



**WACKER
NEUSON**

all it takes!

Operator's Manual Light Tower

LTN5



Machine Type	LTN5Y
Material Number	5100072793
Version	3
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Original operator's manual

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California Proposition 65 Warning



⚠ WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.



⚠ WARNING

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.



⚠ WARNING

Cancer and Reproductive Harm
www.P65Warnings.ca.gov



⚠ WARNING

Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. WASH HANDS AFTER HANDLING.



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1 Declaration of conformity



**WACKER
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EU Declaration of Conformity

Manufacturer

Air Power s.r.o., Jižní Předměstí 2942, 301 00 Pilsen (CZ)

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product	LTN5
Product type	Light tower
Function of product	Illuminating areas
Material number	5100069548, 5100069549, 5100069550, 5100069551, 5100069552, 5100069553, 5100077880, 5100079429
Net installed power	3,5 kW
Measured sound power level	89 dB(A)
Guaranteed sound power level	90 dB(A)

Conformity assessment procedure

2000/14/EC, Annex VI

Notified body

STATNI ZKUSEBNA STROJU a. s., Tranovskeho 622/11, 163 04 Praha 6 (CZ) (NB 1016)

Directives and standards

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

2006/42/EC • 2000/14/EC • 2014/30/EU • EN ISO 12100:2010 • EN ISO 8528-13:2016
EN 60204-1:2018 • EN ISO 13766-1:2018 • EN ISO 11201:2010

Person responsible for technical documents

Air Power s.r.o., Jižní Předměstí 2942, 301 00 Pilsen (CZ)

Pilsen (CZ), 23.08.2024


AIR POWER
AIR POWER s.r.o. Smart Partnership
Jižní Předměstí 2942, 301 00 Pilsen

Jiří Dvořák
IC: 263 23 745 DIČ: CZ 263 23 745

Managing Director

Original Declaration of Conformity

LTN5_CE_en

2 Foreword

2.1 Introduction

This operator's manual contains important information and procedures for the safe, proper and economical operation of this machine. Careful reading, understanding and observing it helps to avoid hazards, reduce repair costs and downtimes and thus increase the availability and service life of the machine.

This operator's manual is not a manual for extensive maintenance or repair work. Such work must be carried out by the service partner or by technically trained personnel. The machine must be operated and maintained in accordance with the instructions in this operator's manual. Improper operation or maintenance can cause hazards.

Defective machine parts must be replaced immediately!

The manufacturer is always available to answer questions about operation or maintenance.

2.2 Storage Location of the Operator's Manual

This operator's manual must be kept in the immediate vicinity of the machine and accessible to personnel at all times.

If a second copy of this operator's manual is lost or required, the following options are available for obtaining a replacement:

- On the Internet at <http://www.wackerneuson.com>.
- Contact the service partner

2.2.1 Understanding These Instructions

This section helps to understand the operator's manual and the illustrations used therein.

Target group

People working with this machine must be regularly trained with regard to the dangers and risks occurring when using this machine.

This operator's manual is aimed at:

- Operating personnel:
 - These people have been instructed in working with the machine and about possible dangers and risks arising due to improper behavior.
- Technically trained personnel:
 - These people have a professional training as well as additional knowledge and experience. They are capable of assessing the tasks assigned to them and recognizing any possible risks and dangers.

Explanation of symbols

Symbol	Explanation
1., 2., 3...	Indicates an activity. The sequence of the steps must be observed.
⇒	Indicates a result or an intermediate result of an action.

Symbol	Explanation
✓	Indicates prerequisites that must be established for the activity.
•	Indicates a list, e.g. if several components are named one after the other.
-	Indicates a sub-list, e.g. if components consist of further components
①	Identifies a position, usually a component or control element, in a graphic. The numbering may be sequential or in Roman numerals.
1; A	Indicates the naming of components in explanatory texts. It is identical with the adjacent positions in the illustrations.
 	Indicates a direction of movement or different positions for switches.
▶	Indicates the avoidance of hazards in warning notices.
[▶52]	Indicates a cross-reference in tables. Here e.g. reference to page 52

2.2.1.1 Explanation of symbols

The symbols used in the operator's manual are explained below. The symbols are used exclusively in warning or environmental instructions or information. Warnings must always be observed to protect the operator and third parties from personal injury and damage to property.



Symbol for warnings

This symbol marks general warnings. It is used to alert you of possible hazards, e.g. risks of injury or accidents.



Symbol for indications of technical damage

This symbol is a warning symbol that indicates a danger of technical damage. It is used to indicate situations where damage to the machine or third-party property may occur.



Symbol for environmental information

This symbol indicates environmental information. It is used to warn of possible environmental hazards.



Symbol for information

This symbol indicates information. This information can include tips on operation, for example. It helps to better understand and use the machine.

2.3 Accident Prevention Regulations

In addition to the notes and safety instructions in this operator's manual, the local accident prevention regulations and the national industrial safety regulations apply.

2.4 Contact person

Depending on the country, the contact person is a service partner, a subsidiary or a dealer.

- On the Internet at <http://www.wackerneuson.com>.

