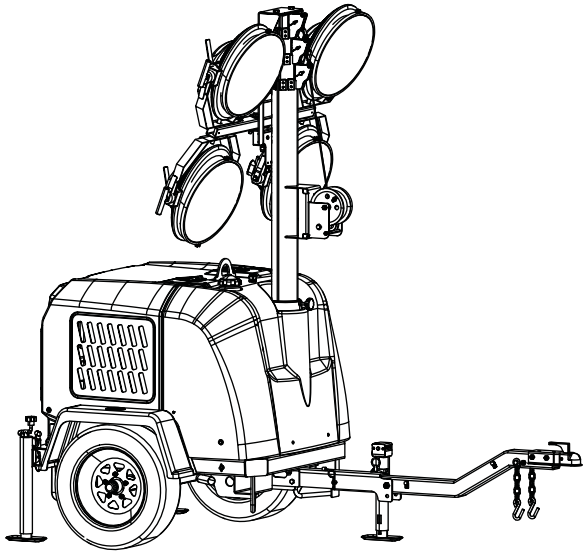
Operator’s Manual

Light Tower

LTV6K, LTV6L, LTV8K
60 Hz



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Manufacturer

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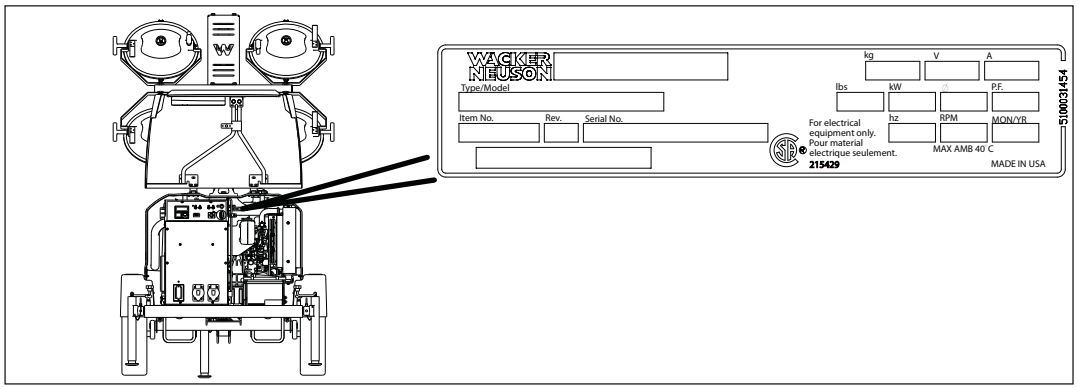
Original instructions

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.



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Machine identification

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

Serial number (S/N)

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

Serial Number:

Machine documentation

- From this point forward in this documentation, Wacker Neuson Production Americas LLC will be referred to as Wacker Neuson.
- Keep a copy of the Operator's Manual with the machine at all times.
- For spare parts information, please see your Wacker Neuson Dealer, or visit the Wacker Neuson website at http://www.wackerneuson.com/.
- When ordering parts or requesting service information, be prepared to provide the machine model number, item number, revision number, and serial number.

Expectations for information in this manual

- This manual provides information and procedures to safely operate and maintain the above Wacker Neuson model(s). For your own safety and to reduce the risk of injury, carefully read, understand, and observe all instructions described in this manual.
- Wacker Neuson expressly reserves the right to make technical modifications, even without notice, which improve the performance or safety standards of its machines.
- The information contained in this manual is based on machines manufactured up until the time of publication. Wacker Neuson reserves the right to change any portion of this information without notice.
- The illustrations, parts, and procedures in this manual refer to Wacker Neuson factory-installed components. Your machine may vary depending on the requirements of your specific region.

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.

CALIFORNIA Proposition 65 Warning

Combustion 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.

1 Safety Information

1.1 Signal Words Used in this Manual

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

This is the safety alert symbol. It is used to alert you to potential personal hazards.

► Obey all safety messages that follow this symbol.

DANGER

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

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

WARNING

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

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

CAUTION

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

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

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

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

1.2 Machine Description and Intended Use

Machine description

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

Intended use

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

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

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

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

- Heat, noise, exhaust, and carbon monoxide from the engine
- Heat from the lights
- Ultraviolet radiation from the lights
- Fire hazards from improper refueling techniques
- Fuel and its fumes
- Electric shock and arc flash
- Personal injury from improper lifting the trailer tongue
- Glare from lights (lights may blind drivers of nearby motor vehicles if the lights are incorrectly positioned)

- Typical hazards related to towing a trailer on roads and highways

To protect yourself and others, make sure you thoroughly read and understand the safety information presented in this manual before operating the machine.

1.3 Operating Safety

Operator training

Before operating the machine:

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

When operating this machine:

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

Operator qualifications

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

- Have received instruction on how to properly use the machine
- Are familiar with required safety devices

The machine must not be accessed or operated by:

- Children
- People impaired by alcohol, drugs or prescription drugs

Application area

Be aware of the application area.

- Keep unauthorized personnel, children, and pets away from the machine.
- Remain aware of changing positions and the movement of other equipment and personnel in the application area/job site.
- Identify whether special hazards exist in the application area, such as toxic gases or unstable ground conditions, and take appropriate action to eliminate the special hazards before using the machine.

Be aware of the application area.

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

Safety devices, controls, and attachments

Only operate the machine when:

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

To ensure safe operation of the machine:

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

Safe operating practices

When operating this machine:

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

When operating this machine:

- Do not operate a machine in need of repair.
- Do not consume the operating fluids used in this machine. Depending on your machine model, these operating fluids may include water, wetting agents, fuel (gasoline, diesel, kerosene, propane, or natural gas), oil, coolant, hydraulic fluid, heat transfer fluid (propylene glycol with additives), battery acid, or grease.

Personal Protective Equipment (PPE)

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

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

Before Starting

- Be sure the machine is on a firm, level surface and will not tip, roll, slide, or fall while operating.
- Never connect the machine to other power sources, such as supply mains of power companies.
- Never use the machine if the insulation on the electrical cord is cut or worn through.
- Never raise the tower or operate the machine in high winds.
- The tower extends up to 7 m (23 ft.). Make sure the area above the trailer is open and clear of overhead wires and obstructions.

Operation

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

After Use

- Stop the engine when the machine is not being operated.
- Close the fuel valve on engines equipped with one when the machine is not being operated.
- Ensure that the machine will not tip over, roll, slide, or fall when not being operated.
- Store the machine properly when it is not being used. The machine should be stored in a clean location out of the reach of children.
- Lower the tower when not in use, or if high winds or electrical storms are expected in the area.

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

1.4 Metal Halide Lamp Safety

Description

The lamps provided with the 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.

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

► Do not operate the machine if a lamp is damaged.

► Replace damaged lamps immediately.

Operating safety

Replace damaged lamps according to the instructions in section *Removing and Replacing Lamps.*

1.5 Service Safety

Service training

Before servicing or maintaining the machine:

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

When servicing or maintaining this machine:

- Do not allow untrained or improperly trained people to service or maintain the machine. Personnel servicing or maintaining the machine must be familiar with the associated potential risks and hazards.
- Maintenance items that can be performed by the operator are listed in this manual. Other repairs should be performed by a qualified technician. Repairs can be hazardous if not performed correctly. Contact your Wacker Neuson dealer service department for additional information or for repairs to your machine.

Precautions

When servicing or maintaining the machine:

- Read and understand the service procedures before performing any service to the machine.
- All adjustments and repairs must be completed before operating the machine. Do not operate the machine with a known problem or deficiency.
- All repairs and adjustments shall be completed by a qualified technician.
- Turn off the machine before performing maintenance or making repairs.
- Remain aware of the machine's moving parts. Keep hands, feet, and loose clothing away from the machine's moving parts.
- Re-install the safety devices and guards after repair and maintenance procedures are complete.
- Before servicing the machine, make sure the engine start switch is turned to the OFF position, the circuit breakers are open (off), and the negative terminal on battery is disconnected. Do not perform even routine service (oil/filter changes, cleaning, etc.) unless all electrical components are shut down.
- Always turn off light circuit breakers and shut down engine before disconnecting light fixtures or changing light bulbs.

Machine modifications

When servicing or maintaining the machine:

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

When servicing or maintaining the machine:

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

Replacing parts and labels

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

Cleaning

When cleaning and servicing the machine:

- Keep machine clean and free of debris such as leaves, paper, cartons, etc.
- Keep labels legible.
- Clean with soapy water only.

When cleaning the machine:

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

Personal Protective Equipment (PPE)

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

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

In addition, before servicing or maintaining the machine:

- Tie back long hair.
- Remove all jewelry (including rings).

1.6 Operator Safety while Using Internal Combustion Engines

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

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

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

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

Operating safety

When running the engine:

- Keep the area around the 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.
- Re-install the fuel tank cap after refueling.
- Use suitable tools for refueling (for example, a fuel hose or funnel).

When refueling the engine:

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

1.7 Safety Guidelines for Lifting the Machine

When lifting the machine:

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

To reduce the possibility of injury:

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

1.8 Safety Guidelines for Towing the Machine

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

► Obey the instructions below to reduce the risk of an accident.

When towing the machine:

- Do not tow the machine if the towing vehicle's hitch or the trailer's coupler are damaged.
- Do not tow the machine if safety chains are damaged.
- Do not tow the machine if any of the trailer's lug nuts are loose or missing.
- Do not tow the machine if the trailer's tires have less than 1/16 inch (1.5 mm) of tread.
- Do not tow the machine if trailer tires are underinflated.
- Do not tow the machine unless the trailer's brakes are functioning properly.
- Do not tow the machine if trailer lighting is not functioning properly.
- Do not exceed the trailer manufacturer's speed limitations of 89 km/h (55 mph).

When towing the machine:

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

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

1.9 Reporting Safety Defects

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

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

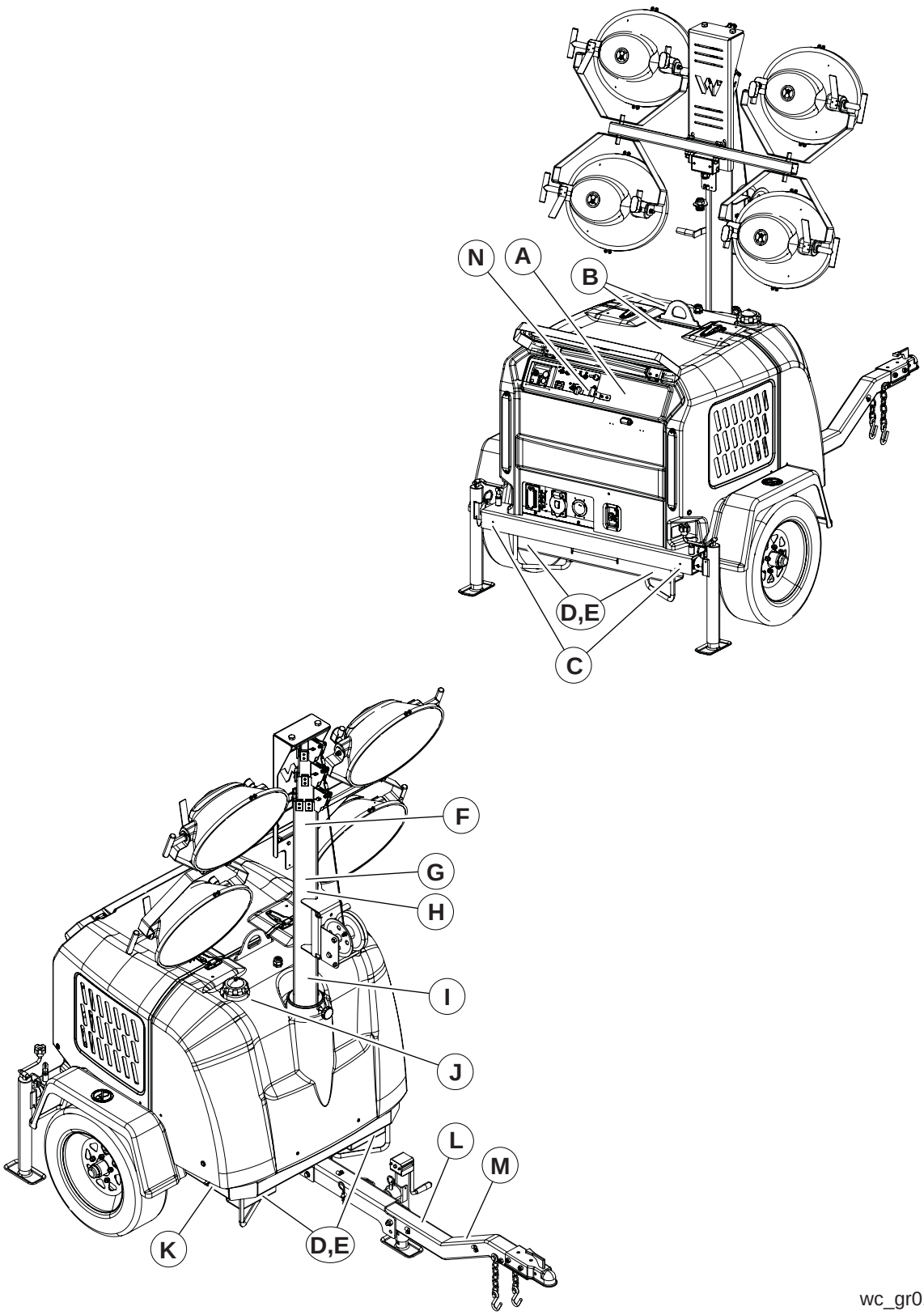
To contact NHTSA, you may either contact the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to http://www.safercar.gov; or write to:

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

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

2 Labels

2.1 Label Locations



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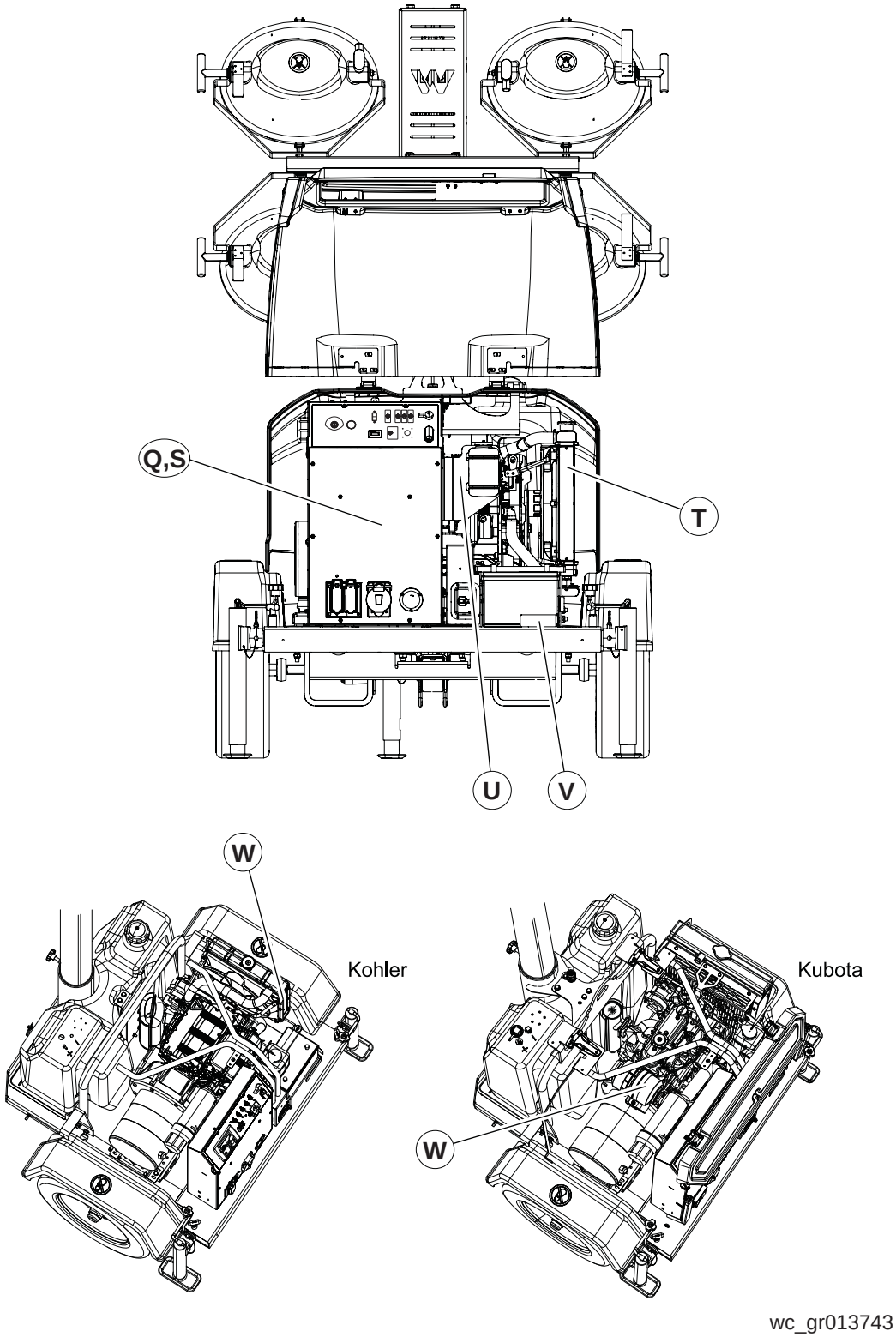

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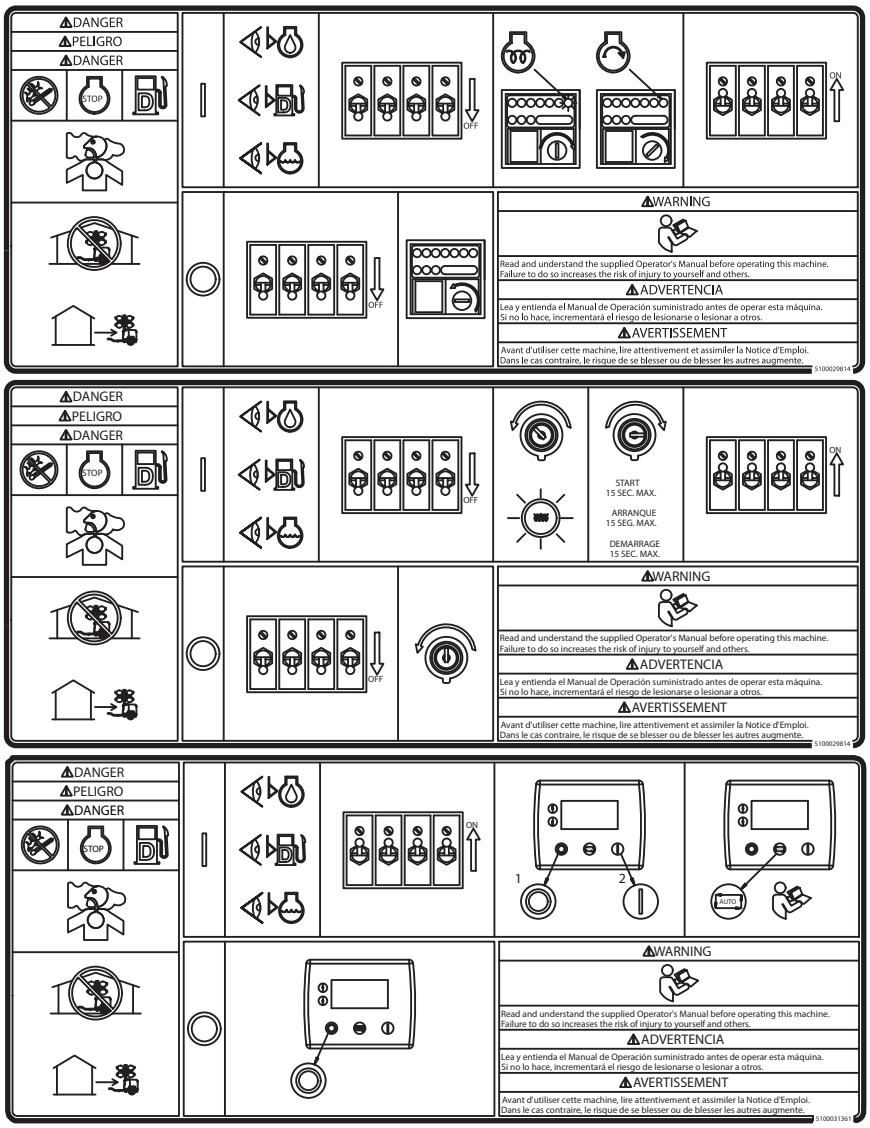
2.2 Label Meanings

A	

A

See Operator's Manual for light fixture information and troubleshooting.
BEFORE STARTING THE ENGINE:

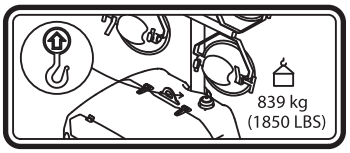
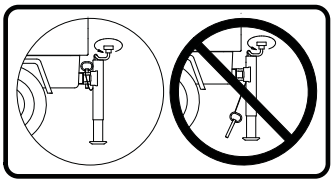
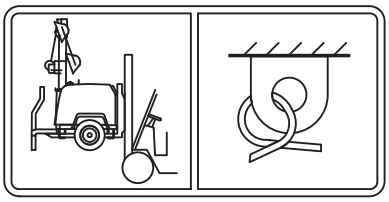
1. Check levels of:
   - Engine oil
   - Fuel
   - Coolant
2. Move the circuit breakers to the OFF position.

