

Pedestrian Controlled Roller



Operations Manual

Issue Date: 1 March 2017
Language: English
Revision No.: 7
Reference No.: 1004
Original Instructions

WORKS FOR YOU.[™]

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MBR71
Pedestrian Roller

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Introduction

TEREX appreciates your choice of our product for your application. Our number one priority is user safety which is best achieved by our joint efforts. We feel you can make a major contribution to safety if, you as the machines user:

- **Comply** with all the relevant National Laws and Local Regulations.
- **Read, Understand and Follow** the instructions in this and any other manuals supplied with this machine.
- **Use Good, Safe Work Practices** in a common sense way.
- **Only Use Trained Operators** to operate the machine who are directed by informed and knowledgeable supervision.

If there is anything in this manual which is not clear or there is information which you think should be added, contact the Manufacturers Service Department who will deal with your problem or request.

We reserve the right to make improvements to these machines without incurring any need to change these operating instructions.

Any modification to this machine which has not been approved by the Manufacturer in writing immediately invalidates the Manufacturers warranty.

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.

Intended Use

This machine has been designed and tested to carry out the function of compacting materials of the non-cohesive, bituminous and granular varieties. If used correctly they will provide an effective and safe means of compaction and meet the appropriate performance standards.

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

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

Machine LEFT and RIGHT HAND

All references in this manual to LEFT and RIGHT are as viewed from the Operating Position with Operator facing the machine.

Instruction Manual

Read this instruction manual carefully before operating the machine. Ensure this instruction manual is available with the machine at all times and is in good condition - replace the manual immediately if it becomes dirty, damaged or has been lost.

Service or Spares Enquiries

Please state the vehicle type and the Product Identification Number when making enquiries or orders and in all written correspondence.

The Product Identification Number is recorded on a plate (A) located on the rear face of the hydraulic system cover.

Warranty

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

Official documents (European Community only)

CE mark

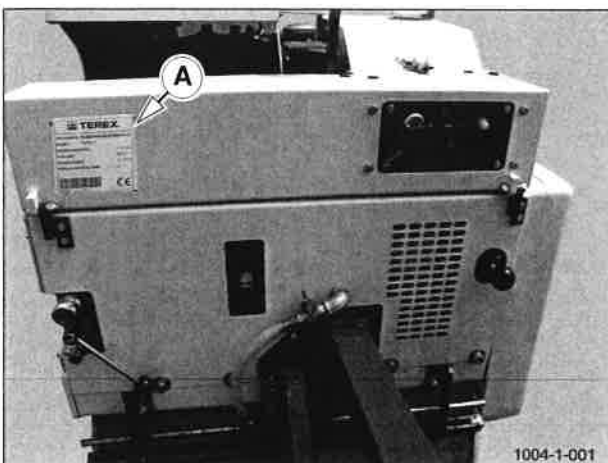
The Machinery Safety directive is intended to harmonise all the machinery safety regulations throughout the community so that there will be no technical barriers to trade.

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

The directives affect 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 follows.



EC declaration of conformity

TEREX**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:

Pedestrian Controlled Roller

Machine Function:

Compaction Equipment

Model / Type :

MBR71

Serial/VIN number

Commercial Name:

Same as Model /Type

Mecalac Construction Equipment UK Ltd 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 Ltd hereby declares that the above piece of machinery is in conformity with the provisions of the following other EC-directives: Noise - Equipment Used Outdoors (2000/14/EC), Emissions - Non-Road Engines (97/68/EC) and Electromagnetic Compatibility (2004/108/EC).

Mecalac Construction Equipment UK Ltd hereby declares that the following European harmonised standards have been used:

EN500-1 & EN500-4

Place of Issue:

Coventry, United Kingdom

Date of Issue:

Empowered signatory

Gregg Horne

General Manager

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. Terex complies with this requirement by providing the following information.

California Proposition 65

Warning: This product contains 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 lead a chemical known to the state of California to cause birth defects or other reproductive harm

2. Safety

MBR71 **Pedestrian Roller**

General Safety

This manual is designed as a guide to the Machines Controls, Operation and Maintenance.

It Is NOT A Training Manual

Safety Alert Symbol

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.



Hazard Classification

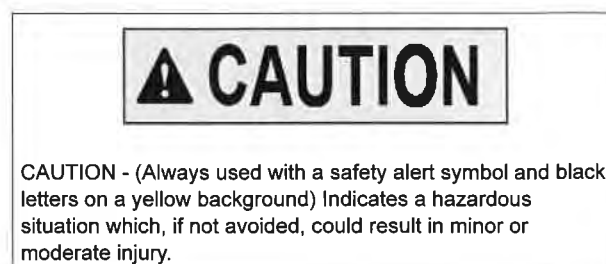
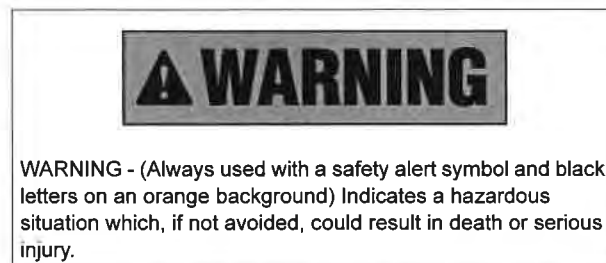
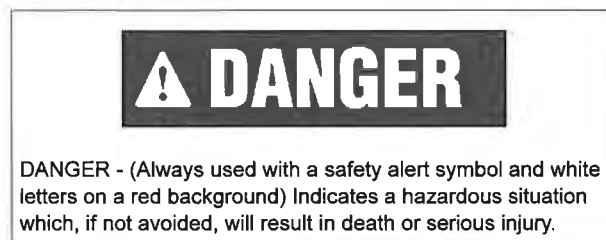
(Only applicable to ANSI Safety Signs)

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.

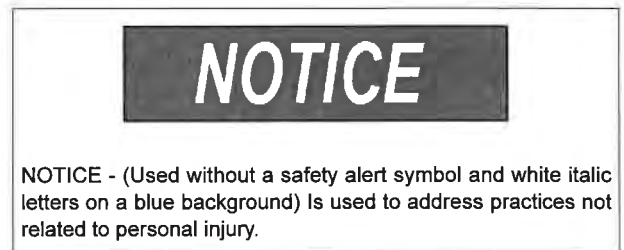
The following signal words used with the safety alert symbol indicate a specific level of severity of the potential hazard.

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



Property Damage

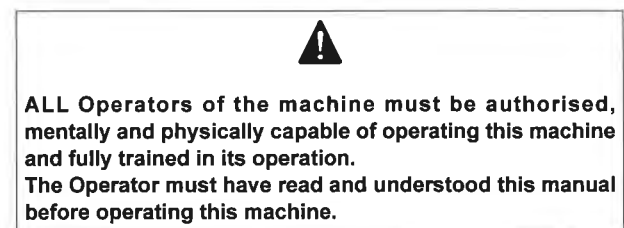
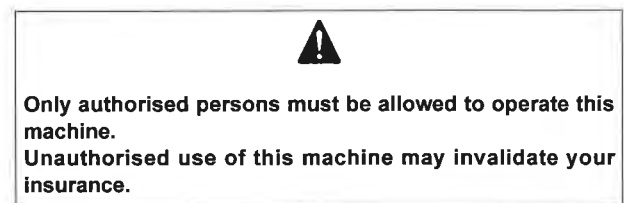
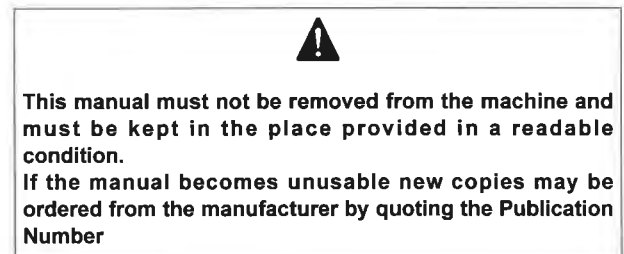
The following signal word indicates a property damage hazard.



General Safety Notes

Consult manufacturers or dealers for details of training courses.






All the time you are working on or with the machine you must consider what hazards there may be and how to avoid them.





Safety

▲ Personal Protective Equipment (PPE)

The following symbols indicate the personal protective equipment that must be used at all times when operating this equipment. Operators must not wear rings, scarves, open jackets and must ensure that all loose clothing is tightly secured. Long hair must be restrained.

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

The following symbols indicate the personal protective equipment that must be worn when site conditions dictate.

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

⚠ Personal Protective Equipment (PPE)

The following symbols indicate the personal protective equipment that must be worn when performing maintenance on the machine.

 <p>Protective Clothing</p> <p>Protective clothing must be worn when conditions dictate.</p>	 <p>Protective Gloves</p> <p>Wear protective gloves when conditions dictate.</p>
 <p>Safety Glasses</p> <p>Safety glasses must be worn at all times to prevent eye injury from flying objects.</p>	 <p>Safety Boots</p> <p>Safety boots must be worn at all times to prevent injury.</p>
 <p>Dust Mask</p> <p>A dust mask must be worn when conditions dictate.</p>	 <p>Face Shield</p> <p>A face shield must be worn when conditions dictate to prevent eye or facial injury from flying objects.</p>

▲ General Safety Information

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

- Read this instruction manual carefully before operating the machine. Ensure 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 has been lost.
- Establish a training programme for all operators to ensure safe operation.
- Before operating the machine ensure 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 SAFELY.
- Do not operate the machine unless you 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 necessary.
- Be familiar with all prohibited work areas such as excessive slopes and dangerous terrain conditions.
- Ensure all bystanders are well clear before moving the machine.
- Check your local laws and regulations, the engine may require a spark arrester etc.
- Make sure all guards and shields are in place before using the machine.
- Decals are fitted to the machine for safety purposes and MUST be replaced immediately if they are unreadable or lost. If the machine is repaired and parts have been replaced on which decals were fixed ensure new decals are fitted before the machine is put into service.
- 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 material.
- Stop the engine before refuelling. If there is a spillage mop it up and do not start the engine until it is safe again.
- Do not smoke when refuelling.
- 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.
- Do not clean or inspect the machine with the engine running.
- Do not operate the machine if it damaged, improperly adjusted or not completely and correctly assembled.
- Before performing any maintenance on the machine, place a warning tag on the machine to prevent accidental start-up and/or remove the start key, if fitted.
- Only charge batteries in a well ventilated area to prevent risk of explosion from a build up of hydrogen.
- Do not smoke, weld, grind in the vicinity of a battery being charged.
- Before carrying out maintenance on the hydraulic system ensure the hydraulic fluid is cool and there is no residual pressure in the hydraulic circuit - hydraulic fluid leaking under pressure can penetrate the skin.
- Always park the machine on firm, level ground where it will not cause an obstruction or danger - chock the rollers if necessary. DO NOT LEAVE THE ENGINE RUNNING or the start key in the start switch.
- If any site personnel has any concerns with any safety aspect of the machine, the machine must not be used until all safety concerns have been rectified or an authorised person has checked and satisfied the site personnel the machine is safe to use.
- When the machine is not in use the start key and crank handle (if fitted) must be removed and stored away from the machine to prevent unauthorised start up and use.

⚠ Hydraulic Fluid

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

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

Check for leaks using a piece of cardboard.

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

⚠ Fluid Levels

Make sure the machine is on level, stable ground and the engine is stopped when checking ALL fluid levels.

