Operator’s Manual

Light Tower

LTN 6C

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Trademarks

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

Manufacturer

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Original instructions

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

Foreword

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

Machines covered in this manual

Machine	Item Number
LTN 6C	0620118, 0620728, 0620555, 0620551, 0620556, 0620298, 0620562

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.
- Refer to the separate Repair Manual for detailed instructions on servicing and repairing the machine.
- 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.

CALIFORNIA Proposition 65 Warning

Engine exhaust, some of its constituents, and certain vehicle components, contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Laws pertaining to spark arresters

NOTICE: State Health Safety Codes and Public Resources Codes specify that in certain locations spark arresters be used on internal combustion engines that use hydrocarbon fuels. A spark arrester is a device designed to prevent accidental discharge of sparks or flames from the engine exhaust. Spark arresters are qualified and rated by the United States Forest Service for this purpose. In order to comply with local laws regarding spark arresters, consult the engine distributor or the local Health and Safety Administrator.

Foreword

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.

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

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 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

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

1.3.1 Do not remove, defeat, deface, or render inoperable any of the safety devices, warnings, or labels on this equipment. If any safety devices, warnings, or labels have been removed, defeated, defaced, or rendered inoperable, do NOT use this equipment!

1.3.2 The area immediately surrounding the Light Tower should be clean, neat, and free of debris.

1.3.3 Be sure the machine is on a firm, level surface and will not tip, roll, slide, or fall while operating.

1.3.4 NEVER start a machine in need of repair.

1.3.5 Lower the tower when not in use, or if high winds or electrical storms are expected in the area.

1.3.6 Always make certain the machine is well-grounded and securely fastened to a good earthen ground per national and local regulations.

1.3.7 The tower extends up to 9 m (30 ft.). Make sure the area above the trailer is open and clear of overhead wires and obstructions.

1.3.8 The lamps become extremely hot in use! Allow the lamp and fixture to cool 10–15 minutes before handling.

1.3.9 Keep the area behind the trailer clear of people while raising and lowering the tower! Never raise, lower or turn the tower while unit is operating!

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

1.3.11 If for any reason any part of the tower hangs up or the winch cable develops slack while raising or lowering the tower, STOP immediately! Contact an authorized Wacker Neuson service representative.

1.3.12 NEVER remove the tower locking pin while the tower is up!

1.3.13 NEVER use the machine if the insulation on the electrical cord is cut or worn through.

1.3.14 NEVER operate the lights without the protective lens cover in place or with a lens cover that is cracked or damaged!

1.3.15 NEVER adjust the tower while the unit is operating.

Do not move the Light Tower while it is operating.

1.3.16 NEVER raise the tower or operate the machine in high winds.

1.3.17 NEVER connect machine to other power sources, such as supply mains of power companies.

1.3.18 ALWAYS replace or repair electrical components with components that are identical in rating and performance as the original component.

1.4 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.
- Do not smoke.
- Do not refuel a hot or running engine.
- Do not refuel the engine near sparks or open flames.

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.

1.5 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. Lamps can cause serious skin burns and eye inflammation from shortwave ultraviolet radiation if outer envelope of the lamp is broken or punctured.

- ▶ Do not operate the Light Tower if a lamp is damaged.

Operating safety

- Do not operate the lamps where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used.
- Replace damaged lamps according to the instructions in section *Removing / Replacing Lamps.*
- Lamps that automatically extinguish when the outer envelope is broken or punctured are commercially available.

1.6 Service Safety

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 with this equipment.

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).

1.6.1 ALWAYS replace the safety devices and guards after repairs and maintenance.

1.6.2 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. NEVER perform even routine service (oil/filter changes, cleaning, etc.) unless all electrical components are shut down.

1.6.3 Do not allow water to accumulate around the base of the machine. If water is present, move the machine and allow the machine to dry before servicing.

1.6.4 Do not service the machine if your clothing or skin is wet.

1.6.5 ALWAYS keep hands, feet, and loose clothing away from the moving parts on the generator and engine.

1.6.6 Keep the machine clean and labels legible. Replace all missing and hard-to-read labels. Labels provide important operating instructions and warn of dangers and hazards.

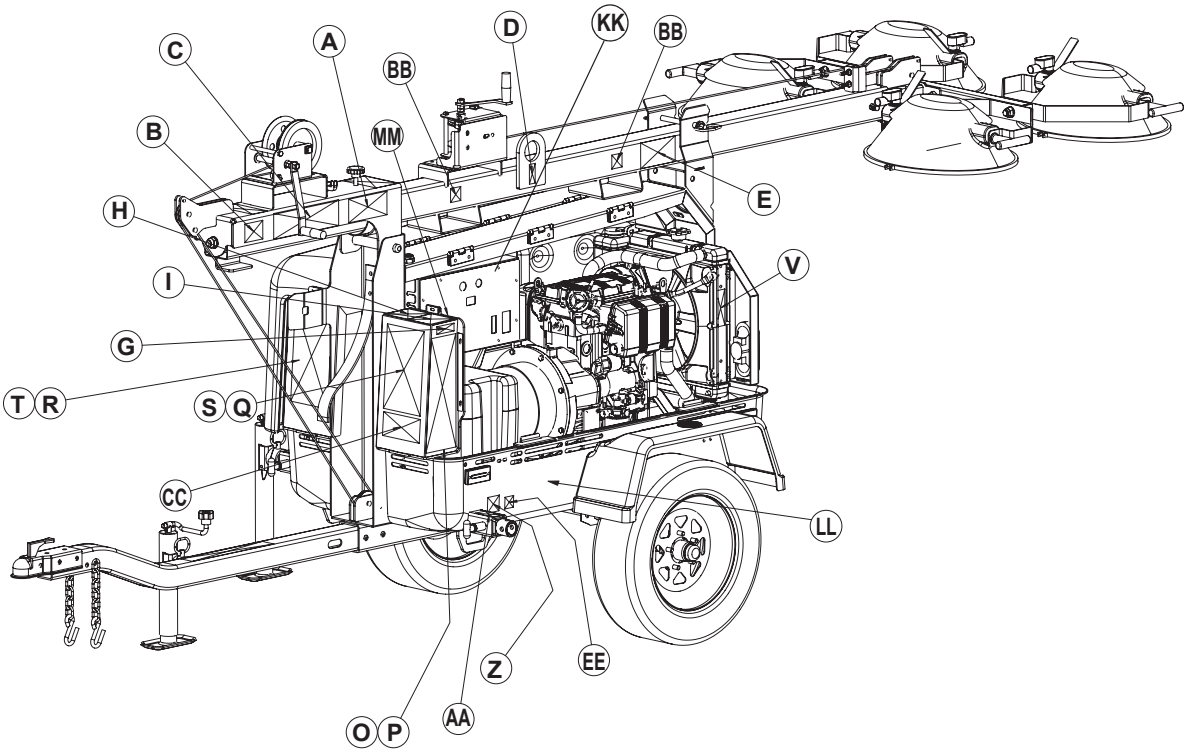
1.6.7 When replacement parts are required for this machine, use only Wacker Neuson replacement parts or those parts equivalent to the original in all types of specifications, such as physical dimensions, type, strength, and material.

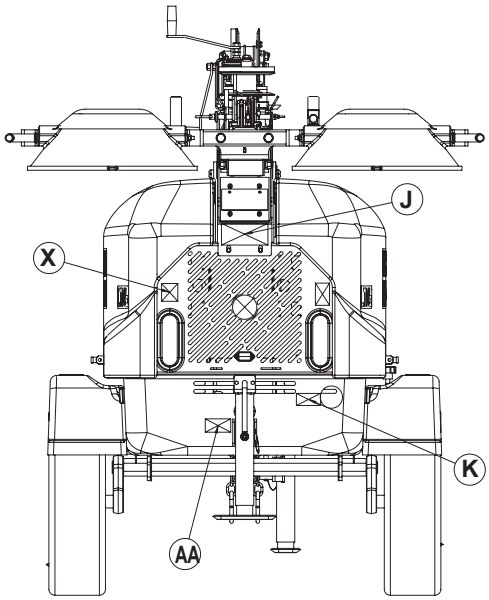
1.6.8 ALWAYS make sure slings, chains, hooks, ramps, jacks, and other types of lifting devices are attached securely and have enough weight-bearing capacity to lift or hold the machine safely. Always remain aware of the location of other people in the area when lifting the machine.

1.6.9 ALWAYS turn off the light circuit breakers and shut down the engine before disconnecting the light fixtures or changing the lamps.

2 Labels

2.1 Label Locations





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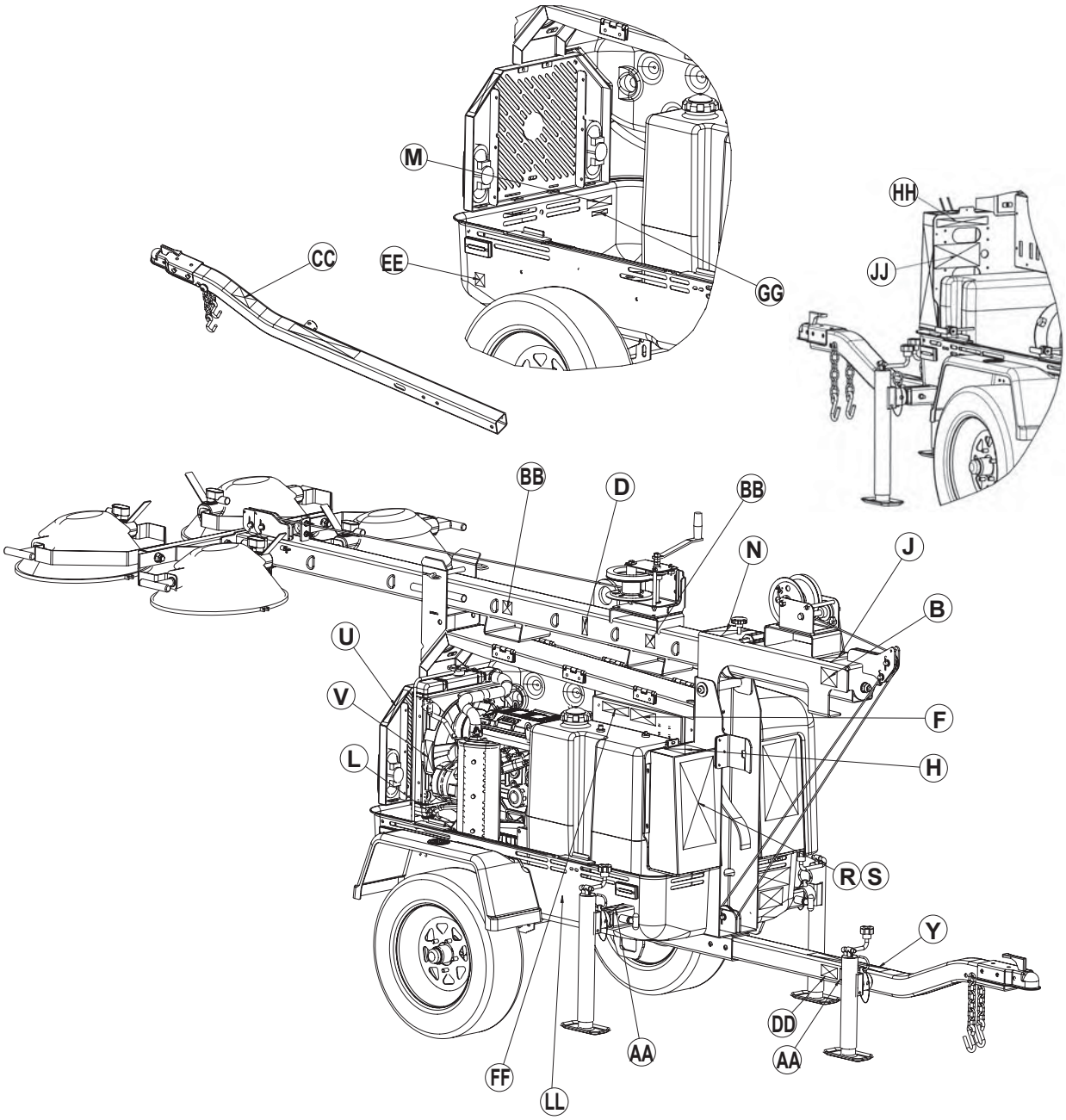
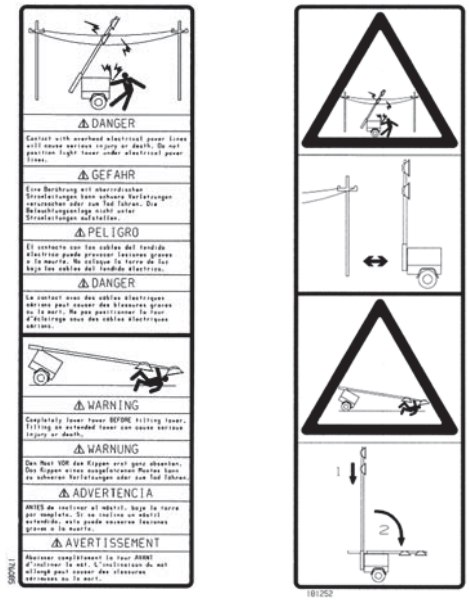
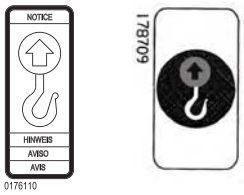
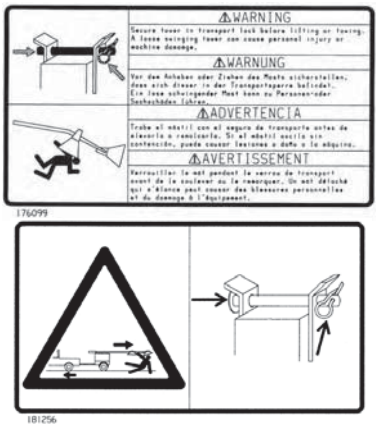


wc_gr007037

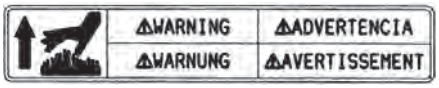
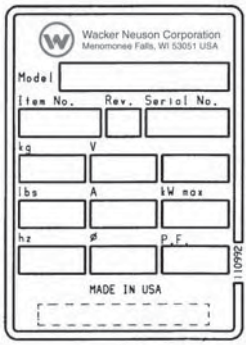
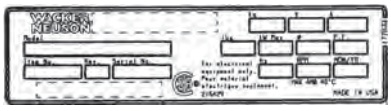
2.2 Label Meanings

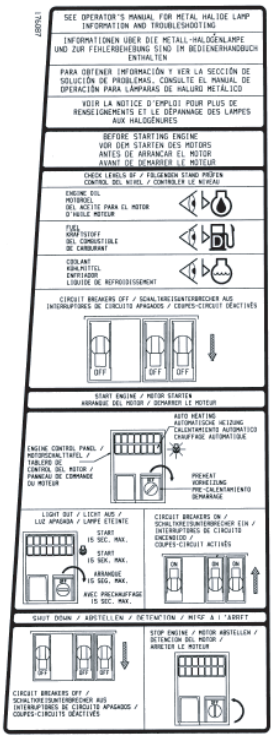
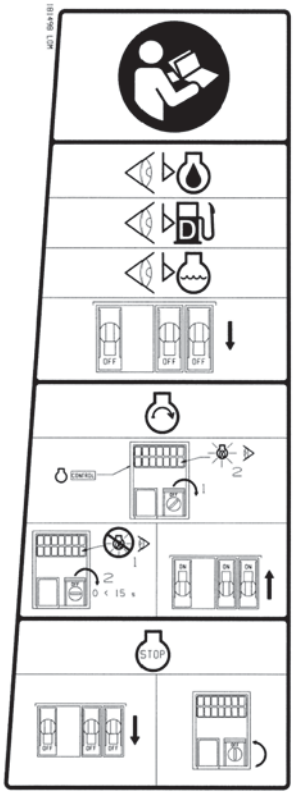
Wacker Neuson machines use international pictorial labels where needed. These labels are described below.

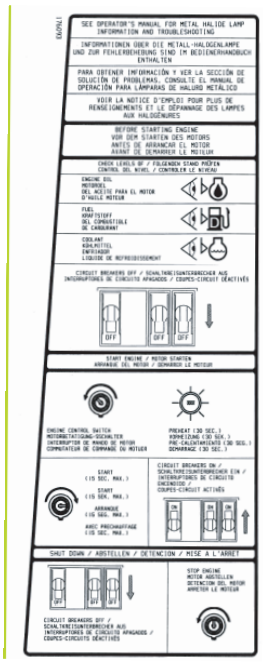
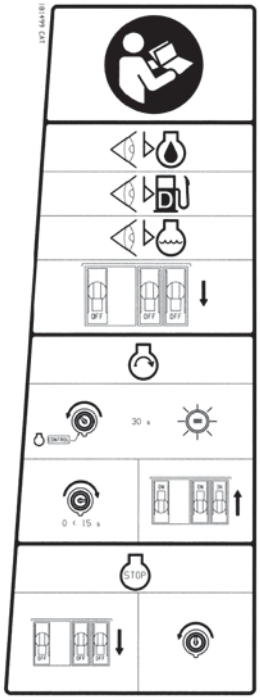
A		WARNING Automatic locking pin. A non-secured, falling tower can cause serious injury or death if a person is hit. To secure tower, verify automatic locking pin has been engaged.
B		WARNING! Avoid crushing area.
C		DANGER! Contact with overhead electrical power lines will cause serious injury or death. 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.

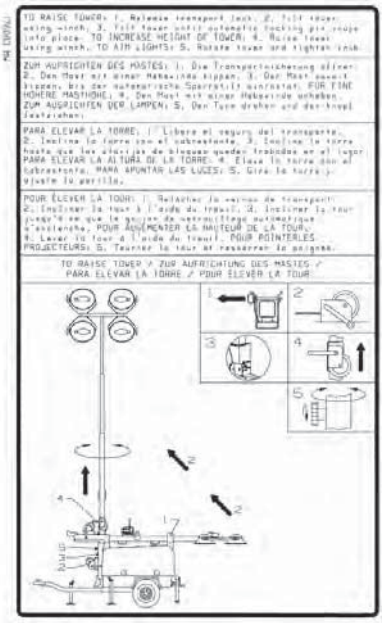
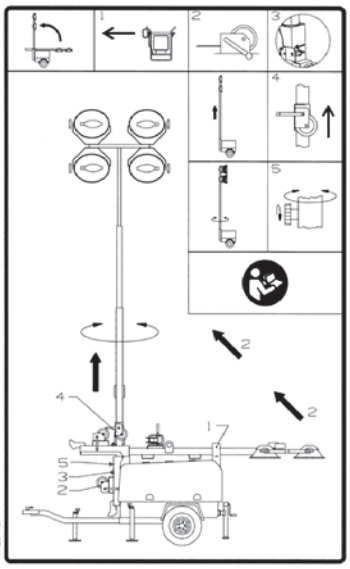
D		NOTICE Lifting point.
E		WARNING! Secure tower in transport lock before lifting or towing. A loose swinging tower could cause personal injury or machine damage.
F		DANGER! No sparks, flames, or burning objects near machine. Stop the engine before adding fuel. Use only diesel fuel.
G		DANGER! Asphyxiation 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		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		WARNING! 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		WARNING! Stand clear of front and rear of machine when tower is being tilted up or down.

K	 117037  178732	WARNING! Hot surface
L	  181505	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	 	¡ADVERTENCIA! Radiaciones ultravioletas provenientes de la lámpara pueden causar severas irritaciones a la piel y los ojos. Utilice solo con la cubierta de lentes y componentes suministrados y en buen estado.

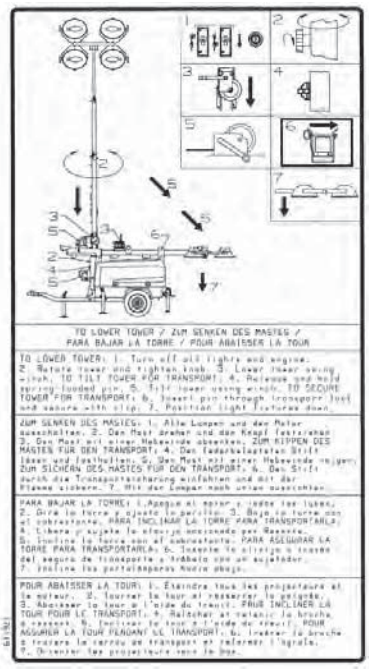
O	 	See Operator's Manual for metal halide lamp information and troubleshooting. Before starting engine Check levels of: Engine oil Fuel Coolant Circuit breakers off Start engine Engine control panel Auto heating Preheat Light out Start, 15 sec. max. Circuit breakers on Shut down Circuit breakers off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

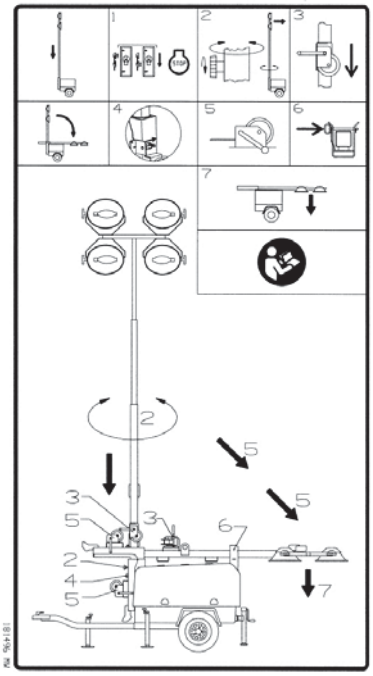
P	 	See Operator's Manual for metal halide lamp information and troubleshooting. Before starting engine Check levels of: Engine oil Fuel Coolant Circuit breakers off Start engine Engine control switch Preheat (30 sec.) Start, 15 sec. max. Circuit breakers on Shut down Circuit breakers off Stop engine

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

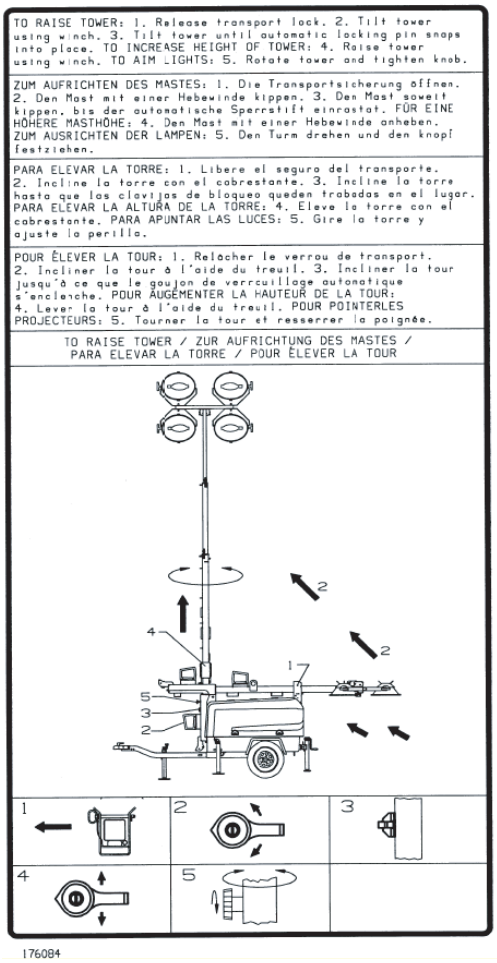
To lower tower:
1. Turn off all lights and engine.
2. Rotate tower and tighten knob.
3. Lower tower using winch.

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.

