

QE340

Operator's Manual



QE340

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CERTIFICATE OF CONFORMITY

Supply of Machinery Safety Regulations 98/37/EC

Serial No:

Engine Serial No:

Production Manager:

Date of build:

Issued Declaration of Conformity on next page.

**Name of manufacturer or supplier**

Sandvik Screens & Crushers Ltd

Full postal address including country of origin

Hearthcote Road, Swadlincote, Derbyshire, England, DE11 9DU

Description of product

Screener

Name, type or model, batch

QE340

In built diesel
22278/D519

Sandvik Screens & Crushers Ltd
Swadlincote, Derbyshire, DE11 9DU

Standards used, including number, title, issue date and other relative documents

EN292-1, EN292-2, EN349, EN418, EN954-1, EN1050

Place of issue

Sandvik Screens & Crushers Ltd

Originating certification by

Laidler Associates, Belasis Business Centre, Coxwold way, Billingham, Teesside, TS23 4EA
Certificate number [22278/D519](#)

Declaration

I declare that the above information in relation to the supply / manufacture of this product, is in conformity with the stated standards and other related documents following the provisions of the above Directives and their amendments.

Signature _____ Date

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1. SAFETY SECTION

To ensure maximum safety, **ALWAYS** read this section carefully **BEFORE** carrying out any work on the equipment or making any adjustments.

1.1 Safety Essentials



- a. Breathing or inhaling tiny silica dust particles will cause death or serious injury. **ALWAYS** work with a respirator approved by the respirator manufacturer for the job you are doing.

- b. This equipment is manufactured in accordance with the Machinery Directive 98/37/EC.¹ The customer should make sure that this equipment is in conformance with local and national legislation if used outside of the EU.



- c. Read this manual and familiarize yourself with any associated documentation. If in doubt ask. **Do not take personal risk.**

- d. Only trained personnel should be allowed to install, set, operate, maintain, and decommission this equipment. Make sure that a copy of this manual is available for any persons installing, using, maintaining or repairing this equipment.



- e. Training should be provided to make sure that safe working practices are followed. Initial commissioning and starting must only be undertaken by a competent person who has read and fully understands the information provided in the manual pack. **ALWAYS follow the procedures outlined in the operating and maintenance instructions.**



- f. To avoid the risk of electric shock, **ALWAYS** isolate this equipment from the supply source before removing any guards or covers or performing any maintenance or adjustment to the equipment.

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

1.2 Safety Signs and Labels

1. Directive 98/37/EC of 22.06.98 (OJ n° L 207 of 23.07.98, p.1)



- a. The term "DANGER" indicates a hazardous situation which, if not avoided, will result in death or serious injury.



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



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

1.3 Safety Hazards Pertaining to the Equipment



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

- a. **MAKE SURE** that safety instructions and safety labels attached to the equipment are **ALWAYS** complete and perfectly legible.
- b. Keep safety instructions and safety labels clean and visible at all times.
- c. Replace any illegible or missing safety instructions and safety labels with new ones before operating the equipment. See "Stickers - English" on page 191. in this manual for part numbers.
- d. Make sure replacement parts include safety instructions and labels.

1.3.1 Symbols for Mandatory Actions



1: Wear Safety Gloves



2: Wear Eye Protection



3: Wear Safety Helmet



4: Wear Safety Harness



5: Wear Ear Protection



6: Wear Safety Boots



7: Wear Close Fitting Overalls



8: Wear Dust Mask



9: Wear High Visibility Vest



10: Wear Respirator



**11: Disconnect Power Source
From Supply**



**12: Switch Off and Lockout
Equipment**



13: Read the Manual

1.3.2 Symbols for Prohibited Actions



14: No Climbing



15: No Smoking



16: Do Not Touch



17: No Open Flames



18: Limited or Restricted Access



19: Do Not Weld



20: Do Not Remove Safety Guard

1.3.3 Hazard Symbols



21: Crushing Hazard - Hands



22: Crushing Hazard - Feet



23: Chemical Burn Hazard



24: Electrical Hazard



25: Electrical Shock/Electrocution Hazard



26: Entanglement Hazard



27: Entanglement Hazard



28: Falling Hazard



29: Falling Load Hazard



30: Flammable Hazard



31: Flying Material Hazard



32: Hazardous or Poisonous
Material Hazard



33: Lifting Hazard



34: Skin Injection Hazard



35: Silica or Other Dust Hazard



36: Trip Hazard



37: Magnet Hazard

1.3.4 Machine Legend Plate

SANDVIK		CE
		Mfg. year
Type		
Serial No./PCR	Order No.	Max operating speed
Local Mfg. No.	Mass kg	Extec Screens and Crushers Ltd. Hearthole Road Swadlincote England

1.4 Component Safety Features



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



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

1.5 Features for Operator Safety

- a. Safety features associated with this equipment have been assessed in accordance with BS EN 954-1 to Category 3.



- b. Emergency Stop buttons have been installed to prevent death or serious injury. Make sure that the Emergency Stop buttons are visible and are not obstructed in any way.



- c. The Emergency Stop circuit is a 24 V DC series circuit and hard wired to remove power from the ECU Engine management system and stop the engine. **To avoid electric shock or cutting injury, you MUST wait at least ten full seconds after activating the Emergency Stop to allow the system to release its electrical charge.**



- d. You **MUST** study the detailed Safety Circuit diagram which is within the drawing pack as an appendix to this manual.



- e. Safety guards have been installed to prevent death or serious injury. **DO NOT** remove, modify, or alter any safety guard. Make sure that all safety guards are bolted down.



- f. Steps, handrails, tread plates, and fixed guards are provided where personnel are required to climb on the machine.
- g. If for any reason other areas of the machine need to be accessed, risks **MUST** be assessed and appropriate safety measures taken.

1.6 Environmental Safety

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

1.6.1 Hazardous Materials

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



- a. Diesel spillages **MUST** be cleaned up immediately due to fire hazard.
- b. **ONLY** use the lubricating oils recommended in the maintenance schedule.



- c. **OBSERVE** the COSHH information contained in the appendix to this manual.
- d. Local & National regulations **MUST** be observed when disposing of waste.
- e. Improperly disposing of waste **CAN THREATEN** the environment and ecology and is illegal.

- f. **MAKE SURE** that all hazardous and replaced parts are disposed of safely and with minimum environmental impact.

1.6.2 Machine Disposal

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

1.7 Personal Protective Equipment (PPE)

1.7.1 Entanglement Hazards

 DANGER 	
 	1. Loose clothing, tools, jewellery, long hair, or body parts can get caught in running machinery, which will result in death or serious injury. 2. ALWAYS wear correctly fitting (CE approved) personal protective equipment. Garments must be close fitting and no jewellery such as rings may be worn. 3. DO NOT work close to machinery unless it is stopped.

1.7.2 Required Personal Protective Equipment

This includes:



- Hard Hat



- Safety Glasses/Goggles



- Hearing Protection



- Dust Mask



- Close Fitting Overalls



- Safety Boots



- Industrial Gloves



- High Visibility Vest or Jacket

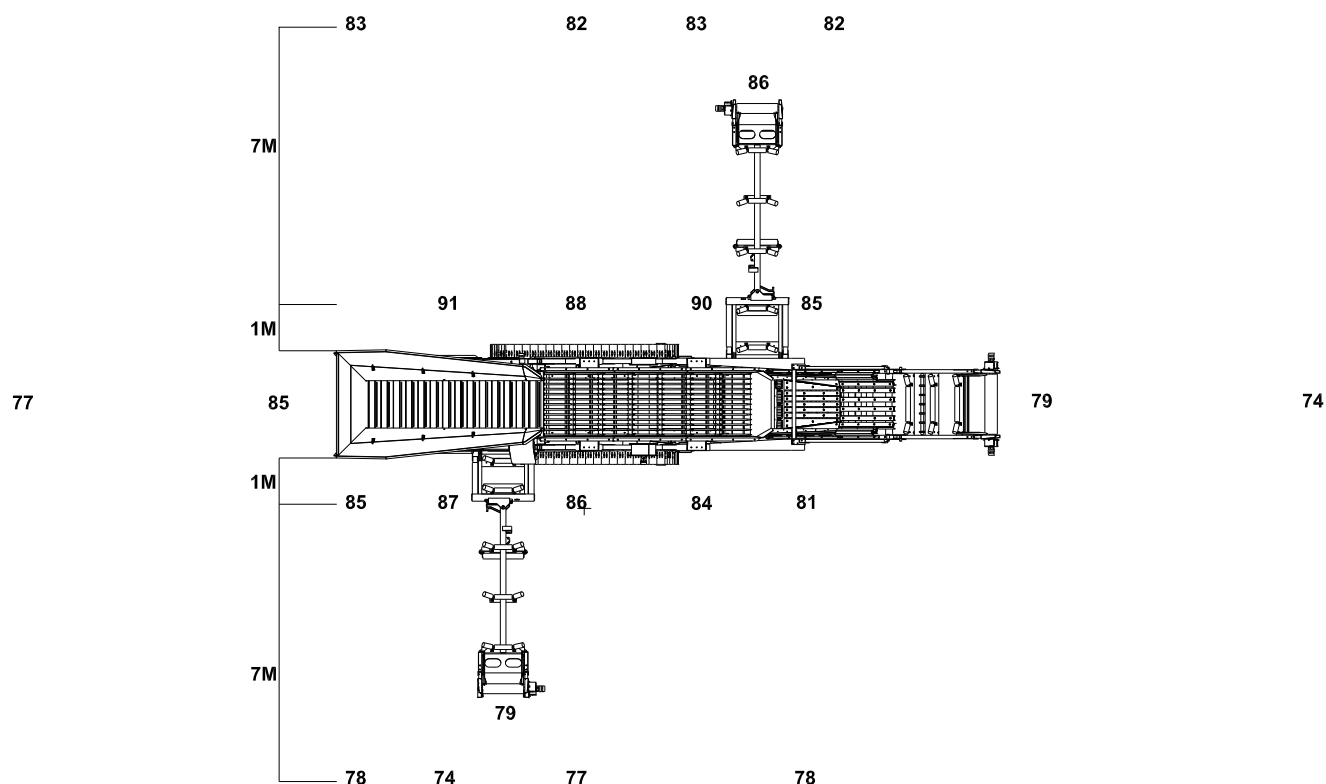


- Respirator

1.8 Measure Noise Level



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



38: Measured Noise Level

The above diagram indicates the measured noise levels at a measured distance; i.e. 7 m (approximately 23 feet) - 85 dB indicates that at 7 meters the sound measured was 85 decibels. The readings were measured using a Castle GA101/701 meter with a calibration date of 05/06/04 and with all systems running situated on the factory assembly line. The product and local conditions will affect the noise levels.

1.9 Vibration Levels

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

1.10 Organisational Safety Measures



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



- Understand the service procedure before doing work. Keep area clean and dry.
- **NEVER** lubricate, clean, service, or adjust machinery while it is moving.
- Allow the machinery to cool before performing any maintenance or adjustments.

- **MAKE SURE** that all parts are properly installed and are in good condition. Replace worn and broken parts **IMMEDIATELY**.

- Remove any build up of grease, oil and debris from equipment.



- Disconnect battery ground cable before making adjustments on electrical systems or welding on the equipment.

- During maintenance **ONLY** use the correct tool for the job.

- **NEVER** make any modifications, additions, or conversions which might affect safety without the manufacturer's approval.



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



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

1.11 Personnel Qualifications, Requirements and Responsibilities



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



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

- c. Work on the hydraulic system **MUST ONLY** be carried out by personnel with special knowledge and experience of hydraulic equipment.

1.12 Safety Advice Regarding Specific Operational Phases

1.12.1 Standard Operation

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



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



- c. **MAKE SURE** that any local barriers are erected to stop unauthorized entry to the equipment.

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

1.12.2 Blockage or Malfunction



In the event of material blockage, any malfunction or operational difficulty, stop the equipment and lockout immediately. Repair any defects or hazardous conditions immediately.



1.12.3 Unguarded Areas



- a. Limit access to the equipment and its surrounds by erecting barrier guards to reduce the risk of other mechanical hazards, falling loads and ejected materials.



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



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

1.13 Special Work, Including Equipment Maintenance and Repairs During Operation, Disposal of Parts, and Hazardous Materials



- a. Observe the adjusting, maintenance, and service intervals set out in the operating instructions, except where:

- Warning horns, lights, gauges, or indicators call for immediate action; or
- Adverse conditions require more frequent servicing.

- b. **ALWAYS** only use Original Equipment Manufacturer's ("OEM") recommended replacement parts and equipment.
- c. Make sure that only properly trained personnel undertake these tasks.

1.13.1 Securing the Equipment Before Performing Maintenance



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



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



- b. Implement lockout procedures.

- c. Attach a hazard sign(s) to the equipment in appropriate positions to alert all personnel of potential hazards.

1.13.2 Maintenance Site Conditions



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

1.13.3 Replacement & Removal of Components



- a. **ALWAYS** observe handling instructions itemized in this manual, the Original Equipment Manufacturer's manuals, or the spare parts suppliers' instructions.

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



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

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



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



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



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

1.13.4 Climbing, Falling



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



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



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

- d. Beware of moving haulage and loading equipment in the vicinity of the equipment.

- e. For carrying out overhead assembly work, **ALWAYS** use specially designed or otherwise safety-oriented ladders and working platforms.

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



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



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

1.13.5 Safety Considerations During Maintenance



It is essential that you take the following steps to MAKE SURE you and others are safe.



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



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



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

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

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



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

- g. **NEVER** work alone.

1.13.6 Safety Considerations During Cleaning



- a. This equipment **MUST** be isolated prior to cleaning.



- b. **DO NOT** direct power washers near or into control boxes and devices.
- c. After cleaning, examine all fuel, lubricant, and hydraulic fluid lines for leaks, loose connections, chafe marks and damage. Any defects found **MUST** be repaired immediately.

1.13.7 Removal of Safety Devices and Guards



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



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

1.13.8 Surrounding Structures



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

1.13.9 Safety When Refueling

**WARNING**



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

1.14 Specific Hazards

1.14.1 Electrical Energy

A. External Considerations and Hazards

When working with the equipment, maintain a safe distance from overhead electric lines. If overhead cables are in the vicinity, a risk assessment **MUST** be completed prior to operating the equipment

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

B. Machine - Electrical



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



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



3. The electrical equipment is to be inspected and checked at regular intervals. Defects such as loose connections or scorched or otherwise damaged cables **MUST** be fixed immediately.
4. Use **ONLY** original fuses with the specified current rating. Switch off the equipment **IMMEDIATELY** if trouble occurs in the electrical system.
5. This equipment is wired on a negative earth. **ALWAYS** observe correct polarity.

1.14.2 Battery



- a. **ALWAYS** disconnect battery leads before carrying out any maintenance to the electrical system.
- b. Recharge the battery in a well ventilated area.



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



- e. Smoking is **PROHIBITED** when maintaining the battery.
- f. **ALWAYS** wear appropriate personal protective equipment.

1.14.3 Gas, Dust, Steam, Smoke and Noise



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



1.14.4 Welding or Naked Flames

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

1.14.5 Hydraulic Equipment



- a. Work on hydraulic equipment must be carried out by persons having special knowledge and experience of hydraulic systems.

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



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



- c. **BEFORE** carrying out any repair work, depressurize all system sections and pressure pipes (i.e. hydraulic system, compressed air system, etc.) requiring removal, in accordance with the specific instructions for the unit concerned.

- d. Hydraulic and compressed air lines **MUST** be laid and fitted properly. Make sure that no connections are interchanged. The fittings, lengths and quality of the hoses **MUST** comply with the technical requirements.

- e. **ONLY** fit replacement components of a type recommended by the manufacturer.

- f. **ALWAYS** practice extreme cleanliness when servicing hydraulic components.

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

1.14.6 Hazardous Substances



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



- b. A full list of Hazardous Substances associated with this equipment can be found in the appendix of this document.

2. TRANSPORT & TECHNICAL DATA

2.1 Transportation

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

The machine must be tracked onto and off the trailer. See section - Tracking.

Note! *This equipment must never be tracked on gradients that are more than: 10 degrees Port to Starboard or 20 degrees Front to Back. The machine must always be on flat, solid ground when operating in its normal mode.*

Ensure the loading/ unloading site is clear of non essential personnel. Erect barriers around the area and post warning signs where site conditions warrant this.

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

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

When tracking, the operator must be in a position to have an all round view of the operation. A banks man or marshal should assist where this is not possible.

The total weight of this machine is 28 000 kg.

2.1.1 Machine Transportation

Ensure that feeder doors, side conveyors and tail conveyor are folded and that the feeder is lowered and locked with the in-fill panels removed prior to transportation.

Before transporting on the road, the load dimensions must be checked to ensure that they are within the legal transport limits. (See Diagram on following page for machine transport dimensions.)

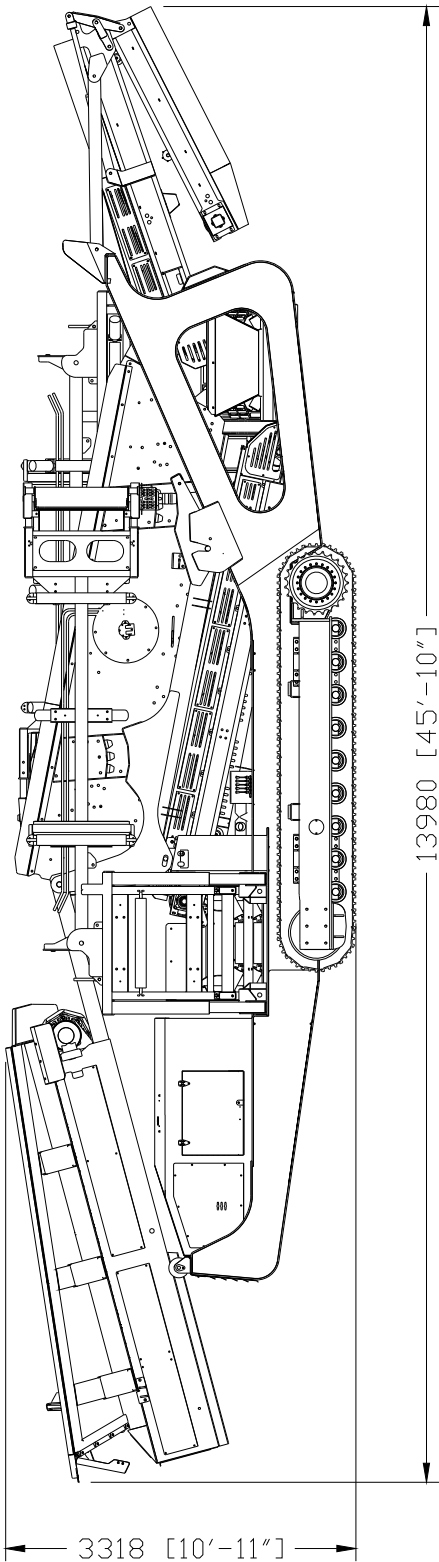


Figure 2-1: Machine Transportation Dimensions

2.2 Application & Limitations

The QE340 has been designed and constructed to separate a wide range of materials such as stone, top soil, coal, compost and recyclable waste. The QE340 must not be used for any other purpose without first contacting Sandvik Screens & Crushers Ltd technical department.

The QE340 must not be operated until the instructions supplied with the machine are read and fully understood.

2.3 Description

The QE340 is a self contained tracked machine built to withstand the rigours and conditions of operating in quarries and within the construction industry. The QE340 utilises a diesel engine to provide the power to the hydraulic power pack and to generate electricity for the electrical systems of the machine.

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

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

This equipment has been manufactured and assessed to be in accordance with the Machinery Directive 98/37/EC.

2.4 Operation Description

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

Material is loaded normally by excavator into the feeder where the material is transferred towards the screen box.

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

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

The smaller material that has fallen through to the Bottom Deck is transferred either to the Left Hand Side Conveyor or falls through to the Fines Conveyors and is stockpiled at either side of the Machine.

2.5 Key Features of the QE340 Track Mounted Screener

- Diesel hydraulic power via Deutz BF4M 2012 C 94 hp engine providing hydraulic transmission without clutches.
- Apron/ Belt feeder with automatic control to regulate the feed into the screen box. The hydraulic system automatically coordinates the flow of material from the feeder over the screen box to the conveyors.
- Fast set-up time on site.
- Low loading feeder with hydraulic folding sides.
- Heavy duty screen box with aggressive throw, also generous clearance between decks to maximise screening potential.
- Adjustable screening angle.
- Large stockpile capacity with all conveyors.
- Numerous screen box options, from heavy duty tines and punched plate on the top deck to quick changing mesh and cascade fingers on the bottom deck.
- Hydraulic speed adjustment system to regulate the product output.
- Access platforms.
- Machine is self propelled by Remote Control or Umbilical Control Hand Set.

2.6 Common Applications

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

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

2.7 Machine Layout Indicating Emergency Stop Positions

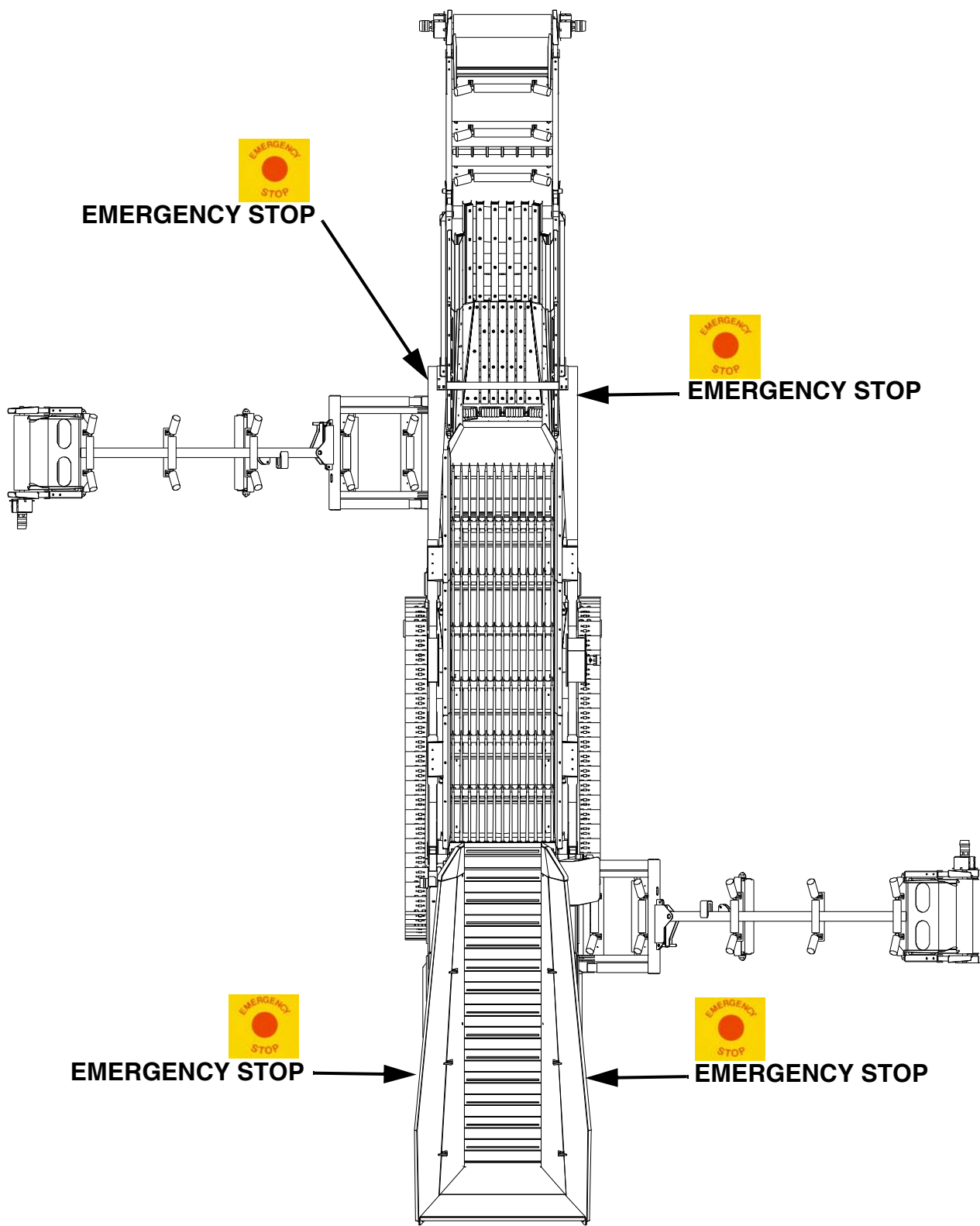


Figure 2-2: Emergency Stops

2.8 Data

Screen Box

Upper Deck	4200 x 1426 mm
Bottom Deck	4700 x 1446 mm
Angle	11° - 17°
Drive	Hydraulic

Feeder

Feeder Length	4500 mm
Hopper Capacity	7 cubic meters

Conveyors

Fines Side Conveyor	800 mm x 7600 mm
Fines Collector Conveyor	1200 mm x 4350 mm
Mid Grade Side Conveyor	800 mm x 7370 mm
Tail Conveyor	1200 mm x 5230 mm

Dimensions

Transport Length	13950 mm
Transport Width	2590 mm
Transport Height	3300 mm
Working Length	14407 mm
Working Width	12956 mm
Working Height	4253 mm
Weight	28000 kg

Engine Details

Engine	Deutz BF 4M2012C
Engine Maximum Power	70 kW @ 2000 rpm
Fuel Tank Capacity	230 litres
Hydraulic Tank Capacity	460 litres

2.9 QE340 Transport Dimensions

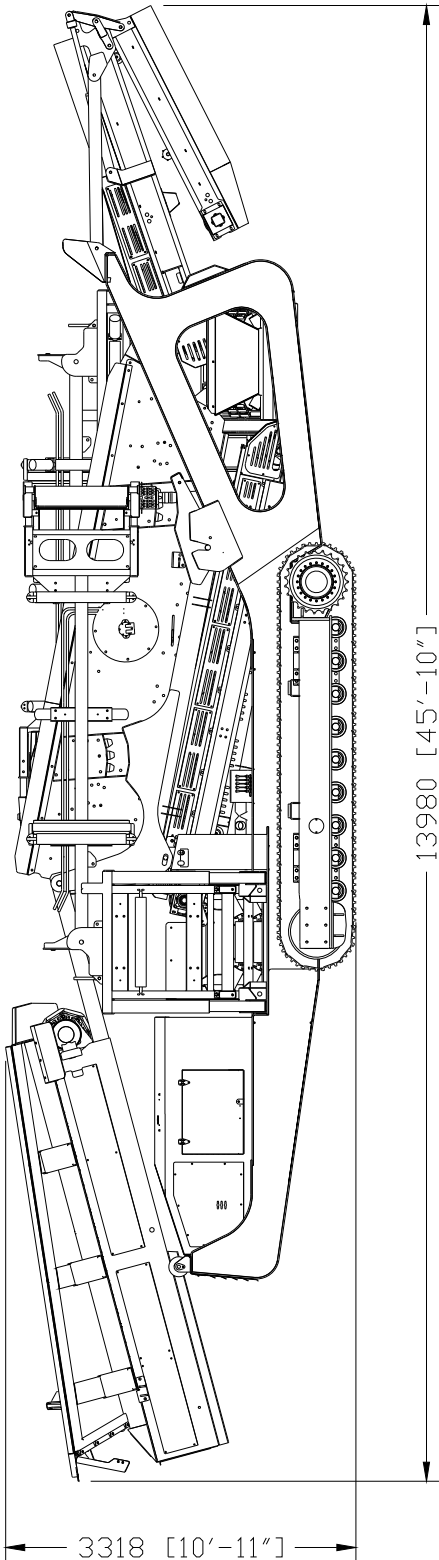


Figure 2-3: Transport Dimensions

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3. PRODUCT OVERVIEW

3.1 QE340 Assemblies & Options

The QE340 Screener has the assemblies:

- Feeder Conveyor
- Side Conveyors
- Tail Conveyor
- Magnetic Conveyor
- Screen Box
- Power Pack
- Hopper
- Tracks

The QE340 Screener has the options:

- Dust suppression system
- Two way

3.2 Machine Layout Indicating Main Components

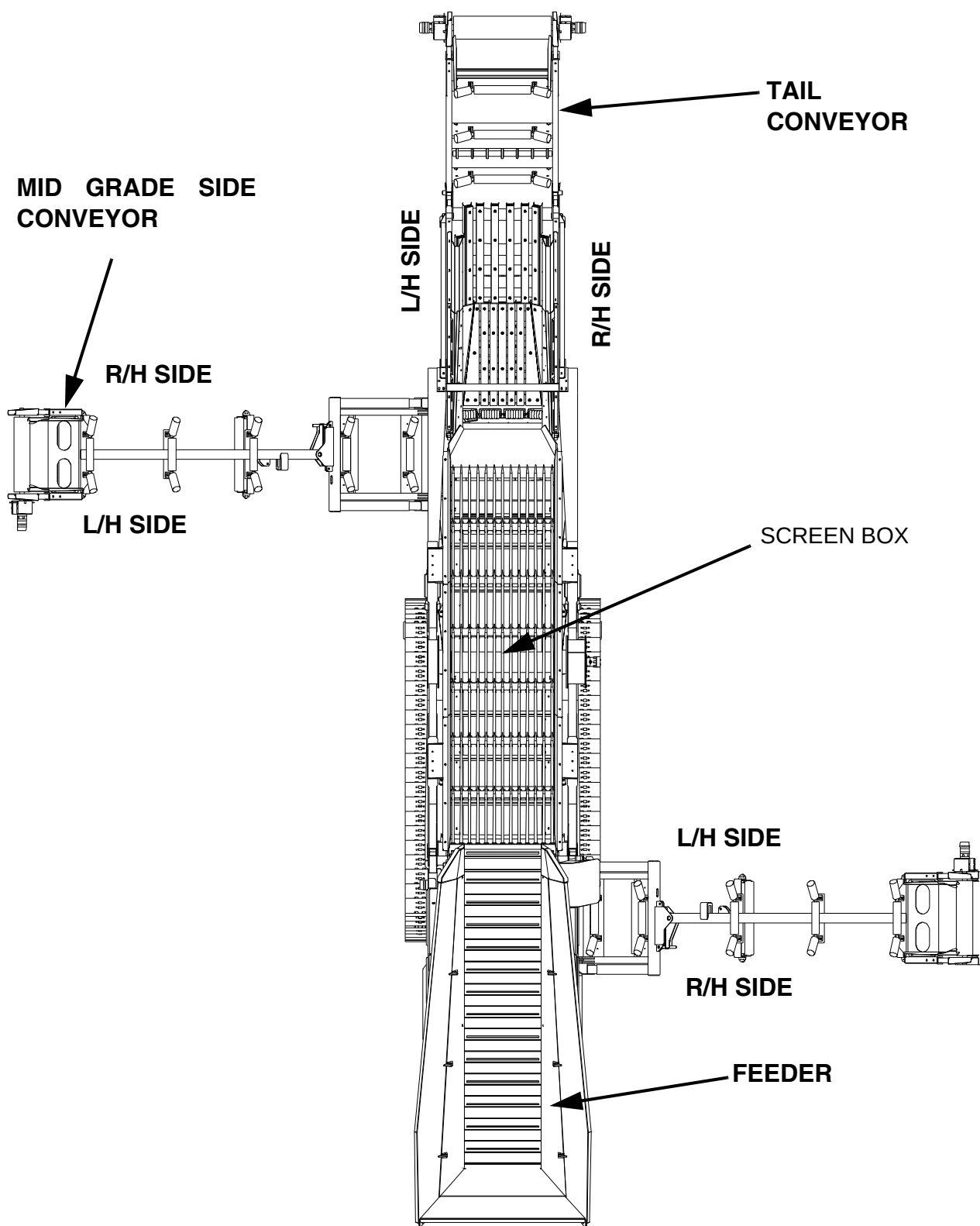


Figure 3-1: Main Components

4. COMMISSIONING & SHUT DOWN

4.1 Pre-Start Instructions

Before starting this machine it is important that the instructions below are followed:

1. Ensure that this manual is read & understood by the operator.
2. Do **NOT** attempt to start the machine until you are aware of **ALL** aspects of its operation. Any questions should be referred to your supervisor.
3. Remove any temporary sealing and transport straps.
4. Check that the machine is in good mechanical condition and that there is no component damage or loss.
5. Ensure all bolts and fixings are tight and that all guards are in place with all safety devices operating correctly. **NEVER** start machine without guards and safety devices operating correctly.
6. Ensure that the feeder, screen box and conveyors are all free of material.
7. Remove all tools and equipment from the operational area.
8. Ensure all personnel are well clear of the machine, drives, tracks and auxiliary equipment.
9. Ensure that the checks and pre-start procedures outlined in the engine manufacturer's instruction manual are complied with.
10. Check all fluid levels.
11. Safety pins are in appropriate positions.
12. Ensure all operating levers are in an off position.
13. Ensure that the conveyor belts, skirting rubbers and scrapers are in good condition and working properly.

4.2 Machine Starting Sequence

4.2.1 Remote Control



Figure 4-1: Remote Control

-  Start Feeder
-  Stop Feeder
-  No Action
-  Remote Stop Engine
-  No Action
-  No Action
-  Sound Track Alarm whilst held

4.2.2 Electrical Control Box

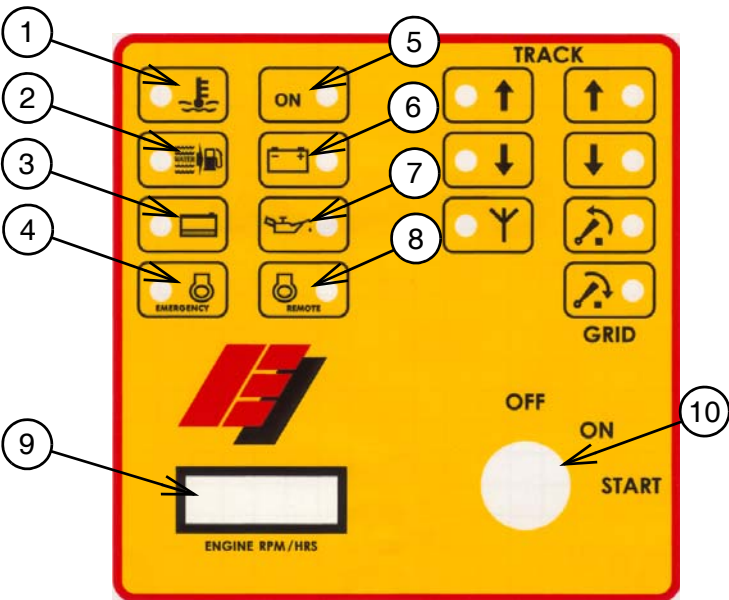


Figure 4-2: Electrical Control Box

- 1. Water Temperature
- 2. Water and Fuel Sensor
- 3. Low Water Level
- 4. Emergency Stop Light
- 5. Engine On Light
- 6. Battery Light
- 7. Oil Light
- 8. Remote Control Emergency Stop
- 9. Engine Rev Counter/ Hour Clock
- 10. Ignition Switch Position

The QE340 is equipped with safety shutdown control panel. With this type of system, built-in switches set to factory preset limits, operate such that if during operation, either the oil pressure or engine temperature reaches its preset limit, the system will experience a safety shutdown and turn the engine off.

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

4.2.3 Starting Procedure



Figure 4-3: Electrical Control Box with Key

1. Insert ignition key into ignition switch and turn clockwise to position indicated 'ON' (as shown above) until lights stop flashing and only the battery and oil lights are lit.
2. Turn key further clockwise until the engine starts, then release key.
3. If starting from cold, allow the engine to warm up for 5 minutes before operating the machine.

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

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

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



1: To control the hydraulic flow use the lever shown:

Left = Feeder Circuit - Centre = Spoolvalve Circuits - Right = Track Circuits

4.3 Stopping the Machine

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

1. Stop feeding material into the feeder.
2. Wait for all material to fully discharge from feeder, screen box and all conveyors.
3. Shut down the systems in the order shown below using the 6 station control block located in the Power Pack.

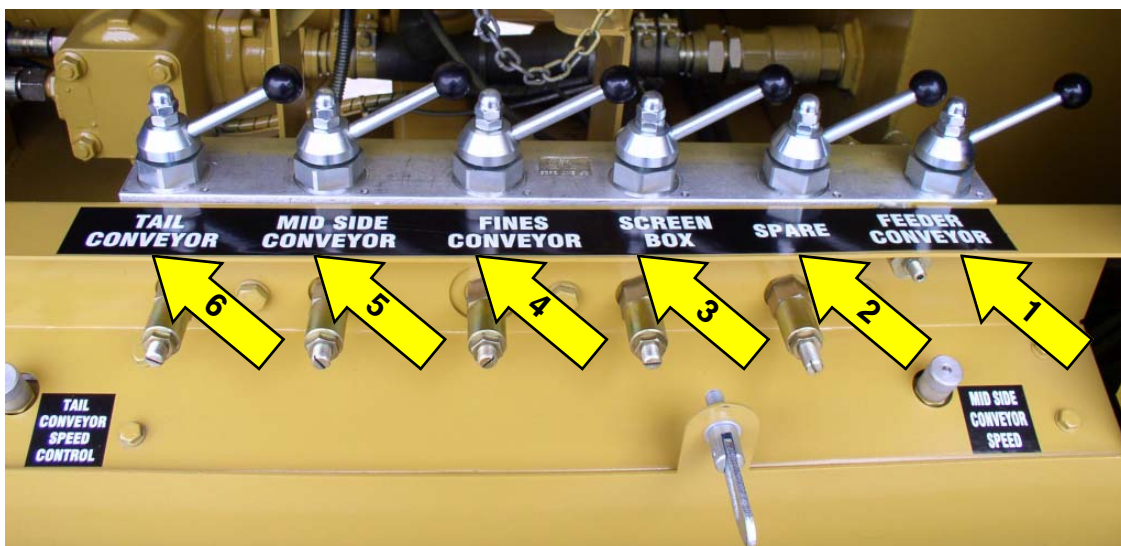


Figure 4-4: Machine Shutdown Sequence

4. Wait for each system to come to a complete stop.
5. Push throttle lever fully back and allow engine to idle briefly.
6. Stop engine by turning ignition key to 'OFF' position.

4.4 Stopping Machine in an Emergency



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

ENSURE THAT ALL PERSONNEL IN THE VICINITY OF THE MACHINE ARE FULLY AWARE OF THE LOCATION OF THE EMERGENCY STOP BUTTONS.



1: L/H Side of Power Pack



2: R/H Side of Power Pack



3: Front L/H Side of Chassis



4: Front R/H Side of Chassis

Note! *Emergency Stop Switches should only be used in an emergency situation not for normal stopping as frequent use will cause damage to hydraulic components.*

Note! *Emergency Stop Switches must be reset before the machine can be restarted.*

4.5 Tracking (Moving) Procedure

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

When tracking, the operator must be in a position to have an all round view of the operation. A banks man or marshal should assist where this is not possible.

Ensure the site is clear of non essential personnel. Barrier the area and post warning signs where site conditions warrant this.

Tracking must only be carried out on firm flat ground.

Note! *This equipment must never be tracked on gradients that are more than: 10 degrees Port to Starboard or 20 degrees Front to Back. The machine must always be on flat, solid ground when operating in its normal mode.*

When engine is running at low revs the machine can be moved to the desired location on site by following the procedures in the order listed below.



1: Remove mid grade side conveyor bottom section locking pins.



2: Activate 'L/H Lower Side Conveyor Up/Down' lever to raise the conveyor bottom section.

3: Insert locking pins to lock bottom section in raised position.



WARNING: Never try to move the machine without lifting the mid grade side conveyor bottom section FIRST!!



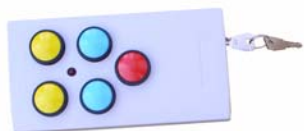
4: Activate lever to turn tracks on.



5: Adhere to the tracking colour direction stickers when moving the machine

After following the instructions on the previous page, use either the Remote Handset or the Hard Wire Handset to move the machine to the desired position.

Note! *The Remote Handset must be fully recharged at regular intervals. Use the correct instructions for your controller.*



OR



1: Remote Handset

2: Plug in Hard Wire
Umbilical Socket

3: Hard Wire Handset



Under NO circumstances try to move the machine when ANY personnel are standing on the machine.

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

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

Note!

1. When operating the White Remote Handset, the yellow buttons are for forward movement and the blue ones for reverse. (These correspond to direction indicator stickers on the machine.)
2. When operating the Hard Wire Handset, the yellow buttons are for forward movement and the blue ones for reverse. (These correspond to direction indicator stickers on the machine.)

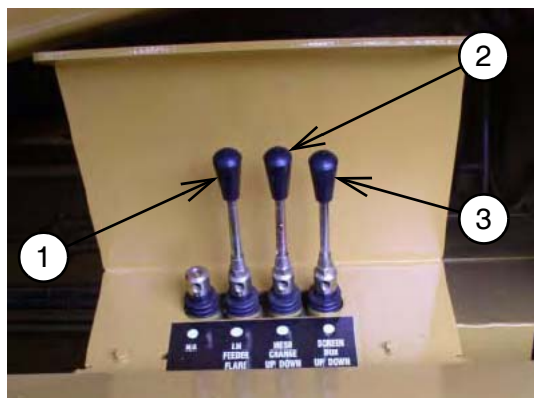


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When the machine is moved to its desired operating position, prepare the QE340 for operation by following the procedures laid out in the following pages.

4.6 Preparing The Machine For Operation

4.6.1 Machine Controls

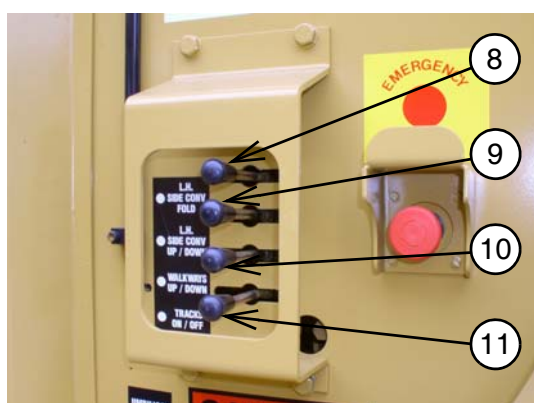


1: L/H Chassis Spool Valve

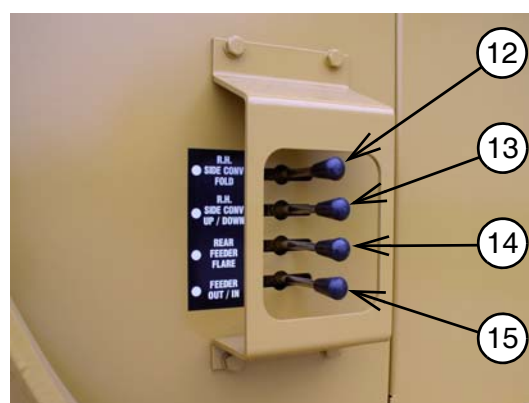


2: R/H Chassis Spool Valve

- | | | |
|-----------------------------|------------------------------------|-------------------------------|
| 1. L/H Feeder Flare | 6. R/H Feeder Flare | 11. Tracks On/Off |
| 2. Mesh Change Lift | 7. L/H Lower Side Conveyor Up/Down | 12. R/H Side Conveyor Fold |
| 3. Screen Box Height Adjust | 8. L/H Side Conveyor Fold | 13. R/H Side Conveyor Up/Down |
| 4. Tail Conveyor Up/Down | 9. L/H Side Conveyor Up/Down | 14. Rear Feeder Flare |
| 5. Tail Conveyor Fold | 10. Walkways Up/Down | 15. Feeder Out/In |

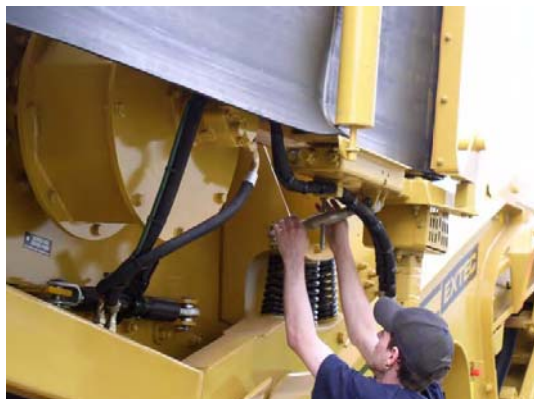


3: L/H Power Pack Spool Valve



4: R/H Power Pack Spool Valve

4.6.2 Opening R/H Side Conveyor



1: Remove R/H side conveyor link arm.



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



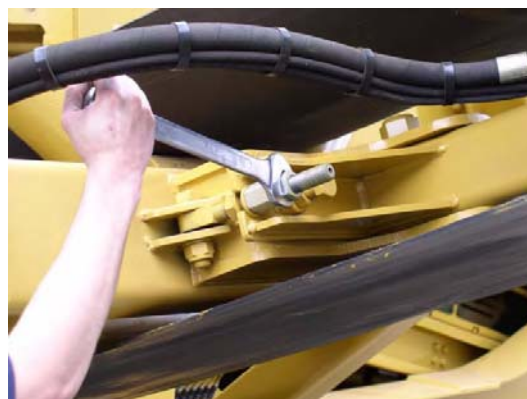
3: R/H Side Conveyor folded down



4: Activate 'R/H Side Conveyor Fold' lever.

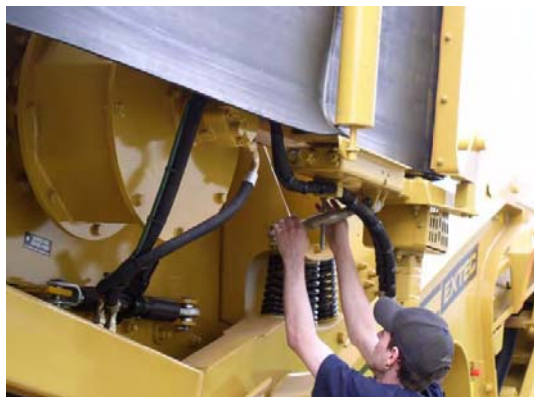


5: R/H Side Conveyor Folded out



6: Locate pivot lock and tighten thoroughly.

4.6.3 Opening L/H Side Conveyor



7: Remove L/H side conveyor link arm.



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



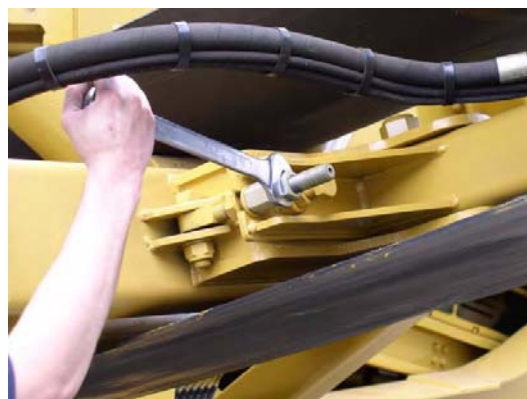
9: L/H Side Conveyor folded down



10: Activate 'L/H Side Conveyor Fold' lever.



11: L/H Side Conveyor folded out



12: Locate pivot lock and tighten thoroughly.



13: Remove mid grade side conveyor bottom section locking pins.



15: Replace bottom section locking pins.



14: Activate 'L/H Lower Side Conv' lever to lower the mid grade side conveyor bottom section.



NEVER TRY TO OPERATE THE MID GRADE SIDE CONVEYOR WHEN IT IS IN THE TRANSPORT POSITION, AS THIS WILL CAUSE DAMAGE TO THE CONVEYOR BELT.

4.6.4 Opening Tail Conveyor



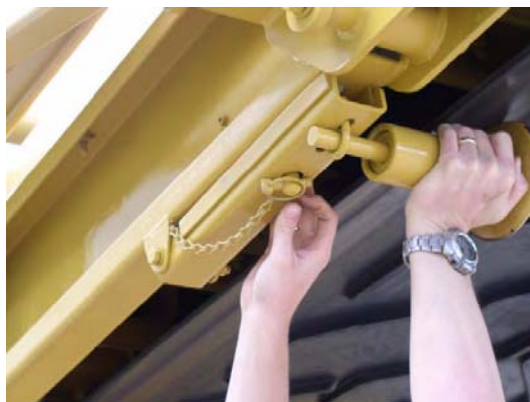
1: Remove tail conveyor ratchet strap.



2: Activate 'Tail Conveyor Fold' lever.



3: Insert pivot locking pins.



4: Swing return roller into place and insert latch pins.



5: Remove pins from underside of tail conveyor.



6: Activate 'Tail Conveyor Up/Down' lever to lower tail conveyor onto chassis.



7: Tail Conveyor lowered onto Chassis

Note! By lowering the tail conveyor onto the chassis this will allow you to adjust the screen box more easily as the screen box nose cone will collide with the tail conveyor if left in its raised position.

4.6.5 Apron Feeder



1: Activate 'R/H Feeder Flare' lever.



2: R/H Flare raised



3: Activate 'L/H Feeder Flare' lever.



4: L/H Flare raised



5: Activate 'Rear Feeder Flare' lever.



6: Rear Flare raised



7: Bolt rear flare to both side flares and tighten.



8: Remove locking pins.



9: Activate 'Feeder In/Out' lever.



10: Feeder fully in



11: Replace locking pins.

4.7 Opening Walkways

Note! Before carrying out the following procedure ensure walkways are clear as both walkways will erect at the same time.



1: Remove R-clips & handrail retention pins.



2: Lower handrail frame.



3: Re-insert pin & R-clips to lock out handrail.



4: Activate 'Walkways Up/Down' lever to erect the walkways.



5: Pull back and drop down walkway locking device.



6: Insert pins & retain with R-clips to lock the walkway.

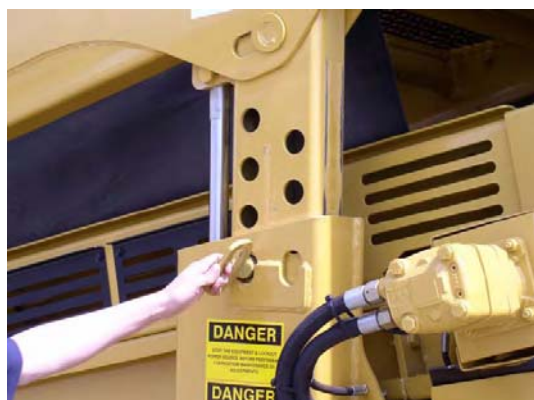


7: At the non-ram end insert top pins and retain with R-clips to lock the walkway.

4.8 Setting Screen Box Height



Note! Before setting the screen box height **ENSURE** that the tail conveyor is in lowered position as shown above.



1: Remove pin from telescopic legs.



2: Activate 'Screen Box Up/Down' lever.

3: Set screen box to an appropriate pre-defined height and replace pins.

4.9 Closing Down the Machine

1. Make sure that all the material is off the conveyor belts and that the hopper is empty.
2. Turn of the Feeder conveyor.
3. Turn off the magnet if fitted.
4. Turn off the side conveyors
5. Turn off the main conveyor.
6. Reduce the engine speed to idle for 1 minute.
7. Switch off the engine and remove the key.

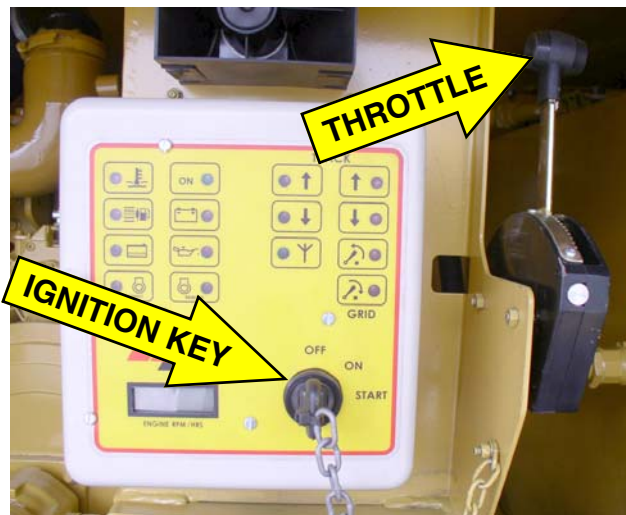
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5. OPERATIONS

5.1 Operating The Machine

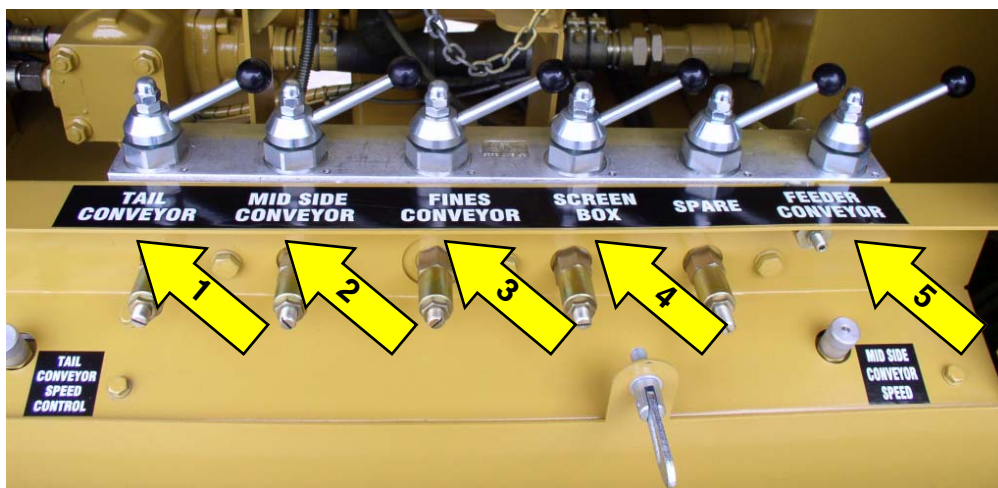
5.1.1 Machine Start Sequence

When the machine is set up as described in the previous pages, it is now ready to be operated. To operate machine use the following sequence:



1. Turn machine on using the instructions set out in "Machine Starting Sequence" on page 40.
2. Increase revs to 2000 rpm using the throttle at the side of the control box.

Note! Engine revs are factory preset at 2000 rpm. Any alterations to these settings, to increase speed, may lead to premature failure and subsequent warranty loss.



1. Tail Conveyor
2. Mid Grade Side Conveyor
3. Fines Conveyor
4. Screen Box
5. Feeder Conveyor

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

Prior to loading material into the machine, ensure that the machine is not vibrating or rocking excessively. Stabilise the machine by relocating to more suitable ground.

5.1.2 Loading Material Into Machine

1. Feeder MUST be running PRIOR to feed material being placed upon it. DO NOT start feeder if it is full of material.
2. Material which is larger than 80% of feeder discharge chute should not be presented to the feeder. STOP MACHINE and remove any large pieces of material with the appropriate equipment. DO NOT use excavators to force any material into feeder as any damage occurred from this action will invalidate any Sandvik Screens & Crushers Ltd warranties.
3. Material should be fed carefully, (not dropped onto feeder) from about 300 mm above feeder. Ensure that feeder is evenly loaded over its entire length. This is to help with screening fines material and to maximise production.
4. It is recommended that an excavator is used to load material into feeder. DO NOT OVER FILL FEEDER.
5. For maximum output and minimum wear, it is recommended that the screen box is fed consistently with the supply of material being steady and constant. STOP/ START OPERATION OF THE FEEDER SHOULD BE AVOIDED.
6. Pressure sensors are fitted to the hydraulic circuit such that, if either side conveyor should become over burdened with material or jammed, then the feeder will stop until the material is reduced to an acceptable level. If the conveyor cannot clear itself then the material will have to be cleared manually. If so then the machine should be shut down and ignition key removed before commencing any work on the machine.

5.2 Adjusting Conveyor Speed



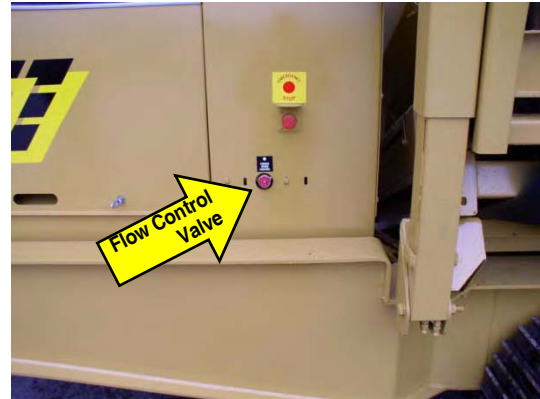
1: Adjusting Fines Collector conveyor speed



2: Adjusting Mid Grade side conveyor speed



3: Adjusting Tail Conveyor



4: Adjusting Feeder Conveyor speed

When the machine is set up as described in the previous pages, it is now ready to be used to screen the desired material. **DO NOT START SCREENING UNTIL YOU HAVE READ AND FULLY UNDERSTOOD THIS MANUAL.**

5.3 Apron Feeder Remote Control

This facility enables the loading operator to stop the feeder from his station for a short period. Only use in the event of overload or possible obstruction occurring.



QUICK STOP

Pressing the quick stop will immobilise the machine.

Figure 5-1: Remote Control



**Use the remote control for short stops only.
For longer stopping periods use the control valve.**

5.3.1 Use of the remote control

1. To start the feeder manually move the lever from position A to position B. (See below.)
2. The remote control can now be used to stop and start the apron feeder.
3. To stop the feeder press OFF.
4. To start the feeder press ON.

5. To stop the feeder manually move the lever from position B to position A.



Figure 5-2: Valve Control

5.4 Shut Down the Machine

Refer to "Closing Down the Machine" on page 55

6. MAINTENANCE

6.1 Introduction Machine Maintenance

Maintenance is essential for safety and to ensure the best possible performance from your QE340 by reducing the chances of breakdowns.



WARNING: The machine **MUST** be switched off and isolated with the ignition keys removed **BEFORE** making any adjustments.

DO NOT stand on any part of the engine whilst operating or carrying out any maintenance on the machine.

All adjustments must **ONLY** be carried out by trained personnel.

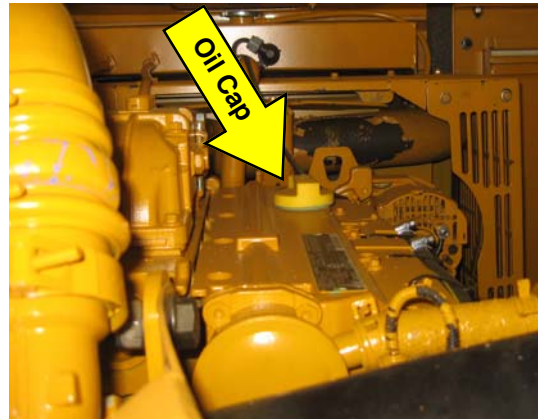
All adjustments to modify hydraulic system must **ONLY** be carried out by trained Sandvik service engineers.

When performing any maintenance on the machine refer to engine and feeder gearbox manufacturer's handbooks for appropriate maintenance schedules.

6.2 Daily Maintenance Schedule



1: Check engine oil level.



2: Refill if necessary. CN6098

(Refer to the engine manufacturer's handbook for engine oil specification.)



3: Check fuel level.

If necessary refill diesel tank. Use standard diesel as suitable for the operating climate.



4: Bleed diesel water trap. EN7896



5: Remove radiator service guard.



6: Check coolant level and refill if necessary. Use a 50/50 mixture of anti freeze and water.

Check service indicators on air cleaner. Regardless of condition of service indicator, remove outer element from air cleaner as shown below and clean using compressed air. Always clean element from inside to outside.

Note! Service indicators are for showing when elements need to be replaced, not cleaned.



7: Check air filter indicators at ignition box (water/fuel light)

If shows red whilst machine running - change filters. (EN9320 & EN9321)



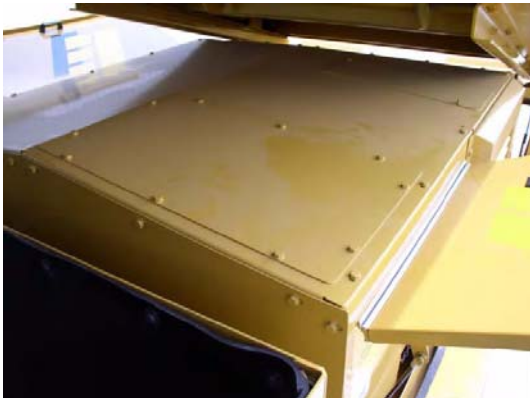
8: Loosen clips & remove outer element. EN9320

Clean outer element and replace. Refit rear cover ensuring clips are tightened properly.

Never clean the inner safety element. After 5 outer element services, replace both the inner and outer elements.



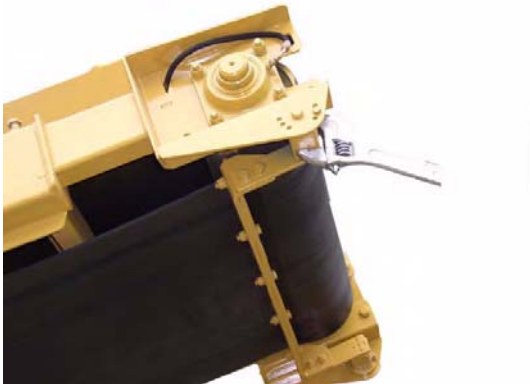
9: Check hydraulic oil level.



10: Remove panel and refill hydraulic oil if necessary.
CN6070



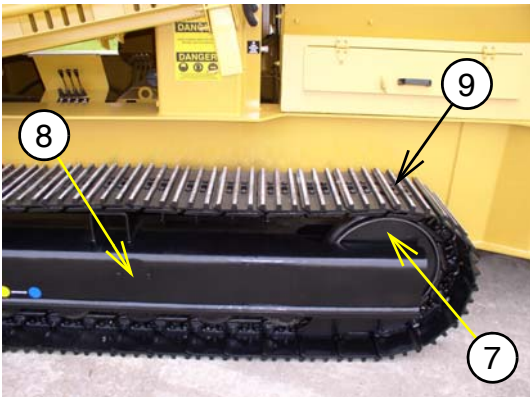
11: Check condition of screen mesh and tension.



12: Check condition of belt scrapers and adjust if necessary.

REMEMBER TO MAINTAIN YOUR TRACKS

1. Check your track rollers and idler wheels for possible leakage.
2. Check the track surface of the track rollers, idler wheels, track shoes and drive sprockets for wear and loose mounting bolts.
3. Listen for abnormal noises when the machine is moving slowly.



7. Idle Roller
8. Relief Valve
9. Track Surface

4. See "Track Adjustment" on page 71.

6.3 Weekly Machine Maintenance

Maintenance is essential for safety and to ensure the best possible performance from your QE340 by reducing the chances of breakdowns.



WARNING: The machine MUST be switched off and isolated with the ignition keys removed BEFORE making any adjustments.

DO NOT stand on any part of the engine whilst operating or carrying out any maintenance on the machine.

All adjustments must ONLY be carried out by trained personnel.

When performing any maintenance on the machine refer to engine and feeder gearbox manufacturer's handbooks for appropriate maintenance schedules.

STOP MACHINE, ISOLATE AND REMOVE IGNITION KEY BEFORE CARRYING OUT ANY MAINTENANCE ON THIS MACHINE.

