Operator’s Manual

50 Hz Light Tower

LTN 6L

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Trademarks

All trademarks referenced in this manual are the property of their respective owners.

Manufacturer

Wacker Neuson Production Americas LLC

N92W15000 Anthony Avenue

Menomonee Falls, WI 53051 U.S.A.

Tel: (262) 255-0500 · Fax: (262) 255-0550 · Tel: (800) 770-0957

www.wackerneuson.com

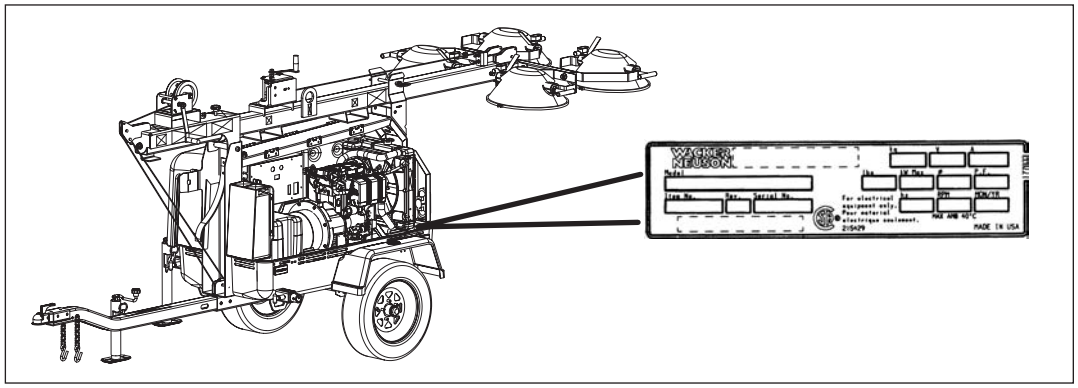
Original instructions

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

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.

Machine	Item Number
LTN 6L	0620121, 0620552, 0620559, 5200022990
LTN 6LE	5200019142



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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.
- 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.

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.

EC Declaration of Conformity

Manufacturer

Wacker Neuson Production Americas LLC, N92W15000 Anthony Avenue,
Menomonee Falls, Wisconsin 53051 USA

Product

Product	LTN 6L
Product category	Light Tower
Product function	To illuminate job sites
Item number	5200022990
Electric power	6,0 kW
Measured sound power level	92 dB(A)
Guaranteed sound power level	93 dB(A)

Conformity Assessment Procedure

According to 2000/14/EC ANNEX VIII

Notified Body

Lloyds Register Quality Assurance Limited (Notified Body No 0088)
71 Fenchurch Street, London EC3M 4BS, United Kingdom

Directives and Standards

We hereby declare that this product meets and complies with the relevant regulations and requirements of the following directives and standards:

2006/42/EC, 2000/14/EC, 2004/108/EC, IEC/EN 60204-1, EN 60 598-2-5, ISO 8528-8

Authorized Person for Technical Documents

Axel Häret, Wacker Neuson Produktion GmbH & Co. KG, Preußenstraße 41, 80809 München

Menomonee Falls, WI, USA,

Keith Herr
Managing Director
For Wacker Neuson

Dan Domanski
Technical Director
For Wacker Neuson

Scott Grahl
Manager, Product Engineering
For Wacker Neuson

Original Declaration of Conformity

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

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 mounted to the top of the cabinet. Dual winches tilt, raise, and lower 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 present to power auxiliary loads. The operator uses the control panel to operate and monitor the machine.

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 product specifications for the output voltage and frequency of this Light Tower, 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 start-up
- 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 to tow other machines (unless factory equipped)
- 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

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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,Äì15 minutes before handling.
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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.

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 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.

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.

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.

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.

1.6 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.

1.7 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.

1.8 Safety Guidelines for Towing the Machine

WARNING
Risk of severe injury or death. Improper trailer condition and towing technique can lead to an accident.

- ▶ Obey the trailer manufacturer's instructions and the instructions below to reduce the risk of an accident.

When towing the machine:

- Do not tow the machine if the towing vehicle's hitch or the trailer's coupler are damaged.
- Do not tow the machine if any of the trailer's lug nuts are missing.
- Do not tow the machine if the trailer's tires have less than 1.5 mm (1/16 inch) of tread.
- Do not tow the machine unless the trailer's brakes are functioning properly.
- Do not exceed the trailer manufacturer's speed limitations.

When towing the machine:

- Only tow the machine when the trailer's lug nuts are properly torqued.
- Only tow the machine when the trailer's tires are properly inflated.
- Only tow the machine when all trailer lights are functioning correctly.
- Only tow the machine when the trailer's safety chains are connected to the towing vehicle in a crisscross pattern.
- Maintain extra distance between the towing vehicle and other vehicles.
- Avoid soft shoulders, curbs, and sudden lane changes.
- Abide by all licensing requirements for your area.

If you have not driven a towing vehicle with trailer before, practice turning, stopping, and backing up the towing vehicle with trailer in an area away from traffic. Only drive the towing vehicle with trailer when you are confident in your ability to do so.

1.9 Reporting Safety Defects

If you believe your trailer has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Wacker Neuson.

If NHTSA receives similar complaints, it may open an investigation; and if it finds that a safety defect exists in a group of trailers, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Wacker Neuson.

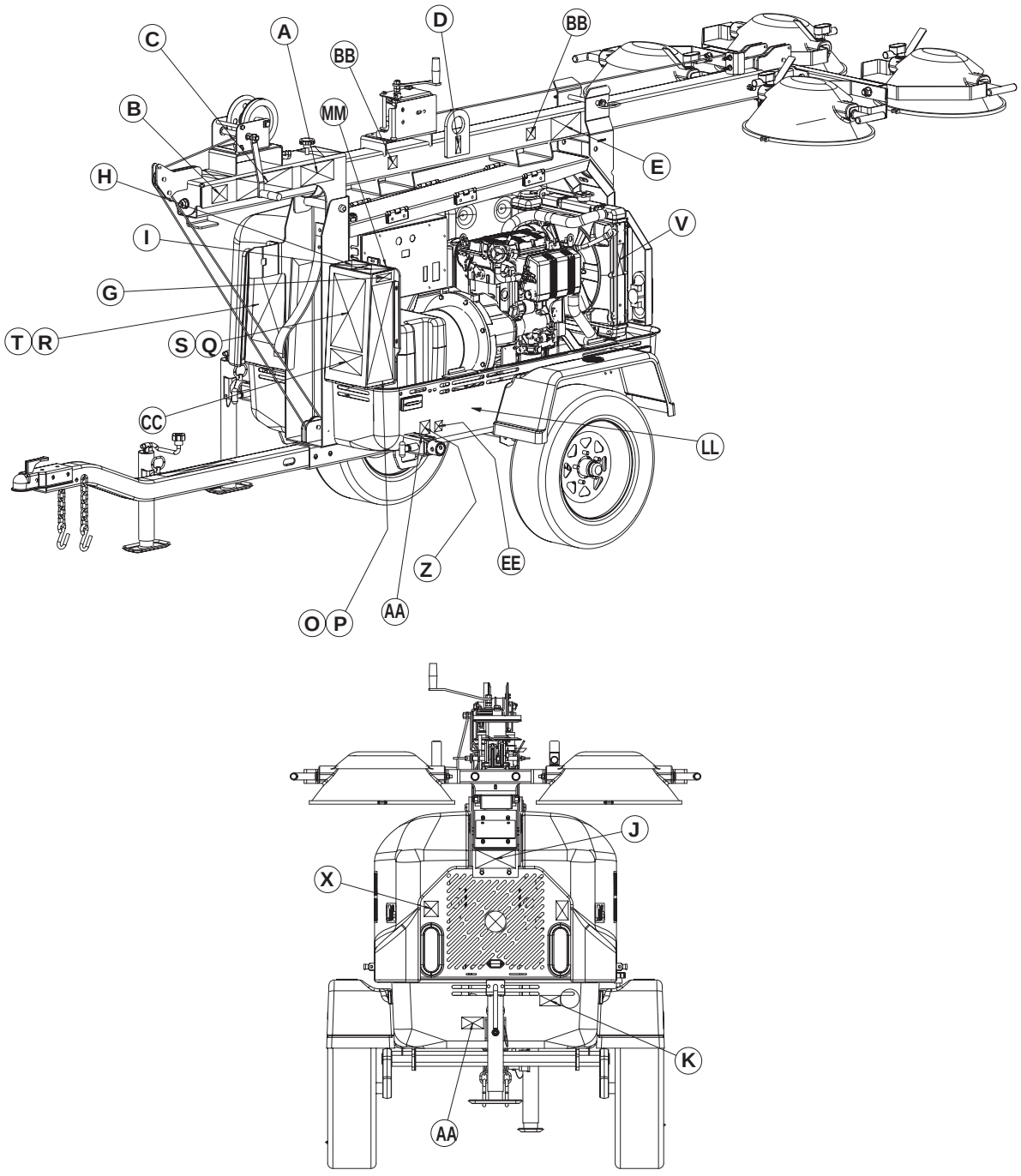
To contact NHTSA, you may either contact the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to http://www.safercar.gov; or write to:

Administrator
NHTSA
1200 New Jersey Avenue S.E.
Washington, DC 20590

You can also obtain other information about your motor vehicle safety from http://www.safercar.gov

2 Labels

2.1 Label Locations



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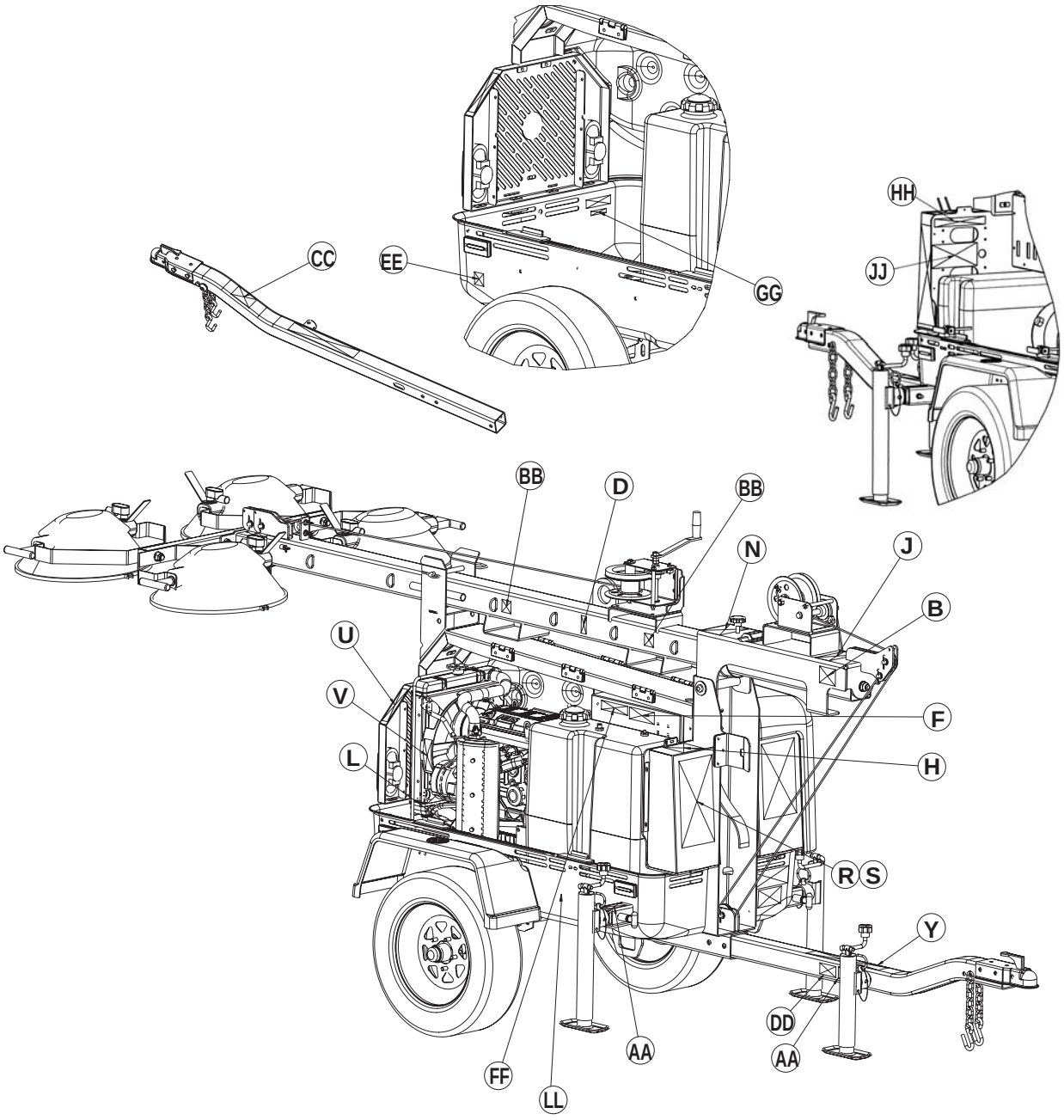

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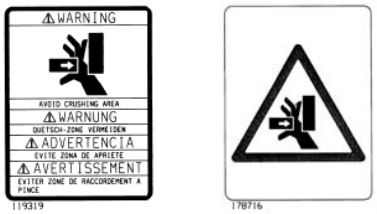
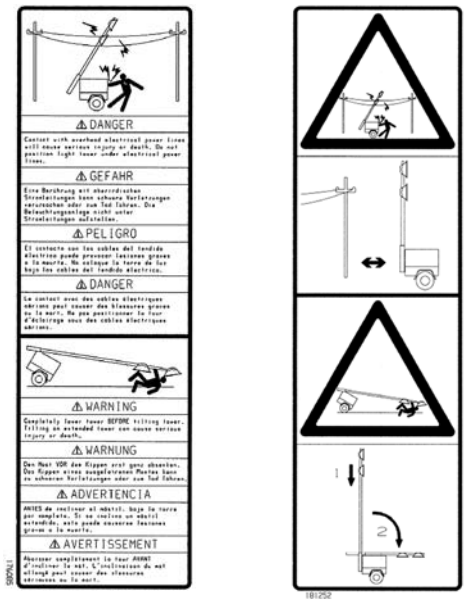
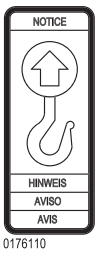
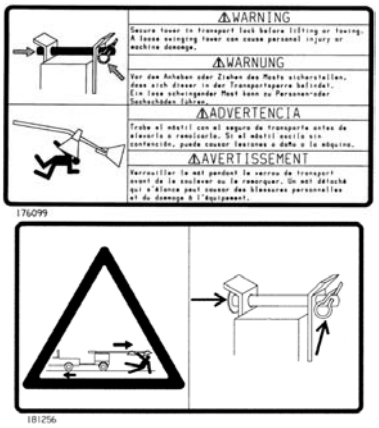
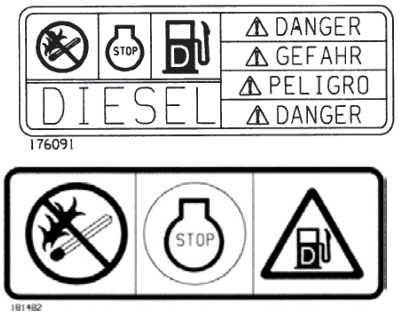
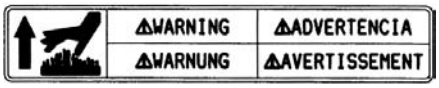
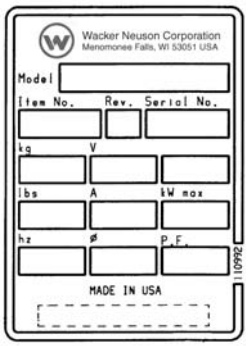
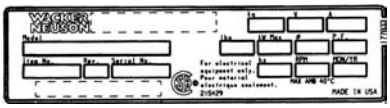
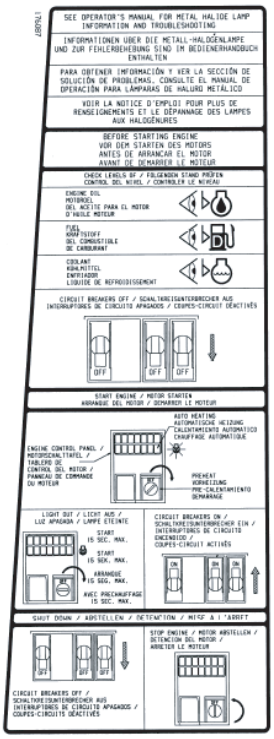
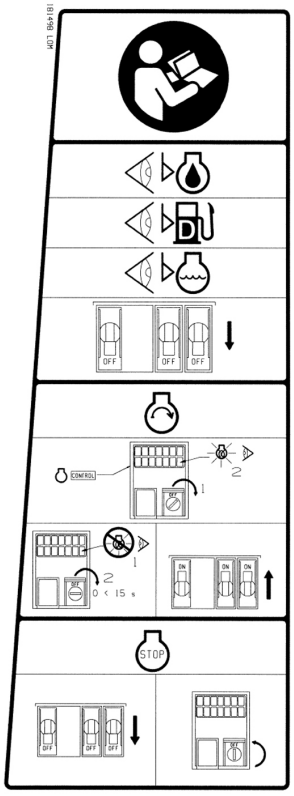
2.2 Label Meanings

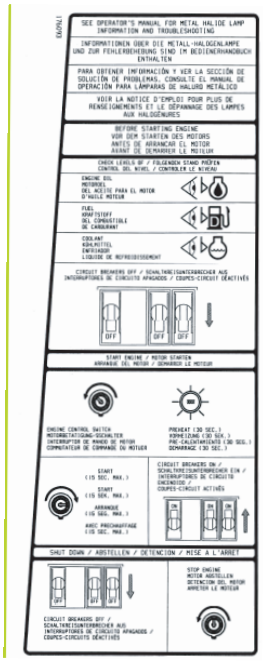
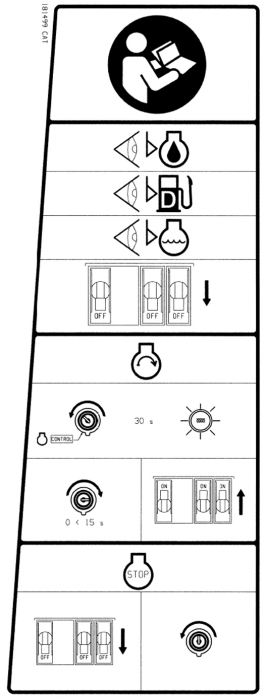
A		WARNING Automatic locking pin. A non-secured, falling tower can cause serious injury or death if a person is hit. To secure tower, verify automatic locking pin has been engaged.
B		WARNING Avoid crushing area.
C		DANGER Contact with overhead electrical power lines will cause serious injury or death. Do not position Light Tower under electrical power lines. WARNING Completely lower tower BEFORE tilting tower. Tilting an extended tower can cause serious injury or death.

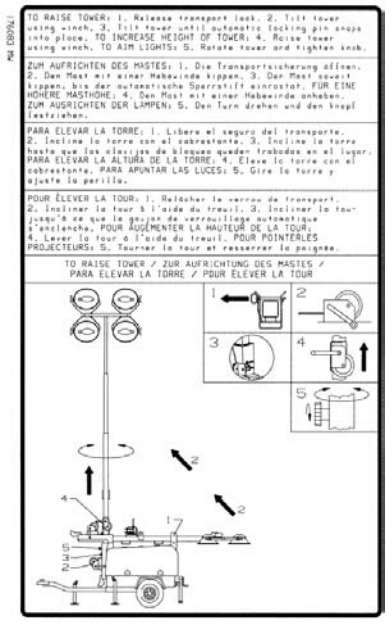
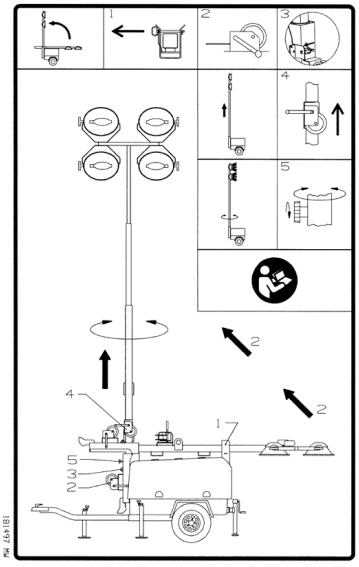
D		NOTICE Lifting point
E		WARNING Secure tower in transport lock before lifting or towing. A loose swinging tower could cause personal injury or machine damage.
F		DANGER No sparks, flames, or burning objects near machine. Stop the engine before adding fuel. Use only diesel fuel.
G		DANGER Asphyxiation hazard ■ Engines emit carbon monoxide. ■ Do not run the machine indoors or in an enclosed area unless adequate ventilation, through such items as exhaust fans or hoses, is provided. ■ Read the Operator's Manual. No sparks, flames, or burning objects near the machine. Stop the engine before refueling.

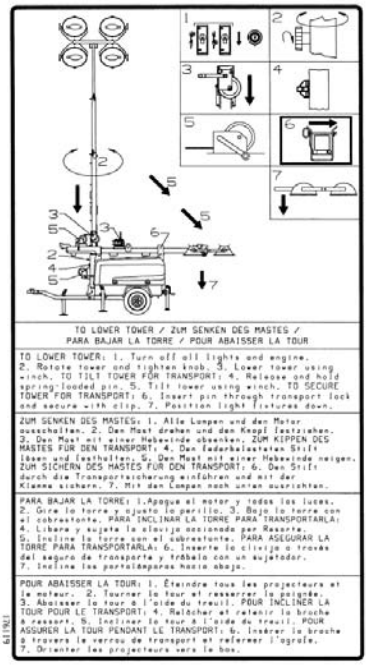
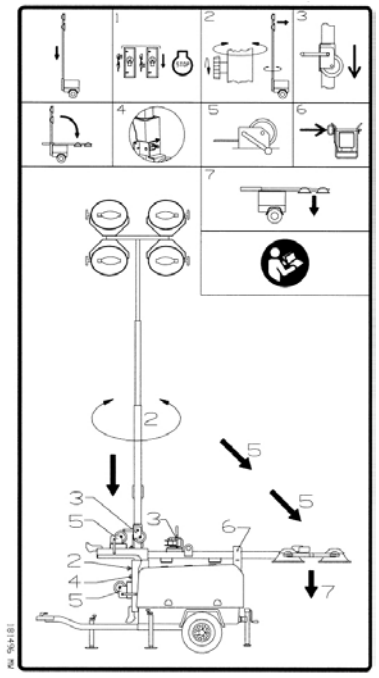
H	 176080  181485	WARNING Electric shock and arc flash can cause serious injury or death. Electrical storage device within. Contact a qualified electrician for service or to open electrical box.
I	 176103  176714	Read and understand the supplied Operator's Manual before operating the machine. Failure to do so increases the risk of injury to yourself and others.
J	 181254	WARNING Stand clear of front and rear of machine when tower is being tilted up or down.

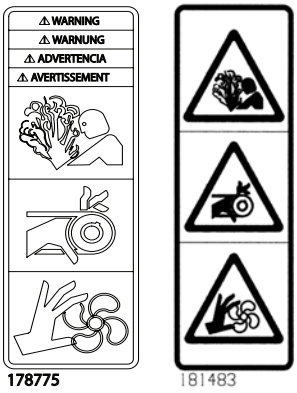
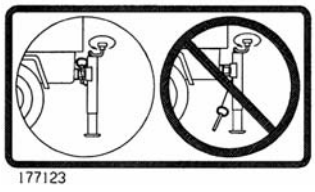
K	 	WARNING Hot surface
L	 	WARNING Hot surface
M	 	A nameplate listing the model number, item number, revision number, and serial number is attached to each unit. Please record the information found on this nameplate so it will be available should the nameplate become lost or damaged. When ordering parts or requesting service information, you will always be asked to specify the model number, item number, revision number, and serial number of the unit.
N	 	WARNING 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.

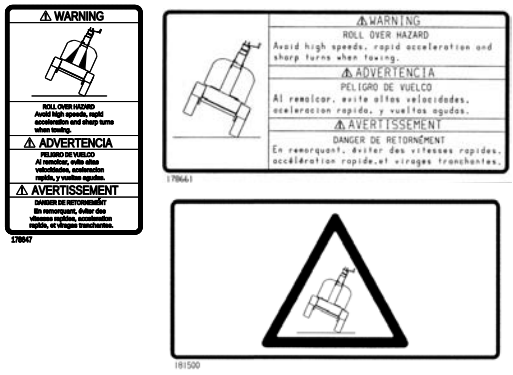
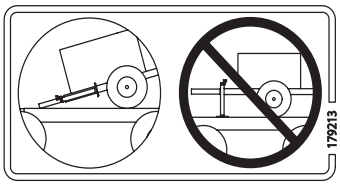
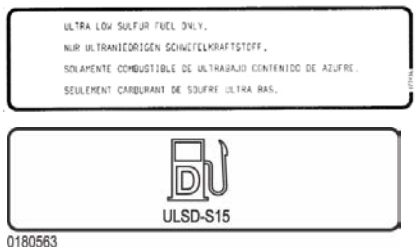
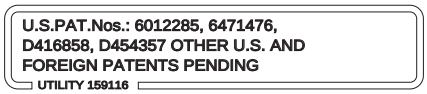
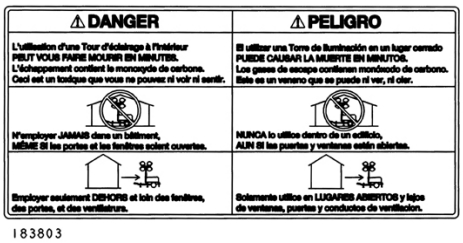
O	 	See Operator's Manual for metal halide lamp information and troubleshooting. Before starting engine Check levels of: Engine oil Fuel Coolant Circuit breakers off Start engine Engine control panel Auto heating Preheat Light out Start, 15 sec. max. Circuit breakers on Shut down Circuit breakers off Stop engine

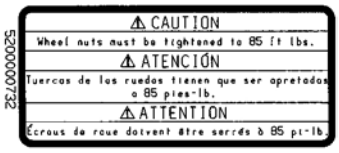
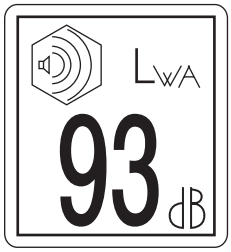
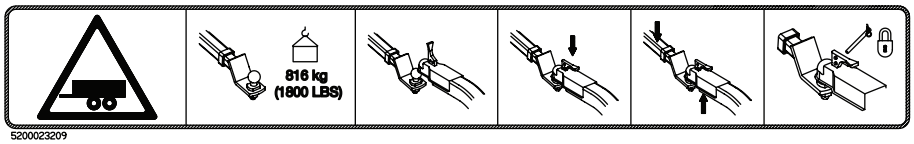
P	 	See Operator's Manual for metal halide lamp information and troubleshooting. Before starting engine Check levels of: Engine oil Fuel Coolant Circuit breakers off Start engine Engine control switch Preheat (30 sec.) Start, 15 sec. max. Circuit breakers on Shut down Circuit breakers off Stop engine

Q	**Manual Winch System**  	Manual Winch System To raise tower: 1. Release transport lock. 2. Tilt tower using winch. 3. Tilt tower until automatic locking pin snaps into place. To increase height of tower: 4. Raise tower using winch. To aim lights: 5. Rotate tower and tighten knob.

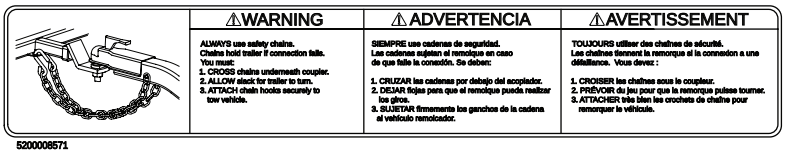
R	**Manual Winch System**  	Manual Winch System To lower tower: 1. Turn off all lights and engine. 2. Rotate tower and tighten knob. 3. Lower tower using winch. To tilt tower for transport: 4. Release and hold spring-loaded pin. 5. Tilt tower using winch. To secure tower for transport: 6. Insert pin through transport lock and secure with pin. 7. Position light fixtures down.
U	Coolant overflow bottle only, not a return system. Nur Kühlmittelüberlaufflasche – kein Rückholsystem! Botella de rebose del enfriador solamente – no es un sistema de retorno. Bouteille de trop-plein de l'agent réfrigérant seulement: ce n'est pas un système de retour. 176105	Coolant overflow bottle only, not a return system.

V		WARNING Pinching hazard. Rotating machinery.
X		Guaranteed sound power level in db(A)
Y		Towing Instructions Read Operator's Manual. Use hitch rated from trailer's "Gross Vehicle Weight Rating". Securely attach trailer to tow vehicle. Attach safety chains using cross pattern. Attach breakdown chain to vehicle. Check trailer lights.
Z		Electrical ground
AA		Insert jack locking pin before extending jack.
BB		Fork lift pocket

CC		WARNING Roll-over hazard To prevent injury or equipment damage, avoid high speeds and sharp turns when towing.
DD		Transport position of the jack
EE		Tie-down point
FF		Ultra low sulfur fuel only
GG		This machine may be covered by one or more patents.
JJ **KK**	 	DANGER 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.

LL		CAUTION Wheel nuts must be tightened to 85 ft.lbs.
MM		WARNING Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrester may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.
—		Guaranteed sound power level in db(A)
y	 	Uncoupling will cause trailer to come loose from tow vehicle. 1. CHECK the pintle LOAD RATING is same or great than ring LOAD RATING. 2. LOCK the clamp in place using a pin or lock.

z



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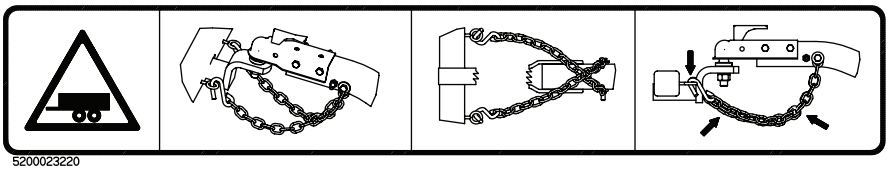
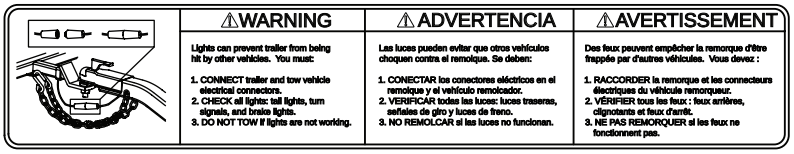


5200023220

ALWAYS use safety chains. Chains hold trailer if connection fails. You must:

1. CROSS chains underneath coupler.
2. ALLOW slack for trailer to turn.
3. ATTACH chain hooks securely to tow vehicle.

aa



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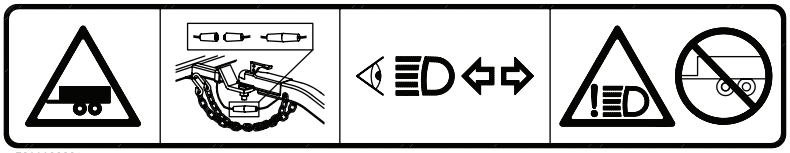
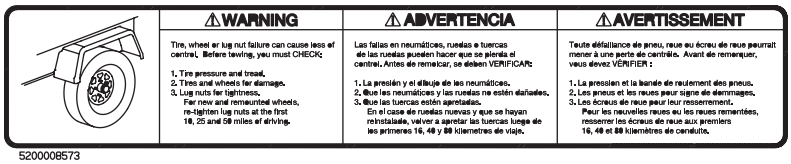


5200023221

Lights can prevent trailer from being hit by other vehicles. You must:

1. CONNECT trailer and tow vehicle electrical connectors.
2. CHECK all lights: tail lights, turn signals, and brake lights.
3. DO NOT TOW if lights are not working.

bb



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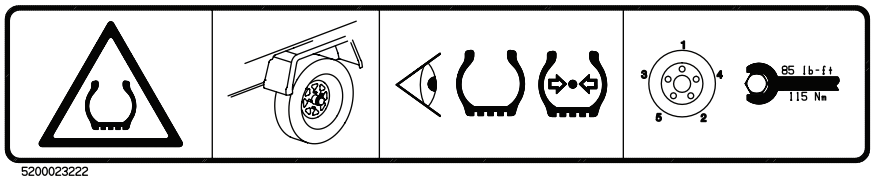


5200023222

Tire, wheel, or lug nut failure can cause loss of control. Before towing you much check:

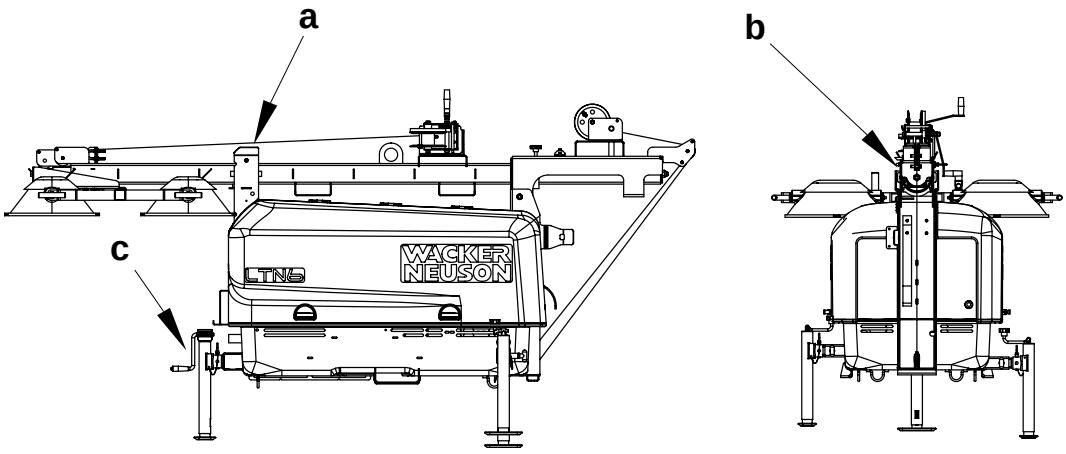
1. Tire pressure and tread.
2. Tires and wheels for damage.
3. Lug nuts for tightness.
   - For new and remounted wheels, re-tighten lug nuts at the first 10, 25, and 50 miiles of driving.

