MECALAC

SITE DUMPER

TA1EH Stage 5

Original Instructions

OPERATOR'S MANUAL

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Mecalac Construction Equipment UK Ltd
Central Boulevard
Prologis Park
Coventry
CV6 4BX
United Kingdom

Tel: +44 (0)24 7633 9400
Fax: +44 (0)24 7633 9500

EMAIL: CONSTRUCTIONEQUIPMENT@MECALAC.COM
PORTAL: ONEFACE.MECALAC.COM
WWW.MECALAC.COM

Serial Number	
Year of Construction	
Date of Delivery	
Dealer Stamp	
Notice	

Table of Contents

1 Introduction

1.1 Important Information

Please read and follow this manual carefully. If you use the machine correctly:

- You will stay safe.
- Your machine will perform better and last longer.

We strongly recommend

- That your machine is properly maintained and regularly serviced, as specified in this manual.
- That you use original spare parts obtained from a Mecalac dealer.

We continually make improvements to these machines. We reserve the right to amend the machine without changing these instructions.

Any modification to this machine which has not been approved by Mecalac in writing is prohibited and immediately invalidates the manufacturer's warranty.

The operator of this machine must be a competent person who has received thorough training in the use of this type of machine. The operator must be supervised by a knowledgeable supervisor.

For further information, please contact the Mecalac Service Department who will be happy to help you.

1.2 Safety Alert System

The Safety Alert System identifies important safety messages in this manual. When you see this symbol, adhere to all safety messages that follow to avoid possible injury or death.

1.3 Intended Use

The machine has been designed and tested to carry out the function of transporting various free flowing materials. If used correctly, it will provide an effective means of transportation and meet the appropriate performance standards and regulations.

This machine is not suitable for under ground working or use in hazardous environments.

Use of this product in any other way is prohibited and contrary to its intended use

1.4 Operations Manual

This manual is a guide to the safe operation of the machine and the layout and position of all controls. It also contains details of checks and procedures within the scope of the operator to keep the machine in a safe and serviceable condition.

This manual is not a training manual. Contact your local dealer or distributor for details of suitable training courses.

Any person who intends to use this equipment must read this operations manual carefully before operating the machine.

Make sure this operations manual is kept with the machine at all times and is in good condition - replace the manual immediately if it becomes dirty, damaged or has been lost. The manual holder is located in the back of the seat (Figure 1.1) and is lockable

Replacement or additional copies of this publication can be ordered from your dealer.

Figure 1.1 - Operations Manual Location

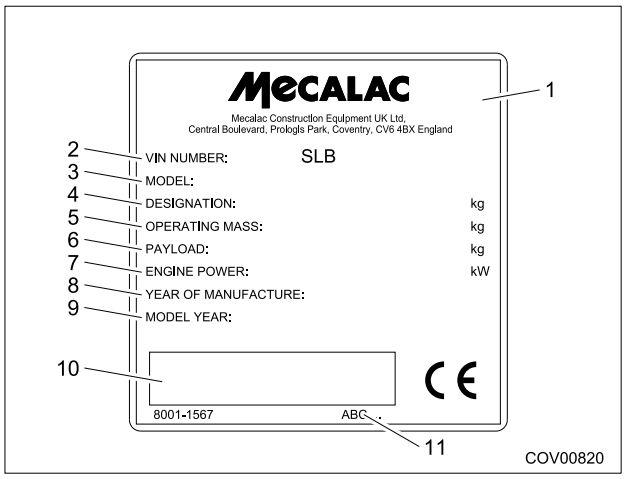
1.5 Identification Plate

The Vehicle Identification Number (VIN) is recorded on a plate (Figure 1.2) located on the right hand side of the rear chassis frame.

Figure 1.2 - Vehicle Identification Number Plate Location

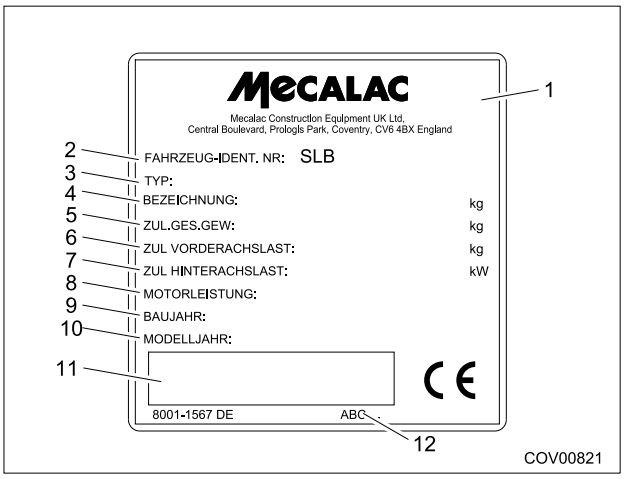
1. VIN Plate

You are advised to keep a record of your machines VIN number and the information recorded on the plate in a safe place



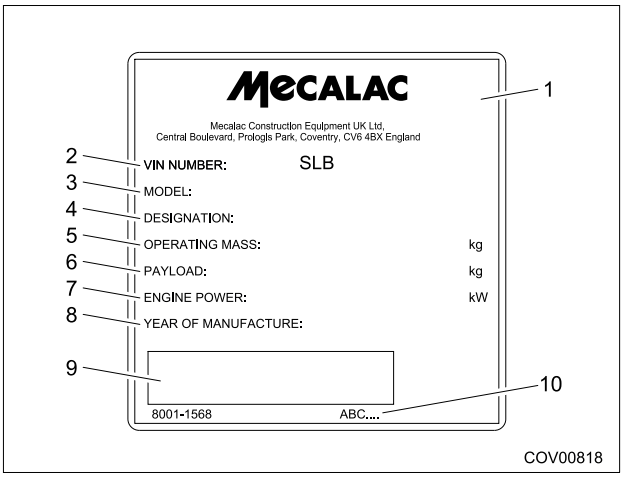
1. Company Address
2. Vehicle Identification Number
3. Machine Model
4. Designation
5. Operating Mass (Unladen)
6. Payload
7. Engine Power
8. Year Of Manufacture
9. Model Year
10. Bar Code
11. Works Order Number

.Figure 1.3 - Vehicle Identification Plate Information



1. Company Address
2. Vehicle Identification Number
3. Machine Model
4. Designation
5. Operating Mass (Laden)
6. Maximum Front Axle Load
7. Maximum Rear Axle Load
8. Engine Power
9. Build Year
10. Model Year
11. Bar Code
12. Works Order Number

Figure 1.4 Vehicle Identification Plate - German



1. Company Address
2. Vehicle Identification Number
3. Machine Model
4. Designation
5. Operating Mass
6. Payload
7. Engine Power
8. Year Of Manufacture
9. Bar Code
10. Works Order Number

Figure 1.5 - Vehicle Identification Plate - Non EU

1.6 Warranty Registration

Your dealer will have registered you as the owner with Mecalac at the time of sale. Should you have any queries please consult your dealer in the first instance.

1.7 Warranty and Maintenance

Full terms and conditions of the warranty can be found on the warranty certificate incorporated in or accompanying this manual.

1.8 Service and Replacement Parts Enquiries

Please state the vehicle type and the Vehicle Identification Number (VIN) when making enquiries or orders and in all written correspondence.

1.9 Official Documents GB and the European Community

(1) CE mark

The Machinery Safety directive is intended to harmonise all the machinery safety regulations throughout the community so that there will be no technical barriers to trade.

Compliance with the essential safety requirements of the EEC directives 2006/42/EC (machinery), 2000/14/EC (Noise) and 2004/108/EC, permits companies to CE mark their products.

The directive affects almost every equipment supplier and user in the community and in particular, applies to this type of machine.

The regulations require that potential hazards from machinery are properly addressed and guarded against.

The EC declaration of conformity is a requirement of CE marking. The declaration for this machine (Figure 1.6) follows.

(2) The CE Mark document has an additional GB Certificate of Conformance following Brexit.

Figure 1.6 - Copy of CE Certificate

MECALAC

Contents of the EC Declaration of Conformity

2006/42/EC Machinery Directive

Manufacturer:	Mecalac Construction Equipment UK Ltd Central Boulevard Prologis Park Keresley End Coventry CV6 4BX United Kingdom
Name of Person to Compile Technical File:	Steve Price
Address of Person to Compile Technical File:	Mecalac Construction Equipment UK Ltd

Generic Denomination:	Compact Dumper
Machine Function:	Earth-moving machinery
Model / Type:	TA1EH
Serial/VIN number	
Commercial Name:	Same as Model /Type

MECALAC CONSTRUCTION EQUIPMENT UK LIMITED hereby declares that the above piece of machinery is in conformity with the relevant provisions of the Machinery Directive (2006/42/EC).
MECALAC CONSTRUCTION EQUIPMENT UK LIMITED hereby declares that the above piece of machinery is in conformity with the provisions of the following other EC-directives: Non-Road engine emissions (EU) 2016/1628, Noise - Equipment Used Outdoors (2000/14/EC) and Electromagnetic Compatibility (EN 13309:2010) (presumption of conformity of conformance to 2014/30/EU According to EN 13309:2010 ANNEX ZA).
MECALAC CONSTRUCTION EQUIPMENT UK LIMITED hereby declares that the following standards have been used: EN474-1 & EN474-6

Place of Issue:	Coventry, United Kingdom
Date of Issue:	
Empowered signatory	

Eric Lepine
Chief Operating Officer

MECALAC

Contents of the GB Declaration of Conformity

Supply of Machinery (Safety) Regulations 2008

Manufacturer: Mecalac Construction Equipment UK Ltd.
Central Boulevard
Prologis Park
Keresley End
Coventry
CV6 4BX
United Kingdom

Name of Person to Compile Technical File: Steve Price
Address of Person to Compile Technical File: Mecalac Construction Equipment UK Ltd

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MECALAC CONSTRUCTION EQUIPMENT UK LIMITED hereby declares that the above piece of machinery is in conformity with the provisions of these regulations.MECALAC CONSTRUCTION

EQUIPMENT UK LIMITED hereby declares that the above piece of machinery is in conformity with the provisions of the following other enactments:

Noise Emission in the Environment by Equipment for use Outdoors Regulations 2001

and Electromagnetic Compatibility (BS EN 13309:2010) (presumption of conformity of conformance to Electromagnetic Compatibility Regulations 2016 according to BS EN 13309:2010 Annex ZA).

MECALAC CONSTRUCTION EQUIPMENT UK LIMITED hereby declares that the following standards have been used: BS EN474-1 & BS EN474-6.

Place of Issue: Coventry, United Kingdom
Date of Issue:
Empowered Signatory:

Eric Lepine
Chief Operating Officer

1.10 California Proposition 65

California (USA) state law stipulates that the manufacturers of machines operated within its borders must provide a clear warning to customers regarding exposure to substances commonly associated with the machine that are recognized by the state as harmful. Mecalac complies with this requirement by providing the following information.

California Proposition 65
Warning: This product contains and/or emits lead and lead compounds, diesel engine exhaust, and used engine oil, chemicals known to the state of California to cause cancer

California Proposition 65
Warning: This product contains and/or emits lead, lead compounds and carbon monoxide chemicals known to the state of California to cause birth defects or other reproductive harm

1.11 Bulletin Compliance

- You must take action and comply with any safety bulletins transmitted to you by your dealer or by Mecalac.
- Make sure the details of ownership of the machine are recorded by your dealer and the information is accurate and up to date. Failure to do so may result in critical safety information being withheld.
- Bulletins can only be issued to the recorded owner or keeper of the equipment. It is your responsibility to make sure that your dealer or Mecalac has your correct details.
- If you are the new owner contact your local dealer with your details and quote the machines VIN number to make sure you receive any future bulletins or updates.

1.12 Contacting the Manufacturer

At times it may be necessary to contact the manufacturer of this machine. You must supply the Model and VIN Number of the machine together with your name and contact details.

You must contact Mecalac for:

- For any product modifications to your machine.
- To report an accident involving Mecalac equipment.
- Product applications and safety.
- Standards and regulations compliance.
- To report change of ownership or ownership details (if not reported to a Mecalac dealer).

1.13 Transfer of Machine ownership

If you sell or otherwise dispose of your machine you must tell your dealer or otherwise Mecalac:

- The name and address of the new owner
- The model and VIN number of the machine
- The date of transfer or disposal.

2 Safety

This manual is designed as a guide to the Machines Controls, Operation and Maintenance. IT IS NOT A TRAINING MANUAL

2.1 Safety Alert System

The Safety Alert Symbol is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death

2.2 ANSI Hazard Classification System

(1) Only Applicable to ANSI Safety Signs)

ANSI safety signs are only fitted to machines used in the US, Canada, Australia and New Zealand.

A multi-tier hazard classification system is used to communicate potential personal injury hazards.

The following signal words used with the safety alert symbol indicate a specific level of severity of the potential hazard

All are used as attention getting devices on safety signs fixed to the machinery to assist in potential hazard recognition and prevention

⚠ DANGER

DANGER - (Always used with a safety alert symbol and white letters on a red background) Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING - (Always used with a safety alert symbol and black letters on an orange background) Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION - (Always used with a safety alert symbol and black letters on a yellow background) Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

(2) Property Damage

NOTICE

NOTICE - (Used without a safety alert symbol and white italic letters on a blue background) Is used to address practices not related to personal injury

(3) Procedure

PROCEDURE

PROCEDURE - (Used without a safety alert symbol and black letters on a green background). This indicates a procedure that must be followed step by step for safe operation. Make sure all safety notes have been considered before beginning the procedure.

2.3 Personal Protective Equipment (PPE)

You must wear the PPE shown in the tables below **at all times** when operating this equipment. Do not wear rings, scarves or open jackets. Make sure that all loose clothing is tightly secured. Long hair must be restrained.

Protective Helmet		A protective helmet must be worn at all times to prevent injury from falling objects	Safety Boots		Safety boots must be worn at all times when operating this equipment
Ear Defenders		Ear protection must be worn at all times when operating or near this equipment	Safety Glasses		Safety glasses must be worn at all times to prevent eye injury from flying objects
High Visibility Clothing		High visibility clothing must be worn at all times when operating this equipment.	Seat Belt		The seat belt must be worn at all times when operating this equipment

You must wear the following PPE **when site conditions dictate**.

Protective Gloves		Protective gloves must be worn when necessary to prevent injury from sharp objects.	Face Shield		A face shield must be worn when conditions dictate to prevent eye or facial injury from flying objects
Dust Mask		A dust mask must be worn when site conditions dictate	Respirator		A respirator must be worn when site conditions dictate
Protective Clothing		Protective clothing must be worn when site conditions dictate			

You must wear the following PPE when **performing maintenance** on the machine.

Safety Glasses		Safety glasses must be worn at all times to prevent eye injury from flying objects.	Safety Boots		Safety boots must be worn at all times to prevent injury.

You must wear the following PPE **when site conditions dictate when performing maintenance on the machine.**

Protective Clothing		Protective clothing must be worn when conditions dictate.	Protective Gloves		Protective gloves must be worn when conditions dictate
Dust Mask		A dust mask must be worn when conditions dictate	Face Shield		A face shield must be worn when conditions dictate to prevent eye or facial injury from flying objects

2.4 General Safety Information

Consult your dealer or distributor for details of training courses.

All the time you are working on or with the machine you must consider any possible hazards and how to avoid them.

Only authorised persons must be allowed to operate this machine.

Unauthorised use of this machine may invalidate your insurance.

Operators and maintenance staff **must always comply with the following precautions**. These precautions are given here for your protection. Review them carefully before operating the machine and before performing general maintenance or repairs. Supervising staff must develop additional precautions relating to the specific work area and local safety regulations.

Warnings about the Operator

- Before operating the machine make sure you have had proper training and are fully conversant with the machine and its operation - If in doubt ASK!
- Make sure you, and anyone else who uses the machine, have been trained to operate it correctly and are physically and mentally fit.
- Do not operate the machine if you are unfit to do so because of alcohol or drugs etc.
- Personal Protective Equipment must be used as specified on *pages 2 - 2 and 2 - 3.*
- Read this instruction manual carefully before operating the machine. Make sure this instruction manual is kept with the machine at all times and is in good condition - replace the manual immediately if it becomes dirty, damaged or lost.
- Read and understand all safety signs before operating the machine.
- Check seat belts daily. YOU MUST ALWAYS WEAR A SEAT BELT WHEN OPERATING THE MACHINE**.**
- If the machine is fitted with ROPS and the machine should roll over, the Operator must grip the steering wheel firmly allowing the seat belt to restrain him/her in the seat until the machine comes to rest.

Warning for the supervisor

- Establish a training programme for all operators to make sure they are fully familiar with its operation.

Warnings about other people

- Make sure all bystanders are made fully aware of the safety instructions associated with this machine and are kept well clear of the operating area.
- Do not carry passengers.

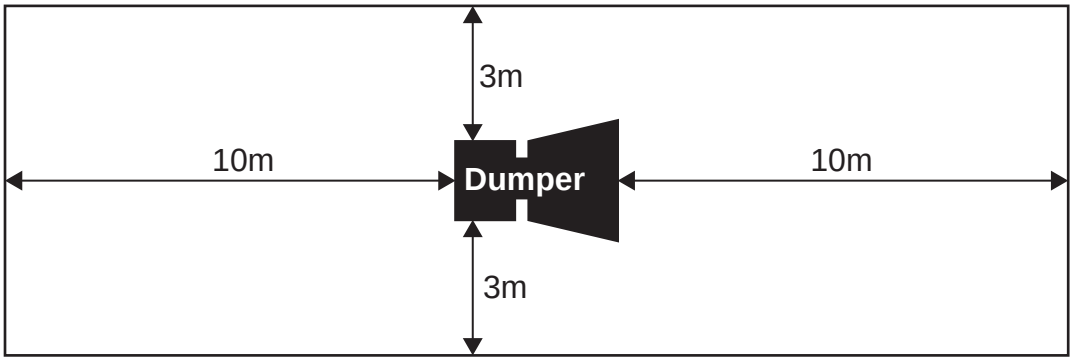
Warnings about the machine

- Make sure the ROPS is not damaged and has no unauthorised modifications.
- Always make sure there is adequate ventilation around the machine. Never run the engine in an enclosed area without good ventilation or next to combustible materials.

- Stop the engine before refuelling, if there is a spillage mop it up and do not start the engine until it has been done.
- The exhaust gets extremely hot. Do not place anything on top of it and keep all combustible materials clear. Do not attempt any maintenance on a hot engine.
- Check your local laws and regulations, the engine may require a spark arrester etc.
- Before performing any maintenance on the machine, place a warning tag on the machine to prevent accidental start-up and remove the start key and battery isolator. Put the locking bar into position to prevent the front and rear chassis moving and creating a crushing zone.
- Do not inspect or clean the machine with the engine running.
- Make sure all guards or shields are in place before using the machine.
- Before carrying out maintenance on the hydraulic system make sure the hydraulic fluid is cool and there is no residual pressure in the hydraulic circuit - hydraulic fluid leaking under pressure can penetrate the skin.
- Do not operate the machine if it is damaged, improperly adjusted or not completely and correctly assembled.
- Keep footplates and steps free from dirt, oil, snow, ice etc.
- Do not remove the radiator cap when the engine is hot. Do not add coolant to a hot engine.
- Tyre changes and repairs to punctured tyres MUST only be carried out by fully trained operatives using the correct equipment. The manufacturer of this machine recommends a competent firm is employed to carry out these tasks.

Warnings about the work environment

Danger Zone



Around the dumper, there a danger zone, as shown in the image. It extends 3m from the sides of the dumper and 10m from the front and back.

No person should be in the danger zone when the dumper is operating, other than the dumper operator.

The danger zone is in place to prevent serious accidents, following recommendations from experts across the Construction industry. Please follow this advice.

- Be familiar with all prohibited work areas such as excessive slopes and dangerous terrain conditions.

- Do not drive on slopes or gradients that exceed the safe limits stated for this machine in this manual.
- If the machine is to be used on the public highway or at night lighting in accordance with national requirements of the country concerned must be fitted.
- Always use driveways approved by site management when driving around the site.
- In the event of an electrical/lightening storm park the machine in a safe place, dismount and seek shelter
- Always park machine correctly on firm, level ground where it will not cause an obstruction or danger - chock the wheels if necessary. DO NOT LEAVE THE ENGINE RUNNING or the start key in the start switch.
- Before taking the machine on public roads make sure that the machine complies with all road traffic regulations and obey all driving laws.Warnings about using the Skip
- Do not work under a raised skip unless the props/supports are fitted and locked in position.
- Only fill skip with free flowing loads.
- When manoeuvring or driving the machine with the skip raised take extreme care as forward visibility will be restricted.
- Do not drive around the site with the skip raised.
- The operator must get off machine when loading the dumper skip.
- Do not drive the machine on the public highway with the skip in the fully tipped position.

If anyone has any concerns with any safety aspect of the machine the problem must be reported and the machine must not be used until the safety concerns have been rectified or an authorised person has checked and satisfied the site personnel the machine is safe to use.

2.5 Seat Belt and Green Beacon (Option)

A seat belt is provided for operator safety. It is important that the seat belt is inspected and checked regularly *See Maintenance Section.*

Failure to properly inspect and maintain a seat belt can result in death or serious injury.

The seat belt MUST be worn at all times when operating this equipment.

An optional green beacon is available. The green beacon shows from a distance that the dumper driver is wearing his seatbelt. The beacon is mounted on the ROPS frame and flashes when in operation. Do not use the green beacon on the public highway.

2.6 ROPS

A ROPS (Roll Over Protective Structure) is provided for operator safety.

Although ROPS appear to be relatively maintenance-free, regular periodic inspections to make sure ROPS are damage free and thus capable of functioning in a roll over cannot be over emphasized.

Through periodic inspections, cracks, loose bolts, damage, and other normal wear and tear related problems can be eliminated before they become serious.

Proper inspection and maintenance procedures can make sure that ROPS will perform the life saving function they are designed for and expected to do.

Details on the inspection and maintenance of the ROPS will be found in the *Maintenance Section*.

Do NOT modify or attach items to the ROPS without the manufacturers approval.

Do NOT use the ROPS as an attachment point for towing or pulling equipment.

2.7 Lockout and Tag Out

To prevent unauthorised starting of the machine, before any maintenance you must always:
- Apply parking brake.
- Place transmission in Neutral
- Remove start key.
- Turn battery isolator to OFF and remove key
- Place warning notice in a prominent position warning others not to attempt to start or drive the machine.

2.8 Hydraulic Fluid

Fine jets of hydraulic fluid under pressure can penetrate the skin.

Relieve all pressure before dismantling any hydraulic system.