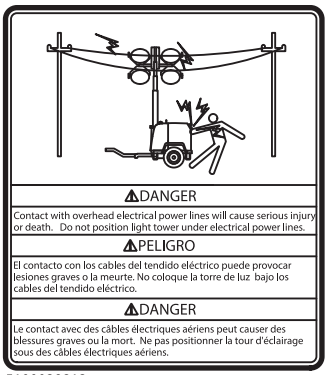
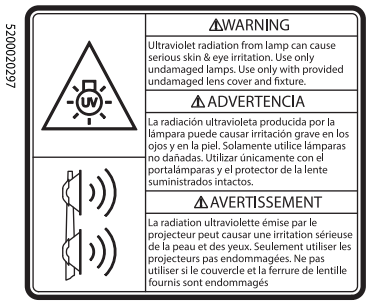
TO START THE ENGINE:

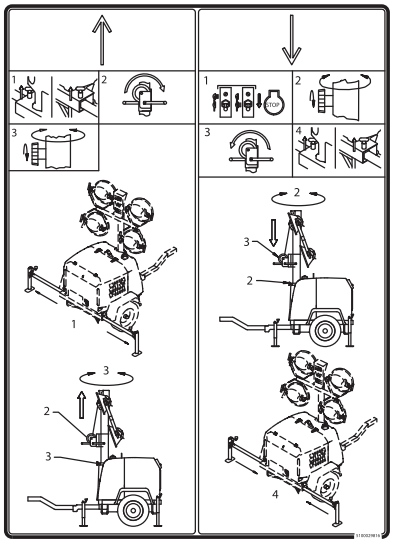
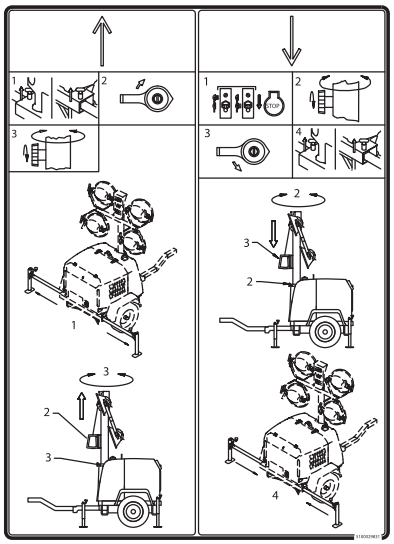
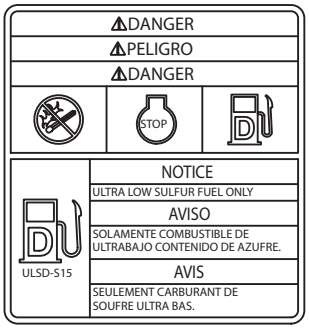
1. On the engine control panel, turn the key switch to the PREHEAT position; the indicator light will illuminate during preheating.
2. When the PREHEAT indicator light goes out, turn the key switch to the START position for a maximum of 15 seconds.
3. When the engine is running, move the circuit breakers to the ON position.

TO SHUT DOWN THE MACHINE:

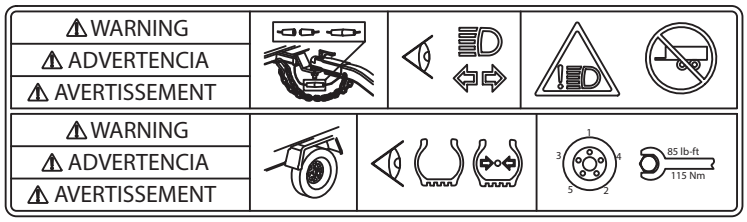
1. Move the circuit breakers to the OFF position.
2. Turn the key switch to the OFF position to stop the engine.

B	 5100029811	NOTICE Lifting point
C	 177123	Insert jack locking pin before extending jack.
D,E	 5100031248	Fork lift pocket Tie-down point
F	 119319	WARNING Avoid crushing area.

G	 5100029812	DANGER Contact with overhead electrical power lines will cause serious injury or death. Do not position Light Tower under electrical power lines.
H		WARNING Ultraviolet radiation from lamp can cause serious skin and eye irritation. Use only with undamaged lamps. Use only with provided undamaged lens cover and fixture.

I		Manual Winch TO RAISE TOWER 1. Lift pins and extend outriggers 2. Raise tower with winch. 3. Loosen mast rotation knob to aim tower. Tighten knob when tower is aimed. TO LOWER TOWER 1. Turn off breakers and engine. 2. Loosen mast rotation knob and rotate tower forward. Tighten knob when tower is facing forward. 3. Lower tower with winch. 4. Lift pins and retract outriggers.
		Power Winch TO RAISE TOWER 1. Lift pins and extend outriggers 2. Raise tower with switch. 3. Loosen mast rotation knob to aim tower. Tighten knob when tower is aimed. TO LOWER TOWER 1. Turn off breakers and engine. 2. Loosen mast rotation knob and rotate tower forward. Tighten knob when tower is facing forward. 3. Lower tower with switch. 4. Lift pins and retract outriggers.
J	 5100031249	Ultra low sulfur fuel only
K		Electrical ground

L



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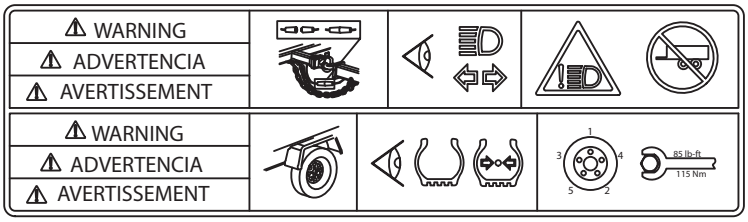

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WARNING

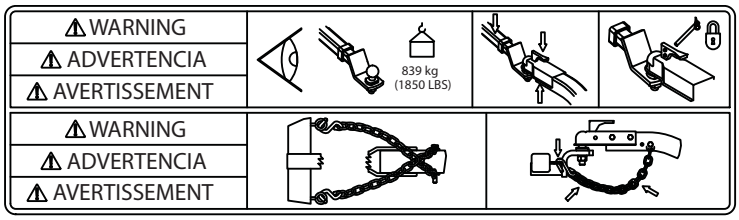
(On trailer, if equipped)

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

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

WARNING
Tire, wheel or lug nut failure can cause loss of control. Before towing, you must CHECK:
1. Tire pressure and tread.
2. Tires and wheels for damage.
3. Lug nuts for tightness. Lug nuts should be tightened to 85 ft-lbs. For new and remounted wheels, re-tighten lug nuts at the first 10, 25, and 50 miles of driving.

M



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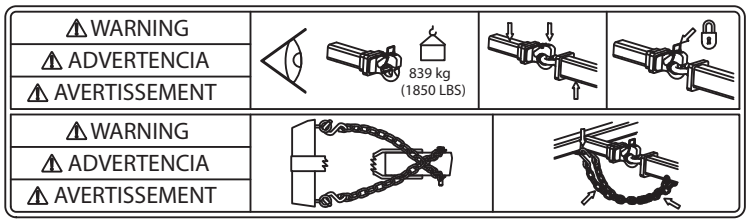

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WARNING

(On trailer, if equipped)

Uncoupling will cause trailer to come loose from tow vehicle. You must:

1. CHECK that ball LOAD RATING is same as or greater than coupler LOAD RATING.
2. CHECK that ball SIZE is same as coupler.
3. CLOSE COUPLER CLAMP on ball.
4. LIFT coupler upwards to test that it will not separate from ball.
5. LOCK coupler clamp with pin or padlock.

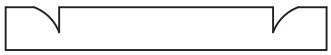
WARNING

(On trailer, if equipped)

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

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

N



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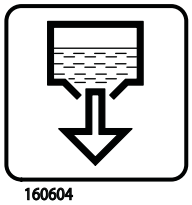
Light cover

P



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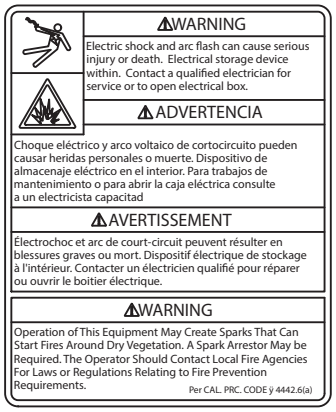
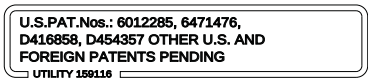
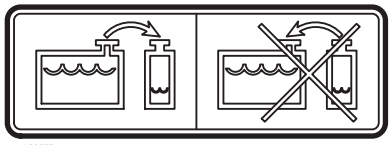
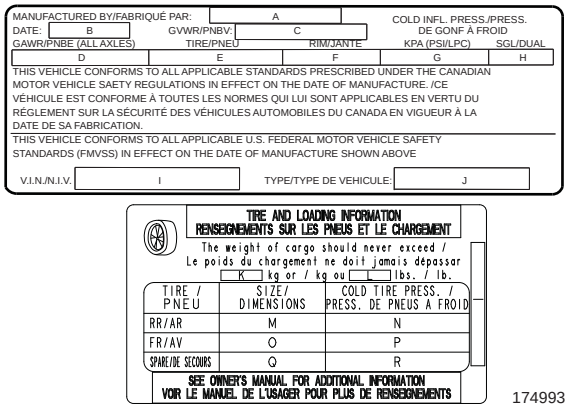
(if equipped)

Skid drain access point

Q	 5100031250	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. 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.
S		This machine may be covered by one or more patents.
T	 178775	WARNING ■ Pressurized contents. Do not open when hot! ■ Pinching / cutting hazards. ■ Rotating machinery.
U	 180577	Coolant overflow bottle only, not a return system.
V	 114891	WARNING Disconnect battery before servicing. Read the Operator's Manual.

W		WARNING Explosion hazard. ■ Do not use evaporative starting fluids such as ether on this engine. ■ The engine is equipped with a cold starting aid. Using evaporative starting fluids can cause an explosion which can cause engine damage, personal injury, or death. ■ Read and follow the engine starting instructions in this Operator's Manual.
—		(if equipped) Notification of National Association of Trailer Manufacturers (NATM) compliance
—	 174993	
	(On trailer, if equipped) Certification Label (VIN Number) Also attached to each unit is a Certification Label. This label specifies that the trailer conforms with all Federal Motor Vehicle Standards in effect at the time of manufacture. The label includes the Vehicle Identification Number (VIN) for the trailer.	

3 Lifting and Transporting

3.1 Lifting the Machine

Requirements

- Properly rated lifting equipment (crane or hoist). See Chapter *Technical Data*.
- Machine stopped.
- All doors and access covers closed and secured.
- Tower is completely lowered.
- The winch **(e)** and lights are facing foward.
- Outriggers have been returned to their travel position.
- Outrigger bars and jacks are locked in place.
- Outrigger jacks **(c)** are completely cranked in and rotated 180°.

WARNING
Crushing hazard. You may be crushed if the lifting devices fail.

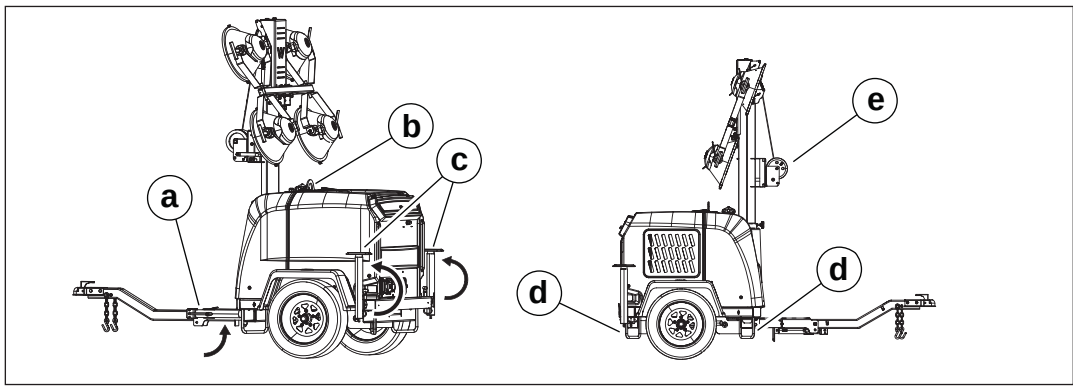
► Never stand under, or get onto, the machine while it is being lifted or moved.

► Use only the designated lifting points to lift the machine.

Procedure

Perform the procedure below to lift the machine.

1. Attach the lifting equipment to the lifting eye **(b)** on the machine using hooks, shackles, and chains or insert forks into the fork pockets **(d)**.



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2. Lift the machine a small distance.

WARNING
Crushing hazard. An unstable machine may cause the lifting devices to fail. You may be crushed if the lifting devices fail.

► Check for stability before continuing.

3. Check for stability. If necessary, lower the machine, reposition the lifting device, and lift the machine a small distance again.
4. Continue lifting the machine as necessary.

3.2 Preparing the Machine for Transport on a Truck or Trailer

Requirements

- Machine stopped.
- Flatbed truck or trailer capable of supporting the machine's weight.
- Chains, hooks, or straps capable of supporting the machine's weight.

WARNING
Crushing hazard. Improperly securing the machine can lead to a crushing hazard.

► Use only the designated tie-down points to secure the machine to a truck or trailer.

Checklist

Before transporting the machine, check the following items:

Machine

- ☐ All doors and access panels of the machine are closed.
- ☐ All electrical connections are disconnected from the machine.
- ☐ The generator is shut down.
- ☐ The tower is completely lowered.
- ☐ The outriggers are in the travel position.
- ☐ The outrigger bars and jacks are locked in place.
- ☐ The tongue jack is in the travel position.

Loading and transporting equipment

- ☐ The transport vehicle or trailer can support the weight of the machine.
- ☐ The wheels of the transport vehicle or trailer are chocked during the loading process.
- ☐ The transport vehicle or trailer is clean and free of grease, oil, ice, and other loose material.
- ☐ Do not use the machine's trailer jack to support the trailer tongue during transporting.
- ☐ Check that any ramps used in the loading process:
  - Can support the weight of the machine
  - Are clean and free of grease, oil, ice, and other loose material.
  - Are securely connected to the transport vehicle or trailer.
  - Are of sufficient length to keep the loading angle 15° or less.

In addition:

- ☐ The loading area is flat and the ground is stable.
- ☐ The overall height of the machine once loaded. Plan your travel route so that there will be adequate clearance for overpasses, road signs, buildings, etc.
- ☐ Check local regulations regarding transporting and obey these regulations.

3.3 Before Towing Checklist

For trailer machines only.

Before towing the machine, check the licensing requirements for trailers in your area. Check the following items:

Machine

- ☐ All doors and access panels of the machine are closed.
- ☐ All electrical connections are disconnected from the machine.
- ☐ The generator is shut down.
- ☐ The tower is completely lowered.
- ☐ The outriggers are in the travel position.
- ☐ The outrigger bars and jacks are locked in place.
- ☐ The tongue jack is in the travel position.

Hitch and coupler

- ☐ The towing vehicle and hitch have a rating equal to or greater than the GVWR of the machine. See *Technical Data*.
- ☐ The hitch of the towing vehicle and coupler of the trailer are compatible.
- ☐ The condition of both the coupler and the hitch.
- ☐ That all fasteners on the coupler are secure.
- ☐ That the coupler has fresh grease applied to it.

Wheels

- ☐ That all lug nuts are in place and are properly torqued.
- ☐ The tread wear of the tires.
- ☐ That the tires are inflated to the proper pressure.

Trailer operation

- ☐ The directional and running lights on the trailer function correctly.
- ☐ The safety chains of the trailer are connected to the towing vehicle using a crisscross pattern.

3.4 Towing the Machine

WARNING
Risk of severe injury or death. Improperly torqued lug nuts can lead to loss of wheels. Loss of wheels can cause an accident, severe injury or death.

► Tighten the lug nuts to the proper torque before towing the machine.

NOTICE: Wacker Neuson recommends a maximum towing speed of 88 km/h (55 mph) on highways and paved roads and 16 km/h (10 mph) on rugged roads and terrain.

Procedure

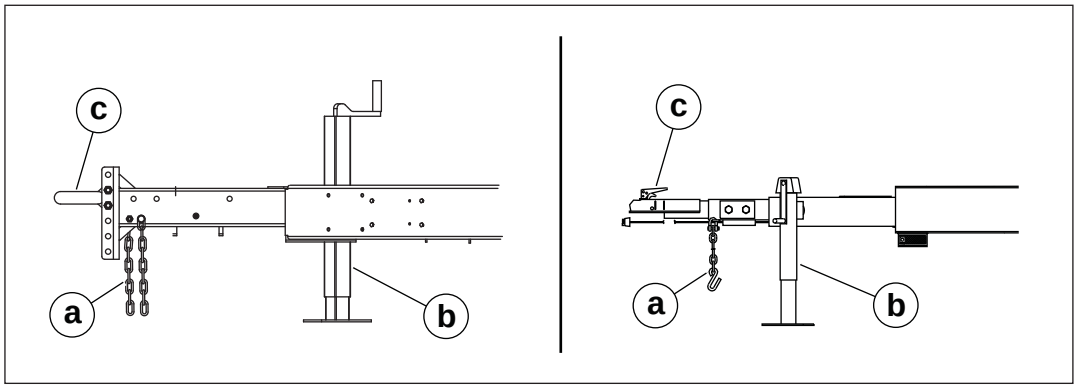
Perform the procedure below when towing the machine.