1. Check the condition of conveyor belts, rollers and other moving parts.
2. Clear any obstructions from the screen box.
3. Check all bolts and panels are in place and secure.
4. Clear any build up of dust from radiator using compressed air.
5. Check screen mesh for tension, and increase if necessary.
6. Check condition of service indicators on hydraulic filters, water trap and air breather. Replace if necessary.
7. Examine tail conveyor impact bars for excessive damage. Replace if necessary.
8. Check feeder pads for damage and clear any debris to ensure free movement of the material. Replace pads if necessary.
9. Check all bearings for any damage or wear. Replace if necessary.
10. Check emergency stops are working correctly.
11. Check feeder rear wing fixing bolts. Tighten if necessary.
12. Check feeder gearbox oil level.
13. Inspect and adjust all belt scrapers and sealing rubbers. Replace if necessary.

6.3.1 Checking/ Changing Hydraulic Tank Air Breather

6.3.2 Greasing Bearings

Sandvik Screens & Crushers Ltd use SKF sealed-for-life bearings that reduce grease consumption, lower life cycle cost, lower recycling costs and reduce pressure on the environment. The results are dramatically increased uptime for the machines and the consequent reduction in maintenance costs. Only apply grease where otherwise indicated.



If the service indicator is red, it is time to replace the hydraulic return filter.

1: Examine service indicator. EN1504

Follow maintenance instructions laid out in the engine manufacturer's handbook.



NEVER USE GREASE CONTAINING MOLYBDENUM. DOING SO MAY CAUSE DAMAGE TO MACHINE PARTS AND WILL INVALIDATE ANY WARRANTY.

Using suitable equipment, the following bearings must be greased every week. See following pictograms for details of grease points.



1: Feeder bulkhead grease point

Using suitable equipment, screen box bearings must be re-greased every 50 hours with 20 grams of Exxon Unirex N 3 grease used per bearing.

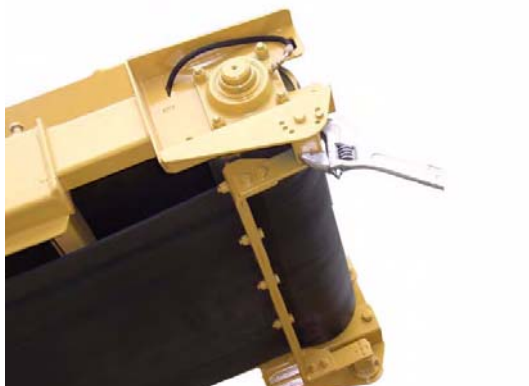


2: Screen box non-drive side grease point



3: Screen box drive side grease point

6.3.3 Adjusting Belt Scrapers



1: Adjust belt scrapers.

If required, adjust belt scrapers by loosening bolts in Rosta springs, adjusting scraper and re-tightening bolts. (Both sides should be adjusted simultaneously.)

6.3.4 Screen Box



Remove any blockages in the screen box.

6.3.5 Inspecting/ Adjusting Belt Sealing Rubbers

A. Fines Collector Conveyor:

To adjust wear rubbers remove guards and loosen the clamps. Push the wear rubbers down onto the conveyor belt using a screwdriver or similar tool. When adjustment is complete, re-tighten all clamps securely.

B. Tail Conveyor:

To adjust wear rubbers remove the feed boot guards and loosen the clamps. Pull the wear rubbers down to the conveyor belt ensuring a good seal is maintained along the side of the feed boot. When adjustment is complete, re-tighten all clamps securely.

C. Side Conveyors:

To adjust wear rubbers remove the feed boot guards and loosen all the clamps. Pull/ push the wear rubber down on to the conveyor belt ensuring there is a good seal along the edge of the feed boot. When adjustment is complete, re-tighten clamps securely.

6.3.6 Screen Box Maintenance

After running the screen box for the first 50 hours, the screen box must be cleaned free of material and **ALL** bolts must be checked for tightness.

6.4 Machine Maintenance - Every 250 Hrs

Every 250 hours, the following maintenance must be carried out to ensure the best performance and least possible breakdowns from your machine:

1. Follow maintenance instructions laid out in the engine manufacturer's handbook.
2. Change the hydraulic water trap - REGARDLESS of condition of service indicator. EN7896
3. Check for leaks on hydraulic pipes.
4. Inspect condition of conveyor belts and tracking.
5. Inspect condition of all drums and rollers.
6. Inspect all bearings.
7. Check drive belts for wear, swelling, softening & tension - Replace if necessary.

Note! *Tension should remain constant during the belts working life and should not be re-tensioned.*

8. Clean out sediment bowl on fuel pre-filter. Follow procedure printed on the side of the filter.

Note! *When sediment bowl is cleaned out, the fuel system will have to be re-primed.*

6.5 Machine Maintenance - Every 500 Hrs

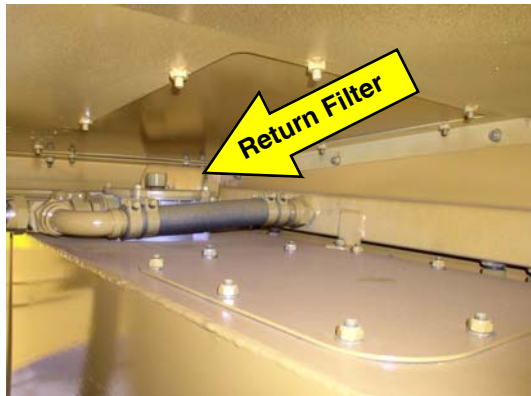
Every 500 hours, the following maintenance must be carried out:

1. Carry out 250 hour maintenance schedule.
2. Replace twist on hydraulic air tank breather. HF4003



**Checking/ Changing Hydraulic Tank Air Breather
HF4003**

3. Change the hydraulic tank return filter - REGARDLESS of condition of service indicator.



Simply unscrew the top and replace the filter with new one.

**Checking/ Changing Hydraulic Tank Return Filter
HF1018**

6.6 Machine Maintenance - Every 1000 Hrs

Every 1000 hours, the following maintenance must be carried out:

1. Carry out 250 hour maintenance schedule.
2. Change oil in feeder gearbox. (See manufacturer's handbook.)
3. Change diesel filters. EN1218, EN7896
4. Change the hydraulic oil CN6070
5. Change oil in tracks. See "Changing Track Oil" on page 68.
6. Check track tension. (Only tension if necessary.)

6.6.1 Changing Track Oil

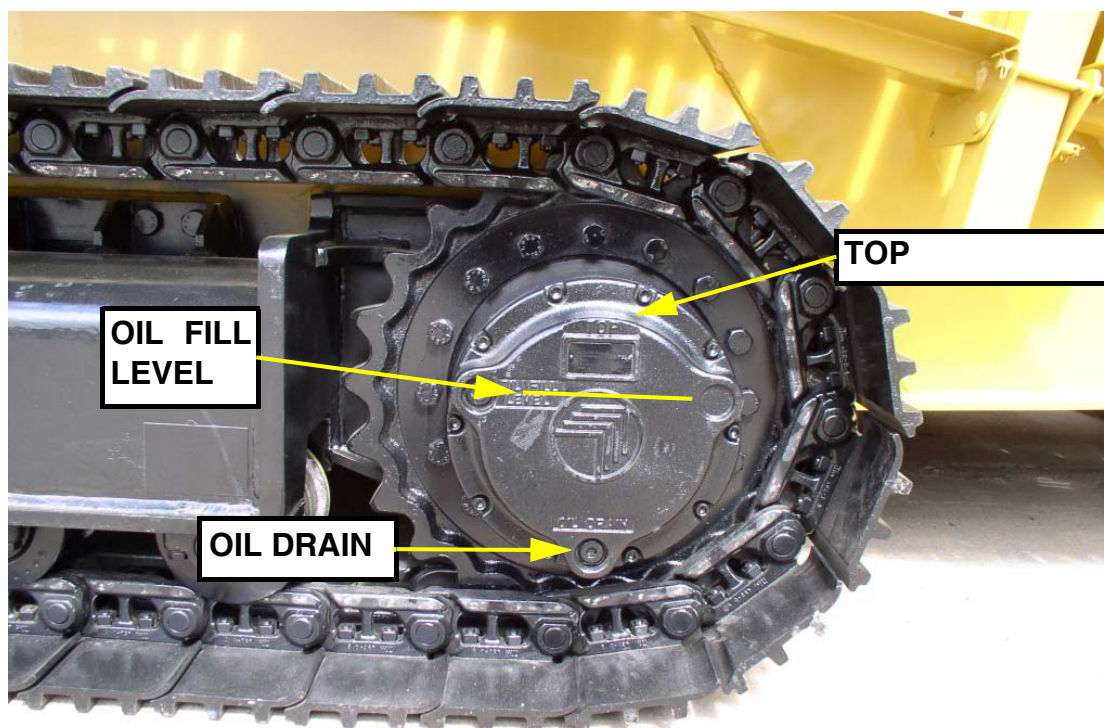
To drain oil from the track gearbox, drive the machine until the oil drain plug is at the bottom of the gearbox. Remove both plugs and the oil will drain out. Use a suitable container to collect waste oil. Replace drain plug.

Disposing of waste oil must be done in a manner that complies with current environmental legislation.

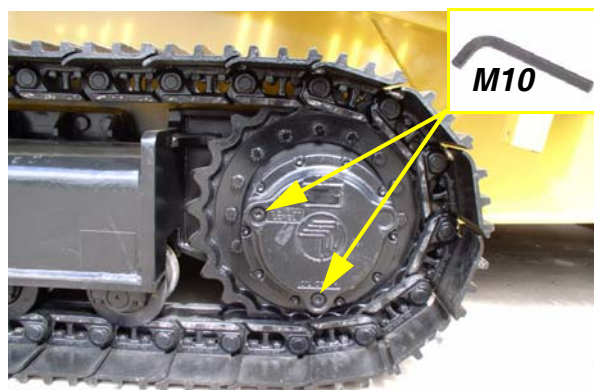
To refill track gearbox with oil, drive the machine until the gearbox is in the correct position. See below.

Note! This will only be 1/3 turn of the track gearbox.

DO NOT drive machine any further until oil has been replaced in tracks. Remove the oil level plug as shown in the photographs below. Fill with oil until it starts to come out of the plug hole. Replace oil level plug **BEFORE** driving the machine. Each track gearbox will have to be maintained separately..



1: Track gearbox in correct position to refill with oil.



When changing oil in the tracks, use Exol Ethena EP90 Gear Oil.

2: Remove oil level plug.

6.7 Oils And Fluids

Lub/ Oil and Grease Points	Max. Vol.	Temperature	Viscosity	Manufacturers Equivalent Specifications	Sandvik Part Number
Anti Freeze				Shell Safe Anti Freeze Concentrate	CN6071
Diesel	230Lt			Shell Agricultural Gas Oil	CN6004
Engine Oil	10Lt			Shell Diesel Engine Oil Rimula 15W-40	CN6098
	10Lt	Cold Weather		Shell Diesel Engine Oil Rimula 5W-30	CN5704
Engine Oil - Alternative	10Lt			See Manufacturer's Handbook	
Feeder Drive Gearbox		+5°C to +30°C	ASTM D 445	SHELL TIVELA S460	CN7732
Feeder Drive Gearbox - Alternative				See Manufacturer's Handbook	
Hydraulic System	460Lt		ISO VG 32	Shell Tellus Arctic 32	CN5700
	460Lt		ISO VG 46	Shell Tellus Oil 46	CN6070
	460Lt		ISO VG 68	Shell Tellus Oil 68	CN7739
	460Lt		ISO VG 100		
	460Lt	Environmentally friendly		Shell Naturelle HF-E 46	CN6106
General Lubrication Points				Shell Albida Grease EP2	CN6073
		Arctic		Shell Aeroshell 33	CN5702
Screen Box				Exxon Unirex N 3 Grease	CN6011
Tracks	5Lt			Exol Ethena EP90 Gear Oil	

Lub/ Oil and Grease Points	Max. Vol.	Temperature	Viscosity	Manufacturers Equivalent Specifications	Sandvik Part Number
Tracks - Alternative	5Lt			Shell SPIRAX GSX75W-80	CN5703

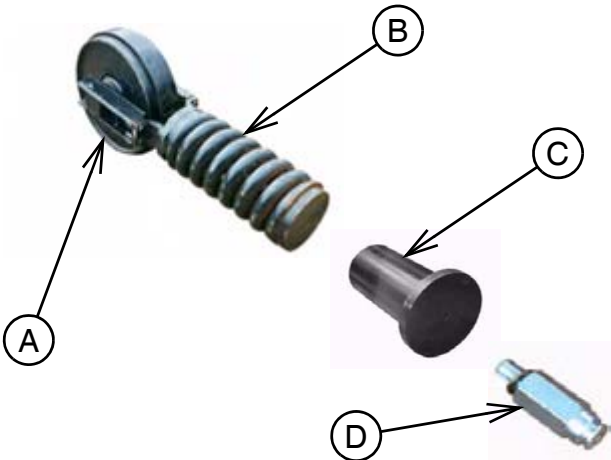
A full list of Substances Hazardous to Health associated with this equipment can be found in the appendix of this document.

6.8 Track Adjustment

WARNING!

Grease under pressure can cause serious injury. Never unscrew a track adjuster valve by more than a ½ turn, when the track is under tension.

After maintenance or over time the track will become slack and will have to be adjusted. The adjustment of the tracks operates through a tensioning cylinder (C). 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 (D).



1: Track Adjustment

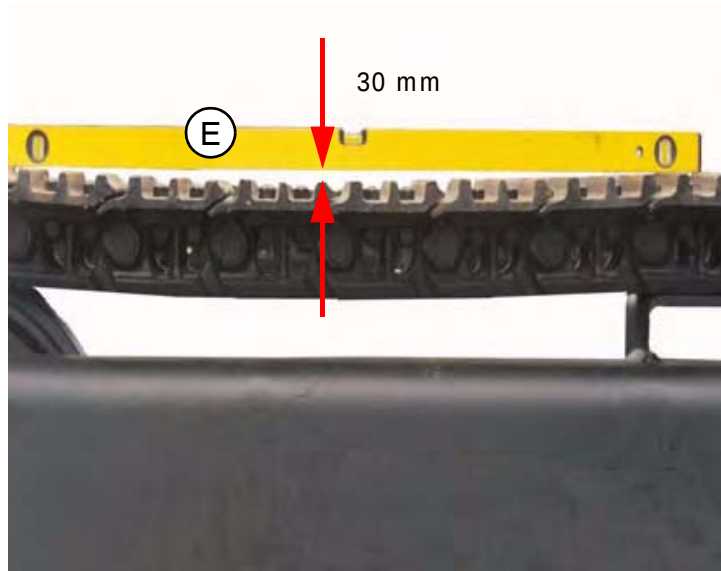
6.8.1 Track Adjustment Settings

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

Note! 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 30 mm.

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.*



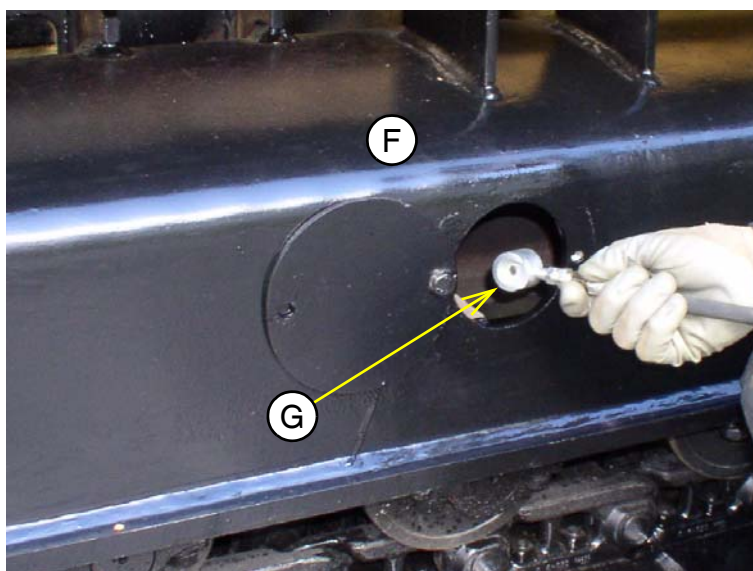
2: Track Adjustment Settings

6.8.2 Increasing The Track Tension

To increase the tension of the track:

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

Important: Ensure that the correct grease is used.

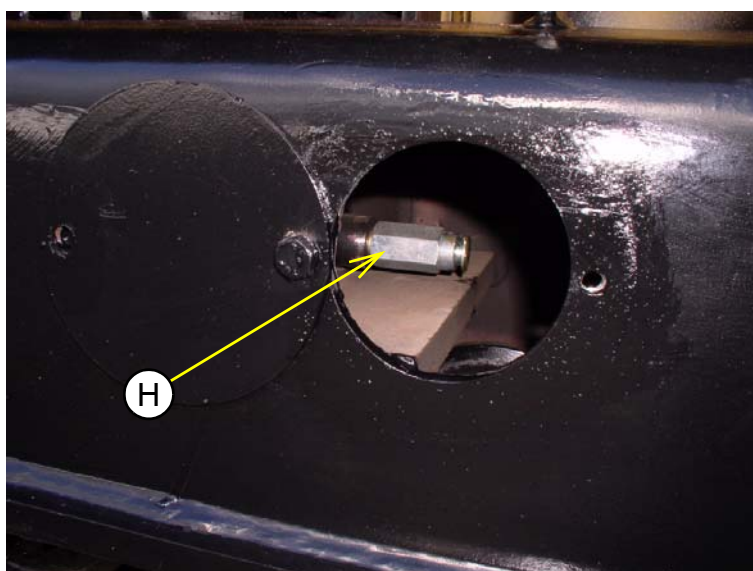


3: Increasing The Track Tension

6.8.3 Releasing The Track Tension

To the release the tension on the tracks:

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



4: Releasing The Track Tension

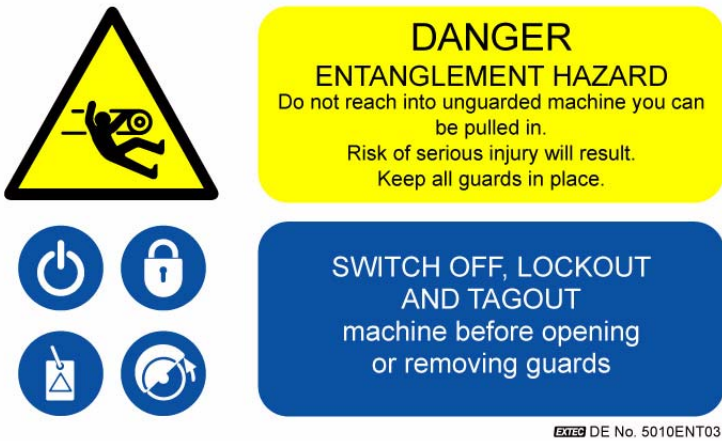
6.9 Tensioning and Tracking of Conveyor Belts

The following safety precautions must be adhered to before commencing any work on any conveyor.



PROTECTIVE CLOTHING MUST ALWAYS BE WORN WHEN WORKING IN THE VICINITY OF THE MACHINE.

N.B. LOOSE OR BAGGY CLOTHING CAN GET CAUGHT IN RUNNING MACHIN-
ERY. ALWAYS WEAR CLOSE FITTING OVERALLS.



STAY CLEAR OF MACHINE WHEN CONVEYOR IS RUNNING. SWITCH OFF CONVEYOR BEFORE REMOVING ANY COVERS/ GUARDS.

WARNING!
Switch off grid and clear all material from conveyor before carrying out any adjustments.

Note! *DO NOT OVERTIGHTEN THE BELT AS THIS WILL CAUSE DAMAGE TO THE DRUM BEARINGS.*

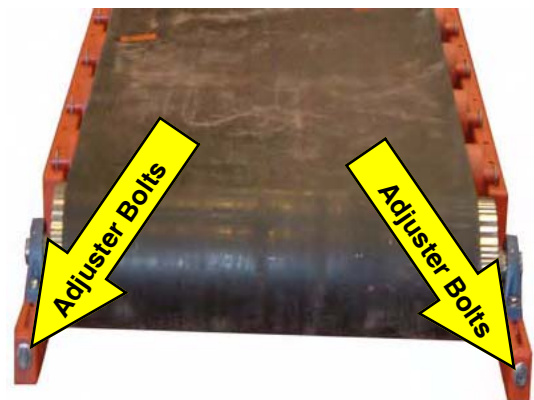
6.9.1 Fines Collector Conveyor Belt



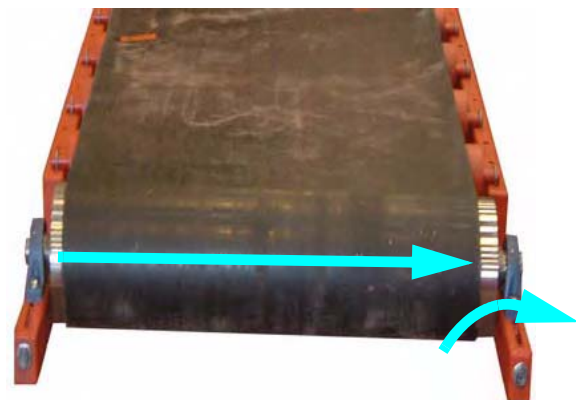
1: Remove access panel on tail drum end.



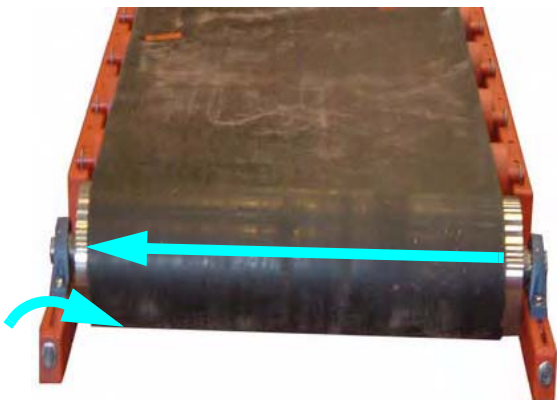
2: Slacken off all tail drum bearing fasteners.



1: If belt needs tensioning tighten both adjusting bolts simultaneously.

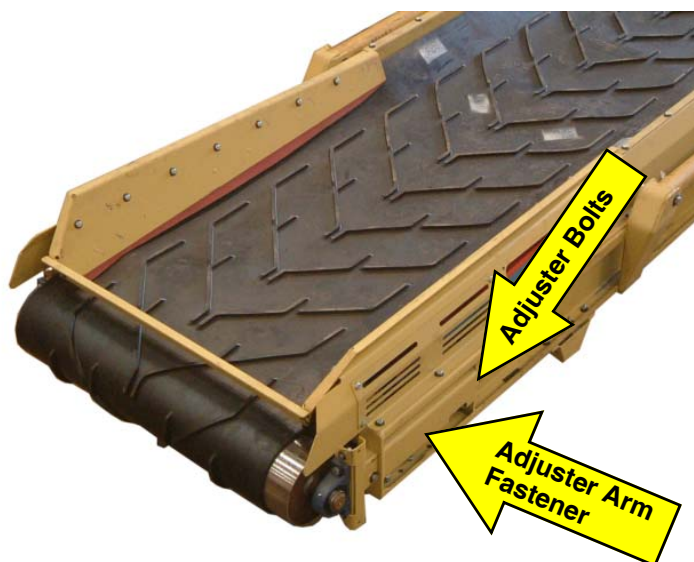


2: Conveyor tracking off to R/H side
Ans: Turn R/H side adjuster (c/w) one turn at a time until belt tracks correctly.



3: Conveyor tracking off to L/H side
Ans: Turn L/H side adjuster (c/w) one turn at a time until belt tracks correctly.

6.9.2 Tail Conveyor Belt

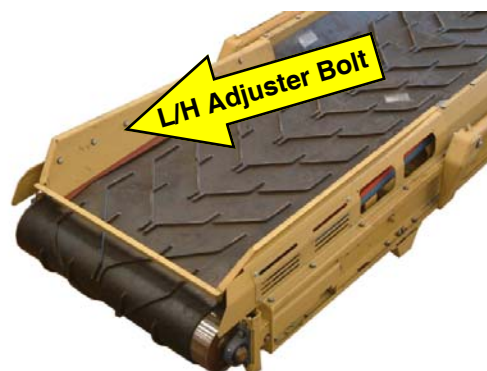


1: Slacken off all tail drum adjuster arm fasteners.

2: Tension tail conveyor by turning both adjuster bolts c/w SIMULTANEOUSLY.



3: If Tail Conveyor is tracking off to R/H side.
Ans: Turn R/H adjuster bolt 1 turn c/w until belt tracks properly.



4: If Tail Conveyor is tracking off to L/H side.
Ans: Turn L/H adjuster bolt 1 turn c/w until belt tracks properly.

6.9.3 Side Conveyor Tail Belt



1: When tensioning side conveyors, loosen head drum fastening bolts and turn both adjuster bolts c/w **SIMULTANEOUSLY**.



2: If side conveyor is tracking off to R/H side.
Ans: Turn R/H adjuster bolt 1 turn c/w until belt tracks properly.



3: If side conveyor is tracking off to L/H side.
Ans: Turn L/H adjuster bolt 1 turn c/w until belt tracks properly.

Side Conveyor Tail Drum:

An additional adjustment can be made if the belt is tracking off at the tail drum end.

If belt is tracking off to R/H side as you look at tail drum, loosen the R/H adjuster bracket fastening bolts and turn adjuster bolt c/w until belt tracks properly.

If belt tracks off to L/H side repeat the process for the L/H adjuster bracket.

6.10 Screen Mesh Replacement



WARNING: The machine **MUST** be switched off and ignition key removed **BEFORE** making any adjustments.

The screen meshes and punched plate can be changed if desired for different sizes of product or to replace damaged or worn out meshes/ punched plate. To fit the screen meshes/ punched plate, proceed in the following manner:

6.10.1 Screen Box Bottom Deck Mesh Access

To aid in changing the screen box mesh & clearing any blockages, the screen box can be raised and lowered at the front and back independently of each other.



1: Raise screen box rear.



2: Locate pin to lock telescopic leg in raised position.



3: Raise screen box front.



4: Locate both screen mesh change lock-out legs.



5: When finished, remember to release both lock-out legs before lowering screen box.

6.10.2 Screen Box Mesh Removal/ Fitting

BOTTOM DECK MESH REMOVAL

Using the ratchet's on either side of screen box retract the tension spring bar back to the end of the side plate slots. The existing mesh can now be removed by lifting and unhooking from the front mesh hook.



1: Screen mesh tensioning ratchet

6.10.3 Screen Box Mesh Fitting

Before changing screen mesh ENSURE the capping rubber is in good condition.

BOTTOM DECK MESH FITTING

Insert mesh into the box on the bottom deck and anchor one end around the front mesh hook.

Rest the screen mesh on the cross supports and using the ratchet's either side of the screen box extend the tension spring bar along the side plate slots until the correct tension is achieved. Restart the machine and run the screen box motor. If the meshes rattle or make any noise, stop the machine and apply further tension.

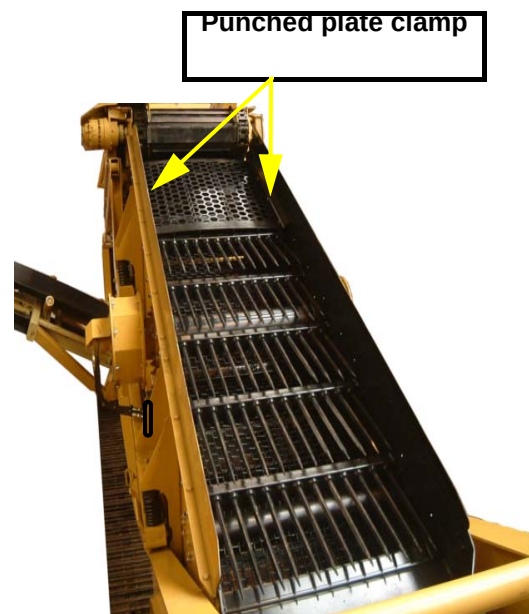
6.10.4 Screen Box Punched Plate Removal

TOP DECK PUNCHED PLATE REMOVAL

Using a suitable device loosen the clamps on either side of the screen box. When loosened sufficiently the existing mesh can now be easily removed.

TOP DECK PUNCHED PLATE FITTING

Insert punched plate into the box on the top deck and anchor both sides under the clamps. Using an air gun or other suitable device, tighten the clamps, SIMULTANEOUSLY until the correct tension is achieved. Restart the machine and run the screen box motor. If the



punched plate rattles or makes any noise, stop the machine and apply further, EQUAL tension to both sides.

6.10.5 Top Deck Tine Check/ Removal



1: Check tine by shaking it as shown.



2: If tine is loose, tighten the nut on the back of the cross member as shown.

Alternatively, if tine is damaged or bent, loosen the nut on the back of the cross member and remove the faulty tine. Insert a new tine and re-tighten the nut.

6.11 Maintenance and Service Parts

For 250 hours the required items are:

Part No.	Part Description	Quantity
1. EN9320	OUTER AIR FILTER ELEMENT	1
2. EN9321	INNER AIR FILTER ELEMENT	1
3. EN9319	ENGINE OIL FILTER	1
4. EN1504	VISUAL POP UP INDICATOR - SUITS MP1002	1
5. EN1608	LOCKING FILTER CAP 80 OD X 300 L TUBE	1
6. EN9286	PRE-CLEANER FOR QE340 - INCLUDING SLEAVE	1
7. EN7381	ELEMENT FOR THE OIL BATH	1
8. HF1017	FILTER SUCTION STR1004SG1M90-2	4
9. HF4012	CORKED FILLER CAP	1
10. CN6098	Shell Diesel Engine Oil Rimula 15W-40	10lt

For 500 Hours add items:

Part No.	Part Description	Quantity
11. HF1018	FILTER TANK TOP RETURN LINE	1

Part No.	Part Description	Quantity
12. HF4003	SPIN ON AIR BREATHER	1

For 1000 hours add the items:

Part No.	Part Description	Quantity
13. CN6070	HYDRAULIC OIL HM46 [TELLUS OIL 46]	460
14. EN1218	MICRON FILTER	2
15. EN7896	FUEL PRE-FILTER COMPLETE	1
16. EN7897	FUEL PRE-FILTER ELEMENT	1
17. EN7898	FUEL FILTER GASKET KIT	1

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7. TROUBLE SHOOTING

Below is a list of some of the common problems that might occur on your machine. If these problems arise, carry out the checks listed.

PROBLEM	SOLUTION
Engine losing power or hard to start.	Check air filter is not blocked. Check diesel filter and sediment bowl.
Engine will not start or keeps shutting off.	Check that emergency stops are not pushed in. Check water level in radiator. Check fuel level. Check that batteries are charged and terminals are tight. Check oil pressure, temperature and battery lights on control panel.
One or all of the conveyor belts is/ are not moving, or running at the correct speed.	Check belt tension. Check that there is no build up of material underneath the conveyors. Check for blockages in hydraulic return and suction filters.
Screen box has excessive vibration.	Check that screen box meshes are tight. Check meshes for pegging i.e. trapped material. Check machine is running at maximum set operating speed.
Machine "rocking" excessively.	Check ground conditions are firm and level. Check tracks are not slack. If they are see "Track Adjustment" on page 76 for adjustment.
Machine not tracking.	Check that track lever is in the ON position. Check oil level in the hydraulic tank. Check remote handset is fully charged - plug in Hard Wire Drive and try to move machine.
Chassis jacking legs not lowering simultaneously.	Raise jacking legs fully, hold lever open making sure both legs are fully retracted. Note! This may take a few minutes. Lower jacking legs and check if lowering simultaneously - if not repeat above procedure.

IF ANY PROBLEM PERSISTS AFTER CARRYING OUT THE RECOMMENDED SOLUTION, OR A PROBLEM ARISES THAT IS NOT ON THIS LIST, CONTACT Sandvik SERVICE DEPARTMENT FOR FURTHER ASSISTANCE.

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QE340

Spare Parts Catalogue

QE340

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1. LOOSE PARTS



1: Loose Parts

Part No.	Part Description	Quantity
1. B0950000	REMOTE UMBILICAL BRACKET	1
2. EL2028	EPU LEAD	1
3. EL2069	MANUAL HAND CONTROL	1
4. EL2070	UMBILICAL CORD	1
5. EL2082	SOLENOID LOOM	1
6. EL2084	LOOM RECEIVER TO PLATE	1

Part No.		Part Description	Quantity
7.	EL2102	AERIAL LEAD	1
8.	EL2104	REMOTE CONTROL HANDSET CHARGER (UK ONLY)	1
9.	EL2105	REMOTE CONTROL HANDSET CHARGER (CONTINENT ONLY)	1
10.	EL2106	REMOTE CONTROL HANDSET CHARGER (JAPAN ONLY)	1
11.	EL2109	REMOTE CONTROL HANDSET CHARGER (USA ONLY)	1
12.	EL4415	REMOTE CONTROL RECEIVER	1
13.	EL4426	FEEDER REMOTE CONTROL	1
14.	EL4421	TRACK REMOTE CONTROL	1

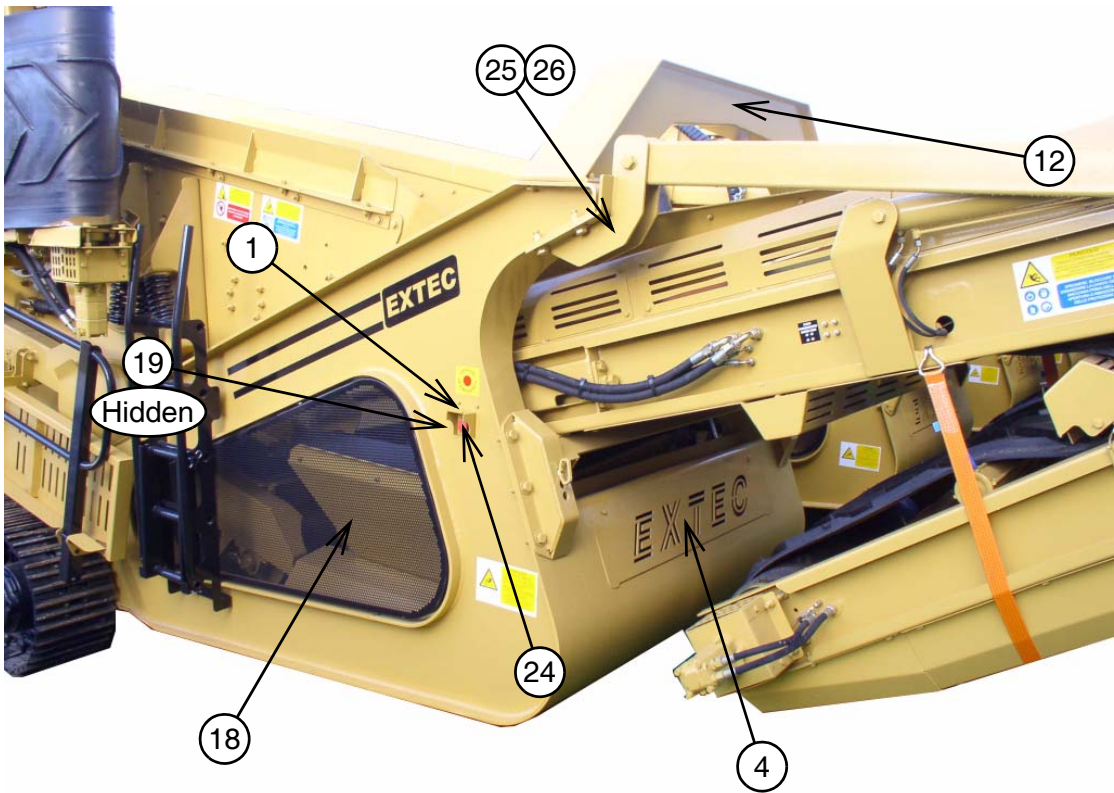
2. CHASSIS AND UNDERCARRIAGE



2: VIEW ON R/H SIDE OF MACHINE



3: VIEW ON L/H SIDE OF MACHINE



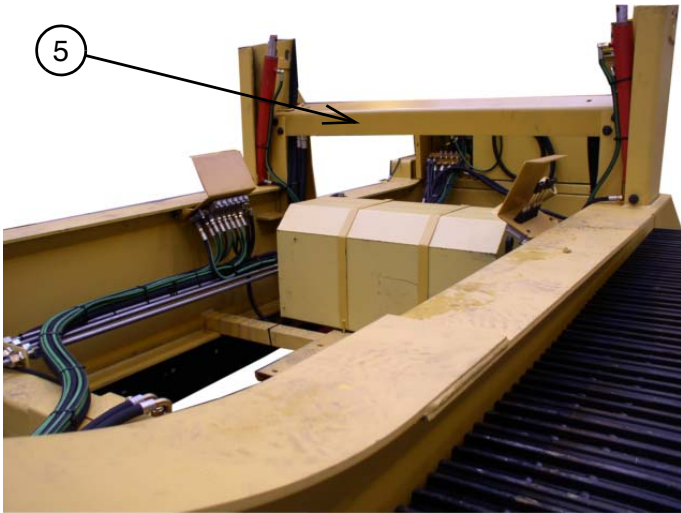
4: VIEW ON R/H SIDE OF MACHINE



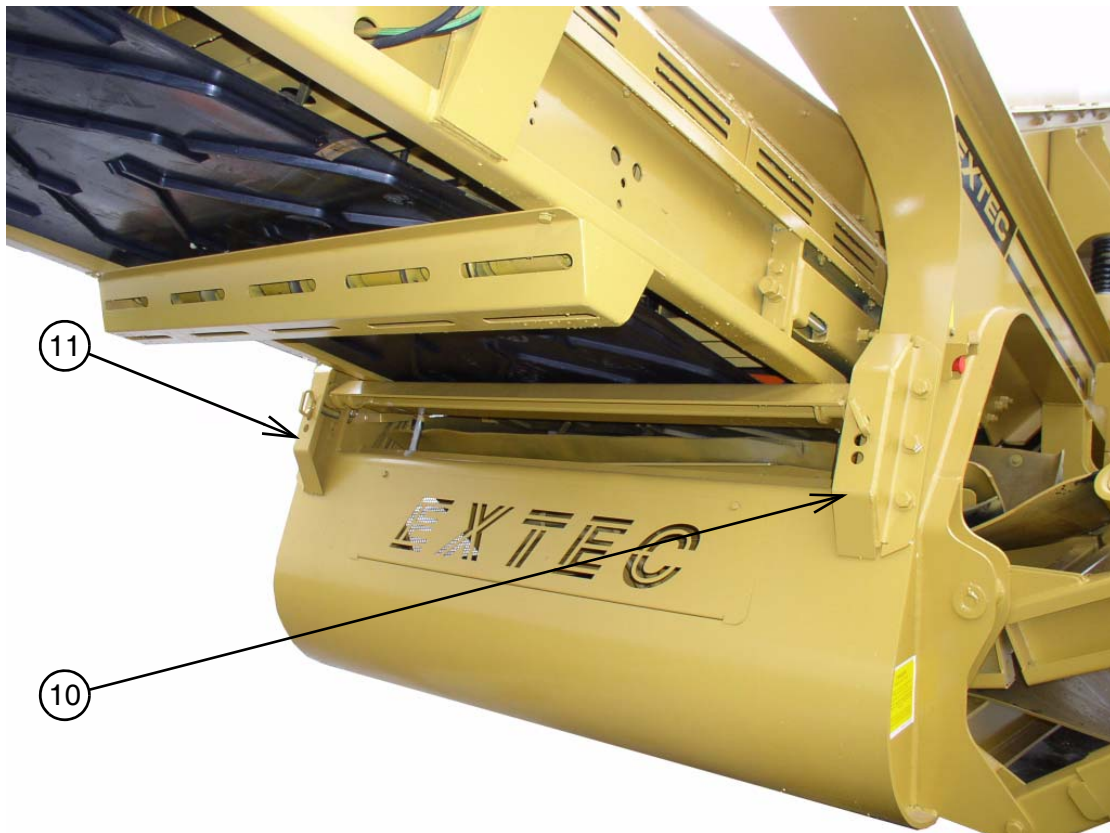
5: DETAILED VIEW ON REAR OF MACHINE



6: VIEW ON L/H SIDE OF MACHINE



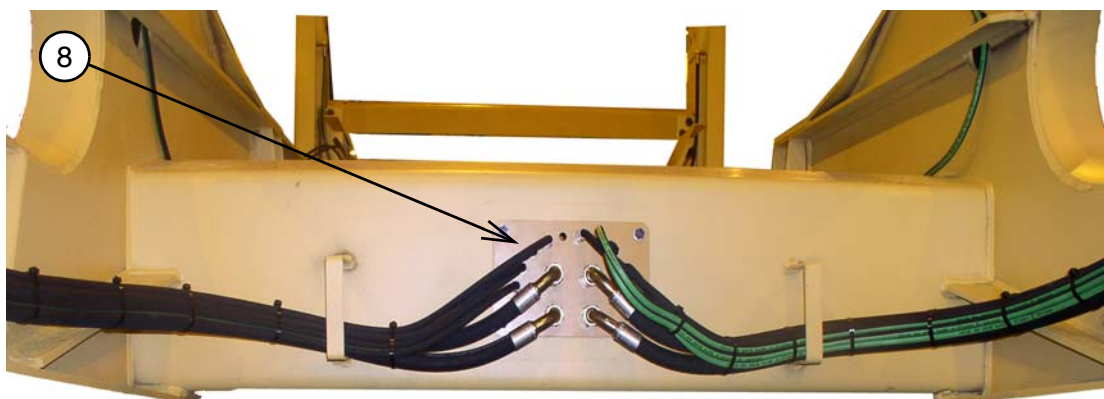
7: DETAILED VIEW OF CHASSIS



8: DETAILED VIEW ON REAR OF MACHINE



9: DETAILED VIEW INSIDE CHASSIS

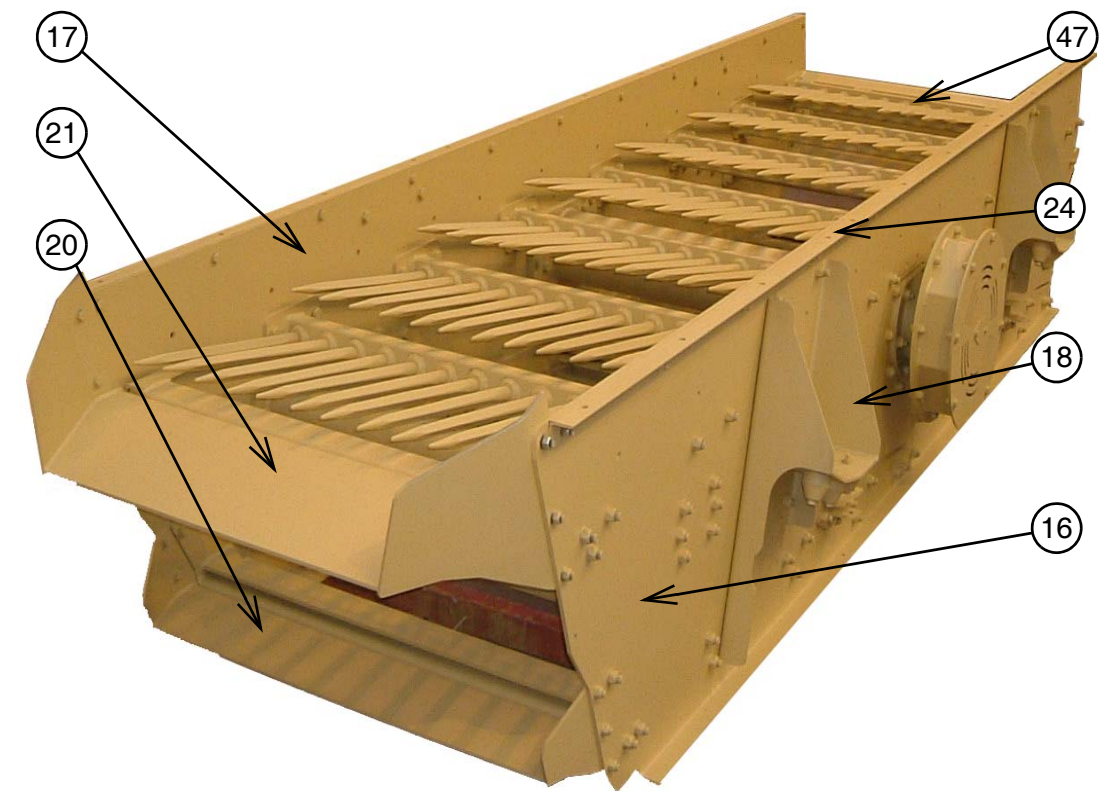


10: CHASSIS END VIEW

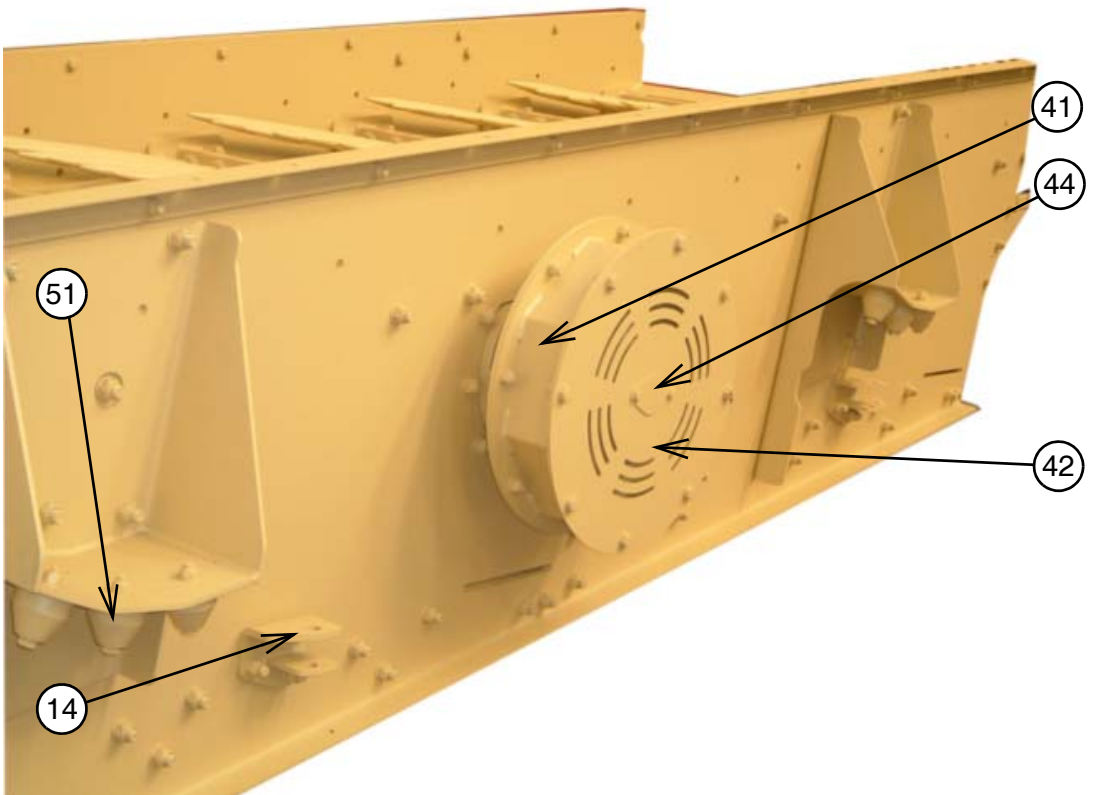
Part No.	Part Description	Quantity
1. A10630000	EMERGENCY STOP COVER	2
2. A12850000	CHASSIS ASSEMBLY	1
3. A12860000	ROLLER SUPPORT CROSS BEAM ASSEMBLY	1
4. A12880000	CHASSIS FRONT COVER DETAIL	1
5. A12900000	CHASSIS CROSS MEMBER DETAIL	1
6. A12910000	CHASSIS LIFT LEG INNER	2
7. A12950000	PIPE TRAY	1
8. A12960000	CHASSIS BULKHEAD PLATE	1
9. A12970000	FRONT MANIFOLD	1
10. A12980000	TAIL CONVEYOR BOTTOM SUPPORT SLIDE	1
11. A12990000	TAIL CONVEYOR BOTTOM SUPPORT SLIDE	1
12. A13590000	CROSS BEAM	1
13. A13600000	STEEL TRACK PIPE L/H TOP	1
14. A13610000	STEEL TRACK PIPE L/H BOTTOM	1
15. A13620000	STEEL TRACK PIPE R/H TOP	1
16. A13630000	STEEL TRACK PIPE R/H BOTTOM	1
17. A13640000	STEEL TRACK PIPE B/HEAD TO POWERPACK	4
18. A13710000	CHASSIS DOOR ASSEMBLY	1
19. A13760000	EMERGENCY STOP COVER BRACKET	2
20. A13860000	REAR DOOR	1
21. A14360000	SLIDER ASSEMBLY	2
22. E3810000	TOOLBOX ASSEMBLY	1
23. E3820000	TOOLBOX LID	1

Part No.	Part Description	Quantity
24. EL2030	EMERGENCY STOP BUTTON	1
25. F4280000	L/H MOUNTING LUG	1
26. F4290000	R/H MOUNTING LUG	1
27. FD2105	HINGE 3+2 HOLE	2
28. FD3114	ANTI LOOSE FASTNER	1
29. HR1088	REAR LIFT ARM	2
30. PN1027	PIN SCREEN BOX HEIGHT ADJUSTMENT	2
31. PN1155	CHASSIS FEEDER ROLLER PIN	2
32. PY1037	REAR SLIDER	2
33. R0700000	R/H TRACK FRAME ASSEMBLY	1
34. R0710000	L/H TRACK FRAME ASSEMBLY	1

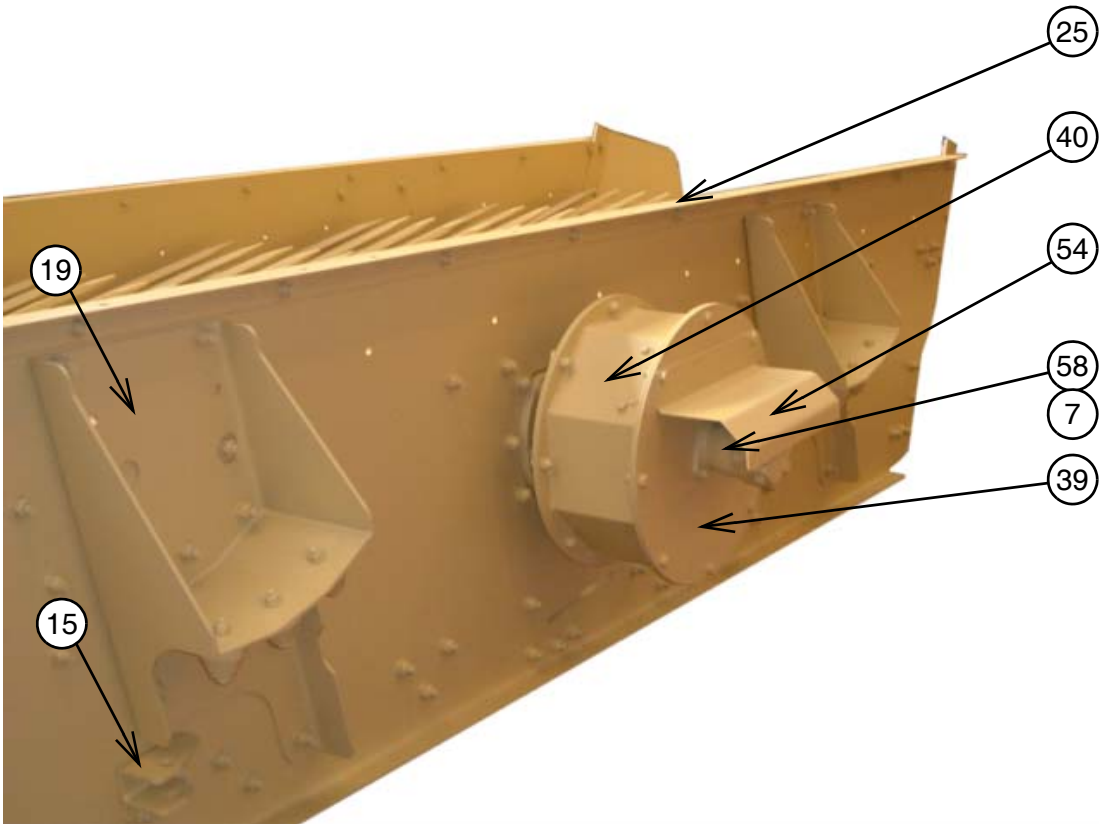
3. SCREEN BOX



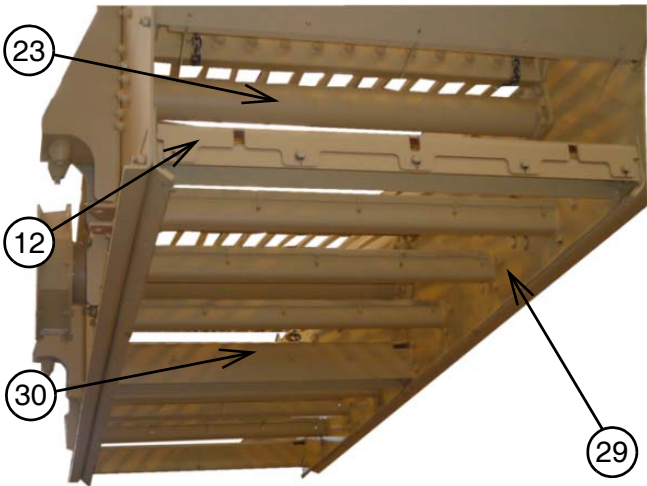
1: SCREEN BOX ASSEMBLY VIEWED FROM NON-DRIVE SIDE



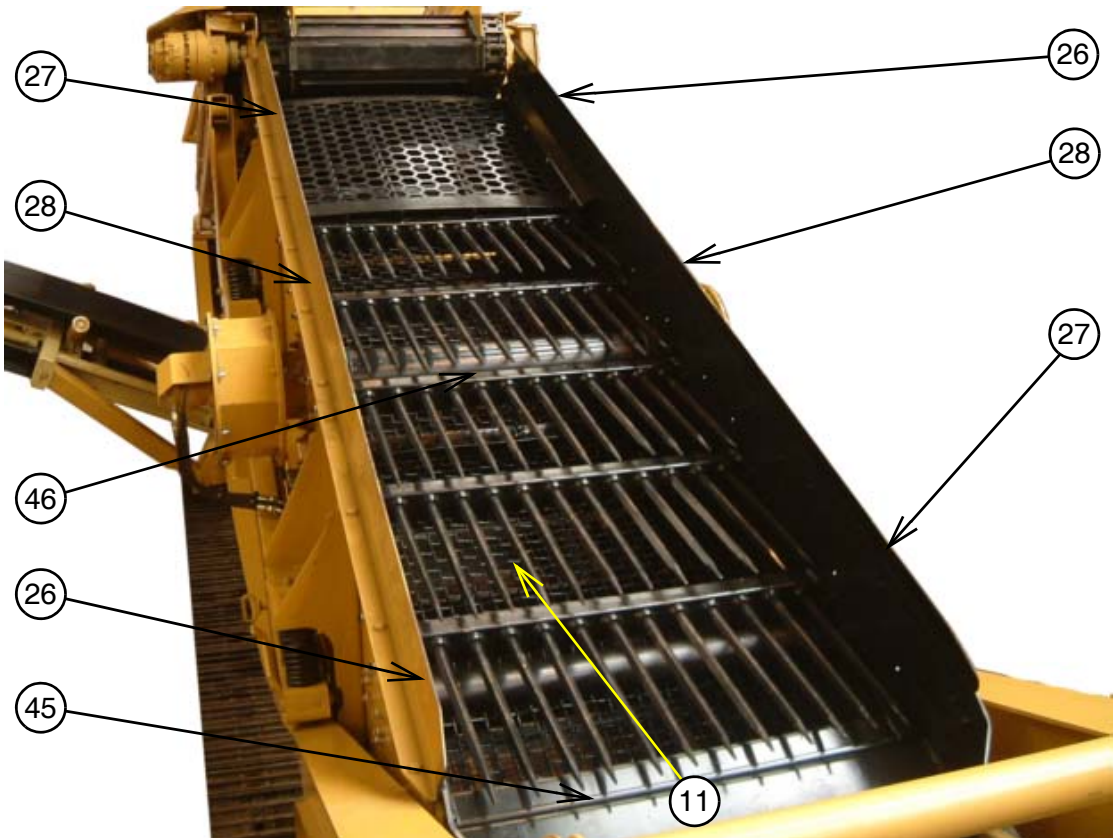
2: VIEW ON NON-DRIVE END



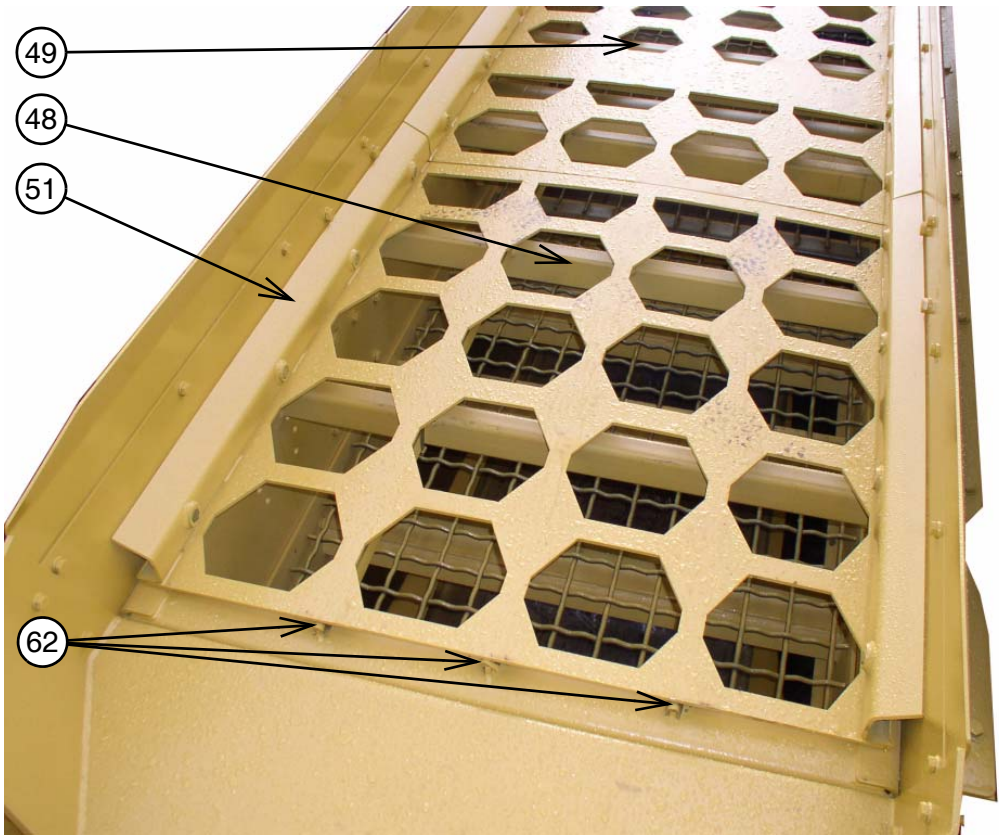
3: VIEW ON DRIVE SIDE



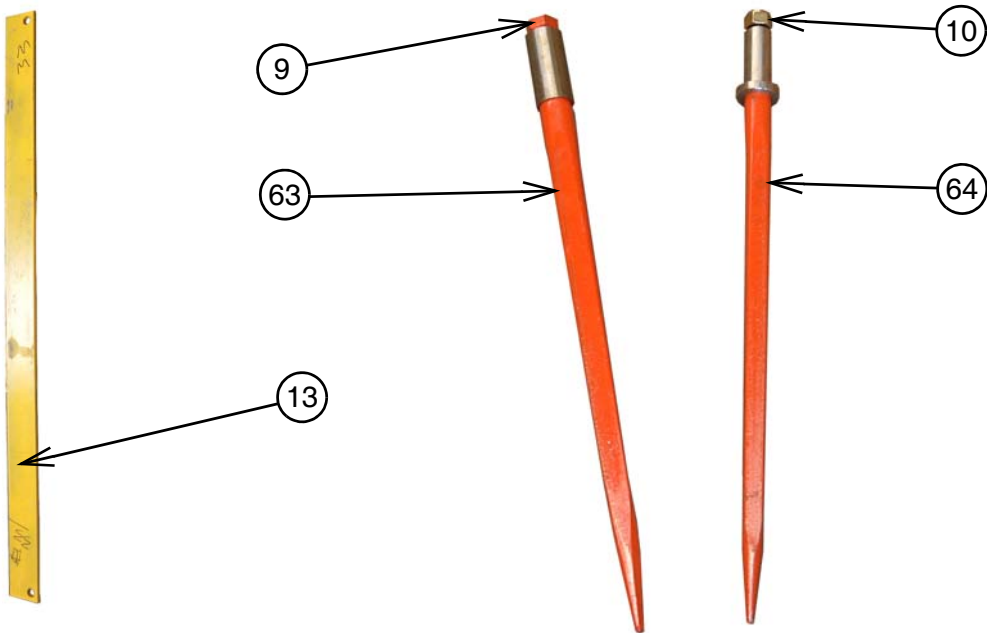
4: VIEW ON DISCHARGE END



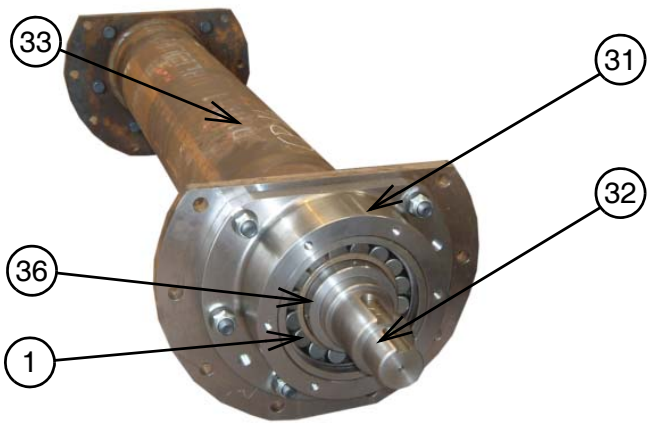
5: SCREEN BOX ASSEMBLY



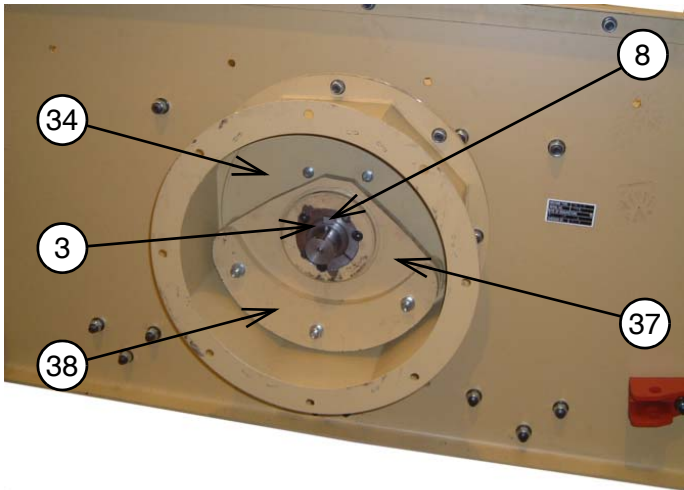
6: VIEW ON MESH ASSEMBLY



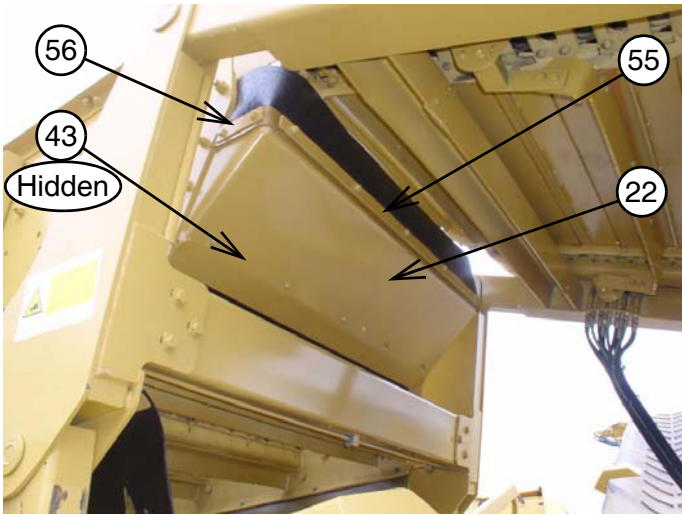
7: SCREEN BOX PARTS



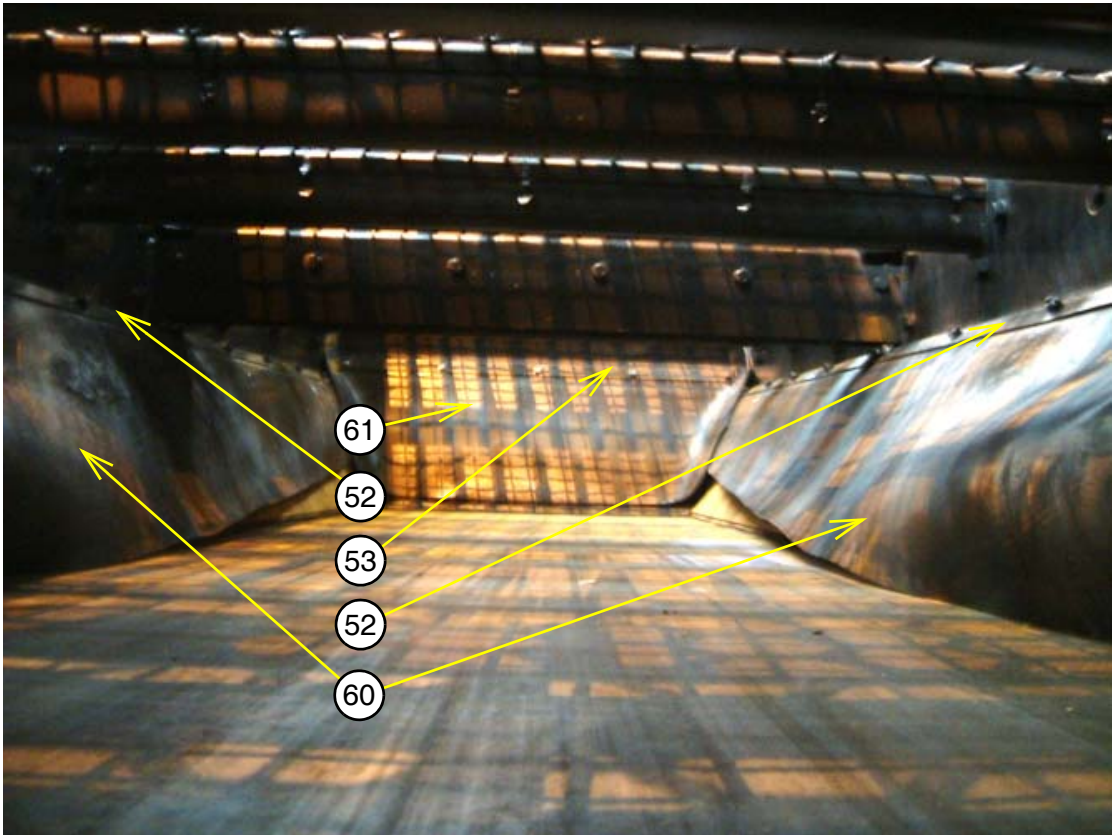
8: DETAILED VIEW OF CENTRE PIPE ASSEMBLY (DRIVE END)