Do not use your fingers to check for small leaks or expose uncovered areas of your body to leaks.

Use a piece of cardboard or thick paper to check for leaks.

Fluid injected into the skin must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene will result

2.9 Fluid Levels

Make sure the machine is on firm, level stable ground. It must not be in a dangerous position or causing an obstruction. Apply the parking brake. Place gear lever is in neutral and the make sure engine is stopped before checking ALL fluid levels.

2.10 Battery Electrolyte

Contact with battery acid can cause serious burns, blindness or even death. Protective clothing, gloves and a face shield must be worn at all times when handling or working on a battery.

(1) Skin Exposure

If the skin is exposed to battery electrolyte, the affected skin must be washed immediately with running water.
If burning is severe seek immediate medical attention.

(2) Eye Contact

If eyes are exposed to battery electrolyte, wash eyes with running water and obtain immediate professional medical attention.

(3) Battery Charging

When charging the battery hydrogen gas is produced.
Make sure the area is well ventilated to prevent the risk of explosion from a build up of hydrogen.

(4) Frozen Battery Electrolyte

Batteries with frozen electrolyte may explode if used or charged.

Never 'jump start' a machine with a frozen battery.
To help prevent freezing, keep the battery fully charged.
Do Not Use a Machine with Frozen Battery Electrolyte

2.11 Fires

Using water to extinguish an oil fire could spread the fire or give you a shock from an electrical fire.
Use a carbon dioxide, dry chemical or foam extinguisher whilst waiting for the fire brigade.
Keep fire extinguisher seviceable and have it checked regularly
Do Not Use Water to Extinguish a Machine Fire

2.12 Water Cooled Engines

Water cooled systems operate under pressure to increase the boiling point of the coolant. Therefore, the coolant temperature may be greater than boiling water at standard atmospheric pressure (100ºC).

Never Maintain Cooling System when the Engine is HOT.

2.13 Lubricants

Lubricants should be handled in accordance to the lubrication manufacturers recommended practices.

Whenever handling oil products, maintain good standards of care plus personal and plant hygiene.

For details of these precautions we advise you to read the relevant publications issued by your local health authority.

- Avoid contact with lubricants. Wear oil resistant gloves when performing maintenance.
- ALWAYS keep lubricants out of reach of children.
- NEVER store lubricants in open or unlabelled containers.

(1) New Oil

There are no special precautions needed for the handling or use of new oil other than the normal care and hygiene practices.

(2) Old Oil

Used engine crankcase lubricants contain harmful contaminants. In laboratory tests it was shown used engine oils can cause skin cancer and reproductive harm. Avoid inhalation of vapours, ingestion and prolonged skin contact with used engine oils. Dispose of used oil in accordance with local environmental regulations.
Observe the following precautions.

- Avoid prolonged, excessive or repeated skin contact with used engine oil.
- Apply a barrier cream to the skin before handling used engine oil.
- Note the following when removing engine oil from the skin.
- Wash skin thoroughly with soap and water. Using a nail brush will help.
- Use special hand cleansers to help clean dirty hands.
- Never use petrol, diesel fuel or kerosene.
- Avoid skin contact with oil soaked clothing.
- Do not keep oily rags in pockets.
- Wash dirty clothing before reuse.
- Throw away oil soaked shoes.

(3) First Aid - Oil

(a) Swallowing Oil

If oil is swallowed, do not induce vomiting.
Get Medical Advice.

(b) Skin Contact

In the case of excessive skin contact, wash with soap and water.

(c) Eye Contact

In the case of eye contact, flush with water for 15 minutes. If the irritation persists, get medical attention.

2.14 Oil or Fuel Spillage

Absorb with sand or a locally approved brand of absorbent granules. Scrape up and dispose of in a chemical disposal area.

2.15 Working on a Gradient

(1) Follow the Guideline: face laden uphill, unladen downhill.

When working on a slope, if the dumper is carrying a load, the dumper must face uphill. Drive up and reverse down the slope when laden.

When unladen the dumper must always face downhill. Drive down and reverse up the slope when unladen. This is to minimise the risk of overturning. Always drive up and down slopes with great care.

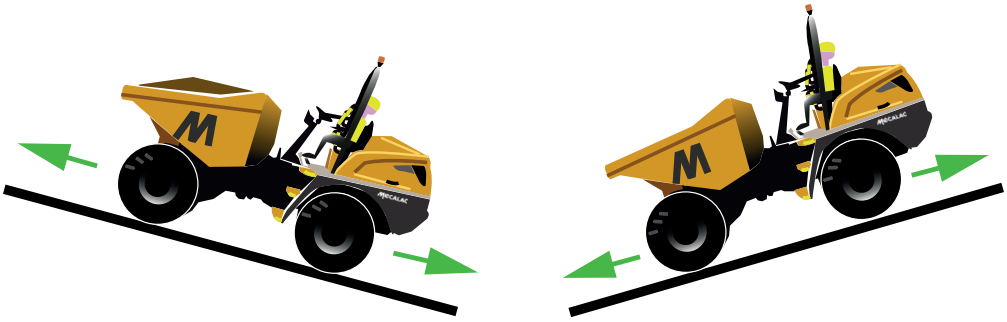


Figure 2.1 - Ascending or Descending Gradients

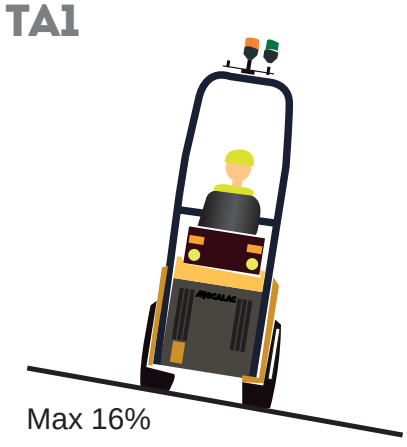
(2) Maximum Gradient

For different dumpers, different maximum gradients apply. Do not exceed the maximum gradient. Poor ground conditions such as muddy, slippy or uneven surfaces will reduce the maximum gradient. The maximum gradient for TA1 machines is 20% (or 14º, or 1 in 5).

(3) Crossing a Slope

Great care must be taken when crossing a slope to prevent the machine sliding sideways and out of control. Different maximum lateral (sideways) slopes apply to different machines. Do not attempt to exceed the maximum lateral gradient.

Turning across slopes reduces stability and should be avoided, particularly on steeper slopes. For TA1 the maximum lateral gradient is the lowest at 16%, 9° or 1 in 6.



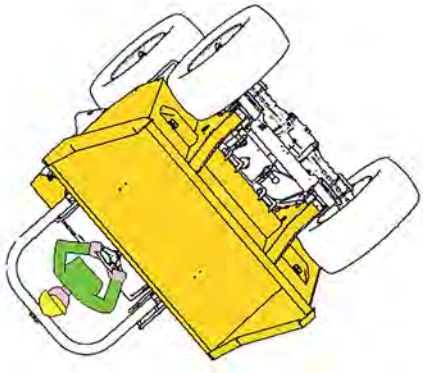
2.16 Responsibilities

Site management must identify possible dangers and make arrangements to eliminate them.

Site management are responsible for planning driveways around the site which will prevent the machine from experiencing excessive slopes, soft ground or having to drive over edges especially at an angle etc. The driveways must also avoid any other possible dangers e.g. overhead cables, work areas etc.

The operator must make sure the machine is driven correctly at all times especially with regards to speed, overloading, only using the machine for the intended task, not driving dumpers with a lift-skip in the raised position etc.

2.17 Overturning



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If the machine begins to overturn, grip the steering wheel firmly allowing the seat belt to hold you in the seat until the machine comes to rest. Do not try to jump clear of the machine when it is overturning - you may be crushed by the machine. The ROPS will provide protection in the event of a roll over.

⚠ DANGER

IF THE MACHINE BEGINS TO OVERTURN, GRIP THE STEERING WHEEL FIRMLY ALLOWING THE SEAT BELT TO HOLD YOU IN THE SEAT UNTIL THE MACHINE COMES TO REST. DO NOT TRY TO JUMP CLEAR OF THE MACHINE WHEN IT IS OVERTURNING - YOU MAY BE CRUSHED BY THE MACHINE.

2.18 Safety Signs

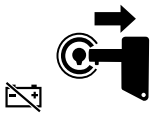
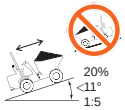
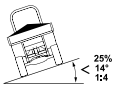
Safety signs are fitted to the machine to warn of possible dangers and MUST be replaced immediately if they become unreadable or lost.

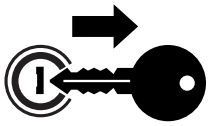
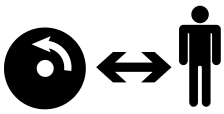
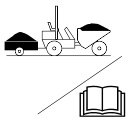
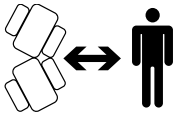
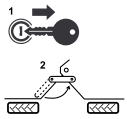
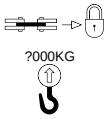
If the machine is repaired and parts have been replaced on which safety signs were fixed new safety signs must be fitted before the machine is put into service. Use mild soap and water to clean safety signs - DO NOT use solvent based cleaners as they will damage safety sign material.

ALL safety signs listed must be present on the machine and must be legible.

(1) Safety Sign Symbols

Table 2.1 - Description of Safety Symbols

HAZARD		AVOIDANCE	
Attention - for your safety!			Read and understand operator's manual before using the equipment
Attention - for your safety!			Remove start key and isolate battery before maintaining the machine
Fall/Crush			Do not carry passengers or allow people to ride on the machine
Skin injection from high pressure fluid			Use cardboard or wood to check for leaks.
Crush during roll over			Only drive up and reverse down inclines of 11° (19%, 1 in 5) or less
Crush during roll over			Do not drive across slopes exceeding 9° (16%, 1 in 6)
Crushing			Insert skip cylinder safety lock/ support
Burn			Keep clear of hot surfaces

Entanglement			Keep away from fan and belt.Turn off engine and remove key before servicing.
Crushing			Stay clear of machine
Machine Instability			Read operators manual
Crush during roll over			Always wear a seat belt when operating the machine
Crush Zone			Stay clear of machine
Crush Zone			Turn the machine off and remove the key. Fit articulation lock
Lifting			Fit articulation lock before lifting Use equipment rated for lifting the stated weight.

(2) Safety Sign Location - ISO

Figure 3-4 - Safety Sign Location - ISO

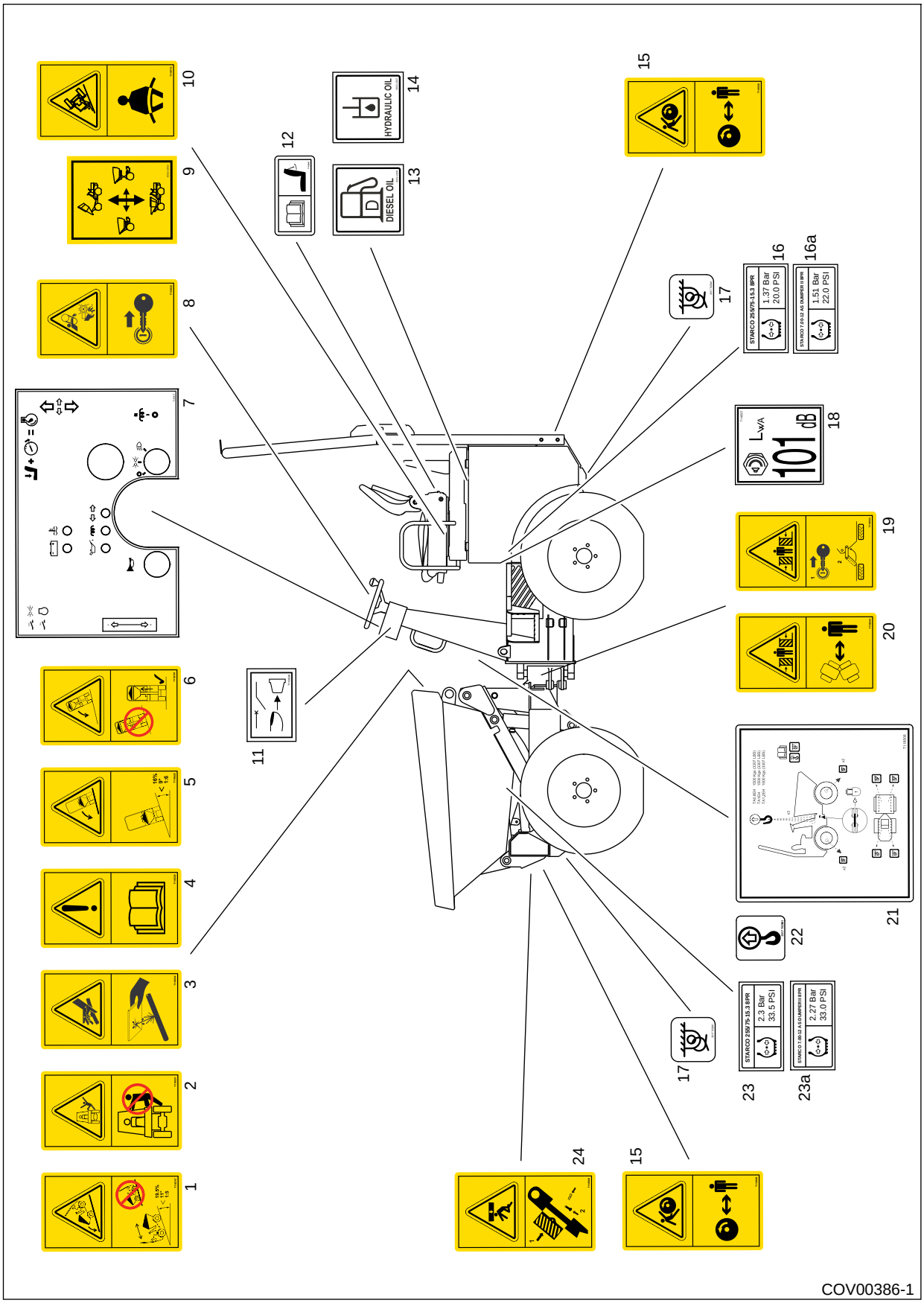


Table 2.2 - Safety Signs - ISO

1.	Safety - Operating on Gradients/Maximum Gradients	
2.	Safety - Fall Hazard - No Passengers	
3.	Safety - High Pressure Oil Leaks	
4.	Safety - Read Operators Manual Before Use	
5.	Safety - Tip Over Hazard Gradients	
6.	Safety - Tip Over Hazard - Skip elevated	
7.	Information - Dash Decal	
8.	Safety - Entanglement Hazard - Stop Engine	
9.	Information - Control Lever Operation	
10.	Safety - Wear Seat Belt	
11.	Information - Circuit Breaker Reset	
12.	Information - Operations Manual Location	
13.	Information - Diesel Filling Point	
14.	Information - Hydraulic Oil Filling Point	
15.	Safety - Crush Hazard	Front and Rear
16.	Information - Tyre Pressure - Rear - Starco	Each Side
16a	Information - Tyre Pressure - Rear - Starco (Narrow)	
17.	Information - Tie Down Points	
18.	Information - Sound Level	
19.	Safety - Crush Hazard - Fit Articulation Lock	Each Side
20.	Safety - Crush Hazard - Keep Clear	Each Side
21.	Information - Lifting/Tie Down Instructions	
22.	Information - Lift Point	
23.	Information - Tyre Pressure - Front - Starco	Each Side
23a	Information - Tyre Pressure - Front - Starco (Narrow)	
24.	Safety - Crush Hazard - Fit Skip Ram Lock	

(3) Safety Sign Location - ANSI

Figure 3-5 - Safety Sign Location - ANSI

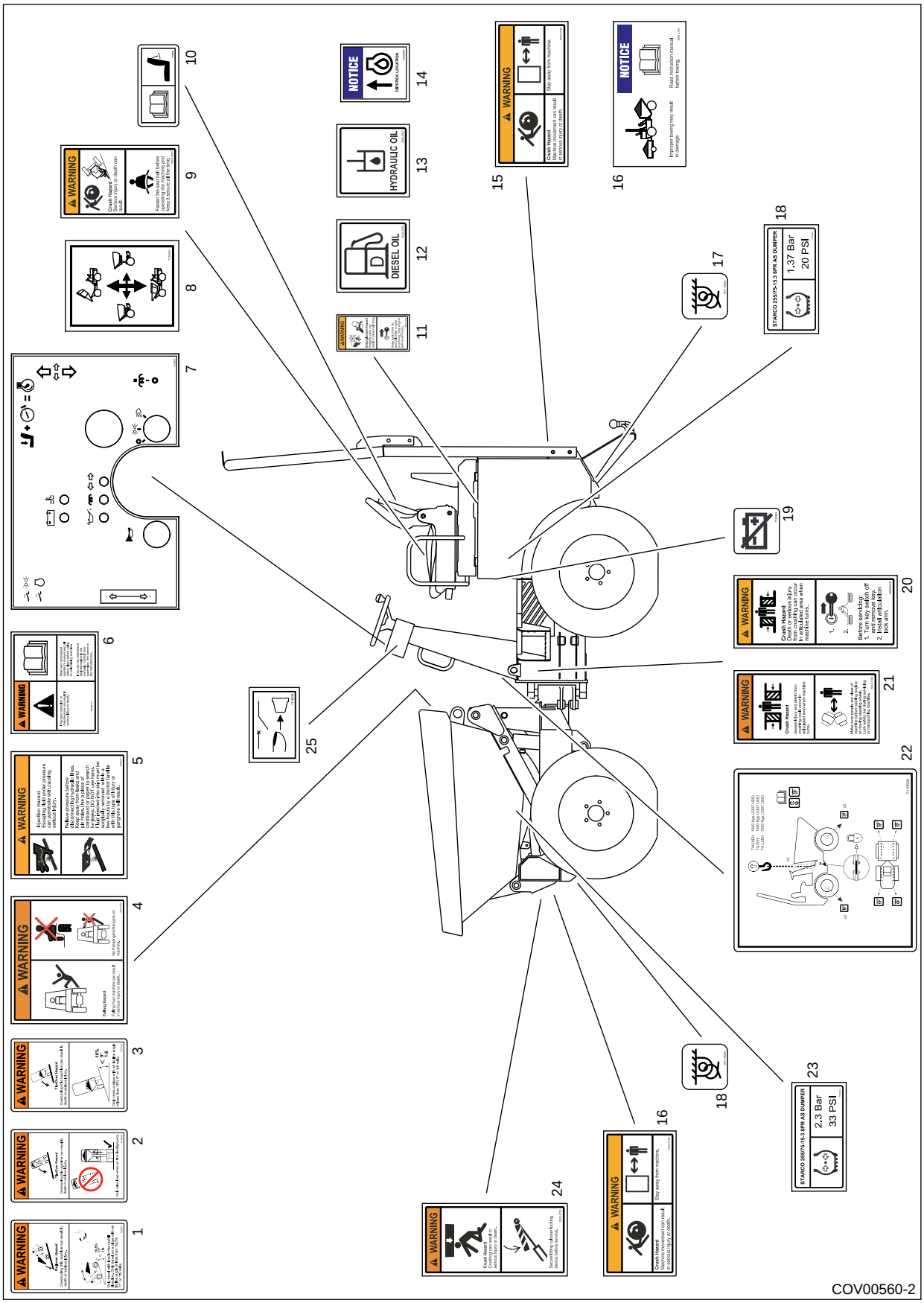


Table 2.3 - Safety Signs - ANSI

1.	Safety - Operating on Gradients/Maximum Gradients	
2.	Safety - Tip Over Hazard	
3.	Safety - Tip Over Hazard - Crossing Inclines	
4.	Safety - Fall Hazard - No Passengers	
5.	Safety - High Pressure Oil Leaks	
6.	Safety - Read Operators Manual Before Use	
7.	Information - Dash Decal	
8.	Information - Control Lever Operation	
9.	Safety - Wear Seat Belt	
10.	Information - Operations Manual Location	
11.	Safety - Entanglement Hazard - Stop Engine	
12.	Information - Diesel Filling Point	
13.	Information - Hydraulic Oil Filling Point	
14.	Information - Dipstick Location	
15.	Safety - Crush Hazard	Front and Rear
16.	Information - Read Manual Before Towing	
17	Information - Tie Down Procedure	
18.	Information - Tyre Pressure - Rear - Starco	Each Side
19.	Information - Battery Isolator	
20.	Safety - Crush Hazard - Fit Articulation Lock	Each Side
21.	Safety - Crush Hazard - Keep Clear	Each Side
22.	Information - Lifting/Tie Down Instructions	
23.	Information - Tyre Pressure - Front - Starco	Each Side
24.	Safety - Crush Hazard - Fit Skip Ram Lock	
25.	Information - Circuit Breaker Reset	

