – Upper Snub Drum Bearings	2	50 Hours	4g
(H)	Product Conveyor LHS – Idle Drum Bearing.	1	50 Hours	4g
(I)	Vibrating Grid Bearings.	2	8 Hours	2.5g
(J)	Feeder LHS – Idle Drum Bearing	1	50 Hours	4g

### **7.7 SERVICE SCHEDULE:**

The following schedule is only a basic guide to the servicing requirements of the machine. Please refer to the individual component maintenance information contained in the rest of this section. Also, where applicable refer to the manufacturer's operation and maintenance manuals for individual components on the machine.

These service details are over and above the daily and weekly maintenance tasks that must be carried out on the machine.

<b>Description</b>	<b>Initial Service Requirements</b>	<b>Ongoing Service Requirements</b>
Engine service:	After first 500 hours of operation.	After every 500 hours of operation.
Tracks gearbox service:	After first 200 hours of operation.	After every 2000 hours of operation.
Hydraulic oil service:	After first 1500 hours of operation.	After every 1500 hours of operation.
Hydraulic oil suction filters:	After first 1500 hours of operation.	After every 1500 hours of operation.
Hydraulic oil return line filters:	After first 750 hours of operation.	After every 750 hours of operation.
Conveyor gearboxes service:	After first 100 hours of operation.	After every 2500 hours of operation.
		* In all cases above, regardless of hours of operation, servicing must be carried out at least once every 12 months.

### **7.7.1 OIL & FLUID REPLACEMENT QUANTITIES:**

The following values are the approximate volumes of fluids needed for servicing. Figures are given in litres. **IMPORTANT:** These are only approximate values. When replacing oils & fluids you must follow the instructions given in the maintenance section and observe the maximum fill levels when replacing oils and fluids.

<b>Engine Oil</b>	<b>Coolant</b>	<b>Hydraulic Oil</b>	<b>Product Conveyor Reduction Gear Oil</b>	<b>Tracks Gearbox Oil</b>	<b>Diesel Tank Capacity</b>
12	15	550	2.5	3	250

**7.7.2 RECOMMENDED LUBRICANTS**

- **ENGINE OIL:** **CATERPILLAR DEO SAE 15W – 40 (3E – 9840)**
  
- **RADIATOR COOLANT:** **CATERPILLAR EXTENDED LIFE COOLANT 205 - 6613V**
  
- **HYDRAULIC OIL:**  
 (in climates up to 30°C) **FUCHS** **RENOLIN B15 VG46**  
 (in climates above 30°C) **ESSO** **NUTO H 46**  
**FUCHS** **RENOLIN B20 VG68**  
**ESSO** **NUTO H 68**
  
- **BEARING GREASE:**  
 These greases are class 2 lithium based greases with extreme pressure additives. They work within special conditions up to 120°C. **FUCHS** **RENOLIT EP2**  
**BP** **ENERGREASE LS-EP2**  
**MOBIL** **MOBILUX EP2**  
**SHELL** **ALVANIA EP2**  
**TEXACO** **MOLYTEX EP2**
  
- **VIBRATING GRID GREASE:** **MOBILITH** **SHC 220 GREASE**
  
- **PRODUCT CONVEYOR GEAR OIL:** **MOBIL** **SHC 220 GEAR OIL**  
 (Note: This is a synthetic oil)
  
- **TRACKS TENSIONING GREASE:** **FUCHS** **RENOLIT EP2**  
**ESSO** **BECON EP2**  
**BP** **ENERGREASE LS-EP2**  
**MOBIL** **MOBILUX EP2**
  
- **TRACKS GEARBOX OIL:** **FUCHS** **TITAN GEAR HYP SAE 80W/90**  
**API** **GL5 Grade 80W/90**

## **7.8 ENGINE MAINTENANCE.**

The diesel engine is the heart of this machine. All engines are put through rigorous test programmes by the manufacturers before being assembled into the machines. On completion these machines are again run and tested for several hours before dispatch.

In the interest of continued peak performance from this machine the engine must be maintained and cared for with meticulous attention.

The engine **MUST** be serviced every 500 hours of operation.

**IMPORTANT:** For more information on the service and maintenance of this engine, consult the engine manufacturer's operation & maintenance manual supplied with this machine.

### **7.8.1 ROUTINE DAILY ENGINE MAINTENANCE.**

- The engine water separator, as shown at **(A)**, must be drained every day and the filter must be changed at every engine service.
- Check the level of coolant in the radiator.
- Check all the fan drive belts etc. for cracks and wear.
- Check the air filters.
- If the air filters require cleaning, access to the filters can be gained by removing the housing cover, as shown at **(B)**. There are two filters located in the housing. In order to inspect the inner filter, as shown at **(D)**, remove the outer filter, as shown at **(C)**.
- Check the engine oil level.
- Check that all hoses, pipes and clamps are tight and are in proper working condition.

For more information on the service and maintenance of this engine consult the engine manufacturer's operation & maintenance manual for further details.



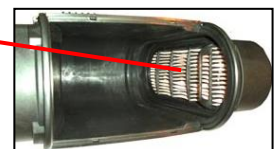
**(A).**



**(B).**



**(C).**



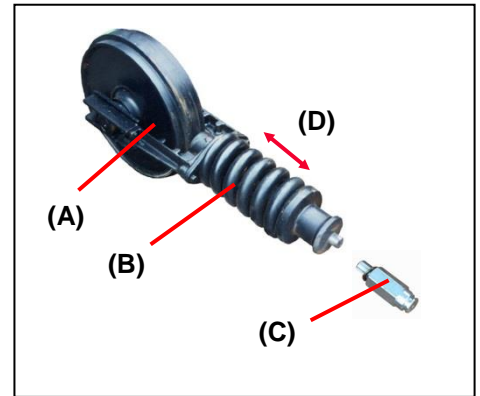
**(D).**

## **7.9 TRACKS MAINTENANCE:**

The following is only basic maintenance information for the tracks on this machine. For more detailed maintenance and repair information consult the track manufacturer's operation & maintenance manual supplied along with this machine.