S

Power Winch System

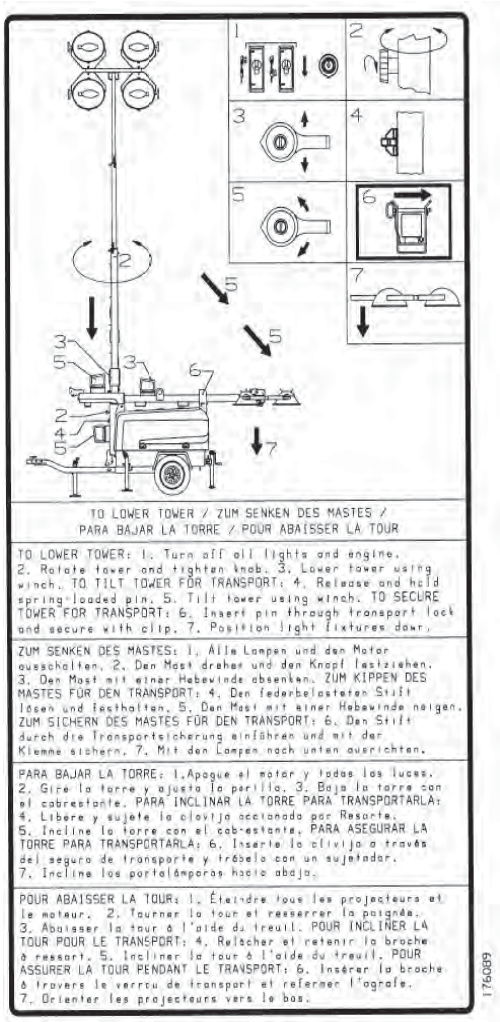
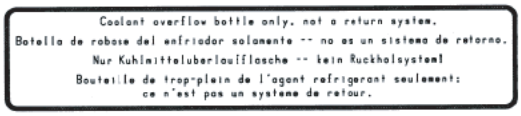


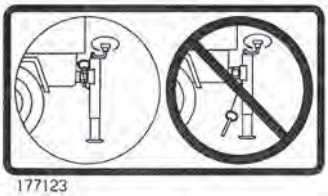
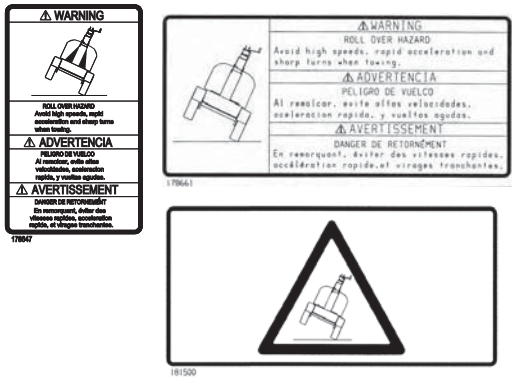
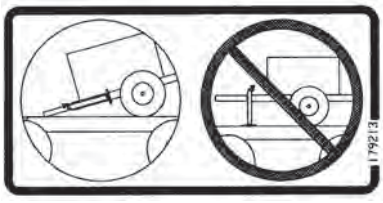
Power Winch System

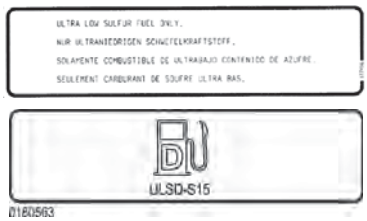
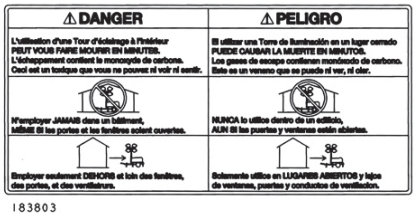
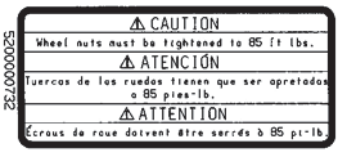
To raise tower:
1. Release transport lock.
2. Tilt tower using winch.
3. Tilt tower until automatic locking pin snaps into place.

To increase height of tower:
4. Raise tower using winch.

To aim lights:
5. Rotate tower and tighten knob.

T	**Power Winch System**  	**Power 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	 176105	Coolant overflow bottle only, not a return system.
X	 	Guaranteed sound power level in dB(A).

Y		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

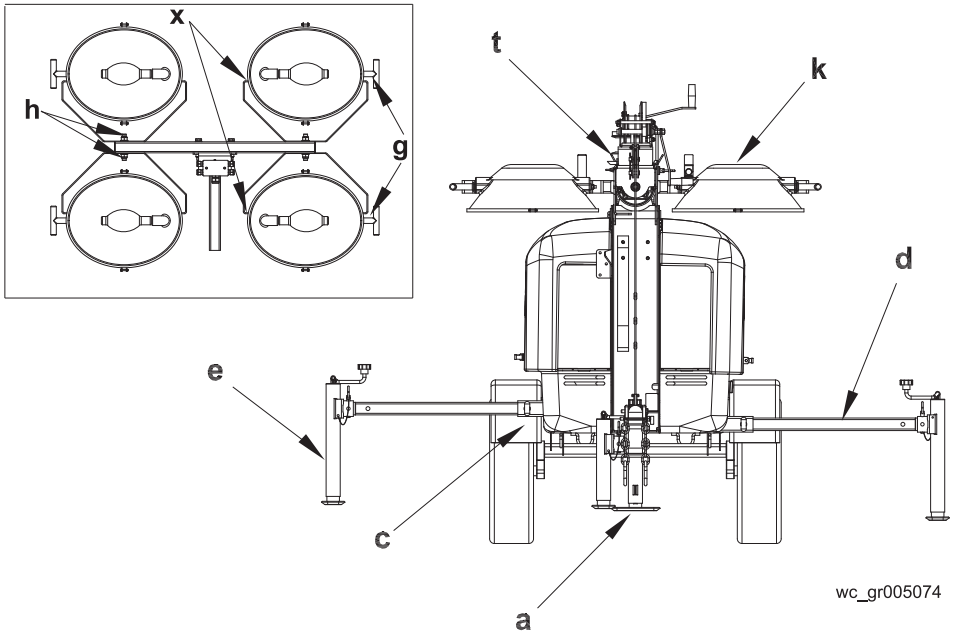
EE		Tie-down point
FF		Ultra low sulfur fuel only.
GG		This machine may be covered by one or more patents.
HH **JJ**	 	DANGER! Asphyxiation hazard. ■ Engines emit carbon monoxide. ■ Do not run the machine indoors or in an enclosed area. ■ Read the Operator's Manual.
KK		Glow plug preheat Hold key for 6 seconds
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.

3 Lifting and Transporting

Lifting the machine

Follow the procedure below to lift the machine.



3.0.1 Check that the tower cradle lock pin **(j)** is in place and secured with the safety pin.

3.0.2 Ensure that the tower is completely nested inside the transport cradle and the pin **(t)** is secure.

3.0.3 Make sure the doors are properly latched.

3.0.4 Return the outriggers to their travel position. Check that the outrigger bars and jacks are locked in place.

3.0.5 Crank the rear jack **(f)** all the way in and rotate it 90°.

3.0.6 The Light Tower is now ready to lift.

Towing the machine

3.0.7 Use the tongue jack **(a)** to raise the trailer tongue up and then lower it over hitch on towing vehicle. Lock the hitch to coupling and attach the safety chains. Swivel the tongue jack 90° and lock it in place.

3.0.8 Connect the trailer wiring to the towing vehicle. Check the brake, turn, and tail lights for proper operation.

3.0.9 Position the light fixtures **(k)** down. For rough, off-road transportation remove lamps from fixtures to avoid damage.

3.0.10 Check the tire inflation.

NOTICE: Maximum recommended speed for highway towing is 72 km/hour (45 MPH). Recommended off-road towing speed is not to exceed 16 km/hour (10 MPH) or less depending on terrain.

4 Operation

4.1 Preparing the Machine for First Use

Preparing for first use

To prepare your machine for first use:

4.1.1 Make sure all loose packaging materials have been removed from the machine.

4.1.2 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.

4.1.3 Take inventory of all items included with the machine and verify that all loose components and fasteners are accounted for.

4.1.4 Attach component parts not already attached.

4.1.5 Add fluids as needed and applicable, including fuel, engine oil, and battery acid.

4.1.6 Move the machine to its operating location.

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.

4.2 Locating the Trailer

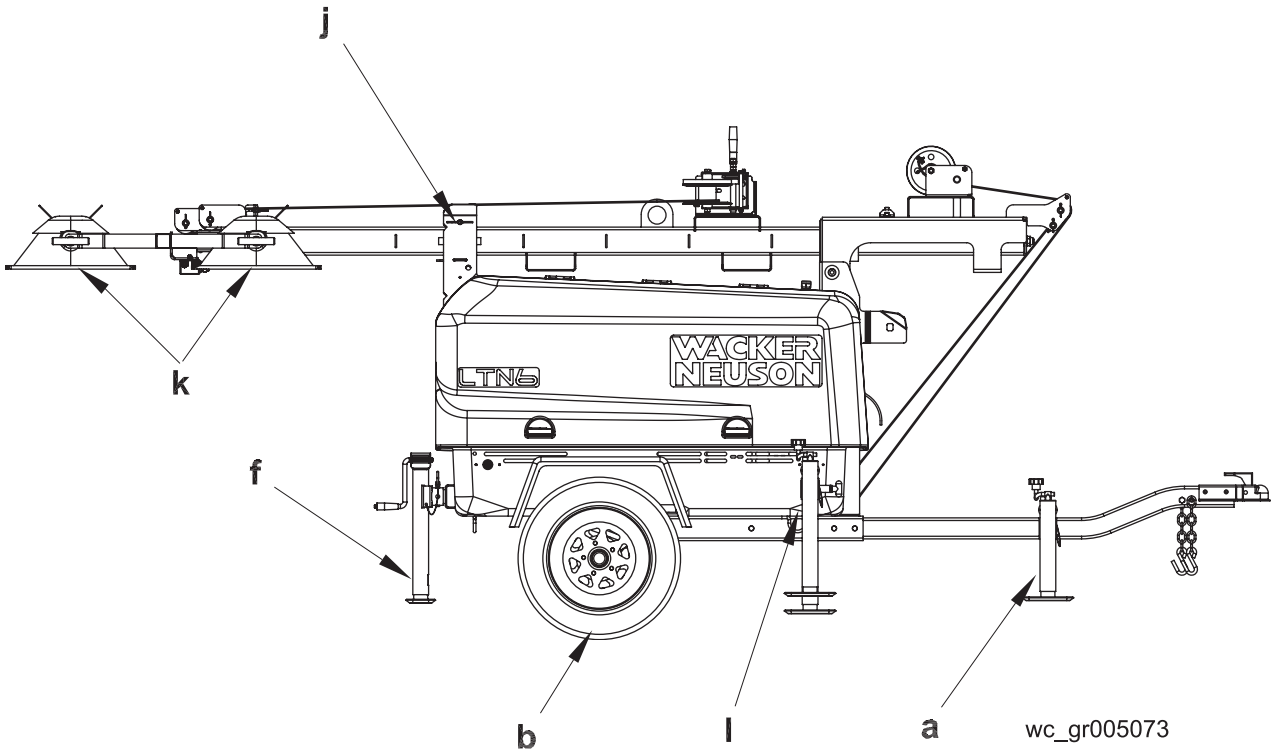
4.2.1 For maximum light coverage locate the Light Tower at ground level or in a spot higher than the area being lighted.

4.2.2 Position the trailer on a firm, flat surface clear of overhead wires and obstructions. Be sure that there is enough area for outrigger extensions to be fully extended.

4.2.3 Connect the ground stud **(l)** located on the trailer frame to a good earthen ground. Consult local codes for proper grounding techniques.

WARNING

The tower extends up to 9 m (30 ft.). Make sure the area above the trailer is open and clear of overhead wires and obstructions.



4.3 Leveling Trailer

See Graphic: wc_gr005073

WARNING

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

4.3.1 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.

Block or chock the trailer wheels **(b)**. Crank the tongue jack down to raise the trailer tongue off the vehicle.

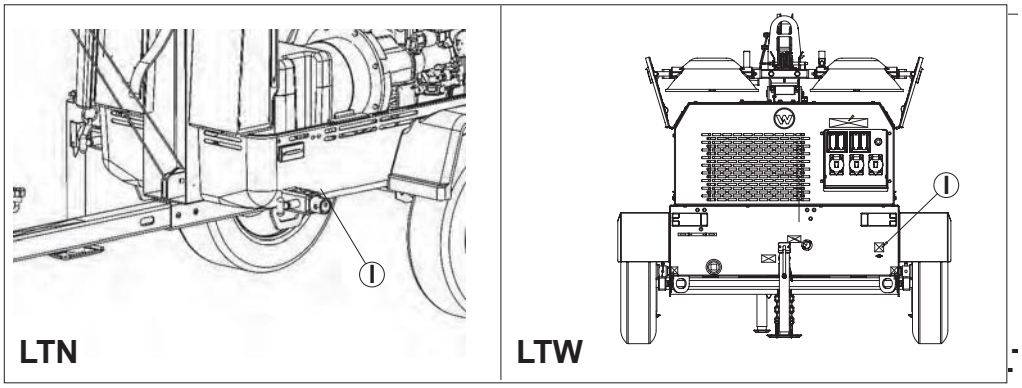
4.3.2 Pull the outrigger lock pin **(c)** to release the outrigger. Pull both outrigger extensions **(d)** out until you feel outrigger lock pin lock back into place. Rotate jacks **(e)** down until they snap into position.

4.3.3 Rotate rear jack **(f)** down, as shown, making sure it snaps into place.

4.3.4 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 Ground Connection

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



wc_gr005225

Function

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.

4.5 Refueling the Machine

Requirements

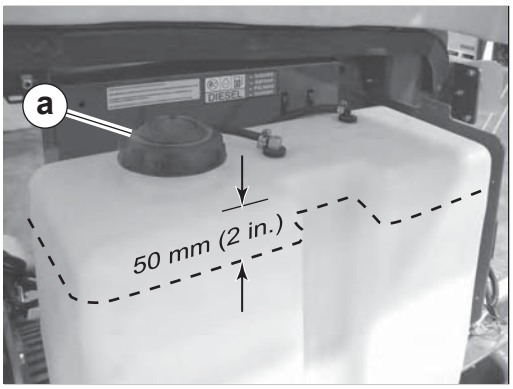
- Machine shut down
- Engine cool
- Machine/fuel tank level with the ground
- Fresh, clean fuel supply

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.

4.5.1 Remove the fuel cap **(a)**.



wc_gr008825

4.5.2 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.

4.5.3 Reinstall the fuel cap.

Result

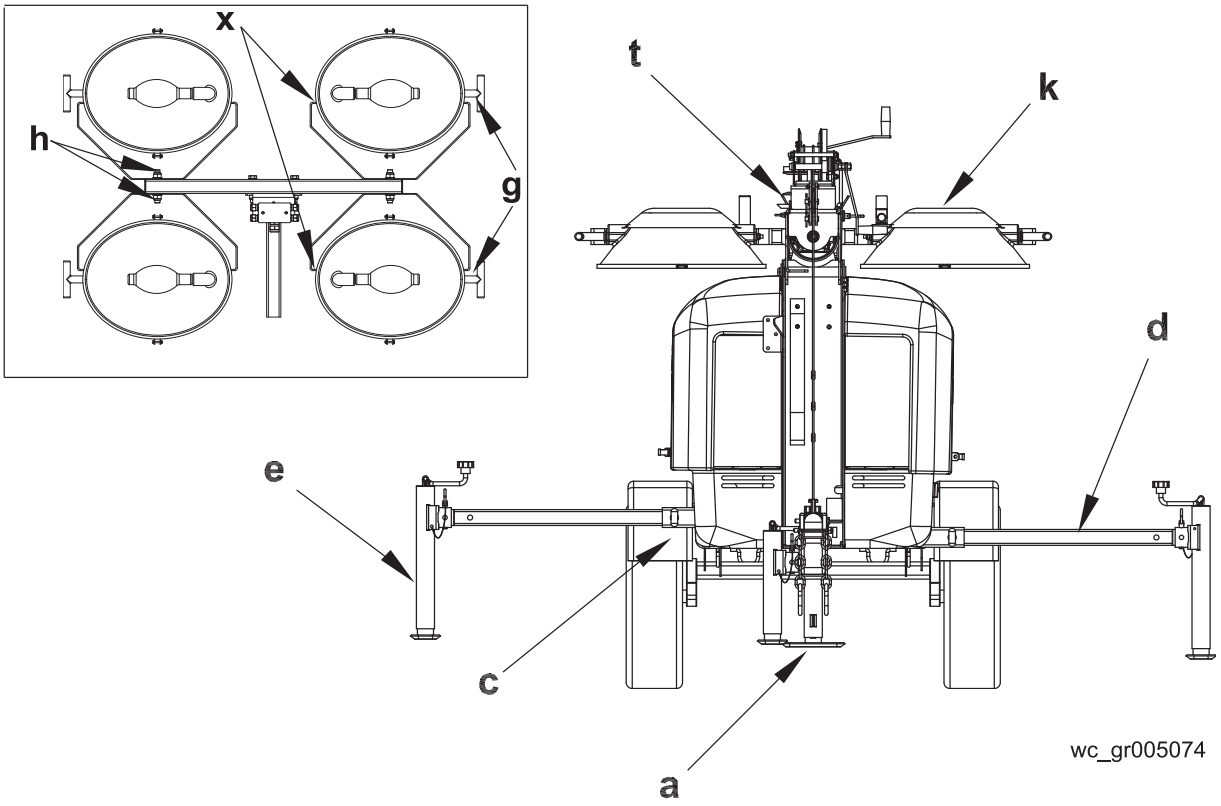
The procedure to refuel the machine is now complete.

4.6 Adjusting Lights

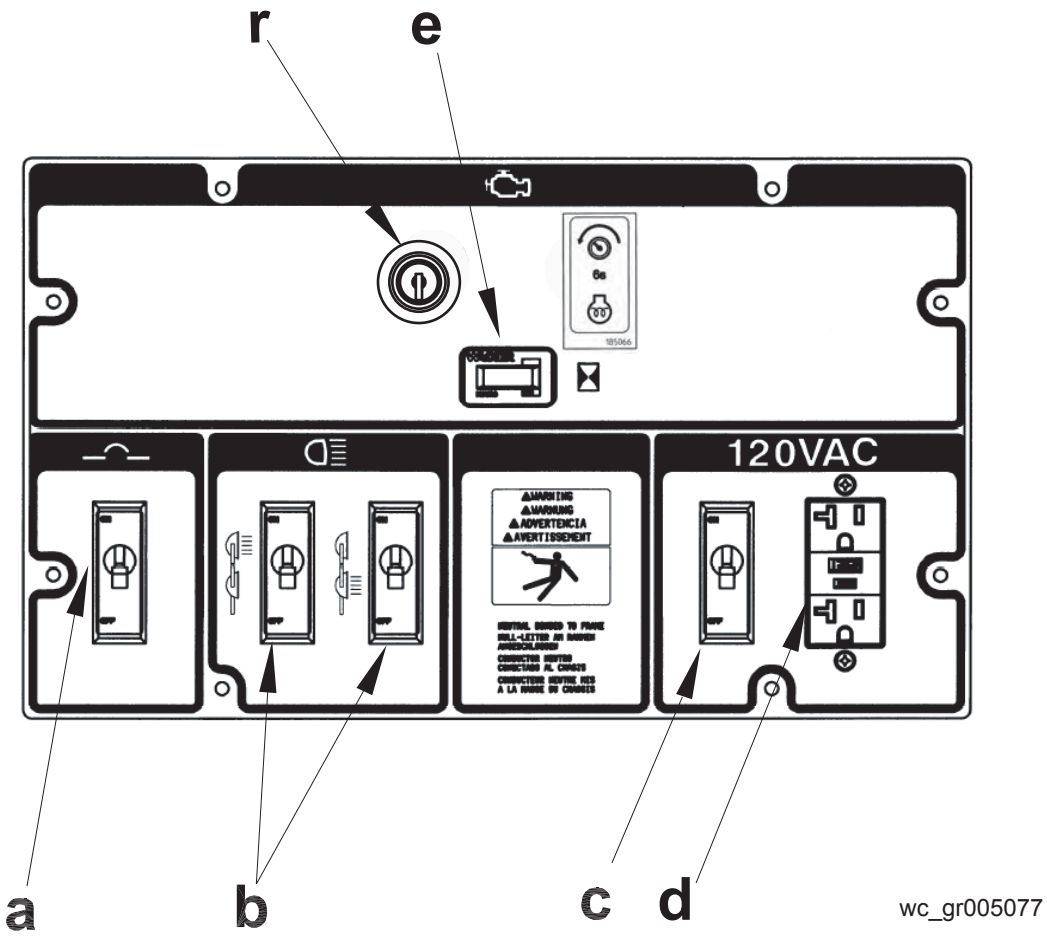
See Graphic: wc_gr005074

Each light fixture can be aimed up, down, left or right. Position each fixture by loosening toolless light adjusters **(g)** and aiming the light up or down. DO NOT loosen the inside nut **(x)**. Loosening this nut could cause damage to the light fixture. Loosen the nut **(h)** to turn light fixtures left or right. Tighten adjusters and nuts after positioning the lights.

Always return the light fixtures to aim at the ground when the tower is in the cradle for towing.

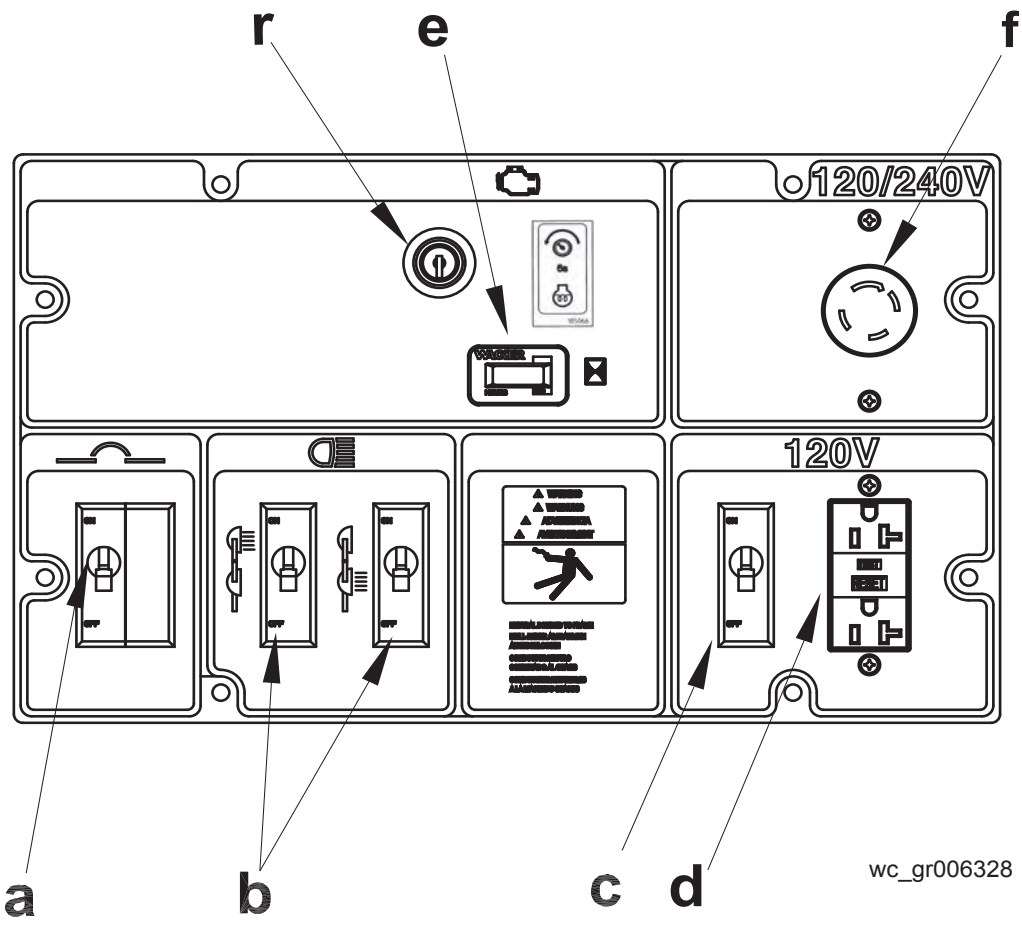


4.7 Control Panel - 60 Hz (Manual Winch System)



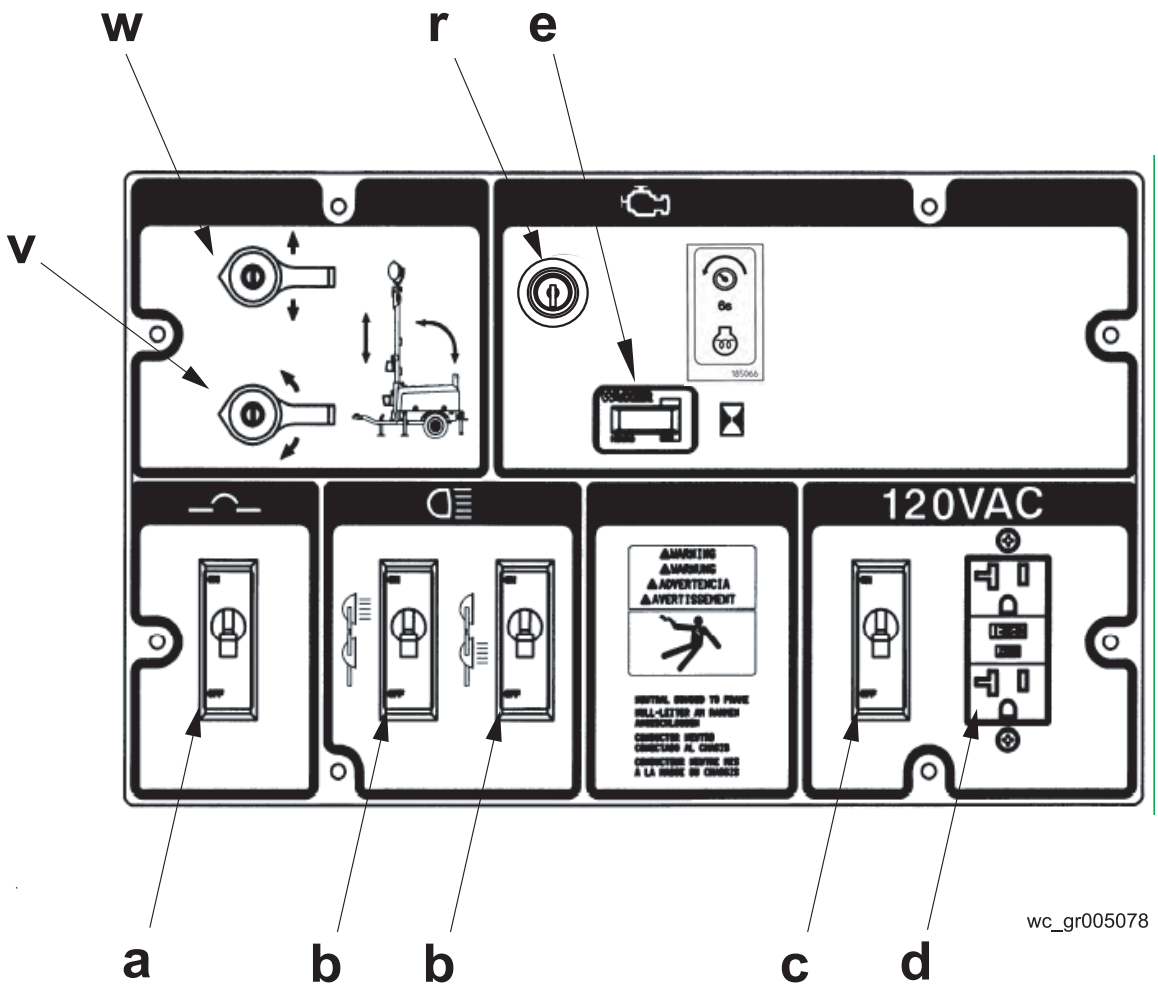
Ref.	Description	Ref.	Description
a	50 Amp circuit breaker	d	20 Amp GFI outlet
b	30 Amp lights circuit breaker	e	Hour meter
c	20 Amp GFI circuit breaker	r	Key switch

4.8 Control Panel - 60 Hz (120/240V, Manual Winch System)



Ref.	Description	Ref.	Description
a	25 Amp main circuit breaker	e	Hour meter
b	30 Amp lights circuit breaker	f	30 Amp receptacle
c	20 Amp GFI circuit breaker	r	Key switch
d	20 Amp GFI outlet	—	—

4.9 Control Panel - 60 Hz (Power Winch System)



Ref.	Description	Ref.	Description
a	50 Amp circuit breaker	e	Hour meter
b	30 Amp lights circuit breaker	r	Key switch
c	20 Amp GFI circuit breaker	v	Vertical rotary switch
d	20 Amp GFI outlet	w	Telescope rotary switch

4.10 Starting

See Graphic: wc_gr005077, wc_gr006328, wc_gr005078

4.10.1 Check the engine oil, fuel and coolant levels.

Note: *If the fuel tank was drained or run dry it may be necessary to prime the engine or bleed the fuel lines. Refer to the engine owner's manual.*

4.10.2 Check the condition of the electrical cable on the tower. Do not start the generator if the insulation on cable is cut or worn through.

