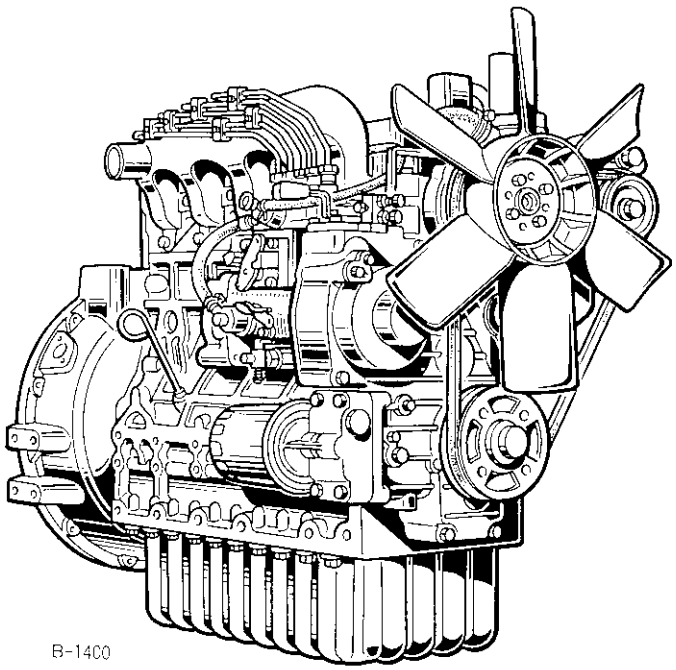
OPERATOR'S MANUAL

ENGLISH

Manual 369 Machine # 0816

KUBOTA DIESEL ENGINE

MODELS D1403-EBG·V1903-EBG·F2803-EBG
D1703-EBG·V2203-EBG



B-1400

READ AND SAVE THIS MANUAL

Kubota

ENGLISH

CONTENTS

ENGLISH

FOREWORD

You are now the proud owner of a KUBOTA Engine. This engine is a product of KUBOTA quality engineering and manufacturing. It is made of fine materials and under a rigid quality control system. It will give you long, satisfactory service. To obtain the best use of your engine, please read this manual carefully. It will help you become familiar with the operation of the engine and contains many helpful hints about engine maintenance. It is KUBOTA's policy to utilize as quickly as possible every advance in our research. The immediate use of new techniques in the manufacture of products may cause some small parts of this manual to be outdated. KUBOTA distributors and dealers will have the most up-to-date information. Please do not hesitate to consult with them.

SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.

DANGER :	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING :	Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.
CAUTION:	Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.
IMPORTANT :	Indicates that equipment or property damage could result if instructions are not followed.
NOTE :	Gives helpful information.

⚠ SAFE OPERATION

Careful operation is your best assurance against an accident. Read and understand this section carefully before operating the engine. All operators, no matter how much experience they may have, should read this and other related manuals before operating the engine or any equipment attached to it. It is the owner's obligation to provide all operators with this information and instruct them on safe operation.

Be sure to observe the following for safe operation.

OBSERVE SAFETY INSTRUCTIONS

- Read and understand carefully this "OPERATOR'S MANUAL" and "LABELS ON THE ENGINE" before attempting to start and operate the engine.
- Learn how to operate and work safely. Know your equipment and its limitations. Always keep the engine in good condition.
- Before allowing other people to use your engine, explain how to operate and have them read this manual before operation.
- DO NOT modify the engine. UNAUTHORIZED MODIFICATIONS to the engine may impair the function and/or safety and affect engine life. If the engine does not perform properly, consult your local Kubota Engine Distributor first.

F-8822

WEAR SAFE CLOTHING AND PERSONAL PROTECTIVE EQUIPMENT (PPE)

- DO NOT wear loose, torn or bulky clothing around the machine that may catch on working controls and projections or into fans, pulleys and other moving parts causing personal injury.
- Use additional safety items-PPE, e.g. hard hat, safety protection, safety goggles, gloves, etc., as appropriate or required.
- DO NOT operate the machine or any equipment attached to it while under the influence of alcohol, medication, or other drugs, or while fatigued.
- DO NOT wear radio or music headphones while operating the engine.

B-1501改

CHECK BEFORE STARTING & OPERATING THE ENGINE

- Be sure to inspect the engine before operation. Do not operate the engine if there is something wrong with it. Repair it immediately.
- Ensure all guards and shields are in place before operating the engine.
  Replace any that are damaged or missing.
- Check to see that you and others are a safe distance from the engine before starting.
- Always keep the engine at least 3 feet (1 meter) away from buildings and other facilities.
- DO NOT allow children or livestock to approach the machine while the engine is running.
- DO NOT start the engine by shorting across starter terminals. The machine may start in gear and move. Do not bypass or defeat any safety devices.

B-1497

KEEP THE ENGINE AND SURROUNDINGS CLEAN

- Be sure to stop the engine before cleaning.
- Keep the engine clean and free of accumulated dirt, grease and trash to avoid a fire. Store flammable fluids in proper containers and cabinets away from sparks and heat.
- Check for and repair leaks immediately.
- DO NOT stop the engine without idling; Allow the engine to cool down, first. Keep the engine idling for about 5 minutes before stopping unless there is a safety problem that requires immediate shut down.

B-15

SAFE HANDLING OF FUEL AND LUBRICANTS
—KEEP AWAY FROM FIRE—

- Always stop the engine before refueling and/or lubricating.
- DO NOT smoke or allow flames or sparks in your work area. Fuel is extremely flammable and explosive under certain conditions.
- Refuel at a well ventilated and open place. When fuel and/or lubricants are spilled, refuel after letting the engine cool down.
- DO NOT mix gasoline or alcohol with diesel fuel. The mixture can causea fire or severe engine damage.
- Do not use unapproved containers e.g. buckets, bottles, jars. Use approved fuel storage containers and dispensers.

B-14

EXHAUST GASES & FIRE PREVENTION

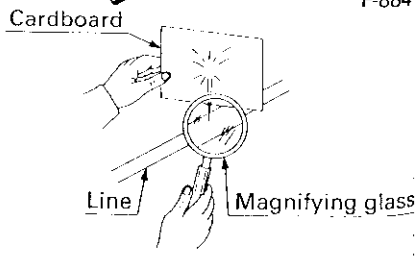
- Engine exhaust fumes can be very harmful if allowed to accumulate. Be sure to run the engine in a well ventilated location and where there are no people or livestock near the engine.
- The exhaust gas from the muffler is very hot. To prevent a fire, do not expose dry grass, mowed grass, oil or any other combustible materials to exhaust gas. Keep the engine and muffler clean at all times.
- To avoid a fire, be alert for leaks of flammable substances from hoses and lines. Be sure to check for leaks from hoses or pipes, such as fuel and hydraulic fluid by following the maintenance check list.
- To avoid a fire, do not short across power cables and wires. Check to see that all power cables and wirings are in good condition. Keep all electrical connections clean. Bare wire or frayed insulation can cause a dangerous electrical shock and personal injury.