9: DETAILED VIEW INSIDE FLYWHEEL



10: VIEW ON FEEDER END



11: VIEW INSIDE SCREEN BOX

Part No.		Part Description	Quantity
1.	BT3031	BEARING	2
2.	BT5026	WELD IN HUB	2
3.	BT5027	TAPER LOCK BUSH	2
4.	BT6543	COUPLING COMPLETE	1

Part No.	Part Description	Quantity
5. BT6546	110 mm INSERT	1
6. BT8019	SHAFT SEAL 100X130X12 TYPE 2	2
7. BT8510	ROTEX - RX48-22-60 COUPING - WITH 64 GREEN SPIDER	1
8. FAKS22X14	M22 X 14 X 300 KEYSTEEL	2
9. FAN30NP(10.9)	M30 NYLOC FINE PITCH THREAD	13
10. FAN24NP(10.9)	M24 NYLOC FINE PITCH THREAD	78
11. G1400000	8X5 WELDED SCREEN MESH	2
12. G4050000	MESH RETAINER	1
13. G5380000	SPRING BAR	2
14. G5640000	RATCHET	2
15. G5650000	RATCHET LINK BRACKET	2
16. G6700000	R/H SIDE PLATE	1
17. G6710000	L/H SIDE PLATE	1
18. G6720000	R/H SPRING MOUNT	2
19. G6730000	L/H SPRING MOUNT	2
20. G6740000	BOTTOM NOSE ASSEMBLY	1
21. G6750000	TOP NOSE ASSEMBLY	1
22. G6760000	REAR SPILL PLATE	1
23. G6770000	CROSS MEMBER	2
24. G6780000	TOP SIDE ANGLE	1
25. G6790000	TOP SIDE ANGLE OPP-HAND	1
26. G6800000	SPILL PLATE END R/H	2
27. G6810000	SPILL PLATE END L/H	2
28. G6820000	SPILL PLATE MID	2
29. G6830000	BOTTOM DECK FRAME	1
30. G6840000	BOTTOM DECK MESH GUIDE	1
31. G6850000	BEARING HOUSING	2
32. G6860000	ECCENTRIC SHAFT	1
33. G6870000	CENTRE PIPE ASSEMBLY	1
34. G6880000	BEARING HOUSING END CAP	2
35. G6890000	BEARING SPACER	2
36. G6900000	SHAFT LOCKING COLLAR	1
37. G6910000	COUNTER WEIGHT	2
38. G6920000	BOLT ON COUNTER WEIGHT	2
39. G6930000	MOTOR MTG PLATE	1

Part No.	Part Description	Quantity
40. G6940000	DRIVE HOUSING	1
41. G6950000	FLY WHEEL GUARD	1
42. G6960000	FLYWHEEL GUARD COVER	1
43. G6970000	REAR SPILL PLATE RUBBER CLAMP	1
44. G6980000	GUARD INSPECTION PLATE	1
45. G6990000	TOP DECK END CROSS MEMBER	1
46. G7000000	TOP DECK TINE CROSS MEMBER 3	6
47. G7010000	TOP DECK TINE CROSS MEMBER REAR 3	1
48. G7020000	TOP DECK MESH FRONT SECTION	1
49. G7030000	TOP DECK MESH REAR SECTION	1
50. G7040000	TOP DECK MESH CLAMP	1
51. G7050000	SPRING SUPPORT	24
52. G7060000	BOTTOM SIDE RUBBER CLAMP	4
53. G7070000	BOTTOM FRONT RUBBER CLAMP	1
54. G7110000	SCREEN BOX MOTOR GUARD	1
55. G7140000	REAR SPILL PLATE UPPER RUBBER CLAMP	1
56. G7150000	REAR SPILL PLATE UPPER RUBBER CLAMP - SIDE	2
57. HH7500B	SCREEN BOX HOSE KIT	1
58. HM1034	HYDRAULIC MOTOR	1
59. J5420000	LOWER FLYWHEEL SUPPORT BRACKET	2
60. RU1123	SCREEN BOX RUBBER	2
61. RU1124	SCREEN BOX RUBBER	1
62. RU5328	CAPPING RUBBER	6
63. SMC007	32" STONE FORK SMALL TINE CAT 2	13
64. SMC008	32" STONE FORK SMALL TINE CAT 1	78

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4. SCREEN BOX SUB FRAME



1: VIEW ON R/H SIDE OF MACHINE



2: VIEW ON L/H SIDE OF MACHINE



3: VIEW ON REAR OF SCREEN BOX SUB FRAME

Part No.		Part Description	Quantity
1.	G7080000	16 X 5 SCREEN BOX SUB FRAME	1
2.	G7090000	16 X 5 SCREEN BOX SUB FRAME	1
3.	G7100000	SUB FRAME STEEL PIPE DETAIL	2
4.	G7120000	16X5 SCREEN BOX SUB FRAME LINK BEAM	1
5.	G7130000	MESH CHANGE LOCK OUT	2
6.	G7160000	SPRING SPACER	12
7.	HR1079	SUB FRAME FRONT LIFT RAM	2
8.	PN1027	PIN SCREEN BOX HEIGHT ADJUSTMENT	2
9.	PN1152	LEG PIN	2
10.	SC5006	SPRING	12

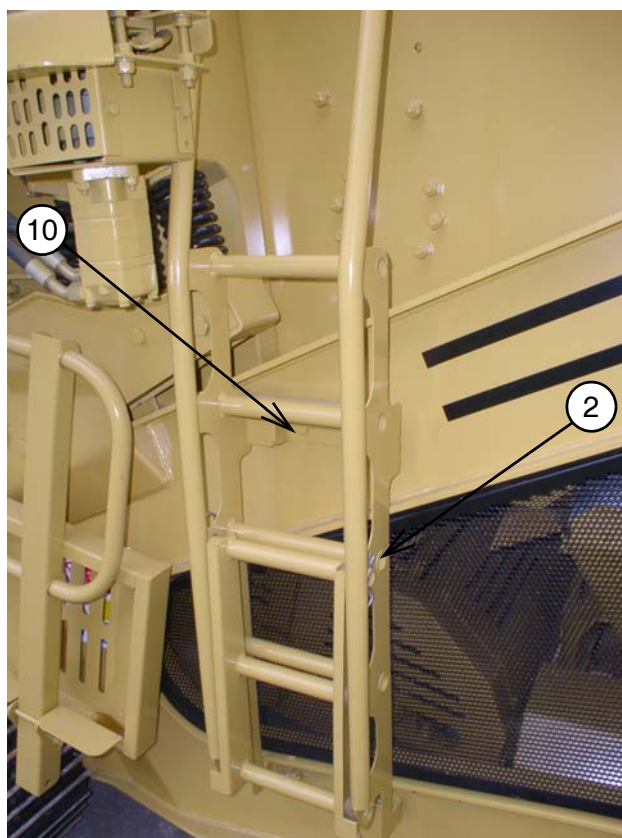
5. WALKWAY AND LADDERS



1: VIEW ON L/H SIDE OF MACHINE



2: VIEW ON R/H SIDE OF MACHINE



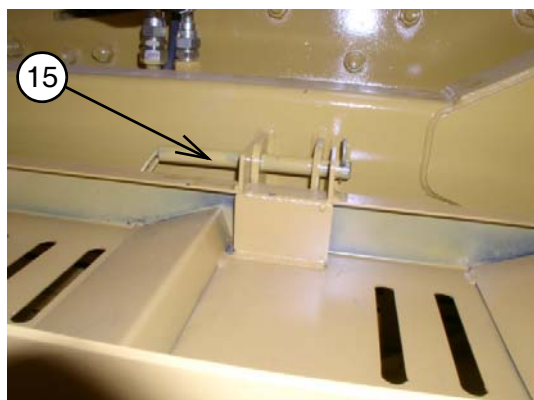
3: FOLDED LADDER



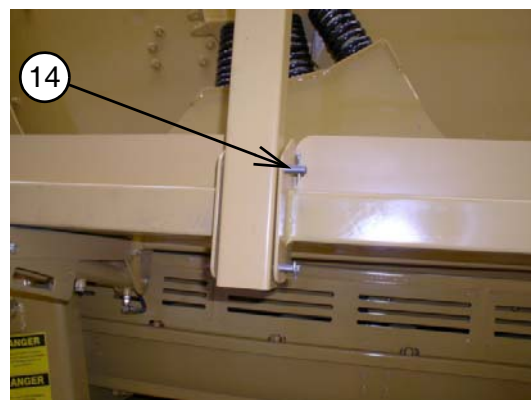
4: VIEW ON WALKWAY



5: VIEW ON WALKWAY



6: VIEW ON WALKWAY



7: VIEW ON WALKWAY

Part No.	Part Description	Quantity
1. G5360000	WALKWAY RAM STOP B	2
2. G6620000	LADDER - STOWAGE PIN	2
3. G7080000	16 X 5 SCREEN BOX SUB FRAME	1
4. G7090000	16 X 5 SCREEN BOX SUB FRAME	1
5. G7300000	16X5 SCREEN BOX R/H WALKWAY	1
6. G7310000	16X5 SCREEN BOX L/H WALKWAY	1
7. G7330000	16X5 SCREEN BOX R/H WALKWAY HAND RAIL	1
8. G7340000	16X5 SCREEN BOX R/H WALKWAY HAND RAIL	1
9. G7350000	16X5 SCREEN BOX L/H WALK WAY HAND RAIL	1
10. G7360000	16X5 SCREEN BOX LADDER HOOK	2
11. G7370000	LADDER ASSEMBLY	2
12. G7390000	16X5 WALKWAY RAIL EXTENSION	2
13. HR1001	WALKWAY RAM	2
14. PN1011	TELESCOPIC LEG ADJUSTER ROD PIN	8
15. PN1114	WALKWAY LOCKOUT PIN	2
16. PN1152	LEG PIN	2

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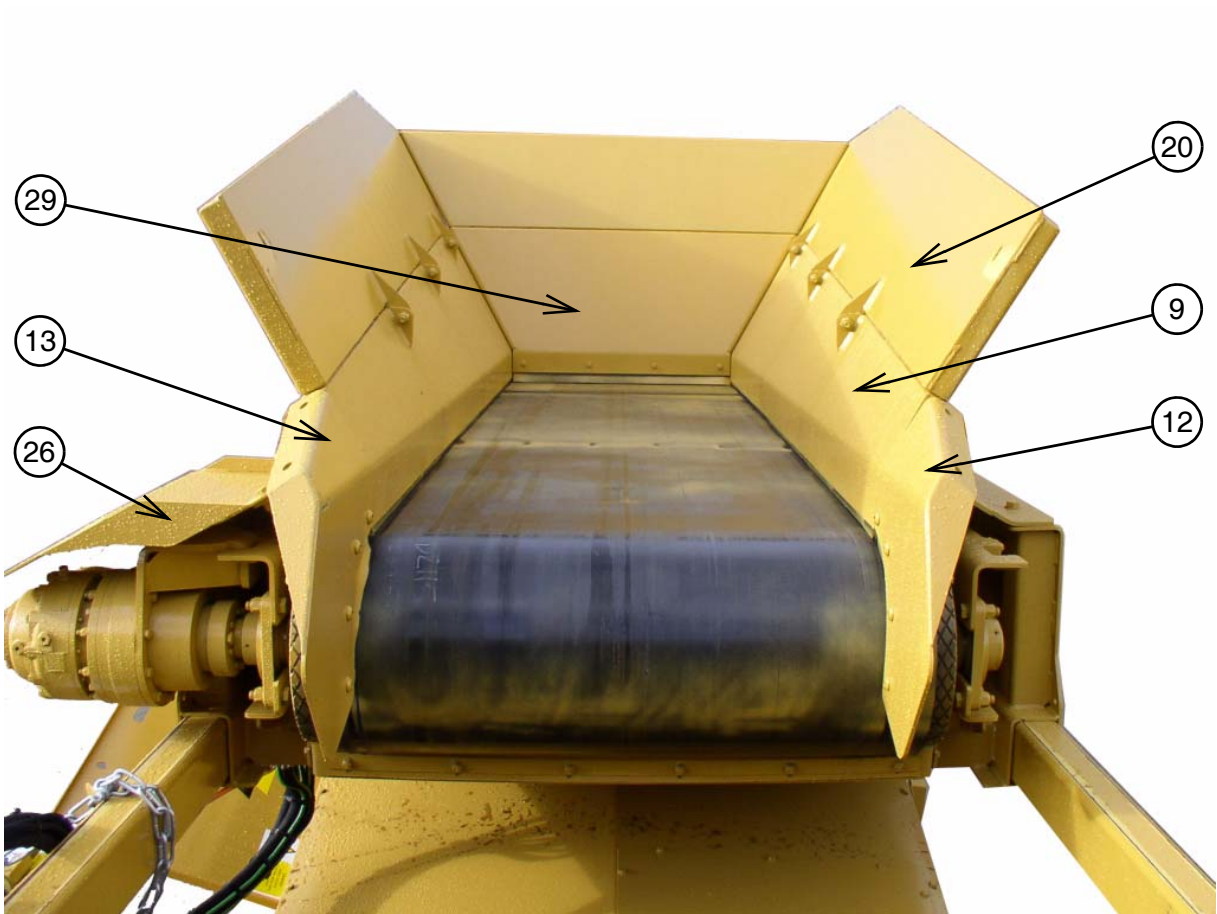
6. BELT FEEDER



8: VIEW OF R/H REAR OF MACHINE



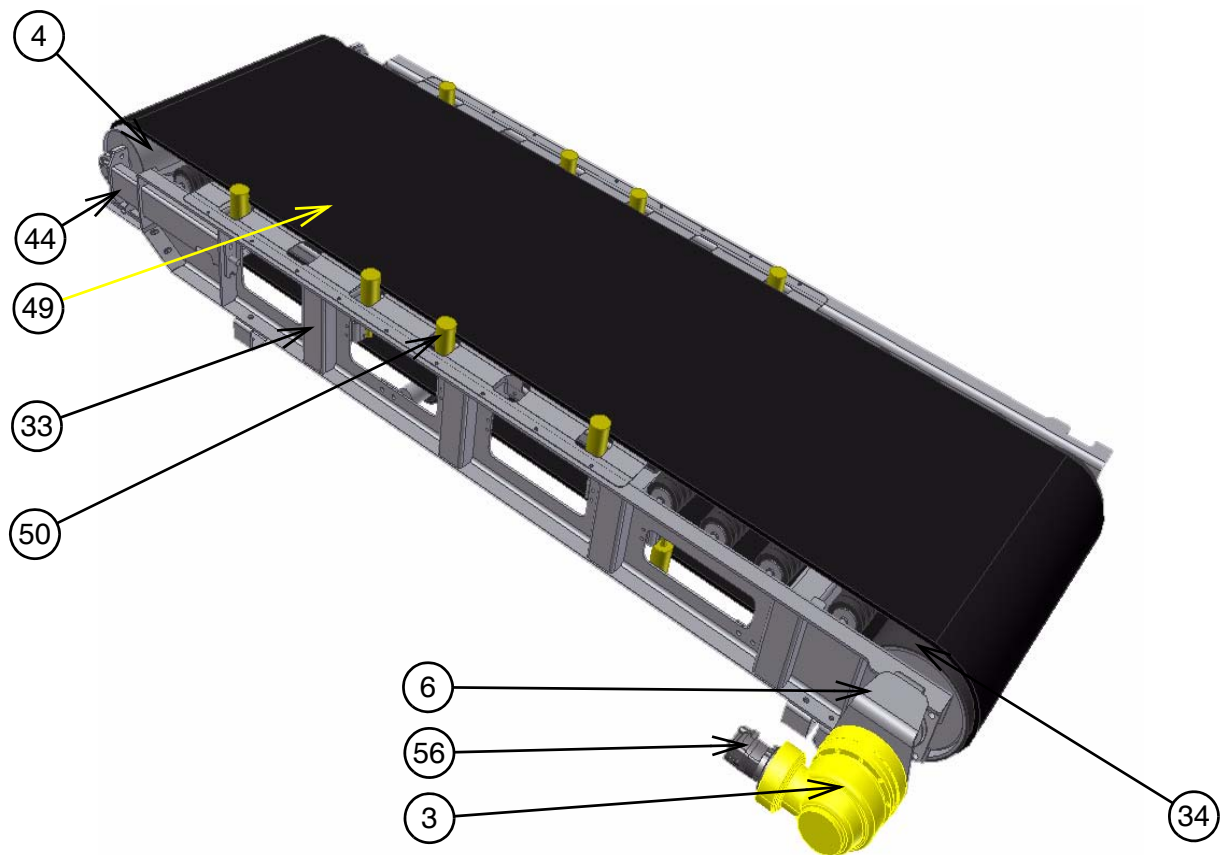
9: VIEW OF L/H REAR OF MACHINE



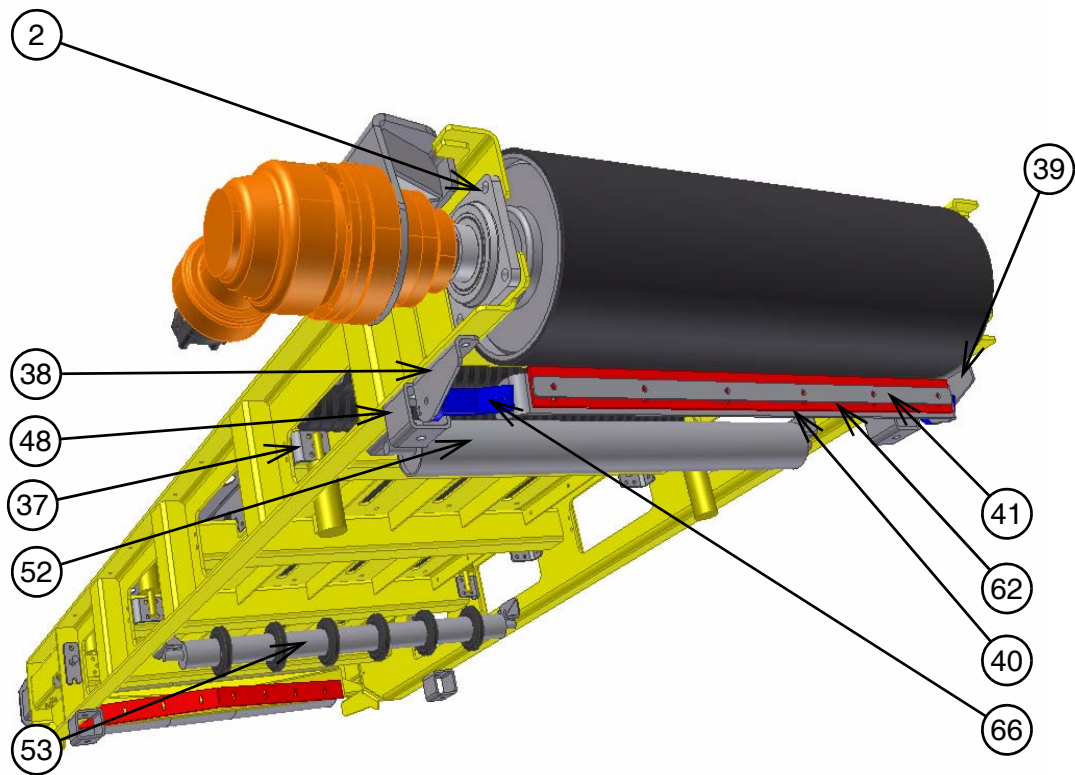
10: VIEW ON DISCHARGE END



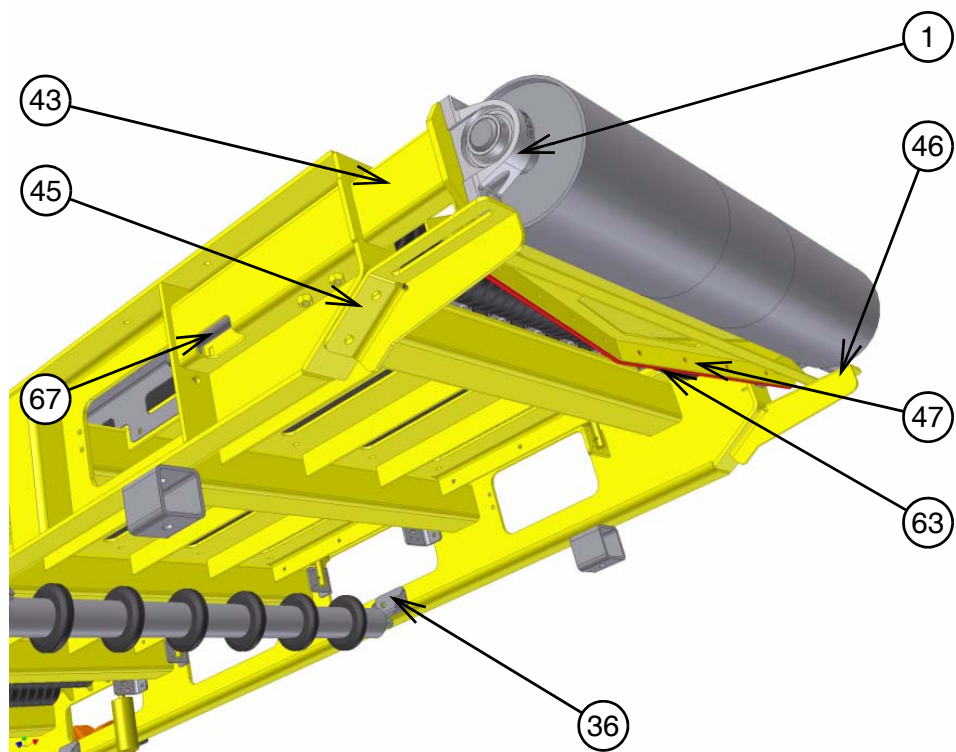
11: VIEW UNDERNEATH BELT FEEDER



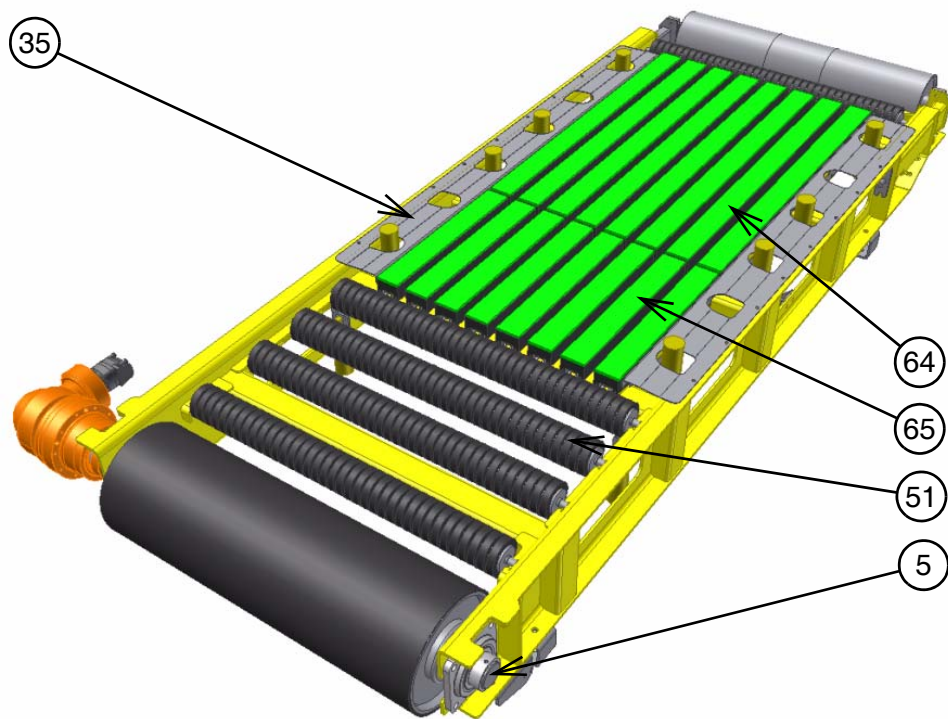
12: VIEW OF BELT FEEDER



13: BELT FEEDER DRIVE SIDE



14: VIEW ON CONVEYOR TAIL SIDE



15: IMPACT BARS AND ROLLERS



16: VIEW OF REAR OF BELT FEEDER

Part No.		Part Description	Quantity
1.	BT1009	PLUMMER BLOCK BEARING SY_55_TF	2
2.	BT2005	FLANGE BEARING RCJY90	2
3.	BT6544	GEARBOX	1
4.	C0090000	TAIL DRUM 273x1300	1
5.	C10040000	FEEDER DRIVE SHAFT	1
6.	C10080000	FEEDER GEARBOX TORQUE ARM	1
7.	C10120000	FEEDER SUB-FRAME	1
8.	C10130000	FEEDER SUB-FRAME TELE-LEG	2
9.	C10140000	FEEDER BIN L/H SIDE BASE	1
10.	C10150000	FEEDER BIN R/H SIDE BASE	1
11.	C10160000	FEEDER BIN BACK BASE PANEL	1
12.	C10170000	FEEDER BIN L/H SIDE NOSE	1
13.	C10180000	FEEDER BIN R/H SIDE NOSE	1
14.	C10190000	FEEDER SUB-FRAME REAR PANEL	1

Part No.	Part Description	Quantity
15. C10200000	FEEDER SUB-FRAME REAR PANEL COVER	1
16. C10210000	FEEDER SUB-FRAME END PANEL	1
17. C10220000	FEEDER SUB-FRAME SIDE PANEL	3
18. C10230000	FEEDER SUB-FRAME MOTOR SIDE PANEL	1
19. C10250000	FEEDER BIN L/H SIDE WING	1
20. C10260000	FEEDER BIN R/H SIDE WING	1
21. C10270000	FEEDER BIN REAR WING	1
22. C10280000	FEEDER BIN L/H SIDE WING RAM BASE BRACKET	1
23. C10290000	FEEDER BIN R/H SIDE WING RAM BASE BRACKET	1
24. C10300000	FEEDER SUB-FRAME L/H RETAINER	1
25. C10310000	FEEDER SUB-FRAME R/H RETAINER	1
26. C10320000	FEEDER SUB-FRAME GEARBOX GUARD	1
27. C10330000	FEEDER BIN L/H IN-FILL PANEL	1
28. C10340000	FEEDER BIN R/H IN-FILL PANEL	1
29. C10360000	FEEDER REAR RUBBER CLAMP	1
30. C10370000	FEEDER PAN	1
31. C10380000	FEEDER PAN	1
32. C10390000	FEEDER PAN CLAMPING STRIP	2
33. C10400000	BELT FEEDER CASSETTE FRAME	1
34. C10410000	BELT FEEDER DRIVE DRUM	1
35. C10420000	FEEDER BELT SIDE SUPPORT	2
36. C10440000	FEEDER RETURN ROLLER SUPPORT	4
37. C10450000	BELT FEEDER TRACKING ROLLER BRK	8
38. C10460000	BELT FEEDER SCRAPER ROSTA MOUNT L/H	1
39. C10470000	BELT FEEDER SCRAPER ROSTA MOUNT R/H	1
40. C10480000	BELT FEEDER SCRAPER X-MEMBER	1
41. C10490000	BELT FEEDER SCRAPER CLAMP	1
42. C10700000	FEEDER PAN - PLASTIC	1
43. C10710000	BELT FEEDER BEARING ADJUSTER	1
44. C10720000	BELT FEEDER BEARING ADJUSTER	1
45. C10730000	BELT FEEDER PLOUGH SCRAPER SUPPORT	1
46. C10740000	BELT FEEDER PLOUGH SCRAPER SUPPORT	1
47. C10750000	BELT FEEDER PLOUGH SCRAPER	1
48. C10760000	BELT FEEDER CASSETTE SUPPORT STOOL	4
49. CB8900x1200	EP500/3 10+3 FABRIC BREAKER	1

Part No.	Part Description	Quantity
50. CR1024	TRACKING ROLLER (Ø76 x 180mm) CR40771?	10
51. CR1033	IMPACT ROLLER 1300xDIA 133	5
52. CR1064	CONVEYOR BED ROLLER	1
53. CR1065	CONVEYOR DISC RETURN ROLLER	1
54. D9630000	HANGING RUBBER FIX	2
55. HH7500C	FEEDER HOSE KIT	1
56. HM1039	OMSS 200 DANFOSS MOTOR	1
57. HR1001	WALKWAY RAM	1
58. HR1081	SLIDE RAM -DOUBLE ACTING	2
59. HR1086	FEEDER FLAIR RAM	2
60. PN1027	PIN	2
61. PN1153	PIN	2
62. PY1005	SCRAPER BLADE 1280x80x8	1
63. PY1019	PLOUGH SCRAPER BLADE 1300x80x8	1
64. PY1032	IMPACT BAR_75x1500	8
65. PY1033	IMPACT BAR_75x750	8
66. RU5501	ROSTA SUPPORT SE27	2
67. T 613 00 00	BEARING PUSH ADJUSTER BOLT	2

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7. APRON FEEDER



1: VIEW OF R/H REAR OF MACHINE



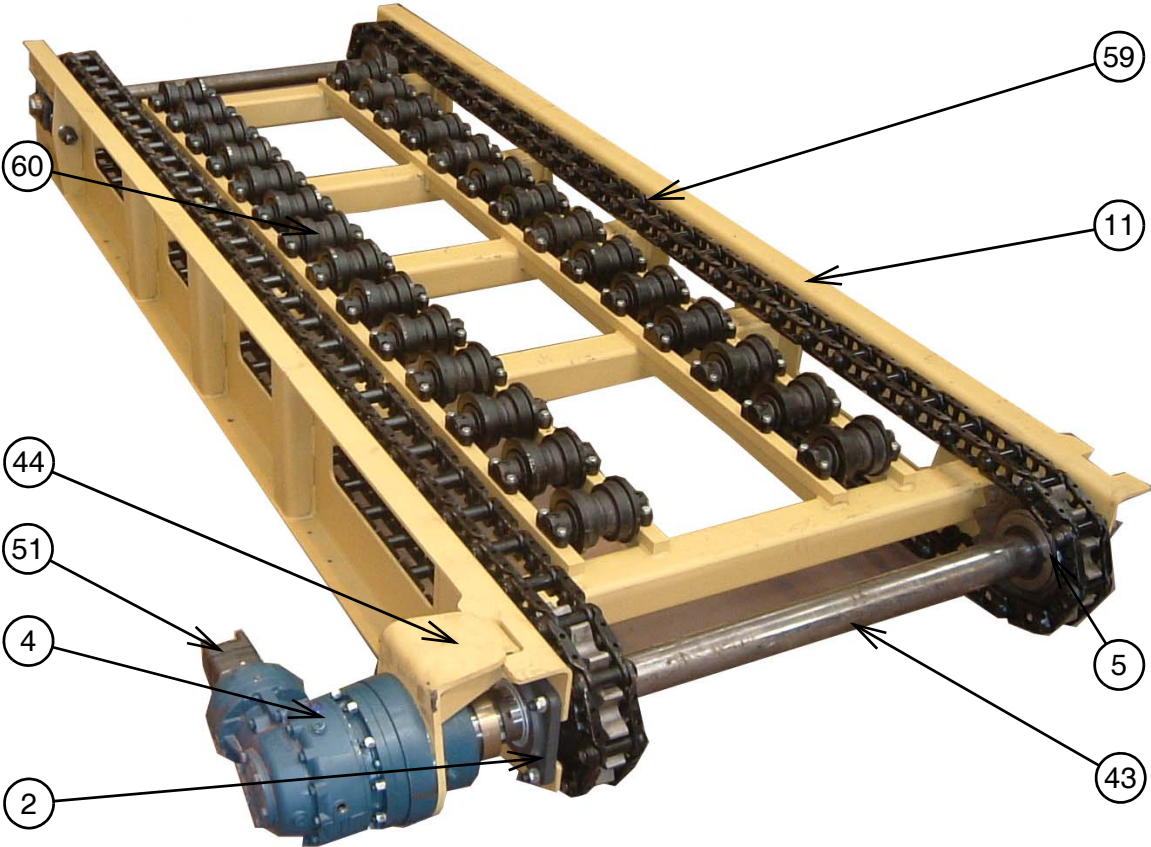
2: VIEW OF L/H REAR OF MACHINE



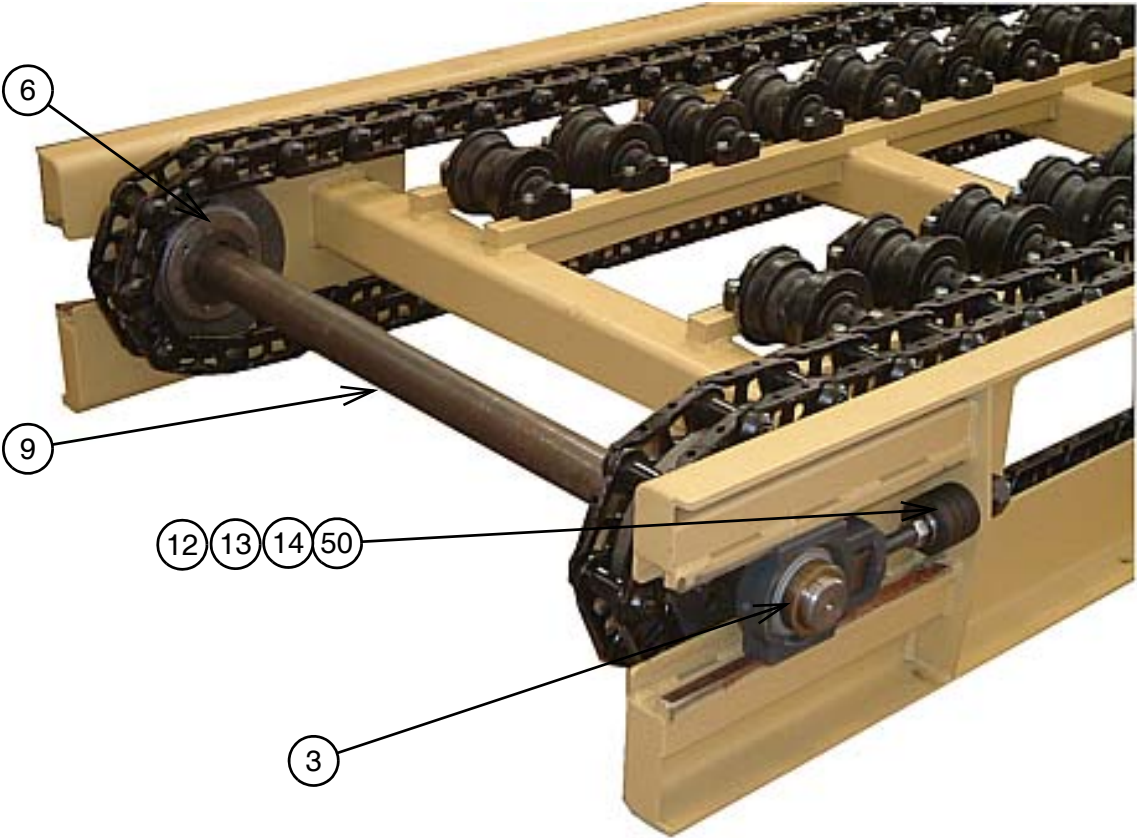
3: VIEW ON DISCHARGE END



4: VIEW UNDERNEATH APRON FEEDER



5: APRON FEEDER ASSEMBLY



6: APRON FEEDER ASSEMBLY



7: VIEW OF REAR OF APRON FEEDER

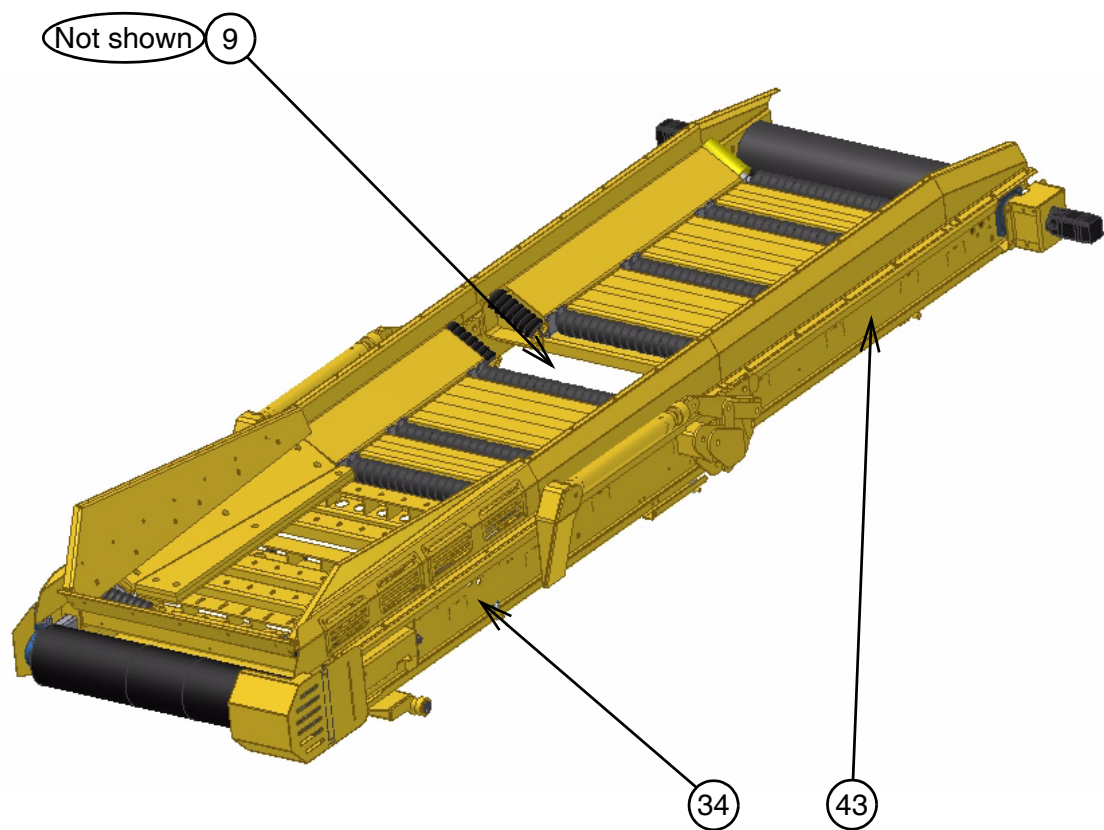


8:

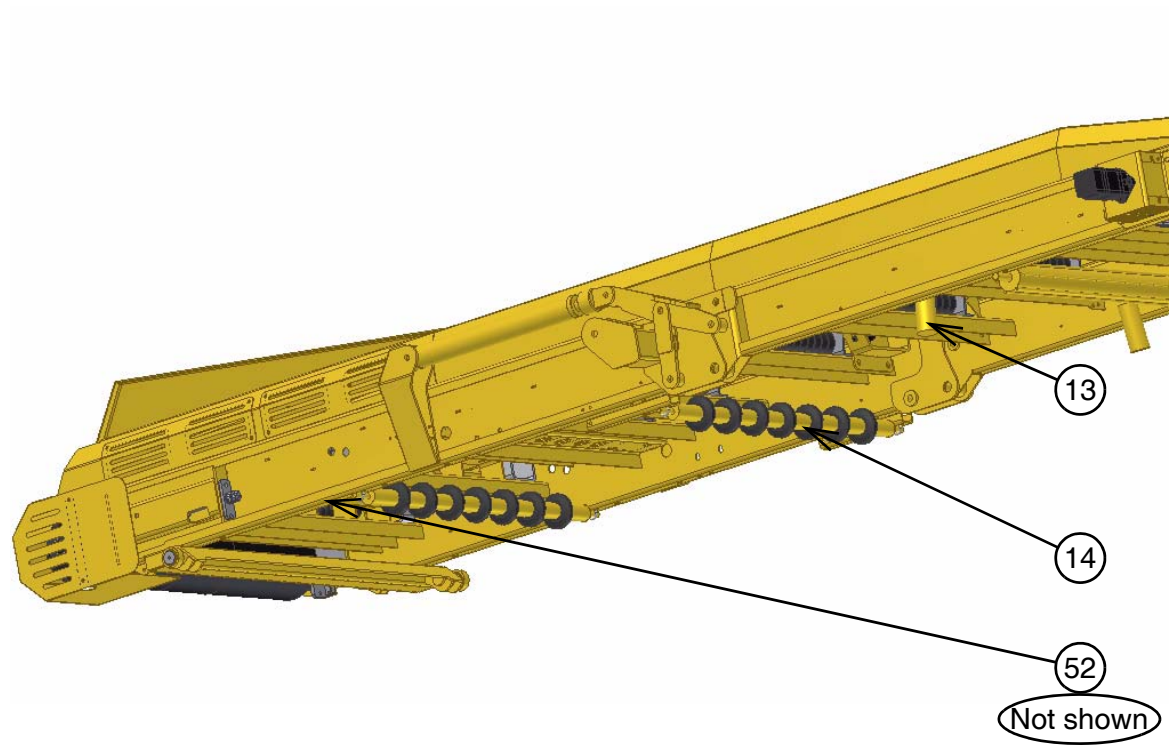
Part No.	Part Description	Quantity
1. BT1008	PLUMBER BEARING	2
2. BT2005	FLANGE BEARING	2
3. BT2502	TAKE-UP BEARING	2
4. BT6551	GEAR BOX	1
5. C10000000	FEEDER DRIVE SPROCKET ASSEMBLY	2
6. C10010000	FEEDER IDLE WHEEL ASSEMBLY	2
7. C10020000	FEEDER PAD (NO UPRIGHT)	31
8. C10030000	FEEDER PAD (WITH UPRIGHT)	31
9. C10050000	FEEDER IDLE SHAFT	1
10. C10060000	RETURN ROLLER	2
11. C10070000	FEEDER CASSETTE	1
12. C10090000	FEEDER TENSIONING BLOCK	2
13. C10100000	FEEDER TENSIONING BLOCK	2
14. C10110000	FEEDER TENSIONING BUSH	1
15. C10120000	FEEDER SUB FRAME	1
16. C10130000	FEEDER SUB FRAME TELESCOPIC LEG	2
17. C10140000	FEEDER BIN L/H SIDE BASE	1
18. C10150000	FEEDER BIN R/H SIDE BASE	1
19. C10160000	FEEDER BIN BACK BASE PANEL	1
20. C10170000	FEEDER BIN L/H SIDE NOSE	1
21. C10180000	FEEDER BIN R/H SIDE NOSE	1
22. C10200000	FEEDER SUB FRAME REAR PANEL COVER	1
23. C10220000	FEEDER SUB FRAME SIDE PANEL	3
24. C10230000	FEEDER SUB FRAME MOTOR SIDE PANEL	1
25. C10250000	FEEDER BIN L/H SIDE WING	1
26. C10260000	FEEDER BIN R/H SIDE WING	1
27. C10270000	FEEDER BIN REAR WING	1
28. C10280000	FEEDER BIN L/H SIDE WING RAM BASE BRACKET	1
29. C10290000	FEEDER BIN R/H SIDE WING RAM BASE BRACKET	1
30. C10300000	FEEDER SUB FRAME L/H RETAINER	1
31. C10310000	FEEDER SUB FRAME R/H RETAINER	1
32. C10320000	FEEDER SUB FRAME GEARBOX GUARD	1
33. C10330000	FEEDER BIN L/H IN-FILL PANEL	1
34. C10340000	FEEDER BIN R/H IN-FILL PANEL	1

Part No.	Part Description	Quantity
35. C10350000	FEEDER SCRAPER BEAM	1
36. C10360000	FEEDER REAR RUBBER CLAMP	1
37. C10370000	FEEDER PAN	1
38. C10380000	FEEDER PAN	1
39. C10390000	FEEDER PAN CLAMPING STRIP	2
40. C10700000	FEEDER PAN - PLASTIC	1
41. C10880000	FEEDER SUB FRAME REAR PANEL	1
42. C10890000	FEEDER SUB FRAME END PANEL	1
43. C11860000	FEEDER DRIVE SHAFT	1
44. C11870000	TORQUE ARM	1
45. C11960000	PIPE COVER R/H	1
46. C11970000	PIPE COVER L/H	1
47. D4080000	ROSTA BRACKET	2
48. D5460000	TOP SCRAPER CLAMP PLATE	1
49. D9630000	HANGING RUBBER FIX	2
50. FAW80X36X4DS	WASHERS	26
51. HM1043	HYDRAULIC MOTOR	1
52. HR1001	WALKWAY RAM	1
53. HR1081	SLIDE RAM -DOUBLE ACTING	2
54. HR1086	FEEDER FLARE RAM	2
55. PN1027	PIN	2
56. PN1153	PIN	2
57. PY1004	POLY SCRAPER	1
58. RU5501	TENSIONING ELEMENT	2
59. UC7201	CHAIN (62 LINKS)	2
60. UC7185	ROLLERS	38

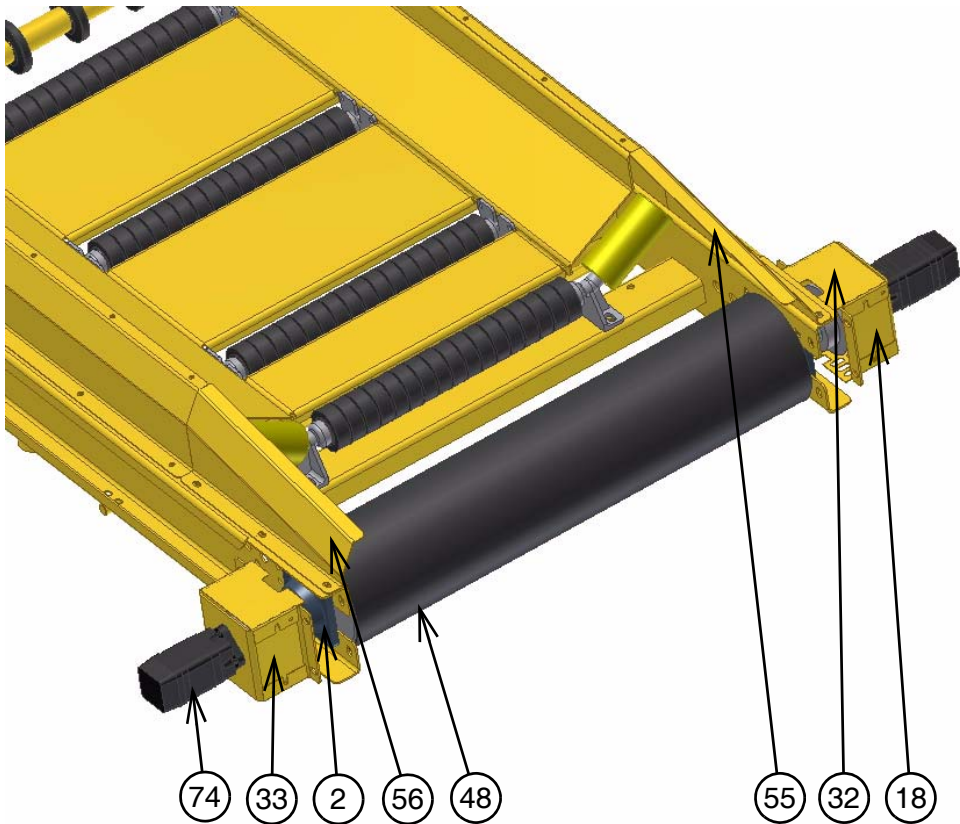
8. TAIL CONVEYOR



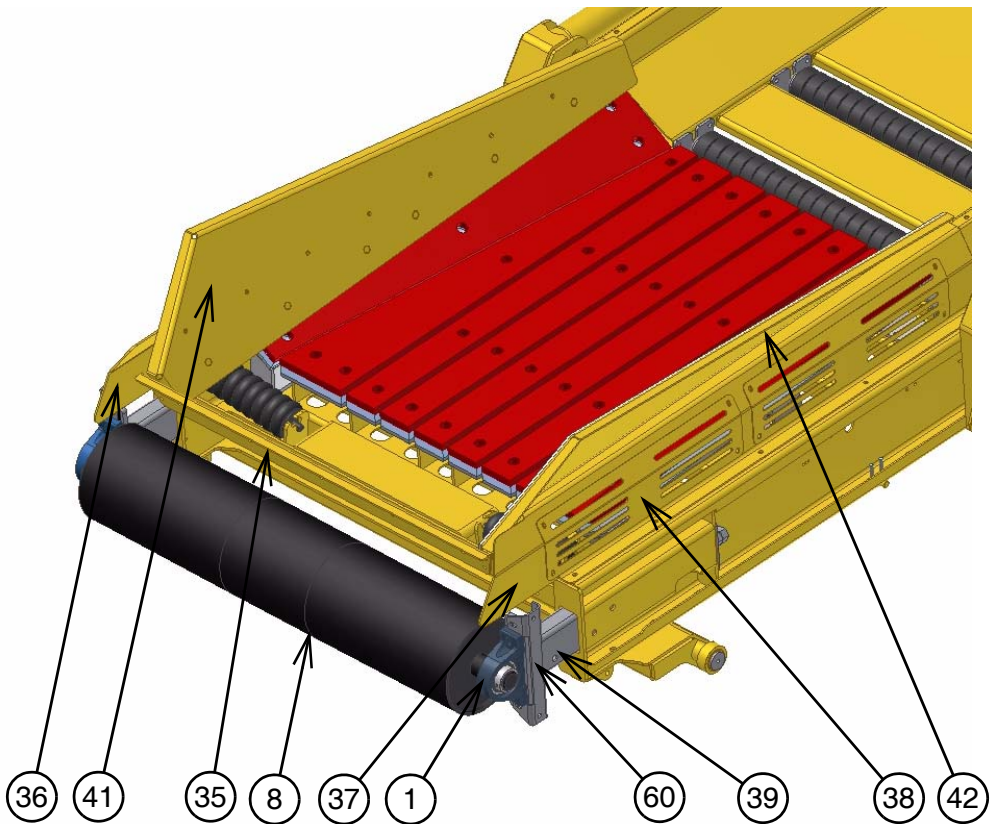
1: TAIL CONVEYOR ASSEMBLY



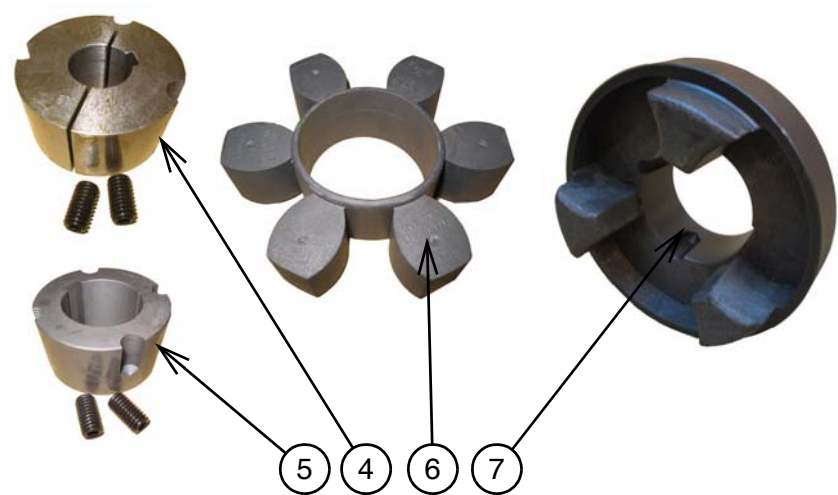
2: VIEW UNDERNEATH TAIL CONVEYOR



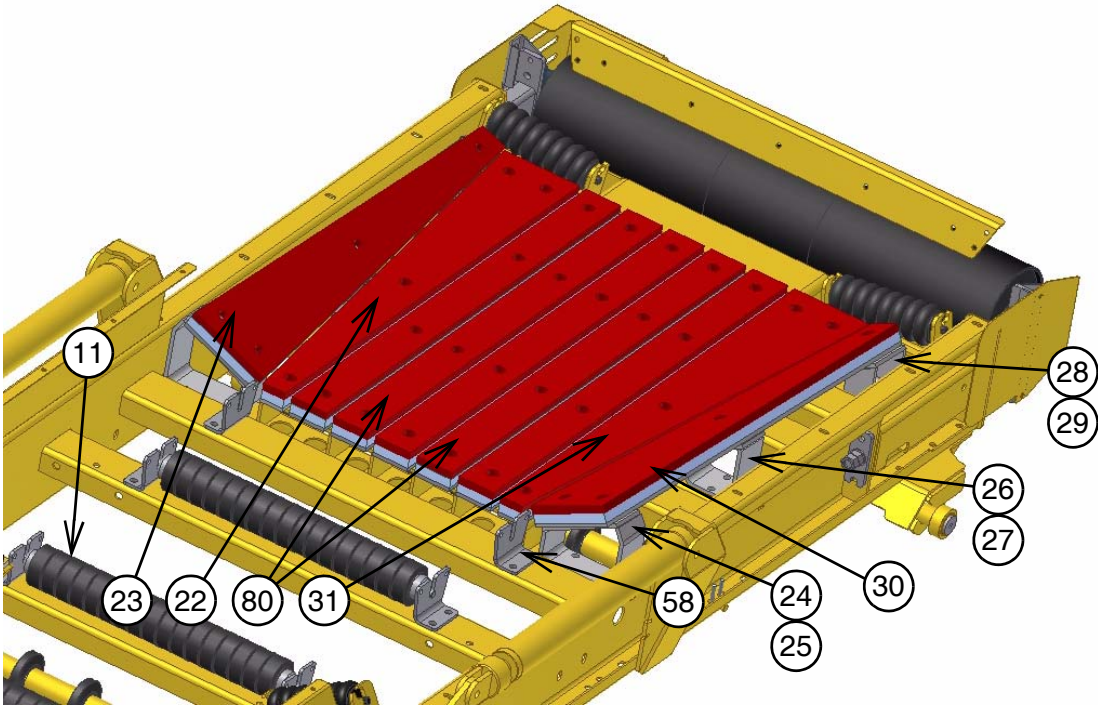
3: DETAILED VIEW OF HEAD DRUM



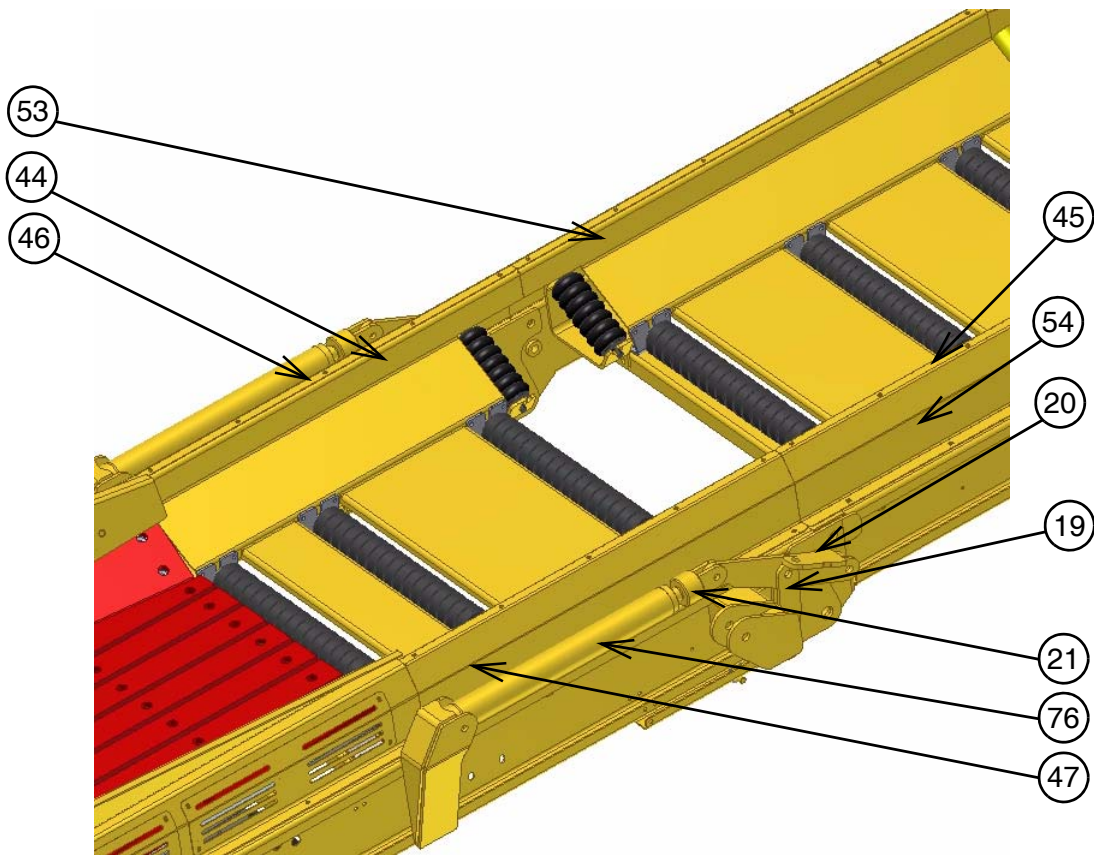
4: DETAILED VIEW OF TAIL DRUM



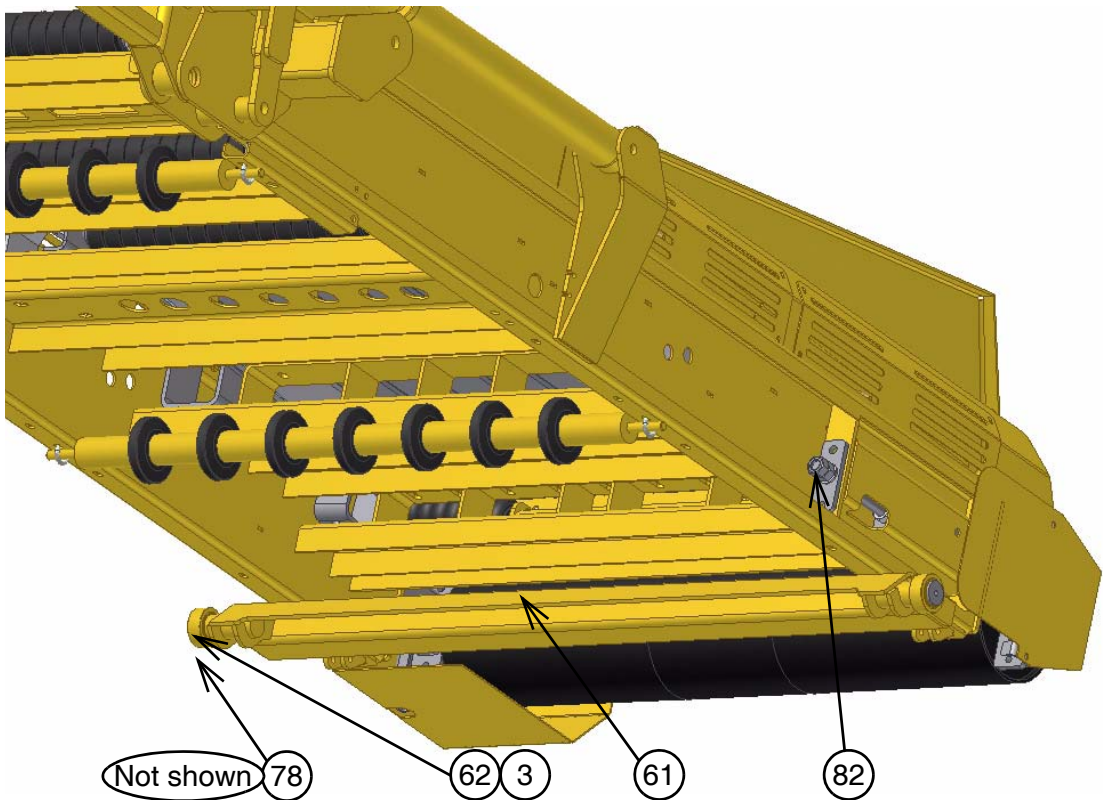
5: DRIVE COUPLING



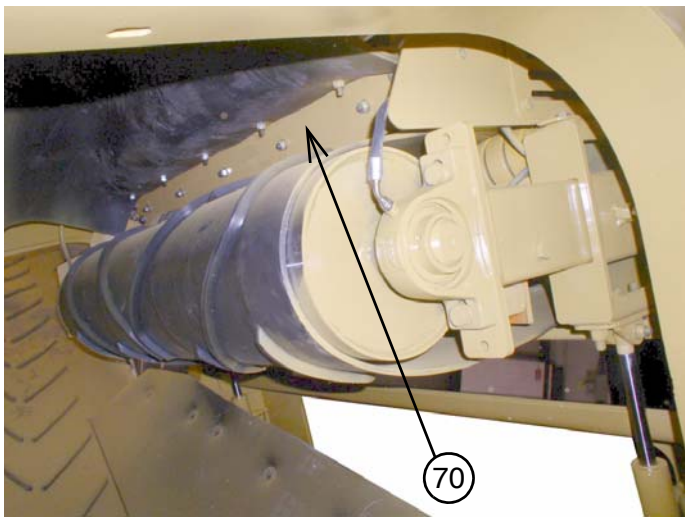
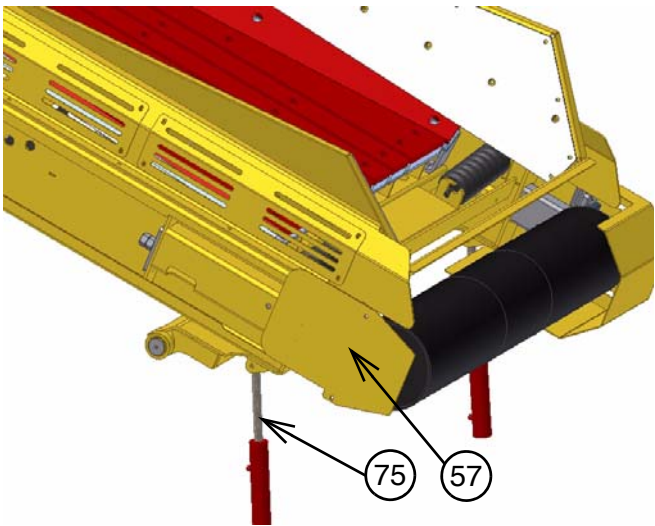
6: DETAILED VIEW OF TAIL CONVEYOR IMPACT BARS



