

# Operator's Manual

## 50 Hz Light Tower

# LTN6L-V LTN6L-VS



Type

LTN6L

Document

5200004270

Date

1115

Revision

02

Language

EN



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**Original instructions**

This Operator's Manual presents the original instructions. The original language of this Operator's Manual is American English.

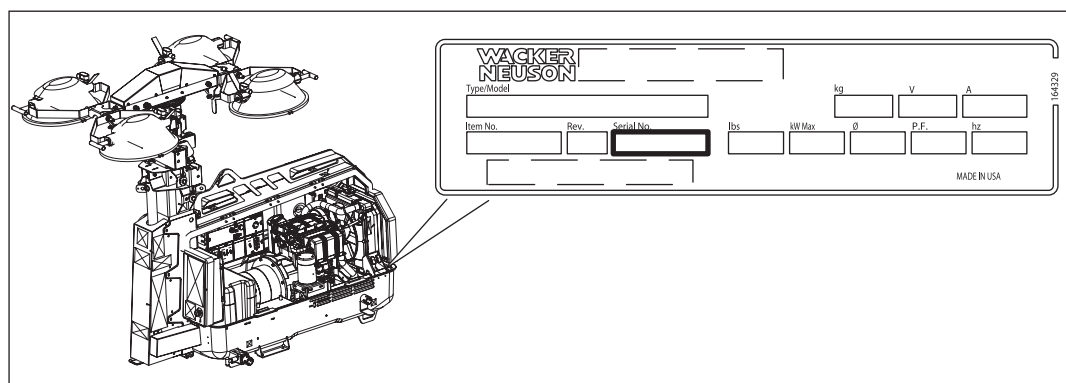
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# Foreword

SAVE THESE INSTRUCTIONS—This manual contains important instructions for the machine models below. These instructions have been written expressly by Wacker Neuson Production Americas LLC and must be followed during installation, operation, and maintenance of the machines.

## Machines covered in this manual

Machine	Item Number
LTN 6L-V	5200002720, 5200002721
LTN 6L-VS	5200018573, 5200018576



wc\_gr010092

## Machine identification

A nameplate listing the model number, item number, revision number, and serial number is attached to this machine. The location of the nameplate is shown above.

## Serial number (S/N)

For future reference, record the serial number in the space provided below. You will need the serial number when requesting parts or service for this machine.

Serial Number:

## Machine documentation

- From this point forward in this documentation, Wacker Neuson Production Americas LLC will be referred to as Wacker Neuson.
- Keep a copy of the Operator's Manual with the machine at all times.
- Use the separate Parts Book supplied with the machine to order replacement parts.
- If you are missing any of these documents, please contact Wacker Neuson to order a replacement or visit [www.wackerneuson.com](http://www.wackerneuson.com).
- When ordering parts or requesting service information, be prepared to provide the machine model number, item number, revision number, and serial number.

## Expectations for information in this manual

- This manual provides information and procedures to safely operate and maintain the above Wacker Neuson model(s). For your own safety and to reduce the risk of injury, carefully read, understand, and observe all instructions described in this manual.

- Wacker Neuson expressly reserves the right to make technical modifications, even without notice, which improve the performance or safety standards of its machines.
- The information contained in this manual is based on machines manufactured up until the time of publication. Wacker Neuson reserves the right to change any portion of this information without notice.
- The illustrations, parts, and procedures in this manual refer to Wacker Neuson factory-installed components. Your machine may vary depending on the requirements of your specific region.

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**Manufacturer's approval**

This manual contains references to *approved* parts, attachments, and modifications. The following definitions apply:

- **Approved parts or attachments** are those either manufactured or provided by Wacker Neuson.
- **Approved modifications** are those performed by an authorized Wacker Neuson service center according to written instructions published by Wacker Neuson.
- **Unapproved parts, attachments, and modifications** are those that do not meet the approved criteria.

Unapproved parts, attachments, or modifications may have the following consequences:

- Serious injury hazards to the operator and persons in the work area
- Permanent damage to the machine which will not be covered under warranty

Contact your Wacker Neuson dealer immediately if you have questions about approved or unapproved parts, attachments, or modifications.

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## 1 Safety Information

### 1.1 Signal Words Used in this Manual

This manual contains DANGER, WARNING, CAUTION, *NOTICE*, and NOTE signal words which must be followed to reduce the possibility of personal injury, damage to the equipment, or improper service.



This is the safety alert symbol. It is used to alert you to potential personal hazards.  
► Obey all safety messages that follow this symbol.



#### **DANGER**

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

- To avoid death or serious injury from this type of hazard, obey all safety messages that follow this signal word.



#### **WARNING**

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

- To avoid possible death or serious injury from this type of hazard, obey all safety messages that follow this signal word.



#### **CAUTION**

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

- To avoid possible minor or moderate injury from this type of hazard, obey all safety messages that follow this signal word.

**NOTICE:** Used without the safety alert symbol, NOTICE indicates a situation which, if not avoided, could result in property damage.

**Note:** A Note contains additional information important to a procedure.

## 1.2 Machine Description and Intended Use

**Machine description** This machine is a mobile, trailer-mounted light tower. The Wacker Neuson Light Tower consists of a trailer with a cabinet containing a diesel engine, a fuel tank, a control panel, and an electric alternator. A telescoping tower with four metal halide lights is vertically mounted to the top of the machine. A hydraulic cylinder, combined with a cable and pulley system, raises and lowers the telescoping tower. As the engine runs, the generator converts mechanical energy into electric power. The metal halide lights run off this power. Receptacle(s) are also provided to power auxiliary loads. The operator uses the control panel to operate and monitor the machine.

**Intended use** This machine is intended for the illumination of outdoor areas. This machine is also intended for the purpose of supplying electrical power to connected loads. Refer to the machine specifications for the output voltage and frequency, and for the maximum output power limit of this Light Tower.

This machine has been designed and built strictly for the intended use described above. Using the machine for any other purpose could permanently damage the machine or seriously injure the operator or other persons in the area. Machine damage caused by misuse is not covered under warranty. The following are some examples of misuse:

- Connecting a load that has voltage and frequency requirements that are incompatible with the machine output
- Overloading the machine with a device that draws excessive power during either continuous running or startup
- Operating the machine in a manner that is inconsistent with all federal, state, and local codes and regulations
- Using the machine as a ladder, support, or work surface
- Using the machine to carry or transport passengers or equipment
- Using the machine as a hoist, or hanging items from the tower
- Operating the machine outside of factory specifications
- Operating the machine in a manner inconsistent with all warnings found on the machine and in the Operator's Manual

This machine has been designed and built in accordance with the latest global safety standards. It has been carefully engineered to eliminate hazards as far as practicable and to increase operator safety through protective guards and labeling. However, some risks may remain even after protective measures have been taken. They are called residual risks. On this machine, they may include exposure to:

- Heat, noise, exhaust, and carbon monoxide from the engine
- Heat from the lights
- Ultraviolet radiation from the lights
- Fire hazards from improper refueling techniques
- Fuel and its fumes
- Electric shock and arc flash
- Personal injury from improper lifting the trailer tongue



- Glare from lights (lights may blind drivers of nearby motor vehicles if the lights are incorrectly positioned)
  - Typical hazards related to towing a trailer on roads and highways
- To protect yourself and others, make sure you thoroughly read and understand the safety information presented in this manual before operating the machine.

### 1.3 Safety Guidelines for Operating the Machine

#### Operator training

Before operating the machine:

- Read and understand the operating instructions contained in all manuals delivered with the machine.
- Familiarize yourself with the location and proper use of all controls and safety devices.
- Contact Wacker Neuson for additional training if necessary.

When operating this machine:

- Do not allow improperly trained people to operate the machine. People operating the machine must be familiar with the potential risks and hazards associated with it.

#### Operator qualifications

Only trained personnel are permitted to start, operate, and shut down the machine. They also must meet the following qualifications:

- have received instruction on how to properly use the machine
- are familiar with required safety devices

The machine must not be accessed or operated by:

- children
- people impaired by alcohol or drugs

#### Application area

Be aware of the application area.

- Keep unauthorized personnel, children, and pets away from the machine.
- Remain aware of changing positions and the movement of other equipment and personnel in the application area/job site.

Be aware of the application area.

- Do not operate the machine in areas that contain flammable objects, fuels, or products that produce flammable vapors.

#### Safety devices, controls, and attachments

Only operate the machine when:

- All safety devices and guards are in place and in working order.
- All controls operate correctly.
- The machine is set up correctly according to the instructions in the Operator's Manual.
- The machine is clean.
- The machine's labels are legible.

To ensure safe operation of the machine:

- Do not operate the machine if any safety devices or guards are missing or inoperative.
- Do not modify or defeat the safety devices.
- Only use accessories or attachments that are approved by Wacker Neuson.

## Safe operating practices

When operating this machine:

- Remain aware of the machine's moving parts. Keep hands, feet, and loose clothing away from the machine's moving parts.

When operating this machine:

- Do not operate a machine in need of repair.

## Personal Protective Equipment (PPE)

Wear the following Personal Protective Equipment (PPE) while operating this machine:

- Close-fitting work clothes that do not hinder movement
- Safety glasses with side shields
- Hearing protection
- Safety-toed footwear

## Before Starting

- Be sure the machine is on a firm, level surface and will not tip, roll, slide, or fall while operating.
- Never connect machine to other power sources, such as supply mains of power companies.
- Never use the machine if the insulation on the electrical cord is cut or worn through.
- Never raise the tower or operate the machine in high winds.
- The tower extends up to 8.7 m (28.54 ft.). Make sure the area above the trailer is open and clear of overhead wires and obstructions.

## Operation

- Keep the area under and around the lights clear of people while raising and lowering the tower.
- Do not move the Light Tower while it is operating.

## After Use

- Stop the engine when the machine is not being operated.
- Close the fuel valve on engines equipped with one when machine is not being operated.
- Ensure that the machine will not tip over, roll, slide, or fall when not being operated.
- Store the machine properly when it is not being used. The machine should be stored in a clean, dry location out of the reach of children.
- Lower the tower when not in use, or if high winds or electrical storms are expected in the area.
- The lamps become extremely hot in use! Allow the lamp and fixture to cool 10,Ä15 minutes before handling.

## 1.4 Lamp Safety

**Description** The lamps provided with your Light Tower are electric discharge lamps. They are designed for use with metal halide ballasts only, and require time to reach full brightness on initial startup and after a power interruption. These lamps comply with FDA regulation performance standards 21 CFR 1040-30.



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**WARNING**

Personal injury hazard. Broken or punctured lamps can cause serious skin burns and eye inflammation from shortwave ultraviolet radiation.

- ⌄ Do not operate the Light Tower if a lamp is damaged.
  - Replace damaged lamps immediately.
- 

**Operating safety**

- Replace damaged lamps according to the instructions in section *Removing / Replacing Lamps*.
- Alternative lamps that automatically extinguish when the outer envelope is broken or punctured are commercially available.

## 1.5 Hydraulic Fluid Safety



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**WARNING**

Possibility of severe injury. Hydraulic fluid is under high pressure and becomes very hot during operation.

- To avoid injury, obey the safety instructions listed below.
- 

**Safety instructions**

- Inspect the hydraulic system thoroughly before operating the machine.
- Do not touch hydraulic fluid or hydraulic components while the machine is operating. Wait until the machine is cool.
- Before disconnecting hydraulic fittings or hoses, ensure that all pressure has been bled from the circuit. Set all controls in neutral, turn engine off, and allow the fluids to cool before loosening hydraulic fittings or attaching test gauges.
- Hydraulic fluid escaping under high pressure may penetrate the skin, cause burns, blind, or cause other serious injuries or infections. Contact a physician immediately for treatment if your skin has been penetrated by hydraulic fluid, even if the wound seems minor.
- Fluid leaks from small holes are often practically invisible. Do not use your bare hands to check for leaks. Check for leaks using a piece of cardboard or wood.
- Hydraulic fluid is extremely flammable. Stop the engine immediately if a hydraulic leak is detected.
- After servicing the hydraulics, make sure all components are reconnected to the proper fittings. Failure to do so may result in damage to the machine and/or injury to a person on or near the machine.

## 1.6 Service Safety

## Service training

Before servicing or maintaining the machine:

- Read and understand the instructions contained in all manuals delivered with the machine.
- Familiarize yourself with the location and proper use of all controls and safety devices.
- Only trained personnel shall troubleshoot or repair problems occurring with the machine.
- Contact Wacker Neuson for additional training if necessary.

When servicing or maintaining this machine:

- Do not allow improperly trained people to service or maintain the machine. Personnel servicing or maintaining the machine must be familiar with the associated potential risks and hazards.

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## Precautions

Follow the precautions below when servicing or maintaining the machine.

- Read and understand the service procedures before performing any service to the machine.
- All adjustments and repairs must be completed before operating the machine. Do not operate the machine with a known problem or deficiency.
- All repairs and adjustments shall be completed by a qualified technician.
- Turn off the machine before performing maintenance or making repairs.
- Remain aware of the machine's moving parts. Keep hands, feet, and loose clothing away from the machine's moving parts.
- Re-install the safety devices and guards after repair and maintenance procedures are complete.

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## Machine modifications

When servicing or maintaining the machine:

- Use only accessories/attachments that are approved by Wacker Neuson.

When servicing or maintaining the machine:

- Do not defeat safety devices.
- Do not modify the machine without the express written approval of Wacker Neuson.

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## Replacing parts and labels

- Replace worn or damaged components.
  - Replace all missing and hard-to-read labels.
  - When replacing electrical components, use components that are identical in rating and performance to the original components.
  - When replacement parts are required for this machine, use only Wacker Neuson replacement parts or those parts equivalent to the original in all types of specifications, such as physical dimensions, type, strength, and material.
-

**Cleaning**

When cleaning and servicing the machine:

- Keep the machine clean and free of debris such as leaves, paper, cartons, etc.
- Keep the labels legible.

When cleaning the machine:

- Do not clean the machine while it is running.
- Never use gasoline or other types of fuels or flammable solvents to clean the machine. Fumes from fuels and solvents can become explosive.

**Personal Protective Equipment (PPE)**

Wear the following Personal Protective Equipment (PPE) while servicing or maintaining this machine:

- Close-fitting work clothes that do not hinder movement
- Safety glasses with side shields
- Hearing protection
- Safety-toed footwear

In addition, before servicing or maintaining the machine:

- Tie back long hair.
- Remove all jewelry (including rings).
- Before servicing the Light Tower, make sure the engine start switch is turned to the OFF position, the circuit breakers are open (off), and the negative terminal on battery is disconnected. Do not perform even routine service (oil/filter changes, cleaning, etc.) unless all electrical components are shut down.
- Always turn off light circuit breakers and shut down engine before disconnecting light fixtures or changing light bulbs.

## 1.7 Operator Safety while Using Internal Combustion Engines



### WARNING

Internal combustion engines present special hazards during operation and fueling. Failure to follow the warnings and safety standards could result in severe injury or death.

- Read and follow the warning instructions in the engine owner's manual and the safety guidelines below.



### DANGER

Exhaust gas from the engine contains carbon monoxide, a deadly poison. Exposure to carbon monoxide can kill you in minutes.

- NEVER operate the machine inside an enclosed area, such as a tunnel, unless adequate ventilation is provided through such items as exhaust fans or hoses.

### Operating safety

When running the engine:

- Keep the area around exhaust pipe free of flammable materials.
- Check the fuel lines and the fuel tank for leaks and cracks before starting the engine. Do not run the machine if fuel leaks are present or the fuel lines are loose.

When running the engine:

- Do not smoke while operating the machine.
- Do not run the engine near sparks or open flames.
- Do not touch the engine or muffler while the engine is running or immediately after it has been turned off.
- Do not operate a machine when its fuel cap is loose or missing.
- Do not start the engine if fuel has spilled or a fuel odor is present. Move the machine away from the spill and wipe the machine dry before starting.

### Refueling safety

When refueling the engine:

- Clean up any spilled fuel immediately.
- Refill the fuel tank in a well-ventilated area.
- Replace the fuel tank cap after refueling.
- Use suitable tools for refueling (for example, a fuel hose or funnel).

When refueling the engine:

- Do not smoke.
- Do not refuel a hot or running engine.
- Do not refuel the engine near sparks or open flames.

## 1.8 Safety Guidelines for Lifting and Transporting the Machine

When lifting the machine:

- Make sure slings, chains, hooks, ramps, jacks, forklifts, cranes, hoists, and any other type of lifting device used is attached securely and has enough weight-bearing capacity to lift or hold the machine safely. See section *Technical Data* for machine weight.
- Remain aware of the location of other people when lifting the machine.
- Only use the lifting points and tie-downs described in the Operator's Manual.
- Make sure the transporting vehicle has sufficient load capacity and platform size to safely transport the machine.

To reduce the possibility of injury:

- Do not stand under the machine while it is being lifted or moved.
- Do not get onto the machine while it is being lifted or moved.