4.10.3 Check that the circuit breakers **(a, b, c)** are in their off position.

***NOTICE*:** Starting the engine under load will damage the machine.

4.10.4 Turn the key **(r)** to the left and hold for approximately 6 seconds. This heats the glow plugs.

4.10.5 Turn the key **(r)** to the start position and hold until the engine starts. Release the key after the engine starts.

***NOTICE*:** Do not crank engine longer than 10 seconds. This could cause starter motor to overheat. Return switch to the off position and wait 15-30 seconds for starter motor to cool down before attempting to preheat and restart.

Note: *If oil pressure is not obtained within 30 seconds after key is turned to RUN, the automatic shutdown system will shut off the fuel supply. You must return the key to the off position to restart the 30 second timer before attempting to restart the engine.*

4.10.6 Allow engine to warm up before operating floodlights.

***NOTICE*:** Never use starting fluids to aid in starting of engine.

4.11 Stopping

4.11.1 Turn the circuit breakers **(a, b, c)** off and remove any other loads from the generator.

***NOTICE*:** Never shut down the engine without turning off the lights. Damage to the generator will occur.

4.11.2 Turn the key **(r)** to the off position.

4.12 Operating Lights

Turn on the main circuit breaker **(a)** first, then turn on each light circuit breaker **(b)**, one at a time.

Metal halide floodlights require a warm-up time of 5–15 minutes before they reach full output. If the floodlights are shut down, a 10-minute cool-down period is required before turning them back on.

4.13 Raising Tower (Manual Winch System)

See Graphic: wc_gr005075

WARNING

NEVER raise the tower or operate the Light Tower in high winds.

NEVER raise the tower while the engine is running.

Do not move the Light Tower while it is operating.

WARNING

HIGH VOLTAGE! DO NOT use the Light Tower if insulation on electrical cord is cut or worn through. Repair or replace the cord before using. Bare wires in contact with the metal frame of the trailer or tower can cause electrocution.

DO NOT position the Light Tower under electrical power lines.

WARNING

NEVER allow anyone to stand near the rear of the unit while raising the tower.

The Light Tower includes two separate winches—one for lifting the tower to the vertical position, the other 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.

WARNING

NEVER touch the winch pawl! Releasing the pawl may cause the tower to fall.

4.13.1 Check winch cables **(n)** for wear or damage, and make sure they are resting properly in pulleys. Do not use the Light Tower if either winch cable is damaged.

4.13.2 Remove the cradle locking pin **(j)** from the cradle.

4.13.3 Check the operation of the tilt winch **(o)** by rotating the winch handle 1/4-turn clockwise (“cable in” direction). The winch pawl must engage winch gear teeth. When operating properly, the winch pawl will make a “clicking” sound when the winch handle is rotated clockwise. Do not attempt to raise the tower if the winch is damaged or not operating properly.

WARNING

Pinching/crushing hazards. Moving parts can crush or cut extremities. Keep hands and fingers clear of pinch points when raising the tower

4.13.4 Continue to rotate the winch handle and raise 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.

NOTICE: While raising the tower, pay close attention to the coil cord and make sure that it does not tangle or become caught on any part of the machine.

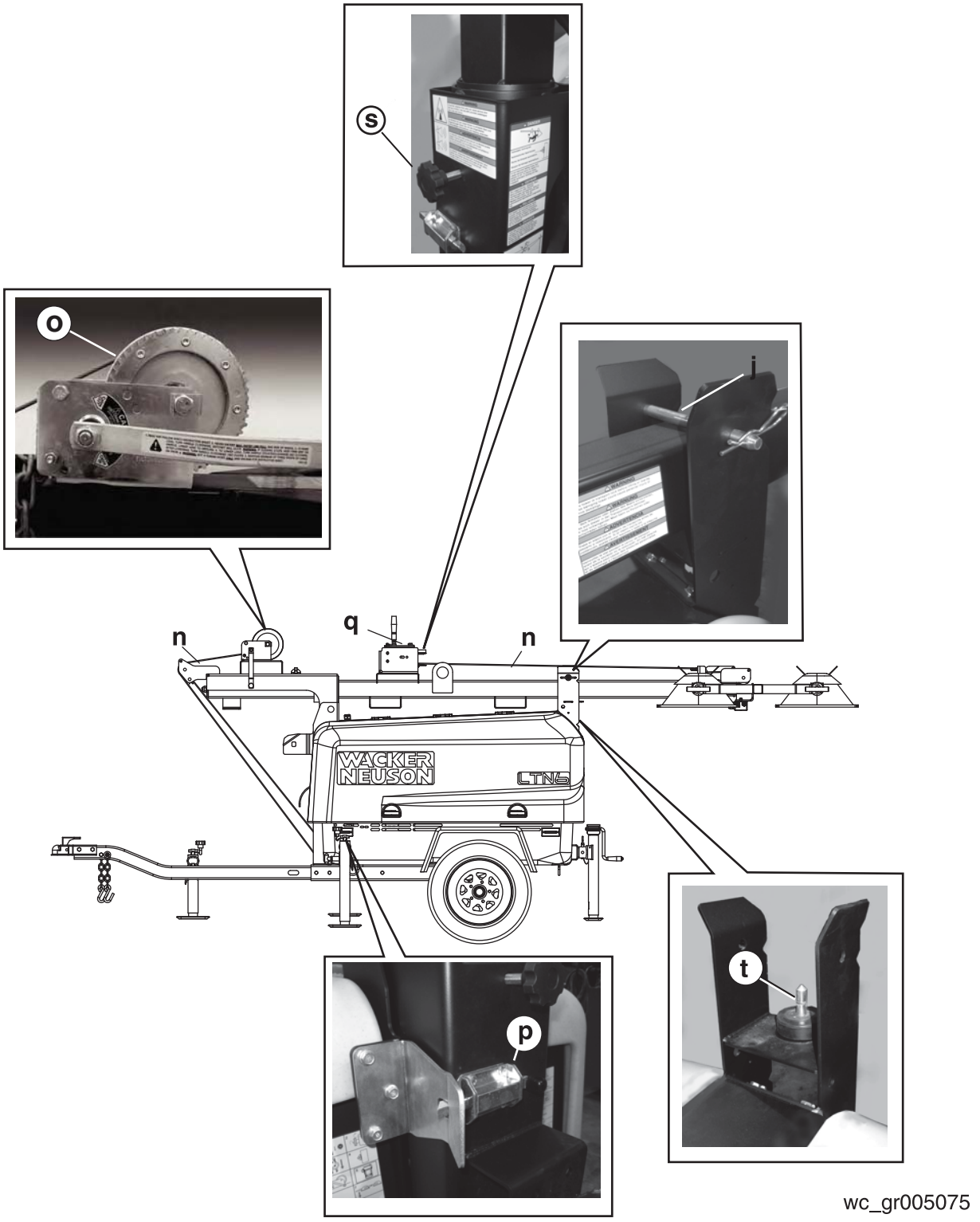
WARNING

NEVER pull the vertical tower locking pin (p) while the tower is raised! Releasing the vertical tower locking pin while the tower is raised may cause the tower to fall or the machine to tip over.

4.13.5 After the tower is in the vertical position, check the operation of the telescoping winch **(q)** by rotating the winch handle 1/4-turn clockwise ("cable in" direction). The winch pawl must engage winch gear teeth. When operating properly, it will make a "clicking" sound when the winch handle is rotated clockwise. Do not attempt to raise the tower if the winch is damaged or not operating properly. Continue rotating the winch handle until tower is at the desired height. Do not over crank the winch when the tower is fully extended.

NOTICE**:** Do not extend the tower beyond the red marking on the tower!

4.13.6 Once the tower is at the desired height, rotate the tower to the desired direction. To rotate, loosen rotation locking knob **(s)**. Then rotate the tower until the lights face the desired direction, and then retighten the rotation locking knob.



wc_gr005075

4.14 Lowering Tower (Manual Winch System)

See Graphic: wc_gr005075

Be sure to read and understand the operating instructions before lowering the tower!

WARNING

If for any reason a part of the tower hangs up or a winch cable develops slack before tower is fully lowered, **stop immediately!** Continuing to turn the winch handle will increase the slack in the cable. Too much slack could cause the tower to collapse should it suddenly free up. If the tower hangs up, level the trailer. Slightly shake or twist the tower assembly to free the bind. Contact an authorized Wacker Neuson service representative immediately.

WARNING

NEVER lower the tower while the unit is operating.

WARNING

NEVER allow anyone to stand near the rear of the unit while lowering the tower.

4.14.1 Turn the lights off. Shut down the engine.

***NOTICE*:** Shutting down the engine before turning off the lights could damage floodlight ballasts or generator capacitor(s).

***NOTICE*:** Observe power cord while lowering the tower. Make sure the coiled cord is not damaged during the lowering process.

4.14.2 Lower the tower by turning the handle on the telescoping winch **(q)** counterclockwise (“cable out” direction).

WARNING

NEVER touch the winch pawl! Releasing the winch pawl may cause the tower to fall.

4.14.3 Loosen the rotation locking knob **(s)** and rotate the tower so the winches are facing toward the trailer tongue.

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

WARNING

NEVER pull the vertical tower locking pin (e) while the tower is raised! Releasing the locking pin while the tower is raised may cause the tower to fall or the machine to tip over.

4.14.5 After the tower is down, secure it in the cradle by inserting the cradle lock pin **(j)**. Insert the clip through the pin to secure it in place.

4.14.6 Position the light fixtures to aim at the ground.

***NOTICE*:** Allow the floodlights to cool 10–15 minutes before moving trailer. Moving the trailer while the lights are still hot could cause the lamps to break.

4.15 Raising Tower (Power Winch System)

See Graphic: wc_gr005076

WARNING

ALWAYS observe the tower while raising and lowering the tower.

NEVER raise the tower or operate the Light Tower in high winds.

NEVER raise the tower while the engine is running.

Do not move the Light Tower while it is operating.

WARNING

HIGH VOLTAGE! DO NOT use Light Tower if insulation on electrical cord is cut or worn through. Repair or replace cord before using. Bare wires in contact with the metal frame of the trailer or the Light Tower can cause electrocution.

DO NOT position the Light Tower under electrical power lines.

WARNING

NEVER allow anyone to stand near the rear of the unit while raising the tower.

The Light Tower includes two separate winches—one for lifting the tower to the vertical position, the other for raising the tower.

4.15.1 Check the winch cables **(n)** for wear or damage, and make sure they are resting properly in the pulleys. Do not use the Light Tower if either winch cable is damaged.

4.15.2 Remove the cradle locking pin **(j)** from the cradle.

4.15.3 Check the operation of the tilt winch **(o).** Turn the vertical rotary switch **(v)** on the control panel to the up position. Do not attempt to raise the tower if the winch is damaged or not operating properly.

***NOTICE*:** Continuous running of the winch in excess of 4 minutes will damage the winch motor.

Note: *It is normal for smoke to be produced during the first few operations of a new power winch.*

4.15.4 Hold the switch in the up position and raise 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.

WARNING

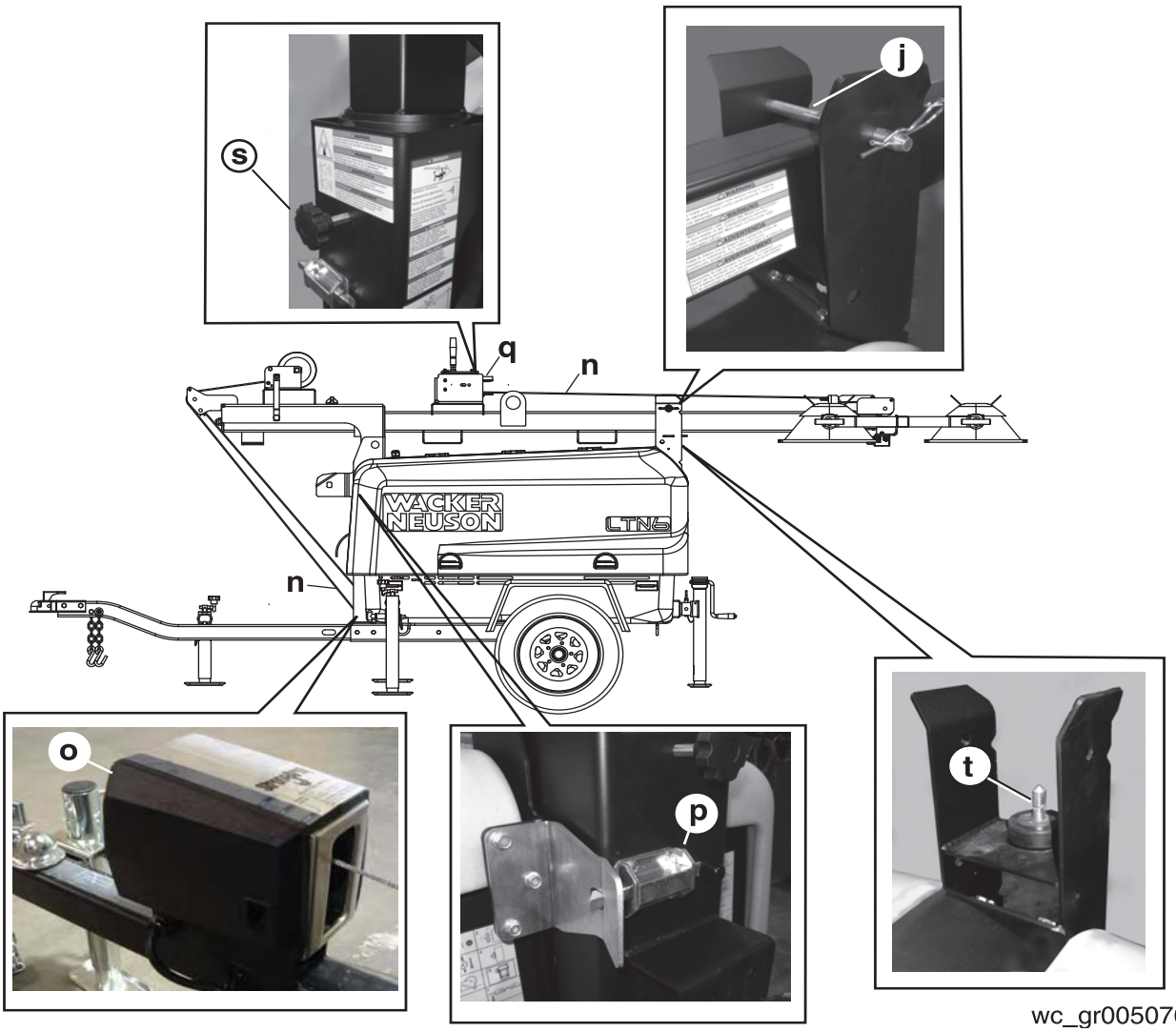
NEVER pull the vertical tower locking pin (p) while the tower is raised! Releasing the vertical tower locking pin while tower is raised may cause the tower to fall or the machine to tip over.

4.15.5 After the tower is in the vertical position, check the operation of the telescoping winch **(q).** Turn the telescope rotary switch on the control panel to the up position. Do not attempt to raise the tower if the winch is damaged or not operating properly. Continue to hold switch in the up position until tower is at the desired height. Release switch when tower is fully extended.

***NOTICE*:** Continuous running of the winch in excess of 4 minutes will damage the winch motor.

***NOTICE*:** Do not extend tower beyond red marking on tower!

4.15.6 Once the tower is at the desired height, rotate the tower to the desired direction. To rotate, loosen rotation locking knob **(s)**. Then rotate the tower until the lights face the desired direction and retighten the rotation locking knob.



wc_gr005076

4.16 Lowering Tower (Power Winch System)

See Graphic: wc_gr005076

WARNING

ALWAYS observe the tower while raising and lowering the tower.

Be sure you read and understand the operating instructions before lowering the tower!

WARNING

If for any reason any part of the tower hangs up or the winch cable develops slack before the tower is fully lowered, **stop immediately!** Continuing to power the winch will increase slack in the cable. Too much slack could cause tower to collapse should it suddenly free up. If the tower hangs up, level the trailer. Slightly shake or twist the tower assembly to free the bind. Contact an authorized Wacker Neuson service representative immediately.

WARNING

NEVER lower the tower while the unit is operating.

WARNING

NEVER allow anyone to stand near the rear of the unit while lowering the tower.

4.16.1 Turn the lights off. Shut down the engine.

***NOTICE*:** Shutting down the engine before turning off the lights could damage the floodlight ballasts or the generator capacitor(s).

***NOTICE*:** Observe the power cord while lowering the tower. Make sure the coiled cord is not damaged during the lowering process.

4.16.2 Lower the tower by turning and holding the telescope rotary switch on the control panel in the down position.

***NOTICE*:** Continuous running of the winch in excess of 4 minutes will damage the winch motor.

Note: *It is normal for smoke to be produced during the first few operations of a new power winch.*

4.16.3 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.

4.16.4 Pull and hold the tower locking pin **(p)**. Turn and hold the vertical rotary switch **(v)** on the control panel in the down position until the tower is resting in the transport cradle. Be sure that the secondary locking pin **(t)** penetrates all sections of the tower.

***NOTICE*:** Continuous running of the winch in excess of 4 minutes will damage the winch motor.

NEVER pull the vertical tower locking pin (e) while the tower is raised! Releasing the vertical tower locking pin while the tower is raised may cause the tower to fall or the machine to tip over.

4.16.5 After the tower is down, secure it in the cradle by inserting the cradle lock pin **(j)**. Insert the clip through the pin to secure it in place.

4.16.6 Position the light fixtures to aim at the ground.

***NOTICE*:** Allow the floodlights to cool 10–15 minutes before moving the trailer. Moving the trailer while the lights are still hot could cause lamps to break.

4.17 Emergency Crank Handle (Power Winch System)

An emergency crank handle is provided for use in the event of a power failure.

4.17.1 Remove the electrical power from the winch.

4.17.2 Remove the plug from the side of the winch cover. Insert the handle so that it completely engages with the drive shaft. The handle can be cranked in either direction.

4.17.3 Always remove the handle from the winch after use and replace the plug.

NEVER operate the winch electrically with the emergency crank handle in position.

4.18 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.

4.19 Emergency Shutdown Procedure

Procedure

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

4.19.1 Press the emergency stop button (if equipped).

4.19.2 Stop the engine.

4.19.3 Disconnect tools.

4.19.4 Lower the tower.

4.19.5 Allow the machine to cool before opening the cabinet.

4.19.6 Contact the rental yard or machine owner for further instructions.

4.20 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).

4.21 Receptacles - 60 Hz

See Graphic: wc_gr005077, wc_gr006328, wc_gr005078

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 1660 Watts from the receptacle with all of the lights on or the lights will turn off.

A 20A circuit breaker **(c)** protects the 120V GFI receptacle **(d)**. The 120V GFI receptacle should be tested for proper operation each time it is used.

To test a GFI:

Push the test button in. The reset button should pop out. Power to the receptacle is now off. To restore power to receptacle, push reset button in.

***NOTICE*:** If the reset button does not pop out, the GFI is defective. **Do not** use the receptacle until the problem can be corrected.

If the reset button pops out during use, check the generator and attachments for defects.

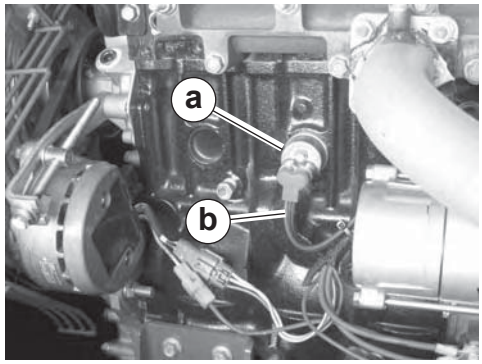
5 Factory Installed Options

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 Option

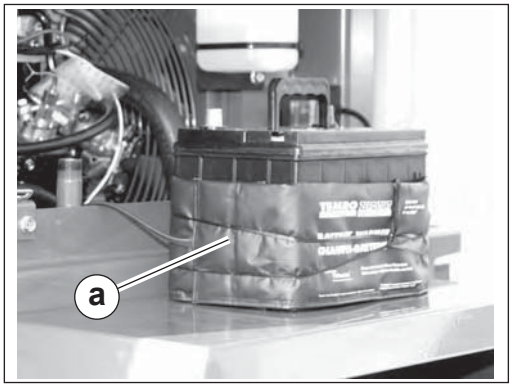
The engine block heater option includes a block heater **(a)** with a cord **(b)**. The function of the block heater is to heat the engine coolant/ engine block to improve cold-weather engine starting. Plug the cord into a 120V power supply.



wc_gr006975

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, frozen, or discharged battery. Plug the cord into a 120V power supply.



wc_gr007422

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.

6 Maintenance

6.1 Engine Maintenance

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.

	Before each use	Every 100 hours	Every 250 hours	Every 500 hours	Every 1000 hours
Visual walkaround inspection.	✓				
Check for fluid leaks.	✓				
Check engine oil and coolant level.	✓				
Check fuel level.	✓				
Check air filter and replace if needed.*	■				
Change engine oil and filter.**		■			
Check level of battery electrolyte.			✓		
Check condition and tension on fan belt.			✓		
Check condition of radiator hoses. Replace radiator hoses and clamps.			■		
Clean radiator.			■		
Flush radiator.			■		
Replace fuel filter.				■	
Check valve clearance.				■	
Remove sediment in fuel tank.					■
Change radiator coolant.					■
Replace battery.					■
Replace fuel pipes and clamps.					■

* Replace air filter after air filter restriction switch indication or one year.
** Change engine oil and filter after first 50 hours of operation.

6.2 Installing / Removing Light Fixtures

See graphic: wc_gr005376

WARNING

Always turn off light circuit breakers and shut down engine before disconnecting light fixtures or changing lamps.