3 Lifting and Transporting

3.1 Lifting the Machine

1. Check that the tower cradle lock pin **(a)** is in place and secured with the safety pin.
2. Ensure that the tower is completely nested inside the transport cradle and the pin **(b)** is secure.
3. Make sure the doors are properly latched.
4. Return the outriggers to their travel position. Check that the outrigger bars and jacks are locked in place.
5. Crank the rear jack **(c)** all the way in and rotate it 90°.

The Light Tower is now ready to lift.



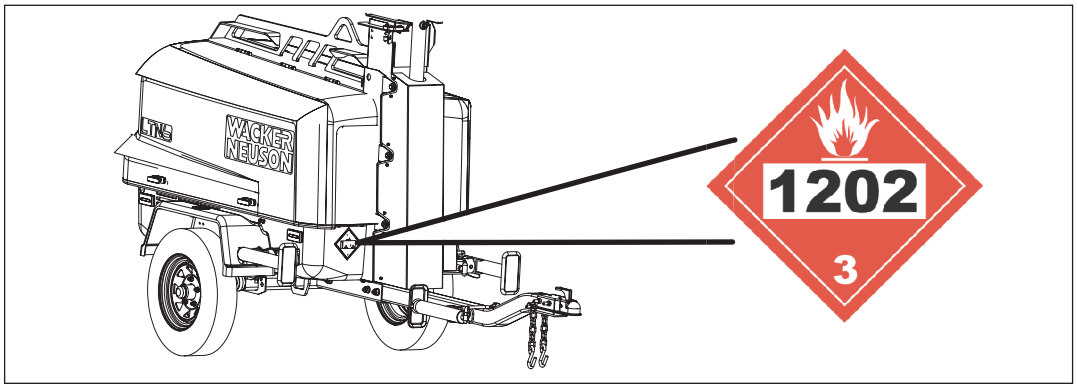
wc_gr005415

3.2 Hazardous Materials Placard

Overview

A hazardous materials placard may have been provided with your machine or shipped separately. The European Agreement Concerning the International Carriage of Dangerous Goods By Road (ADR) requires that this hazardous materials placard be permanently applied to certain machines if they are to be transported or towed on European roads.

Note: *The owner/operator of this machine may be responsible for applying the placard. Use the procedure described below.*



wc_gr011025

Requirements

- The placard mounting surface and surrounding ambient temperature should be at least 10°C (50°F). In colder conditions, see application step 2 below.
- Mild soap or detergent
- Fresh, clean, warm water supply
- Isopropyl (rubbing) alcohol, lacquer thinner, or mineral spirits
- Soft, clean, dry cloths
- Plastic squeegee or stiff cardboard

Apply the Placard

Follow the procedure below to apply the placard to the machine in the location shown in the illustration.

1. Clean the placard mounting surface with mild soap and water. Dry thoroughly.
2. Use isopropyl (rubbing) alcohol to clean the placard mounting surface if:
   - it, and the surrounding ambient temperature, are below 10°C (50°F)
   - the placard mounting surface is covered with grease and oil.
3. Peel about 2 cm (1 in.) of backing paper from the top of the placard. Fold the backing paper away from the placard.
4. Apply the top of the placard to the mounting surface. Gradually remove the backing paper and apply the remainder of the placard. Firmly press and smooth the placard into place with a plastic squeegee, stiff cardboard, or a soft cloth. Puncture any air bubbles that may form.

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 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

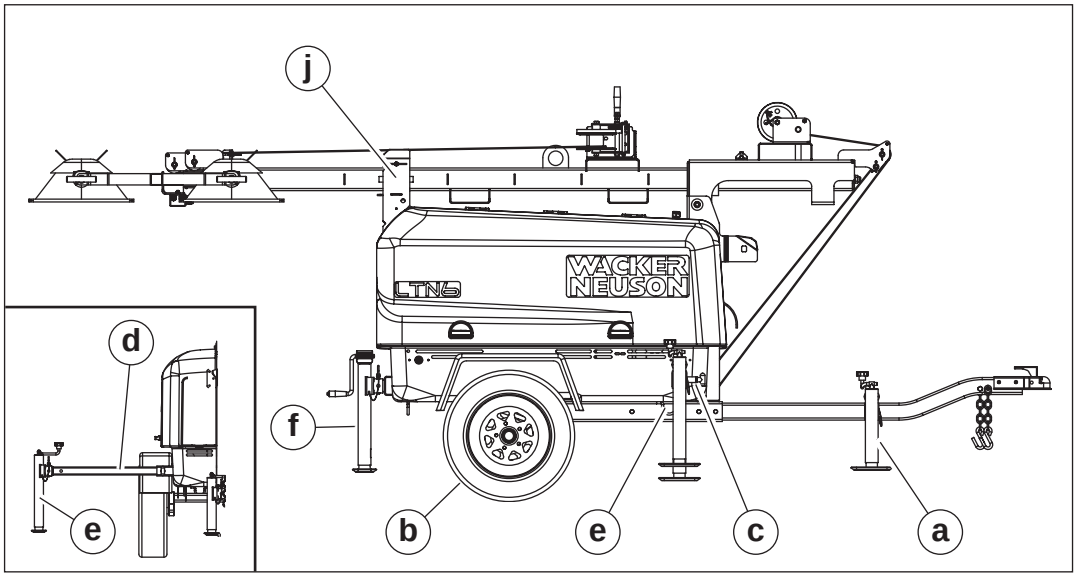
Position the machine:
- so that machine exhaust will not enter nearby structures.
- so that the machine does not block traffic.
- so that the machine is not near any combustible material or flammable vapor.
- so that all of the machine's access doors/panels may be accessed.
- so that the area to be illuminated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

4.3 Leveling the Trailer

WARNING
Failure to level the trailer or extend the outriggers will severely reduce the stability of the unit and could allow the tower to tip and fall.

- ▶ The trailer must be leveled and the outriggers extended before raising the tower. The outriggers must remain extended while the tower is up.

1. Pull the locking pin on the tongue jack **(a)** and rotate the tongue jack 90° as shown. Make sure the tongue jack snaps into position.



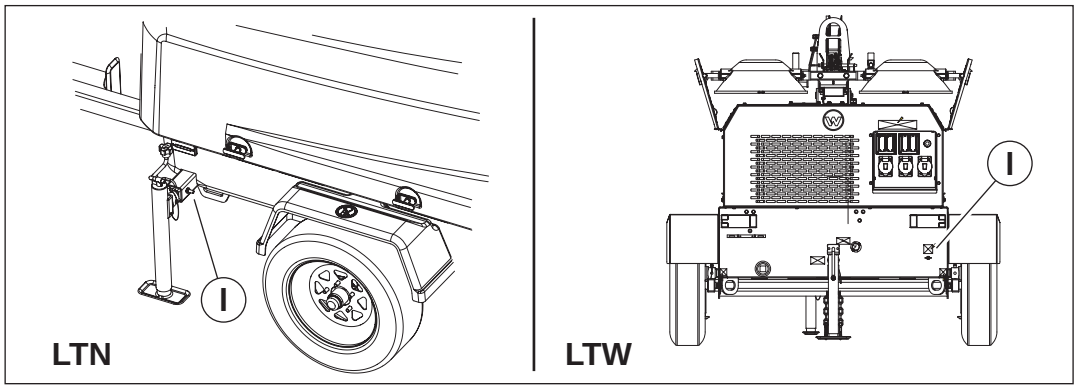
wc_gr011027

2. Block or chock the trailer wheels **(b)**.
3. Crank the tongue jack down to raise the trailer tongue off the vehicle.
4. Pull the outrigger lock pin **(c)** to release the outrigger. Pull both outrigger extensions **(d)** out until you feel the outrigger lock pin lock back into place. Rotate jacks **(e)** down until they snap into position.
5. Rotate rear jack **(f)** down, as shown, making sure it snaps into place.
6. Extend the jack(s) on the highest side(s) of the trailer until they rest firmly on the ground. Extend the remaining jacks until the trailer is level.

4.4 Grounding the Light Tower

External grounding

A ground connection **(I)** is located on the trailer frame.



wc_gr005525

This ground connection is used for electrically grounding the Light Tower when necessary to comply with the National Electrical Code and other federal, state, and local regulations. For grounding requirements in your area, consult with a qualified electrician, electrical inspector, or local agency having jurisdiction over electrical compliance.

- If the Light Tower is used at a construction site, there may be additional regulations which must be observed.

Internal grounding

- The exposed, conductive, noncurrent-carrying components that could become energized (e.g., fuel tank, engine, generator housing, control panel, enclosure, trailer, tower sections, and light fixtures) are bonded (connected) to the machine's frame.
- The grounding wires of the machine's power outputs (receptacles) are bonded (connected) to the machine's frame.
- The neutral of the generator stator winding is bonded (connected) to the machine's frame.

4.5 Aiming the Lights - LTN

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.

Requirements

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

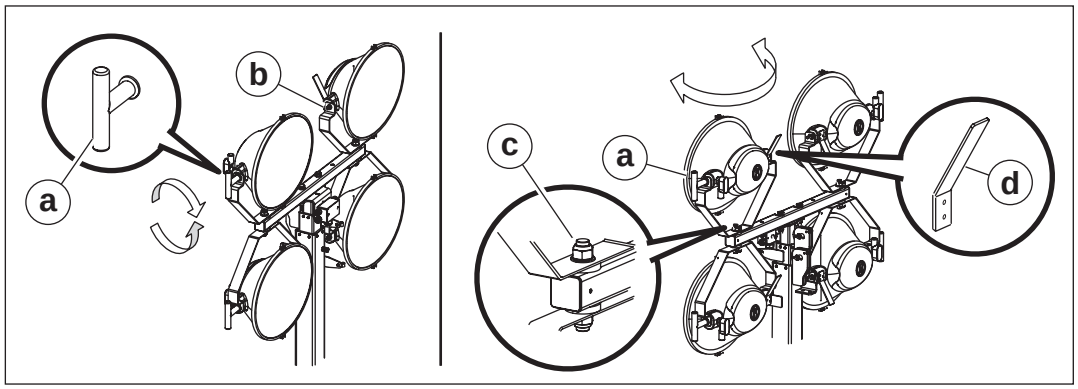
- Machine is stopped
- Tower is completely lowered
- Lights are cool to the touch

Aiming up or down

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

1. Loosen the T-handle **(a)**. Grasp the light fixture by the adjusting handle **(d)** and aim the light fixture up or down.

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



wc_gr011250

2. Tighten the T-handle **(a)** when the light is aimed as desired.
3. Repeat steps 1–2 for each remaining light fixture if desired.

Aiming left or right

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

1. Grasp the light fixture by the adjusting handle **(d)** and the T-handle, then aim the light fixture to the light left or right. If necessary, loosen the bracket nut **(c)** to allow movement of the fixture.
2. If loosened, tighten the bracket nut **(c)** after the light is aimed.

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.

4.6 Refueling the Machine

Requirements

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

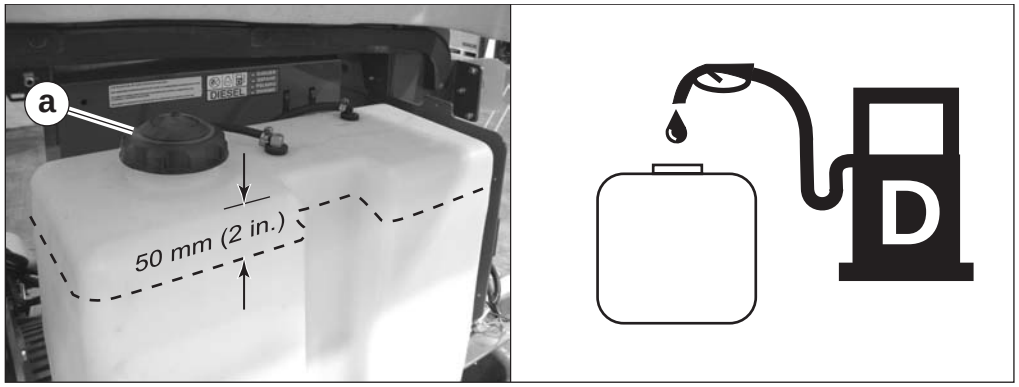
Procedure

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)**.



wc_gr008825

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.

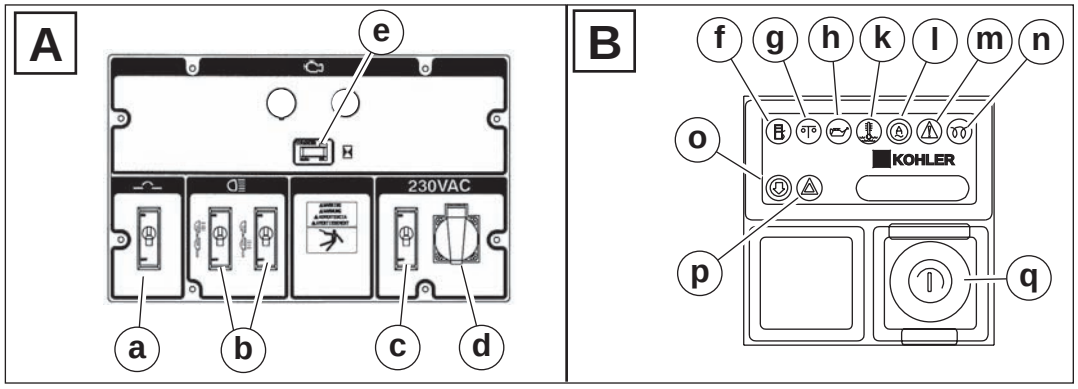
- ▶ Do not fill the fuel tank completely.

3. Reinstall the fuel cap.

Result

The procedure to refuel the machine is now complete.

4.7 Control Panels



wc_gr005142

A: Floodlight Control Panel

B: Engine Control Panel

Ref.	Description	Ref.	Description
a	25 Amp circuit breaker	**k**	High coolant temperature shutdown indicator
b	30 Amp lights circuit breaker	**l**	Alternator indicator
c	16 Amp circuit breaker	**m**	Auxiliary lights (not used)
d	230 V, 16 Amp receptacle	**n**	Glow plug indicator
e	Hour meter	**o**	Air filter restriction indicator
f	Low fuel indicator (not used)	**p**	Auxiliary lights (not used)
g	Safety shutdown indicator	**q**	Key access door
h	Low oil pressure shutdown	**—**	—

4.8 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.

4.9 Starting the Machine

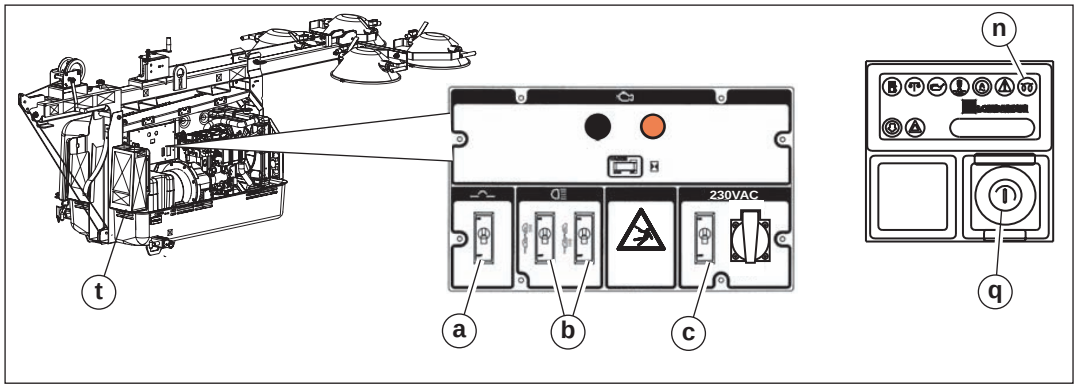
Pre-start checklist

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.
- ☐ 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 many need to bleed the fuel lines. Refer to the engine manufacturer’s documentation.



wc_gr011265

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

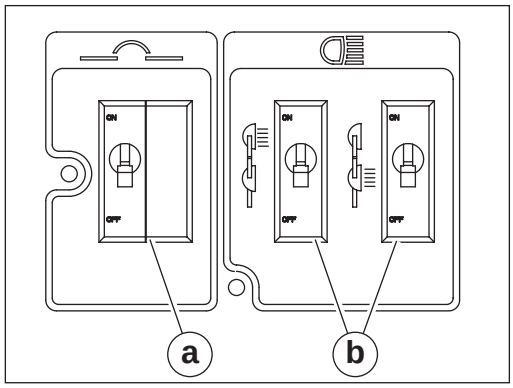
Requirements

- 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)**.



wc_gr009327

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.

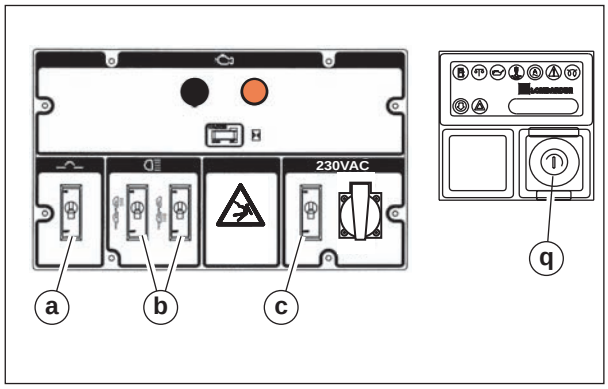
4.11 Stopping the Machine - LTN 6L-V

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.



wc_gr009360

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

4.12 Raising the Tower (Manual Winch System)

Background

The Light Tower includes two separate winches: the tilting winch for lifting the tower to the vertical position; and the telescoping winch for raising the tower. Each winch is an automatic brake-type winch that automatically brakes when the handle is released. The handle must be rotated to wind in the cable as well as to unwind the cable.

Requirements

- Engine is stopped
- Light Tower is located on a firm, flat surface clear of overhead wires and obstructions
- Winch cables are in serviceable condition and resting properly in pulleys
- Light tower has been leveled, with all outriggers extended and locked

WARNING
Electric shock hazard! Do not use the Light Tower if insulation on any of the electrical cords is cut or worn through. Bare wires in contact with the metal frame of the trailer or tower can cause electrocution.

▶ Repair or replace the cord before using the machine.

WARNING
Electrocution hazard.

▶ Do not position the Light Tower under electrical power lines.

WARNING
Tipping/falling hazards. Certain actions may cause the tower to fall or the Light Tower to tip over.

▶ Do not extend the tower beyond the red marking on the tower shaft.

▶ Do not raise the tower or operate the Light Tower in high winds.

▶ Do not touch the winch pawl while the tower is raised!

▶ Do not pull the vertical tower locking pin while the tower is raised.

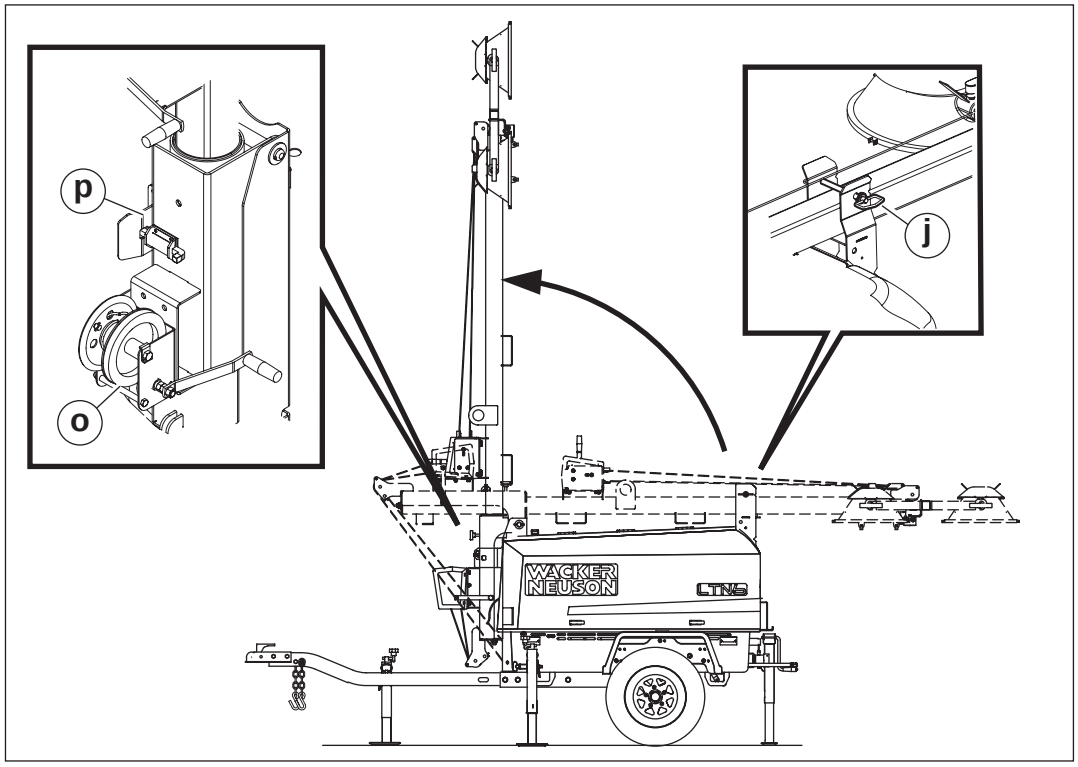
WARNING
Personal injury hazard. Bystanders can be struck by the tower as it is being raised or lowered.

▶ Do not allow anyone to stand near the rear of the machine while raising or lowering the tower.

This procedure continues on the next page.

Continued from the previous page.

Reference graphic



wc_gr010906

Procedure

Perform the procedure below to raise the tower.

Tilting the tower

1. Remove the cradle locking pin **(j)** from the cradle.
2. Check the operation of the tilt winch **(o)** by rotating the its handle 1/4 turn clockwise (“cable in” direction). The winch pawl must engage the winch gear teeth. When operating properly, the winch pawl will make a “clicking” sound when its handle is rotated clockwise.

NOTICE: Do not attempt to tilt the tower if the winch is damaged or not operating properly, or if the winch cables are worn or damaged.

3. Continue to rotate the winch handle and tilt the tower to the vertical position until the vertical tower locking pin **(p)** locks the tower in place. Be certain the vertical tower locking pin is fully engaged in the locking position before raising the tower.

This procedure continues on the next page.

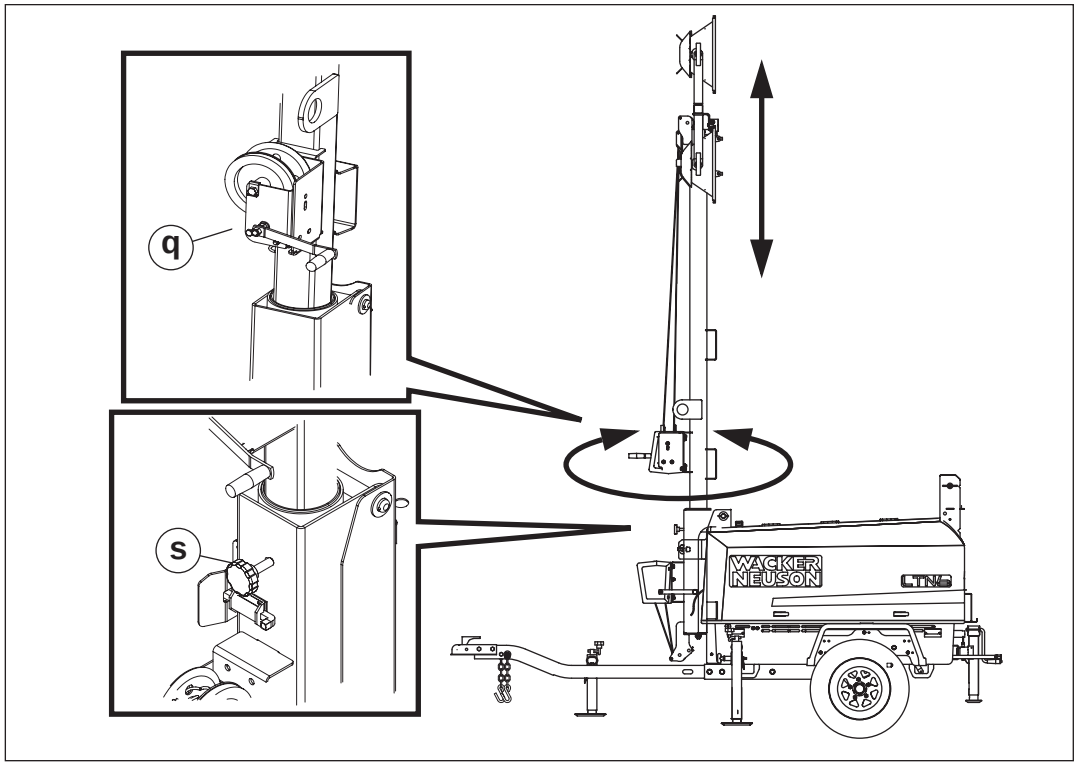
Continued from the previous page.

Raising the tower

4. After the tower is vertical, check the operation of the telescoping winch **(q)** by rotating the its handle 1/4 turn clockwise (“cable in” direction). The winch pawl must engage the winch gear teeth. When operating properly, the winch pawl will make a “clicking” sound when its handle is rotated clockwise.

NOTICE: Do not attempt to raise the tower if the winch is damaged or not operating properly, or if the winch cables are worn or damaged.

5. Continue rotating the winch handle until the tower is at the desired height. Do not overcrank the winch when the tower is fully extended.



wc_gr010907

Rotating the tower

Once the tower is at the desired height, rotate the tower to the desired direction.

1. Loosen the rotation locking knob **(s)**.
2. Rotate the tower until the lights face the desired direction.
3. Retighten the rotation locking knob.

4.13 Lowering the Tower (Manual Winch System)

Requirements

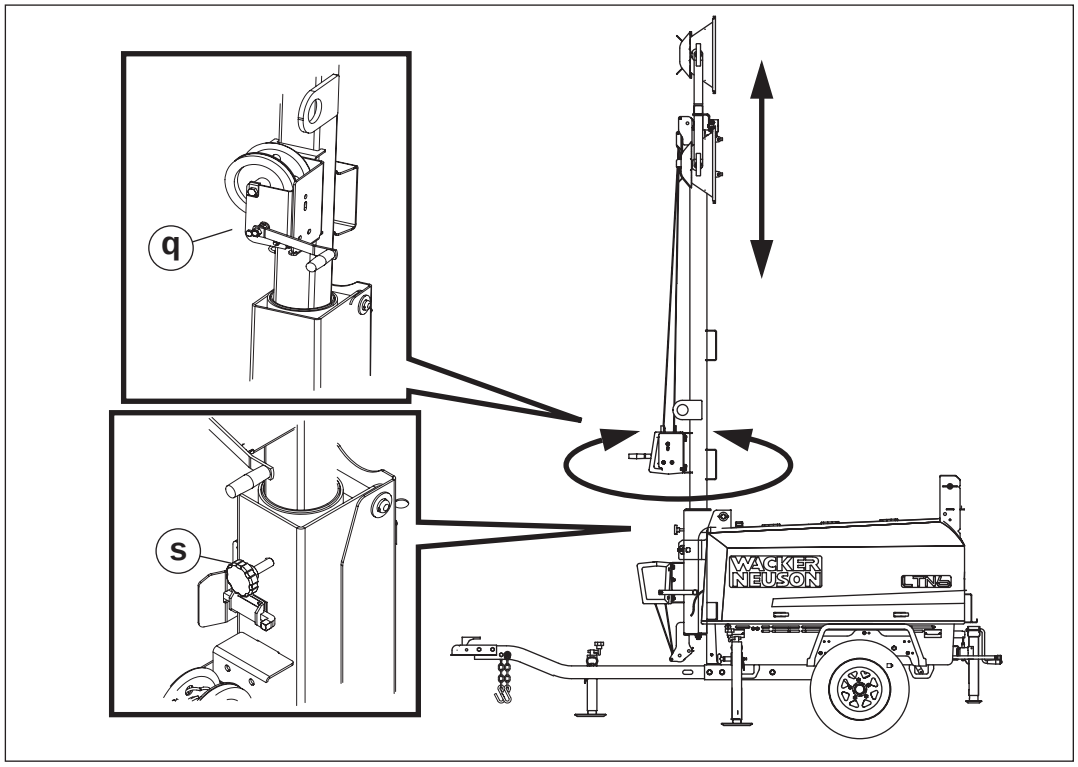
- Lights are turned off
- Engine is stopped
- Outriggers are extended and locked in place

WARNING

Tipping/falling hazards. Certain actions may cause the tower to fall or the machine to tip over.

- ▶ Do not extend the tower beyond the red marking on the tower shaft.
- ▶ Do not raise the tower or operate the Light Tower in high winds.
- ▶ Do not touch the winch pawl while the tower is raised!
- ▶ Do not pull the vertical tower locking pin while the tower is raised.

Reference graphic



wc_gr010907

Procedure

Follow the procedure below to lower the tower.

1. Loosen the rotation locking knob **(s)** and rotate the tower so the lights face the rear of the trailer and the winches are facing toward the trailer tongue.

This procedure continues on the next page.

Continued from the previous page.

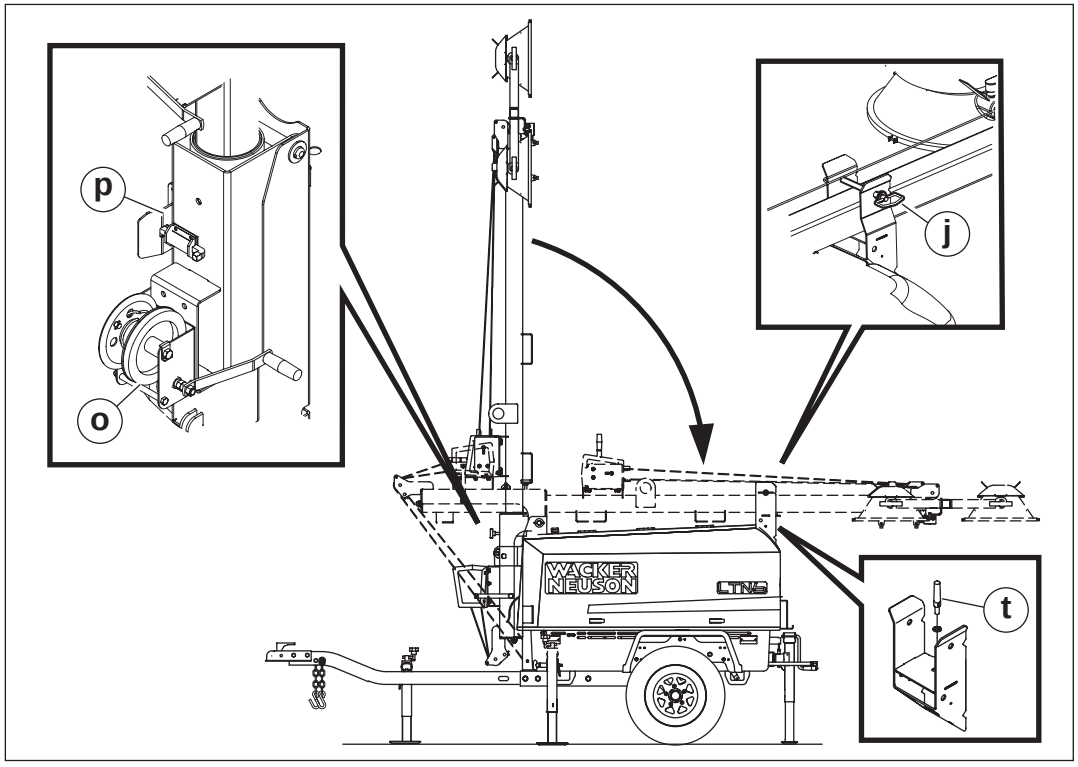
WARNING
Personal injury hazard. Bystanders can be struck by the tower as it is being raised or lowered.

- Do not allow anyone to stand near the rear of the machine while raising or lowering the tower.

2. Turn the handle on the telescoping winch **(q)** counterclockwise (“cable out” direction) until the tower is lowered completely.
3. Pull and hold the tower locking pin **(p)**; rotate the handle on the tilt winch **(o)** counterclockwise (“cable out” direction) until the tower spring begins to pivot the tower down.

Note: *If the tower hangs up, level the trailer, and slightly shake or twist the tower assembly to free the bind. Contact an authorized Wacker Neuson service center immediately if this procedure does not correct the problem.*

4. Release the tower locking pin and continue to rotate the handle until the tower is resting in the transport cradle. Make sure that the secondary locking pin **(t)** penetrates all sections of the tower.



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5. After the tower is down, secure it in the cradle by inserting the cradle lock pin **(j)**. Insert the clip through the pin to lock it in place.
6. Position the light fixtures to aim at the ground.

4.14 Raising the Tower (Power Winch System)

Background The Light Tower includes two separate winches: the tilting winch for lifting the tower to the vertical position; and the telescoping winch for raising the tower.

Requirements

- Machine is shut down
- Light Tower is located on a firm, flat surface clear of overhead wires and obstructions
- Winch cables are in serviceable condition and resting properly in pulleys
- Light Tower has been leveled, with all outriggers extended and locked

WARNING
Electric shock hazard! Do not use the Light Tower if insulation on any of the electrical cords is cut or worn through. Bare wires in contact with the metal frame of the trailer or tower can cause electrocution.

- ▶ Repair or replace the cord before using the machine.

WARNING
Electrocution hazard.

- ▶ Do not position the Light Tower under electrical power lines.

WARNING
Tipping/falling hazards. Certain actions may cause the tower to fall or the Light Tower to tip over.

- ▶ Do not extend the tower beyond the red marking on the tower shaft.
- ▶ Do not raise the tower or operate the Light Tower in high winds.
- ▶ Do not pull the vertical tower locking pin while the tower is raised.

WARNING
Personal injury hazard. Bystanders can be struck by the tower as it is being raised.

- ▶ Do not allow anyone to stand near the rear of the machine while raising the tower.