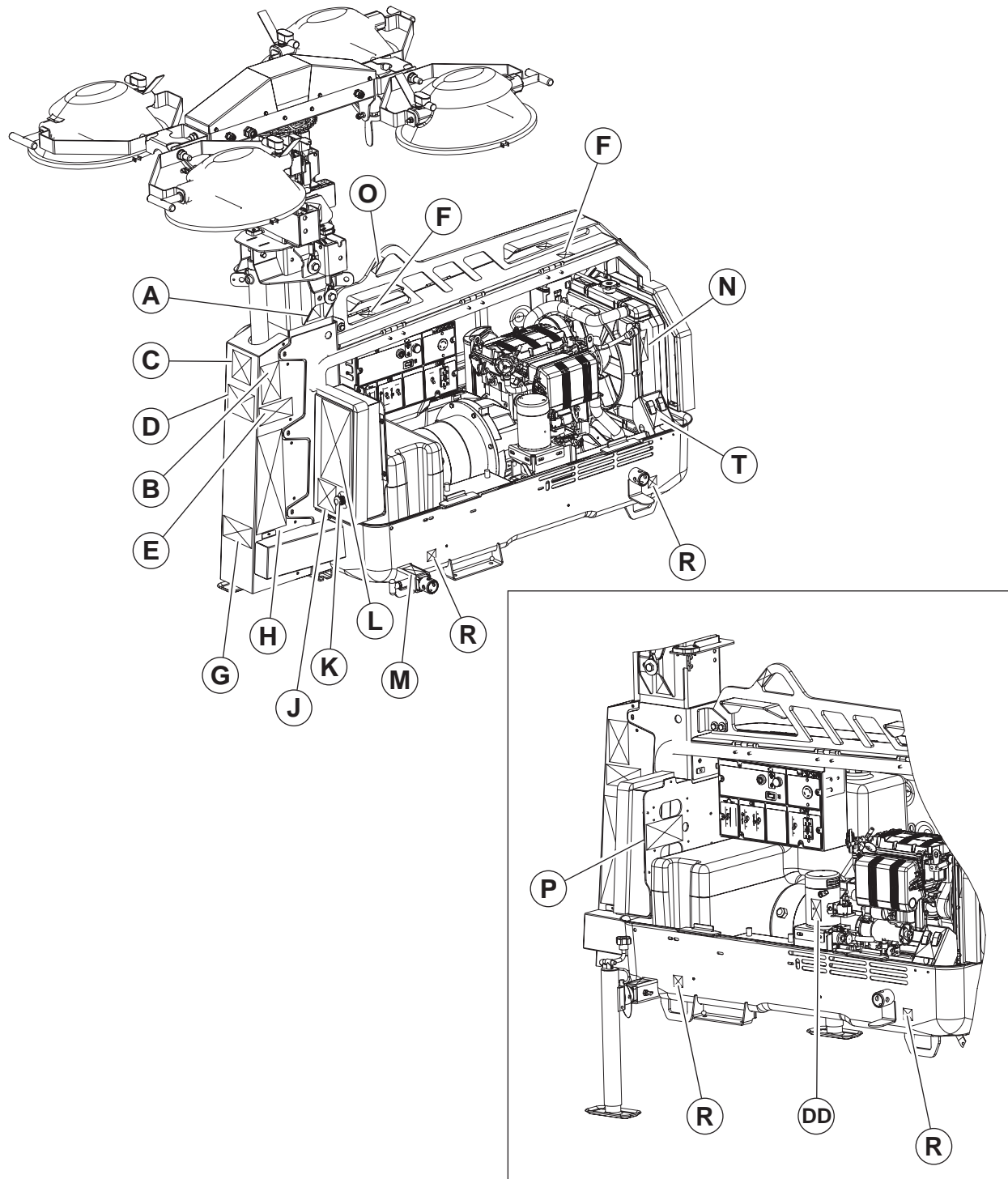
## 1.9 Radiation Compliance

This machine meets the radio interference radiated emission requirements of European Standard EN 13309 for Construction Machinery.

The lamps provided with this machine are electric discharge lamps. They are designed for use with metal halide ballasts only, and require time to reach full brightness on initial startup and after a power interruption. These lamps comply with FDA regulation performance standards 21 CFR 1040-30.

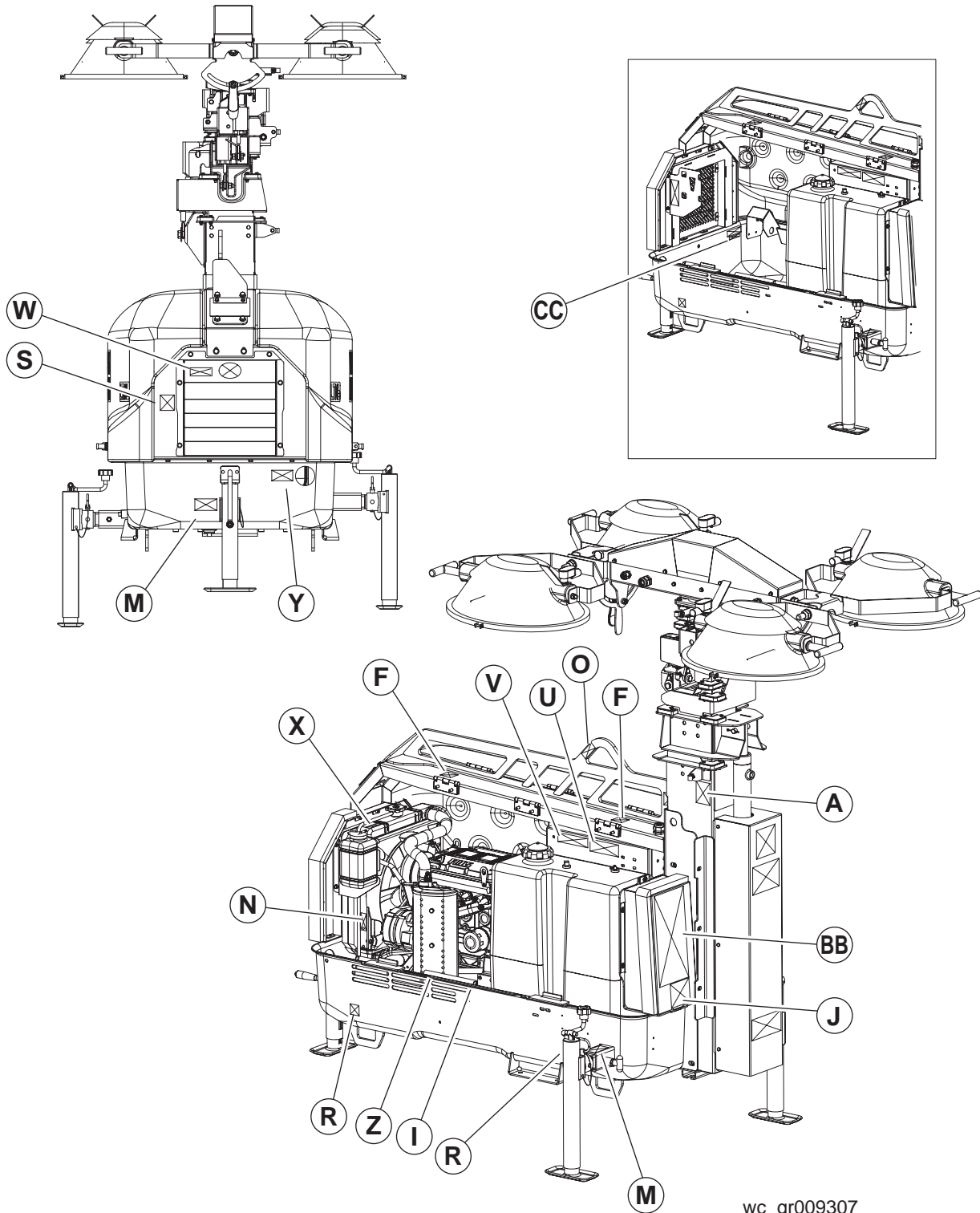
## 2 Labels

### 2.1 Label Locations




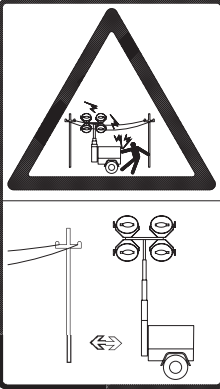

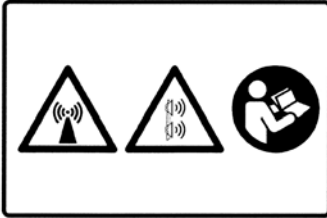
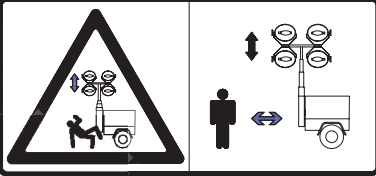
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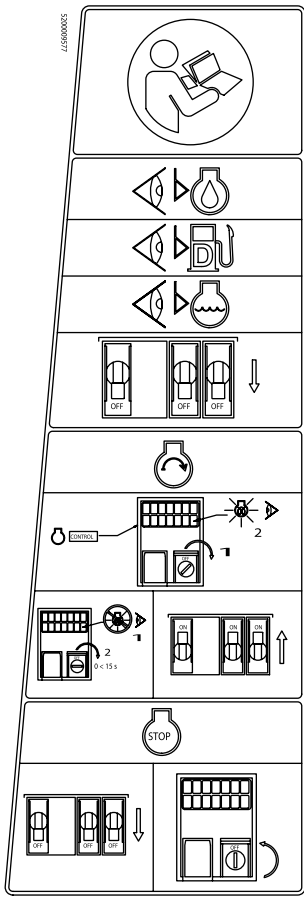




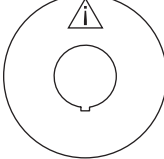
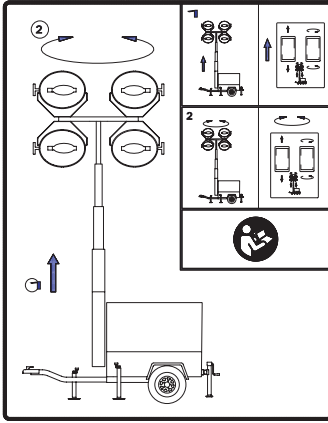
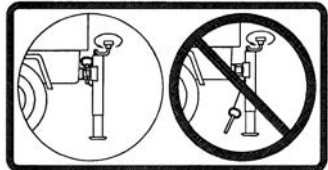






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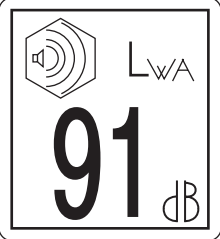
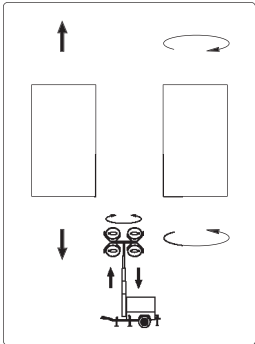



## 2.2 Label Meanings

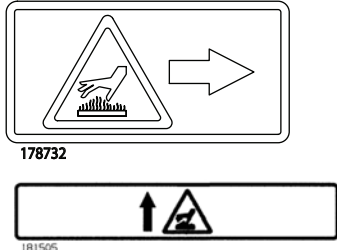
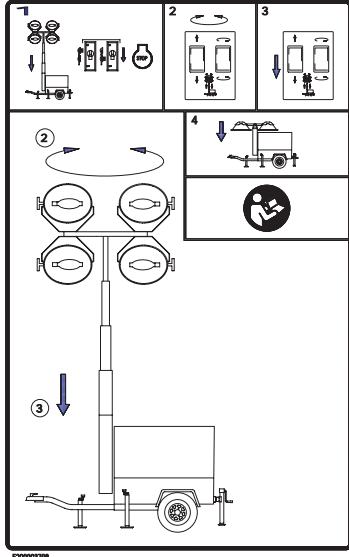
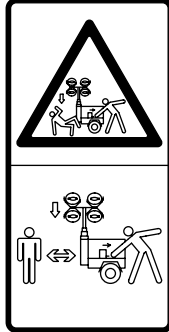
A		<p><b>WARNING</b> Avoid crushing area.</p>
B		<p><b>DANGER</b> Contact with overhead electrical power lines will cause serious injury or death. Do not position Light Tower under electrical power lines.</p>
C		<p>Read and understand the supplied Operator's Manual before operating the machine. Failure to do so increases the risk of injury to yourself and others.</p>
D		<p><b>WARNING</b> Ultraviolet radiation from lamp can cause serious skin and eye irritation. Use only with undamaged lamps. Use only with provided undamaged lens cover and fixture.</p>
E		<p><b>WARNING</b> Crushing hazards. Stand clear of front and rear of machine when tower is being raised or lowered.</p>

<p><b>F</b></p>	 <p>177124</p>	<p>Fork lift pocket</p>
<p><b>G</b></p>	 <p>181300</p>	<p><b>WARNING</b> Roll-over hazard To prevent injury or equipment damage, avoid high speeds and sharp turns when towing.</p>
<p><b>H</b></p>	 <p>530000577</p>	<p>See Operator's Manual for metal halide lamp information and troubleshooting.</p> <p><b>BEFORE STARTING THE ENGINE:</b></p> <ol style="list-style-type: none"> <li>1. Check levels of <ul style="list-style-type: none"> <li>■ Engine oil</li> <li>■ Fuel</li> <li>■ Coolant</li> </ul> </li> <li>2. Move the circuit breakers to the OFF position.</li> </ol> <p><b>TO START THE ENGINE:</b></p> <ol style="list-style-type: none"> <li>1. On the engine control panel, turn the key switch to the PREHEAT position; the indicator light will illuminate during preheating.</li> <li>2. When the PREHEAT indicator light goes out, turn the key switch to the START position for a maximum of 15 seconds.</li> <li>3. When the engine is running, move the circuit breakers to the ON position.</li> </ol> <p><b>TO SHUT DOWN THE MACHINE:</b></p> <ul style="list-style-type: none"> <li>■ Move the circuit breakers to the OFF position.</li> <li>■ Turn the key switch to the OFF position to stop the engine.</li> </ul>

I	 <p>5200005891</p>	<p><b>WARNING</b></p> <p>Explosion hazard. Do not use evaporative starting fluids such as ether on this engine. The engine is equipped with a cold starting aid. Using evaporative starting fluids can cause an explosion which can cause engine damage, personal injury, or death. Read and follow the engine starting instructions in this Operator's Manual.</p>
J	 <p>181486</p>	<p><b>WARNING</b></p> <p>Electric shock and arc flash can cause serious injury or death. Electrical storage device within. Contact a qualified electrician for service or to open electrical box.</p>
K		<p>Emergency stop</p>
L	 <p>E00005777</p>	<p><b>Raising the Tower and Rotating the Lights</b></p> <ol style="list-style-type: none"> <li>1. To raise the tower, press the upper half of the switch on the left.</li> <li>2. To rotate the lights, press the upper or lower half of the switch on the right.</li> </ol> <p>Read the Operator's Manual for more information.</p>
M	 <p>177123</p>	<p>Insert jack locking pin before extending jack.</p>

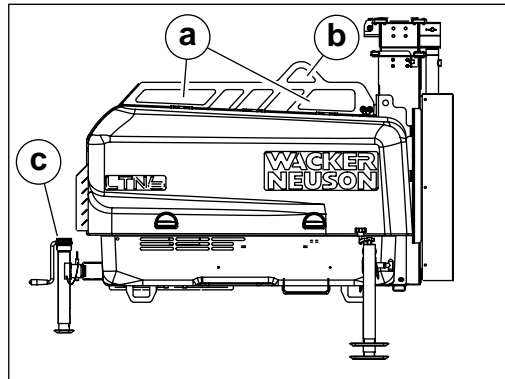
<p>N</p>	 <p>181483</p>	<p><b>WARNING</b> Pressurized contents. Do not open when hot Pinching / cutting hazards. Rotating machinery.</p>
<p>O</p>	 <p>178709</p>	<p><b>NOTICE</b> Lifting point</p>
<p>P</p>		<p><b>DANGER</b> Using a Light Tower indoors CAN KILL YOU IN MINUTES. Light Tower exhaust contains carbon monoxide. This is a poison you cannot see or smell. NEVER use inside a home or garage, EVEN IF doors and windows are open. Only use OUTSIDE and far away from windows, doors, and vents. Read the Operator's Manual.</p>
<p>R</p>	 <p>113726</p>	<p>Tie-down point</p>

<b>S</b>		Guaranteed sound power level in db(A)
<b>T</b>		<p>Tower and light adjustment switches.</p> <ul style="list-style-type: none"> <li>■ The switch on the left controls the up and down movement of the tower.</li> <li>■ The switch on the right controls the auto-rotation of the tower (optional).</li> </ul>
<b>U</b>		<p><b>DANGER</b> No sparks, flames, or burning objects near machine. Stop the engine before adding fuel. Use only diesel fuel.</p>
<b>V</b>		Low sulfur fuel or ultra low sulfur fuel only
<b>X</b>		Coolant overflow bottle only, not a return system.

<p>Y</p> <p>Z</p> <p>W</p>		<p>WARNING</p> <p>Hot surface</p>
<p>BB</p>		<p>Shutting off the Lights and Lowering the Tower</p> <ol style="list-style-type: none"> <li>1. Stop the engine and shut off the lights.</li> <li>2. Rotate the lights so the light bar is parallel to the machine. To rotate the lights, press the upper or lower half of the switch on the right.</li> <li>3. To lower the tower, press the lower half of the switch on the left.</li> <li>4. Loosen the handle and rotate the lights so that they are level with the ground.</li> </ol> <p>Read the Operator's Manual for more information.</p>
<p>CC</p>	<p>U.S.PAT.Nos.: 6012285, 6471476, D416858, D454357 OTHER U.S. AND FOREIGN PATENTS PENDING UTILITY 159116</p>	<p>This machine may be covered by one or more patents.</p>
<p>DD</p>		<p>WARNING</p> <p>Crushing hazards.</p> <p>Stand clear of the front of the machine when the tower is being lowered with the hydraulic manual override valve.</p>

## 3 Lifting the Machine

**Overview** The machine is equipped with fork lift pockets (a) and a lifting eye (b).



wc\_gr009316

**Requirements** Before lifting the machine, make sure that the following requirements have been met.

- ☐ Machine is stopped
- ☐ Tower is completely lowered
- ☐ Lights have been rotated so that they are level with the ground
- ☐ Doors are properly latched
- ☐ Outriggers have been returned to their travel position
- ☐ Outrigger bars and jacks are locked in place
- ☐ Rear jack (c) is completely cranked in and rotated 90°
- ☐ Lifting devices have enough weight-bearing capacity to lift and move the machine safely. See *Technical Data*.

### Lifting the machine

To lift the machine:

- use a forklift and the designated forklift pockets
- attach a sling or chain to the lifting eye



#### WARNING

Crushing hazard. The machine can drop if the lifting gear is attached to any part of the machine other than the designated lifting locations. Only the designated lifting locations can support the weight of the machine.

- Use only the supplied forklift pockets or lifting eye to lift the machine.



#### WARNING

Crushing hazard.

- Keep people away from the machine as it is being lifted. Do not allow anyone to stand beneath the machine.