### **7.9.1 TRACKS ADJUSTMENT:**

Over time the track groups will become slack and will have to be adjusted. The adjustment of the tracks operates through a tensioning cylinder located inside the spring tension unit. When the cylinder is filled with grease it extends and pushes the spring tension unit, **(B)**, and the idler, **(A)**, forward. The grease is filled through the track adjuster grease valve, as shown at **(C)**.

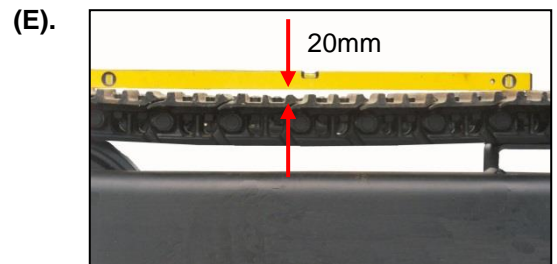


### **7.9.2 TRACKS ADJUSTMENT SETTINGS.**

In order to establish if the track requires tensioning move the machine a few metres forwards and backwards on level ground. This allows the tracks to adopt their natural degree of tension.

**IMPORTANT:** Do not slew the machine.

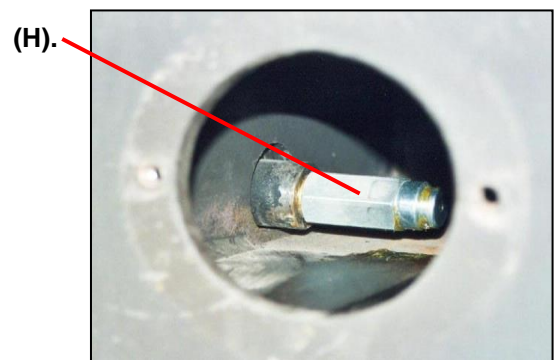
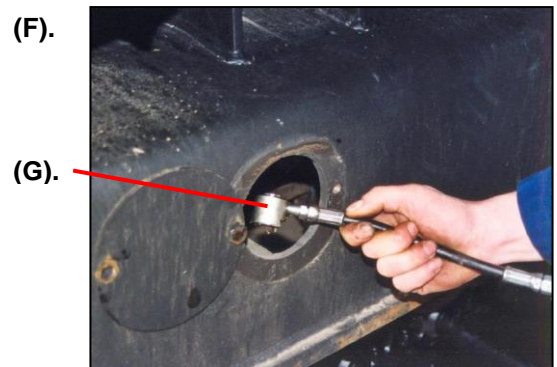
Using a straight edge and a measuring tape measure the droop of the track group, as shown at **(E)**. For this particular track set the droop should not exceed **20mm**.



**NOTE:** It is also important that 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.

### **7.9.3 INCREASING THE TRACK TENSION.**

- Remove the inspection cover on the side of the track frame, as shown at **(F)**.
- Ensure that the track adjuster valve, **(H)**, is tight.
- Attach the special grease gun connector, **(G)**, to a grease gun and fit it onto the track adjuster valve, **(H)**.
- Pump grease into the valve until the droop of the track is correct. Ensure that a good quality EP2 All purpose grease is used.
- Move the machine backwards and forwards a few times more and then re-check the droop. Add more grease if required.
- Check for any escaping grease around the tensioning unit and finally close the inspection cover when finished.



### **7.9.4 RELEASING THE TRACK TENSION.**

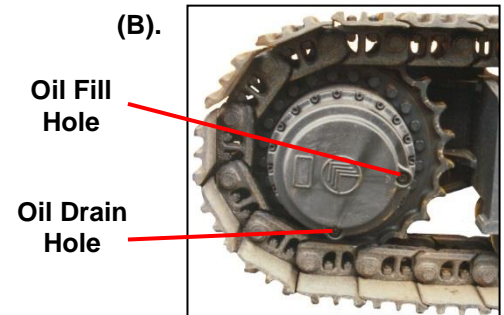
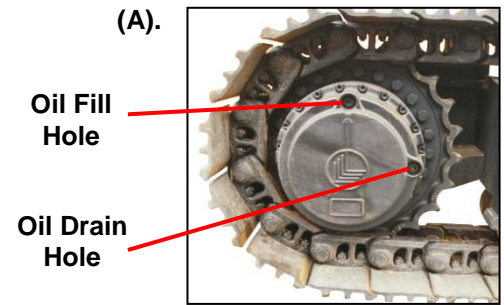
- Remove the inspection cover on the side of the track frame, as shown at **(F)**.
- Loosen the track adjuster valve, **(H)**, by turning it one half turn anticlockwise.
- Grease should now escape slowly from the track tensioning cylinder and the track should slacken.
- If the track fails to loosen apply a little pressure to the idler end of the track to push the idler group in.
- Replace the inspection cover when completed.

### **7.9.5 TRACKS GEARBOX MAINTENANCE.**

**IMPORTANT:** Cleanliness is essential when checking, filling or replacing oil in the gearbox. Gearbox operating life will be dramatically shortened if the oil becomes contaminated. Only use new clean oil in clean containers and fillers.

The oil should be drained from the gearboxes after the first 200 hours of operation, and re-filled with the correct lubricant.

Following this initial oil change the oil should then be replaced after 2000 hours of use or at least once per year.