3 Technical Data

3.1 Dimensions

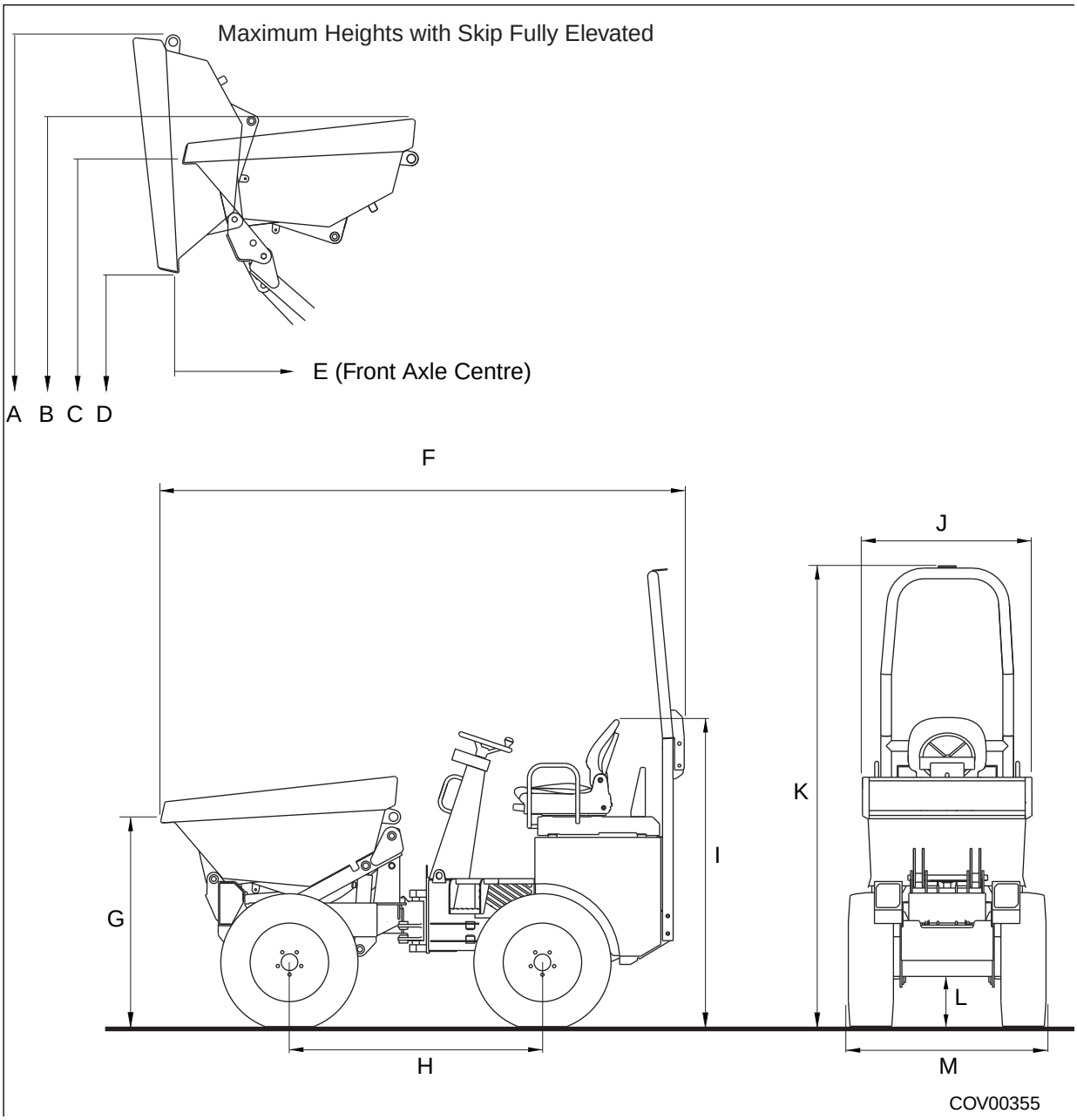


Figure 3.1 - Dimensions

Table 3.1 - Dimensions

Dimensions													
	A	B	C	D	E	F	G	H	I	J	K	L	M
TA1EH STD Tyres	2957.5 (116.4)	2508 (98.7)	2246.3 (88.4)	1621.3 (63.8)	725.8 (28.5)	2979.2 (117.2)	1167.4 (45.9)	1438.9 (56.6)	1744.3 (68.6)	952.0 (37.5)	2601.8 (102.4)	220.2 (8.6)	1117.4 (43.9)
TA1EH Narrow Tyres	2907.0 (114.4)	2458.0 (96.7)	2196.0 (86.4)	1571.0 (61.8)	725.8 (28.5)	2979.2 (117.2)	1117.0 (43.9)	1438.9 (56.6)	1694.0 (66.7)	952.0 (37.5)	2551.0 (100.4)	170.0 (6.7)	1057.0 (41.6)

3.2 Turning Circle

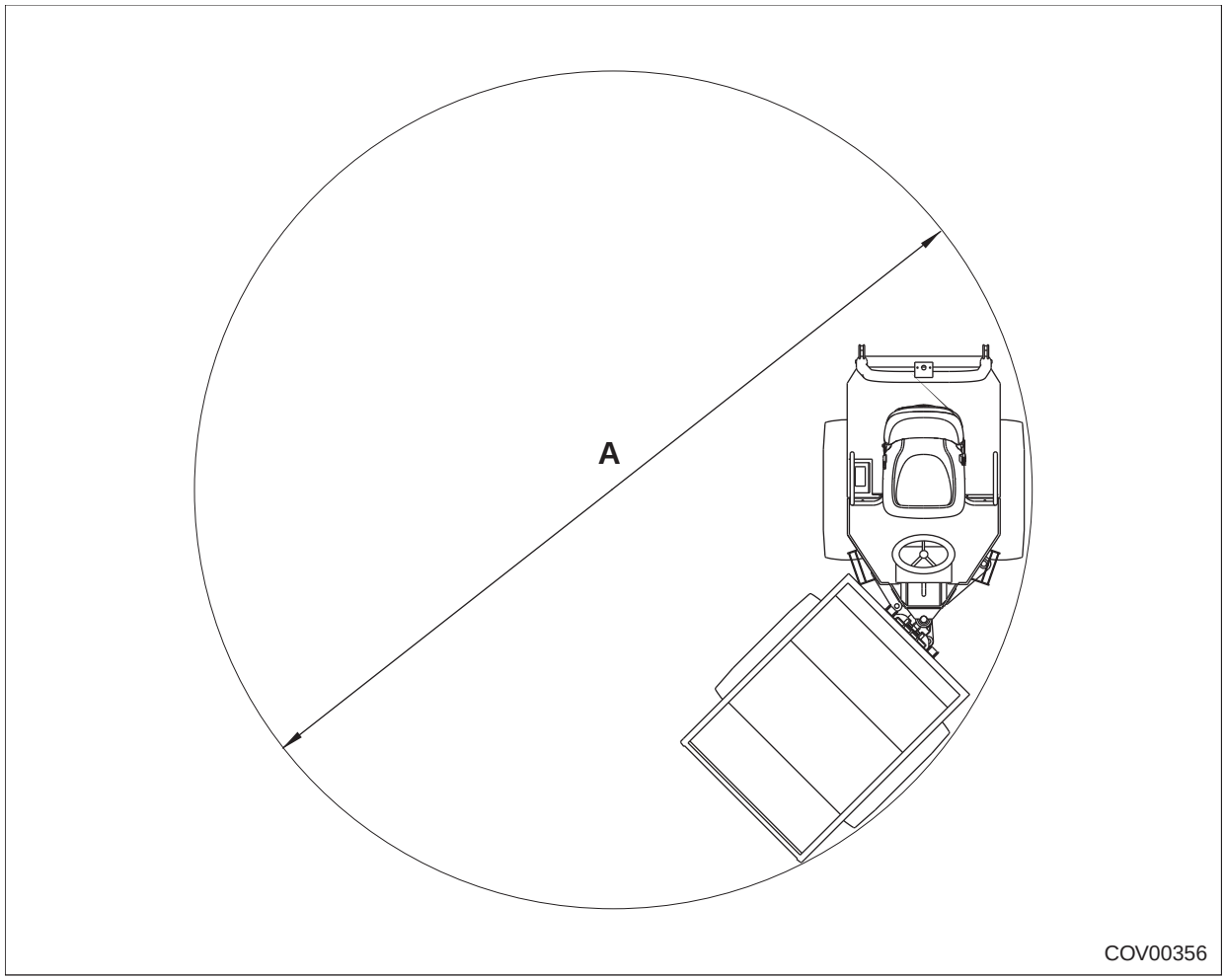


Figure 3.2 - Turning Circle

Table 3.2 - Turning Circle

Turning Circle A mm (in)	
TA1EH/TA1.2EH	4590.8 (180.7)

3.3 Tyre Data

Table 3.3 - Tyre Data

Tyre Data			
Machine	Tyre Make & Size	Pressure (Front)	Pressure (Rear)
TA1EH	Starco 225/75 x 15.3 8PR AS Dumper	2.3 Bar (33.5 psi)	1.37 bar (20.0 psi)
TA1EH (Narrow Tyre Option)	Starco 700 x 12 8PR	2.27 bar (33.0 psi)	1.57 bar (22.0 psi)

3.4 Data

Table 3.4 - Data

Technical Data			
Engine			
Manufacturer/ Model	Kubota D1005		
Power	17.5kW (23.47hp) @ 3,000 r.p.m.		
Oil Capacity	5.1ltr (1.1US Gal)		
Cooling System Capacity	8.0ltr (2.11 US Gal)		
Transmission			
Type	Hydrostatic - Poclain PM25 Pump		
Drive	4 Wheel Drive		
Wheel Motors			
Manufacturer/ Model	Poclain MS02 (Front) MSE02 (Rear)		
Oil Capacity	190cc (0.05 US Gal)		
Wheels			
Wheel Nut Torque	120 Nm (88 ft-lb)		
Brakes			
Primary	Within Wheel Motors		
Parking	Within Wheel Motors		
Electrical System			
Voltage	12v Negative Earth		
Alternator	Belt Driven		
Output	55 amp		
Battery	74Ah 12v		
Battery Cold Start Amps	Type 072 DIN340A - IEC 420A		
Hydraulic System			
Tank Capacity	25.3ltr (6.7 US Gal)		
Fuel System			
Type	Diesel		
Tank Capacity	32.5ltr (8.59 US Gal)		
Skip Capacity			
Maximum Safe Payload	1000kg (2204 lb)		
Heaped Capacity	0.54 cu M (0.70 cu yds)		
Water Capacity	0.32 cu M (0.41 cu yds)		
Struck Capacity	0.45 cu M (0.58 cu yds)		

Table 3.4 - Data (Continued)

Technical Data	
Machine Weights	
With Operator (75kg) - ISO6016	
Unladen	1375kg
Laden (+1000kg)	2375kg
Without Operator	
Unladen	1300kg
Laden (+1000kg)	2300kg
Max front axle laden	1360kg
Max rear axle laden	1015kg

3.5 Noise Emmissions

Table 3.5 - Noise Emissions

Model	Declared Single-Number Noise Emission Values to ISO 4871	
	A- rated sound pressure level at operator station	A - rated sound power of machine
	LpAd	LWAd
TA1EH	83dB	101dB

Note: The noise figures are only applicable for European CE Markets only.

3.6 Vibration Levels

Table 3.6 - Hand/Arm Vibration

	Operation	Value	Uncertainty
Hand Arm Vibration as defined in EN474-1	All operations	<2.5m/s2	N/A
Whole body vibration values as defined in ISO/TR 25398	Work Cycle	0.529 rms	0.264m/s2

Note: These values are for guidance only. Actual work site, operation and operator characteristics will have a large influence on actual values for specific circumstances.

4 Description

4.1 TA1EH Dumper

Figure 4.1 - TA1EH Dumper

4.2 Description

The TA1EH (1 tonne payload) is a 4 wheel drive site dumper designed for ease of operation and simplified servicing requirements.

(1) Skip

The load carrying skip is located over the front axle, ahead of the driver and is designed to carry free flowing materials. It is raised and lowered hydraulically. The machine discharges its load to the front of the machine. If necessary the skip can be raised 1m before tipping to provide an higher discharge point. This feature is particularly useful when tipping loads into builders skips, trucks etc.

⚠ WARNING

The skip must only be used to carry free flowing loads. The skip must only be raised or tipped with the machine on firm level ground.

(2) Engine

A Kubota naturally aspirated 3 cylinder diesel engine is fitted. The engine is positioned at the rear of the machine below the driver.

All machines are fitted with electric starting; a separate key operated switch is provided and is located close to the steering wheel.

(3) Chassis

The chassis is of the two part articulating type having a centre pivot which articulates in both vertical and horizontal planes.

(4) Steering

Steering of the dumper is by an 'Orbitrol' hydrostatic steering unit, that powers a single ram connecting the front and rear chassis units.The steering unit is operated by a conventional steering wheel.

The steering wheel is fitted with a "spinner" knob to aid low speed manoeuvring on the worksite. Under no circumstances must the knob be used to control the machine when it is used on the public highway. If possible the knob should be removed from the steering wheel before highway travel.

⚠WARNING

Use of a steering wheel knob when travelling on the public highway is illegal and strictly prohibited. Its use at travelling speeds may cause accidents leading to serious injury or even death.

In the event of hydraulic failure the steering will still operate but under these circumstances steering wheel loads are high and the dumper must only be driven at slow speeds.

(5) Transmission

Power is transmitted to the wheels by means of an hydraulic pump and hydraulic motors. Refer to 4.5 - Hydraulic System. A switch selects forward or reverse travel.

Because the machine has hydrostatic drive and will not "free wheel" as with a conventional gearbox therefore the brakes on the wheel motors that are hydraulically applied must be released before the machine is towed. Failure to do this will cause serious damage to the machine

NOTICE

The Brakes Incorporated In The Wheel Motors Must Be Released Before Towing Dumper. Failure To Do So Will Cause Serious Damage

(6) Brakes

The vehicle braking is hydraulically operated. Lifting of the accelerator pedal causes the brakes to apply automatically. When the Forward/Reverse switch is placed in the Neutral position the brakes are automatically applied.

(7) Electrical System

A 12 volt negative earth electrical system is fitted. All models use a belt driven alternator to charge the battery. Machines are available with full lighting when specified to comply with current road traffic regulations.

(8) ROPS

Machines are fitted with a ROPS (Roll Over Protective Structure) to protect the operator in the event the machine overturns.

4.3 Skip

The dumper vehicle is basically a load carrier and the skip can be used for a multitude of building/ contracting site functions, but essentially it is used for carrying free flowing materials from excavations or demolitions and general site building activities.

The skip is tipped and lowered by a double acting hydraulic cylinder mounted between the lift arm/carriage and the underside of the skip and controlled by joystick operated control valve.

Twin hydraulic cylinders mounted between the front chassis and the lift arm/carriage assembly permit the skip to be elevated by 1m for high discharge purposes.

The joystick control for skip operations is positioned to the right of the drivers seat.

(1) Raised Skip

As a safety aid when working on the machine a stop is provided that fits over the skip ram rod when the skip is raised. This prevents the skip lowering accidentally and causing injury. You must not reach or work under a raised skip without the ram stop fitted.

4.4 Chassis

The front and rear chassis frames are connected by a centre pivot assembly that allows movement in both horizontal and lateral planes.The articulation of the frames permits wheel contact with the ground at all times thus ensuring maximum wheel adhesion.

This arrangement is illustrated in Figure 4.2 and shows maximum steering lock in either direction.

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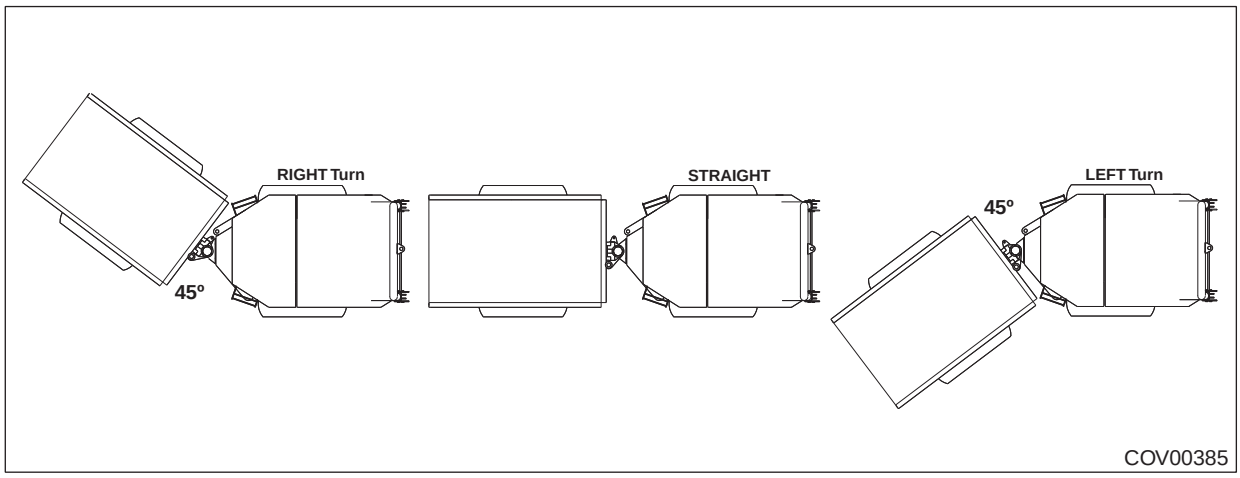


Figure 4.2 - Chassis Articulation

⚠ CAUTION

A crush hazard is created when the machine is placed on full lock. All bystanders must be kept well clear of the centre pivot area of the machine when manoeuvring.

4.5 Hydraulic System

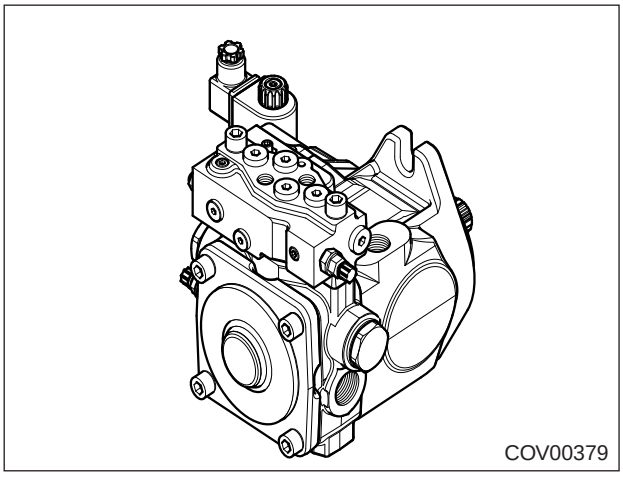


Figure 4.3 Hydraulic Pump

The hydrostatic drive system provides power to move the machine. An engine driven hydraulic pump - Figure 4.3 powers the hub mounted hydraulic motors - Figure 4.4 driving each wheel.

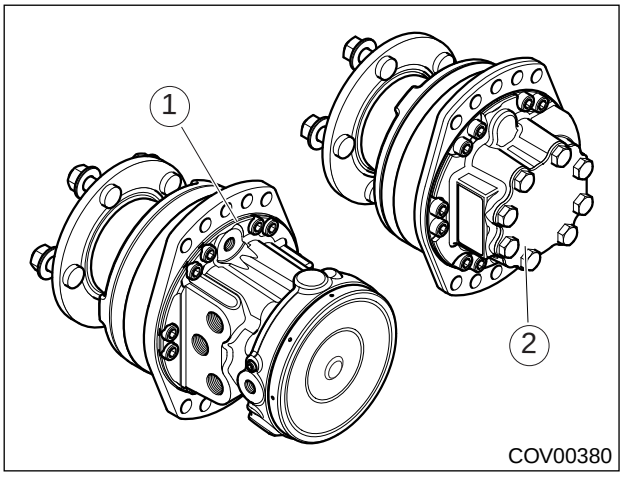


Figure 4.4 Hydraulic Wheel Motors

1. Rear Wheel Motor
2. Front Wheel Motor

To enable the dumper to be towed in an emergency there is provision release the hydraulically applied brakes on the wheel motors.

A second engine driven hydraulic pump provides power for steering and skip operation.

Both pumps draw oil from a tank located inside the chassis. The tank is fitted with a suction strainer, a level gauge, and a filler/breather cap.

The pump providing power for steering and skip operations generates a maximum pressure of 150 bar (2175 psi). The system is protected by a relief valve in the control valve that is set at the same pressure.

A return line filter is fitted to the circuit and is of the replaceable cartridge type.

An oil cooler is fitted to cool the hydraulic oil.

Steering of the dumper is by means of a single hydraulic ram connecting the front and rear frames, the oil supply to the ram is controlled by an “Orbitrol” hydrostatic steering unit.

The unit receives oil via a carry over port in the 3 way control valve and constantly meters oil to the steering ram as the steering wheel is turned.

The control valve, operated by a lever next to the drivers seat, controls the lifting, lowering and tipping of the dumper skip.

The skip can be raised and tipped at varying speeds dependent on engine speed, and it can be stopped at any intermediate point if required.

4.6 Battery Isolator

The battery isolator; Figure 4.5, is both a maintenance aid and an anti-theft and vandalism device. It has a removable key 1.

When carrying out any maintenance on the machine, the battery isolator key must be removed to prevent the engine from being started or the electric circuit being activated.

When parking or leaving the machine, remove the battery isolator key to prevent unauthorised people from using or stealing the machine.

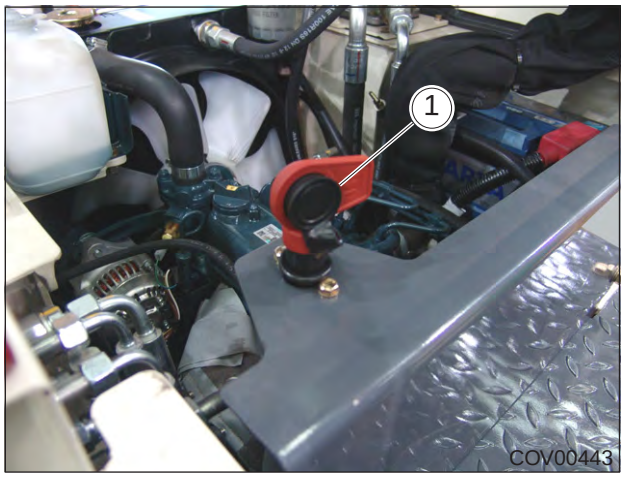


Figure 4.5 - Battery Isolator

1. Isolator Switch

(1) Operation

When the switch is in the On position the battery is supplying power to the machine and the machine may be used normally.

Turning the switch anti-clockwise through 90° disconnects the power supply to the machine and allows the key to be removed from the isolator switch.

4.7 Circuit Breakers & Audible Warning

Refer to Figure 4.6. Circuit breakers are located on the left hand side of the dashboard. A 15 amp circuit breaker is fitted protecting the engine starting system, a second 30 amp circuit breaker protects the lighting circuits, when fitted.

In the event of a fault occurring the circuit breaker will trip out, this being indicated by the button protruding out beyond its normal position.

Should this occur the reason for the overload should be investigated and the components at fault replaced or repaired. Once the repair has been completed the circuit breaker should be reset by pressing the button until it locks in position thus restoring the electrical supply.

The audible warning is fitted to warn the operator that the engine is overheating. If the alarm sounds the machine must be parked safely and the engine stopped until the cause of the overheating is determined.

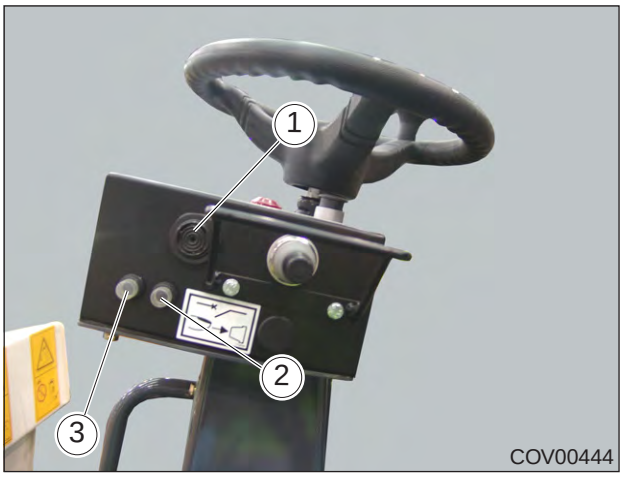


Figure 4.6 - Circuit Breakers & Audible Warning

1. Audible Warning
2. Circuit Breaker - Engine Electrical System
3. Circuit Breaker - Lighting

4.8 Hour Meter

The hour meter, Figure 4.7. records the amount of time the engine has been running. This is useful for determining service intervals, maintenance etc.