This procedure continues on the next page.

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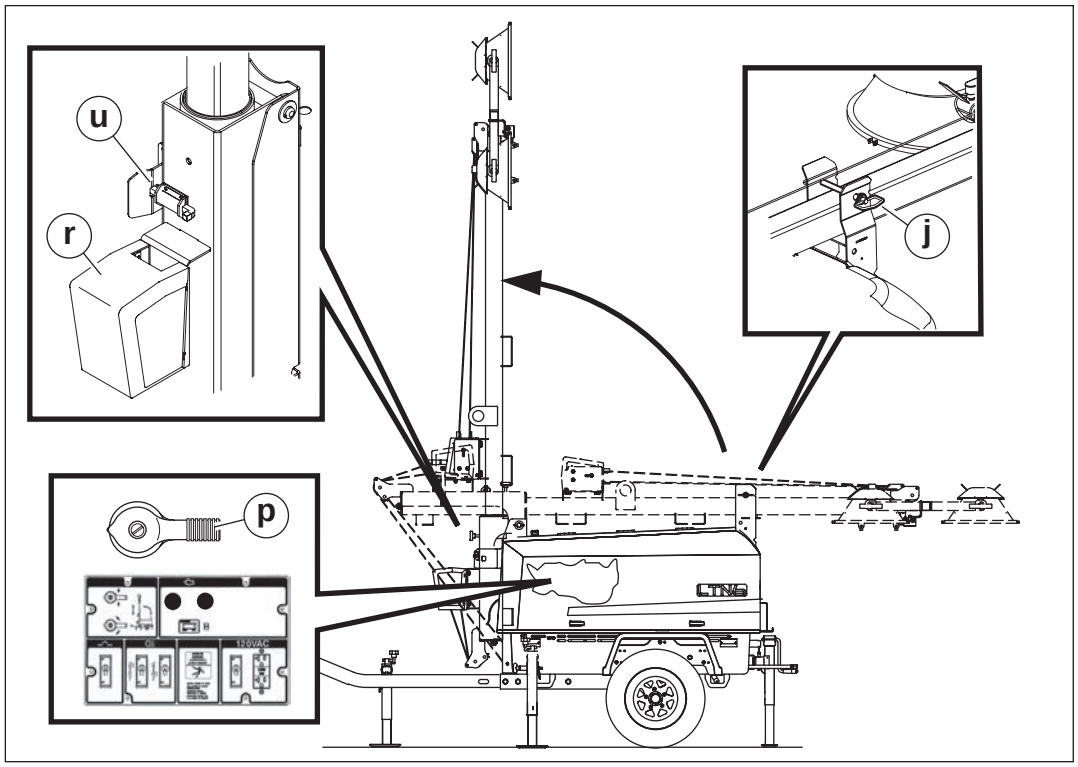
Reference graphic



wc_gr010911

Procedure

Perform the procedure below to raise the tower.

Tilting the tower

1. Remove the cradle locking pin **(j)** from the cradle.
2. Check the operation of the tilt winch **(r).** Turn the tilt rotary switch **(p)** on the control panel to the up position. The tower should begin to tilt.

NOTICE: Do not attempt to lift or raise the tower if the winch is damaged or not operating properly, or if the winch cables are worn or damaged. Continuous running of the winch in excess of four minutes will damage the winch motor.

3. Hold the tilt rotary switch in the up position and raise the tower to the vertical position until the vertical tower locking pin **(u)** locks the tower in place. Be certain the vertical tower locking pin is fully engaged in the locking position before raising the tower.

This procedure continues on the next page.

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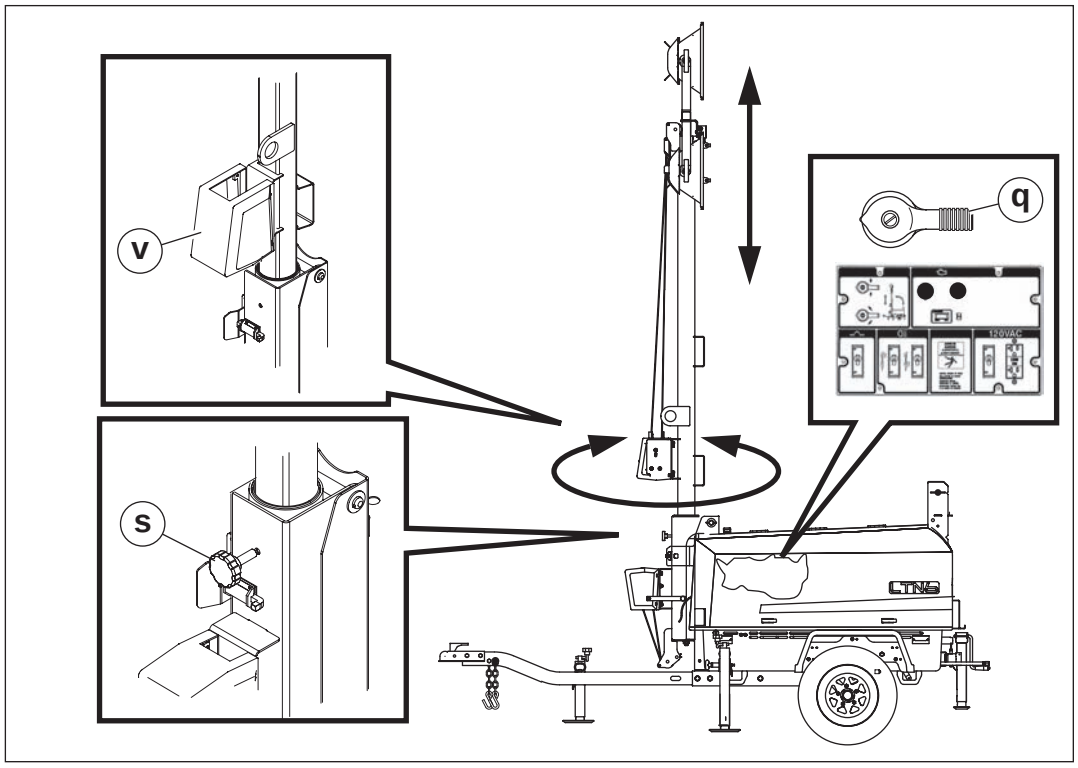
Raising the tower

4. After the tower is vertical, check the operation of the telescoping winch **(v)**. Turn the telescope rotary switch **(q)** on the control panel to the up position.



wc_gr010912

5. Continue to hold the telescope rotary switch until the tower is at the desired height. Release the switch when the tower is at the desired height.

Rotating the tower

Once the tower is at the desired height, rotate the tower to the desired direction.

1. Loosen the rotation locking knob **(s).**
2. Rotate the tower until the lights face the desired direction.
3. Retighten the rotation locking knob.

4.15 Lowering the Tower (Power Winch System)

Requirements

- Lights are turned off
- Engine is stopped
- Outriggers are extended and locked in place

WARNING
Tipping/falling hazards. Certain actions may cause the tower to fall or the machine to tip over.

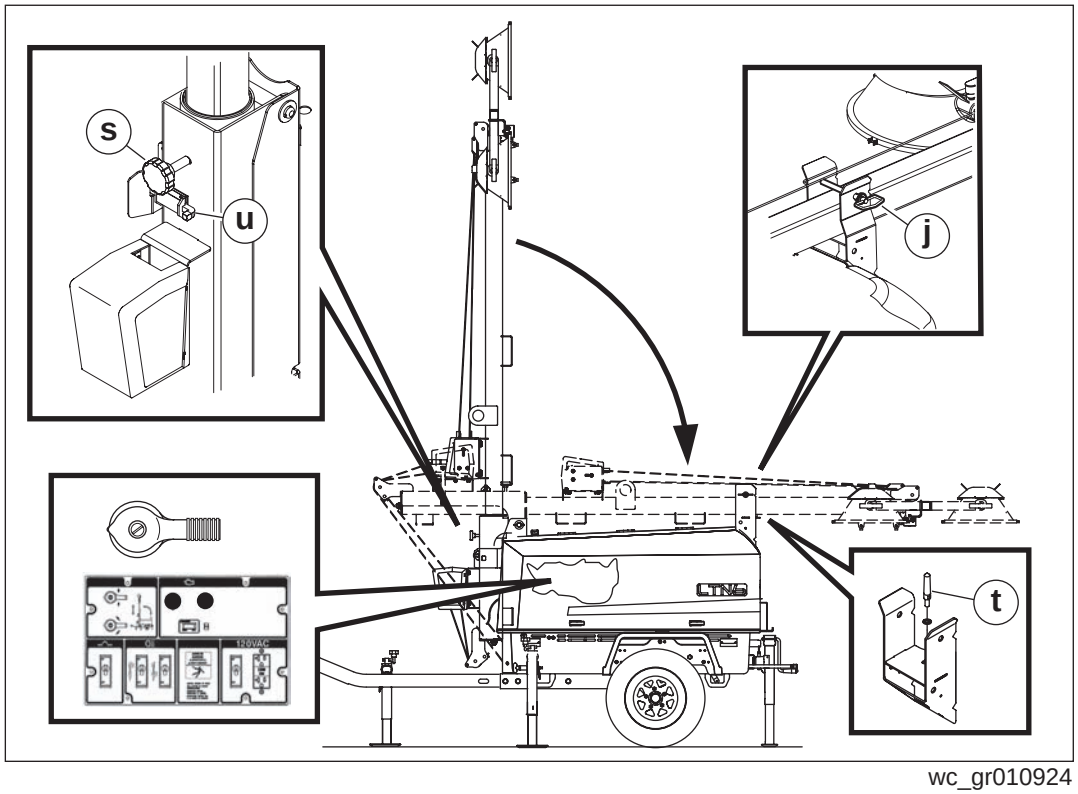
- ▶ Do not extend the tower beyond the red marking on the tower shaft.
- ▶ Do not pull the vertical tower locking pin while the tower is raised.

Procedure Perform the procedure below to lower the tower.

WARNING
Personal injury hazard. Bystanders can be struck by the tower as it is being raised or lowered.

- ▶ Do not allow anyone to stand near the rear of the machine while raising or lowering the tower.

1. Loosen the rotation locking knob **(s)** and rotate the tower so that the lights face the rear of the trailer and the winches are face toward the trailer tongue.



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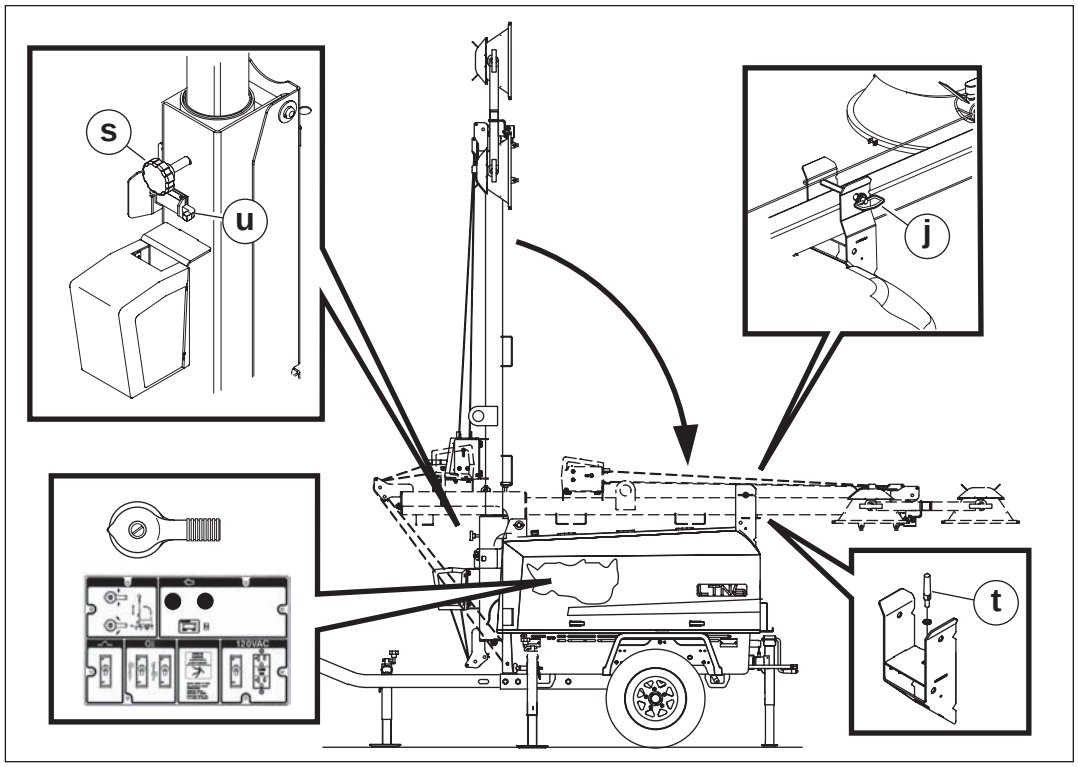
2. Hold the rotary switch in the down position (“cable out” direction) until the tower is completely lowered.
3. Pull and hold the tower locking pin **(u)**: hold the tilt-winch rotary switch in the down position until the tower spring begins to pivot the tower down. Release the tower locking pin. Continue to hold the tilt-winch rotary switch in the down position until the tower is resting in the transport cradle. Make sure that the secondary locking pin **(t)** penetrates all sections of the tower.



wc_gr010924

4. After the tower is down, secure it in the cradle by inserting the cradle locking pin **(j)**. Insert the clip through the cradle locking pin.
5. Position the light fixtures to aim at the ground.

4.16 Automatic Shutdown

This unit is equipped with a low oil, high temperature auto-shutdown system. This system will automatically shut off the fuel supply to the engine if the oil pressure drops too low or the engine exceeds normal operating temperatures. Return the key switch to the off position to reset the unit after an engine shutdown.

4.17 Emergency Shutdown Procedure

Procedure

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

1. Press the emergency stop button (if equipped).
2. Stop the engine.
3. Disconnect tools.
4. Lower the tower.
5. Allow the machine to cool before opening the cabinet.
6. Contact the rental yard or machine owner for further instructions.

4.18 Derating

All generator sets are subject to derating for altitude and temperature. Although derating should not affect operation of the floodlights, it will reduce the available reserve power to the receptacle.

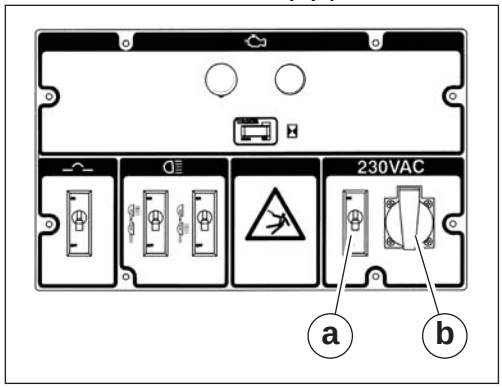
Ratings are typically reduced 3% per 300 m (1000 feet) elevation from sea level, and 2% per 10°F (5.5°C) increase in ambient temperature above 78°F (25°C).

4.19 Convenience Receptacle

The control panel is equipped with a convenience receptacle for running accessories and tools from the generator. Power to this receptacle is available any time the engine is running and the circuit breaker is on.

***NOTICE*: Do not** draw more than 1680 Watts from the receptacle with all of the lights on or the lights will turn off.

A 16A circuit breaker **(a)** protects the 230V receptacle **(b)**.



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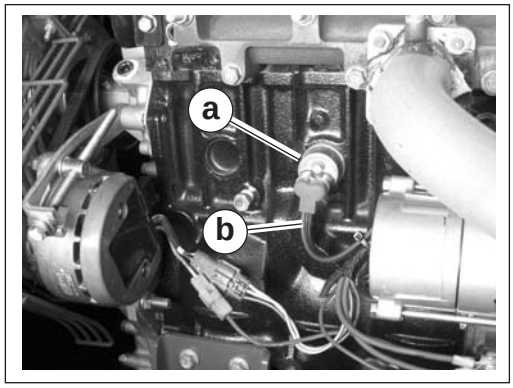
5 Factory-Installed Options

This machine may be equipped with one or more of the following factory-installed options. To verify if any of these options are installed on your machine, contact Wacker Neuson Corporation at 1-800-770-0957. A nameplate listing the Model Number, Item Number, Revision, and Serial Number is attached to each unit. Please have this information available when contacting Wacker Neuson Corporation.

The illustrations shown in this chapter represent typical installations. The factory-installed options on your machine may look different.

5.1 Engine Block Heater

The engine block heater includes a block heater **(a)** with a cord **(b)**. The function of the block heater is to heat the engine coolant/ engine block to improve cold-weather engine starting. Plug the cord into a 120V power supply.



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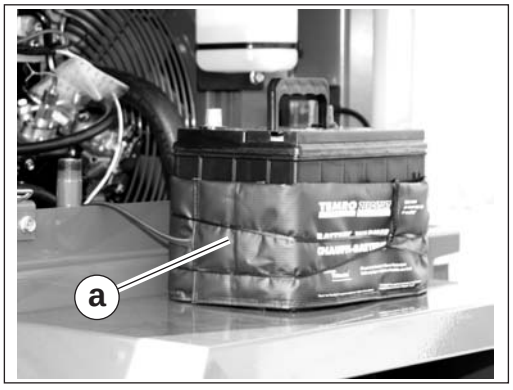
5.2 Battery Blanket

An electrically powered blanket **(a)** warms the battery while the machine is not in use. The blanket eliminates engine starting difficulties caused by a cold or frozen battery. Plug the cord into a 120V power supply.



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5.3 Oil Pan Heater

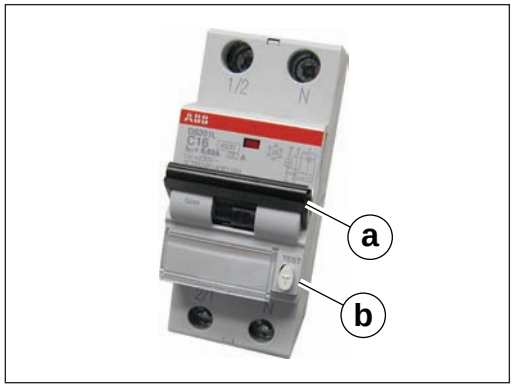
Cold, thick engine oil does not flow freely and may cause engine starting difficulties. An oil pan heater installed on the engine oil pan keeps the oil warm and flowing. Heat from this electrical device warms the supply of engine oil contained in the pan while the machine is not in use. Plug the cord into a 120V power supply.

5.4 RCBO Circuit Breaker

Available for 50 Hz machines is an Residual Current Circuit Breaker with Overcurrent Protection (RCBO). On these machines, the RCBO takes the place of the standard receptacle circuit breaker. Machines with RCBOs have neutral bonded to ground and thus these machines require grounding.

The RCBO functions as an overcurrent protection device and a current leakage detection device.

Whenever an overcurrent condition or a current leakage condition exists, the RCBO's activation lever springs to the OFF position. This opens the circuit. If the activation lever springs to the OFF position during use, there is a problem. **Do not** use the receptacle until the problem is corrected.



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Test the RCBO every 6 months.

Note: *The RCBO must be connected and the main circuit breaker must be in the ON position when testing.*

To test:

1. Set the activation lever **(a)** to the ON position.
2. Press the "TEST" button **(b)**. The activation lever must spring to the OFF position. If it does not, the RCBO has failed. Replace it.

5.5 LED Lights

The LED light option includes 4 X 320 Watt LED fixtures that require less than 1 second warm-up time, no maintenace, and 100-264 VAC. The LED fixtures are rated for use in extreme cold temperatures to -40° F and offer voltage and current protection. This feature is offered as a retrofit kit or as a factory-installed option.

wc_gr011912

6 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.

6.1 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.

6.2 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.				■

** 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.*

*** Change engine oil and filter after first 50 hours of operation.*

6.3 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.

6.4 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

6.5 Checking the Engine Oil Level

When Daily before starting the engine

Requirements

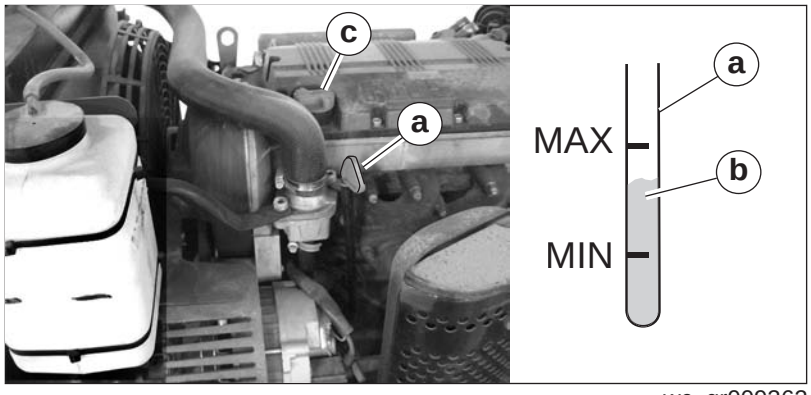
- Engine is stopped and cool to the touch
- Machine is on a level surface
- Clean, dry cloth
- Fresh oil

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.

6.6 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.

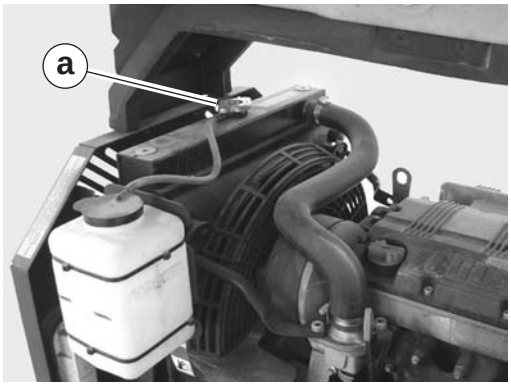
Procedure Perform the procedure below to check the engine coolant level.

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 reservior.

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.

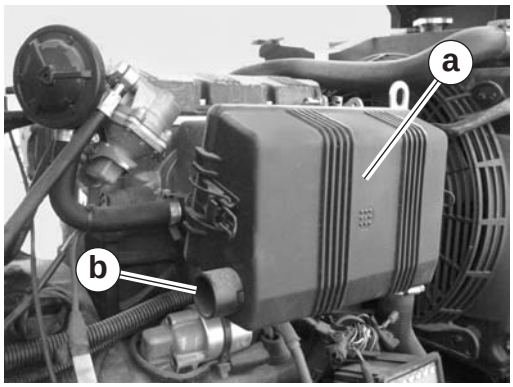
6.7 Checking the Air Cleaning System

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.



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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.

6.8 Replacing the Air Cleaner

When

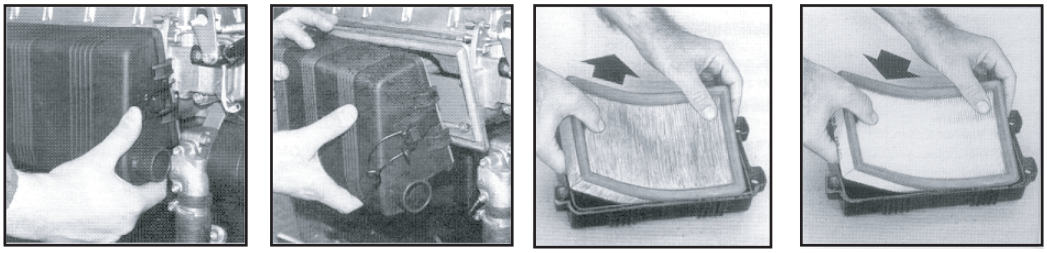
Replace the air filter element when the air filter restriction indicator on the control panel illuminates.

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.



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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.

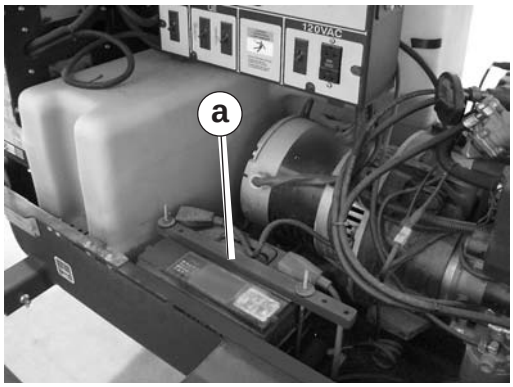
Result

The air cleaner has now been maintained.

6.9 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.

6.10 Changing the Engine Oil

When

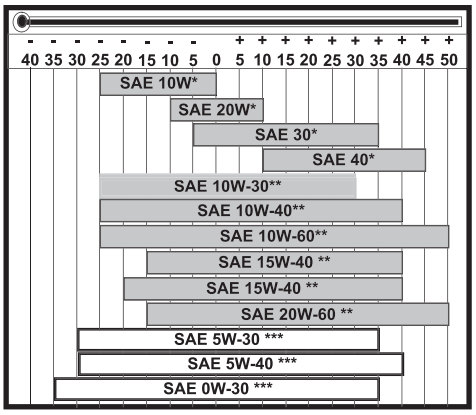
- Change the oil and oil filter **(d)** every 250 hours.
- On new machines, change oil after first 50 hours of operation.

Requirements

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

Specifications

This chart represents the recommended engine oil for various ambient temperatures. See the engine manufacturer's manual for detailed information.



* *Mineral spirits*
** *Semi-synthetic base*
*** *Synthetic base*

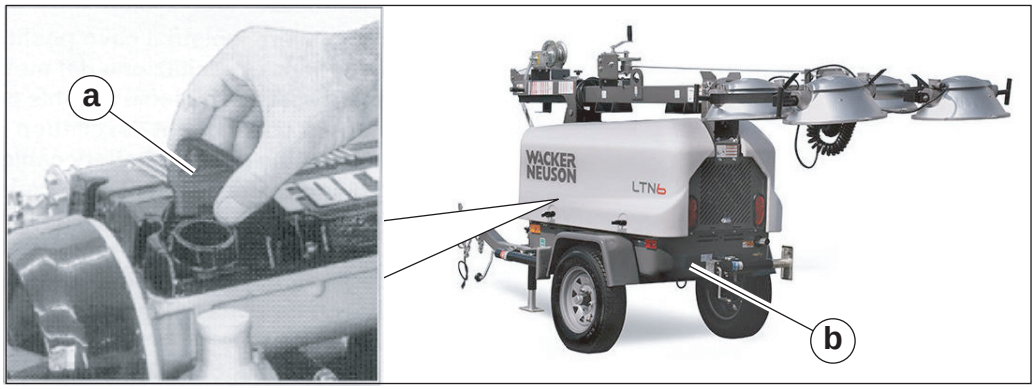
WARNING
Most used oil contains small amounts of materials that can cause cancer and other health problems if inhaled, ingested, or left in contact with skin for prolonged periods of time.

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

Procedures

Follow the procedure below to change the engine oil.

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



wc_gr011106

2. Place a plastic cloth and a collection container beneath the oil drain **(b)**.

This procedure continues on the next page.

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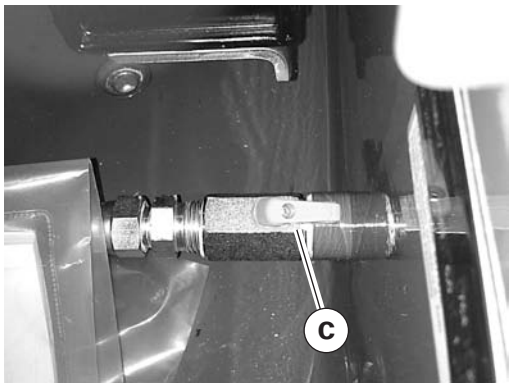
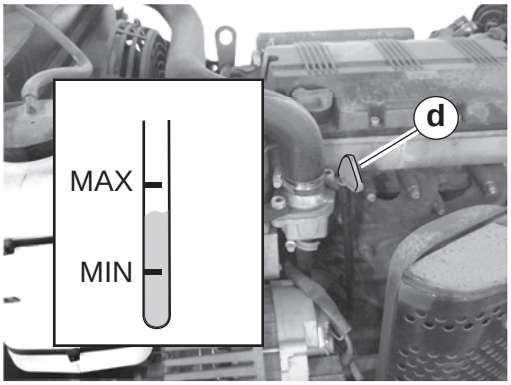
3. Remove the oil drain plug and open the valve **(c)** to drain the oil.





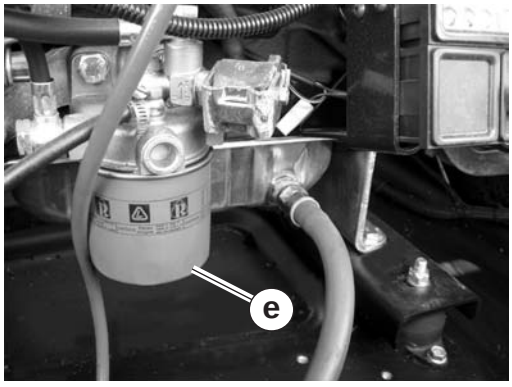
wc_gr010445

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.

Oil filter

Follow the procedure below to replace the oil filter.

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 ½ 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.*

6.11 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.

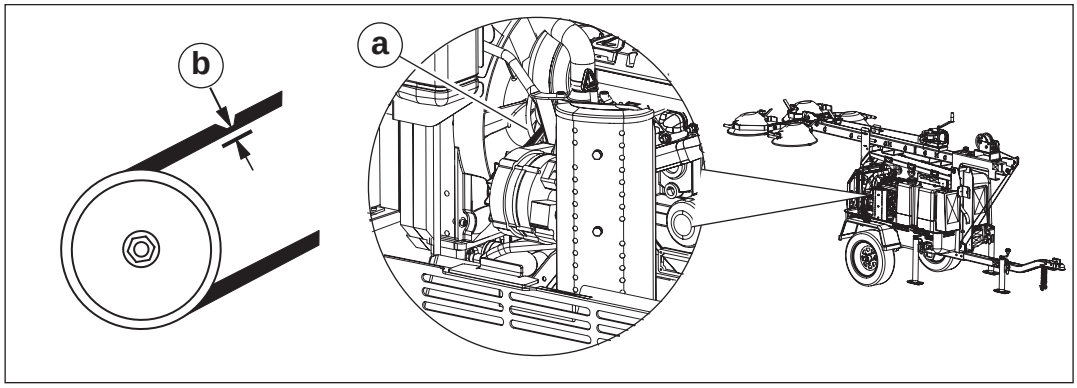
WARNING
Pinching and crushing hazards.

- ▶ 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.



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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

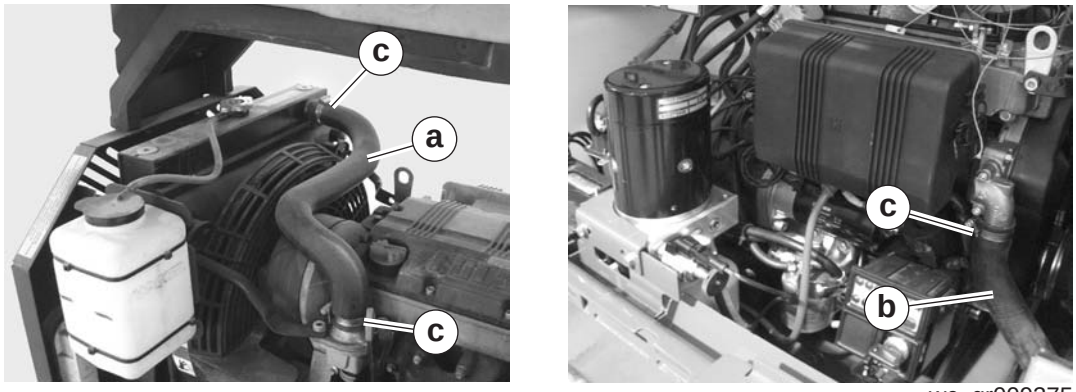
The fan belt tension has now been checked.

6.12 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.

6.13 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

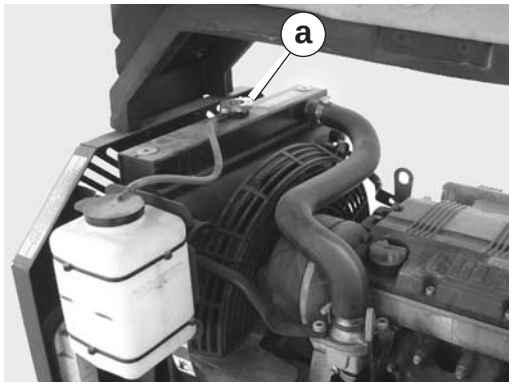
- Machine shut down
- Engine cool
- Coolant test strips (provided by owner/operator)

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.



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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.

6.14 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.

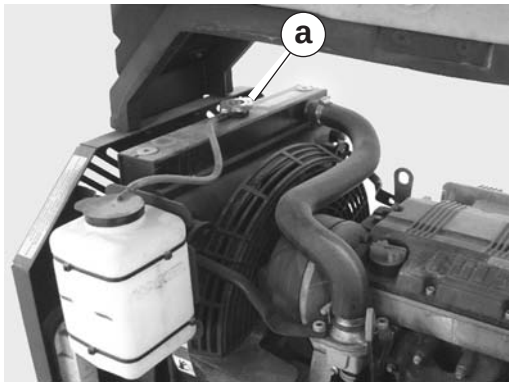
Requirements

- 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.



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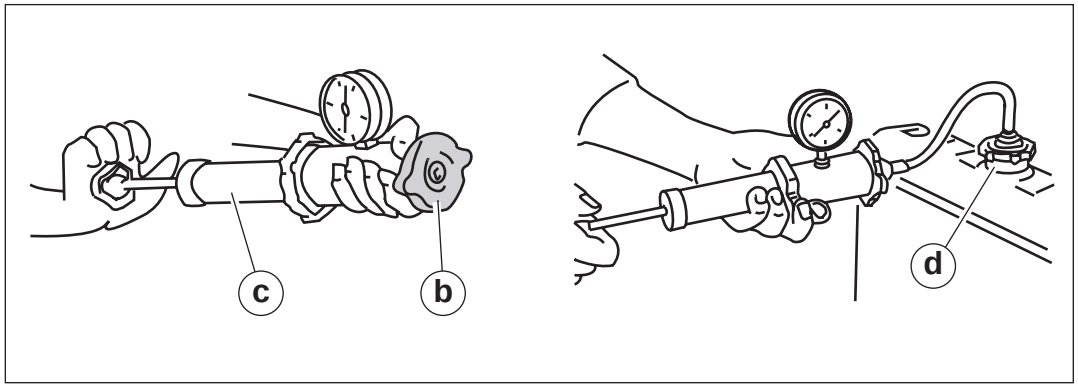
2. Note the rated operating pressure marked on the outside of the radiator cap. When this pressure level is reached, a relief valve in the cap discharges coolant into the overflow bottle.