⚠ Frozen Battery Electrolyte

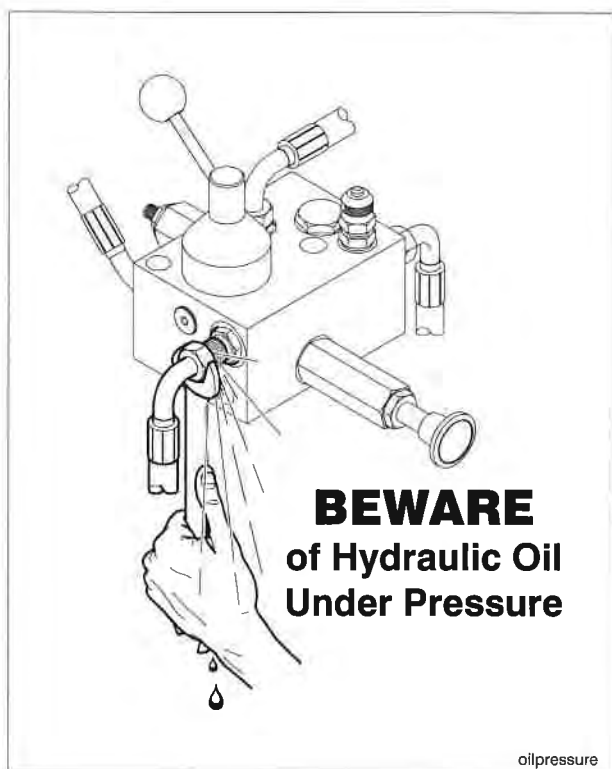
- Batteries with frozen electrolyte may explode if used or charged.
- Never 'jump start' a machine with a frozen battery.
- To help prevent freezing, keep the battery fully charged.

⚠

If skin is penetrated with Hydraulic Fluid, Get Immediate Medical Help

⚠

Do Not Use a Machine with Frozen Battery Electrolyte



⚠ 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 serviceable and have it checked regularly.

⚠

Do Not Use Water to Extinguish a Machine Fire. Use a Carbon Dioxide, Dry Chemical or Foam Extinguisher

Safety

Lubricants

It is essential that anyone concerned with lubricants read and understand the following text.

Hygiene

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

Avoid contact with lubricants. Wear oil resistant gloves when performing maintenance.

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.

Storage

ALWAYS keep lubricants out of reach of children.

NEVER store lubricants in open or unlabelled containers.

Handling Oil

See also First Aid - Oil.

New Oil

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

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.

First Aid - Oil

Swallowing Oil

If oil is swallowed, do not induce vomiting.

Get Medical Advice.

Skin Contact

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

Eye Contact

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

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.

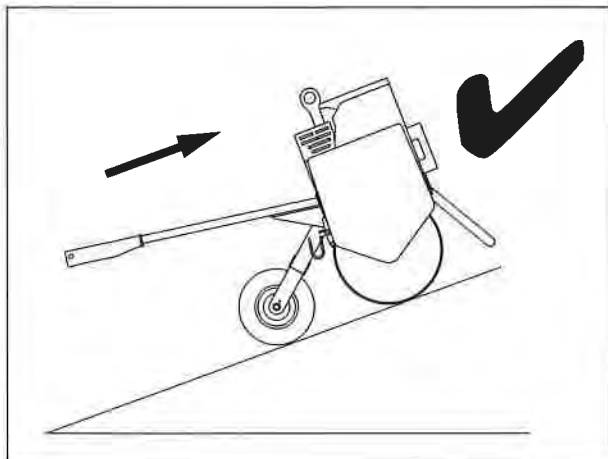
Fires

Extinguish with carbon dioxide, dry chemical or foam.

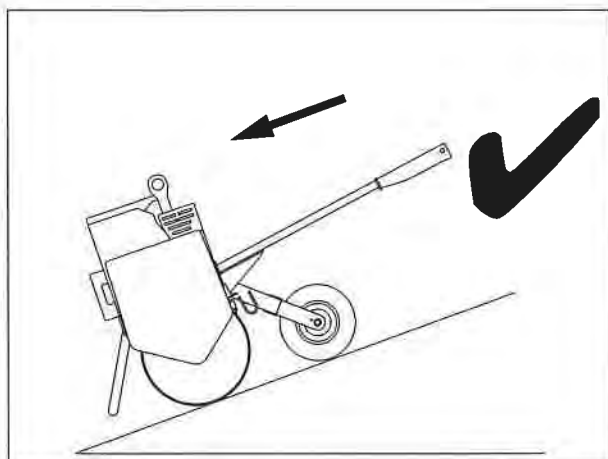
⚠ Gradients

Slopes

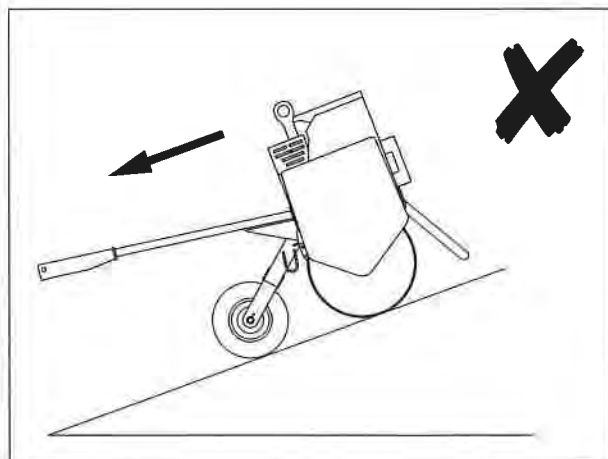
When ascending a gradient the front of the roller **MUST ALWAYS** face the top of the incline.



When descending a gradient the front of the roller **MUST ALWAYS** face the base of the incline.

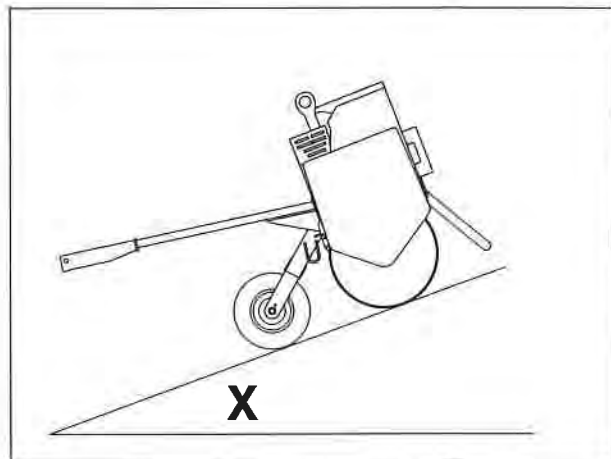


NEVER reverse down a slope



Maximum Gradient

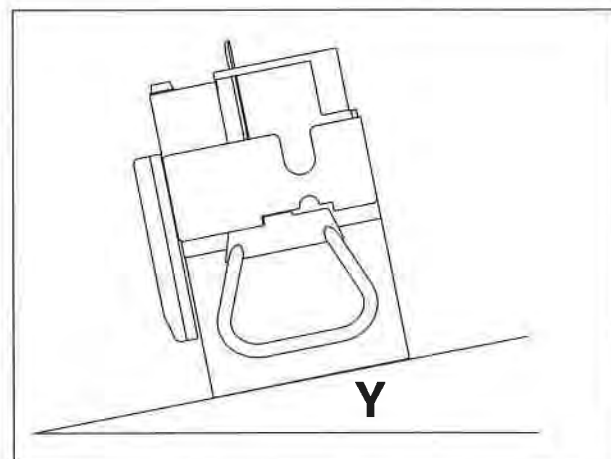
Maximum gradient (X) = 14° - 1 in 4 - 25%



Note that if the control lever is released when working on a gradient the machine may still "creep" slowly down the incline

Crossing Gradients




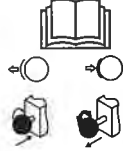



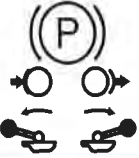
Never operate across a gradient (Y) exceeding 11° - 1 in 5 - 20%. Although the machine may appear stable crossing a gradient, depending on the surface the roller may begin to slide down the gradient out of control, especially if vibration is being used.






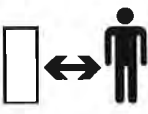

Take Extreme Care When Operating Across Gradients

Safety

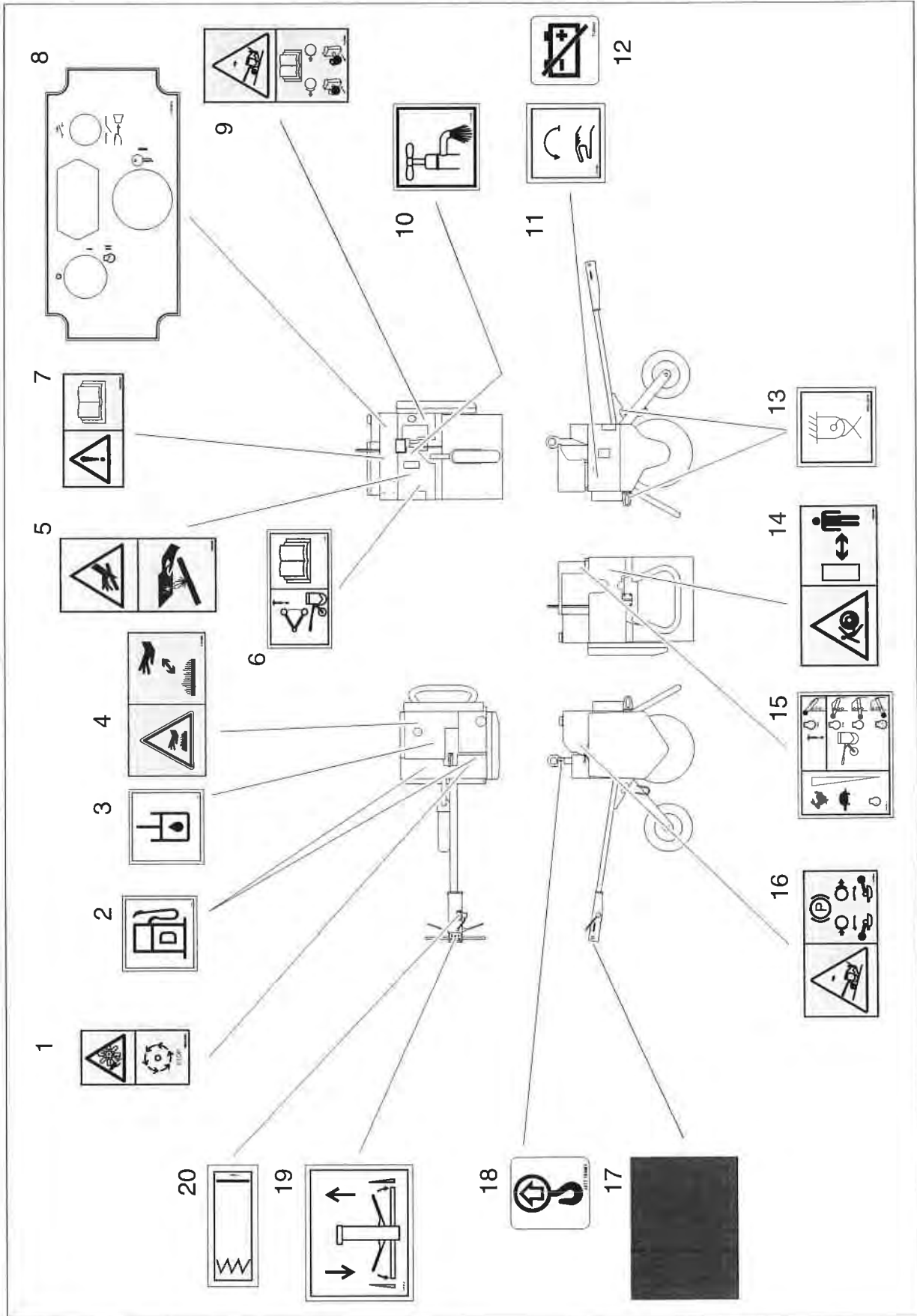
Symbols and Pictorials Used on Safety Signs