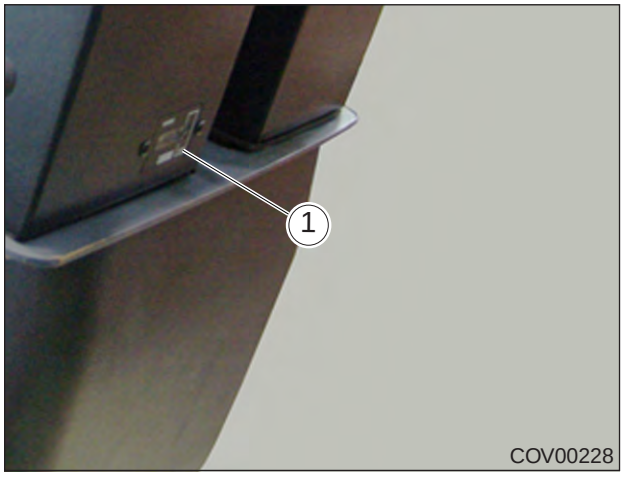


Figure 4.7. - Hour Meter

1. Hour Meter

4.9 Control Panel and Switch Functions

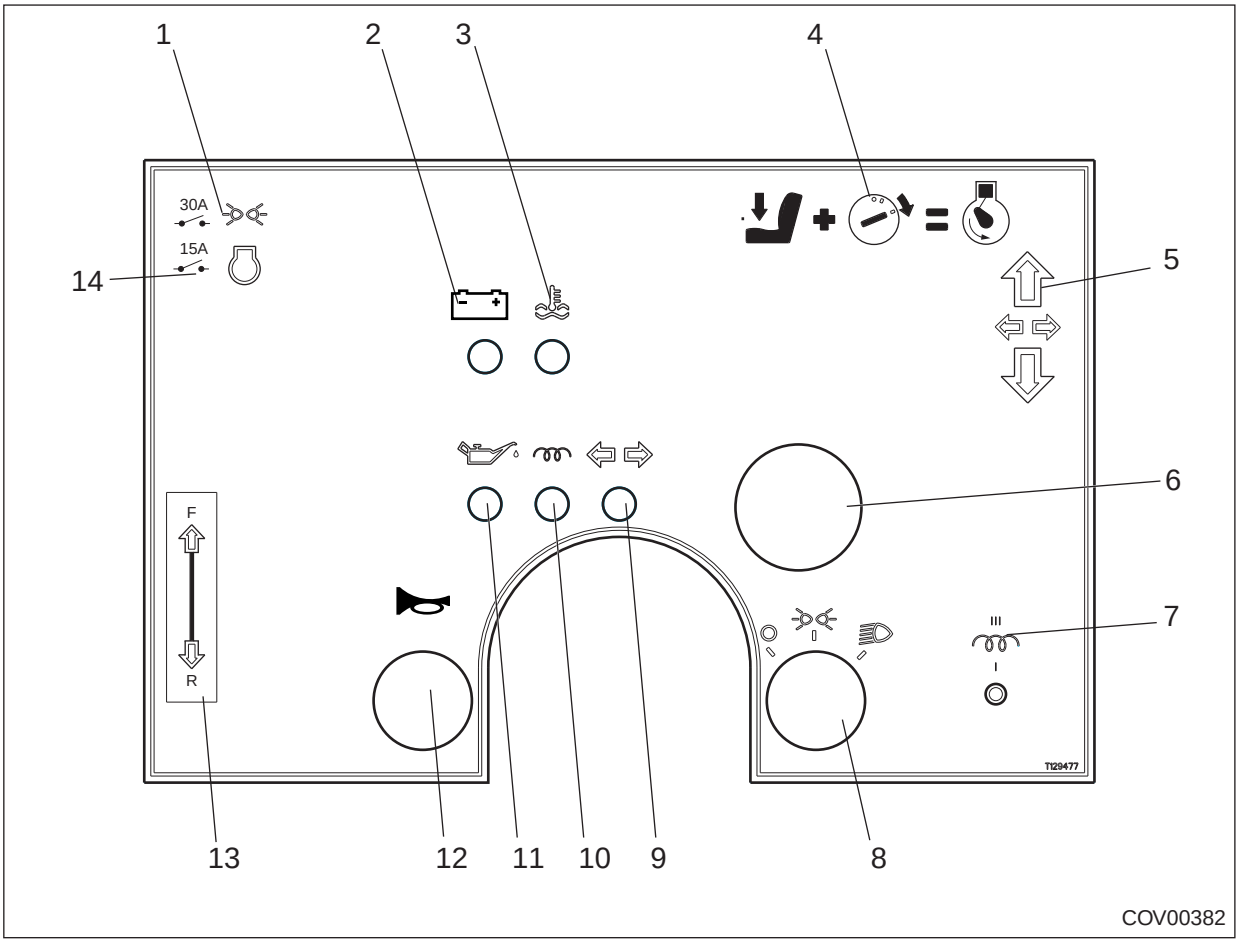


Figure 4.8 - Control Panel

1. 30A Circuit Breaker - Lighting (When Fitted)
2. Warning Light - Battery Charge
3. Warning Light - Engine Coolant Temperature HIGH
4. Instruction - Start Inhibitors
5. Instruction - Direction Indicators (When Fitted)
6. Hazard Lights Switch (When Fitted)
7. Instruction - Engine Start Switch
8. Switch - Lighting -(When Fitted)
9. Warning Light - Direction Indicators (When Fitted)
10. Warning Light - Engine Cold Start
11. Warning Light - Engine Oil Pressure LOW
12. Horn Button
13. Instruction - Forward/Reverse Control
14. 15A Circuit Breaker - Engine Electrical System

Table 4.1 - Dashboard Symbol Description

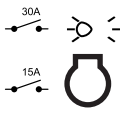
Symbol	Name	Description
	Circuit breaker - Electric Circuit	A - 15A Engine Starter System B - 30A Lights (if fitted) Circuit breakers protect the machines electrical system.
	Horn Button	The horn is used to warn others and must only be used for this purpose. Excessive use may cause others to ignore a genuine warning.
	Warning Light - Engine Oil Pressure	This warning light will come on when the start switch is turned to the RUN position. When the engine starts, the light should go off. If the light fails to go off or come on when the engine is running - STOP THE ENGINE IMMEDIATELY Do not use the machine until the fault has been rectified.
	Warning Light - Battery Charge	The battery charge warning light should only come on when the start switch is ON and the engine is not running. When the engine starts and full RPM is selected the charge warning light goes off. The warning light should stay off while the engine is running. If the light fails to go off when the engine is running - STOP THE ENGINE IMMEDIATELY Do not use the machine until the fault has been rectified.
	Warning Light - Engine Coolant Temperature	The water temperature warning light should only come on when the start switch is in the RUN position and should go out when the engine is cranked. If the warning light comes on when the engine is running the water temperature is too high, a warning buzzer will also sound. If engine temperature warning light comes on when engine is running - STOP THE ENGINE IMMEDIATELY Do not use the machine until the fault has been rectified
	Warning Light - Direction Indicator	When fitted, this light will flash when the indicator switch is moved into the left or right turn position. If the light fails to perform this function, do not use the machine until the cause has been rectified.

Table 4.1 - Dashboard Symbol Description (continued)

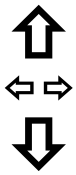
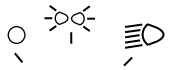
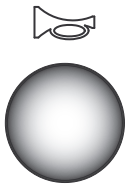
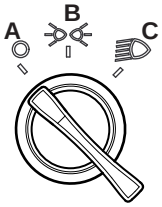
Symbol	Name	Description
	Instruction - Start Inhibitor	This instruction informs the operator that they must sit on the seat before the engine will start. A start inhibitor is fitted which prevents the engine being started unless the operated is seated.
	Switch Instruction - Direction Indicator	When fitted, this instruction informs the Operator in which direction to move the switch in order to operate the LEFT and RIGHT direction indicators
	Switch - Lighting - When fitted	This switch will turn the headlights and front, rear side lights on and off.
	Instruction - Engine Start Key Switch	This instruction shows the start key position to use when the engine cold start aid is required.

Table 4.2 - Switch Operation

Switch	Name	Description
	Hazard Light Switch	Pressing the button will cause all four direction indicator lights to begin flashing and will continue to do so until the button is pressed again
	Horn Button	When pressed, this button will cause the horn to sound.
	Light Switch	Turning the switch clockwise from the OFF position (A) to position (B) will cause the front and rear side (marker) lights and the registration plate lights to come on. Turning the switch to the next position (C) will cause the main headlights to come on.

4.10 Start Interlock

A interlock is fitted for safety purposes and prevents the engine from starting unless the operator is sitting on the seat. This interlock comprises an inhibitor switch within the seat that is operated when the operator is seated on the machine. If you attempt to start the machine without sitting on the seat the engine will not start.

The symbol (1), on the dashboard decal - Figure 4.9, indicates the Operator must be seated to deactivate the start inhibitor before starting the machine.

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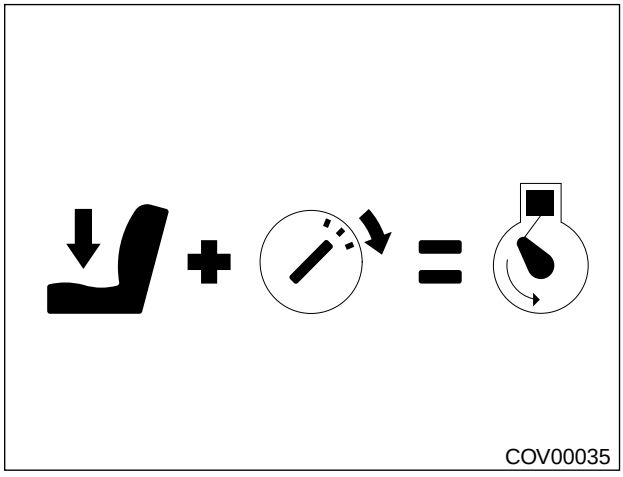

Figure 4.9 - Start Interlock Function

4.11 Start/Stop Switch

The Start/Stop Switch - Figure 4.10, is operated by a removable key. The switch has a protective cover that must be fitted when the key is removed to prevent the ingress of damp and moisture.

.

Figure 4.10 - Start/Stop Switch

1. Star/Stop Switch

The switch has 3 positions-

- 0 - Off
- 1 - Run/Cold Start
- 2 - Start

Once the engine has started the switch should return to the run position.

4.12 Direction Indicator Switch - When Fitted

This switch; Figure 4.11, is used to turn on the LEFT or RIGHT, front and rear indicator lights to inform others of the operators intention to turn the machine to the Left or Right.

Moving indicator lever forwards, A will turn on the left hand indicator lights. Moving the lever backwards, B will turn on the right hand indicator lights.

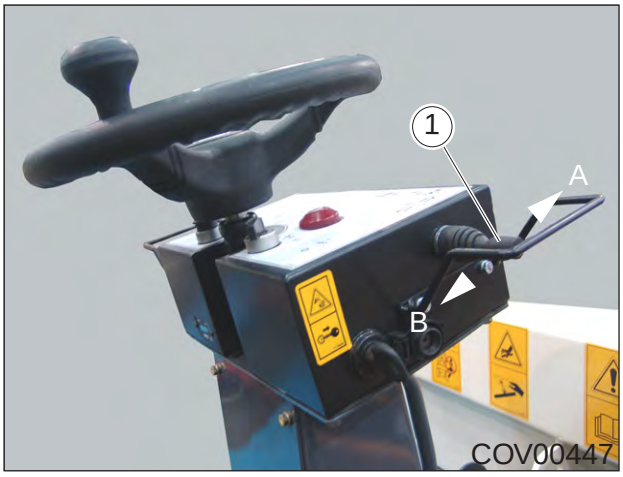

Figure 4.11 - Direction Indicator Switch

1. Direction Indicator Switch

4.13 Machine Lighting

(1) Front Lighting

Each front light cluster, Figure 4.12, contains a headlight (1), side light (2) and a direction indicator light (3).

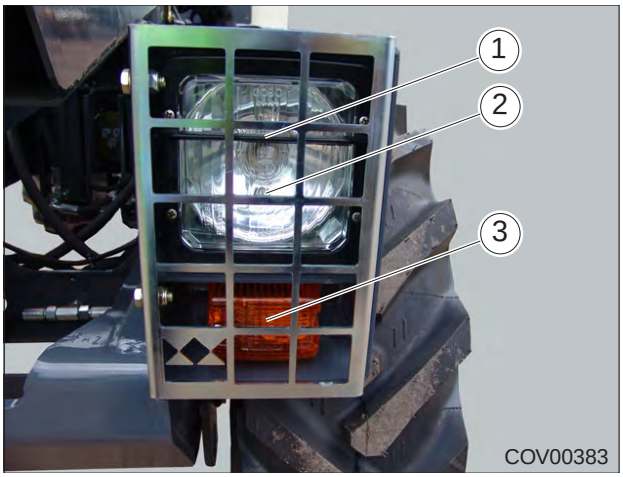

Figure 4.12 - Front light cluster

(2) Rear Lighting

Each rear light cluster, Figure 4.13, contains a direction indicator, rear light, brake light and reflector. The registration plate light is fitted separately.

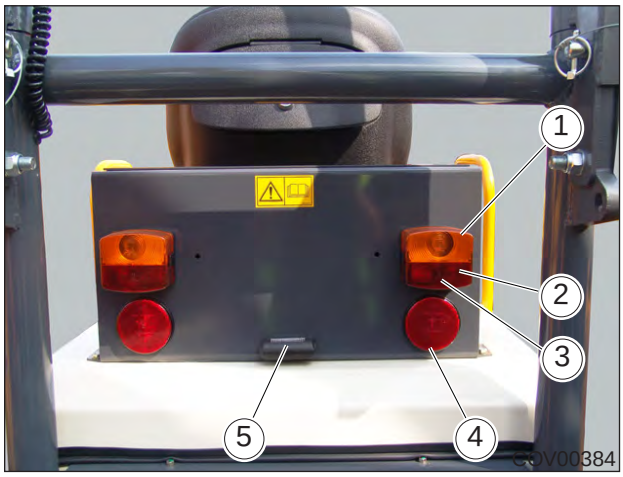

Figure 4.13 - Rear light cluster

1. Direction Indicator
2. Rear Light
3. Brake Light
4. Reflector
5. Registration plate Light

The registration plate light although mounted independently will come on when the rear lights are switched on.

4.14 Orange Flashing Beacon

The orange Flashing Beacon, Figure 4.14, is provided to warn people of the dumpers presence. The beacon is fitted to the machines ROPS.

The orange Flashing Beacon is easily removed to prevent theft or vandalism by slackening the nut and lifting the beacon off its mounting stem.

Figure 4.14 - Flashing Beacon

1. Beacon
2. Stem

When the beacon has been removed, the top of the mounting stem is covered by pulling the rubber stem cap (1) over the mounting stem, Figure 4.15.

Figure 4.15 - Beacon Mounting Stem

1. Rubber Cover

(1) Storage

To help prevent damage, theft and vandalism the flashing beacon can be removed from its working position on the ROPS and stored when not required. The beacon must be removed when transporting by rail or on the public highway using a lorry or trailer. There is a storage position inside the engine chamber.

4.15 Forward/Reverse Switch

The forward/reverse switch selects the direction of travel for the machine Figure 4.16 refers. With the switch in central (Neutral) position there is no drive to the hydraulic motors and the brakes are applied. When Forward or Reverse is selected the brakes are automatically released and drive is restored to the hydraulic motors permitting the machine to move. Note that the machine could creep when the throttle is not depressed and forward or reverse is selected.

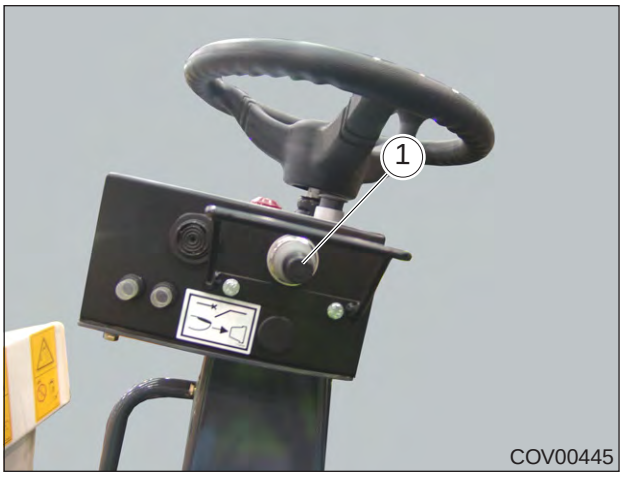

Figure 4.16.

1, Forward/Reverse Switch

4.16 Skip Control Lever

The skip control lever - Figure 4.17, is located to the right of the drivers seat. An instruction decal is fitted close to the lever. For certain markets a lock is fitted that must be engaged when travelling on the public highway to prevent the skip being raised or tipped.

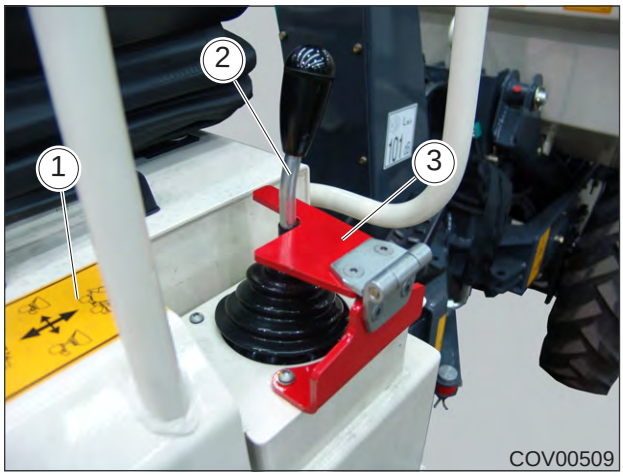

Figure 4.17. - Skip Control

1. Skip Lever Instruction Decal
2. Skip Control lever
3. Lever Lock (Certain Markets)

Moving the lever forward towards the skip will cause the skip to tip.

Moving the lever towards the rear of the machine will cause the skip to lower.

Upon releasing the lever it will automatically return to the centre (Neutral) position.

By moving the lever to right will cause the lift arm to raise giving the high discharge facility. Moving the lever to the left the skip will lower the lift arm.

⚠ WARNING

APPLICABLE CERTAIN MARKETS - SKIP LOCK - The lock must be fitted when travelling on the public highway to prevent the skip raising or tipping accidentally.

4.17 Accelerator Pedal

The accelerator pedal, Figure 4.18. is positioned on the floor plate to the right of the steering column in front of the driver. It increases and decreases engine speed allowing the travelling speed of the machine to be adjusted. When the pedal is released the brakes are automatically applied.

With the forward/reverse switch in the Neutral position the accelerator pedal is used to increase engine speed to enable the skip to be raised, tipped and lowered more rapidly.

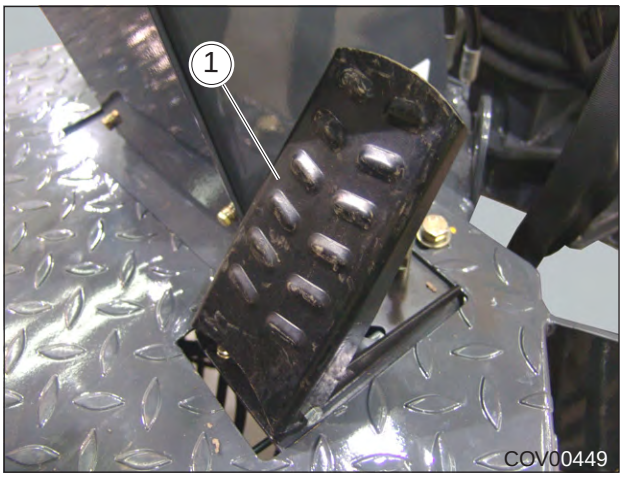

Figure 4.18. - Accelerator Pedal

4.18 Wheel Chock

A wheel chock; Figure 4.19. refers, is supplied for certain markets to prevent machine movement. When needed it should be removed from its storage position under the skip and placed in front of or behind a wheel as required.

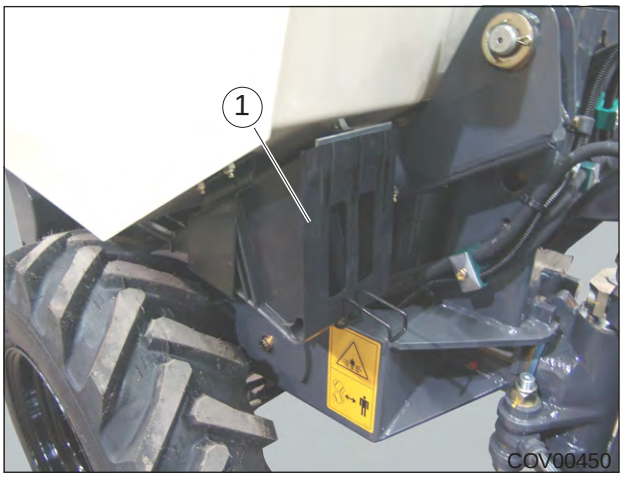

Figure 4.19. Wheel Chock Storage

1. Wheel Chock

4.19 Seat Belt

A seat belt is provided for the safety of the operator and must be worn at all times when operating this equipment. It is prohibited to alter or modify a seat belt. Avoid twisting the webbing.

(1) Standard Seat Belt

This is a normal lap type seat belt Figure 4.22 refers.

Figure 4.22 - Standard Seat Belt

1. Buckle
2. Button
3. Tongue

(2) Retracting Seat Belt with Green Beacon (Optional)

This type of belt retracts automatically when the release button is pressed and the tongue is released. Figure 4.23 refers. When the tongue of the belt is inserted in the buckle and clicks into place, a green beacon, Figure 4.24 located on the ROPS frame will flash indicating to site management and others that the driver of the machine is correctly wearing their seat belt. The engine will not start unless the operator is wearing the seat belt correctly.

Figure 4.23 - Automatically Retracting Seat Belt

1. Release Button
2. Tongue
3. Retractor Unit

Figure 4.24 - Green Beacon - Seat Belt Warning

5 Transportation

5.1 Loading on to a Trailer or Lorry Using Ramps

⚠ DANGER

Keep all bystanders well clear when loading or unloading the machine.