F-884

ESCAPING FLUID

- Relieve all pressure in the air, the oil and the cooling systems before disconnecting any lines, fittings or related items.
- Be cautious of possible pressure relief when disconnecting any device from a pressurized system that utilizes pressure. DO NOT check for pressure leaks with your hand. High pressure oil or fuel can cause personal injury.
- Escaping fluid under pressure has sufficient force to penetrate skin causing serious personal injury.
- Fluid escaping from pinholes may be invisible. Use a piece of cardboard or wood to search for suspected leaks: do not use hands and body. Use safety goggles or other eye protection when checking for leaks.
- If injured by escaping fluid, see a medical doctor immediately. This fluid can produce gangrene or severe allergic reaction.

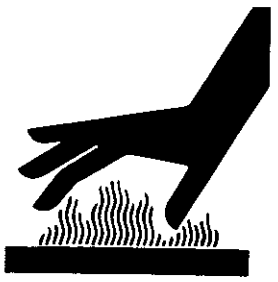
F-884



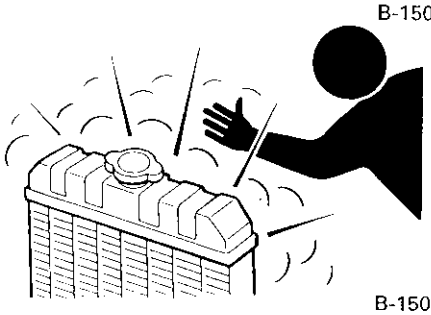
F-235

CAUTIONS AGAINST BURNS & BATTERY EXPLOSION

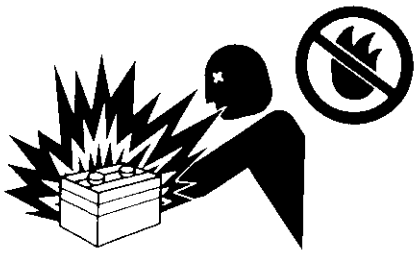
- To avoid burns, be cautious of hot components, e.g. muffler, muffler cover, radiator, hoses, engine body, coolants, engine oil, etc. during operation and after the engine has been shut off.
- DO NOT remove the radiator cap while the engine is running or immediately after stopping. Otherwise hot water will spout out from the radiator. Wait until the radiator is completely cool to the touch before removing the cap. Wear safety goggles.
- Be sure to close the coolant drain valve, secure the pressure cap, and fasten the pipe band before operating. If these parts are taken off, or loosened, it will result in serious personal injury.
- The battery presents an explosive hazard. When the battery is being charged, hydrogen and oxygen gases are extremely explosive.
- DO NOT use or charge the battery if its fluid level is below the LOWER mark.
  Otherwise, the component parts may deteriorate earlier than expected, which may shorten the service life or cause an explosion. Immediately, add distilled water until the fluid level is between the UPPER and LOWER marks.
- Keep sparks and open flames away from the battery, especially during charging. DO NOT strike a match near the battery.
- DO NOT check the battery charge by placing a metal object across the terminals. Use a voltmeter or hydrometer.
- DO NOT charge a frozen battery. There is a risk of explosion. When frozen, warm the battery up to at least 16°C (61°F).



B-1502



B-1503



F-8836

KEEP HANDS AND BODY AWAY FROM ROTATING PARTS

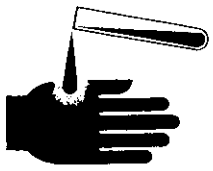
- Be sure to stop the engine before checking or adjusting the belt tension and cooling fan.
- Keep your hands and body away from rotating parts, such as the cooling fan, V-belt, fan drive V-belt, pulley or flywheel. Contact with rotating parts can cause severe personal injury.
- DO NOT run the engine without safety guards. Install safety guards securely before operation.

B-1505

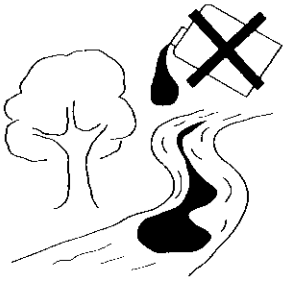
B-1506

ANTI-FREEZE & DISPOSAL OF FLUIDS

- Anti-freeze contains poison. Wear rubber gloves to avoid personal injury. In case of contact with skin, wash it off immediately.
- DO NOT mix different types of Anti-freeze. The mixture can produce a chemical reaction causing harmful substances. Use approved or genuine KUBOTA Anti-freeze.
- Be mindful of the environment and the ecology. Before draining any fluids, determine the correct way to dispose of them. Observe the relevant environmental protection regulations when disposing of oil, fuel, coolant, brake fluid, filters and batteries.
- When draining fluids from the engine, place a suitable container underneath the engine body.
- DO NOT pour waste onto the ground, down a drain, or into any water source. Dispose of waste fluids according to environmental regulations.



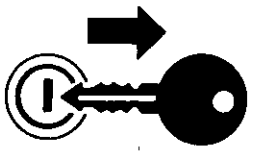
B-1508



B-1507

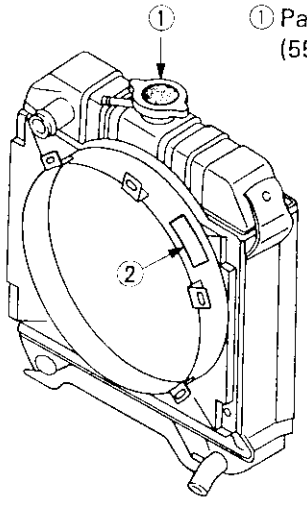
CONDUCTING SAFETY CHECKS & MAINTENANCE

- When inspecting the engine or servicing, place the engine on a large flat surface. DO NOT work on anything that is supported ONLY by lift jacks or a hoist. Always use blocks or the correct stands to support the engine before servicing.
- Disconnect the battery from the engine before conducting service. Put a "DO NOT OPERATE!" tag on the key switch to avoid accidental starting.
- To avoid sparks from an accidental short circuit always disconnect the battery's ground cable ⊖ first and reconnect it last.
- Be sure to stop the engine and remove the key when conducting daily and periodic maintenance, service and cleaning.
- Check or conduct maintenance after the engine, coolant, muffler, or muffler cover have cooled off completely.
- Always use the appropriate tools and fixtures. Verify that they are in good condition before performing any service work. Make sure you understand how to use them before service.
- Use ONLY correct engine barring techniques for manually rotating the engine. DO NOT attempt to rotate the engine by pulling or prying on the cooling fan and V-belt. This practice can cause serious personal injury or premature damage to the cooling fan and belt.
- Replace fuel pipes and lubricant pipes with their hose clamps every 2 years or earlier whether they are damaged or not. They are made of rubber and age gradually.
- When servicing is performed together by two or more persons, take care to perform all work safely.
- Keep a first aid kit and fire extinguisher handy at all times.