1. Read and follow the towing safety guidelines. See topic *Safety Guidelines for Towing the Machine*.
2. Complete the shut-down procedures.
3. Adjust the amount of fuel in the machine to approximately 70% capacity to avoid fuel spillage.
4. Complete the Before Towing Checklist. See topic *Before Towing Checklist*.
5. Connect the machine to the towing vehicle and connect the lights.
6. Rotate the trailer and tongue jacks to a horizontal position.
7. Tow the machine as needed.

3.5 Trailer

Background

The machine's trailer is equipped with safety chains **(a)**, tongue jack **(b)**, lights, and a coupler (pintle or ball-type) **(c)**.



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Licensing requirements

- In most states, large trailers must be registered and licensed by the State Department of Transportation. Before towing, be sure to check licensing requirements.
- Drivers towing trailers may be required to carry a commercial driver's license (CDL). Check your local and state licensing regulations before towing the generator.

Coupler maintenance

- A film of grease on the coupler will extend coupler life and eliminate squeaking. Wipe the coupler clean and apply fresh grease each time the trailer is towed.

Towing safety

- When towing, maintain extra space between vehicles and avoid soft shoulders, curbs and sudden lane changes. If you have not pulled a trailer before, practice turning, stopping, and backing up in an area away from heavy traffic.

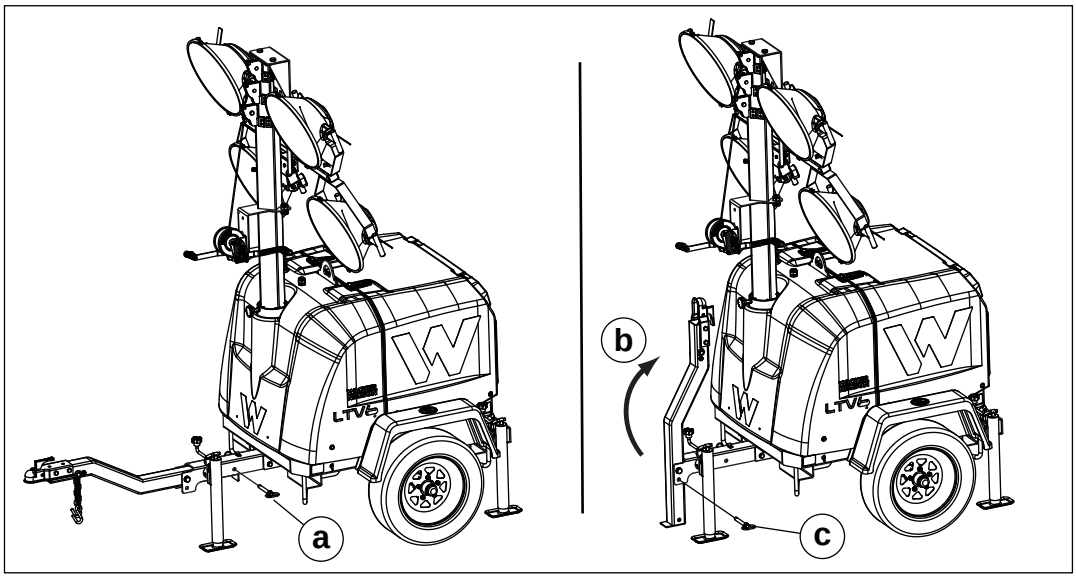
Do not exceed 55 mph when towing a trailer.

3.6 Flip-up Tongue

Background The flip-up tongue allows the machine to be stored in a smaller space than a machine with a conventional tongue.

Procedure Perform the procedure below to raise the flip-up tongue to the storage position.

1. Remove the pin behind the tongue jack **(a).**



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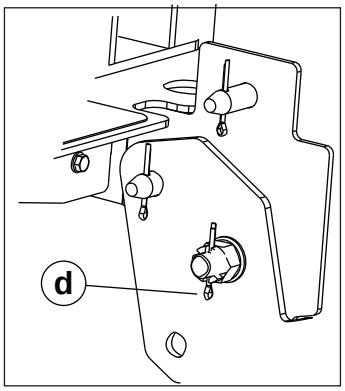
2. Rotate the tongue into the storage position **(b)** and insert the pin **(c)**.
3. Install cotters **(d)** in all the pins.



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Towing Reverse the procedure when preparing the tongue for towing.

4 Machine Setup

4.1 Preparing the Machine for First Use

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

4.2 Positioning the Machine

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

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

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

► Shut down the machine before moving or repositioning it.

WARNING
Electric shock hazard. The tower extends up to 7 m (23 ft.) and could contact overhead wires or obstructions.

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

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

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

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

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

CO Alarms

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

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

Requirements

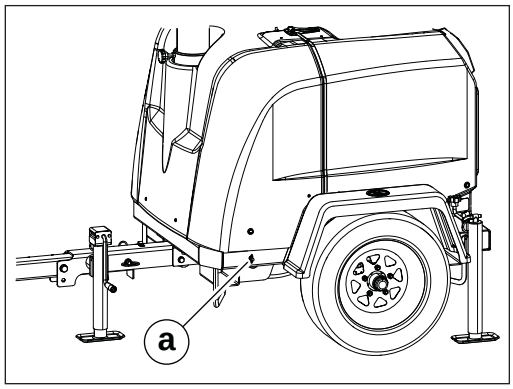
Position the machine so that:

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

4.3 Ground Connection

Location

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



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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.

Internal grounding

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

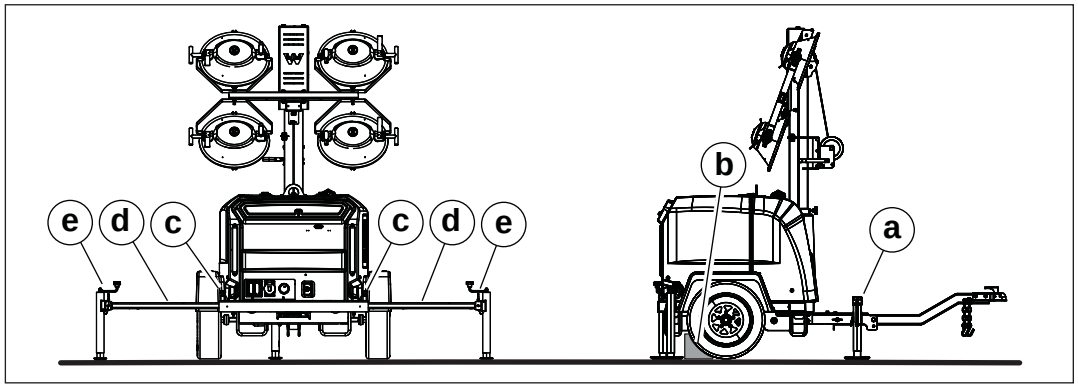
4.4 Leveling the Trailer—Vertical Mast Light Towers

WARNING
Tipping and falling hazard. Failure to level the trailer or extend the outriggers will reduce the stability of the unit.

► Level the trailer and extend the outriggers before raising the tower. The outriggers must remain extended while the tower is up.

Procedure Perform the procedure below to level the trailer.

1. Pull the locking pin on the tongue jack **(a)** and rotate the tongue jack down 90° as shown. Reinsert the pin once the jack is in position.



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2. Block or chock the trailer wheels **(b)**.
3. Crank the tongue jack **(a)** down to raise the trailer tongue off the vehicle.
4. Pull the outrigger lock pins **(c)** to release the outriggers. Pull both outriggers **(d)** out until you feel the lock pin snap into place.
5. Pull the locking pins on the outrigger jacks **(e)**. Rotate the jacks down 180°. Reinsert the pins once the jacks are in position.
6. Extend the jack(s) on the highest side(s) of the trailer until they rest firmly on the ground. Extend the remaining jacks until the trailer is level.

4.5 Refueling the Machine

Requirements

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

Procedure

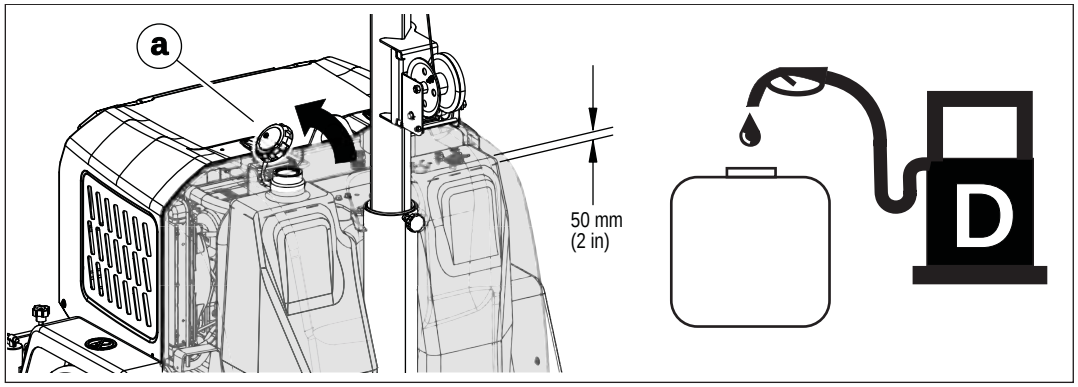
Perform the procedure below to refuel the machine.

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.

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



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

CAUTION

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

- ► Do not fill the fuel tank completely.

3. Re-install the fuel cap.

Result

The procedure to refuel the machine is now complete.

4.6 Aiming the Lights—Vertical Mast Light Towers

Overview

- Each individual light fixture can be independently aimed up, down, left, or right. There are four total light fixtures on each machine.
- This procedure is not for rotating the lights as a single unit while the tower is raised. This procedure requires the tower is lowered and the machine is stopped. To rotate the lights, see topic *Rotating the Lights*.

Requirements

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

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

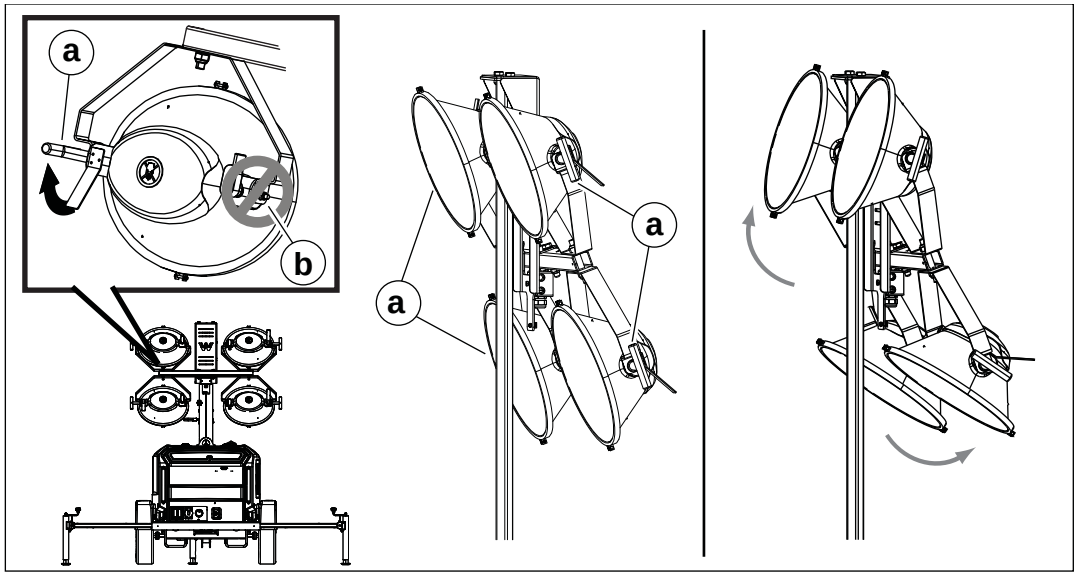
Aiming the light fixtures

Aiming Up or Down

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

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

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



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

This procedure continues on the next page.

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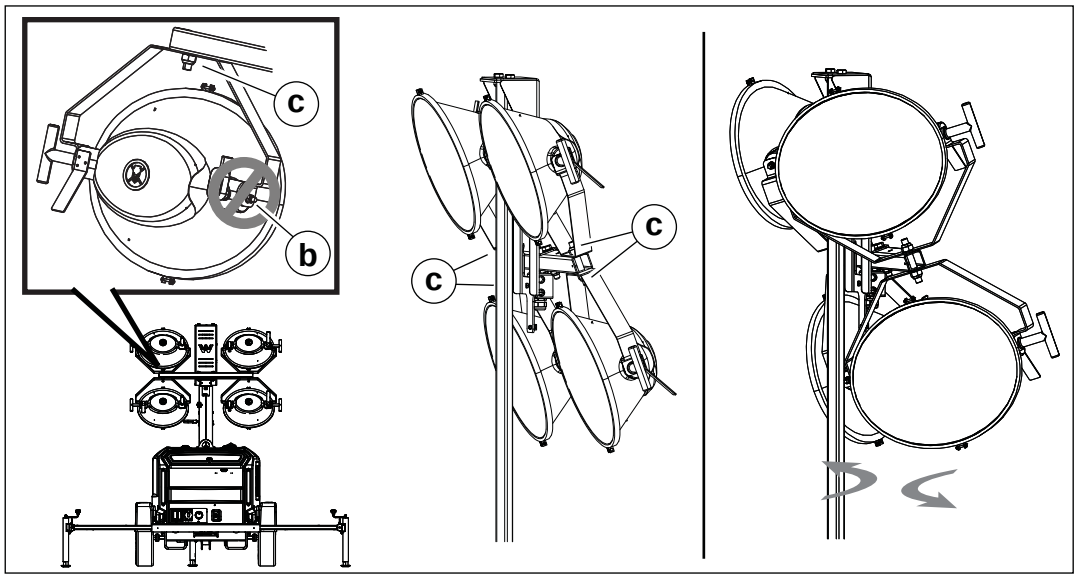
Aiming Left or Right

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

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



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2. If loosened, tighten the bracket nut **(c)** when the light is aimed properly.
Note: *The bracket nut* **(c)** *should be only tight enough so that slight resistance is present when aiming the fixture.*

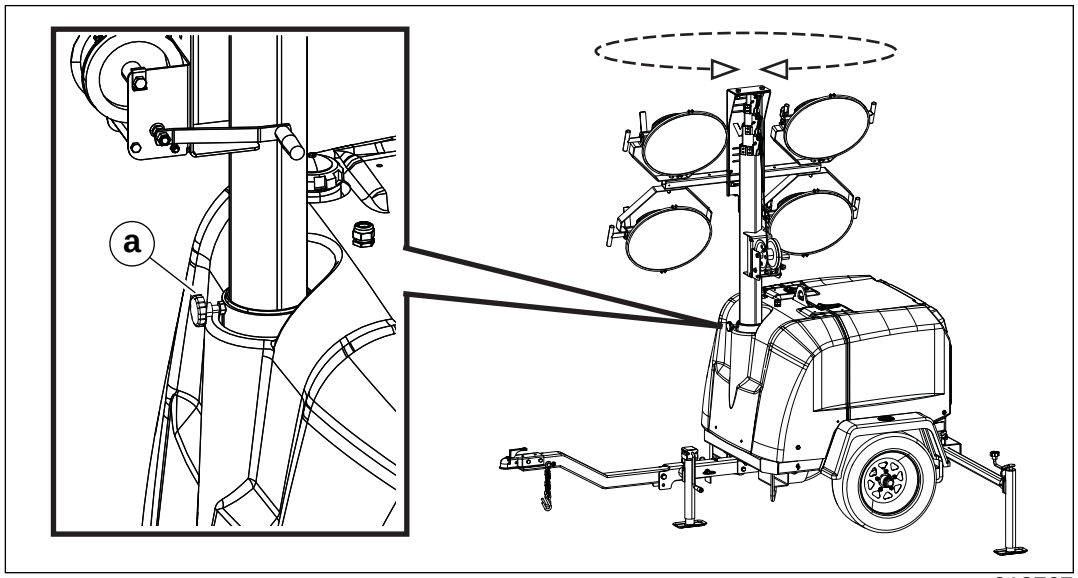
3. Repeat steps 1–2 for each remaining light fixture, if desired.

4.7 Manually Rotating the Light Bar

Overview The operator can rotate the light bar 360° while the tower is lowered.

Procedure Perform the procedure below to rotate the light bar.

1. Loosen out the locking knob **(a)**.



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2. Rotate the light bar to the desired position.
3. Tighten the locking pin **(a)**.

Note: *Before towing, aim the light bar forward. Be sure the locking pin seats into a hole in the light bar. Holes are positioned at 90° angles.*

4.8 Raising the Tower—Manual Winch System

Background

The Light Tower includes a telescoping winch for raising the tower. The winch is an automatic brake-type winch that automatically brakes when the handle is released. The handle must be rotated to wind in the cable as well as to unwind the cable.

Requirements

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

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

► Repair or replace the cord before using the machine.

WARNING
Electrocution hazard.

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

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

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

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

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

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

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

This procedure continues on the next page.

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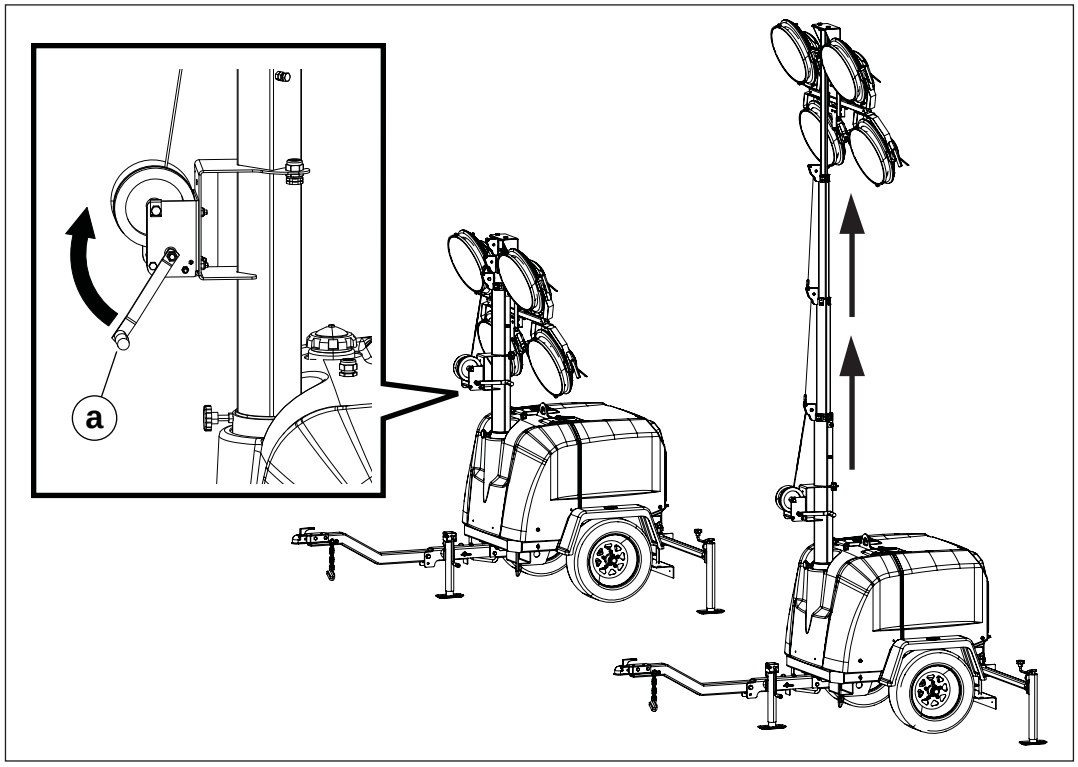
Reference graphic



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Procedure

Perform the procedure below to raise the tower.