When loading dumper onto a trailer or lorry, strong loading ramps must be used. Ramps must be strong enough to take the weight of the machine.

The angle of the loading ramps must not exceed the grade ability (1 in 4 - 25%) of the dumper. In wet, muddy or icy conditions this angle will be reduced considerably.

Make sure the trailer or lorry will not move during loading by applying its brakes and also chocking its wheels if necessary.

The skip must be empty when transporting the machine.

When the machine has been loaded and is positioned correctly fit the articulation lock.

Secure the machine to the Trailer or Lorry - *see Tie Down.*

Release the articulation lock before unloading.

The beacon must be removed and the ROP's lowered when transporting the machine by rail or on the public highway using a lorry or trailer.

5.2 Loading or Unloading using a Crane

Refer to Figure 5.1. A lifting point (1) is provided each side of the steering column for lifting the machine. Using these points and a 2 legged chain will give a safe stable lift. Other methods of lifting are not recommended.

The crane must have adequate capacity to lift the machine. Any chains, ropes and straps used must be of sufficient strength to support the machine safely.

Before lifting the machine must be in the straight ahead position with the front and rear chassis in line. Fit and secure the articulation lock before lifting.

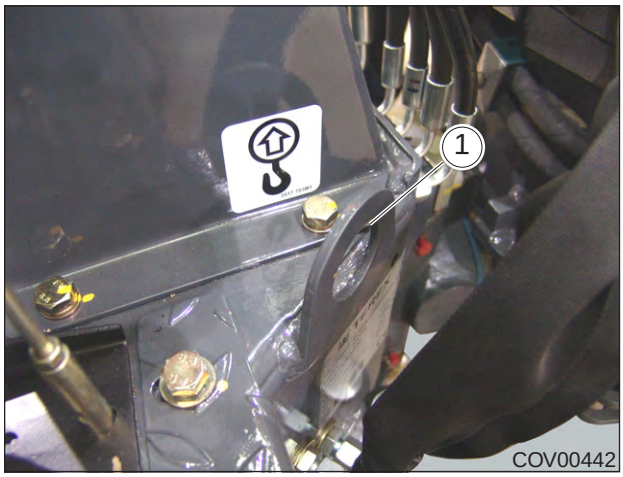

Figure 5.1 - Lifting Point

1. Lift Point (Each Side)

5.3 Articulation Lock

The articulation lock, Figure 5.2 prevents chassis movement when lifting the machine with a crane or during transport or maintenance.

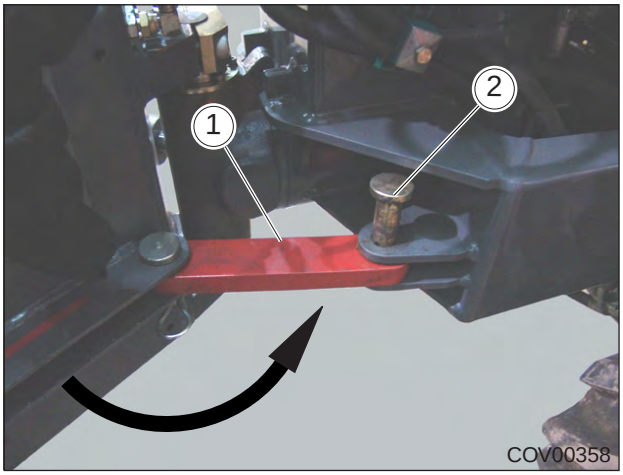

Figure 5.2 - Articulation Lock

1. Lock Bar
2. Pin

PROCEDURE

1 To fit the lock bar remove the grip clip and pin from the lock bar.

2 Pivot the lock bar around until the hole in the bar aligns with the hole in the rear chassis.

3 It may be necessary to move the steering wheels slightly to align the holes.

4 Refit the pin and secure with the grip clip.

5.5 Tie Down Points

Tie down points are provided at the front and rear of the machine. The chains, straps, ropes etc. must be attached to the machine's tie down points, Figure 5.3. refers.

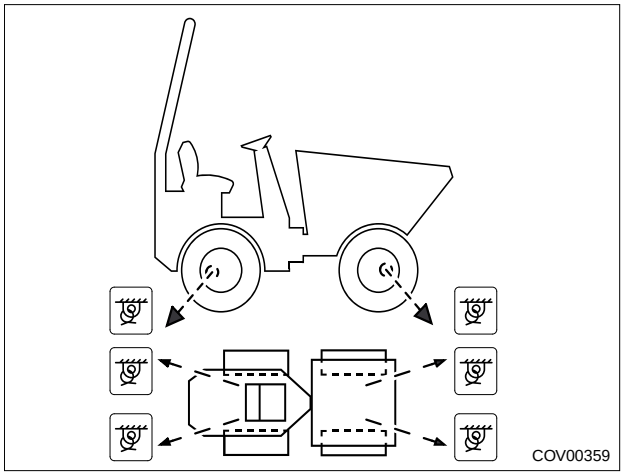

Figure 5.3. - Tie Down Points

5.6 Tie Down

When the machine has been put in an acceptable position on the lorry or trailer it must be secured in place to prevent movement.

It is preferred to use the tie down points illustrated in Figure 5.3. however figure 5.4. illustrates an alternative tie down method.

Which ever method is used the machine must be secure.

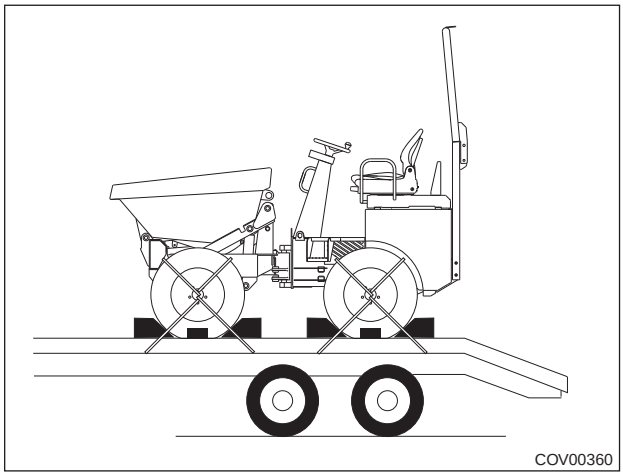

Figure 5.4 - Alternative Tie Down Method

PROCEDURE

1 Place the machine in a suitable position, stop engine and remove key.

2 Fit the articulation lock.

3 Remove beacon and store safely.

4 Lower ROPS to transport position.

5 Nail blocks/chocks at the front, rear and outside of each wheel.

6 Tie down using tie down points provided with suitable chains straps or ropes. Alternatively ropes may also be placed over wheels as shown in Figure 5.4.

7 Loose ends of chains, straps or ropes must be secured to the lorry/trailer bed.

6 Initial Setup & Adjustments

6.1 Delivery Checks

On delivery of the machine:

- Remove any packaging and shipping supports.
- Release any transport locks.
- Clean any protective coating from bright metal parts.
- Check for damage and missing parts.
- Check all fluid levels.
- Check tyres are inflated to correct pressures.

6.2 Setup

Place the ROPS in the work position, Figure 6.1. refers.

⚠ DANGER

The machine must not be used until the ROPS has been raised and secured in the work position. It is prohibited to use a machine without the ROPS installed in the work position.

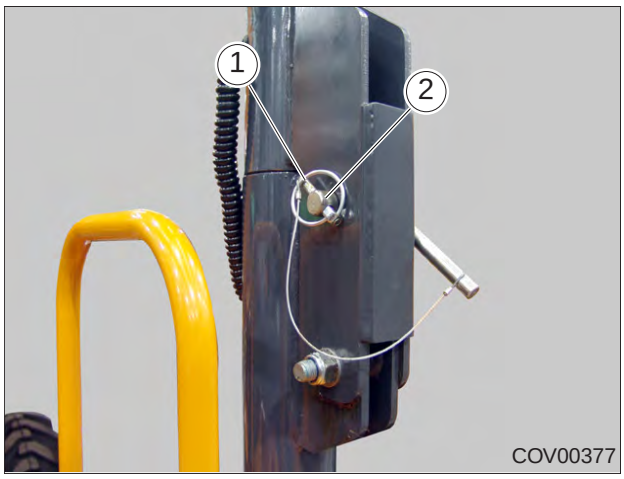

Figure 6.1 - ROPS Set Up

1 Linch Pin

2 Locking Pin

PROCEDURE

1. Remove the linch pins from the locking pins either side of the ROPS.
2. Remove the locking pins.
3. Push the top half of the ROPS upwards to the working position.
4. Refit the locking pins.
5. Secure the locking pins in position with the linch pins.
6. Remove the rubber cover and fit the beacon to the stem on top of the ROPS.
7. Switch on the beacon and check it is working correctly.

6.3 Start Up and Adjustments

When all delivery checks have been made and the ROPS has been placed and secured in the work position:

- Check that the Forward/Reverse switch is in Neutral.
- Start the engine and allow to run for a few minutes to warm up.
- Check all instruments and warning lights are functioning correctly.
- Check lighting and indicators operate (if fitted).
- Stop the engine and check for any fluid leaks or signs of overheating.
- Re-start the engine, drive the machine a short distance to check operation of transmission, brakes and steering.
- Check if the skip tips, raises and lowers.
- Park up and stop the engine.
- Report and have rectified any faults before placing machine into service.

7 Standard Operating Procedures

Before using this equipment the operator must read and fully understand this Instruction Manual and pay particular attention to Section 2 - Safety and Section 4 - Description which describes the major components of the machine and the layout and function of all the controls.

NOTICE

ALL Operators of this machine must be authorised, mentally and physically capable of operating this machine and fully trained in its operation.

7.1 Pre Start Checks

Make sure the machine has been cleaned to enable leaks etc. to be noticed easily during the pre-start check and during normal operation.

PROCEDURE

1. Check general condition of machine - missing parts, loose fasteners, fuel lines for damage, hydraulic hose end fittings for leakage, hose outer covers for ballooning, etc.
2. Check that the operators platform, steps etc. are clean and free from mud or ice.
3. Check the engine and hydraulic oil levels - make sure the engine and hydraulic tank are filled using clean oil and a clean container.
4. Check that the fuel tank is full - make sure the tank is filled when the engine is cold and the machine is in a well ventilated area, with the engine stopped using clean fuel and container. It is advisable to fill the tank at the end of a working session to prevent condensation forming in the tank during long periods of inactivity, e.g. overnight.
5. Check the battery and battery cable condition.
6. Check for adequate ventilation if the machine is to be started or run in a building etc.
7. Make sure the ROPS is in the “work” position.

7.2 To Set the ROPS in the Work Position.

Refer to figure 7.1

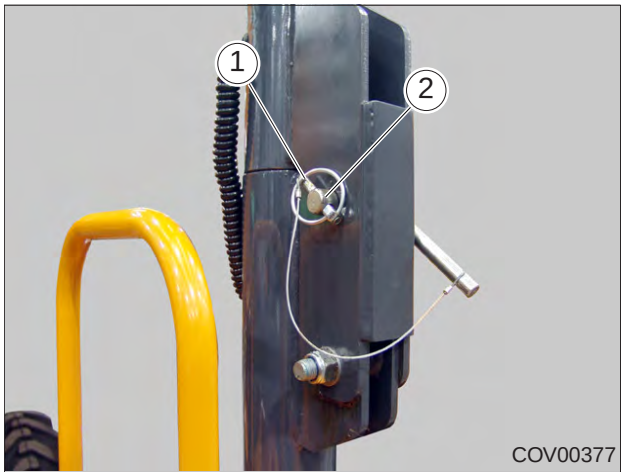

Figure 7.1. - ROPS Pins

1 Linch Pin

2 Locking Pin

PROCEDURE

1. Remove the linch pins from the locking pins.
2. Remove the locking pins.
3. Push the top section of the ROP's upwards to its working position.
4. Refit the locking pins and secure with the linch pins.
5. Fit the beacon.

7.3 To Lower the ROP's for Transport

PROCEDURE

1. Remove the beacon.
2. Remove the linch pins from the locking pins.
3. Remove the locking pins.
4. Lower the top section of the ROP's downwards.
5. Refit the locking pins and secure with the linch pins.

7.4 Seat

The seat is adjustable for operator comfort. The adjustments allow the seat to be moved forwards and backwards, the back of the seat may be tipped forwards and backwards and the seat suspension may be adjusted to the weight of the operator.

Figure 7.2. - Operators Seat

1. Fore and aft movement
2. Backrest Angle Adjustment
3. Weight Adjustment

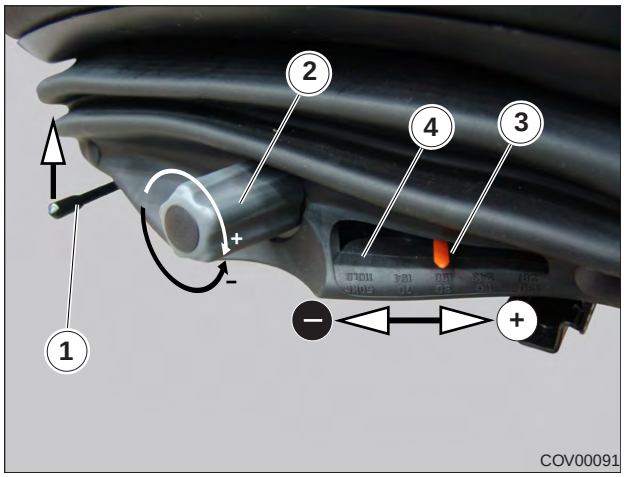

Figure 7.3. - Seat Adjustment

1. Fore and aft adjustment
2. Weight adjustment knob
3. Scale
4. Pointer

(1) Seat Adjustment

Refer to Figure 7.3. Lifting the lever (1) allows the seat to move forwards or backwards to suit the leg length of the operator. When the lever is released the seat is locked in position.

(2) Weight Adjustment

The weight adjustment knob (2) is used to adjust the seat characteristics to suit the weight of the operator.

Turning knob clockwise adjusts the seat for the larger person and anticlockwise for the smaller person.

When the knob is turned, the pointer (4) moves to allow the operator to select the correct weight from the scale (3).

If the seat weight adjustment is not set, the Operator may experience discomfort or personal injury.

The engine will not start unless the seat is adjusted correctly for the operators weight and the operator is seated.

(3) Backrest Angle Adjustment

Refer to Figure 7.4. Lifting the lever (1) allows the back of the seat to be pushed forwards or backwards to suit the preference of the operator. When the lever is released the seat is locked in the selected position.

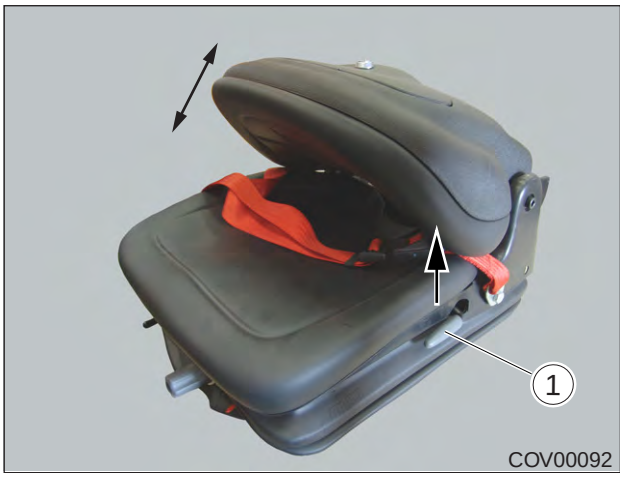

Figure 7.4. - Backrest Angle

1. Adjustment Lever

(4) Seat belt

Refer to Figure 7.5. Sit on the seat, place the seat belt across the hips and insert the latch (3) into the buckle (1) until it locks into position.

Adjust by pulling the belt through the buckle until it is a firm, comfortable fit across the hips.

To remove the seat belt, press the button (2) and lift the latch (3) out of the buckle (1).

Figure 7.5. - Seat Belt

7.5 To Start the Engine

Before starting the engine make sure all bystanders are well clear of the machine and there are no obvious faults.

The operator must be sat on the seat before the engine will start.

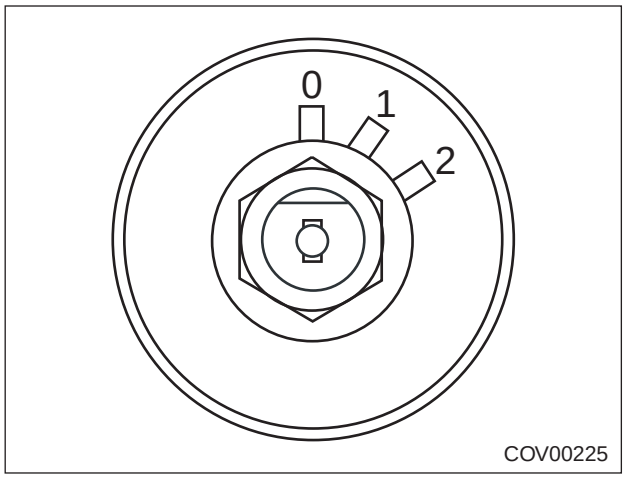

Figure 7.6 - Key Switch Positions

0. Off
1. Run/Pre Heat
2. Start

PROCEDURE

1. Check that the forward/reverse switch is in the Neutral position
2. Turn the start key to position 1 (Run/Pre heat).
3. Wait for the Pre heat warning light to go out.
4. Turn the key, against spring pressure to the start position to crank the engine
5. Release the key as soon as the engine starts. It will return to the Run position by spring pressure.

NOTICE

Do Not use starting sprays to assist engine starting.

Do Not crank engines for more than 10 seconds - allow 30 seconds before between starting attempts.

Never engage the starter motor when the engine is running.

7.6 To Stop the Engine

PROCEDURE

1. Stop the machine in a safe position on firm level ground.
2. Place the forward/reverse switch in Neutral.
3. Turn start key anticlockwise to OFF - position 0.

7.7 To Move the Machine

Refer to Figure 7.7

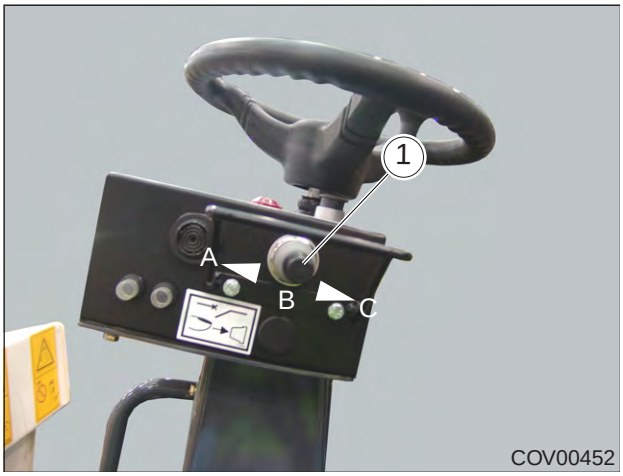

Figure 7.7. - Forward/Reverse Switch

1. Forward/Reverse Switch - A, Forward, B, Neutral, C, Reverse.

PROCEDURE

1. Make sure the forward/reverse switch in Neutral.
2. Start the engine.
3. Select Forward or Reverse. Note the machine may automatically creep in the forward or reverse directions without depressing the accelerator pedal.
4. Depress the accelerator pedal gently and the machine will begin to move.
5. Control the speed of the machine with the accelerator as required.
6. If travelling on the public highway make sure the skip control lever lock (when fitted) is engaged to prevent accidental tipping of the skip.

7.8 Loading the Skip

Before the skip is loaded the operator should:

- Park the machine safely.
- Stop the engine.
- Get off the machine and stand clear.

⚠ WARNING

It is important to get off and stand clear of the machine when loading the dumper with a backhoe loader, digger, loader shovel or similar to prevent injury from falling objects.

7.9 Skip Operation

(1) To Tip the Load

Refer to Figure 7.8

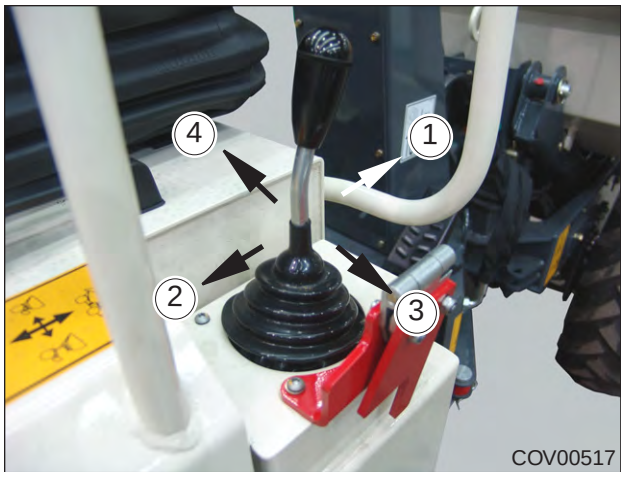

Figure 7.8. - Control Lever - Operation

1. To tip the skip
2. To Lower the skip
3. To raise the lift arm
4. To lower the lift arm

PROCEDURE

1. Position the machine where the load is to be discharged.
2. Make sure the area is clear of bystanders.
3. Make sure the lever lock is off.
4. Push the control lever forwards towards the front of the machine; the skip will tip and the load will be discharged.

(2) To Lower the Skip

PROCEDURE

1. When the load has been discharged.
2. Move the control lever towards the back of the machine.
3. The skip will lower.

(3) To Elevate the Skip

PROCEDURE

1. Position the machine where required.
2. Make sure the area is clear of bystanders.
3. Push the control lever to the right (away from the operator); the lift arm and skip will raise up.

(4) To Return to the Travelling Position

PROCEDURE

1. Move the control lever to the left (towards the operator).
2. The lift arm and skip will lower.

⚠ WARNING

Never attempt to move the machine with the lift arm and skip in the elevated position. Danger of overturning.

7.10 Parking the Machine After Use

At the end of the working day make sure the machine is parked safely and securely.

PROCEDURE

1. Find a safe, flat, well lit area to park the machine where it will not cause an obstruction or danger to others.
2. Fit the lock to the skip control lever.
3. Set the forward/reverse switch to the Neutral position.
4. Stop the engine and remove the start key.
5. Open the bonnet, set the battery isolator to OFF and remove the isolator key.
6. Close the engine cover, lock and remove the key.
7. Employ the wheel chock if necessary.

8 Emergency Operating Procedures

In the event of an emergency or system failure the following procedures must be followed to place the machine in a position of safety or in a safe condition.

Once the machine has been rendered safe the start key and battery isolator key must be removed to prevent start up and a warning tag placed in a prominent position warning others not to use the machine.