This procedure continues on the next page.

Continued from the previous page.

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.

6.15 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

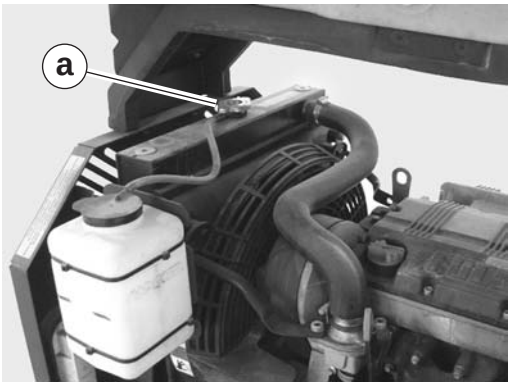
Procedure Perform the procedure below to flush the radiator.

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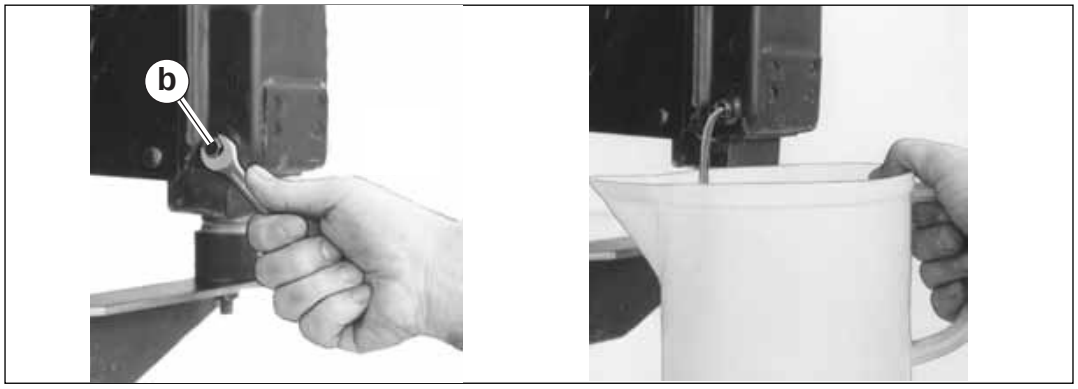
4. Open the radiator drain **(b)** and let the coolant drain into the container.



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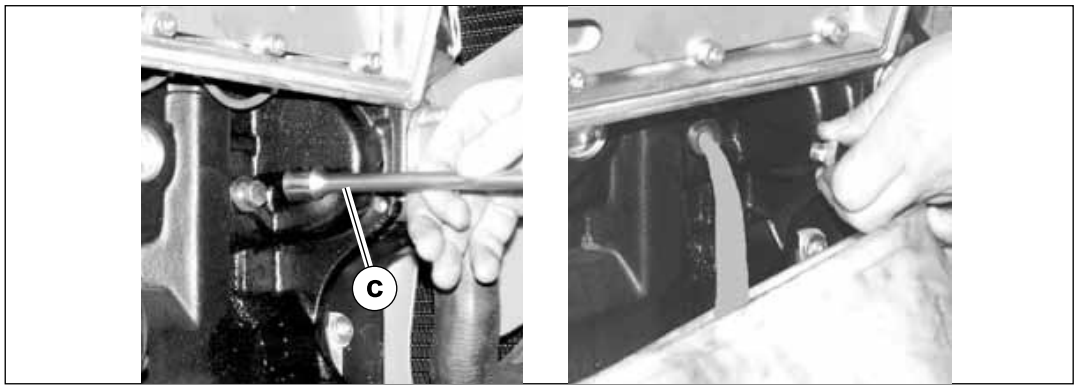
5. Close the radiator drain.
6. Remove the engine block coolant plug and let the remaining coolant drain into the container.



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.

6.16 Installing / Removing Light Fixtures

Requirements

- Circuit breakers are turned OFF
- Engine is shut down

WARNING

Electric shock hazard.

▶ Turn off all light circuit breakers and shut down engine before disconnecting light fixtures or changing lamps.

WARNING

Burn hazard. Lamps and fixtures become extremely hot in use.

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

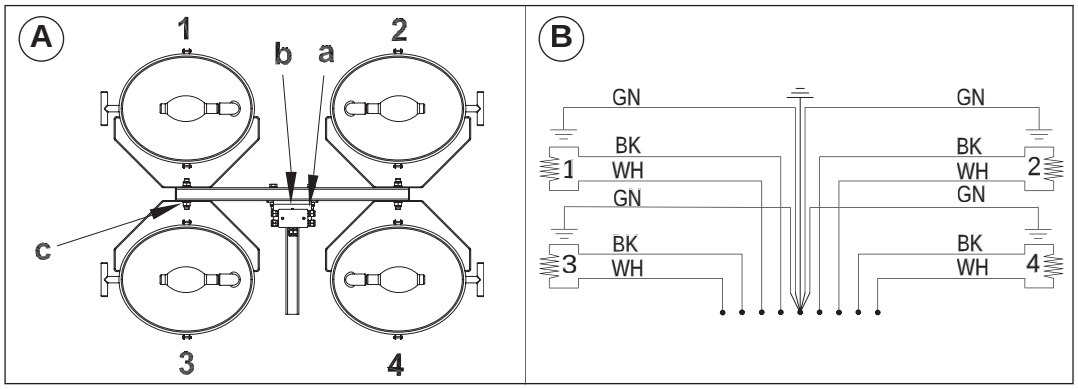
NOTICE: Only a trained technician should be allowed to install and remove fixture wiring.

Procedure

Follow the procedure below to remove the light fixtures.

1. Disconnect the electrical cords at the junction box **(a).**
2. Remove the nuts **(b)** from the fixture mounting brackets.
3. Remove both the fixtures and the brackets from the mounting studs.

A: Numbering sequence of lights B: Junction box wiring for lights



wc_gr005376

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

6.17 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.

This procedure continues on the next page.

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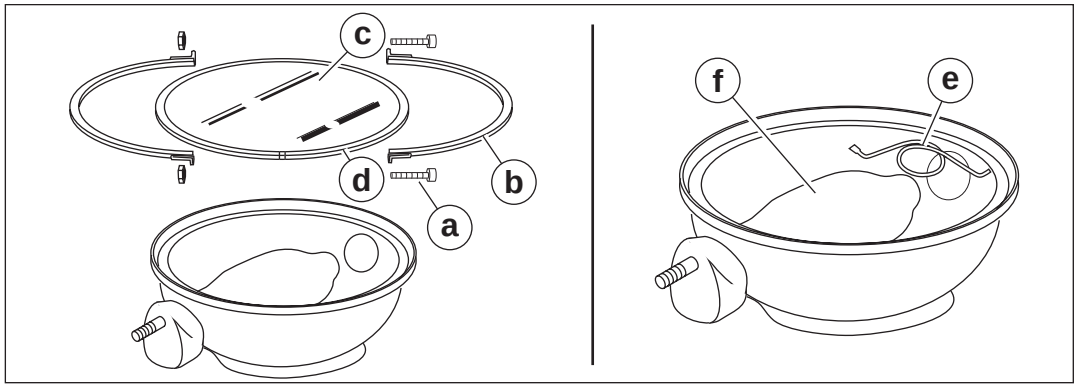
Perform the procedures below to remove and install the lamp.

Removing the lamp

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



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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.

6.18 Long-Term Storage

Introduction

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.

When

Prepare your machine for extended storage if it will not be operated for 30 days or more.

Preparing for storage

Follow the procedures below to prepare your machine for storage.

- Complete any needed repairs.
- Replenish or change oils (engine, exciter, hydraulic, and gearcase) per the intervals specified in the Scheduled Maintenance table.
- Grease all fittings and, if applicable, repack bearings.
- 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.
- 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.
- Consult the engine owner's manual for instructions on preparing the engine for storage.

Stabilizing the fuel

After completing the procedures listed above, fill the fuel tank completely and add a high-quality stabilizer to the fuel.

- Choose a stabilizer that includes cleaning agents and additives designed to coat/protect the cylinder walls.
- 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).
- For engines with diesel fuel, use a stabilizer with a biocide to restrict or prevent bacteria and fungus growth.
- Add the correct amount of stabilizer per the manufacturer's recommendations.

Storing the machine

Perform these remaining steps to store your machine.

- Wash the machine and allow it to dry.
- Move the machine to a clean, dry, secure storage location. Block or chock wheels to prevent machine movement.
- Use touch-up paint as needed to protect exposed metal against rust.
- If the machine has a battery, either remove or disconnect it.

NOTICE: 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.

- Cover the machine. Tires and other exposed rubber items should be protected from the weather. Either cover them or use a readily available protectant.

6.19 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.

7 Troubleshooting

UYARI
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.

Problem	Cause	Remedy
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.
	Lamp broken or burned out	Check for: ■ broken arc tube or outer lamp jacket, ■ broken or loose components in lamp envelope, ■ or blackening or deposits inside lamp tube.
	Circuit breaker turned off	Turn on circuit breaker.
	Circuit breaker loose or faulty	Repair or replace the circuit breaker.
Low light output	Lamp degraded	Replace lamp due to normal lamp life.
	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.

Item Number:		**LTN 6L**
Engine		
Make		Kohler
Model		KDW 1003
Type		3-cylinder, 4-cycle, liquid-cooled diesel
Max. power rating @ rated speed	kW (hp)	8.5 (11.4) @ 1500 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	hours	68
Coolant capacity	L (qts.)	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 (qts.)	2.4 (2.5)

8.2 Generator

Item Number:		LTN 6L, LTN 6L-V, LTN 6L-VS
Generator		
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

		LTN 6L
Machine		
Operating weight (GVWR)	kg (lb)	787 (1736)
Travel Dimensions (l x w x h)	mm (in.)	4600 x 1500 x 1900 (180.4 x 59.3 x 73.2)
Height - tower extended	m (ft)	9 (30)
Lighting system (1000W)		4 metal halide lights
Ballast	type	Coil and core
Max. lighting coverage @ 0.5 ft. candles	m^2 (ft^2) (acres)	30,400 (2824) (7.52)
Sound pressure level at 7 m (23 ft)	db(A)	66
Tires	size	ST175 / 80D13

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.

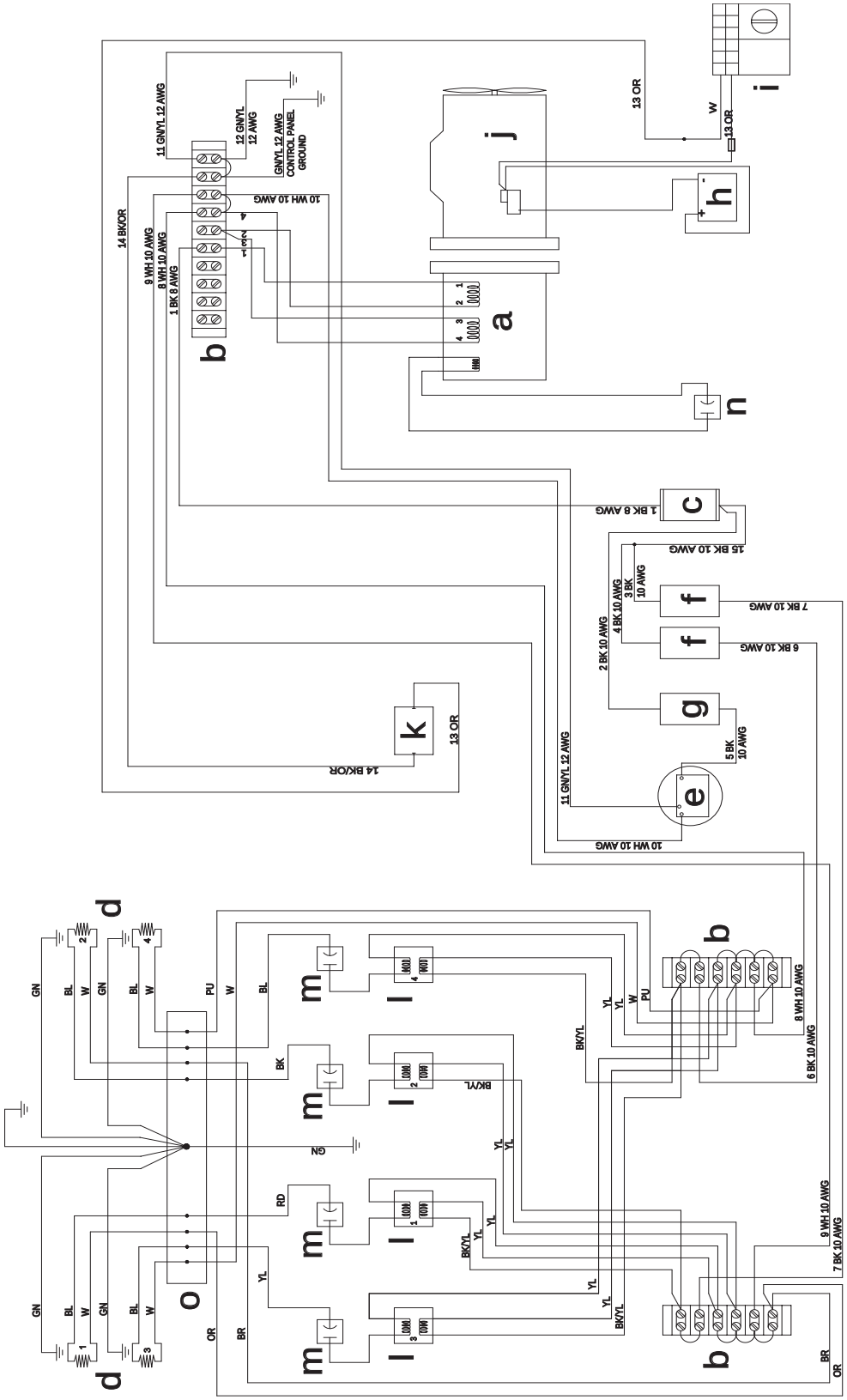
8.5 Sound Measurements

Products are tested for sound pressure level in accordance with EN ISO 11201:2010.

Sound power level is tested in accordance with European Directive 2000/14/EC - Noise Emission in the Environment by Equipment for use outdoors.

9 Schematics

9.1 Electrical Schematic-LTN 6L

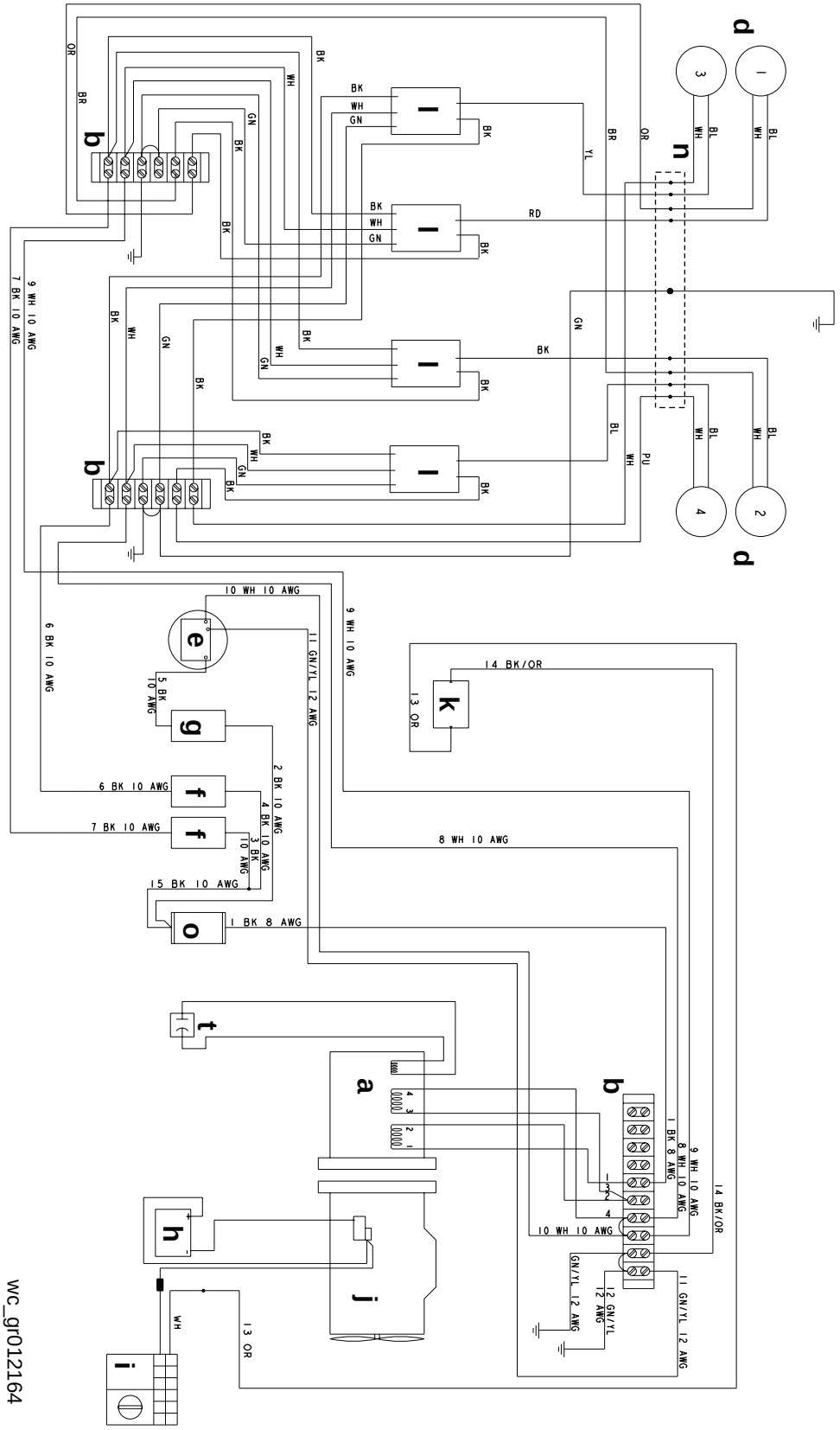


9.2 Components

Ref.	Description	Ref.	Description
a	Generator	**i**	Engine control panel
b	Terminal strip	**j**	Engine
c	Main circuit breaker, 25 Amp	**k**	Hour meter
d	Floodlights	**l**	Transformers
e	Receptacle, 230V	**m**	Capacitors, 30 µF
f	Circuit breaker, 30 Amp	**n**	Capacitor, 35 µF
g	Circuit breaker, 16 Amp	**o**	Junction box
h	Battery	**—**	—

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

9.3 Electrical Schematic-LTN 6LE-V

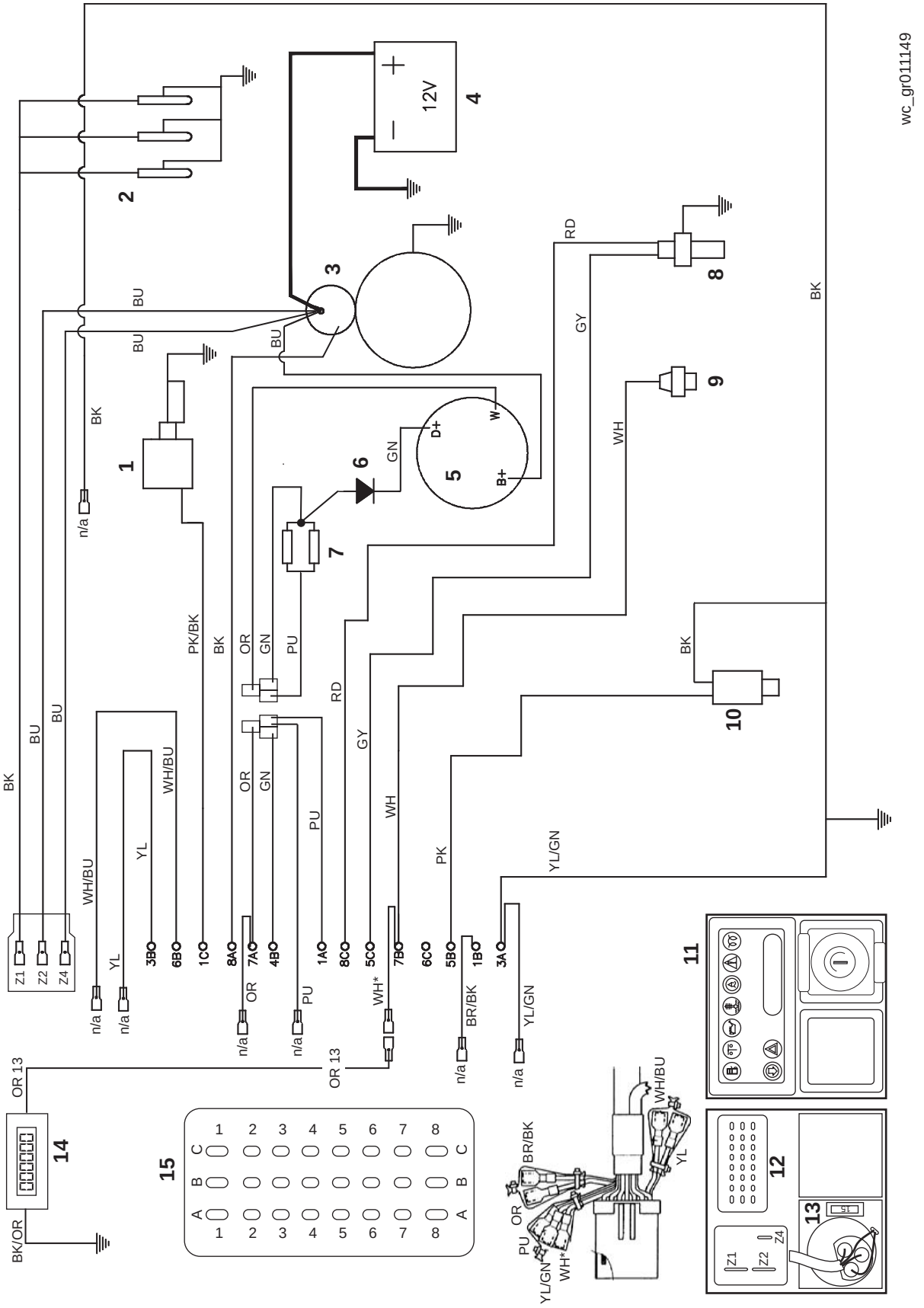


9.4 Components

Ref.	Description	Ref.	Description
a	Generator	**h**	Battery
b	Terminal strip	**i**	Engine control panel
c	Main circuit breaker, 240V 25 Amp	**j**	Engine
d	Floodlight receptacles	**k**	Hour meter
e	Receptacle, 230V 16 Amp	**l**	Transformers
f	Circuit breaker, 250V 30 Amp	**n**	Junction box
g	Circuit breaker, 250V 16 Amp	**t**	Capacitor, 35 µF

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

9.5 Engine Wiring Rev > 133

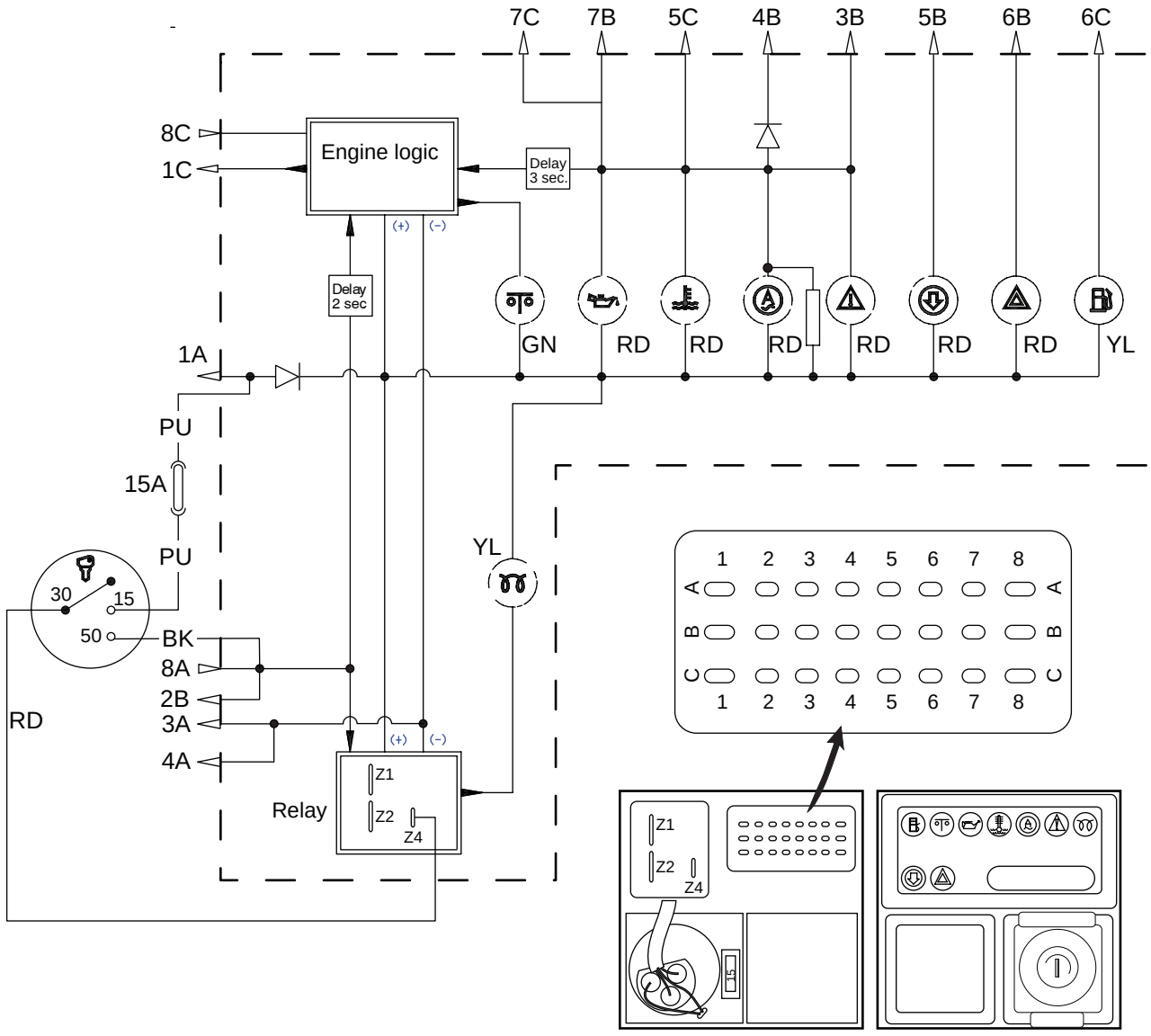


9.6 Components > 133

Ref.	Description	Ref.	Description
1	Fuel solenoid	9	Low oil pressure switch (normal closed type)
2	Glow plugs	10	Air filter restriction switch (normal open type)
3	Starter motor	11	Engine controller
4	Battery	12	24-pin connector (controller side)
5	Alternator	13	15A Fuse
6	Diode	14	Hourmeter
7	Resistors	15	24-pin connector (harness side)
8	Dual function sensor Coolant temperature/glow plug timer	—	—

Not used (n/a) auxiliary wires	
Wire color	**Description**
BR/BK	Signal for water temperature
OR	Signal for engine rpm indicator
PU	Battery (+) when key in ON position
YL/GN	Negative (–) earth
YL	Protected socket available for engine stop in an emergency
WH/BU	Socket available for emergency indicator socket.

9.7 Control Panel Wiring Rev > 133

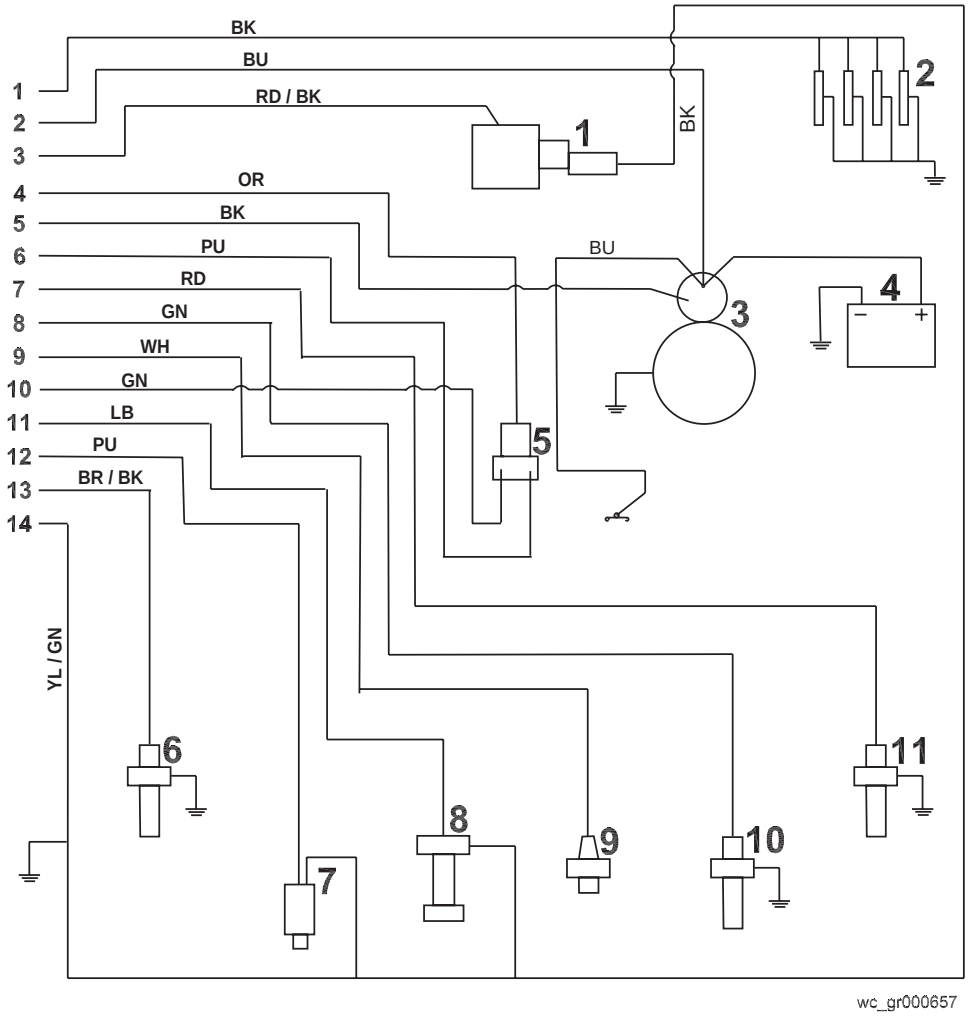


wc_gr011152

9.8 Components Rev > 133

Pin	Function	Pin	Function
1A	Power supply	5A	Water thermometer Not used by Wacker Neuson
1B	Water thermometer (aux.) Not used by Wacker Neuson	5B	Air cleaner
1C	Fuel solenoid	5C	Coolant high temperature switch
2A	Not used by Wacker Neuson	6A	Normally closed Not used by Wacker Neuson
2B	Start (50) (aux.) Not used by Wacker Neuson	6B	Alarm
2C	Normally closed Not used by Wacker Neuson	6C	Low fuel level Not used by Wacker Neuson
3A	Ground	7A	Signal
3B	Warning	7B	Oil pressure (source of power for hour meter
3C	Normally closed	7C	Normally closed Not used by Wacker Neuson
4A	Ground (aux.) Not used by Wacker Neuson	8A	Start (50)
4B	Alternator	8B	Normally closed Not used by Wacker Neuson
4C	Normally closed Not used by Wacker Neuson	8C	Coolant thermistor for glowplug timer

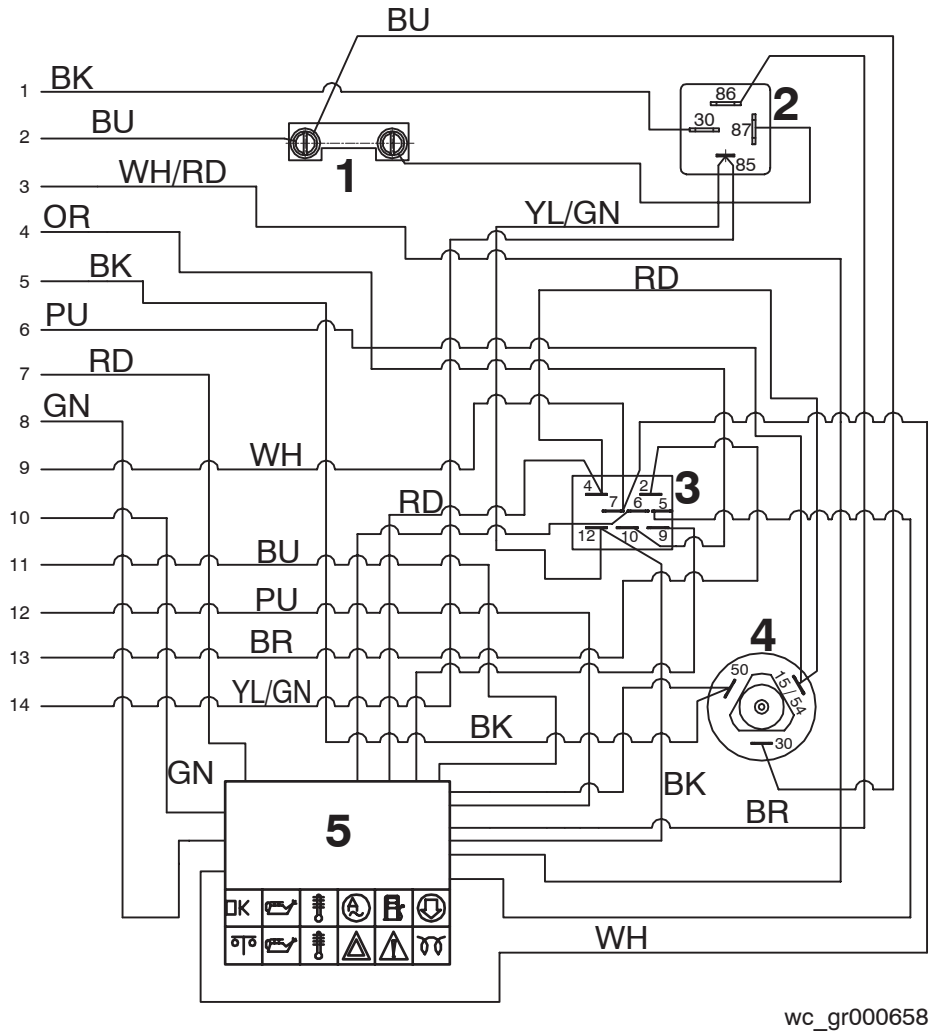
9.9 Engine Wiring Rev < 134



9.10 Components Rev < 134

Ref.	Description	Ref.	Description
1	Fuel solenoid	**7**	Air filter restriction indicator (normal open type)
2	Glow plugs	**8**	Low fuel level switch (not used, normal open type)
3	Starter motor	**9**	Low oil pressure switch (normal closed type)
4	Battery	**10**	Coolant high temperature switch (normal open type)
5	Alternator connector	**11**	Coolant temperature thermistor (for preheat relay)
6	Coolant temperature sending unit (not used, for remote temperature gauge or LED)		