## 4 Operation

### 4.1 Preparing the Machine for First Use

1. Make sure all loose packaging materials have been removed from the machine.
2. Check the machine and its components for damage. If there is visible damage, do not operate the machine! Contact your Wacker Neuson dealer immediately for assistance.
3. Take inventory of all items included with the machine and verify that all loose components and fasteners are accounted for.
4. Attach component parts not already attached.
5. Add fluids as needed and applicable, including fuel, engine oil, and battery acid.
6. Move the machine to its operating location.

### 4.2 Grounding the Machine

Per ISO 8528-8, this machine is designed with an IT Network power system. Do not externally ground this machine.

### 4.3 Generator Derating

**Description** All generator sets are subject to derating (reduced power output) depending on the altitude and ambient temperature. Derating should not affect the operation of the floodlights, although it will reduce the available reserve power to the receptacle.

---

**Derating percentages** Power ratings are typically reduced by the following percentages:

- 3% per 300 m (1000 ft.) elevation above sea level
- 2% per 5.5°C (10°F) increase in ambient temperature above 25°C (78°F).

## 4.4 Refueling the Machine

- Requirements**
- Machine shut down
  - Engine cool
  - Machine/fuel tank level with the ground
  - Fresh, clean fuel supply

**Procedure** Perform the procedure below to refuel the machine.

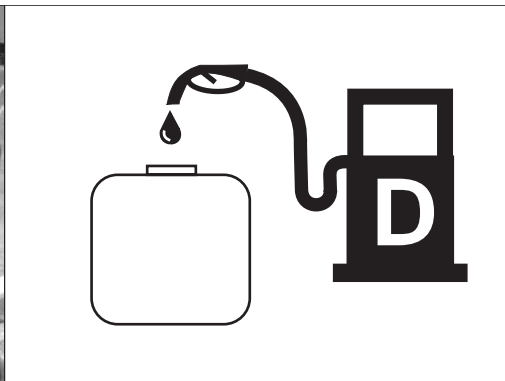
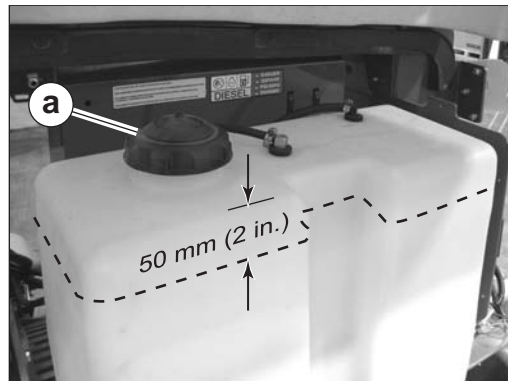


**WARNING**

Fire hazard. Fuel and its vapors are extremely flammable. Burning fuel can cause severe burns.

- ▶ Keep all sources of ignition away from the machine while refueling.
- ▶ Refuel only when the machine is outdoors.
- ▶ Clean up spilled fuel immediately.

1. Remove the fuel cap (a).



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2. Fill the fuel tank, allowing a minimum of 50 mm (2 in.) expansion space between the fuel level and the top of the tank.



**CAUTION**

Fire and health hazard. Fuel expands when heated. Expanding fuel in an over-filled tank can lead to spills and leaks.

- ▶ Do not fill the fuel tank completely.

3. Reinstall the fuel cap.

**Result** The procedure to refuel the machine is now complete.

## 4.5 Aiming the Lights - LTN-V

### Overview

- Each individual light fixture can be aimed up, down, left, or right independent of one another. There are four total light fixtures on each machine.
- The light bars, which include two light fixtures each, can be tilted 45° in each direction from horizontal.
- This procedure is not for rotating the lights as a single unit while the tower is raised. This procedure requires the tower is lowered and the machine is stopped. To rotate the lights, see topic *Rotating the Lights*.

### Requirements

Before adjusting the lights, make sure that the following conditions have been met.

- Machine is stopped
- Tower is completely lowered
- Lights are cool to the touch

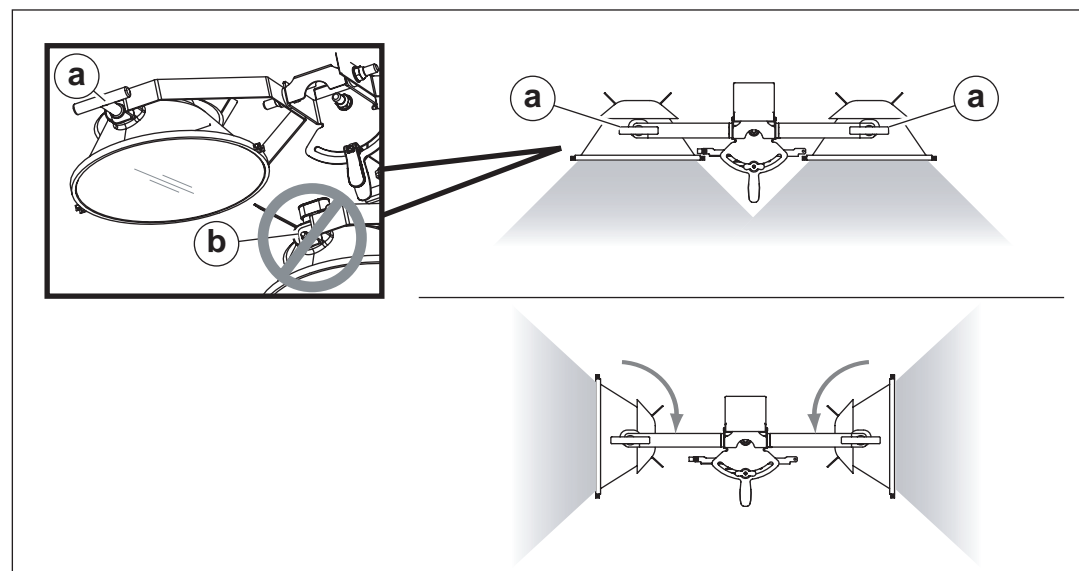
### Aiming the light fixtures

#### Aiming Up or Down

Perform the procedure below to aim an individual light fixture up or down.

1. Loosen the T-handle (a) and aim the light up or down.

**NOTICE:** Do not loosen the nut (b). Damage to the light fixture may occur.



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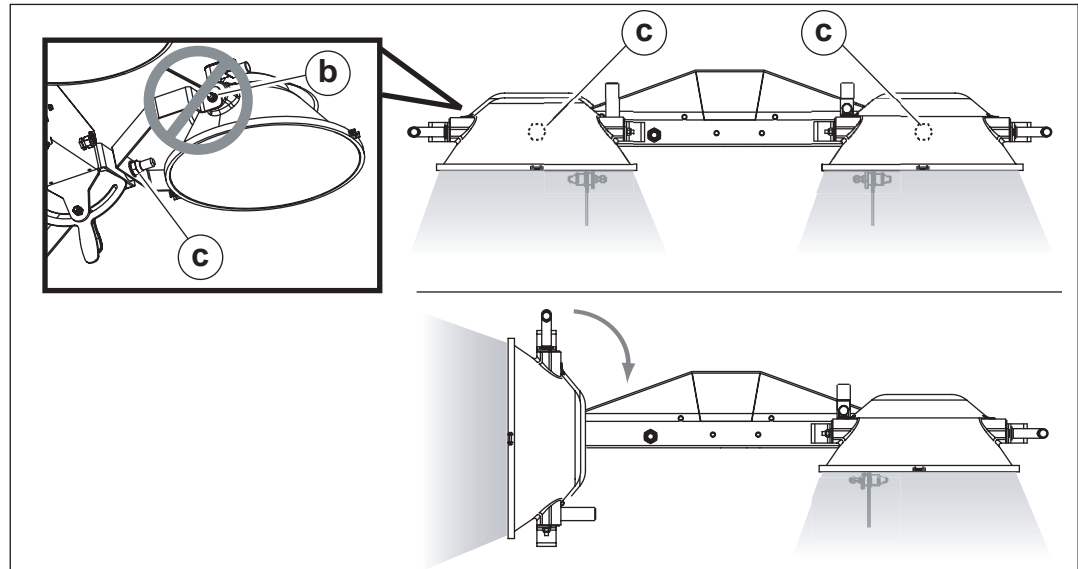
2. Tighten the T-handle (a) when the light is aimed properly.
  3. Repeat steps 1—3 for each remaining light fixture, if desired.
- This procedure continues on the next page.*

*Continued from the previous page.*

## Aiming Left or Right

1. Grasp the light fixture and aim it to the light left or right. If necessary, loosen the bracket nut (c) to allow movement of the fixture.

**NOTICE:** Do not loosen the nut (b). Damage to the light fixture may occur.



2. If loosened, tighten the bracket nut (c) when the light is aimed properly.

**Note:** The bracket nut (c) should be only tight enough so that slight resistance is present when aiming the fixture.

3. Repeat steps 1—2 for each remaining light fixture, if desired.

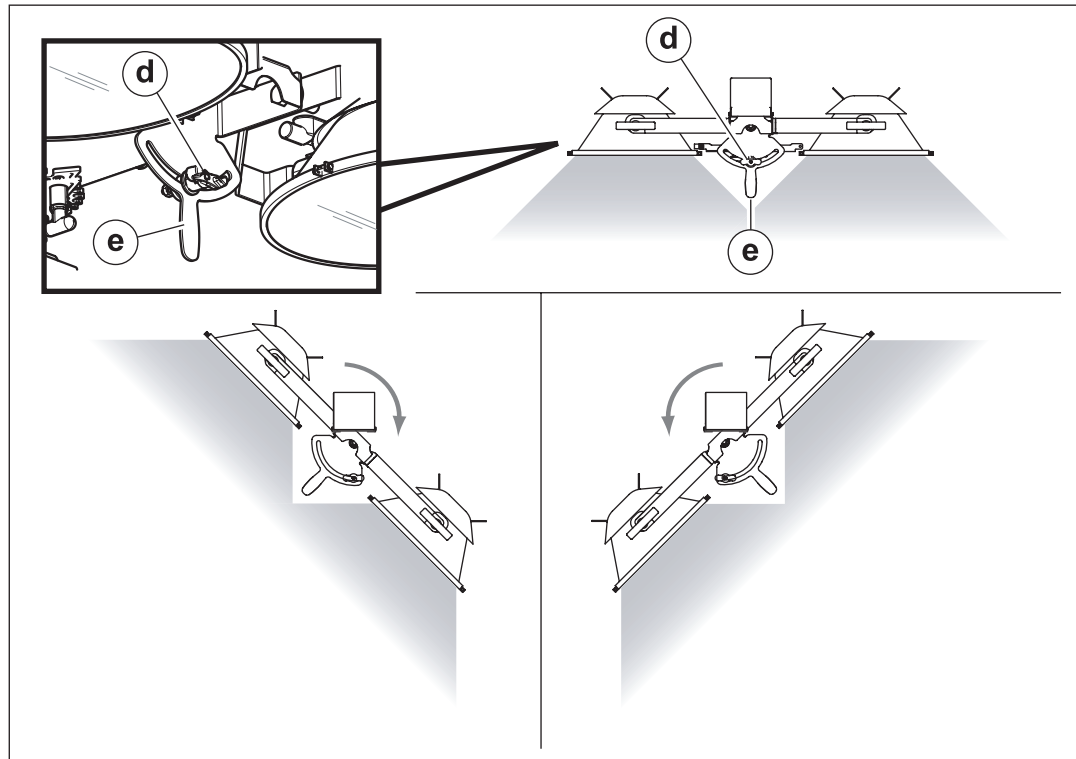
*This procedure continues on the next page.*

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### Aiming the light bars

Perform the procedure below to aim the light bars.

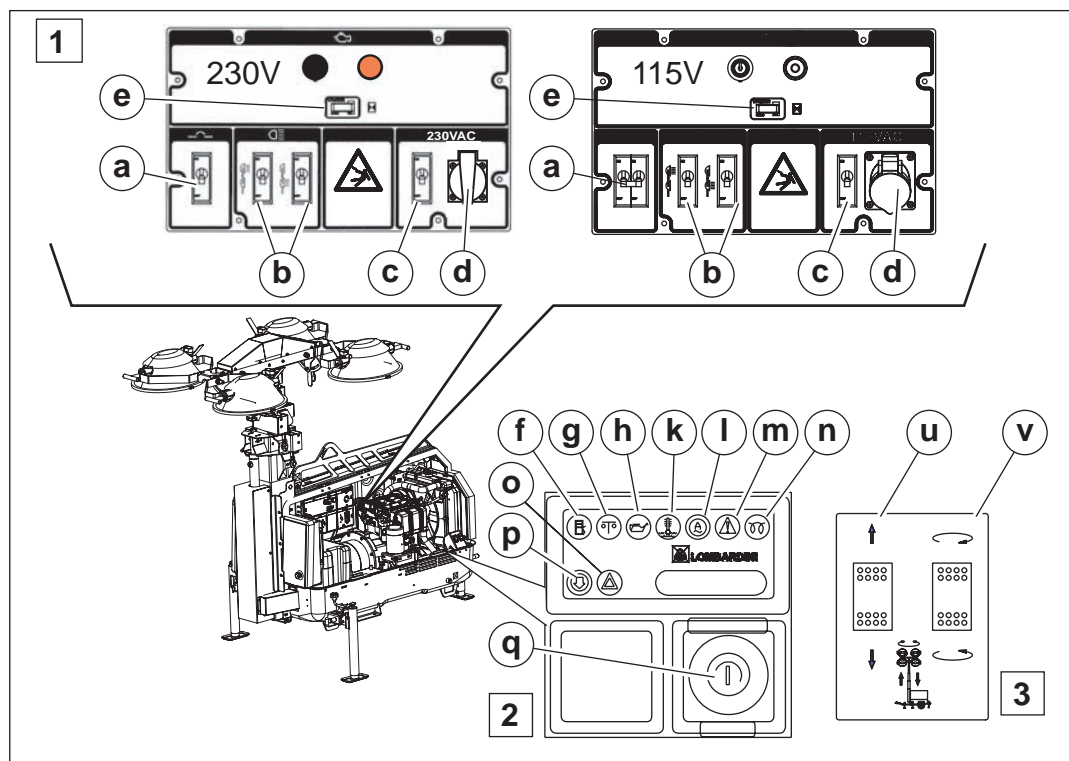
1. Loosen the knob **(d)**, grasp the handles **(e)**, and tilt the light bar to the desired angle.



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2. Tighten the knob **(d)** when the light bar is in the desired position.
3. Repeat steps 1—2 for the other light bar, if desired.

## 4.6 Control Panels



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Ref.	Description	Ref.	Description
1	Floodlight control panel	h	Low oil pressure shutdown
2	Engine control panel	k	High coolant temp. shutdown
3	Tower switch panel	l	Alternator indicator
a	25A circuit breaker	m	Auxiliary lights (not used)
b	30A lights circuit breaker	n	Glow plug indicator
c	16A circuit breaker	o	Air filter restriction indicator
d	16A receptacle	p	Auxiliary lights (not used)
e	Hour meter	q	Key access door
f	Low fuel indicator (not used)	u	Tower switch (raise / lower)
g	Safety shutdown indicator	v	Lights rotation switch

## 4.7 Before Starting

Before putting the Light Tower into service, review each item on the following checklist. Light Towers often run unattended for long periods of time. Therefore, it is important to make sure that the machine is set up properly to avoid possible operating problems.



### CAUTION

Improper machine setup may cause injury or equipment damage.

- Perform all pre-start checks listed below. Do not operate the machine until all items on the checklist have been addressed.

#### Check machine condition

- ☐ Verify that the machine is level and positioned on a stable surface.
- ☐ Perform a walk-around to check for visible damage.
- ☐ Inspect the lights and lamps: ensure that glass is not broken or cracked.
- ☐ Ensure that all electrical connections are tight.
- ☐ Verify that all electrical cords are in serviceable condition with no exposed wires, cuts, or cracks in the insulation.
- ☐ Close and secure access covers before starting the machine.

#### Check the engine

- ☐ Check fuel, engine oil, and coolant levels. Add fluids if necessary.
- ☐ Verify that the air filter element is clean and undamaged. Replace if necessary.
- ☐ Check to make sure no debris has lodged in vents, near the radiator, or around the fan.
- ☐ Check to make sure that the exhaust compartment is clean and nothing is touching the muffler or exhaust pipes.
- ☐ Check fan belt and hoses on engine for loose connections or fraying. Tighten or replace as required.

#### Review safety information

- ☐ Review and follow instructions provided in the "Safety Information" chapter at the beginning of this Operator's Manual.

## 4.8 Positioning the Machine

**DANGER**

Asphyxiation hazard. Exhaust gas from the machine contains carbon monoxide, a deadly poison you cannot see or smell. Exposure to carbon monoxide can kill you in minutes.

- Position the machine so that exhaust will not enter any nearby structures.

**WARNING**

Fire hazard. Do not move the machine while it is running.

- Shut down the machine before moving or repositioning it.

**WARNING**

Electric shock hazard. The tower extends up to 9 m (30 ft.) and could contact overhead wires or obstructions.

- Position the trailer on a firm, flat surface clear of overhead wires and obstructions.

**WARNING**

Fire hazard. Machines positioned on a hill or an incline may slide, break away or roll over.

- Do not position the machine on a hill or an incline.

**WARNING**

Explosion and fire hazard. Risk of severe injury or death.

- Do not operate the machine near flammable vapors, fuels, or combustibles.

**CO Alarms**

Because this machine produces carbon monoxide (CO), Wacker Neuson recommends that CO alarms be installed in all structures in close proximity to the machine. CO alarms provide an extra measure of protection against this poison that you cannot see or smell.

Install battery-operated CO alarms or plug-in CO alarms with battery backup, according to the manufacturer's instructions. CO alarms should be certified to the requirements of the latest safety standards (UL 2034, IAS 6-96, or CSA 6.19.01). Test the CO alarm batteries monthly.

**Requirements**

Position the machine:

- so that machine exhaust will not enter nearby structures.
- so that the machine does not block traffic.
- so that the machine is not near any combustible material or flammable vapor.
- so that all of the machine's access doors/panels may be accessed.
- so that the area to be illuminated is at or below the level of the lights.
- so that there is room around the machine for the outriggers to be extended.