HAZARD	AVOIDANCE	DESCRIPTION
		<p>Hazard : Attention, safety involved Avoidance: Read and understand operator's manual before using the machine</p>
		<p>Hazard: Danger of Machine Running Away and Crushing Avoidance: Read Instruction Manual. Do not select Free Wheel on slopes</p>
		<p>Hazard : Oil Injection Avoidance: Do Not Use Hand to Check For Leaks. Use a piece of paper or cardboard.</p>
		<p>Hazard: Danger of Crushing Avoidance: Apply Parking Brake</p>

Symbols and Pictorials Used on Safety Signs

HAZARD	AVOIDANCE	DESCRIPTION
		<p>Hazard : Rotating parts can cause injury Avoidance: Stop engine before maintenance.</p>
		<p>Hazard : Danger of crushing Avoidance: Keep clear of machine</p>
		<p>Hazard: Hot Surface Avoidance: Keep Clear</p>

Safety Signs



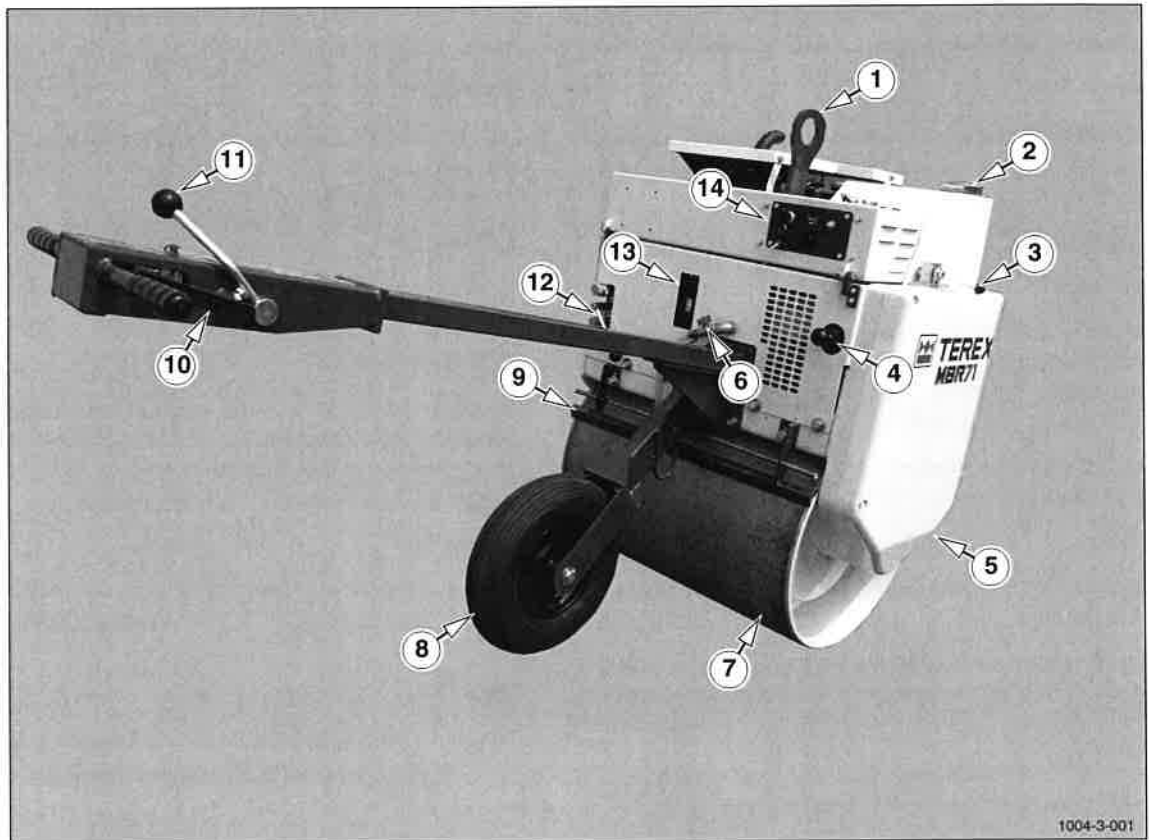
Safety Signs

Item	Decal Description	Notes
1	Entanglement Hazard - Stop Engine	Under Cover
2	Hydraulic Oil Filler Point	Under Cover
3	Diesel Fuel Filler Point	-
4	Hot Surface Keep Clear	-
5	Oil Injection Hazard	-
6	Roller - Breaker Change Over Instruction	-
7	Read Operators Manual Before Using Machine	-
8	Control Panel Decal	-
9	Crush Hazard - Free Wheel Instructions - Do Not release on slopes	-
10	Spray Bar Isolation Valve	-
11	Manual Hand Start Point	-
12	Battery Isolator	-
13	Tie Down Points	-
14	Crush Hazard - Keep Clear	-
15	Engine Speed Instructions	-
16	Crush Hazard - Apply Parking Brake to prevent movement	-
17	Reflective Panel	-
18	Lift Point	-
19	Forward/Reverse Controls	-
20	Vibration Control	-

3. Description

MBR71

Pedestrian Roller

MBR71 Pedestrian Roller

1	Lift Point	8	"Jockey" Wheel
2	Water Filler	9	Scraper Bar
3	Parking Brake	10	Control Lever
4	"Free Wheel" Control	11	Vibration Control
5	Front Stand	12	Hydraulic Change Over Valve
6	Spray Bar Valve	13	Hydraulic Oil Level
7	Drum	14	Control Panel

Description

Introduction

The MBR71 is a single drum “walk behind” hydrostatically driven roller. This section describes the major features of the machine and the layout and of operation of all controls and should be read in conjunction with the *safety* section.

Engine

The roller is powered by a Hatz single cylinder air cooled diesel engine). The engine has electric starting controlled by a key switch.

Manual starting by a separate starting handle is an option.

Transmission

The hydrostatic transmission unit permits the roller to operate in forward or reverse direction and comprises a combined hydraulic pump and motor driven by a toothed belt and pulleys from the engine output shaft.

The output shaft of the hydrostatic unit drives the drum through a duplex chain and reduction gear.

Vibration

The purpose of the vibrator shaft is to increase the compaction effort of the roller.

An eccentric shaft mounted within the drum provides vibration and is driven at a constant speed by the engine via a propeller shaft with flexible couplings, a single dry plate clutch and a pre-tensioned vee belt.

With the engine set to a pre-set speed of 2,700 r.p.m. the vibrator shaft will rotate at a constant 3,900 r.p.m. to give a frequency of 65 cycles per second.

At this speed a centrifugal force of 920kg is developed. Depending on the condition of the ground being rolled this results in the drum striking the surface with a force of up to 7480kg.

Drum

The roller drum is of welded steel construction with seam welded plates to prevent the ingress of water. The drum is mounted in bearings on flexible couplings at each end of the drum insulating the transmission system and operator from vibration.

The vibrator shaft is supported on sealed roller bearings within the drum. The bearings are pre-packed with grease on assembly and require no periodic lubrication.

Breaker Hydraulic Supply

An engine mounted gear pump provides an hydraulic supply for a breaker which is connected to quick release couplings on the isolation valve.

The pump will supply 30 l/min. at a pre-set engine speed of 3,000 r.p.m.

Hydraulic oil is supplied from a 7.5 litre tank. An air blast oil cooler is incorporated in the system to maintain the oil at its correct working temperature.

Free Wheel

The roller is fitted with a “freewheel” device which enables it to be moved easily without starting the engine.

Control Arm

An arm is bolted to the main frame of the machine to enable the machine to be steered and contains all controls for the safe operation of the roller.

Parking Brake

A parking brake prevents movement of the machine when not in use.

Water Spray System

A water spray system helps prevent compacted material accumulating on the drum. Water from a 20 litre tank is fed by gravity through an isolation valve; which regulates the flow, to a spray bar that directs the water onto the drum.

Scraper Bars

Front and rear scraper bars help prevent compacted materials accumulating on the drum. It is possible to adjust the position of the scrapers.

Supports

The roller has a support stand at the front and a rear “jockey wheel”. The wheel is fitted with a pneumatic tyre.

Control Arm

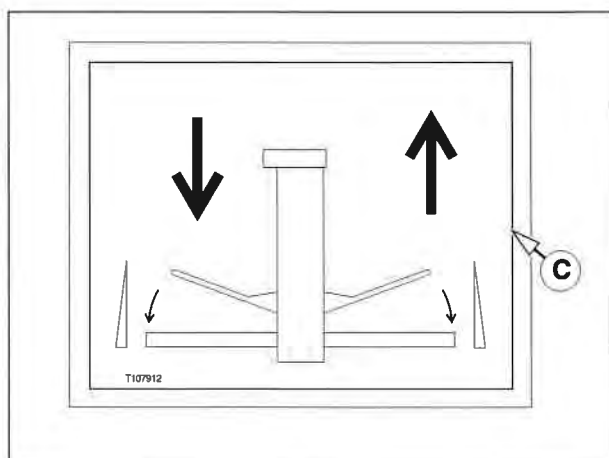
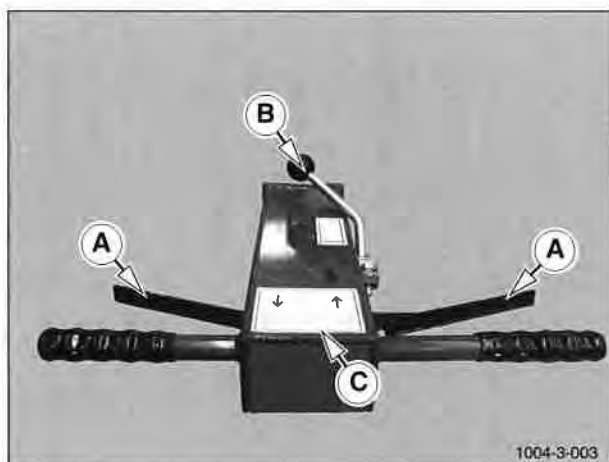
The Direction/Speed levers (A) and the Vibration Lever (B) are mounted on the control arm.

As soon as a direction/speed lever is released the machine will stop immediately.

Functions of the levers are indicated on a decal (C) positioned on the control arm.



To stop the machine in an emergency release the direction/speed lever completely.