2.5 Limitation of liability

In the event of the following infringements, the manufacturer disclaims any liability for personal injury and damage to property:

- Actions contrary to this operator's manual.
- Non-designated use
- Deployment of untrained personnel.
- Use non-approved spare parts and accessories.
- Improper handling.
- Structural changes of any kind.
- Non-observance of the General Terms and Conditions (GTC).

2.6 Use of the operator's manual

This operator's manual:

- must be regarded as an integral part of the machine and must be kept in a safe place throughout its service life.
- must be passed on to each subsequent owner or operator of this machine.
- applies to various machine types from one product range. For this reason, some illustrations may differ from the appearance of the purchased machine. Variant-dependent components that are not included in the scope of delivery can also be described.

The manufacturer reserves the right to change the information in this operator's manual without notice.

It must be ensured that any changes or additions made by the manufacturer are immediately incorporated into this operator's manual.

Group - Type	Material number (Mat. no.)
LTN5Y SA	5100069548
LTN5Yp	5100069549
LTN5Y	5100069550
LTN5Ypa	5100069551
LTN5Y CH	5100069552
LTN5Y UK	5100069553
LTN5Ypk	5100077880
LTN5Yp HD	5100079429

3 Usage

3.1 Designated use

Designated use also includes observing all notes and safety instructions in this operator's manual and observing the prescribed care and maintenance instructions.

Any other use or use that goes beyond this is considered improper use. The manufacturer shall not be liable or liable for any damage resulting therefrom. The risk is borne solely by the operator.

The machine is used for:

- Lighting outdoor areas.
- Supplying connected loads with electrical energy.

For information about the output voltage, output frequency and maximum output power limitation, [see Technical Data on page 83](#).

3.2 Unintended use

The manufacturer is not liable for personal injury or damage to property resulting from unintended use. The following activities, among others, are not intended:

- Connecting a load whose voltage and frequency requirements are not compatible with the machine rating.
- Overloading the machine with a device that draws excessive current during continuous operation or when starting up.
- Operating the machine in a manner inconsistent with all European, state and local codes and regulations.
- Using the machine as a hoist or to hang items from a mast.
- Using the machine as a ladder, support or work surface.
- Using the machine to move or transport people or equipment.
- Using the machine to tow other machines.
- Operating the machine outside of factory specifications.
- Operating the machine in a manner inconsistent with the warnings on the machine and in the operator's manual.

4 Safety

4.1 Safety symbols and signal words

The following symbol identifies safety instructions. It is used for warning against potential personal risk or danger.



⚠ DANGER

DANGER identifies a situation causing death or serious injury if it is not avoided.

Consequences in case of non-observance.

- ▶ Avoidance of injury or death.



⚠ WARNING

WARNING identifies a situation that can cause death or serious injury if it is not avoided.

Consequences in case of non-observance.

- ▶ Avoidance of injury or death.



⚠ CAUTION

CAUTION identifies a situation that can cause injury if it is not avoided.

Consequences in case of non-observance.

- ▶ Avoidance of injury.



NOTICE

INFORMATION identifies a situation that causes damage if it is not observed.

Consequences in case of non-observance.

- ▶ Avoidance of damage to property.

4.2 Principle

The machine has been designed and built in accordance with latest state-of-the-art standards and the recognized safety regulations.

Warning! Risk of injury due to improper use.

Improper use can result in danger to life and limb for the operator and third parties or machine and other property damage.

- Read and observe the notes and safety instructions in this operator's manual. Failure to follow these instructions may result in electric shock, fire and/or serious injury, as well as damage to the machine and/or other objects.
- Keep safety instructions and information for the future.

4.3 Structural changes

Warning! Risk of injury due to structural changes.

Unauthorized structural changes to this machine can pose a risk to operators and/or third parties, as well as damage to the machine and/or other property.

- Do not make any structural changes without the manufacturer's written consent.

In particular, a structural change shall be deemed to have occurred:

- When opening of the machine and permanent removal of components.
- Installation of spare parts that do not come from the manufacturer or are not equivalent in design and quality to the original parts.
- Attachment of accessories of any kind that do not originate from the manufacturer.

The manufacturer's liability and warranty are also void in the event of unauthorized structural alterations.

Spare parts or accessories from the manufacturer can be installed or removed safely.

Further information is available on the Internet at - <http://www.wackerneuson.com>.

4.4 Responsibility of the operator

The operator is the person who operates this machine himself for commercial or economic purposes or who leaves it to a third party for use/application and bears the legal product responsibility for the protection of personnel or third parties during operation.

- The operator must make the operator's manual accessible to the personnel at all times and ensure that the operator has read and understood the operator's manual.
- The operator's manual must be kept ready to hand at the machine or at the place of use.
- The operator must hand over the operator's manual to any other operator or subsequent owner of the machine.
- The country-specific regulations, standards and directives on accident prevention and environmental protection must also be observed. The operator's manual must be supplemented by further instructions for compliance with operational, official, national or generally applicable safety guidelines.