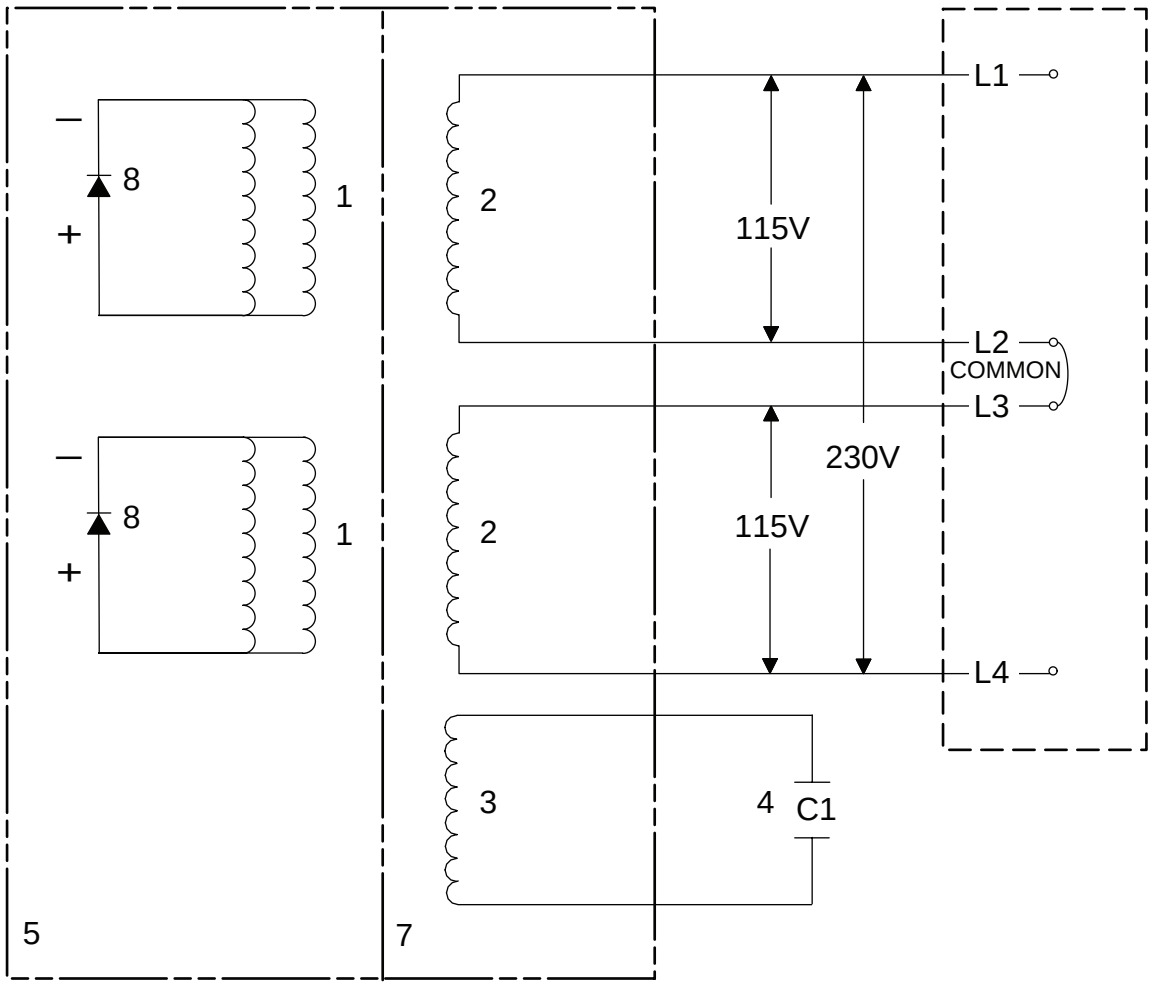
9.11 Control Panel Wiring Rev < 134



9.12 Components Rev < 134

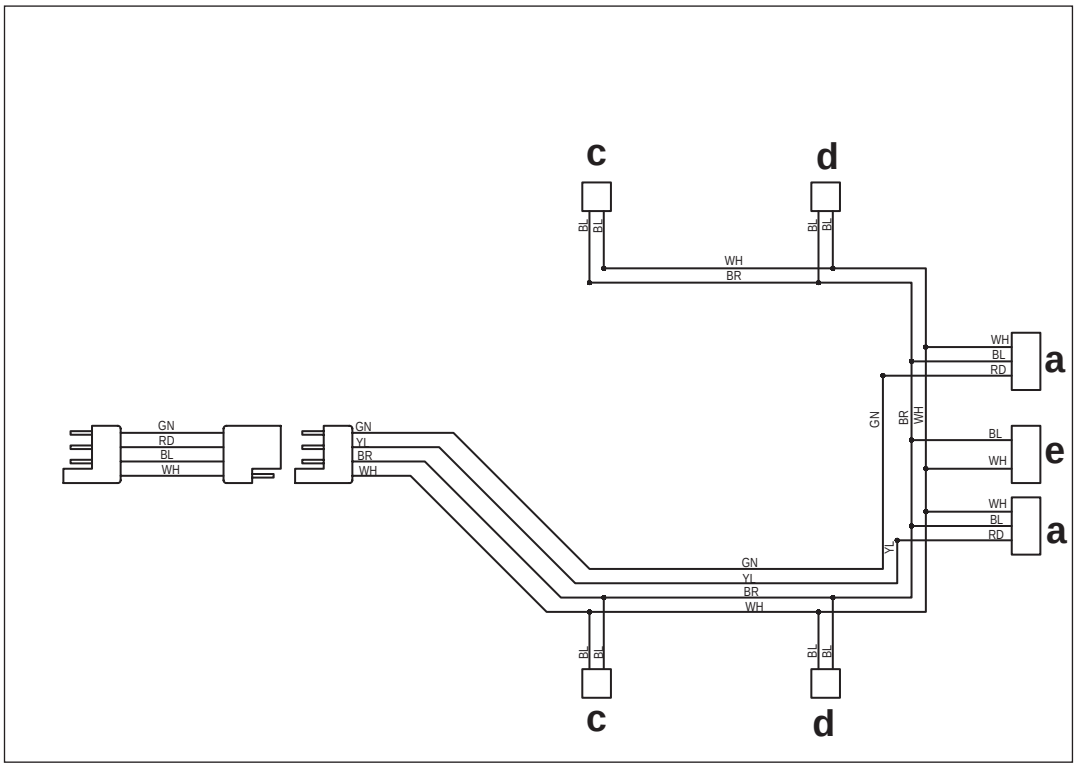
Ref.	Description	Ref.	Description
1	System fuse, 50 Amp	4	Key switch
2	Glow plug load relay	5	L.E.D. Indicator lamp assembly
3	Auxiliary terminals (rear view)	—	—

9.13 Generator Capacitor Excitation Schematic 50 Hz



Ref.	Description	Ref.	Description
1	Rotor winding	5	Rotor
2	Stator winding	6	Control box terminal strip
3	Excitation coil	7	Stator
4	Capacitor	—	—

9.14 Trailer Wiring

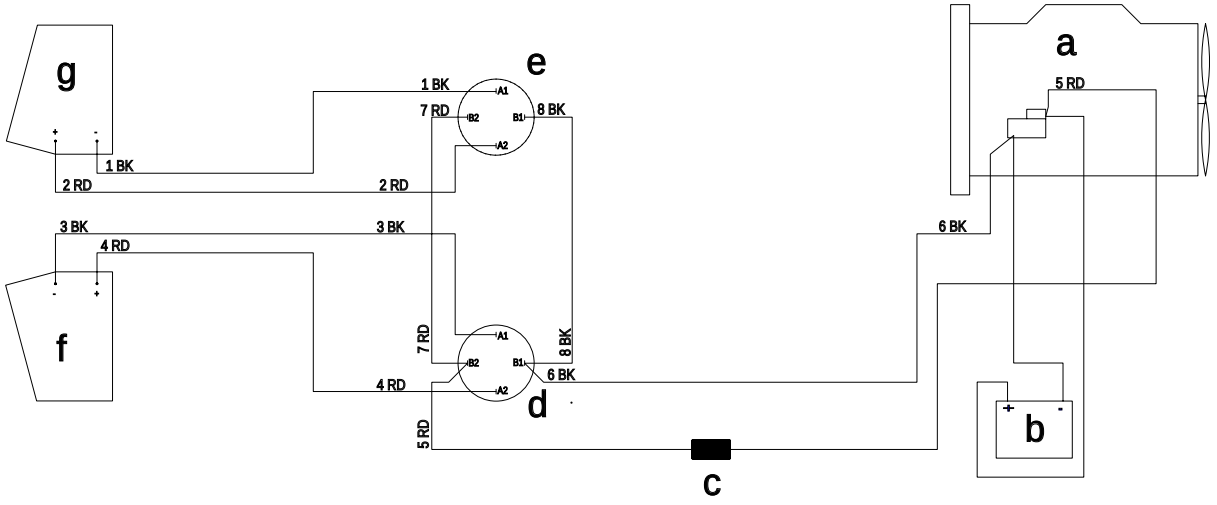


wc_gr005372

Ref.	Description	Ref.	Description
a	Right stop, turn and tail light	**d**	Side light, red
b	Left stop, turn and tail light	**e**	License plate light
c	Side light, amber		

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

9.15 Power Winch Schematic



wc_gr005371

Ref.	Description	Ref.	Description
a	Engine	e	Telescope switch
b	Battery	f	Tilt winch
c	70A blade fuse	g	Telescope winch
d	Tilt switch		

10 Appendix I—Assembly Instructions

10.1 Introduction

Scope

This Manual contains assembly procedures for racked and palletized versions of Wacker Neuson Narrow-Body Light Towers (LTN). There are separate chapters for each version of the machine.

Hardware bags

Assembly hardware is packaged in individual bags listed below. (Depending on the model, your Light Tower may or may not include all of these.)

Bag No.	Contents	Bag No.	Contents
1	Axle hardware	5	Tower lock hardware
2	Fender hardware	6	Light fixture hardware
3	Wheel hardware	7	Tongue hardware
4	Tower cradle hardware	8	Tower installation hardware

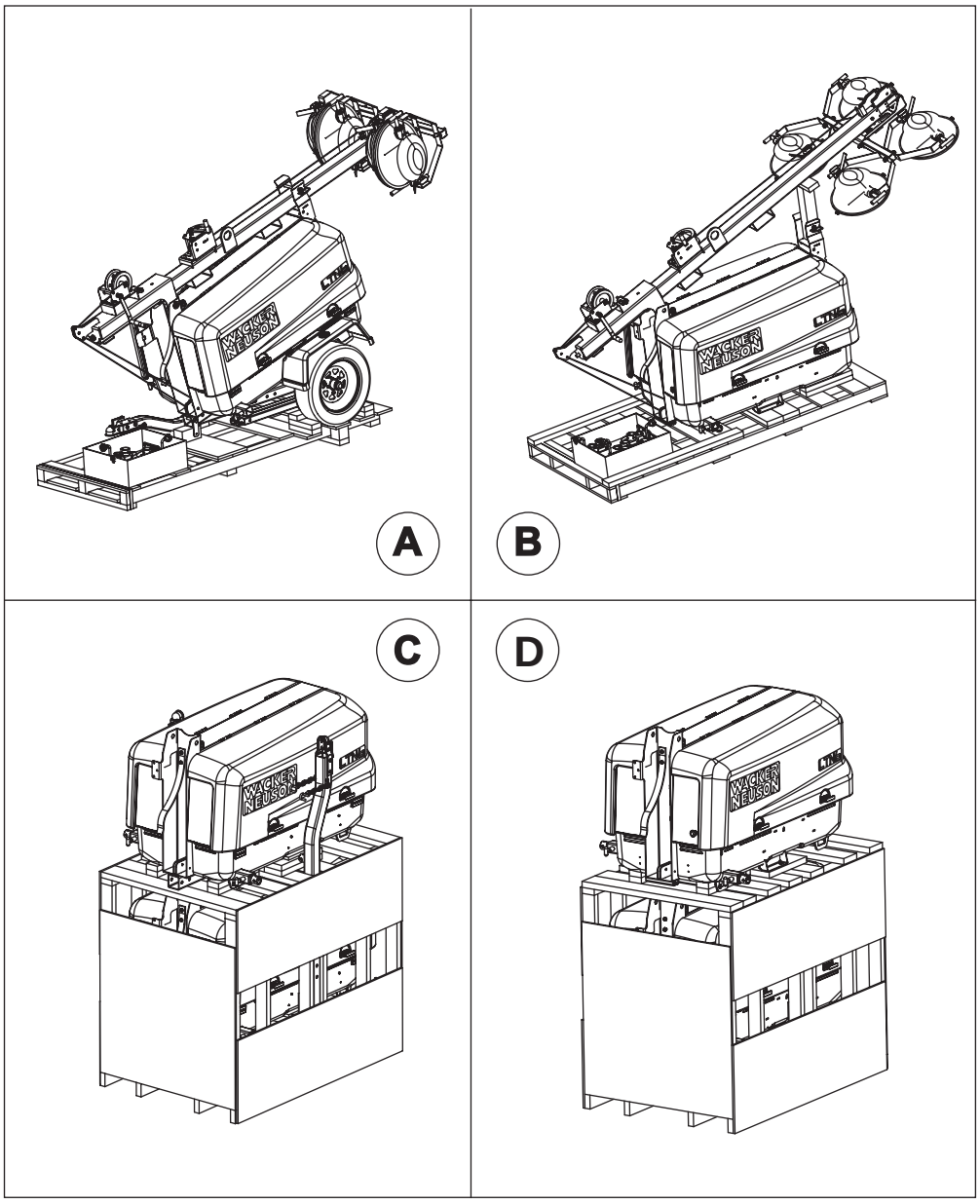
Throughout this Manual, hardware bags needed for each assembly procedure will be identified at the beginning of the instructions for that specific procedure.

Machine identification

Use the following chart and the illustrations on the next page to determine which set of assembly procedures applies to your machine.

Item No.		Description	Illustration	See Chapter:
0620117 0620118 0620121 0620297 0620298 0620553 0620555 0620559 0620727 0620728 0620734 0620893 0620938 0620939	5200004090 5200004091 5200004092 5200004093	Standard palletized	**A**	**Appendix III**
Optional		CE palletized	**B**	**Appendix IV**
0620550 0620551 0620552	5200004768 5200004769	Standard racked	**C**	**Appendix V**
0620119 0620120 0620557 0620558		CE racked	**D**	**Appendix VI**

Illustrations



wc_gr006517

11 Appendix II—Assembly Safety

11.1 Signal Words Used in this Manual

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.*

11.2 Lifting Safety

Overview

Some of the assembly procedures in this Manual require the machine to be lifted or supported by slings, chains, hooks, ramps, jacks, or other types of mechanical devices. Follow the guidelines below to avoid personal injury or machine damage.

WARNING
Crushing hazard.
- ▶ Use OSHA-rated and -approved lifting devices capable of lifting the machine. Refer to the general weight guidelines in the *Technical Data* chapter of the Operator's Manual.

Safety guidelines

When lifting the machine:
- Make sure slings, chains, hooks, ramps, jacks and other types of lifting devices are attached securely and have enough weight-bearing capacity to lift or support the machine safely.
- Remain aware of the location of other people when lifting 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.

11.3 Pre-Assembly Checklist

Before assembling the Light Tower, take the following precautions:

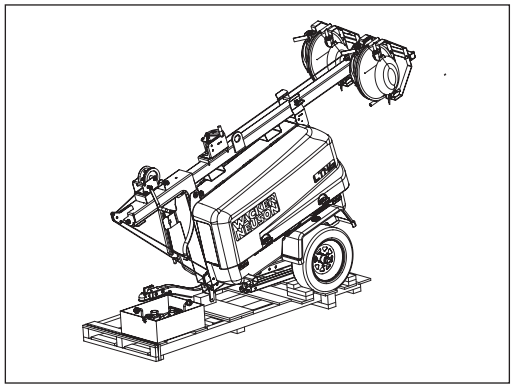
Preparing the assembly area
- Make sure the area immediately surrounding the Light Tower is clean, neat, and free of debris.
- The tower extends up to 9 m (30 ft). Make sure the area above the machine is open and clear of overhead wires and obstructions.
- Make sure the machine is on a firm, level surface and will not tip, roll, slide, or fall during the assembly process.

Before assembly
- Make sure the engine start switch is turned to OFF.
- Make sure the circuit breakers are OFF (open).
- Make sure the negative terminal on the battery is disconnected.
- Make sure water has not accumulated around the base of the machine. If water is present, move the machine to a dry area and allow all components to dry thoroughly before assembly.

12 Appendix III—Standard Pallet Assembly

Scope

This set of assembly instructions applies to standard machines shipped on a pallet as shown below.



wc_gr006467

If your machine does not look like the one shown in the illustration, refer to *Machine Identification* in the *Introduction* chapter to identify the appropriate set of assembly instructions.

Tasks

To complete the assembly of your Light Tower, the following tasks must be performed in the order listed:

Task	Description	See topic
Outriggers and jacks assembly		
1	Install the outriggers	12.1
2	Install the outrigger jacks	12.1
3	Install the rear jack	12.2
Tongue assembly		
4	Install the tongue	12.3
5	Install the tongue jack	12.3
Upper light installation		
6	Install the upper light fixtures	12.4

Tools and materials

The following tools and materials are needed:

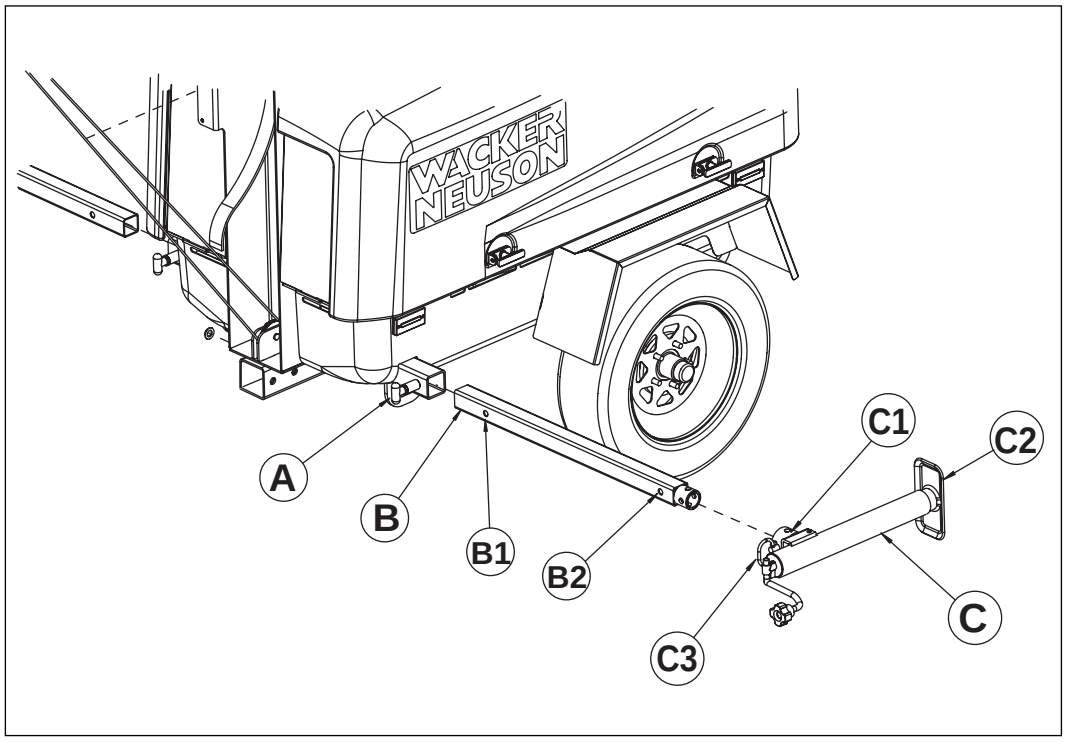
- Basic hand tools (wrenches, screwdrivers, etc.)
- Torque wrench
- Hardware bag: 7

12.1 Installing the Outriggers and Outrigger Jacks

Installing the outriggers

Follow the procedure below to Install the two outriggers. (Use the same procedure for each side of the Light Tower.)

1. Locate the locking pin **(A)** at the outrigger socket.



wc_gr006520

2. Position the outrigger **(B)** so that the holes (**B1** and **B2**) face the same direction as the locking pin.
3. Pull the locking pin and insert the square end of the outrigger into the outrigger socket.
4. Align hole (**B1)** in the outrigger with the locking pin. When hole **(B1)** is aligned, release the locking pin to fasten the outrigger in place.

Installing the outrigger jacks

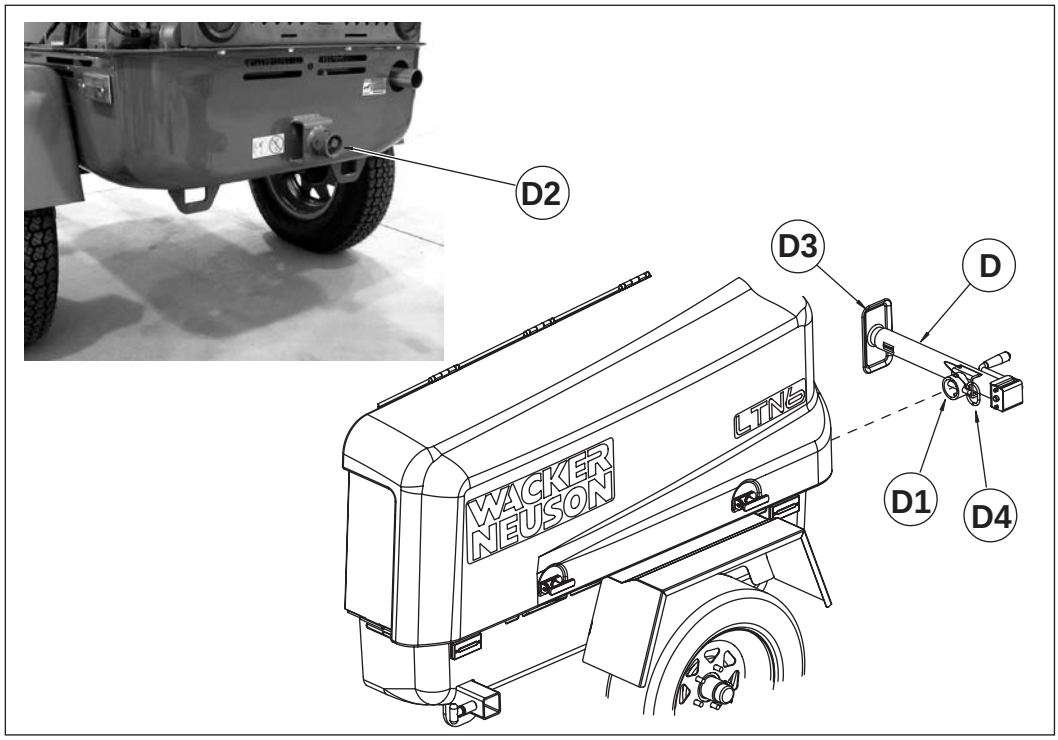
Follow the procedure below to Install the two outrigger jacks. (Use the same procedure for each outrigger jack.)

1. Locate the two 15-inch travel jacks (“outrigger jacks”) **(C)**.
2. If necessary, remove the locking pin **(C3)** from the holes in the outrigger jack.
3. Fit the socket **(C1)** on the outrigger jack over the circular end of the outrigger **(B)**.
4. Rotate the outrigger jack so that the foot **(C2)** rests on the ground.
5. Align the top hole in the outrigger jack socket with the top hole on the outrigger.
6. Insert the locking pin into the holes. Push the locking pin through both sets of holes (top and bottom) to fasten the outrigger jack in place.

12.2 Installing the Rear Jack

Procedure Follow the procedure below to install the rear jack.

1. Locate the 5000 lb.10-inch side crank jack **(D)**.



wc_gr006522

2. If necessary, remove the locking pin **(D4)** from the holes in the jack.
3. Fit the socket **(D1)** over the circular boss **(D2)** on the rear of the machine.
4. Rotate the jack so that the foot **(D3)** rests on the ground.
5. Align the top hole in the socket with the top hole on the circular boss.
6. Insert the locking pin into the holes. Push the locking pin through both sets of holes (top and bottom) to fasten the outrigger jack in place.

12.3 Installing the Tongue Assembly

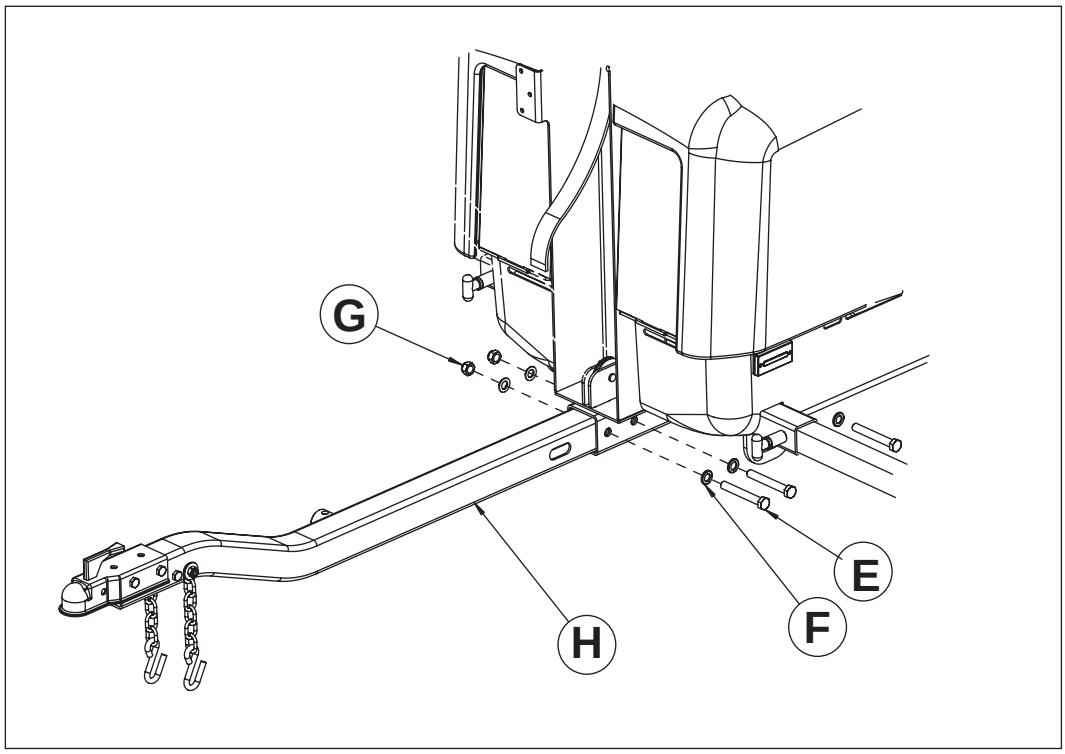
Scope

Installing the tongue assembly consists of installing the tongue and the tongue jack, and connecting the trailer wiring.

Installing the tongue

Follow the procedure below to Install the tongue.

1. Insert the tongue **(H)** into the sleeve at the front of the trailer.



wc_gr006523

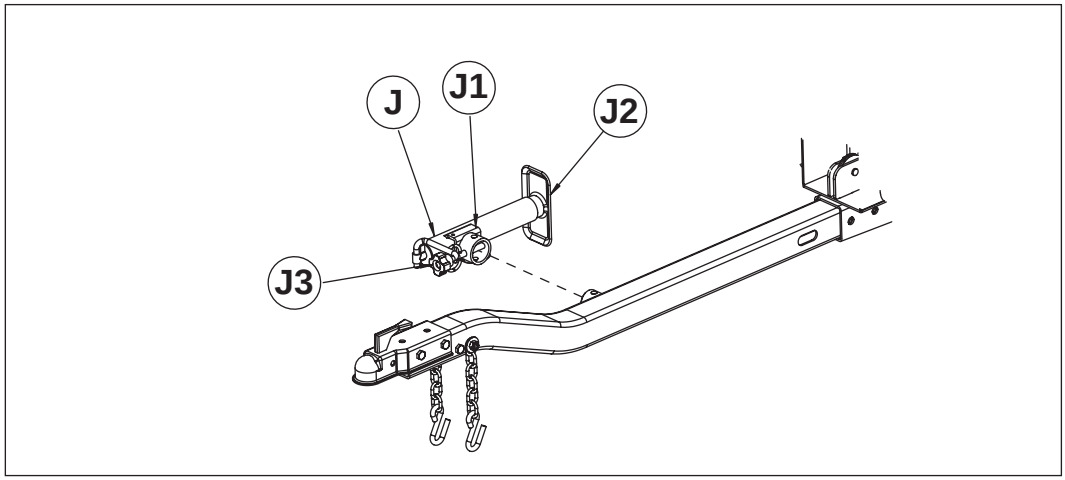
2. Fasten the tongue to the sleeve using the following hardware from Bag 7:
   - (3) M16 x 120 screws **(E)**
   - (6) B17 flat washers **(F)**
   - (3) M16 lock nuts **(G)**

Torque the fasteners to 200 Nm (145 ft.lbs.)

Installing the tongue jack

Follow the procedure below to Install the tongue jack.

1. Locate the 2000 lb. 10-inch travel jack (“tongue jack”) **(J)**.

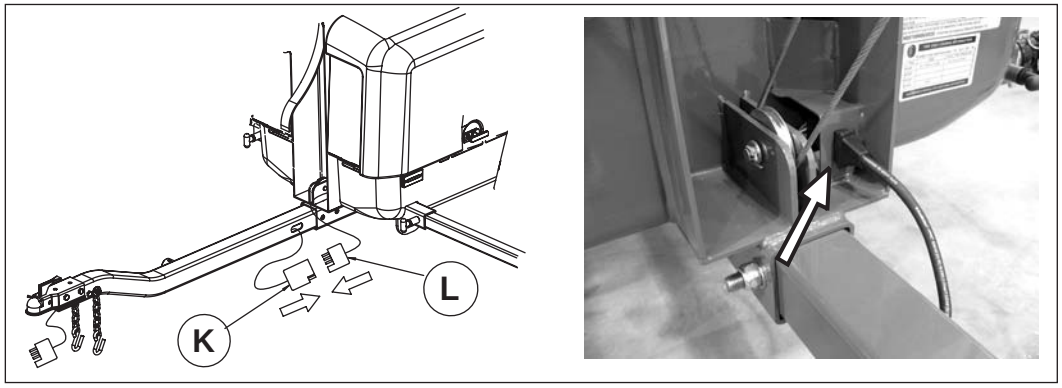


wc_gr006524

2. If necessary, remove the locking pin **(J3)** from the holes in the tongue jack.
3. Fit the socket **(J1)** over the circular boss on the tongue assembly.
4. Rotate the tongue jack so that the foot **(J2)** rests on the ground.
5. Align the top hole in the socket with the top hole on the circular boss.
6. Insert the locking pin into the holes. Push the locking pin through both sets of holes (top and bottom) to fasten the tongue jack in place.

Connecting the trailer wiring

1. Locate connectors **(K)** and **(L)**.



wc_gr006525

2. Plug the tongue wiring harness connector **(K)** into tongue wiring harness connector **(L)**.
3. Insert connector plug body into the hole on the skid bracket. (See arrow.)