Direction/Speed Levers

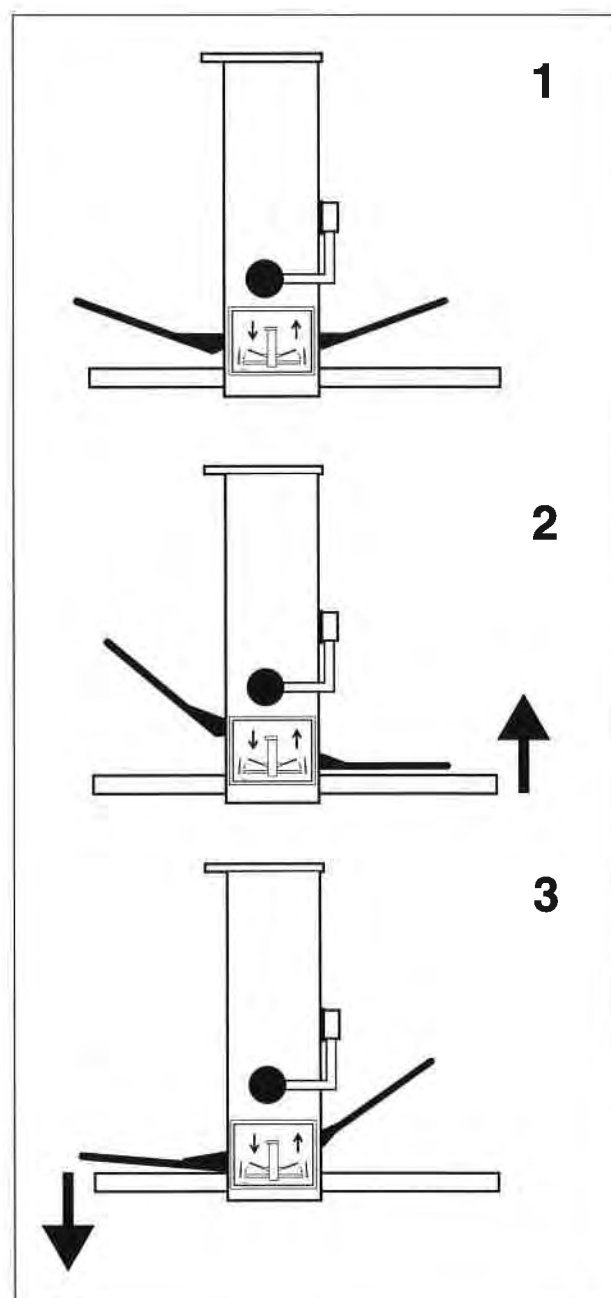
The direction/speed levers are spring loaded and automatically return to the Neutral position - 1.

Squeezing the right hand lever will cause the machine to travel in the forwards direction - 2.

Squeezing the left hand lever will cause the machine to travel in the reverse direction - 3.

As soon as a lever is released the machine will stop. The levers are proportional in operation; the nearer they are moved to the handlebar the faster the roller will travel.

Vibration Lever



Description

The vibration lever (B) is a spring loaded over centre type. The lever controls the clutch which starts and stops the vibration shaft.

The functions of the lever are illustrated on the decal (C).

With the lever in position 1 vibration is Off.

With the lever in position 2 vibration is selected.

NOTICE

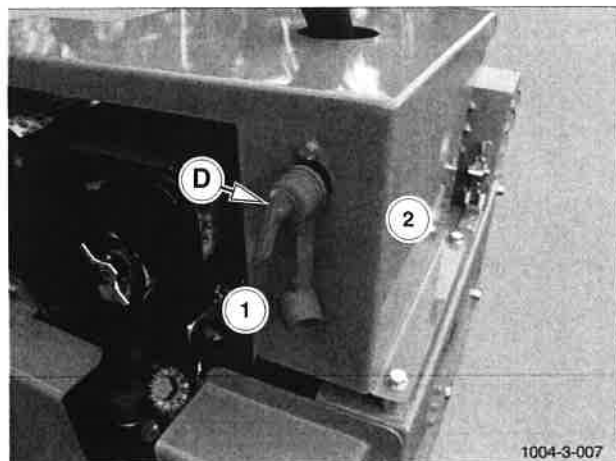
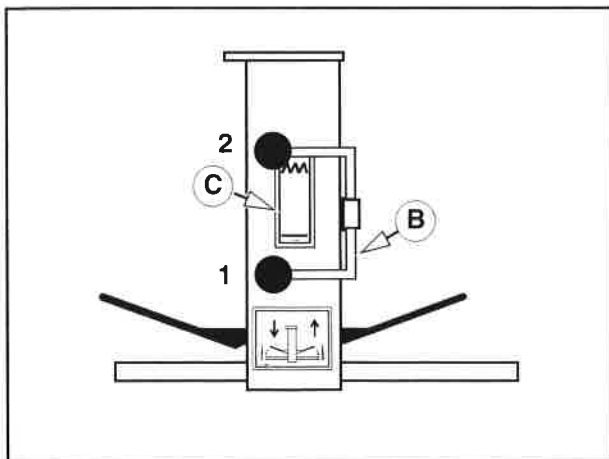
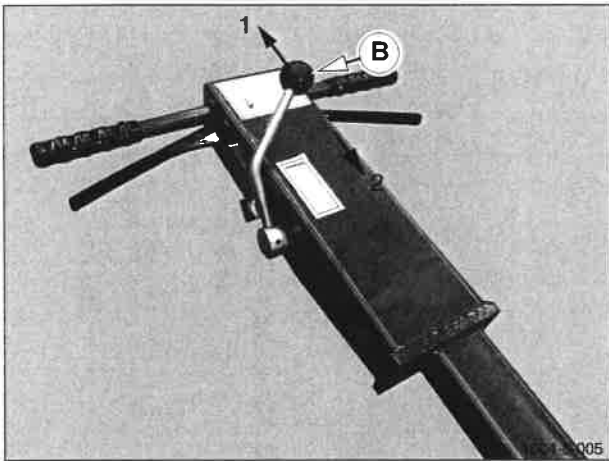
Never select vibration when the roller is stationary or on a solid surface.

Battery Isolator Switch

A battery isolator switch (D) is provided to isolate the battery during maintenance and when the machine is not in use. The switch has a removable key for security purposes and to prevent unauthorised use. The key can only be removed when the switch is set in the Off position (2) and the battery isolated.

With the switch in position 1 the circuit is energised.

With the switch in position 2 (lever horizontal) the battery is isolated.



Control Panel

The control panel contains the following items:-

Hour Meter

The hour meter records the number of hours that the engine has been running.

Key Start Switch

The switch has 3 positions - OFF, RUN and START.

The OFF position is the only position that the start key can be inserted or removed.

The RUN position is the normal position for the key when the engine is running.

The key is turned to the START position to crank the engine to start it. The engine should only be started with the throttle set the Start position. The engine should not be cranked for more than 5 seconds at a time.

Immediately the engine starts the key must be released and allowed to return to the RUN position.

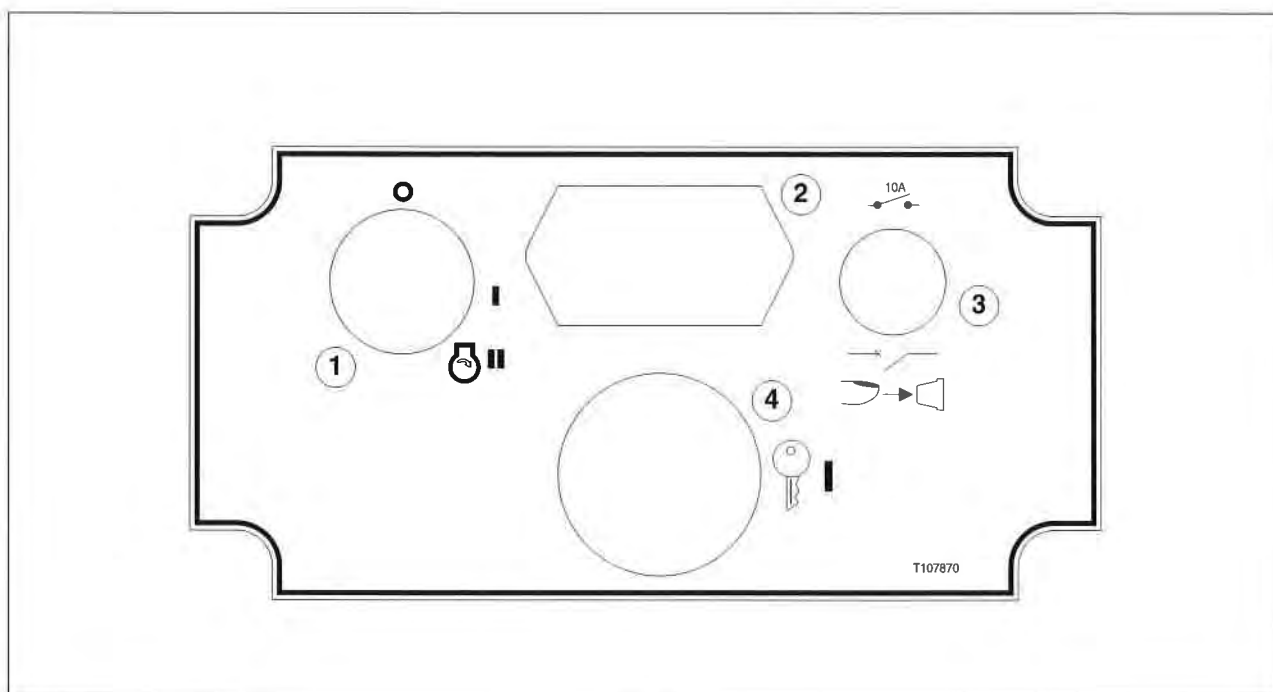
Audible Warning

The audible warning alerts the operator that the start key has been left in the RUN position without the engine running and not charging the battery.

Circuit Breaker

A circuit breaker is fitted to protect the electrical circuit, if a fault occurs the button will spring out isolating the circuit.

The fault must be rectified before the machine is put back into work.



1.	Start Switch	3.	Circuit Breaker - 10A
2.	Hour meter	4.	Audible Warning

Description

Parking Brake

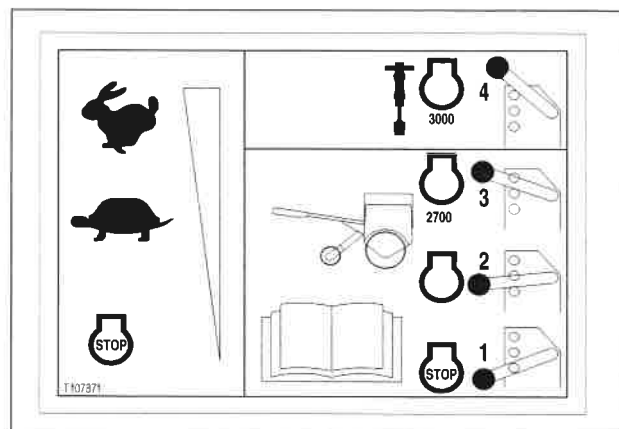
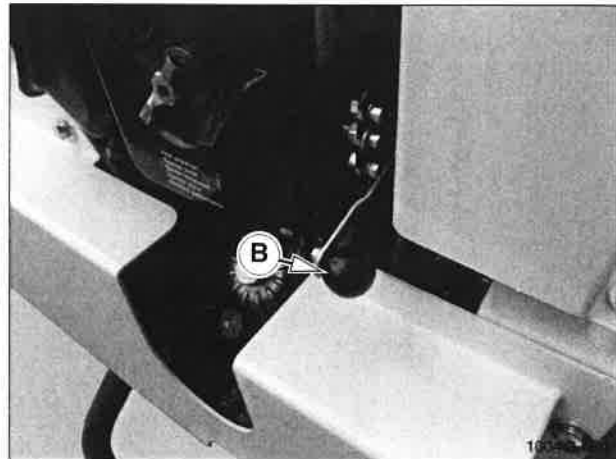
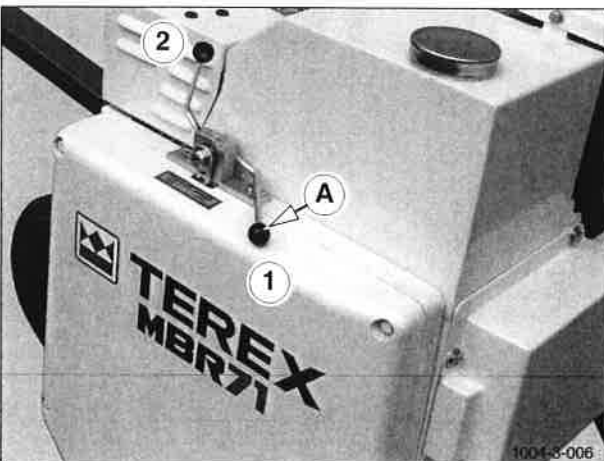
The parking brake is applied by a lever (A). With the lever horizontal - 1 - the brake is off; with the lever is pulled back towards the operator - 2 - the brake is applied.