4.5 Obligations of the operator

- Know and implement applicable health and safety regulations.
- In a risk assessment, identify hazards arising from working conditions at the place of use.
- Create operating instructions for the operation of this machine.
- Regularly check whether the operating instructions correspond to the current status of the regulations.
- Clearly regulate and define responsibilities for installation, operation, troubleshooting, maintenance and cleaning.
- Train personnel at regular intervals and inform them about possible dangers.
- Refresh instruction at regular intervals.
- Keep records of the training received and make them available to the competent authority on request.
- Provide personnel with the necessary protective equipment.

4.6 Qualification of staff

Warning! Risk of injury due to misuse.

In the event of misuse, abuse or operation by untrained personnel, there is a risk to the health of the operator and/or third parties, as well as damage or total failure of the machine and/or other property damage.

- The machine may only be commissioned and operated by trained personnel.

In addition, the following requirements apply to the operator:

- Physical and mental suitability.
- Minimum age 18 years.
- No influence on reactivity by drugs, alcohol or medication.
- Familiarity with the safety instructions in this operator's manual.
- Familiarity with the intended use of this machine.
- Instructed in the independent operation of the machine.

4.7 General safety instructions

The safety instructions in this chapter contain the "General safety instructions", which must be listed in the operator's manual in accordance with the applicable standards. It may contain instructions which are not relevant for this machine.

4.7.1 Workplace

Warning! Hazard of poisoning from exhaust gases.

Exhaust gases contain carbon monoxide. Inhaling exhaust gases can lead to death in a few minutes.

- Do not inhale exhaust gas.
- Do not operate machine in an enclosed/partially enclosed or poorly ventilated or vented area.
- Particular caution is required when operating in ditches, because a high concentration of carbon monoxide can form in ditches after a short time.
- Ensure adequate ventilation/exhaustion.

Warning! Risk of explosion from fuel vapors.

Fuel vapors are highly flammable and can cause an explosion. This can seriously injure people and cause damage to property.

- Do not start the engine near spilled fuel.
- Open fire and smoking prohibited.

Warning! Risk of injury due to unsafe work environment.

Unsafe working environment can cause the machine to tip, roll, slide and fall. People can be injured as a result.

- Before starting work, familiarize yourself with the working environment, e.g. load-bearing capacity of the floor or obstacles in the environment.
- Always secure the machine against tipping, rolling, slipping and falling.

Warning! Risk of injury if distracted by third parties.

Distraction by others can result in loss of machine control. This can seriously injure people and cause damage to property.

- Secure work area to public transport area.
- Keep unauthorized persons and children away when working with this machine.

Warning! Risk of injury due to adverse working conditions.

Cluttered and poorly lit work areas can lead to accidents. People can trip, fall and be seriously injured as a result.

- Keep work area tidy.
- Provide adequate lighting.

4.7.2 Personal safety

Warning! Risk of injury due to physical impairment.

Physical impairment can reduce the ability to react. This can lead to loss of machine control. People can be injured as a result.

- Do not work under the influence of drugs, alcohol or medication.

Warning! Danger of being drawn in by unsuitable clothing and long hair.

Wide or loose clothing, protective gloves, jewellery and long hair can be caught and pulled in by moving/rotating machine parts. This can result in severe injuries.

- Keep loose or loose clothing and protective gloves away from moving/rotating machine parts.
- Remove jewelry before starting work.
- Tie up long hair or use a hair net.

Warning! Danger of falling due to unsafe position.

Working in an unstable position can lead to falls. Falls can cause serious injuries.

- Always ensure a safe footing.
- Always have both feet on the ground.

Warning! Risk of injury to third parties

Bystanders can be seriously injured by incidents in the work area.

- Make sure there are no other people in the danger area.

Caution! Risk of injury.

Misusing the machine as a means of transporting people or objects can result in people or objects falling. People can be injured as a result.

- Do not stand, sit or ride on the machine in operation.
- Do not transport any objects on the machine.

Personal protective equipment

Suitable protective equipment must be used for all work. Personal protective equipment considerably reduces the risk of injury.

Warning! Risk of hearing damage from exceeding permissible noise limits.

Working with the machine without hearing protection can lead to hearing damage in the long-term.

- Always use hearing protection when working with the machine.
- When working with hearing protection, work particularly attentively and carefully, because noises, e.g. screams or beeps, are only perceived to a limited extent.

4.7.3 Handling and use

Warning! Risk of injury from falling loads.

In the event of improper transport or transport with unsuitable lifting gear, loads can fall. People can be hit and seriously injured or killed.

- Do not stay under lifted loads.
- Only use suitable and tested lifting gear and slings with sufficient load-bearing capacity.
- Secure the machine safely to the lifting gear.
- Use appropriate transport method.

Warning! Risk of crushing from swinging loads.

Improper transport can cause loads to swing. People can be hit or crushed by this and be seriously injured or killed.

- Keep a sufficient distance from the lifted loads.
- Secure raised loads against swinging.

Warning! Danger to life due to unauthorized troubleshooting

Unauthorized troubleshooting can lead to unforeseen machine states. People can be injured as a result.

- If faults occur on this machine which are not described in this operator's manual, contact the service partner.
- Do not rectify faults on your own.