NOTICES

- Do not attempt to raise the tower if the winch is damaged or not operating properly, or if the winch cables are worn or damaged.
- The tower and light bar can be rotated 360°. If you wish to position the light bar so the lights illuminate to the left, to the right, or to the rear, the light bar should be rotated when the tower is fully lowered. See topic *Manually Rotating the Light Bar*.

Raising the tower

1. Check the operation of the telescoping winch **(a)** by rotating its handle 1/4 turn clockwise (“cable in” direction). The winch pawl must engage the winch gear teeth. When operating properly, the winch pawl will make a “clicking” sound when its handle is rotated clockwise.
2. Continue rotating the winch handle until the tower is at the desired height. Do not overcrank the winch when the tower is fully extended.

4.9 Lowering the Tower—Manual Winch System

Requirements

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

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

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

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

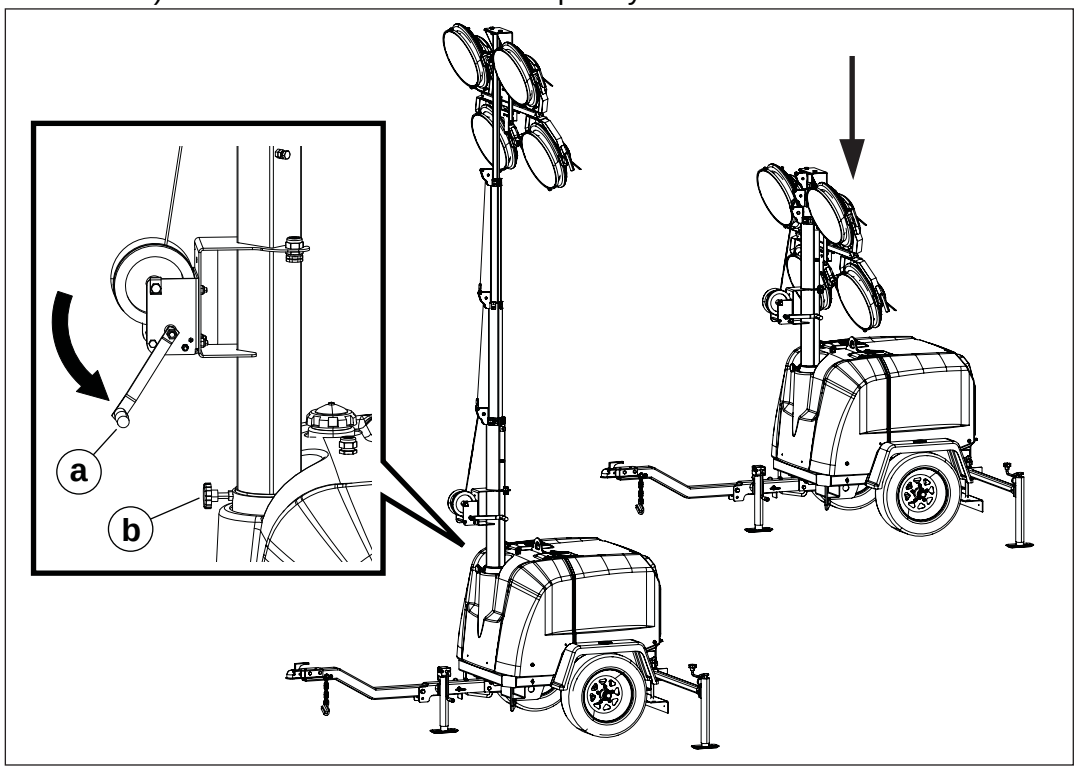
Procedure

Perform the procedure below to lower the tower.

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

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

1. Turn the handle on the telescoping winch **(a)** counterclockwise (“cable out” direction) until the tower is lowered completely.



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2. If the light bar has been rotated, loosen the locking knob **(b)** and rotate the tower so the light bar and winch are facing toward the trailer tongue. See topic *Manually Rotating the Light Bar*.
3. If the lights have been aimed vertically or horizontally, return them to a position parallel to the light bar. See topic *Aiming the Lights—Vertical Mast Light Towers.*

4.10 Raising the Tower—Power Winch System

Background The Light Tower includes a telescoping winch for raising the tower.

Requirements

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

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

► Repair or replace the cord before using the machine.

WARNING
Electrocution hazard.

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

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

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

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

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

► Do not allow anyone to stand near the front of the machine while raising the tower.

This procedure continues on the next page.

Continued from the previous page.

Procedure

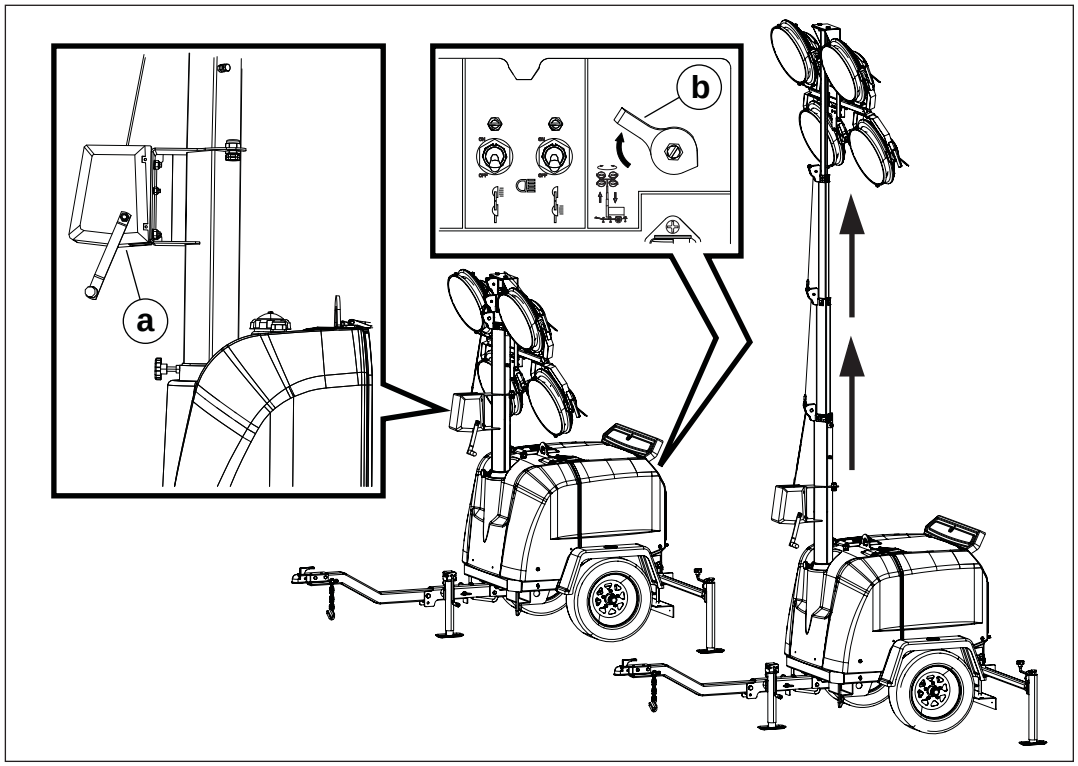
Perform the procedure below to raise the tower.

NOTICES

- Do not attempt to raise the tower if the winch is damaged or not operating properly, or if the winch cables are worn or damaged.
- The tower and light bar can be rotated 360°. If you wish to position the light bar so the lights illuminate to the left, to the right, or to the rear, the light bar should be rotated when the tower is fully lowered. See topic *Manually Rotating the Light Bar*.

Raising the tower

1. Check the operation of the telescoping winch **(a)**. Turn the telescope rotary switch **(b)** on the control panel to the up position.



wc_gr013772

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

4.11 Lowering the Tower—Power Winch System

Requirements

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

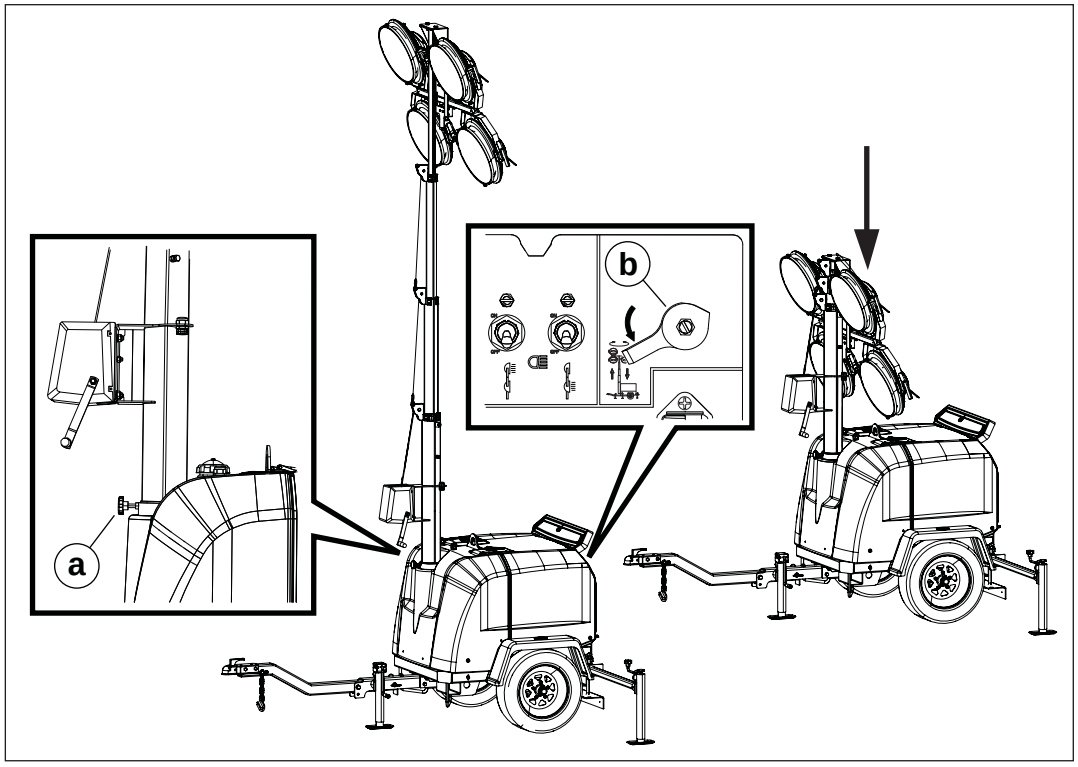
WARNING
Tipping/falling hazards. Certain actions may cause the tower to fall or the machine to tip over.

Procedure Perform the procedure below to lower the tower.

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

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

1. Hold the rotary switch **(b)** in the down position (“cable out” direction) until the tower is completely lowered.



wc_gr013773

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2. If the light bar has been rotated, loosen the locking knob **(a)** and rotate the tower so the light bar and winch are facing toward the trailer tongue. See topic *Manually Rotating the Light Bar*.
3. If the lights have been aimed vertically or horizontally, return them to a position parallel to the light bar. See topic *Aiming the Lights—Vertical Mast Light Towers.*

5 Operation

5.1 Generator Derating

Description

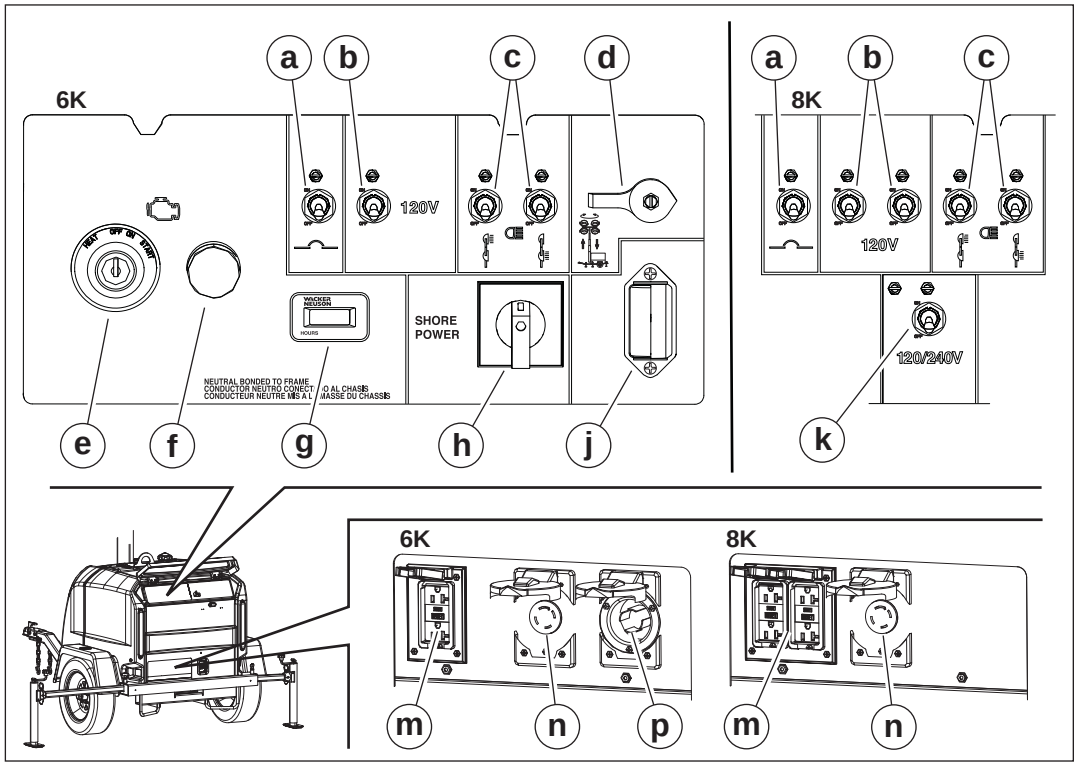
All generator sets are subject to derating (reduced power output) depending on the altitude and ambient temperature. Derating should not affect the operation of the floodlights, although it will reduce the available reserve power to the receptacle.

Derating percentages

Power ratings are typically reduced by the following percentages:

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

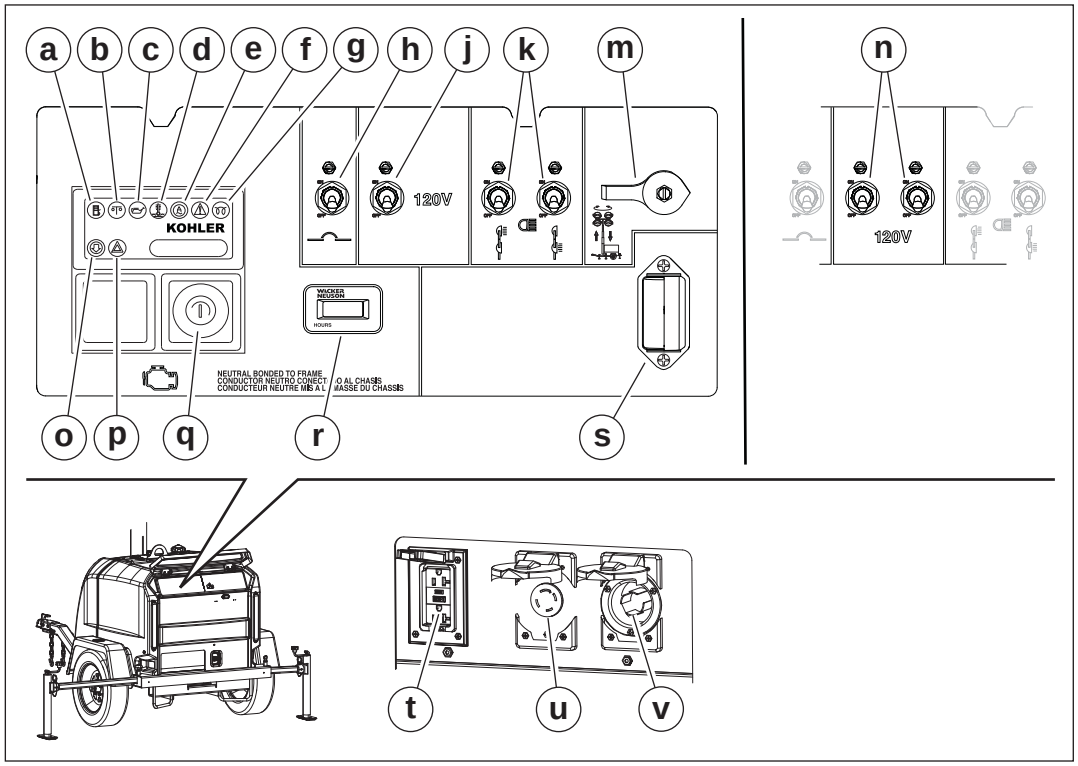
5.2 Control Panels and Receptacles—KUBOTA



wc_gr013749

Ref.	Description	Ref.	Description
a	33A main circuit breaker (8K) 50A main circuit breaker (6K)	**h**	Shore power switch (optional for 6K)
b	33A GFI circuit breaker (8K) 25A GFI circuit breaker (6K)	**j**	Control panel light
c	30A lights circuit breaker	**k**	30A receptacle breaker (standard for 8K)
d	Tower winch rotary switch (optional)	**m**	20A GFI receptacle
e	Key switch	**n**	30A receptacle
f	Glow plug indicator	**p**	Shower power inlet (optional for 6K)
g	Hour meter		

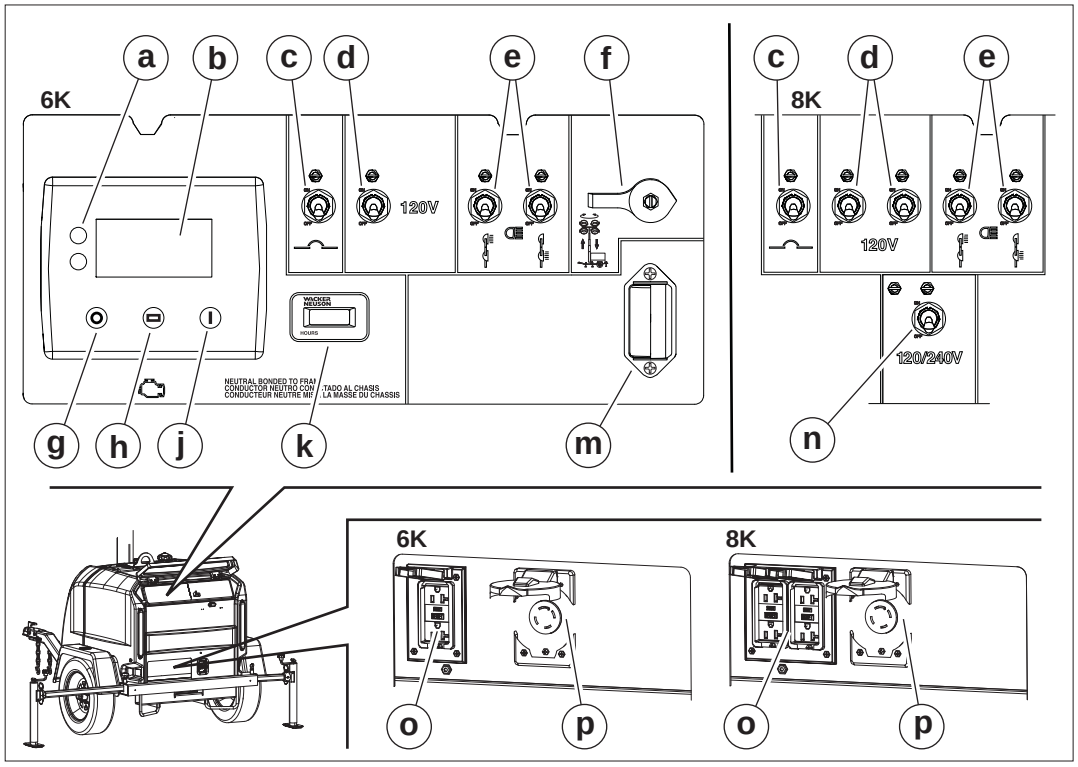
5.3 Control Panels and Receptacles—KOHLER



wc_gr013750

Ref.	Description	Ref.	Description
a	Low fuel indicator (not used)	**m**	Tower winch rotary switch (optional)
b	Safety shut-down indicator	**n**	20A GFI circuit breakers (optional)
c	Low oil pressure shut-down indicator	**o**	Air filter restriction indicator
d	High coolant temperature shut-down indicator	**p**	Auxiliary lights (not used)
e	Alternator indicator	**q**	Key switch
f	Auxiliary lights (not used)	**r**	Hour meter
g	Glow plug indicator	**s**	Control panel light
h	50A main circuit breaker	**t**	20A GFI receptacle
j	20A GFI circuit breaker	**u**	30A receptacle (optional)
k	30A lights circuit breaker	**v**	Shore power inlet (optional)