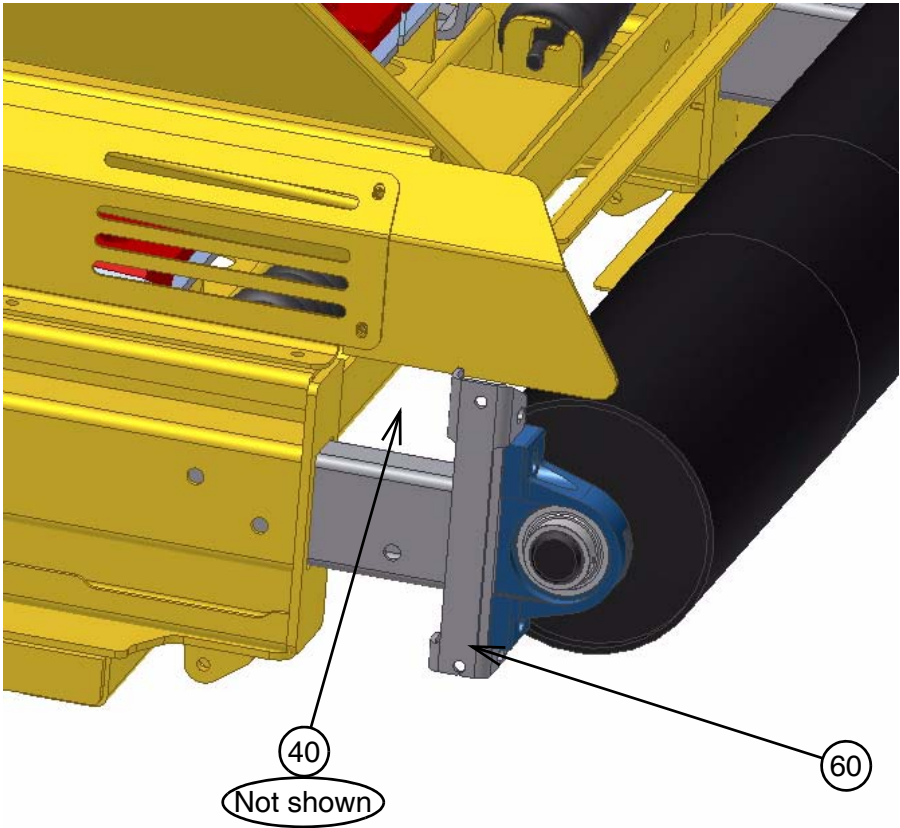
7: VIEW OF TAIL CONVEYOR PIVOT



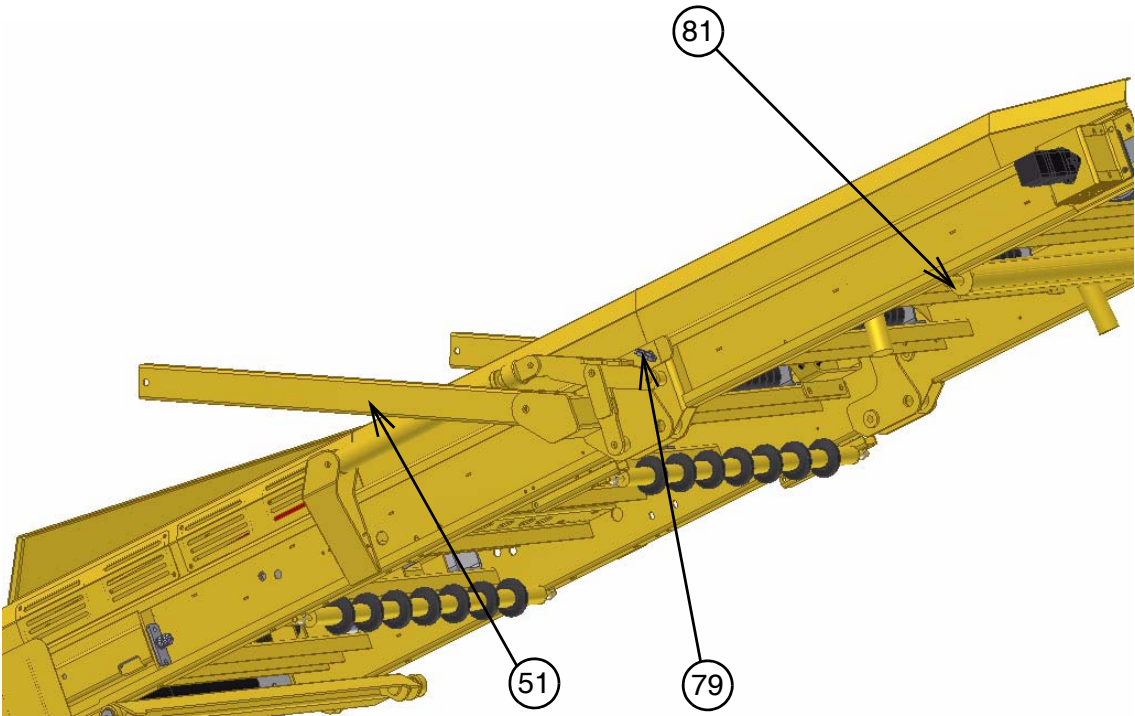
8: VIEW UNDERNEATH TAIL CONVEYOR



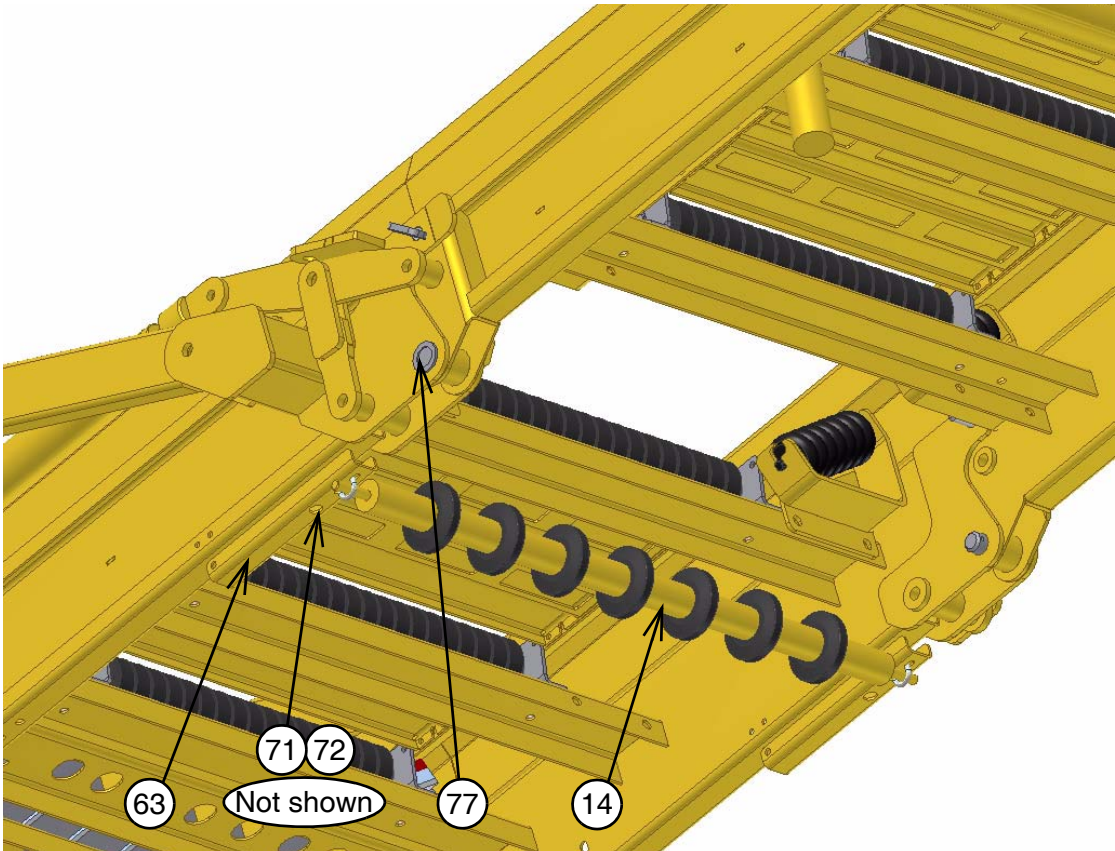
9: VIEW ON TAIL CONVEYOR TAIL DRUM



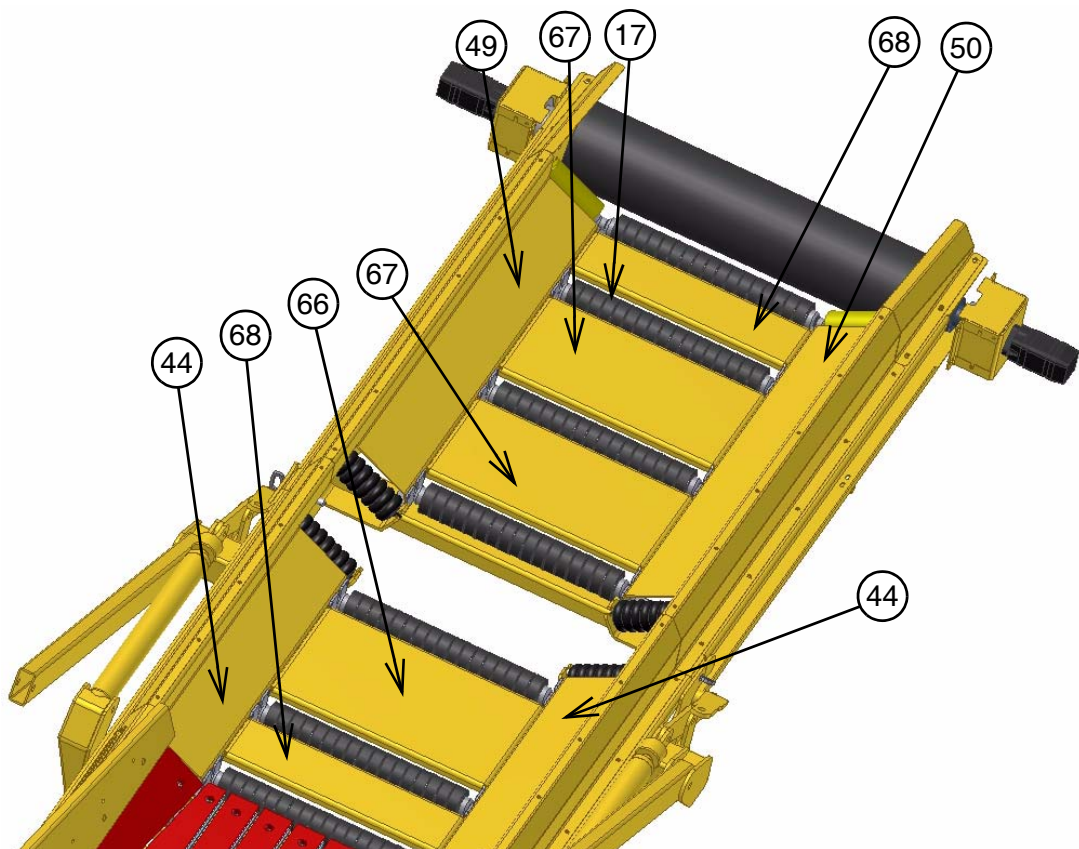
10: VIEW ON TAIL DRUM SCRAPER



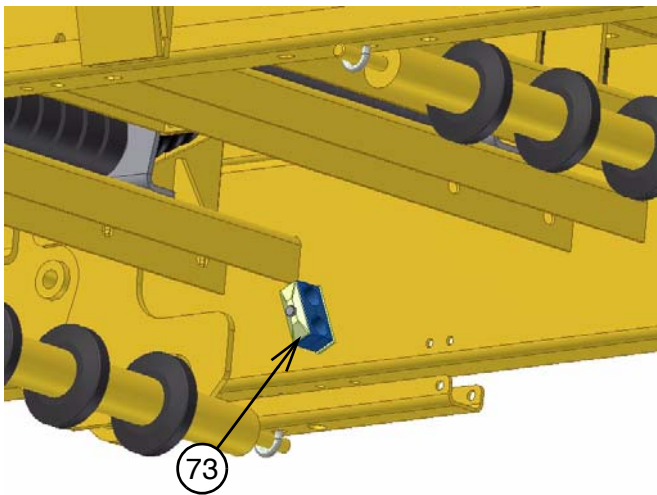
11: SIDE VIEW ON TAIL CONVEYOR



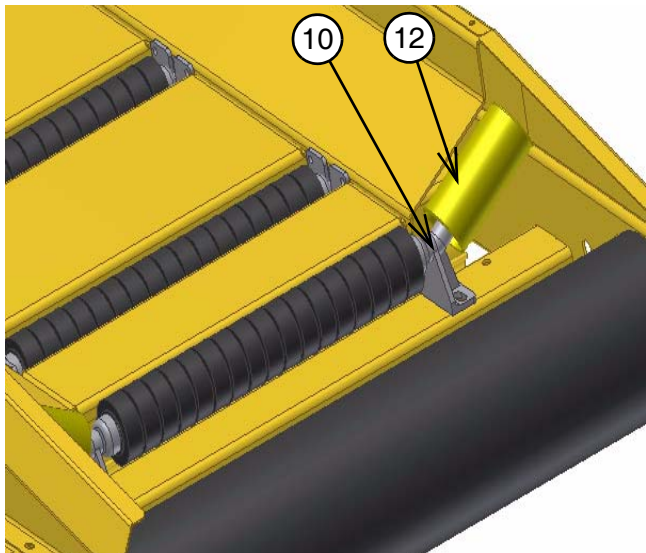
12: DETAILED VIEW OF TAIL CONVEYOR RETURN ROLLER



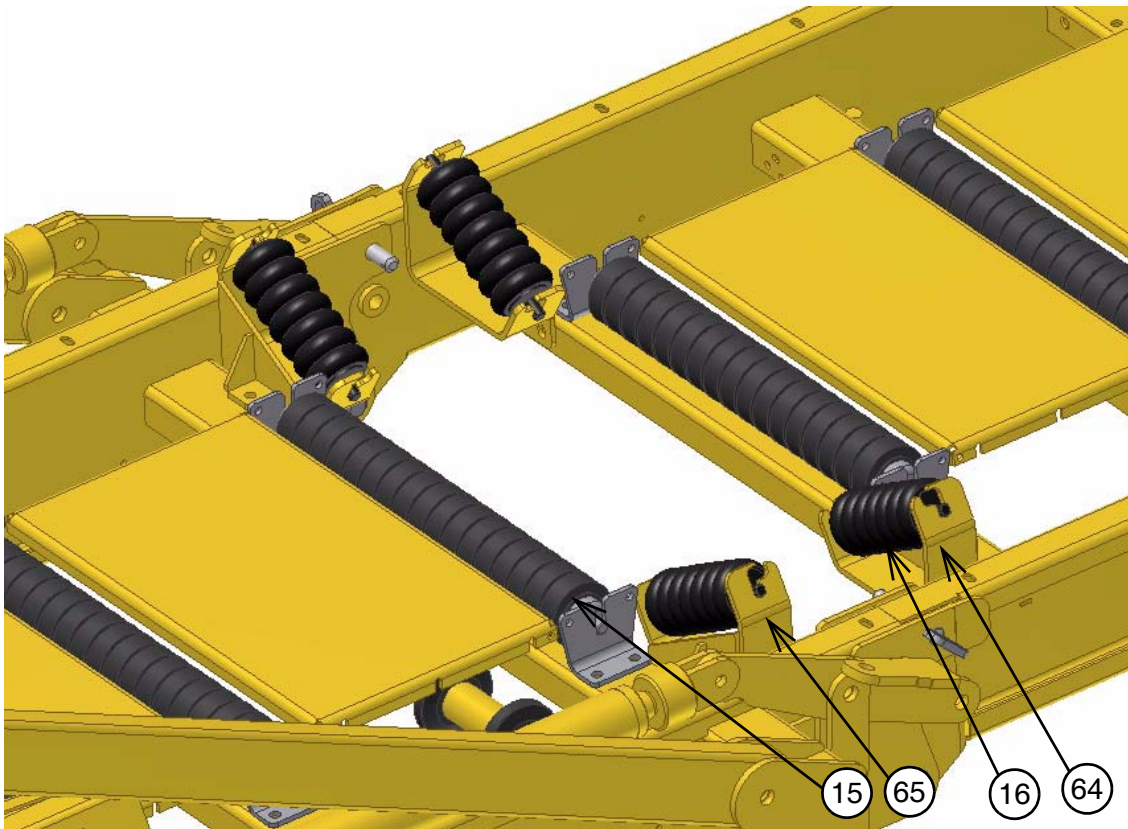
13: DETAILED VIEW OF TAIL CONVEYOR PANS



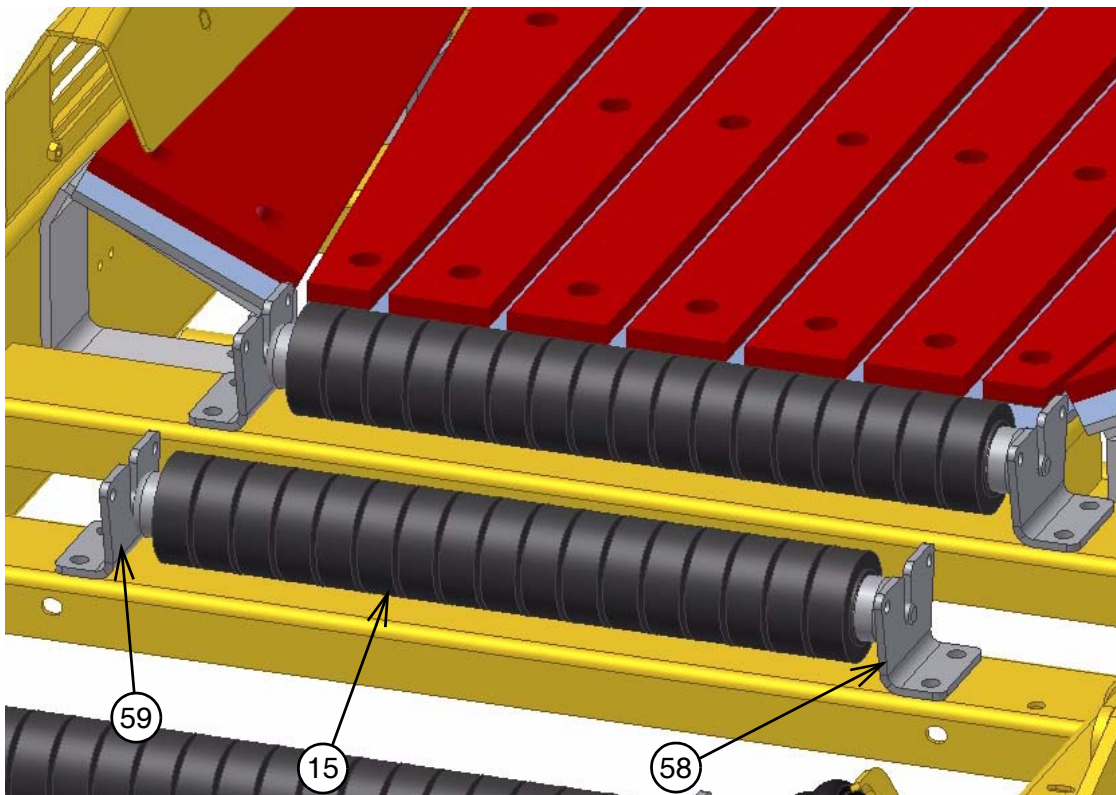
14: VIEW ON HOSES



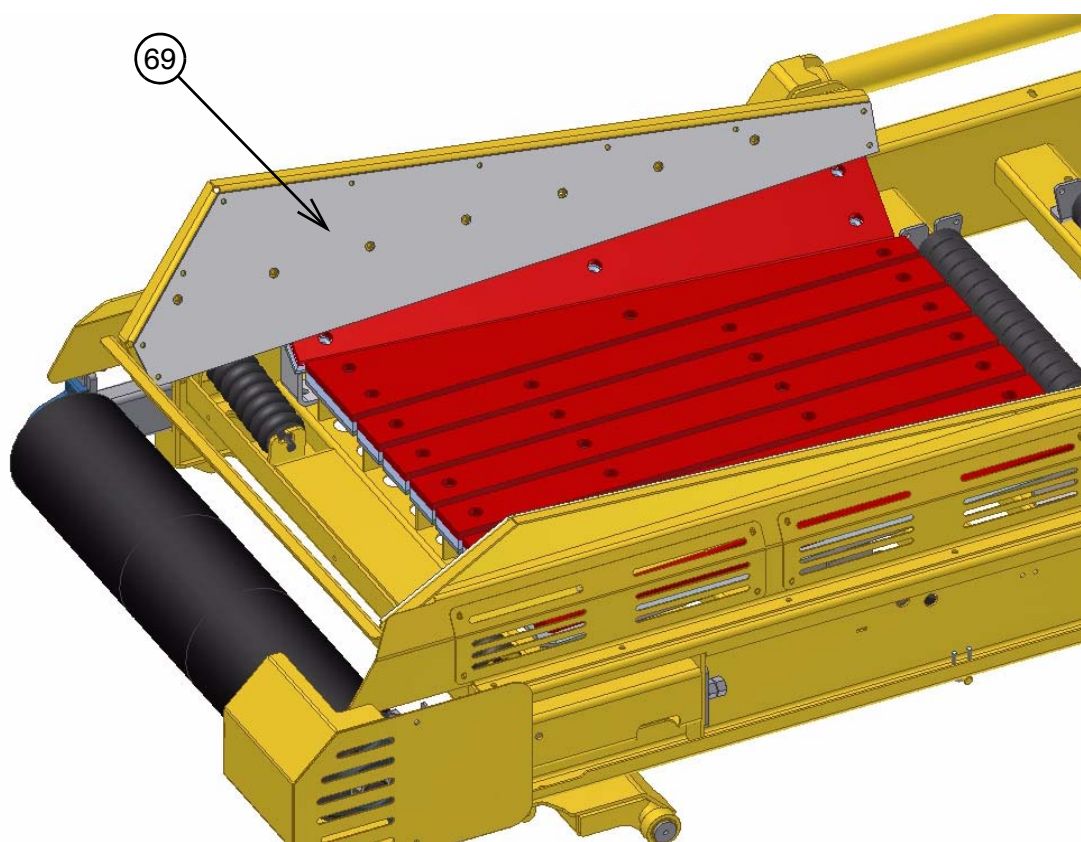
15: VIEW OF THE SIDE ROLLERS



16: VIEW ON FOLD OF TAIL CONVEYOR



17: VIEW ON IMPACT ROLLERS



18: VIEW ON WEAR LINER

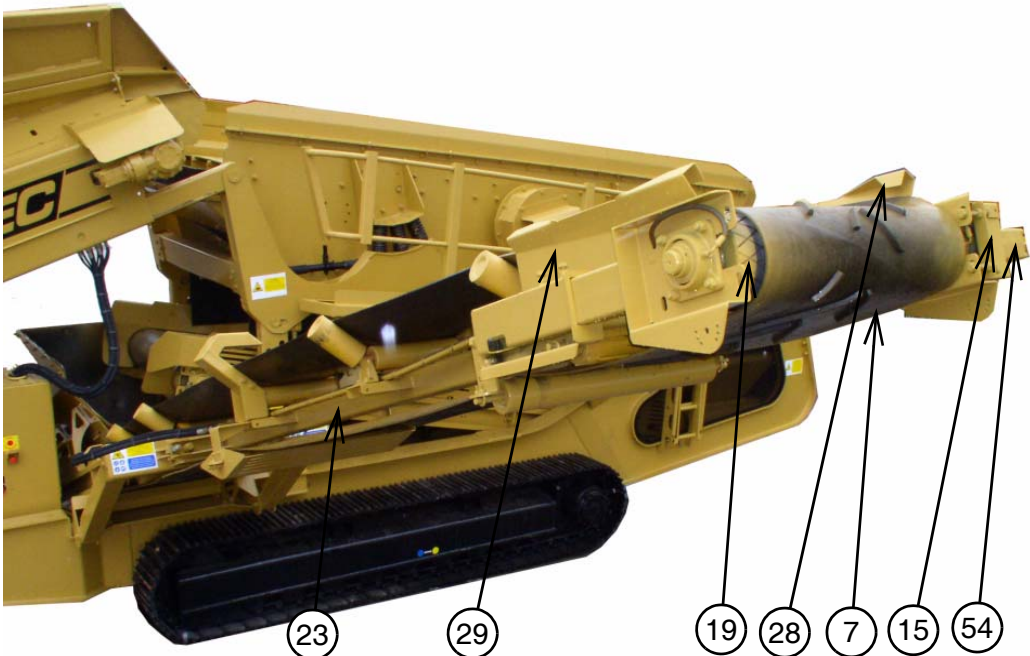
Part No.	Part Description		Quantity
1. BT1009	PLUMBER BLOCK BEARING		2
2. BT2010	BEARING FLANGE		2
3. BT3033	NEEDLE ROLLER BEARING		2
4. BT5008	TAPER LOCK		2
5. BT5010	50mm TAPER LOCK		2
6. BT6516	DRIVE COUPLING INSERT		2
7. BT6517	DRIVE COUPLING COMPLETE WITH LOCK BUSHES		2
8. C0090000	HOPPER CASSETTE TAIL DRUM		1
9. CB112701200CH	11.27 x 1.2 M WIDE CHEVRON BELT		1
10. CR1004	30° ROLLER BRACKET		2
11. CR1005	RETURN ROLLER		2
12. CR1011	WING ROLLER		2
13. CR1024	TRACKING ROLLER		2
14. CR1040	TAIL CONVEYOR DISC RETURN		2
15. CR1043	ROLLER		2

Part No.	Part Description	Quantity
16. CR1058	WING IMPACT ROLLER	6
17. CR1062	TAIL CONVEYOR IMPACT CENTRE ROLLER	7
18. D10430000	MOTOR MOUNTING BRACKET	2
19. D10440000	SMALL ROTATION LINK ARM ASSEMBLY	2
20. D10450000	LARGE ROTATION LINKAGE ARM	2
21. D10460000	FOLDING RAM CLEVIS	2
22. D7150000	CONVEYOR BASE IMPACT BAR	1
23. D7160000	CONVEYOR WING IMPACT BAR	1
24. D7170000	WING BAR MOUNTING PLATE	1
25. D7180000	WING BAR MOUNTING PLATE	1
26. D7190000	WING BAR MOUNTING PLATE	1
27. D7200000	WING BAR MOUNTING PLATE	1
28. D7210000	BAR IMPACT PLATE	1
29. D7220000	BAR IMPACT PLATE	1
30. D7230000	CONVEYOR WING IMPACT BAR	1
31. D7240000	CONVEYOR BASE IMPACT BAR	1
32. E0240000	MOTOR MOUNTING PLATES	2
33. E0250000	MOTOR MOUNTING BRACKET BOTTOM COVER	2
34. F3790000	CONVEYOR BOTTOM ASSEMBLY	1
35. F3800000	CONVEYOR FEED BOOT BACK PLATE	1
36. F3810000	CONVEYOR FEED BOOT SUPPORT	1
37. F3820000	CONVEYOR FEED BOOT SUPPORT	1
38. F3830000	CONVEYOR FEED BOOT SUPPORT COVER	1
39. F3840000	CONVEYOR TAIL DRUM SLIDER	2
40. F3850000	CONVEYOR PLOUGH SCRAPER	1
41. F3870000	CONVEYOR FEED BOOT SIDE	1
42. F3880000	CONVEYOR FEED BOOT SIDE	1
43. F3890000	CONVEYOR TOP SECTION ASSEMBLY	1
44. F3900000	CONVEYOR BOTTOM L/H INNER FLARE	1
45. F3910000	CONVEYOR BOTTOM R/H INNER FLARE	1
46. F3920000	CONVEYOR BOTTOM L/H OUTER FLARE	1
47. F3930000	CONVEYOR BOTTOM R/H OUTER FLARE	1
48. F3940000	TWIN DRIVE 1200 WIDE BELT CONVEYOR DRIVE DRUM	1
49. F3960000	CONVEYOR TOP L/H INNER FLARE	1
50. F3970000	CONVEYOR TOP R/H INNER FLARE	1

Part No.	Part Description	Quantity
51. F3980000	CONVEYOR CHASSIS SUPPORT ARM	2
52. F4310000	CONVEYOR RETURN ROLLER GUARD	1
53. F4000000	CONVEYOR TOP L/H OUTER FLARE	1
54. F4010000	CONVEYOR TOP R/H OUTER FLARE	1
55. F4020000	CONVEYOR TOP L/H HEAD FLARE	1
56. F4030000	CONVEYOR TOP R/H HEAD FLARE	1
57. F4050000	CONVEYOR TAIL DRUM GUARD	1
58. F4070000	CONVEYOR CENTER ROLLER SUPPORT	6
59. F4080000	CONVEYOR SUPPORT BRACKET	6
60. F4090000	CONVEYOR TAIL DRUM SIDE GUARD SUPPORT	1
61. F4110000	CONVEYOR BOTTOM SUPPORT BEAM	1
62. F4120000	CONVEYOR BOTTOM SUPPORT BEAM BEARING RETAINER	2
63. F4130000	PIVOT ARM FOR RETURN ROLLER	2
64. F4140000	CONVEYOR WING ROLLER SUPPORT	2
65. F4150000	CONVEYOR WING ROLLER SUPPORT	2
66. F4160000	CONVEYOR PAN ASSEMBLY	1
67. F4170000	CONVEYOR PAN ASSEMBLY	2
68. F4180000	CONVEYOR PAN ASSEMBLY	2
69. F4250000	PLASTIC WEAR LINER	2
70. F4530000	CONVEYOR FEED BOOT RUBBER CLAMP	1
71. FD3116	SPAREX LYNCH PIN	2
72. FD4006	LOCK OUTER WITH OUT STRIKER	2
73. HAC300002	30 mm DOUBLE PIPE CLAMP	2
74. HM1037	HYDRAULIC MOTOR	2
75. HR1001	HYDRAULIC RAM	2
76. HR1087	HYDRAULIC RAM	2
77. PN1130	PIVOT PIN	2
78. PN1156	TAIL CONVEYOR HEIGHT ADJUST PIN	2
79. PN1157	LOCKOUT PIN	2
80. D7140000	IMPACT BAR	5
81. T5390000	SLAPPER ROLLER	1
82. T6130000	CONVEYOR SLIDER ADJUSTER BOLT ASSEMBLY	2

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9. FINES SIDE CONVEYOR



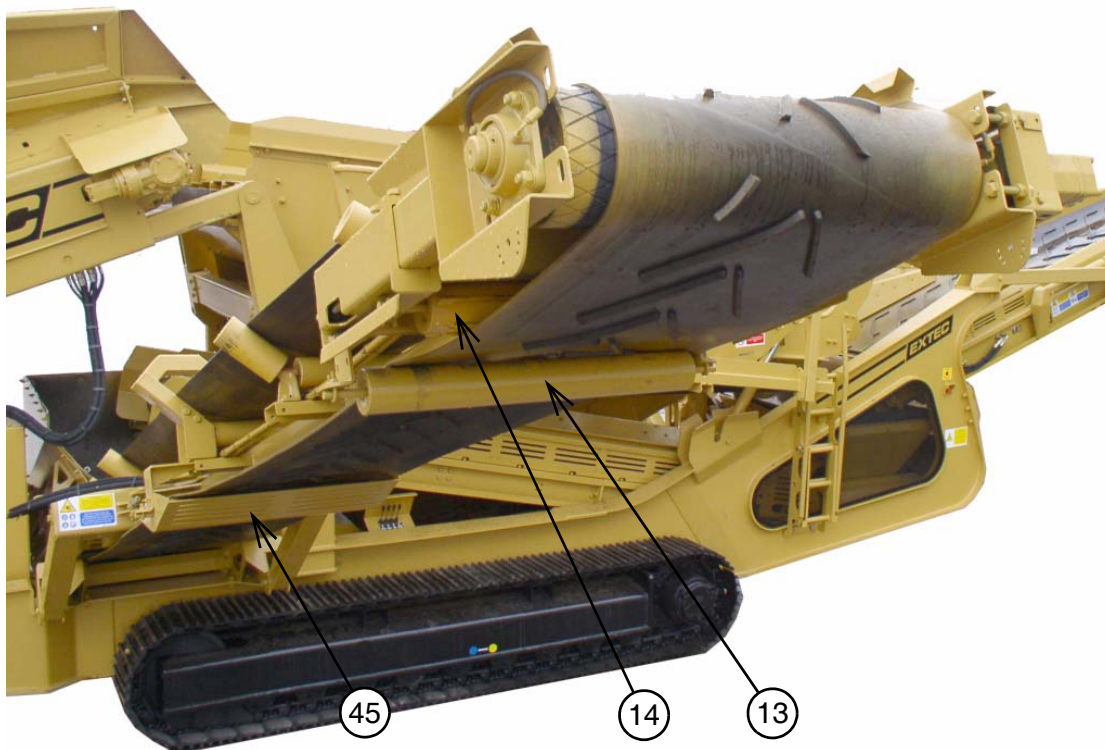
1: FINES SIDE CONVEYOR ASSEMBLY



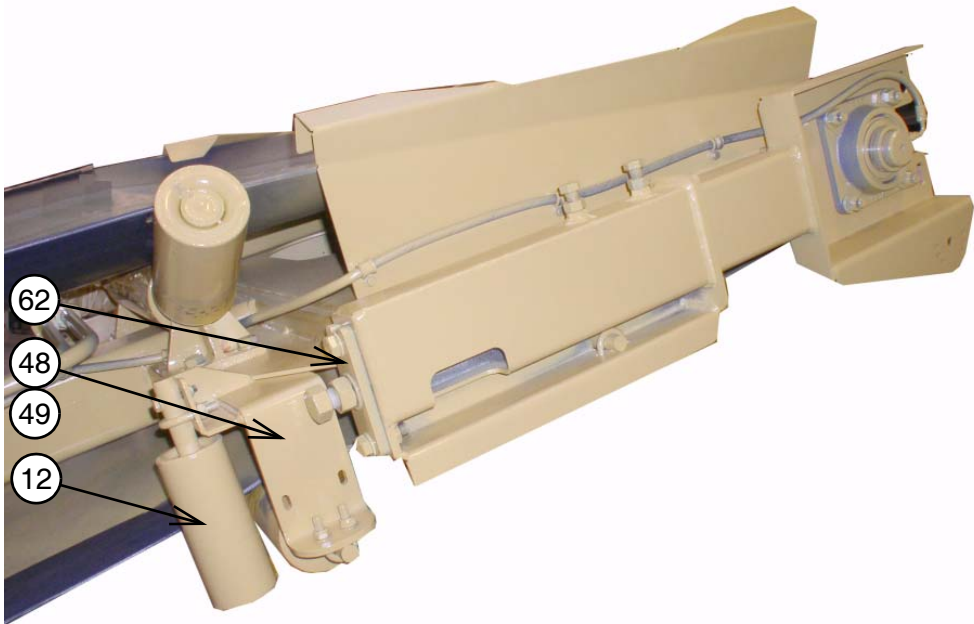
2: FINES SIDE CONVEYOR DRIVE END



3: FINES SIDE CONVEYOR SPINE PIVOT



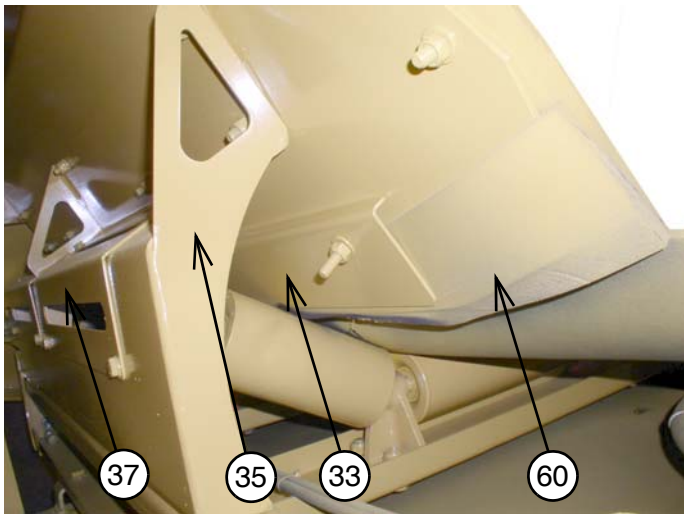
4: FINES SIDE CONVEYOR RETURN ROLLERS



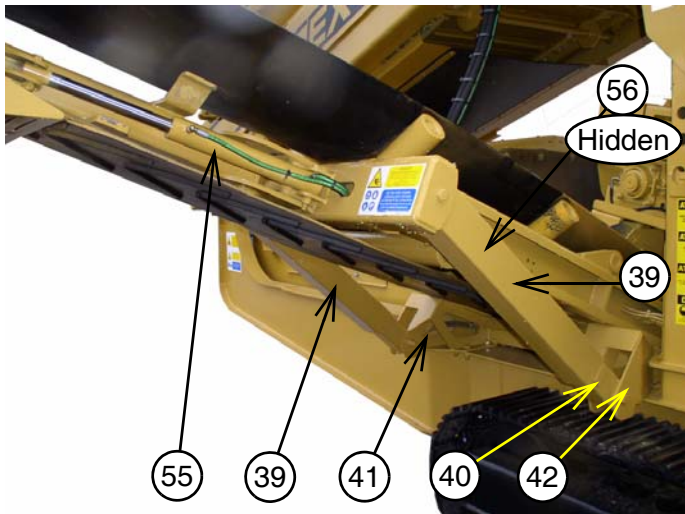
5: SIDE CONVEYOR TRACKING ROLLER



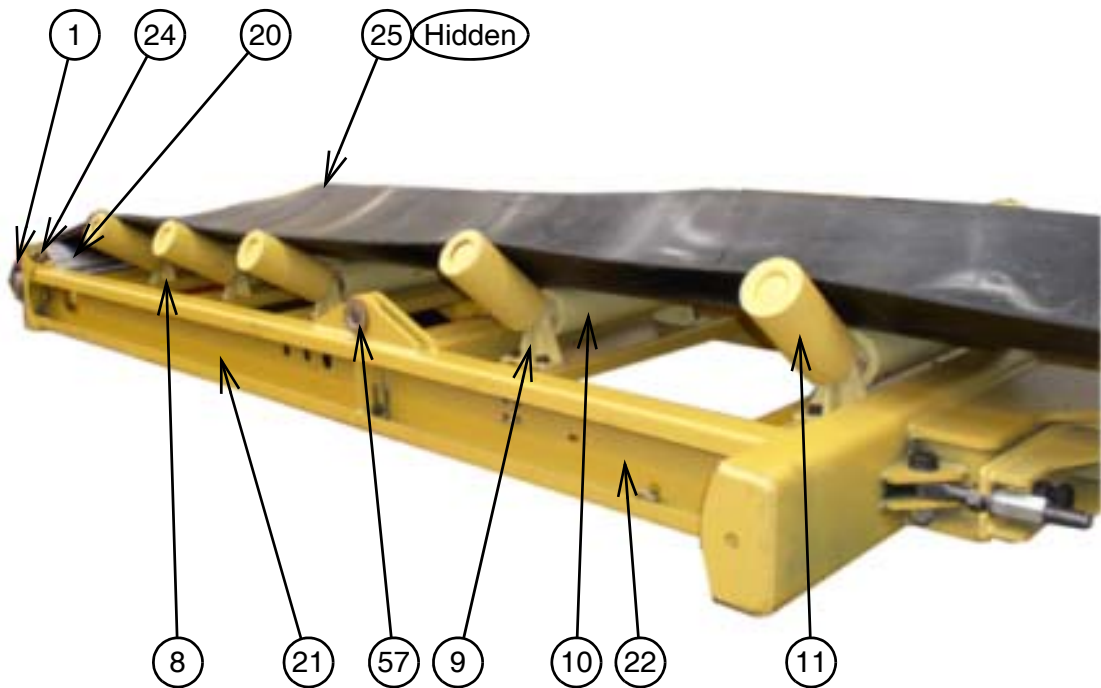
6: FINES SIDE CONVEYOR FEED BOOT



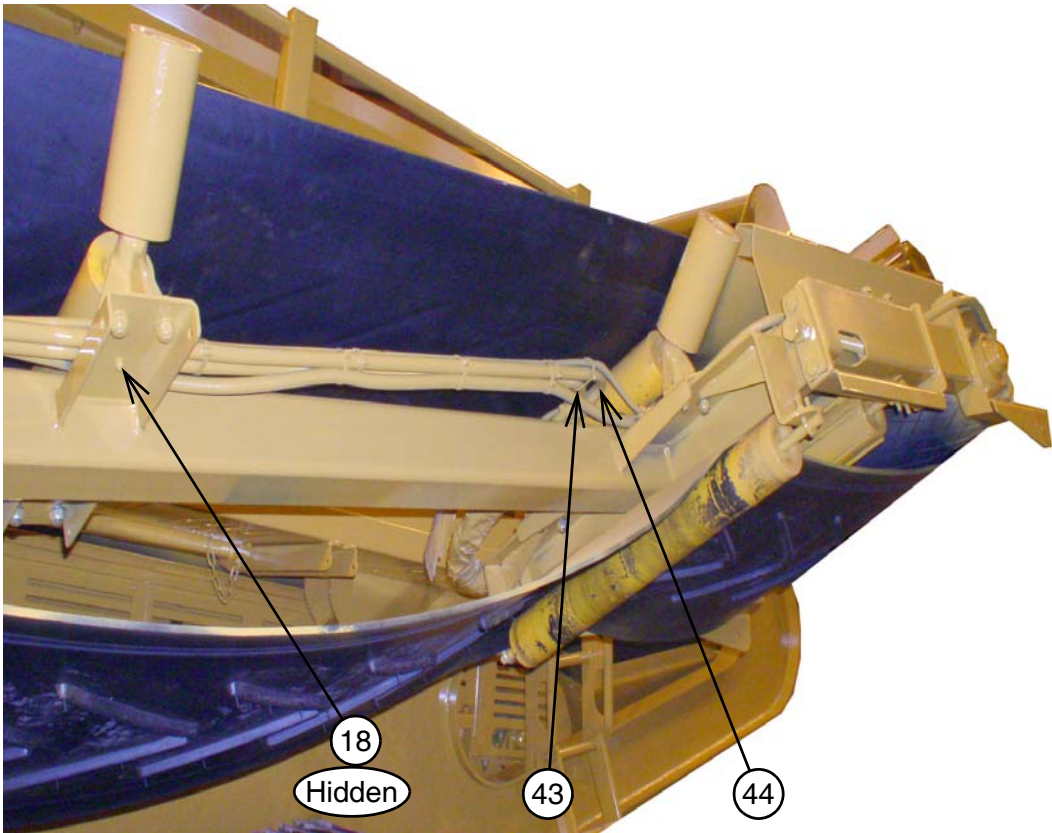
7: VIEW ON CONVEYOR GUARDS



8: CONVEYOR TELESCOPIC LEGS



9: VIEW ON FINES SIDE CONVEYOR BOTTOM



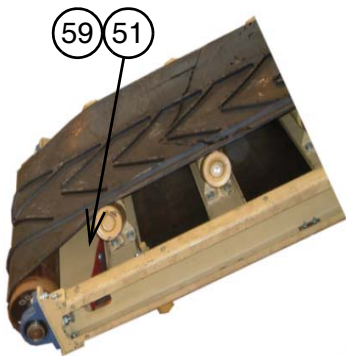
10: CONVEYOR PIPES



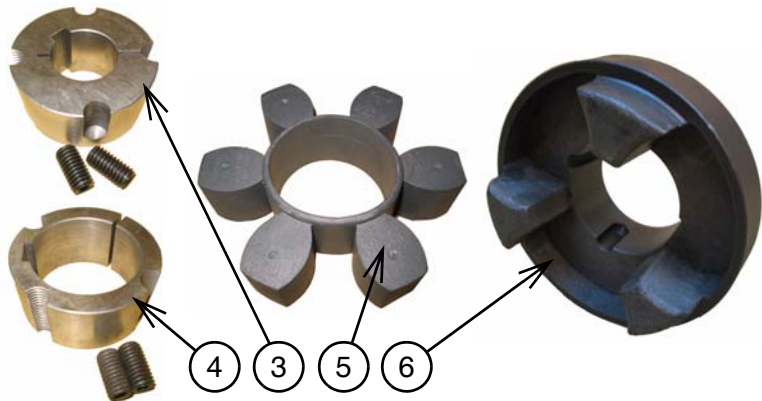
11: DRUM GUARD



12: FINES SIDE CONVEYOR RETURN ROLLERS



13: VIEW ON CONVEYOR TAIL



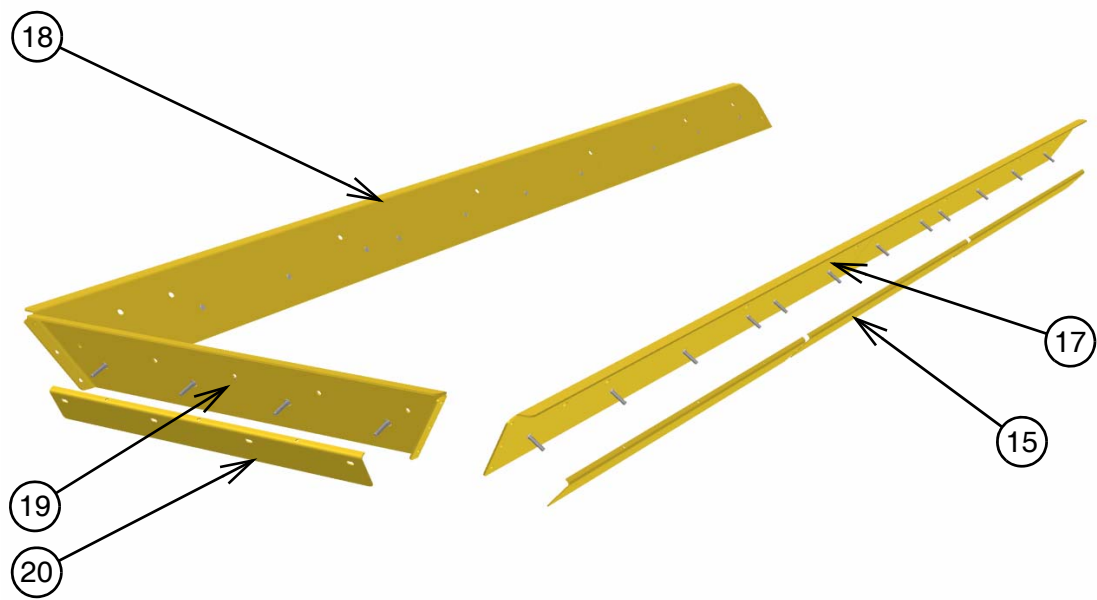
14: DRIVE COUPLING

Part No.	Part Description	Quantity
1. BT1009	PLUMBER BEARING	2
2. BT2009	BEARING	2
3. BT5005	TAPERLOCK	1
4. BT5006	TAPERLOCK	1
5. BT6514	INSERT	1
6. BT6515	COUPLING INCLUDES 3, 4, 5	1

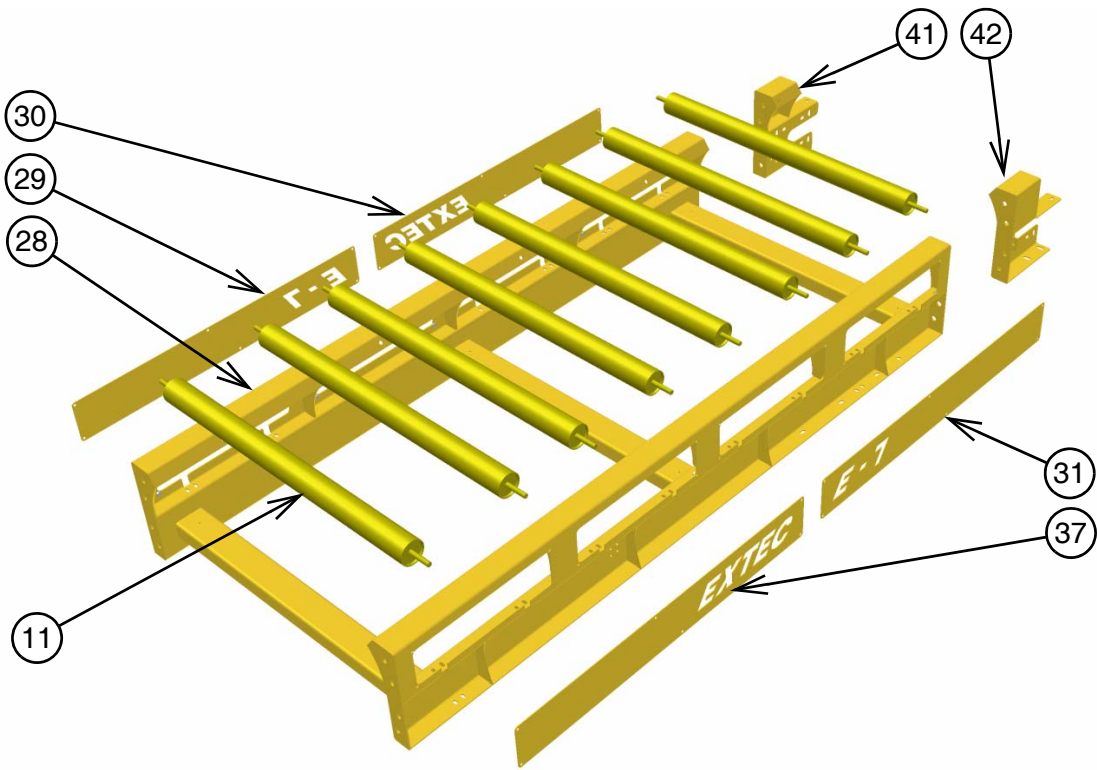
Part No.	Part Description	Quantity
7. CB15350800CH	CHEVRON BELT	1
8. CR1004	30° ROLLER BRACKET	8
9. CR1006	40° ROLLER BRACKET	8
10. CR1008	CENTRE ROLLER	8
11. CR1011	WING ROLLER	16
12. CR1024	TRACKING ROLLER	2
13. CR1060	800 WIDE SIDE CONVEYOR RETURN ROLLER	5
14. CR1061	SIDE CONVEYOR SLAPPER ROLLER	1
15. D10430000	CONVEYOR MOTOR MOUNTING BRACKET	1
16. E0240000	MOTOR MOUNTING PLATES	1
17. E0250000	MOTOR MOUNTING BOTTOM BRACKET COVER	1
18. E2910000	PIPE CLAMP	2
19. E3290000	800mm WIDE CONVEYOR DRIVE DRUM	1
20. E3300000	800mm WIDE CONVEYOR TAIL DRUM	1
21. E3320000	CONVEYOR BOTTOM FRAME ASSEMBLY	1
22. E3330000	CONVEYOR SIDE MID FRAME ASSEMBLY	1
23. E3340000	CONVEYOR FOLD SPINE ASSEMBLY	1
24. E3350000	CONVEYOR DRUM TRACKING ADJUSTER	1
25. E3360000	CONVEYOR DRUM TRACKING ADJUSTER	1
26. E3380000	CONVEYOR HEAD DRUM SLIDER	1
27. E3390000	CONVEYOR HEAD DRUM SLIDER	1
28. E3400000	CONVEYOR HEAD DRUM NIP GUARD	1
29. E3410000	CONVEYOR HEAD DRUM NIP GUARD	1
30. E3460000	CONVEYOR FEED BOOT SIDE	1
31. E3470000	CONVEYOR FEED BOOT SIDE	1
32. E3480000	CONVEYOR FEED BOOT BACK PLATE	1
33. E3490000	FEED BOOT SIDE RUBBER CLAMP	1
34. E3500000	FEED BOOT SIDE RUBBER CLAMP	1
35. E3510000	CONVEYOR FEED BOOT SIDE SUPPORT	1
36. E3520000	CONVEYOR FEED BOOT SIDE SUPPORT	1
37. E3530000	SIDE CONVEYOR FEED BOOT SIDE SUPPT GUARD	4
38. E3540000	CONVEYOR FEED BOOT TAIL DRUM GUARD	1
39. E3550000	CONVEYOR TELESCOPIC LEG OUTER	2
40. E3560000	CONVEYOR TELESCOPIC LEG INNER	2
41. E3570000	CHASSIS SUPPORT STOOL	1

Part No.	Part Description	Quantity
42. E3580000	CHASSIS SUPPORT STOOL	1
43. E3750000	STEEL PIPE	1
44. E3760000	STEEL PIPE	1
45. E3780000	RETURN ROLLER GUARD	1
46. E3790000	CONVEYOR NIP GUARD	1
47. E3830000	PIPE GUIDE PLATE	1
48. E3920000	TRACKING ROLLER BRACKET	1
49. E3930000	TRACKING ROLLER BRACKET	1
50. E3970000	SIDE CONVEYOR BARRIER	1
51. E3980000	TAIL DRUM PLOUGH SCRAPER	1
52. E4540000	RETURN ROLLER BREACKET	1
53. E4550000	RETURN ROLLER BREACKET	1
54. HM1036	HYDRAULIC MOTOR	1
55. HR1078	TELESCOPIC LEG RAM	1
56. HR1084	TELESCOPIC LEG RAM	2
57. PN1132	PIVOT PIN	2
58. PN1158	PIVOT PIN	1
59. PY1001	POLY SCRAPER	1
60. RU1019	BIR.2350X100X10	2
61. T10070000	TORQUE ARM	1
62. T6130000	CONVEYOR SLIDER ADJUSTER BOLT ASSEMBLY	2