Warning! Risk of injury from defective machines or components.

Defective machines or components can lead to unforeseen machine states. People can be injured as a result.

- Handle machines with care.
- Do not start a defective engine.
- Have defective parts replaced before operating the machine.

Warning! Risk of injury due to functionally restricted controls.

Controls that are not fully functional can lead to unforeseen machine states. People can be injured as a result.

- Check the machine's controls for functionality before operation.
- Do not lock, manipulate or alter the machine controls in an inadmissible manner.

Warning! Risk of injury due to unauthorized start-up.

Unauthorized start-up can lead to dangerous situations. Persons involved can be seriously injured as a result.

- Only allow the machine to be operated by authorized personnel.
- Secure unused machines against unauthorized putting into operation.
- After operation, store the machine in a locked, clean, frost-free and dry place that is inaccessible to other people and children.
- Use the machine, accessories, tools etc. in accordance with these instructions.

4.8 Specific safety instructions for light mast

4.8.1 External influences

Warning! Danger to life due to electric shock.

When the mast is extended, it can touch power lines running above it. People can suffer an electric shock and be seriously injured or killed.

- Make sure the area above the machine is clear of power lines and other obstructions.

Warning! Danger to life due to lightning strike.

The extended mast can be struck by lightning during a thunderstorm. People can suffer a lightning strike and be seriously injured or killed.

- When the mast is extended, do not operate the machine when a thunderstorm is approaching or during thunderstorms.

Warning! Fire and explosion hazard.

Operating machines in potentially explosive atmospheres or near open flames can result in an explosion or fire. This can seriously injure people and cause property damage.

- Do not operate the machine in a potentially explosive environment.
- Do not operate machine in oilfield environments - methane gas leaking from ground.
- Do not operate the machine in the vicinity of open flames.
- Do not operate the machine in dry, highly flammable vegetation.

Caution! Risk of injury from slipping machine.

In heavy rain, the machine may slip on sloping surfaces. This can injure people and damage the machine.

- Do not operate the machine on inclined surfaces in heavy rain.

Caution! Risk of overturning due to strong wind.

The machine can overturn in strong wind when the mast is extended. People can be hit by the mast and seriously injured.

- Do not operate the machine in strong wind. Do not extend the mast.
- If strong wind is expected, retract the mast and take the machine out of operation.

4.8.2 Operational safety

Warning! Risk of accident due to improper towing.

Improper towing of the machine may lead to accidents. Persons may be seriously injured or killed due to this.

- Do not tow the machine if the trailer hitch or trailer coupling of the trailer or the towing vehicle are damaged.
- Do not tow the machine if the tires of the trailer have a tread depth of less than 1.5 mm.
- Do not tow the machine if the tires of the trailer have excessively low air pressure.
- Do not tow the machine if the trailer brakes do not function correctly.
- Do not tow the machine if the trailer lighting does not function properly.
- Do not pull machine with height-adjustable drawbar if it is not set properly.
- Avoid soft verges, curbs and sudden lane changes.

Warning! Risk of accident due to excessive speed.

Towing with excessive speed may lead to accidents. Persons may be seriously injured or killed due to this.

- Do not exceed the permissible maximum speed of trailer.
- The recommended maximum speed for off-road towing is 15 km/h (lower in rough terrain).

Warning! Danger of falling on slopes and drop-off edges.

The machine can fall near slopes and drop-off edges. Persons may be hit and seriously injured or killed due to this.

- Be extremely careful near slopes and drop-off edges.
- Do not move or operate the machine near slopes and drop-off edges.

Warning! Risk of injuries due to unauthorized use of rotational speed of the combustion engine.

Unauthorized increase in the engine speed leads to high voltage in the current circuit of the machine. This may lead to fire in the electrical systems and the entire machine.

- The rotational speed setting screw is secured by a wire seal in order to prevent subsequent adjustment.
- The seal must not be damaged.
- The seal must not be removed.

Caution! Risk of injury to third parties when the machine is running.

When operating the machine, people in the work area can be injured.

- Never let the machine run unattended.
- Block off a large work area and keep unauthorized persons away.
- Make sure people in the work area keep a minimum distance of 2 meters from the running machine.

Caution! Risk of injuries due to the lowering mast.

If the hydraulic system is depressurized, the mast may lower unintentionally. People can be injured as a result.

- Before disconnecting hydraulic connections, ensure that:
 - The mast is completely lowered.
 - The mast parts are at the mechanical stops.

4.8.2.1 Safety distances

Warning! Hazard of poisoning from exhaust gases.

Exhaust gases contain carbon monoxide. Inhaling exhaust gases can lead to death in a few minutes.

- Do not inhale exhaust gas.
- Do not operate machine in an enclosed/partially enclosed or poorly ventilated or vented area.
- Do not operate machine in an enclosed/partially enclosed, poorly ventilated or vented area.
- Keep clear of enclosed/partially enclosed, poorly ventilated or vented areas.
- Particular caution is required when operating in ditches or pits, because a high concentration of carbon monoxide can form there after a short time.
- Ensure adequate ventilation/exhaustion.