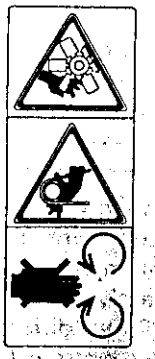
B-1509

WARNING AND CAUTION LABELS



① Part No. 9077-8724-1 or 16667-8724-1
(55mm in diameter) (37mm in diameter)

② Part No. TA040-4957-1
Stay clear of engine fan and fan belt.



CARE OF WARNING AND CAUTION LABELS

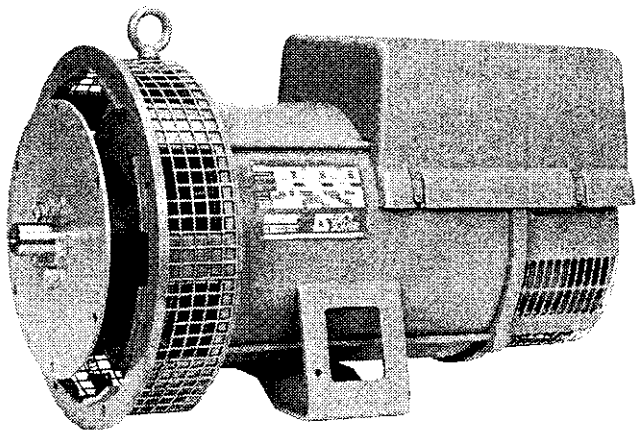
(1) Keep warning and caution labels clean and free from obstructing material.
(2) Clean warning and caution labels with soap and water, dry with a soft cloth.
(3) Replace damaged or missing warning and caution labels with new labels from your local KUBOTA dealer.
(4) If a component with warning and caution label(s) affixed is replaced with a new part, make sure the new label(s) is (are) attached in the same location(s) as the replaced component.
(5) Mount new warning and caution labels by applying to a clean dry surface and pressing any bubbles to the outside edge.

manual #

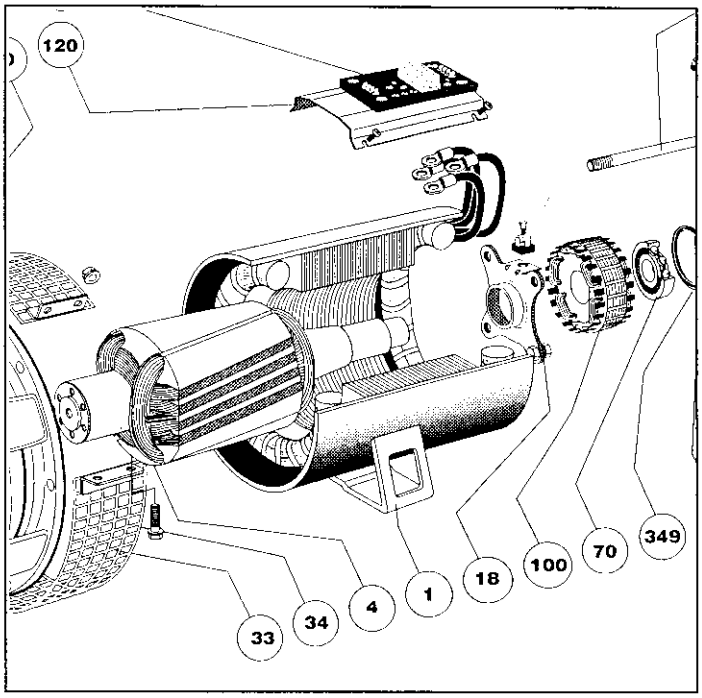
machine # 0816

LEROY® SOMER

Réf. 3548 GB - 4.33/b - 11.03



This manual must be supplied to the end user



LSA 37 SHUNT - 2 & 4 POLE

ALTERNATORS

LSA 37 SHUNT - 2 & 4 POLE ALTERNATORS

This manual concerns the alternator which you have just purchased.

The latest addition to a whole new generation of alternators, this range benefits from the experience of the leading manufacturer worldwide, using advanced technology and incorporating strict quality control.

We wish to draw your attention to the contents of this maintenance manual. By following certain important points during installation, use and servicing of your alternator, you can look forward to many years of trouble-free operation.

SAFETY MEASURES

Before using your machine for the first time, it is important to read the whole of this installation and maintenance manual.

All necessary operations and interventions on this machine must be performed by a qualified technician.

Our technical support service will be pleased to provide any additional information you may require.

The various operations described in this manual are accompanied by recommendations or symbols to alert the user to potential risks of accidents. It is vital that you understand and take notice of the following warning symbols.

WARNING

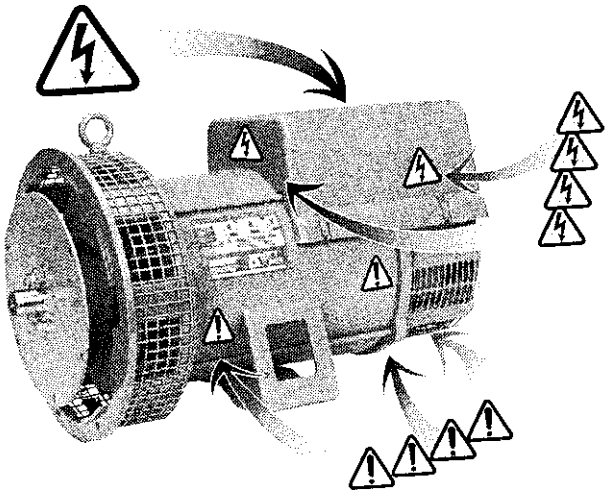
Warning symbol for an operation capable of damaging or destroying the machine or surrounding equipment.

Warning symbol for general danger to personnel.