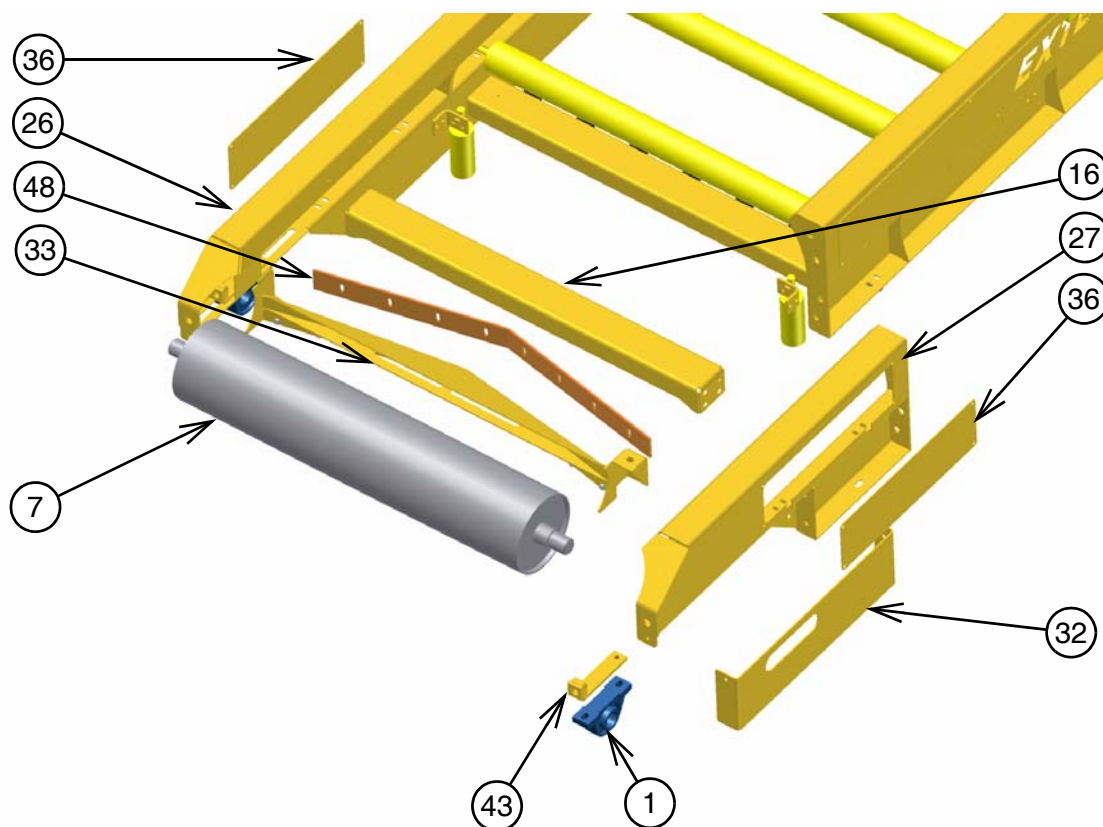
10. FINES COLLECTOR CONVEYOR



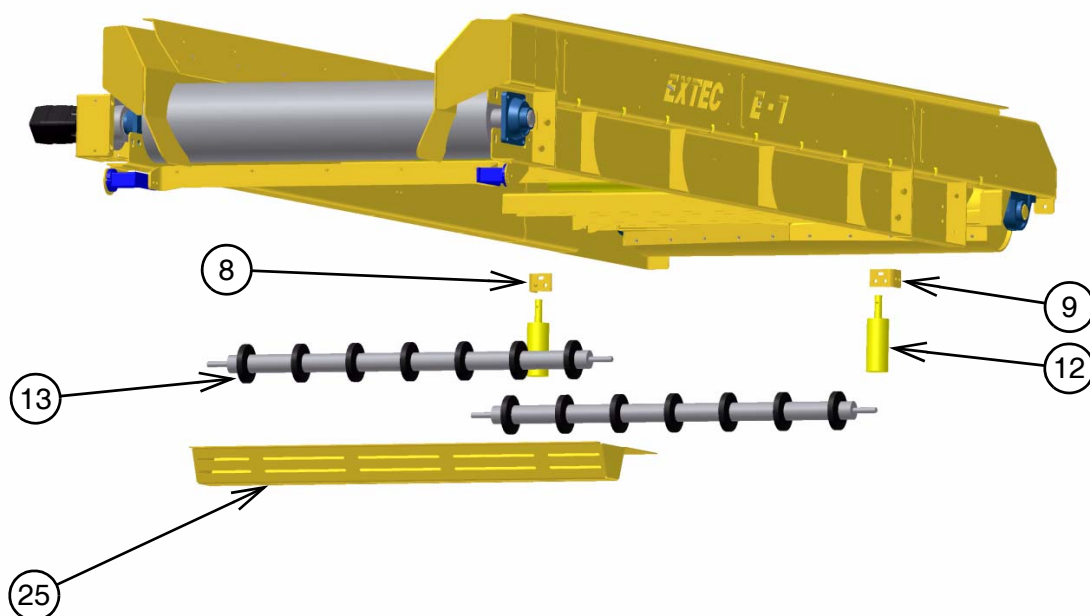
1: FINES COLLECTOR FEED BOOT ASSEMBLY



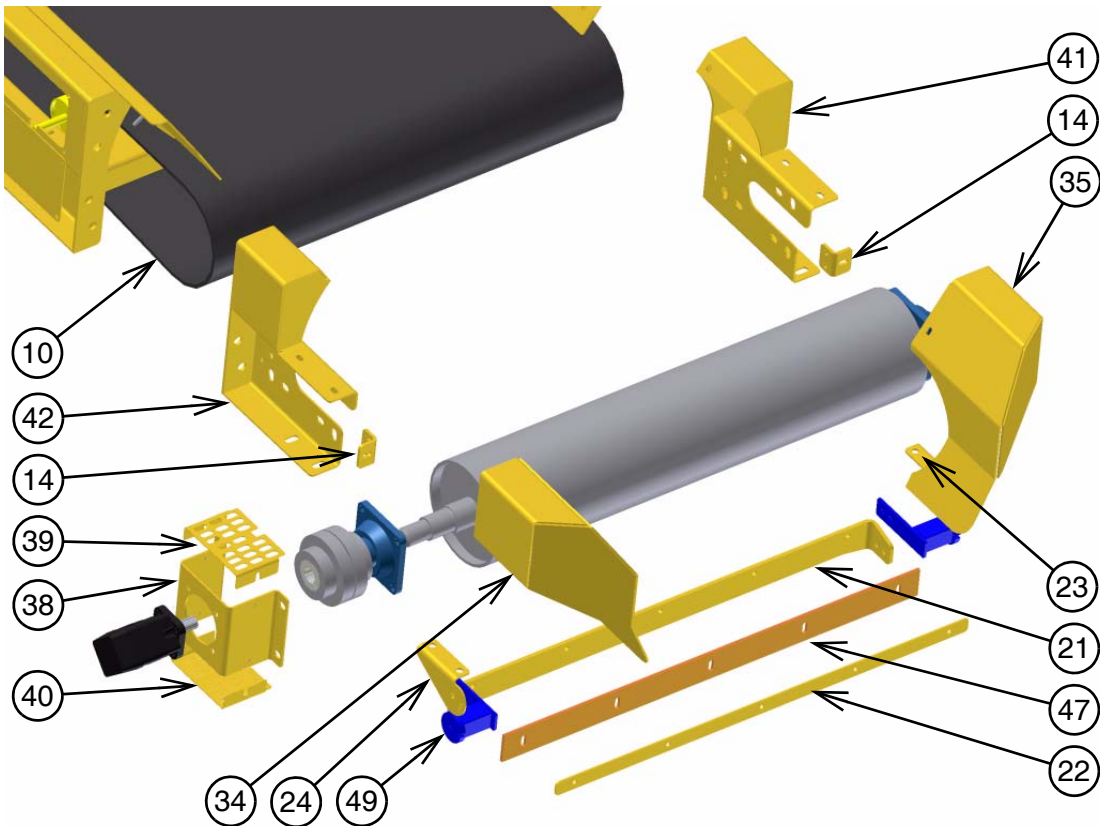
2: CONVEYOR FRAME



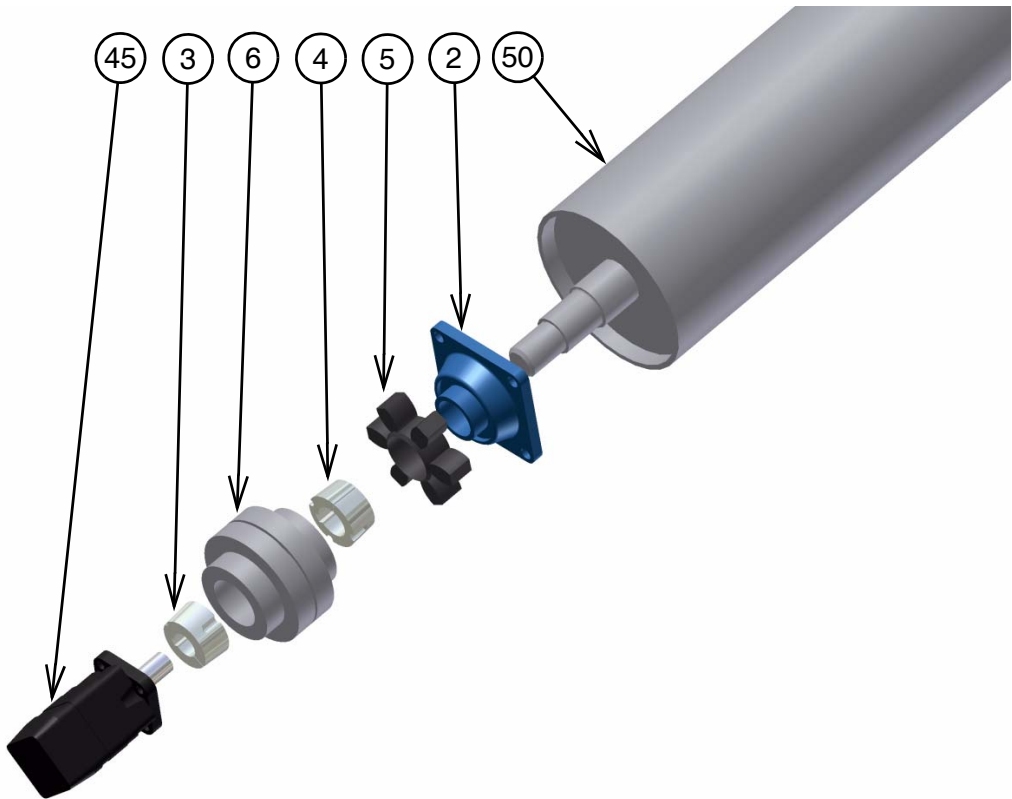
3: VIEW ON FINES COLLECTOR TAIL DRUM



4: VIEW UNDERNEATH FINES COLLECTOR CONVEYOR



5: FINES COLLECTOR HEAD DRUM



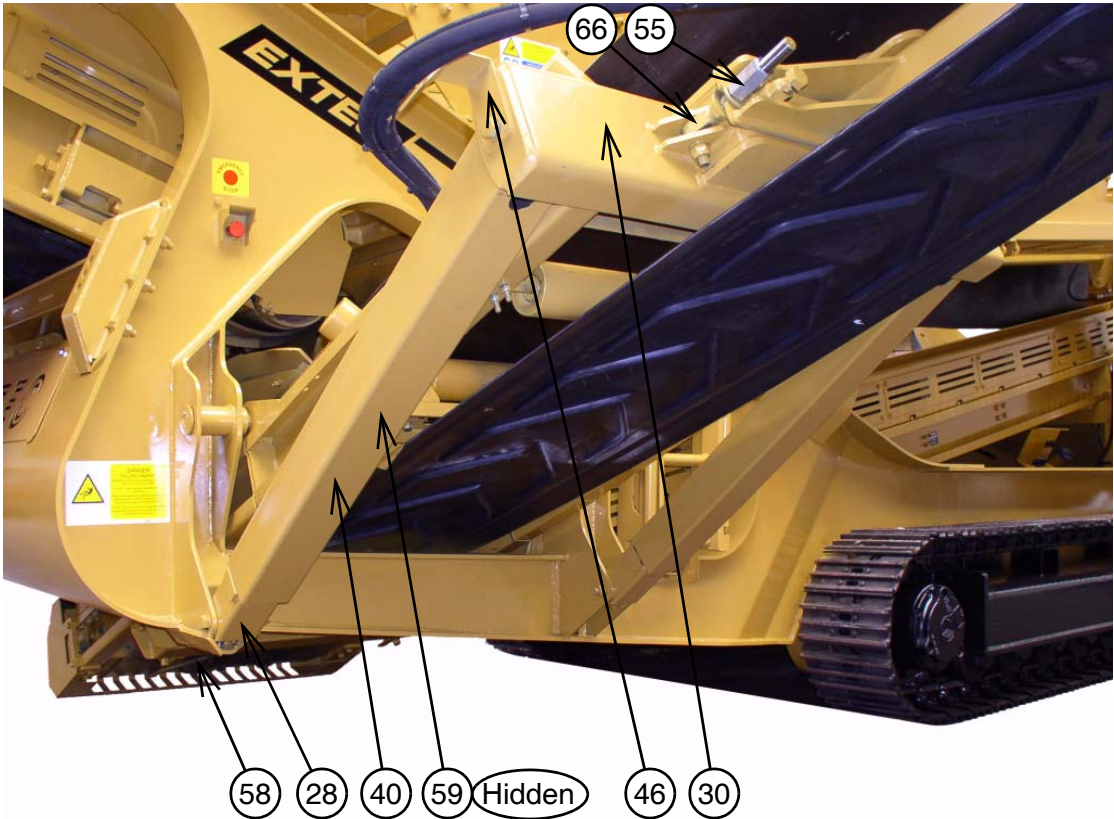
6: DRIVE COUPLING

Part No.	Part Description	Quantity
1. BT1009	PLUMBER BLOCK BEARING	2
2. BT2010	BEARING FLANGE	2
3. BT5009	TAPER LOCK BUSH	1
4. BT5010	50mm TAPER LOCK	1
5. BT6516	DRIVE COUPLING INSERT	1
6. BT6517	DRIVE COUPLING COMPLETE WITH T LOCK BUSHES	1
7. C0090000	TAIL DRUM	1
8. C0140000	TRACKING ROLLER BRACKET	1
9. C0150000	TRACKING ROLLER BRACKET	1
10. CB95301200	ENDLESS CONVEYOR BELT	1
11. CR1005	RETURN ROLLER	10
12. CR1024	TRACKING ROLLER	2
13. CR1040	TAIL CONVEYOR DISC RETURN	2
14. D3780000	BEARING ADJUSTER	2
15. D10640000	CONVEYOR FEED BOOT SIDE RUBBER CLAMP	6
16. D11240000	CROSS MEMBER	4
17. D11250000	FEED BOOT L/H SIDE PLATE	1
18. D11260000	FEED BOOT R/H SIDE PLATE	1
19. D11270000	FEED BOOT BACK PANEL	1
20. D11280000	REAR RUBBER CLAMP	1
21. D11360000	HEAD DRUM SCRAPER	1
22. D11370000	HEAD DRUM SCRAPER CLAMP	1
23. D11400000	SCRAPER R/H BRACKET	1
24. D11410000	SCRAPER L/H BRACKET	1
25. D11780000	QE340 FINES CONVEYOR RETURN ROLLER GUARD	1
26. D12240000	QE340 FINES TAIL DRUM FRAME	1
27. D12250000	QE340 FINES TAIL DRUM FRAME	1
28. D12260000	QE340 FINES CONV. MAIN FRAME	1
29. D12290000	QE340 FINES CONV. SIDE COVER	1
30. D12300000	QE340 FINES CONV. SIDE COVER	1
31. D12310000	QE340 FINES CONV. SIDE COVER	1
32. D12320000	QE340 FINES CONV. C.E. GUARD	1
33. D12330000	QE340 FINES CONV. TAIL DRUM SCRAPER	1
34. D12340000	QE340 FINES CONV. DRUM SEAL	1

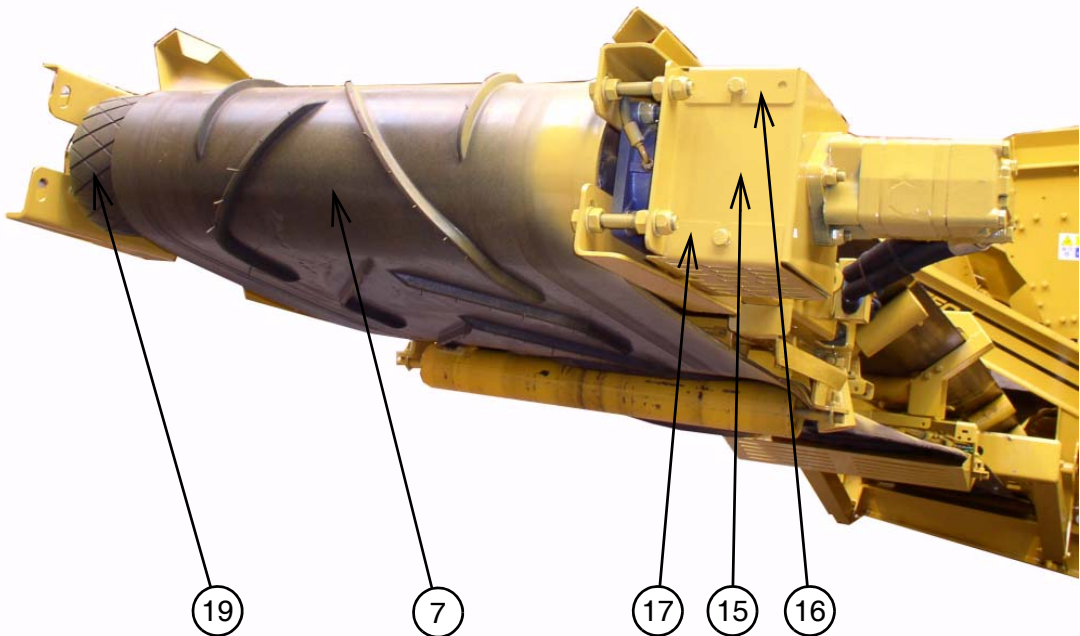
Part No.	Part Description	Quantity
35. D12350000	QE340 FINES CONV. DRUM SEAL	1
36. D12360000	QE340 FINES CONV. BTM COVER	2
37. D12370000	QE340 FINES CON COVER PLATE	1
38. D15610000	OMT MOTOR MOUNTING BRACKET	1
39. D15620000	MOTOR MOUNTING BRACKET BOTTOM COVER	1
40. D15630000	MOTOR MOUNTING BRACKET BOTTOM COVER	1
41. D15640000	QE340 FINES HEAD DRUM SECTION	1
42. D15650000	QE340 FINES HEAD DRUM SECTION	1
43. E0150000	TAILDRUM BEARING SLIDER	2
44. E3970000	SIDE CONVEYOR BARRIER	1
45. HM1016	HYDRAULIC MOTOR	1
46. PN1034	M24 X 190 ADJUSTER BOLT M24 NUT	2
47. PY1015	1220X80X8 P.SCRAPER (RED)	1
48. PY1019	POLY SCRAPER	1
49. RU5501	TENSIONING ELEMENT	2
50. T8850000	COLLECTOR CONVEYOR HEAD DRUM	1

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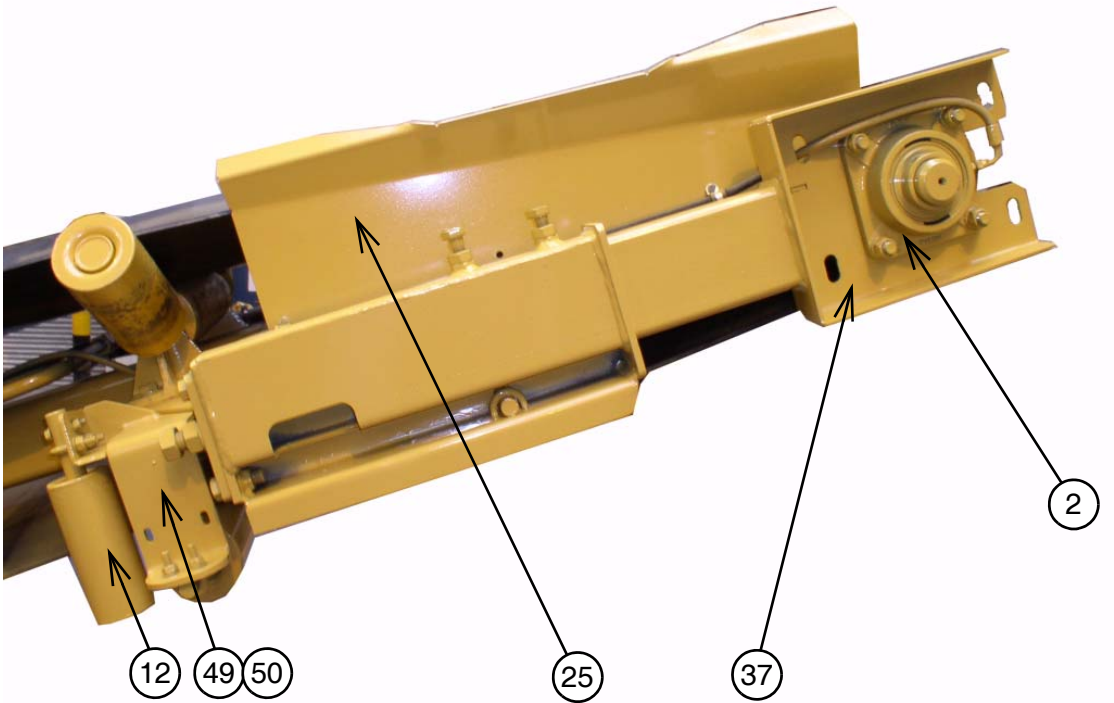
11. MID GRADE SIDE CONVEYOR



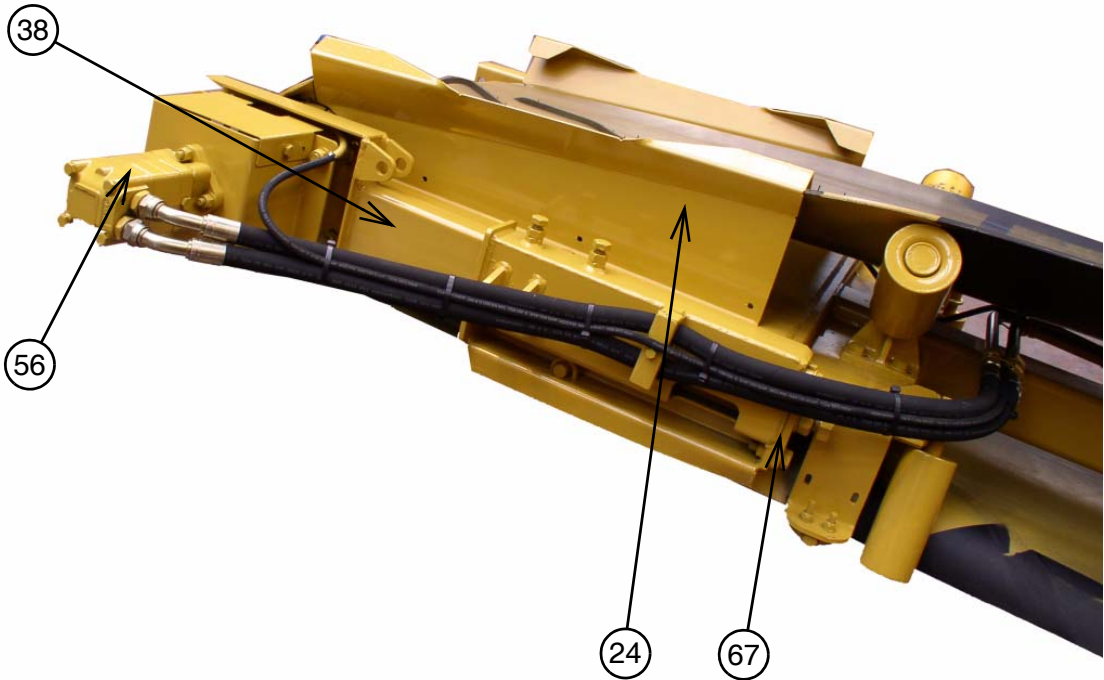
1: CONVEYOR TELESCOPIC LEGS



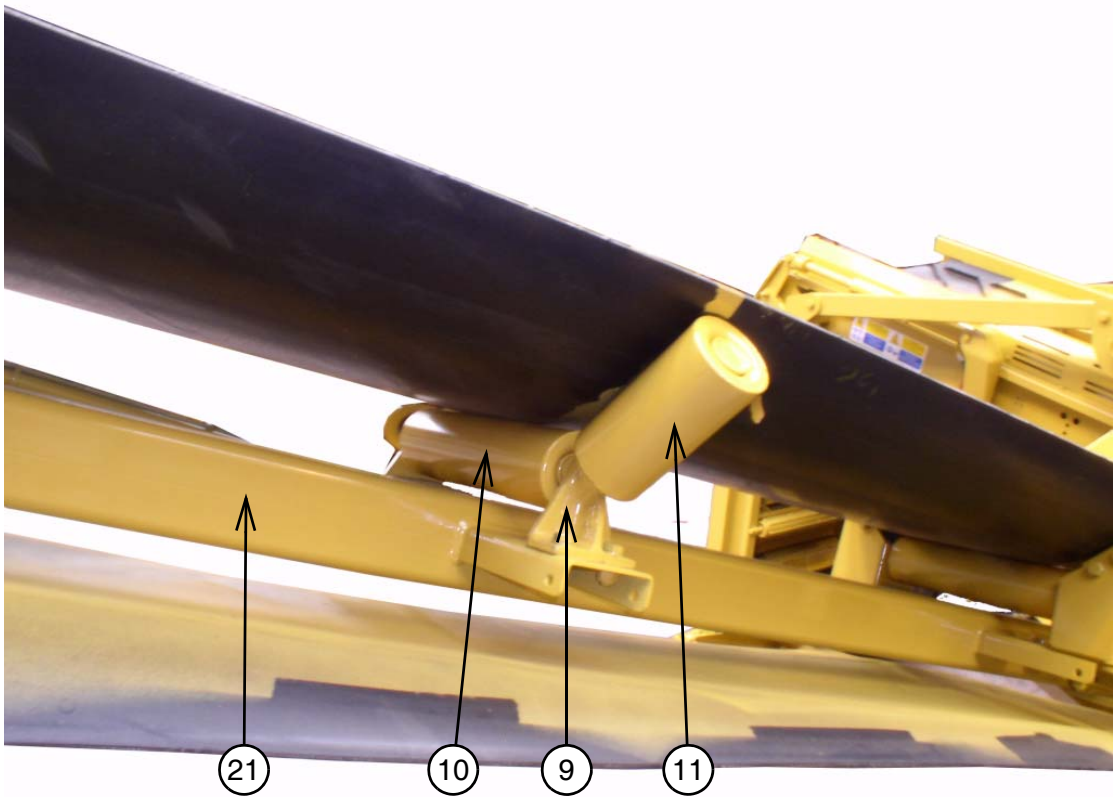
2: MID GRADE SIDE CONVEYOR HEAD DRUM



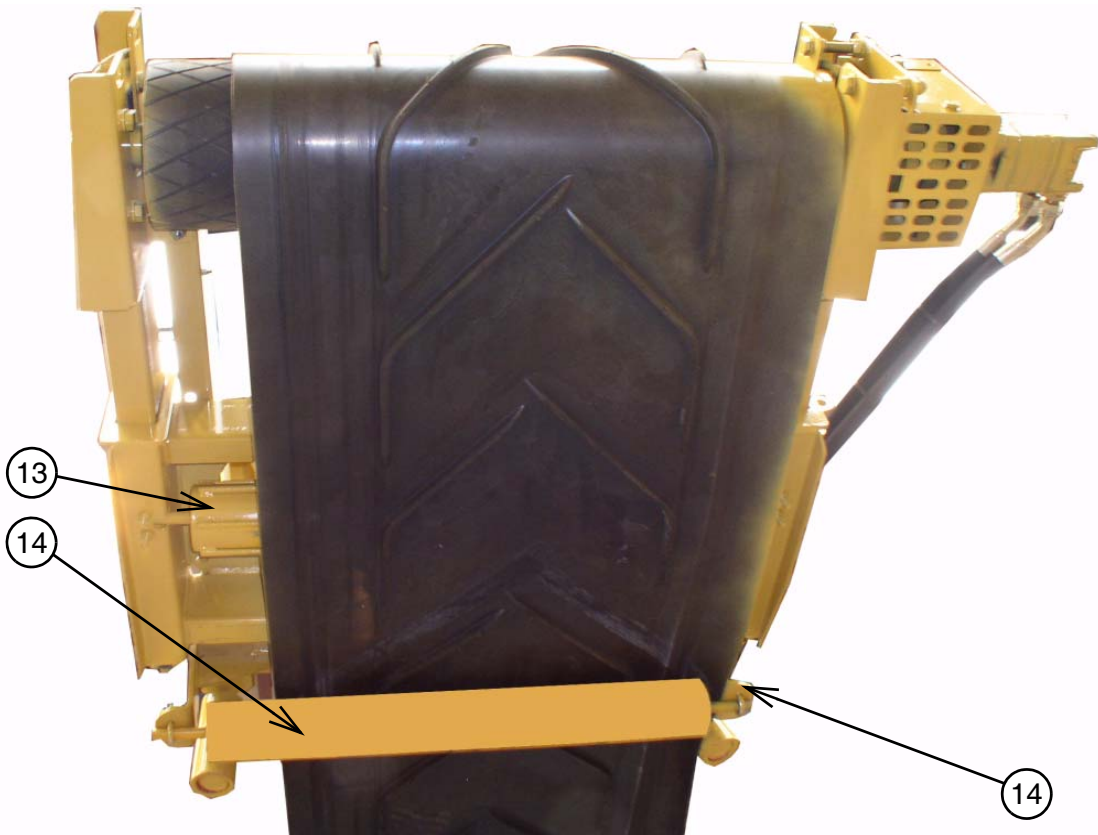
3: MID GRADE SIDE CONVEYOR HEAD DRUM



4: MID GRADE SIDE CONVEYOR HEAD DRUM



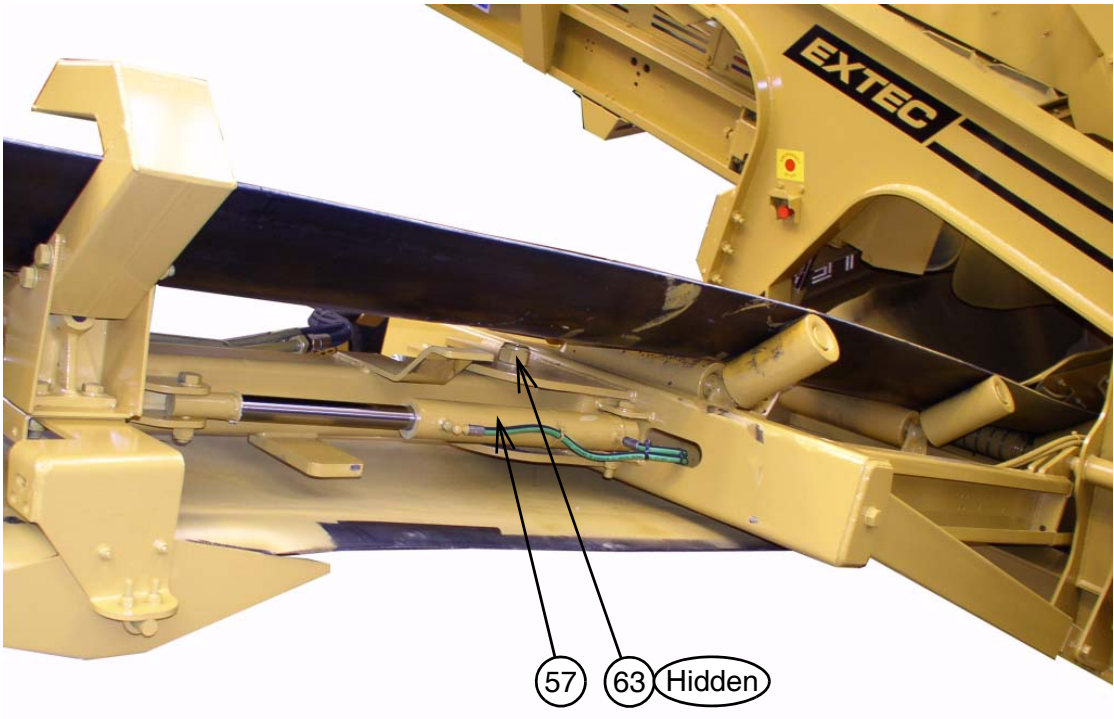
5: MID GRADE SIDE CONVEYOR RETURN ROLLERS



6: MID GRADE SIDE CONVEYOR RETURN ROLLERS



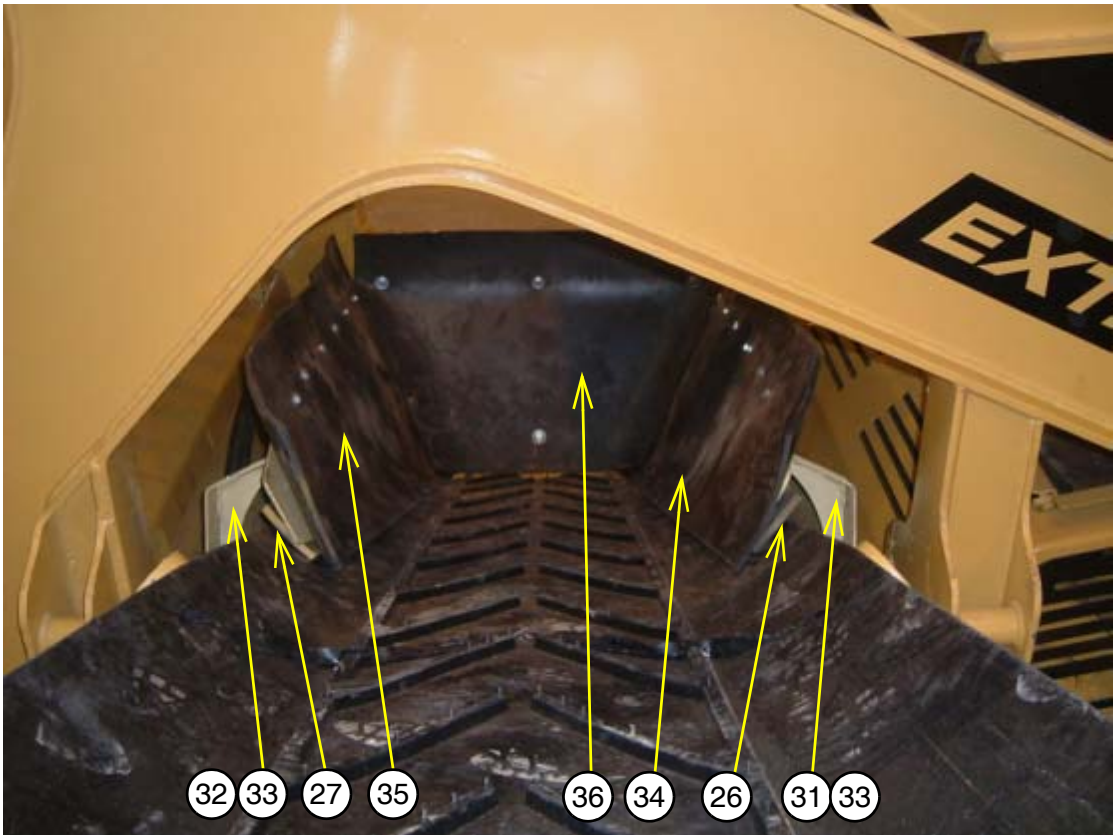
7: MID GRADE SIDE CONVEYOR RETURN ROLLERS



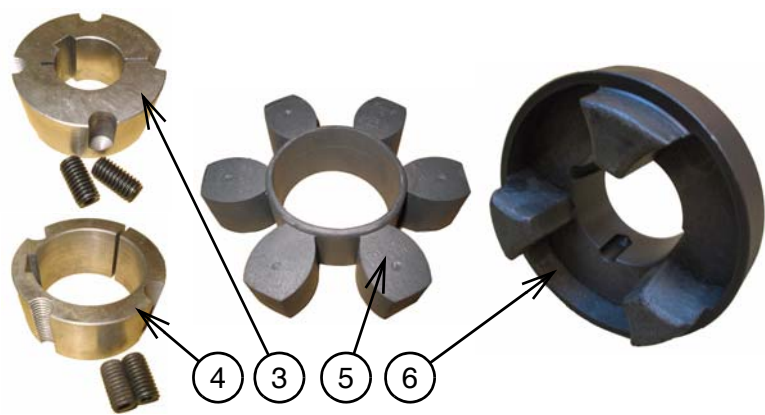
8: HYDRAULIC RAM



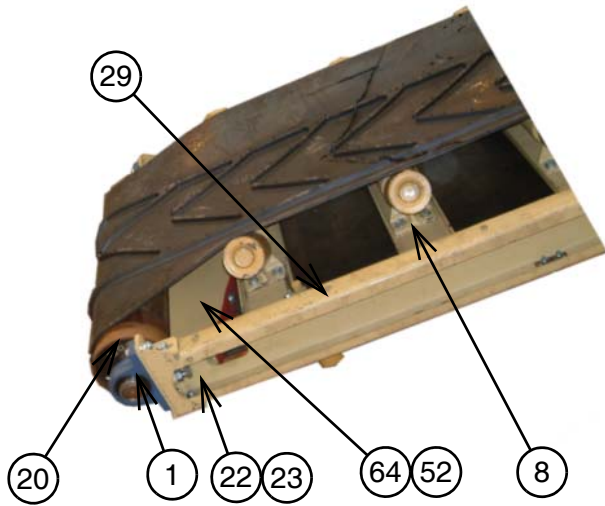
9: FLARE



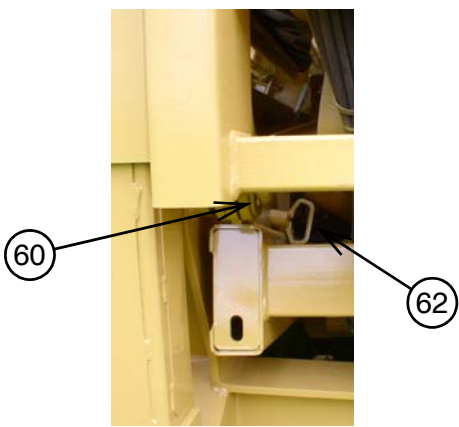
10: MID GRADE SIDE CONVEYOR FEED BOOT



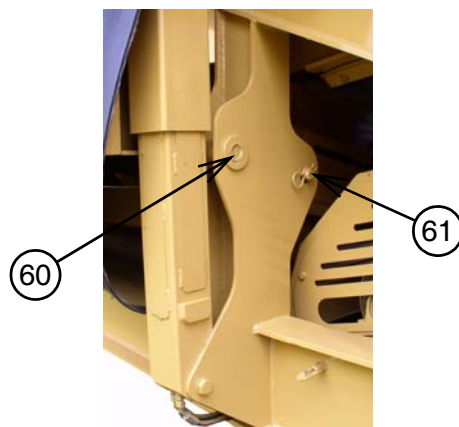
11: DRIVE COUPLING



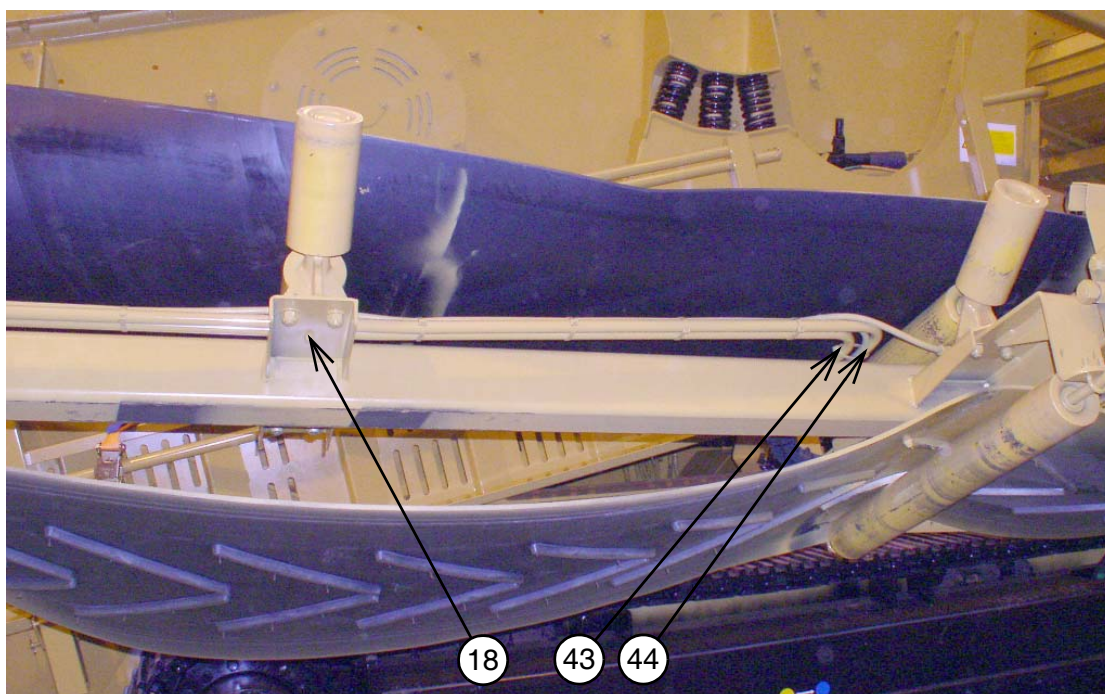
12: MID GRADE SIDE CONVEYOR TAIL DRUM



13: PIVOT AND LOCKING PINS



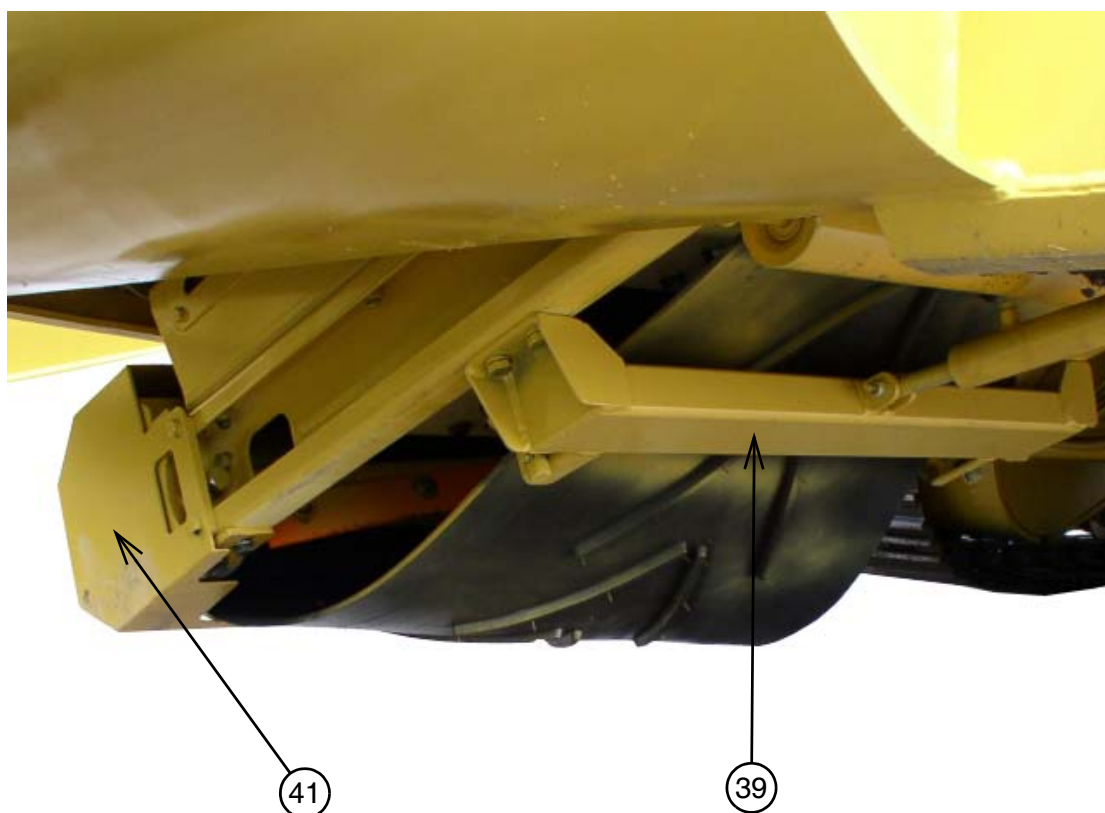
14: PIVOT AND LOCKING PINS



15: VIEW ON CONVEYOR PIPES



16: DRUM GUARD



17: VIEW ON BOTTOM END OF CONVEYOR

Part No.	Part Description	Quantity
1. BT1009	TAIL DRUM PLUMBER BLOCK BEARING SY55TF	2
2. BT2009	BEARING	2
3. BT5005	TAPER LOCK	1
4. BT5006	TAPER LOCK	1
5. BT6514	SPIDER INSERT	1
6. BT6515	COUPLING INCLUDES 3, 4, 5	1
7. CB15900800CH	800 WIDE 15.90 MTRS CHEVRON - EP400/3.3=1.5 (MID S/CONV)	1
8. CR1004	30° ROLLER BRACKET 44XT	8
9. CR1006	40° ROLLER BRACKET 44XV	8
10. CR1008	CENTRE ROLLER	8
11. CR1011	WING ROLLER	16
12. CR1024	TRACKING ROLLER	2
13. CR1060	800 WIDE SIDE CONVEYOR RETURN ROLLER (ST39000)	4
14. CR1061	SIDE CONVEYOR SLAPPER ROLLER	1
15. D10430000	CONVEYOR MOTOR MOUNTING BRACKET	1

Part No.	Part Description	Quantity
16. E0240000	MOTOR MTG PLTS	1
17. E0250000	MOTOR MTG BRKT BTM COVER	1
18. E2910000	PIPE CLAMP	2
19. E3290000	800mm WIDE CONVEYOR HEAD DRUM	1
20. E3300000	800mm WIDE CONVEYOR TAIL DRUM	1
21. E3340000	FINES SIDE CON FOLD SPINE ASSY	1
22. E3350000	SIDE CON DRUM TRACKING ADJUSTER	1
23. E3360000	SIDE CON DRUM TACKING ADJUSTER	1
24. E3400000	FINES SIDE CON HEAD DRUM NIP GUARD	1
25. E3410000	FINES SIDE CON HEAD DRUM NIP GUARD	1
26. E3490000	FEED BOOT SIDE RUBBER CLAMP	1
27. E3500000	FEED BOOT SIDE RUBBER CLAMP	1
28. E3560000	TELESCOPIC LEG INNER	2
29. E3600000	BTM FRAME ASSY	1
30. E3610000	MID FRAME ASSY	1
31. E3620000	FEED BOOT SUPPORT	1
32. E3630000	FEED BOOT SUPPORT	1
33. E3640000	FEED BOOT SUPPORT COVER	4
34. E3650000	FEED BOOT SIDE PLT	1
35. E3660000	FEED BOOT SIDE PLT	1
36. E3670000	FEED BOOT BACK PLT	1
37. E3680000	HEAD DRUM SLIDER	1
38. E3690000	HEAD DRUM SLIDER	1
39. E3700000	CONVEYOR BEAM	1
40. E3710000	TELESCOPIC LEG OUTER	2
41. E3720000	TAIL DRUM GUARD	1
42. E3730000	TAIL DRUM SPACER	2
43. E3750000	STEEL PIPE	1
44. E3760000	STEEL PIPE	1
45. E3780000	RETURN ROLLER GUARD	1
46. E3830000	PIPE GUIDE PLATE	1
47. E3880000	CONVEYOR SIDE FLARE	2
48. E3890000	CONVEYOR SIDE FLARE SUPPORT	4
49. E3920000	TRACKING ROLLER BRACKET	1
50. E3930000	TRACKING ROLLER BRACKET	1

Part No.	Part Description	Quantity
51. E3970000	SIDE CONVEYOR BARRIER	1
52. E3980000	TAIL DRUM PLOUGH SCRAPER	1
53. E4540000	RETURN ROLLER BREACKET	1
54. E4550000	RETURN ROLLER BREACKET	1
55. FAN24SC	M24 STUD CONNECTOR	1
56. HM1037	HYDRAULIC MOTOR	1
57. HR1078	HYDRAULIC RAM	1
58. HR1001	HYDRAULIC RAM	1
59. HR1085	HYDRAULIC RAM	2
60. PN1037	PIN	2
61. PN1073	TRAVEL LOCK PIN	1
62. PN1154	LOCKOUT PIN	1
63. PN1158	PIVOT PIN	1
64. PY1001	900 x 65 x 8 mm POLY SCRAPER (6 SLOTS)	1
65. RU1019	BIR.2350X100X10	1
66. T10070000	TORQUE ARM	1
67. T6130000	CONVEYOR SLIDER ADJUSTER BOLT ASSY	2

12. POWER PACK



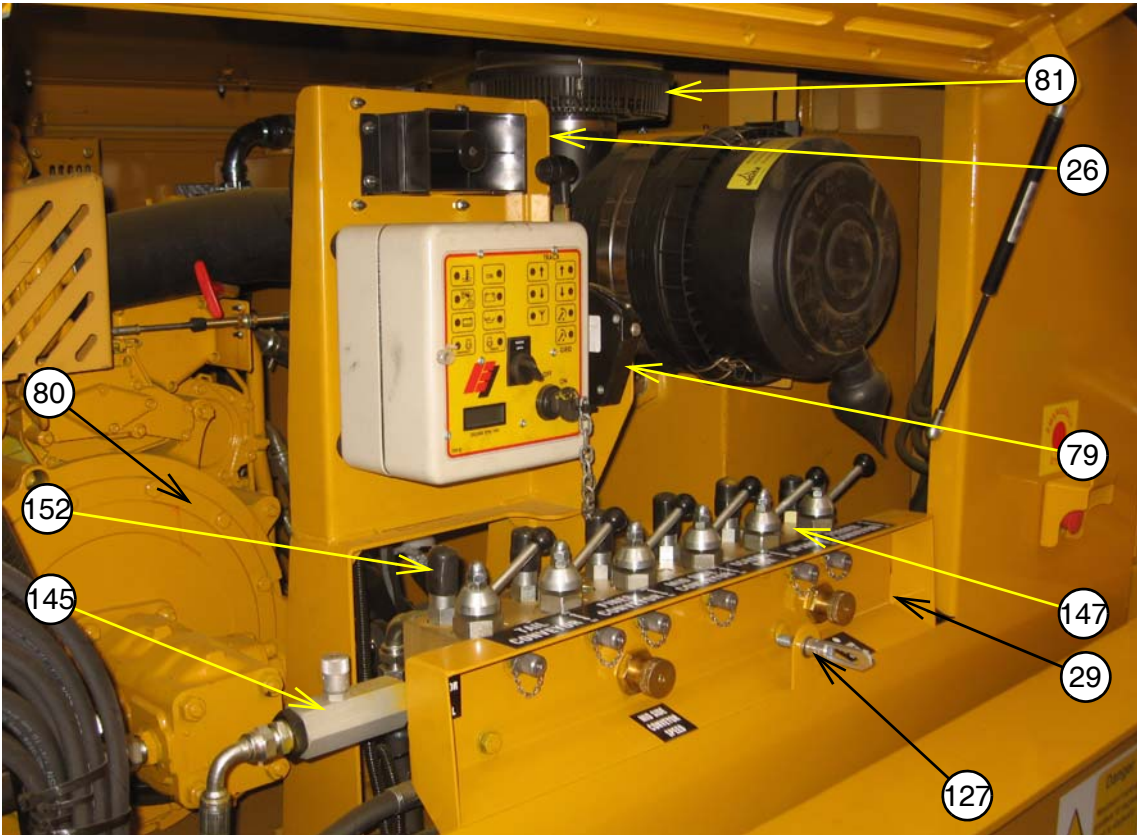
1: VIEW ON L/H SIDE OF POWER PACK



2: VIEW ON R/H SIDE OF POWER PACK



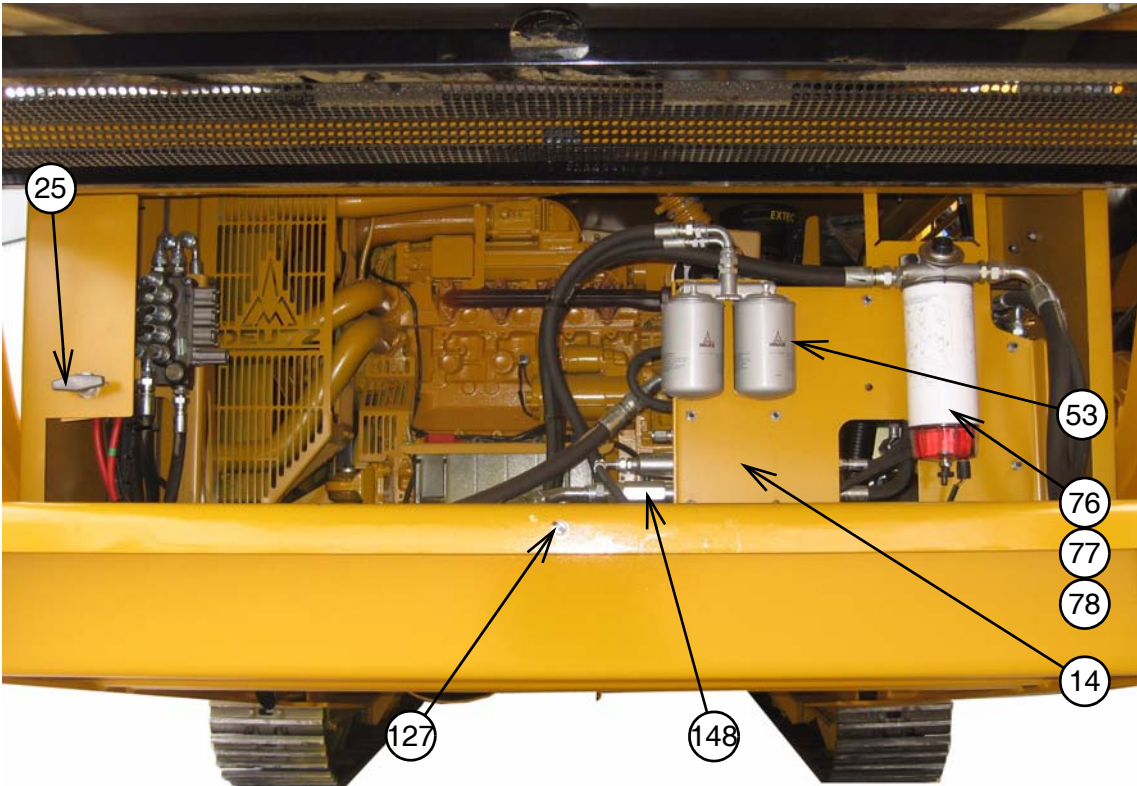
3: VIEW ON EMERGENCY STOP AND FLOW CONTROL



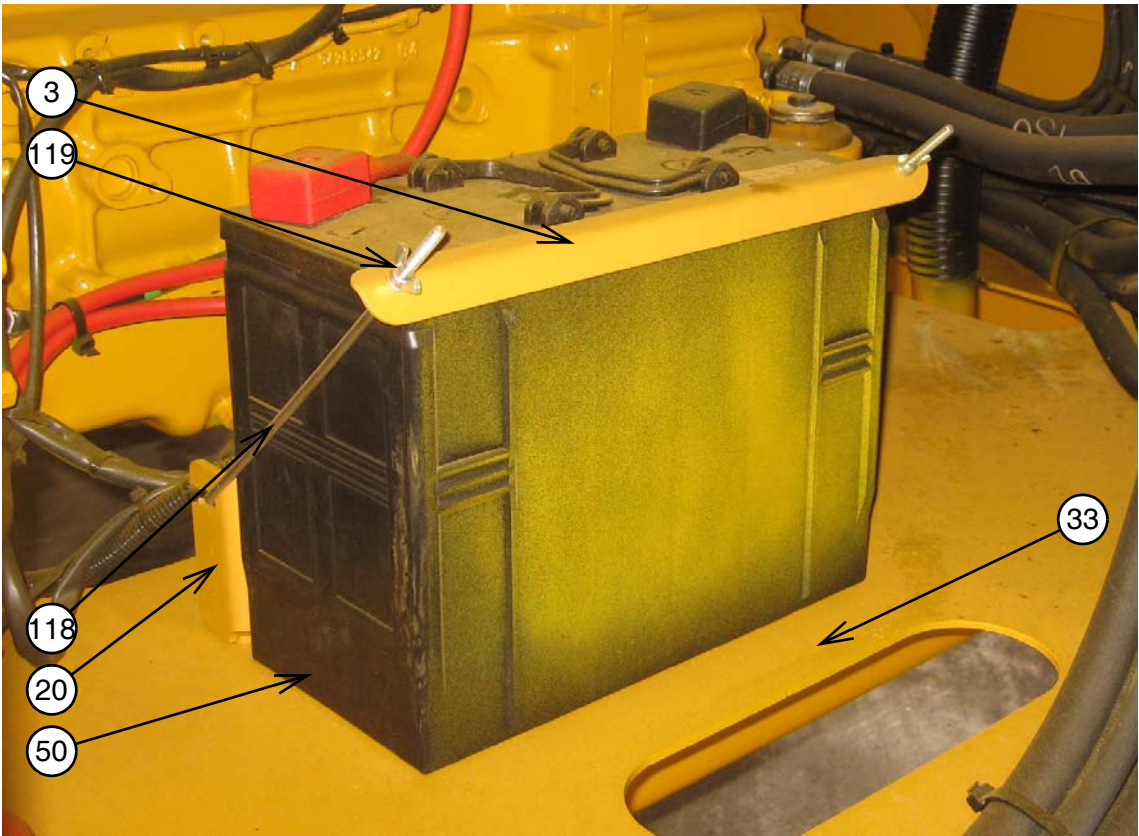
4: DETAILED VIEW ON R/H SIDE OF POWER PACK