Remove fixtures by disconnecting electrical cords at the junction box **(b)**. Remove nuts **(c)** from fixture mounting brackets and remove both fixture and bracket off stud.

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

.

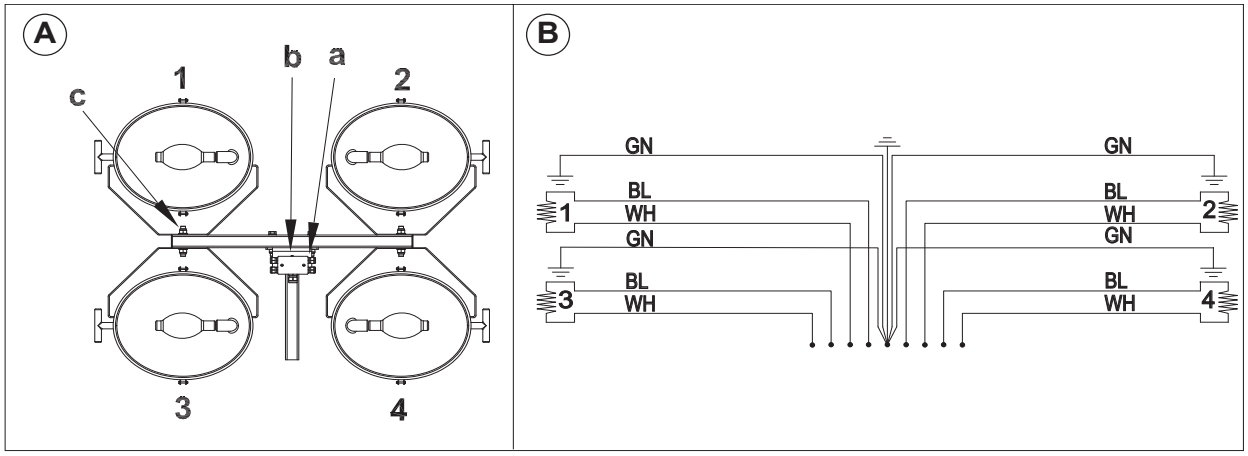
WARNING

Lamps become extremely hot in use! Allow lamp and fixture to cool 10-15 minutes before handling.

"A"—numbering sequence of floodlights

"B"—junction box wiring for floodlights

Numbering Sequence of Floodlights **Junction Box Wiring for Floodlights**



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

6.3 Replacing / Removing Lamps

Prerequisites

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

WARNING
Burn hazard. Lamps become extremely hot in use.
▶ Allow lamps and fixtures to cool 10–15 minutes before handling.

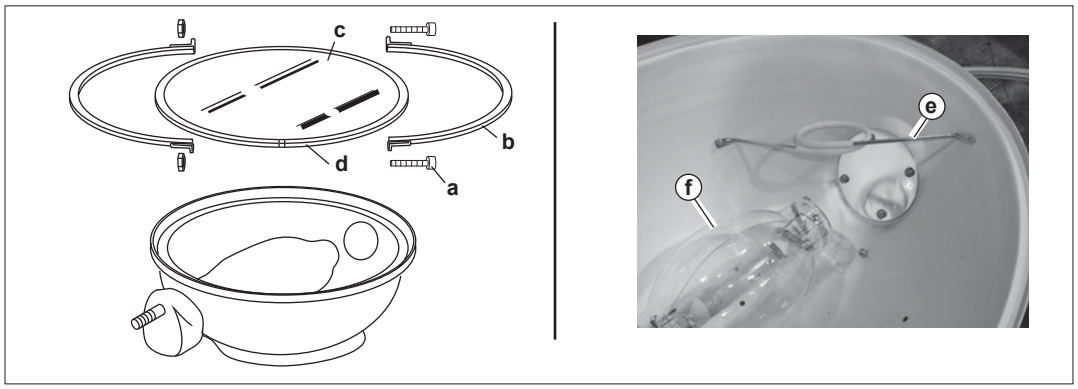
WARNING
Personal injury hazard. Ultraviolet radiation from the lamps can cause serious skin and eye irritation.
▶ Use only undamaged lamps.
▶ Use the lamps only with undamaged original equipment lenses and fixtures.

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 protection and gloves when removing or replacing lamps.

Follow the procedures below to remove and install the lamp.

Removing the lamp

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



wc_gr005881

6.3.2 Remove the lens **(c)** with the gasket **(d)** attached.

6.3.3 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

6.3.4 Screw the lamp in firmly, but not forcibly, to minimize loosening due to vibration. Secure it with the lamp stabilizer.

6.3.5 Install the gasket around the lens and secure the lens to the reflector with the flange rings and screws.

6.4 Daily Inspection

6.4.1 Check for fluid leaks. Check fluid levels.

6.4.2 Inspect condition of electrical cords. Do not use Light Tower if insulation is cut or worn through.

6.4.3 Check that winch cables are in good condition. Do not use a cable that is kinked or starting to unravel.

6.4.4 Check that the vertical tower locking pin and its spring are secured, aligned, and operating properly.

6.5 Air Cleaner

See Graphic: wc_gr005396

Replace the air filter cartridge when the yellow piston **(a)** moves into the red zone.

6.5.1 Open air cleaner and remove element.

6.5.2 To clean the filter, lightly tap on a hard surface to eliminate all excess dirt. Do not blow the paper filter element with compressed air to clean. Clean the filter cover and support carefully.

6.5.3 Reassemble the filtering element and air cleaner.

wc_gr005396

6.6 Engine Oil

See Graphic: wc_gr005395

Drain the oil while the engine is still warm.

Note: *In the interests of environmental protection, place a plastic sheet and a container under the machine to collect any liquid which drains off. Dispose of this liquid in accordance with environmental protection legislation.*

6.6.1 Locate the oil drain hose and remove the plug from the end of the hose.

6.6.2 Allow the oil to drain.

6.6.3 Re-install the oil drain plug.

6.6.4 Remove the oil filter cap and fill the engine crankcase through the oil filler opening, to the upper mark on the dipstick. See *Technical Data* for oil quantity and type.

6.6.5 Re-install the oil filter cap.

wc_gr005395

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.

6.7 Long-Term Storage

Introduction

Extended storage of equipment requires preventative 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 & gear-case) 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.

6.8 Troubleshooting

WARNING

HIGH VOLTAGE! This unit uses high voltage circuits capable of causing serious injury or death. Only a qualified electrician should troubleshoot or repair electrical problems occurring in this equipment.

Problem / Symptom	Reason	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.
	Plug connection at fixture is loose or damaged	Have a licensed electrician repair or replace the plug connection.
	Lamp broken or burned out	Check for: • broken arc tube or outer lamp jacket • broken or loose components in lamp envelope • blackening or deposits inside lamp tube.
	Circuit breaker turned on	Turn off circuit breaker.
	Circuit breaker loose or defective	Have a licensed electrician repair or replace the circuit breaker.
	Generator output incorrect	Check incoming voltage to ballast. Incoming voltage should be 120V ± 5V. If voltage is incorrect, engine speed may need to be adjusted or generator may require service.
	Low or no ballast output	With the fixture cord removed from its receptacle, the voltage should measure 400 to 445 VAC. If proper voltage is not achieved, perform capacitor check to determine if capacitor or coil needs to be replaced.
Low light output	Lamp degraded	Replace lamp due to normal lamp life.
	Low ballast output	Check ballast for proper voltage output.
	Fixture or lens dirty	Clean reflective surface inside fixture and both inside and outside surface of glass lens.

Notes:

7 Technical Data

7.1 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 6C**
Engine		
Make		Caterpillar
Model		C1.1
Type		3-cylinder, 4-cycle, liquid-cooled diesel
Max. rated power @ rated speed	kW (Hp)	11.4 (15.3) @ 1800 rpm
Operating speed (no-load)	rpm	1800
Alternator	V / A / W	12 / 15 / 180
Battery	V/Ah/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.	1.67 (0.44)
Running time	hours	68
Coolant capacity	l (qts.)	4.7 (5.0)
Oil specification	type	Cat® DEO™ SAE 10W-30 Cat® DEO™ SAE 15W-40 or equivalent
Oil capacity	l (qts.)	2.4 (2.5)

7.2 Generator

Item Number:		**LTN 6C** 0620298 0620118 0620551 0620555 0620556 0620562	**LTN 6C** 0620728
Generator			
Frequency	Hz	60 ± 2	
Continuous output	kW	6.0	
Output	volts/phase	120, 1Ø	120/240, 1Ø
Amps	A	50	
Excitation type		Capacitor / Brushless	
Power factor		1.0	
Voltage regulation - No load to full load	%	± 6.0	
Speed (no-load)	rpm	1800	

7.3 Machine

Item Number:		LTN 6C
Machine		
Operating weight (GVWR)	kg (lbs.)	795 (1753)
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
Ballast		Coil and core
Max. lighting coverage @ 0.5 ft. candles	m^2 (acres)	Metal Halide - 30,400 (7.52)
Sound level at 7 m (23 ft.)	dB(A)	68
Tires	size	ST175 / 80D13

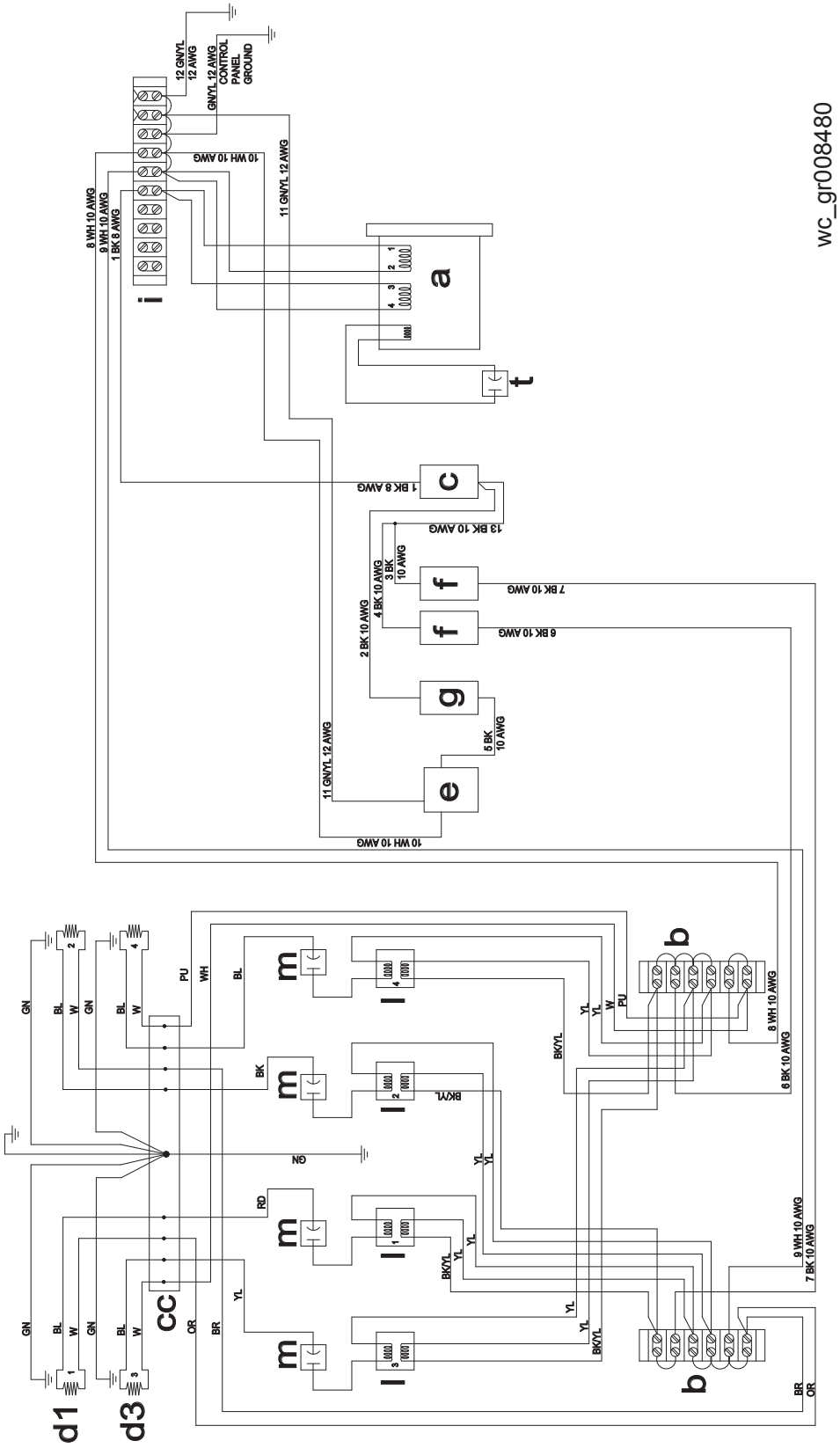
Radiation Compliance

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 Schematics

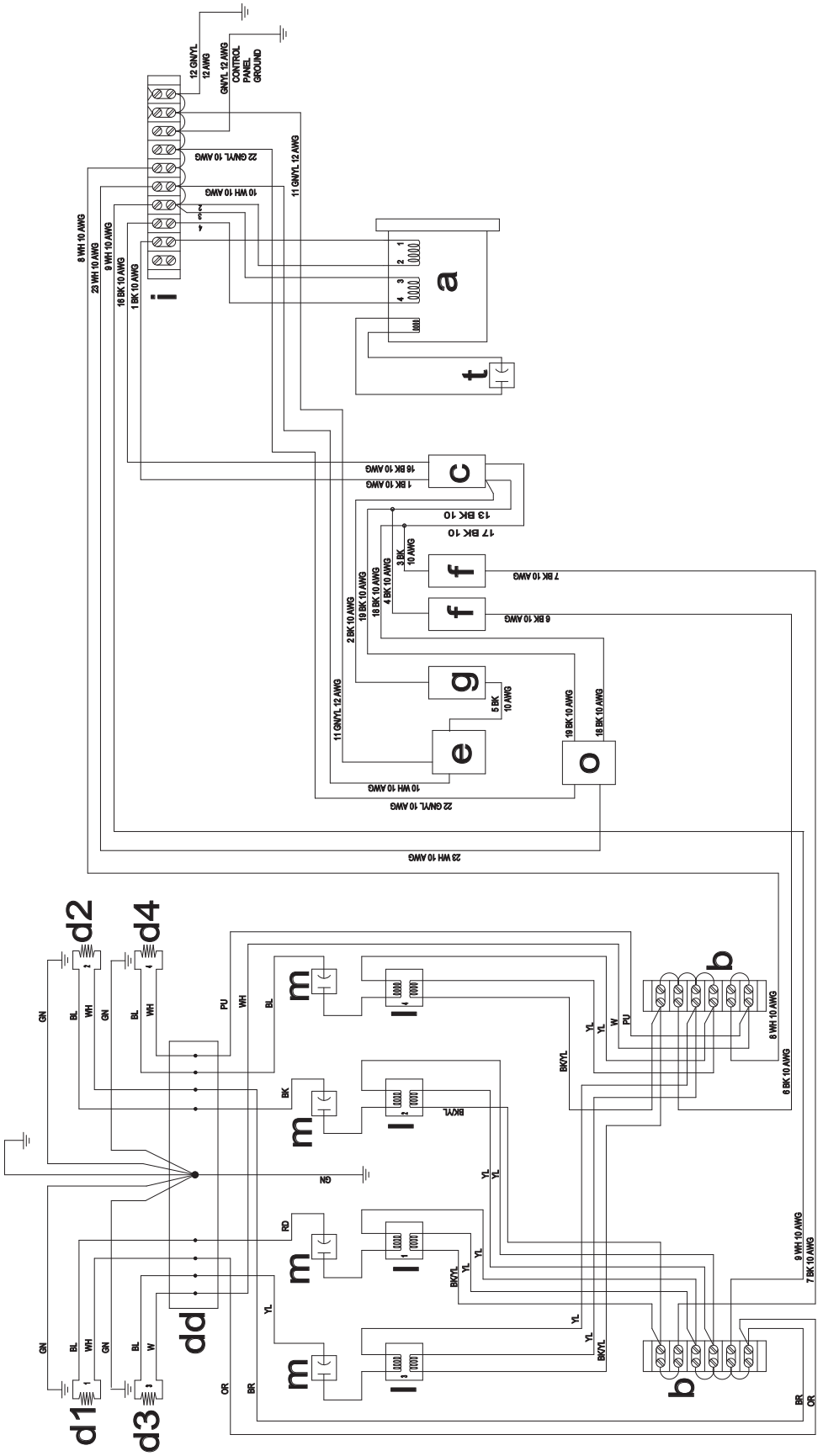
8.1 Lighting System Schematic



Ref.	Description	Ref.	Description
a	Generator	g	Circuit breaker, 20 Amp
b	Terminal strip (short)	i	Terminal strip (long)
c	Main circuit breaker, 50 amp	l	Transformers
d	Floodlights	m	Capacitors, 24 mF
e	Receptacle, 120V	t	Capacitor, 25 mF
f	Circuit breaker, 30 Amp	cc	Junction box

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

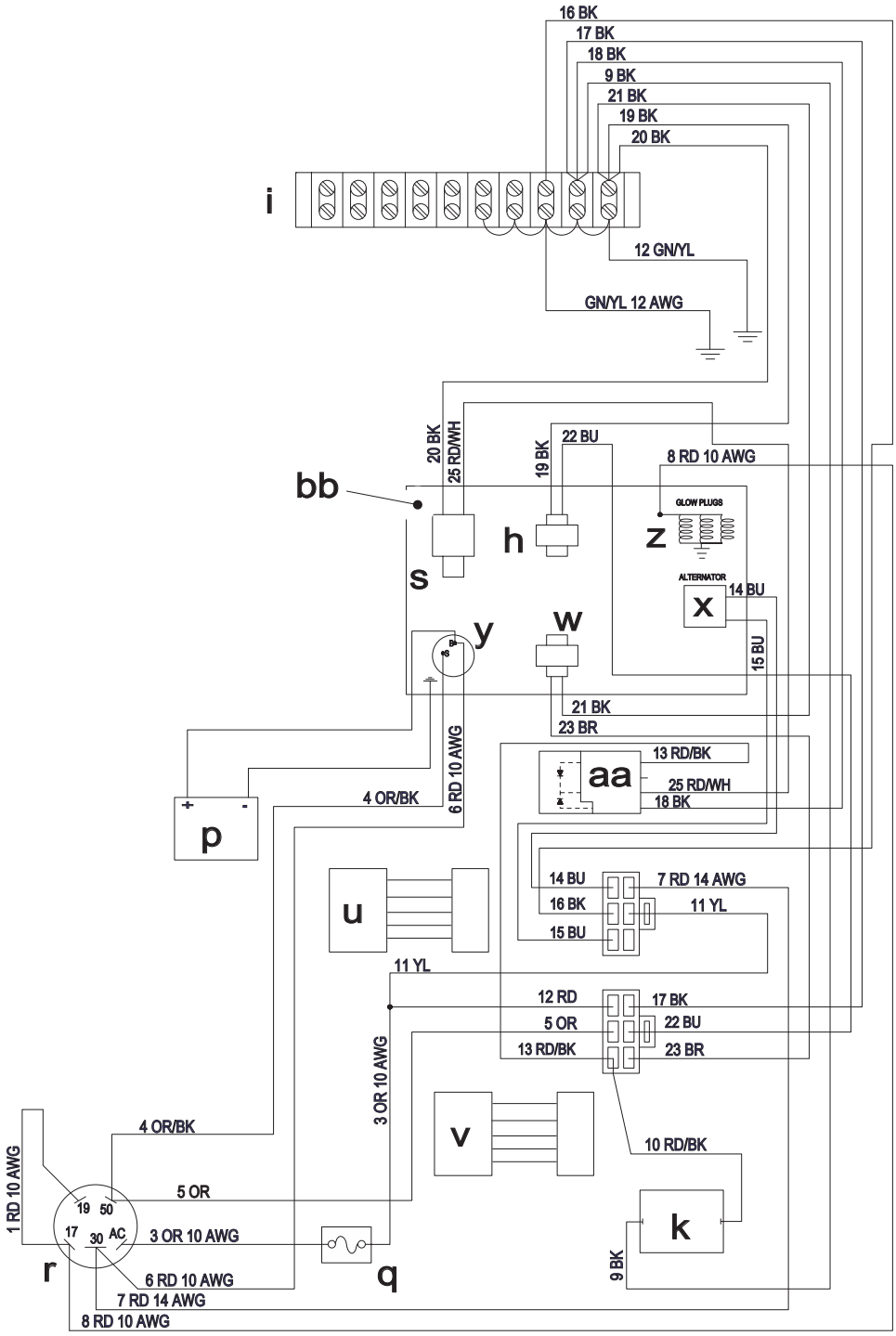
8.2 Lighting System Schematic (120V/240V)



Ref.	Description	Ref.	Description
a	Generator	i	Terminal strip (long)
b	Terminal strip (short)	l	Transformers
c	Main circuit breaker, 25 Amp	m	Capacitors, 24 mF
d	Floodlights	o	Receptacle, 120/240V
e	Receptacle, 120V	t	Capacitor, 25 mF
f	Circuit breaker, 30 Amp	dd	Junction box
g	Circuit breaker, 20 Amp	—	—

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

8.3 Engine Wiring



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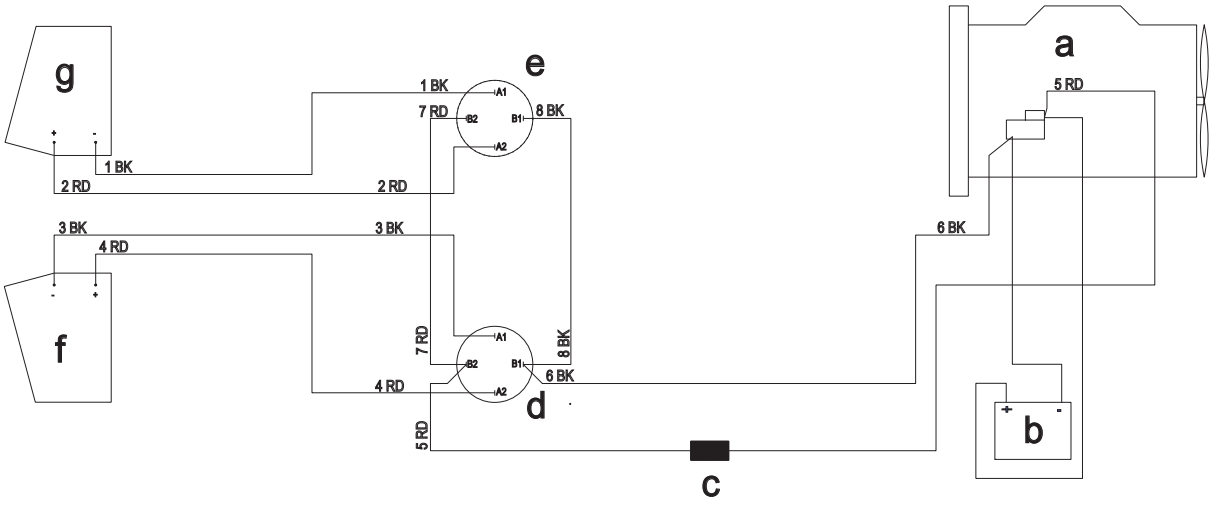
Ref.	Description	Ref.	Description
h	Coolant temperature sensor	u	Voltage regulator
i	Terminal strip (long)	v	Shutdown relay
k	Hour meter	w	Oil switch
p	Battery	x	Alternator
q	15A fuse	y	Starter
r	Ignition switch	aa	Diode
s	Fuel solenoid	bb	Engine