### **7.9.6 CHECKING AND FILLING THE GEARBOX OIL.**

- Move the machine to a level surface and bring the 'oil fill' and 'drain' holes to the position shown at **(A)**.
- Thoroughly clean around both plugs removing all potential contaminants.
- Remove both plugs.
- Fill the oil through the upper 'oil drain' hole until it runs out of the lower 'oil drain' hole.
- Wait a few moments until any trapped air has escaped and then re-check the level. Add more oil if necessary.

### **7.9.7 DRAINING THE GEARBOX OIL.**

- Move the machine to a level surface and bring the fill and drain holes to the position shown at **(B)**.
- Thoroughly clean around both plugs removing all potential contaminants.
- Remove both plugs and allow the oil to drain. The oil will drain quickly if it is hot, however, care should be taken to avoid burns to the operator.

**NOTE:** Dispose of used oil safely and in an environmentally friendly manner.

- Move the machine to bring the plugs to the fill position, as shown at **(A)**.

**IMPORTANT:** Do not move the machine any further until the oil has been replaced into the gearbox.

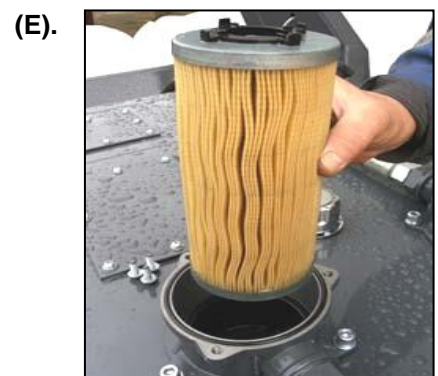
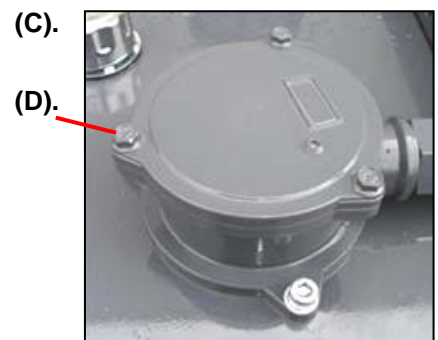
- Re-fill the oil as per the oil fill procedure above.

## 7.10 HYDRAULIC OIL SYSTEM MAINTENANCE.

The hydraulic system in this machine has been designed to be effective and resistant to extreme climatic and operating conditions. All components are sized and matched to work together to make up an efficient and effective hydraulic system. If replacement of any component is necessary it must be replaced with a genuine Tesab component. Fitting any unauthorised component may result in damage to the machine or injury to personnel and will void all warranties.

The most important maintenance for a hydraulic system is filtration and oil service. Filters have been fitted to your system and must be checked for cleanliness as per the maintenance schedule. On-site environmental and workload factors will impact the frequency of maintenance. The schedule given should therefore be used as an initial guide and only experience will determine if an increase or decrease in frequency is required.

- For ideal performance and optimum service life of the hydraulic system, the recommended viscosity range of the hydraulic oil is from 12 to 100 V(mm<sup>2</sup>/s). The normal operating temperature of the oil should be in the region of 40 – 50°C. Temperatures exceeding 70°C will have a severe detrimental effect on seals and will reduce the lifespan of the components.
- In order to keep the hydraulic oil at an effective operating temperature, the system has been fitted with an oil cooler, as shown at **(A)**. The radiator pack on the oil cooler must be kept clean. It can be cleaned by either washing it carefully by hand or by using air pressure. Never use water pressure as this can damage the aluminium pack.
- Always keep a check on the oil temperature during operation.
- On a daily basis check the hydraulic oil level in the hydraulic tank when the oil is cold.
- The oil level in the tank, when cold, should be at the top of the level gauge, as shown at **(B)**. Do NOT fill the oil higher than this point as the volume of oil will expand when it heats up.
- When topping up the oil ensure that the filler cap is clean and ensure that the strainer is fitted to the inside of the filler neck.
- Ensure that the correct oil is used. Never mix different types of oil.
- Once topping up is complete ensure that the filler cap is replaced and remains tightly in place at all times.
- Return line filters, as shown at **(C)**, have been fitted to the machine. The elements on the return line filters should be changed every 750 hours of operation.
- To change the return line filters, unscrew the three mounting bolts on the top of the filter housing, as shown at **(D)**.
- Lift off the lid and slide out the filter element, as shown at **(E)**. Replace the filter element with a new one. Replace the lid and adequately tighten the mounting bolts.
- Suction line strainers have been fitted on the inside of the hydraulic tank. These should be changed every 1500 hours of operation. Access to these is gained through the inspection plate located on the top of the tank.
- The hydraulic oil should be changed every 1500 hours of operation. At this point the return line filter elements and the suction strainers should also be changed even if they are not due.
- Ensure that the hydraulic tank and all lines are thoroughly cleaned before re-filling with oil.
- The entire hydraulic system should be regularly checked for leaks, loose fittings and damaged hoses. Damaged or worn hoses should be repaired immediately.



## **7.11 CONVEYOR MAINTENANCE.**

The conveyors on this machine are critical components and should be correctly maintained. The throughput and efficiency of the machine is dependent on the smooth operation of the conveyors.

- Regularly check the drums and rollers on the machine for any build-up of material around them.
- Ensure that all drums and rollers are running freely and operating as they should.
- Check the belt for wear and damage. Repair or replace damaged or worn belts immediately.
- Check that all skirting rubbers in the hopper are pressing lightly onto the belt. Large gaps between the skirting rubbers and the belt will allow excessive spillage. This in turn may cause severe problems with other components on the machine.
- Check that all the scraper rubbers on the conveyors are adequately scrapping dirt from the belts.
- Check the tension and alignment of the belts. For more information see below.
- Ensure that all bearing lubrication is carried out as per the lubrication schedule.
- Ensure that all guards are in place at all times.