5.4 Control Panel and Receptacles—DeepSea

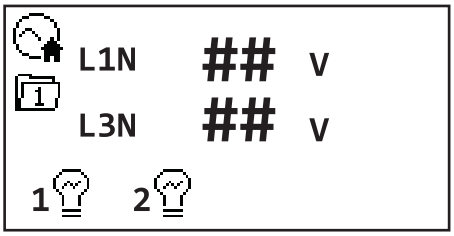
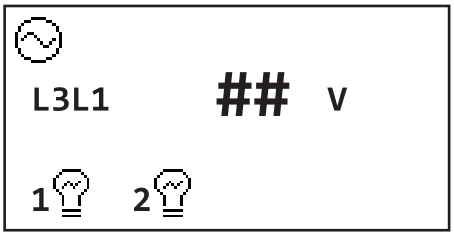
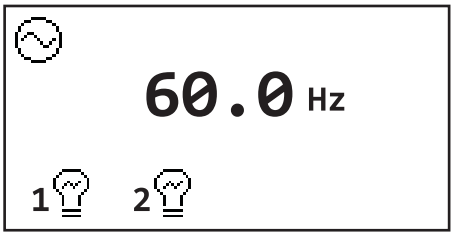
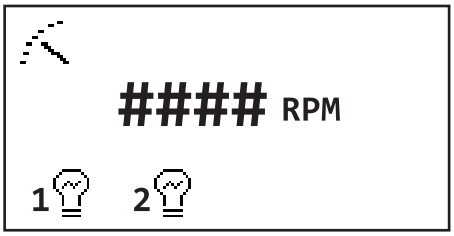
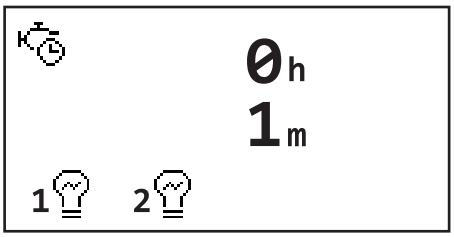


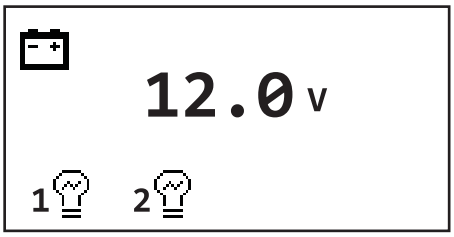
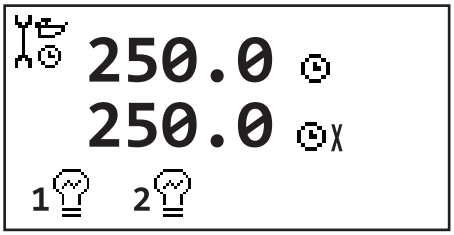
wc_gr013748

Ref.	Description	Ref.	Description
a	Menu navigation buttons (up/down)	**h**	Auto start button
b	Controller display	**j**	Start button
c	25A main circuit breaker (6K) 33A main circuit breaker (8K)	**k**	Hour meter
d	20A GFI circuit breaker	**m**	Control panel light
e	30A lights circuit breaker	**n**	30A receptacle breaker (standard for 8K)
f	Tower winch rotary switch (optional)	**o**	20A GFI receptacle
g	Stop/reset button	**p**	30A receptacle

5.5 Machine Monitoring – DeepSea

Description Engine and generator information is displayed on the the LCD panel The user can scroll through the screens to monitor machine parameters.

 wc_gr012363	**Volts "V"-** Displays the AC output voltage being produced by the generator.
 wc_gr012362	**Volts "V"-** Displays the AC output voltage being produced by the generator.
 wc_gr012361	**Hertz "Hz"** - Displays output frequency. This gauge should read approximately 60 Hz under a no-load condition. If the frequency is too high, check the engine rpm.
 wc_gr012364	Displays the engine rpm.
 wc_gr012356	Displays the metered usage of the machine in hours (h) and minutes (m).

 wc_gr012357	Displays the available voltage of the battery.
 wc_gr012360	Displays the maintenance interval as well as the time remaining until maintenance is required. Each parameter is displayed on a separate screen: ■ Oil change ■ Air filter ■ Fuel filter

5.6 Alarms and Shut-Down Conditions – DeepSea

Background

The Light Tower controller monitors variables of engine and machine function. The Light Tower controller has two types of alarms: warning alarms and shut-down alarms.

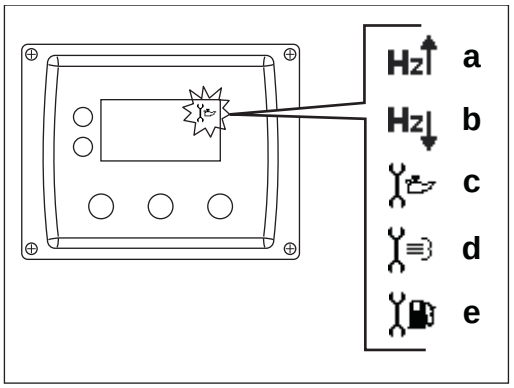
Warning alarms

Warnings are non-critical alarm conditions that do not affect the operation of the generator system. They serve to draw the operator's attention to an undesirable condition. Warning alarms are self-resetting when the fault condition is removed.

Warning alarms include:

a. Generator over-frequency
b. Generator under-frequency
c. Time to maintenance-oil
d. Time to maintenance-air filter
e. Time to maintenance-fuel filter

During a warning alarm condition, the LCD panel displays the type of warning alarm. The machine is not shut down.



wc_gr012354

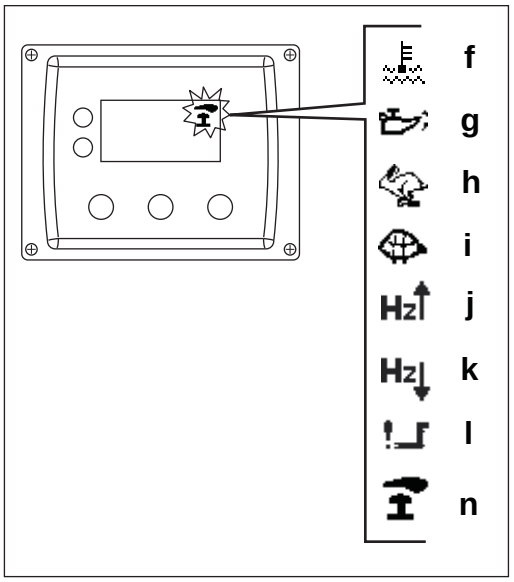
Shut-down alarms

Shut-down alarms are latching alarms and stop the generator. Shut-down alarms include:

f. High coolant temperature
g. Low oil pressure
h. Overspeed
i. Underspeed
j. Generator over-frequency
k. Generator under-frequency
l. Overcrank
m. Low coolant level (if equipped)
n. Emergency stop

During a shut-down alarm condition, the LCD panel displays the type of alarm that caused the machine shutdown. Remove the fault condition, then press "Stop".

This procedure continues on the next page.



wc_gr012355

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Alarm and Shutdown limits

Variable	Normal	Warning	Shutdown	To Reset
Overspeed	60 Hz	63 Hz	66 Hz	Press “Stop”.
Underspeed	60 Hz	57 Hz	55 Hz	Press “Stop”.
Overcrank	—	—	After 3 attempts	Press “Stop”.
Time to maintain: ■ Oil ■ Air ■ Fuel	750 hours 250 hours 500 hours	0 hours	—	Navigate to the applicable maintenance screen and press and hold “Stop” for 10 seconds.

5.7 Resetting the Maintenance Timers – DeepSea

Background

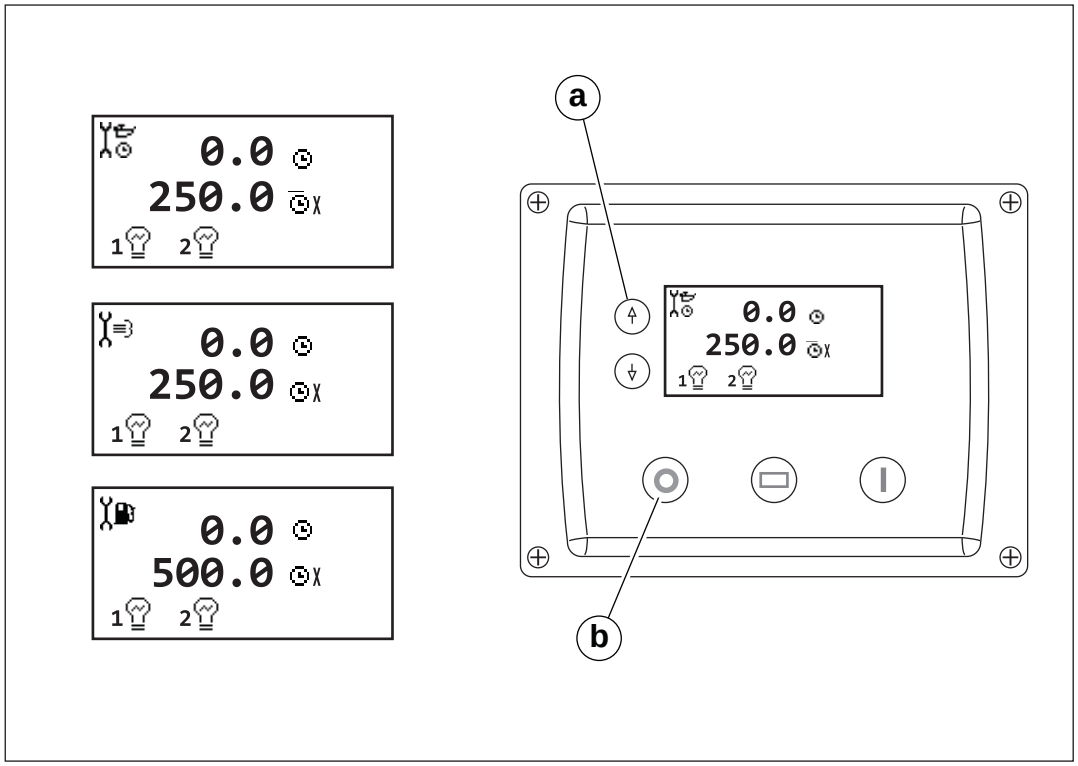
The maintenance timers are preset on the controller. When the timer expires, the alarm will display in the upper right corner of the screen. The maintenance timers are preset as follows:

- Oil change interval: 750 hours
- Air filter change interval: 250 hours
- Fuel filter change interval: 500 hours

Procedure

After the required maintenance has been completed, perform the following procedure to reset a maintenance timer.

1. Use the up and down arrows **(a)** to navigate to the applicable screen.



wc_gr012367

2. Press and hold the “Stop” button **(b)** for 10 seconds. The timer will reset.

5.8 Before Starting

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

CAUTION

Improper machine setup may cause injury or equipment damage.

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

Check machine condition

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

Check the engine

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

Review safety information

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

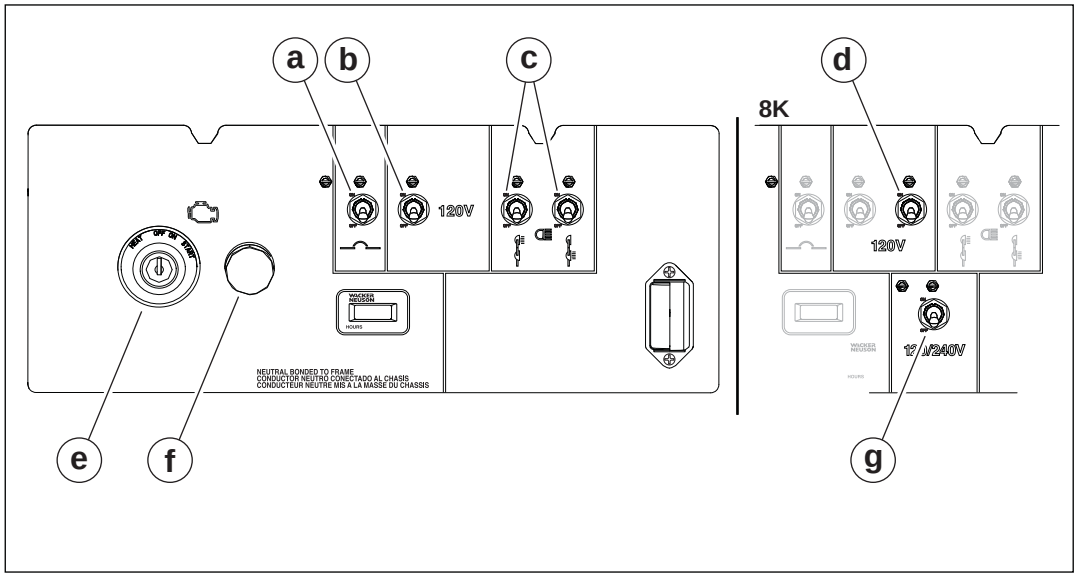
5.9 Starting, Operating, Stopping the Machine—KUBOTA

Requirements

- Before starting checks completed. See topic *Before Starting.*
- Electrical cables in good condition with no cuts or abrasions in the insulation.
- Circuit breakers **(a, b, c, and d, g for 8K)** are in the OFF position.
- All loads are disconnected from the machine.

NOTICES

- Do not use evaporative starting fluids (for example, ether) to start the engine.
- Do not start the engine under load.



wc_gr013751

Starting the machine

Perform the procedure below to start the machine.

1. Rotate the key **(e)** counterclockwise to the “HEAT” position.
   - The glow plug indicator **(f)** will illuminate.
   - The glow plug indicator will turn off when the engine is preheated.

NOTICE: Cranking the engine longer than 20 seconds could cause damage. If the engine does not start, return the key to the “OFF” position and wait 1 minute for the starter to cool before proceeding.

2. Immediately rotate and hold the key **(e)** to the “START” position until the engine starts, then release the key.
3. Allow the engine to warm up before operating the lights.

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

This procedure continues on the next page.

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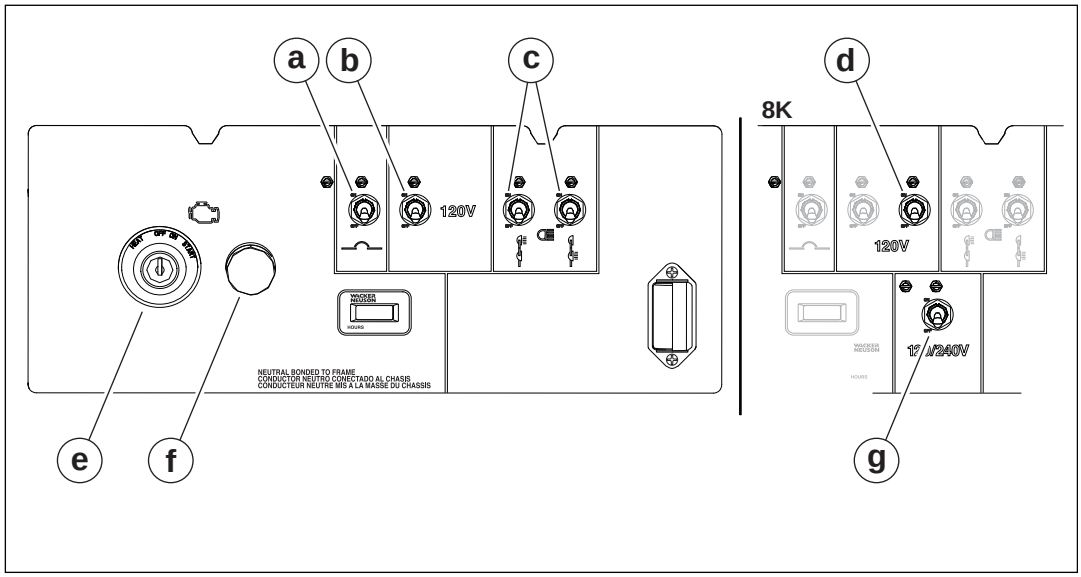
Operating the lights

Perform the procedure below to operate the lights.

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



wc_gr013751

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

Notes

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

Stopping the machine

NOTICE: Turn off the lights before stopping the engine. Failure to do so will damage the electrical system.

Perform the procedure below to stop the machine.

1. Disconnect all loads from the machine.
2. Turn the circuit breakers **(a)** off.
3. Rotate the key **(e)** to the OFF position.

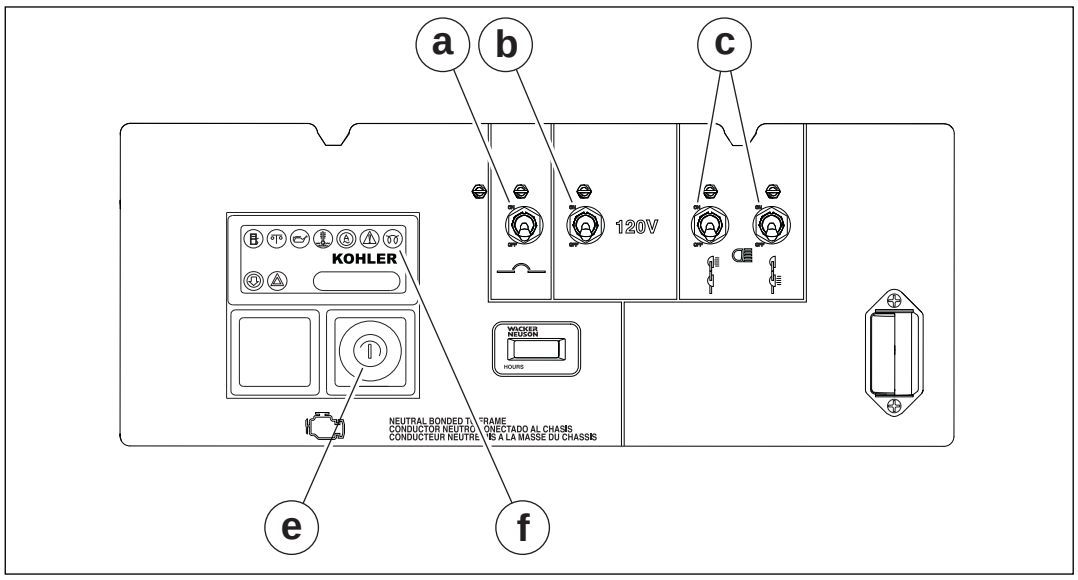
5.10 Starting, Operating, and Stopping the Machine—KOHLER

Requirements Check the following items before starting the machine.