The fault or failure must be rectified before the machine is put back into use.

8.1 Running Out of Fuel on a Slope

Should the machine run out of fuel when on a gradient or sloping ground.

PROCEDURE

1. If Possible place the machine across the slope in a safe position.
2. Set the Forward/Reverse switch to Neutral.
3. Chock or block the wheels.
4. Re-fuel the machine.

8.2 "Jump Starting" the Machine

⚠ DANGER

It is essential to avoid sparks when connecting cables to a discharged battery because the battery generates inflammable gases and may pose a fire risk.
If the battery is frozen it may explode if the machine is "jump started" and the engine run.

It is possible to connect a slave battery to boost a discharged battery on the machine - Refer to figure 8.1. When doing so you must wear the correct protective clothing, gloves and a face shield - *see Safety Section* in this manual.

Observe the following points:

- The discharged battery must not be frozen.
- The slave battery must be of the same nominal voltage as the discharged battery.
- The "jumper" cables are of sufficient capacity to carry the starting current.

It is necessary to remove the floor plate to gain access to the battery - see *Battery Access* in *Maintenance* section.

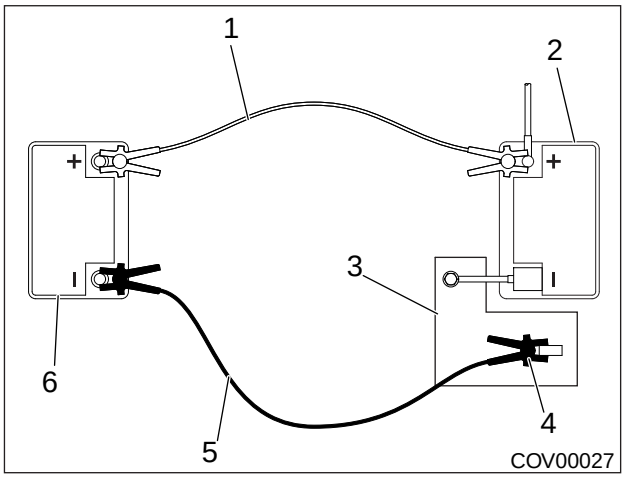

Figure 8.1. - Battery “Jump” Starting

1. Positive (+) Jump Lead.
2. Discharged Battery on Machine.
3. Machine Chassis.
4. Jump Lead Connection on Chassis.
5. Negative (-) Jump Lead.
6. Slave Battery.

PROCEDURE

1. Connect the positive jump lead from the positive terminal on the slave battery to the positive terminal on the machine battery.
2. Connect the negative cable from the negative terminal on the slave battery to a suitable point on the machine chassis.
3. Start the engine using the machines start key.
4. Allow engine speed to fall to idle.
5. Carefully remove the negative jump lead from the machine chassis. Do not let the cable touch any part of the machine.
6. Remove the negative jump lead from the slave battery.
7. Carefully remove the positive jump lead from the machines battery.
8. Remove the positive jump lead from the slave battery.

8.3 Towing the Machine

Refer to Section 11 Recovery for towing information. In the event of a breakdown it is possible to tow the machine but before doing so it is necessary to release the brakes - see 8.4

The machine should be towed at a maximum speed of 2km/h (1.2 m.p.h.) for a maximum distance of 50m.

8.4 Releasing the Brakes

The brakes must be released before attempting to tow the machine.

Release plates are supplied with and stored on the machine - Figure 8.2. refers.

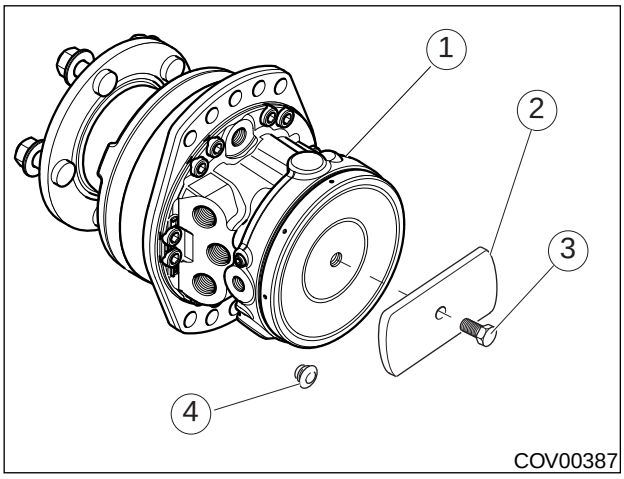

Figure 8.2. Brake Release Plate

1. Wheel Motor
2. Release Plate
3. Bolt
4. Rubber Plug

PROCEDURE

1. Make sure the machine is on firm level ground and block the wheels to prevent movement.
2. Unbolt the release plates from their storage positions.
3. Remove the rubber cap from the wheel motor.
4. Place the plate over the end of the motor.
5. Fit the bolt through the hole and screw into the motor.
6. Tighten the bolt to release the brakes.
7. Once repairs have been completed unscrew the bolts to re-apply the brakes.
8. Re fit the plates in their storage position.
9. Re fit the rubber cap to the motor.
10. Start the engine; the brakes will be re-applied.
11. Test to make sure the brakes work correctly before returning the machine to work.

NOTICE

Under no circumstances use bolts exceeding 30mm (1.18in) in length. Use of longer bolts will damage the motor.

9 Maintenance & Lubrication

9.1 General Information

Regular maintenance and lubrication will prolong the life of the machine and keep it in a safe working condition.

Refer to the Safety section of this manual and understand its contents before performing any maintenance tasks on this machine.

Contaminated water, fluids and oils removed from the machine must be disposed of legally.

9.2 Maintenance Notes

Before carrying out any service or maintenance work make sure that the following precautions have been taken.

- Park the machine on firm level ground.
- Stop engine and chock the wheels.
- Remove Start key to prevent accidental start up.
- Place a warning tag on the machine informing others not to use the machine.
- Only jack or raise the machine using the correct equipment.
- Make sure jacks, axle stands etc. are capable of supporting the weight of the machine.
- Always fit and lock in position a support before working under a raised skip.
- Always fit the articulation lock when working in the area of the centre pivot.
- Refer to and adhere to the Lubricating and Service Schedules detailed in this manual.
- When checking fluid levels park the machine on a firm, level surface, in a well ventilated position away from naked flames, grinding sparks etc.
- Make sure the work area is clean and tidy before starting and on completion of any maintenance.
- Make sure strict cleanliness is observed especially when dealing with hydraulic systems.
- Isolate electrical system by using the isolator switch or by disconnecting the battery.
- Make sure all guards and covers removed during maintenance are replaced before the machine is put back into work.
- OIL - Refer to Safety Section BEFORE handling oil and other lubricants and observe and adhere to all the warnings and precautions listed. Avoid skin contact with used oils and lubricants.

9.3 Cleaning The Machine

Clean the dumper thoroughly, this will make it easier to find oil leaks and loose fittings etc.

- Take care to clean the oil and fuel tank filler necks.
- Drain plugs must also be cleaned.

- Using water or a pressure washer to wash down the exterior of the dumper with or without detergent is generally all that is required.
- Avoid spraying electrical equipment with pressure washers.
- When cleaning the dumper it is preferable to use a biodegradable cleaner. Do not use solvents or like products which can damage rubber and plastics.

(1) Safety Signs

All safety signs fitted to the machine must be legible, when cleaning only use mild soap and water to clean the signs - DO NOT use solvent based cleaners because they may damage the safety sign material. All safety signs MUST be replaced immediately they become damaged or unreadable.

9.4 Battery Disposal

Refer to Section 12 - Storage, Decomissioning and Disposal.

9.5 Hydraulic Oil Under Pressure

Release any pressure in the hydraulic circuit before carrying out repairs to the hydraulic system or components.

⚠ WARNING

Fine jets of hydraulic fluid under pressure can penetrate the skin. Do not use your fingers to check for small leaks or expose uncovered areas of your body to leaks. Check for leaks using a piece of cardboard. If skin is penetrated with Hydraulic Fluid, Get Immediate Medical Help. Fluid injected into the skin must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene will result.

9.6 Skip Support

A skip support is provided to support the skip in the raised position when maintenance is being carried out. The support is stored on the underside of the skip when not in use secured in position by a pin and R clip. Figure 9.1. refers.

⚠ DANGER

A skip support or other method of supporting the skip in the raised position MUST be fitted and locked in position before working under a raised skip. Do not reach or work under a raised skip unless a prop is fitted.

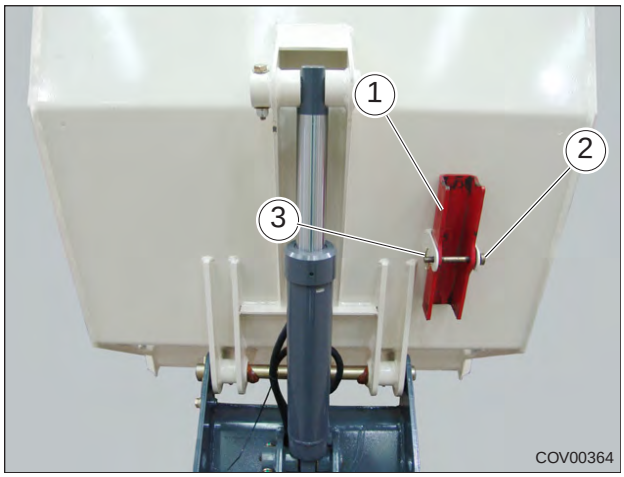

Figure 9.1. - Skip Support Storage

1. Support
2. Pin
3. R Clip

(1) To fit a Skip Support

Refer to Figure 9.1. A support is fitted and locked over the piston rod of the skip ram to prevent the rod retracting. Refer to Figure 9.2.

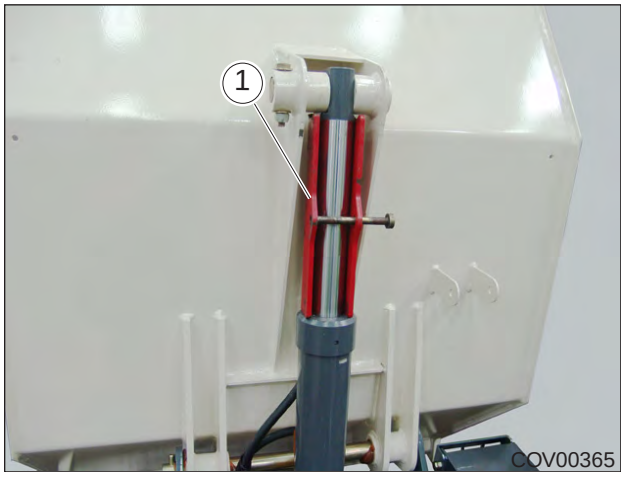

Figure 9.2 - Skip Support In Position

1. Skip Support

PROCEDURE

1. Fully raise the skip.
2. Remove the support (1) from its storage position and place over the piston rod of the ram.
3. Fit the pin to the support and secure with the R clip.
4. Carefully lower the skip until the weight is resting on the support.

9.7 Articulation Lock

DANGER

The articulation lock must be fitted before working in the area of the centre pivot, failure to fit the lock could cause a pinch point or trap that will result in death or serious injury.

(1) To Fit the Articulation Lock

Refer to Figure 9.3

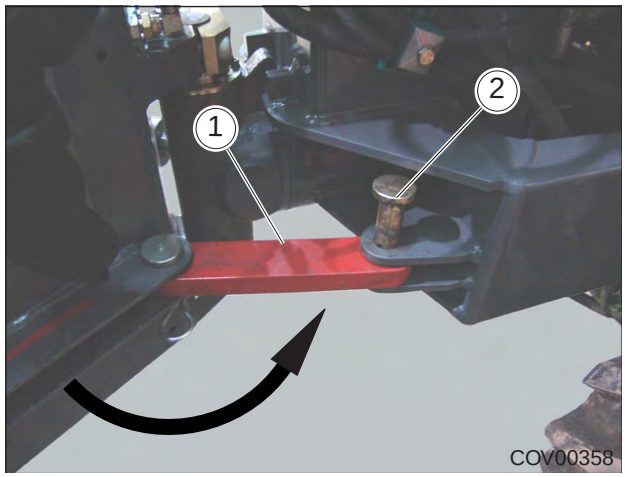

Figure 9.3 - Articulation Lock

1. Lock Bar
2. Pin

PROCEDURE

1. To fit the lock remove the grip clip and pin from the locking bar.
2. Pivot the locking bar around until the holes in the bar are aligned with the hole in the rear chassis bracket.
3. Re - fit the pin and secure with the grip clip.

9.8 Battery Removal

DANGER

Battery Acid - Contact with battery acid can cause serious burns, blindness or even death. Protective clothing, gloves and a face shield must be worn at all times when handling or working on a battery.

Set battery isolator to OFF position. Access the battery by opening the engine cover.

To remove the battery refer to Figure 9.4.

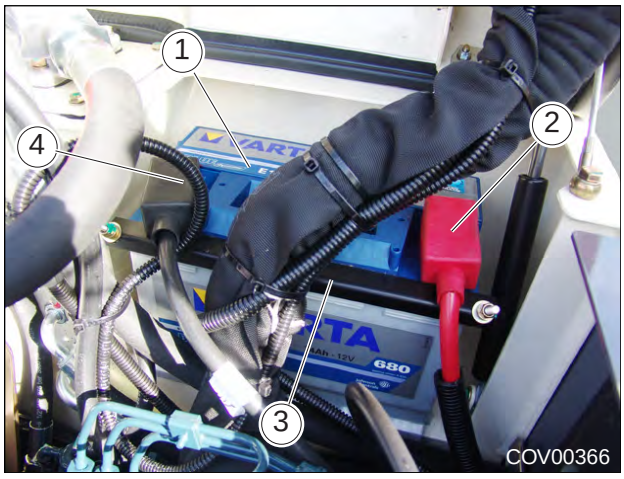

Figure 9.4 - Battery Removal

1. Battery
2. Positive (+ve) Terminal
3. Clamp
4. Negative (-ve) Terminal

PROCEDURE

1. Remove the protective covers from the battery terminals.
2. Disconnect the negative (-ve) cable from the battery.
3. Disconnect the positive (+ve) cable from the battery.
4. Undo the nuts and washers and remove the battery clamp.
5. Lift the battery clear of the machine.

With the battery removed clean battery terminals and cable connections. When the battery is reconnected protect connections with grease or petroleum jelly before fitting the plastic terminal covers.

9.9 Air Cleaner

(1) Daily Maintenance

To access the air cleaner lift the engine cover. Check the blockage indicator, Figure 9.5. If the indicator is showing RED the air cleaner requires servicing. Check system for leaks.

NOTICE

Maximum protection against dust is only possible if the air cleaner is serviced at regular intervals. Check the blockage indicator daily. In dusty conditions checks should be more frequent. If the indicator shows RED clean or replace the filters immediately. Operating a machine with a blocked filter can cause serious damage to the engine.

Figure 9.5 Air Cleaner Blockage Indicator.

The dust ejector, should be squeezed to release any build up of dust in the air cleaner case.

Refer to Figure 9.6 illustrating the major air cleaner components.

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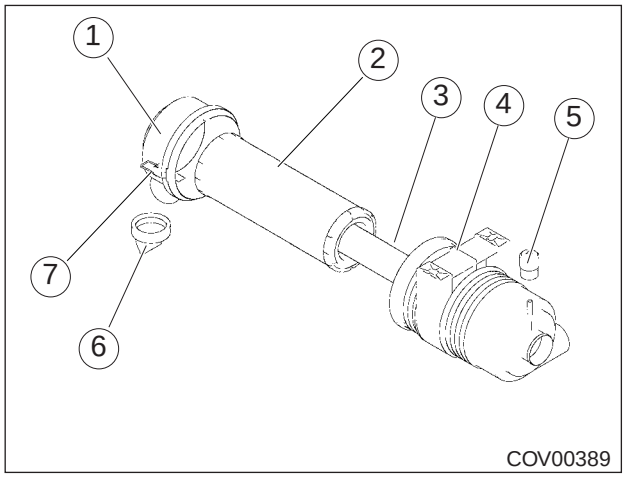

Figure 9.6 - Air Cleaner

1. Sediment Cup.
2. Main Element
3. Secondary Element
4. Body
5. Blockage Indicator
6. Dust Ejector
7. Clamp

(2) Dismantling the Air Cleaner

It is recommended that the air cleaner is dismantled and reassembled by a competent person to ensure there are no air leaks that would permit dust and dirt to enter the engine.

PROCEDURE

1. Clean the area around the air cleaner.
2. Loosen clamps holding the sediment cup to the air cleaner body and pull cup clear.
3. Remove the elements from the body.
4. Clean the main element by tapping gently on a firm object or by blowing gently with compressed air from inside the element.
5. If the main element is damaged or severely contaminated it must be replaced.
6. DO NOT attempt to clean the secondary element; if contaminated it must be replaced.
7. Thoroughly clean the main body and sediment cup.
8. Re assemble the cleaner.

9.10 Engine Oil

Always refer to the engine manufacturers handbook, if available; when carrying out engine maintenance. The engine oil must be changed after the first 50 hours operation and then every 400 hours or annually thereafter.

(1) To Check the Level

A dipstick - Figure 9.7 for checking the engine oil level is accessible from within the engine compartment. Clean the area around the dip stick before checking the oil level.

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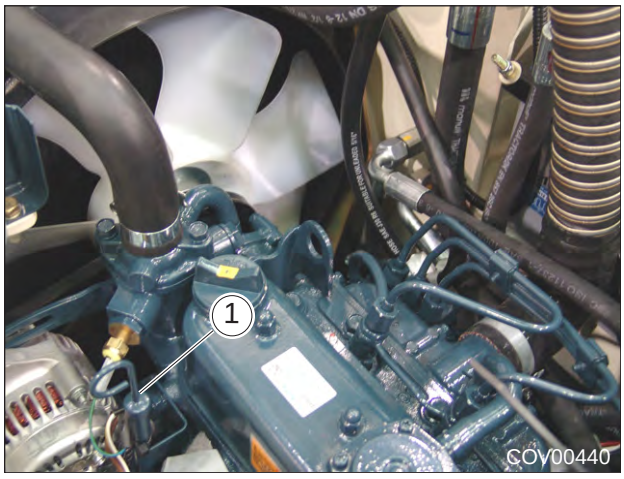


Figure 9.7 - Dipstick Location

1. Dipstick

The oil level should be between the MAX and MIN marks on the dipstick - Figure 9.8.

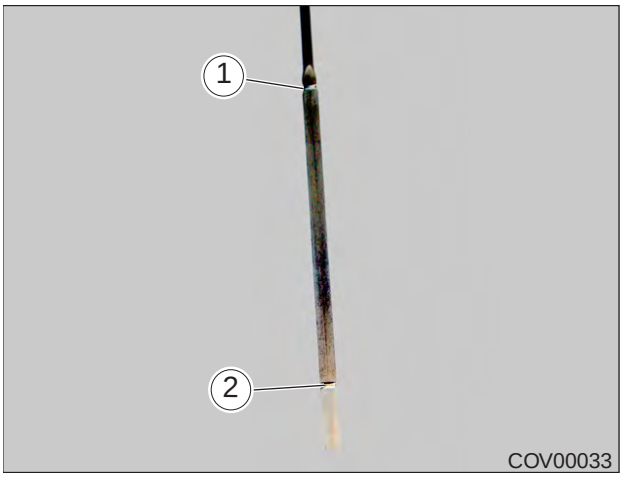


Figure 9.8 - Dipstick MAX and MIN marks.

1. Maximum (MAX) Oil Level
2. Minimum (MIN) Oil Level

PROCEDURE

1. Open the engine cover.
2. Allow oil to settle for a few minutes.
3. Clean the area around the dipstick
4. Remove the dipstick, wipe clean with paper, check level and replace the dipstick.
5. If the oil level is below the MIN level oil must be added.

(2) To Add Oil.

Oil is added through the filler cap - Figure 9.9 accessible in the engine compartment. Refer to the Lubrication Tables for the correct grade and quantity of oil.

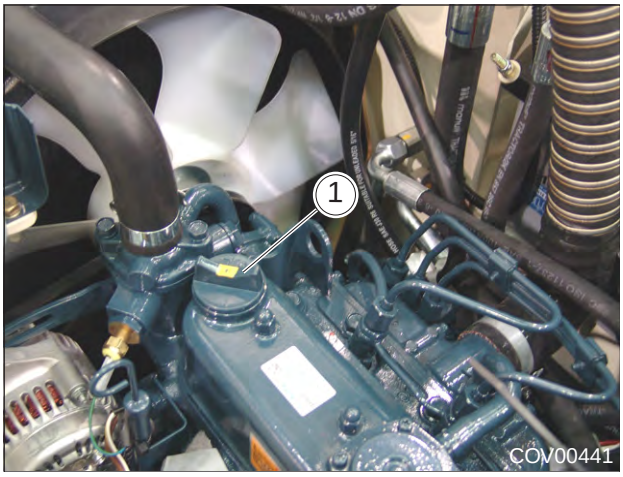


Figure 9.9. - Engine Oil Filler Cap

1. Filler Cap

PROCEDURE

1. Remove the engine oil filler cap.
2. Add clean, fresh oil of the correct grade to the engine.
3. While adding oil, check the level frequently to make sure it does not go over the MAX level.
4. When the oil is up to the required level replace the filler cap.
5. Wipe up any spilt oil.

NOTICE

Do not overfill the engine. Too much engine oil may cause damage to the engine.

9.11 Engine Coolant

The cooling system is pressurised to increase boiling point of the coolant and therefore extreme caution must be taken when performing any maintenance on the cooling system when hot to prevent scalding.

⚠ WARNING

NEVER perform checks or maintenance on the cooling system when it is hot. NEVER remove radiator cap when engine is hot - severe risk of scalding. NEVER remove radiator cap when the engine is running. Antifreeze is TOXIC. If accidentally swallowed, medical advice must be sought Immediately. Antifreeze is corrosive to the skin. If accidentally spilled on to skin, it must be washed off immediately. Protective clothing and eye protection must be worn when handling antifreeze.