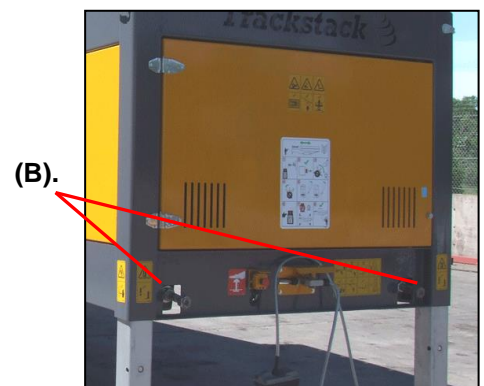
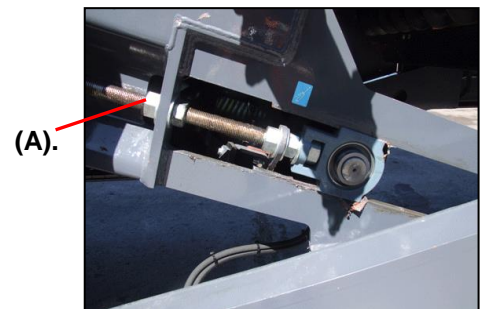
## **7.12 CONVEYOR BELT TENSIONING.**

**IMPORTANT:** The belts on the product and feeder conveyor must be sufficiently tight in order to prevent slippage on the drive drum when the belt is loaded with material. However, an over-tight belt will cause reduced life on the drums, bearings and belts.

**WARNING:** Belt tensioning will require the removal of side guards, therefore, the machine must be shut down and locked out during this procedure. After the procedure is completed ensure that all guards are fitted correctly before the machine is re-started.

- Belt tensioning is carried out at the idle drum on each conveyor.
- Adjusters are fitted to the product conveyor, as shown at **(A)** and to the feeder conveyor, as shown at **(B)**.
- The belt can be tightened or loosened by rotating the nuts on the adjuster bars. It may only require a small rotation of the adjuster nut to adequately adjust the belt.

**NOTE:** A natural 'stretching' of the belt will occur over time. Therefore, belt tensioning may be required regularly.

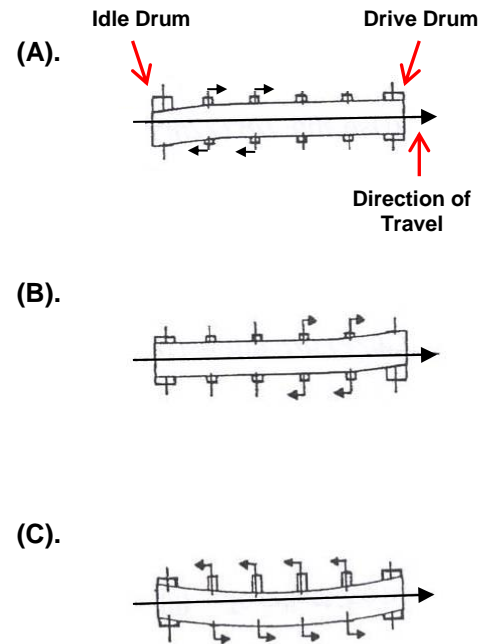


### **7.13 BELT TRACKING.**

- With the belt running, visually check the alignment of the belt on the idle and drive drums. Also check that all skirting rubbers are located well inside the belt.
- If the belt is running too far over the edge of any of the drums, or if the belt has moved across at the centre of the conveyor, then the alignment of the belt must be corrected.
- Stop the belts and 'lock-out the machine before doing any adjustments.
- Re-alignment should be carried out by adjusting the position of either the carrying rollers and / or the return rollers. The adjustment direction of the rollers will depend on the direction of belt travel and side that the belt is running off. To re-align the belt, adjust one side of the idle rollers or the return rollers forward and one side back, as shown at **(A)**, **(B)** & **(C)**.

**NOTE:** It may only take a small adjustment of the idle drum to move the belt across significantly.

**IMPORTANT:** Do not adjust the idle or drive drums to re-align the belt. The drums must always stay parallel to the conveyor otherwise undue stress may be placed on the bearings or motor.



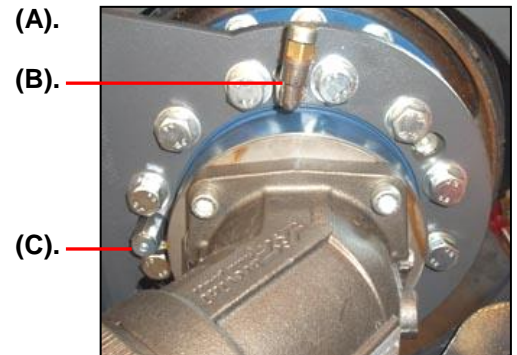
## **7.14 PRODUCT & FEEDER CONVEYOR GEARBOX MAINTENANCE.**

After the initial operating period of approximately 100 hours, the oil in the product conveyor reduction gear unit, as shown at **(A)**, must be changed.

Subsequent oil changes should be made every 2500 hours of operation or, in any case, once per year.

### **CHECKING THE OIL LEVEL IN THE GEARBOX.**

- Regularly check the oil level and top up if necessary. If more than 10% of the total volume of oil has to be added to top up the gearbox, carefully check the gearbox for leaks.
- To check the oil level, elevate the conveyor so that the 'breather plug', as shown at **(B)**, and the 'oil level plug', as shown at **(C)**, are approximately 90° to each other.
- Unscrew the 'oil level plug' as shown at **(C)**. If the oil level is not at the height of this plug then it needs to be topped up.