The brake assembly is operated by a cable from the lever; a friction pad contacts a flange on the drive chain wheel to provide braking.

Throttle Control

The throttle lever (B) has pre-set positions for various functions.

- 1 - Set the throttle to this position to stop the engine.
- 2 - Set the throttle to this position to allow the engine to idle.
- 3 - Set the throttle to this position when starting the engine and using the roller.
- 4 - Set the throttle to this position to operate the breaker .



MBR71

4. Operating Instructions

MBR71
Pedestrian Roller

Introduction

Before operating this machine read and fully understand this Operators Manual. Pay particular attention to the *safety* section.

Before Use

- Check the engine oil level.
- Check the hydrostatic transmission oil level.
- Check the hydraulic system oil level.
- Top up the spray system water tank.
- Fill the fuel tank with clean diesel.



**Do not add fuel when the engine is hot.
When Refuelling Beware of Naked Flames, Grinding
Sparks etc.**

- Check general condition of machine and make sure all controls operate correctly.

To Start Engine (Electric Start)

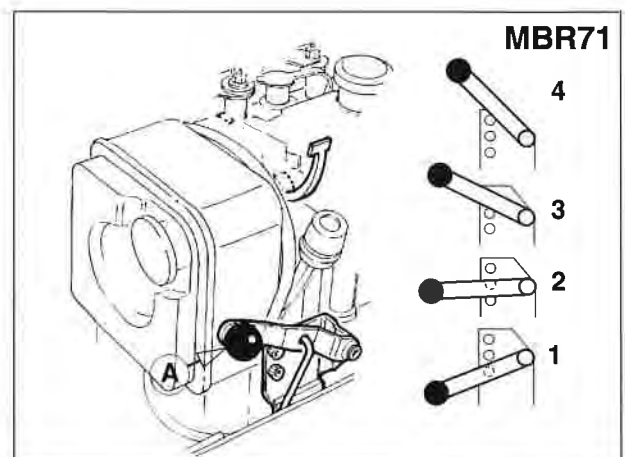
- Check the direction/speed levers are in Neutral.
- The parking brake is on.
- The vibrator lever is in the 'OFF' position.
- The Roller/Breaker change over lever is in the "ROLLER" position.
- The free wheel knob is NOT engaged.
- Set the Throttle/Stop lever (A) to position (3).
- Insert the start key and turn to the 'Start' position.
- If the engine fails to start after 5 seconds release the key and wait for 20 seconds before attempting another start.
- When the engine starts make sure the start key returns to the 'Run' position.
- Close the throttle to the idle position (2).
- Allow the engine to warm up.
- To use the roller the throttle must be opened to position (3) to give 2,700 r.p.m.
- To use the breaker set the throttle to position (4) to give an engine speed of 3,000 r.p.m.

NOTICE

DO NOT use starting sprays to assist engine starting.

To Stop the Engine

- Stop vibration if in use.
- Return direction/speed lever to Neutral.
- Make sure machine is stationary.
- Apply parking brake.
- Move the throttle/stop lever to the Idle position (2) and let engine idle for a few seconds.
- Move the throttle/stop lever to the Stop position (1) and let engine stop.
- Turn start key to OFF position.



Operating Instructions

To Start the Engine (Manual Start Option)

- Check the direction/speed levers are in Neutral.
- The parking brake is on.
- The vibrator lever is in the 'OFF' position.
- The Roller/Breaker change over lever is in the "ROLLER" position.
- The free wheel knob is NOT engaged.
- Fit the starting handle to the engine through the aperture (A) in the side panel.

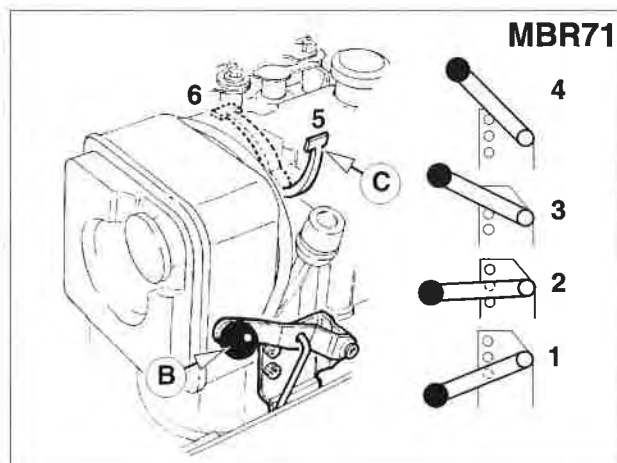
NOTE: The starting handle is designed to limit any engine kick back. To allow the handle to function correctly the starting handle grip must be held firmly and not allowed to turn in the hand.

- Set the throttle lever (B) to the full speed position (4).
- Lift decompressor lever (C) and pull fully outwards to start position (5).
- Turn the engine over vigorously with the starting handle.
- As the engine turns the decompressor lever will automatically return to its normal position (6).
- When the engine has started remove the handle.
- Close the throttle to the idle position (2).
- Allow engine to warm up.
- To use the roller the throttle must be opened to position (3) to give 2,700 r.p.m.
- To use the breaker set the throttle to position (4) to give an engine speed of 3,000 r.p.m.

DO NOT use starting sprays to assist engine starting.

To Stop the Engine

- Stop vibration if in use.
- Return direction/speed lever to Neutral.
- Make sure machine is stationary.
- Apply parking brake.
- Move the throttle/stop lever to the Idle position (2) and let engine idle for a few seconds.
- Move the throttle/stop lever to the Stop position (1) and let engine stop.



To Move the Roller Forwards

- Start the engine.
- Set throttle to 2,700 r.p.m. (position 3).
- Release the parking brake.
- Grip the Right Hand control lever (A) - the roller will move forward. Speed is dependant on the movement of this lever - full movement of the lever towards the handlebar will give full speed.

To stop:

- Slowly release the lever - the roller will gradually come to a halt.
- Apply the parking brake.

To Reverse the Roller

- Grip the Left Hand control lever (B) - the roller will move backwards. Speed is dependant on the movement of this lever - full movement of the lever towards the handlebar will give full speed.

To stop:

- Slowly release the lever - the roller will gradually come to a halt.
- Apply the parking brake.

Changing Direction

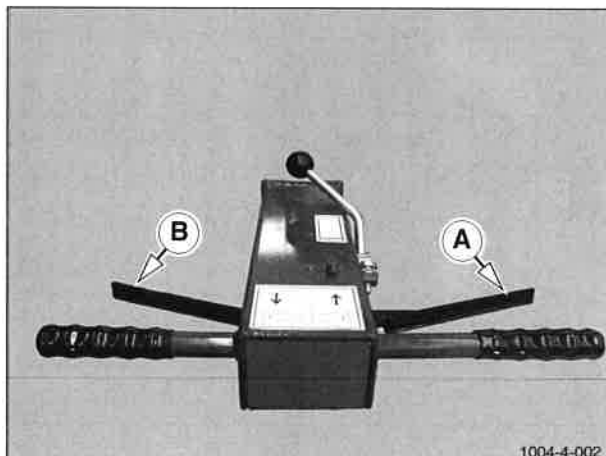
Slowly release the one lever until it is in the Neutral position and then gradually open the other control lever so the roller starts to travel in the opposite direction.



Movement of the direction/speed must be smooth and progressive to limit torque reactions on the handle



In an emergency release lever completely the machine will stop instantly.



Operating Instructions

Parking the Roller

To park the roller:-

- Select a safe area with firm, level ground.
- Stop vibration if in use.
- Return direction/speed lever to Neutral.
- Allow machine to rest on support stand.
- Apply the parking brake.
- Stop the engine.
- Chock the drum if parked on a gradient.
- Check free-wheel is disengaged.
- Remove start key and crank handle (if fitted) to prevent unauthorised use.
- Remove battery isolator key to prevent unauthorised use.

Vibration

To select vibration:-

- Make sure engine speed is set to 2,700 r.p.m. (position 3).
- Move the lever (A) forward towards the front of the machine - 1.
- Vibration will start.

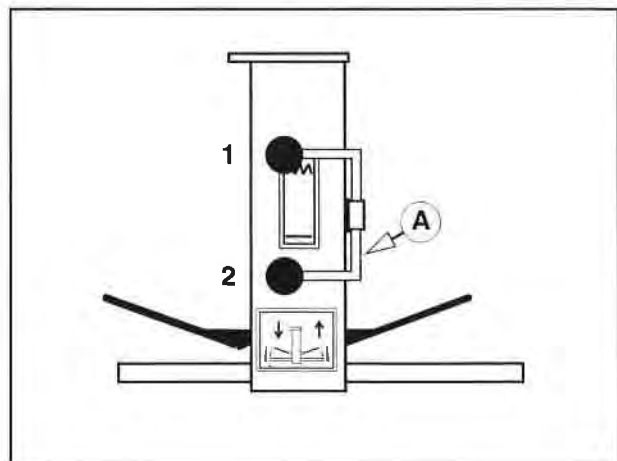
NOTE:- Allow the engine to warm up for 2 or 3 minutes before selecting vibration. A cold engine may have difficulty in driving the vibrator shaft at its correct speed.

DO NOT select vibration when the roller is stationary. DO NOT vibrate on solid surfaces.

To stop vibration:-

- Pull the lever (A) backwards towards the control arm handle - 2.
- Vibration will stop.

NOTE:- When initially compacting very loose or soft material the first passes of the roller should be at a fast speed without vibration selected. After this initial compaction further passes should be made with vibration engaged and at a slow speed until the desired finish is obtained.



Freewheel Control

To select freewheel mode:-

- Push the control knob (A) in and give it a 1/4 turn to the left or right to lock it in position.

To disengage the freewheel mode:-

- Turn the control knob (A) to the left or right until it springs out of the freewheel position.



DO NOT select free-wheel when the machine is on a slope.

Water Spray System

To operate the Spray system.