Warning symbol for electrical danger to personnel.

WARNING SYMBOLS

A set of self-adhesive stickers depicting the various warning symbols is included with this maintenance manual. They should be positioned as shown in the drawing below once the machine has been fully installed.



Note : LEROY-SOMER reserves the right to modify the characteristics of its products at any time in order to incorporate the latest technological developments. The information contained in this document may therefore be changed without notice.

LSA 37 SHUNT - 2 & 4 POLE ALTERNATORS

RECEIPT

1 - RECEIPT

1.1 - Standards and safety measures

Our alternators comply with most international standards and are compatible with :
- the recommendations of the
International Electrotechnical Commission
IEC 34-1, (EN 60034).
- the recommendations of the
International Standards Organisation ISO 8528.
- the European Community directive 89/336/EEC on Electromagnetic Compatibility (EMC).
- the European Community directives 73/23/EEC and 93/68/EEC (Low Voltage Directive).
They are CE marked with regard to the LVD (Low Voltage Directive) in their role as a machine component. A declaration of incorporation can be supplied on request.
Before using your generator for the first time, read carefully the contents of this installation and maintenance manual, supplied with the machine. All operations performed on the generator should be undertaken by qualified personnel with specialist training in the commissioning, servicing and maintenance of electrical and mechanical machinery. This maintenance manual should be retained for the whole of the machine's life and be handed over with the contractual file.
The various operations described in this manual are accompanied by recommendations or symbols to alert the user to potential risks of accidents. It is vital that you understand and take notice of the different warning symbols.

1.2 - Inspection

On receipt of your alternator, check that it has not suffered any damage in transit. If there are obvious signs of knocks, contact the transporter (you may able to claim on their insurance) and after a visual check, turn the machine by hand to detect any malfunction.

1.3 - Identification

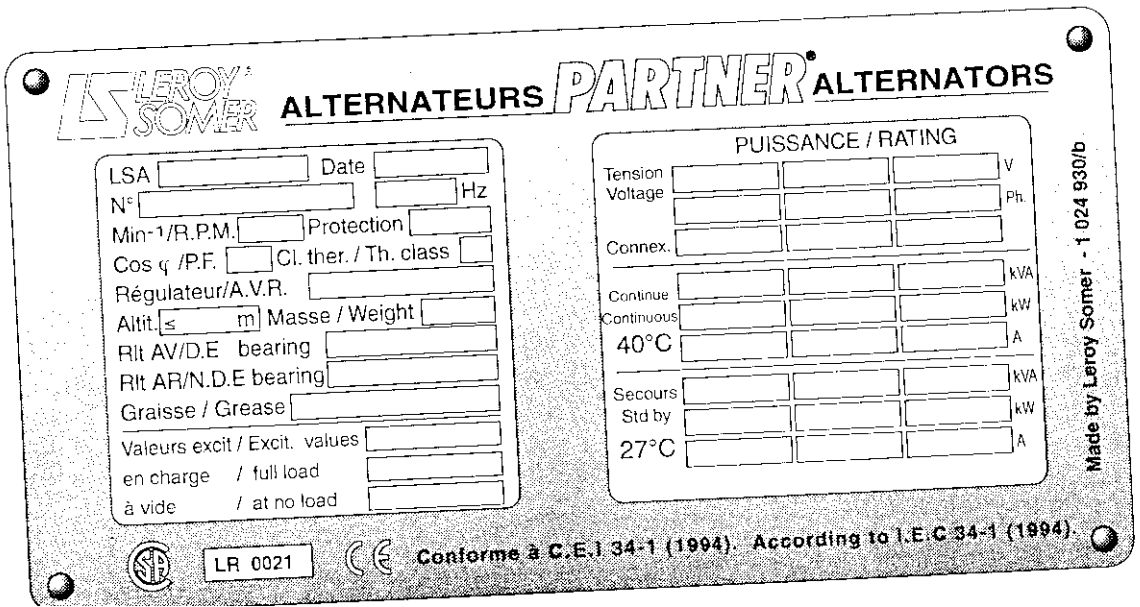
The alternator is identified by means of a nameplate fixed on the frame.
Make sure that the nameplate on the machine conforms to your order.
The machine name is defined according to various criteria (see below).
Example of description for : **LSA 37 M5 J1/4**
- LSA : name used in the PARTNER range
  M : Marine / C : Cogeneration / T : Telecommunications.
- 37 : machine type
- M5 : model
- J : field excitation system
  (J : SHUNT)
- 1/4 : winding number / number of poles.

1.3.1 - Nameplate

So that you can identify your machine quickly and accurately, we suggest you fill in its specifications on the nameplate below.

1.4 - Storage

Prior to commissioning, machines should be stored :
- Away from humidity : in conditions of relative humidity of more than 90%, the machine insulation can drop very rapidly, to just above zero at around 100%; monitor the state of the anti-rust protection on unpainted parts.
For storage over an extended period, the machine can be placed in a sealed enclosure (heatshrunk plastic for example) with dehydrating sachets inside, away from significant and frequent variations in temperature to avoid the risk of condensation during storage.
- If the area is affected by vibration, try to reduce the effect of these vibrations by placing the generator on a damper support (rubber disc or similar) and turn the rotor a fraction of a turn once a fortnight to avoid marking the bearing rings.



fleet # 0816 Manual 362

6308AN

www.jlg.com.au

Quality Endorsed Company

ISO 9002 Lic 6090

LIGHTING TOWER MODEL 6308AN

Operator & Safety Manual

Issue: December 2004 PRINTED IN AUSTRALIA 1730961

CONTENTS

Customer Support

JLG Industries (Port Macquarie)
11 Bolwarra Road
PORT MACQUARIE NSW 2444
Phone: (02) 6581 1111

JLG Industries (Victoria)
549 Blackburn Road
MOUNT WAVERLEY VIC 3149
Phone: (03) 9545 6303

JLG Industries (Queensland)
1/23 Collinsvale Street
ROCKLEA QLD 4106
Phone: (07) 3272 9988

JLG Industries (Western Australia)
49-53 Poole Street
WELSHPOOL, PERTH WA 6106
Phone: (08) 9356 9811

JLG Industries (NSW)
23 Christina Road
VILLAWOOD NSW 2163
Phone: (02) 9726 6511

JLG Industries (Hong Kong)
Room #7, Level 11, Landmark North
39 Lung Sum Avenue
Sheung Shui, NT, Hong Kong
Phone: +85 2 2639 5783

JLG Industries (Korea)
Hyosung Villa 14-201
590-25, Banpo 4 dong, Seocho Ku
Seoul, Korea, 137-044
Phone: +82 2 3486 6523

JLG Industries (India)
G-62 Kothi,
Saket, New Delhi 110 017
India
Ph: +91 1 1652 5507

JLG Industries (New Zealand)
64-66 Huia Road
Otahuhu, Auckland
New Zealand
Phone: + 64 9276 1728

JLG Industries (SA) Agent:
State Access Crane
9 Pentland Road
SALISBURY SOUTH SA 5106
Phone: (08) 8283 1099

INTRODUCTION

This manual provides the information necessary for the safe operation and maintenance of the JLG Model 6308AN Lighting Tower.