**WARNING:** If the oil level in the gearbox has risen this means that oil is penetrating from the rotary seal. Contact your local service dealer for further details.

It is advisable to keep a record of the maintenance, including oil top-ups, performed on the gearbox.

### **CHANGING THE OIL IN THE GEARBOX.**

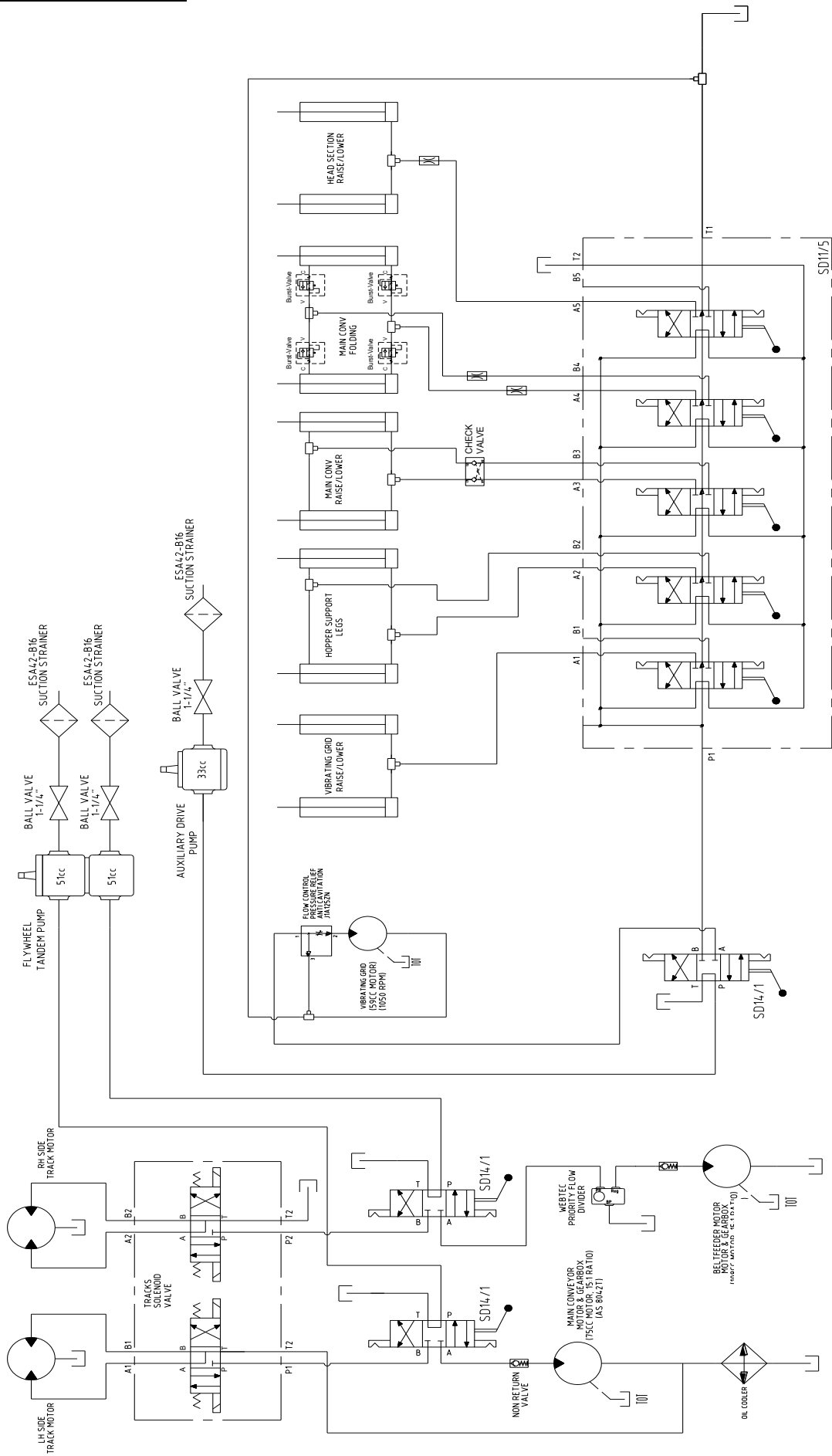
- Change the oil in the reduction gear while it is warm so that it is easier to drain.  
**WARNING:** Take extra precautions with hot liquids.
- Elevate the conveyor so that the 'breather plug', as shown at **(B)**, and the 'oil level plug', as shown at **(C)**, are approximately 90° to each other.
- Unscrew the drain plug on the lower side of the reduction gear. Also unscrew the oil level plug, as shown at **(C)**, as this will help allow the oil to drain from the gearbox.
- Check that there are no unusual metallic parts on the magnetic plugs.
- Once the oil has completely drained from the gearbox, replace the drain plug.
- Wash the interior of the gearbox with a suitable cleaning liquid that is recommended by the lubricant manufacturer. Drain the cleaning liquid.
- Re-fill the gearbox through the oil level port, as shown at **(C)**, with the appropriate gear oil.
- The gearbox will be filled with the correct amount of oil when the oil level has reached the height of the 'oil level port'.
- Replace all bungs.

**IMPORTANT:** Do not mix different types of oil even if it from the same manufacturer. It is especially important to avoid mixing mineral oil with synthetic oil.

**WARNING:** The reduction gearbox manufacturer prohibits the unit to be opened to carry out any operation that is not included in their specified routine maintenance procedures. The manufacturers do not undertake any liability for any 'out of routine' maintenance which may have caused damage to people or parts.

For more information on the service and maintenance of the reduction gearbox, consult the gearbox manufacturer's operation and maintenance manual, supplied along with this machine.