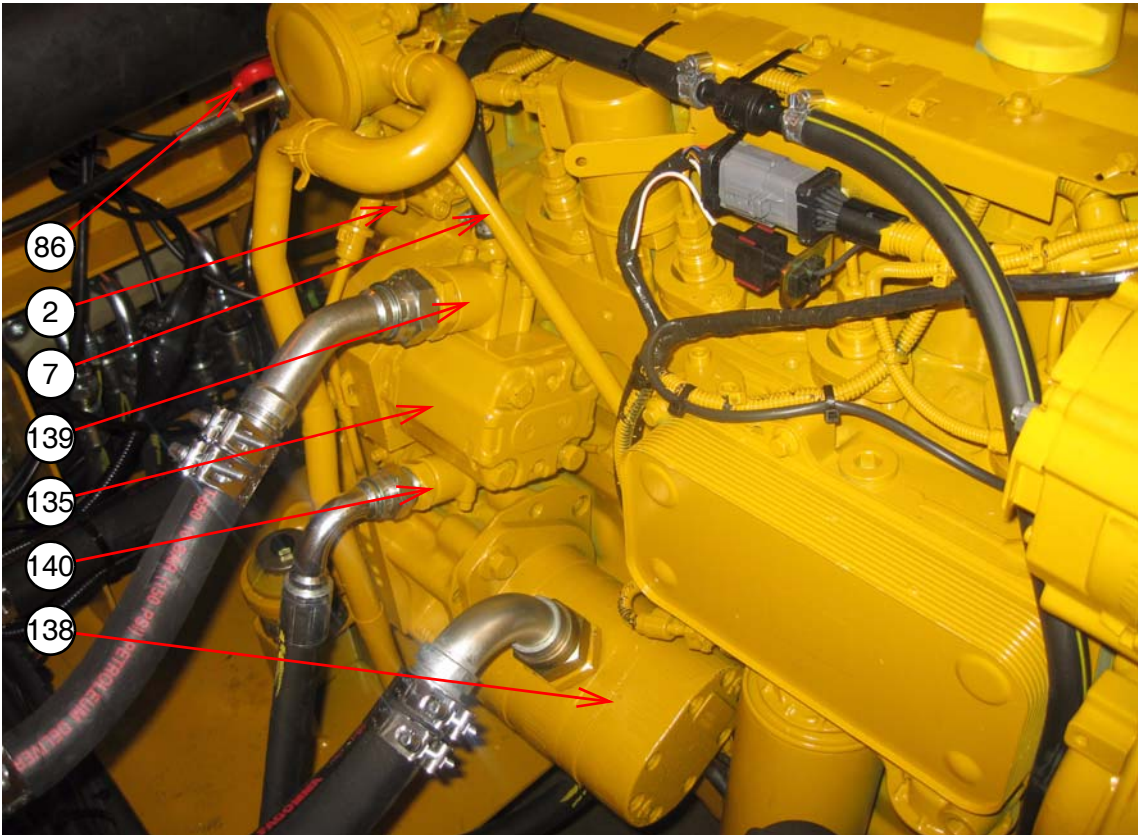
5: VIEW ON L/H SIDE OF POWER PACK



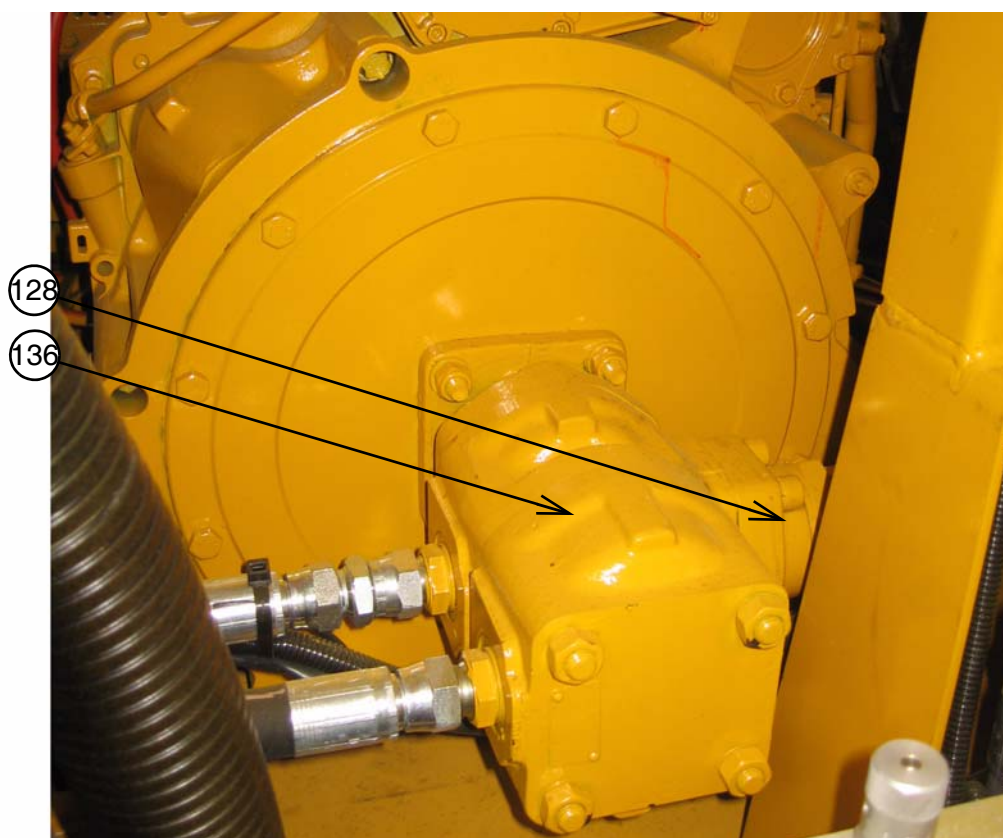
6: VIEW ON REAR OF POWER PACK



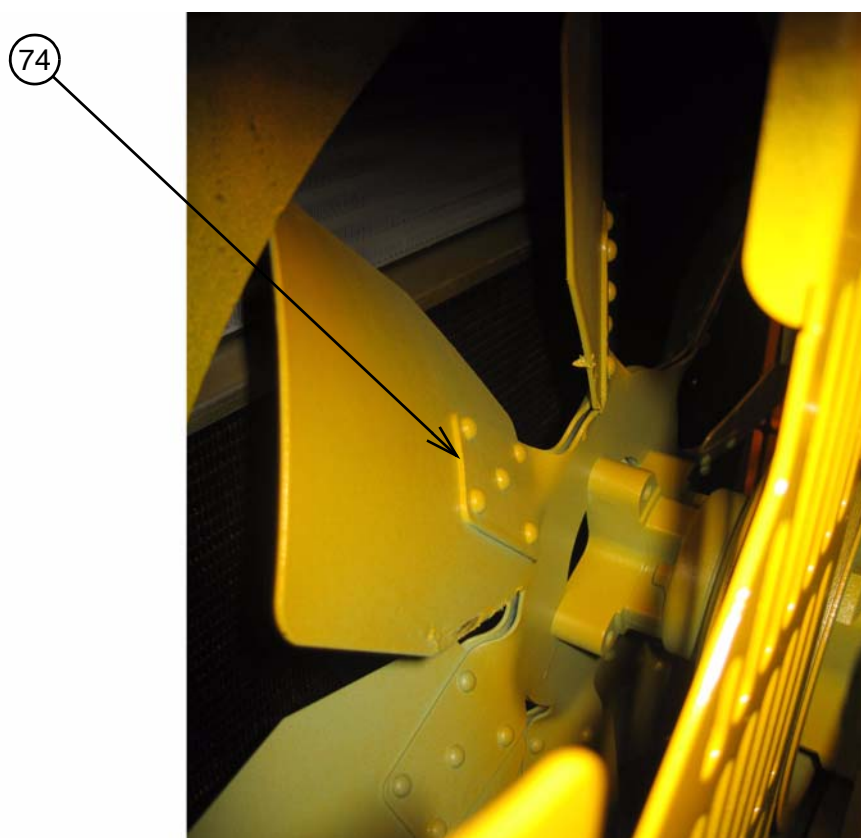
7: VIEW ON FITTED BATTERY



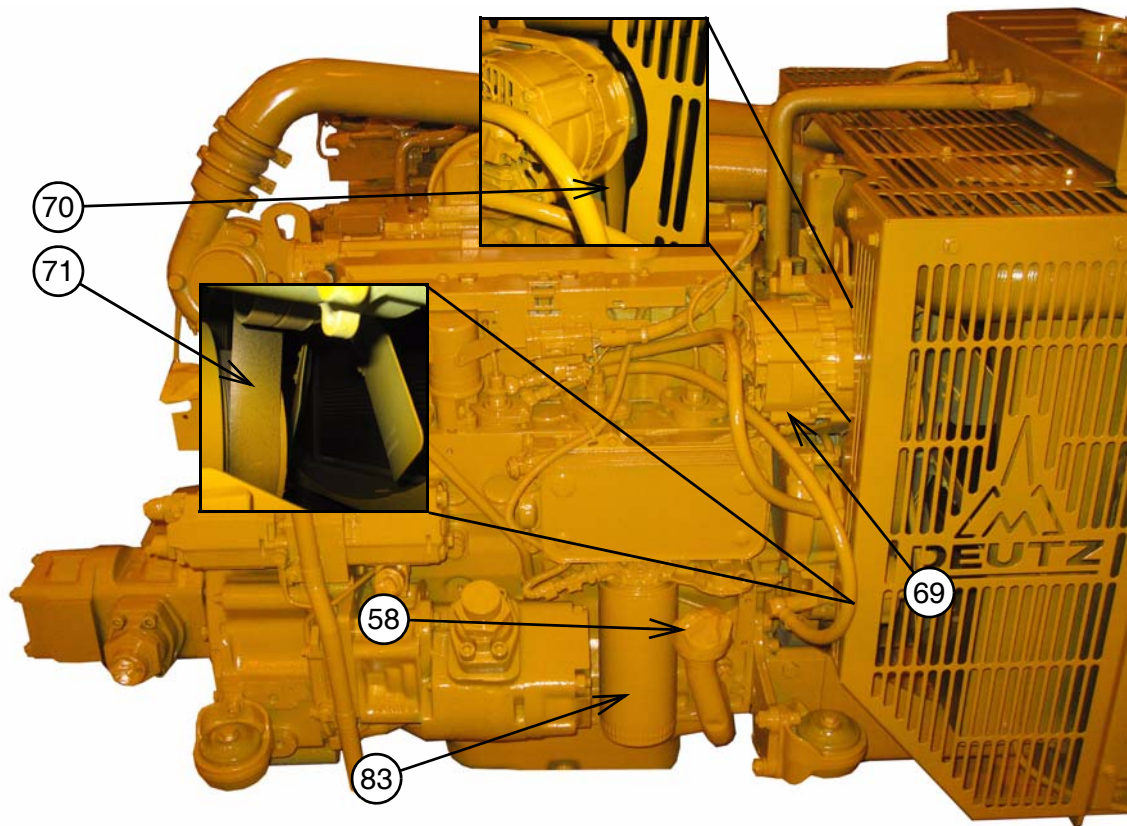
8: DETAILED VIEW INSIDE POWER PACK



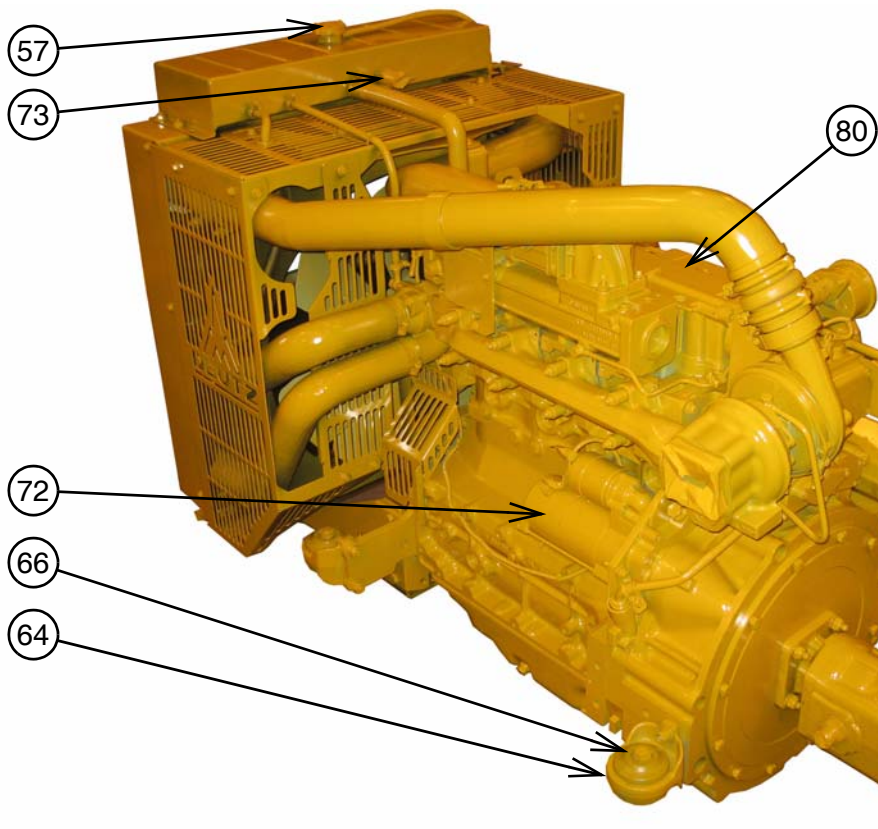
9: VIEW ON HYDRAULIC PUMP



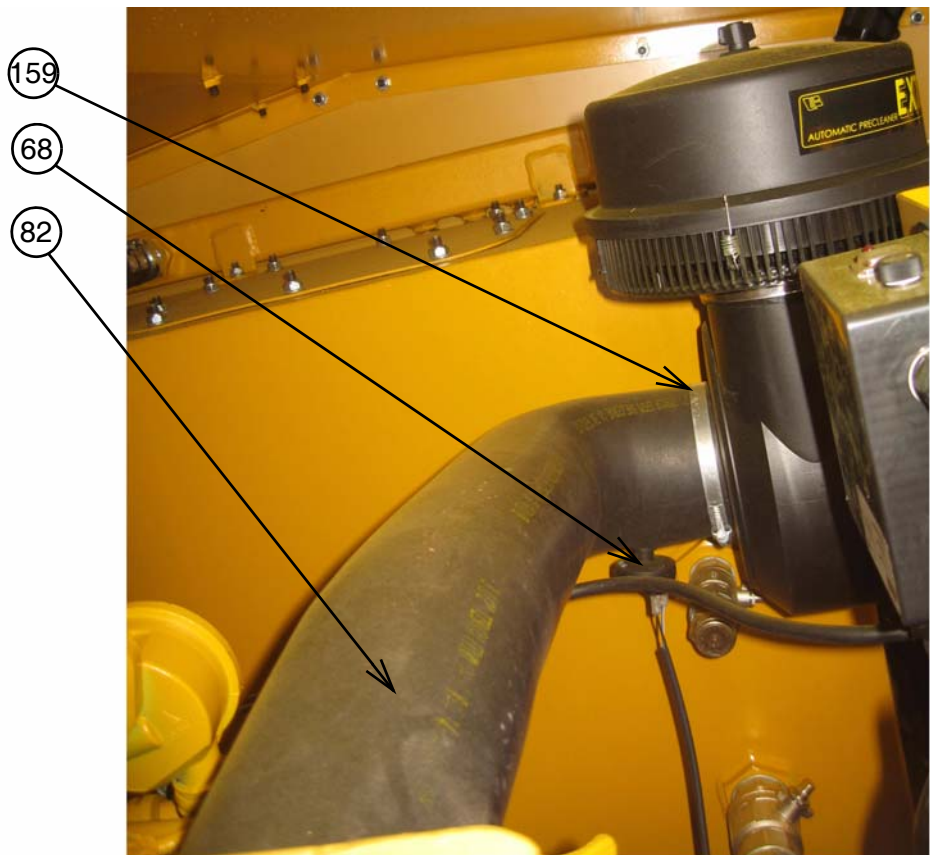
10: DETAILED VIEW OF FAN



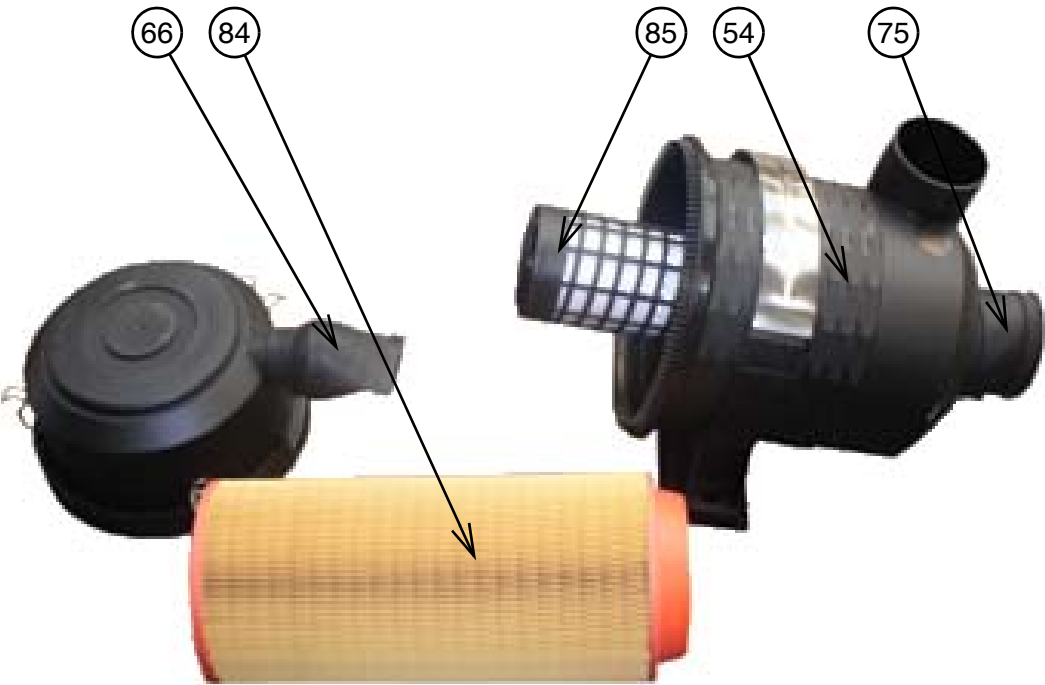
11: VIEW ON PULLEY BELTS



12: VIEW ON ENGINE



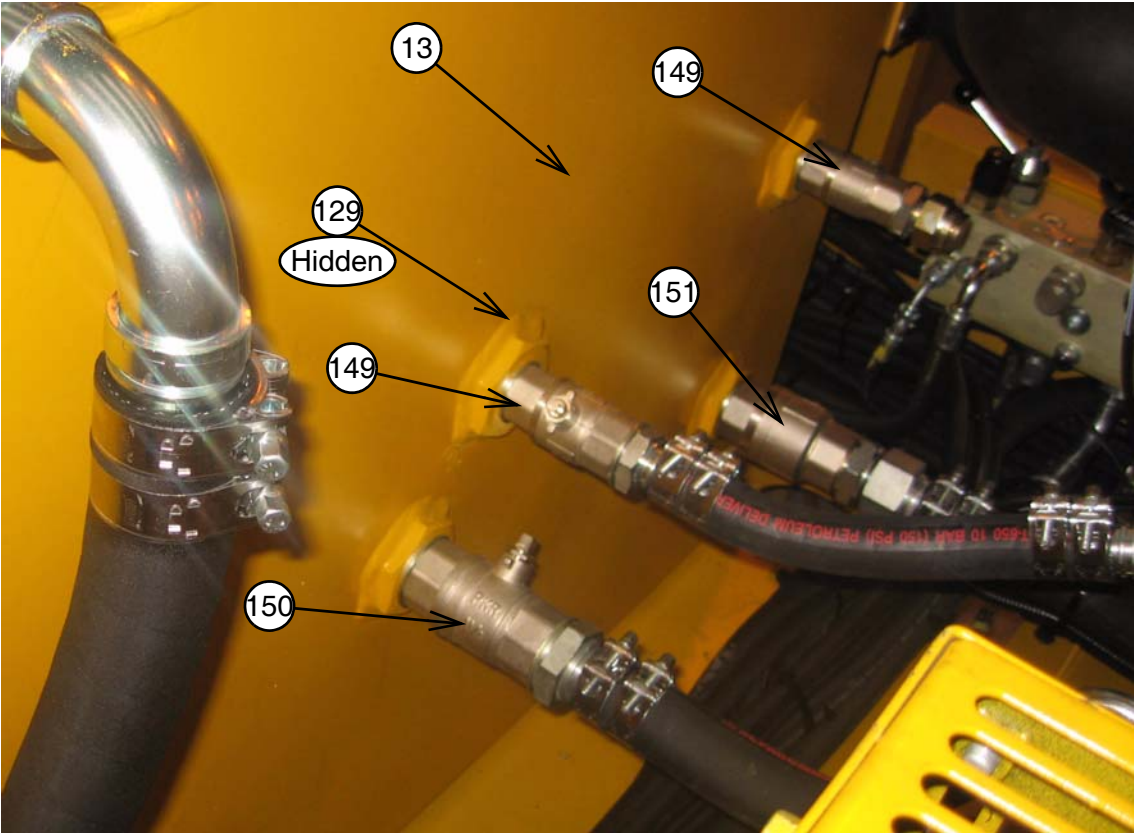
13: VIEW ON AIR INTAKE



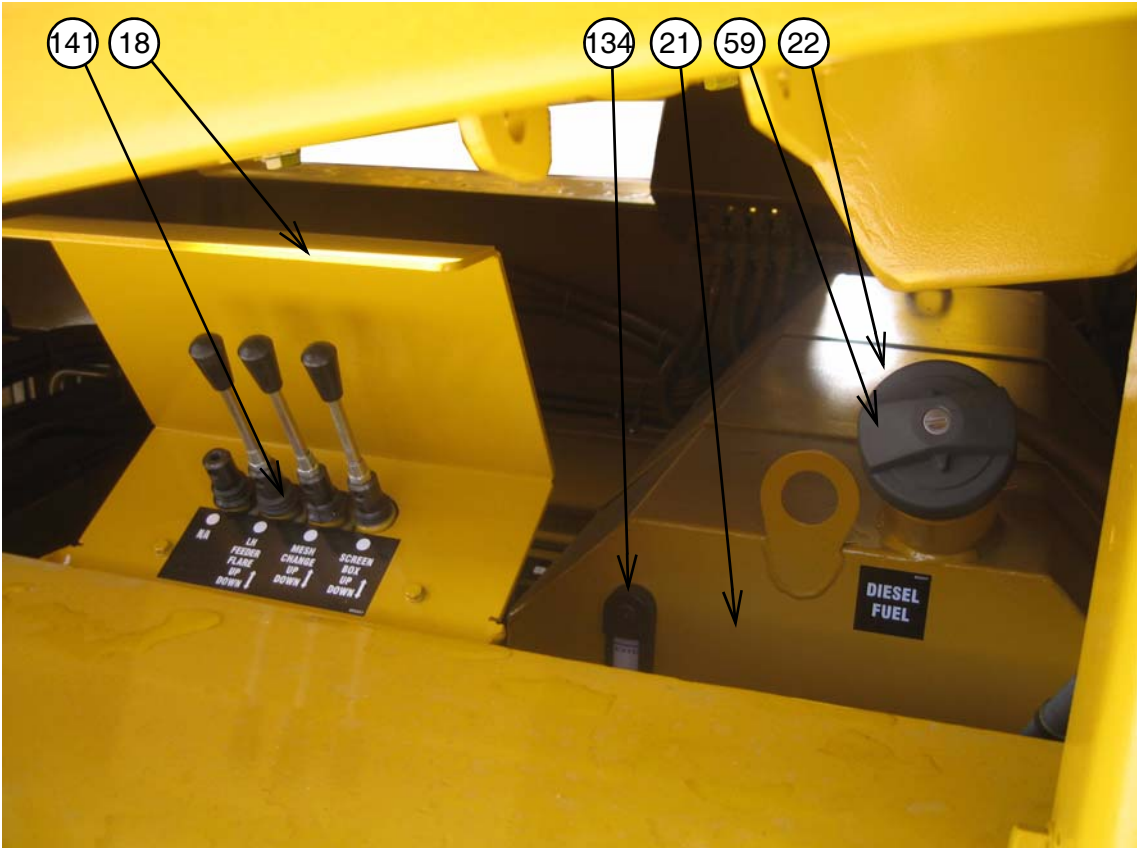
14: DETAILED VIEW OF AIR FILTER



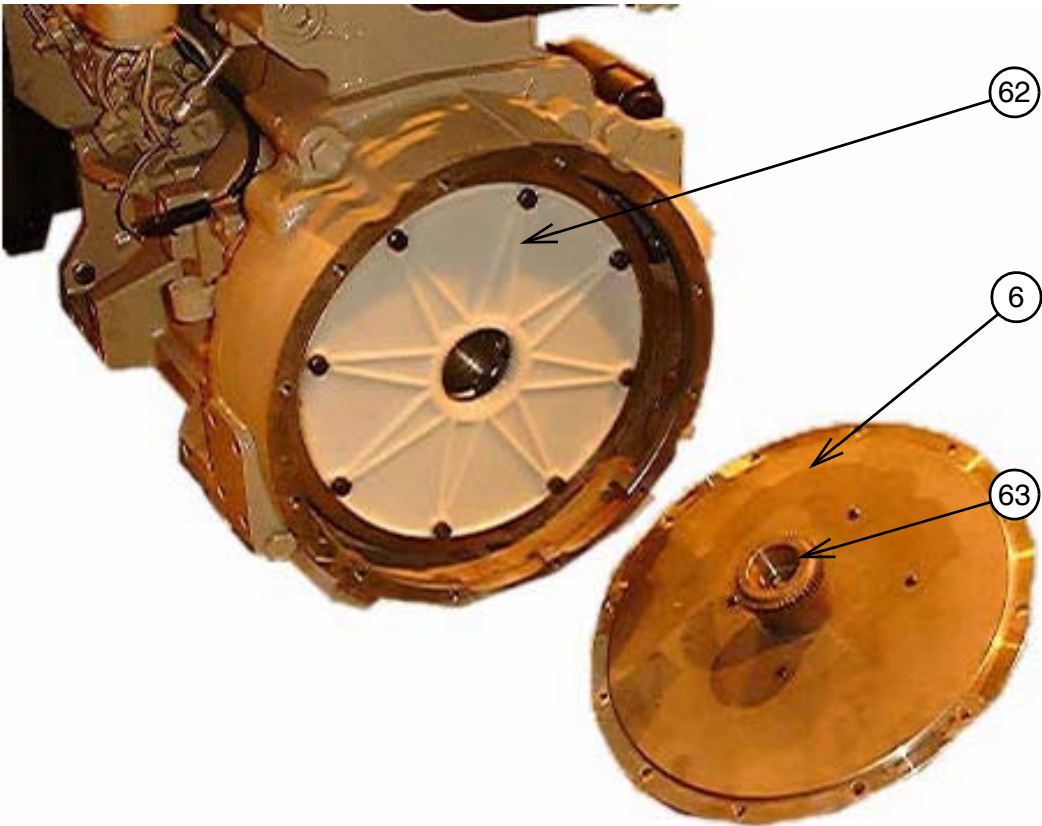
15: DETAILED VIEW ON HYDRAULIC TANK



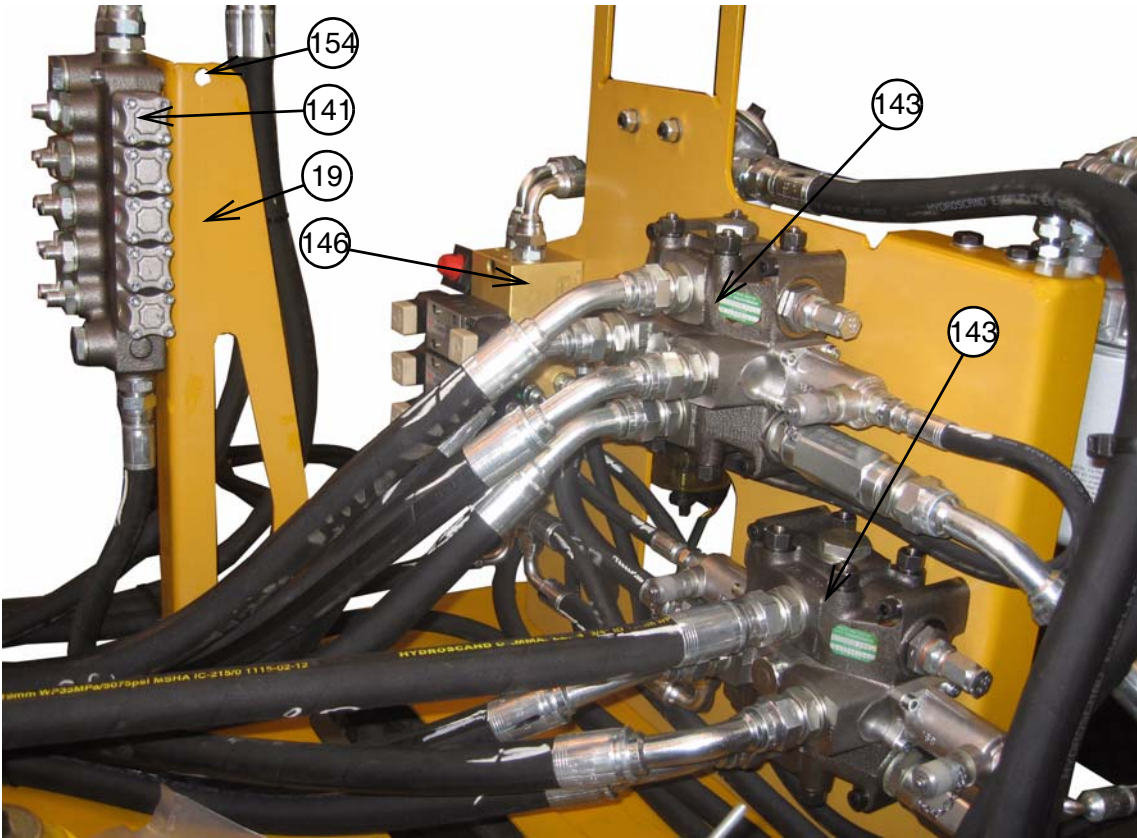
16: HYDRAULIC TANK BALL VALVES



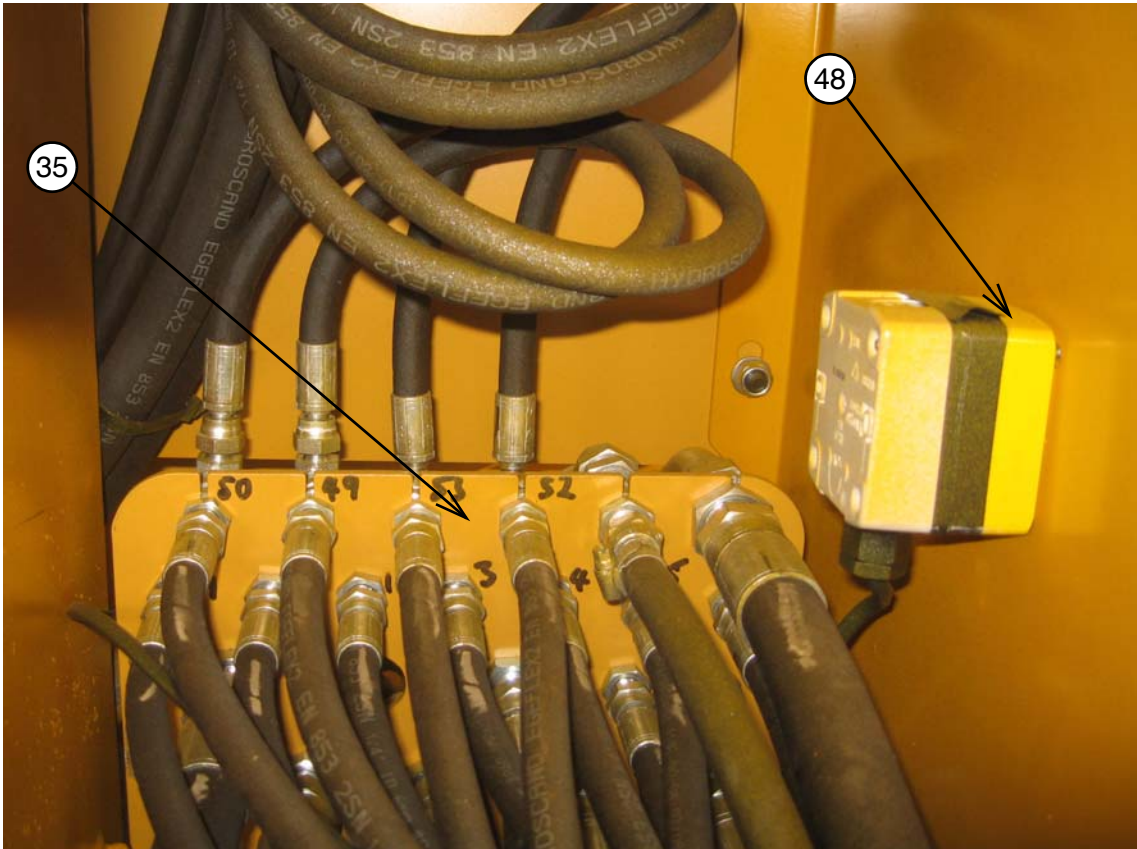
17: VIEW ON L/H SIDE OF MACHINE



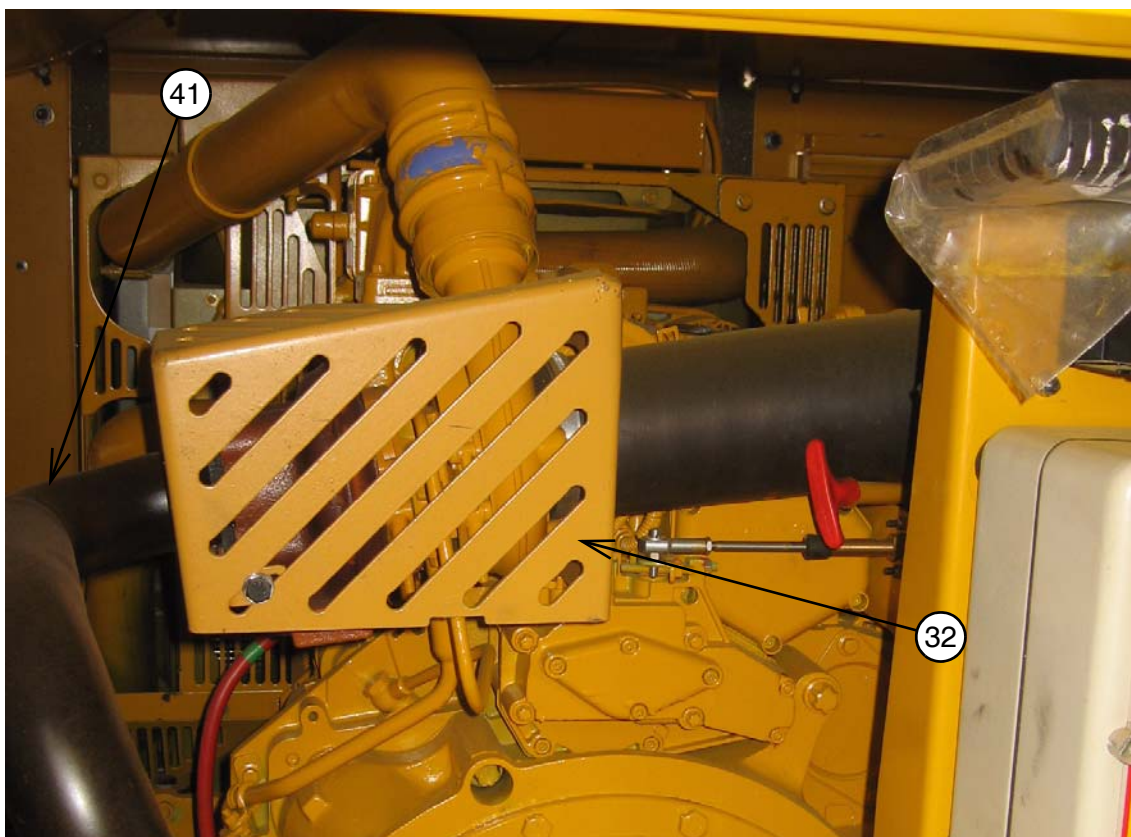
18: DETAILED VIEW OF BELL HOUSING



19: DETAILED VIEW INSIDE REAR OF POWER PACK



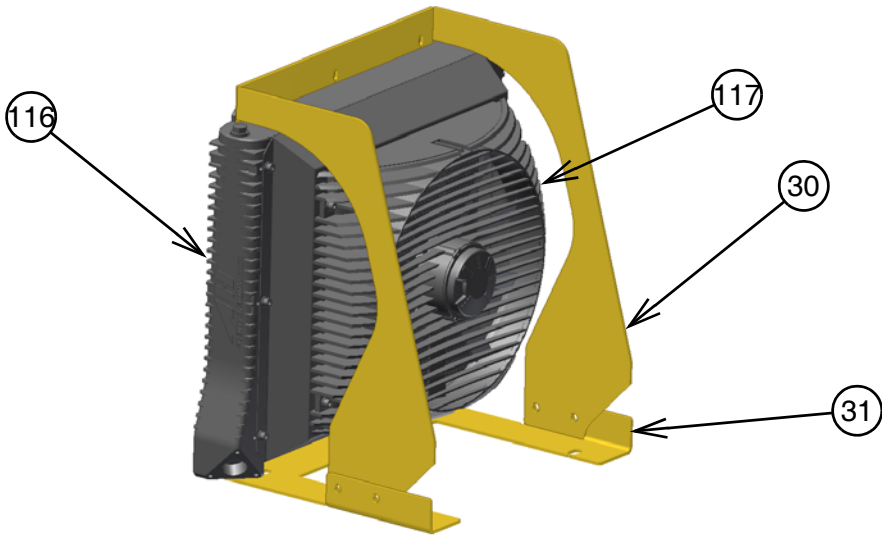
20: VIEW TO FRONT OF POWER PACK



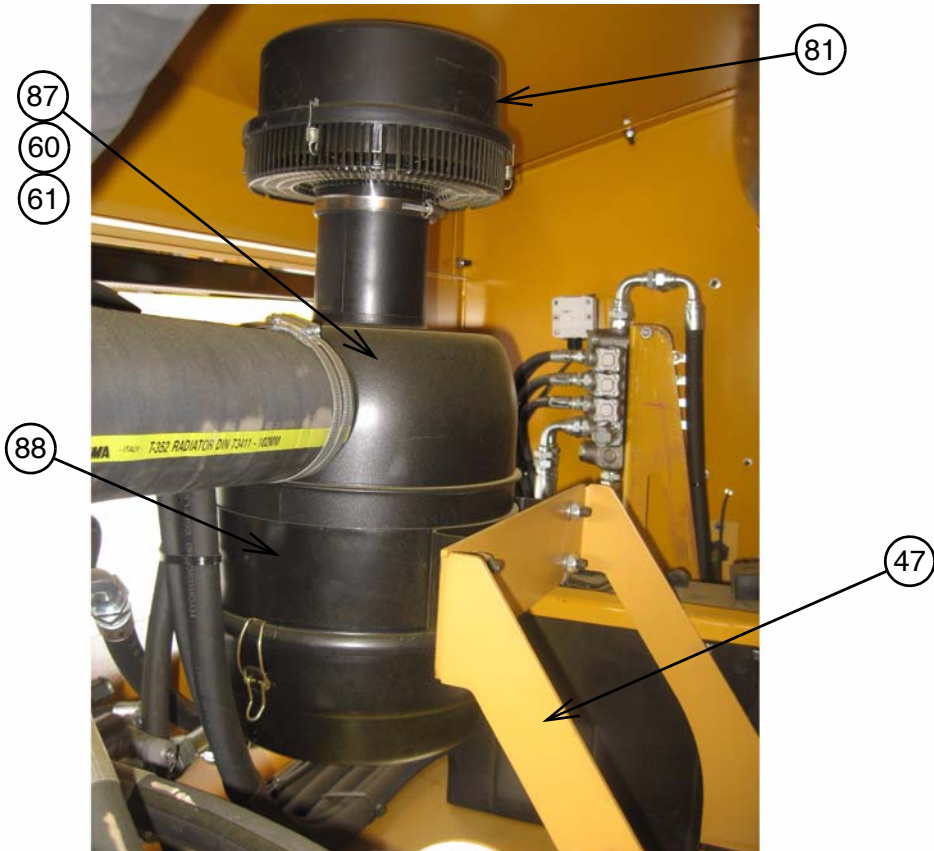
21: VIEW ON EXHAUST OUTLET



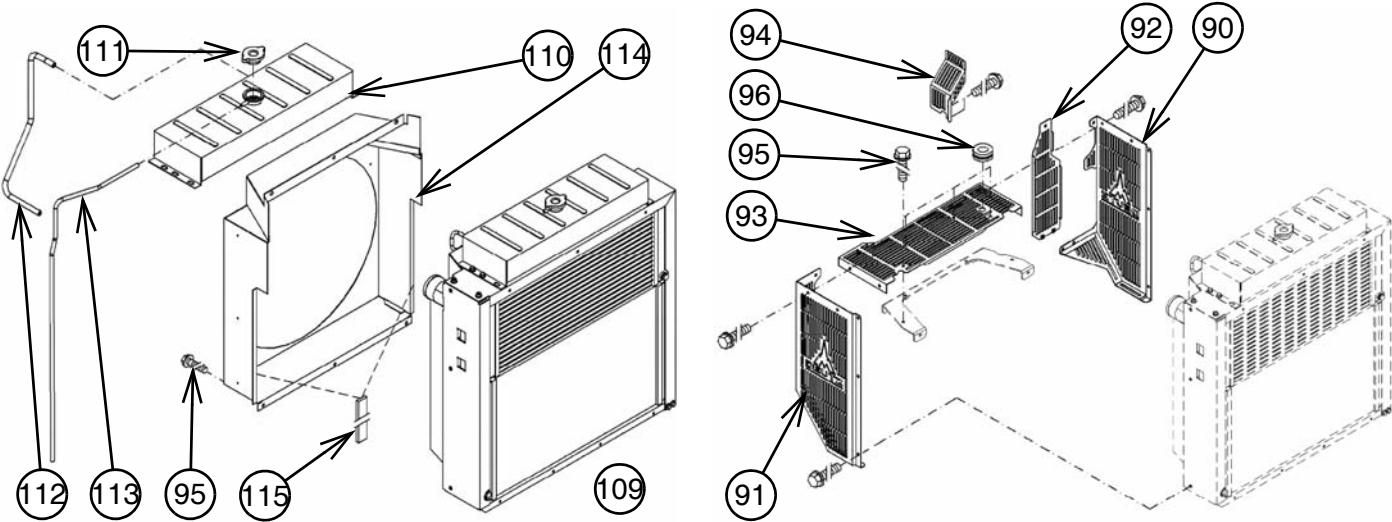
22: VIEW ON EXHAUST



23: OIL COOLER (WHERE FITTED)

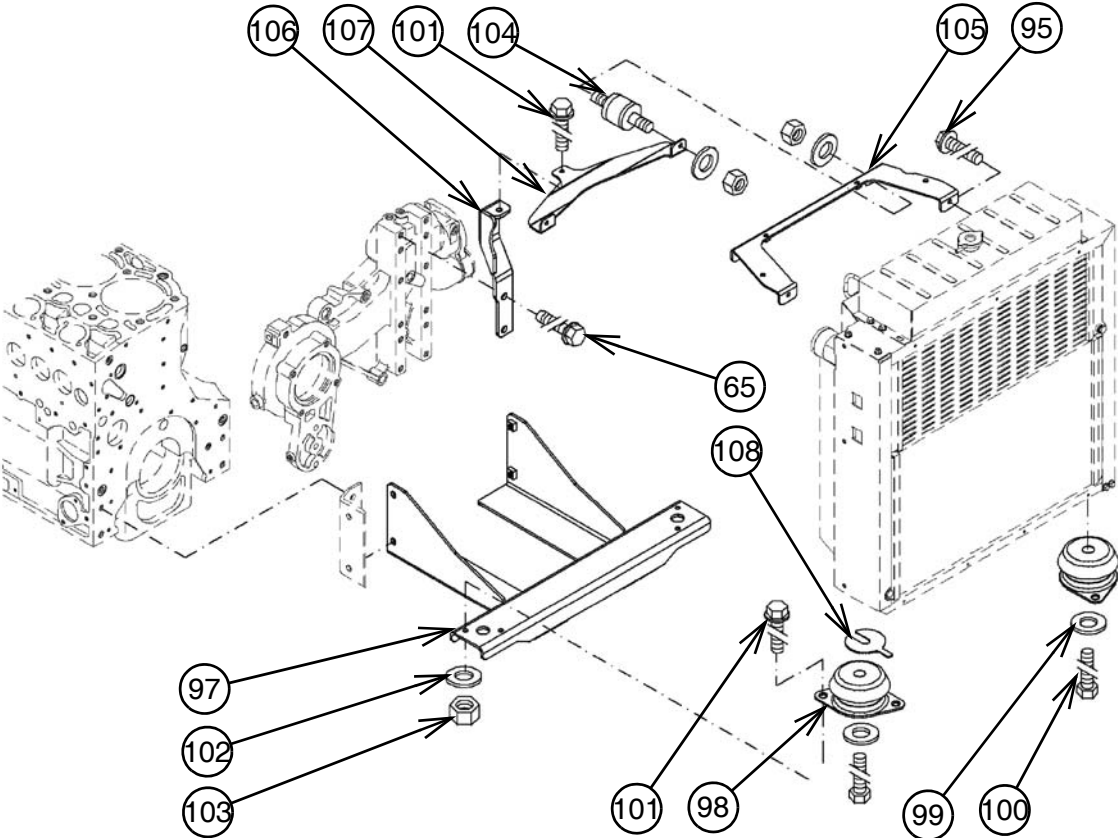


24: VIEW ON OIL BATH (OPTIONAL)



25: RADIATOR - COVER

26: RADIATOR - GUARDS



27: RADIATOR - MOUNT

Part No.	Part Description	Quantity
1. A10630000	EMERGENCY STOP COVER	2
2. B0270000	TURBO ENGINE CABLE BRACKET	1
3. B2160000	BATTERY LOCATION ANGLE	1
4. B2360000	AIR INTAKE PIPE	3

Part No.	Part Description	Quantity
5. B5280000	HYDRAULIC TANK LID	1
6. B5730000	4 BOLT PUMP MOUNTING PLATE	1
7. B6620000	2012 ENGINE DIP STICK TUBE	1
8. B7020000	L/H SIDE PANEL - FRONT	1
9. B7040000	CANOPY BACK PANEL	1
10. B7060000	ROOF PANEL REAR	1
11. B7080000	HYDRAULIC SERVICE PANEL	1
12. B7090000	ENGINE SERVICE PANEL	1
13. B7130000	HYDRAULIC TANK	1
14. B7140000	TRACK VALVE MOUNTING PLATE	1
15. B7150000	HYDRAULIC TANK STRAP	2
16. B7160000	TANK RETURN MANIFOLD	1
17. B7170000	BASE RETURN MANIFOLD	1
18. B7180000	6 LEVER SPOOL SUPPORT GUARD	2
19. B7220000	SPOOL VALVE MOUNTING PLATE	2
20. B7240000	BATTERY STOP	1
21. B7260000	STEEL FUEL TANK ASSEMBLY	1
22. B7270000	STEEL FUEL TANK STRAP	2
23. B7290000	EXHAUST SILENCER	1
24. B7380000	VALVE GEAR PROTECTION BRACKET	1
25. B7410000	ISOLATOR SWITCH GUARD	1
26. B7460000	CONTROL BOX BRACKET	1
27. B7520000	VALVE GEAR PROTECTION BRACKET	1
28. B7530000	MOUNTING PLATE	2
29. B7840000	6 SPOOL BRACKET	1
30. B7850000	OIL COOLER MOUNTING BRACKET	A/R
31. B7860000	OIL COOLER MOUNTING BRACKET	A/R
32. B9160000	TURBO GUARD	1
33. B9190000	16 X 5 POWER PACK BASE FRAME	1
34. B9200000	R/H SIDE PANEL	1
35. B9210000	BULK HEAD	1
36. B9220000	L/H SIDE PANEL - REAR	1
37. B9230000	BULKHEAD PLATE	1
38. B9240000	ROOF PANEL	1
39. B9260000	POWERPACK DOOR - RAD	1

Part No.	Part Description	Quantity
40. B9270000	POWERPACK DOOR - RAD - MESH	1
41. B9340000	DOWN PIPE	1
42. B9360000	AIR CLEANER PLATE	1
43. B9690000	DIPSTICK TUBE	1
44. B9730000	R/H DOOR CONTROL BLOCK	1
45. B9760000	TURBO GUARD MOUNTING BRACKET	1
46. B9880000	L/H SIDE DOOR/ IGNITION	1
47. B10120000	OIL BATH BRACKET	1
48. EL1028	EMERGENCY STOP SWITCH KIT	1
49. EL2030	EMERGENCY STOP BUTTON	1
50. EL3001	12 VOLT H/DUTY BATTERY UK NUMBER 663	1
51. EL9540	COMPLETE ELECTRICAL KIT	1
52. EN1208	ENGINE FUEL FILTER	1
53. EN1218	MICRON FILTER	2
54. EN1324	AIRFILTER	1
55. EN1340	PRECLEANER	1
56. EN1504	VISUAL POP UP INDICATOR	1
57. EN1602	RADIATOR CAP	1
58. EN1603	OIL CAP	1
59. EN1609	LOCKABLE FILLER CAP	1
60. EN7381	ELEMENT	1
61. EN7382	GASKET	1
62. EN7442	PLASTIC FLANGE	1
63. EN7443	SPLINED ENGINE COUPLING AND PLASTIC FLANGE COUPLING	1
64. EN7610	ENGINE MOUNT	4
65. EN7754	HEXAGON BOLT	2
66. EN7878	ENGINE MOUNT	4
67. EN7879	AIR FILTER DUST OUTLET	1
68. EN9322	SERVICE INDICATOR	1
69. EN7882	ALTERNATOR	1
70. EN7883	ALTERNATOR BELT	1
71. EN7884	FAN/ LIFT PUMP DRIVE BELT	1
72. EN7886	STARTER MOTOR	1
73. EN7887	TEMPERATURE SWITCH	1
74. EN7888	FAN ASSEMBLY	1

Part No.	Part Description	Quantity
75. EN7889	AIR FILTER CONNECTION RING	1
76. EN7896	FUEL PRE-FILTER COMPLETE	1
77. EN7897	PRE-FILTER ELEMENT	1
78. EN7898	FUEL FILTER GASKET KIT	1
79. EN7963	THROTTLE CABLE WITH PUSH ROD LH	1
80. EN9275	2012 DEUTZ ENGINE KIT	1
81. EN9286	PRE-CLEANER	1
82. EN9312	INDUCTION HOSE	1
83. EN9319	OIL FILTER	1
84. EN9320	OUTER AIR FILTER ELEMENT	1
85. EN9321	INNER AIR FILTER ELEMENT	1
86. EN9323	ENGINE DIP STICK	1
87. EN9325	OIL BATH	1
88. EN9326	OIL BATH BRACKET	1
89. EN9380	COMPLETE RADIATOR ASSEMBLY	1
90. EN9381	GRILLE/GRID	1
91. EN9382	GRILLE/GRID	1
92. EN9383	GRILLE/GRID	1
93. EN9384	GRILLE/GRID	1
94. EN9385	GRILLE/GRID	1
95. EN9386	HEXAGON BOLT	30
96. EN9387	RUBBER GROMMET	1
97. EN9388	BRACKET	1
98. EN9389	SILENTBLOC	2
99. EN9390	PLAIN WASHER	2
100. EN9391	HEXAGON BOLT	2
101. EN9392	HEXAGON BOLT	5
102. EN9393	PLAIN WASHER	10
103. EN9394	HEXAGON NUT	8
104. EN9395	MOUNT	2
105. EN9396	BRACKET	1
106. EN9397	RETAINING PLATE	1
107. EN9398	RADIATOR BRACE	1
108. EN9399	SHIM	6
109. EN9400	COOLING SYSTEM	1

Part No.	Part Description	Quantity
110. EN9401	EXPANSION TANK	1
111. EN9402	COVER	1
112. EN9403	COMPENSATING LINE	1
113. EN9404	DISCH./DRAIN PIPE	1
114. EN9405	FAN COWLING	1
115. EN9406	SEALING SECTION	1,500 MM
116. EX5000	OIL COOLER	A/R
117. EX5005	FAN FOR EX5000	A/R
118. FAB06X300H	BATTERY HOOK BOLT	2
119. FAW06W	M6 WING NUT	2
120. FD1002	GAS STRUT	4
121. FD1004	GAS STRUT	4
122. FD1503	EYE GAS STRUT	4
123. FD1505	GAS STRUT FORK END	4
124. FD2105	HINGE 3+2 HOLE	3
125. FD2119	1190mm HINGE	1
126. FD2120	820mm HINGE	1
127. FD3114	ANTI LOOSE FASTENER	3
128. HAN100006	1½" FLANGE ADAPTOR	1
129. HF1017	SUCTION FILTER	4
130. HF1018	FILTER TANK TOP RETURN LINE	1
131. HF4003	SPIN ON AIR BREATHER	1
132. HF4012	CORKED FILLER CAP	1
133. HG1002	5" LEVEL GUAGE	1
134. HG1003	10" SIGHT GUAGE	1
135. HP1010	SINGLE PUMP	1
136. HP1039	DUAL HELICAL GEAR PUMP	1
137. HP1040	18cc REAR PORTED GEAR PUMP	1
138. HP1044	STWIN PTO A PUMP	1
139. HP6012	INLET ELBOW	1
140. HP6013	OUTLET ELBOW	1
141. HV1020	4 LEVER SPOOL - ALL DOUBLE ACTING	3
142. HV1024	4 LEVER SPOOL - ALL D/A CW 1 X DET	1
143. HV1045	SINGLE SPOOL	2
144. HV2002	45 LT/MIN FLOW DIVERTER	2

Part No.	Part Description	Quantity
145. HV2006	FLOW CONTROL VALVE	2
146. HV3008	PILOT OPERATED SPOOL AND GRID TIPPING CONTROL	1
147. HV3041	6 STATION CONTROL BLOCK	1
148. HV5004	(6 BAR) CHECK VALVE	2
149. HV8007	1" BALL VALVE	2
150. HV8008	1¼" L/P BALL VALVE	1
151. HV8009	1½" L/P BALL VALVE	1
152. HV8501	¼" TEST POINTS	6
153. PN1037	PIN - M40 X 220 STOCKPILER TOW BAR	2
154. PN1166	POWERPACK SPOOL TIE BAR	2
155. RU1195	RADIATOR FOAM SEAL	2M
156. RU6043	80MM RADIATOR HOSE (89MM OD)	2
157. SC5006	SQ 404 SPRING	12
158. TL11025	36 mm COMBINATION SPANNER	1
159.	JUBLIEE CLIP 112-120MM	2

13. HYDRAULIC HOSES

When ordering hydraulic hoses, please quote the number stamped on the end of the hose.

The number is in the format HH****.

Complete Hydraulic Hose Kits

Part No.	Part Description	Quantity
1. HH7500A	CHASSIS HYDRAULIC HOSE KIT	1
2. HH7500B	SCREEN BOX HYDRAULIC HOSE KIT	1
3. HH7500C	FEEDER HYDRAULIC HOSE KIT	1
4. HH7500D	MID RADE SIDE CONVEYOR HYDRAULIC HOSE KIT	1
5. HH7500E	TAIL CONVEYOR HYDRAULIC HOSE KIT	1
6. HH7500G	FINES SIDE CONVEYOR HYDRAULIC HOSE KIT	1
7. HH7500H	POWER PACK HYDRAULIC HOSE KIT	1
8. HH7500J	CHASSIS HYDRAULIC HOSE KIT	1
9. HH7500K	FINES COLLECTOR HYDRAULIC HOSE KIT	1
10. HH7500M	BELT FEEDER HYDRAULIC HOSE KIT	1
11. HH7500P	PUMP HYDRAULIC HOSE KIT 1	1
12. HH7500R	PUMP HYDRAULIC HOSE KIT 2	1

Chassis Hydraulic Hoses

Kit Number: HH7500A

Revision: 12

Date: 18/04/2005

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7500	¾" R2T	2.600	S90F	F	FINES CON (SIDE) BULK HEAD TO WEBTEC PRESSURE
H7501	¾" R2T	2.260	S135F	F	POWERPACK BULK TO FINES CON (SIDE) PRESSURE
H7517	¼" R2T	0.400	S135F	F	SPOOL TO FINES SIDE CON TEE (BOTTOM) - PRESSURE
H7518	¼" R2T	0.395	S135F	F	SPOOL TO FINES SIDE CON TEE (BOTTOM) - RETURN
H7519	¼" R2T	0.720	C90F	F	1ST RAM TO TEE (FINES SIDE CON) - PRESSURE
H7520	¼" R2T	0.720	C90F	F	1ST RAM TO TEE (FINES SIDE CON) - RETURN

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7521	¼" R2T	1.650	C90F	F	2ND RAM TO TEE (FINES SIDE CON) - PRESSURE
H7522	¼" R2T	1.650	C90F	F	2ND RAM TO TEE (FINES SIDE CON) - RETURN
H7523	¼" R2T	4.260	S135F	F	SPOOL TO FINES SIDE CON (TOP) - PRESSURE
H7524	¼" R2T	4.630	C90F	S135F	SPOOL TO FINES SIDE CON (TOP) - RETURN
H7526	½" R2T	2.740	S135F	F	POWERPACK BULK TO 5 LEVER PRESSURE IN
H7527	½" R2T	2.310	90C	F	5 LEVER C/O TO 5 LEVER PRESSURE IN
H7528	½" R2T	4.010	S135F	F	5 LEVER C/O TO POWERPACK BULKHEAD
H7529	½" R2T	1.510	S90F	F	1ST 5 LEVER SPOOL TO RETURN MANIFOLD
H7530	½" R2T	1.960	S90F	F	2ND 5 LEVER SPOOL TO RETURN MANIFOLD
H7531	¾" R2T	0.540	F	F	MOTOR TO BULKHEAD FINES CON - PRESSURE
H7532	¾" R2T	0.470	F	F	MOTOR TO BULKHEAD FINES CON - RETURN
H7533	¼" R2T	0.505	C90F	F	MOTOR TO BULKHEAD FINES CON - DRAIN
H7534	½" R2T	2.740	S135F	F	FINES WEBTEC RETURN TO MANIFOLD
H7535	¾" R2T	3.160	F	F	FINES BULKHEAD TO MANIFOLD RETURN
H7536	¾" R2T	5.190	S135F	F	MID SIDE POWERPACK BULKHEAD TO CHASSIS BULKHEAD - PRESSURE
H7537	¾" R2T	5.180	S135F	F	TAIL CON POWERPACK BULKHEAD TO CHASSIS BULKHEAD - PRESSURE
H7538	¼" R2T	3.170	S135F	F	FINES CON BULKHEAD TO TANK - DRAIN
H7541	½" R2T	2.130	S90F	F	R/H TRACK DRAIN TO TEE
H7542	½" R2T	0.760	S90F	F	L/H TRACK DRAIN TO TEE
H7543	½" R2T	4.700	90S	F	TRACK DRAIN TEE TO TANK
H7544	¾" R2T	3.910	S90F	F	POWERPACK BULKHEAD TO FEEDER BULKHEAD - PRESSURE
H7545	¾" R2T	4.170	F	F	FEEDER BULKHEAD TO RETURN MANIFOLD
H7546	¼" R2T	3.975	C90F	F	FEEDER BULKHEAD TO MANIFOLD DRAIN
H7547	¼" R2T	6.205	F	F	L/H WING TO SPOOL - PRESSURE
H7548	¼" R2T	6.150	F	F	L/H WING TO SPOOL - RETURN
H7549	¼" R2T	2.500	F	F	REAR WING TO POWERPACK BULKHEAD - PRESSURE
H7550	¼" R2T	2.530	F	F	REAR WING TO POWERPACK BULKHEAD - RETURN
H7551	¼" R2T	5.290	F	F	R/H WING TO SPOOL - PRESSURE
H7552	¼" R2T	5.230	F	F	R/H WING TO SPOOL - RETURN
H7553	¼" R2T	2.440	C90F	F	FEEDER IN/OUT - POWERPACK BULKHEAD TO FEEDER BULKHEAD - PRESSURE

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7554	¼" R2T	2.450	C90F	F	FEEDER IN/OUT - POWERPACK BULKHEAD TO FEEDER BULKHEAD - RETURN
H7555	¼" R2T	3.090	F	F	TAIN CON FOLD SPOOL TO CHASSIS BULKHEAD - PRESSURE
H7556	¼" R2T	3.080	F	F	TAIN CON FOLD SPOOL TO CHASSIS BULKHEAD - RETURN
H7557	¼" R2T	3.070	F	F	TAIL CON UP/DOWN - SPOOL TO CHASSIS BULKHEAD - PRESSURE
H7558	¼" R2T	3.070	F	F	TAIL CON UP/DOWN - SPOOL TO CHASSIS BULKHEAD - RETURN
H7559	¼" R2T	5.240	S135F	F	MID SIDE CON (MIDDLE) SPOOL TO CHASSIS BULKHEAD - PRESSURE
H7560	¼" R2T	5.240	S135F	F	MID SIDE CON (MIDDLE) SPOOL TO CHASSIS BULKHEAD - RETURN
H7561	¼" R2T	5.240	S135F	F	MID SIDE CON (TOP) SPOOL TO CHASSIS BULKHEAD - PRESSURE
H7562	¼" R2T	5.240	S135F	F	MID SIDE CON (TOP) SPOOL TO CHASSIS BULKHEAD - RETURN
H7563	¼" R2T	1.460	F	F	MESH CHANGE - SPOOL TO TEE
H7564	¼" R2T	2.310	C90F	F	MESH CHANGE - L/H RAM TO TEE
H7565	¼" R2T	3.730	C90F	F	MESH CHANGE - R/H RAM TO TEE
H7568	¾" R2T	2.990	S135F	F	S/BOX POWERPACK BULKHEAD TO STEEL - PRESSURE
H7569	¾" R2T	4.580	F	F	S/BOX STEEL TO RETURN MANIFOLD
H7570	¼" R2T	8.080	C90F	F	S/BOX DRAIN TO TANK
H7659	¼" R2T	0.710	F	F	
H7660	¼" R2T	0.700	F	F	
H7661	3/8" R2T	0.530	F	F	
H7662	3/8" R2T	1.010	F	90C	
H7663	3/8" R2T	1.860	F	F	
H7664	3/8" R2T	2.380	F	90C	
H7665	¼" R2T	3.000	F	F	
H7672	¾" R2T	1.430	S90F	F	
H7673	¾" R2T	1.430	S90F	F	
H7674	¾" 4WMS	0.410	S135F	F	
H7675	¾" 4WMS	0.390	S135F	F	
H7676	¾" 4WMS	0.360	S135F	F	
H7677	¾" 4WMS	0.360	S135F	F	

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7719	¾" R2T	1.090	S90F	F	
H7720	¾" R2T	2.600	F	F	
H7729	1½" R1T	4.610	F	F	
HH7732	½" R2T	1.000	S90F	S90F	
HH7733	½" R2T	2.400	S90F	135	
HH7734	½" R2T	2.180	135	135	
HH7738	¼" R2T	5.340	S135F	F	
HH7739	¼" R2T	3.950	S135F	F	

Screen Box Hydraulic Hoses

Kit Number: HH7500B
Revision: 4
Date: 22/04/2005

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7571	¾" R2T	0.740	S90F	F	MOTOR TO STEEL - PRESSURE
H7572	¾" R2T	0.850	S90F	F	MOTOR TO STEEL - RETURN

Feeder Hydraulic Hoses

Kit Number: HH7500C
Revision: 5
Date: 21/06/2004

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7573	¾" R2T	0.645	F	F	MOTOR TO BULKHEAD PRESSURE
H7574	¾" R2T	0.570	F	F	MOTOR TO BULKHEAD RETURN
H7575	¼" R2T	0.590	S135F	F	MOTOR TO BULKHEAD DRAIN
H7576	¼" R2T	0.420	C90F	F	L/H WING RAM TO BULKHEAD - PRESSURE
H7577	¼" R2T	0.490	C90F	F	L/H WING RAM TO BULKHEAD - RETURN
H7578	¼" R2T	6.160	F	F	L/H WING BULKHEAD TO BULKHEAD - PRESSURE
H7579	¼" R2T	6.240	F	F	L/H WING BULKHEAD TO BULKHEAD - RETURN
H7580	¼" R2T	4.800	C90F	F	REAR WING RAM TO BULKHEAD - PRESSURE
H7581	¼" R2T	5.035	C90F	F	REAR WING RAM TO BULKHEAD - RETURN
H7582	¼" R2T	0.420	C90F	F	R/H WING RAM TO BULKHEAD - PRESSURE
H7583	¼" R2T	0.490	C90F	F	R/H WING RAM TO BULKHEAD - RETURN

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7584	¼" R2T	3.690	F	F	R/H WING BULKHEAD TO BULKHEAD - PRESSURE
H7585	¼" R2T	3.730	F	F	R/H WING BULKHEAD TO BULKHEAD - RETURN
H7586	¼" R2T	1.940	F	F	FEEDER IN/OUT BULKHEAD TO TEE - PRESSURE
H7587	¼" R2T	4.400	F	F	FEEDER IN/OUT BULKHEAD TO TEE - RETURN
H7588	¼" R2T	1.660	F	F	FEEDER IN/OUT R/H RAM TO TEE - PRESSURE
H7589	¼" R2T	1.220	F	F	FEEDER IN/OUT R/H RAM TO TEE - RETURN
H7590	¼" R2T	3.670	F	F	FEEDER IN/OUT L/H RAM TO TEE - PRESSURE
H7591	¼" R2T	1.220	F	F	FEEDER IN/OUT L/H RAM TO TEE - RETURN
H7592	3/16" R1T	4.340	90S	F	GREASE PIPE L/H FRONT TO BULKHEAD
H7593	3/16" R1T	6.000	90S	F	GREASE PIPE R/H FRONT TO BULKHEAD
H7594	3/16" R1T	0.460	F	F	GREASE PIPE L/H BACK TO BULKHEAD
H7595	3/16" R1T	2.040	F	F	GREASE PIPE R/H BACK TO BULKHEAD

Mid Grade Side Conveyor Hydraulic Hoses

Kit Number: HH7500D

Revision: 3

Date: 07/05/2004

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7596	¾" R2T	1.400	S135F	F	MOTOR TO STEEL - PRESSURE
H7597	¾" R2T	1.440	S135F	F	MOTOR TO STEEL - RETURN
H7598	¾" R2T	3.130	S90F	F	STEEL TO BULKHEAD ON FEED BOOT - PRESSURE
H7599	¾" R2T	3.190	S90F	F	STEEL TO BULKHEAD ON FEED BOOT - RETURN
H7694	3/16" R1T	7.040	F	90S	
H7695	3/16" R1T	6.550	F	90S	
H7696	3/16" R1T	3.500	F	90S	
H7697	3/16" R1T	2.480	F	90S	

Tail Conveyor Hydraulic Hoses

Kit Number: HH7500E

Revision: 4

Date:

21/06/2004

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7600	½" R2T	0.500	F	F	R/H MOTOR - BULKHEAD TO MOTOR - PRESSURE
H7601	½" R2T	0.520	F	F	R/H MOTOR - BULKHEAD TO MOTOR - RETURN
H7602	½" R2T	0.500	F	F	L/H MOTOR - BULKHEAD TO MOTOR - PRESSURE
H7603	½" R2T	0.520	F	F	L/H MOTOR - BULKHEAD TO MOTOR - RETURN
H7604	½" R2T	1.220	F	F	LINK BULKHEAD TO BULKHEAD TEE - PRESSURE
H7605	½" R2T	1.180	F	F	LINK BULKHEAD TO BULKHEAD TEE - RETURN
H7606	¾" R2T	3.760	S90F	F	TEE TO BULKHEAD - PRESSURE
H7607	¾" R2T	3.940	S90F	F	TEE TO BULKHEAD - RETURN
H7608	¼" R2T	0.500	S135F	F	R/H RAM TO TEE - PRESSURE
H7609	¼" R2T	0.500	S135F	F	R/H RAM TO TEE - RETURN
H7610	¼" R2T	1.660	S135F	F	L/H RAM TO TEE - PRESSURE
H7611	¼" R2T	1.660	S135F	F	L/H RAM TO TEE - RETURN
H7612	¼" R2T	0.400	S90F	F	BULKHEAD TO RAM TEE - PRESSURE
H7613	¼" R2T	0.390	S90F	F	BULKHEAD TO RAM TEE - RETURN
H7688	3/16" R1T	0.490	90S	90S	
H7689	3/16" R1T	0.490	90S	90S	
H7690	3/16" R1T	3.690	F	90S	
H7691	3/16" R1T	4.900	F	F	
H7692	3/16" R1T	1.820	F	135	
H7693	3/16" R1T	3.235	F	135	

Fines Side Conveyor Hydraulic Hoses

Kit Number:

HH7500G

Revision:

3

Date:

07/05/2004

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7614	¾" R2T	1.410	S135F	F	MOTOR TO STEEL - PRESSURE
H7615	¾" R2T	1.470	S135F	F	MOTOR TO STEEL - RETURN
H7616	¾" R2T	2.970	F	F	STEEL TO BULKHEAD ON CONVEYOR - PRESSURE
H7617	¾" R2T	2.905	F	F	STEEL TO BULKHEAD ON CONVEYOR - RETURN
H7684	3/16" R1T	6.890	F	90S	

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7685	3/16" R1T	6.430	F	90S	
H7686	3/16" R1T	3.450	F	90S	
H7687	3/16" R1T	2.510	F	90S	

Power Pack Hydraulic Hoses

Kit Number: HH7500H
Revision: 10
Date: 18/04/2005

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7618	1/4" R2T	0.670	S90F	F	6 STATION BLOCK LINK
H7619	1/2" R2T	2.780	S90F	F	C TOP P3 TO BULKHEAD
H7620	3/4" 4WMS	0.675	F	F	INNER TANDEM PUMP TO L/H TRACK VALVE
H7621	3/4" 4WMS	0.720	S135F	F	OUTER TANDEM PUMP TO R/H TRACK VALVE
H7622	3/4" 4WMS	2.155	F	S135F	R/H TRACK VALVE (R/H PORT) TO B/HEAD PLATE (PORT A)
H7623	3/4" 4WMS	2.120	F	S135F	R/H TRACK VALVE (L/H PORT) TO B/HEAD PLATE (PORT B)
H7624	3/4" 4WMS	2.170	F	S135F	L/H TRACK VALVE (R/H PORT) TO B/HEAD PLATE (PORT C)
H7625	3/4" 4WMS	2.150	F	S135F	L/H TRACK VALVE (L/H PORT) TO B/HEAD PLATE (PORT C)
H7626	3/4" R2T	1.330	F	S135F	R/H TRACK VALVE TO 6 STATION BLOCK (TAIL CONV)
H7627	3/4" R2T	1.490	F	S135F	L/H TRACK PUMP (BTM PORT) TO SIX STATION BLOCK (FINES CONV)
H7628	3/4" R2T	1.140	F	F	6 STATION BLOCK (TAIL CONV) TO B/HEAD PLATE (PORT G)
H7629	3/4" R2T	1.020	F	F	6 STATION BLOCK (MID-GRADE S/CONV) TO B/HEAD PLATE (PORT E)
H7630	3/4" R2T	0.945	F	F	6 STATION BLOCK (FINES CONV) TO B/HEAD PLATE (PORT F)
H7631	3/4" R2T	0.830	F	F	6 STATION BLOCK (SCREEN BOX) TO B/HEAD PLATE (PORT H)
H7633	3/4" R2T	1.330	F	90S	NEW PTO TO BLOCK (MID-GRADE S/CONV)
H7634	3/4" R2T	1.240	F	S135F	SIDE MOUNTED TANDEM PUMP TO BLOCK (SCREEN BOX)
H7635	3/4" R2T	2.380	F	S135F	R/H TRACK VALVE TO BOX MANIFOLD (TOP)
H7636	3/4" R2T	2.170	F	S135F	L/H TRACK VALVE TO BOX MANIFOLD (BOTTOM)

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7637	½" R2T	1.580	S135F	F	SIDE MOUNTED TANDEM PUMP TO 3 LEVER SPOOL VALVE
H7638	½" R2T	2.000	S90F	F	3 LEVER SPOOL TO TRACK SOLENOID (C TOP BOTTOM)
H7639	½" R2T	2.665	F	S90F	3 LEVER SPOOL TO BOX MANIFOLD L/H
H7640	½" R2T	1.390	F	S90F	3 LEVER SPOOL CARRY OVER TO C TOP
H7643	½" R2T	0.350	S90F	F	6 STATION BLOCK (TAIL CONV TEE) TO SPEED CONTROL VALVE
H7645	½" R2T	2.500	S90F	F	TRACK SOLENOID TO BOX MANIFOLD R/H
H7646	½" R2T	0.280	F	90S	TRACK SOLENOID TO TEE ON L/H TRACK VALVE
H7647	½" R2T	0.295	F	90S	L/H TRACK VALVE TO TEE ON R/H TRACK VALVE
H7648	1" R2T	1.185	S90F	F	6 STATION BLOCK (R/H PORT) TO BOX MANIFOLD
H7649	¼" R2T	1.890	F	F	3 LEVER SPOOL (PRESSURE FOR FEEDER REAR WING) TO B/HEAD
H7650	¼" R2T	1.890	F	F	B/HEAD TO 3 LEVER SPOOL (RETURN FOR FEEDER REAR WING)
H7651	1" R2T	1.610	F	90S	6 STATION BLOCK (L/H RETURN PORT) TO BOX MANIFOLD
H7652	¼" R2T	1.860	F	F	3 LEVER SPOOL (PRESSURE FOR FEEDER PUSH) TO B/HEAD
H7653	¼" R2T	1.860	F	F	B/HEAD TO 3 LEVER SPOOL (RETURN FOR FEEDER PUSH)
H7654	¼" R2T	0.665	F	90S	SOLENOID CONTROL A2 TO R/H TRACK PILOT 1
HH7655	¼" R2T	0.730	F	F	SOLENOID CONTROL B2 TO R/H TRACK PILOT 2
HH7656	¼" R2T	0.225	F	F	SOLENOID CONTROL A1 TO L/H TRACK PILOT 1
HH7657	¼" R2T	0.800	S90F	F	SOLENOID CONTROL B1 TO L/H TRACK PILOT 2
HH7658	½" R2T	0.720	S90F	F	FEEDER TEE FRONT (6 STATION) TO BULKHEAD
HH7699	¾" R2T	0.700	F	F	
HH7701	½" R2T	2.910	F	90S	
HH7702	½" R2T	1.490	F	90S	
HH7703	¼" R2T	1.870	F	F	
HH7704	¼" R2T	1.875	F	F	
HH7705	¼" R2T	1.880	F	F	
HH7706	¼" R2T	1.895	F	F	
HH7707	¼" R2T	3.510	F	F	
HH7708	¼" R2T	3.590	F	F	
HH7709	¼" R2T	3.620	F	F	

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
HH7710	¼" R2T	3.580	F	F	
HH7711	¼" R2T	3.615	F	F	
HH7712	3/8" R2T	2.640	F	135	
HH7713	½" R2T	2.760	F	135	
HH7714	½" R2T	2.840	F	90S	
HH7715	½" R2T	2.650	F	90S	
HH7737	¼" R2T	2.000	F	F	

Chassis Hydraulic Hoses

Kit Number: HH7500J

Revision: 2

Date: 28/06/2004

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7502	¾" R2T	5.000	F	90S	CHASSIS BULK TO FEED BOOT BULKHEAD MID SIDE - PRESSURE
H7503	¾" R2T	4.920	F	90S	CHASSIS BULK TO FEED BOOT BULKHEAD MID SIDE - RETURN
H7504	¾" R2T	5.000	F	90S	CHASSIS BULK TO TAIL CON BULKHEAD - PRESSURE
H7505	¾" R2T	5.000	F	90S	CHASSIS BULK TO TAIL CON BULKHEAD -RETURN
H7506	¼" R2T	5.000	S90F	F	CHASSIS BULKHEAD TO TAIL CON BULKHEAD - PRESSURE
H7507	¼" R2T	5.000	S90F	F	CHASSIS BULKHEAD TO TAIL CON BULKHEAD - RETURN
H7508	¼" R2T	4.200	F	F	CHASSIS BULKHEAD TO TOP MID SIDE CON RAM - PRESSURE
H7509	¼" R2T	4.600	F	C90F	CHASSIS BULKHEAD TO TOP MID SIDE CON RAM - RETURN
H7510	¼" R2T	0.320	S135F	F	1ST RAM TO TEE (MID SIDE CON) - PRESSURE
H7511	¼" R2T	0.320	S135F	F	1ST RAM TO TEE (MID SIDE CON) - RETURN
H7512	¼" R2T	1.555	C90F	F	2ND RAM TO TEE (MID SIDE CON) - PRESSURE
H7513	¼" R2T	1.575	C90F	F	2ND RAM TO TEE (MID SIDE CON) - RETURN
H7514	¼" R2T	2.360	F	C90F	CHASSIS BULKHEAD TO MID SIDE CON BOTTOM RAM - PRESSURE
H7515	¼" R2T	1.680	F	F	CHASSIS BULKHEAD TO TEE (MID SIDE CON) - PRESSURE

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7516	¼" R2T	1.650	F	F	CHASSIS BULKHEAD TO TEE (MID SIDE CON) - RETURN
H7666	¼" R2T	1.000	F	C90F	
H7667	¼" R2T	1.000	F	C90F	
H7668	¼" R2T	3.770	F	F	
H7669	¼" R2T	1.210	F	C90F	
H7670	¼" R2T	1.210	F	C90F	
H7671	¼" R2T	3.730	F	F	

Fines Collector Hydraulic Hoses

Kit Number: HH7500K
Revision: 1
Date: 07/05/2005

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7678	3/16" R1T	0.560	90S	90S	
H7679	3/16" R1T	0.560	90S	90S	
H7680	3/16" R1T	2.110	F	90S	
H7681	3/16" R1T	3.350	F	90S	
H7682	3/16" R1T	2.360	F	90S	
H7683	3/16" R1T	3.650	F	90S	

Belt Feeder Hydraulic Hoses

Kit Number: HH7500M
Revision: 1
Date: 06/07/2004

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
HH7723	¼" R2T	1.380	C90F	F	
HH7724	¼" R2T	1.360	C90F	F	
HH7725	¼" R2T	1.380	C90F	F	
HH7726	¼" R2T	1.360	C90F	F	
HH7727	¼" R2T	1.810	F	F	

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
HH7728	1/4" R2T	1.760	F	F	

Pump Hydraulic Hoses 1

Kit Number: HH7500P
Revision: 1
Date: 07/02/2004

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
HH7730	3/4" R2T	1.000	F	90S	
HH7731	3/4" R2T	0.810	F	F	

Pump Hydraulic Hoses 2

Kit Number: HH7500R
Revision: 1
Date: 03/03/2005

Hose No	Pipe	Length (m)	Fitting (A)	Fitting (B)	LOCATION
H7735	1 1/2" R1T	4.840	F	F	
H7736	1 1/2" R1T	1.360	F	F	

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14. STICKERS - ENGLISH

15



DANGER
CRUSHING/SHEARING HAZARD
Moving parts can crush or cut causing severe injury.
Keep hands clear of moving parts during equipment operation.