## 4.9 Starting the Machine

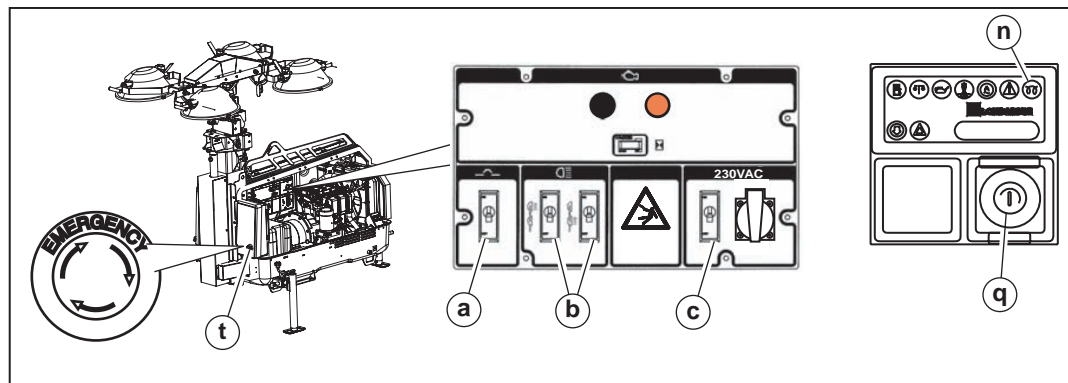
### Pre-start checklist

Check the following items before starting the machine.

- ☐ Engine oil, fuel and coolant are filled to the proper levels.
- ☐ Electrical cables in good condition with no cuts or abrasions in the insulation.
- ☐ Circuit breakers (a, b, c) are in their "OFF" positions.
- ☐ **Emergency stop switch (t) is pulled out.**
- ☐ All loads are disconnected from the machine.

### NOTICES

- Do not use evaporative starting fluids (i.e., ether) to start the engine.
- Do not start the engine under load.
- If the fuel tank was empty, you may need to bleed the fuel lines. Refer to the engine manufacturer's documentation.



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### Procedure

Follow the procedure below to start the machine.

1. Rotate the starting key (q) one click to the right.
  - The glow plug indicator (n) will illuminate.
  - The glow plug indicator will turn off when the engine is preheated.
2. Immediately rotate and hold the starting key to the "START" position until the engine starts, then release the key.

**NOTICE:** Cranking the engine longer than 20 seconds can cause damage. If the engine does not start, return the starting key to the "OFF" position and wait 1 minute for the starter motor to cool before proceeding.

3. Allow the engine to warm up before operating the lights.

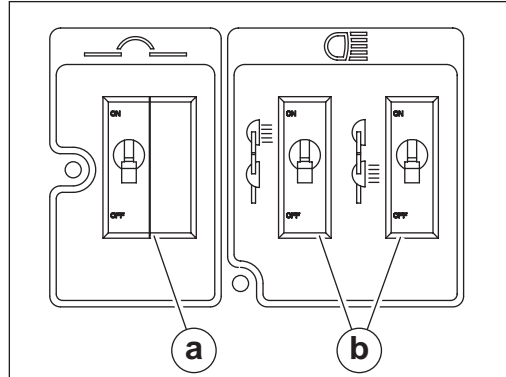
**Note:** If the oil does not reach operating pressure within 30 seconds, the engine will stop. You must return the starting key to the "OFF" position for 30 seconds before restarting the engine.

## 4.10 Operating the Lights

- Requirements**
- All items in “Before Starting” checklist have been checked
  - Tower is raised to the desired height
  - Engine is running and has warmed up

**Procedure** Perform the procedure below to operate the lights.

1. Turn on the main circuit breaker **(a)**.



2. Turn on individual circuit breakers **(b)** one at a time.

- Notes**
- Metal halide floodlights require a warm-up time of 5–15 minutes before they reach full brightness.
  - After turning the lights off, a cool-down time of 10 minutes is necessary before they can be turned on again.

## 4.11 Raising the Tower - LTN 6L-V

**Overview** The tower is raised by the action of a hydraulic cylinder (c).  
**Note:** The tower can be raised without running the engine.



### WARNING

Personal injury hazard. Raising or lowering the tower creates situations that if not avoided, will cause death or serious injury from striking, crushing, pinching, electrocution, etc.

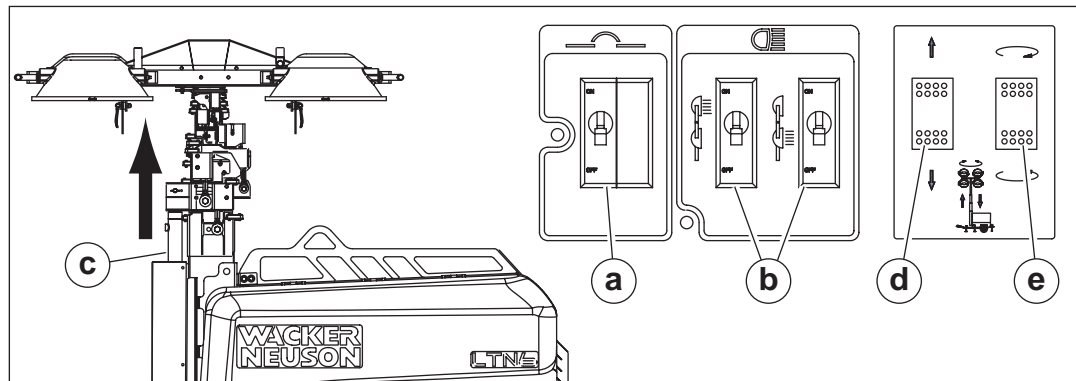
- Keep the area under and around the lights clear of people and obstructions while raising and lowering the tower.

**Procedure** Perform the procedure below to raise the tower.

1. If equipped, engage the parking brake on the trailer.

**Note:** The tower will not raise if the brake is not engaged.

2. Aim the lights. See topic *Aiming the Lights*.
3. Start the engine. See topic *Starting the Machine*.
4. Turn on the circuit breakers (a,b). See topic *Operating the Lights*.



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5. Press and hold the upper half of the tower switch (d). Release the switch when the tower reaches the desired height. See topic *Rotating the Mast* for more information.

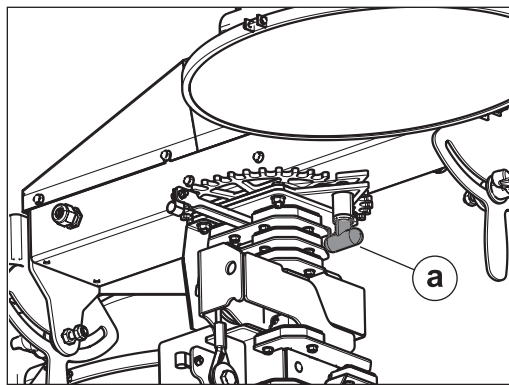
## 4.12 Manually Rotating the Mast

**Overview** The operator can rotate the mast 360° while the tower is lowered.

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**Procedure** To rotate the mast, perform the procedure below.

1. Pull out the locking pin **(a)** on the bottom of the mast.



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2. Rotate the mast to the desired position.
3. Engage the locking pin **(a)**.

**Note:** Be sure the locking pin seats into a groove on the sprocket.

## 4.13 Lowering the Tower

**Overview** A low-voltage electrical circuit controls the release of pressure in the hydraulic cylinder **(c)**. When pressure is released, the tower will lower.

- Notes**
- The engine does not need to be running to lower the tower.
  - The hydraulic circuit includes a pressure release valve that lowers the tower in an emergency situation. See topic *Emergency Shutdown Procedure*.
  - If the parking brake on the trailer is disengaged while the tower is raised, it will lower automatically.



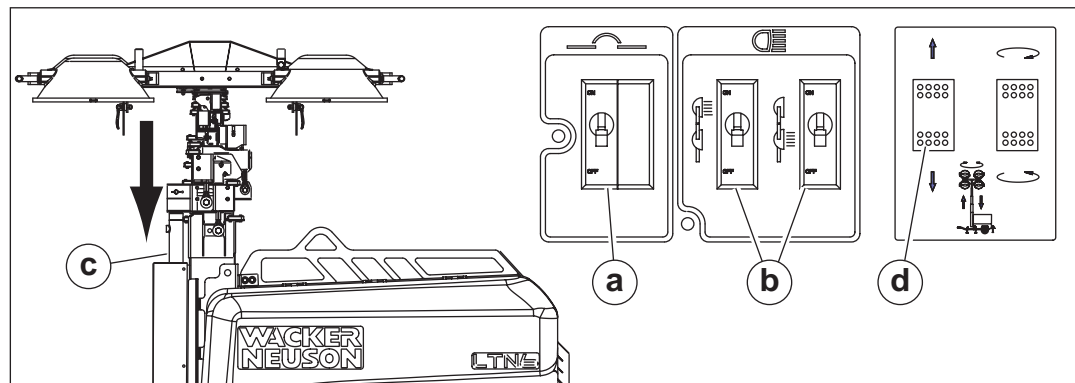
### WARNING

Personal injury hazard. Raising or lowering the tower creates situations that if not avoided, will cause death or serious injury from striking, crushing, pinching, electrocution, etc.

- Keep the area under and around the lights clear of people and obstructions while raising and lowering the tower.

**Procedure** Perform the procedure below to lower the tower.

1. Stop the engine.
2. Turn off the circuit breakers **(a, b)**.



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3. Press and hold the lower half of the tower switch **(d)**. Release the switch when the tower is completely lowered.

## 4.14 Automatic Shutdown

**Description** This machine is equipped with a low oil, high temperature automatic shutdown system. This system will automatically interrupt the fuel supply to the engine if the oil pressure drops too low or the engine exceeds normal operating temperatures.

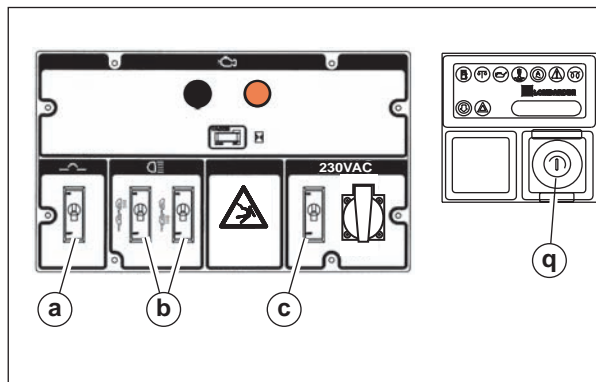
**Resetting after automatic shutdown** If an automatic shutdown occurs, the engine will stop. Return the key switch to the off position to reset the system.  
See *Troubleshooting* or contact Wacker Neuson Product Support if automatic shutdown frequently occurs.

## 4.15 Stopping the Machine

**NOTICE:** Do not stop the machine without turning off the lights. Damage to the electrical generator will occur.

**Procedure** Follow the procedure below to stop the machine.

1. Remove all connected loads from the machine.
2. Turn the circuit breakers **(a, b, c)** off.



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3. Rotate the starting key **(q)** to the "OFF" position.

## 4.16 Emergency Shutdown Procedure

### General procedures

If a breakdown or accident occurs while the machine is operating, follow the procedure below:

1. Stop the engine.
2. Disconnect tools.
3. Lower the tower.
4. Allow the machine to cool before opening the cabinet.
5. Contact the rental yard or machine owner for further instructions.

### Hydraulic release valve

The hydraulic pump **(b)** is equipped with a pressure release valve **(c)**. This valve enables the tower to be lowered manually.

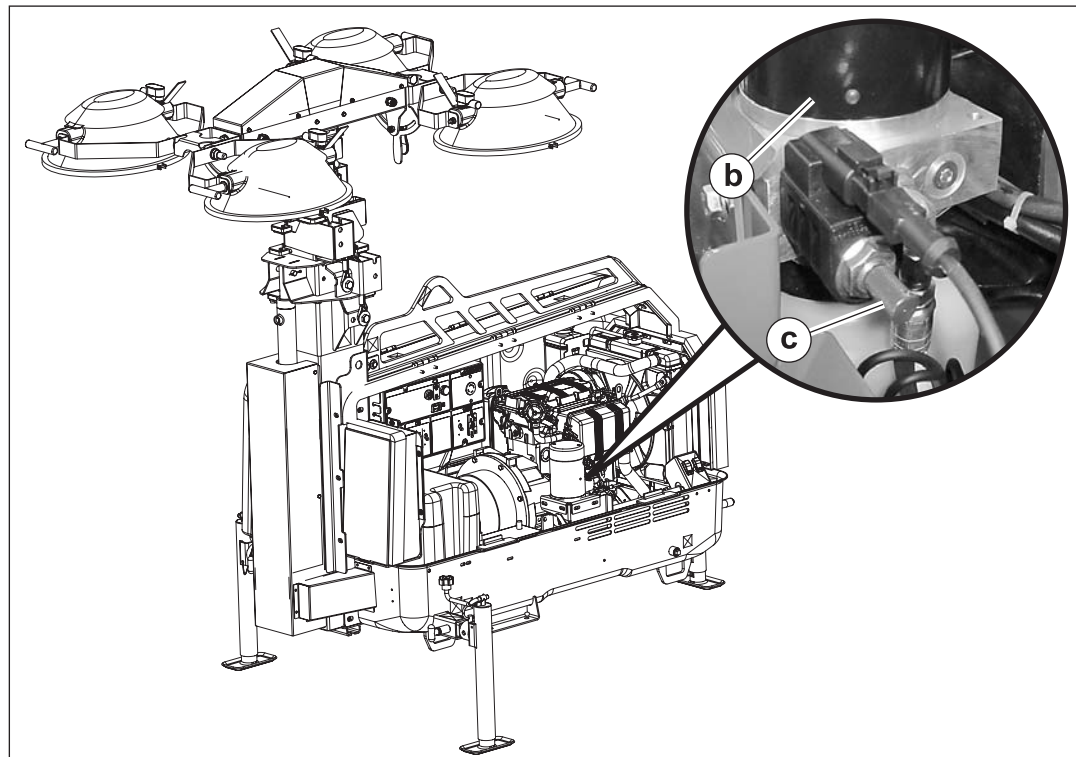
- If electrical power is lost, or the tower switch is inoperable, pull out and hold the knob on the pressure release valve. The hydraulic cylinder will retract and the tower will lower. Push the knob to close the valve after the tower is fully lowered.



### WARNING

Crushing / striking hazard.

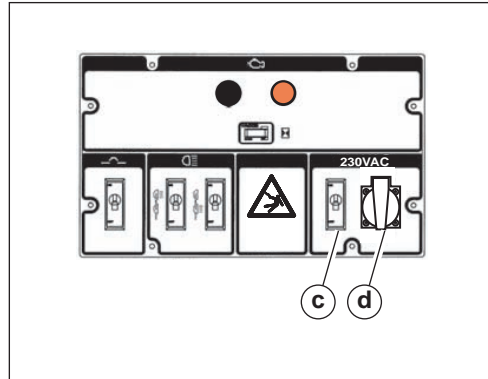
- Verify that no one is standing next to the machine while the tower is being lowered.



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## 4.17 Receptacle - 50 Hz

**Description** This machine is equipped with a convenience receptacle **(d)** for running accessories and tools from the generator. A circuit breaker **(c)** protects the receptacle. Power to the receptacle is available any time the engine is running and the circuit breaker is on.



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### NOTICES

Obey the instructions below to avoid damaging the machine, accessories, or tools.

- Do not use frayed or damaged cords or plugs with the convenience receptacle.
- The maximum wattage (lights on) drawn from the receptacles shall not exceed:
  - convenience receptacle-840W
  - 230V receptacle-1680W
- Use only tough rubber-sheathed flexible cable or equivalent. (per 1EC245-4).
- When using extension cords or mobile distribution networks, the total length of cords with a cross-sectional area of 1.5 mm<sup>2</sup> (0.002 in<sup>2</sup>) should not exceed 60 m (197 ft). For cords with a cross-sectional area of 2.5 mm<sup>2</sup> (0.004 in<sup>2</sup>), the total length should not exceed 100 m (328 ft).
- This machine generates increased voltage while the lights are reaching full brightness. To avoid damaging sensitive electronic equipment, do not connect any such devices to the convenience outlet until the machine and lights have been operating for at least ten minutes.



## 5 Maintenance



---

**WARNING**

A poorly maintained machine can malfunction, causing injuries or permanent damage to the machine.

- Keep the machine in safe operating condition by performing periodic maintenance and making repairs as needed.
- 

### 5.1 Preparing for Maintenance

Do not perform even routine service (oil/filter changes, cleaning, etc.) unless all electrical components are shut down. Use the checklist below to prepare this machine for maintenance.

- ☐ Move the start switch to “OFF”.
- ☐ Open the circuit breakers (move to the “OFF” position).
- ☐ Close the emergency stop switch (push in).
- ☐ Disconnect the negative terminal on the battery.
- ☐ Attach a “DO NOT START” sign to the control panel.
- ☐ If the unit is connected to a remote start or transfer switch, make sure the remote switch is also off and tagged.

## 5.2 Periodic Maintenance Schedule

The table below lists basic machine maintenance. Tasks designated with check marks may be performed by the operator. Tasks designated with square bullet points require special training and equipment.

Item	Interval* (hours of service)			
	(10) Daily	(250) 3 months	(500) 6 months	(1000) Yearly
Clean the machine.	✓			
Inspect the machine.	✓			
Check for fluid leaks.	✓			
Check all fluid levels.	✓			
Check engine oil.	✓			
Check fuel level.	✓			
Replace air filter if indicator light is on.*	■			
Change engine oil.**		■		
Check condition and tension on fan belt.		■		
Check condition of radiator hoses.		■		
Replace oil filter.*		■		
Replace fuel filter.		■		
Replace fan belt.			■	
Check valve clearance.			■	
Flush radiator and replace coolant.				■
Remove sediment in fuel tank.				■
Replace battery.				■
Replace radiator hoses and clamps.				■
Replace fuel pipes and clamps.				■
<p>* Replace air filter after air filter restriction switch indication or one year. Lombardini does not recommend the removal of air filter elements for purposes of inspection.</p> <p>** Change engine oil and filter after first 50 hours of operation.</p>				

### 5.3 Cleaning the Machine

**When** As needed

- Requirements**
- Clean water supply
  - Mild detergent
  - Clean, dry cloths

**NOTICE:** Do not use a pressure washer to clean this machine. Pressurized water can severely damage the generator and sensitive electronic components.