# 7.15 HYDRAULIC DIAGRAM.



# SECTION 8.0

# TRANSPORTATION



## WARNING

Before attempting to transport this machine you must have read and understand all the safety instructions listed in Section 2.0

### 8.1 TRANSPORTATION OVERVIEW.

- This section will guide you through the procedures to prepare the machine for transportation. Ensure that you carry out all these procedures in order to prevent injury and/or damage to your machine.

**IMPORTANT:** Due to different transport and shipping regulations throughout the world, this machine may require different packing arrangements. For the purposes of this manual it will be considered that the machine will be transported in its most 'unassembled' configuration. Therefore, some of the procedures may not be applicable. If this is the case ignore that particular instruction and proceed to the next section.

- Check local transport regulations before attempting to transport this machine.
- The preparation of this machine for transportation **MUST** only be carried out by fully trained and authorised personnel only. At least two people must be present and statutory minimum age limits must be observed.

### 8.2 'PREPARING FOR TRANSPORT' SEQUENCE.

The following operations must be carried out in the sequence given in order to prepare the machine correctly for transport. Details of each procedure are given on the following pages.

- STEP 1** Clear the machine of all material.
- STEP 2** Lower the product conveyor.
- STEP 3** Remove the skirting rubbers.
- STEP 4** Disconnect the e-stop pull cords.
- STEP 5** Fold over the product conveyor.
- STEP 6** Lower the vibrating grid (optional).
- STEP 7** Raise the hopper jacking legs.

### 8.2.1 **STEP 1: CLEAR THE MACHINE OF ALL MATERIAL.**

- Remove all material from all around the machine.
- It may be necessary to power wash the machine to remove all the loose material.
- Ensure that there is no material remaining on the machine that could dislodge while the machine is being transported.

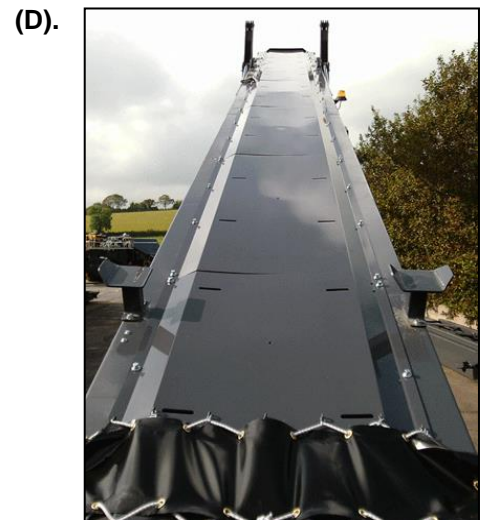
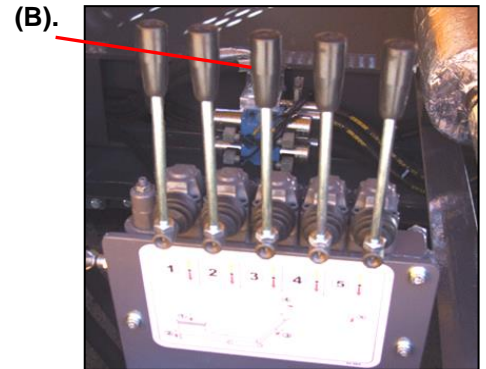
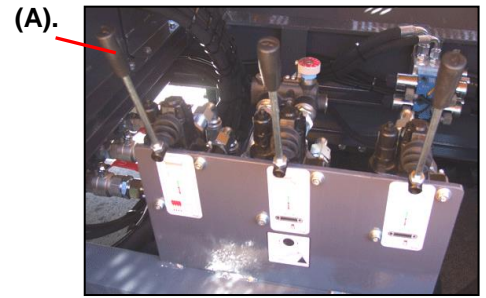
### 8.2.2 **STEP 2: LOWER THE PRODUCT CONVEYOR.**

**WARNING:** The product conveyor MUST be lowered down into the 'transport' position before attempting to fold it over! If the head section has been tilted downwards during operation, ensure that it is raised back up so the conveyor is completely straight.

**IMPORTANT:** Care must be taken to ensure that none of the hydraulic hoses become entangled during the raising or lowering of the conveyor.

- Start the engine as per the start up procedure.
- Initiate the hydraulic rams by activating the hydraulic rams lever, as shown at **(A)**.
- With the engine at low revs, gently operate the 'conveyor raise/lower' control lever, as shown at **(B)**.
- Lower the conveyor until it has reached the horizontal position, as shown at **(C)**.
- Return the hydraulic rams lever to the neutral position, switch off the engine and lock-out the machine.
- Some machines will have the options of having dust covers, as shown at **(D)**, and a top end discharge chute and rubber sock, as shown at **(E)**. If these components have been fitted to your machine they must be removed now.

**WARNING:** NEVER attempt to fold the conveyor over while the dust covers and/or top end discharge chute and rubber sock are fitted.

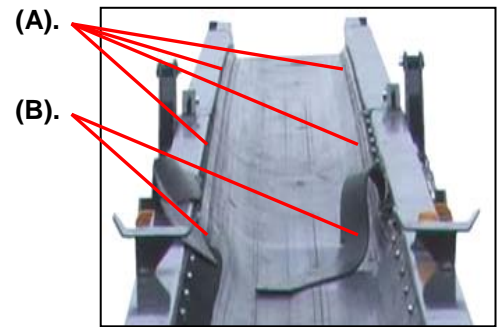


### 8.2.3 **STEP 3: REMOVE THE SKIRTING RUBBERS.**

Before folding the product conveyor, the skirting rubbers adjacent to the pivots points of the conveyor, must be removed.

Failure to remove the skirting rubbers at these points will cause significant damage to the skirting and conveyor during folding.