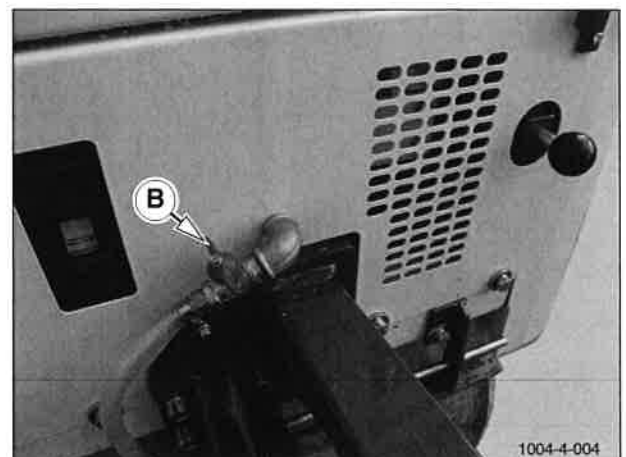
- Turn the tap (B) to the open position (handle in line with hose).
- Regulate the flow by adjusting the position of the handle.

After use:-

- Turn the tap (B) to the closed position.

NOTICE

In cold conditions and at the end of the working day the water tank and spray bar must be drained to prevent freezing.



Operating Instructions

Breaker

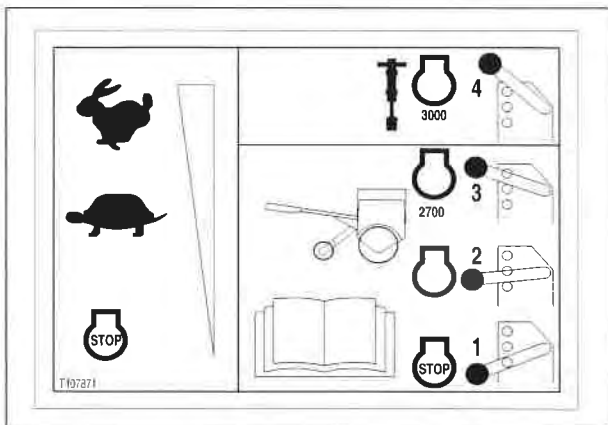
To operate the breaker;

- Position the roller in a suitable position.
- Apply the parking brake.
- Check hoses and couplings are clean and free of contamination.
- Connect the hoses from the breaker to the couplings (B) on the side of the roller.
- Set the change over lever (A) to ROLLER - 5.
- Start the engine.
- Move the change over lever to BREAKER - 6.
- Set the engine speed to 3,000 r.p.m (position 4)
- Operate breaker in accordance with breaker instructions.

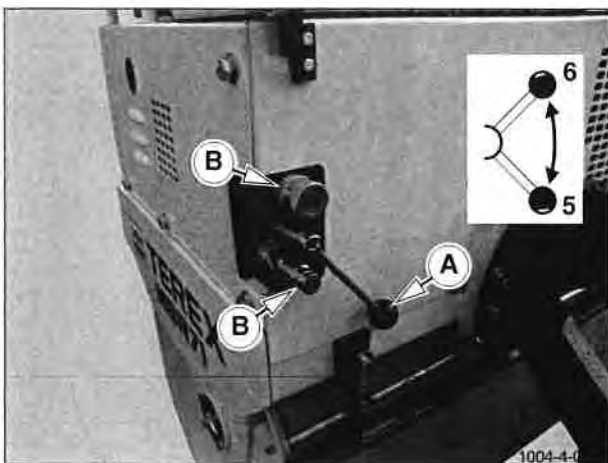
After use;

- Reduce engine speed to idle (position 2).
- Set change over lever to ROLLER - 5.
- Disconnect hoses and cover ends to protect from contamination.
- Store breaker and hoses in tool box.

NEVER run the machine with the lever in the Breaker position - 6 without the breaker and hoses connected.



MBR71



5. Transport

MBR71
Pedestrian Roller

Transport

A purpose designed trailer is available for transporting the roller between work sites.

MBR Rollers from 2010 onwards (covered by this publication) must only be used with the latest trailers with the smaller tool box and updated locking mechanism.

The clamping mechanism (A) of the latest rollers is not compatible with the older design of trailers. Also the increased weight of the latest MBR roller may cause the gross weight of older trailers to exceed the 750kg legal limit.



The gross weight of the trailer including roller and breaker must not under any circumstances exceed 750Kg.

The water tank must be drained before transporting the roller.



The roller water tank must be drained completely before loading onto the trailer to reduce machine weight.

For details of loading, securing and unloading the roller onto the latest design of trailers refer to publication B0206-5 which is supplied with the trailer.

Alternatively the roller can be carried on the bed of a suitable lorry or commercial trailer of suitable capacity.

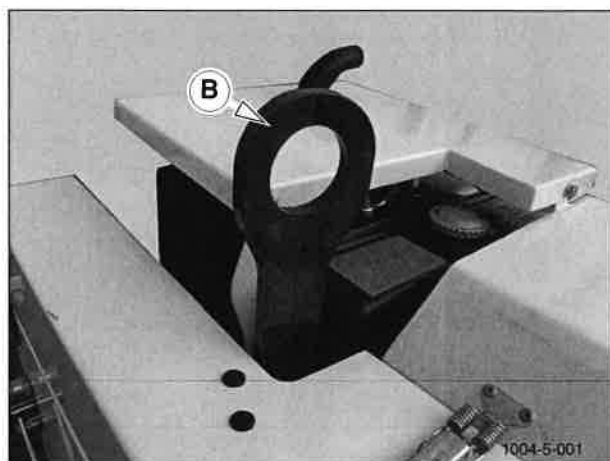
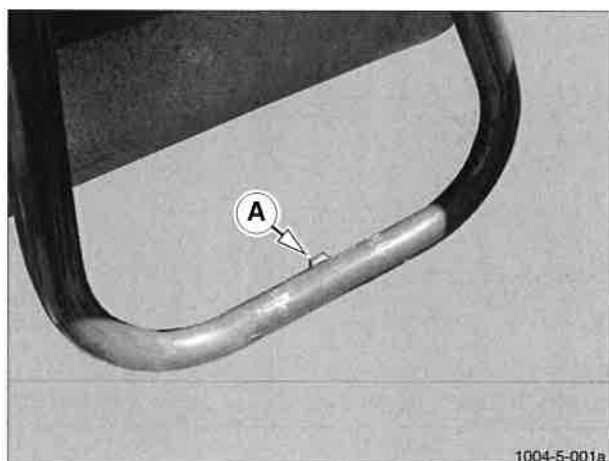
Lifting the Roller

The roller can be lifted onto its transport vehicle with a suitable crane using the designated lifting point (B) on the roller. Do not use any other part of the machine for lifting.



Only use the designated lifting point on the machine. Lifting the machine in any other way is prohibited.

All chains, slings and ropes used for lifting must be capable of supporting the weight of the roller and must not be damaged in any way.



Transport

Tie Down

If the roller is to be transported on a lorry or flat bed trailer once it is positioned on the lorry/trailer apply the parking brake.

The drum of the roller must be “chocked” to prevent any movement.

Make sure freewheel is disengaged.

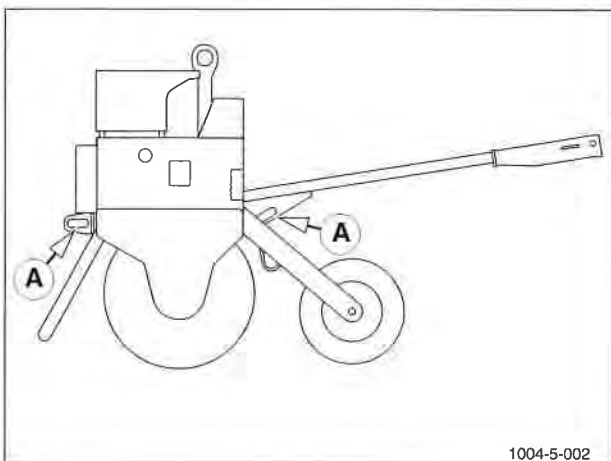
Secure the machine using the designated tie down points (A).

The roller must be secured to the lorry/trailer using suitable chains, straps or ropes of adequate strength.

The loose ends of the chains, straps, ropes etc. must then be securely attached to the lorry / trailer bed.



All methods of tie down MUST be SECURE



1004-5-002

6. Maintenance

MBR71
Pedestrian Roller

Introduction

Before carrying out any maintenance checks ensure that the following precautions have been taken;

- Place the machine on firm level ground.
- Make sure bed plate is horizontal before checking levels.
- Stop the engine.
- Remove start switch key and crank handle (if fitted).
- Set battery isolator to OFF.
- Chock the roller to prevent movement.
- Place a warning tag on the machine to prevent accidental start up.
- Refer to the Service Schedule on page 6 - 5.

Vehicle/Machine Battery - End of Life Disposal

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

This service is usually offered by battery vendors.

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

Hydraulic Fluid

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

Do not use your fingers to check for 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

Cleaning the Machine

Keep the roller clean it will make the job of finding leaks, loose fittings etc. easier.


Wash the exterior of the roller with a pressure washer, using plain water or a biodegradable cleaner. Do not use solvents or like products that can damage rubber or plastics.

NOTICE

Avoid spraying electrical equipment with pressure washers.


Clean oil, fuel, water and hydraulic tank filler necks.

Accumulations of asphalt and similar materials may be removed by soaking with diesel fuel.



Contaminated Water / Fluids / Oils Must Be Disposed of Legally

Fuel Level



When Refuelling Park the Machine and Stop the Engine. Beware of Naked Flames, Grinding Sparks etc.

- Clean the area around the filler cap (A).
- Remove the filler cap.
- Check the diesel fuel level reaches the top of the tank
- To add fuel pour the recommended grade of fuel through the filler neck. NEVER overfill the fuel tank.
- Clean up any spilt fuel.
- When refuelling never leave the engine running.
- Make sure the engine is cool, the machine is in a well ventilated area and always use clean fuel from a clean container.



1004-6-001

Maintenance

Engine Oil Level

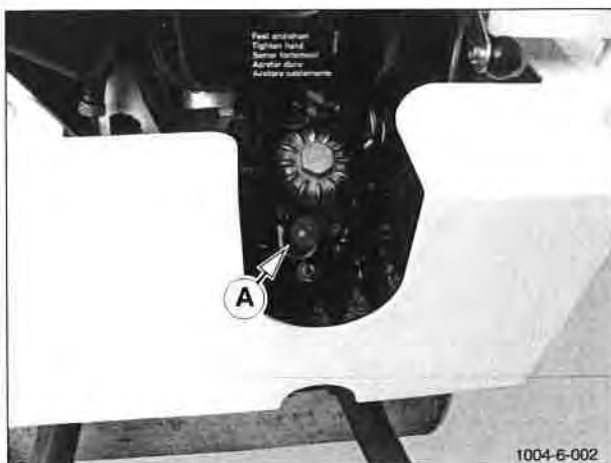
To check the oil level;

- Make sure the engine bed plate is set level.
- Remove the dipstick (A) wipe clean and replace.
- Remove the dipstick a second time and check if the oil mark is level with the full mark on the dipstick.
- If the level is below the full mark add the correct grade of oil as specified on page 6-5 through the dip stick tube.
- Use the dipstick to check that the oil level is correct.
- Replace the dip stick.
- Remove any spilt oil.