- Interior**
- Clean the interior of the machine.
- ☐ Remove rags, containers, or other debris from the cabinet. Nothing should be stored inside the machine.
  - ☐ Remove leaves and twigs from the exhaust pipe.
  - ☐ Wipe interior surfaces clean of oil, dust, and dirt.

**Exterior** Clean the exterior of the machine with clean water and a mild detergent.

### 5.4 Inspecting the Machine

**When** Daily

**Overview** Inspect the machine before each use. A thorough inspection will help to identify mechanical faults or potentially unsafe operating conditions. Correct these problems before operating the machine.

- External inspection** Perform an external inspection of the machine. Check for:
- ☐ External damage (dents, cracks, broken door latches, etc.)
  - ☐ Loose or missing fasteners
  - ☐ Loose or missing parts
  - ☐ Cut or worn insulation on electrical cords
  - ☐ Damaged light fixtures or lamps
  - ☐ Fluid leaks
  - ☐ Restricted air flow at the engine exhaust
  - ☐ Problems with the trailer (if equipped)—see “Maintaining the Trailer”

- Internal inspection** Open the access doors on both sides of the machine. Check for:
- ☐ Damage to control panels, switches, or convenience receptacles
  - ☐ Loose or missing fasteners
  - ☐ Loose or missing parts
  - ☐ Loose or damaged hoses
  - ☐ Fluid leaks
  - ☐ Rags, containers, or other debris inside the cabinet

## 5.5 Checking the Engine Oil Level

**When** Daily before starting the engine

- Requirements**
- Engine is stopped and cool to the touch
  - Machine is on a level surface
  - Clean, dry cloth
  - Fresh oil



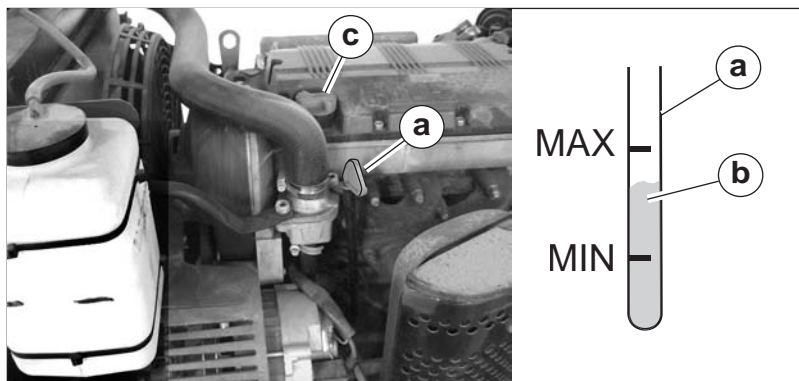
**WARNING**

Burn hazard. Engine, engine oil, muffler, and exhaust pipes become extremely hot during operation.

- Stop the engine and allow the machine to cool before checking the engine oil level.

**Procedure** Perform the procedure below to check the engine oil level.

1. Remove the dipstick **(a)** from the engine.



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2. Wipe the dipstick clean and re-insert it.
3. Remove the dipstick again and check the oil level **(b)**. The oil level is acceptable if it appears between the "MIN" and "MAX" markings on the dipstick.
4. If the oil level is below the "MIN" marking on the dipstick, do not operate the engine. Add oil as needed through the oil fill **(c)** to reach an acceptable level.

**Result** The oil level has now been checked.

## 5.6 Flushing the Radiator

**When** Every 1000 hours or 2 years

- Requirements**
- Engine is stopped and cool to the touch
  - Plastic sheet
  - Container of suitable size to collect drained coolant
  - Fresh 50/50 coolant/water solution

**Procedure** Perform the procedure below to flush the radiator.



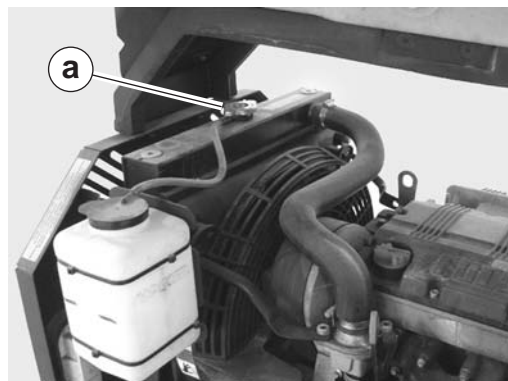
### **WARNING**

Burn hazard. Engine coolant is hot and under pressure at operating temperature.

- Stop the engine and let it cool before flushing the radiator.

**NOTICE:** Do not add fluid to the over-flow reservoir.

1. Open one of the cabinet doors.



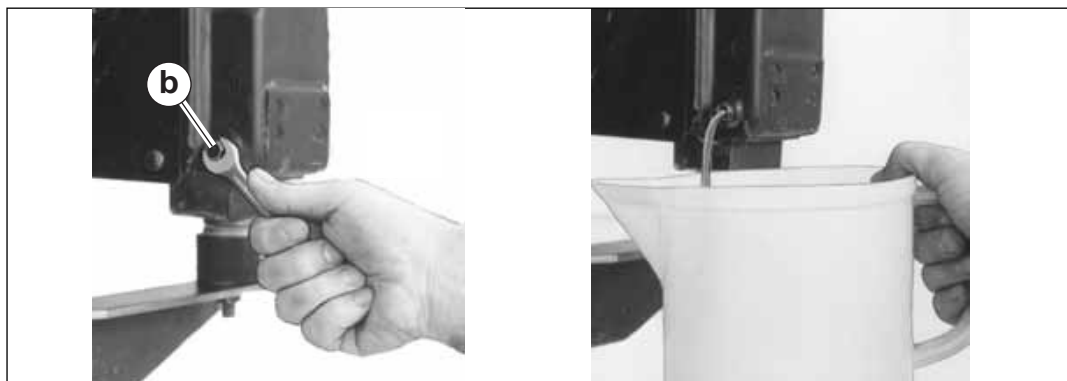
wc\_gr009363

2. Slowly rotate the radiator cap **(a)** counterclockwise to release any remaining system pressure. Unscrew and remove the radiator cap after the pressure has been released.
3. Place a plastic sheet and container under the radiator.

*This procedure continues on the next page.*

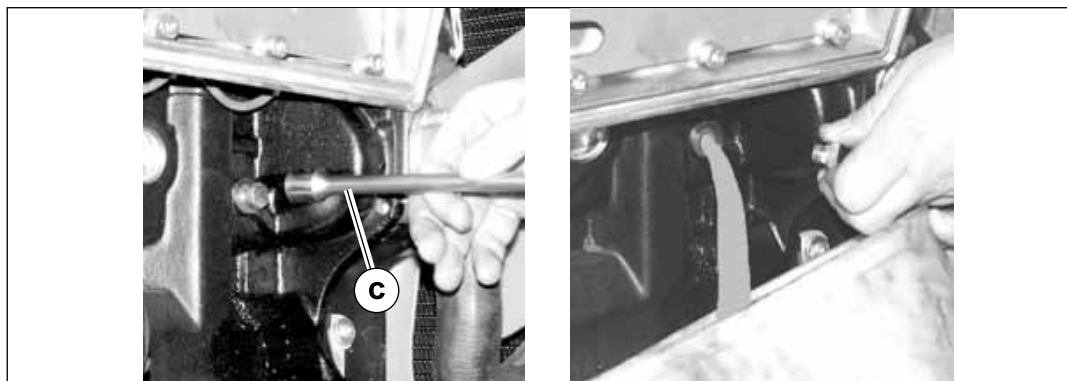
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4. Open the radiator drain **(b)** and let the coolant drain into the container.



wc\_gr009465

5. Close the radiator drain.
6. Remove the engine block coolant plug and let the remaining coolant drain into the container.



wc\_gr009468

7. Replace the copper seal and reinstall the plug. Tighten the plug to 16.2 ft.lbs. (22 Nm).
8. Fill the radiator to approximately 19 mm (3/4 in.) below the bottom of the filler neck. Add more coolant if necessary to maintain this level.

**NOTICE:** Do not overfill the radiator. The machine will be damaged.



#### **WARNING**

Burn hazard. Coolant can contain alkali.

- Avoid contact with skin and eyes.

9. Inspect the radiator filler cap and seal, hoses, clamps, and plugs for damage. Replace any damaged parts.
10. Clean and reinstall the radiator filler cap.

#### **Important**

Use a long-life ethylene glycol coolant in this engine. Refer to the engine owner's manual for more information.

## 5.7 Checking the Engine Coolant Level

**When** Daily

- Requirements**
- Machine shut down
  - Engine cool
  - 50/50 coolant/water solution (as needed)

**NOTICE:** Do not use water alone to fill the radiator. Use a long-life ethylene glycol coolant.

**Procedure** Perform the procedure below to check the engine coolant level.



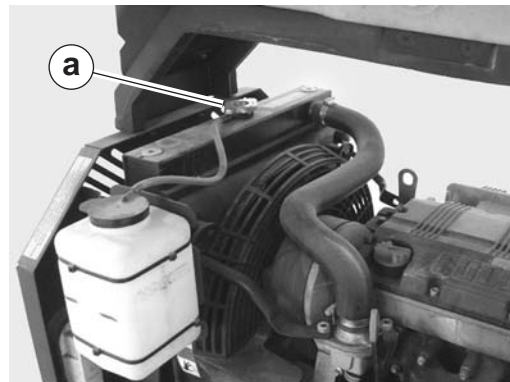
**WARNING**

Burn hazard. Engine coolant is hot and under pressure at operating temperature.

- Check the coolant level only after the engine has been shut down and is cool.

**NOTICE:** Do not add fluid to the over-flow reservoir.

1. Open one of the cabinet doors.
2. Slowly rotate the radiator cap (a) counterclockwise to release system pressure. Unscrew and remove the radiator cap after the pressure has been released.
3. Verify that the coolant level of the radiator is 19 mm (3/4 in.) below the bottom of the filler neck. Add more coolant if necessary to maintain this level.



wc\_gr009363

**NOTICE:** Do not overfill the radiator. The machine will be damaged.



**WARNING**

Burn hazard. Coolant can contain alkali.

- Avoid coolant contact with skin and eyes.

4. Inspect the radiator filler cap and filler cap seal for damage. Clean the radiator filler cap or replace it if necessary.
5. Reinstall the radiator filler cap.

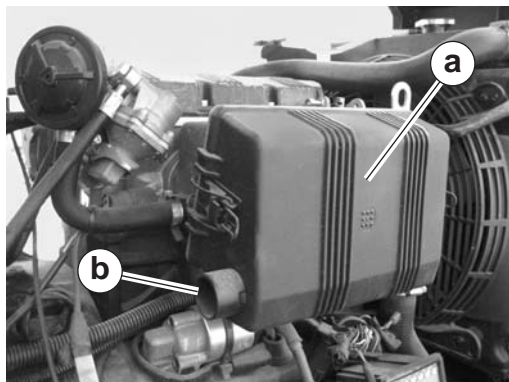
## 5.8 Checking the Air Cleaning System

**When** Daily

**Overview** The air cleaning system consists of an air cleaner with a pleated element and inlet pipe.

**Procedure** Perform the procedure below to check the air cleaning system.

1. Make sure the cover on the air cleaner (**a**) is installed and securely latched.



wc\_gr009364

2. Make sure the inlet (**b**) is free from obstructions.
3. Check all hoses and connections. Replace any damaged components.
4. If the air cleaner or inlet are crushed or damaged, replace them immediately.

**Result** The air cleaning system has now been checked.



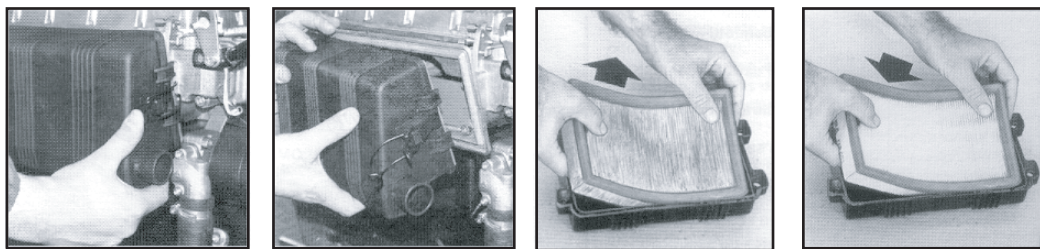
## 5.9 Replacing the Air Cleaner

**When** Replace the air filter element when the air filter restriction indicator on the control panel illuminates.

**Requirements**

- Machine shut down
- Clean, dry cloths
- Replacement filter element (as needed)

**Background** The air cleaner assembly consists of an enclosure containing a pleated filter element. The element must be replaced when it becomes dirty or clogged. The enclosure must also be wiped clean of dust.



wc\_gr000540

**Procedure** Follow the procedure below to maintain the air cleaner.

**WARNING**

Fire hazard.

- Never use gasoline or low flash-point solvents for cleaning the air cleaner.

1. Open the metal latches and remove the cover from the enclosure.
2. Remove the filter element and discard.
3. Clean inside of the enclosure with a clean dry cloth.
4. Place a new filter element into the enclosure.

**NOTICES**

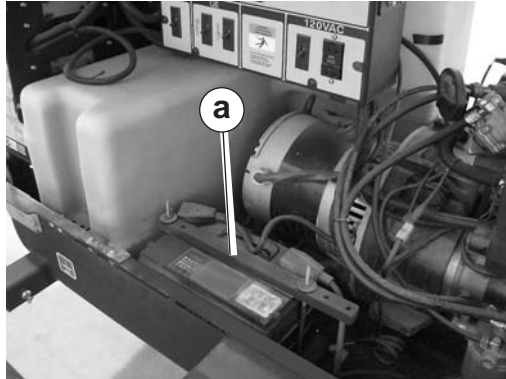
- Do not re-use a damaged filter element. Replace the element even if the damage is very slight.
- Do not tap or strike the filter element to clean it.
- Do not wash the filter element.

5. Reinstall the cover, and close the latches.

**Result** The air cleaner has now been maintained.

## 5.10 Maintaining the Battery

**Location** The battery (a) is located beneath the control panel.



wc\_gr009366



### WARNING

Explosion hazard. Batteries can emit explosive hydrogen gas.

- Keep all sparks and flames away from the battery.
- Do not short-circuit battery posts.

### Safety precautions

Observe the following safety precautions to prevent serious damage to the electrical system.

- Do not disconnect the battery while the machine is running.
- Do not attempt to run the machine without the battery.
- Do not attempt to jump-start the machine.
- In the event that the machine has a discharged battery, either replace the battery with a fully charged battery or charge the battery using an appropriate battery charger.
- Dispose of waste batteries in accordance with local environmental regulations.

### Battery connections

To connect the battery:

- Connect the red positive (+) battery cable to the battery.
- Connect the black negative (-) battery cable to the battery.

To disconnect the battery:

- Stop the engine.
- Place all electrical switches in the OFF position.
- Disconnect the black negative (-) battery cable from the battery.
- Disconnect the red positive (+) battery cable from the battery.

### Maintaining battery condition

- Follow the battery manufacturer's maintenance recommendations.
- Keep battery terminals clean and connections tight.
- When necessary, tighten the cables and grease the cable clamps with petroleum jelly.
- Maintain the battery at full charge to improve cold weather starting.

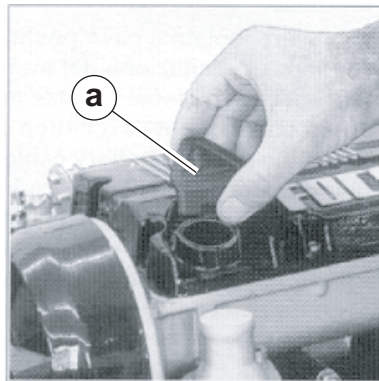
## 5.11 Changing the Engine Oil

- When**
- Change the oil and oil filter **(d)** every 250 hours.
  - On new machines, change oil after first 50 hours of operation.

- Requirements**
- Engine stopped, but still warm.
  - Plastic sheet
  - Container of suitable size to collect drained oil
  - Fresh engine oil (see *Technical Data*)

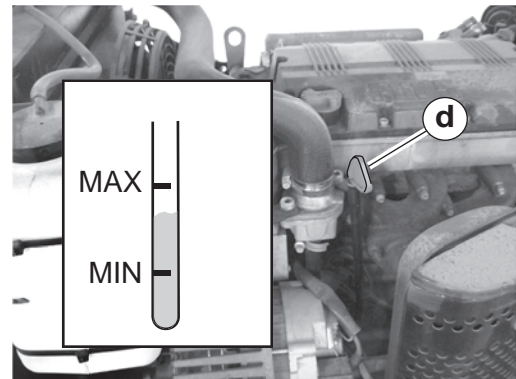
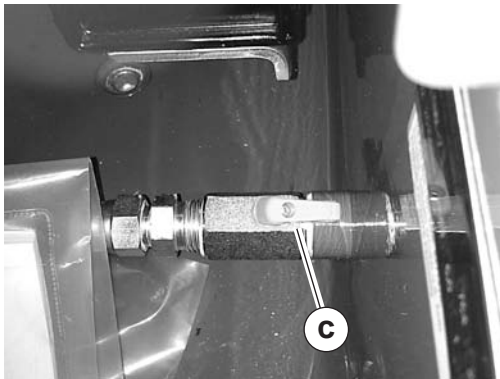
**Procedures** Follow the procedure below to change the engine oil.

1. Open the doors and remove oil fill cap **(a)**.



wc\_gr010444

2. Place a plastic cloth and a collection container beneath the oil drain **(b)**.
3. Remove the oil drain plug and open the valve **(c)** to drain the oil.



wc\_gr010445

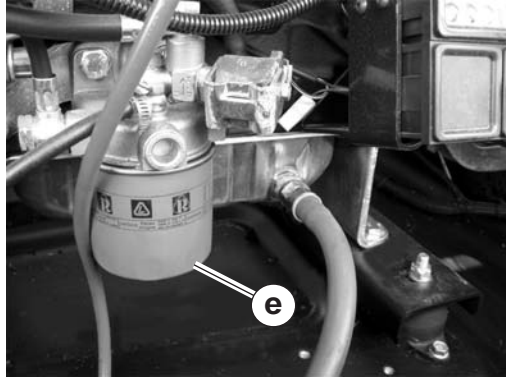
4. Close the valve **(c)** and reinstall the oil drain plug.
5. Fill engine crankcase with recommended oil until the level reaches the "MAX" line on the dipstick **(d)**.
6. Reinstall the oil fill cap.