8.4 Power Winch Schematic



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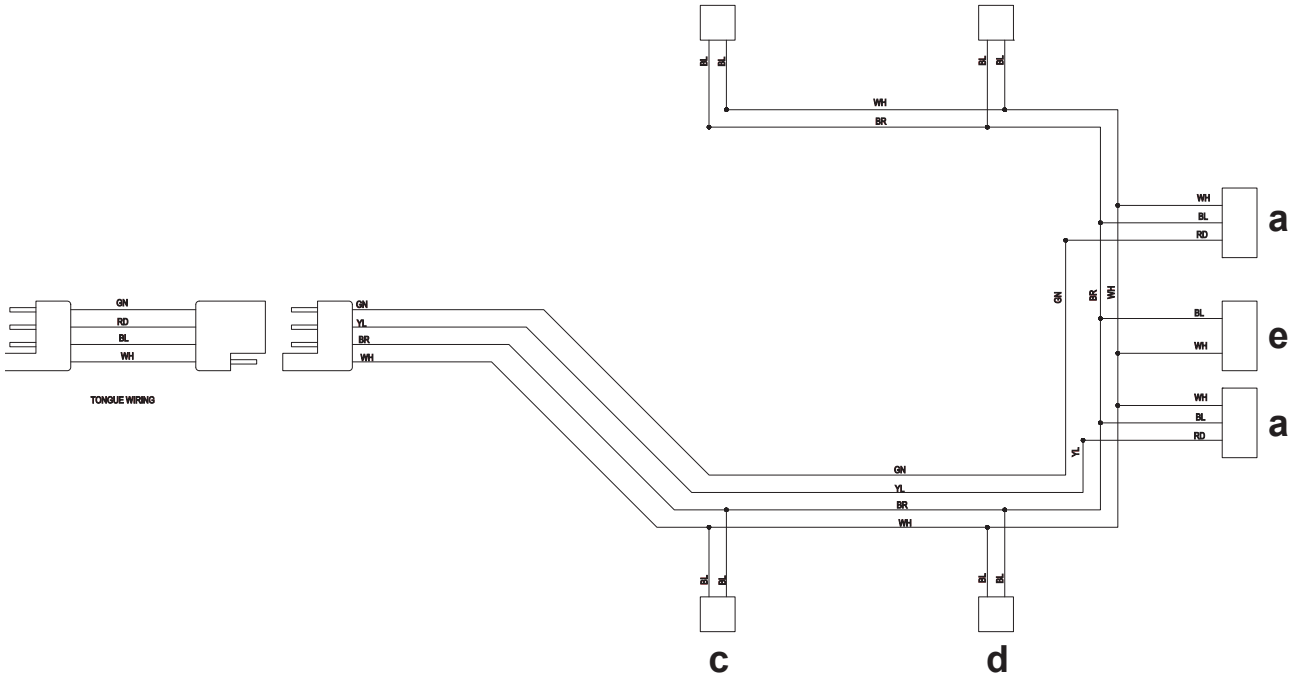
Ref.	Description	Ref.	Description
a	Engine	e	Telescope switch
b	Battery	f	Tilt winch
c	70A blade fuse	g	Telescope winch
d	Tilt switch		

8.5 Trailer Wiring



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	Light blue

Notes:

9 Appendix I—Assembly Instructions

9.1 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

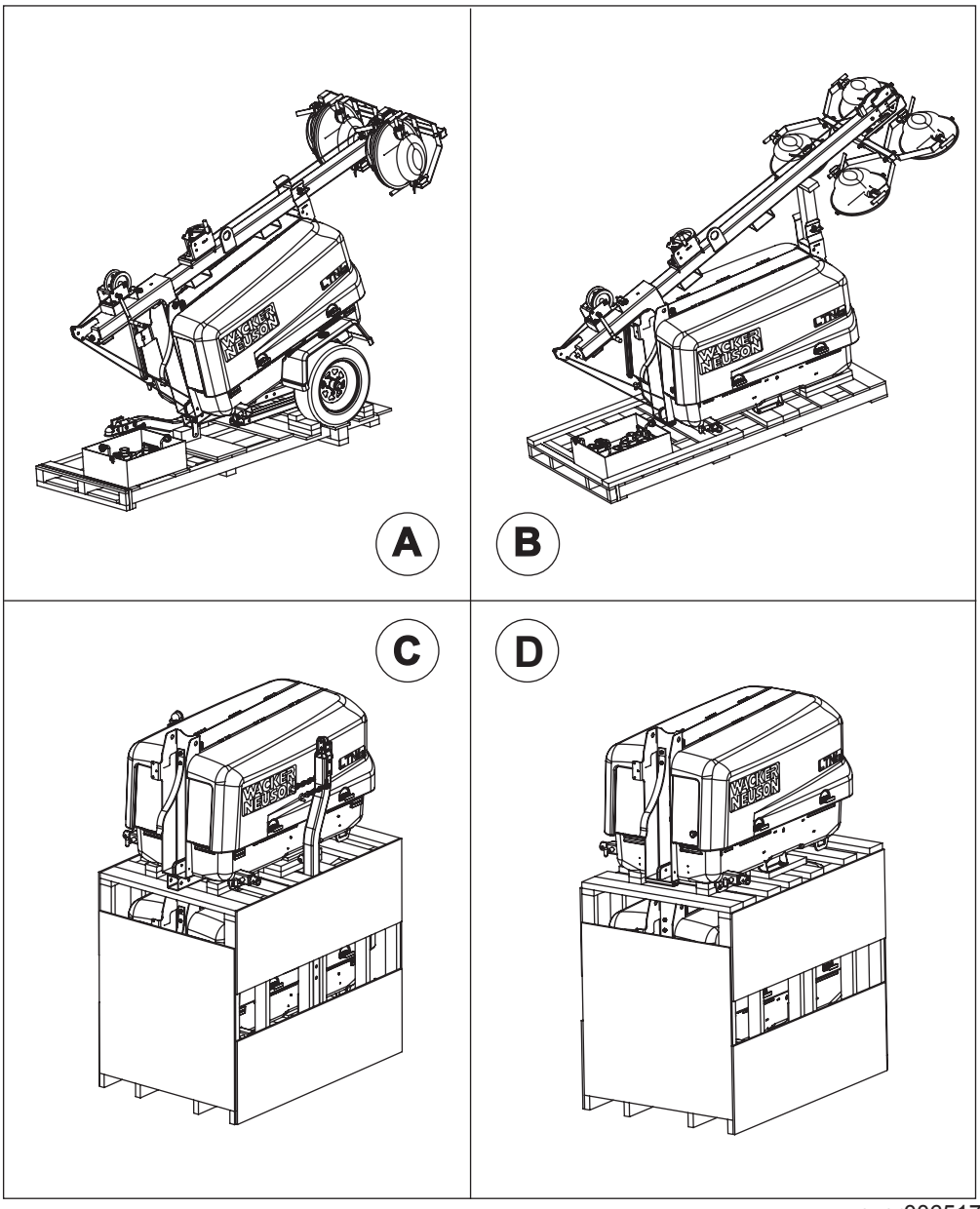
Throughout this Manual, hardware bags needed for each assembly procedure will be identified at the beginning of the instructions for that specific procedure.

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	Standard palletized	**A**	**Appendix III**
Optional	CE palletized	**B**	**Appendix IV**
0620550 0620551 0620552	Standard racked	**C**	**Appendix V**
0620119 0620120 0620557 0620558	CE racked	**D**	**Appendix VI**

Illustrations



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10 Appendix II—Assembly Safety

10.1 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.*

10.2 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.

10.3 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.

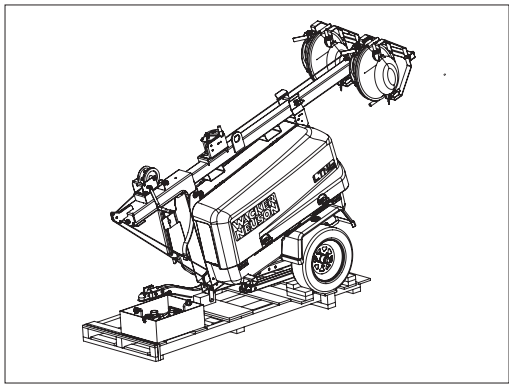
Before assembly

- 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.

11 Appendix III—Standard Pallet Assembly

Scope

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



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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	11.1
2	Install the outrigger jacks	11.1
3	Install the rear jack	11.2
Tongue assembly		
4	Install the tongue	11.3
5	Install the tongue jack	11.3
Upper light installation		
6	Install the upper light fixtures	11.4

Tools and materials

The following tools and materials are needed:

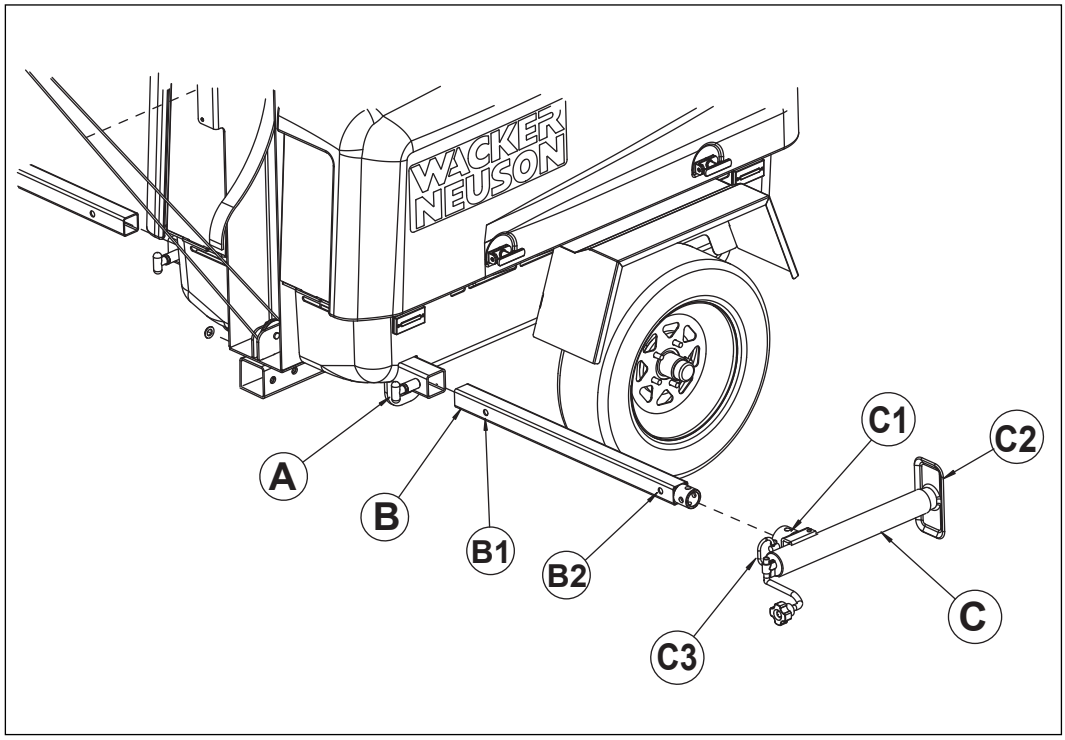
- Basic hand tools (wrenches, screwdrivers, etc.)
- Torque wrench
- Hardware bag: 7

11.1 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.



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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

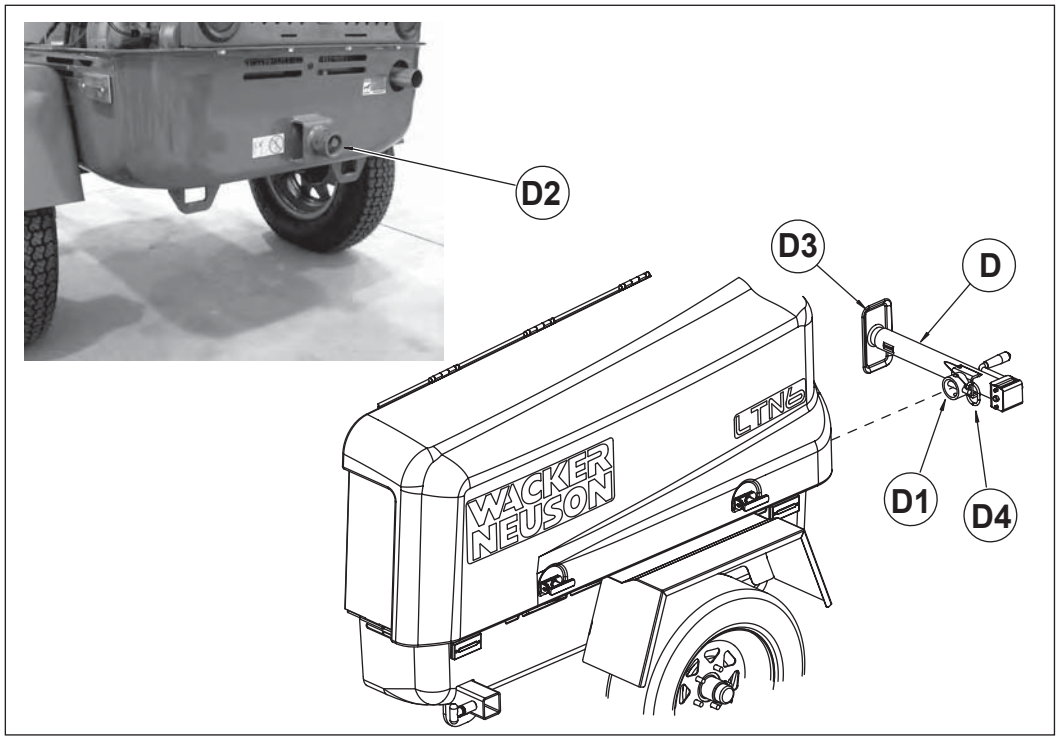
Follow the procedure below to Install the two outrigger jacks. (Use the same procedure for each outrigger jack.)

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.

11.2 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.

11.3 Installing the Tongue Assembly

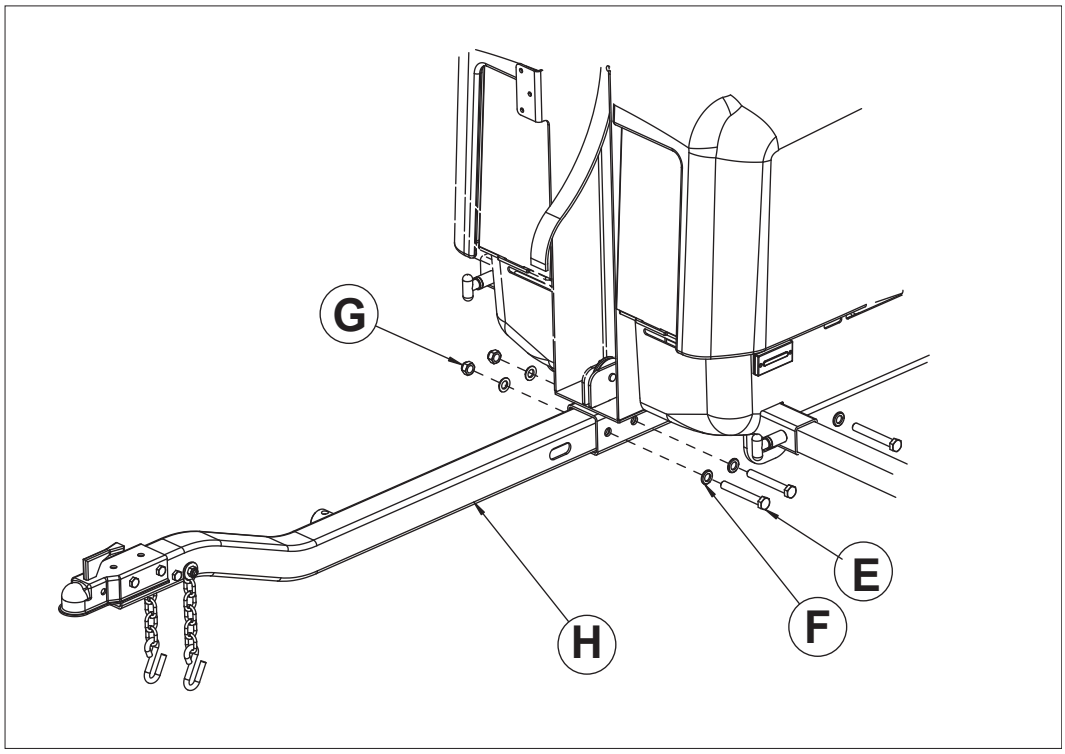
Scope

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.



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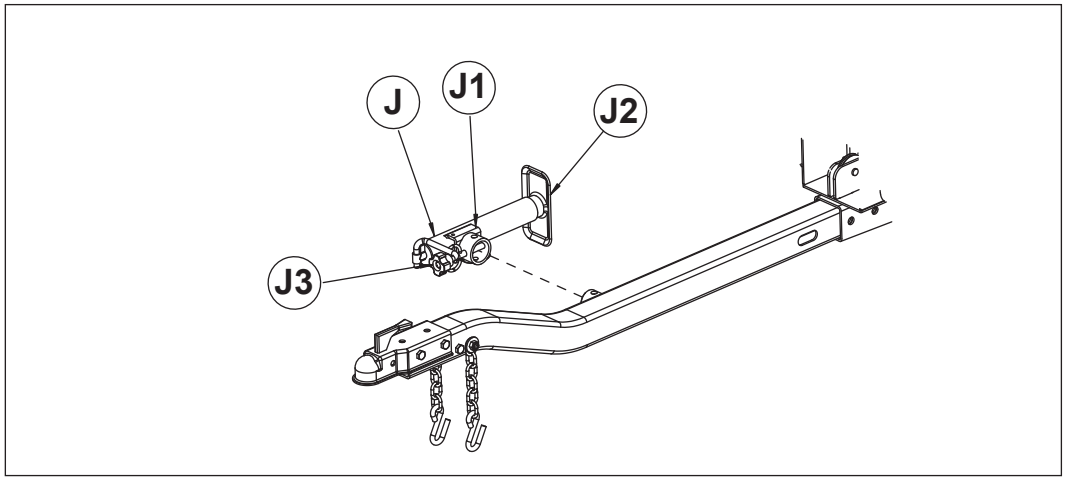
2. Fasten the tongue to the sleeve using the following hardware from Bag 7:
   - (3) M16 x 120 screws **(E)**
   - (6) B17 flat washers **(F)**
   - (3) M16 lock nuts **(G)**

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)**.



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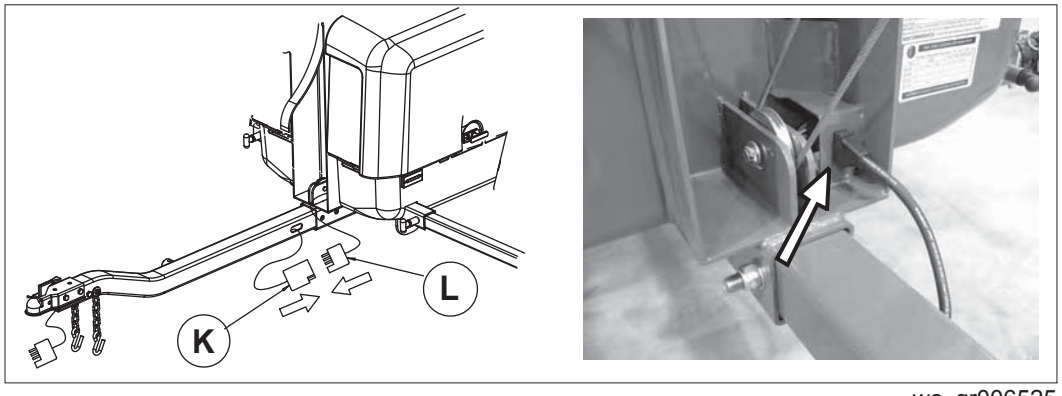
2. If necessary, remove the locking pin **(J3)** from the holes in the tongue jack.
3. Fit the socket **(J1)** over the circular boss on the tongue assembly.
4. Rotate the tongue jack so that the foot **(J2)** rests on the ground.
5. Align the top hole in the socket with the top hole on the circular 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)**.



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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.)

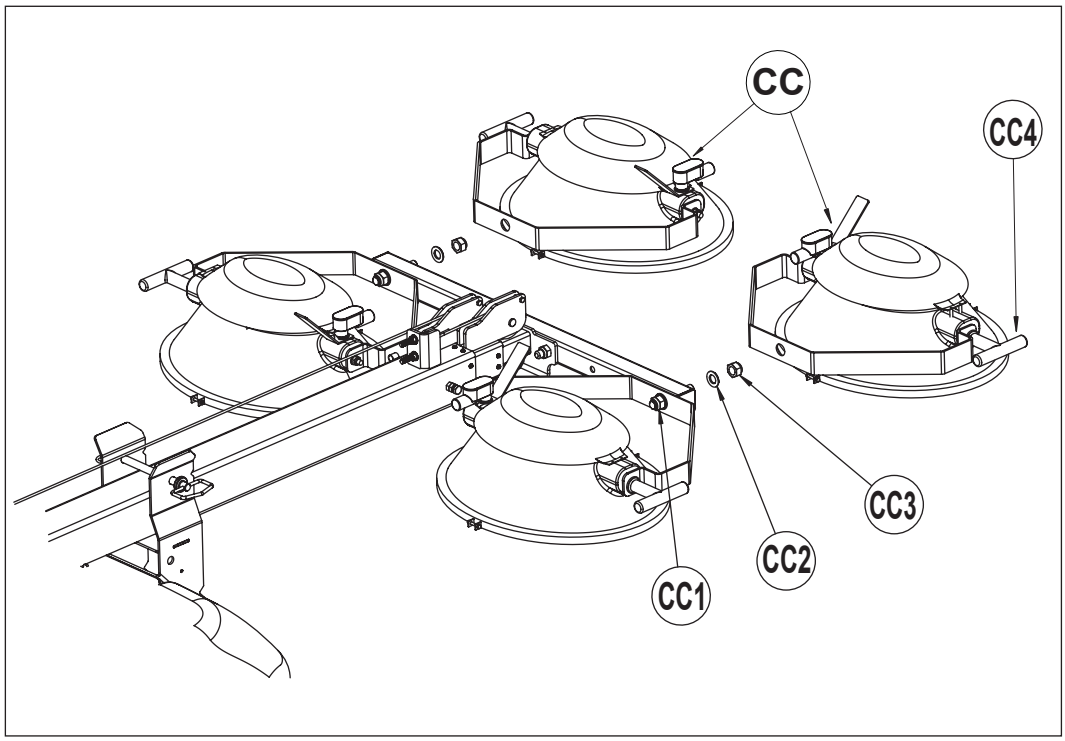
11.4 Installing the Upper Light Fixtures

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)** and a B19 flat washer **(CC2)**.

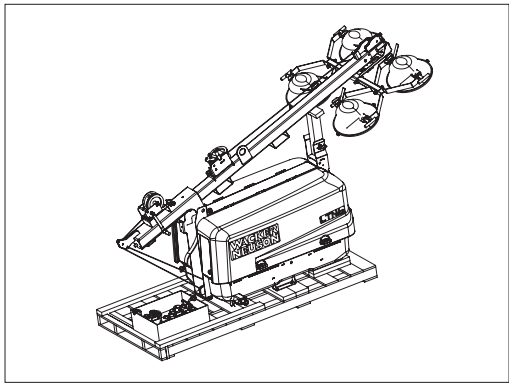
11.5 Conclusion

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.

12 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	12.1
3	Install the rear jack	12.2

Tools and materials

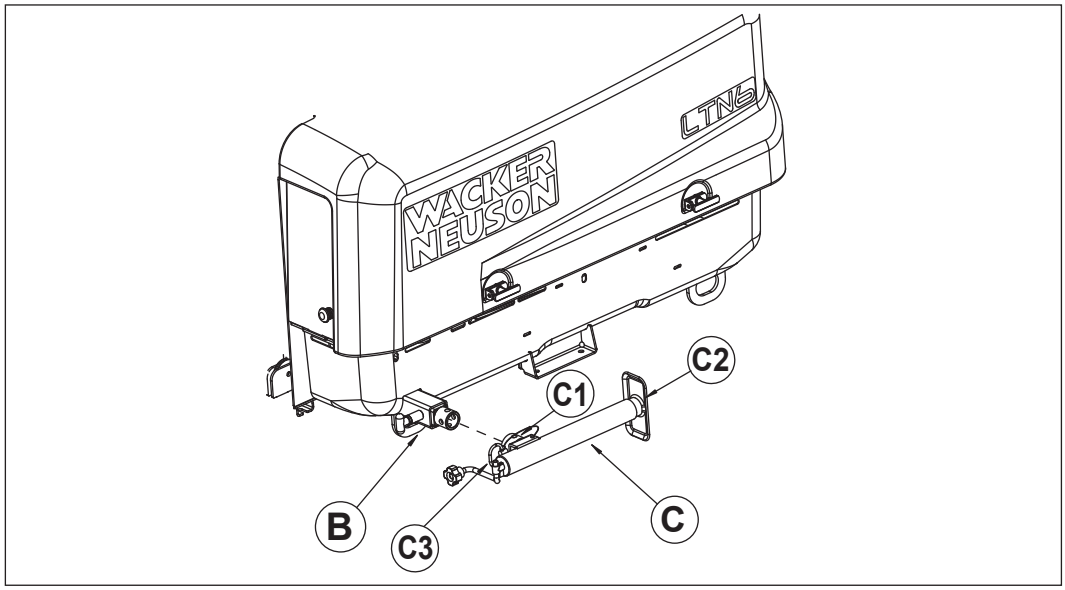
The following tools and materials are needed:

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

12.1 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)**.