(1) To Top Up the Cooling System

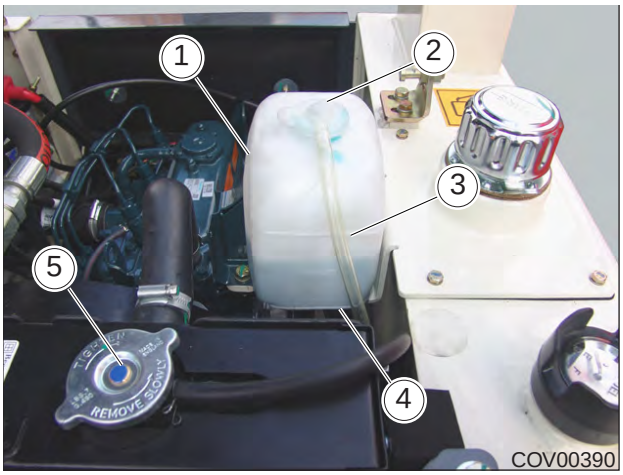
Refer to Figure 9.10 This operation must only be performed by topping-up the plastic expansion tank, to maintain coolant level within the Full (Maximum) and Add (Minimum) marks on expansion tank. The tank is accessible when the engine cover is open.

When topping-up the system, always check the water hoses for damage or wear and for any obvious leaks.

Only fill the system via the radiator cap if the system has been drained.

PROCEDURE

1. Allow the system to cool down.
2. Open the filler cap on the header tank.
3. Ad coolant until the level is between the Full and Add marks.
4. Refit the header tank filler cap.



.Figure 9.10 - Cooling System

1. Header Tank
2. Filler Cap
3. Full Mark
4. Add Mark
5. Radiator Cap

NOTICE

Never over fill the expansion tank. Do not use anti leak additives in the cooling system. Never run the engine without coolant in the system.

(2) Coolant

The coolant used to top up the cooling system must be a pre-mixed solution of antifreeze and water in the correct ratio for the temperature range the machine is to be used in. Refer to paragraph 9.17. - 3.

9.12 Hydraulic System

Keeping hydraulic systems clean can lead to massive cost savings.

ALWAYS take extreme care to maintain the cleanliness of the hydraulic system. This will lead to fewer hydraulic failures.

Always thoroughly clean machine before any hydraulic maintenance. Use paper roll, not rag, to wipe parts.

Always use fresh, clean hydraulic oil from a sealed container.

Never use dirty containers for oil storage.

Never use dirty containers or funnels for filling hydraulic system.

A filler cap incorporating a dipstick is fitted to the top of the hydraulic tank. Figure 9.11 refers.

An indicator on the filter when in the red section indicates that the filter needs changing.

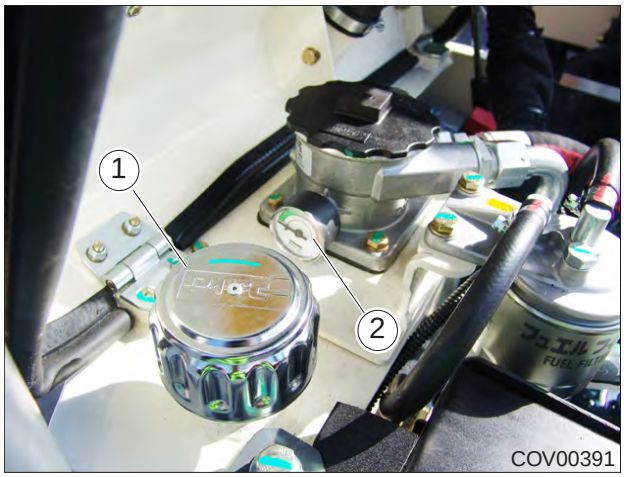


Figure 9.11 Hydraulic Tank Filler Cap

1. Filler/Dipstick
2. Blockage Indicator

(1) To Check the Hydraulic Oil Level

Refer to Figure 9.12

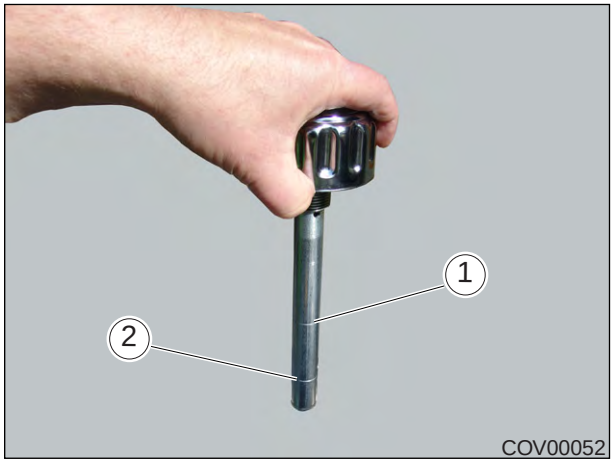


Figure 9.12- Checking Hydraulic Oil Level

1. Full (Max.) Mark
2. Low (Min.) Mark

PROCEDURE

1. Stop the engine and unscrew the dipstick/breather and remove from the tank.
2. Wipe all traces of oil from the dipstick with clean paper and refit the dipstick.
3. Remove the dipstick again and check the level of the oil.
4. Never allow the oil level to go below the minimum mark - Min. (2) or above the maximum mark - Max (1).
5. Add the correct grade of oil as required.
6. Check the level and replace the filler breather.

(2) To Add Hydraulic Oil

Refer to Figure 9.11. Make sure a clean container and clean, new oil is used.

PROCEDURE

1. Unscrew the dipstick/breather.
2. Add oil as required.
3. Use the dipstick/breather to check the level.
4. Continue adding oil until it reaches the upper mark on the dipstick.
5. Replace the dipstick/breather.
6. Wipe up any spilt oil.

9.13 Fuel System

⚠ DANGER

Avoid sparks, naked flames etc. when filling or maintaining the fuel system. Do not smoke when filling the fuel tank or maintaining the fuel system. Do not leave the engine running when filling/ working on the fuel system.

(1) To Add Fuel

The indicator gauge, Figure 9.13; mounted on the tank will indicate the amount of fuel remaining in the tank. The gauge markings indicate when the tank is Empty, half full or Full.

Figure 9.13 - Fuel Tank

1. Level Gauge
2. Filler Cap

PROCEDURE

1. Remove the filler cap.
2. Add fuel until the gauge reaches the full mark.
3. Refit the filler cap.
4. Clean up any spilt fuel.

9.14 Wheels and Tyres

Check the tyres regularly for damage by cuts and embedded particles, i.e. nails, steel, glass etc. A valve; Figure 9.14., is fitted to inflate and check the pressure in the tyres. The pressures should be checked and adjusted if necessary weekly using valve (1).

Figure 9.14 - Tyre Inflation Valve

1. Tyre Inflation Valve

(1) Recommended Pressures

TA1EH	TA1EH (Narrow Tyres)
Front - 2.3 Bar (33.5 psi)	Front - 2.27 Bar (33.0 psi)
Rear - 1.37 Bar (20.0 psi)	Rear - 1.57 Bar (22.0 psi)

9.15 Maintenance Schedule

This list is included in the operations manual to enable management to plan maintenance for the machine. It should be noted that some procedures listed are beyond the scope of the operator and must only be performed by qualified mechanics conversant with this type of equipment.

Table 9.1. - Maintenance Schedule

The following service schedules are for guidance only. Under extreme operating conditions the service schedules should be adjusted accordingly to allow for the local working environment. Before carrying out any service or maintenance work ensure ALL safety precautions have been taken. Always follow the instructions given in the engine manufacturers handbook when servicing, adjusting and especially when starting and stopping the engine.	
ALL Faults MUST be Reported Immediately and Corrected BEFORE the Machine is Used	
10 Hours	Check tyre condition and pressures. Check ROPS for damage etc. Report ALL faults immediately. Check seat belt. Check the air cleaner blockage indicator. Squeeze the air cleaner dust ejector. Remove air cleaner and clean in dusty environments. Check fuel tank level - NEVER allow the fuel tank to empty. Fill at the end of each shift. Check engine oil level and top up as necessary. Check hydraulic oil level. Check all warning lights and gauges are working correctly. Check engine coolant level - expansion tank (engine cold). Check operator platform and steps are clean and free from damage and obstructions. Check start inhibitors are functioning correctly. Check skip prop is present and functional. Check articulation lock is present and functional. Visually check machine for fluid leaks, damage, missing parts, unreadable safety signs etc.
50 Hours	As for 10 hours and including : Lubricate the centre pivot. Lubricate all other grease nipples - see lubrication chart. Oil all control pivots, e.g. throttle etc. Check wheel nut torque. Check, clean and protect battery connections. Check for air leaks on the air inlet/filter system. Remove the end cap on the cyclone type air cleaner and inspect elements. Clean or replace as necessary. Replace any damaged safety signs.
200 Hours	As for 50 hours and including : Replace inline fuel filter. Check engine cooling fan and alternator belt for damage and tension - adjust/replace if necessary. Check tightness of centre pivot lock screws. 12mm Durlock bolts to 135Nm and the M16 cap head screws to 340Nm. Check hoses for chaffing, adjust as necessary.
400 Hours	As for 200 hours and including : Drain engine and refill with fresh, clean oil. Replace engine oil filter. Drain and clean fuel tank. Replace fuel filter element. Change hydraulic filter(s). Drain hydraulic tank and clean hydraulic suction strainer. Renew return line filter. Refill hydraulic system with clean, fresh oil. Check engine coolant antifreeze / water ratio - especially in sub zero conditions.
600 Hours	As for 200 hour service
800 Hours	As for 400 hours and including : Check engine valve clearances - adjust as necessary. Check wheel motor location bolts. Check centre pivot pin nut torque setting.
1600 Hours	As for 800 hours and including: Remove and check engine injector nozzles - adjust pressure or replace as necessary. Drain and replace engine coolant.
Only Perform the Applicable Service Checks Above Thoroughly Clean the Machine BEFORE Performing ANY Service or Maintenance Tasks	

9.16 Lubrication Diagram

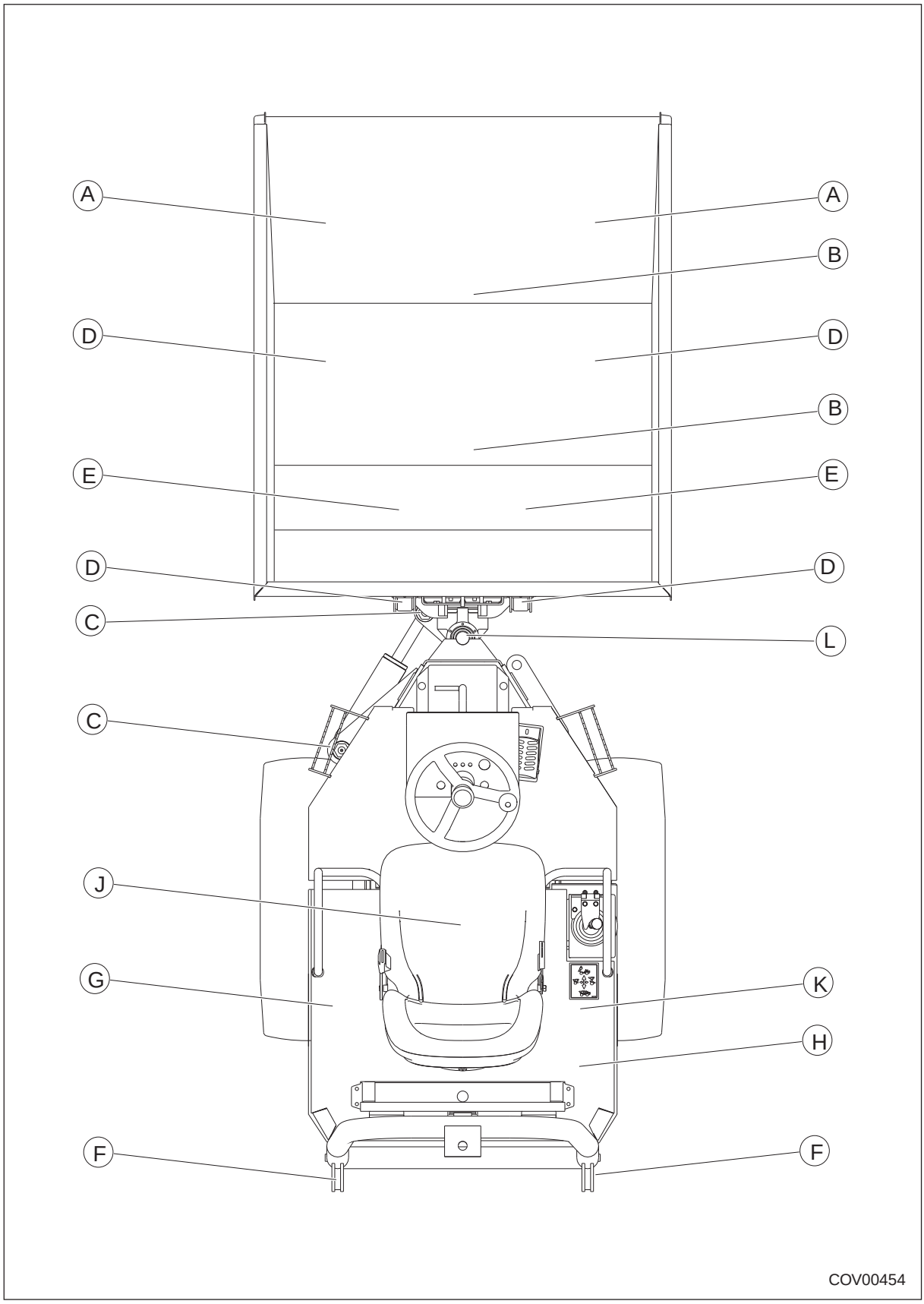


Figure 9.15 - Lubrication Diagram

9.17 Lubrication Chart

Item	Component	Lubricant	International Specification	Service Hours	
				Check or Apply	Change
A	Skip Pivot Pins	Multi Purpose Grease EP2	Lithium Grease - Gr Li, NLGI2	50	--
B	Skip Ram Pivots				
C	Steering Ram Pins				
D	Lift Arm Pins				
E	Lift Arm Ram Pivots				
F	ROP's Pivots				
G	Hydraulic Oil Tank	Mecalac Premium Hydraulic 46 or Shell Tellus S2 V46	High VI Hydraulic Oil HV ISO 46	10	400
H	Cooling System	BASF Glysantin G48 / Water Mixture 50%	Extended Life Antifreeze	10	Autumn
J	Engine Sump	Mecalac Low Ash Engine Oil 15W/40 or Shell Rimula RT4L 15W/40	API: CH-4, CG-4, CF-4, CF ACEA: ES, E3 SAE 15W/40	10	400
K	Fuel Tank	Diesel	DERV to EN590	10	400
L	Centre Pivot	Starplex All Purpose Grease EP2	Lithium Complex Grease Gr Li, NLGI 2	50	-

Table 9.2 - Lubrication Chart

9.18 Fluids and Lubricants

(1) Engine Oil - we recommend Mecalac branded oil:

Mecalac Part Numbers

800-21565	5 LITRE LOW ASH ENG OIL 15w/40
800-21566	20 LITRE LOW ASH ENG OIL 15w/40

Alternatively: Shell Rimula RT4L

Recommended Viscosity Grades

Temperature Range	Oil Viscosity
-5° to +40° C	20W-50
-15° to +40° C	15W-40
-20° to +40° C	10W-40
-20° to +30° C	10W-30
-30° to +40° C	5W-40
-30° to +30° C	5W-30
-35° to +40° C	0W-40
-35° to +30° C	0W-30

Table 9.3. - Engine Oil Viscosity

(2) Hydraulic System - we recommend Mecalac branded oil:

Mecalac Part Numbers

800-21745	MECALAC PREMIUM HYDRAULIC 46 - 1 X 5 LITRE TIN
800-21746	MECALAC PREMIUM HYDRAULIC 46 - 20 LITRE
800-21747	MECALAC PREMIUM HYDRAULIC 46 - 209 LITRE

Otherwise:

Shell Tellus T46

(3) Engine Coolant

Shell Glycoshell Antifreeze/Water Mixture.

Concentration	Ratio	Protection ºC	Protection ºF
20%	1:5	- 9	15.8
25%	1:4	- 12	10.4
33.3%	1:3	- 19	- 2.2
50%	11:1	- 37	- 34.6

Table 9.4. - Antifreeze Concentrations

(4) Fuel System

Diesel to Specification:

DIN 51628

EN 590

(5) Grease

Centre Pivot:

Starplex All Purpose Grease EP2 - Lithium Complex Grease - Gr Lic, NLGI 2.

Other Grease Points:

Multi Purpose Grease EP2 - Lithium Grease Gr Li, NLGI 2.

9.19 Fluid Capacities

Capacities - Litres			
Engine Sump	Fuel Tank	Hydraulic Tank	Cooling System
5.1	32.5	25.3	8.0

Table 9.5. - Fluid Capacities

10. Troubleshooting

10.1 General Troubleshooting

(1) Engine will not start

Check fuel level.

Check electrical supply (see Electrical Troubleshooting).

Incorrect type or grade of fuel.

(2) “Low” engine oil pressure light comes on

Low engine oil level.

Consult dealer before using the machine.

(3) “High” coolant temperature light comes on

Check if fan belt is loose or missing.

Check coolant level on header tank (Do NOT add coolant until system is cold).

(4) Loss of coolant

Loose hose clips

Split coolant hose.

Radiator leaking.

10.2 Electrical Troubleshooting

(1) Circuit breaker keeps “tripping out”.

Check wiring for damage and short circuits.

Check beacon socket (if the rubber cover is split or fitted incorrectly water can enter).

(2) System Dead

Check battery isolator is set to “ON”.

Check battery connections.

Check circuit breaker has not “tripped”.

(3) Charge warning light remains On with engine running

Check if fan belt is loose or missing.

(4) Lights and direction indicators do not work

Check circuit breaker has not “tripped”.

Check if bulb has blown.

10.3 Hydraulic Troubleshooting

(1) No Pressure

Check if sufficient oil in tank.

(2) Machine will not steer

Check steering lock is NOT fitted.

Check steering ram hoses for leaks.

(3) Skip will not raise or tip

Check hoses for leaks.

11. Recovery

11.1 Towing

CAUTION

With the engine dead the hydraulic system will not function, the steering will still operate but under these circumstances steering wheel loads are high and the dumper must only be towed at very slow speeds.

NOTICE

The machine may be towed at a maximum speed of 2km/h (1.2 mph) for a maximum distance of 50m. Exceeding this speed or distance may damage the pump, motors and hydraulic system. Before the machine can be towed it is necessary to release the brakes. For instructions on this procedure refer to Section 8 - *Emergency Operating Procedures.*

The machine may be towed for short distances; see notice above, by attaching a suitable strap, chain or rope to either or both of the tie down and recovery eyes at the front of the machine.

11.2 Lifting with a Crane

Refer to section 5 - *Transportation* for details of lifting the machine with a crane. It is important that the articulation lock is fitted before lifting operations commence.

12 Storage, Decomissioning & Disposal

12.1 Long Term Storage

The machine must be stored in a dry environment protected from the elements and on a hard standing. Any contaminated water/fluids/oils removed from the machine must be disposed of legally. Refer to the engine manufacturers manual for specific instructions.

Store machines and attachments in a manner to prevent damage or deterioration. Determine the degree of protection required based upon geographical location, environment, completeness of equipment when stored, estimated storage time, season and the product model.

Prepare machines for storage in accordance with the following guidelines.

- Re inspect and re-protect machines and attachments which have been stored for extended periods of time to minimise storage deterioration.

12.2 Requirements for Temporary Storage

When storing machines for a period of 30 days or less, the following procedures must be followed.

- Inspect and Repair – Thoroughly inspect machine for any damage. Make any repairs or adjustments which may be necessary.
- Lubrication – Lubricte the machine as specified in the Lubrication section of the relevant operators manual.
- Cooling System – Make sure that the cooling system is adjusted for full protection for the climatic conditions expected at the storage location. Adjust if necessary.
- Parking – After thoroughly cleaning the entire machine, park it on a hard, dry, level surface that is free from grease and oil. Lower the bowl, body, bucket, blade and attachments. Apply the parking brake.
- Note. If machine is delivered from the Mecalac facility with a wax coating to protect the paintwork, do not remove it until the machine is removed from storage.
- Fuel Tank – Fill fuel tank to prevent moisture condensation within the tank. Coat filler neck and cap threads with oil. If Biofuel is used drain the tank if the storage will be longer than 3 months.
- Hydraulic Tanks – Coat filler neck and cap threads with oil. Fill tank to operating level if necessary.
- Batteries – Where moderate temperatures are expected, the batteries may be left in the machine. The batteries may require a boost at the end of the storage period. Preferably, place the batteries where they can be inspected, brought up to full charge and placed on a trickle charge to keep them at full charge. In very cold or hot climates, store the batteries where they will be protected from temperature extremes. Coat the battery terminals and cable ends with acid resistant petroleum jelly.
- Tyres – Remove all grease and oil. Inflate all tyres to correct pressure. Check inflation pressure approximately once every two weeks.

- Exhausts – Cover exhaust stack openings with plastic or waterproof paper and secure with adhesive tape.
- Air Intakes – Cover air intake openings with plastic or waterproof paper and secure with ` adhesive tape.
- Hydraulic Control Valves – Where possible position hydraulic controls for minimum exposure of valve spools (spool inside valve body). Coat the remaining exposed spool surface with a suitable oil or grease.
- Hydraulic Cylinders – Where possible retract cylinders for minimum rod exposure. Coat the remaining exposed piston rod surface with a suitable oil or grease. For machines with blade, bucket, attachment which is not mounted, wire the cylinder to prevent rod drift.
- Control Cables and Linkage – All exposed linkage, clevis ends, ball joints etc. which are not protected during “lubrication” should be protected by a suitable oil or grease.
- Open Ports and Hose Ends – Plug or seal with adhesive tape all open ports.
- Machined Surfaces – Coat any exposed machine bores and surfaces with a suitable rust preventative.
- Note: Do not apply oil or grease to brake discs.
- Hinges – Apply oil.
- Seat Slide Adjusters – Coat with grease.
- Seats, Armrests and Cushions – When machine is not equipped with a cab, cover these items with plastic or waterproof barrier paper, and secure with adhesive tape. Provide an opening in the underside of the protective materials to prevent condensation build up.
- Cabs – All windows, doors and vents must be closed.
- Hoods, Hoodsides, Covers, Panels, etc. – must be installed and closed.
- Security Panels and Security Locks – must be installed and locked.

12.3 Extended Storage – Under Six Months

When storing a machine for periods longer than 30 days, but less than six months, the following procedures must be followed, in addition to the procedure described above.

- Engine – Consult the relevant engine manual/dealer for storage procedure for periods longer than 30 days.
- Transmission – Consult the relevant transmission manual/dealer for storage procedure for periods longer than 30 days.
- Batteries – Remove battery from the machine and store in shop. Protect batteries from temperature extremes. Coat the terminals and cable ends with acid resistant petroleum jelly.
- Vents and Breathers – Remove all vents and breathers and plug openings with pipe plugs or seal with adhesive waterproof tape.
- Belts – Release tension on all belts.