- Before starting checks completed. See topic *Before Starting.*
- Electrical cables are in good condition with no cuts or abrasions in the insulation.
- Circuit breakers **(a, b, c)** are in the “OFF” position.
- All loads are disconnected from the machine.

NOTICES

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



wc_gr013753

Starting the machine Perform the procedure below to start the machine.

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

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

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

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

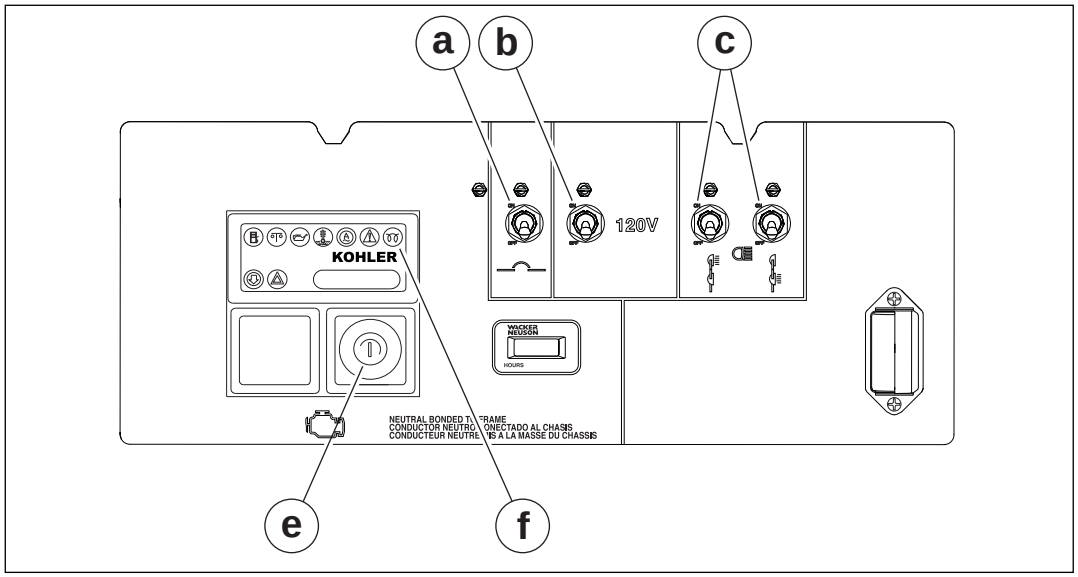
This procedure continues on the next page.

Continued from the previous page.

Operating the lights

Perform the procedure below to operate the lights.

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



wc_gr013753

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

Notes

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

NOTICE: Turn off the lights before stopping the machine. Failure to do so may damage the generator.

Stopping the machine

Perform the procedure below to stop the machine.

1. Remove all connected loads from the machine.
2. Turn the circuit breakers **(a, b, c)** off.
3. Rotate the starting key **(e)** to the “OFF” position.

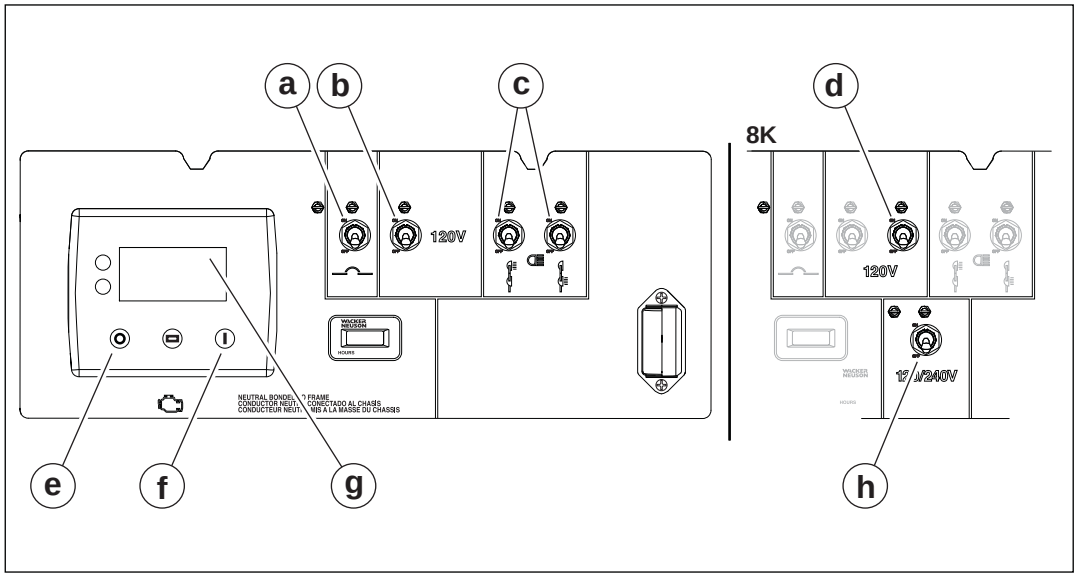
5.11 Starting, Operating, Stopping the Machine—DeepSea

Prerequisites

- Before starting checks completed. See topic *Before Starting.*
- Electrical cables in good condition with no cuts or abrasions in the insulation.
- Circuit breakers **(a, b, c and d, h for 8K)** are in the OFF position.
- All loads are disconnected from the machine.

NOTICES

- Do not use evaporative starting fluids (for example, ether) to start the engine.
- Do not start the engine under load.



wc_gr013779

Procedure

Follow the procedure below to manually start the machine.

1. Press the START switch **(f)**. This initiates the pre-heat timer, energizes the fuel solenoid, and energizes the starter motor.
2. The engine will crank for 10 seconds, and then rest for 10 seconds. If the engine does not start immediately, the cycle will repeat three (3) times.
3. If the engine does not start after three attempts, the starting sequence will be terminated and the Overcrank shutdown indicator **(g)** will light.
4. When the engine starts, the starter motor is disengaged.

Note: *After the starter motor has disengaged, the Safety On Timer is activated. This timer is pre-set for a 12 second delay and allows oil pressure, high engine temperature, underspeed, and charge failure to stabilize without triggering the fault.*

5. If a fault occurs after the 12-second delay, see section *Meanings of Genset Controller Indicator Lights.*
6. Allow engine to warm up before operating lights.

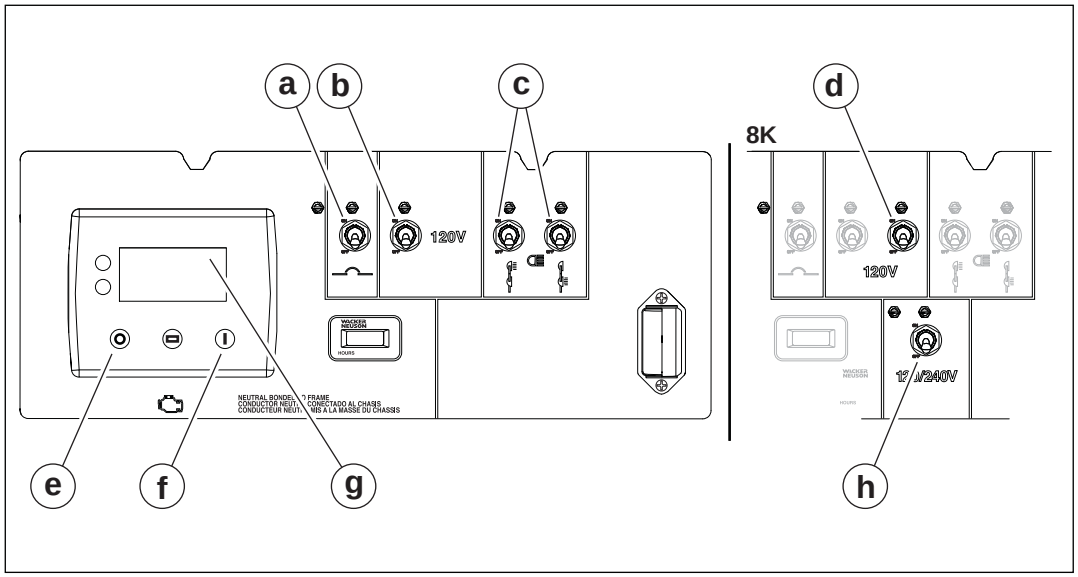
This procedure continues on the next page.

Continued from the previous page.

Operating the lights

Perform the procedure below to operate the lights.

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



wc_gr013779

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

Notes

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

Stopping the machine

NOTICE: Turn off the lights before stopping the engine. Failure to do so will damage the electrical system.

Perform the procedure below to stop the machine.

1. Disconnect all loads from the machine.
2. Turn the circuit breakers **(a)** off.
3. Push the STOP button **(e)** to de-energize the fuel solenoid.

5.12 Auto Mode (Remote Run)

The engine controller is capable of automatically starting the engine.

A scheduled run will begin only if the controller is in Auto Mode with no shut-down alarm present. If the controller is in Stop/Reset Mode or Manual/Start Mode when a scheduled run begins, the engine will not start. However, if the controller is set to Auto Mode during a scheduled run, the engine will start.

A system designer can configure an external input to prevent a scheduled run.

If the engine is running “Off Load” in Auto Mode and a scheduled run configured to “On Load” begins, the set is placed “On Load” for the duration of the schedule.

Front Panel Configuration

This configuration mode allows the operator to fully configure the module through its display without the use of the computer software.

Use the controller’s buttons to navigate through the menu and change the parameters.

- Next section **(a)**
- Previous section **(b)**
- Previous parameter **(c)**
- Edit or save parameter **(d)**
- Next parameter **(e)**

wc_gr014008

Editing a Parameter

Note: *Use the computer software for more comprehensive module configuration.*

Note: *If a PIN code is required, contact the generator supplier for the PIN code. If the PIN code is lost or forgotten, return the controller to the Deep Sea factory to remove the code. For security purposes, the PIN code automatically resets when the editor is exited (manually or automatically).*

1. To enter the editor mode, press the “Stop” **(c)** and “Auto” **(d)** buttons simultaneously.
2. Press the up **(a)** and down **(b)** arrows to select the Configuration Editor or Operator Editor. The selected editor flashes.

3. Press “Auto” to enter the selected editor.

Note: *If a PIN code has been set for the Configuration Editor, the PIN request appears.*

4. Press the up and down arrows to adjust first digit to the correct value.
5. Press the “Start” button **(e)** when the first digit is correctly entered. The digit changes to # for security purposes.
6. Enter each of the digits of the PIN number. Press “Stop” to move back to adjust one of the previous digits.
7. After entering the last digit, press “Auto” to validate the PIN code. If the number is not correct, the editor is exited.

Note: *Press and hold “Stop” or “Start” to enable the auto-repeat functionality.*

8. Once in the selected editor, press the up and down arrows to cycle through it in increments of 100. Press “Stop” or “Start” to cycle through the editor in increments of 1. The table below lists the parameters needed to configure a schedule.
9. To select a parameter to edit, press “Auto.” The parameter value flashes.
10. Press “Stop” or “Start” to adjust the value to the required setting.
11. Press “Auto” the save the current value. The value stops flashing.

Note: *For security purposes, the editor automatically exits after 5 minutes of inactivity.*

12. To save and exit the editor, press and hold “Auto.” To exit without saving, press and hold “Stop.”

Configuration Parameters – Scheduler		
901	Enable Scheduler	On (1), Off (0)
902	Schedule Run On or Off Load	On (1), Off (0)
903	Schedule Period	Weekly (0), Monthly (1)
904	Scheduler (1) Start Time	0:00:00
905	Scheduler (1) Start Day	0 (1=Monday)
906	Scheduler (1) Start Week	1,2,3,4
907	Scheduler (1) Duration	0:00:00
908	Scheduler (2) Start Time	0:00:00
909	Scheduler (2) Start Day	0 (1=Monday)
910	Scheduler (2) Start Week	1,2,3,4
911	Scheduler (2) Duration	0:00:00
912	Scheduler (3) Start Time	0:00:00
913	Scheduler (3) Start Day	0 (1=Monday)
914	Scheduler (3) Start Week	1,2,3,4

915	Scheduler (3) Duration	0:00:00
916	Scheduler (4) Start Time	0:00:00
917	Scheduler (4) Start Day	0 (1=Monday)
918	Scheduler (4) Start Week	1,2,3,4
919	Scheduler (4) Duration	0:00:00
920	Scheduler (5) Start Time	0:00:00
921	Scheduler (5) Start Day	0 (1=Monday)
922	Scheduler (5) Start Week	1,2,3,4
923	Scheduler (5) Duration	0:00:00
924	Scheduler (6) Start Time	0:00:00
925	Scheduler (6) Start Day	0 (1=Monday)
926	Scheduler (6) Start Week	1,2,3,4
927	Scheduler (6) Duration	0:00:00
928	Scheduler (7) Start Time	0:00:00
929	Scheduler (7) Start Day	0 (1=Monday)
930	Scheduler (7) Start Week	1,2,3,4
931	Scheduler (7) Duration	0:00:00
932	Scheduler (8) Start Time	0:00:00
933	Scheduler (8) Start Day	0 (1=Monday)
934	Scheduler (8) Start Week	1,2,3,4
935	Scheduler (8) Duration	0:00:00

5.13 Engine - Jump-Starting

Background Jump-starting may occasionally be required if a battery is discharged. If jump-starting is necessary, the following procedure is recommended to prevent starter damage, battery damage, and personal injuries.

WARNING
Personal injury hazard.
Jump-starting a battery incorrectly can cause the battery to explode, resulting in severe personal injury or death.

- ► Keep all arcs, sparks, flames, and lighted tobacco away from the battery.
- ► Do not jump-start a frozen battery.
- ► Do not short circuit battery posts. Do not touch the frame or the negative terminal when working on the positive terminal.
- ► Wear safety glasses and gloves while using cables.

WARNING
Battery fluid is poisonous and corrosive.

► In the event of ingestion or contact with skin or eyes, seek medical attention immediately.

NOTICE:

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

Jump-starting a shorted or defective battery will cause the voltage regulator to supply higher than normal voltage. This can severely damage the digital electronics that control machine operation. If there is any doubt as to the battery's condition, a replacement battery should be used or an attempt should be made to charge the battery before starting the machine.

Do not connect the negative clamp to a carburetor, fuel lines, or sheet metal body parts.

Do not attempt to operate the machine without a battery.

Dispose of waste batteries in accordance with local environmental regulations.

CAUTION
Electrical arcing can cause severe personal injury.

► Do not allow positive and negative cable ends to touch.

Procedure

Perform the procedure below to jump-start the battery.

1. In very cold weather, check the condition of the electrolytes. If it seems slushy or frozen, do not try jump-starting until it thaws.

NOTICE:

If a battery sits in extreme cold, the electrolytes inside the battery can freeze. Attempting to jump-start a frozen battery can cause it to rupture.

2. Disconnect engine load.
3. Use a booster battery of the same voltage as is used with your engine system.
4. Attach one end of the positive cable clamp (red) to the positive (+) terminal of the dead battery. Attach the other end of the positive cable clamp to the positive terminal of the booster battery.
5. Attach the negative cable clamp (black) to the negative (-) terminal of the booster battery. Attach the other end of negative cable clamp to a solid chassis ground on your engine or unpaired portion of the machine frame away from the "discharged" battery.

6. Start the engine on the machine that is being used as a power source.
7. Wait for a minimum of two minutes while the battery in the stalled machine partially charges.
8. Turn the engine key switch and hold it until the engine starts.

NOTICE:

Cranking the engine for more than five seconds can cause starter damage. If the engine fails to start, release the key switch and wait 10 seconds before operating the starter again. If the engine still fails to start see Troubleshooting.

---

9. Immediately after the stalled engine starts, disconnect the negative cable clamp first from the previously dead battery and then the negative cable clamp of the booster battery.
10. Disconnect the positive cable clamp from the booster battery and then the positive cable clamp from the previously dead battery.
11. When using light or high amperage draw accessories, idle the engine for a period of 20 minutes to bring the battery to charge state.

Result The machine has now been jump-started.

5.14 Emergency Shutdown Procedure

General procedures

Perform the procedure below if a breakdown or accident occurs while the machine is operating:

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

WARNING

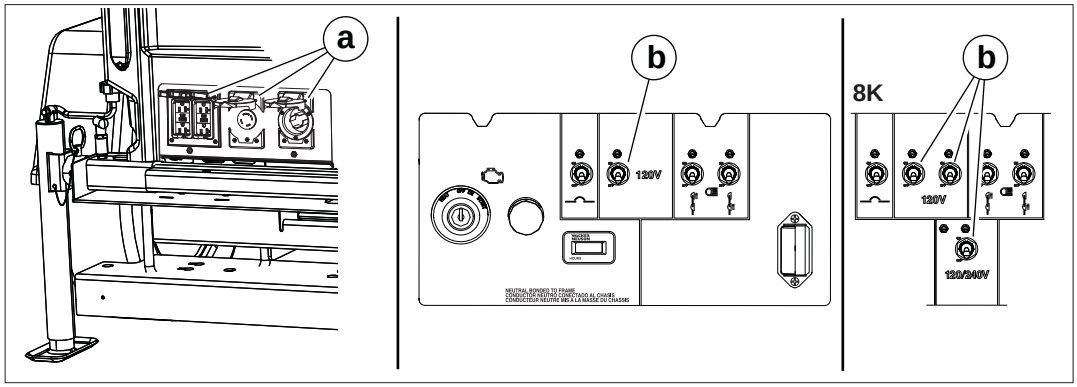
Personal injury hazard. Raising or lowering the tower creates situations that if not avoided, will cause death or serious injury from striking, crushing, pinching, electrocution, etc.

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

5.15 Using the Convenience Receptacles—60 Hz

Description

This machine is equipped with one or more convenience receptacles **(a)** for running accessories and tools from the generator. Each receptacle is protected by its own circuit breaker **(b)**. Power to the receptacle(s) is available any time the engine is running and the circuit breaker is set to the ON position.



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Mandates

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

- Do not use frayed or damaged cords or plugs with the convenience receptacle.
- For machines with metal halide lights, the maximum wattage (with the lights on) drawn from the receptacles shall not exceed the values below.
  - LTV6: 1660W
  - LTV8: 3660W
- Use only tough rubber-sheathed flexible cable or equivalent. (per 1EC245-4).
- When using extension cords or mobile distribution networks, the total length of cords should not exceed the values below.
  - 16 gauge: 60 m (197 ft.)
  - 13 gauge: 100 m (328 ft.)
- Machines with metal halide lights generate increased voltage while the lights are reaching full brightness. To avoid damaging sensitive electronic equipment, do not connect any such devices to the convenience outlet until the machine and lights have been operating for at least ten minutes.
- Each 120V GFI receptacle **(a)** is protected by a 20A circuit breaker **(b)**.

Testing a GFI receptacle

Perform the procedure below before each use to test a GFI receptacle.

1. Push the test button in.
   - The reset button should pop out.
   - Power to the receptacle is now off.
2. Push the reset button in.

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

6 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.

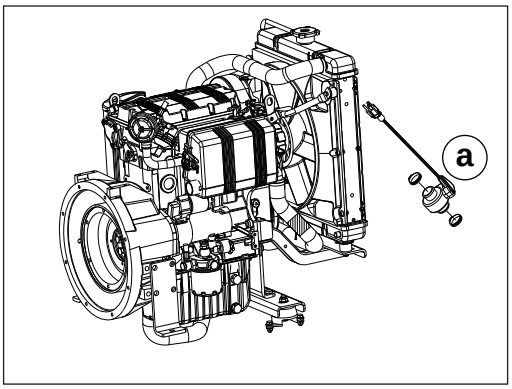
The illustrations shown in this chapter represent typical installations. The factory-installed options on your machine may look different.