Air Cleaner

Check the air intake point daily. Severe contamination in the area is a sign that there is large amounts of dust in the atmosphere and the maintenance intervals should be reduced. Check for blockages and clean if necessary.

Check that the dust outlet (B) on the air cleaner is not blocked and clean if necessary.



Hydrostatic Transmission Oil Level

The hydrostatic oil level must be checked when the engine is cold as the level varies with oil temperature.

To check the level:

- Open the hinged cover by releasing its fixing clips.
- Clean around the filler cap (A).
- Remove the filler cap the oil should be level with the bottom mark (B) on the reservoir.
- Top up as necessary using the correct grade of oil as specified on page 6-5.
- Replace filler cap.
- Clean up any spilt oil.

NOTICE

Take care to prevent dirt, grit or other foreign matter from entering the hydraulics.

Hydraulic System

A sight gauge (C) is provided for checking the level of the hydraulic tank. Check the level in the gauge, it should always be above the red line (D).

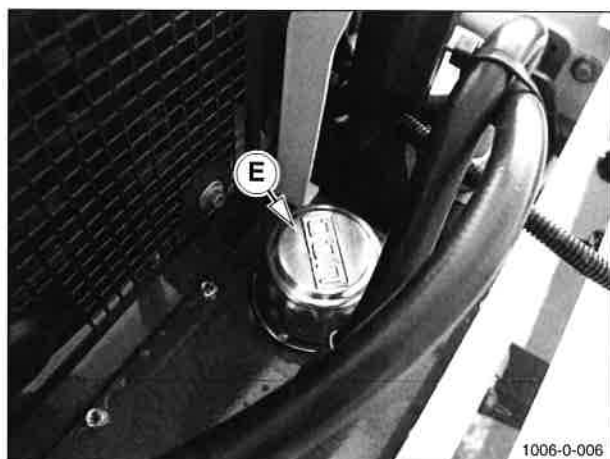
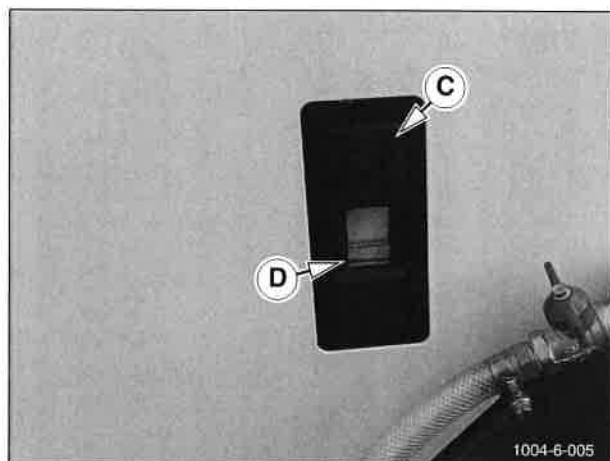
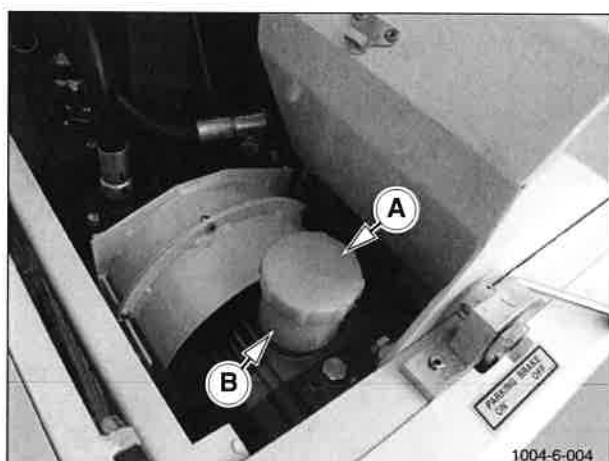
The level must be checked when the system is cold

If the level is below the red line add oil as follows:

- Clean the area around the filler cap.
- Remove the filler cap and add the correct grade of oil as specified on page 6-5.
- Continue adding oil until it is above the red line (D).
- Replace the filler cap.
- Clean up any spilt oil.

NOTICE

Do not operate the machine if the oil level is below the red line when the system is cold.



Maintenance

Spray System Water Tank

To fill the water tank:

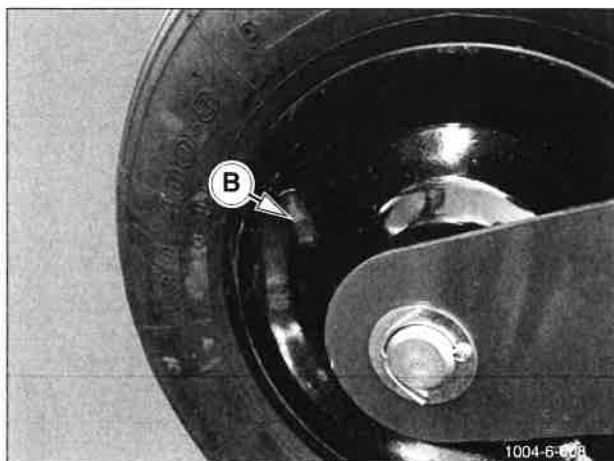
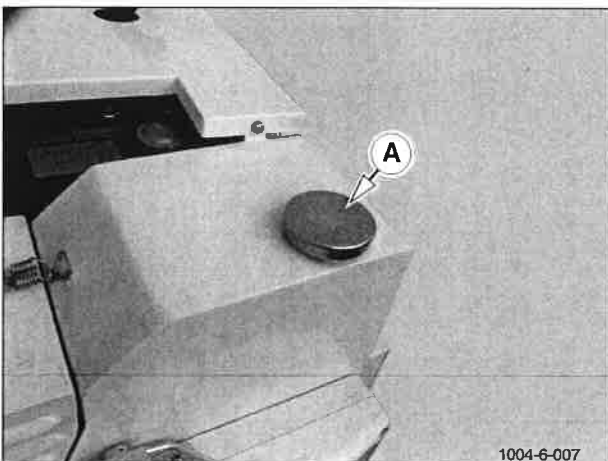
- Remove the filler cap (A).
- Top up the tank with clean water as required.

NOTICE

In cold weather the tank and spray system should be drained to prevent freezing.

Support Wheel

Check the tyre regularly for damage, cuts and embedded items. Adjust the pressure through the valve (B). Refer to the *Specifications* section for correct inflation pressure.



Lubrication Schedule

<p>The following service schedules are for guidance only. Under extreme operating conditions the service schedules must be adjusted accordingly to allow for the local working environment. Monthly, 6 Monthly and Yearly Services must be performed by suitably qualified fitters or mechanics.</p> <p>Before carrying out any service or maintenance work Make sure ALL safety precautions have been taken.</p>	
<p>ALL Faults MUST be Reported Immediately and Corrected BEFORE the Machine is Used</p>	
<p>Daily (Operator)</p>	<p>Check air cleaner dust outlet is not blocked and clean if necessary. 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 hydrostatic drive oil level. Check condition and pressure of support wheel tyre. Visually check machine for fluid leaks, damage, loose fasteners, missing parts, etc. Check all safety signs are present and visible and replace if necessary.</p>
<p>Monthly (Fitter/Mechanic)</p>	<p>Perform daily service. Lubricate all grease nipples on the machine. Lubricate all control pivots; throttle, drive unit, vibration clutch. Check vibration drive belt for damage, wear etc. Check transmission drive belt and drive chain tension. Lubricate drive chain. Clean and protect battery terminal connections. Check electrical cables for damage. Check hydraulic system for loose fittings and leaks. Remove air cleaner, check element, clean or replace as necessary. Check operation of parking brake and adjust as necessary. Clean and flush out water spray system.</p>
<p>6 Monthly (Fitter/Mechanic)</p>	<p>Perform Daily and Monthly Service. Drain engine and refill with clean, fresh oil. Replace engine oil filter. Check engine valve clearances and adjust if necessary. Drain and clean fuel tank. Replace fuel filter element. Drain transmission unit and refill with clean, fresh oil. Check drive anti-vibration (AV) mounts for damage, replace if necessary. Check and adjust scraper bar tension.</p>
<p>Yearly (Fitter/Mechanic)</p>	<p>Perform Daily, Monthly and 6 Monthly Service. Drain hydraulic reservoir, clean out and refill with clean, fresh hydraulic oil. Replace hydraulic return filter. Remove engine injector nozzle, check pressure and adjust or replace as necessary.</p>
<p>Thoroughly Clean the Machine BEFORE Performing ANY Service or Maintenance Tasks</p>	

Recommended Lubricants

	Lubricant
Engine	SAE 10W/30
Hydrostatic Drive	SAE 30 Monograde Oil
Hydraulic System	Shell Tellus T32
Grease Points	Multi Purpose Grease EP2

Long Term Storage

If the machine is to be stored for a long period of time qualified maintenance staff should prepare the machine in accordance with the following procedures:-

- 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 engine manufacturers handbook for further information on prolonged engine storage with regards to anti-corrosion oils and fluids.



Contaminated Water / Fluids / Oils Must Be Disposed of Legally

- Check hydrostatic drive system oil level and top up as required.
- Check and top up hydraulic oil tank.
- Drain and flush out the spray bar system.
- Leave spray bar tap open.
- Store the machine on solid level ground which is not liable to flooding, standing water or airborne contamination.
- Chock the drum securely to prevent the machine moving.
- Smear exposed metal parts with grease.
- Remove the battery and keep fully charged.
- Leave the parking brake in the OFF position.

End of Life Disposal



At the end of its life the machine should 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 to be 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.

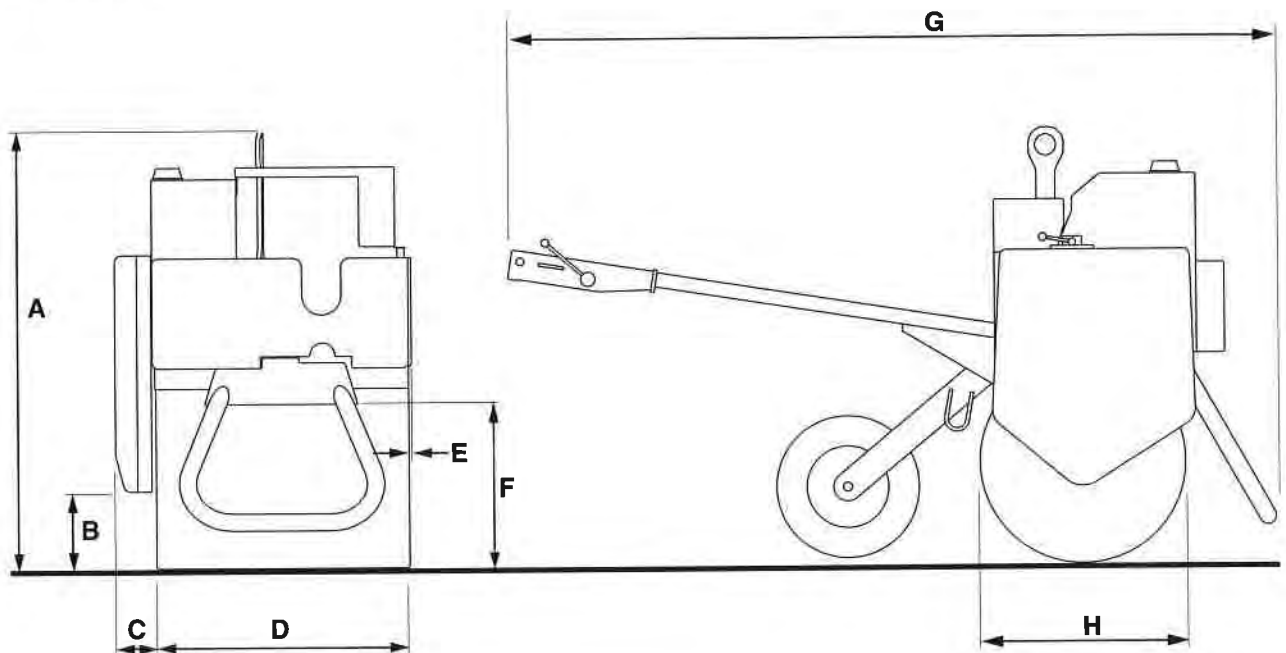
Where possible recyclable materials should be separated out and processed in accordance with local regulations using an authorised agent.