- Tyres – When extended storage is anticipated, the machines should be blocked up so the weight does not rest on the tyres, and inflation pressure reduced to 1 bar (15 lbf/in²). Storage of such machines should be under cover if possible: otherwise tyres should be protected from the elements by an opaque waterproof covering.

  If it is not possible to block up the machine, inflation pressure in the tyres should be increased to 25% above the rated pressure for the actual load on the tyre in storage condition.

  The storage area surface should be firm, reasonably level, well drained and free of all oil, fuel or grease. Clean 8-19mm (0.25–0.75in) gravel under each tyre is desirable if the area is not paved. Do not store on blacktop or oil stabilised surfaces.

  Except in very cold weather, stored machines should be moved occasionally, at least once every six months, so the same section of the tyre is not always under strain from deflection.

  Inflation in the tyres must be adjusted to the recommended service pressure before shipping or putting a stored machine into service.
- Run air conditioning periodically to prevent the seals from drying out.
- Check fuel tank is full of diesel.

12.4 Decomissioning

Before placing the machine into storage:-

- Thoroughly wash down the exterior of the machine and remove any build up of dirt etc.
- Repair all damaged paint work to prevent further corrosion.
- Grease all greasing points.
- Start and warm up the engine. Drain the engine oil and refill with clean fresh oil. Refer to the engine manufacturers handbook for further information on prolonged engine storage with regards to anti corrosion oils and fluids.
- Check hydraulic oil level and top up as required.
- Drain and refill cooling system with water/antifreeze mixture of the correct ratio.
- Fill the diesel tank to prevent corrosion of the tank walls. If using biodiesel, drain the tank if storing for more than 3 months.
- Store the machine on solid level ground which is not liable to flooding, standing water or airborne contamination.
- Chock the wheels securely to prevent the dumper moving.
- Smear exposed metal parts with grease.
- Remove the battery, store in a safe place and keep fully charged.
- Seal off the air intake opening on the air cleaner and the exhaust opening.
- Leave the parking brake in the OFF position.

12.5 Recomissioning

The following procedure must be followed when a machine is removed from storage.

- Clean grease or other protective film from piston rods and other exposed metal parts.

- Remove seals or covers from the air cleaner inlet and exhaust pipe.
- Check the condition of the air filter elements and replace if necessary.
- Thoroughly clean the machine.
- Make sure the battery has remained fully charged and re-connect to the machine.
- Carry out all measures for putting the engine back into use described in the engine
- manufacturers manual.
- Check all other fluid levels.
- Lubricate machine in accordance with lubrication diagram.
- Examine tyres and inflate to correct pressure.
- Fuel tank – Drain off any condensation. Remove covers from openings and re-install breather.
- Hydraulic tank – Remove covers form openings and install breathers. Fill tank to operating level if necessary.
- Tyres – Inflate to the recommended pressure.
- Exhausts – Remove temporary storage covers from exhaust stack openings.
- Air Intakes – Remove temporary storage covers from the air intake openings.
- Hydraulic Cylinders – Remove protective coating from piston rod surface.
- Vents and Breathers – Remove seals and plugs from all breather openings, then install all breathers and vents.
- Belts – Adjust tension on all belts.
- Engines – Consult the relevant maintenance manual/dealer for instructions on removing an engine from storage.
- Transmission - Consult the relevant maintenance manual/dealer for instructions on removing a transmission from storage.
- Paint – Check machine for rust. Remove all rust spots and repaint rusted areas.
- Decals – Check condition of decals and replace if necessary.
- Lubrication – Completely lubricate the machine according to the instructions in the Lubrication section of the relevant Operators Manual.
- General – Check for fuel, hydraulic oil, and coolant leaks. Replace all leaking seals.

(a) If stored for more than a period of 6 months:-

- Replace hydraulic filters.
- Examine hydraulic oil for degradation and replace if necessary.
- Drain and replace oils in transfer box and axles.

12.6 Disposal

At the end of its life the machine must be disassembled by a competent person using safe working practices, wearing the appropriate Personal Protective Equipment and working in accordance with local regulations.

The appropriate lifting equipment, chocks and stands must be used to maintain a stable machine as components are removed and the machines centre of mass changes.

Care must be taken when dealing with flammable liquids and the machine parts that contained those liquids. Any process that could ignite flammable materials must not be used on components that have contained flammable liquids in them or have residual flammable liquids on them.

Fire extinguishers must be readily available if cutting/welding equipment is so used.

Fluids must be drained off into suitable containers and if possible recycled or otherwise disposed of in an environmentally friendly way in accordance with local regulations.

Where possible recyclable materials must be separated out and processed in accordance with local regulations using an authorised agent.

If air conditioning is installed, ensure a qualified technician carries out the disposal of refrigerant gases. Refer to your government's regulations.

12.7 Disposal of Used Batteries

When the battery reaches the end of its usual life it must be removed from the machine and recycled in an approved way in accordance with local environmental regulations.

This service is usually operated by battery vendors.

Machine users that cannot find a suitable battery recycling facility should contact Mecalac for assistance.

13 Glossary of Terms

ANSI - American National Standards Institute.

Articulation Lock - Device preventing chassis elements moving during maintenance, transport etc.

Battery Isolator - Device to shut of electrical supply from the battery.

Chock - Device placed in front of and behind wheels to prevent movement.

Hour Meter - An instrument that records and displays the total number of hours the engine has been running.

Hydrostatic Drive - Method of transferring engine power to the front and rear wheels using a hydraulic pump and hydraulic motors to drive the wheels.

ISO - International Standards Organisation

Linch Pin - Pin with spring loaded retaining clip.

Orbitrol - Hydrostatic steering unit - a valve controlled by the machines steering wheel that meters oil to the steering ram to turn the machine to the left or right.

Parking Brake - Mechanical device to prevent machine moving when not in use.

R Clip - A spring steel clip inserted through a hole in a pin to retain the pin in place.

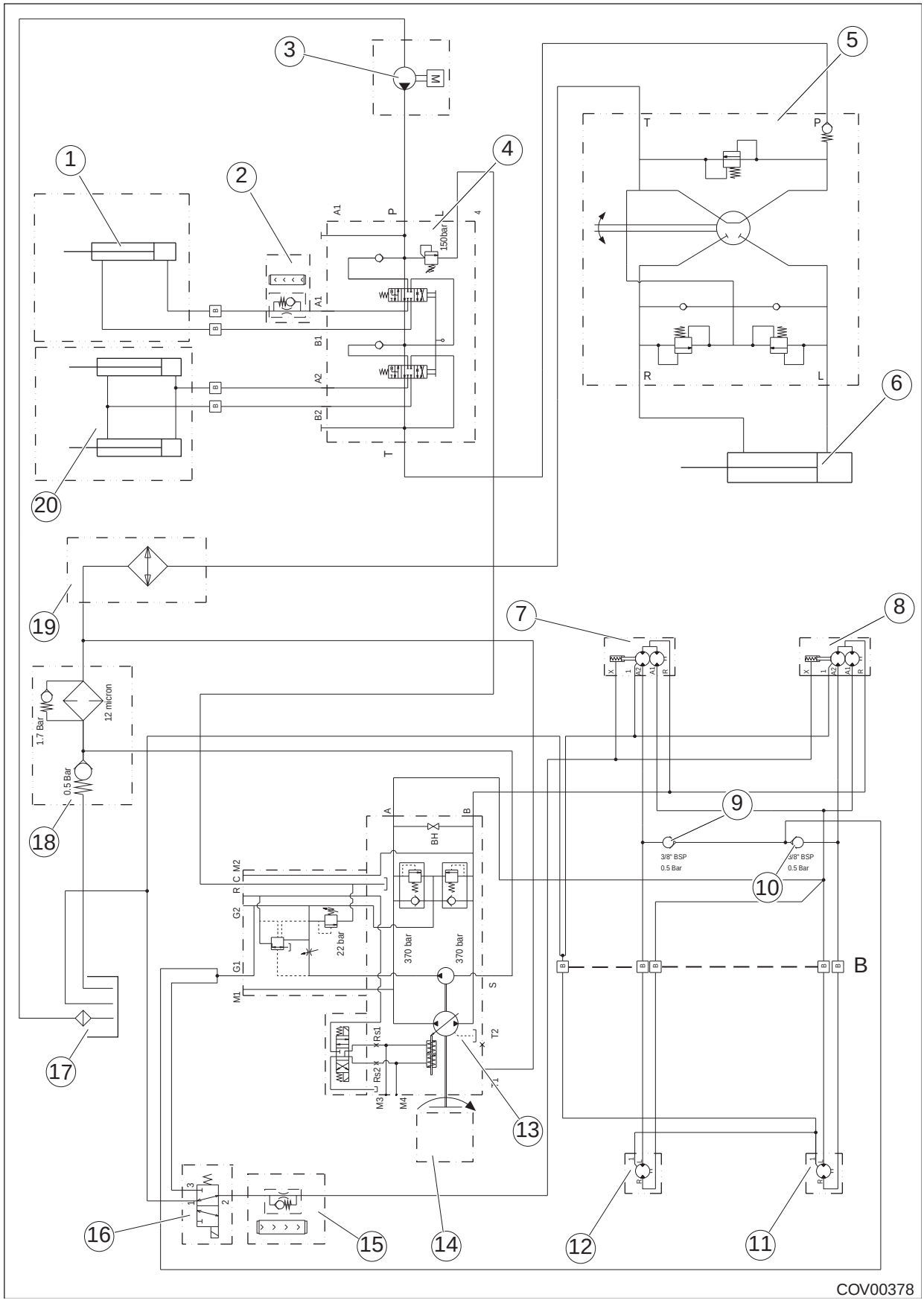
ROPS - Roll Over Protective Structure - roll over bar.

Skip - Load carrying body.

Skip Prop - Mechanical device supporting a raised skip to prevent it lowering should the hydraulic system fail.

VIN Plate - Plate fixed to the machine recording the serial number and other identifying information.

Appendix 1 - Hydraulic Diagrams



Hydraulic Diagram - TA1EH

1	Hydraulic Cylinder - Skip Tip
2	One Way Restrictor (Arrows on body show free flow direction)
3	Auxiliary Hydraulic Pump (Engine mounted) Output 25.4 l/min max.
4	Control Valve
5	Steering Unit - Orbitrol
6	Hydraulic Cylinder - Steering
7	Wheel Motor MS E02 - Rear Right
8	Wheel Motor MS E02- Rear Left
9	Check Valve
10	Check Valve
11	Wheel Motor MS02 - Front Left
12	Wheel Motor MS02 - Front Right
13	Main Hydraulic Pump - Poclain PM25
14	Engine - Kubota D1005
15	One WayRestrictor (Arrows on body show free flow direction)
16	Brake Valve
17	Hydraulic Tank
18	Filter 12 Micron 1.7 Bar
19	Oil Cooler
20	Hydraulic Cylinders - Lift Arm Raise/Lower

KEY: B = Bulkhead

STANDARD LIMITED NEW PRODUCT WARRANTY - CONSTRUCTION

Supplier Mecalac ("Supplier"), warrants the new Products manufactured or sold by it, to be free, under normal use and service, of any defects in manufacture or materials for the period of 12 months or 1500 hours from (a) delivery to, and placement into service by the first user (including as a demonstrator) or (b) delivery to the first retail purchaser, or (c) will activate 6 months from delivery of the machine to the Distributor regardless of use, whichever occurs first.Provided that Supplier receives written notice of the defect within thirty (30) days of its discovery and Buyer establishes that (i) the equipment has been maintained and operated within the limits of rated and normal usage and (ii) the defect did not result in any manner from the intentional or negligent action or inaction by Buyer, its agents or employees. The term "Products" shall include only the new equipment manufactured by Supplier.
EXTENSION OF WARRANTY: The WARRANTY may be extended for an additional year or 1500 hours, for a total of 2 years or 3000 hours (whichever comes first) subject to the above conditions and the use of original SUPPLIER filters and lubricants. All maintenance operations must be reported in OneFace via the "inspection visit" utility. Two oil analysis kits are provided in the SUPPLIER maintenance kits and allow SUPPLIER to certify the origin of the engine and hydraulic oils used in the machine. Oil analyses are mandatory for the extension of the guarantee. Only SUPPLIER oils and filters must be used to be eligible for the additional warranty year.

Normal maintenance, adjustments, or maintenance/wear parts are not covered by this warranty and are the sole maintenance responsibility of Buyer.

The obligation and liability of Supplier under this warranty is expressly limited to, at Supplier's sole option, repairing or replacing, with new or remanufactured parts or components, any part, which appears, upon inspection by Supplier that manufactured or sold the equipment, to have been defective in manufacture or materials. Such parts shall be provided at no cost to the owner**, FCA** Supplier's parts facility from which the parts were purchased. This warranty shall be null and void if parts (including wear parts) other than genuine Supplier parts are used in the equipment. No warranty shall cover any item on which serial numbers have been altered, defaced or removed. Any modification or transformation made to our equipment or Products without SUPPLIER approval, any use of parts which are not original parts or non-approved equipment would automatically void the implementation of our warranty. The replacement, modification or repair of parts during the warranty period cannot result in extending the warranty period applying to the equipment. This warranty shall not apply to any Supplier equipment or any part thereof which has been subject to misuse, alteration, abuse, negligence, accident, acts of God or sabotage.
Parts shall be replaced or repaired during the warranty period in the Distributor's workshop or a workshop agreed by SUPPLIER. The implementation of the warranty is subject to the strict application of the maintenance and use instructions in the "Manual of use and maintenance" or "Operator Manual" or any other Supplier document relative to the maintenance. The warranty obligation is expressly subject to the following obligations: to avail of the warranty, the user undertakes to have the periodic maintenance defined in the the "Manual of use and maintenance" or "Operator Manual" or any other Supplier document relative to the maintenancecarried out by the specialised staff of an authorised SUPPLIER Distributor or workshop with SUPPLIER genuine filters and lubricants.
If requested by Supplier, Buyer must return the defective equipment to an authorized Distributor of the Products ("Distributor") and if Buyer cannot establish that conditions then this warranty shall not cover the alleged defect. The parts in question shall only be returned by the Distributor to SUPPLIER, if so requested by SUPPLIER. In this case, SUPPLIER will arrange and pay for the transport. The Distributor must submit a warranty request via IS/IT system and comply with SUPPLIER's decision.
The Distributor must send the parts to SUPPLIER within 30 days of the SUPPLIER request, respecting the conditions laid out in the document of "Procedure and warranty conditions" available on Oneface. If these conditions are not met, the credit note will not be issued. Credit notes will not be reimbursed but deducted from account balance. If Supplier requests the Distributor to keep the defective parts in his premises, the parts shall be stocked, cleaned, with their warranty request number kept discretely nearby, protected from the elements, until a visit from the after-sales service. If nobody from the SUPPLIER after-sales service has requested return within 6 months, the parts can be destroyed.

The implementation of the Supplier's warranty is limited to replacing or repairing the parts acknowledged to be defective: labour included referring to the "Repair timetable", when existing for the Product under warranty.
The obligations of Supplier under this warranty shall not include duty, taxes, environmental fees, including without limitation disposal or handling of tires, batteries, petrochemicals, or any other charges whatsoever, or any liability for indirect, incidental, or consequential damages. Improper maintenance, improper use, abuse, improper storage, operation beyond rated capacity, operation after discovery of defective or worn parts, or alteration or repair of the equipment by persons not authorized by Supplier shall render this warranty null and void.
The Supplier's warranty only becomes effective when an examination has been carried out by the authorised Distributor or at SUPPLIER's registered office. Supplier reserves the right to inspect the installation of its respective Products and review maintenance procedures to determine if the failure was due to improper maintenance, improper use, abuse, improper storage, operation beyond rated capacity, operation after discovery of defective or worn parts, or alteration or repair of the equipment by persons not authorized by Supplier. Supplier reserves the right to make improvements or changes to its Products without incurring any obligation to make such changes or modifications to Products previously sold.
THIS WARRANTY IS EXPRESSLY IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED (INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) AND ALL OTHER OBLIGATIONS OR LIABILITY ON THE PART OF SUPPLIER. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE WARRANTY CONTAINED HEREIN.
ITEMS NOT COVERED BY THIS WARRANTY
The following items are **NOT** covered under this Warranty (the following list is not exhaustive):
1. **Non-Distributor Sales:** Items sold by any individual, corporation, partnership or any other organization or legal entity that is not an authorized Distributor.

2. Replacement of assemblies: Supplier has the option to repair or replace any defective part or assembly. It is the policy of Supplier to refuse claims for the replacement of a complete assembly that is field repairable by the replacement or repair of defective part(s) within the assembly.
3. Normal Operational Maintenance Services and Wear Parts: Maintenance services and wear parts are excluded from warranty claims. Maintenance services not covered include, but are not limited to, such items as: tune-up, lubrication, fuel or hydraulic system cleaning, brake inspection or adjustment, parts subject to wear and tear in contact with the ground (pneumatics, caterpillars, blades, stabilizer shoes, etc.) belts, alternators, battery, electrical or electronic components of the engine, ventilator, driving straps, or the replacement of any service items such as filters or brake linings made in connection with normal maintenance services.
Elements subject to default as a result of the ambient conditions: deterioration of joints, pipes, piping, rubber pipes, cabling, electrical connections, etc. as a result of sand, chemical products, falling branches, falling stones, etc.
Nuts and bolts or links, loosened as a result of vibrations or excessive tightening.
Fuel circuit problems caused by water or dirt: example: presence of water in an injection pump, reservoir, etc.
Difficulties of the cooling circuit caused by an obstruction of the air flow.
We decline all responsibility for accidents outside the control of our will: freezing, floods, war, strikes, etc.
4. Conditions resulting from improper use, negligence, modification, accident or lack of necessary maintenance (technical visits indicated in the Operating and Maintenance Manual), or use of fluids that do not comply with the recommendations of the "Operating and Maintenance Manual" or “Operator Manual” or any other Supplier document relative to the maintenance or use of accessories or equipment which have not been approved by the maker.
5. Indirect costs: The warranty are not covered costs of towing or transport of the Products, the travel expenses of the mechanic such as meals and lodging; overtime or premium labor rates, loss of time, disturbances or immobilisation of the machine or indemnification of all types.
6. Transportation: Any damage caused by carrier handling is a transportation claim and should be filed immediately with the respective carrier.
7. Deterioration: Repairs, work required or parts exposed as the result of age, storage, weathering, lack of use, demonstration use, or for transportation of corrosive chemicals.
7. Secondary Failures: Should the Buyer continue to operate a machine after it has been noted that a failure has occurred, Supplier will not be responsible under the warranty for resultant damage to other parts due to that continued operation.
8. Workmanship of Others: Supplier does not accept responsibility for improper installation or labor costs of personnel other than authorized Distributor personnel.
9. Stop and Go Warranty: Supplier does not recognize “Stop and Go” warranties; after the period of warranty commences, it shall not be tolled for any reason. No action by either party shall operate to extend or revive this limited warranty without the prior written consent of Supplier

INCIDENTAL OR CONSEQUENTIAL DAMAGE: LIMITATIONS ON LIABILITY: **NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED IN THIS WARRANTY, SUPPLIER SHALL NOT BE LIABLE FOR ANY, AND SPECIFICALLY DISCLAIMS ALL, INDIRECT, CONSEQUENTIAL, INCIDENTAL AND OTHER DAMAGES OR LOSSES OF ANY KIND (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, LOSS OF PRODUCTION, LOSS OF USE, DOWNTIME OR HIRE CHARGES, INCREASED OVERHEAD, LOSS OF BUSINESS OPPORTUNITY, DELAYS IN PRODUCTION, COSTS OF REPLACEMENT COMPONENTS, PENALTIES OF ANY KIND, FAILURE OF EQUIPMENT TO COMPLY WITH ANY APPLICABLE LAWS AND INCREASED COSTS OF OPERATION) THAT MAY ARISE FROM ANY BREACH OF THIS WARRANTY, WHETHER OR NOT CAUSED DIRECTLY OR INDIRECTLY BY ANY NEGLIGENCE OF SUPPLIER. Nothing in this paragraph, however, shall operate to exclude Supplier’s liability for death or personal injury. Buyer’s sole remedy for breach of this warranty shall be limited to (at the sole option of Supplier) repair or replacement of the defective part**.The aggregate liability of Supplier shall in no event exceed the purchase price of the equipment, provided that nothing herein shall exclude liability of Supplier for death or personal injury.

TRANSFERABILITY OF WARRANTY: The unexpired portion of this warranty may be transferred, provided that (i) the warranty has not been voided or breached by the transfer or prior to transfer, (ii) Supplier has received warranty registration for the relevant Product and (iii) the transferee completes and returns to the appropriate Supplier the appropriate warranty transfer documentation which shall be provided on request. Contact your local Distributor for additional details.

SPARE PARTS WARRANTY: Supplier warrant the parts ordered from their respective Parts Departments to be free of defect in manufacture or materials for a period of 12 months from date of retail sale to the owner / user. Parts fitted during an equipment warranty repair will take on the remaining equipment warranty. . If spare parts are taken back, our prior agreement is necessary for this operation and the amount for the return shall be assessed by our services following examination of the parts sent to our plant, carriage paid. In no case, can the possibility of a return defer payment for new parts delivered.

RETURN OF EQUIPMENT: We do not accept any return of equipment without prior agreement in writing by our registered office. If there is agreement, there shall be an allowance to cover the damage caused to any equipment, handling costs, administrative expenses.

SECOND HAND EQUIPMENT IN WORKING CONDITION: Second hand equipment in working condition is received by the customers before departure or deemed as such; it is delivered as it stands **without any warranty by Supplier**.

MODIFICATION OF WARRANTY: The above warranty terms are valid between the parties. Any warranty stipulations, either verbal or in writing, which may have been given to Buyers by Distributors or vendors are declared null and void, unless the agreement has been ratified beforehand by SUPPLIER. The warranty excludes all other services or compensation except the warranty indicated here above. The aggregate liability of Supplier shall in no event exceed the purchase price of the equipment, provided that nothing herein shall exclude liability of Supplier for death or personal injury

Mecalac Construction Equipment UK Ltd
Central Boulelvard,
ProLogis Park
Coventry
CV6 4BX
United Kingdom
EUROPE (Version 4 - revised March 2021)

Mecalac #mecalac Mecalac

MECALAC Construction Equipment UK Ltd - Central Boulevard, ProLogis Park - Coventry, CV6 4BX, UK - Tel. +44 (0)2476 339 400

WWW.MECALAC.COM