4.9 Safety features

Warning! Risk of injury due to modified or removed safety devices.

Modified or removed safety devices lose their protective function. People can be injured as a result.

- Operate the machine only when the safety devices are correctly installed and functional.
- Do not change or remove safety devices.
- Reattach safety and protective devices removed for maintenance/service (e.g. V-belt protection).



The light mast has the following safety devices:

- Engine hood **1**
- Emergency stop button **2**
- 4 support legs with locking **3**
- Provision wedges **4**
- Parking brake **5**
 - The trailer parking brake is applied when the lever is in the up position.
 - Apply the parking brake: pull the lever up.
 - Release the parking brake: push the lever down.
- Tear-off safety rope **6**
- Automatic mast security system
 - The machine is optionally equipped with the Automatic Mast Operating Safety System (AMOSS). This system eliminates possible hazardous situations that would arise from transporting the trailer while the mast is still extended and in the operating position.
 - The system automatically lowers the mast when the trailer parking brake is released and also prevents the mast from raising if the parking brake is not applied.

4.10 Service

Warning! Risk of injury from defective machine.

Machines that are not or improperly maintained/repared may have defects that go unnoticed. This can cause personal injury and property damage.

- Observe maintenance intervals according to maintenance plan.
- Only have the machine repaired or serviced by technically trained personnel.
- Have work not listed in the maintenance plan carried out by the service partner.
- Replace worn or damaged machine parts immediately.
- Only use original spare parts and accessories. The operational safety of the machine is thus maintained.
- Carry out maintenance work in a clean and dry environment (e.g. workshop).
- Replace any missing, damaged or illegible safety labels immediately. Safety and information labels contain important information for the protection of the operator.
- Keep the machine clean.

Warning! Risk of injury due to modified or removed safety devices.

Modified or removed safety devices lose their protective function. People can be injured as a result.

- Operate the machine only when the safety devices are correctly installed and functional.
- Do not change or remove safety devices.
- Reattach safety and protective devices removed for maintenance/service (e.g. V-belt protection).

Caution! Risk of crushing/risk of burns when the machine is running.

Moving/rotating machine parts can cause crushing. Hot machine parts can cause burns if touched.

- Do not service, repair, adjust or clean the machine when it is switched on.
- Switch off the machine and let it cool down.

Caution! Risk of crushing if the machine starts up unintentionally.

Machines with an external or internal power supply can start up unintentionally. People can be injured by moving parts.

- Disconnect starter battery before maintenance.

4.10.1 Threaded fittings

Caution! Risk of injury due to missing or loose screw connections.

Missing or loose screw connections can lead to loose machine parts. People can be injured as a result.

- All threaded fittings must comply with the specified specifications and be firmly bolted together.
- Observe the correct tightening torques.
- Screws and nuts must not be damaged, bent or deformed.
- Particular attention should be paid to the following:
 - Self-locking nuts and micro-encapsulated screws must not be reused after loosening. The fastening effect is lost.
 - Screw connections with thread-securing glue (e.g. Loctite) must be cleaned after loosening and provided with new adhesive before reuse.

Information! Follow the instructions given by the manufacturer of the thread-securing glue.

4.11 Vehicle fluids

Warning! Danger of scalding from hot operating materials.

Operating materials can become very hot after a short operation period. Contact with hot operating materials can lead to severe scalding.

- Switch off the machine and let it cool down.
- Use protective gloves.

Warning! Risk of fire and explosion from flammable cleaning agents.

Flammable detergents can cause fires and explosions. People can be injured as a result.

- Do not clean the machine and components with gasoline or other solvents.

Warning! Risk of fire from hydraulic fluid.

Hydraulic fluid is extremely flammable. Fires that occur can injure people and cause damage to property.

- Immediately shut down the machine if a leak is detected.

Caution! Risk of damage to health.

Operating materials can contain toxins that can severely damage the eyes, mucous membranes and skin on contact.

- Do not inhale vapors.
- Avoid eye and skin contact.
- Always wear protective goggles and gloves when handling operating materials.
- Consult a doctor immediately if operating materials get into your eyes.
- In case of skin contact, wash skin immediately with soap and water.
- Do not eat or drink while working with vehicle fluids.

Caution! Risk of injury from the pressurized hydraulic system.

Hydraulic systems can still be under pressure even after the machine has been switched off. People can be injured as a result.

- Switch off the engine and machine and let them cool down.
- Before disconnecting hydraulic connections, release the pressure from the hydraulic system.
- Put all controls in neutral.
- Lower the mast completely and place the mast parts on the mechanical stops.

Note! Danger of machine damage.

Contaminated operating materials (e.g. dirt, water) can lead to premature wear or machine failure.

- Do not contaminate operating materials.
- Replace contaminated operating materials.
- If vehicle fluids leak from the machine, stop operating the machine and have it repaired immediately by a service partner.

Environment Risk of environmental damage.

Operating materials that get into the ground, water bodies or sewage system can cause environmental damage.

- Line work surface with impermeable foil.
- Use collection containers for old operating materials.
- Dispose of discharged or spilled vehicle fuel in accordance with applicable environmental regulations.
- Clean the machine in a suitable place where the dirty waste water can be collected in an environmentally friendly manner.
- Collect contaminated water and dispose of it in an environmentally friendly manner.