*This procedure continues on the next page.*

*Continued from the previous page.*

Follow the procedure below to replace the oil filter **(e)**.

1. Drain the engine oil as described above.
2. Using a filter wrench, remove the installed oil filter **(e)**.



wc\_gr010443

3. Apply a thin coat of oil to the rubber gasket of the replacement oil filter.

4. Screw the filter on until it just contacts the filter adapter, then turn it an additional  $\frac{1}{2}$  turn.

**NOTICE:** Do not use the filter wrench to tighten the filter. Doing so can over-tighten the filter and damage the seal surface.

5. Wipe the filter area clean.

6. Refill with oil as described above.
7. Run the engine for about five minutes and check for oil leaks at the seal.

## Result

The engine oil has been changed.

**Note:** *Dispose of drained oil in accordance with environmental protection legislation.*



## WARNING

Most used oil contains small amounts of materials that can cause cancer and other health problems if inhaled, ingested, or left in contact with skin for prolonged periods of time.

- Take steps to avoid inhaling or ingesting used engine oil.
- Wash skin thoroughly after exposure to used engine oil.

## 5.12 Checking Fan Belt Tension

**When** Check the fan belt for proper tension and wear every 250 hours.

**Overview** Correct fan belt tension is critical to proper engine operation. An over-tensioned fan belt can damage the belt and bearings. A fan belt that is too loose or worn may slip, resulting in shortened belt life, increased noise, and loss of power to the fan.



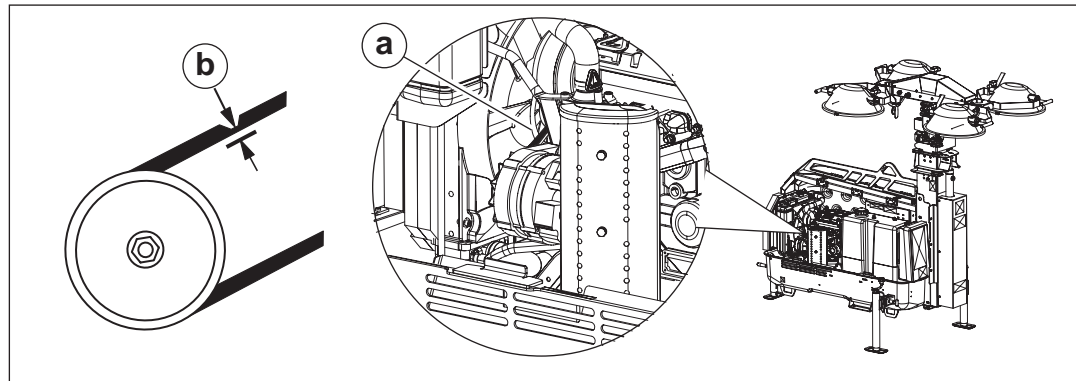
### WARNING

Pinching and crushing hazards.

- Stop the engine before checking the fan belt tension.

**Procedure** Perform the procedure below to check the fan belt tension and wear.

1. Open the access door on the fuel tank side of the machine
2. Inspect the fan belt **(a)** for cuts, frayed edges, tears, or glazed surfaces.



wc\_gr009368

3. Apply 10 kg (22 lb) of force between the fan pulley and alternator. If the deflection **(b)** is greater than 1 cm (0.393 in.), the belt tension must be adjusted.
4. Replace the fan belt if it is damaged, worn, or deflects more than the maximum acceptable distance.

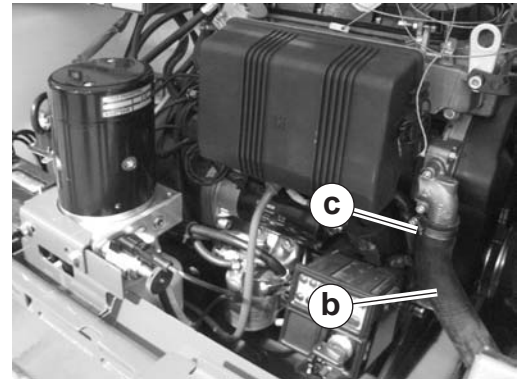
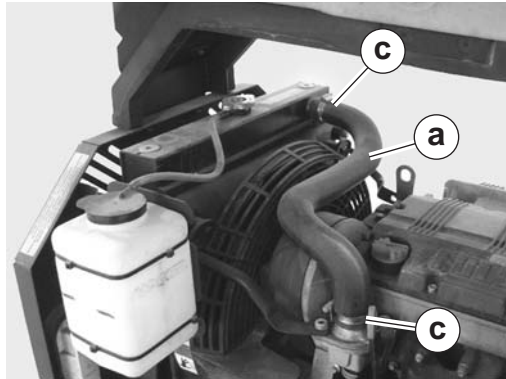
**Result** The fan belt tension has now been checked.

### 5.13 Checking Radiator Hoses

**When** Check the condition of the radiator hoses every 250 hours.

**Overview** Dry, cracked radiator hoses or loose clamps can cause a coolant leak. A coolant leak will cause the engine to overheat, possibly leading to permanent damage. Regular inspection of the radiator hoses will help to identify coolant leaks.

There are two radiator hoses on the LTN. The upper hose **(a)** supplies coolant to the engine. The lower hose **(b)** returns coolant to the radiator.



wc\_gr009375

**Procedure** Perform the procedure below to check the radiator hoses.

1. Inspect each hose for cuts, cracks, abrasions, or bulges. Replace the hose if any of these conditions exist.
2. Squeeze each hose to check the elasticity. A hose in serviceable condition will yield to slight pressure. Replace the hose if it appears to be stiff or brittle.
3. Check the hose clamps **(c)** to make sure that they are tight. Check for coolant leaks at the hose connections. Tighten loose clamps as needed.

**Result** The radiator hoses have now been checked.



## 5.14 Performing Coolant Solution Analysis

**When** Every 500 hours or 12 months, whichever comes first.

**Overview** Engine coolant must be regularly tested to ensure that it remains at an acceptable pH level. Unacceptably low pH levels in coolant create an acidic mixture that will permanently damage the radiator, engine, and engine-related components.

**Requirements**

- Machine shut down
- Engine cool
- Coolant test strips (provided by owner/operator)

**Procedure** Perform the procedure below to check the engine coolant level.

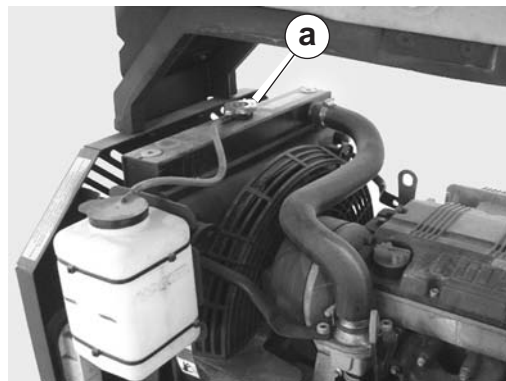


### WARNING

Burn hazard. Engine coolant is hot and under pressure at operating temperature.

► Test the coolant pH level only after the engine has been shut down and is cool.

1. Slowly rotate the radiator cap (a) counterclockwise to release any remaining system pressure. Unscrew and remove the radiator cap after the pressure has been released.



wc\_gr009369

2. Dip a coolant test strip into the filler neck and read the pH level.

If	Then
Coolant pH level tests below 8.5 or above 10.5,	the coolant is not acceptable for use. Drain, flush, and refill the system with a new ethylene glycol solution (50/50).
Coolant pH level tests between 8.5 and 10.5,	the coolant is acceptable for use.

**NOTICE:** Do not use plain water or any other liquid as engine coolant. Doing so will quickly corrode and permanently damage the coolant system. Damage caused by incorrect coolant will not be covered under warranty.

**Result** The coolant solution has now been analyzed.

## 5.15 Testing the Cooling System Pressure

**When** Test the cooling system pressure every 1200 hours, or 24 months (whichever comes first).

**Background** The cooling system is under pressure while the engine is operating. Internal or external leaks will cause the cooling system to lose pressure. These leaks can be detected by forcing pressurized air into the radiator cap and cooling system while the engine is stopped.

**WARNING**

Burn hazard. Engine coolant is hot and under pressure at operating temperature.

- ▶ Test the cooling system pressure only when the engine is stopped and the radiator is cool to the touch.

**WARNING**

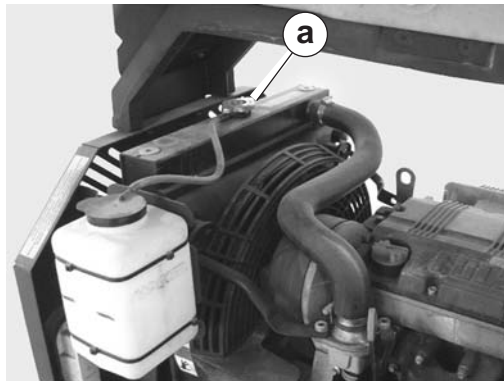
Burn hazard. Engine coolant may contain alkali.

- ▶ Avoid coolant contact with skin and eyes.

- Requirements**
- Engine is stopped and cool to the touch
  - Pressure test kit
  - Cooling system filled (see *Checking the Engine Coolant Level*)

**Procedure** Perform the following procedure to test the cooling system pressure.

1. Slowly rotate the radiator cap **(a)** counterclockwise to release any remaining system pressure. Unscrew and remove the radiator cap after the pressure has been released.



wc\_gr009369

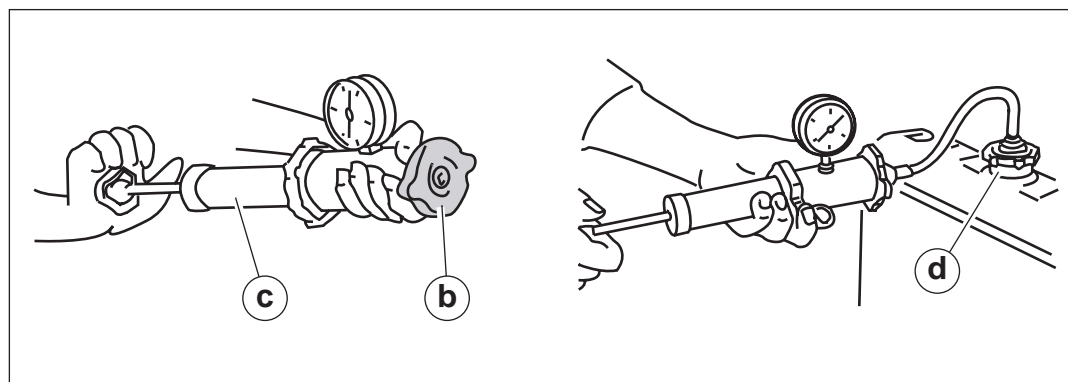
2. Note the rated operating pressure marked on the outside of the radiator cap. When this pressure level is reached, a relief valve in the cap discharges coolant into the overflow bottle.

*This procedure continues on the next page.*



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3. Attach the radiator cap **(b)** to the pressure tester **(c)** according to the instructions provided by the manufacturer.
4. Pressure test the radiator cap, observing the pressure reading on the tester.



wc\_gr009025

If	Then
Pressure holds just below the rated operating pressure marked on the cap,	radiator cap is acceptable for use.
Pressure drops, or the rated operating pressure cannot be reached,	radiator cap must be replaced. Contact your Wacker Neuson dealer.

5. Attach the pressure tester to the radiator filler neck **(d)**.
6. Pressure test the cooling system at slightly above the rated operating pressure marked on the radiator cap. Observe the pressure reading.

If	Then
Pressure holds steady,	there are no leaks in the cooling system.
Pressure drops, or the rated operating pressure cannot be reached,	there is an internal or external leak in the cooling system. Repair the leak before putting the machine back into service.

## Result

The cooling system pressure has now been tested.

## 5.16 Removing and Replacing Lamps

- Prerequisites**
- Engine shut down
  - Light circuit breakers turned OFF
  - Lamps and fixtures cool to the touch
  - Eye and hand protection



---

**WARNING**

Burn hazard. Lamps become extremely hot in use.

- ▶ Allow lamps and fixtures to cool 10–15 minutes before handling.
- 



---

**WARNING**

Personal injury hazard. Ultraviolet radiation from the lamps can cause serious skin and eye irritation.

- ▶ Use only undamaged lamps.
  - ▶ Use the lamps only with undamaged original equipment lenses and fixtures.
- 



---

**WARNING**

Explosion hazard. Grease or oil residue on the lamp can cause the outer jacket to burst or shatter. Hot flying glass particles can cause personal injury, property damage, burns, or fire.

- ▶ Do not operate the lights with a lens that is cracked, damaged, or missing.
  - ▶ Do not scratch the lamp or subject the lamp to excess pressure.
  - ▶ Wear eye and hand protection when removing or replacing lamps.
- 

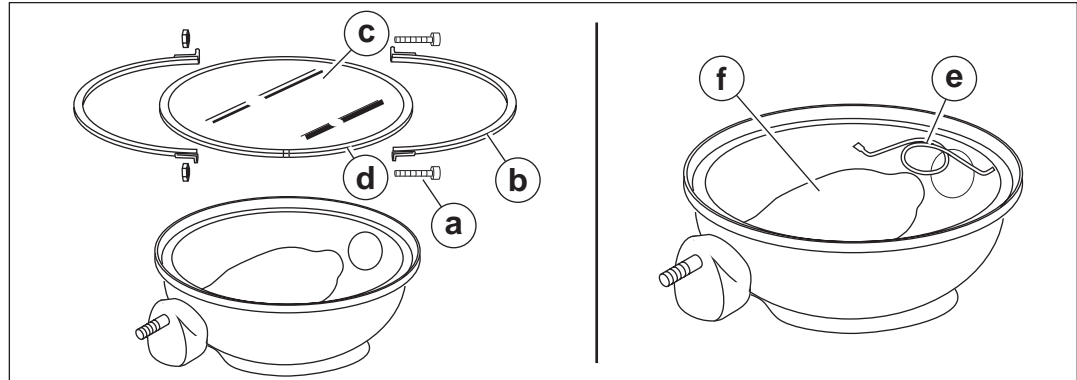
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Perform the procedures below to remove and install the lamp.

**Removing the lamp**

1. Remove the screws **(a)** securing the flange rings **(b)** and remove the flange rings.



wc\_gr005881

2. Remove the lens **(c)** with the gasket **(d)** attached.
3. Remove the hardware securing one side of the lamp stabilizer **(e)**. Once removed, swing the lamp stabilizer to the side and unscrew the lamp **(f)**.

**Installing the lamp**

1. Screw the lamp in firmly, but not forcibly, to minimize loosening due to vibration. Secure it with the lamp stabilizer.
2. Install the gasket around the lens and secure the lens to the reflector with the flange rings and screws.

## 5.17 Long-Term Storage

<b>Introduction</b>	Extended storage of equipment requires preventive maintenance. Performing these steps helps to preserve machine components and ensures the machine will be ready for future use. While not all of these steps necessarily apply to this machine, the basic procedures remain the same.
<b>When</b>	Prepare your machine for extended storage if it will not be operated for 30 days or more.
<b>Preparing for storage</b>	<p>Follow the procedures below to prepare your machine for storage.</p> <ul style="list-style-type: none"><li>■ Complete any needed repairs.</li><li>■ Replenish or change oils (engine, exciter, hydraulic, and gearcase) per the intervals specified in the Scheduled Maintenance table.</li><li>■ Grease all fittings and, if applicable, repack bearings.</li><li>■ Inspect engine coolant. Replace coolant if it appears cloudy, is more than two seasons old, or does not meet the average lowest temperature for your area.</li><li>■ If your machine has an engine equipped with a fuel valve, start the engine, close the fuel valve, and run the engine until it stops.</li><li>■ Consult the engine owner's manual for instructions on preparing the engine for storage.</li></ul>
<b>Stabilizing the fuel</b>	<p>After completing the procedures listed above, fill the fuel tank completely and add a high-quality stabilizer to the fuel.</p> <ul style="list-style-type: none"><li>■ Choose a stabilizer that includes cleaning agents and additives designed to coat/protect the cylinder walls.</li><li>■ Make sure the stabilizer you use is compatible with the fuel in your area, fuel type, grade and temperature range. Do not add extra alcohol to fuels which already contain it (for example, E10).</li><li>■ For engines with diesel fuel, use a stabilizer with a biocide to restrict or prevent bacteria and fungus growth.</li><li>■ Add the correct amount of stabilizer per the manufacturer's recommendations.</li></ul>
<b>Storing the machine</b>	<p>Perform these remaining steps to store your machine.</p> <ul style="list-style-type: none"><li>■ Wash the machine and allow it to dry.</li><li>■ Move the machine to a clean, dry, secure storage location. Block or chock wheels to prevent machine movement.</li><li>■ Use touch-up paint as needed to protect exposed metal against rust.</li><li>■ If the machine has a battery, either remove or disconnect it.</li></ul> <p><b>NOTICE:</b> Allowing the battery to freeze or completely discharge is likely to cause permanent damage. Periodically charge the battery while the machine is not in use. In cold climates, store and charge the battery indoors or in a warm location.</p> <ul style="list-style-type: none"><li>■ Cover the machine. Tires and other exposed rubber items should be protected from the weather. Either cover them or use a readily available protectant.</li></ul>

## 5.18 Machine Disposal / Decommissioning

**Introduction** This machine must be properly decommissioned at the end of its service life. Responsible disposal of recyclable components, such as plastic and metal, ensures that these materials can be reused—conserving landfill space and valuable natural resources.

Responsible disposal also prevents toxic chemicals and materials from harming the environment. The operating fluids in this machine, including fuel, engine oil, and grease, may be considered hazardous waste in many areas. Before decommissioning this machine, read and follow local safety and environmental regulations pertaining to the disposal of construction equipment.