6.1 Cold Weather Package

The cold weather package includes the engine block heater, battery blanket, oil pan heater, and 60/40 or cold weather coolant. The Kohler cold weather package also includes the piston fuel pump.

6.2 Engine Block Heater

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



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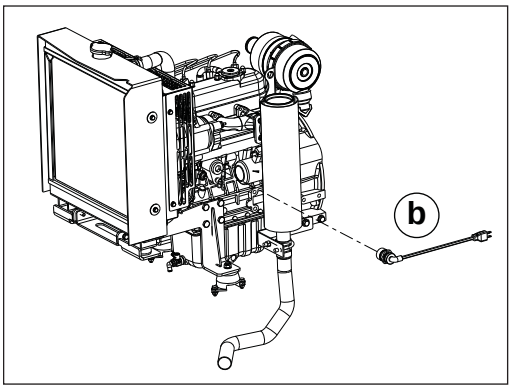

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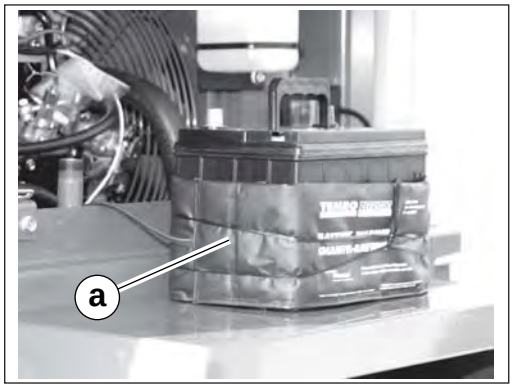
6.3 Battery Blanket

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



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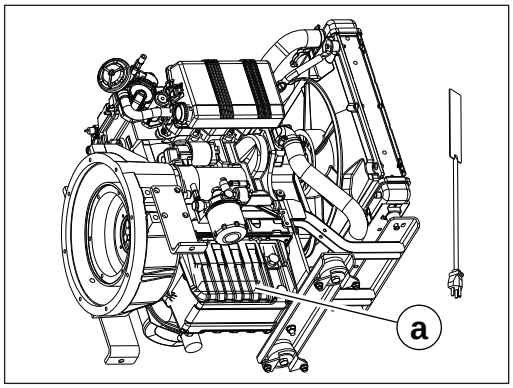
6.4 Oil Pan Heater

Cold, thick engine oil does not flow freely and may cause engine starting difficulties. A Kohler **(a)** or Kubota **(b)** 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.



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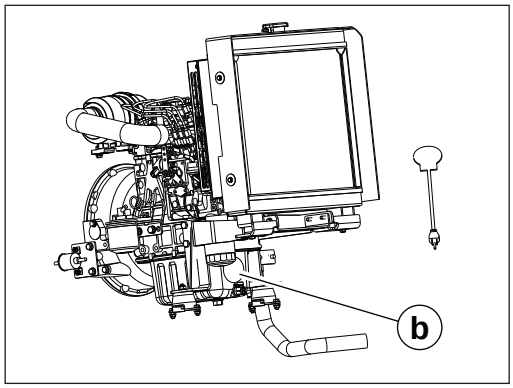

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6.5 Fuel and Water Separator

The fuel and water separator **(a)** removes water from the fuel supply. As fuel flows through the separator element, removed water collects in the bowl.

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6.6 Positive Air Shutoff

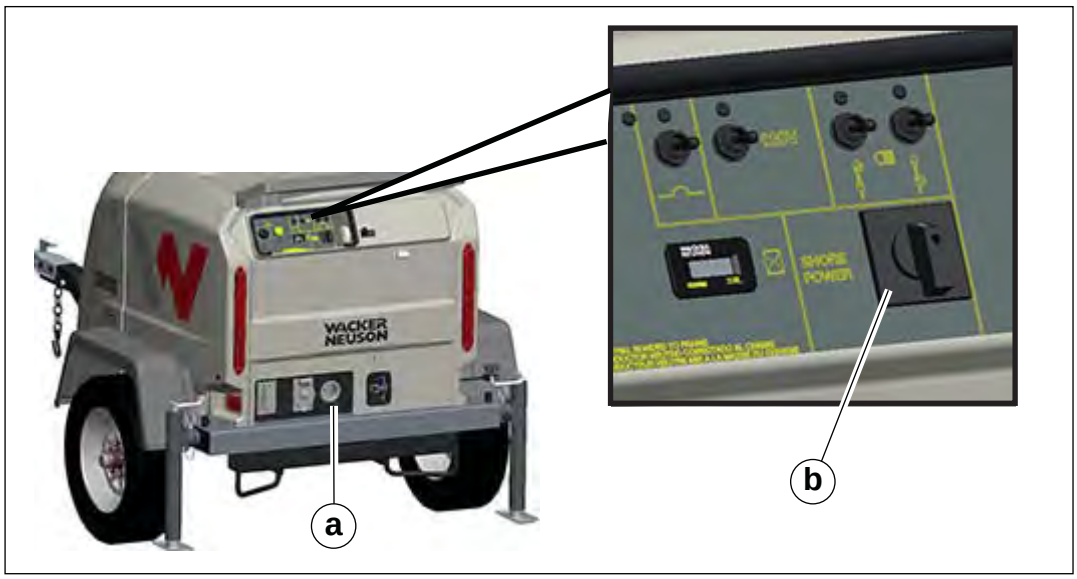
Description

Diesel engines may occasionally continue to run even after the machine has been turned off. This “runaway” condition occurs when combustible intake air is drawn into the engine. Turning the key to off alone will not stop a runaway engine.

Some models include a positive air shutoff valve. Activating the positive air shutoff valve blocks the flow of air into the engine intake and stops the engine from running.

6.7 Shore Power

The machine optionally includes a shore power enabled twist lock inlet plug **(a)** with selector switch **(b)** as part of the control panel configuration. Plug into utility or building power to use auxiliary power instead of using the internal generator power.



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7 General Maintenance

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

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

7.1 Preparing for Maintenance

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

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

7.2 Periodic Maintenance Schedule

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

	Daily before starting	Every 250 hours or 3 months	Every 500 hours or 6 months	Every 1000 hours or 1 year	Other
Check external hardware.	✓				
Check for fluid leaks.	✓				
Check all fluid levels.	✓				
Clean the machine inside and out.				■	
Replace battery.				■	
Grease axle.[1]					■

[1] *Every 600 hours or 12 months.*

7.3 Cleaning the Machine

When As needed

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

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

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

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

7.4 Inspecting the Machine

When Daily

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

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

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

7.5 Maintaining the Trailer

Tires

- Keep the tires inflated to the proper pressure as shown on the tire sidewall.
- Check tire tread periodically for wear.
- Replace the tires as required.

Wheels

- Check that the lug nuts holding the wheels are tight.
- Replace any missing lug nuts immediately.

Axle Hubs

- Grease the axle hubs using a good wheel-bearing grease.

7.6 Maintaining the Battery

WARNING
Explosion hazard. Batteries can emit explosive hydrogen gas.

► Keep all sparks and flames away from the battery.

► Do not short-circuit battery posts.

Safety precautions

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

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

Battery connections

To connect the battery:

1. Place all electrical switches in the OFF position.
2. Connect the red positive (+) battery cable to the battery.
3. Connect the black negative (-) battery cable to the battery.

To disconnect the battery:

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

Maintaining battery condition

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

7.7 Removing and Replacing Lamps

Requirements

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

WARNING
Burn hazard. Lamps become extremely hot in use.

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

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

► Use only undamaged lamps.

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

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

► Do not operate the lights with a lens that is cracked, damaged, or missing.

► Do not scratch the lamp or subject the lamp to excess pressure.

► Wear eye and hand protection when removing or replacing lamps.

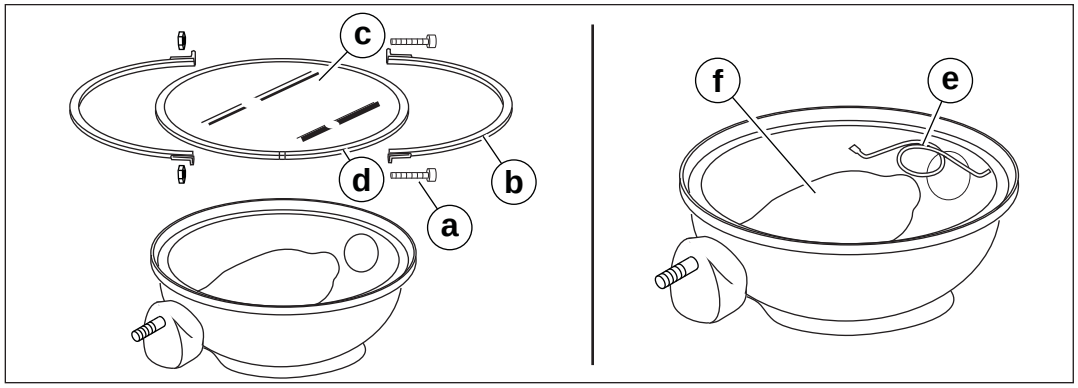
This procedure continues on the next page.

Continued from the previous page.

Perform the procedures below to remove and install the lamp.

Removing the lamp

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



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

Installing the lamp

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

7.8 Long-Term Storage

Introduction

Extended storage of equipment requires preventive maintenance. Performing these steps helps to preserve machine components and ensures the machine will be ready for future use. While not all of these steps necessarily apply to this machine, the basic procedures remain the same.

When

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

Preparing for storage

Perform the procedures below to prepare your machine for storage.

- Complete any needed repairs.
- Replenish or change oils (engine, exciter, hydraulic, and gearcase) per the intervals specified in the Scheduled Maintenance table.
- Grease all fittings and, if applicable, repack bearings.
- Inspect engine coolant. Replace coolant if it appears cloudy, is more than two seasons old, or does not meet the average lowest temperature for your area.
- If your machine has an engine equipped with a fuel valve, start the engine, close the fuel valve, and run the engine until it stops.
- Consult the engine owner's manual for instructions on preparing the engine for storage.

Stabilizing the fuel

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

- Choose a stabilizer that includes cleaning agents and additives designed to coat/protect the cylinder walls.
- Make sure the stabilizer you use is compatible with the fuel in your area, fuel type, grade and temperature range. Do not add extra alcohol to fuels which already contain it (for example, E10).
- For engines with diesel fuel, use a stabilizer with a biocide to restrict or prevent bacteria and fungus growth.
- Add the correct amount of stabilizer per the manufacturer's recommendations.

Storing the machine

Perform these remaining steps to store your machine.

- Wash the machine and allow it to dry.
- Move the machine to a clean, dry, secure storage location. Block or chock the 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.

7.9 Machine Disposal and Decommissioning

Introduction

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

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

Preparation

Perform the following tasks to prepare the machine for disposal.

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

Disposal

Perform the following tasks to dispose of the machine.

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

8 Engine Maintenance: Kubota D1005 / D1105

The information in this chapter comes from copyrighted Kubota material.

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

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

► Take steps to avoid inhaling or ingesting used liquids.

► Wash skin thoroughly after exposure to used liquids.

- Oil used in the engine should have API classification and Proper SAE Engine Oil according to the ambient temperatures as shown below:

Above 25°C (77°F)	SAE30, SAE10W-30 or 15W-40
-10 to 25°C (14°F to 77°F)	SAE10W-30 or 15W-40
Below -10°C (14°F)	SAE10W-30

- Recommended API classification
  Refer to the following table for the suitable American Petroleum Institute (API) classification of engine oil according to the engine type (with internal EGR, external EGR or non-EGR) and the Fuel Type Used : (Ultra Low Sulfur or High Sulfur Fuels).

Fuel type	Engine oil classification (API classification)	
	Engines with non-EGR Engines with internal EGR	Engines with external EGR
High Sulfur Fuel [0.05 % (500 ppm) ≦ Sulfur Content < 0.50 % (5000 ppm)]	CF (If the "CF-4, CG-4, CH-4 or CI-4" engine oil is used with a high-sulfur fuel, change the engine oil at shorter intervals. (approximately half))	---
Ultra Low Sulfur Fuel [Sulfur Content < 0.0015 % (15 ppm)]	CF, CF-4, CG-4, CH-4 or CI-4	CF or CI-4 (Class CF-4, CG-4 and CH-4 engine, oils cannot be used on EGR type engines.)

EGR: Exhaust Gas Re-circulation

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

SERVICE INTERVALS

Observe the following for service and maintenance.

Interval	Item		
Every 50 hours	Check of fuel pipes and clamp bands		@
See NOTE	Change of engine oil	◎	
Every 100 hours	Cleaning of air cleaner element	*1	@
	Cleaning of fuel filter		
	Check of fan belt tightness		
	Draining water separator		
Every 200 hours	Check of radiator hoses and clamp bands		
	Replacement of oil filter cartridge (oil pan depth: 90 mm (3.54 in.))	◎	
	Check of intake air line		@
Every 400 hours	Replacement of oil filter cartridge (oil pan depth: 124 mm (4.88 in.))	◎	@
	Cleaning of water separator		
Every 500 hours	Removal of sediment in fuel tank		
	Cleaning of water jacket (radiator interior)		
	Replacement of fan belt		
Every year	Replacement of air cleaner element	*2	@
	Check of damage in electric wiring and loose connections		
Every 800 hours	Check of valve clearance		
Every 1500 hours	Check of fuel injection nozzle injection pressure	*3	@
Every 3000 hours	Check of turbo charger	*3	@
	Check of injection pump	*3	@
Every two years	Change of radiator coolant (L.L.C.)		
	Replacement of radiator hoses and clamp bands		
	Replacement of fuel pipes and clamp bands	*3	@
	Replacement of intake air line	*4	@

770028

IMPORTANT :

- The jobs indicated by ◎ must be done after the first 50 hours of operation.

*1 Air cleaner should be cleaned more often in dusty conditions than in normal conditions.
*2 After 6 times of cleaning.
*3 Consult your local KUBOTA Dealer for this service.
*4 Replace only if necessary.

- When the battery is used for less than 100 hours in a year, check its electrolyte yearly. (for refillable battery's only)
- The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S. EPA nonroad emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction.
  Please see the Warranty Statement in detail.

NOTE :

- Changing interval of engine oil

Models	Oil pan depth	
	Above 125 mm (4.9 in.) (110 mm D1305-E3)	* below 101 mm (4.0 in.)
All models	200 Hrs	150 Hrs
Initial	50 Hrs	

* 101 mm oil pan depth is optional.
**Standard replacement interval

- API service classification: above CF grade
- Ambient temperature: below 35°C (95°F)

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NOTICE: When using SAE 15W-40 oil with Kubota powered machines, the oil change interval is 750 hours.

9 Engine Maintenance: KOHLER

The information in this chapter comes from copyrighted Kohler material.

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

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

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

OIL CLASSIFICATIONS API/MIL - SEQUENZE API/MIL - SEQUENCES API/MIL
API/MIL-SEQUENZEN - SECUENCIAS API/MIL - SEQUÊNCIAS API/MIL
DIESEL
GASOLINE - BENZINA - ESSENCE
BENZIN - GASOLINA
API
MIL
CH-4 CG-4 CF-4 CF-2 CF CE CD CC SC SD SE SF SG SH SJ SL
L-46152 D/E
CURRENT - CORRENTI
OBSOLETE - OBSOLETI
SAE Viscosity Grade - Gradazioni SAE - Viscosité SAE
SAE Viskositätsklasse - Viscosidad SAE - Gradação SAE
F° -40 -31 -22 -13 -4 5 14 23 32 41 50 59 68 77 86 95 104 113 122
C° -40 -35 -30 -25 -20 -15 -10 -5 0 5 10 15 20 25 30 35 40 45 50
SAE 10W
SAE 20W
SAE 30
SAE 40
SAE 10W-30
SAE 10W-40
SAE 10W-60
SAE 15W-40*
SAE 15W-40**
SAE 20W-60**
SAE 10W-30***
SAE 5W-30***
*
Mineral Base
Base Minerale
Base Minérale
Mineralölbasis
Base Mineral
Base Mineral
**
Semi-Synthetic Base
Base Semi-Sintetica
Base Semi-Synthétique
Halbsynthetische Basis
Base Semi-Sintetica
Base Semi-Sintética
***
Synthetic Base
Base Sintetica
Base Synthétique
Synthetische Basis
Base Sintetica
Base Sintética

770005

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

KOHLER®

ORDINARY MAINTENANCE - MANUNTENZIONE ORDINARIA
ENTRETIEN ORDINAIRE - ORDENTLICHE WARTUNG
MANUTENCION ORDINARIA - MANUNTENAÇÃO NORMAL

CHECK - CONTROLLO - CONTRÔLE - KONTROLLE - COMPROBACìON - CONTRÔLE

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

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

770002

CHECK - CONTROLLO - CONTRÔLE - KONTROLLE - COMPROBACÍON - CONTRÔLE

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

770003

REPLACEMENT - SOSTITUZIONE - REMPLACEMENT - AUSWECHSELN - SUSTITUCIÓN - SUBSTITUIÇÃO

OPERATION DESCRIPTION - DESCRIZIONE OPERAZIONE DESCRIPTION DE L'OPÉRATION - BESCHREIBUNG DES ARBEITSVORGANGS DESCRIPCIÓN DE LA OPERACIÓN - DESCRIÇÃO DA OPERAÇÃO		FREQUENCY x HOURS - PERIODICITA' x ORE FREQUENCE x HEURES - WARTUNGSPERIODEN x STUNDEN PERIODO x HORAS - FREQUÉNCIA x HORAS						
		10	250	300	500	1000	5000	10000
Engine Oil (°) - Olio Motore (°) - Huile Moteur (°) - Öldaten (°) - Aceite del Motor (°) - Óleo do Motor (°)	(*)							
Oil Filter - Filtro Olio - Filtre a Huile - Öl Filter - Filtro Aceite - Filtro Óleo	(*)							
Fuel Filter - Filtro Combustibile - Filtre a Combustible - Brennstoffilter - Filtro Combustible - Filtro Combustivel	(*)							
Alternator Belt - Cinghia Alternatore - Courroie Alternateur - Drehstromgenerator Riemen - Correa Alternador - Cincha Alternador	(**)							
Coolant - Liquido di Raffreddamento - Liquide Refrigerant - Kühlflüssigkeit - Liquido de Refrigeración - Liquido Esfiramento	(**)							
Fuel Lines - Tubi Carburante - Tuyaux Combustible - Kraftsoffleitungen - Tubos de Combustible - Tubos Combustíveis	(**)							
Rubber Intake Hose (Air Filter and Intake Manifold) - Tubo in Gomma Asp. (Filtro Aria Coll. Asp.) - Tuyau d'aspir. en Caoutchouc (Filtre à Air du Coll. d'Admiss.) - Gummiansaugschlauch (Luftfilter Ansaugkrümmer) - Tubo de Goma de Admis (Filtro de Aire Col. De Admis.) - Tubo de Borracha de Aspir. (Filtro ar Col. de Aspir.)	(**)							
Coolant Hoses - Manicotti Liquido di Raffredd. - Manchons de Liquide de Refroid. - Muffen des Kühlmittels - Manguitos de Líquido de Refriger - Casqilhos para Líquido de Arrefecimento	(**)							
Timing Belt - Cinghia Distribuzione - Courroie de Distribution - Verteilerriemen Correa de Distribución - Correia de Distribuição	(***)	Every 4000 hours or 4 Years - Ogni 4000 ore o 4 anni - Toutes les 4000 heures ou 4 ans - Alle 4000 Stunden und 4 yahre - Cada 4000 horas o 4 anos - Cada 4000 oras o 4 anos						
Dry Air Cleaner, External Cartridge - Cartuccia Esterna Filtro Aria a Secco - Cartouche Extérieure Filtre a Air Desséchée -Äusserer Trockenluftfiltereinsatz - Cartucho Externo del Filtro de Aire Seco - Cartucho Externo Filtro ar À Seco	(****)							
Filter Element, Panel Air Filter - Massa Filtrante Filtro Aria a Pannello - Masse Filtrante de Filtre à Air á Panneau Filterelement Plattenluftfilter - Masa Filtrante del Filtro de Aire de Panel - Massa Filtrante do Filtro de ar de		After six cleaning checks - Dopo 6 Controlli con Pulizia - Au Bout de 6 Contrôles Avec Nettoyage - Nach 6 Kontrollen Mit Reinigung - Tras 6 Inspecciones Con Limpieza - Após 6 Controlos com Limpeza						

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

770004

NOTICE: When using AGIP SINT 2000 5W-40 oil with Kohler powered machines, the oil change interval is 750 hours.