4.12 Combustion engine

Warning! Risk of fire from hot engine parts and fuel.

Hot engine parts can ignite fuel and combustible material. This can cause severe burns to people and damage to property.

- Ensure that the exhaust system of the engine is free of flammable materials.
- Before refueling, switch off the engine and let it cool down.
- Do not spill fuel, wipe up spilled fuel immediately.
- Do not use jump start sprays. These can cause fire, misfires and engine damage.

Caution! Risk of burns from hot engine parts.

The engine surface and exhaust system can become very hot after only a short time. Persons can suffer burns on contact.

- Switch off the engine and let it cool down.

Note! Machine damage from incorrect, contaminated and leaking fuel.

- Use the correct type of fuel.
- Observe the prescribed mixing ratios for two-stroke engines.
- Use clean filling aids for refueling.
- Before start of work, check the engine for leaks and cracks in the fuel line, tank and filler cap.
- Do not start the defective engine. Replace damaged parts immediately.

Note! Machine damage due to incorrectly set engine speed.

- The preset engine speed must not be adjusted. This could lead to engine damage.

4.13 Starter battery

Warning! Fire and explosion hazard due to hydrogen gas.

Batteries can release explosive hydrogen gas. Persons may be seriously injured or killed due to this.

- Keep any kinds of sparks or flames away from the battery.
- Do not short circuit the battery.

Caution! Fire hazard due to short circuit.

Incorrect connection of the starter battery or bridging the poles can lead to a short circuit. This can cause the starter battery to catch fire and ignite the surrounding area. People can be burned and material damage can be caused.

- Avoid bridging the poles with tools.
- When disconnecting the starter battery, always disconnect the negative terminal first.
- Always connect the positive terminal first when connecting the starter battery. Fasten the terminal cover.

Caution! Fire hazard from fire, sparks and smoking.

This can cause personal injury and property damage.

- Fire, sparks and smoking are prohibited when handling starter batteries.

Note! Battery damage due to improper handling.

- Do not open the starter battery.
- For charging, observe the battery manufacturer's instructions.

5 Description of the Machine

5.1 Description

This machine is a mobile light mast mounted on a trailer. The light mast consists of a trailer with a superstructure, protected by a hinged engine hood, containing a diesel engine, a fuel tank, a control panel and an electrical generator. A telescopic mast with four lighting elements is mounted vertically on the top of the superstructure.

The light mast can also be mounted on a frame with skids as a variant.

When the engine is running, the generator converts the mechanical energy into electrical energy. This energy is fed to the lighting elements. In addition, a socket can be provided to supply to the additional consumers.

Some versions are equipped with a mains connection plug.

The operator operates and monitors the machine using the control panel.

5.2 Type plates and labels

5.2.1 Type label

A type label is permanently attached to the machine.

Other type labels

Furthermore, the following components of the machine are provided with their own type label:

- the combustion engine
- the generator
- the trailer

Symbols on the type label

Various symbols and markings for national and international approvals can be shown on or next to the nameplate.

5.2.1.1 Labeling on the machine

Type label data

The type label contains information that uniquely identifies this machine. This information is required for ordering spare parts and for technical queries.

Enter the data on the machine in the following table:

Designation	Your details
Group - Type	
Material number (Mat.-No)	
Machine Version (Rev.)	
Machine number (serial no.)	
Year of construction (date)	

Manufacturer

AIR Power s.r.o.