Specific operating details and specifications are contained in this publication to familiarise the operator and maintenance personnel with the correct and safe procedures necessary to maintain and operate this equipment.

A detailed Illustrated Parts Manual is also provided to easily identify the component parts required for service and maintenance purposes.

Take time to read this book thoroughly. If you are uncertain about any of the information presented. contact your JLG Service Office before operations commence.

All instructions in this manual are based on the machine being used under the operating conditions for which it was designed. In reading this manual, particular attention should be given to safety related Cautions and Warnings. Proper use and care will see this machine providing years of reliable service.

SECTION ONE

OPERATORS AND SAFETY MANUAL

CONTENTS

GENERAL

This section prescribes the proper and safe practices for machine operation. In order to promote proper usage of the machine, it is mandatory that a daily routine be established based on the regular maintenance schedule in the service and maintenance section of this manual. A maintenance program shall also be established by a qualified person and should be followed to ensure that the machine is safe to operate.

The user/operator of the machine shall not accept operating responsibility until this manual has been read and operation of the machine under the supervision of an experienced and qualified operator has been completed. If there is a question on application and/or operation. JLG Industries Customer Support Department should be consulted on (02) 6581 1111 (Australia).

⚠ WARNING

MODIFICATION OF THE MACHINE WITHOUT THE PRIOR WRITTEN APPROVAL OF JLG INDUSTRIES (AUSTR ALIA) IS PROHIBITED.

SAFETY ALERT SYMBOLS AND SAFETY SIGNAL WORDS

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

⚠ DANGER

INDICATES AN IMMINENTLY HAZARDOUS SITUATION. IF NOT AVOIDED, WILL RESULT IN SERIOUS INJURY OR DEATH. THIS DECAL WILL HAVE A RED BACKGROUND.

⚠ WARNING

INDICATES A POTENTIALLY HAZARDOUS SITUATION. IF NOT AVOIDED, COULD RESULT IN SERIOUS INJURY OR DEATH. THIS DECAL WILL HAVE AN ORANGE BACKGROUND.

⚠ CAUTION

INDICATES A POTENTIALLY HAZARDOUS SITUATION. IF NOT AVOIDED, MAY RESULT IN MINOR OR MODERATE INJURY. IT MAY ALSO ALERT AGAINST UNSAFE PRACTICES. THIS DECAL WILL HAVE A YELLOW BACKGROUND.

IMPORTANT

INDICATES PROCEDURES ESSENTIAL FOR SAFE OPERATION. THIS DECAL WILL HAVE A GREEN BACKGROUND.

SAFETY PRECAUTIONS

SAFETY PRECAUTIONS

This section outlines the safety precautions applicable to the general use of this product.

Throughout the Operator and Safety section of this manual, cautions and warnings are shown in **BOLD TYPE**. These outline where special care is required when undertaking the various procedures outlined.

NOTE: The safety precautions applicable to the service and maintenance of the machine are covered in the SAFETY PRECAUTIONS section of the Service and Maintenance Manual.

The user of this machine should read this manual thoroughly to ensure that all operating procedures are clearly understood prior to accepting responsibility.

- Modifications or alterations to the lighting tower are not permitted without the prior written permission of the manufacturer.
- Failure to comply with the safety precautions listed here and elsewhere in the manual may result in injury or death.
- When handling the lighting tower other than towing for the purposes of lifting or manoeuvring, there are forklift pockets provided at the rear of the machine and 4 lifting points provided on the main frame for lifting by a crane. Ensure that the forklift or crane is of suitable capacity prior to attempting the lift. Refer to the diagrams shown elsewhere in this manual for correct handling procedures using a crane and forklift.
- Prior to erecting the mast the operator should ensure that no overhead obstructions are within a 6-metre radius of the base of the machine.

⚠ WARNING

THERE IS ELECTROCUTION HAZARD TO THE OPERATORS IF THE MACHINE IS OPERATED NEAR OVERHEAD POWERLINES.

The following chart is a guide to the applicable safe operating distances from overhead power lines.

Contact local authorities for the relevant minimum safe approach distances (MSAD's) in your area. Local statutory requirements may take precedence over MSAD's listed here.

Voltage Range (Phase to Phase)	MINIMUM SAFE DISTANCE In Metres (Feet)
0-300V	AVOID CONTACT
Over300-50 KV	3 (10)
Over 50 KV to 200 KV	5 (15)
Over 200 KV to 350 KV	6 (20)
Over 350 KV to 500 KV	8 (25)
Over 500 KV to 750 KV	11 (35)
Over 750 KV to 1000 KV	14 (45)

Be aware of the radius of the mast when telescoped out and lowered. Be aware of swaying power lines and swaying tree branches in strong winds.

- Be familiar with all controls on the machine prior to operation. The machine incorporates powerful hydraulic mechanisms that can cause serious mechanical damage if the machine is allowed to strike external structures such as buildings etc.
- Ensure that the ground is suitable to support the machine, particularly

SAFETY PRECAUTIONS

under each of the outrigger pads. A suitable packing material such as a timber block may be required on soft surfaces to ensure that the outriggers do not sink under the weight.

⚠ WARNING

FAILURE OF THE OUTRIGGERS TO SUPPORT THE MACHINE DUE TO SOFT SURFACES COULD CAUSE THE MACHINE TO TIP OVER IN WINDY CONDITIONS.

- Do not erect the machine in winds greater than 118kmh. Tipping of the machine is possible.

⚠ WARNING

NEVER RAISE THE MAST FULLY WITHOUT FIRST SETTING ALL 4 OUTRIGGERS AND ENSURING THE LIGHTING TOWER IS LEVEL. A BUBBLE LEVEL IS MOUNTED AT THE FRONT OF THE MACHINE NEAR THE BASE OF THE MAST TO AID IN LEVELLING OF THE MACHINE.