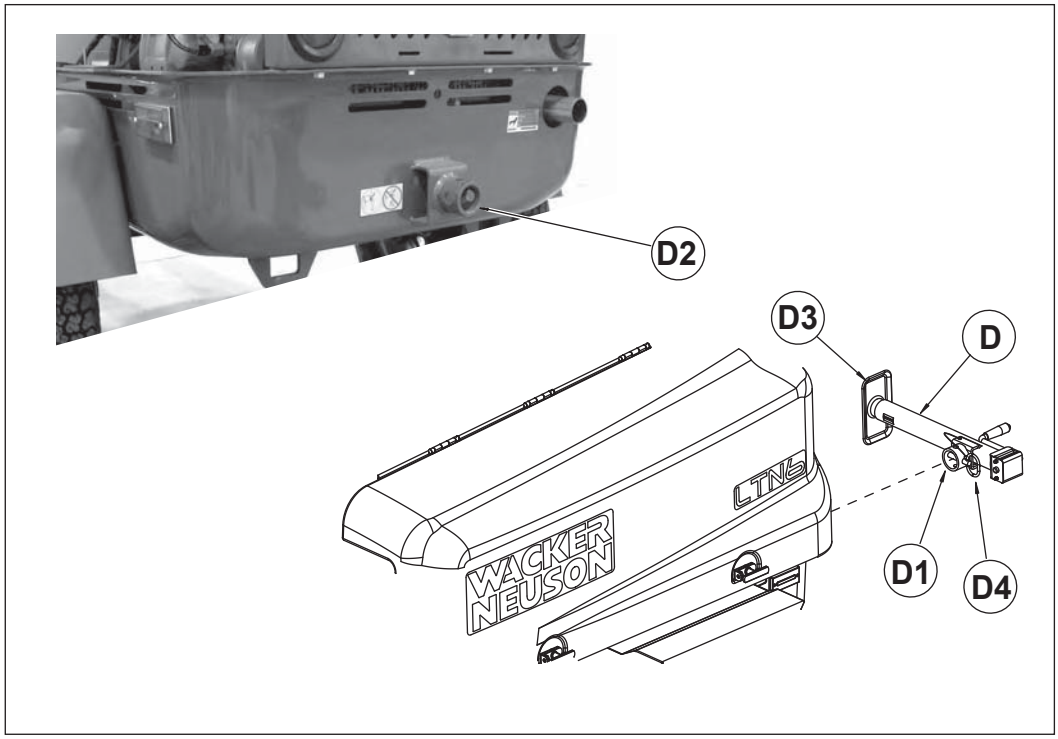
wc_gr006710

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.

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_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.

12.3 Conclusion

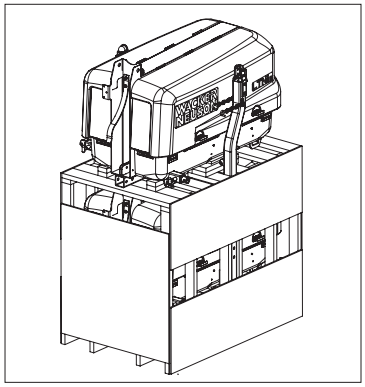
This completes the assembly procedure for your Light Tower. Refer to your Operator's Manual for instructions on setting up, operating, maintaining, and storing the machine.

Notes:

13 Appendix V—Standard Racked Assembly

Overview

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



wc_gr006469

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
Chassis assembly		
1	Install the axle	13.1
2	Install the fenders	13.2
3	Install the wheels	13.3
4	Install the outriggers and outrigger jacks	13.4
5	Install the rear jack	13.5
6	Install the tongue assembly	13.6
Tower assembly		
7	Install the tower lock bracket	13.7
8	Install the tower cradle	13.8
9	Install the tower	13.9
10	Install the tower pivot cable	13.10
Lights assembly		
11	Install the lights	13.11
Electrical assembly		
12	Wire the junction box	13.12
13	Route the coil cord	13.13
14	Wire the ballasts and terminal strips	13.14

Tools and materials

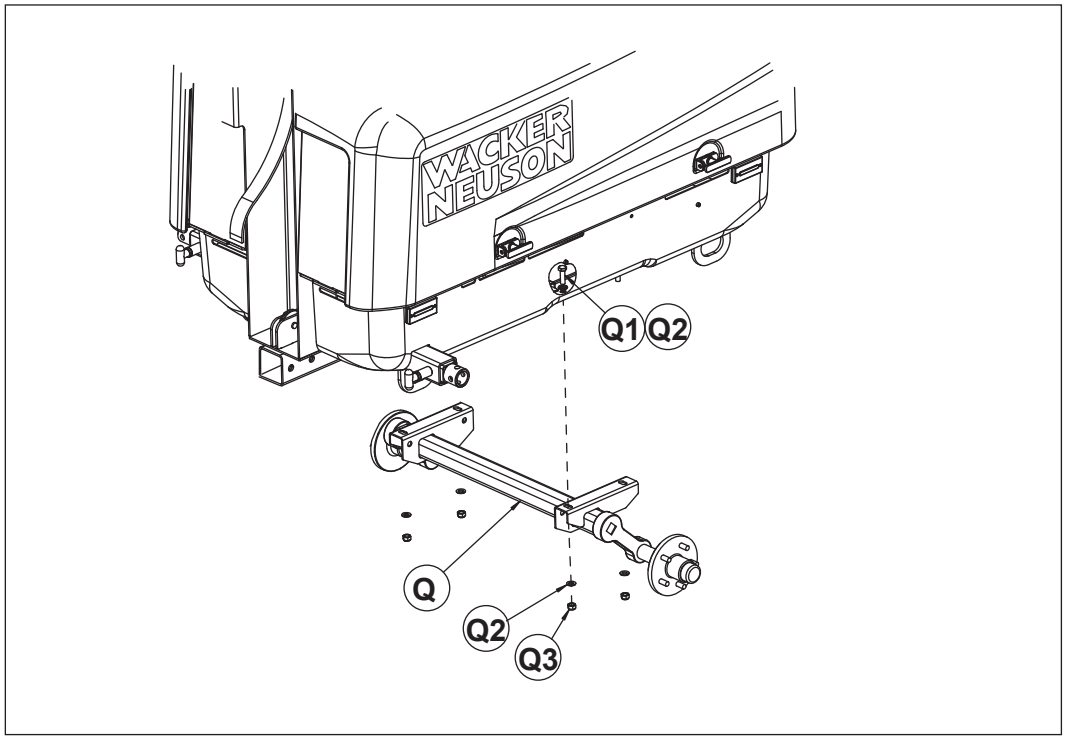
The following tools and materials are needed:

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

13.1 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

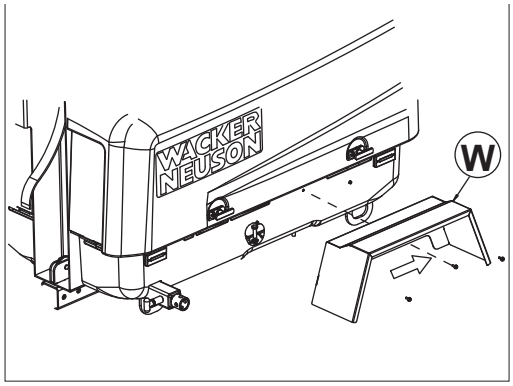
3. Install the axle on the trailer using the following hardware:
   (4) Bolts **(Q1)**, (8) Washers **(Q2)**, (4) Nuts **(Q3)**.
4. Torque the fasteners to 115 Nm (85 ft.lbs.).

13.2 Installing the Fenders

Procedure

Follow the procedure below to Install the fenders.

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



wc_gr006528

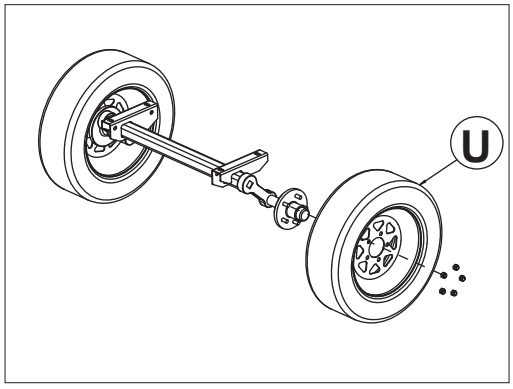
2. Align each fender as shown in the illustration.
3. Install each fender on the Light Tower using (3) M6 x 16 serrated flange screws—but do not tighten the screws until the next step.
4. Slide each fender backward until the mounting screws are located at the front end of the slots. Torque the screws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

13.3 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

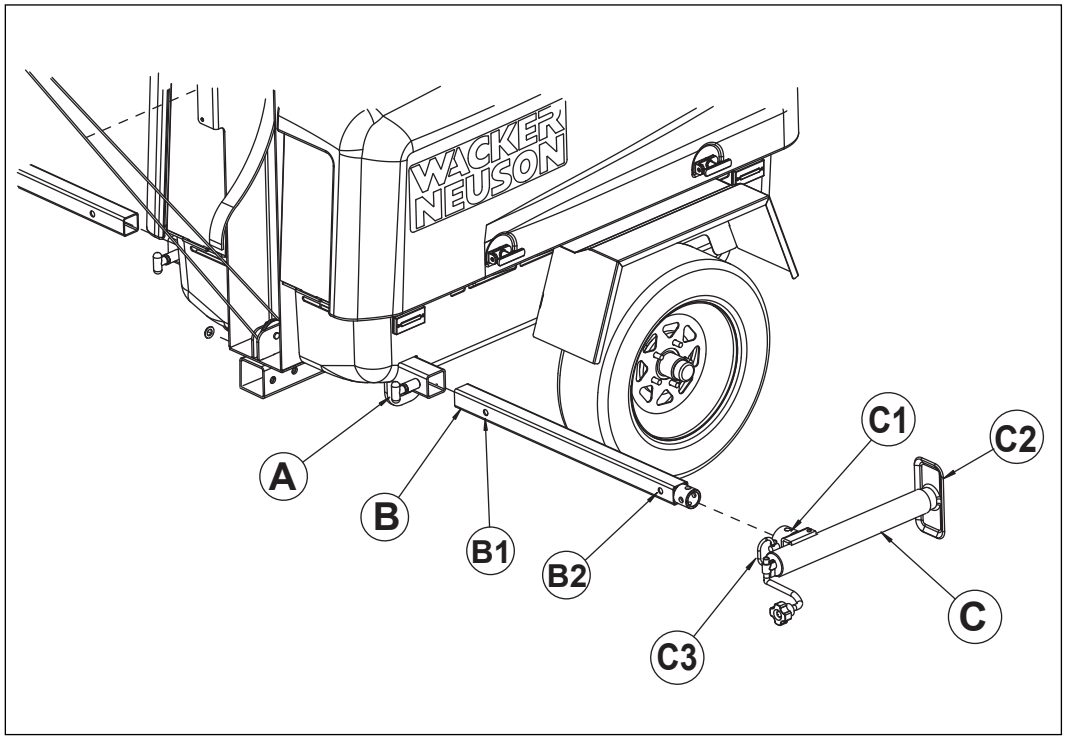
2. Install the wheels on the axle using five lug nuts per wheel. Torque the lug nuts to 115 Nm (85 ft.lbs.).

13.4 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

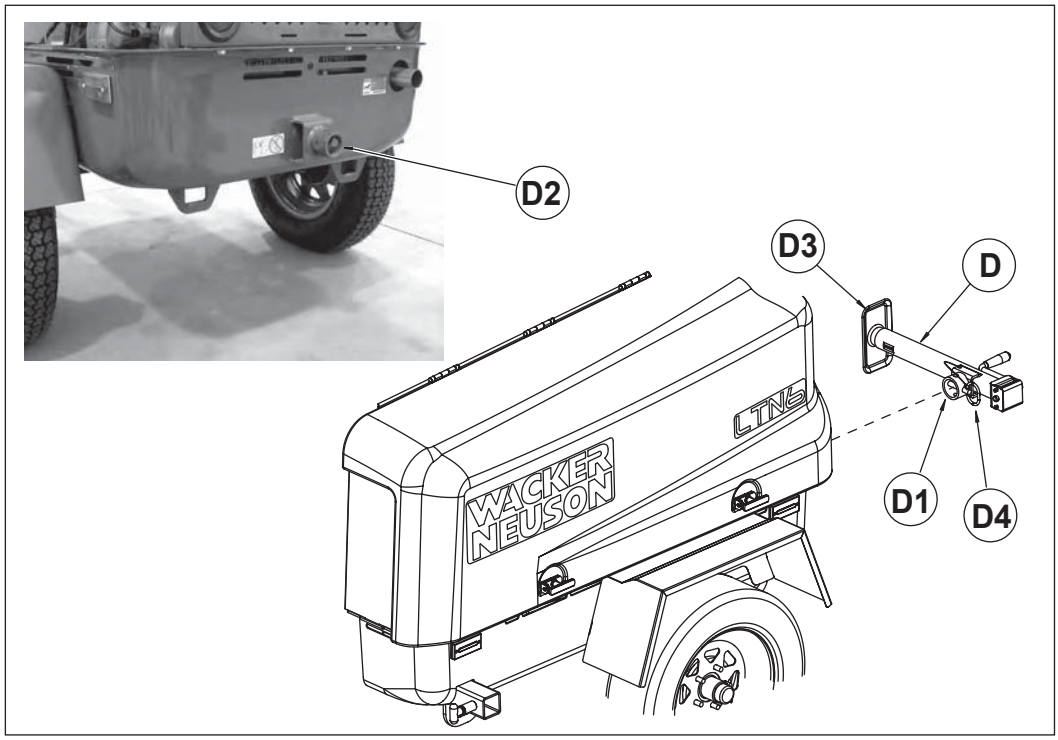
Follow the procedure below to Install the two outrigger jacks. (Use the same procedure for each outrigger jack.)

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.

13.5 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.

13.6 Installing the Tongue Assembly

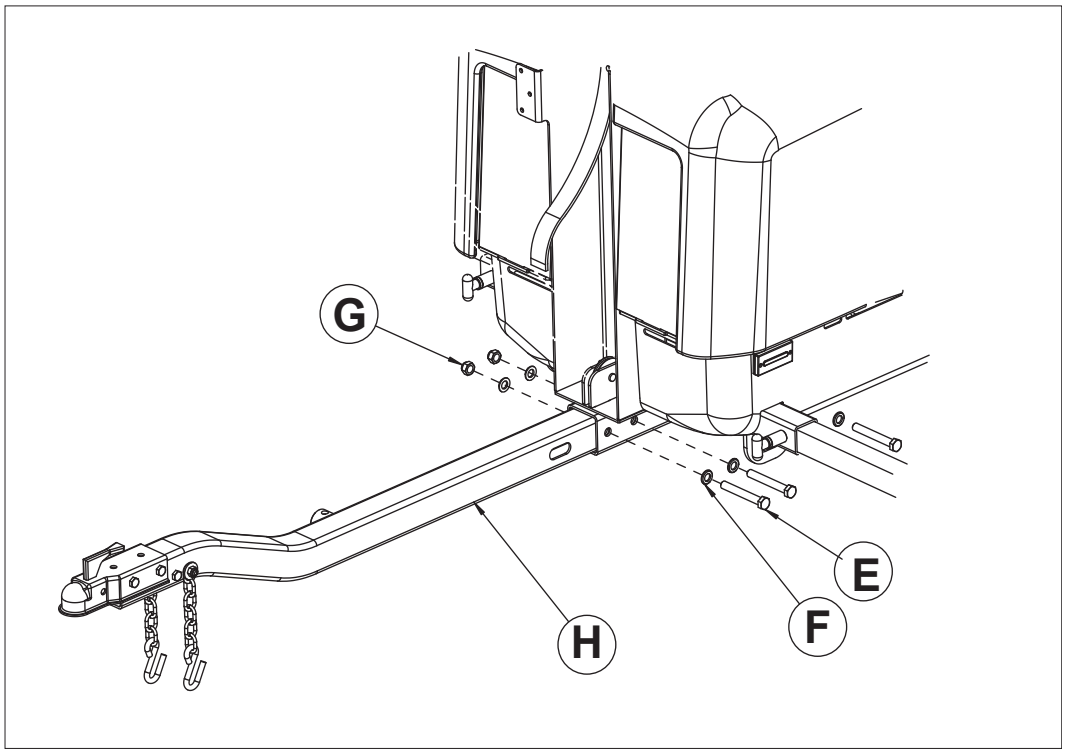
Scope

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

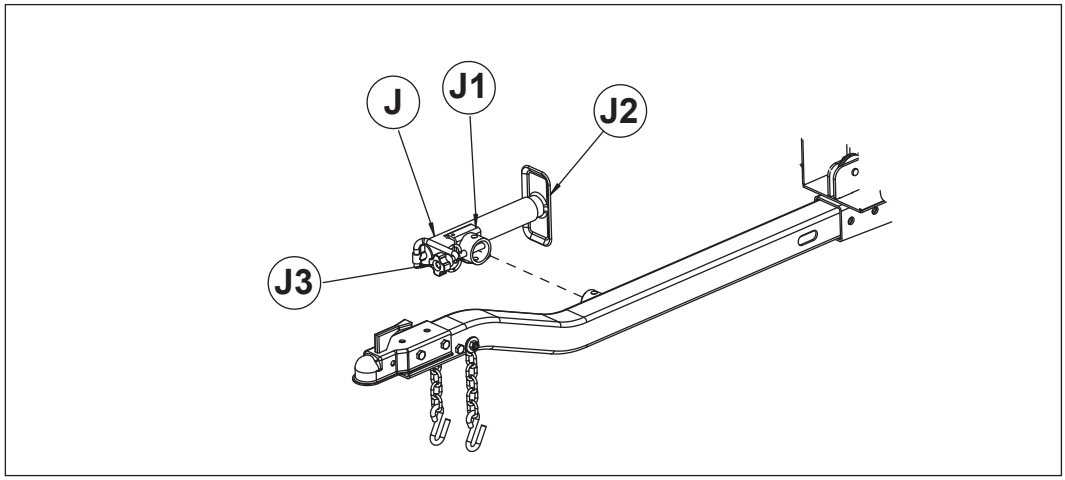
2. Fasten the tongue to the sleeve using the following hardware from Bag 7:
   - (3) M16 x 120 screws **(E)**
   - (6) B17 flat washers **(F)**
   - (3) M16 lock nuts **(G)**

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)**.

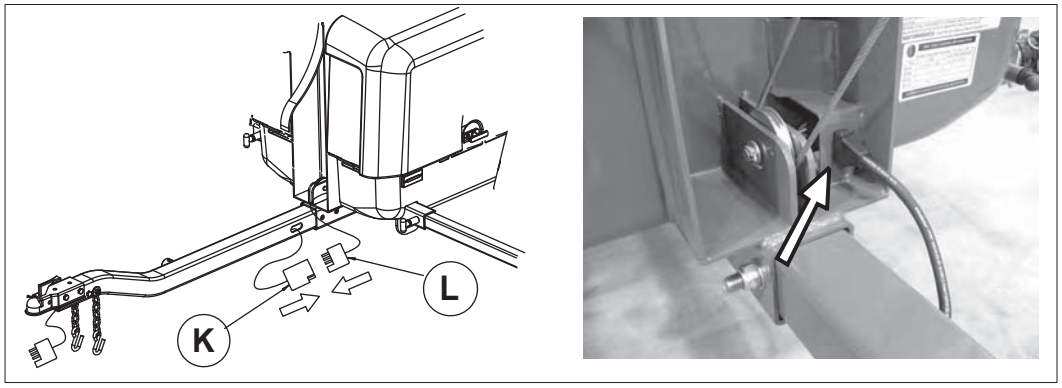


wc_gr006524

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)**.



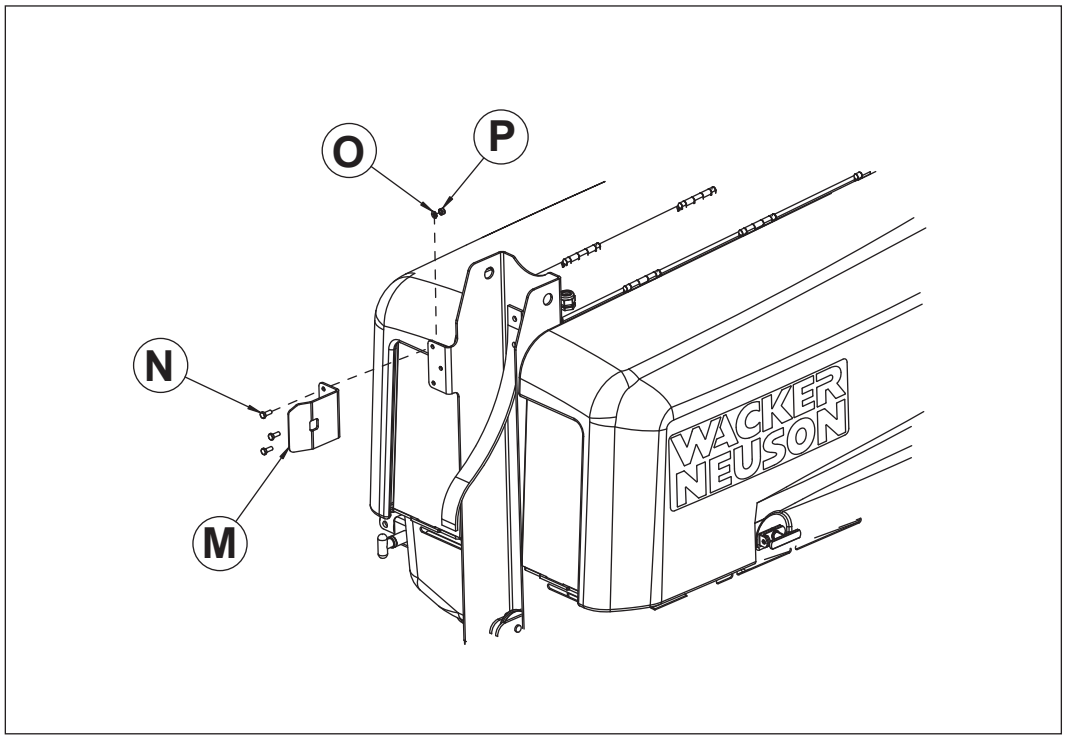
wc_gr006525

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.)

13.7 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.).

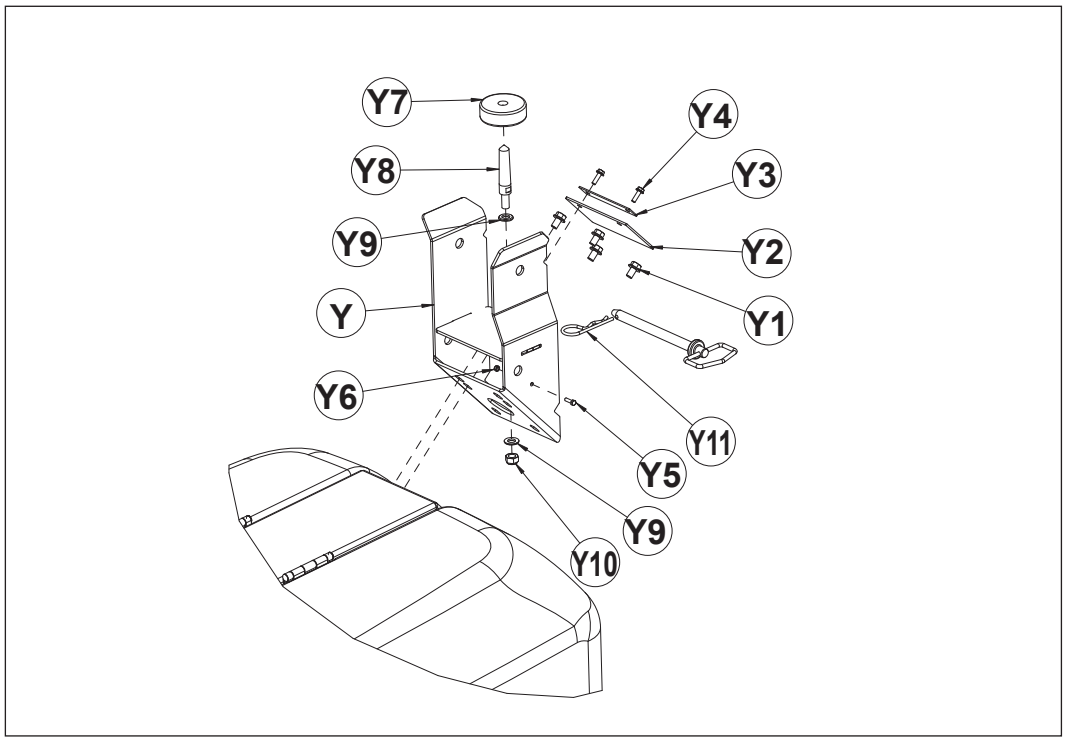
13.8 Installing the Tower Cradle

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)**.