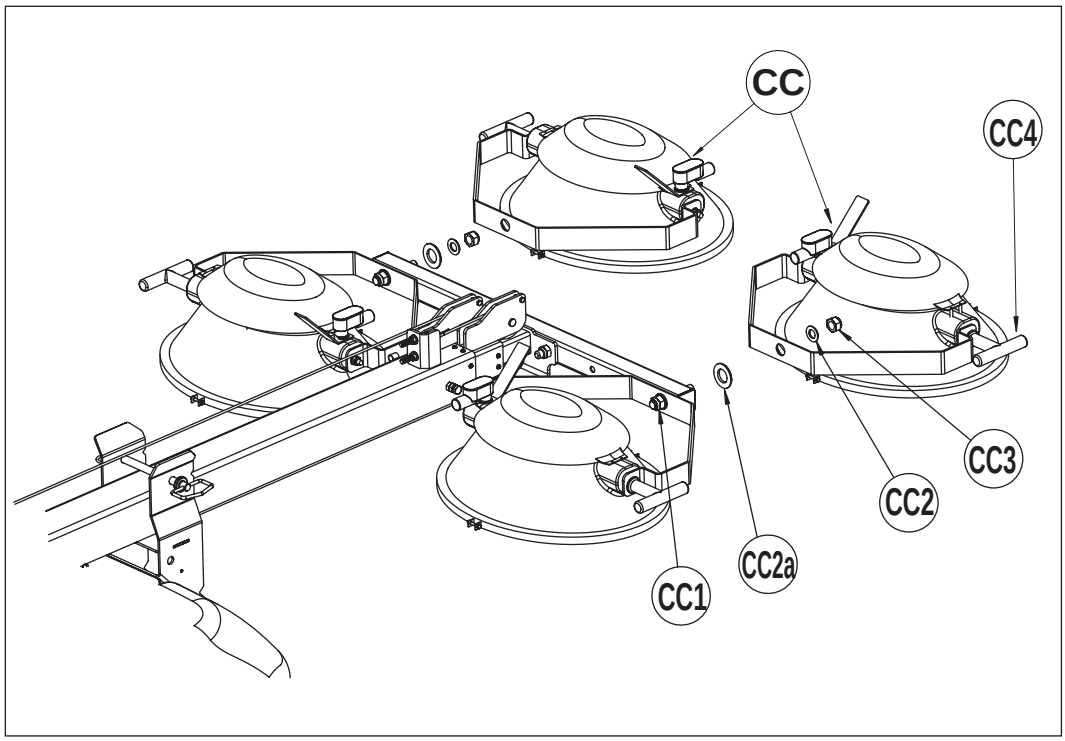
12.4 Installing the Upper Light Fixtures

Materials needed

- Light fixtures (2)
- Hardware bag 6 (tower lights hardware)

Procedure

Follow the procedure below to install the upper light fixtures.



wc_gr007981

Install the two upper light fixtures **(CC)** on the light tube as follows:

1. Position each light fixture on the mounting bolt **(CC1)** so that the lamp is facing downward. Make sure that the “T” handle **(CC4)** faces outward.
2. Fasten each light fixture to the light tube using an M18 lock nut **(CC3)**, disk **(CC2a),** and a B19 flat washer **(CC2)**.

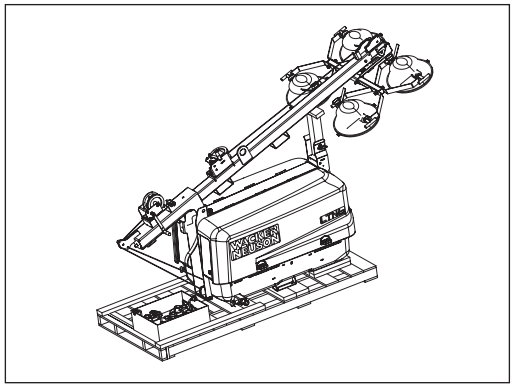
12.5 Conclusion

This completes the assembly procedure for your Light Tower. Refer to your Operator's Manual for instructions on setting up, operating, maintaining, and storing the machine.

13 Appendix IV—CE Pallet Assembly

Overview

This set of assembly instructions applies to CE machines shipped on a pallet as shown below. A palletized CE machine is intended to be mounted on a trailer that meets local regulations. This Manual does not include instructions for mounting a palletized CE machine on a trailer.



wc_gr006468

If your machine does not look like the one shown in the illustration, refer to *Machine Identification* in the *Introduction* chapter to identify the appropriate set of assembly instructions.

Tasks

To complete the assembly of your Light Tower, the following tasks must be performed in the order listed:

Task	Description	See topic
Lift the machine		
1	Lift the machine using appropriate lifting gear	—
Install the jacks		
2	Install the side jacks	13.1
3	Install the rear jack	13.2

Tools and materials

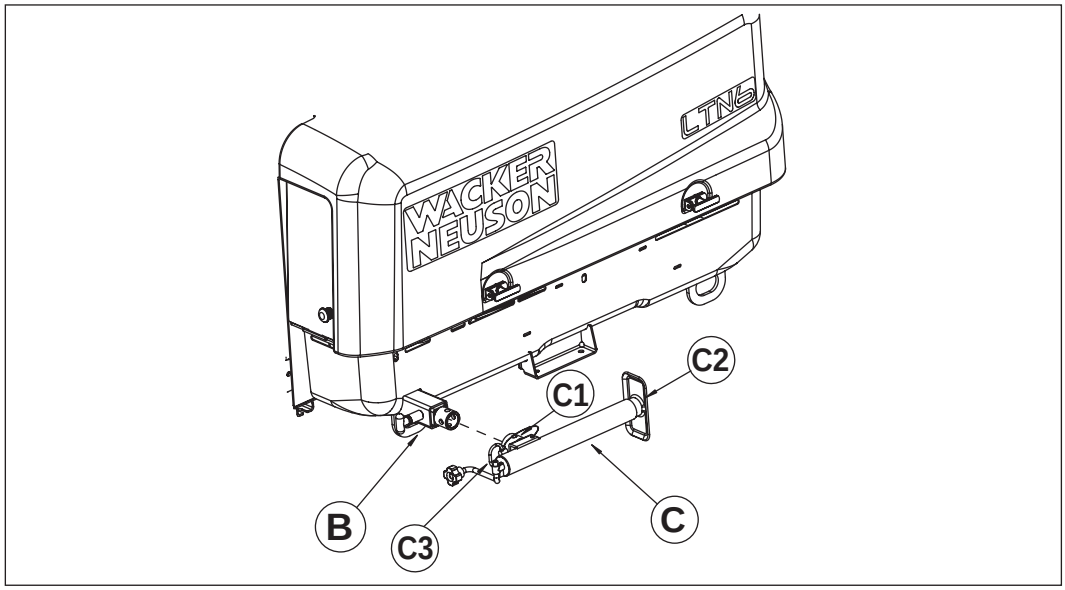
The following tools and materials are needed:

- Appropriate machine lifting gear
- Basic hand tools (wrenches, screwdrivers, etc.)

13.1 Installing the Side Jacks

Procedure Follow the procedure below to attach the two side jacks. (Use the same procedure for each side jack.)

1. Locate the two 15-inch travel jacks **(C)**.



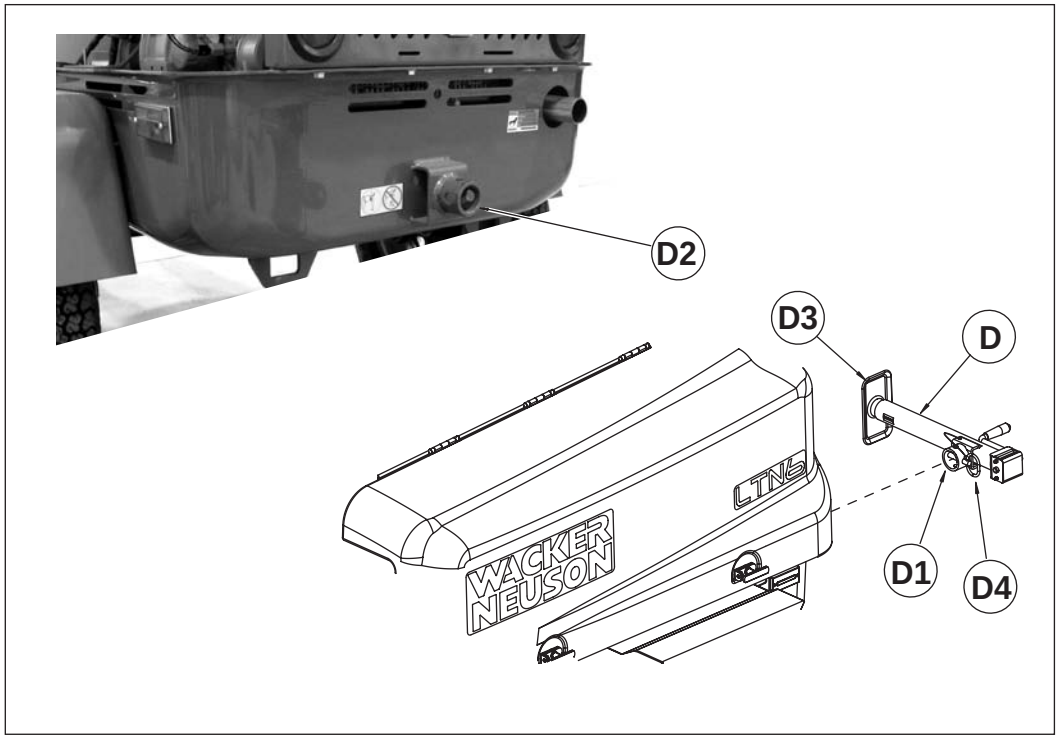
wc_gr006710

2. If necessary, remove the locking pin **(C3)** from the holes in the jack.
3. Fit the jack socket **(C1)** over the circular end of the outrigger **(B)**.
4. Rotate the jack so that the foot **(C2)** rests on the ground.
5. Align the top hole in the socket with the top hole on the outrigger.
6. Insert the locking pin into the holes. Push the locking pin through both sets of holes (top and bottom) to fasten the jack in place.

13.2 Installing the Rear Jack

Procedure Follow the procedure below to install the rear jack.

1. Locate the 5000 lb.10-inch side crank jack **(D)**.



wc_gr006711

2. If necessary, remove the locking pin **(D4)** from the holes in the jack.
3. Fit the socket **(D1)** over the circular boss **(D2)** on the rear of the machine.
4. Rotate the jack so that the foot **(D3)** rests on the ground.
5. Align the top hole in the socket with the top hole on the circular boss.
6. Insert the locking pin into the holes. Push the locking pin through both sets of holes (top and bottom) to fasten the outrigger jack in place.

13.3 Conclusion

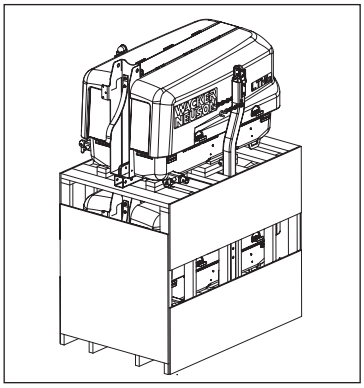
This completes the assembly procedure for your Light Tower. Refer to your Operator's Manual for instructions on setting up, operating, maintaining, and storing the machine.

14 Appendix V—Standard Racked Assembly

Overview

This set of assembly instructions applies to standard machines shipped on a container rack as shown below.

If your machine does not look like the one shown in the illustration, refer to *Machine Identification* in the *Introduction* chapter to identify the appropriate set of assembly instructions.



wc_gr006469

Tasks

To complete the assembly of your Light Tower, the following tasks must be performed in the order listed:

Task	Description	See topic
Chassis assembly		
1	Install the axle	14.1
2	Install the fenders	14.2
3	Install the wheels	14.3
4	Install the outriggers and outrigger jacks	14.4
5	Install the rear jack	14.5
6	Install the tongue assembly	14.6
Tower assembly		
7	Install the tower lock bracket	14.7
8	Install the tower cradle	14.8
9	Install the tower	14.9
10	Install the tower pivot cable	14.10
Lights assembly		
11	Install the lights	14.11
Electrical assembly		
12	Wire the junction box	14.12
13	Route the coil cord	14.13
14	Wire the ballasts and terminal strips	14.14

Tools and materials

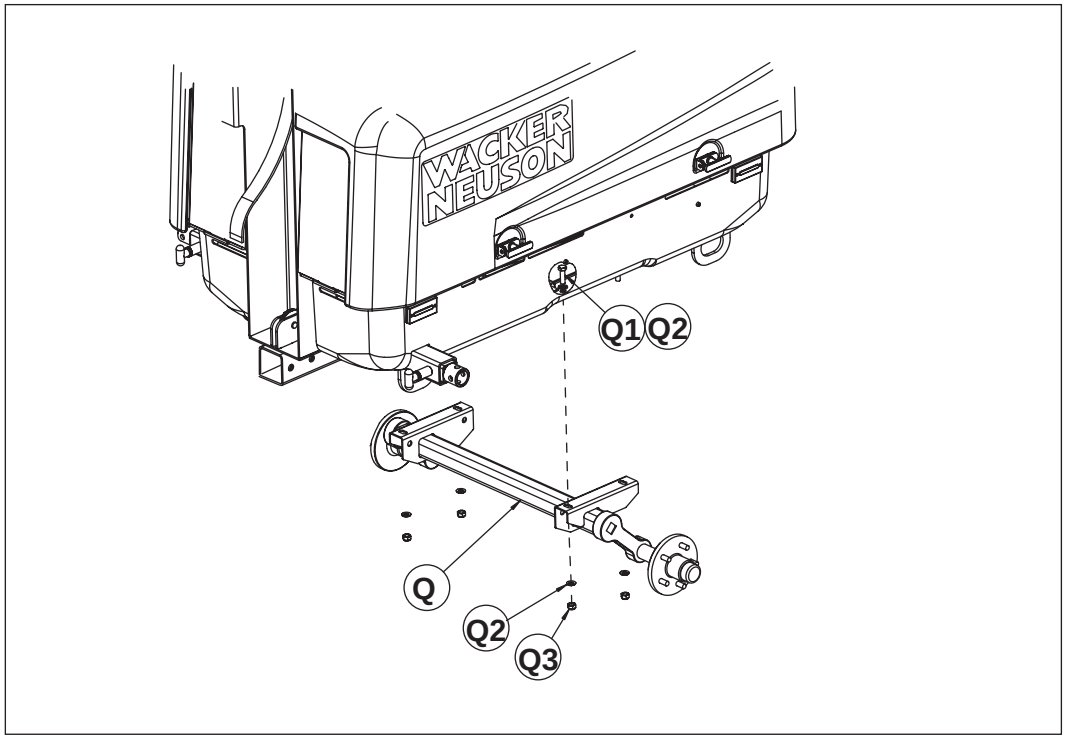
The following tools and materials are needed:

- Basic hand tools (wrenches, screwdrivers, etc.)
- Torque wrench
- Hardware bags: 1, 2, 3, 4, 5, 6, 8, and fabricated parts

14.1 Installing the Axle

Procedure Follow the procedure below to install the axle:

1. Lift the machine using appropriate lifting gear. Refer to topic *Lifting the Machine* in the *Safety Information* chapter.
2. Locate the axle **(Q)** and hardware bag 1.



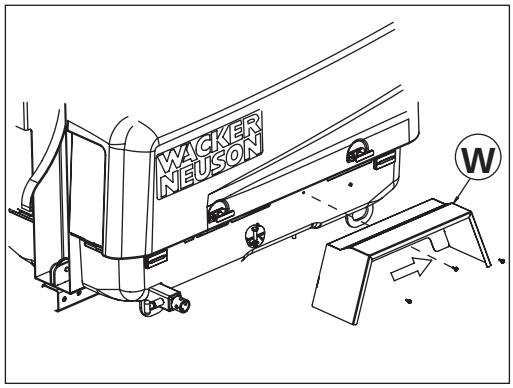
wc_gr006527

3. Install the axle on the trailer using the following hardware:
   (4) Bolts **(Q1)**, (8) Washers **(Q2)**, (4) Nuts **(Q3)**.
4. Torque the fasteners to 115 Nm (85 ft.lbs.).

14.2 Installing the Fenders

Procedure Follow the procedure below to Install the fenders.

1. Locate the two fenders **(W)** and hardware bag 2.



wc_gr006528

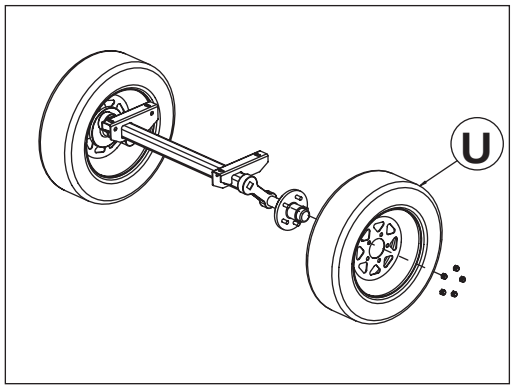
2. Align each fender as shown in the illustration.
3. Install each fender on the Light Tower using (3) M6 x 16 serrated flange screws—but do not tighten the screws until the next step.
4. Slide each fender backward until the mounting screws are located at the front end of the slots. Torque the screws to 16 Nm (11.5 ft.lbs.).

14.3 Installing the Wheels

Installing the wheels

Follow the procedure below to Install the wheels:

1. Locate the two wheels **(U)** and hardware bag 3.



wc_gr006529

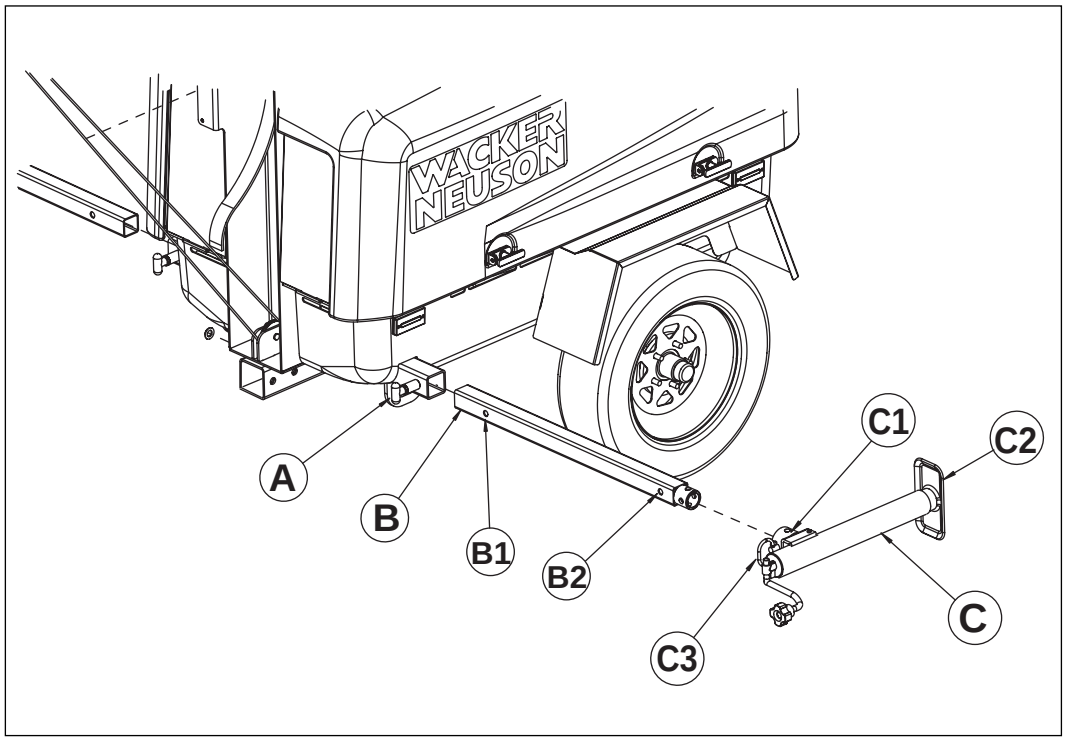
2. Install the wheels on the axle using five lug nuts per wheel. Torque the lug nuts to 115 Nm (85 ft.lbs.).

14.4 Installing the Outriggers and Outrigger Jacks

Installing the outriggers

Follow the procedure below to Install the two outriggers. (Use the same procedure for each side of the Light Tower.)

1. Locate the locking pin **(A)** at the outrigger socket.



wc_gr006520

2. Position the outrigger **(B)** so that the holes (**B1** and **B2**) face the same direction as the locking pin.
3. Pull the locking pin and insert the square end of the outrigger into the outrigger socket.
4. Align hole (**B1)** in the outrigger with the locking pin. When hole **(B1)** is aligned, release the locking pin to fasten the outrigger in place.

Installing the outrigger jacks

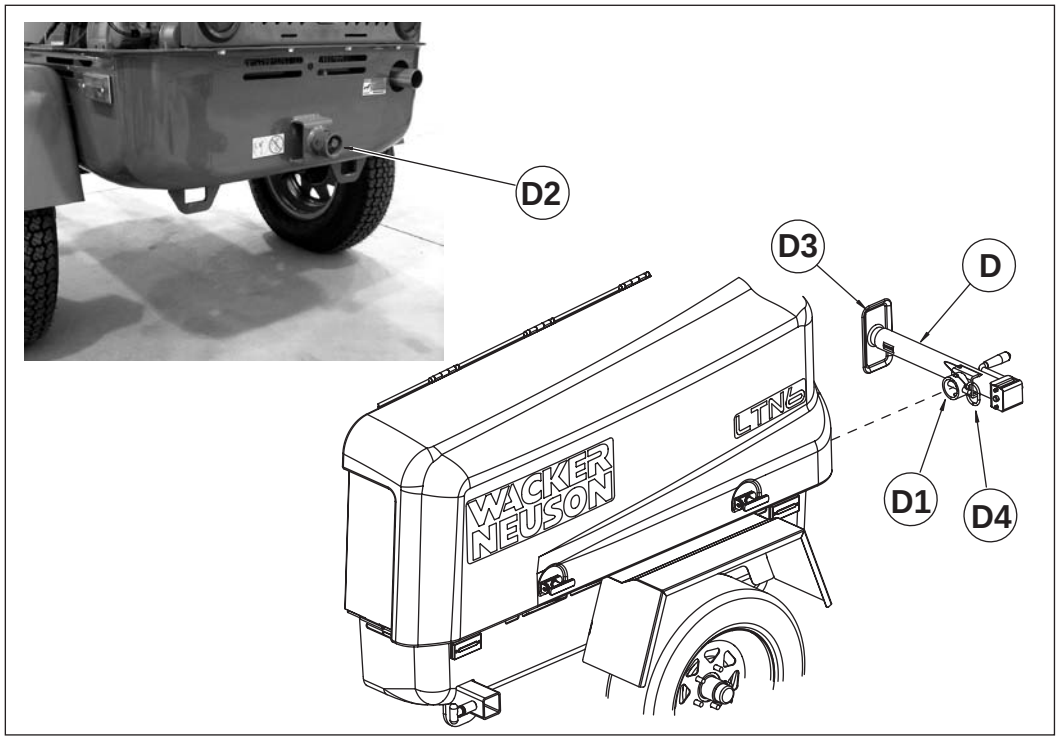
Follow the procedure below to Install the two outrigger jacks. (Use the same procedure for each outrigger jack.)

1. Locate the two 15-inch travel jacks (“outrigger jacks”) **(C)**.
2. If necessary, remove the locking pin **(C3)** from the holes in the outrigger jack.
3. Fit the socket **(C1)** on the outrigger jack over the circular end of the outrigger **(B)**.
4. Rotate the outrigger jack so that the foot **(C2)** rests on the ground.
5. Align the top hole in the outrigger jack socket with the top hole on the outrigger.
6. Insert the locking pin into the holes. Push the locking pin through both sets of holes (top and bottom) to fasten the outrigger jack in place.

14.5 Installing the Rear Jack

Procedure Follow the procedure below to install the rear jack.

1. Locate the 5000 lb.10-inch side crank jack **(D)**.



wc_gr006522

2. If necessary, remove the locking pin **(D4)** from the holes in the jack.
3. Fit the socket **(D1)** over the circular boss **(D2)** on the rear of the machine.
4. Rotate the jack so that the foot **(D3)** rests on the ground.
5. Align the top hole in the socket with the top hole on the circular boss.
6. Insert the locking pin into the holes. Push the locking pin through both sets of holes (top and bottom) to fasten the outrigger jack in place.

14.6 Installing the Tongue Assembly

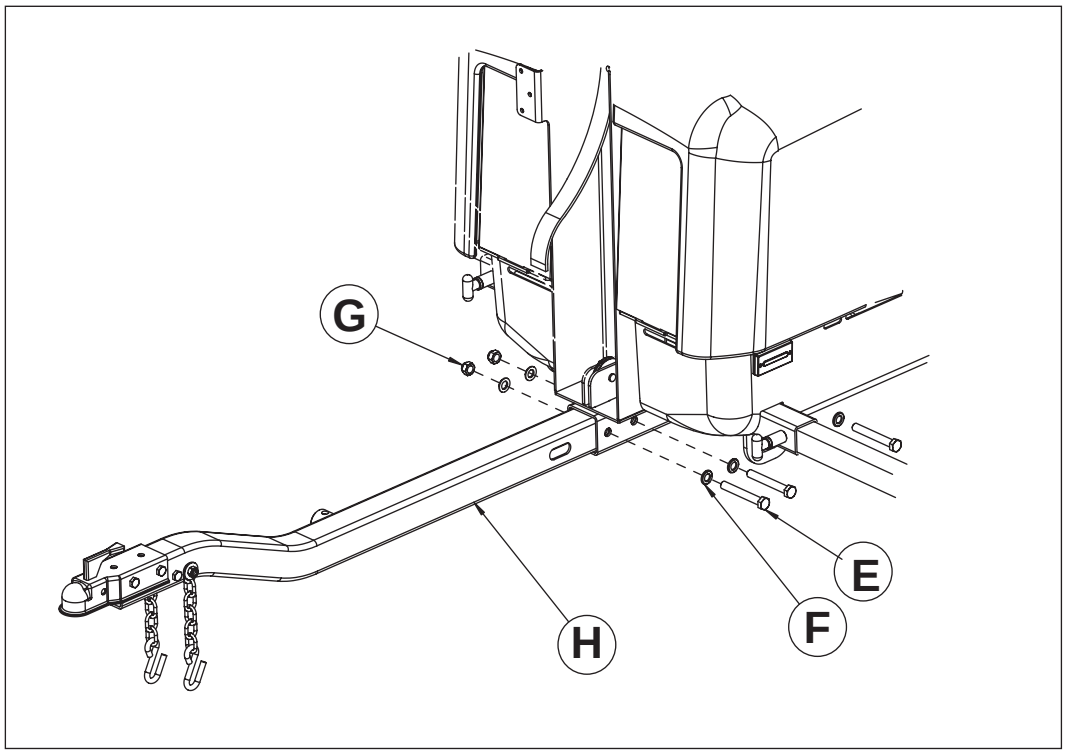
Scope

Installing the tongue assembly consists of installing the tongue and the tongue jack, and connecting the trailer wiring.

Installing the tongue

Follow the procedure below to Install the tongue.

1. Insert the tongue **(H)** into the sleeve at the front of the trailer.



wc_gr006523

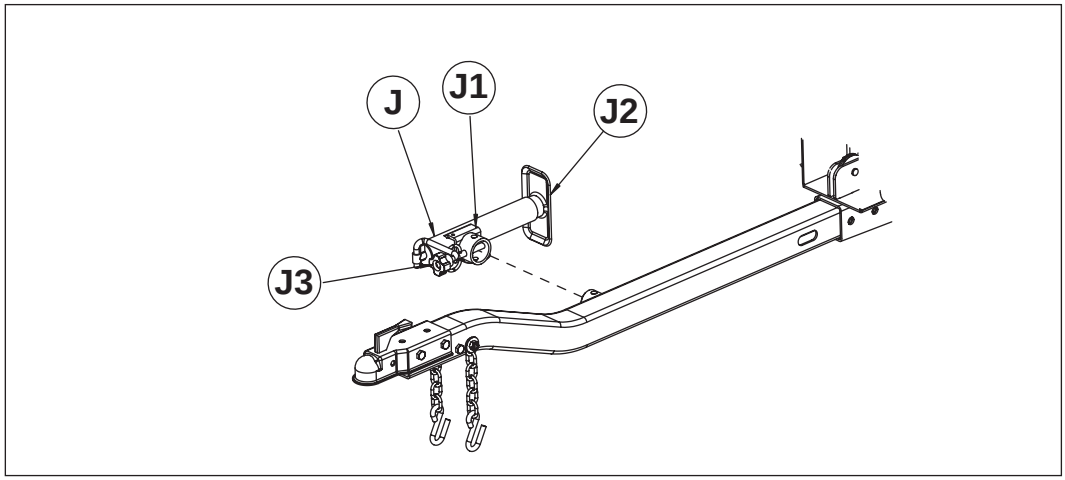
2. Fasten the tongue to the sleeve using the following hardware from Bag 7:
   - (3) M16 x 120 screws **(E)**
   - (6) B17 flat washers **(F)**
   - (3) M16 lock nuts **(G)**

Torque the fasteners to 200 Nm (145 ft.lbs.)

Installing the tongue jack

Follow the procedure below to Install the tongue jack.

1. Locate the 2000 lb. 10-inch travel jack (“tongue jack”) **(J)**.

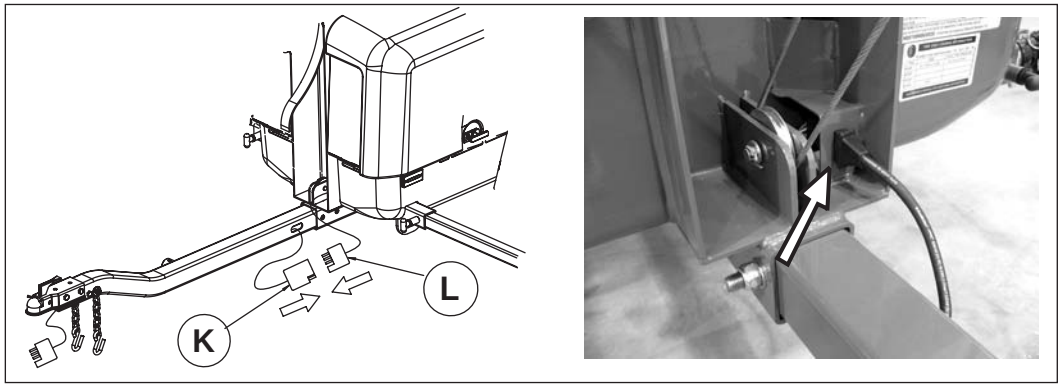


wc_gr006524

2. If necessary, remove the locking pin **(J3)** from the holes in the tongue jack.
3. Fit the socket **(J1)** over the circular boss on the tongue assembly.
4. Rotate the tongue jack so that the foot **(J2)** rests on the ground.
5. Align the top hole in the socket with the top hole on the circular boss.
6. Insert the locking pin into the holes. Push the locking pin through both sets of holes (top and bottom) to fasten the tongue jack in place.

Connecting the trailer wiring

1. Locate connectors **(K)** and **(L)**.



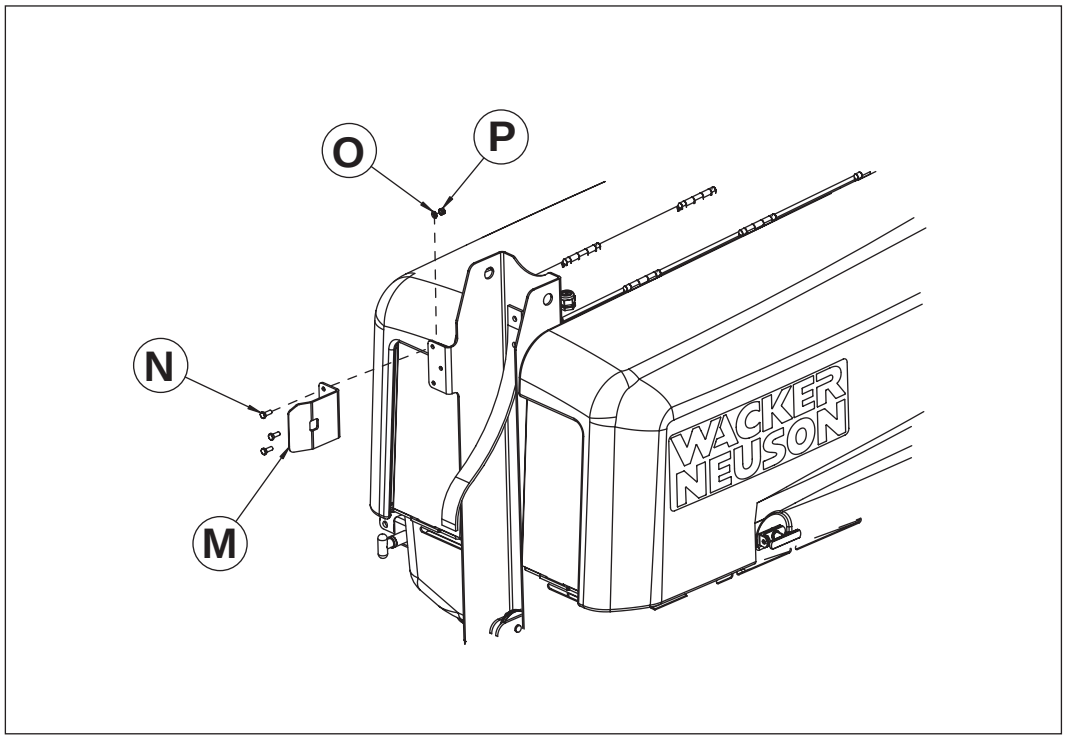
wc_gr006525

2. Plug the tongue wiring harness connector **(K)** into tongue wiring harness connector **(L)**.
3. Insert connector plug body into the hole on the skid bracket. (See arrow.)

14.7 Installing the Tower Lock Bracket

Procedure Follow the procedure below to Install the tower lock bracket.