7. Specifications

MBR71

Pedestrian Roller

Dimensions



All dimensions in millimetres	A	B	C	D	E	F	G	H
MBR71	1230	215	106	710	16	410	2,180	575

Specifications

Technical Data

	MBR71
Engine Type	Hatz Diesel 1D42S
Number of Cylinders	1
Displacement - cc	445
Engine Power-kW (HP)	6.7 (8.9)
Operating Speed (Roller Use)	2700 RPM
Operating Speed (Breaker Use)	3000 RPM
Cooling	Air
Fuel Tank Capacity - Litres	5
Electrical System	12V Negative Earth
Drive	Hydrostatic
Parking Brake	Mechanical
Support Wheel Tyre - Size	4.80/400-8 4Ply
Support Wheel Tyre - Pressure	2 Bar (29PSI)
Operating Weight (CECE) - kg	513
Transport Weight - kg (no water)	504
Linear Load - kg/m	722
Machine Speed - kph	3.2 forward 2.2 reverse
Gradeability without Vibration	33%
Gradeability with Vibration	25%
Frequency - Hz	65
Amplitude - mm	0.66
Centrifugal Force - kN	9.02
Sprinkler Tank Capacity - Ltrs.	20
Hydraulic Oil Tank Capacity - Ltrs.	7.5
Hydraulic Flow - Ltrs.	30
Stanley Breaker	BR67 (Vibrodamped)
Stanley Breaker - Option	BR48 (Vibrodamped)

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
	L_{pAd}	L_{WAAd}
MBR71- 1D42S Engine	92dB	105dB

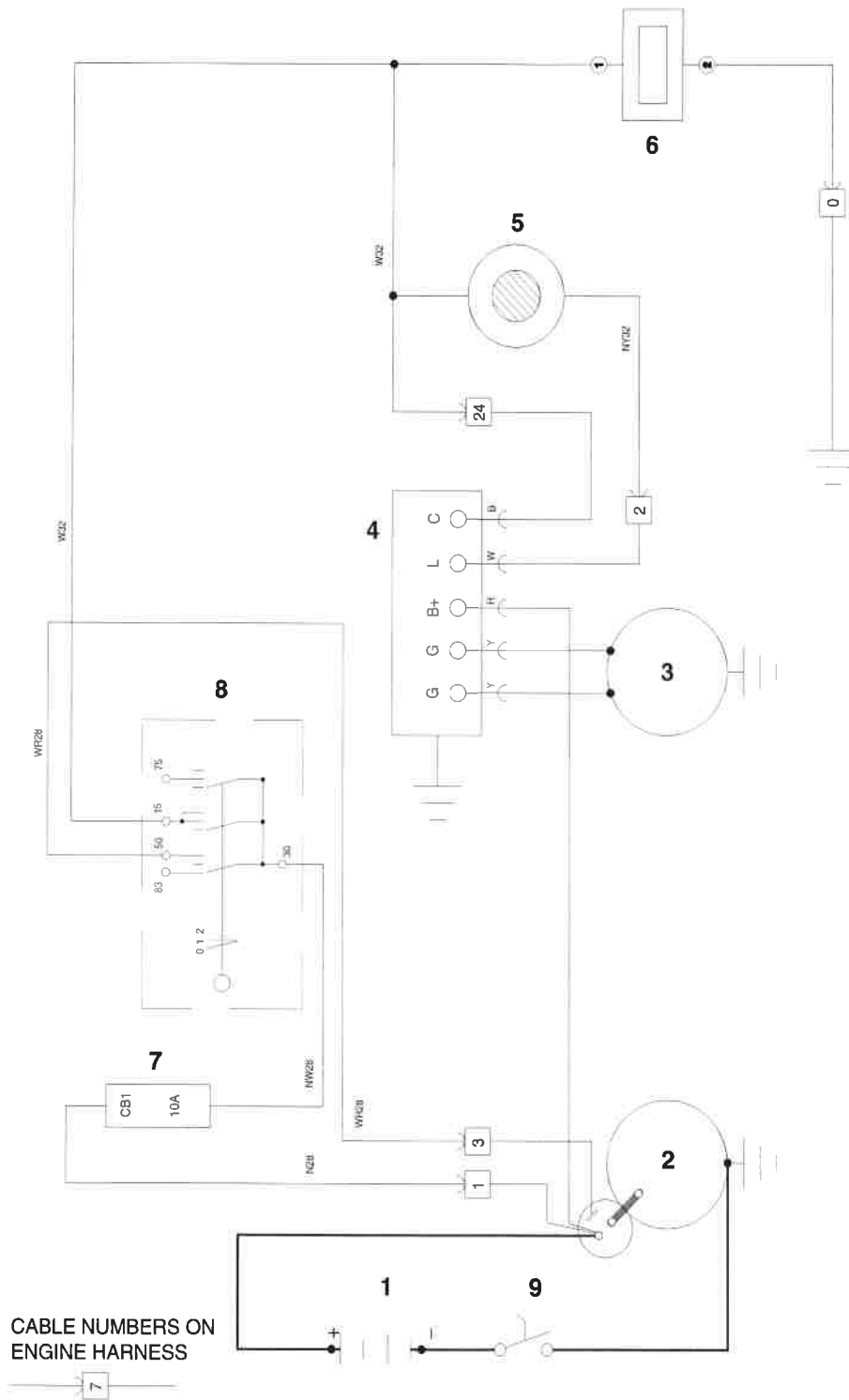
Vibrations

	Operation	Value	Uncertainty As defined in EN500-4
Hand Arm Vibration as defined in EN500 - 4	Compacting	4m/s ²	3m/s ²

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.

Specifications

Electric Circuit



1	12v Battery	6	Hour Meter
2	Starter motor	7	Circuit Breaker
3	Alternator	8	Key Switch
4	Regulator	9	Battery Isolator
5	Audible Warning		

Mecalac

STANDARD LIMITED NEW PRODUCT WARRANTY - CONSTRUCTION

Mecalac Construction Equipment UK Limited ("Mecalac Construction"), warrant 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 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 dealer regardless of use, whichever occurs first; provided that Mecalac Construction 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. If requested by Mecalac Construction, Buyer must return the defective equipment to an authorized distributor of the Products ("Distributor") and defective parts to Mecalac Construction, and if Buyer cannot establish that conditions (i) and (ii) above have been met, then this warranty shall not cover the alleged defect. The term "Products" shall include only the following equipment manufactured by the following Mecalac Construction: Tractor loader backhoes, site dumpers, compaction equipment, rollers

The obligation and liability of Mecalac Construction under this warranty is expressly limited to, at Mecalac Construction's sole option, repairing or replacing, with new or remanufactured parts or components, any part, which appears, upon inspection by Mecalac Construction 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 Mecalac Construction's parts facility from which the parts were purchased. This warranty shall be null and void if parts (including wear parts) other than genuine OEM Mecalac Construction parts are used in the equipment. No warranty shall cover any item on which serial numbers have been altered, defaced or removed. In addition, the foregoing warranty shall apply to powertrain and major structural components only on site dumpers, rollers and tractor loader backhoes, for a period of 24 months or 2,500 hours, whichever comes first.

BHL:

Powertrain – Engine, gearbox, axles, prop shaft (not inc U/J's & retaining hardware)
Structures – Chassis, ROP's/cab frame, loader arm, boom, dipper, mast casting

Dumper:

Powertrain – Engine, gearbox, dropbox, axles, prop shaft (not inc U/J's & retaining hardware)
Structures – Chassis, ROP's, seat support, cross-members/rear panel

Roller: TV

Powertrain – Engine, drive motor, vib motor, belt drive
Structures – Frame/Chassis, seat support, cross-members/rear panel, drum legs

Roller : MBR

Powertrain – Engine, Transmission Unit
Structure - Bedplate/chassis

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

No employee or representative is authorized to modify this warranty unless such modification is made in writing and signed by an authorized officer of Mecalac Construction sought to be bound by such modification. The obligations of Mecalac Construction 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 Mecalac Construction shall render this warranty null and void.

Mecalac Construction 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 Mecalac Construction. Mecalac Construction 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.

Parts Warranty: Mecalac Construction 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.

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) Mecalac Construction has received warranty registration for the relevant Product and (iii) the transferee completes and returns to the appropriate Mecalac Construction the appropriate warranty transfer documentation which shall be provided on request. Contact your local Distributor for additional details.

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 MECALAC CONSTRUCTION. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED 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:** Mecalac Construction has the option to repair or replace any defective part or assembly. It is the policy of Mecalac Construction 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, or the replacement of any service items such as filters or brake linings made in connection with normal maintenance services.
- 4. Transportation:** Any damage caused by carrier handling is a transportation claim and should be filed immediately with the respective carrier.
- 5. 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.
- 6. Secondary Failures:** Should the Buyer continue to operate a machine after it has been noted that a failure has occurred, Mecalac Construction will not be responsible under the warranty for resultant damage to other parts due to that continued operation.
- 7. Workmanship of Others:** Mecalac Construction does not accept responsibility for improper installation or labor costs of personnel other than authorized Distributor personnel.
- 8. Stop and Go Warranty:** Mecalac Construction 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 Seller.
- 9. Incidental or Consequential Damage: LIMITATIONS ON LIABILITY: NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED IN THIS WARRANTY, MECALAC CONSTRUCTION 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 MECALAC CONSTRUCTION. Nothing in this paragraph, however, shall operate to exclude Mecalac Construction'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 Mecalac Construction) repair or replacement of the defective part.**
- 10. Labor:** Mecalac Construction shall not be responsible for related travel expenses such as meals and lodging; overtime or premium labor rates.

Mecalac Construction neither assumes nor authorizes any other person to assume for Mecalac Construction any other liability in connection with the sale of any Mecalac Construction's equipment. This warranty shall not apply to any Mecalac Construction equipment or any part thereof which has been subject to misuse, alteration, abuse, negligence, accident, acts of God or sabotage. No action by any party shall operate to extend or revive this limited warranty without the prior written consent of Mecalac Construction. The aggregate liability of Mecalac Construction shall in no event exceed the purchase price of the equipment, provided that nothing herein shall exclude liability of Mecalac Construction for death or personal injury.

MECALAC CONSTRUCTION EQUIPMENT UK LIMITED

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England

EUROPE (Rev March 2017)