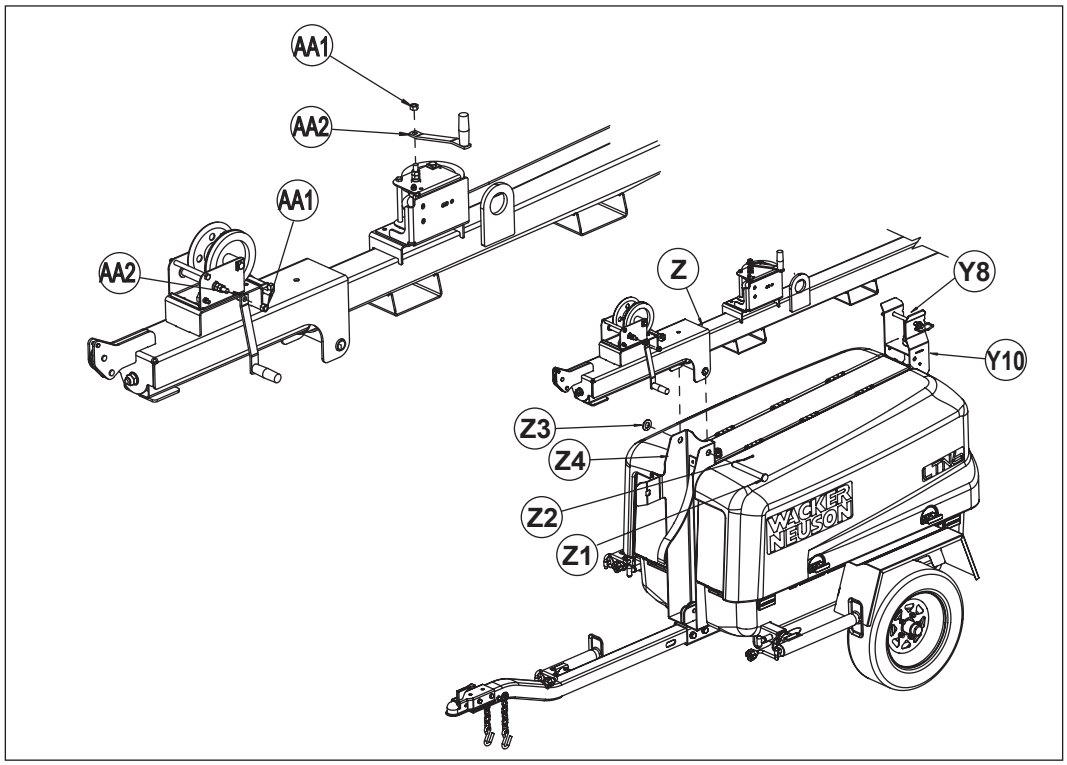
13.9 Installing the Tower

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.

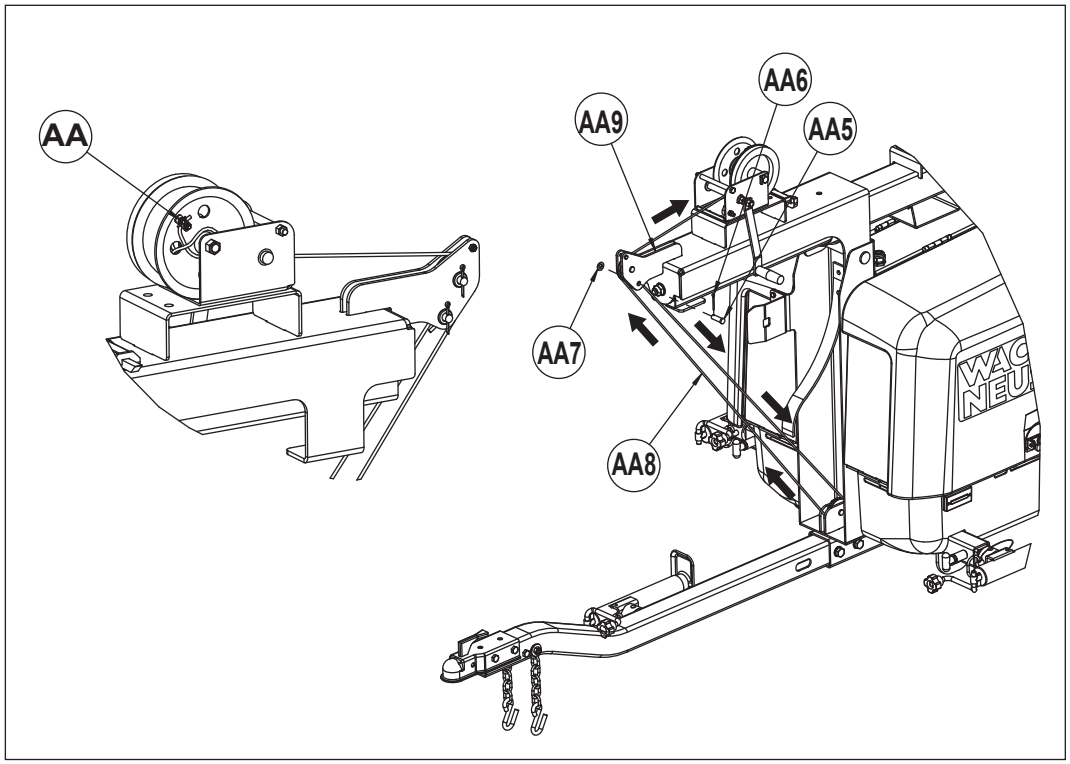
13.10 Installing the Tower Pivot Cable

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.

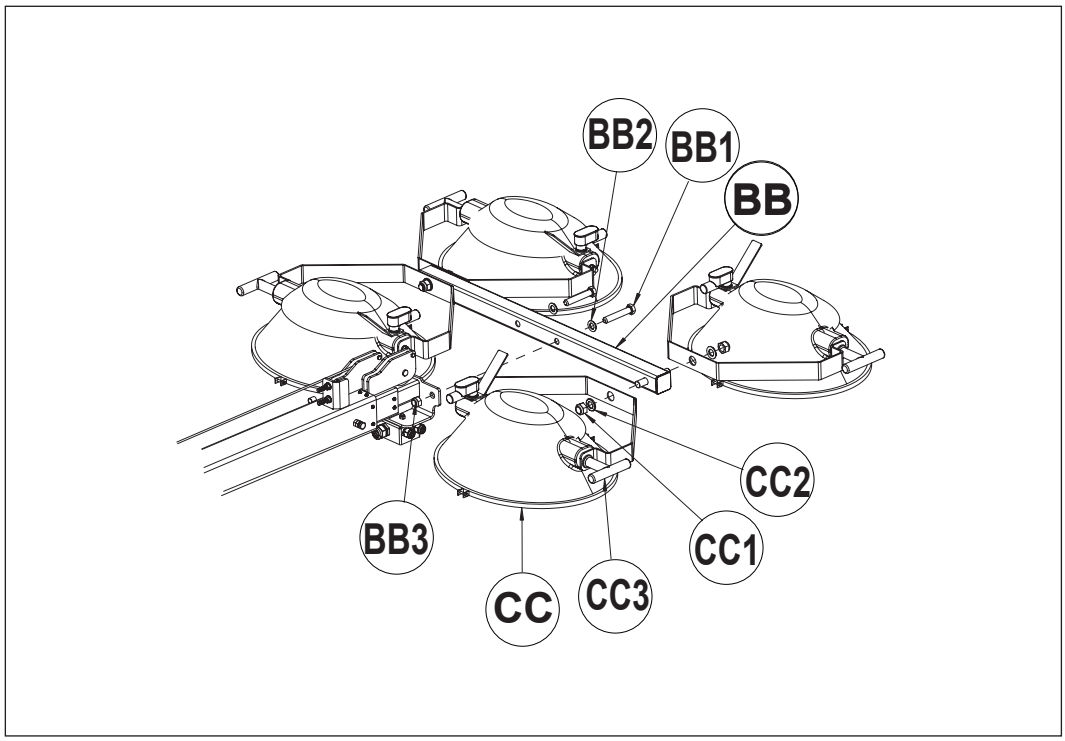
13.11 Installing the Lights

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)** and a B19 flat washer **(CC2)**.

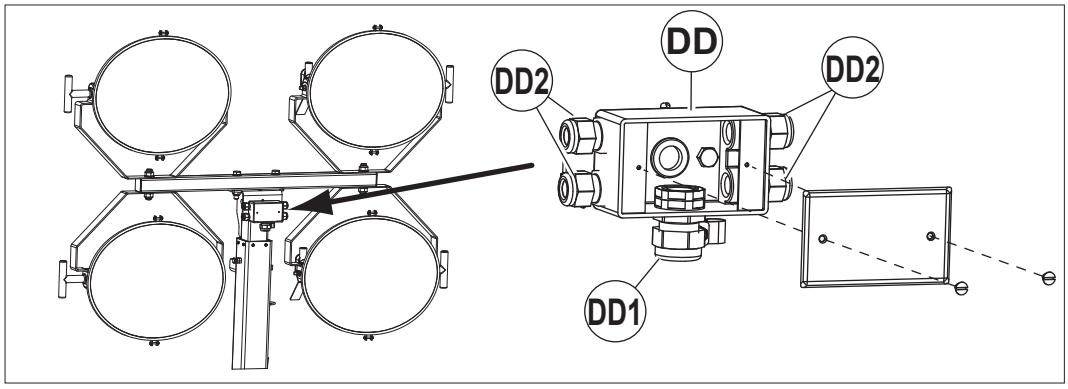
13.12 Connecting the Wiring at the Junction Box

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.



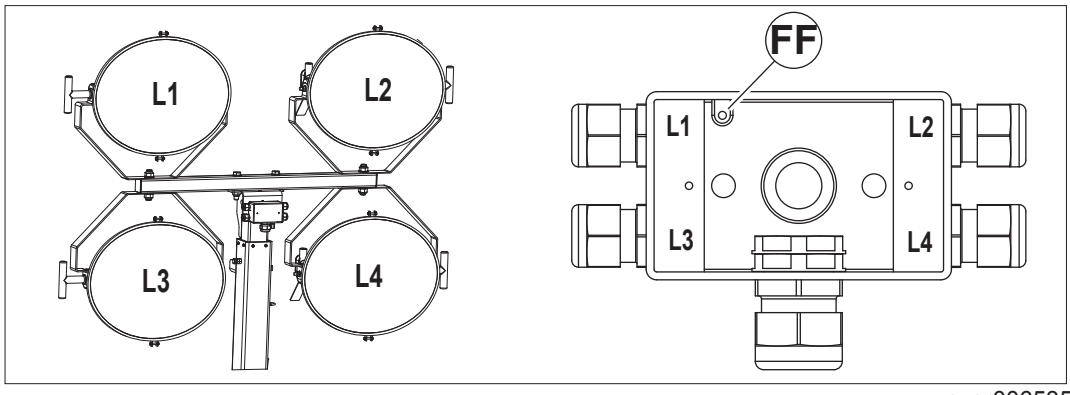
wc_gr006534

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

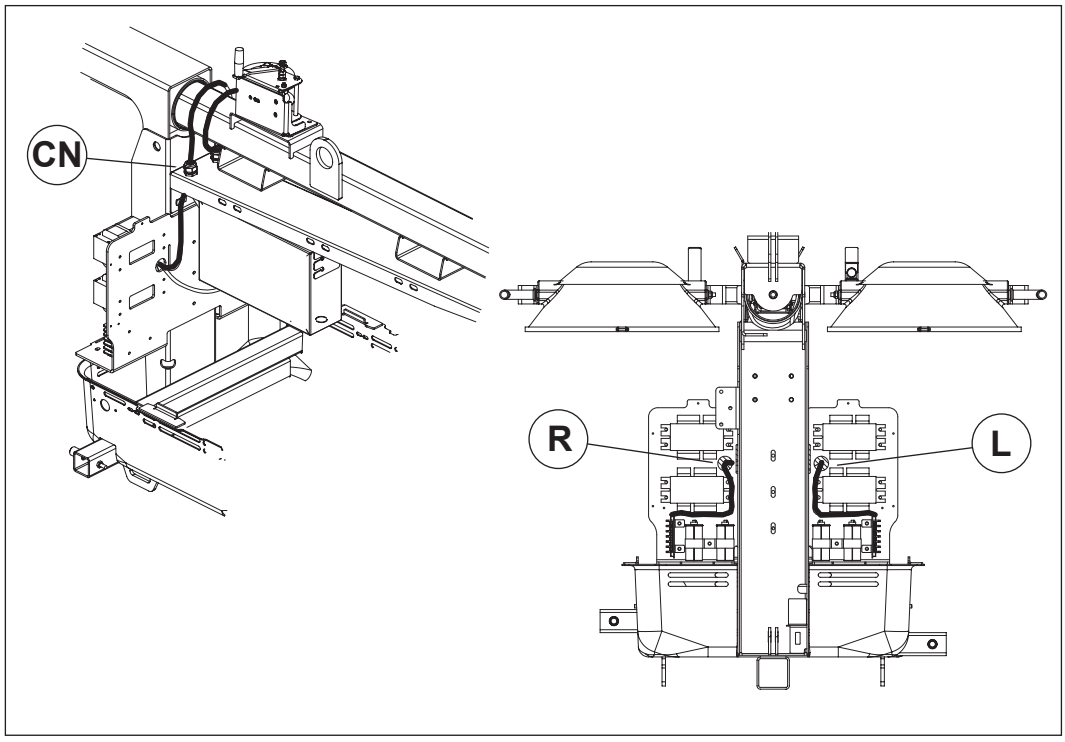
6. Refer to the table below and connect the light fixture wires to the coil cord wires. Use the small connectors and Panduit wire crimper CT-100.

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.

13.13 Routing the Coil Cord

Procedure Follow the procedure below to route the coil cord.

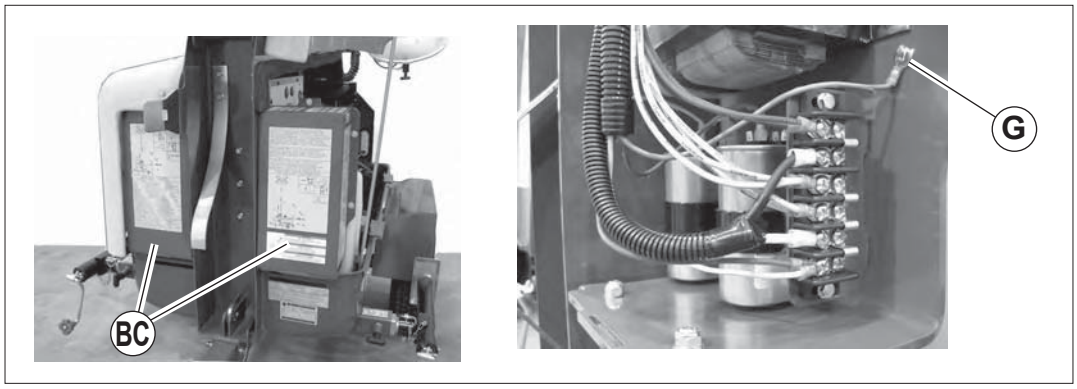


wc_gr006536

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)**.

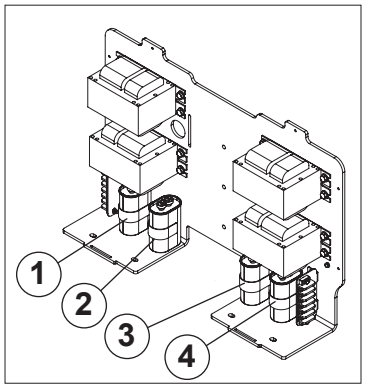
13.14 Wiring the Ballasts and Terminal Strips

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



wc_gr006537

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.

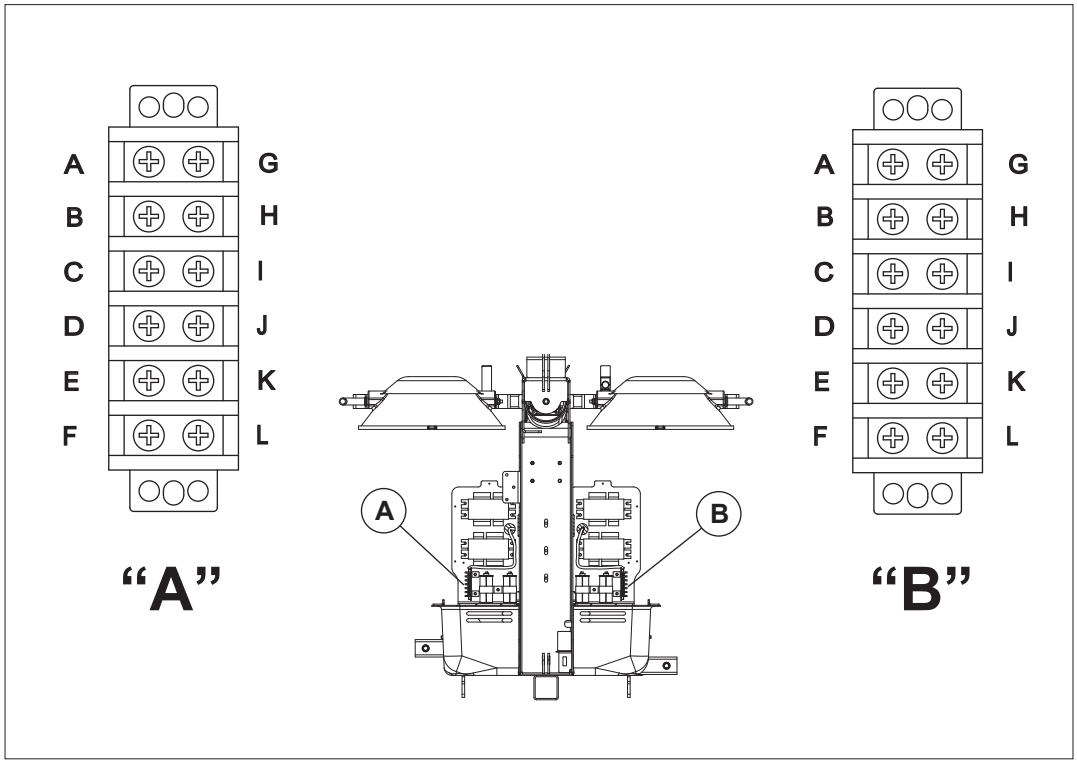


wc_gr006570

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

13.15 Conclusion

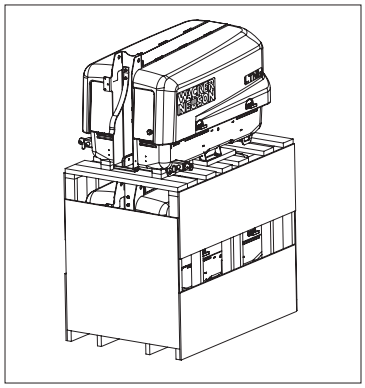
This completes the assembly procedure for your Light Tower. Refer to your Operator's Manual for instructions on setting up, operating, maintaining, and storing the machine.

Notes:

14 Appendix VI—CE Racked Assembly

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	14.1
2	Attach the rear jack	14.2
Tower assembly		
3	Attach the tower lock bracket	14.3
4	Attach the tower cradle	14.4
5	Attach the tower	14.5
6	Attach the tilt winch cable	14.6
Lights assembly		
7	Attach the light mount bracket and light bar	14.7
8	Attach the light fixtures	14.8
Electrical assembly		
9	Wire the junction box	14.9
10	Route the coil cord	14.10
11	Wire the ballasts and terminal strips	14.11

Tools and materials

The following tools and materials are needed:

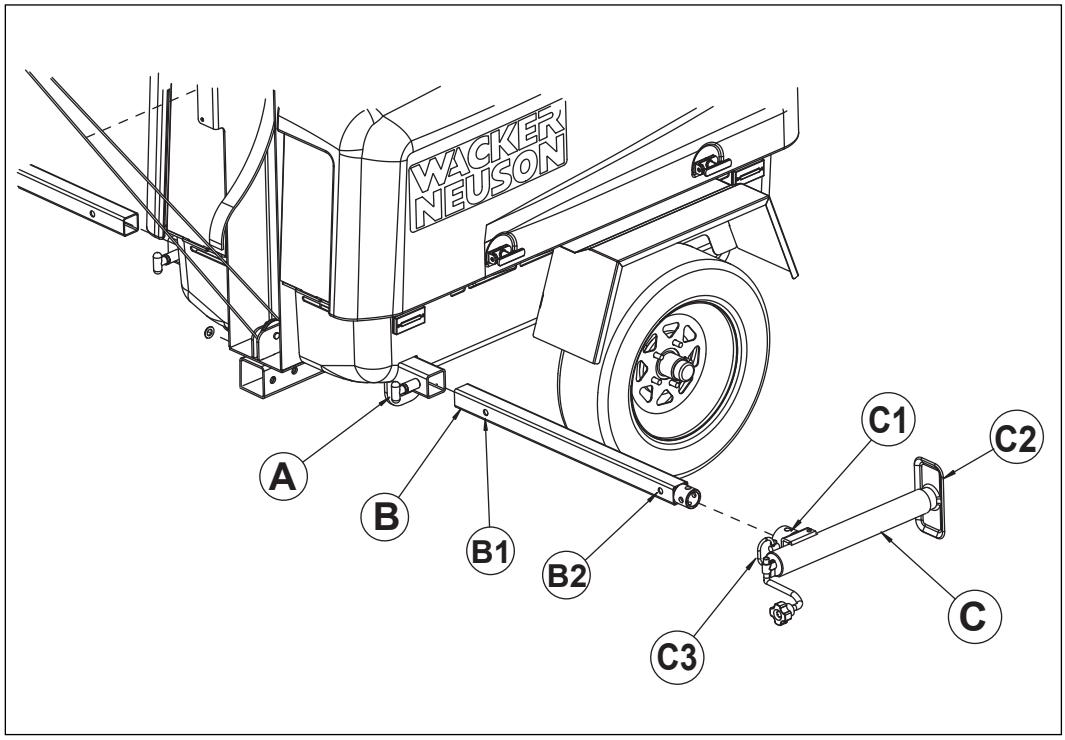
- Basic hand tools (wrenches, screwdrivers, etc.)
- Torque wrench
- Hardware bags: 1, 2, 3, 4, 5, 6, 8, and fabricated parts

14.1 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

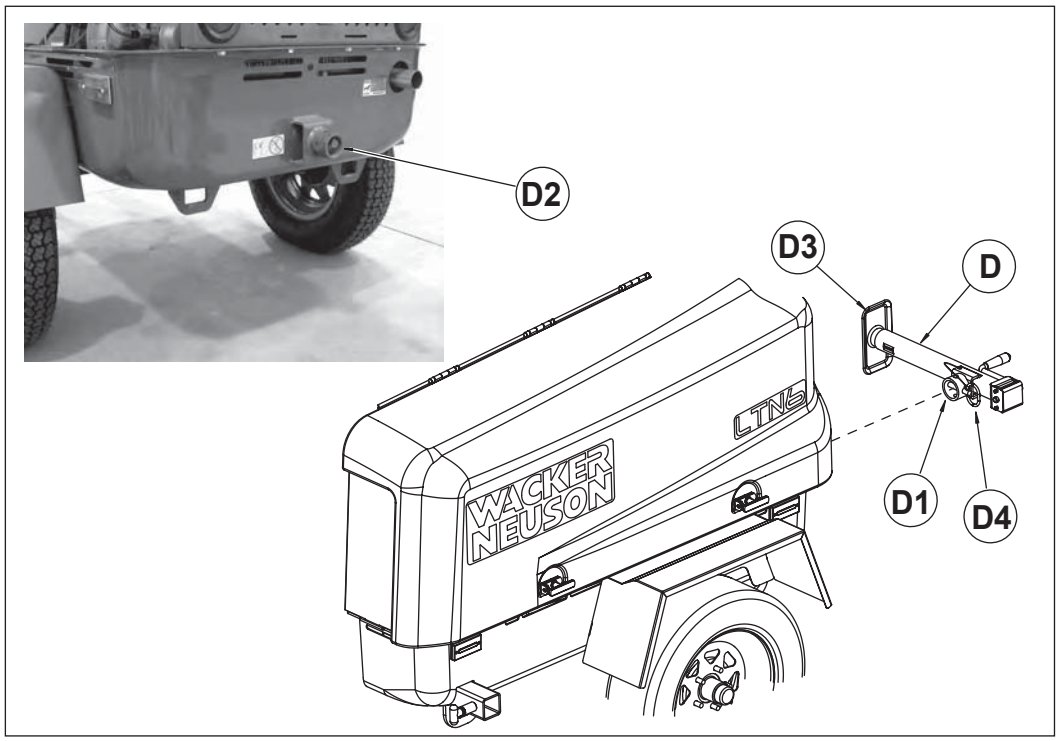
Follow the procedure below to Install the two outrigger jacks. (Use the same procedure for each outrigger jack.)

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.

14.2 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)**.