Jizni Predmesti 2942

CZ-301 00 PILSEN 3

Manufactured for

Wacker Neuson Produktion GmbH & Co. KG

Wackerstraße 6

85084 Reichertshofen, Germany

5.2.2 Safety and information labels



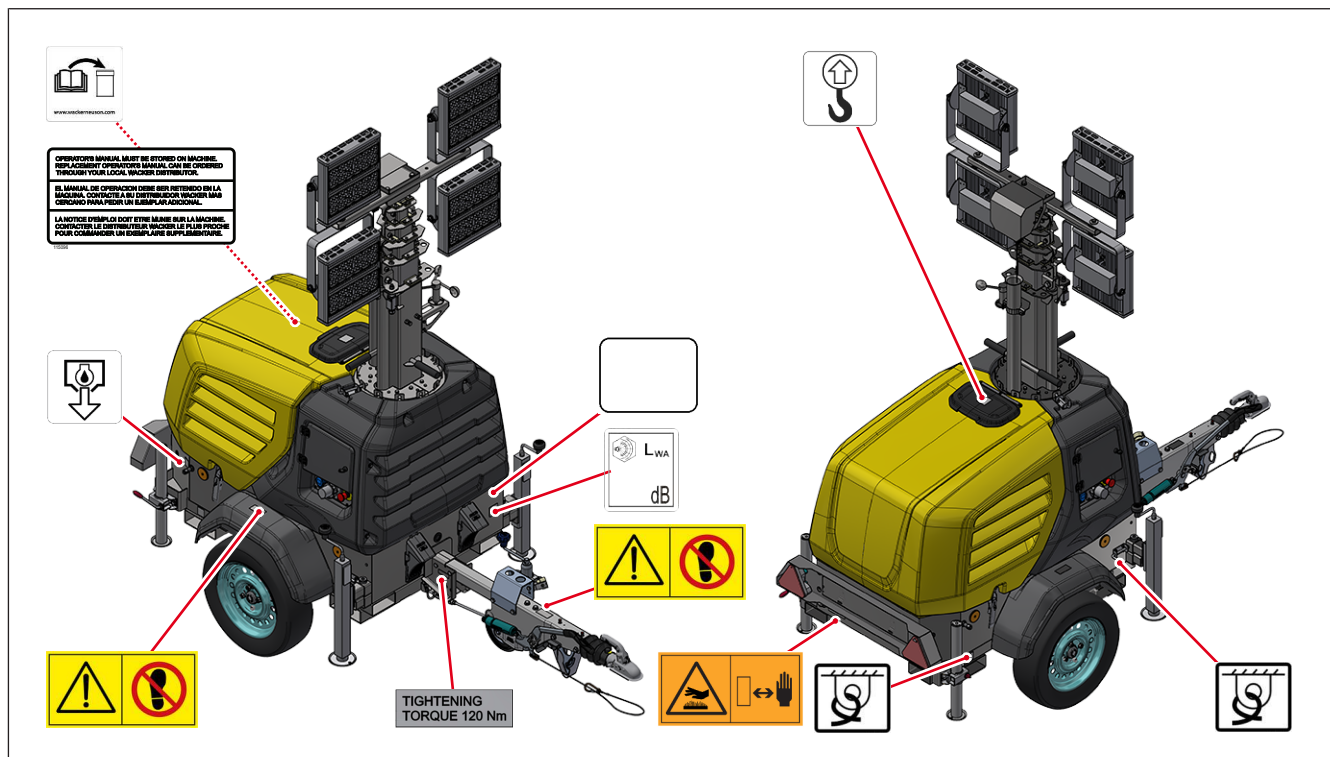
⚠ WARNING

Injury hazard due to missing or damaged labels and signs!

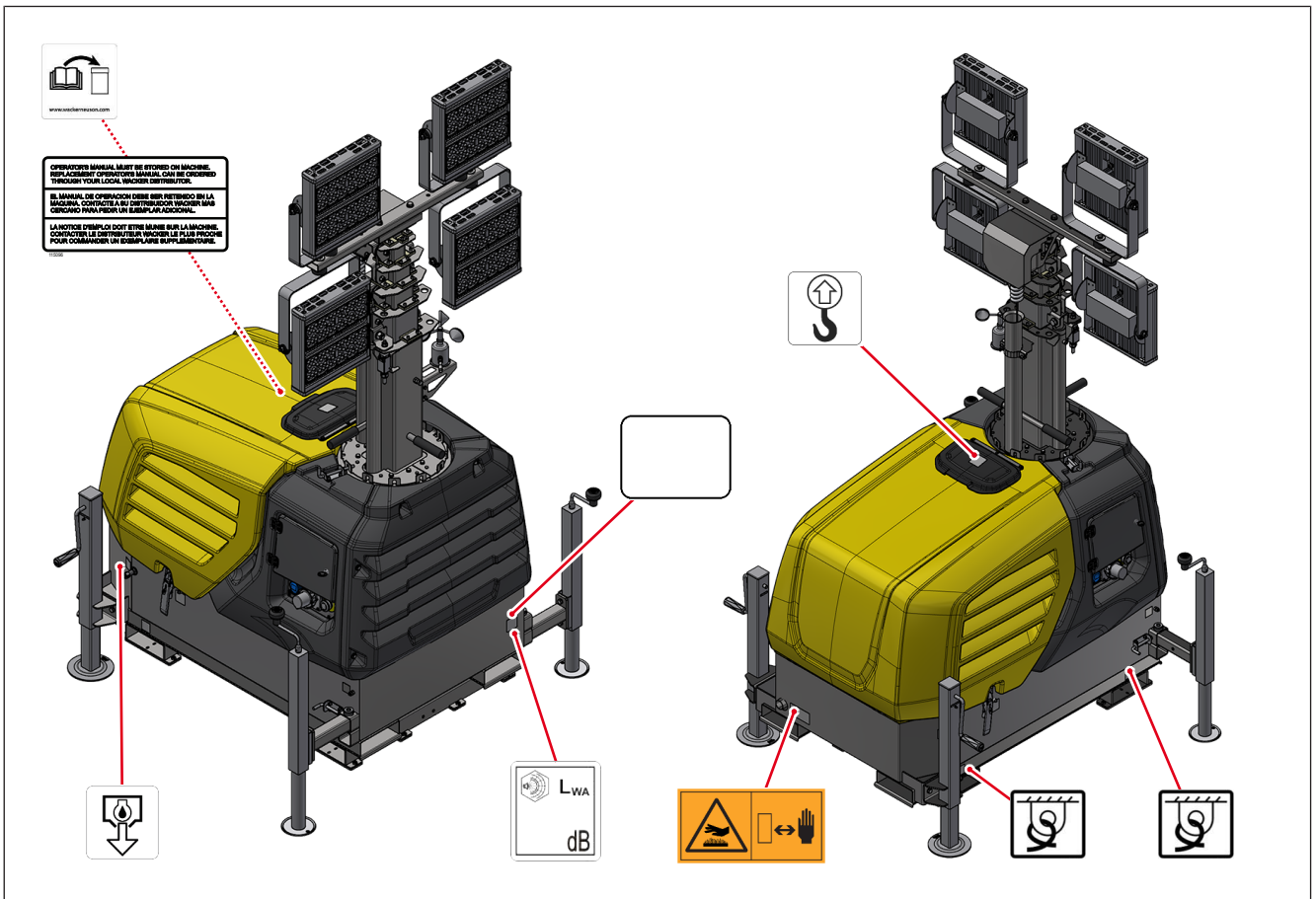
Safety labels contain important information to protect the operator.