- The model 6308AN Lighting Tower incorporates an A.C. alternator which generates lethal voltages. Do NOT operate the machine without all safety covers in place covering all wiring and electrical devices.

⚠ DANGER

DO NOT TOUCH LAMP TERMINALS OR SOCKETS. DANGEROUS VOLTAGE MAY BE PRESENT EVEN WHEN POWER IS OFF. Shutdown engine, switch off all circuit breakers, and allow 10-minutes for ballast capacitors to discharge before replacing lamps. Check capacitors are below 10VDC before service to lamp sockets or ballast circuits by trained service personnel only.

- Do not alter the electrical wiring type, size or standard in any way without prior written approval from the manufacturer.
- The lighting tower is NOT a mobile generator set. It should only be used for the specific purpose for which it was designed.
- The hydraulically operated mast has hazardous crushing/pinch points. Do NOT put arms, hands etc. near the mast structure while it is in operation.
- The metal halide lamp fixtures can get extremely hot during operation. Do not operate the lights in easy reach of people's hands. Even after lights have extinguished, the lamp fixtures can remain hot for up to 20 minutes.
- The mast of the Lighting Tower is designed specifically to carry the 4 lights supplied. Alternative lights should not be adopted unless specifically authorised by the manufacturer.
- The mast is not a crane. Do not attempt to lift any objects by using the mast and hydraulic system.
- There are moving parts in and around the engine and alternator area of the unit. Prior to carrying out any maintenance, checks or accessing the engine area ensure engine is shut down and the mast retracted.

PREPARATION FOR USE

PREPARATION FOR USE

Before a new machine is put into operation it must be carefully inspected for any evidence of damage resulting from shipment.
***Note*:** Regular periodic inspections are a required aspect of the ongoing maintenance of the machine.

Preparation for use of the machine requires good common sense principles ensuring that a complete function check together with visual inspections show that everything is working correctly.

Function checks are to include the following items.
1. Outriggers slide in and out freely.
2. Outrigger Jacks operate freely.
3. Operation of the 3 mast hydraulic levers in both directions to ensure free correct movement of the mast.

Prior to use. all fluid levels should be checked including

- Radiator coolant
- Engine oil level
- Fuel level.

Ensure that all warning decals have been read and understood prior to operating machine.

Ensure that machine set up location is clear of any dangers such as roadways with moving traffic, moving machinery etc.

Some locations may require that checks are made with the regulatory authority such as councils prior to the set up and use of this lighting tower.

Ensure that machine is securely parked prior to use. Barriers, fences and warning signs may need to be erected to ensure awareness of the unit in operation.

DELIVERY AND PERIODIC INSPECTION

IMPORTANT

This machine requires periodic safety and maintenance inspections by a qualified person.

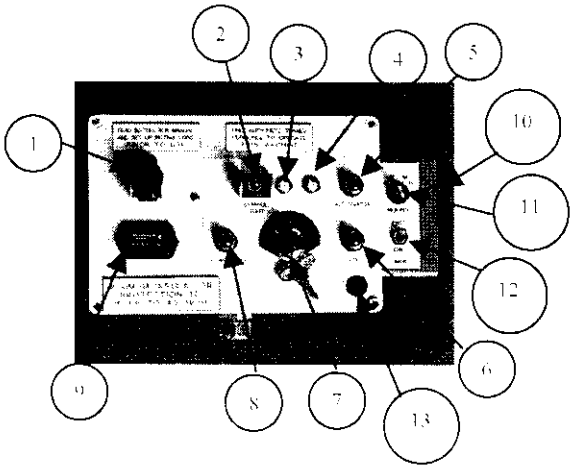
Particular attention is required during checks to ensure that the machine functions as it was designed to. There should be no abnormal noises or vibrations evident during the machine's operation. In the event that an operator becomes aware of any abnormal operation while using the machine. then it should be shutdown immediately. stowed safely and the problem reported to a responsible supervisor or service technician.

Reference should be made to Section 2 (Service and Maintenance) for procedures in regular and periodic inspections of this machine. All machines require both preventive and corrective maintenance throughout their useful service life to maintain the machine in a safe and reliable condition.

CONTROLS IDENTIFICATION

CONTROLS IDENTIFICATION

Engine Control Panel



1. Ignition on – emergency shutdown switch.
2. Service light switch for optional cabin light.
3. Circuit breaker 15 Amp protects D.C. control circuits.
4. Circuit breaker 20 Amp master D.C. circuit protection.
5. Alternator warning light. This light will illuminate if loss of alternator charge is experienced.
6. On some units without an engine shutdown system, this is a low engine oil pressure warning light. On units retrofitted with an Engine Shutdown System this is an Engine distress light indicating, low oil pressure, low water level, high engine temperature condition.
7. Keyswitch. Turn left for engine glow preheat. The glow plug light will illuminate and then extinguish after a few seconds. Then turn the key to the right to start the engine.
8. Glow plug light as described in item 7.
9. Hourmeter. Shows number of hours that the machine has been on.
10. Engine shutdown timer module.
11. Timer duration selector switch.
12. Timer on/off switch.
13. Start Override Switch.

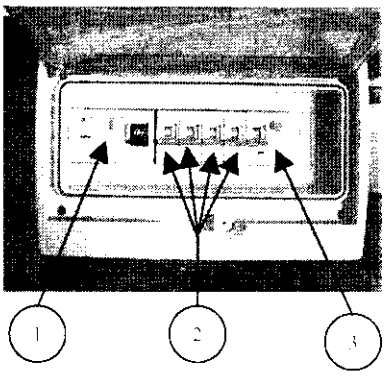
Engine Shutdown Unit

Located within the above control box is an engine monitoring shutdown system. In the event that one of the following conditions should take place, the engine will shutdown and illuminate the Engine Distress Light.

1. Low oil pressure
2. Low water level
3. High engine temperature

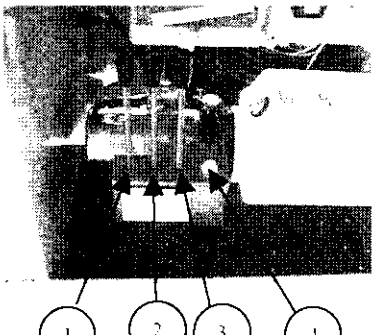
Should a shutdown occur, the system can be reset by turning off the ignition. The fault should be corrected prior to restarting.

Light Control Panel



1. A.C. Main Circuit Breaker and Residual Current Device (R.C.D) provides overload protection to all A.C. circuits connected to the Alternator.
2. Switch/circuit breaker for lights one to four. Also protects against overload on these lights.
3. R.C.D/circuit breaker for General Purpose Outlet A.C. (G.P.O) option when fitted.