- Remove the skirting rubbers along the top section of the conveyor, as shown at **(A)**.
- Fold the excess skirting rubbers onto the middle section of the conveyor, as shown at **(B)**.
- Ensure that the belt is out past the skirting at the folding point otherwise the belt will catch on the skirting and may tear.



### 8.2.4 **STEP 4 DISCONNECT THE E-STOP PULL CORDS.**

If e-stop pull cords have been fitted to the machine they must be disconnected before the conveyor is folded.

**WARNING:** Never operate the conveyor without the e-stop pull cords being active.

- Disconnect the e-stop pull cord from the last eyebolt at the top end of the conveyor.
- Disconnect the cord from the loop on the e-stop switch, as shown at **(A)**.
- Ensure that there is enough slack on the cord to let the conveyor fold over without pulling the cord through any of the other eyebolts.
- Repeat the above steps to disconnect the pull cord on the other side of the conveyor.



### 8.2.5 STEP 5: FOLD OVER THE PRODUCT CONVEYOR.

**WARNING:** The product conveyor top section MUST NOT be folded over while the conveyor is raised up in the 'working' position!

**WARNING:** ENSURE that there are no overhead cables in the area where the conveyor is being folded and that there is adequate clearance above the conveyor so that it can be folded safely.

**WARNING:** NEVER attempt to fold the conveyor over if dust covers and/or a top end discharge chute and rubber sock are fitted.

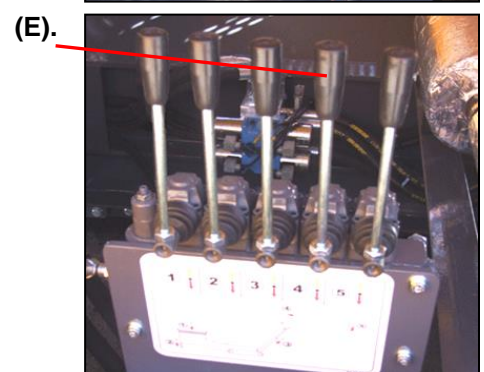
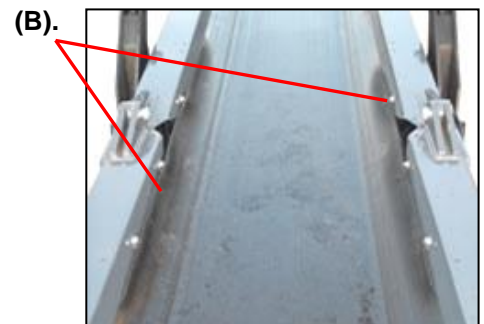
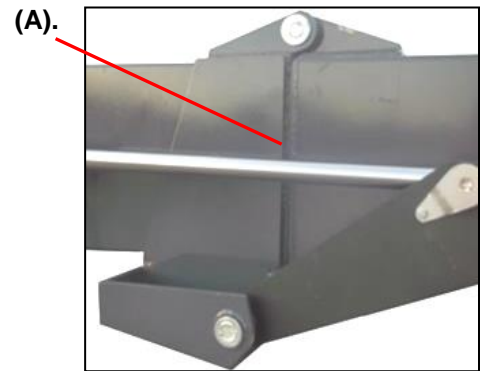
Care must be taken when folding the product conveyor to avoid damaging any hydraulic hoses.

- Remove the mounting bolts that bolt the top and middle sections of the conveyor together. The bolting points are located on the inside of the conveyor frame behind the folding mechanism, as shown at **(A)**.

- Reduce the tension on the belt so that it can fold over more easily.

**IMPORTANT:** The belt must be manually pulled out from behind the skirting for approximately 1 metre either side of the conveyor pivot point, as shown at **(B)**. This will prevent the belt from snagging on the skirting and allow it to rise up while the conveyor is being folded, as shown at **(C)**.

- Start the engine as per the engine start up procedure.
- Initiate the hydraulic rams by activating the hydraulic rams lever, as shown at **(D)**.
- With the engine at low revs, gently operate the 'conveyor folding' control lever, as shown at **(E)**.
- Fold the conveyor in a constant motion. Folding the conveyor too quickly or jerking it suddenly, may result in damage to the machine.
- Pay particular attention to the conveyor belt while the conveyor is folding. Ensure that it folds over evenly onto itself and that it doesn't catch or snag on any part of the machine.
- Continue to fold the conveyor until it is fully folded over, as shown at **(F)**.
- Return the hydraulic rams lever to the neutral position, switch off the engine and lock-out the machine.