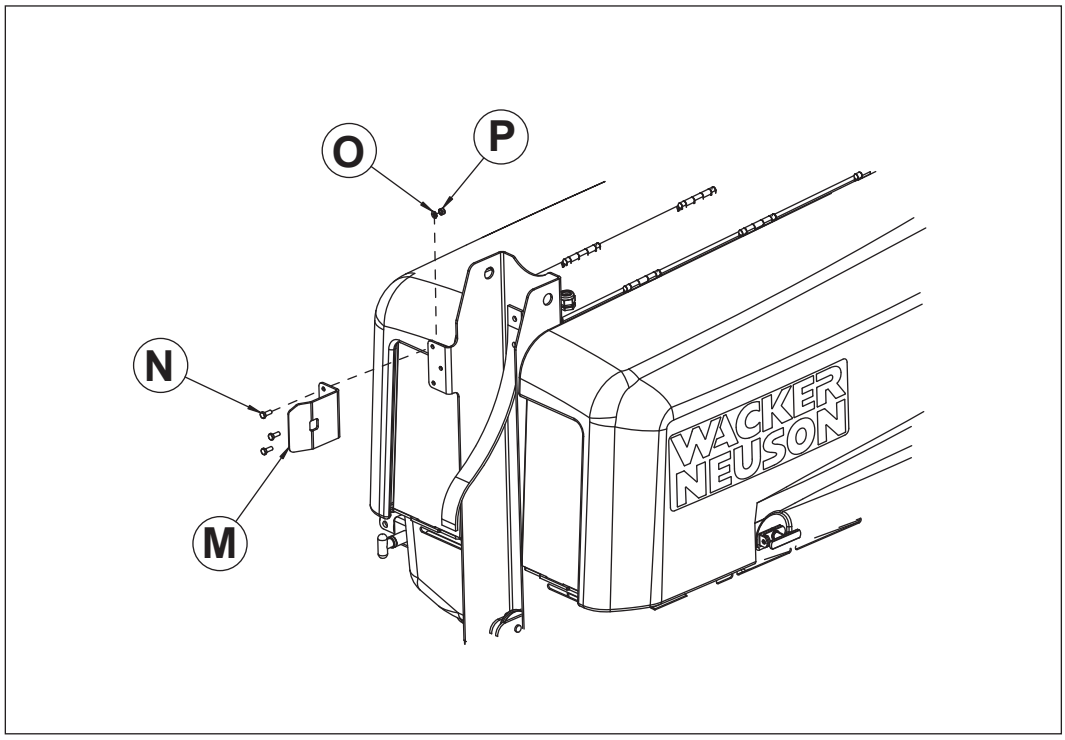
wc_gr006522

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.

14.3 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.).

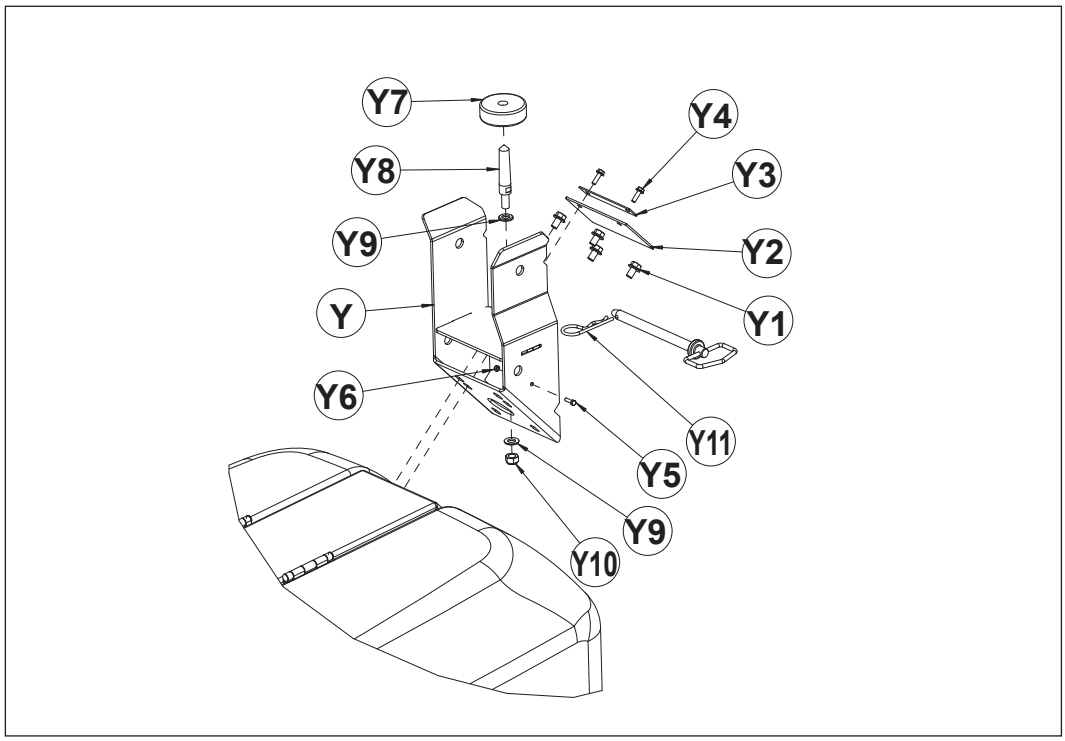
14.4 Installing the Tower Cradle

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)**.

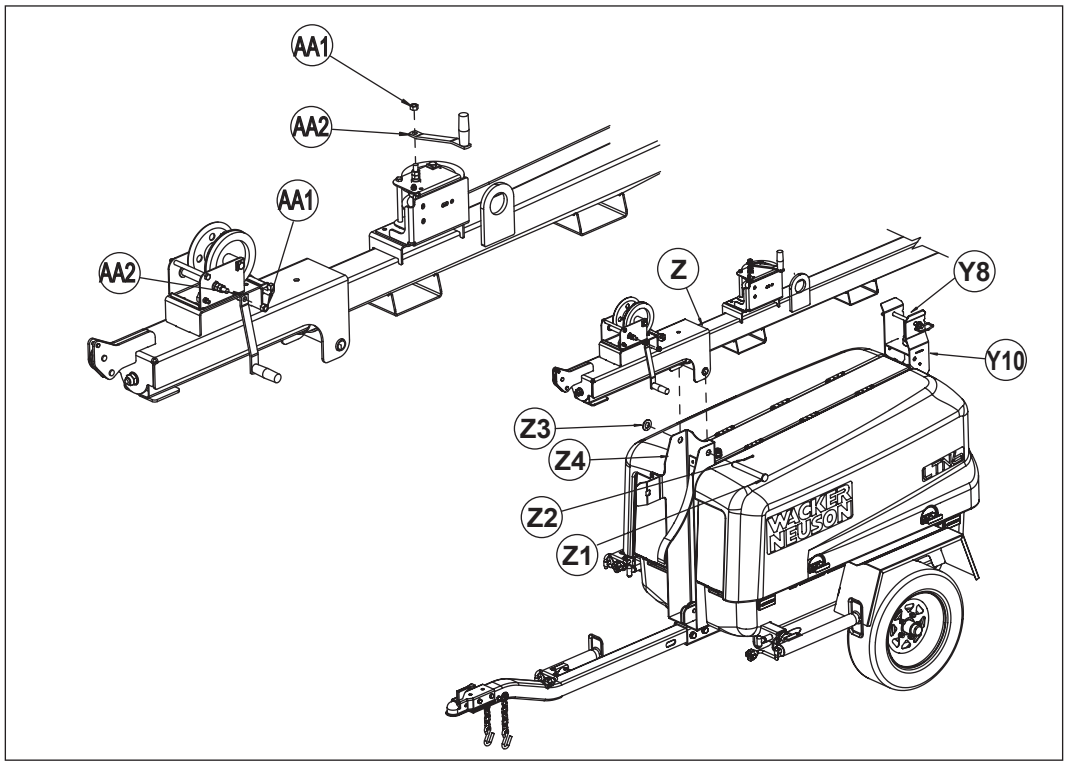
14.5 Installing the Tower

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.

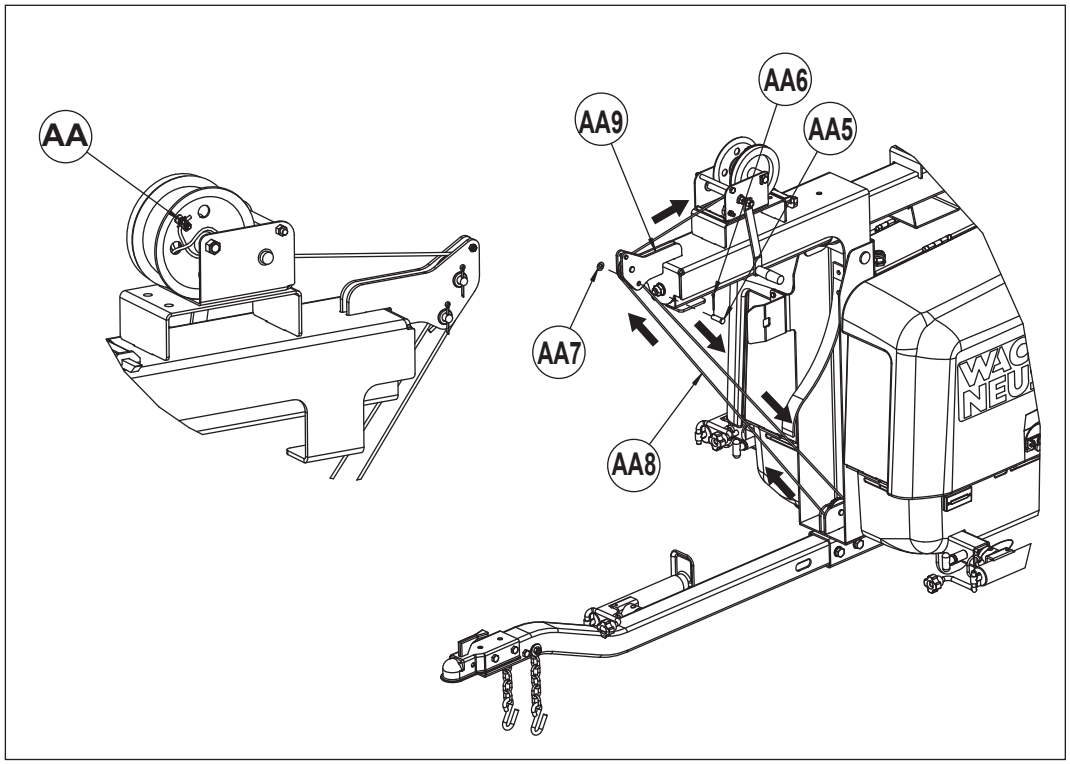
14.6 Installing the Tower Pivot Cable

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_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.

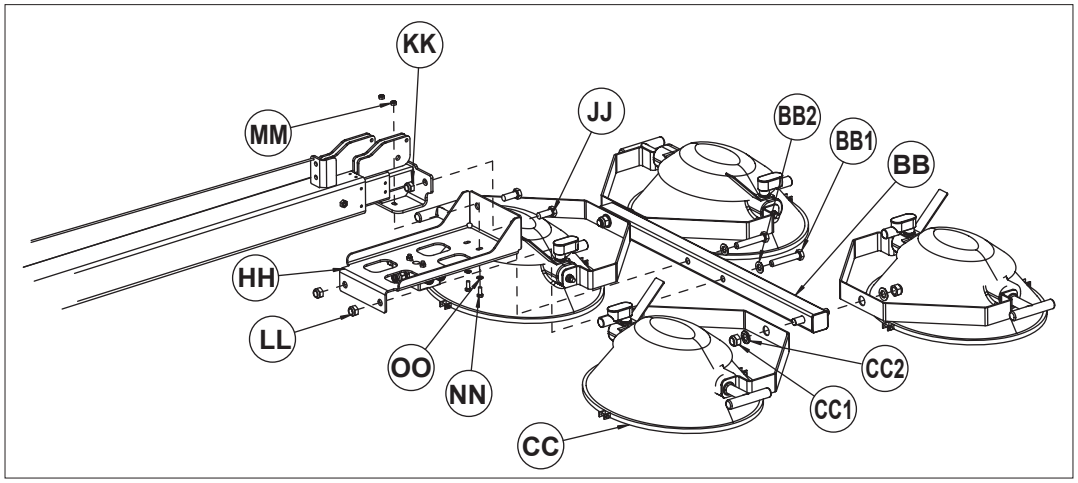
14.7 Attaching the Light Mount Bracket and Light Bar

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)**

   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.)

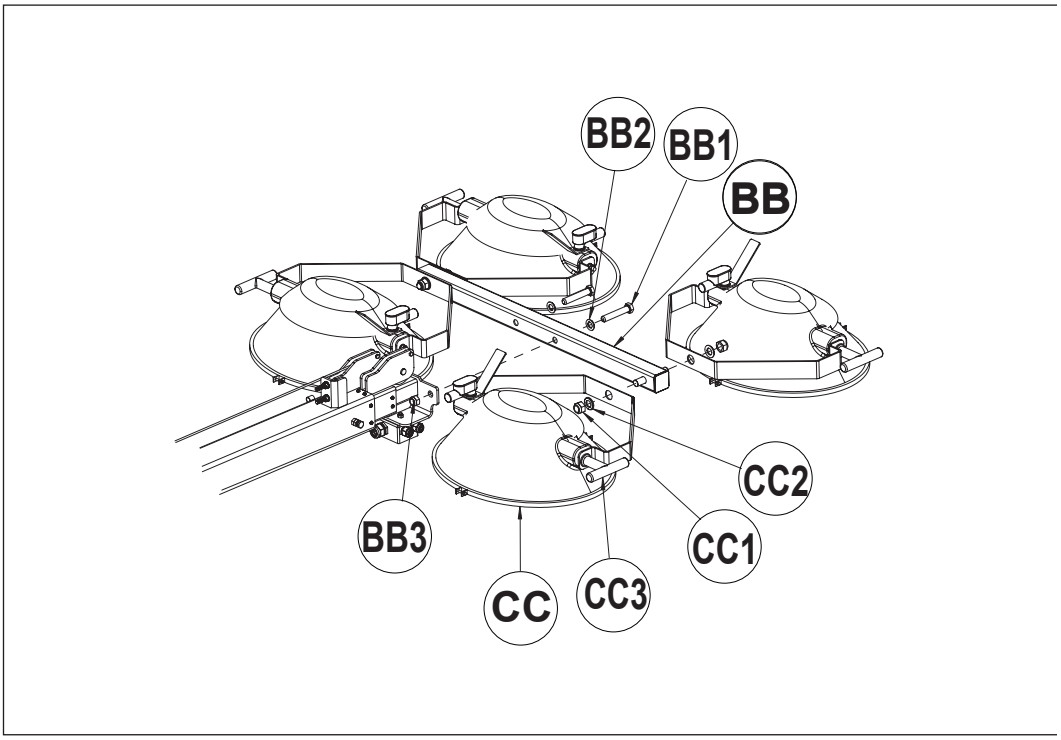
14.8 Attaching the Lights

Materials needed

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

Procedure

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



wc_gr00653

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)** and a B19 flat washer **(CC2)**.

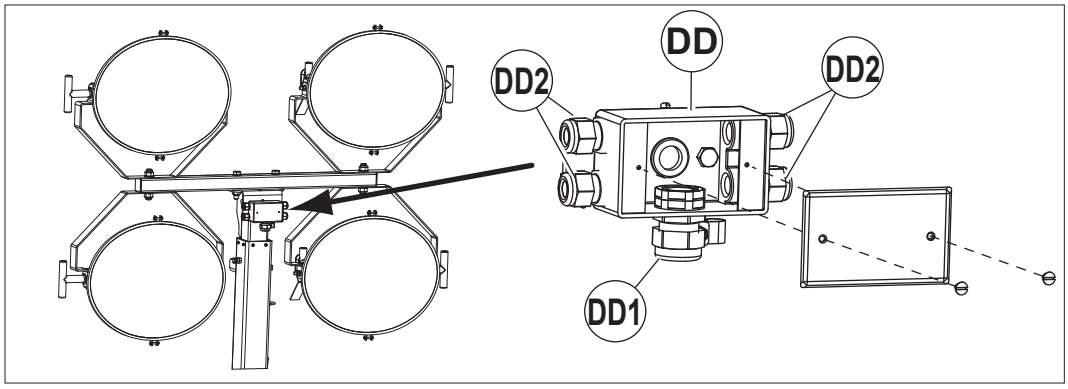
14.9 Connecting the Wiring at the Junction Box

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.



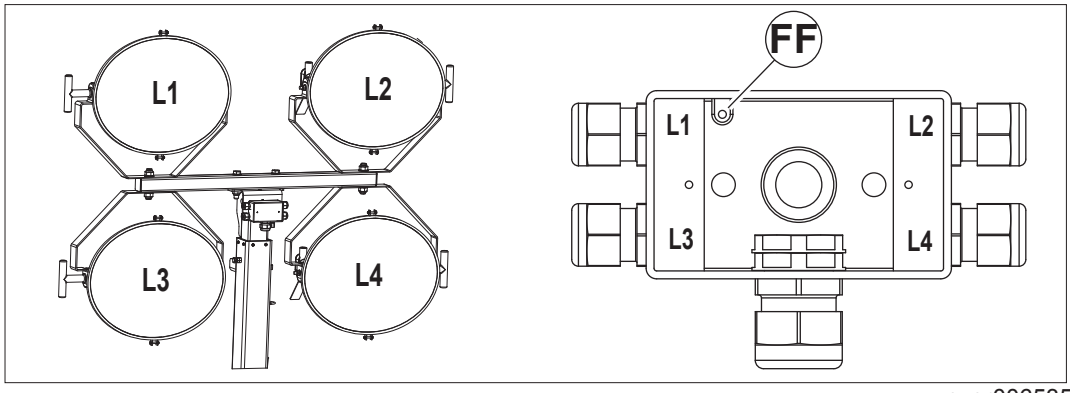
wc_gr006534

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**.



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This procedure continues on the next page.

Connecting the wires

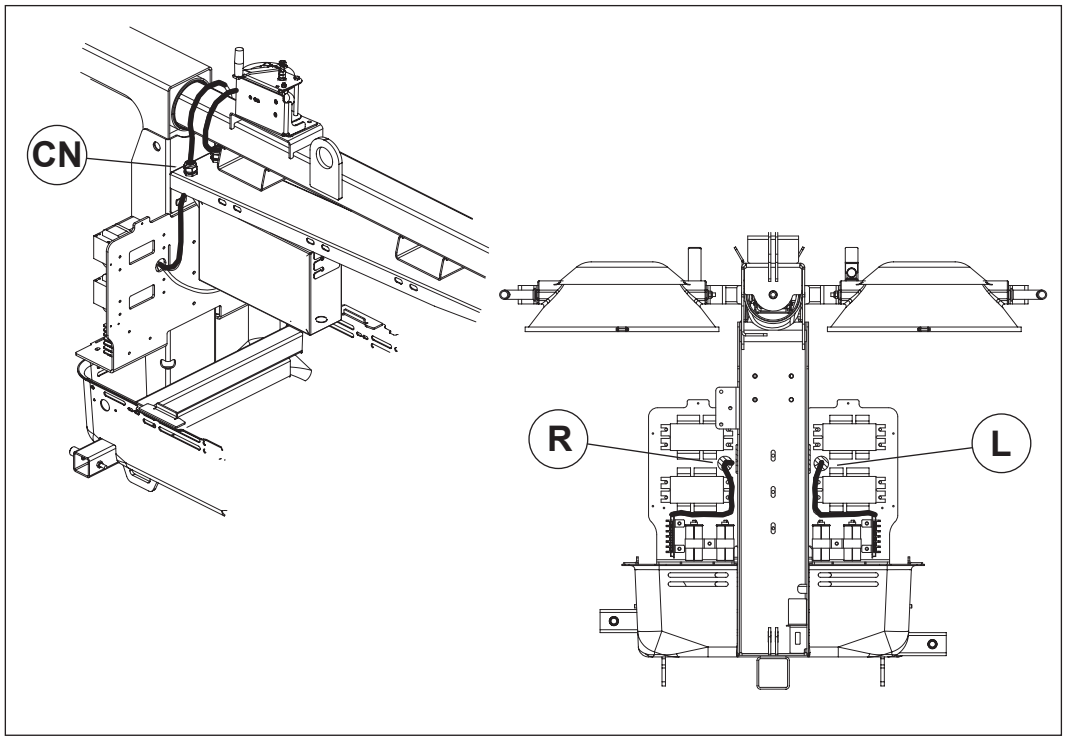
6. Refer to the table below and connect the light fixture wires to the coil cord wires. Use the small connectors and Panduit wire crimper CT-100.

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.

14.10 Routing the Coil Cord

Procedure Follow the procedure below to route the coil cord.

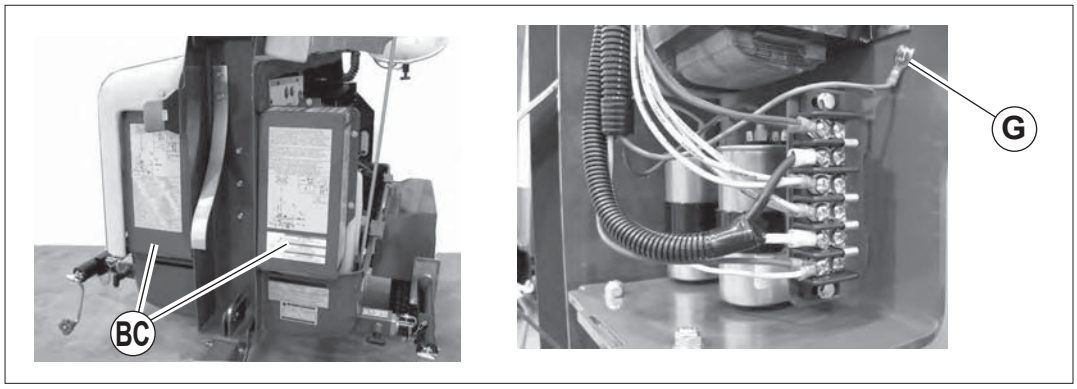


wc_gr006536

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)**.

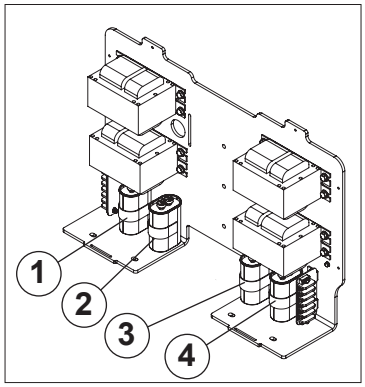
14.11 Wiring the Ballasts and Terminal Strips

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



wc_gr006537

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.

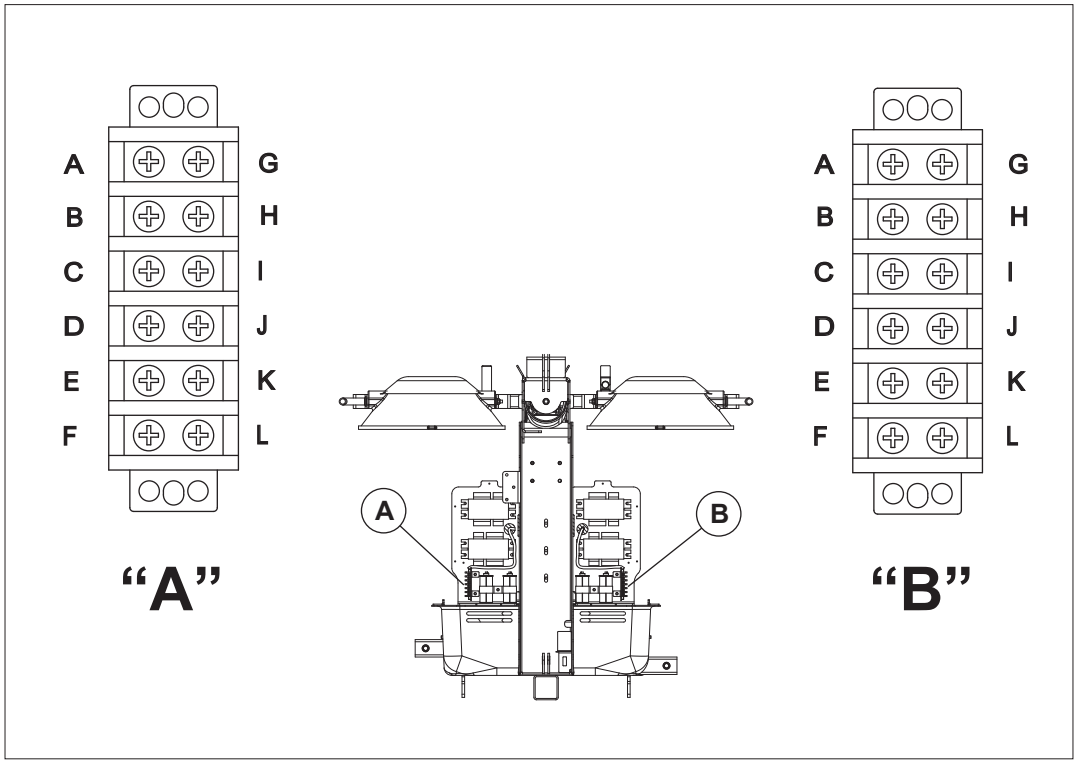


wc_gr006570

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

14.12 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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