1. Locate the following in hardware bag 5:
   - (1) tower lock bracket **(M)**
   - (3) M8 x 20 hex head mounting screws **(N)**
   - (3) M8 flat washers **(O)**
   - (3) M8 lock nuts **(P)**



wc_gr006526

2. Install the tower lock bracket on the tower as shown.
3. Torque the mounting screws to 35 Nm (25 ft.lbs.).

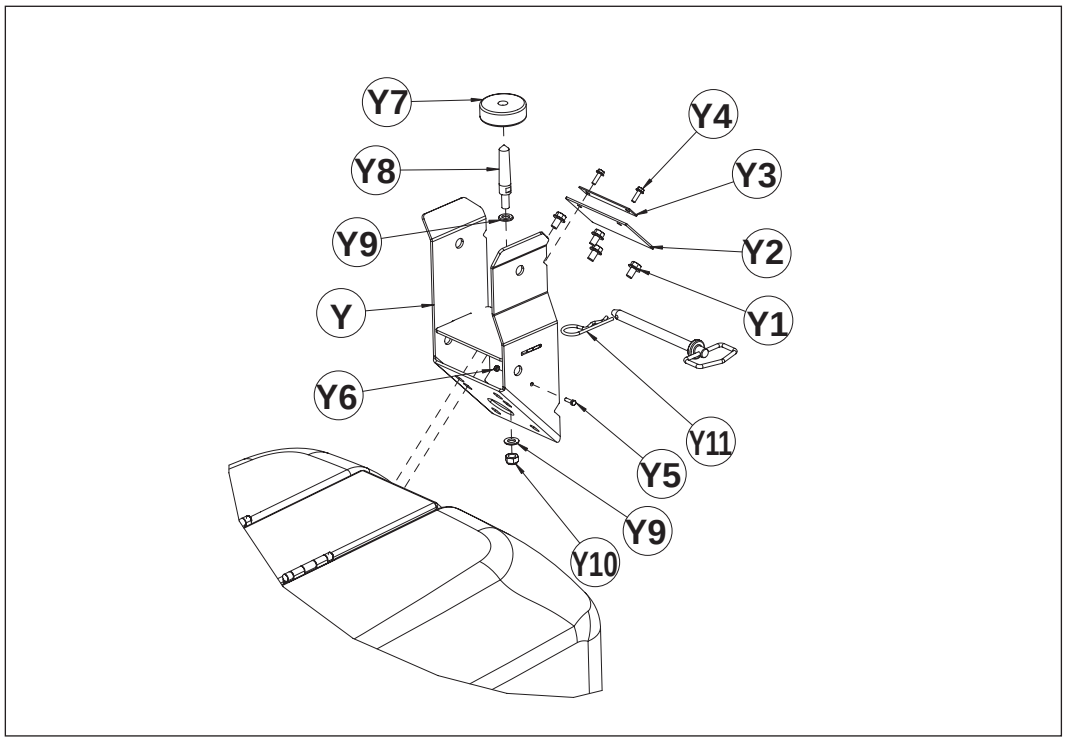
14.8 Installing the Tower Cradle

Materials needed

- Tower cradle
- Hardware bag 4 (tower cradle hardware)

Procedure

Follow the procedure below to assemble the tower cradle **(Y)**.



wc_gr006530

1. Using (4) M10 x 16 serrated flange screws **(Y1)**, install the tower cradle to the Light Tower upper frame. Torque the screws to 58 Nm (42.8 ft.lbs.)
2. Using (2) M6 x 20 serrated flange screws **(Y4)**, install the radiator access cover **(Y2)** and radiator cover plate **(Y3)** to the tower cradle. Torque the screws to 16 Nm (11.5 ft.lbs.).
3. Using (2) M12 washers **(Y9)** and the M12 locknut **(Y10)**, install the tower lock pin **(Y8)** on the tower cradle
   Note: *Do not tighten locknut **Y10** until the next assembly topic ("Installing the Tower").*
4. Place the tower damper **(Y7)** over the tower lock pin.
   Note: *The large hole on the tower damper must face down.*
5. Install the hitch pin assembly **(Y11)** to the tower cradle using the M5 x 16 screw **(Y5)** and the M5 locknut **(Y6)**.

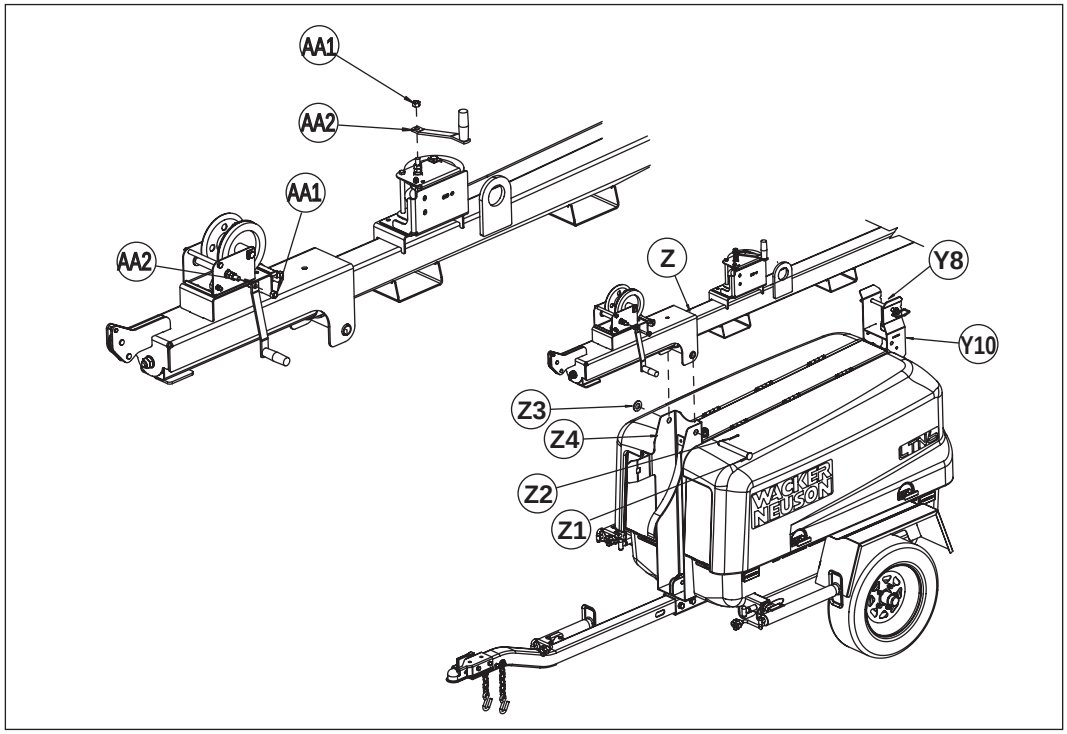
14.9 Installing the Tower

Materials needed

- Tower assembly
- Hardware bag 8 (tower install assembly)

Installing the tower

Follow the procedure below to install the tower.



wc_gr006531

1. Align the tower assembly **(Z)** on top of the Light Tower enclosure as shown.
2. Place the tower assembly over the tower lock pin **(Y8)** and secure it with the hitch pin. This will help to keep the tower in alignment for the next step.
3. Insert the clevis pin **(Z1)** through the holes in the tower support **(Z4)** and the tower.
4. Place the 1-inch flat washer **(Z3)** over the end of the clevis pin. Fasten the tower in place with the 3/16-x-2 cotter pin **(Z2)**.
5. Adjust the alignment of the tower lock pin **(Y8)** if necessary. Torque lock nut (**Y10)** to 48 Nm (35 ft.lbs.).

Reversing the winch handles

The winch handles **(AA2)** are installed backward to protect them from shipping damage. Reverse each handle orientation as follows:

1. Remove the nut **(AA1)** and remove the winch handle from the stem.
2. Turn the winch handle so that the handgrip is oriented as shown in the illustration.
3. Re-install the winch handle and the nut.

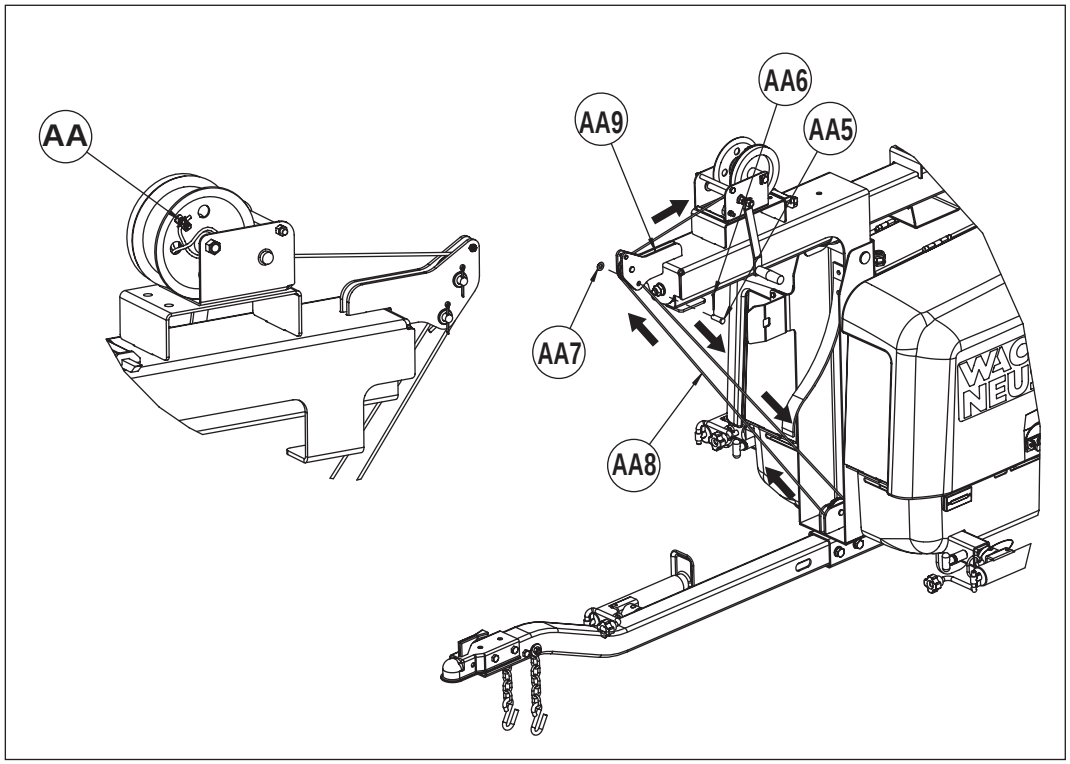
14.10 Installing the Tower Pivot Cable

Materials needed

- Tower pivot cable (**AA8**)
- Hardware Bag 8 (Tower Install Assembly)

Installing the tower

Follow the procedure below to install the tower pivot cable.



wc_gr006532

1. One end of the tower pivot cable has a loop. Insert the retainer pin **(AA5)** through the hole in the upper pulley mount **(AA9)** and pass it through the cable loop.
2. Place the M12 washer **(AA7)** over the end of the retainer pin and secure it with the cotter pin **(AA6)**.
3. Route the free end of the cable around the lower pulley and over the top of the upper pulley. Refer to the directional arrows in the illustration above.
4. Pass the cable below the winch drum and wind it two or three times around the winch drum.
5. Pass the free end of the cable through the hole in the winch drum. Wind the cable once around the bearing drum axle.
6. Loosen the two nuts on the cable retainer **(AA)** and insert the free end of the cable through the retainer so that approximately 1 cm (3/8 in.) of cable extends beyond the retainer. Torque the nuts to 3 Nm (20-30 in.lbs.).
7. Rotate the winch counter-clockwise to take up any slack in the cable.

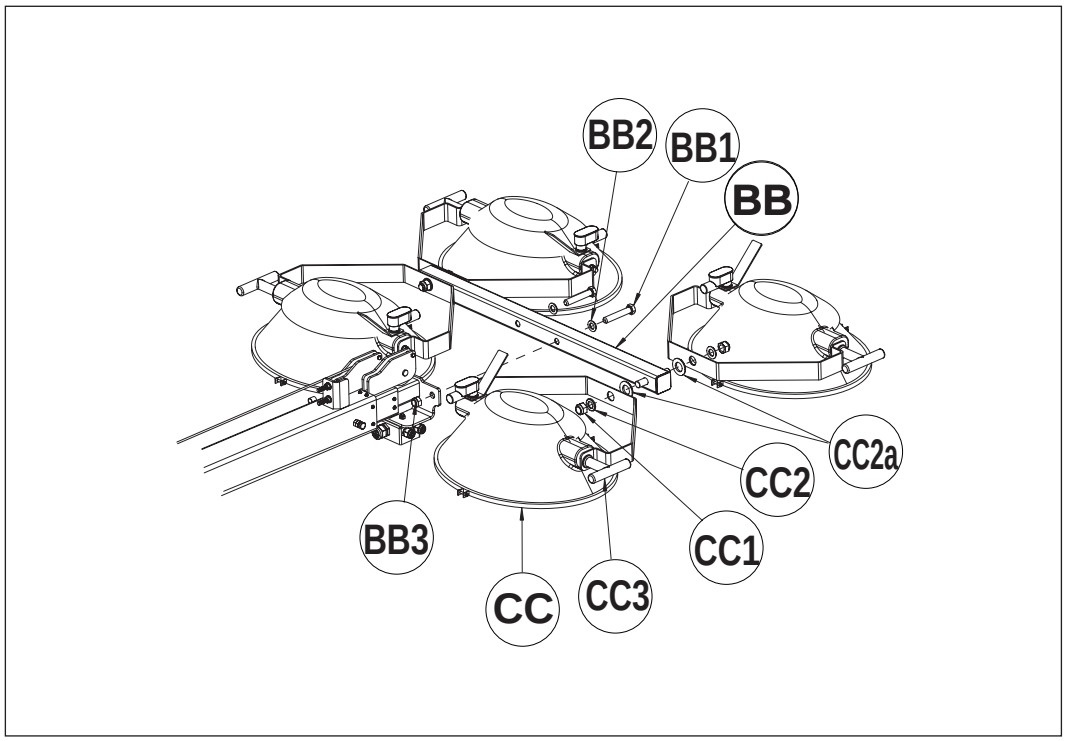
14.11 Installing the Lights

Materials needed

- Light fixtures (4)
- Hardware bag 6 (tower lights hardware)

Procedure

Follow the procedure below to install the lights.



wc_gr006533

1. Install the light mount tube **(BB)** on the tower using (2) M16 x 90 screws **(BB1)**, (2) B17 flat washers **(BB2)**, and (2) M16 lock nuts **(BB3)**. Torque the screws to 83 Nm (60 ft.lbs.)

Install the four light fixtures **(CC)** on the light tube as follows:

1. Position each light fixture so that the lamp is facing downward. Make sure that the “T” handle **(CC3)** faces outward.
2. Install each light fixture on the light mount tube using an M18 lock nut **(CC1),** disk **(CC2a),** and a B19 flat washer **(CC2)**.

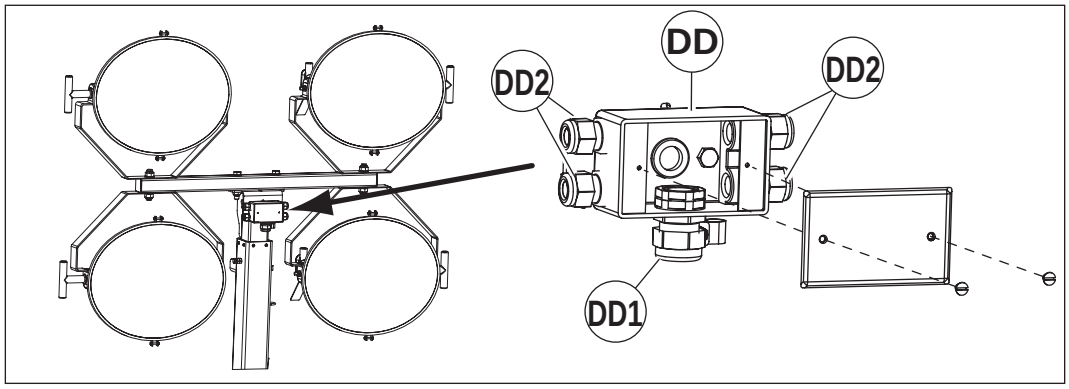
14.12 Connecting the Wiring at the Junction Box

Special tools and materials needed

- Coil cord (GG)
- Panduit® crimper CT-100
- Panduit® crimper CT-1550
- Hardware bag 6

Procedure

Follow the procedure below to connect the wiring at the junction box.



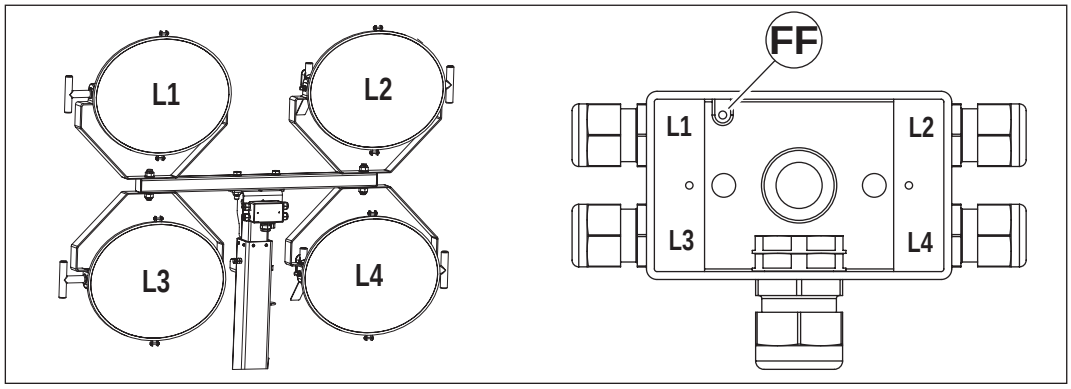
wc_gr006534

Installing the coil cord

1. Remove the screws and the cover plate from the junction box **(DD)**.
2. Use two wrenches to loosen the connector **(DD1)** at the bottom of the junction box.
3. Insert the end of the coil cord through the connector so that approximately 1 cm (3/8 in.) of coil cord jacket extends into the junction box. Retighten connector **DD1**.

Installing the fixture cords

4. Use two wrenches to loosen the four connectors **(DD2)** on the sides of the junction box.
5. Refer to the diagram below and insert the fixture cords through the appropriate connectors. Approximately 1 cm (3/8 in.) of each fixture cord jacket should extend into the junction box. Retighten connectors **DD2**.



wc_gr006535

This procedure continues on the next page.

Connecting the wires

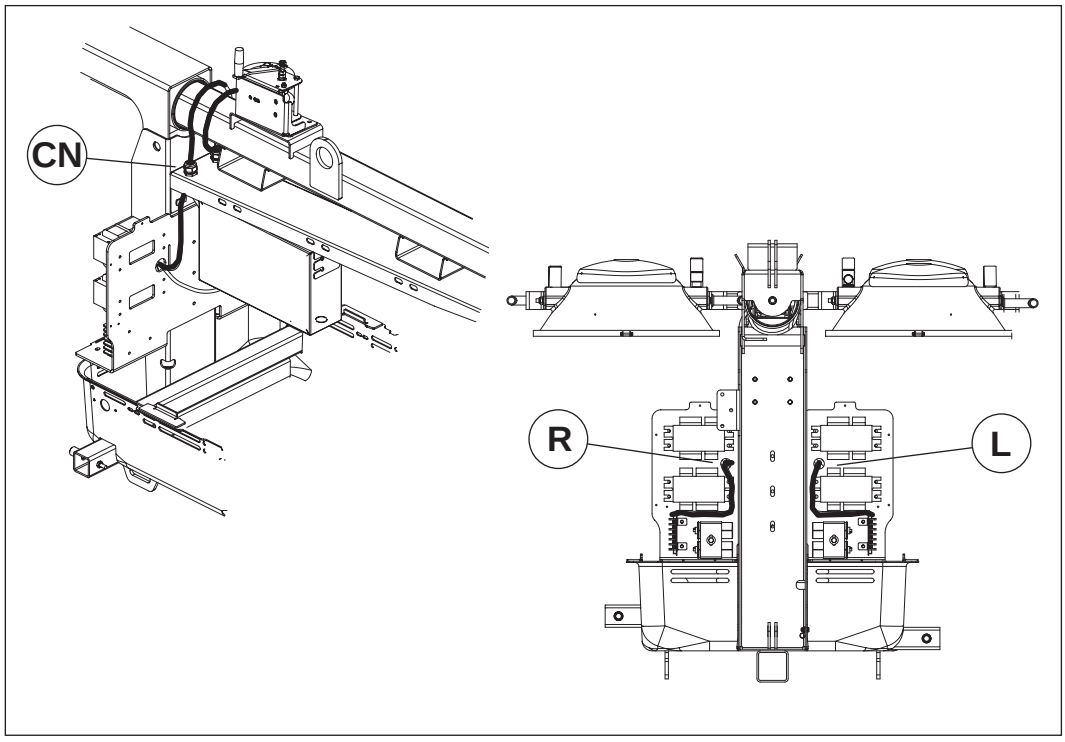
6. Refer to the table below and connect the light fixture wires to the coil cord wires. Use the small connectors and Panduit wire crimper CT-100.

Position	Light wire	Coil cord wire
L1	Black	Red
	White	Orange
	Green	—
L2	Black	Black
	White	Brown
	Green	—
L3	Black	Yellow
	White	White
	Green	—
L4	Black	Blue
	White	Purple
	Green	—

7. Connect the green wires from the fixture cords and coil cord, along with the green/yellow ground wire, using the large connector and Panduit wire crimper CT-1500.
8. Install the ring terminal on the ground wire to the ground screw **(FF)** in the junction box.

14.13 Routing the Coil Cord

Procedure Follow the procedure below to route the coil cord.



wc_gr006536

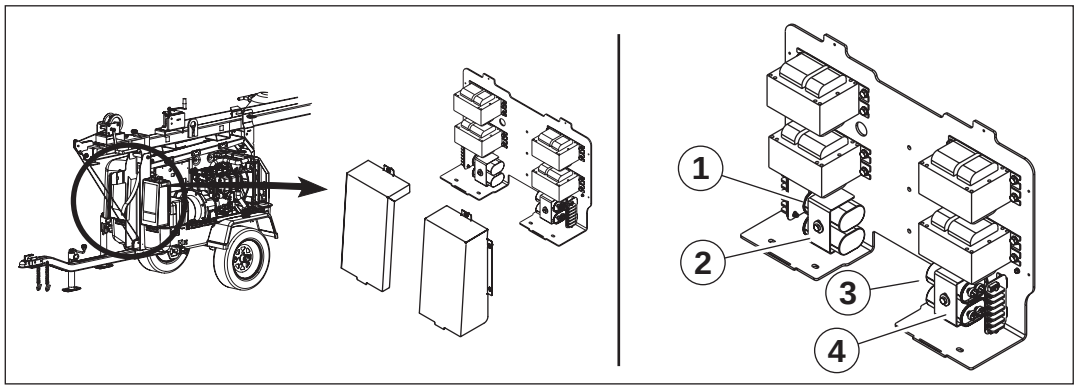
1. At the base of the tower, wrap the coil cord around the tower twice, creating loops of about 25 cm (10 in.) in diameter.
2. Loosen the connector **(CN)**. Pass the end of the coil cord through the connector so that approximately 1 m (3 ft) of wires extend inside the Light Tower cabinet, and re-tighten the connector **(CN)**.
3. Insert the red, black, brown, and orange wires from the coil cord into one of the supplied looms. Pass this loom through the ballast bracket on the right side of the machine **(R)**.
4. Insert the yellow, blue, white, purple, and green wires from the coil cord into the second loom. Pass this loom through the ballast bracket on the left side of the machine **(L)**.

14.14 Wiring the Ballasts and Terminal Strips

Procedure Follow the procedure below to wire the ballasts and terminal strips.

wc_gr011213

1. Remove the two ballast covers **(BC)** from the left and right sides of the Light Tower.
2. Connect the green wire from the coil cord to the hexagonal grounding screw **(G)**.
3. Locate the four capacitors as shown below.

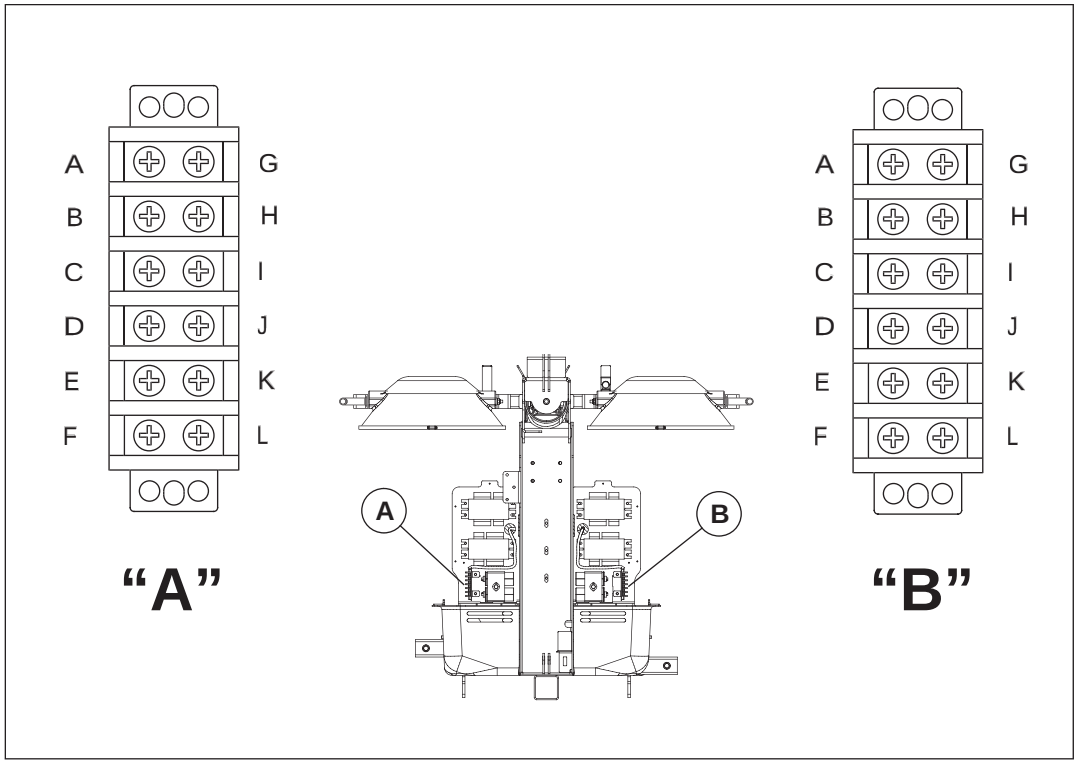


wc_gr011214

4. Connect four wires from the coil cord to the capacitors as follows:

Capacitor	Wire from coil cord
1	Red
2	Black
3	Yellow
4	Blue

5. Connect the remaining wires to terminal strips “A” and “B” according to the diagram and tables on the next page. Torque all screws to 2.25 Nm (20 in.lbs.).
6. When all wires are connected to terminal strips “A” and “B,” re-install the ballast covers. Torque the ballast cover mounting screws to 5.0 Nm (3.5 ft.lbs.).



wc_gr006538

Terminal strip "A" (right side of machine)

Position	Wire description
A–F	Not used
G	Black / yellow from ballasts #1 and #2
H	Black (#7) from control box
I	Yellows (2) from ballast #1
J	Yellows (2) from ballast #2
K	White (#9) from control box
L	Brown and orange from coil cord

Terminal strip "B" (left side of machine)

Position	Wire description
A	Black / yellow from ballasts #3 and #4
B	Black (#6) from control box
C	Yellows (2) from ballast #3
D	Yellows (2) from ballast #4
E	White (#8) from control box
F	White and purple from coil cord
G–L	Not used

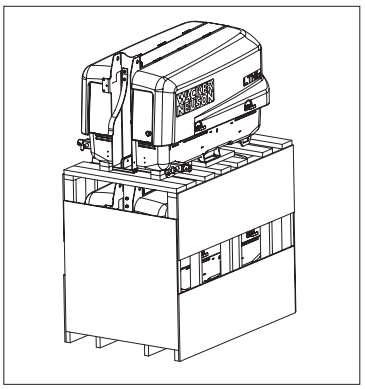
14.15 Conclusion

This completes the assembly procedure for your Light Tower. Refer to your Operator's Manual for instructions on setting up, operating, maintaining, and storing the machine.

15 Appendix VI—CE Racked Assy.

Overview

This set of assembly instructions applies to CE machines shipped on a container rack as shown below.



wc_gr006470

If your machine does not look like the one shown in the illustration, refer to *Machine Identification* in the *Introduction* chapter to identify the appropriate set of assembly instructions.

Tasks

To complete the assembly of your Light Tower, the following tasks must be performed:

Task	Description	See topic
Chassis assembly		
1	Attach the outriggers and outrigger jacks	15.1
2	Attach the rear jack	15.2
Tower assembly		
3	Attach the tower lock bracket	15.3
4	Attach the tower cradle	15.4
5	Attach the tower	15.5
6	Attach the tilt winch cable	15.6
Lights assembly		
7	Attach the light mount bracket and light bar	15.7
8	Attach the light fixtures	15.8
Electrical assembly		
9	Wire the junction box	15.9
10	Route the coil cord	15.10
11	Wire the ballasts and terminal strips	15.11

Tools and materials

The following tools and materials are needed:

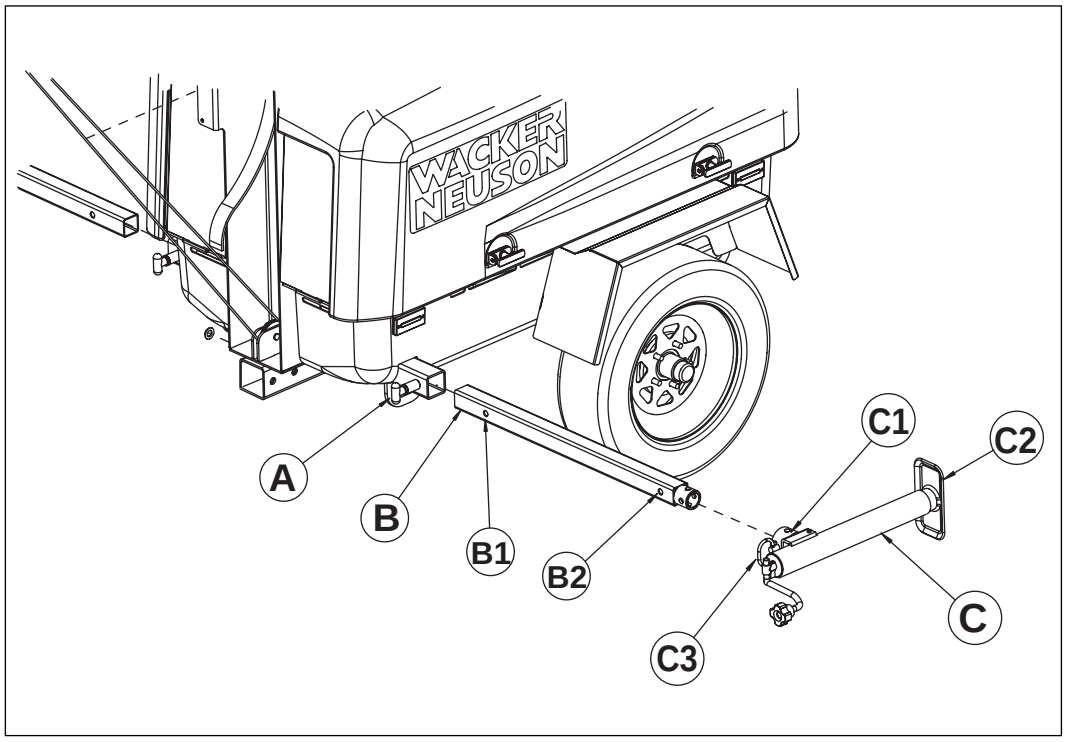
- Basic hand tools (wrenches, screwdrivers, etc.)
- Torque wrench
- Hardware bags: 1, 2, 3, 4, 5, 6, 8, and fabricated parts

15.1 Installing the Outriggers and Outrigger Jacks

Installing the outriggers

Follow the procedure below to Install the two outriggers. (Use the same procedure for each side of the Light Tower.)

1. Locate the locking pin **(A)** at the outrigger socket.



wc_gr006520

2. Position the outrigger **(B)** so that the holes (**B1** and **B2**) face the same direction as the locking pin.
3. Pull the locking pin and insert the square end of the outrigger into the outrigger socket.
4. Align hole (**B1)** in the outrigger with the locking pin. When hole **(B1)** is aligned, release the locking pin to fasten the outrigger in place.

Installing the outrigger jacks

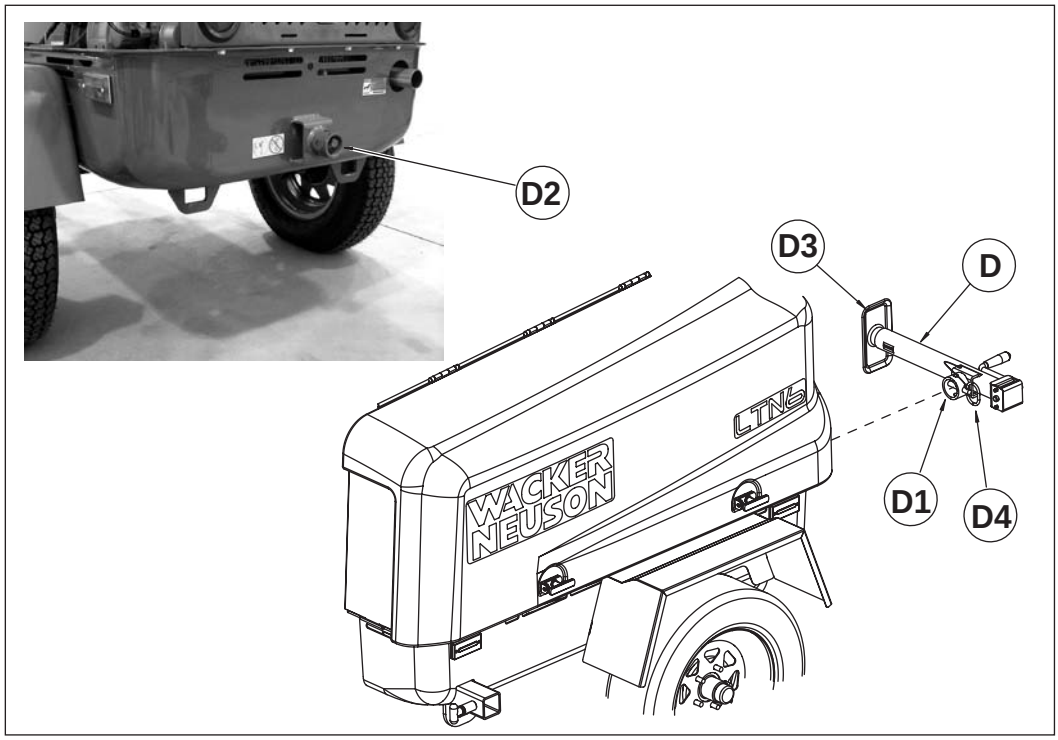
Follow the procedure below to Install the two outrigger jacks. (Use the same procedure for each outrigger jack.)