10 Troubleshooting

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

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

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

Problem	Cause	Remedy
Lamp will not light	Lamp is too hot	Allow lamp to cool 10–15 minutes before restarting.
	Faulty lamp connection	Check that lamp is tight in socket. Check connections inside connection boxes on light fixtures and tower.
	Plug connection at fixture is loose or damaged	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, ■ or blackening or deposits inside lamp tube.
	Circuit breaker turned on	Turn off circuit breaker.
	Circuit breaker loose or faulty	Repair or replace the circuit breaker.
	Generator output incorrect	Check incoming voltage to ballast. Incoming voltage should be 120V ± 5V. If voltage is incorrect, engine speed may need to be adjusted or generator may require service.
	Low or no ballast output	With the fixture cord removed from its receptacle, the voltage should measure 400 to 445 VAC. If proper voltage is not achieved, perform capacitor check to determine if capacitor or coil needs to be replaced.
Low light output	Lamp degraded	Replace lamp due to normal lamp life.
	Low ballast output	Check ballast for proper voltage output.
	Fixture or lens dirty	Clean reflective surface inside fixture and both inside and outside surface of glass lens.

11 Technical Data

11.1 Engine—KUBOTA

Engine Power Rating

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

Machine		**LTV6K**	**LTV8K**
Engine			
Make		Kubota	
Model		D1005	D1105
Type		3-cylinder, 4-cycle, liquid-cooled diesel	
Max. rated power @ rated speed	kW (hp)	9.8 (13.1) @ 1800 rpm	11.5 (15.4) @ 1800 rpm
Operating speed (no-load)	rpm	1800	
Alternator	V / A / W	12 / 30 / 360	
Battery	V/Ah/ccA	12 / 650	
Air cleaner	type	Dry-type element	
Fuel	type	No. 2 diesel	
Fuel tank capacity	L (gal)	173.3 (45.8)	
Fuel consumption	L (gal) / hr	2.58 (0.68)	2.97 (0.79)
Running time (100% load)	hours	64.3	55.7
Coolant capacity	L (qt)	5.78 (4.7)	
Oil capacity	L (qt)	5.1 (5.4)	
Oil grade	SAE / API	15W40 / CF or higher	

11.2 Engine—KOHLER

Engine Power Rating

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

Machine		**LTV6L**
Engine		
Make		Kohler
Model		LDW1003
Type		3-cylinder, 4-cycle, liquid-cooled diesel
Max. power rating @ rated speed	kW (hp)	8.0 (10.7) @ 1800 rpm
Operating speed (no-load)	rpm	1800
Alternator	V / A / W	12 / 45 / 540
Battery	V/Ah/ccA	12 / 650
Air cleaner	type	Dry-type element
Fuel	type	No. 2 diesel
Fuel tank capacity	L (gal)	173.3 (45.8)
Fuel consumption	L (gal) / hr	1.68 (0.44)
Running time (100% load)	hours	60.5
Coolant capacity	L (qt)	4.7 (5.0)
Oil specification	type	AGIP SINT 2000 5W-40 API SJ / CF 4 ACEA A3-96 B3-96 MIL-L-46152 D/E
Oil capacity	L (qt)	3.8 (4.0)

11.3 Generator

Machine:		LTV6	LTV8
Frequency	Hz	60	
Continuous output	kW	6.0	8.0
Output	volts/phase	120/240, 1Ø (6K) 120, 1Ø (6L)	120/240, 1Ø
Amps	A	50/25	66/33
Excitation type		Capacitor / Brushless	
Power factor		1.0	
Voltage regulation - No load to full load	%	± 6.0	
Speed (no-load)	rpm	1800	

11.4 Machine

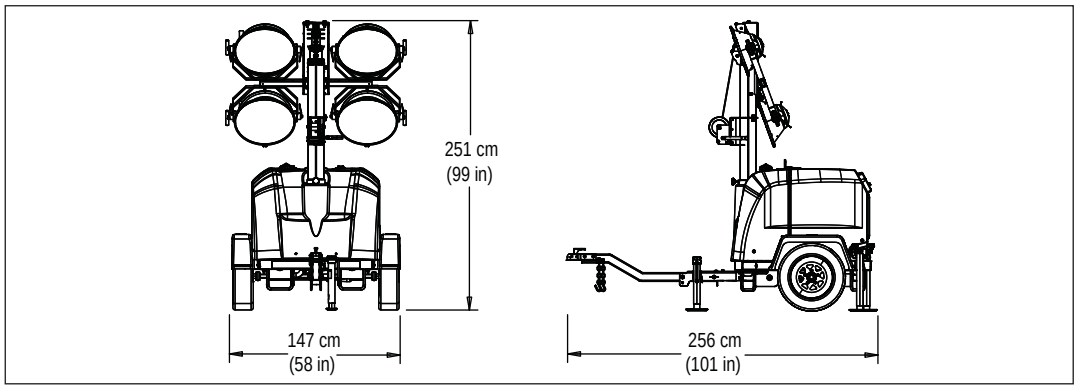
Model	Unit	LTV6K	LTV6L	LTV8K
		LTV6K	LTV6L (C.W.)	LTV8K (C.W.)
Dimensions (L x W x H)	cm (in)	256 X 146 X 251 (101 X 58 X 99)	256 X 146 X 251 (101 X 58 X 99)	256 X 146 X 251 (101 X 58 X 99)
Operating weight	kg (lbs)	812 (1790)	798 (1760)	812 (1790)
Height - mast extended	m (ft)	6.9 (22.7)	6.9 (22.7)	6.9 (22.7)
Output	kW	6	6	8
AC Voltage	V	120/240	120 (120/240 with twist-lock option)	120/240
Amperage	A	50/25	50/25	66/33
Frequency	Hz	60	60	60
Power factor	#	1	1	1
Lamp	type	Metal halide	Metal halide	Metal halide
Lamp wattage	W	1100	1100	1100
NEMA beam spread	type	6	6	6
Maximum lighting coverage @ 5.0 ft-candles	m^2 (ft^2)	1200 (12,918)	1200 (12,918)	1200 (12,918)
Sound level @ 7m (23ft)	dB(A)	68.3	67.9	70.1
AC outlet receptacles	V, A type	1 X 125, 20, Duplex GFCI 1 X 120/240, 30, Twist-lock	1 X 120, 20, Duplex GFCI	2 X 125, 20, Duplex GFCI 1 X 120/240, 30, Twist-lock

11.5 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.

11.6 Dimensions—LTV6K, LTV8K, LTV6L



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12 Emissions Control Systems Information and Warranty: KUBOTA

The Emission Control Warranty and associated information is valid only for the U.S.A., its territories, and Canada.

12.1 Emission Control System Background Information

Introduction

Wacker Neuson engines/equipment must conform with applicable Environmental Protection Agency (EPA) and California Air Resource Board (CARB) emissions regulations. These regulations require that manufacturers warrant the emission control systems for defects in materials and workmanship.

Furthermore, EPA and CARB regulations require all manufacturers to furnish written instructions describing how to operate and maintain the engines/equipment including the emission control systems. This information is provided with all Wacker Neuson engines/equipment at the time of purchase.

Exhaust Emissions

The combustion process produces carbon monoxide, oxides of nitrogen, and hydrocarbons. Control of hydrocarbons and oxides of nitrogen is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Problems that may affect Emissions

If any of the following symptoms arise, have the engine/equipment inspected and repaired by a Wacker Neuson dealer/service center.

- Hard starting or stalling after starting
- Rough idling
- Misfiring or backfiring under load
- Afterburning (backfiring)
- Presence of black exhaust smoke during operation
- High fuel consumption

Tampering and Altering

Tampering with or altering the emission control system may increase emissions beyond the legal limit. If evidence of tampering is found, Wacker Neuson may deny a warranty claim. Among those acts that constitute tampering are:

- Removing or altering of any part of the air intake, fuel, or exhaust systems.
- Altering or defeating the speed-adjusting mechanism causing the engine to operate outside its design parameters.

12.2 Limited Defect Warranty for Wacker Neuson Emission Control Systems

The Emission Control Warranty is valid only for the U.S.A., its territories, and Canada.

Wacker Neuson Sales Americas, LLC, N92 W15000 Anthony Avenue, Menomonee Falls, WI 53051, (hereinafter “Wacker Neuson”) warrants to the initial retail purchaser and each subsequent owner, that this engine/equipment, including all parts of its emission control system, have been designed, built, and equipped to conform at the time of initial sale to all applicable evaporative emission regulations of the U.S. Environmental Protection Agency (EPA), and that the engine/equipment is free of defects in materials and workmanship which would cause this engine/equipment to fail to conform to EPA regulations during its warranty period.

Wacker Neuson is also liable for damages to other engine/equipment components caused by a failure of any warranted parts during the warranty period.

What is covered

Wacker Neuson recommends the use of genuine Wacker Neuson parts, or the equivalent, whenever maintenance is performed. The use of replacement parts not equivalent to the original parts may impair the effectiveness of the engine/equipment emission controls systems. If such a replacement part is used in the repair or maintenance of the engine/equipment, assure yourself that such part is warranted by its manufacturer to be equivalent to the parts offered by Wacker Neuson in performance and durability. Furthermore, if such a replacement part is used in the repair or maintenance of the engine/equipment, and an authorized Wacker Neuson dealer/service center determines it is defective or causes a failure of a warranted part, the claim for repair of the engine/equipment may be denied. If the part in question is not related to the reason the engine/equipment requires repair, the claim will not be denied.

For the components listed in the following table, an authorized Wacker Neuson dealer/service center will, at no cost to you, make the necessary diagnosis, repair, or replacement necessary to ensure that the engine/equipment complies with the applicable EPA regulations. All defective parts replaced under this warranty become property of Wacker Neuson.

System Covered	Components
Air filter system and associated plumbing (Before engine intake)	Air filter
Exhaust system	Exhaust system connected after the exhaust manifold

What is not covered

- Failures other than those resulting from defects in material or workmanship.
- Any systems or parts which are affected or damaged by owner abuse, tampering, neglect, improper maintenance, misuse, improper fueling, improper storage, accident and/or collision; the incorporation of, or any use of, add-on or modified parts, or unsuitable attachments, or the alteration of any part.
- Replacement of expendable maintenance items made in connection with required maintenance services after the item's first scheduled replacement as listed in the maintenance section of the engine/equipment operator's manual, such as spark plugs and filters.
- Incidental or consequential damages such as loss of time or the use of the engine/equipment, or any commercial loss due to the failure of the engine/equipment.
- Diagnosis and inspection charges that do not result in warranty-eligible service being performed.
- Any non-authorized replacement part, or malfunction of authorized parts due to use of-non authorized parts.

Owner's Warranty Responsibility

The engine/equipment owner, is responsible for the performance of the required maintenance listed in the Wacker Neuson engine/equipment operator's manual. Wacker Neuson recommends that all receipts covering maintenance on the engine/equipment be retained, but Wacker Neuson cannot deny warranty coverage solely for the lack of receipts or for the failure to ensure the performance of all scheduled maintenance.

Normal maintenance, replacement, or repair of emission control devices and systems may be performed by any repair establishment or individual; however, warranty repairs must be performed by an authorized Wacker Neuson dealer/service center.

The engine/equipment must be presented to an authorized Wacker Neuson dealer/service center as soon as a problem exists. Contact Wacker Neuson Product Support Department (1-800-770-0957) or visit wackerneuson.com to find a dealer/service center in your area, or to answer questions regarding warranty rights and responsibilities.

How to Make a Claim

In the event that any emission-related part is found to be defective during the warranty period, you shall notify Wacker Neuson Product Support Department (1-800-770-0957, or technical.support@wackerneuson.com, or wackerneuson.com), and you will be advised of the appropriate dealer/service center where warranty repair can be performed. All repairs qualifying under this limited warranty must be performed by an authorized Wacker Neuson dealer/service center.

You must take your Wacker Neuson engine/equipment along with proof of original purchase date, at your expense, to the authorized Wacker Neuson dealer/service center during their normal business hours.

For owners located more than 100 miles from an authorized dealer/service center (excluding the states with high-altitude areas as identified in 40 CFR Part 1068, Appendix III), Wacker Neuson will pay for pre-approved shipping costs to and from an authorized Wacker Neuson dealer/service center.

Claims for repair or adjustment found to be caused solely by defects in material or workmanship will not be denied because the engine/equipment was not properly maintained and used.

The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

Limited Defect Warranty Period for Wacker Neuson Emission Control Systems

The warranty period for this engine/equipment begins on the date of sale to the initial purchaser and continues for a period of 2 years or 1500 hours of operation (whichever comes first). For the warranty terms for your specific engine/equipment, visit wackerneuson.com.

Any implied warranties are limited to the duration of this written warranty.

13 Emissions Control Systems Information and Warranty: KOHLER

The Emission Control Warranty and associated information is valid only for the U.S.A., its territories, and Canada.

13.1 Emission Control System Background Information

Introduction

Wacker Neuson engines/equipment must conform with applicable Environmental Protection Agency (EPA) and California Air Resource Board (CARB) emissions regulations. These regulations require that manufacturers warrant the emission control systems for defects in materials and workmanship.

Furthermore, EPA and CARB regulations require all manufacturers to furnish written instructions describing how to operate and maintain the engines/equipment including the emission control systems. This information is provided with all Wacker Neuson engines/equipment at the time of purchase.

Exhaust Emissions

The combustion process produces carbon monoxide, oxides of nitrogen, and hydrocarbons. Control of hydrocarbons and oxides of nitrogen is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Problems that may affect Emissions

If any of the following symptoms arise, have the engine/equipment inspected and repaired by a Wacker Neuson dealer/service center.

- Hard starting or stalling after starting
- Rough idling
- Misfiring or backfiring under load
- Afterburning (backfiring)
- Presence of black exhaust smoke during operation
- High fuel consumption

Tampering and Altering

Tampering with or altering the emission control system may increase emissions beyond the legal limit. If evidence of tampering is found, Wacker Neuson may deny a warranty claim. Among those acts that constitute tampering are:

- Removing or altering of any part of the air intake, fuel, or exhaust systems.
- Altering or defeating the speed-adjusting mechanism causing the engine to operate outside its design parameters.

13.2 Limited Defect Warranty for Exhaust Emission Control System

See the supplied engine owner’s manual for the applicable emission warranty statement.

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

Wichtig! Informationen über Ersatzteile erhalten Sie von Ihrem Wacker Neuson Händler oder besuchen Sie die Wacker Neuson Website unter http://www.wackerneuson.com/.

Important : Pour des informations sur les pièces détachées, merci de consulter votre distributeur Wacker Neuson, ou de visiter le site Internet de Wacker Neuson sur http://www.wackerneuson.com/.

Importante : Para saber más sobre las piezas de repuesto, póngase en contacto con su distribuidor de Wacker Neuson o acceda al sitio web de Wacker Neuson en http://www.wackerneuson.com/.

Importante : Per informazioni sui pezzi di ricambio, contattare il rivenditore Wacker Neuson o visitare il sito di Wacker Neuson all'indirizzo www.wackerneuson.com.

Viktigt : För information om reservdelar, kontakta din Wacker Neuson-leverantör eller besök Wacker Neusons webbplats på http://www.wackerneuson.com/.

Tärkeää : Pyydä varaosatietoja Wacker Neusonin jälleenmyyjältä tai vieraile Wacker Neusonin web-sivustolla osoitteessa http://www.wackerneuson.com/

Viktig : For informasjon om reservedeler, vennligst kontakt din Wacker Neuson-forhandler, eller besøk Wacker Neusons nettside på http://www.wackerneuson.com/.

Vigtigt : Hvis du ønsker oplysninger om reservedele, bedes du kontakte din Wacker Neuson forhandler eller besøg Wacker Neuson websiden på http://www.wackerneuson.com/.

Belangrijk! Neem contact op met uw Wacker Neuson dealer of bezoek de website van Wacker Neuson op http://www.wackerneuson.com/ voor meer informatie over reserveonderdelen.

Importante : Para obter informações sobre as peças sobresselentes, consulte o seu fornecedor da Wacker Neuson ou aceda ao site Web da Wacker Neuson em http://www.wackerneuson.com

Ważne : W celu uzyskania informacji na temat części zamiennych skontaktuj się z przedstawicielem firmy Wacker Neuson lub skorzystaj z witryny internetowej http://wackerneuson.com/.

Důležité upozornění! Pro informace o náhradních dílech, prosím, kontaktujte svého Wacker Neuson dealera, nebo navštivte webové stránky http://www.wackerneuson.com/.

FONTOS: A pótalkatrészekre vonatkozó információkért kérjük, forduljon Wacker Neuson kereskedőjéhez vagy látogasson el a Wacker Neuson weboldalára a következő címen: http://www.wackerneuson.com/.

Важно! Для ознакомления с информацией о запасных частях, пожалуйста, обратитесь к местному торговому представителю компании Wacker Neuson или посетите веб-сайт http://www.wackerneuson.com/.

Σημαντικό : Για πληροφορίες σχετικά με τα ανταλλακτικά, μιλήστε με τον αντιπρόσωπό σας της Wacker Neuson, ή επισκεφθείτε τον ιστότοπο http://www.wackerneuson.com/.

Važno : Za rezervne dijelove obratite se svom Wacker Neuson prodavaču ili posjetite mrežne stranice tvrtke Wacker Neuson: http://www.wackerneuson.com/.

Önemli : Yedek parça bilgileri için Wacker Neuson Bayinize bakın veya Wacker Neuson web sitesini ziyaret edin. http://www.wackerneuson.com/

重要 交換部品の情報については、ワッカーノイソンディーラーにお問い合わせ頂くか、ワッカーノイソンウェブサイト http://www.wackerneuson.com/ をご覧ください。

重要 有关备件信息，请咨询您的威克诺森经销商或访问威克诺森网站：http://www.wackerneuson.com/。

Important : Pentru informaţii referitoare la piesele de schimb, vă rugăm să vă adresaţi distribuitorului Wacker Neuson sau să vizitaţi site-ul web Wacker Neuson la adresa http://www.wackerneuson.com/.

Важно : За информация относно резервни части, моля, обърнете се към местния дилър на Wacker Neuson или посетете уебсайта на Wacker Neuson на адрес http://www.wackerneuson.com/.

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