Hydraulic Controls for Mast

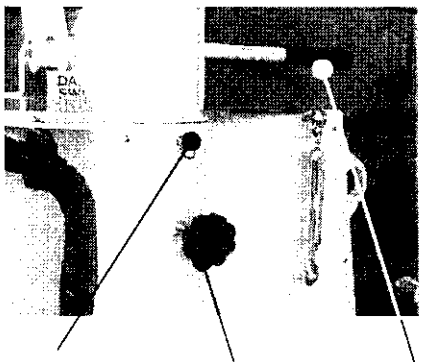


CONTROLS IDENTIFICATION

1. Mast raise and lower control lever. Pushing forward or pulling back will raise and lower the mast respectively. Speed of the raise and lower function can be controlled by pushing or pulling the lever further away from the centre off position.
2. Telescope in/out control lever. Operating this lever will telescope the upper boom extend in and out.
3. Tilt mechanism control lever. Operating this lever will allow the light bar head to be tilted up and down for aiming lights. It is also used when stowing the mast to ensure the lighting bar head is tucked in for transport.

4. Hydraulic controls Enable Switch which must be pressed during the operation of any of the hydraulic control levers.

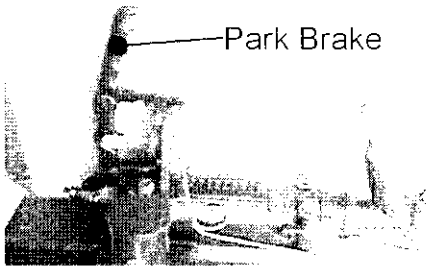
Mast Rotate Mechanism



3. Rotate Lockpin 1. Rotate Lock 2. Rotate Handle

1. Mast rotate locking Mechanism. Rotate this knob counter-clockwise to release mast lock prior to rotating.
2. Mast Rotate Handle. Use this control to manually rotate mast through 350 degrees to desired position. Ensure mast lock is rotated clockwise to lock mast prior to use.
3. Mast rotate lockpin. This pin is spring loaded into the locked position. It must be pulled out prior to rotating mast. The pin locks the mast every 15° . The mast may be locked in any position by using the rotate lock, however, in exceptionally high winds the mast may move slightly if it is positioned between the 15° lockpin indents. It will move to the nearest lockpin position and the lockpin will engage to prevent further movement.

Park Brake



The park brake handle shown above acts on the hydraulic master cylinder. It is locked into position by the ratchet locking bar. To apply the park brake, pull the handle forward and lock the ratchet bar into place as shown.

⚠ WARNING

PRIOR TO TOWING THE VEHICLE, ENSURE THE PARK BRAKE IS RELEASED AND THAT THE RATCHET BAR IS SWUNG WELL OUT OF THE WAY. FAILURE TO DO THIS COULD CAUSE THE BRAKES TO LOCK ON DURING TOWING.

MACHINE SET UP AND PACK UP

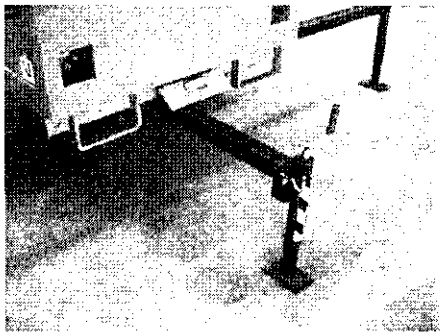
MACHINE SET UP AND PACK UP INSTRUCTIONS

IMPORTANT

The following setup instructions are applicable when the Light Tower is towed into position. When the machine is transported by truck and then forklifted into position, ensure that the retractable drawbar is extended and pinned prior to setup and raising the mast. Failure to do so may affect the stability of the machine under some operating conditions. The front outrigger leg may then be lowered to support the front of the machine and the transport leg raised and pinned in the upper position. Do not use the transport leg to support the machine when raising the mast.

Machine Set Up Instructions

1. Select a flat level area to park the machine.
2. Ensure parking brake is applied prior to unhitching unit. removing safety chain and electrical cable.
3. Lower the front outrigger jack to take the weight of the unit. Raise unit until it unhitches from the towing vehicle. Drive the towing vehicle forward clear of the draw bar.
4. Lower the front outrigger jack down until the draw bar is sloping forward slightly.
5. At the rear of the unit, locate and slide out the left outrigger arm and lock pin into position. Rotate the jack from the stowed position through 180° until the foot is just above the ground. Turn the jack handle to lower the foot against the ground.
6. Repeat step 5 for the right hand outrigger arm and jack.
7. Raise the front of the machine by adjusting the front outrigger jack until the machine is level and each outrigger support jack is pressing firmly against the ground. Located behind the flip up number plate is a fourth outrigger leg. Release the remote locking pin and flip up the number plate. Withdraw the outrigger leg outwards to the locked position approx. 0.7 metre. Rotate the outrigger leg through 90 degrees and adjust by turning the handle clockwise until the leg is in firm contact with the ground (Approx. 2 turns after contact). Do not attempt to jack up the machine by overextending.



IMPORTANT

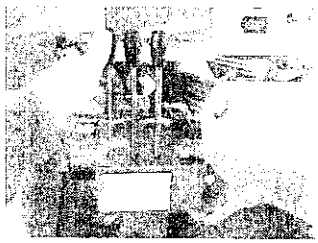
It is not necessary to raise the wheels of the machine off the ground when lowering the outrigger jacks. When set up correctly the wheels may still be in firm contact with the ground. If the surface is uneven though, one wheel may need to be raised off the ground to level the machine. A bubble level is provided on the front of the machine to assist in levelling.

MACHINE SET UP AND PACK UP

8. Ensure that the light bar assembly is clear to swing out and away from its stowed position. Unlatch the transport turnbuckles.

⚠ CAUTION

PRIOR TO RAISING THE MAST, CHECK AND ENSURE THAT NO OBSTRUCTIONS ARE LOCATED ABOVE THE UNIT TO A HEIGHT OF 10 METRES. REFER ALSO TO SAFE DISTANCES FROM POWER LINES AS DESCRIBED IN SECTION 1 (SAFETY PRECAUTIONS).