---

**Preparation** Perform the following tasks to prepare the machine for disposal.

- ☐ Move the machine to a protected location where it will not pose any safety hazards and cannot be accessed by unauthorized individuals.
- ☐ Ensure that the machine cannot be operated from the time of final shutdown to disposal.
- ☐ Drain all fluids, including fuel, engine oil, and coolant.
- ☐ Seal any fluid leaks.

---

**Disposal** Perform the following tasks to dispose of the machine.

- ☐ Disassemble the machine and separate all parts by material type.
- ☐ Dispose of recyclable parts as specified by local regulations.
- ☐ Dispose of all non-hazardous components that cannot be recycled.
- ☐ Dispose of waste fuel, oil, and grease in accordance with local environmental protection regulations.

# Engine Maintenance: Kohler (T4f)

## 6 Engine Maintenance: Kohler (T4f)

The viscosity of the engine oil is an important factor when determining the correct engine oil to use in your machine. Use an engine oil of appropriate viscosity based on the expected outside air temperature. See the table below.



### WARNING

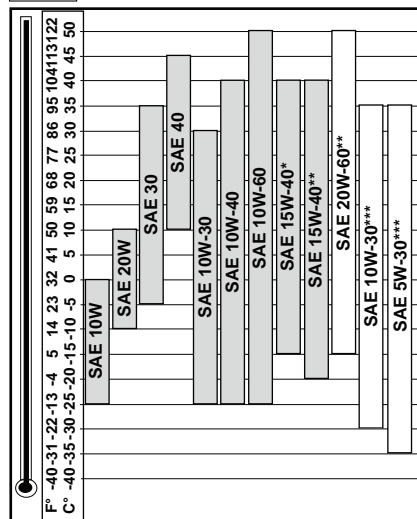
Most used liquids from this machine such as oil, gasoline, grease, etc., contain small amounts of materials that can cause cancer and other health problems if inhaled, ingested, or left in contact with skin for prolonged periods of time.

- Take steps to avoid inhaling or ingesting used liquids.
- Wash skin thoroughly after exposure to used liquids.

OIL CLASSIFICATIONS API/MIL - SEQUENZEN API/MIL - SEQUENZES API/MIL  
API/MIL-SEQUENZEN - SECUENCIAS API/MIL - SEQUÊNCIAS API/MIL

DIESEL										GASOLINE - BENZINA - ESSENCE BENZIN - GASOLINA									
API	CH-4	CG-4	CF-4	CF-2	CF	CE	CD	CC	SC	SD	SE	SF	SG	SH	SJ	SL			
MIL																			
										L-46152 D/E									
CURRENT - CORRENTI										OBSOLETE - OBSOLETI									

SAE Viscosity Grade - Gradazioni SAE - Viscosité SAE  
SAE Viskositätsklasse - Viscosidad SAE - Gradação SAE



- \* Mineral Base  
Base Minerale  
Base Minérale  
Mineralölbasis  
Base Mineral  
Base Mineral
- \*\* Semi-Synthetic Base  
Base Semi-Sintetica  
Base Semi-Synthétique  
Halbsynthetische Basis  
Base Semi-Sintética  
Base Semi-Sintética
- \*\*\* Synthetic Base  
Base Sintetica  
Base Synthétique  
Synthetische Basis  
Base Sintética  
Base Sintética

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The engine maintenance schedule(s) in this chapter are reproduced from the engine owner's manual. For additional information, see the engine owner's manual.

# KOHLER®

ORDINARY MAINTENANCE - MANUTENZIONE ORDINARIA  
ENTRETIEN ORDINAIRE - ORDENTLICHE WARTUNG  
MANUTENCION ORDINARIA - MANUNTENÇÃO NORMAL

## CHECK - CONTROLLO - CONTRÔLE - KONTROLLE - COMPROBACION - CONTRÔLE

OPERATION DESCRIPTION - DESCRIZIONE OPERAZIONE DESCRIPTION DE L'OPERATION - BESCHREIBUNG DES ARBEITSVORGANGS DESCRIPCION DE LA OPERACION - DESCRIÇÃO DA OPERAÇÃO	FREQUENCY x HOURS - PERIODICITA' x ORE FREQUENCE x HEURES - WARTUNGSPERIODEN x STUNDEN PERIODO x HORAS - FREQUÊNCIA x HORAS						
	10	250	300	500	1000	5000	10000
Oil Level - Livello Olio Motore - Niveau huile Moteur - Ölstanddaten - Nivel Aceite Del Motor - Nivel Óleo do Motor							
Coolant Level - Livello Liquido di Raffreddamento - Niveau Liquide Réfrigérant - Kühlflüssigkeitsstands - Nivel Liquido para Refrigeración - Nivel Liquido Esfriamento.							
Radiator Core - Superficie di Scambio Radiatore - Surface d'Échange radiateur - Austauschfläche des Kühlers - Superficie de Intercambio del Radiador - Superficie de Troca do Radiador							
Panel Air Filter (Dry-Type) - Filtro Aria a Pannello (a Secco) - Filtre à Air à Panneau (à Sec) - Plattenluftfilter (Trocken) - Filtro de Aire de Panel (a Seco) - Filtro de Ar de Painei (a Seco)	(**)						
Remote Air Filter (Dry-Type) - Filtro Aria a Distanza (a Secco) - Filtre à Air à Distance (à Sec) - Luftfilter Mit Abstand (Trocken) - Filtro de Aire Remoto (a. Seco) - Filtro de ar a Distância (a Seco)	(**)						
Fuel Lines - Tubi Carburante - Tuyaux Combustible - Kraftstoffleitungen - Tubos de Combustible - Tubos Combustíveis							
Fan/Alternator Belt Tension - Tensione Cinghia Ventola/Alternatore - Tension Courroie Ventilateur/Alternateur Keilriemens Lüfter - Tensión Correa Ventilador/Alternador - Tensão Cincha Ventilador/Alternador	(*)						

- (\*\*\*) - Check paper element for dirty, loose, or damaged parts, in accordance with the maintenance schedule. Depending on the environment the engine is used in, clean and replace filter more often, especially in dusty, dirty conditions.
- Il periodo di tempo che deve intercorrere prima di pulire o sostituire l'elemento filtrante è subordinato all'ambiente in cui opera il motore. In condizioni ambientali molto polverose il filtro dell'aria deve essere pulito e sostituito più spesso.
  - Le temps qui doit s'écouler avant de nettoyer ou de remplacer l'élément filtrant dépend des conditions dans lesquelles le moteur tourne. Nettoyer et remplacer plus souvent le filtre à air doit quand le milieu est très poussiéreux.
  - Das Zeitintervall zwischen den Reinigungen oder dem Auswechseln des Filterelements hängt von der Umgebung ab, in der der Motor verwendet wird. In sehr staubiger Umgebung muss der Luftfilter öfter gereinigt und ausgetauscht werden.
  - El intervalo de tiempo que debe transcurrir antes de limpiar o sustituir el elemento filtrante depende del ambiente de funcionamiento del motor. En ambientes muy polvorientos el filtro de aire debe ser limpio y debe sustituirse más a menudo.
  - O período de tempo que há de passar antes de limpar ou substituir o elemento filtrante está subordinado ao ambiente em que o motor trabalha. Em condições ambientais muito poeirentas o filtro do ar deve ser limpo e substituído muitas vezes.

770002

CHECK - CONTROLLO - CONTRÔLE - KONTROLLE - COMPROBACIÓN - CONTRÔLE									
OPERATION DESCRIPTION - DESCRIZIONE OPERAZIONE DESCRIPTION DE L'OPÉRATION - BESCHREIBUNG DES ARBEITSVORGANGS DESCRIÇÃO DA OPERAÇÃO	FREQUENCY x HOURS - PERIODICITÀ x ORE FREQUENCY x HEURES - WARTUNGSPERIODEN x STUNDEN PERIODO x HORAS - FREQUÊNCIA x HORAS								
	10	250	300	500	1000	5000	10000		
Cooling Hoses - Manicotti Liquido di Raffreddamento - Manchons de Liquide de Refroidissement - Muffen des Kühlmittels - Manguitos de Liquido de Refrogeración - Casquilhos para Liquido de Arrefecimento	(*)								
Rubber Intake Hose (Air Filter and Intake Manifold) for Engines with Remote Air Filter - Tubo in Gomma Asp. (Filtro Aria Coll. Asp.) Per Mot. Con Filtro Aria a Dist. - Tuyau d'Aspiration en Caoutchouc (Filtre à Air du Collecteur d'Admission) Pour Mot. Avec Système de Filtrage d'Air à Distance - Gummiansaugschlauch (Luftfilter Ansaugkrümmer) Für Mot. Mit Luftfilter Mit Abstand - Tubo de Goma de Dimensión (Filtro de Aire Colector de Admisión) Para Mot. Con Filtro de Aire Remoto - Tubo de Borracha de Aspiração (Filtro ar Colector de Aspiração) Para Mot. com Filtro de ar a Distância									
Valve Clearance - Registro Gioco Valvole - Réglage Jeu Soupapes - Einstellen des Ventilspiels Ajuste da Tolarância - Registro Juego de Válvulas - Apuramento válvula	(**)								
Injector Cleaning and Adjustment - Taratura e Pulizia Iniettori - Tarage et Nettoyage Injecteur Einspritzdüsen Überprüfen - Ajuste y Limpieza Inyectores - Taradura e Limpeza Injectores									
Flush Radiator - Pulizia Interna Radiatore - Nettoyage Intérieur du Radiateur - Innenreinigung des Kühlers - Limpeza del Interior del Radiador - Limpeza Interna do Radiador									
Clean Fuel Tank - Pulizia Serbatoio Combustibile - Nettoyage du Réservoir à Combustible - Reinigung Kraftstofftank - Limpeza Depósito Combustível - Limpeza do Depósito do Combustível									

770003





REPLACEMENT - SOSTITUZIONE - REMPLACEMENT - AUSWECHSELN - SUSTITUCIÓN - SUBSTITUIÇÃO		FREQUENCY x HOURS - PERIODICITA' x ORE FREQUENCIA x HORAS - WARTUNGSPERIODEN x STUNDEN PERÍODO x HORAS - FREQUÊNCIA x HORAS						
OPERATION DESCRIPTION - DESCRIZIONE OPERAZIONE DESCRIPTION DE L'OPERATION - BESCHREIBUNG DES ARBEITSVORGANGS DESCRIPCION DE LA OPERACION - DESCRIÇÃO DA OPERAÇÃO		10	250	300	500	1000	5000	10000
Engine Oil (°) - Olio Motore (°) - Huile Moteur (°) - Öldaten (°) - Aceite del Motor (°) - Óleo do Motor (°)		(*)						
Oil Filter - Filtro Olio - Filtre a Huile - Öl Filter - Filtro Aceite - Filtro Óleo		(*)						
Fuel Filter - Filtro Combustibile - Filtre a Combustible - Brennstofffilter - Filtro Combustível		(*)						
Alternator Belt - Cinghia Alternatore - Courroie Alternateur - Drehstromgenerator Riemen - Correa Alternador - Cincha Alternador		(**)						
Coolant - Liquido di Raffreddamento - Liquide Refrigerant - Kühlfüssigkeit - Liquido de Refrigeración - Líquido Esfriamento		(**)						
Fuel Lines - Tubi Carburante - Tuyaux Combustible - Kraftstoffleitungen - Tubos de Combustible - Tubos Combustíveis		(**)						
Rubber Intake Hose (Air Filter and Intake Manifold) - Tubo in Gomma Asp. (Filtro Aria Coll. Asp.) - Tuyau d'aspir. en Caoutchouc (Filtre à Air du Coll. d'Admiss.) - Gummiansaugschlauch (Luftfilter Ansaugkrümmer) - Tubo de Goma de Admis. (Filtro de Aire Col. De Admis.) - Tubo de Borracha de Aspir. (Filtro ar Col. de Aspir.)		(**)						
Coolant Hoses - Manicotti Liquido di Raffredd. - Manchons de Liquide de Refroid. - Muffen des Kühlmittels - Manguitos de Líquido de Refrig. - Casquilhos para Líquido de Arrefecimento		(**)						
Timing Belt - Cinghia Distribuzione - Courroie de Distribution - Verteilerriemen Correa de Distribución - Correia de Distribuição		(***)						
Dry Air Cleaner, External Cartridge - Cartuccia Esterna Filtro Aria a Secco - Cartouche Extérieure Filtre a Air Desséchée - Ausserer Trockenluftfiltersatz - Cartucho Externo del Filtro de Aire Seco - Cartucho Externo Filtro ar A Seco		(****)						
Filter Element, Panel Air Filter - Massa Filtrante Filtro Aria a Pannello - Masse Filtrante de Filtre à Air à Panneau Filtrerelement Plattenluftfilter - Masa Filtrante del Filtro de Aire de Panel - Massa Filtrante do Filtro de ar de								

- (°) - If you are using oil of a quality lower than the prescribed one then you will have to replace it every 125 hours for the standard sump and every 150 hours for the enhanced sump.
- Se si utilizza olio di qualità inferiore a quello prescritto sostituirlo ogni 125 ore per la coppa standard e 150 ore per la coppa maggiorata.
  - Si l'huile utilisée est de qualité inférieure à celle indiquée, la vidanger toutes les 125 heures s'il s'agit d'un carter standard et toutes les 150 heures s'il s'agit d'un carter surdimensionné.
  - Wenn Öl einer niedrigeren Qualität als vorgeschrieben verwendet wird, sollte es bei Standardölwannen alle 125 Betriebsstunden, bei vergrößerten Ölwannen alle 150 Stunden gewechselt werden.
  - Si se utiliza un aceite de calidad inferior al que recomendado deberá sustituirse cada 125 horas en caso de cárter estándar o cada 150 en caso de cárter sobredimensionado.
  - Se utilizar óleo de qualidade inferior à queles prescrito, substitua-o a cada 125 horas para o cárter padrao e 150 para o cárter aumentado.

770004

## 7 Troubleshooting



### WARNING

HIGH VOLTAGE! This unit uses high voltage circuits capable of causing serious injury or death.

- Only a qualified electrician should troubleshoot or repair electrical problems occurring in this equipment.

Problem	Cause	Remedy
Engine doesn't start	Battery discharged	Charge battery.
	Battery connections corroded	Clean battery connections.
	Blown fuse	Replace fuse.
	Faulty starter	Replace starter.
Engine tries to start but stops	No fuel	Fill tank with fuel. Bleed fuel lines.
	Clogged fuel filter	Replace fuel filter.
	Fuel circuit failure	Check fuel lines.
No generator output	Main circuit breaker open	Close main circuit breaker.
	Voltage regulator malfunction	Call Wacker Neuson for service.
Low oil pressure	Low oil level	Fill engine sump with oil.
	Clogged oil filter	Replace oil filter.
	Oil pump failure	Call Wacker Neuson for service.
High coolant temperature	Electrical overload	Reduce load.
	Low coolant level	Fill with coolant.
	Low oil level	Fill sump with oil.
	Clogged oil filter	Replace oil filter.
Engine emits black smoke	Clogged air filter	Clean/replace air filter cartridges.
	Electrical overload	Reduce load.
	High oil level	Remove excess oil.
	Fuel circuit failure	Call Wacker Neuson for service.

<b>Problem</b>	<b>Cause</b>	<b>Remedy</b>
Lamp will not light	Lamp is too hot	Allow lamp to cool 10–15 minutes before restarting.
	Faulty lamp connection	Check that lamp is tight in socket. Check connections inside connection boxes on light fixtures and tower.
	Plug connection at fixture is loose or damaged	Repair or replace the plug connection.
	Lamp broken or burned out	Check for: <ul style="list-style-type: none"> <li>■ broken arc tube or outer lamp jacket,</li> <li>■ broken or loose components in lamp envelope,</li> <li>■ or blackening or deposits inside lamp tube.</li> </ul>
	Circuit breaker turned on	Turn off circuit breaker.
	Circuit breaker loose or faulty	Repair or replace the circuit breaker.
	Generator output incorrect	Check incoming voltage to ballast. Incoming voltage should be 120V ± 5V. If voltage is incorrect, engine speed may need to be adjusted or generator may require service.
	Low or no ballast output	With the fixture cord removed from its receptacle, the voltage should measure 400 to 445 VAC. If proper voltage is not achieved, perform capacitor check to determine if capacitor or coil needs to be replaced.
Low light output	Lamp degraded	Replace lamp due to normal lamp life.
	Low ballast output	Check ballast for proper voltage output.
	Fixture or lens dirty	Clean reflective surface inside fixture and both inside and outside surface of glass lens.

## 8 Technical Data

### 8.1 Engine

#### Engine Power Rating

Net power rating per ISO 3046 IFN. Actual power output may vary due to conditions of specific use.