EX109 DE No. 5006CRS

12



DANGER
FALLING MATERIAL HAZARD
Do not walk near material discharge areas.
Risk of serious injury or death.



HARD HAT AND EYE PROTECTION
must be worn at all times when working in the vicinity of machine.

EX109 DE No. 5001FM01

13



DANGER
FALLING HAZARD
WORK AT ANY HEIGHT CAN BE DANGEROUS.
Do not climb onto the machine without fall protection in place.



SWITCH OFF, LOCKOUT AND TAGOUT
machine before commencing any maintenance work. Ensure proper procedures and equipment are in place to prevent falls.

EX109 DE No. 5023FH1

16



DANGER
FLYING MATERIAL HAZARD
Platform is for maintenance only.
Risk of injury from flying material.



DO NOT use platform when plant is operating.

EX109 DE No. 5009FLM

22



WARNING
EXCEEDS 90 dB (A)
May cause loss or degradation of hearing over long periods of time.
Proper hearing protection must be worn.

EX109 DE No. 5018NOIEX

14



DANGER
FALLING HAZARD
Falling from and/or onto a machine can cause serious injury or even death.
DO NOT climb onto the machine whilst in operation.
ALWAYS use walkways/platforms provided or a safe and secure platform approved by the local regional safety enforcing authority.
ALWAYS use an E.N./A.N.S. approved safety harness when reaching any points 7ft (2m) or more above ground level.

EX109 DE No. 5004FH02

17



DANGER
ENTANGLEMENT HAZARD
Do not reach into unguarded machine you can be pulled in.
Risk of serious injury will result.
Keep all guards in place.



SWITCH OFF, LOCKOUT AND TAGOUT
machine before opening or removing guards

EX109 DE No. 5010ENT03

19



DANGER
IMPACT HAZARD
Do not allow spring loaded door to be opened unrestrained.
Risk of injury

EX109 DE No. 5013IMP

23



WARNING
LOCKOUT PROCEDURE
When carrying out maintenance or adjustment to the plant the following procedure must be followed.
1. Switch off engine
2. Remove the ignition key
3. Keep the ignition key on person during lockout
4. Place appropriate maintenance warning signs (ie. TAG OUT)
5. NEVER work alone

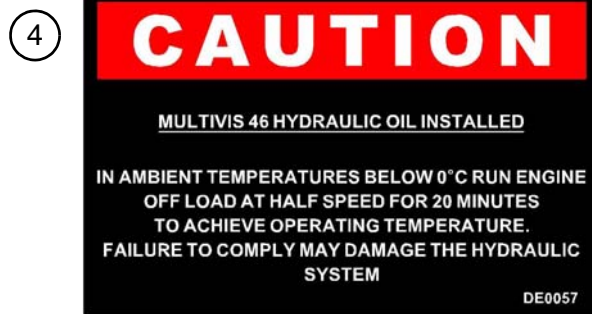
EX109 DE No. 5019LKOUT

26



IMPORTANT
STOP AND LOCKOUT PLANT BEFORE MAINTENANCE

EX109 DE No. 5022STLK





Part No.	Part Description	Quantity
1. DE0054	DANGER STAND CLEAR	2
2. DE0055	DANGER STOP EQUIPMENT	2
3. DE0025	DANGER DRIVE GUARDS	2

Part No.		Part Description	Quantity
4.	DE0057	MULTIVIS 46 OIL DECAL	1
5.	DE0027	EMERGENCY STOP 100X90 MM	4
6.	DE0031	WARNING - HOPPER MUST BE EMPTY	2
7.	DE0051	DANGER -HEAD, EAR, EYE PROTECTION	2
8.	DE0042	CAUTION - SIDE CONVEYOR LOWER SECTION RAISED BEFORE TRACKING	1
9.	DE1005	CE YEAR DATE DECAL	1
10.	DE1007	FORWARD/REVERSE DECAL BLUE YELLOW DOTS	4
11.	DE1043	BATTERY ISOLATION SWITCH	1
12.	DE5001	DANGER - FALLING MATERIAL HAZARD (HARD HAT)	4
13.	DE5023	DANGER - FALLING HAZARD/ SWITCH OFF, LOCKOUT & TAGOUT	2
14.	DE5004	DANGER - FALLING HAZARD	3
15.	DE5006	DANGER - CRUSHING / SHEARINGHAZARD	4
16.	DE5009	DANGER -FLYING MATERIAL HAZARD DO NOT USE PLATFORM	2
17.	DE5010	DANGER - ENTANGLEMENT HAZARD SWITCH OFF, LOCKOUT	6
18.	DE5012	DANGER - SKIN INJECTION HAZARD	1
19.	DE5013	DANGER - IMPACT HAZARD	3
20.	DE5014	DANGER - LOOSE OR BAGGY CLOTHING	1
21.	DE5016	DANGER - PRIOR TO TRANSPORT	1
22.	DE5018	DANGER - EXCEEDS 90dB (A)	1
23.	DE5019	DANGER - LOCKOUT PROCEDURE	1
24.	DE5020	DANGER - CHECK FILTERS ON REGULAR BASIS	1
25.	DE5021	DANGER - READ OPERATORS MANUALBEFORE MAINTANING MC	1
26.	DE5022	DANGER - STOP & LOCKOUT PLANTBEFORE MAINTENANCE	1

QE340

Electrical & Hydraulic Information

QE340

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Version: 1



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1. ELECTRICAL & HYDRAULIC DIAGRAMS

	<u>Drawing Number</u>	<u>-----</u>	<u>Title</u>	<u>Issue No</u>	<u>Date</u>
1.	QE340 CONTROL PANEL	-----			26/04/04
2.	CONTROL PANEL TO ENGINE LOOM	-----			26/04/04
3.	S SERIES RECEIVER AND LOOM	-----			26/04/04
4.	QE340 HYDRAULIC DIAGRAM	-----			Rev 2

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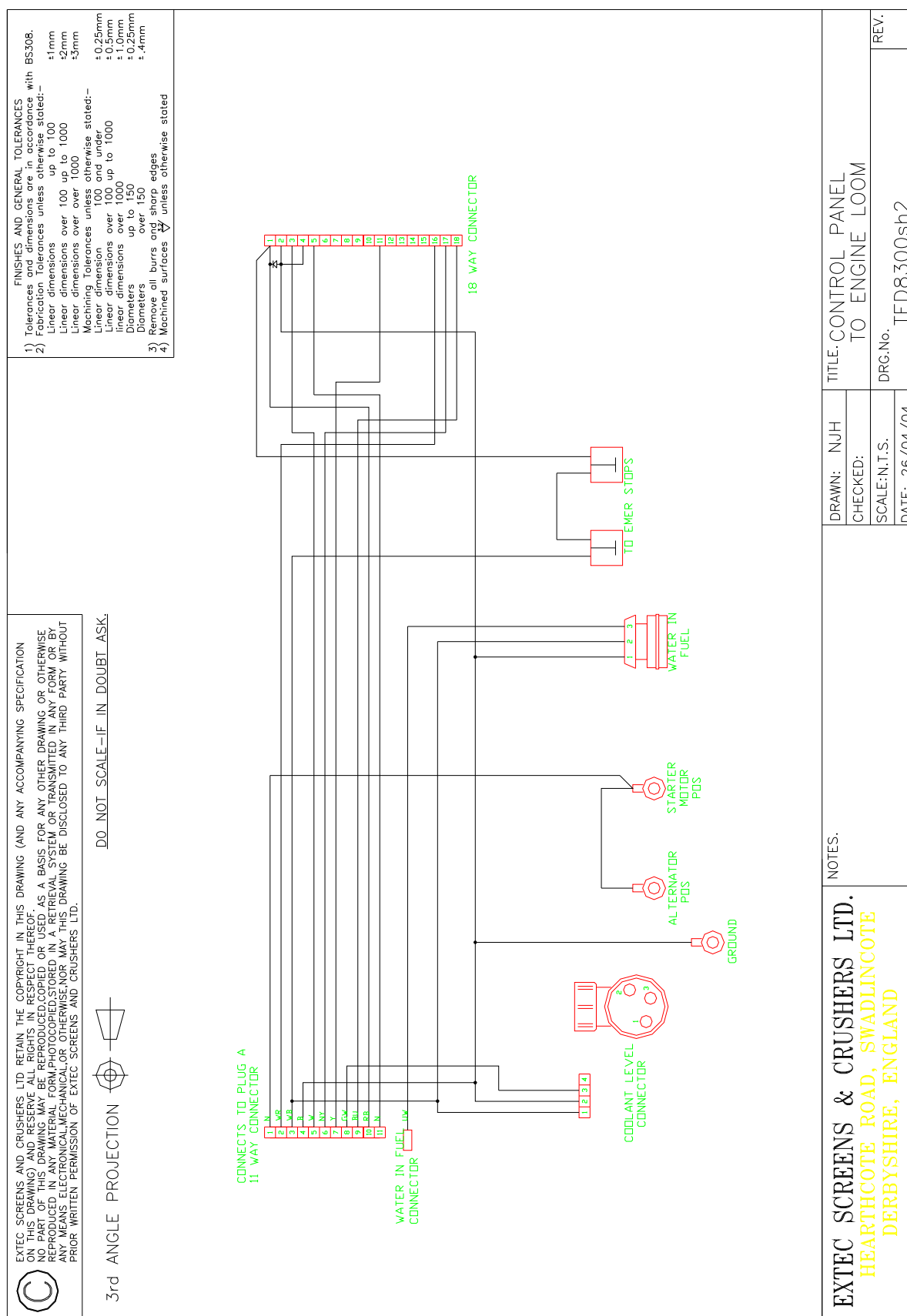


Figure 1-2: CONTROL PANEL TO ENGINE LOOM



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QF340

**OEM Documents & Data
Sheets**



QE340

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1. OEM MANUALS

Title ----- Issue No Date

- 1. DEUTZ 2012 ENGINE MANUAL
- 2. BREVINI GEARBOX MANUAL

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2. HAZARDOUS SUBSTANCES

	<u>Title -----</u>	<u>COSHH Sheet Reference</u>
1.	Exxon Unirex N 3 Grease-----	570317-00 UNIREX N 3
2.	Shell Albida Grease EP2 -----	ACIYK GB/eng/C 19/03/2005
3.	Shell Rimula Super 15W-40 -----	ACK9D GB/eng/C 26/11/2003
4.	Shell Tellus Oil 46 -----	ACKQ6 GB/eng/C 29/04/2004
5.	Shell Omala 220 Gear Oil-----	ACH75 GB/eng/C 29/01/2003
6.	Shell Safe Anti Freeze -----	L84042 Revision 23 08 2004
7.	Shell Agricultural Gas Oil -----	F32002 Revision 02 10 2002
8.	Exol Ethena EP90 Gear Oil -----	2nd October 2002

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570317-00 UNIREX N 3
MATERIAL SAFETY DATA BULLETIN

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: UNIREX N 3
20/10/2003

SUPPLIER: Esso Petroleum Company
ExxonMobil House
Ermyrn Way, Leatherhead
Surrey, KT22 8UX
UK

Environmental/Health Emergency telephone: 01372 222 000 (UK)
44 1372 222 000 (Ireland)

INTENDED USE: GREASE

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: SEVERE TREAT MIN. OILS & ADDITIVES

GLOBALLY REPORTABLE MSDS INGREDIENTS:

Substance Name	Approx. Wt%	EU Classification
HYDROXYALKYL LONG-CHAIN ALKENYL IMIDAZOLINE (CAS 27136-73-8)	<1	C;R34 Xn;R22 N;R50/53
N-OLEYLSARCOSINE (CAS 110-25-8)	<1	Xi;R36/38 N;R50/53

3. HAZARDS IDENTIFICATION

This product is considered hazardous according to EU regulatory
guidelines (see Section 15).

Symbol: Not applicable.

Risk Phrase(s): R52/53.

POTENTIAL HEALTH EFFECTS: Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation.

POTENTIAL ENVIRONMENTAL EFFECTS: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

For further health effects/toxicological data, see Section 11.

NOTE: This product should not be used for any other purpose without expert advice.

4. FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a doctor.

SKIN CONTACT: Wash contact areas with soap and water. Remove and clean oil soaked clothing daily and wash affected area.

INJECTION INJURY WARNING: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

INHALATION: Remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with mechanical device or use mouth-to-mouth resuscitation.

INGESTION: Not expected to be a problem. Seek medical attention if discomfort occurs. Do not induce vomiting.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon dioxide, foam, dry chemical and water fog.

SPECIAL FIRE FIGHTING PROCEDURES: Water or foam may cause frothing.

Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposures. Prevent runoff from fire control or dilution from entering waterways or drinking water supply.

SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, firefighters MUST use self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

COMBUSTION PRODUCTS: Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

Flash Point C(F): > 204(400) (ESTIMATED FOR OIL, ASTM D-92 (COC)).

Flammable Limits (approx.% vol.in air) - LEL: NE, UEL: NE

NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0

6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: Report spills/releases as required to appropriate authorities. In case of accident or road spill, contact the Police and Fire Brigade and, if appropriate, the Area Water Authority.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:

LAND SPILL: Shut off source taking normal safety precautions.

Take measures to minimize the effects on ground water. Recover by pumping or contain spilled material with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of adsorbed residues as directed in Section 13.

WATER SPILL: Confine the spill immediately with booms. Warn other ships in the vicinity. Notify port and other relevant authorities. Remove from the surface by skimming or with suitable absorbents. If permitted by regulatory authorities the use of suitable dispersants should be considered where recommended in local oil spill procedures.

ENVIRONMENTAL PRECAUTIONS: Prevent material from entering sewers, water sources or low lying areas; advise the relevant authorities if it has, or if it contaminates soil/vegetation.

PERSONAL PRECAUTIONS: See Section 8

7. HANDLING AND STORAGE

SPECIFIC USES: GREASE

HANDLING: High pressure injection under the skin may occur due to the rupture of pressurized lines. Always seek medical attention. No special precautions are necessary beyond normal good hygiene practices. See Section 8 for additional personal protection advice when handling this product.

STORAGE: Keep containers closed when not in use. Do not store in open or unlabelled containers. Store away from strong oxidizing agents and combustible materials. Do not store near heat, sparks, flame or strong oxidants.

SPECIAL PRECAUTIONS: Prevent small spills and leakages to avoid slip hazard.

EMPTY CONTAINER WARNING: Empty containers retain residue (liquid and/or vapour) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS:

This product does not contain any components which have recognized exposure limits.

VENTILATION: Use adequate ventilation.

RESPIRATORY PROTECTION: No special requirements under ordinary conditions of use and with adequate ventilation.

EYE PROTECTION: Generally eye contact is unlikely with this type material. If eye contact is likely, safety glasses with side shields or chemical type goggles should be worn.

SKIN PROTECTION: If prolonged or repeated skin contact is likely, oil impervious gloves MUST be worn. Good personal hygiene practices should always be followed.

ENVIRONMENTAL CONTROLS: SEE SECTION 7

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

GENERAL:

PHYSICAL STATE: Grease

COLOUR: Green

ODOUR: Mild

ODOUR THRESHOLD-ppm: NE

IMPORTANT HEALTH, SAFETY AND ENVIRONMENTAL INFORMATION:

pH: NA

BOILING POINT C(F): NE

FLASH POINT C(F): > 204(400) (ESTIMATED FOR OIL, ASTM D-92 (COC))

FLAMMABILITY (solids): NE

AUTO FLAMMABILITY C(F): NA

EXPLOSIVE PROPERTIES: NA

OXIDIZING PROPERTIES: NA

VAPOUR PRESSURE-mmHg 20 C: < 0.1

RELATIVE DENSITY, 15/4 C: 0.93

SOLUBILITY IN WATER: Negligible

PARTITION COEFFICIENT: > 3.5

VISCOSITY AT 40 C, cSt: 150.0

VISCOSITY AT 100 C, cSt: 13.0

VAPOUR DENSITY: NE

EVAPORATION RATE: NE

OTHER INFORMATION:

DROP POINT C(F): > 219(426)

POUR POINT C(F): NA

FREEZING POINT C(F): NE

NOTE: MOST PHYSICAL PROPERTIES FOR OIL COMPONENT.

DMSO EXTRACT, IP-346 (WT.%): <3, for mineral oil only

NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.): Stable.

CONDITIONS TO AVOID: Extreme heat and high energy sources of ignition.

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidisers.

HAZARDOUS DECOMPOSITION PRODUCTS: Product does not decompose at ambient temperatures.

HAZARDOUS POLYMERISATION: Will not occur.

11. TOXICOLOGICAL DATA

---ACUTE TOXICOLOGY---

ORAL TOXICITY: Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

DERMAL TOXICITY: Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the

components.

INHALATION TOXICITY: Practically non-toxic (LC50: greater than 5 mg/l). ---Based on testing of similar products and/or the components.

EYE IRRITATION: Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.

SKIN IRRITATION: Practically non-irritating. (Primary Irritation Index: greater than 0.5 but less than 3). ---Based on testing of similar products and/or the components.

OTHER ACUTE TOXICITY DATA: Although an acute inhalation study was not performed with this product, a variety of mineral oils and synthetic base oils, such as those in this product have been tested. These samples had virtually no effect other than a nonspecific inflammatory response in the lung to the aerosolized mineral oil. The presence of additives in other tested formulations (in approximately the same amounts as in the present formulation) did not alter the observed effects.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

No significant adverse effects were found in studies using repeated dermal applications of similar formulations to the skin of laboratory animals for 13 weeks at doses significantly higher than those expected during normal industrial exposure. The animals were evaluated extensively for effects of exposure (hematology, serum chemistry, urinalysis, organ weights, microscopic examination of tissues etc.).

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

No teratogenic effects would be expected from dermal exposure, based on laboratory developmental toxicity studies of major components in this formulation and/or materials of similar composition.

---CHRONIC TOXICOLOGY (SUMMARY)---

Repeated and/or prolonged exposure may cause irritation to the skin, eyes or respiratory tract. For mineral base oils: Base oils in this product are severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of severely treated oils showed no evidence of carcinogenic effects. These results are confirmed on a continuing basis using various screening methods such as Modified Ames Test, IP-346, and/or other analytical methods. Synthetic base oils representative of those in this product have been tested in the Ames assay and other tests of mutagenicity with negative results. These base oils are not expected to be carcinogenic with chronic dermal exposures.

---SENSITIZATION (SUMMARY)---

Not expected to be sensitizing based on tests of this product, components, or similar products.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS:

This environmental assessment was conducted using information on the individual components as no test data was available for this specific formulation.

ECOTOXICITY: This product is expected to be harmful to aquatic

organisms. May cause long-term adverse effects in the aquatic environment.

MOBILITY: Not established.

PERSISTENCE AND DEGRADABILITY: This product is expected to be inherently biodegradable, as the principal components have been shown to degrade at slow to moderate rates.

BIOACCUMULATIVE POTENTIAL: Not established.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning in an enclosed, controlled burner for fuel value. Such burning may be limited pursuant to the Resource Conservation and Recovery Act. In addition, the product is suitable for processing by an approved recycling facility or can be disposed of at any licensed waste disposal site. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

14. TRANSPORT INFORMATION

USA DOT: NOT REGULATED BY USA DOT.

RID/ADR: NOT REGULATED BY RID/ADR.

IMO: NOT REGULATED BY IMO.

IATA: NOT REGULATED BY IATA.

15. REGULATORY INFORMATION

EU Labelling: Product is dangerous as defined by the European Union Dangerous Substances/Preparations Directives.

Symbol: Not applicable.

Risk Phrase(s): R52/53.
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrase(s): S61.
Avoid release to the environment. Refer to special instructions/Safety data sheets.

THE FOLLOWING PRODUCT INGREDIENTS ARE CITED ON THE LISTS BELOW:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
*** NO REPORTABLE INGREDIENTS ***		
--- REGULATORY LISTS SEARCHED ---		
1=IARC 1	6=NO ALLERGI	11=DE TERAT B
2=IARC 2A	7=SE ALLERGY	12=DE TERAT C
3=IARC 2B	8=SE CARC	13=DE TERAT D
		14=AT TERAT A
		15=AT TERAT B
		16=DE CARC B
		17=AT TERAT A
		18=AT TERAT B
		21=CH CARC

4=NTP CARC 9=DK CARC 14=DE CARC A1 19=AT TERAT C
5=NTP SUS 10=DE TERAT A 15=DE CARC A2 20=AT TERAT D

CARC=CARCINOGEN; SUS=SUSPECTED CARCINOGEN; TERAT=TERATOGENIC

AT = Austria DE = Germany NO = Norway
CH = Switzerland DK = Denmark SE = Sweden

16. OTHER INFORMATION

LIBRARY OF RISK PHRASES LISTED IN SECTION 2 OF THIS DOCUMENT:

R22 Harmful if swallowed.
R34 Causes burns.
R36/38 Irritating to eyes and skin.
R50/53 Very toxic to aquatic organisms, may cause long-term
 adverse effects in the aquatic environment.

NOTE: EXXONMOBIL PRODUCTS ARE NOT FORMULATED TO CONTAIN PCBS.

Health studies have shown that many hydrocarbons pose potential human health risks which may vary from person to person. Information provided on this MSDS reflects intended use. This product should not be used for other applications. In any case, the following advice should be considered:

INDUSTRIAL LABEL

Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation. Always observe good hygiene measures. First Aid: Wash skin with soap and water. Flush eyes with water. If overcome by fumes or vapor, remove to fresh air. If ingested, do not induce vomiting. If symptoms persist seek medical assistance. Read and understand the MSDS before using this product.

COSHH Regulations: Product reviewed and considered to be potentially hazardous to health. The Regulations must be followed and measures to control exposure may be necessary.

Any sections of this Material Safety Data Sheet which are printed in bold text highlights recent significant changes which have been made to the advice or information given.

For Internal Use Only: MHC: 1* 1* 1* 1* 1*, MPPEC: A, TRN:
570317-00, ELIS: 407975, CMCS97: 97Q677
EHS Approval Date: 20OCT2003

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Shell Albida Grease EP 2

Safety Data Sheet

Shell Albida Grease EP 2

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Code 001A0091
Infosafe No. ACIYK GB/eng/C
Issued Date 19/03/2005
Product Type/Use Automotive and industrial grease.
Other Names

Name	Code
Shell Albida Grease EP 2	140000006899

Supplier SHELL UK PRODUCTS LTD
 Stanlow Manufacturing Complex
 PO Box 3
 Ellesmere Port CH65 4HB
 Technical Contact: Product HSE Department
 United Kingdom
Telephone Numbers
Emergency Tel. 0151-350-4595
Telephone/Fax Number Tel: 0151-350-4000

2. COMPOSITION/INFORMATION ON INGREDIENTS

Preparation Description

A lubricating grease containing highly-refined mineral oils and additives. The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Dangerous Components / Constituents

Exposure limits apply to the following components: Highly refined mineral oil.

Name	CAS	EINECS	Proportion		
Zinc naphthenate	12001-85-3	234-409-2	1-2.4 %		

Other Information

See Section 16 'Other Information' for full text of each relevant Risk Phrase.

3. HAZARDS IDENTIFICATION

EC Classification	Not classified as Dangerous under EC criteria.
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Human Health Hazards

No specific hazards under normal use conditions. Prolonged or repeated exposure to skin may give rise to

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dermatitis. Used grease may contain harmful impurities.

Safety Hazards

Not classified as flammable, but will burn.

4. FIRST AID MEASURES

Symptoms and Effects

Not expected to give rise to an acute hazard under normal conditions of use.

Inhalation

In the unlikely event of dizziness or nausea, remove casualty to fresh air. If symptoms persist, obtain medical attention.

Skin

Remove contaminated clothing and wash affected skin with soap and water. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.

Eye

Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

Ingestion

Wash out mouth with water and obtain medical attention. Do not induce vomiting.

Advice to Doctor

Treat symptomatically. Aspiration into the lungs may result in chemical pneumonitis. Dermatitis may result from prolonged or repeated exposure. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function.

High pressure injection injuries require surgical intervention and possibly steroid therapy to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

There may be a risk to health where low viscosity products are aspirated into the lungs following vomiting, although this is uncommon in adults. Such aspiration would cause intense local irritation and chemical pneumonitis. Children, and those in whom consciousness is impaired, will be more at risk. Emesis of lubricants is not usually necessary, unless a large amount has been ingested, or some other compound has been dissolved in the product. If this is indicated, for example, when there is rapid onset of central nervous system depression from large ingested volume - gastric lavage under controlled hospital conditions, with full protection of the airway is required. Supportive care may include oxygen, arterial blood gas monitoring, respiratory support, and, if aspiration has occurred, treatment with corticosteroids and antibiotics. Seizures should be controlled with Diazepam, or appropriate equivalent drug.

5. FIRE FIGHTING MEASURES

Specific Hazards

Combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates and gases, including carbon monoxide and unidentified organic and inorganic compounds.

Extinguishing Media

Foam and dry chemical powder. Carbon dioxide, sand or earth may be used for small fires only.

Unsuitable Extinguishing Media

Water in jet. Use of halon extinguishers should be avoided for environmental reasons.



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Protective Equipment

Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Avoid contact with skin and eyes. Wear PVC, Neoprene or nitrile rubber gloves. Wear rubber knee length safety boots and PVC Jacket and Trousers. Wear safety glasses or full face shield if splashes are likely to occur.

Environmental Precautions

Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Inform local authorities if this cannot be prevented.

Clean-up Methods - Small Spillages

Dispose into a suitable, clearly marked container for disposal or reclamation in accordance with local regulations.

Clean-up Methods - Large Spillages

As for small spills.

7. HANDLING AND STORAGE

Handling

Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Avoid prolonged or repeated contact with skin. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Prevent spillages. Cloth, paper and other materials that are used to absorb spills present a fire hazard. Avoid their accumulation by disposing of them safely and immediately. In addition to any specific recommendations given for controls of risks to health, safety and the environment, an assessment of risks must be made to help determine controls appropriate to local circumstances. Exposure to this product should be reduced as low as reasonably practicable. Reference should be made to the Health and Safety Executive's publication 'COSHH Essentials'.

Storage

Keep in a cool, dry, well-ventilated place. Use properly labelled and closeable containers. Avoid direct sunlight, heat sources, and strong oxidizing agents. The storage of this product maybe subject to the Control of Pollution (Oil Storage) (England) Regulations. Further guidance maybe obtained from the local environmental agency of-fice.

Storage Temperatures

0°C Minimum. 50°C Maximum.

Recommended Materials

For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials

For containers or container linings, avoid PVC.

Other Information

Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure Limits

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Substance	Regulations	Exposure Duration	Exposure Limit	Units	Notes
Oil mist, mineral	Health and Safety Executive. EH40; Occupational Exposure Limits.	TWA	5	mg/m3	
	Health and Safety Executive. EH40; Occupational Exposure Limits.	STEL	10	mg/m3	

Other Exposure Information

Due to the product's semi-solid consistency, generation of mists and dusts is unlikely to occur.

Exposure Controls

The use of personal protective equipment is only one aspect of an integrated approach to the Control Of Substances Hazardous to Health.

The management of Health and Safety at Work Regulations 1992 require employers to identify and evaluate the risks to health and to implement appropriate measures to eliminate or minimise those risks. The choice of personal protective equipment is highly dependent upon local conditions, e.g. exposure to other chemical substances and micro-organisms, thermal hazards (protection from extremes of cold and heat), electrical hazards, mechanical hazards and appropriate degree of manual dexterity required to undertake an activity.

Whilst the content of this section may inform the choice of personal protective equipment used, the limitations of any information which can be provided must be fully understood, e.g. personal protective equipment chosen to protect employees from occasional splashes maybe entirely inadequate for activities involving partial or complete immersion. If the levels of oil mist or vapour in air are likely to exceed the occupational exposure standards then consideration should be given to the use of local exhaust ventilation to reduce personal exposure.

The choice of personal protective equipment should only be undertaken in the light of a full risk assessment by a suitably qualified competent person (e.g. a professionally qualified occupational hygienist).

Effective protection is only achieved by correctly fitting and well maintained equipment and employers should ensure that appropriate training is given. All personal protective equipment should be regularly inspected and replaced if defective. Reference should be made to HSE's publication Methods for the Determination of Hazardous Substances (MDHS) 84 - Measurement of oil mist from mineral oil-based metalworking fluids. Measurement of an employee's exposure to oil vapour maybe supplemented through the use of stain tubes. In the first instance, further guidance maybe obtained through HSE's publication 'COSHH - a brief guide to the regulations' (INDG 136(rev1)).

Respiratory Protection

At standard temperature and pressure, the Occupational Exposure Standard for oil vapour is unlikely to be exceeded. Care should be taken to keep exposures below applicable occupational exposure limits. If this cannot be achieved, use of a respirator fitted with an organic vapour cartridge combined with a particulate pre-filter should be considered. Half masks (EN 149) or valved half masks (EN 405) in combination with type A2 (EN 141) and P2/3 (EN 143) pre-filters maybe considered.

If product is subjected to elevated temperatures, half masks (EN 149) or valved half masks (EN 405) in combination with type AX (EN 371) and P2/3 (EN 143) prefilters maybe considered.

Hand Protection

Chemical protective gloves are made from a wide range of materials, but there is no single glove material (or combination of materials) which gives unlimited resistance to any individual or combination of substances or preparations. The extent of the breakthrough time will be affected by a combination of factors which include permeation, penetration, degradation, use pattern (full immersion, occasional contacts) and how the glove is stored when not in use.

Theoretical maximum levels of protection are seldom achieved in practice and the actual level of protection can be difficult to assess. Effective breakthrough time should be used with care and a margin of safety should be applied. HSE guidance on protective gloves recommends a 75% safety factor to be applied to any figures obtained in a laboratory test. Nitrile gloves may offer relatively long breakthrough times and slow permeation rates. Test data, e.g breakthrough data obtained through test standard EN374-3:1994 are available from reputable equipment suppliers.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using



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gloves, hands should be washed and dried thoroughly. A non perfumed moisturiser should be applied.

Eye Protection

Goggles conforming to a minimum standard of EN 166 345B should be considered if there is a possibility of eye contact with the product through splashing. Higher rated eye protection must be considered for highly hazardous operations or work areas. For example, employees involved in metalworking operations such as chipping, grinding or cutting may require additional protection to avert injury from fast moving particles or broken tools.

Body Protection

Minimise all forms of skin contact. Overalls and shoes with oil resistant soles should be worn. Launder overalls and undergarments regularly.

Environmental Exposure Controls

Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Colour	Light brown.
Physical State	Semi-solid at ambient temperature.
Odour	Characteristic mineral oil.
pH Value	Data not available.
Vapour Pressure	Expected to be less than 0.5 Pa at 20°C.
Initial Boiling Point	Data not available.
Solubility in Water	Negligible.
Density	circa 900 kg/m3 at 15°C.
Flash Point	>250°C (COC) (based on mineral oil).
Flammable Limits - Upper	10% V/V (typical) (based on mineral oil).
Flammable Limits - Lower	1% V/V (typical) (based on mineral oil).
Auto-Ignition Temperature	Expected to be above 320°C.
Kinematic Viscosity	Data not available.
Vapour Density (Air=1)	Greater than 1.
Partition co-efficient, n-octanol/water	Log Pow expected to be greater than 6.
Dropping Point	>250°C (ASTM D-566).

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to Avoid

Extremes of temperature and direct sunlight.

Materials to Avoid

Strong oxidizing agents.

Hazardous Decomposition Products

Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION



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Basis for Assessment

Toxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the toxicology of similar products.

Acute Toxicity - Oral

LD50 expected to be > 2000 mg/kg.

Acute Toxicity - Dermal

LD50 expected to be > 2000 mg/kg.

Acute Toxicity - Inhalation

Not considered to be an inhalation hazard under normal conditions of use.

Eye Irritation

Expected to be slightly irritating.

Skin Irritation

Expected to be slightly irritating.

Respiratory Irritation

If vapours are inhaled, slight irritation of the respiratory tract may occur.

Skin Sensitisation

Not expected to be a skin sensitizer.

Carcinogenicity

Product is based on mineral oils of types shown to be non-carcinogenic in animal skin-painting studies. Other components are not known to be associated with carcinogenic effects.

Mutagenicity

Not considered to be a mutagenic hazard.

Reproductive Toxicity

Not considered to be toxic to reproduction.

Other Information

Prolonged and/or repeated contact with products containing mineral oils can result in defatting of the skin, particularly at elevated temperatures. This can lead to irritation and possibly dermatitis, especially under conditions of poor personal hygiene. Skin contact should be minimised. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed. Used grease may contain harmful impurities that have accumulated during use. The concentration of such harmful impurities will depend on use and they may present risks to health and the environment on disposal. ALL used grease should be handled with caution and skin contact avoided as far as possible.

12. ECOLOGICAL INFORMATION**Basis for Assessment**

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Mobility

Semi-solid under most environmental conditions. Floats on water. If it comes into contact with soil, it will strongly adsorb to soil particles.

Persistence / Degradability

Not expected to be readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulation

Contains components with the potential to bioaccumulate.



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Ecotoxicity
Data not available. Poorly soluble mixture. May cause physical fouling of aquatic organisms.

Other Adverse Effects
Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.
Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities.

13. DISPOSAL CONSIDERATIONS

Waste Disposal
Dispose into a suitable, clearly marked container for disposal or reclamation in accordance with local regulations. The competence of the contractor to deal satisfactorily with this type of product should be established beforehand. Do not pollute the soil, water or environment with the waste product.

Product Disposal
As for waste disposal.

Container Disposal
Recycle or dispose of in accordance with the legislation in force with a recognised collector or contractor.

14. TRANSPORT INFORMATION

Transport Information
Not dangerous for transport under ADR/RID, IMO and IATA/ICAO regulations.

15. REGULATORY INFORMATION

EC Symbols	None.
EC Risk Phrase	Not classified.
EC Safety Phrase	Not classified.

EINECS All components listed or polymer exempt.

TSCA (USA) All components listed.

National Legislation
Environmental Protection Act 1990 (as amended).
Health and Safety at Work Act 1974
Consumers Protection Act 1987
Control of Pollution Act 1974
Environmental Act 1995
Factories Act 1961
Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labelling) Regulations
Chemicals (Hazard Information and Packaging for Supply) Regulations 2002.
Control of Substances Hazardous to Health Regulations 1994 (as amended).
Road Traffic (Carriage of Dangerous Substances in Packages) Regulations
Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations
Road Traffic (Carriage of Dangerous Substances in Road Tankers in Tank Containers) Regulations
Road Traffic (Training of Drivers of Vehicles Carrying Dangerous Goods) Regulations



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Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
Health and Safety (First Aid) Regulations 1981
Personal Protective Equipment (EC Directive) Regulations 1992
Personal Protective Equipment at Work Regulations 1992

Packaging & Labelling

Safety data sheet available for professional user on request.

16. OTHER INFORMATION

Revisions Highlighted

To assist harmonisation of sds authoring practices, a version number has been introduced.

References

GUIDANCE NOTES

UK Chemicals Regulatory Atlas, An Overview of how to guide your chemical through to regulatory compliance (DTI).

HSG71 The storage of packaged dangerous substances.

EH/40 Occupational Exposure Limits.

EH/58 The Carcinogenicity of Mineral Oils.

MS24 Health surveillance of occupational skin disease.

HSG 53 The selection, use and maintenance of respiratory protective equipment: A practical guide.

HSG 206 Cost and effectiveness of chemical protective gloves for the workplace: Guidance for employers and health and safety specialists.

L74 First Aid at work: Approved Code of Practice and Guidance.

HSG 136 Workplace transport safety : guidance for employers.

INDG234 (rev) Are you Involved in the Carriage of Dangerous Goods by Road or Rail

OTHER LITERATURE

Concawe Report 3/82 Precautionary Advice on the Handling of Used Engine Oils

Concawe Report 86/69 Health Aspects of Worker Exposure to Oil Mists

Concawe Report 01/97 Petroleum Products - First Aid Emergency and Medical Advice

Concawe Report 01/53 Classification and labelling of petroleum substances according to the EU dangerous substances directive (Concawe recommendations August 2001)

Concawe Report 01/54 environmental classification of petroleum substances summary data and rationale

Concawe Report 5/02 amended safety data sheet directive (2001/58/EC)

Department of the Environment - Waste Management - The Duty of Care - A Code of Practice

Concawe, Boulevard du souverain 165 B - 1160 Brussels, Belgium

www.concawe.be

Restrictions

This product must not be used in applications other than recommended without first seeking the advice of the SHELL technical department.

List of R Phrases in Section 2

R36/38 Irritating to eyes and skin.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Technical Contact Numbers

0151-350-4000.

Further Information

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It does not constitute a guarantee for any specific property of the product.

... End Of SDS ...



Shell Albida Grease EP 2

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Shell Rimula Super 15W-40

Safety Data Sheet

Shell Rimula Super 15W-40

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Code	001B0415	
Infosafe No.	ACK9D GB/eng/C	
Issued Date	26/11/2003	
Product Type/Use	Engine oil.	
Other Names	Name	Code
	Shell Rimula Super 15W-40	140001010602
Supplier	Telephone Numbers	
SHELL UK PRODUCTS LTD	Emergency Tel.	
Stanlow Manufacturing Complex	0151-350-4595	
PO Box 3	Telephone/Fax Number	
Ellesmere Port	Tel: 0151-350-4000	
CH65 4HB		
Technical Contact: Product HSE		
Department		
United Kingdom		

2. COMPOSITION/INFORMATION ON INGREDIENTS

Preparation Description

Highly refined mineral oils and additives. The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Dangerous Components / Constituents

Exposure limits apply to the following components: Highly refined mineral oil.

Name	CAS	EINECS	Proportion	Hazard	R Phrase
Zinc alkyl dithiophosphate	-	-	1-2.49 %	Xi, N	R38, R41, R51/53

Other Information

See Section 16 'Other Information' for full text of each relevant Risk Phrase.

3. HAZARDS IDENTIFICATION

EC Classification	Not classified as Dangerous under EC criteria.
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Shell Rimula Super 15W-40

Human Health Hazards

No specific hazards under normal use conditions. Prolonged or repeated exposure may give rise to dermatitis. Used oil may contain harmful impurities.

Safety Hazards

Not classified as flammable, but will burn.

Environmental Hazards

Not classified as dangerous to the environment.

4. FIRST AID MEASURES

Symptoms and Effects

Not expected to give rise to an acute hazard under normal conditions of use.

Inhalation

In the unlikely event of dizziness or nausea, remove casualty to fresh air. If symptoms persist, obtain medical attention.

Skin

Remove contaminated clothing and wash affected skin with soap and water. If persistent irritation occurs, obtain medical attention. If high pressure injection injuries occur, obtain medical attention immediately.

Eye

Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

Ingestion

Wash out mouth with water and obtain medical attention. Do not induce vomiting.

Advice to Doctor

Treat symptomatically. Aspiration into the lungs may cause chemical pneumonitis. Dermatitis may result from prolonged or repeated exposure.

High pressure injection injuries require surgical intervention and possibly steroid therapy to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

There may be a risk to health where low viscosity products are aspirated into the lungs following vomiting, although this is uncommon in adults. Such aspiration would cause intense local irritation and chemical pneumonitis. Children, and those in whom consciousness is impaired, will be more at risk. Emesis of lubricants is not usually necessary, unless a large amount has been ingested, or some other compound has been dissolved in the product. If this is indicated, for example, when there is rapid onset of central nervous system depression from large ingested volume - gastric lavage under controlled hospital conditions, with full protection of the airway is required. Supportive care may include oxygen, arterial blood gas monitoring, respiratory support, and, if aspiration has occurred, treatment with corticosteroids and antibiotics. Seizures should be controlled with Diazepam, or appropriate equivalent drug.

5. FIRE FIGHTING MEASURES

Specific Hazards

Combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates and gases, including carbon monoxide and unidentified organic and inorganic compounds.

Extinguishing Media

Foam and dry chemical powder. Carbon dioxide, sand or earth may be used for small fires only.



Shell Rimula Super 15W-40

Unsuitable Extinguishing Media

Water in jet. Use of halon extinguishers should be avoided for environmental reasons.

Protective Equipment

Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES**Personal Precautions**

Avoid contact with skin and eyes. Wear PVC, Neoprene or nitrile rubber gloves. Wear rubber knee length safety boots and PVC Jacket and Trousers. Wear safety glasses or full face shield if splashes are likely to occur.

Environmental Precautions

Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Inform local authorities if this cannot be prevented.

Clean-up Methods - Small Spillages

Absorb liquid with sand or earth. Sweep up and remove to a suitable, clearly marked container for disposal in accordance with local regulations.

Clean-up Methods - Large Spillages

Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Dispose of as for small spills.

7. HANDLING AND STORAGE**Handling**

Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Avoid prolonged or repeated contact with skin. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Prevent spillages. Cloth, paper and other materials that are used to absorb spills present a fire hazard. Avoid their accumulation by disposing of them safely and immediately. In addition to any specific recommendations given for controls of risks to health, safety and the environment, an assessment of risks must be made to help determine controls appropriate to local circumstances. Exposure to this product should be reduced as low as reasonably practicable. Reference should be made to the Health and Safety Executive's publication 'COSHH Essentials'.

Storage

Keep in a cool, dry, well-ventilated place. Use properly labelled and closeable containers. Avoid direct sunlight, heat sources, and strong oxidizing agents. The storage of this product maybe subject to the Control of Pollution (Oil Storage) (England) Regulations. Further guidance maybe obtained from the local environmental agency office.

Storage Temperatures

0°C Minimum. 50°C Maximum.

Recommended Materials

For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials

For containers or container linings, avoid PVC.

Other Information

Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Shell Rimula Super 15W-40

Exposure Limits

Substance	Regulations	Exposure Duration	Exposure Limit	Units	Notes
Oil mist, mineral	Health and Safety Executive. EH40; Occupational Exposure Limits.	TWA	5	mg/m ³	
	Health and Safety Executive. EH40; Occupational Exposure Limits.	STEL	10	mg/m ³	

Exposure Controls

The use of personal protective equipment is only one aspect of an integrated approach to the Control Of Substances Hazardous to Health.

The management of Health and Safety at Work Regulations 1992 require employers to identify and evaluate the risks to health and to implement appropriate measures to eliminate or minimise those risks. The choice of personal protective equipment is highly dependent upon local conditions, e.g. exposure to other chemical substances and micro-organisms, thermal hazards (protection from extremes of cold and heat), electrical hazards, mechanical hazards and appropriate degree of manual dexterity required to undertake an activity.

Whilst the content of this section may inform the choice of personal protective equipment used, the limitations of any information which can be provided must be fully understood, e.g. personal protective equipment chosen to protect employees from occasional splashes maybe entirely inadequate for activities involving partial or complete immersion. If the levels of oil mist or vapour in air are likely to exceed the occupational exposure standards then consideration should be given to the use of local exhaust ventilation to reduce personal exposure.

The choice of personal protective equipment should only be undertaken in the light of a full risk assessment by a suitably qualified competent person (e.g. a professionally qualified occupational hygienist).

Effective protection is only achieved by correctly fitting and well maintained equipment and employers should ensure that appropriate training is given. All personal protective equipment should be regularly inspected and replaced if defective. Reference should be made to HSE's publication Methods for the Determination of Hazardous Substances (MDHS) 84 - Measurement of oil mist from mineral oil-based metalworking fluids. Measurement of an employee's exposure to oil vapour maybe supplemented through the use of stain tubes. In the first instance, further guidance maybe obtained through HSE's publication 'COSHH - a brief guide to the regulations' (INDG 136(rev1)).

Respiratory Protection

At standard temperature and pressure, the Occupational Exposure Standard for oil vapour is unlikely to be exceeded. Care should be taken to keep exposures below applicable occupational exposure limits. If this cannot be achieved, use of a respirator fitted with an organic vapour cartridge combined with a particulate pre-filter should be considered. Half masks (EN 149) or valved half masks (EN 405) in combination with type A2 (EN 141) and P2/3 (EN 143) pre-filters maybe considered.

If product is subjected to elevated temperatures, half masks (EN 149) or valved half masks (EN 405) in combination with type AX (EN 371) and P2/3 (EN 143) prefilters maybe considered.

Hand Protection

Chemical protective gloves are made from a wide range of materials, but there is no single glove material (or combination of materials) which gives unlimited resistance to any individual or combination of substances or preparations. The extent of the breakthrough time will be affected by a combination of factors which include permeation, penetration, degradation, use pattern (full immersion, occasional contacts) and how the glove is stored when not in use.

Theoretical maximum levels of protection are seldom achieved in practice and the actual level of protection can be difficult to assess. Effective breakthrough time should be used with care and a margin of safety should be applied. HSE guidance on protective gloves recommends a 75% safety factor to be applied to any figures obtained in a laboratory test. Nitrile gloves may offer relatively long breakthrough times and slow permeation rates. Test data, e.g breakthrough data obtained through test standard EN374-3:1994 are available from



Shell Rimula Super 15W-40

reputable equipment suppliers.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. A non perfumed moisturiser should be applied.

Eye Protection

Goggles conforming to a minimum standard of EN 166 345B should be considered if there is a possibility of eye contact with the product through splashing. Higher rated eye protection must be considered for highly hazardous operations or work areas. For example, employees involved in metalworking operations such as chipping, grinding or cutting may require additional protection to avert injury from fast moving particles or broken tools.

Body Protection

Minimise all forms of skin contact. Overalls and shoes with oil resistant soles should be worn. Launder overalls and undergarments regularly.

Environmental Exposure Controls

Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Colour	Amber.
Physical State	Liquid at ambient temperature.
Odour	Characteristic mineral oil.
pH Value	Data not available.
Vapour Pressure	Expected to be less than 0.5 Pa at 20°C.
Initial Boiling Point	Expected to be above 280°C.
Solubility in Water	Negligible.
Density	888 kg/m ³ at 15°C.
Flash Point	230°C. PMCC ASTM D93.
Flammable Limits - Upper	10%(V/V).
Flammable Limits - Lower	1%(V/V).
Auto-Ignition Temperature	Expected to be above 320°C.
Kinematic Viscosity	110 mm ² /s at 40°C.
Vapour Density (Air=1)	Greater than 1.
Partition co-efficient, n-octanol/water	Log Pow expected to be greater than 6.
Pour Point	-30°C maximum.

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to Avoid

Extremes of temperature and direct sunlight.

Materials to Avoid

Strong oxidizing agents.

Hazardous Decomposition Products

Hazardous decomposition products are not expected to form during normal storage.



Shell Rimula Super 15W-40

11. TOXICOLOGICAL INFORMATION

Basis for Assessment

Toxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the toxicology of similar products.

Acute Toxicity - Oral

LD50 expected to be > 2000 mg/kg.

Acute Toxicity - Dermal

LD50 expected to be > 2000 mg/kg.

Acute Toxicity - Inhalation

Not considered to be an inhalation hazard under normal conditions of use.

Eye Irritation

Expected to be slightly irritating.

Skin Irritation

Expected to be slightly irritating.

Respiratory Irritation

If mists are inhaled, slight irritation of the respiratory tract may occur.

Skin Sensitisation

Not expected to be a skin sensitizer.

Carcinogenicity

Product is based on mineral oils of types shown to be non-carcinogenic in animal skin-painting studies. Other components are not known to be associated with carcinogenic effects.

Mutagenicity

Not considered to be a mutagenic hazard.

Reproductive Toxicity

Not considered to be toxic to reproduction.

Other Information

Prolonged and/or repeated contact with this product can result in defatting of the skin, particularly at elevated temperatures. This can lead to irritation and possibly dermatitis, especially under conditions of poor personal hygiene. Skin contact should be minimised. Used engine oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. It is prudent to assume that prolonged or repeated exposure to used engine oils may cause skin cancer.

12. ECOLOGICAL INFORMATION

Basis for Assessment

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Mobility

Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Persistence / Degradability

Not expected to be readily biodegradable. Major constituents are expected to be inherently biodegradable, but



Shell Rimula Super 15W-40

the product contains components that may persist in the environment.

Bioaccumulation

Contains components with the potential to bioaccumulate.

Ecotoxicity

Poorly soluble mixture. May cause physical fouling of aquatic organisms. Product is expected to be practically non-toxic to aquatic organisms, LL/EL50 >100 mg/l. (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract). Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

Other Adverse Effects

Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.
Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities.

13. DISPOSAL CONSIDERATIONS

Waste Disposal

Recycle or dispose of in accordance with prevailing regulations, with a recognised collector or contractor. The competence of the contractor to deal satisfactorily with this type of product should be established beforehand. Do not pollute the soil, water or environment with the waste product.

Product Disposal

As for waste disposal.

Container Disposal

Recycle or dispose of in accordance with the legislation in force with a recognised collector or contractor.

14. TRANSPORT INFORMATION

Transport Information

Not dangerous for transport under ADR/RID, IMO and IATA/ICAO regulations.

15. REGULATORY INFORMATION

EC Symbols	None.
EC Risk Phrase	Not classified.
EC Safety Phrase	Not classified.

EINECS All components listed or polymer exempt.

TSCA (USA) Not established.

National Legislation

Environmental Protection Act 1990 (as amended).
Health and Safety at Work Act 1974
Consumers Protection Act 1987
Control of Pollution Act 1974
Environmental Act 1995
Factories Act 1961
Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labelling) Regulations

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Chemicals (Hazard Information and Packaging for Supply) Regulations 2002.
Control of Substances Hazardous to Health Regulations 1994 (as amended).
Road Traffic (Carriage of Dangerous Substances in Packages) Regulations
Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations
Road Traffic (Carriage of Dangerous Substances in Road Tankers in Tank Containers) Regulations
Road Traffic (Training of Drivers of Vehicles Carrying Dangerous Goods) Regulations
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
Health and Safety (First Aid) Regulations 1981
Personal Protective Equipment (EC Directive) Regulations 1992
Personal Protective Equipment at Work Regulations 1992

Packaging & Labelling

Safety data sheet available for professional user on request.

16. OTHER INFORMATION

Revisions Highlighted

No amendments made to information. To assist harmonisation of sds authoring practices, a version number has been introduced.

References

GUIDANCE NOTES

UK Chemicals Regulatory Atlas, An Overview of how to guide your chemical through to regulatory compliance (DTI).

HSG71 The storage of packaged dangerous substances.

EH/40 Occupational Exposure Limits.

EH/58 The Carcinogenicity of Mineral Oils.

MS24 Health surveillance of occupational skin disease.

HSG 53 The selection, use and maintenance of respiratory protective equipment: A practical guide.

HSG 206 Cost and effectiveness of chemical protective gloves for the workplace: Guidance for employers and health and safety specialists.

L74 First Aid at work: Approved Code of Practice and Guidance.

HSG 136 Workplace transport safety : guidance for employers.

INDG234 (rev) Are you Involved in the Carriage of Dangerous Goods by Road or Rail

OTHER LITERATURE

Concawe Report 3/82 Precautionary Advice on the Handling of Used Engine Oils

Concawe Report 86/69 Health Aspects of Worker Exposure to Oil Mists

Concawe Report 01/97 Petroleum Products - First Aid Emergency and Medical Advice

Concawe Report 01/53 Classification and labelling of petroleum substances according to the EU dangerous substances directive (Concawe recommendations August 2001)

Concawe Report 01/54 environmental classification of petroleum substances summary data and rationale

Concawe Report 5/02 amended safety data sheet directive (2001/58/EC)

Department of the Environment - Waste Management - The Duty of Care - A Code of Practice

Concawe, Boulevard du souverain 165 B - 1160 Brussels, Belgium

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Restrictions

This product must not be used in applications other than recommended without first seeking the advice of the SHELL technical department.

List of R Phrases in Section 2

R38 Irritating to skin.

R41 Risk of serious damage to eyes.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Technical Contact Numbers

0151-350-4000.



Shell Rimula Super 15W-40

Further Information

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It does not constitute a guarantee for any specific property of the product.

... End Of SDS ...



Shell Tellus Oil 46

Safety Data Sheet

Shell Tellus Oil 46

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Code	001B0669	
Infosafe No.	ACKQ6 GB/eng/C	
Issued Date	29/04/2004	
Product Type/Use	Hydraulic oil.	
Other Names	Name	Code
	Shell Tellus Oil 46	140001010640
Supplier	Telephone Numbers	
SHELL UK PRODUCTS LTD	Emergency Tel.	
Stanlow Manufacturing Complex	0151-350-4595	
PO Box 3	Telephone/Fax Number	
Ellesmere Port	Tel: 0151-350-4000	
CH65 4HB		
Technical Contact: Product HSE		
Department		
United Kingdom		

2. COMPOSITION/INFORMATION ON INGREDIENTS

Preparation Description

Highly refined mineral oils and additives. The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Dangerous Components / Constituents

Exposure limits apply to the following components: Highly refined mineral oil.

3. HAZARDS IDENTIFICATION

EC Classification	Not classified as Dangerous under EC criteria.
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Human Health Hazards

No specific hazards under normal use conditions. Prolonged or repeated exposure may give rise to dermatitis. Used oil may contain harmful impurities.

Safety Hazards

Not classified as flammable, but will burn.

Environmental Hazards
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Shell Tellus Oil 46

Not classified as dangerous for the environment.

4. FIRST AID MEASURES

Symptoms and Effects

Not expected to give rise to an acute hazard under normal conditions of use.

Inhalation

In the unlikely event of dizziness or nausea, remove casualty to fresh air. If symptoms persist, obtain medical attention.

Skin

Remove contaminated clothing and wash affected skin with soap and water. If persistent irritation occurs, obtain medical attention. If high pressure injection injuries occur, obtain medical attention immediately.

Eye

Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

Ingestion

Wash out mouth with water and obtain medical attention. Do not induce vomiting.

Advice to Doctor

Treat symptomatically. Aspiration into the lungs may result in chemical pneumonitis. Dermatitis may result from prolonged or repeated exposure.

High pressure injection injuries require surgical intervention and possibly steroid therapy to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

There may be a risk to health where low viscosity products are aspirated into the lungs following vomiting, although this is uncommon in adults. Such aspiration would cause intense local irritation and chemical pneumonitis. Children, and those in whom consciousness is impaired, will be more at risk. Emesis of lubricants is not usually necessary, unless a large amount has been ingested, or some other compound has been dissolved in the product. If this is indicated, for example, when there is rapid onset of central nervous system depression from large ingested volume - gastric lavage under controlled hospital conditions, with full protection of the airway is required. Supportive care may include oxygen, arterial blood gas monitoring, respiratory support, and, if aspiration has occurred, treatment with corticosteroids and antibiotics. Seizures should be controlled with Diazepam, or appropriate equivalent drug.

5. FIRE FIGHTING MEASURES

Specific Hazards

Combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates and gases, including carbon monoxide, oxides of sulphur, and unidentified organic and inorganic compounds.

Extinguishing Media

Foam and dry chemical powder. Carbon dioxide, sand or earth may be used for small fires only.

Unsuitable Extinguishing Media

Water in jet. Use of halon extinguishers should be avoided for environmental reasons.

Protective Equipment

Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

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Personal Precautions

Avoid contact with skin and eyes. Wear PVC, Neoprene or nitrile rubber gloves. Wear rubber knee length safety boots and PVC Jacket and Trousers. Wear safety glasses or full face shield if splashes are likely to occur.

Environmental Precautions

Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Inform local authorities if this cannot be prevented.

Clean-up Methods - Small Spillages

Absorb liquid with sand or earth. Sweep up and remove to a suitable, clearly marked container for disposal in accordance with local regulations.

Clean-up Methods - Large Spillages

Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Dispose of as for small spills.

7. HANDLING AND STORAGE

Handling

Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Avoid prolonged or repeated contact with skin. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Prevent spillages. Cloth, paper and other materials that are used to absorb spills present a fire hazard. Avoid their accumulation by disposing of them safely and immediately. In addition to any specific recommendations given for controls of risks to health, safety and the environment, an assessment of risks must be made to help determine controls appropriate to local circumstances. Exposure to this product should be reduced as low as reasonably practicable. Reference should be made to the Health and Safety Executive's publication 'COSHH Essentials'.

Storage

Keep in a cool, dry, well-ventilated place. Use properly labelled and closeable containers. Avoid direct sunlight, heat sources, and strong oxidizing agents. The storage of this product maybe subject to the Control of Pollution (Oil Storage) (England) Regulations. Further guidance maybe obtained from the local environmental agency office.

Storage Temperatures

0°C Minimum. 50°C Maximum.

Recommended Materials

For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials

For containers or container linings, avoid PVC.

Other Information

Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure Limits

Substance	Regulations	Exposure Duration	Exposure Limit	Units	Notes
Oil mist, mineral	Health and Safety Executive. EH40; Occupational Exposure Limits.	TWA	5	mg/m3	



Shell Tellus Oil 46

	Health and Safety Executive. EH40; Occupational Exposure Limits.	STEL	10	mg/m3	
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Exposure Controls

The use of personal protective equipment is only one aspect of an integrated approach to the Control Of Substances Hazardous to Health.

The management of Health and Safety at Work Regulations 1992 require employers to identify and evaluate the risks to health and to implement appropriate measures to eliminate or minimise those risks. The choice of personal protective equipment is highly dependent upon local conditions, e.g. exposure to other chemical substances and micro-organisms, thermal hazards (protection from extremes of cold and heat), electrical hazards, mechanical hazards and appropriate degree of manual dexterity required to undertake an activity. Whilst the content of this section may inform the choice of personal protective equipment used, the limitations of any information which can be provided must be fully understood, e.g. personal protective equipment chosen to protect employees from occasional splashes maybe entirely inadequate for activities involving partial or complete immersion. If the levels of oil mist or vapour in air are likely to exceed the occupational exposure standards then consideration should be given to the use of local exhaust ventilation to reduce personal exposure.

The choice of personal protective equipment should only be undertaken in the light of a full risk assessment by a suitably qualified competent person (e.g. a professionally qualified occupational hygienist).

Effective protection is only achieved by correctly fitting and well maintained equipment and employers should ensure that appropriate training is given. All personal protective equipment should be regularly inspected and replaced if defective. Reference should be made to HSE's publication Methods for the Determination of Hazardous Substances (MDHS) 84 - Measurement of oil mist from mineral oil-based metalworking fluids. Measurement of an employee's exposure to oil vapour maybe supplemented through the use of stain tubes. In the first instance, further guidance maybe obtained through HSE's publication 'COSHH - a brief guide to the regulations' (INDG 136(rev1)).

Respiratory Protection

At standard temperature and pressure, the Occupational Exposure Standard for oil vapour is unlikely to be exceeded. Care should be taken to keep exposures below applicable occupational exposure limits. If this cannot be achieved, use of a respirator fitted with an organic vapour cartridge combined with a particulate pre-filter should be considered. Half masks (EN 149) or valved half masks (EN 405) in combination with type A2 (EN 141) and P2/3 (EN 143) pre-filters maybe considered.

If product is subjected to elevated temperatures, half masks (EN 149) or valved half masks (EN 405) in combination with type AX (EN 371) and P2/3 (EN 143) prefilters maybe considered.

Hand Protection

Chemical protective gloves are made from a wide range of materials, but there is no single glove material (or combination of materials) which gives unlimited resistance to any individual or combination of substances or preparations. The extent of the breakthrough time will be affected by a combination of factors which include permeation, penetration, degradation, use pattern (full immersion, occasional contacts) and how the glove is stored when not in use.

Theoretical maximum levels of protection are seldom achieved in practice and the actual level of protection can be difficult to assess. Effective breakthrough time should be used with care and a margin of safety should be applied. HSE guidance on protective gloves recommends a 75% safety factor to be applied to any figures obtained in a laboratory test. Nitrile gloves may offer relatively long breakthrough times and slow permeation rates. Test data, e.g breakthrough data obtained through test standard EN374-3:1994 are available from reputable equipment suppliers.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. A non perfumed moisturiser should be applied.

Eye Protection

Goggles conforming to a minimum standard of EN 166 345B should be considered if there is a possibility of eye contact with the product through splashing. Higher rated eye protection must be considered for highly hazardous operations or work areas. For example, employees involved in metalworking operations such as chipping, grinding or cutting may require additional protection to avert injury from fast moving particles or broken



Shell Tellus Oil 46

tools.

Body Protection

Minimise all forms of skin contact. Overalls and shoes with oil resistant soles should be worn. Launder overalls and undergarments regularly.