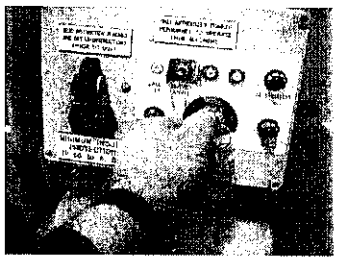


9. Slowly operate the light bar tilt hydraulic lever and hydraulic controls enable switch to move the light bar forward, up and away from the front of the tow hitch.
10. Operate the lift control lever and hydraulic controls enable switch to continue to raise the mast to full elevation.
11. Operate the telescope lever and hydraulic controls enable switch to extend the mast to desired height.
12. Finally, adjust the light bar tilt to the desired angle by operating the tilt control lever and hydraulic controls enable switch.

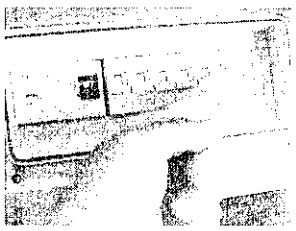
⚠ CAUTION

TO AVOID CRUSHING INJURY, KEEP HANDS AND ARMS AWAY FROM THE MOVING PARTS OF THE MAST.

Turning Lights On



1. Start the engine by switching on the ignition switch, turning the key counter-clockwise to the Glow Preheat position until the Glow Light extinguishes and then turning to the right to start the Engine. Once started, allow the engine to warm for a minute prior to using. ***NOTE:*** The Engine Distress Shutdown system if installed requires a build up of engine oil pressure before the engine will start. To overcome a delay in starting, a momentary pushbutton called "Start Override" is located on the control panel below the Engine Distress Light. Hold this button in when cranking engine to start.



2. Switch on main circuit breaker. Then switch on the light circuit breakers 1, 2, 3 & 4 to activate lights.
3. Allow lights to warm up and reach full brightness (about 3 minutes). ***NOTE:*** The lamps used are a Metal Halide Gas Discharge type. If they are switched off and back on again after they have been running they may take up to 15 minutes to re-ignite. This is normal for this type of lamp.

MACHINE SET UP AND PACK UP

Machine Pack Up

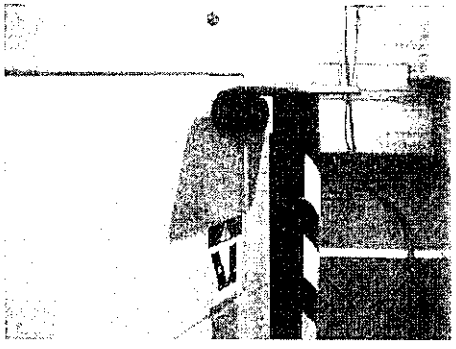
Packing up the machine for towing or transport is a reversal of the setup steps. Take special care when lowering the boom and ensure it rests neatly in the boom cradle at the rear of the machine.

Ensure the light bar is stowed in towards the mast and is locked against the stop prior to towing.

IMPORTANT

The light bar tilt mechanism is hydraulically locked into place during transport. However, for added safety 2 turn buckles attached to the front of the machine provide rigid support for extended transport. The turnbuckles need only be tightened "lightly" to provide adequate support.

When retracting the rear outrigger legs, ensure that they are pinned and locked in the retracted position. Rotate the outrigger jack 180 degrees and turn the handle so that the jack pulls down lightly on the rubber anti shake pads as shown below.



LIFTING MACHINE

FORKLIFTING MACHINE

Forklifting Procedure

⚠ CAUTION

WHEN USING A FORKLIFT TO MOVE THE MACHINE ONLY THE FORKLIFT POCKETS LOCATED AT THE REAR OF THE MACHINE SHOULD BE USED.

Prior to using a forklift to lift the machine, ensure that the mast is lowered to the stowed position, the lights are stowed and the engine generator is shut down.

The machine weighs approximately 1700kg. Ensure that only a suitable forklift with adequate capacity is used to lift the machine.

When positioning the forklift forks into the forklift pockets, ensure the forks go through far enough to pick up the fork support bar located across the main frame of the unit. Fork penetration should be at least 800mm from the rear wall of the light tower.

CRANING MACHINE

Craning Procedure

⚠ WARNING

USE ONLY THE 4 LIFTING POINTS PROVIDED TO LIFT THE LIGHTING TOWER WITH A CRANE. DO NOT LIFT THE ASSEMBLY BY THE MAST. DOING SO WILL RESULT IN SEVERE DAMAGE TO THE UNIT AND POSSIBLE INJURY TO THE PERSONNEL UNDERTAKING THIS TASK.

The mast and lights should be in the stowed position and the engine generator shut down prior to lifting the machine off the ground. Ensure all outrigger legs and the draw bar are in the retracted and locked position.

Using suitable lifting equipment attached to the lifting lug at each corner of the machine, proceed to lift the machine as per the instructions provided for the lifting crane.

TOWING INSTRUCTIONS

⚠ CAUTION

PRIOR TO TOWING THE LIGHT TOWER UNIT THIS MANUAL SHOULD BE READ AND UNDERSTOOD.
THE LIGHT TOWER HAS A GROSS VEHICLE MAXIMUM WEIGHT OF UP TO 1700 KGS. ENSURE THAT THE TOWING VEHICLE AND TOW BAR ARE RATED TO TOW A VEHICLE OF THIS WEIGHT SAFELY.
THE STANDARD TOW COUPLING IS 2 INCH 51MM BALL TYPE. OTHERS ARE AVAILABLE AS AN OPTION ON REQUEST. THE LIGHT TOWER USES A HYDRAULIC OVERRIDING BRAKE MECHANISM. YOU SHOULD MAKE SURE YOU UNDERSTAND THE OPERATION OF THIS MECHANISM PRIOR TO USE.

⚠ WARNING

FAILURE TO PROPERLY ENGAGE THE OVERRIDING BRAKE MECHANISM COULD CAUSE THE VEHICLE TO GET OUT OF CONTROL AND CAUSE DEATH OR SERIOUS INJURY.

Prior to Towing

- Ensure that machine is shut down the mast correctly stowed and access doors closed.
- Retract and stow the rear outriggers.
- Ensure the extendable tow bar is extended and locked.
- Attach the Light Tower to the towing vehicle and ensure ball coupling is locked in.
- Attach the safety chain.
- Connect and test the lights including turn indicators and brake lights.
- Disconnect the hand brake by unlocking and swinging the toothed ratchet up and towards the rear.
- Swing the front outrigger leg up into the horizontal stowed position.
- Ensure that the overriding brake lockout mechanism is swung up to allow brakes to work.
  NOTE: For reversing the unit the overriding brake lockout mechanism may need to be swung down to prevent brakes being applied when reversing.
- Move off slowly and apply the brake gently to test the coupling and brake action.