Modell		LTN 6L-V, LTN 6L-VS
<b>Engine</b>		
Make		Kohler
Model		LDW 1003
Type		3-cylinder, 4-cycle, liquid-cooled diesel
Max. power rating @ rated speed	kW (hp)	8.5 (11.4) @ 1800 rpm
Operating speed	rpm	1500
Alternator	V / A / W	12 / 45 / 540
Battery	V/ccA	12 / 650
Air cleaner	type	dry-type element
Fuel	type	No. 2 diesel
Fuel tank capacity	L (gal)	123 (32.5)
Fuel consumption	L (gal) / hr	1.68 (0.44)
Running time	hr	68
Coolant capacity	L (qt)	4.7 (5.0)
Oil specification	type	AGIP SINT 2000 5W-40 API SJ / CF 4 ACEA A3-96 B3-96 MIL-L-46152 D/E
Oil capacity	L (qt)	2.4 (2.5)

## 8.2 Generator

Item Number:		LTN 6L, LTN 6L-V, LTN 6L-VS
<b>Generator</b>		
Frequency	Hz	50 ± 2
Continuous output	kW	6.0
Output	volts	230
Amps	A	26.1
Excitation type		Capacitor / Brushless
Power factor		1.0
Voltage regulation - no load to full load	%	± 6.0
Speed	rpm	1500

## 8.3 Machine

Model	Unit	LTN 6L-V
		LTN 6L-VS
		LTN 6L-VS (Custom)
Dimensions (L x W x H)	cm (in)	330 x 120 x 230 (130 x 48 x 90.5)
		318 x 122 x 249 (125 x 48 x 98)
		318 x 122 x 249 (125 x 48 x 98)
Shipping weight	kg (lbs)	849 (1812)
		779 (1718)
		788 (1738)
Operating weight	kg (lbs)	904 (1992)
		880 (1940)
		889 (1960)
Height - mast extended	m (ft)	8.7 (28.5)
		7.7 (25)
		7.7 (25)
Output	kW	6
AC Voltage	V	230

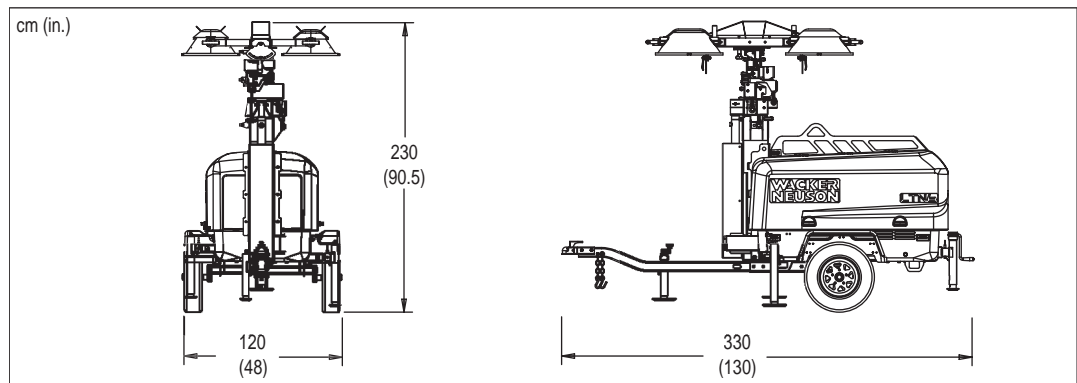
Model	Unit	LTN 6L-V
		LTN 6L-VS
		LTN 6L-VS (Custom)
Amperage	A	26.1
Frequency	Hz	50
Power factor	#	1
Lamp	type	Metal halide
Lamp output	W	1000
NEMA beam spread	type	6
Maximum lighting coverage @ 0.5 ft-candles	m <sup>2</sup> (ft <sup>2</sup> )	1204 (12,960)
Sound power level at operator's location (L <sub>pA</sub> )	dB(A)	90
Guaranteed sound power level (L <sub>WA</sub> )	dB(A)	91
Hydraulic fluid	type	SAE 10W/30
Hydraulic fluid capacity	L (gal)	2.13 (2.25)
AC outlet receptacles	V, A type	230, 16 Schuko
Convenience outlet receptacle	V	—

## 8.4 Radiation Compliance

This machine meets the radio interference radiated emission requirements of European Standard EN 13309 for Construction Machinery.

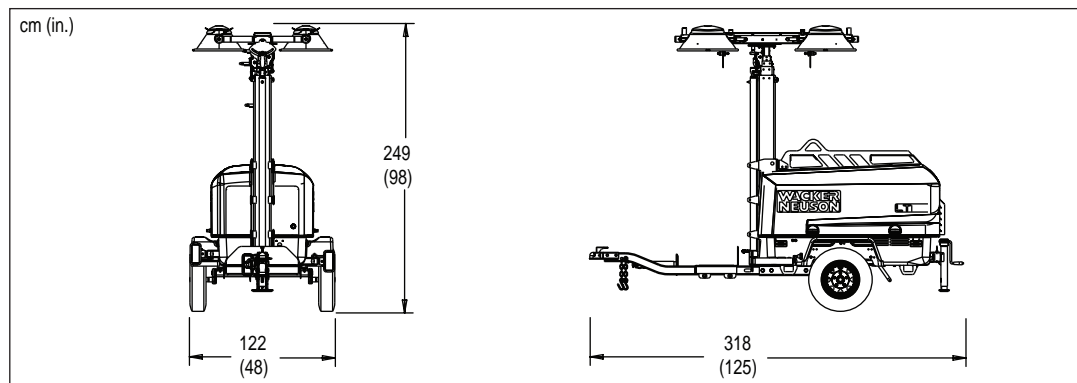
The lamps provided with this machine are electric discharge lamps. They are designed for use with metal halide ballasts only, and require time to reach full brightness on initial startup and after a power interruption. These lamps comply with FDA regulation performance standards 21 CFR 1040-30.

## 8.5 Dimensions - LTN 6L-V



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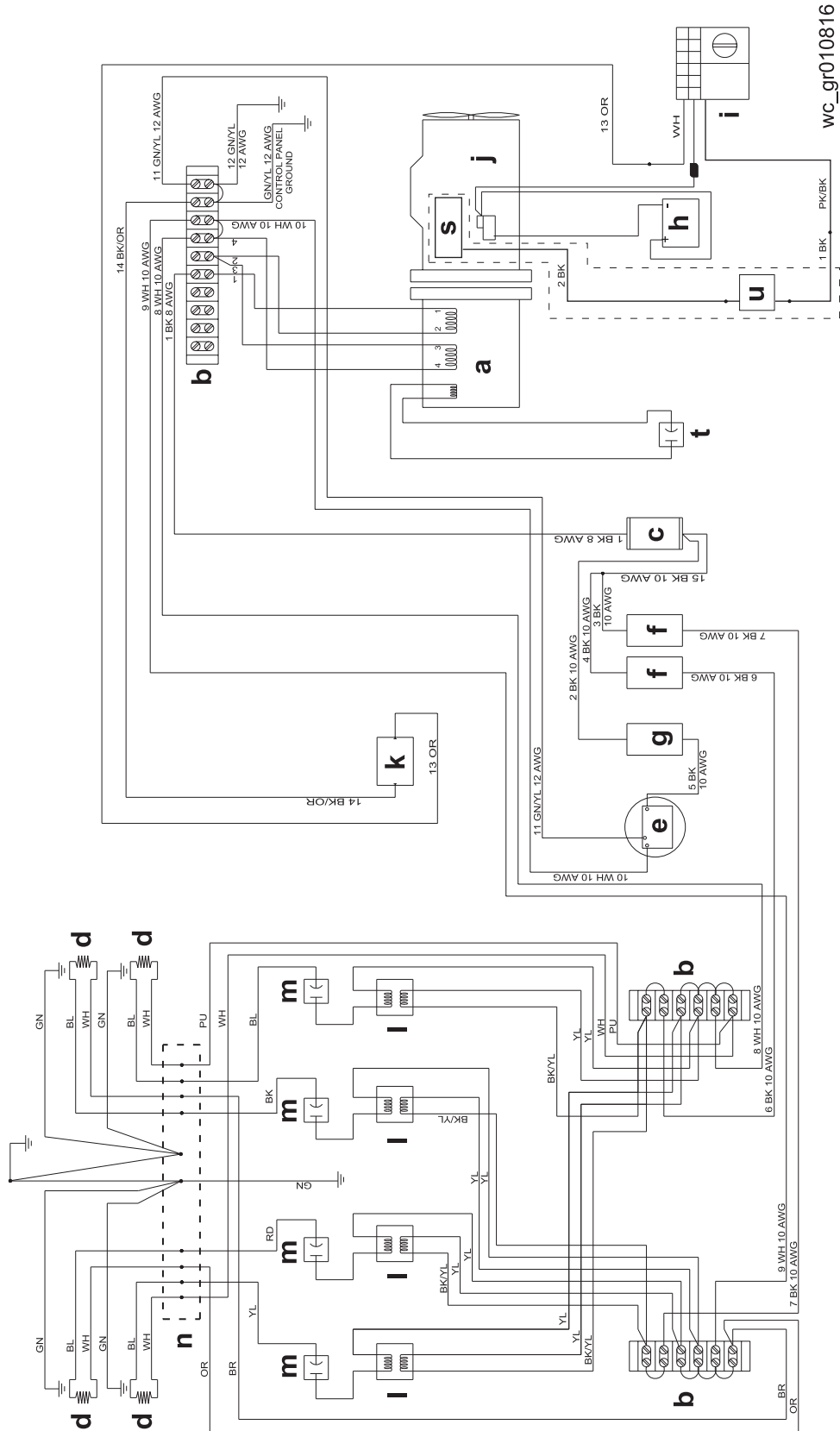
## 8.6 Dimensions - LTN 6L-VS



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## 9 Schematics

### 9.1 50 Hz

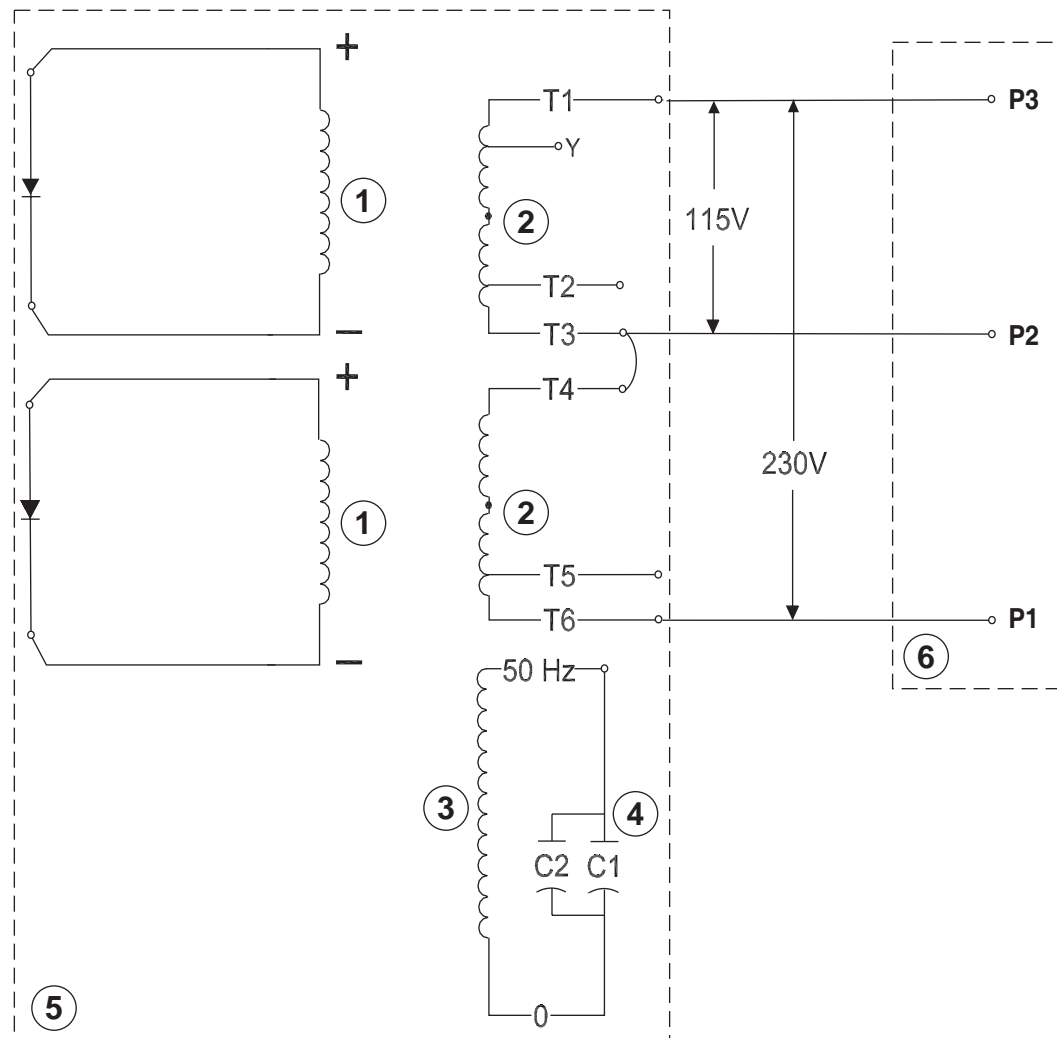




Ref.	Description	Ref.	Description	Ref.	Description
<b>a</b>	Generator	<b>g</b>	Circuit breaker, 250V 16A	<b>m</b>	Capacitors, 30 $\mu$ F
<b>b</b>	Terminal strip	<b>h</b>	Battery	<b>n</b>	Light bar
<b>c</b>	Main circuit breaker	<b>i</b>	Engine control panel	<b>s</b>	Fuel solenoid (option)
<b>d</b>	Floodlight receptacles	<b>j</b>	Engine	<b>t</b>	Capacitor, 31.5 $\mu$ F
<b>e</b>	Receptacle, 230V 16A	<b>k</b>	Hour meter	<b>u</b>	Float switch (option)
<b>f</b>	Circuit breaker, 250V 30A	<b>l</b>	Transformers	—	—

Wire Colors							
BK	Black	RD	Red	YL	Yellow	OR	Orange
GN	Green	TN	Tan	BR	Brown	PU	Purple
BU	Blue	VIO	Violet	CL	Clear	SH	Shield
PK	Pink	WH	White	GY	Gray	LB	Lt. blue

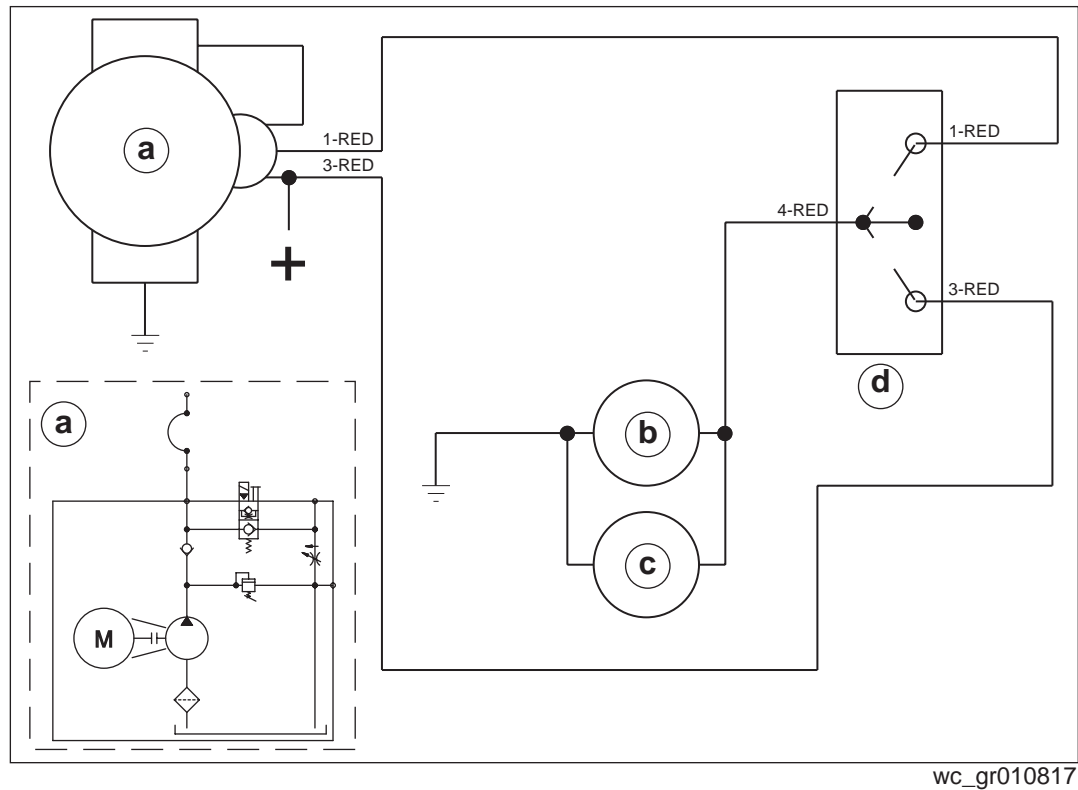
## 9.2 Generator Capacitor Excitation Schematic 50 Hz



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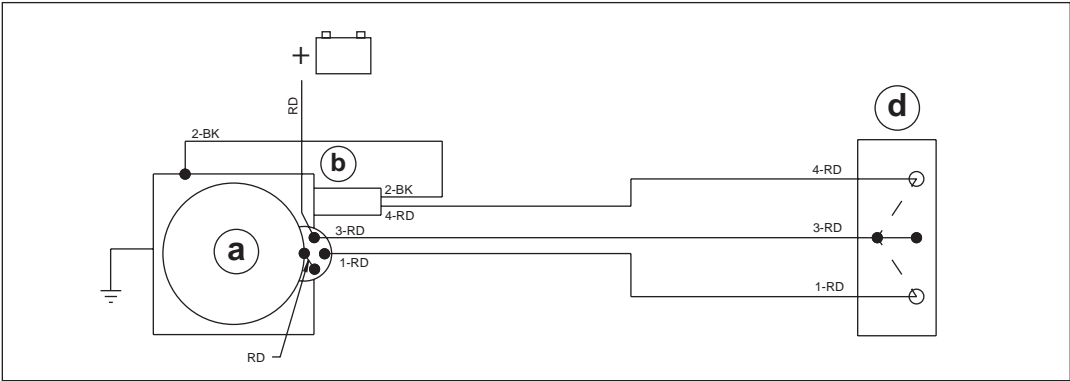
Ref.	Description	Ref.	Description
1	Rotor	4	Capacitor
2	Stator	5	Generator/Terminal block
3	Excitation coils	6	Control box-Main circuit breaker

### 9.3 Hydraulic Schematic - LTN 6L-V



Ref.	Description	Ref.	Description
a	Hydraulic pump	c	Alarm
b	Hydraulic valve	d	Mast switch

9.4 Hydraulic Schematic - LTN 6L-VS



wc\_gr012213

Ref.	Description	Ref.	Description
a	Hydraulic pump	c	Alarm
b	Hydraulic valve	d	Mast switch

Wire Colors							
BK	Black	RD	Red	YL	Yellow	OR	Orange
GN	Green	TN	Tan	BR	Brown	PU	Purple
BU	Blue	VIO	Violet	CL	Clear	SH	Shield
PK	Pink	WH	White	GY	Gray	LB	Light blue



**Important:** For spare parts information, please see your Wacker Neuson Dealer, or visit the Wacker Neuson website at <http://www.wackerneuson.com/>.

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