1. Locate the two 15-inch travel jacks (“outrigger jacks”) **(C)**.
2. If necessary, remove the locking pin **(C3)** from the holes in the outrigger jack.
3. Fit the socket **(C1)** on the outrigger jack over the circular end of the outrigger **(B)**.
4. Rotate the outrigger jack so that the foot **(C2)** rests on the ground.
5. Align the top hole in the outrigger jack socket with the top hole on the outrigger.
6. Insert the locking pin into the holes. Push the locking pin through both sets of holes (top and bottom) to fasten the outrigger jack in place.

15.2 Installing the Rear Jack

Procedure Follow the procedure below to install the rear jack.

1. Locate the 5000 lb.10-inch side crank jack **(D)**.



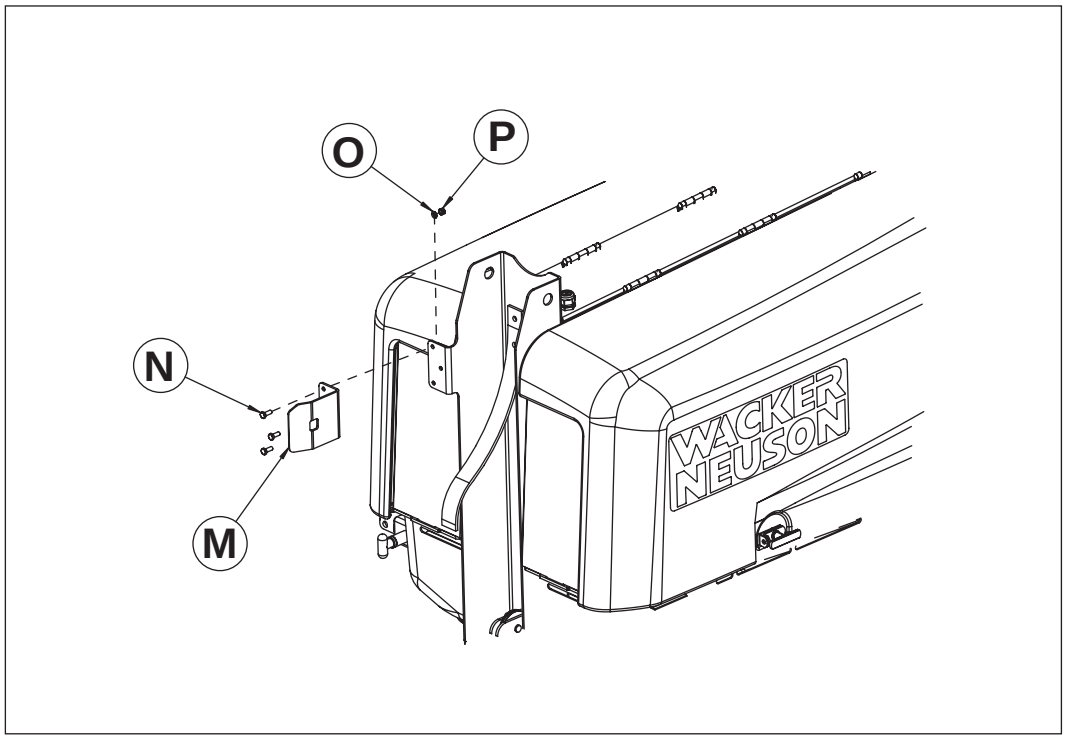
wc_gr006522

2. If necessary, remove the locking pin **(D4)** from the holes in the jack.
3. Fit the socket **(D1)** over the circular boss **(D2)** on the rear of the machine.
4. Rotate the jack so that the foot **(D3)** rests on the ground.
5. Align the top hole in the socket with the top hole on the circular boss.
6. Insert the locking pin into the holes. Push the locking pin through both sets of holes (top and bottom) to fasten the outrigger jack in place.

15.3 Installing the Tower Lock Bracket

Procedure Follow the procedure below to Install the tower lock bracket.

1. Locate the following in hardware bag 5:
   - (1) tower lock bracket **(M)**
   - (3) M8 x 20 hex head mounting screws **(N)**
   - (3) M8 flat washers **(O)**
   - (3) M8 lock nuts **(P)**



wc_gr006526

2. Install the tower lock bracket on the tower as shown.
3. Torque the mounting screws to 35 Nm (25 ft.lbs.).

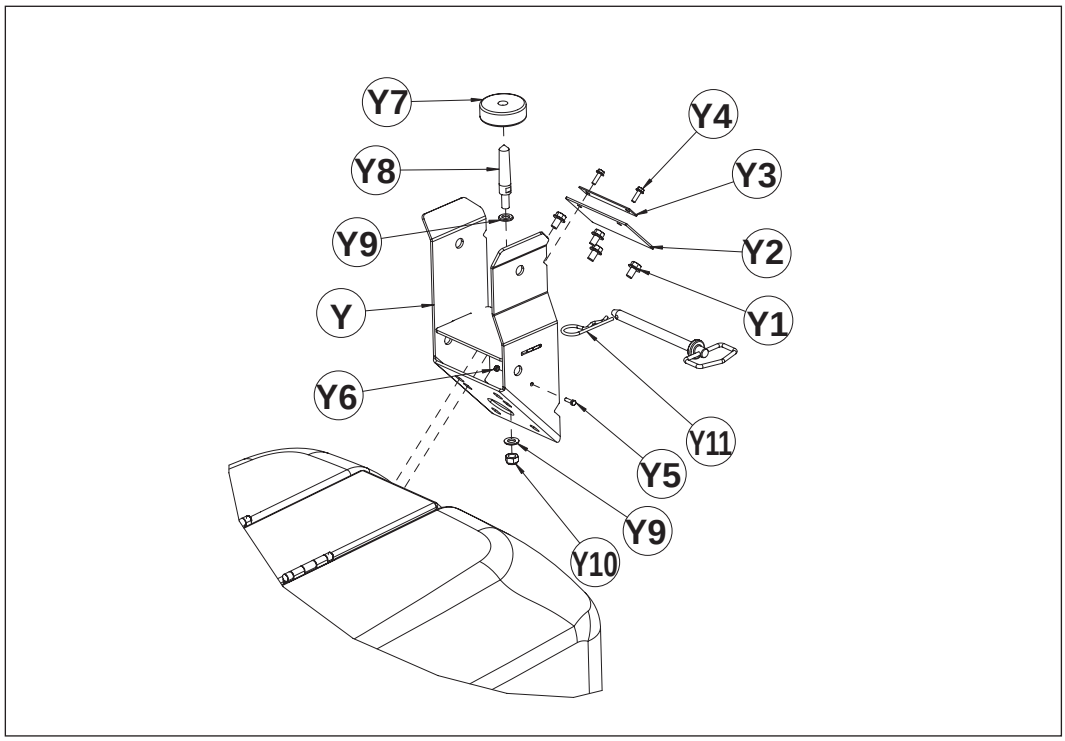
15.4 Installing the Tower Cradle

Materials needed

- Tower cradle
- Hardware bag 4 (tower cradle hardware)

Procedure

Follow the procedure below to assemble the tower cradle **(Y)**.



wc_gr006530

1. Using (4) M10 x 16 serrated flange screws **(Y1)**, install the tower cradle to the Light Tower upper frame. Torque the screws to 58 Nm (42.8 ft.lbs.)
2. Using (2) M6 x 20 serrated flange screws **(Y4)**, install the radiator access cover **(Y2)** and radiator cover plate **(Y3)** to the tower cradle. Torque the screws to 16 Nm (11.5 ft.lbs.).
3. Using (2) M12 washers **(Y9)** and the M12 locknut **(Y10)**, install the tower lock pin **(Y8)** on the tower cradle
   Note: *Do not tighten locknut **Y10** until the next assembly topic ("Installing the Tower").*
4. Place the tower damper **(Y7)** over the tower lock pin.
   Note: *The large hole on the tower damper must face down.*
5. Install the hitch pin assembly **(Y11)** to the tower cradle using the M5 x 16 screw **(Y5)** and the M5 locknut **(Y6)**.

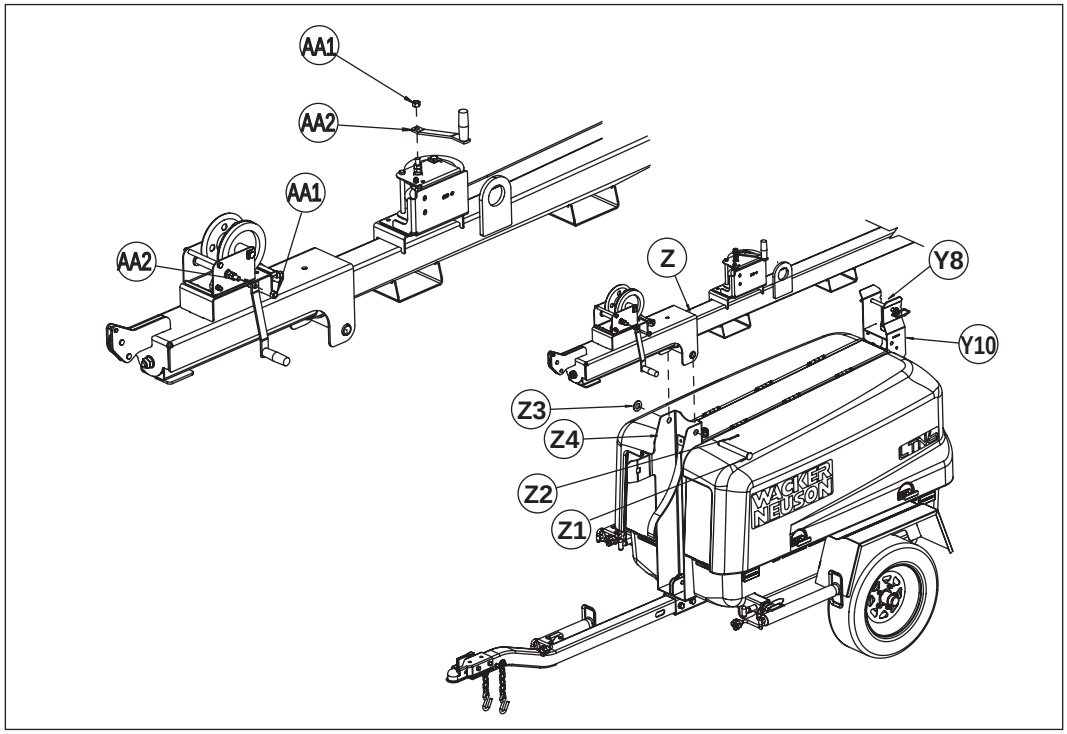
15.5 Installing the Tower

Materials needed

- Tower assembly
- Hardware bag 8 (tower install assembly)

Installing the tower

Follow the procedure below to install the tower.



wc_gr006531

1. Align the tower assembly **(Z)** on top of the Light Tower enclosure as shown.
2. Place the tower assembly over the tower lock pin **(Y8)** and secure it with the hitch pin. This will help to keep the tower in alignment for the next step.
3. Insert the clevis pin **(Z1)** through the holes in the tower support **(Z4)** and the tower.
4. Place the 1-inch flat washer **(Z3)** over the end of the clevis pin. Fasten the tower in place with the 3/16-x-2 cotter pin **(Z2)**.
5. Adjust the alignment of the tower lock pin **(Y8)** if necessary. Torque lock nut (**Y10)** to 48 Nm (35 ft.lbs.).

Reversing the winch handles

The winch handles **(AA2)** are installed backward to protect them from shipping damage. Reverse each handle orientation as follows:

1. Remove the nut **(AA1)** and remove the winch handle from the stem.
2. Turn the winch handle so that the handgrip is oriented as shown in the illustration.
3. Re-install the winch handle and the nut.

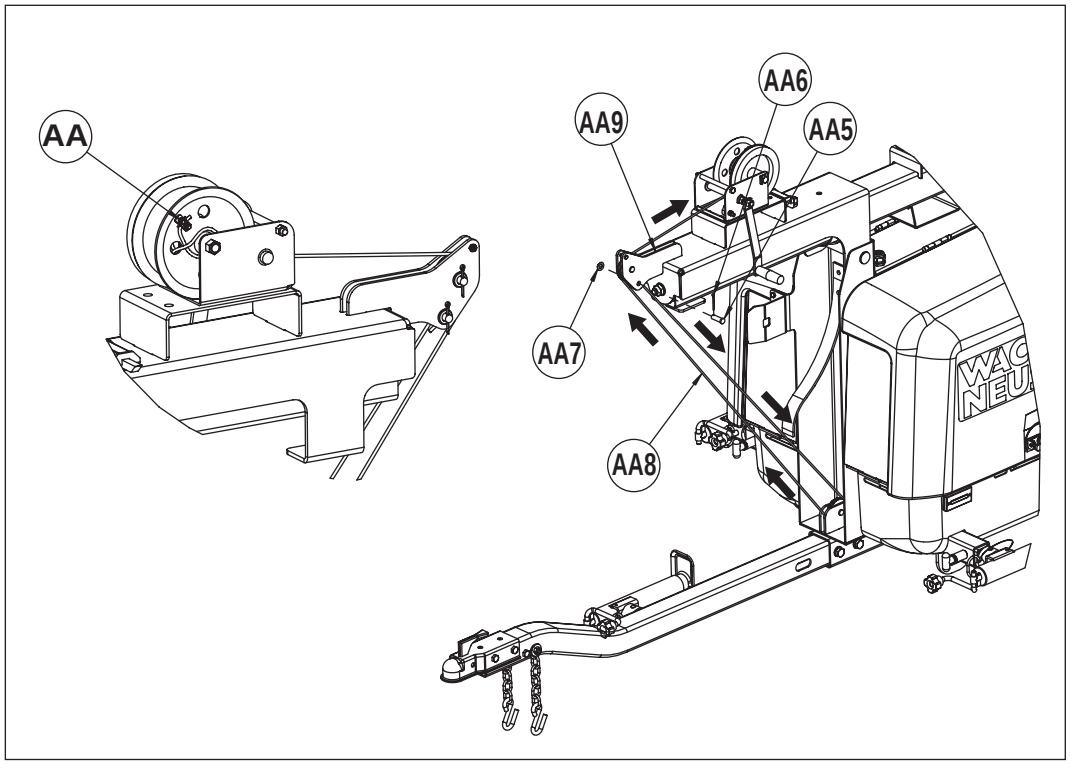
15.6 Installing the Tower Pivot Cable

Materials needed

- Tower pivot cable (**AA8**)
- Hardware Bag 8 (Tower Install Assembly)

Installing the tower

Follow the procedure below to install the tower pivot cable.



wc_gr00653

1. One end of the tower pivot cable has a loop. Insert the retainer pin **(AA5)** through the hole in the upper pulley mount **(AA9)** and pass it through the cable loop.
2. Place the M12 washer **(AA7)** over the end of the retainer pin and secure it with the cotter pin **(AA6)**.
3. Route the free end of the cable around the lower pulley and over the top of the upper pulley. Refer to the directional arrows in the illustration above.
4. Pass the cable below the winch drum and wind it two or three times around the winch drum.
5. Pass the free end of the cable through the hole in the winch drum. Wind the cable once around the bearing drum axle.
6. Loosen the two nuts on the cable retainer **(AA)** and insert the free end of the cable through the retainer so that approximately 1 cm (3/8 in.) of cable extends beyond the retainer. Torque the nuts to 3 Nm (20-30 in.lbs.).
7. Rotate the winch counter-clockwise to take up any slack in the cable.

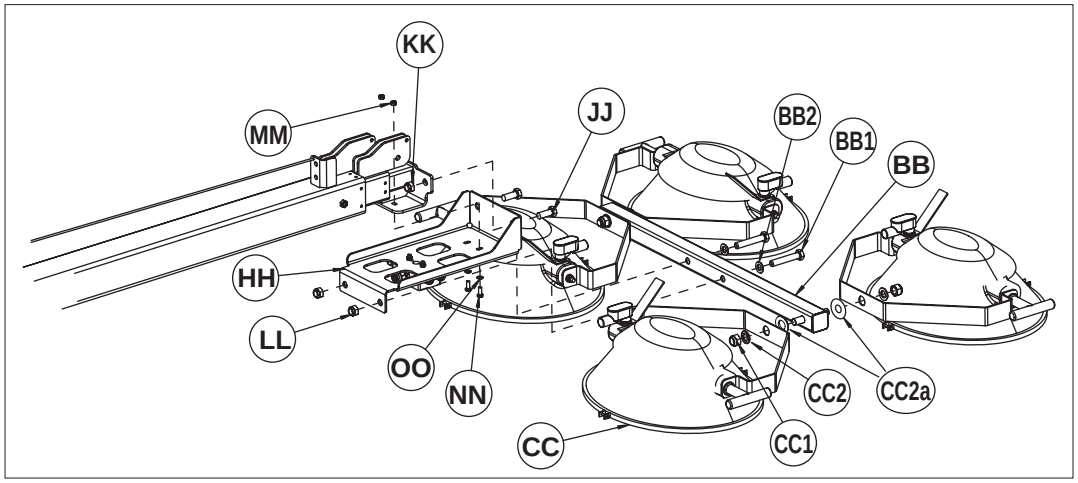
15.7 Attaching the Light Mount Bracket and Light Bar

Materials needed

- Light mount bracket **(HH)**
- Light bar **(BB)**
- Hardware Bag 6 (Tower Lights Hardware)

Procedure

Follow the procedure below to attach the light mount bracket and light bar to the tower.



wc_gr006539

Attaching the light mount bracket

1. Attach the light mount bracket to the tower using the following hardware:
   - (2) M16 x 40 hex head screws **(JJ)**
   - (2) M16 hex nuts **(KK)**
   - (2) M8 x 20 hex head screws **(NN)**
   - (2) B8.4 flat washers **(OO)**
   - M8 lock nuts **(MM)**
   - (4) Discs **(CC2a)**

   Torque the M16 screws to 83 Nm (60 ft.lbs.). Torque the M8 screws to 24 Nm (18 ft.lbs.).

Attaching the light bar

2. Attach the light bar to the light mount bracket using (2) M16 x 90 screws **(BB1**), (2) B17 flat washers **(BB2)**, and (2) M16 lock nuts **(BB3)**. Torque the screws to 83 Nm (60 ft.lbs.)

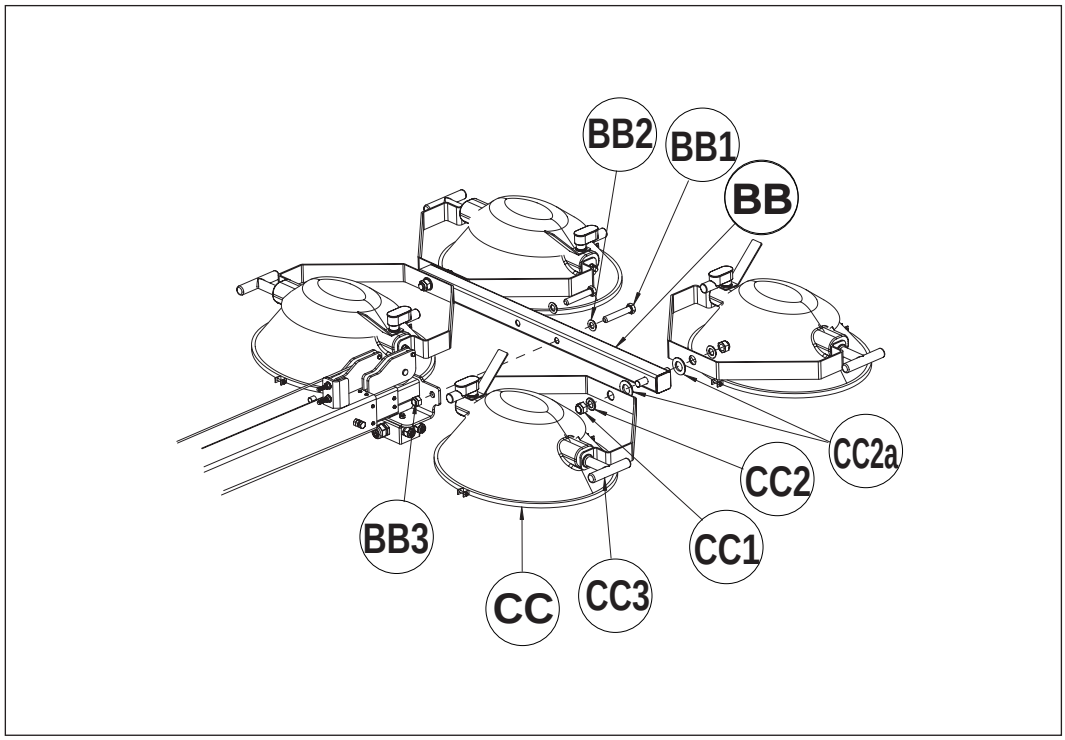
15.8 Attaching the Lights

Materials needed

- Light fixtures (4)
- Hardware Bag 6 (Tower Lights Hardware)

Procedure

Follow the procedure below to attach the lights to the tower.



wc_gr006533

Attach the four light fixtures **(CC)** to the light bar as follows:

1. Position each light fixture so that the lamp is facing downward.
2. Attach each light fixture to the light bar using an M18 lock nut **(CC1)**, discs **(CC2a)**, and a B19 flat washer **(CC2)**.

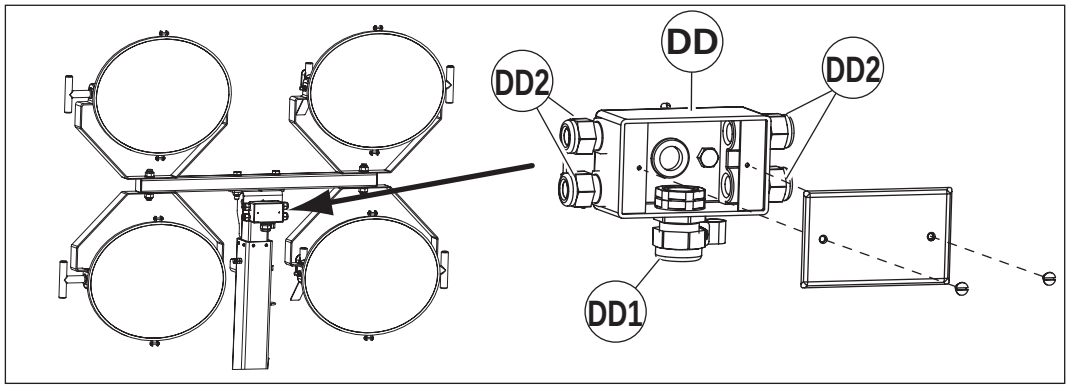
15.9 Connecting the Wiring at the Junction Box

Special tools and materials needed

- Coil cord (GG)
- Panduit® crimper CT-100
- Panduit® crimper CT-1550
- Hardware bag 6

Procedure

Follow the procedure below to connect the wiring at the junction box.



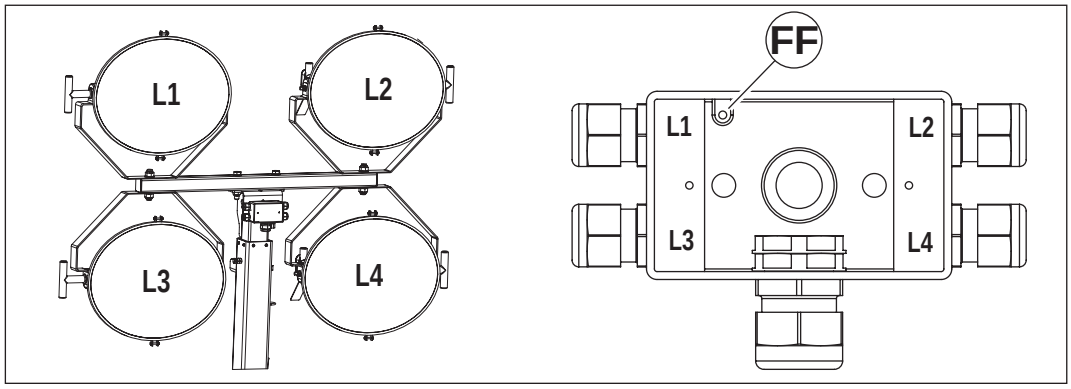
wc_gr006534

Installing the coil cord

1. Remove the screws and the cover plate from the junction box **(DD)**.
2. Use two wrenches to loosen the connector **(DD1)** at the bottom of the junction box.
3. Insert the end of the coil cord through the connector so that approximately 1 cm (3/8 in.) of coil cord jacket extends into the junction box. Retighten connector **DD1**.

Installing the fixture cords

4. Use two wrenches to loosen the four connectors **(DD2)** on the sides of the junction box.
5. Refer to the diagram below and insert the fixture cords through the appropriate connectors. Approximately 1 cm (3/8 in.) of each fixture cord jacket should extend into the junction box. Retighten connectors **DD2**.



wc_gr006535

This procedure continues on the next page.

Connecting the wires

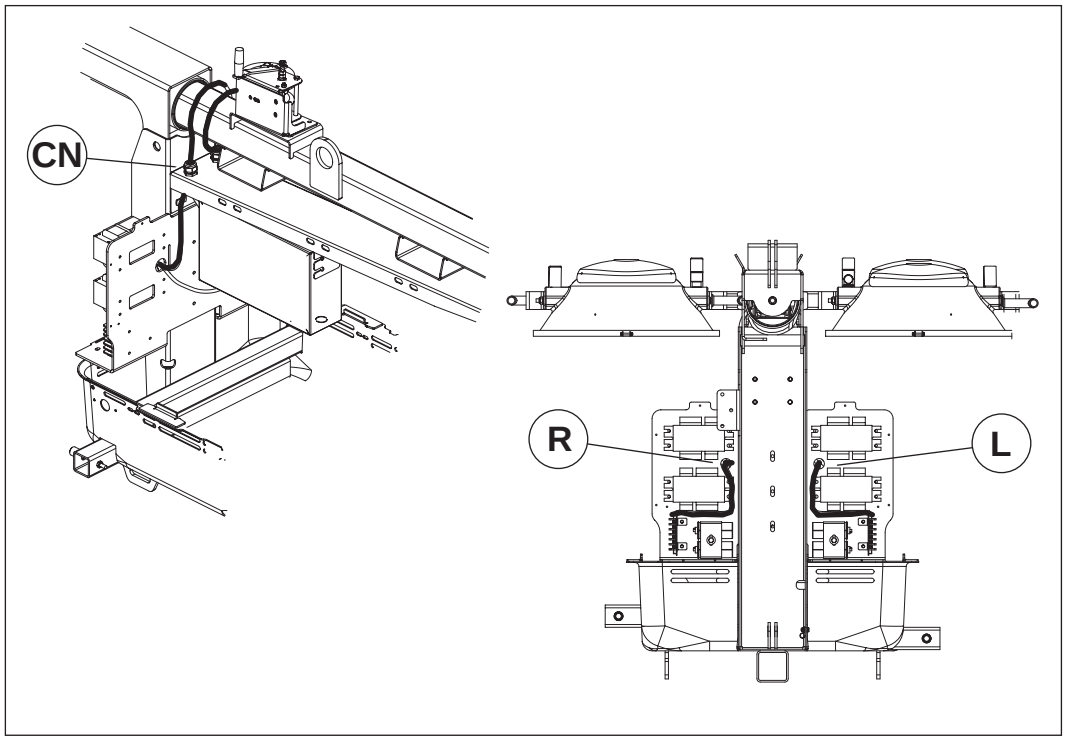
6. Refer to the table below and connect the light fixture wires to the coil cord wires. Use the small connectors and Panduit wire crimper CT-100.

Position	Light wire	Coil cord wire
L1	Black	Red
	White	Orange
	Green	—
L2	Black	Black
	White	Brown
	Green	—
L3	Black	Yellow
	White	White
	Green	—
L4	Black	Blue
	White	Purple
	Green	—

7. Connect the green wires from the fixture cords and coil cord, along with the green/yellow ground wire, using the large connector and Panduit wire crimper CT-1500.
8. Install the ring terminal on the ground wire to the ground screw **(FF)** in the junction box.

15.10 Routing the Coil Cord

Procedure Follow the procedure below to route the coil cord.



wc_gr006536

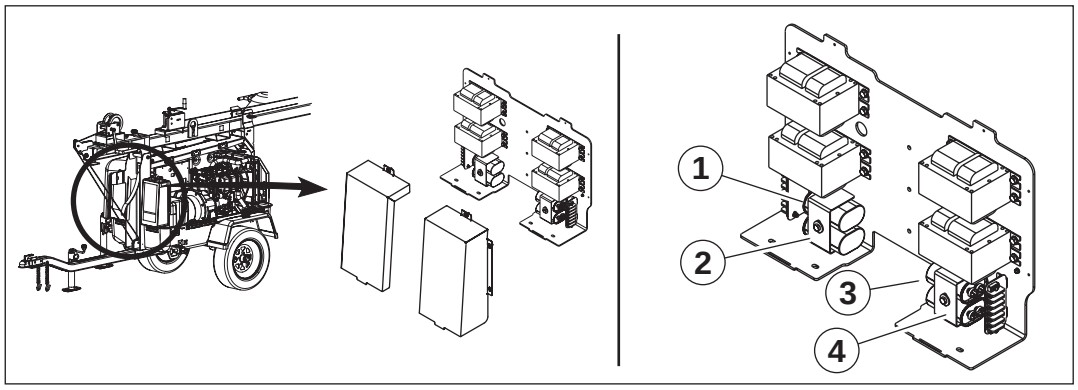
1. At the base of the tower, wrap the coil cord around the tower twice, creating loops of about 25 cm (10 in.) in diameter.
2. Loosen the connector **(CN)**. Pass the end of the coil cord through the connector so that approximately 1 m (3 ft) of wires extend inside the Light Tower cabinet, and re-tighten the connector **(CN)**.
3. Insert the red, black, brown, and orange wires from the coil cord into one of the supplied looms. Pass this loom through the ballast bracket on the right side of the machine **(R)**.
4. Insert the yellow, blue, white, purple, and green wires from the coil cord into the second loom. Pass this loom through the ballast bracket on the left side of the machine **(L)**.

15.11 Wiring the Ballasts and Terminal Strips

Procedure Follow the procedure below to wire the ballasts and terminal strips.

wc_gr011213

1. Remove the two ballast covers **(BC)** from the left and right sides of the Light Tower.
2. Connect the green wire from the coil cord to the hexagonal grounding screw **(G)**.
3. Locate the four capacitors as shown below.

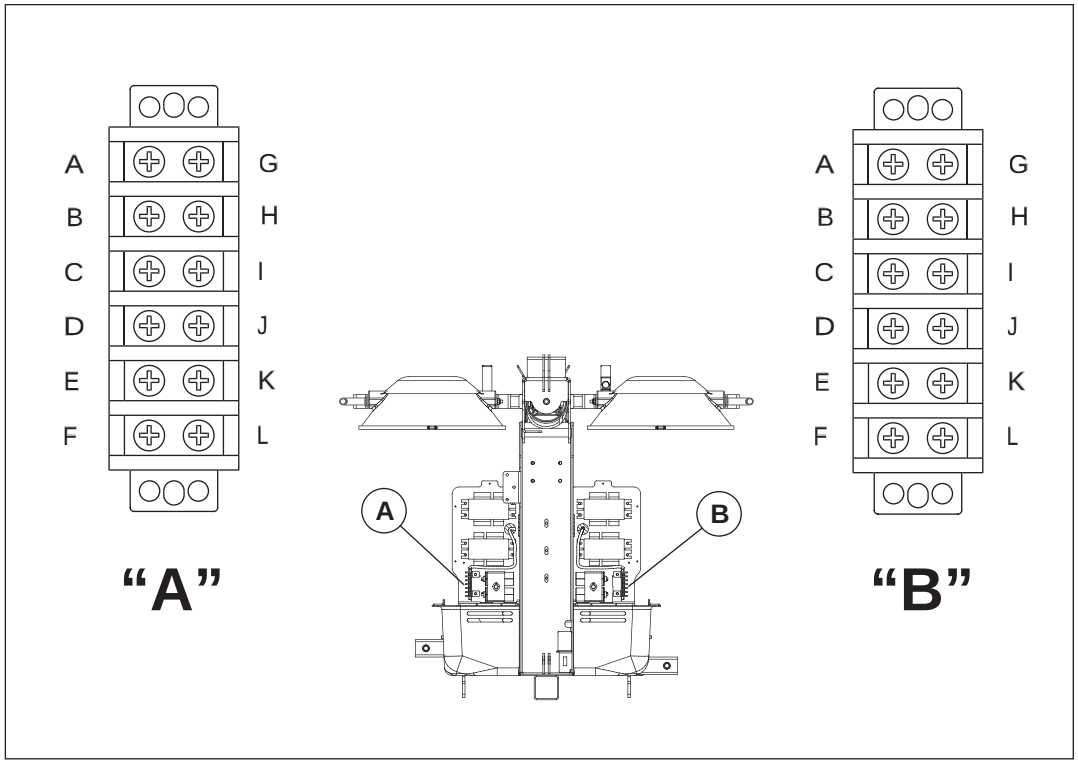


wc_gr011214

4. Connect four wires from the coil cord to the capacitors as follows:

Capacitor	Wire from coil cord
1	Red
2	Black
3	Yellow
4	Blue

5. Connect the remaining wires to terminal strips “A” and “B” according to the diagram and tables on the next page. Torque all screws to 2.25 Nm (20 in.lbs.).
6. When all wires are connected to terminal strips “A” and “B,” re-install the ballast covers. Torque the ballast cover mounting screws to 5.0 Nm (3.5 ft.lbs.).



wc_gr006538

Terminal strip "A" (right side of machine)

Position	Wire description
A–F	Not used
G	Black / yellow from ballasts #1 and #2
H	Black (#7) from control box
I	Yellows (2) from ballast #1
J	Yellows (2) from ballast #2
K	White (#9) from control box
L	Brown and orange from coil cord

Terminal strip "B" (left side of machine)

Position	Wire description
A	Black / yellow from ballasts #3 and #4
B	Black (#6) from control box
C	Yellows (2) from ballast #3
D	Yellows (2) from ballast #4
E	White (#8) from control box
F	White and purple from coil cord
G–L	Not used

15.12 Conclusion

This completes the assembly procedure for your Light Tower. Refer to your Operator's Manual for instructions on setting up, operating, maintaining, and storing the machine.

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