Environmental Exposure Controls

Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Colour	Light brown.
Physical State	Liquid at ambient temperature.
Odour	Characteristic mineral oil.
pH Value	Not applicable.
Vapour Pressure	Expected to be less than 0.5 Pa at 20°C.
Initial Boiling Point	Expected to be above 280°C.
Solubility in Water	Negligible.
Density	879 kg/m3 at 15°C.
Flash Point	218°C. (PMCC).
Flammable Limits - Upper	10%(V/V) (typical).
Flammable Limits - Lower	1%(V/V) (typical).
Auto-Ignition Temperature	Expected to be above 320°C.
Kinematic Viscosity	46 mm2/s at 40°C.
Vapour Density (Air=1)	Greater than 1.
Partition co-efficient, n-octanol/water	Log Pow expected to be greater than 6.
Pour Point	-30°C.

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to Avoid

Extremes of temperature and direct sunlight.

Materials to Avoid

Strong oxidizing agents.

Hazardous Decomposition Products

Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment

Toxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the toxicology of similar products.



Shell Tellus Oil 46

Acute Toxicity - Oral

LD50 expected to be > 2000 mg/kg.

Acute Toxicity - Dermal

LD50 expected to be > 2000 mg/kg.

Acute Toxicity - Inhalation

Not considered to be an inhalation hazard under normal conditions of use.

Eye Irritation

Expected to be slightly irritating.

Skin Irritation

Expected to be slightly irritating.

Respiratory Irritation

If mists are inhaled, slight irritation of the respiratory tract may occur.

Skin Sensitisation

Not expected to be a skin sensitizer.

Carcinogenicity

Product is based on mineral oils of types shown to be non-carcinogenic in animal skin-painting studies. Other components are not known to be associated with carcinogenic effects.

Mutagenicity

Not considered to be a mutagenic hazard.

Reproductive Toxicity

Not considered to be toxic to reproduction.

Other Information

Prolonged and/or repeated contact with products containing mineral oils may result in defatting of the skin, particularly at elevated temperatures. This may lead to irritation and possibly dermatitis, especially under conditions of poor personal hygiene. Skin contact should be minimised. Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible.

12. ECOLOGICAL INFORMATION

Basis for Assessment

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Mobility

Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Persistence / Degradability

Not expected to be readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulation

Contains components with the potential to bioaccumulate.

Ecotoxicity

Poorly soluble mixture. May cause physical fouling of aquatic organisms. Product is expected to be practically non-toxic to aquatic organisms, LL/EL50 >100 mg/l. (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract). Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.



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Other Adverse Effects

Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.
Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities.

13. DISPOSAL CONSIDERATIONS

Waste Disposal

Recycle or dispose of in accordance with prevailing regulations, with a recognised collector or contractor. The competence of the contractor to deal satisfactorily with this type of product should be established beforehand. Do not pollute the soil, water or environment with the waste product.

Product Disposal

As for waste disposal.

Container Disposal

Recycle or dispose of in accordance with the legislation in force with a recognised collector or contractor.

14. TRANSPORT INFORMATION

Transport Information

Not dangerous for transport under ADR/RID, IMO and IATA/ICAO regulations.

15. REGULATORY INFORMATION

EC Symbols	None.
EC Risk Phrase	Not classified.
EC Safety Phrase	Not classified.

EINECS All components listed or polymer exempt.

TSCA (USA) All components in compliance.

National Legislation

Environmental Protection Act 1990 (as amended).
Health and Safety at Work Act 1974
Consumers Protection Act 1987
Control of Pollution Act 1974
Environmental Act 1995
Factories Act 1961
Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labelling) Regulations
Chemicals (Hazard Information and Packaging for Supply) Regulations 2002.
Control of Substances Hazardous to Health Regulations 1994 (as amended).
Road Traffic (Carriage of Dangerous Substances in Packages) Regulations
Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations
Road Traffic (Carriage of Dangerous Substances in Road Tankers in Tank Containers) Regulations
Road Traffic (Training of Drivers of Vehicles Carrying Dangerous Goods) Regulations
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
Health and Safety (First Aid) Regulations 1981
Personal Protective Equipment (EC Directive) Regulations 1992



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Personal Protective Equipment at Work Regulations 1992

Packaging & Labelling

Safety data sheet available for professional user on request.

16. OTHER INFORMATION

Revisions Highlighted

No amendments made to information. To assist harmonisation of sds authoring practices, a version number has been introduced.

References

GUIDANCE NOTES

UK Chemicals Regulatory Atlas, An Overview of how to guide your chemical through to regulatory compliance (DTI).

HSG71 The storage of packaged dangerous substances.

EH/40 Occupational Exposure Limits.

EH/58 The Carcinogenicity of Mineral Oils.

MS24 Health surveillance of occupational skin disease.

HSG 53 The selection, use and maintenance of respiratory protective equipment: A practical guide.

HSG 206 Cost and effectiveness of chemical protective gloves for the workplace: Guidance for employers and health and safety specialists.

L74 First Aid at work: Approved Code of Practice and Guidance.

HSG 136 Workplace transport safety : guidance for employers.

INDG234 (rev) Are you Involved in the Carriage of Dangerous Goods by Road or Rail

OTHER LITERATURE

Concawe Report 3/82 Precautionary Advice on the Handling of Used Engine Oils

Concawe Report 86/69 Health Aspects of Worker Exposure to Oil Mists

Concawe Report 01/97 Petroleum Products - First Aid Emergency and Medical Advice

Concawe Report 01/53 Classification and labelling of petroleum substances according to the EU dangerous substances directive (Concawe recommendations August 2001)

Concawe Report 01/54 environmental classification of petroleum substances summary data and rationale

Concawe Report 5/02 amended safety data sheet directive (2001/58/EC)

Department of the Environment - Waste Management - The Duty of Care - A Code of Practice

Concawe, Boulevard du souverain 165 B - 1160 Brussels, Belgium

www.concawe.be

Restrictions

This product must not be used in applications other than recommended without first seeking the advice of the SHELL technical department.

Technical Contact Numbers

0151-350-4000.

Further Information

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It does not constitute a guarantee for any specific property of the product.

... End Of SDS ...



Shell Omala Oil 220

Safety Data Sheet

Shell Omala Oil 220

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Code	001A0776	
Infosafe No.	ACH75 GB/eng/C	
Issued Date	29/01/2003	
Product Type/Use	Gear lubricant.	
Other Names	Name	Code
	Shell Omala Oil 220	140000006378
Supplier	Telephone Numbers	
SHELL UK PRODUCTS LTD	Emergency Tel.	
Stanlow Manufacturing Complex	0151-350-4595	
PO Box 3	Telephone/Fax Number	
Ellesmere Port	Tel: 0151-350-4000	
CH65 4HB		
Technical Contact: Product HSE		
Department		
United Kingdom		

2. COMPOSITION/INFORMATION ON INGREDIENTS

Preparation Description
Highly refined mineral oils and additives. The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Dangerous Components / Constituents
Exposure limits apply to the following components: Highly refined mineral oil.

3. HAZARDS IDENTIFICATION

EC Classification	Not classified as Dangerous under EC criteria.
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Human Health Hazards
No specific hazards under normal use conditions. Prolonged or repeated exposure may give rise to dermatitis. Used oil may contain harmful impurities.

Safety Hazards
Not classified as flammable, but will burn.

Environmental Hazards

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Not classified as dangerous for the environment.

4. FIRST AID MEASURES

Symptoms and Effects

Not expected to give rise to an acute hazard under normal conditions of use.

Inhalation

In the unlikely event of dizziness or nausea, remove casualty to fresh air. If symptoms persist, obtain medical attention.

Skin

Remove contaminated clothing and wash affected skin with soap and water. If persistent irritation occurs, obtain medical attention. If high pressure injection injuries occur, obtain medical attention immediately.

Eye

Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

Ingestion

Do not induce vomiting. Wash out mouth with water and obtain medical attention.

Advice to Doctor

Treat symptomatically. Aspiration into the lungs may result in chemical pneumonitis. Dermatitis may result from prolonged or repeated exposure.

High pressure injection injuries require surgical intervention and possibly steroid therapy to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

There may be a risk to health where low viscosity products are aspirated into the lungs following vomiting, although this is uncommon in adults. Such aspiration would cause intense local irritation and chemical pneumonitis. Children, and those in whom consciousness is impaired, will be more at risk. Emesis of lubricants is not usually necessary, unless a large amount has been ingested, or some other compound has been dissolved in the product. If this is indicated, for example, when there is rapid onset of central nervous system depression from large ingested volume - gastric lavage under controlled hospital conditions, with full protection of the airway is required. Supportive care may include oxygen, arterial blood gas monitoring, respiratory support, and, if aspiration has occurred, treatment with corticosteroids and antibiotics. Seizures should be controlled with Diazepam, or appropriate equivalent drug.

5. FIRE FIGHTING MEASURES

Specific Hazards

Combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates and gases, including carbon monoxide and unidentified organic and inorganic compounds.

Extinguishing Media

Foam and dry chemical powder. Carbon dioxide, sand or earth may be used for small fires only.

Unsuitable Extinguishing Media

Water in jet. Use of halon extinguishers should be avoided for environmental reasons.

Protective Equipment

Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

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Personal Precautions

Avoid contact with skin and eyes. Wear PVC, Neoprene or nitrile rubber gloves. Wear rubber knee length safety boots and PVC Jacket and Trousers. Wear safety glasses or full face shield if splashes are likely to occur.

Environmental Precautions

Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Inform local authorities if this cannot be prevented.

Clean-up Methods - Small Spillages

Absorb liquid with sand or earth. Sweep up and remove to a suitable, clearly marked container for disposal in accordance with local regulations.

Clean-up Methods - Large Spillages

Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Dispose of as for small spills.

7. HANDLING AND STORAGE

Handling

Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Avoid prolonged or repeated contact with skin. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Prevent spillages. Cloth, paper and other materials that are used to absorb spills present a fire hazard. Avoid their accumulation by disposing of them safely and immediately. In addition to any specific recommendations given for controls of risks to health, safety and the environment, an assessment of risks must be made to help determine controls appropriate to local circumstances. Exposure to this product should be reduced as low as reasonably practicable. Reference should be made to the Health and Safety Executive's publication 'COSHH Essentials'.

Storage

Keep in a cool, dry, well-ventilated place. Use properly labelled and closeable containers. Avoid direct sunlight, heat sources, and strong oxidizing agents. The storage of this product maybe subject to the Control of Pollution (Oil Storage) (England) Regulations. Further guidance maybe obtained from the local environmental agency office.

Storage Temperatures

0°C Minimum. 50°C Maximum.

Recommended Materials

For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials

For containers or container linings, avoid PVC.

Other Information

Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure Limits

Substance	Regulations	Exposure Duration	Exposure Limit	Units	Notes
Oil mist, mineral	Health and Safety Executive. EH40; Occupational Exposure Limits.	TWA	5	mg/m3	



Shell Omala Oil 220

	Health and Safety Executive. EH40; Occupational Exposure Limits.	STEL	10	mg/m3	
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Exposure Controls

The use of personal protective equipment is only one aspect of an integrated approach to the Control Of Substances Hazardous to Health.

The management of Health and Safety at Work Regulations 1992 require employers to identify and evaluate the risks to health and to implement appropriate measures to eliminate or minimise those risks. The choice of personal protective equipment is highly dependent upon local conditions, e.g. exposure to other chemical substances and micro-organisms, thermal hazards (protection from extremes of cold and heat), electrical hazards, mechanical hazards and appropriate degree of manual dexterity required to undertake an activity. Whilst the content of this section may inform the choice of personal protective equipment used, the limitations of any information which can be provided must be fully understood, e.g. personal protective equipment chosen to protect employees from occasional splashes maybe entirely inadequate for activities involving partial or complete immersion. If the levels of oil mist or vapour in air are likely to exceed the occupational exposure standards then consideration should be given to the use of local exhaust ventilation to reduce personal exposure.

The choice of personal protective equipment should only be undertaken in the light of a full risk assessment by a suitably qualified competent person (e.g. a professionally qualified occupational hygienist).

Effective protection is only achieved by correctly fitting and well maintained equipment and employers should ensure that appropriate training is given. All personal protective equipment should be regularly inspected and replaced if defective. Reference should be made to HSE's publication Methods for the Determination of Hazardous Substances (MDHS) 84 - Measurement of oil mist from mineral oil-based metalworking fluids. Measurement of an employee's exposure to oil vapour maybe supplemented through the use of stain tubes. In the first instance, further guidance maybe obtained through HSE's publication 'COSHH - a brief guide to the regulations' (INDG 136(rev1)).

Respiratory Protection

At standard temperature and pressure, the Occupational Exposure Standard for oil vapour is unlikely to be exceeded. Care should be taken to keep exposures below applicable occupational exposure limits. If this cannot be achieved, use of a respirator fitted with an organic vapour cartridge combined with a particulate pre-filter should be considered. Half masks (EN 149) or valved half masks (EN 405) in combination with type A2 (EN 141) and P2/3 (EN 143) pre-filters maybe considered.

If product is subjected to elevated temperatures, half masks (EN 149) or valved half masks (EN 405) in combination with type AX (EN 371) and P2/3 (EN 143) prefilters maybe considered.

Hand Protection

Chemical protective gloves are made from a wide range of materials, but there is no single glove material (or combination of materials) which gives unlimited resistance to any individual or combination of substances or preparations. The extent of the breakthrough time will be affected by a combination of factors which include permeation, penetration, degradation, use pattern (full immersion, occasional contacts) and how the glove is stored when not in use.

Theoretical maximum levels of protection are seldom achieved in practice and the actual level of protection can be difficult to assess. Effective breakthrough time should be used with care and a margin of safety should be applied. HSE guidance on protective gloves recommends a 75% safety factor to be applied to any figures obtained in a laboratory test. Nitrile gloves may offer relatively long breakthrough times and slow permeation rates. Test data, e.g breakthrough data obtained through test standard EN374-3:1994 are available from reputable equipment suppliers.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. A non perfumed moisturiser should be applied.

Eye Protection

Goggles conforming to a minimum standard of EN 166 345B should be considered if there is a possibility of eye contact with the product through splashing. Higher rated eye protection must be considered for highly hazardous operations or work areas. For example, employees involved in metalworking operations such as chipping, grinding or cutting may require additional protection to avert injury from fast moving particles or broken



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tools.

Body Protection

Minimise all forms of skin contact. Overalls and shoes with oil resistant soles should be worn. Launder overalls and undergarments regularly.

Environmental Exposure Controls

Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Colour	Brown.
Physical State	Liquid at ambient temperature.
Odour	Characteristic mineral oil.
pH Value	Data not available.
Vapour Pressure	<0.5 Pa at 20°C.
Initial Boiling Point	>280°C.
Solubility in Water	Negligible.
Density	899 kg/m ³ at 15°C.
Flash Point	199°C (PMCC).
Flammable Limits - Upper	10%(V/V) (typical).
Flammable Limits - Lower	1%(V/V) (typical).
Auto-Ignition Temperature	>320° (typical).
Kinematic Viscosity	220 mm ² /s at 40°C.
Evaporation Rate	Data not available.
Vapour Density (Air=1)	>1 at 20°C.
Partition co-efficient, n-octanol/water	Log Pow >6 (typical).
Pour Point	-18°C.

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to Avoid

Extremes of temperature and direct sunlight.

Materials to Avoid

Strong oxidizing agents.

Hazardous Decomposition Products

Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment

Toxicological data have not been determined specifically for this product. Information given is based on a



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knowledge of the components and the toxicology of similar products.

Acute Toxicity - Oral

LD50 expected to be > 2000 mg/kg.

Acute Toxicity - Dermal

LD50 expected to be > 2000 mg/kg.

Acute Toxicity - Inhalation

Not considered to be an inhalation hazard under normal conditions of use.

Eye Irritation

Expected to be slightly irritating.

Skin Irritation

Expected to be slightly irritating.

Respiratory Irritation

If mists are inhaled, slight irritation of the respiratory tract may occur.

Skin Sensitisation

Not expected to be a skin sensitizer.

Carcinogenicity

Product is based on mineral oils of types shown to be non-carcinogenic in animal skin-painting studies. Other components are not known to be associated with carcinogenic effects.

Mutagenicity

Not considered to be a mutagenic hazard.

Reproductive Toxicity

Not considered to be toxic to reproduction.

Other Information

Prolonged and/or repeated contact with products containing mineral oils may result in defatting of the skin, particularly at elevated temperatures. This may lead to irritation and possibly dermatitis, especially under conditions of poor personal hygiene. Skin contact should be minimised. Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible.

12. ECOLOGICAL INFORMATION

Basis for Assessment

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Mobility

Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Persistence / Degradability

Not expected to be readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulation

Contains components with the potential to bioaccumulate.

Ecotoxicity

Poorly soluble mixture. May cause physical fouling of aquatic organisms. Product is expected to be practically non-toxic to aquatic organisms, LL/EL50 > 100 mg/l. (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract). Mineral oil is not expected to cause any chronic effects to aquatic



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organisms at concentrations less than 1 mg/l.

Other Adverse Effects

Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.
Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities.

13. DISPOSAL CONSIDERATIONS

Waste Disposal

Recycle or dispose of in accordance with prevailing regulations, with a recognised collector or contractor. The competence of the contractor to deal satisfactorily with this type of product should be established beforehand. Do not pollute the soil, water or environment with the waste product.

Product Disposal

As for waste disposal.

Container Disposal

Recycle or dispose of in accordance with the legislation in force with a recognised collector or contractor.

14. TRANSPORT INFORMATION

Transport Information

Not dangerous for transport under ADR/RID, IMO and IATA/ICAO regulations.

15. REGULATORY INFORMATION

EC Symbols	None.
EC Risk Phrase	Not classified.
EC Safety Phrase	Not classified.

EINECS All components listed or polymer exempt.

TSCA (USA) All components in compliance.

National Legislation

Environmental Protection Act 1990 (as amended).
Health and Safety at Work Act 1974
Consumers Protection Act 1987
Control of Pollution Act 1974
Environmental Act 1995
Factories Act 1961
Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labelling) Regulations
Chemicals (Hazard Information and Packaging for Supply) Regulations 2002.
Control of Substances Hazardous to Health Regulations 1994 (as amended).
Road Traffic (Carriage of Dangerous Substances in Packages) Regulations
Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations
Road Traffic (Carriage of Dangerous Substances in Road Tankers in Tank Containers) Regulations
Road Traffic (Training of Drivers of Vehicles Carrying Dangerous Goods) Regulations
Reporting of Injuries, Diseases and Dangerous Occurences Regulations
Health and Safety (First Aid) Regulations 1981

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Personal Protective Equipment (EC Directive) Regulations 1992
Personal Protective Equipment at Work Regulations 1992

Packaging & Labelling

Safety data sheet available for professional user on request.

16. OTHER INFORMATION

Revisions Highlighted

No amendments made to information. To assist harmonisation of sds authoring practices, a version number has been introduced.

References

GUIDANCE NOTES

UK Chemicals Regulatory Atlas, An Overview of how to guide your chemical through to regulatory compliance (DTI).

HSG71 The storage of packaged dangerous substances.

EH/40 Occupational Exposure Limits.

EH/58 The Carcinogenicity of Mineral Oils.

MS24 Health surveillance of occupational skin disease.

HSG 53 The selection, use and maintenance of respiratory protective equipment: A practical guide.

HSG 206 Cost and effectiveness of chemical protective gloves for the workplace: Guidance for employers and health and safety specialists.

L74 First Aid at work: Approved Code of Practice and Guidance.

HSG 136 Workplace transport safety : guidance for employers.

INDG234 (rev) Are you Involved in the Carriage of Dangerous Goods by Road or Rail

OTHER LITERATURE

Concawe Report 3/82 Precautionary Advice on the Handling of Used Engine Oils

Concawe Report 86/69 Health Aspects of Worker Exposure to Oil Mists

Concawe Report 01/97 Petroleum Products - First Aid Emergency and Medical Advice

Concawe Report 01/53 Classification and labelling of petroleum substances according to the EU dangerous substances directive (Concawe recommendations August 2001)

Concawe Report 01/54 environmental classification of petroleum substances summary data and rationale

Concawe Report 5/02 amended safety data sheet directive (2001/58/EC)

Department of the Environment - Waste Management - The Duty of Care - A Code of Practice

Concawe, Boulevard du souverain 165 B - 1160 Brussels, Belgium

www.concawe.be

Restrictions

This product must not be used in applications other than recommended without first seeking the advice of the SHELL technical department.

Technical Contact Numbers

0151-350-4000.

Further Information

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It does not constitute a guarantee for any specific property of the product.

... End Of SDS ...



ANTIFREEZE CONCENTRATE

Data Sheet No. L84042 Revision : 23 08 2004

REPLACES L84042 :

This data sheet has been prepared in accordance with the requirements of the Data Sheet Directive 91/155/EEC.

RECOMMENDED USES

Antifreeze Concentrate is recommended for use as :

an antifreeze

If Antifreeze Concentrate is used for a purpose not covered in this section, Shell UK Ltd would be grateful to receive information on the application.

KNOWN MISUSES/ABUSES

Antifreeze Concentrate is not to be used as :

The most common misuse is that of ingestion by children. For this reason, Antifreeze Concentrate contains an aversive agent. It is most important that Antifreeze Concentrate be kept safely out of reach or locked away.

The disposal of Antifreeze Concentrate to soil, watercourses and drains is a legal offence.

1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT :	ANTIFREEZE CONCENTRATE
COMPANY :	SHELL UK OIL PRODUCTS LIMITED
TECHNICAL CONTACT:	PRODUCT HSE DEPARTMENT
ADDRESS :	STANLOW MANUFACTURING COMPLEX, PO BOX 3, ELLESMERE PORT, CH65 4HB
TELEPHONE :	0151-350-4000
EMERGENCY TELEPHONE NUMBER :	0151-350-4595

2: COMPOSITION/INFORMATION ON INGREDIENTS

Antifreeze Concentrate is a preparation manufactured from ethanediol (ethylene glycol), additives and a taste aversive agent.

CONC.	COMPONENT	EINECS	CLASS	RISK PHRASES
>90%	Ethanediol	203-473-3	Xn	R22 Harmful if swallowed

Exposure limit values exist for the following constituents:

Ethanediol

3: HAZARD IDENTIFICATION

Antifreeze Concentrate is classified as dangerous for supply.

Antifreeze Concentrate is not classified as dangerous for conveyance.

It contains ethanediol to which exposure limits apply.

Ethanediol is readily biodegradable and poses a significant risk of oxygen depletion in aquatic systems.

4: FIRST AID MEASURES**INHALATION**

Remove the person affected to fresh air. If rapid recovery does not occur, obtain medical attention.

SKIN

Wash contaminated skin with water. Use soap if available. Do not delay.

EYES

Flush the eye with copious quantities of water for up to 10 minutes. Refer for medical attention.

INGESTION

The normal advice given in the case of ingestion of hydrocarbon products is that vomiting should be avoided due to the risk of aspiration into the lungs, however, owing to the toxic effects and rapid absorption from the stomach, this advice is modified for Antifreeze Concentrate as follows :

SEEK QUALIFIED MEDICAL ASSISTANCE IMMEDIATELY.

IF THE PATIENT IS UNCONSCIOUS, DO NOT INDUCE VOMITING.

WITH A CONSCIOUS PATIENT, if hospital assistance is not likely to be immediately available, attempt to induce vomiting.

SHOW A COPY OF THIS DATA SHEET TO THE PHYSICIAN,
draw attention to "Notes for Doctors" in Section 11 below.

5: FIRE-FIGHTING MEASURES

Extinguishants	- Large Fire :	Alcohol Resistant Foam/Water Fog - NEVER USE WATER JET
	- Small Fire :	Alcohol Resistant Foam/Water Fog/Dry Powder/CO2/Sand/Earth

Special Protective Equipment for Firefighters

The choice of protective equipment must only be undertaken in the light of a dynamic risk assessment by the officer in charge of the incident. Whilst the content of this section may inform the choice of protective equipment used, the choice of protective equipment will be highly dependent on local conditions.

For large fires, the officer in charge may consider; self contained breathing apparatus (EN 137).

Further guidance on protective equipment for professional fire fighters can be obtained from the home office.

DECOMPOSITION PRODUCTS

Refer to section 10 - stability and reactivity.

6: ACCIDENTAL RELEASE MEASURES

Extinguish naked flames, avoid contact with skin, eyes, and clothing. Wear plastic or rubber gloves, goggles or face shield and boots. Make best endeavours to prevent entry to drains or watercourses.

LARGE SPILLS should be banded by a suitable medium such as sand or earth. The liquid should be reclaimed directly or in an adsorbent medium and then transferred to suitable, clearly marked containers and disposed of in accordance with local byelaws and the requirements of the Environmental Protection Act 1990. Any containers used to collect the spilled material or absorbent should be labelled to indicate contents and hazards.

SMALL SPILLS should be soaked up with sand or earth and disposed of as for large spills.

7: HANDLING AND STORAGE

HANDLING

Antifreeze Concentrate does not require any special handling techniques, but it should be handled in suitable containers and spillage avoided. Avoid contact with skin, eyes and clothing. Do not breathe mists, aerosols or vapours. Maximum handling temperature 60 Deg. C.

STORAGE

The storage of Antifreeze Concentrate is not subject to any special controls or restrictions. It should be stored in properly designed, closable, labelled containers, eg mild steel or high density polyethylene (HDPE). Keep away from children, foodstuffs and animal feed.

8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

The following limits are taken from The Health and Safety Executive's Guidance Note EH40 Occupational Exposure Limits 2002.

UK Occupational Exposure Standards :

Ethenediol, particulate	10 mg/cubic metre 8 hour TWA value
Ethenediol, vapour	60 mg/cubic metre 8-hour TWA value 125 mg/cubic metre 15-min TWA value

RECOMMENDED MONITORING PROCEDURES

Reference should be made to HSE's publication Methods for the Determination of Hazardous Substances (MDHS) 14/3 and 88.

PERSONAL PROTECTIVE EQUIPMENT

The use of personal protective equipment is only one aspect of an integrated approach to the Control Of Substances Hazardous to Health.

The management of Health and Safety at Work Regulations 1992 require employers to identify and evaluate the risks to health and to implement appropriate measures to eliminate or minimise those risks.

The choice of personal protective equipment is highly dependent upon local conditions, e.g. exposure to other chemical substances and micro-organisms, thermal hazards (protection from extremes of cold and heat), electrical hazards, mechanical hazards and appropriate degree of manual dexterity required to undertake an activity.

Whilst the content of this section may inform the choice of personal protective equipment used, the limitations of any data which can be provided must be fully understood, e.g. personal protective equipment chosen to protect employees from occasional splashes maybe entirely inadequate for activities involving partial or complete immersion.

If the levels of vapour or particulate in air are likely to exceed the occupational exposure standards then consideration should be given to the use of local exhaust ventilation to reduce personal exposure. The choice of personal protective equipment should only be undertaken in the light of a full COSHH and risk assessment by a suitably qualified competent person (e.g. a professionally qualified occupational hygienist).

Effective protection is only achieved by correctly fitting and well maintained equipment and employers should ensure that appropriate training is given. All personal protective equipment should be regularly inspected and replaced if defective.

In the first instance, further guidance maybe obtained through HSE's publication "COSHH - a brief guide to the regulations" (INDG136(rev1)).

Hand Protection :-

Chemical protective gloves are made from a wide range of materials, but there is no single glove material (or combination of materials) which gives unlimited resistance to any individual or combination of substances or preparations. The extent of

the breakthrough time will be affected by a combination of factors which include permeation, penetration, degradation, use pattern (full immersion, occasional contacts) and how the glove is stored when not in use.

Theoretical maximum levels of protection are seldom achieved in practice and the actual level of protection can be difficult to assess.

Effective breakthrough time should be used with care and a margin of safety should be applied. HSE guidance on protective gloves recommends a 75% safety factor to be applied to any figures obtained in a laboratory test.

Nitrile gloves may offer relatively long breakthrough times and slow permeation rates. Test data, e.g breakthrough data obtained through test standard EN374-3:1994 are available from reputable equipment suppliers.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. A non perfumed moisturiser should be applied.

Respiratory Protection

At standard temperature and pressure, the Occupational Exposure Standards are unlikely to be exceeded.

Care should be taken to keep exposures below applicable occupational exposure limits. If this cannot be achieved, use of a respirator fitted with an organic vapour cartridge combined with a particulate prefilter should be considered.

Half masks (EN 149) or valved half masks(EN 405) in combination with type A2 (EN 141) and P2/3 (EN 143) prefilters maybe considered.

If Antifreeze Concentrate is subjected to elevated temperatures, say, half masks (EN 149) or valved half masks(EN 405) in combination with type AX (EN 371) and P2/3 (EN 143) prefilters maybe considered.

Eye Protection

Goggles conforming to a minimum standard of BS EN 166 345B should be considered if there is a possibility of eye contact with Antifreeze Concentrate through splashing.

Higher rated eye protection must be considered for highly hazardous operations or work areas, employees involved in metalworking operations such as chipping, grinding or cutting may require additional protection to avert injury from fast moving particles or broken tools.

9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State :	Liquid at ambient temperature
Appearance :	Dyed or colourless
Odour :	Characteristic
Acidity/Alkalinity :	pH 7-9 (solution in water at 50gms/100mls)
Initial Boiling Point :	>150 Deg. C.
Freezing Point :	<-30 Deg. C. (50% solution in water)
Flashpoint :	>100 Deg. C.
Flammability :	Not applicable
Autoflammability :	417 Deg. C. *
Flammability Limits	Not determined
- Upper :	3.0 % vol. *
- Lower :	Not applicable
Explosive Properties :	Not applicable
Oxidising Properties :	Not applicable
Vapour Pressure @ 20 Deg. C. :	<10 Pa
Relative Density @ 20 Deg. C. :	1.12-1.14
Solubility :	Completely miscible
Water Solubility :	Not determined
Fat solubility/solvent :	>1.0 *
Partition Coefficient, n-octanol water :	Not determined
Vapour Density (Air =1) :	Not determined
Viscosity @ 20 Deg. C. :	Not determined
Values marked with a * refer to ethanediol	

10: STABILITY AND REACTIVITY

CONDITIONS TO AVOID

Extremes of temperature. Store between 0 and 50 Deg. C.

MATERIALS TO AVOID

Strong oxidising agents, eg. chlorates which may be used in agriculture.

DECOMPOSITION PRODUCTS

The substances arising from the thermal decomposition of these products will largely depend upon the conditions bringing about decomposition. The following substances may be expected from normal combustion :

Carbon Dioxide
Carbon Monoxide
Water

Unidentified Organic and Inorganic Compounds
Particulate Matter
Nitrogen Oxides

11: TOXICOLOGICAL INFORMATION

Basis of Assessment

Toxicological data may not have been determined specifically for all end points (e.g. mutagenicity, carcinogenicity, reproductive toxicity, repeated dose and acute toxicity, corrosivity, irritation, sensitisation etc) for this substance/preparation. Assessment will be based on a combination of test data, human experience, toxicological data generated on similar components and the conventional method.

Antifreeze Concentrate is classified as harmful by ingestion (deaths have been reported on swallowing large quantities). The toxicity of ethanediol is principally due to it's metabolites. Renal damage has been observed in man with the deposition of oxalate crystals.

At very high doses in animal experiments, foetotoxicity has been observed, but it's relevance to man has still to be clarified.

Antifreeze Concentrate contains an aversive agent which has an extremely bitter taste.

ACUTE HEALTH HAZARDS AND ADVICE

INHALATION

Due to its low vapour pressure, Antifreeze Concentrate is not considered likely to present an inhalation hazard at ambient temperature. At elevated temperatures, the vapour may irritate the respiratory tract.

Precautions :

Inhalation of vapour, mists and aerosols should be avoided. If this cannot be achieved by safe working practices, suitable respiratory protection should be used.

First Aid :

Remove the person affected to fresh air. If rapid recovery does not occur, obtain medical attention.

SKIN

Antifreeze Concentrate is expected to be slightly irritating to the skin and is harmful by skin absorption on prolonged or repeated exposure.

Precautions :

All contact must be avoided by the use of suitable protective clothing Launder contaminated clothing before reusing.

First Aid :

Wash contaminated skin with water. Use soap if available.

EYES

Antifreeze Concentrate is expected to be moderately, possibly severely, irritating to the eye.

Precautions :

If there is a risk of splashing while handling the liquid, suitable eye protection should be used.

First Aid :

Do not delay. Flush the eye with copious quantities of water for up to 10 minutes. Refer for medical attention.

INGESTION

Ingestion of ethanediol may lead to serious intoxication, and possibly death. There may be effects on the central nervous system, on the cardio-pulmonary system, and on the kidneys, with renal failure. Ingestion of as little as 100 millilitres may be fatal for an adult. Antifreeze Concentrate is rapidly absorbed causing symptoms resembling alcohol intoxication, and cardio-vascular effects. Death may occur from renal or hepatic failure : survivors usually have complete recovery of renal function, although cerebral damage may be permanent.

Precautions :

Accidental ingestion is unlikely except in the case of children. Normal handling and hygiene precautions to avoid ingestion, especially by keeping out of reach of children.

First Aid :

The normal advice given in the case of ingestion of hydrocarbon products is that vomiting should be avoided owing to risks of aspiration into the lungs. Owing to the toxic effects and rapid absorption from the stomach, this advice is modified for Antifreeze Concentrate as follows :

SEEK QUALIFIED MEDICAL ASSISTANCE IMMEDIATELY.

IF THE PATIENT IS UNCONSCIOUS, DO NOT INDUCE VOMITING.

WITH A CONSCIOUS PATIENT, if hospital assistance is not likely to be immediately available, attempt to induce vomiting.

SHOW A COPY OF THIS DATA SHEET TO THE PHYSICIAN.

CHRONIC HEALTH HAZARD AND ADVICE

Continued exposure to vapour of Antifreeze Concentrate can induce unconsciousness, nystagmus and lymphocytosis. Death from ingestion of the liquid is due to renal or hepatic failure. Survivors usually have complete recovery of renal function. Cerebral damage may however be permanent. There is no human or animal evidence for carcinogenicity or mutagenicity.

HEALTH ADVICE TO PHYSICIANS

Treat by observation and supportive measures as indicated by the patient's condition.

The essentials of therapy are :

1. Supportive treatment of respiratory distress and shock.
 2. Correction of metabolic acidosis and hypocalcemia.
 3. Rapid and sustained diuresis when possible with the use of hypertonic mannitol.
 4. Immediate peritoneal or haemodialysis.
 5. Thiamine and pyridoxine supplements.
 6. Intravenous administration of ethanol if the diagnosis is recognised within 6 hours after ingestion, and
 7. Treatment for renal failure with dialysis as needed to keep patient free from signs and symptoms of uraemia.
-

12: ECOLOGICAL INFORMATION

Ecotoxicological data may not have been determined specifically for all end points for this substance/preparation. Assessment will be based on a combination of test data, other available evidence, ecotoxicological data generated on similar components and the conventional method.

Antifreeze Concentrate should be managed in the environment as a preparation at most slightly toxic but posing an indirect hazard to the aquatic environment because of ready biodegradation leading to oxygen depletion. Avoid gross contamination of the soil. Minimise contamination of water because of deoxygenation hazard. Spilled material should be contained and removed as completely as possible. Final traces can be dispersed with water.

AIR

Antifreeze Concentrate is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities.

WATER

If released to water, Antifreeze Concentrate will dissolve. In view of deoxygenation hazard, consider dilution or (artificial) reaeration. It will not bioaccumulate significantly.

SOIL

If released to soil Antifreeze Concentrate is highly mobile and will, in significant quantities, permeate to lower soil levels and may reach groundwater in which it will dissolve.

13: DISPOSAL CONSIDERATIONS

Antifreeze Concentrate should be disposed of to a licensed waste contractor.

Any disposal route must satisfy the requirements of the of the Environmental Protection Act, 1990, the Environment Act 1995, and should comply with any local byelaws. byelaws.

Antifreeze Concentrate is controlled by the Special Waste Regulations 1996.

Envirowise offers free advice through a national helpline. Initial contact by industry and commerce should be made to the Environment and Energy helpline (0800 585 794). The Envirowise programme is sponsored by Government and seeks to encourage good practice in environmental protection technology and techniques.

Further guidance can also obtained from the local environment agency agency office.

14: TRANSPORT INFORMATION

Not Dangerous for Conveyance

15: REGULATORY INFORMATION

Dangerous for Supply	
Category of Danger :	Harmful
Symbols :	St Andrew's Cross
Risk Phrases :	Harmful if swallowed
Safety Phrases:	S2 Keep out of reach of Children
	S24/25 Avoid contact with skin and eyes
	S46 If swallowed, seek medical advice immediately and show this container or label
Contains :	Ethanediol

Additional Information

Safety data sheet available on request

LEGISLATION

Consumer Protection Act 1987
Control of Pollution Act 1974
Environmental Protection Act 1990
Environment Act 1995
Factories Act 1961
Health and Safety at Work Act 1974

Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labelling) Regulations
Chemical (Hazards, Information, and Packaging for Supply) Regulations
Control of Substances Hazardous to Health Regulations
Dangerous Substances in Harbour Areas Regulations
Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations
Road Traffic (Carriage of Dangerous Substances in Packages etc.) Regulations
Road Traffic (Carriage of Dangerous Substances in Road Tankers and Tank Containers) Regulations
Road Traffic (Training of Drivers of Vehicles Carrying Dangerous Goods) Regulations
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
Special Waste Regulations 1996
Health and Safety (First Aid) Regulations 1981
Personal Protective Equipment (EC Directive) Regulations 1992
Personal Protective Equipment at Work Regulations 1992

16: OTHER INFORMATION**GUIDANCE NOTES**

UK Chemicals Regulatory Atlas, An Overview of how to guide your chemical through to regulatory compliance (DTI).

HSG71	The storage of packaged dangerous substances
EH/40	Occupational Exposure Limits
MS24	Health surveillance of occupational skin disease
HSG 53	The selection, use and maintenance of respiratory protective equipment: A practical guide
HSG 206	Cost and effectiveness of chemical protective gloves for the workplace: Guidance for employers and health and safety specialists.
HSG 136	Workplace transport safety : guidance for employers
INDG234 (rev)	Are you Involved in the Carriage of Dangerous Goods by Road or Rail.

OTHER LITERATURE

Department of the Environment - Waste Management - The Duty of Care - A Code of Practice

SHELL AGRICULTURAL GAS OIL

Data Sheet No. F32002 Revision : 02 10 2002

REPLACES F32002 : 11 01 01

This data sheet has been prepared in accordance with the requirements of the Data Sheet Directive 91/155/EEC.

RECOMMENDED USES

Shell Agricultural Gas Oil is recommended for use as :

a fuel for small industrial boilers for horticultural and agricultural space heating applications, furnaces and dryers.

If Shell Agricultural Gas Oil is used for a purpose not covered in this section, Shell UK Ltd would be grateful to receive information on the application.

KNOWN MISUSES/ABUSES

Shell Agricultural Gas Oil is not to be used as :

a solvent or cleaning agent. It should never be siphoned by sucking the liquid up a tube by mouth, or stored near sources of heat or ignition.

The disposal of Shell Agricultural Gas Oil to soil, watercourses and drains is a legal offence.

1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT :	SHELL AGRICULTURAL GAS OIL
COMPANY :	SHELL UK OIL PRODUCTS LIMITED
TECHNICAL CONTACT:	PRODUCT HSE DEPARTMENT
ADDRESS :	STANLOW MANUFACTURING COMPLEX, PO BOX 3, ELLESMERE PORT, CH65 4HB
TELEPHONE :	0151-350-4000
EMERGENCY TELEPHONE NUMBER :	0151-350-4595

2: COMPOSITION/INFORMATION ON INGREDIENTS

Shell Agricultural Gas Oil is a preparation manufactured from gas oils, derived from crude petroleum, and additives, none of which impart any additional hazard to the finished product.

The hydrocarbon components will include straight-run gas oil, and may contain vacuum and/or cracked gas oil components.

It is a requirement of H.M. Customs and Excise that all reduced duty fuels contain Quinizarin and C.I. Solvent Red 24. Rebated fuels marketed within the European Union must also contain C.I. Solvent Yellow 124. Shell Agricultural Gas Oil contains C.I. Solvent Red 24, Quinizarin and C.I. Solvent Yellow 124 at 4 ppm, 1.75 ppm and 6 ppm respectively.

The following components, which have health effects, are present at significant concentrations.

CONC.	COMPONENT	EINECS	CLASS	RISK PHRASES
< 100%	Fuels, diesel	269-822-7	Xn Xn N	R40 Limited evidence of a carcinogenic effect R65 Harmful: may cause lung damage if swallowed R66 Repeated exposure may cause skin dryness and cracking R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Exposure limit values exist for the following constituents:

None.

3: HAZARD IDENTIFICATION

Shell Agricultural Gas Oil is classified for supply purposes as : Harmful (R40: Limited evidence of a carcinogenic effect and R65: Harmful: may cause lung damage if swallowed), and Dangerous for the Environment (R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment).

Shell Agricultural Gas Oil satisfies the criteria for the additional risk phrase - R66: Repeated exposure may cause skin dryness or cracking.

Shell Agricultural Gas Oil is a combustible liquid, which may explode under certain conditions, e.g. in the presence of electrostatic charges generated, for example, during pumping or tank cleaning or by other sources of ignition or flame impingement on containers.

Accidental ingestion can lead to vomiting and aspiration into the lungs, which can result in chemical pneumonitis, which can be fatal.

Prolonged and repeated skin contact can lead to defatting of the skin, drying, cracking, dermatitis, erythema, oil acne and oil folliculitis. Warty growths have occurred and these can become cancerous.

Exposure to high vapour concentrations can lead to nausea, headache and dizziness. Excessive and prolonged exposure to mists may cause a chronic inflammatory reaction of the lungs and a form of pulmonary fibrosis.

It should be assumed that the flashpoint of Shell Agricultural Gas Oil is equal to or less than 60.5 Deg. C. unless the carrier has obtained contrary test data. Consequently, Shell Agricultural Gas Oil is classified for conveyance purposes as a flammable liquid.

Shell Agricultural Gas Oil will not biodegrade in anaerobic conditions and, hence, can be persistent. It contains components which have a high potential to bioaccumulate.

4: FIRST AID MEASURES

INHALATION

Remove the affected person to fresh air. If breathing has stopped administer artificial respiration. Give cardiac massage if necessary. If the person is breathing, but unconscious, place in the recovery position. Obtain medical assistance immediately.

SKIN

Flush the contaminated skin with water. Use soap if available. Contaminated clothing should be soaked with water, removed, and laundered before reuse.

EYES

Flush the eye with copious quantities of water. If irritation persists refer for medical attention.

INGESTION

DO NOT INDUCE VOMITING. If ingestion is suspected, wash out the mouth with water, and send to hospital immediately. Show this Data Sheet to the physician drawing attention to "Notes for Doctors" in Section 11 below.

5: FIRE-FIGHTING MEASURES

Extinguishants	- Large Fire :	Foam/Water Fog - NEVER USE WATER JET
	- Small Fire :	Foam/Dry Powder/CO2/Sand/Earth

6: ACCIDENTAL RELEASE MEASURES

LAND SPILLAGES

IMMEDIATE EMERGENCY ACTION

Clear people away from the area to a safe place
Do not operate electrical equipment unless flameproof
Summon aid of emergency services if warranted
Treat or refer casualties if necessary

FURTHER ACTION - FIRE

IF SAFE : -

Stop product flow

Use foam, dry powder or carbon dioxide extinguishers

Containers exposed to fire can be cooled by water fog/spray

*** NEVER USE WATER JET ***

FURTHER ACTION - SPILLAGE

IF SAFE : -

Extinguish naked lights, eg cigarettes - AVOID MAKING SPARKS

Position fire fighting equipment

Try to stop the flow of liquid product

Prevent product entering waterways, drains etc. (Covering with wet sacking helps)

Use sand, earth or other suitable material

If product reaches waterways, drains etc. inform local and fire authorities

Reclaim product directly or absorb in suitable medium and transfer to suitable, clearly marked containers

See section 13 for disposal of contaminated product and waste

MARITIME SPILLAGES

Any spillage of Shell Agricultural Gas Oil which results in overside pollution must be treated in accordance with the guidelines laid down in the respective Vessel Oil Spill Response Contingency Plan, as required by MARPOL 73/78 Annex 1, Regulation 26. Where the vessel is not required to comply with such legislation, the Owner's and/or Charterer's instructions must be followed. In the absence of any other guidelines, any spillage in territorial/coastal waters must be immediately reported to the appropriate maritime authority, e.g. coast guard, the vessel's local agent if applicable, and the vessel's Owner/Charterer. In international waters, any spillage should be reported to the nearest coastal state, and additional guidance should be sought immediately from the vessel's Owner/Charterer.

7: HANDLING AND STORAGE

HANDLING

Shell Agricultural Gas Oil is designed to be used in closed systems and in off-road vehicle fuel systems. No special handling precautions are necessary other than care to avoid skin contact with the product. Owing to its classification as a carcinogen, care should be taken to minimise contact. Electrical continuity is required between the transport and storage vessels during product transfer.

STORAGE

The main considerations relating to the storage of Shell Agricultural Gas Oil are the suitability of the storage vessel and the avoidance of sources of ignition.

8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

The following limits are taken from The Health and Safety Executive's Guidance Note EH40 Occupational Exposure Limits 2000.

None.

RECOMMENDED PROTECTIVE CLOTHING

Impervious gloves and overalls where regular contact is likely, and goggles if there is a risk of splashing

9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State :	Mobile liquid at ambient temperature
Appearance :	Clear Red/ Brown
Odour :	Characteristic
Acidity/Alkalinity :	Not applicable
Initial Boiling Point :	180 Deg. C.
Flashpoint :	> 56 Deg. C.
Flammability :	Not applicable
Autoflammability :	ca. 220 Deg. C.
Flammability Limits	6 % vol.
- Upper :	1 % vol.
- Lower :	Not applicable
Explosive Properties :	Not applicable
Oxidising Properties :	Not applicable
Vapour Pressure @ 20 Deg. C. :	<0.1 k.Pa
Relative Density @ 15 Deg. C. :	0.82 to 0.87
Solubility :	Very Low
Water Solubility :	Not available
Fat solubility/solvent :	3 to >6
Partition Coefficient, n-octanol water :	> 5
Vapour Density (Air =1) :	2 to 5 cSt.
Viscosity @ 40 Deg. C. :	

10: STABILITY AND REACTIVITY**CONDITIONS TO AVOID**

Sources of ignition. Extremes of temperature.

MATERIALS TO AVOID

Strong oxidising agents, eg. chlorates which may be used in agriculture.

DECOMPOSITION PRODUCTS

The substances arising from the thermal decomposition of these products will largely depend upon the conditions bringing about decomposition. The following substances may be expected from normal combustion :

Carbon Dioxide	Unburnt Hydrocarbons
Carbon Monoxide	Unidentified Organic and Inorganic Compounds
Water	Nitrogen Oxides
Particulate Matter	Sulphur Oxides
Polycyclic Aromatic Hydrocarbons	

11: TOXICOLOGICAL INFORMATION**ACUTE HEALTH HAZARDS AND ADVICE**

Shell Agricultural Gas Oil is classified as harmful owing to the aspiration hazard.

Shell Agricultural Gas Oil carries the additional risk phrase - repeated exposure may cause skin dryness or cracking.

The main hazards are: in the case of inhalation of higher vapour concentrations, of effects on the central nervous system ; in the case of skin contact of, defatting and irritation ; in the unlikely event of ingestion, of aspiration into the lungs with possible resultant chemically induced pneumonia.

Exposure to higher vapour concentrations can lead to nausea, headache, dizziness, loss of consciousness, and, in oxygen deficient environments, death. A person exposed to significant concentrations of vapour may display drunken behaviour, and his judgement can be impaired.

If the product is accidentally ingested, irritation to the gastric mucous membranes can lead to vomiting. If this occurs, there is a high probability of the product being aspirated into the lungs, which can lead to chemical pneumonitis which can be fatal.

INHALATION

Under normal conditions of use Shell Agricultural Gas Oil is not expected to present an inhalation hazard.

Precautions :

Inhalation of vapours should be avoided. Where, exceptionally, higher concentrations of the vapour may be encountered, e.g. in the event of a spillage in a badly ventilated area, persons should not be allowed to enter the area, even in an emergency, until the atmosphere has been checked and passed as safe for entry by a competent person.

First Aid :

Remove the affected person to fresh air. If breathing has stopped administer artificial respiration. Give cardiac massage if necessary. If the person is breathing, but unconscious, place in the recovery position. Obtain medical assistance immediately.

SKIN

Shell Agricultural Gas Oil is slightly irritating to the skin, and has a defatting action on the skin.

Precautions :

Avoid contact with the skin by the use of suitable protective clothing.

First Aid :

Flush the contaminated skin with water. Use soap if available. Contaminated clothing should be soaked with water, removed, and laundered before reuse.

EYES

Shell Agricultural Gas Oil may cause discomfort to the eye.

Precautions :

If there is a risk of splashing while handling the liquid, suitable eye protection should be used.

First Aid :

Flush the eye with copious quantities of water. If irritation persists refer for medical attention.

INGESTION

Shell Agricultural Gas Oil is classified as harmful owing to the aspiration hazard. Ingestion can lead to vomiting and aspiration into the lungs, which can result in chemical pneumonitis, which can be fatal.

Precautions :

Accidental ingestion is unlikely. Normal handling and hygiene precautions should be taken to avoid ingestion.

First Aid :

DO NOT INDUCE VOMITING Wash out the mouth with water, and, if ingestion is suspected, send to hospital immediately. Show this Data Sheet to the physician drawing attention to "Notes for Doctors" below.

CHRONIC HEALTH HAZARD AND ADVICE

Shell Agricultural Gas Oil is classified as a category 3 carcinogen.

The main hazards arise from skin contact and in the inhalation of mists.

Skin contact over prolonged and repeated periods can lead to defatting of the skin, dermatitis, erythema, oil acne and oil folliculitis. Where occupational and personal hygiene practices have been of a poor standard, warty growths have occurred and these can become cancerous.

Excessive and prolonged inhalation of mists may cause a chronic inflammatory reaction of the lungs and a form of pulmonary fibrosis.

NOTES FOR DOCTORS

HIGH PRESSURE INJECTION INJURIES

High pressure injection injuries require surgical intervention and possibly steroid therapy to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. PROMPT surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetic, and wide exploration is essential.

INGESTION AND ASPIRATION OF PETROLEUM PRODUCTS

There may be a risk to health where low viscosity products are aspirated into the lungs following vomiting, although this is uncommon in adults. Such aspiration would cause intense local irritation and chemical pneumonitis. Children, and those in whom consciousness is impaired, will be more at risk. Emesis of lubricants is not usually necessary, unless a large amount has been ingested, or some other compound has been dissolved in the product. If this is indicated - for example, when there is rapid onset of CNS depression from a large ingested volume - gastric lavage under controlled hospital conditions, with full protection of the airway is required. Supportive care may include oxygen, arterial blood gas monitoring, respiratory support and, if aspiration has occurred, treatment with corticosteroids and antibiotics. Seizures should be controlled with Diazepam, or appropriate equivalent drug.

12: ECOLOGICAL INFORMATION

Shell Agricultural Gas Oil contains fuels, diesel which is classified as toxic to aquatic organisms/ may cause long-term adverse effects in the aquatic environment.

AIR

Shell Agricultural Gas Oil is a mixture of mainly non-volatile components, which when released to air will react rapidly with hydroxyl radicals and ozone.

WATER

If released to water, Shell Agricultural Gas Oil will evaporate at a very slow rate. A small proportion will dissolve. Dissolved components will be either absorbed in sediments or evaporate to air. In aerobic water and sediments they will biodegrade, but in anaerobic conditions they will persist.

SOIL

Small volumes released on land will evaporate at a very slow rate, with a proportion of the product being absorbed in the upper soil layers and being subject to biodegradation. Larger volumes may penetrate into anaerobic soil layers in which the product will persist. The product may reach the water table on which it will form a floating layer, and move along with the groundwater flow. In this case the more soluble components, such as aromatics, will cause groundwater contamination.

13: DISPOSAL CONSIDERATIONS

Shell Agricultural Gas Oil is a special waste owing to its supply classification. It should be disposed of to a licensed waste contractor. Any disposal route should comply with local byelaws and the requirements of the Environmental Protection Act, 1990.

14: TRANSPORT INFORMATION

It should be assumed that the flashpoint of Shell Agricultural Gas Oil is equal to or less than 60.5 Deg. C. unless the carrier has obtained contrary test data.

UN Number :	1202
Proper Shipping Name :	Gas Oil
Symbol :	Flammable Liquid
Packing Group :	III
Marine Pollutant :	No

IATA/ICAO Hazard Class :	3
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IMO Hazard Class :	3.3
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Class :	3
Classification Code :	F1
Hazard Identification No. :	30

Hazchem Code :	3 Z
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15: REGULATORY INFORMATION

This material has been classified according to the requirements of the Chemicals (Hazard Information and Packaging for Supply) Regulations.

Dangerous for Supply

Symbols :	St Andrew's Cross Dead Fish and Tree
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Categories of Danger :	Category 3 Carcinogen Harmful
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Risk Phrases :	R40 Limited evidence of a carcinogenic effect
	R65 Harmful: may cause lung damage if swallowed
	R66 Repeated exposure may cause skin dryness or cracking
	R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the

Safety Phrases :	S2 Keep out of the reach of children
	S24 Avoid contact with the skin.
	S36/37 Wear suitable protective clothing and gloves
	S61 Avoid release to the environment. Refer to special instructions / safety data sheets
	S62 If swallowed, do not induce vomiting : seek medical advice immediately and show this label or container

Contains :	Fuels, diesel
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16: OTHER INFORMATION

The references set out below give further information on specific aspects.

LEGISLATION

Consumer Protection Act 1987
Control of Pollution Act 1974
Environmental Protection Act 1990
Factories Act 1961
Health and Safety at Work Act 1974

Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labelling) Regulations
Chemical (Hazards, Information, and Packaging for Supply) Regulations
Control of Substances Hazardous to Health Regulations
Dangerous Substances in Harbour Areas Regulations
Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations
Road Traffic (Carriage of Dangerous Substances in Packages etc.) Regulations
Road Traffic (Carriage of Dangerous Substances in Road Tankers and Tank Containers) Regulations
Road Traffic (Training of Drivers of Vehicles Carrying Dangerous Goods) Regulations
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
Special Waste Regulations

GUIDANCE NOTES

CS/15	The cleaning and gas freeing of tanks containing flammable residues
HS(G)22	Electrical apparatus for use in potentially explosive atmospheres
HS(G)50	The storage of flammable liquids in fixed tanks (up to 10000m3 total capacity)
HS(G)51	The storage of flammable liquids in containers
HS(G)50	The storage of flammable liquids in fixed tanks (exceeding 10000m3 total capacity)
HS(G)140	The safe use and handling of flammable liquids
HS(G)71	The storage of packaged dangerous substances
EH/40	Occupational Exposure Limits
EH/58	The Carcinogenicity of Mineral Oils
MS24	Health surveillance of occupational skin disease

BRITISH STANDARDS

BS 799	Specification for Oil Burning Equipment
BS 2000	Methods of Test for Petroleum and its Products
BS 2869	Fuel Oils for Oil Engines and Burners for Non-Marine Use
BS 5345	Selection, Installation and Maintenance of Electrical Apparatus for Use in Potentially Explosive Atmospheres
BS 5410	Oil Firing
BS 5958	Control of Undesirable Static Electricity
BS 6380	Low Temperature Properties and Cold Weather Use of Diesel Fuel and Gas Oils (Classes A1, A2 and D of BS 2869)

OTHER LITERATURE

Concawe Report 01/97 Petroleum Products - First Aid Emergency and Medical Advice

Department of the Environment - Waste Management - The Duty of Care - A Code of Practice

European Model Code of Safe Practice in the Storage and Handling of Petroleum Products

Institute of Petroleum Marketing Safety Code

Department of Trade - Code of Portable Tanks and Road Tank Vehicles for the Carriage of Liquid Dangerous Goods in Ships

ADDRESSES

Concawe, Boulevard du Souverain 165 B - 1160 Brussels, Belgium
Institute of Petroleum, 61 New Cavendish Street, London W1



SAFETY DATA SHEET

ATHENA EP 90

(Group 2)

Mineral oil based GL-4 gear oil
Product code: G010

Date of issue: 2nd October 2002

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Identification of substance/preparation

Athena EP 90

Application

Automotive gear lubricant

For specific application advice see appropriate Technical Data Sheet or consult your EXOL representative

Company Identification

EXOL Lubricants Limited
All Saints Road
Wednesbury
West Midlands
WS10 9TS

Emergency Telephone Number

+44 (0) 121 568 6800

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Composition

Highly refined mineral oil (IP 346 DMSO extract < 3%)
Proprietary performance additives.

Hazardous Components

No component is present at sufficient concentration to require a hazardous classification.

3. HAZARDS IDENTIFICATION

This material is not considered to be hazardous, but should be handled in accordance with good industrial hygiene and safety practices.

USED ENGINE OILS

Used engine oil may contain hazardous components which have the potential to cause skin cancer.
See Toxicological Information, section 11 of this Safety Data Sheet.



SAFETY DATA SHEET

4. FIRST-AID MEASURES

Eyes

Wash eye thoroughly with copious quantities of water, ensuring eyelids are held open. Obtain medical advice if any pain or redness develops or persists.

Skin

Wash skin thoroughly with soap and water as soon as reasonably practicable. Remove heavily contaminated clothing and wash underlying skin.

Ingestion

If contamination of the mouth occurs, wash out thoroughly with water.

Except as a deliberate act, the ingestion of large amounts of product is unlikely. If it should occur, do not induce vomiting; obtain medical advice.

Inhalation

If inhalation of mists, fumes or vapour causes irritation to the nose or throat, or coughing, remove to fresh air. If symptoms persist obtain medical advice.

Medical Advice

Treatment should in general be symptomatic and directed to relieving any effects.

5. FIRE-FIGHTING MEASURES

Use foam, dry powder or water fog. DO NOT USE water jets.

Fires in confined spaces should be dealt with by trained personnel wearing approved breathing apparatus.

Water may be used to cool nearby heat exposed areas/objects/packages. Avoid spraying directly into storage containers because of the danger of boil-over.

Combustion Products

Toxic fumes may be evolved on burning or exposure to heat.

See Stability and Reactivity, Section 10 of this Safety Data Sheet.

6. ACCIDENTAL RELEASE MEASURES

Contain and recover spilled material using sand or other suitable inert absorbent material.

It is advised that stocks of suitable absorbent material should be held in quantities sufficient to deal with any spillage which may be reasonably anticipated.

Spilled material may make surfaces slippery.

Protect drains from potential spills to minimise contamination. Do not wash product into drainage system.

In the case of large spills contact the appropriate authorities or telephone 0121-568-6800

In the case of spillage on water, prevent the spread of product by the use of suitable barrier equipment. Recover product from the surface. Protect environmentally sensitive areas and water supplies.



SAFETY DATA SHEET

7. HANDLING AND STORAGE

Handling Precautions

Avoid contact with eyes. If splashing is likely to occur wear a full face visor or chemical goggles as appropriate. Avoid frequent or prolonged skin contact with fresh or used product. Good working practices, high standards of personal hygiene and plant cleanliness must be maintained at all times. Wash hands thoroughly after contact. Use disposable cloths and discard when soiled. Do not put soiled cloths into pockets.

Fire Prevention

Product contaminated rags, paper or material used to absorb spillages, represent a fire hazard, and should not be allowed to accumulate. Dispose of safely immediately after use.

Storage Conditions

Store under cover away from heat and sources of ignition.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits

There is no appropriate occupational exposure limit for this material. Ensure good ventilation. Avoid, as far as reasonably practicable, inhalation of vapour, mists or fumes generated during use. If vapour, mists or fumes are generated, their concentration in the workplace air should be controlled to the lowest reasonably practicable level.

Protective Clothing

Wear face visor or goggles in circumstances where eye contact can accidentally occur. If skin contact is likely, wear impervious protective clothing and/or gloves. Protective clothing should be regularly dry cleaned. Change heavily contaminated clothing as soon as reasonably practicable; dry clean, launder and preferably starch before re-use. Wash any contaminated underlying skin with soap and water.

Respiratory Protection

Respiratory protection is unnecessary, provided the concentration of vapour, mists or fumes is adequately controlled. The use of respiratory equipment must be strictly in accordance with the manufacturers' instructions and any statutory requirements governing its selection and use.



SAFETY DATA SHEET

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical Values

Grades:	EP 90		
	Test Method	Units	
Physical state			
Colour			
Odour			
Density @ 15°C	ASTM D 1298	kg/m ³	891
Kinematic viscosity @ 40°C	ASTM D 445	mm ² /s	229.1
Kinematic viscosity @ 100°C	ASTM D 445	mm ² /s	19.85
Flash point (COC)	ASTM D 93	°C	222
Pour point	ASTM D 97	°C	-11

10. STABILITY AND REACTIVITY

Products of this type are stable and unlikely to react in a hazardous manner under normal conditions of use.
Hazardous polymerisation reactions will not occur.
This material is combustible.

Materials to Avoid

Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products

Thermal decomposition products will vary with conditions.
Incomplete combustion will generate smoke, carbon dioxide and hazardous gases, including carbon monoxide, hydrogen sulphide and oxides of sulphur and phosphorus.

11. TOXICOLOGICAL INFORMATION

Eyes

Unlikely to cause more than transient stinging or redness if accidental eye contact occurs.

Skin

Unlikely to cause harm to the skin on brief or occasional contact but prolonged or repeated exposure may lead to dermatitis.



SAFETY DATA SHEET

USED ENGINE OILS

Combustion products resulting from the operation of internal combustion engines contaminate engine oils during use. Used engine oil may contain hazardous components which have the potential to cause skin cancer. Frequent or prolonged contact with all types and makes of used engine oil must therefore be avoided and a high standard of personal hygiene maintained.

Ingestion

Unlikely to cause harm if accidentally swallowed in small doses, though larger quantities may cause nausea and diarrhoea.

Inhalation

At normal ambient temperatures this product will be unlikely to present an inhalation hazard because of its low volatility.

May cause irritation to eyes, nose and throat due to exposure to vapour, mists or fumes.

May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs.

12. ECOLOGICAL INFORMATION

Mobility

Spillages may penetrate the soil causing ground water contamination.

Persistence and degradability

This product is inherently biodegradable.

Bioaccumulative potential

There is no evidence to suggest bioaccumulation will occur.

Aquatic toxicity

Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

13. DISPOSAL CONSIDERATIONS

Where possible, arrange for product to be recycled.

Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.

Incineration may be carried out under controlled conditions provided that local regulations for emissions are met.

14. TRANSPORT INFORMATION

Not classified as hazardous for transport (ADR, RID, UN, IMO, IATA/ICAO).



SAFETY DATA SHEET

15. REGULATORY INFORMATION

Not classified as hazardous for supply.

16. OTHER INFORMATION

Compiled by:

Technical Department
EXOL Lubricants Limited
All Saints Road
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West Midlands
WS10 9TS

This data sheet and the health, safety and environmental information it contains is considered to be accurate as of the date specified below. We have reviewed any information contained herein which we received from sources outside EXOL Lubricants Limited. However, no warranty or representation, express or implied is made as to the accuracy or completeness of the data and information contained in this data sheet.

Health and safety precautions and environmental advice noted in this data sheet may not be accurate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission, recommendation or authorization given or implied to practise any patented invention without a valid licence.

EXOL Lubricants Limited shall not be responsible for any damage or injury resulting from abnormal use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material.

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3. HEAVY COMPONENT WEIGHTS

Part Number & Description ----- Weight

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