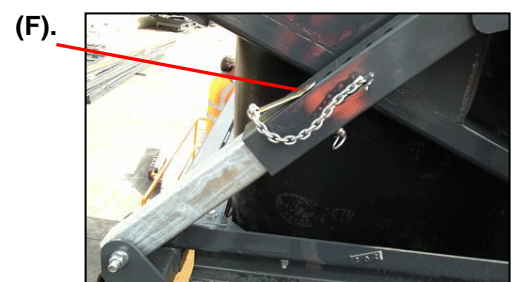
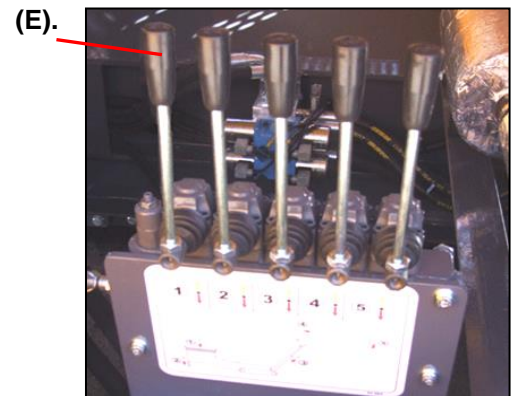
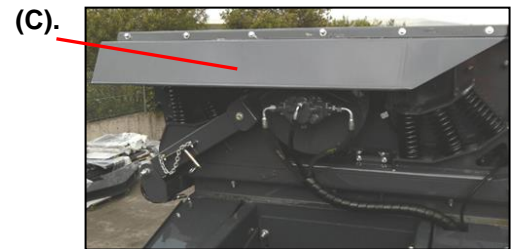
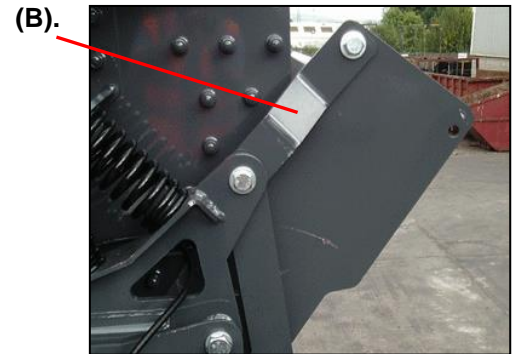
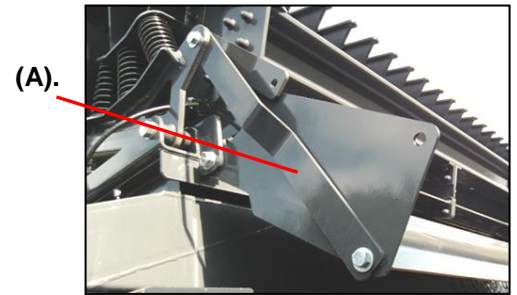


### 8.2.6 STEP 6: LOWER THE VIBRATING GRID (Optional).

**NOTE:** The vibrating grid is an optional extra and may not be fitted to all machines.

If a vibrating grid has been fitted to the machine it will need to be folded down for transport.

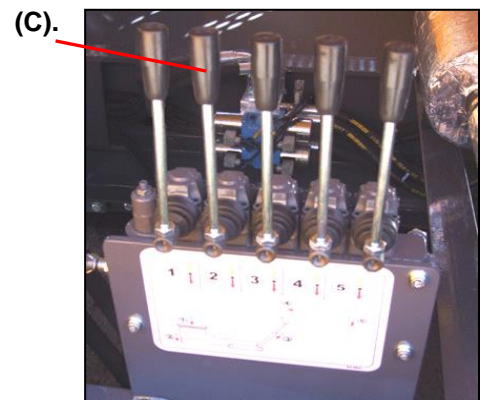
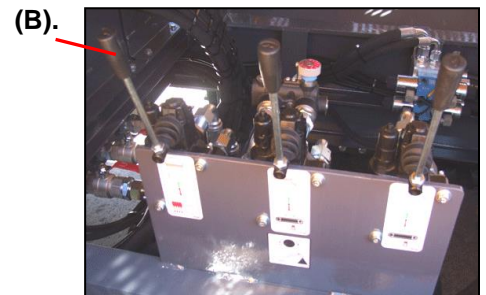
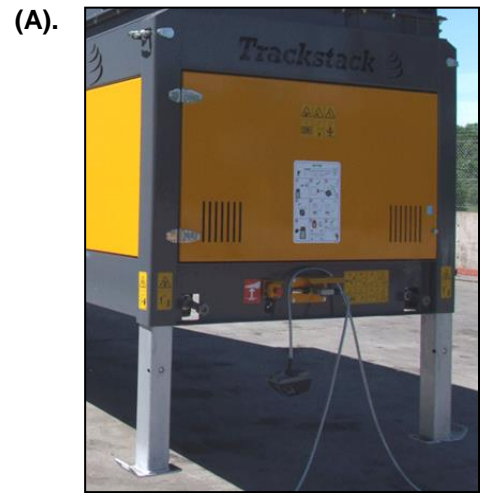
- Using lifting equipment, raise the front chute into the transport position. To do this attach lifting equipment to the chute and remove the long arm mounting bolts from both sides of the chute, as shown at **(A)**.
- Raise the chute up and fit both short arms to the chute, as shown at **(B)**.
- Fold down both of the grid wings, as shown at **(C)**.
- Start the engine as per the start up procedure.
- Initiate the hydraulic rams by activating the hydraulic rams lever, as shown at **(D)**.
- With the engine at low revs, gently take the weight off the grid telescopic pins by operating the 'vibrating grid raise / lower' control lever, as shown at **(E)**.
- With the weight off remove the mounting pins, as shown at **(F)**.
- Lower the grid down until it has reached the horizontal position.
- Return the hydraulic rams lever to the neutral position, switch off the engine and lock-out the machine.
- Ensure that all parts of the grid are secured so that they cannot swing out or fall off during transport.



### 8.2.7 **STEP 7: RAISE THE HOPPER JACKING LEGS.**

Jacking legs, as shown at **(A)**, have been fitted to the hopper to support its weight when material is loaded. The jacking legs are raised and lowered hydraulically. They must be raised during tracking and transportation.

- Initiate the hydraulic rams by activating the hydraulic rams lever, as shown at **(B)**.
- Using the jacking legs hydraulic lever, as shown **(C)**, gently raise the jacking legs up fully.
- Return the rams activation lever to the neutral position.
- Switch the engine off and lock-out.



### **FINAL CHECKS:**

- Carry out a final check to ensure that no tools or objects have been left on the machine.
- Ensure that all components have been secured correctly so that they cannot move or swing out during transport.
- Ensure that no material or debris will dislodge and fall from the machine during transport.
- Check that the transport dimensions are correct for the jurisdiction in which the machine is to be transported.
- Ensure that the machine is correctly secured to the trailer on which it is to be transported.

# END OF MANUAL