- Keep all safety, warning and operating instructions on the machine in a clearly legible condition.
- Replace missing or damaged labels and signs immediately.

Machine with trailer

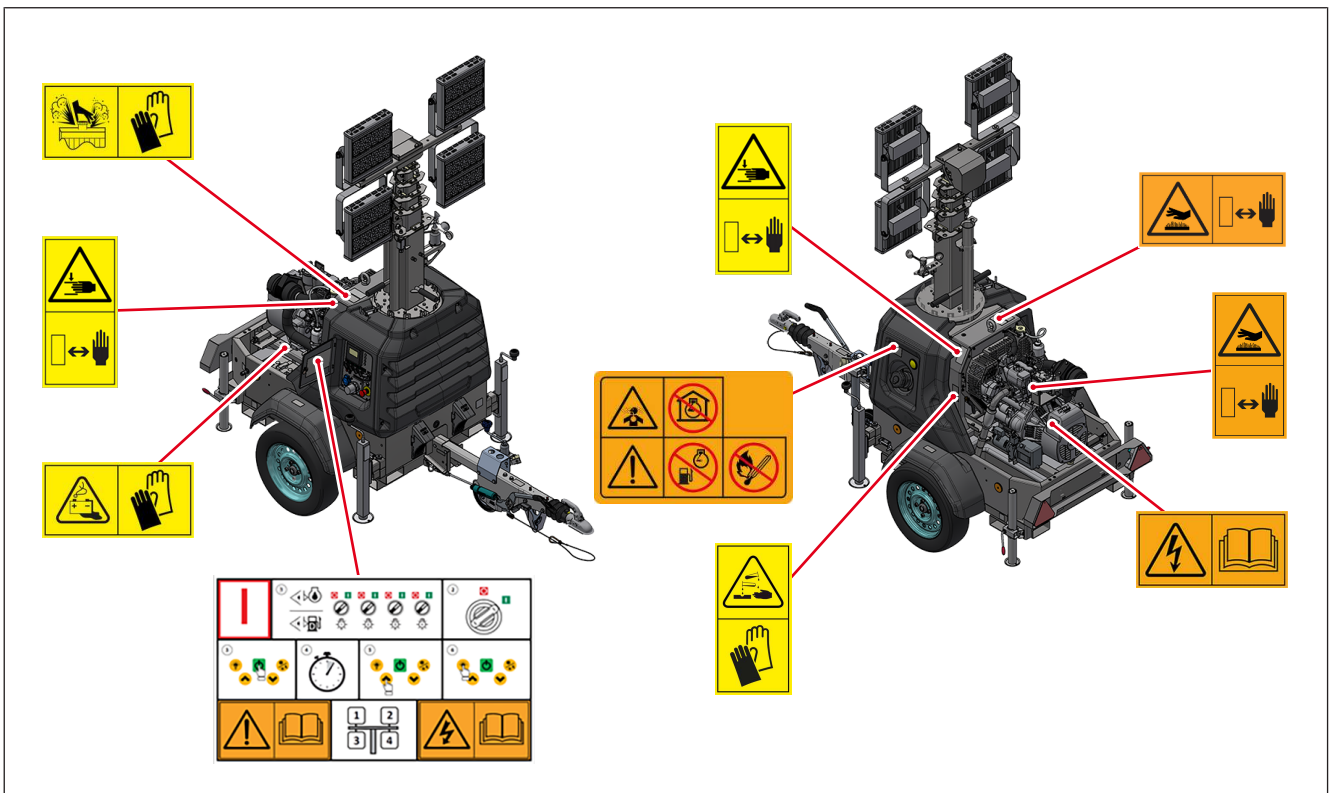


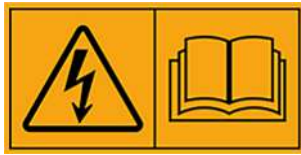
Machine with skid frame



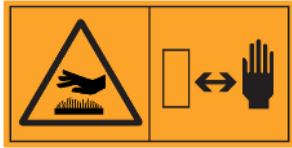
5

General machine





Electrical voltage!
Read the operator's manual.



Danger of burns due to hot surface!
Keep back.

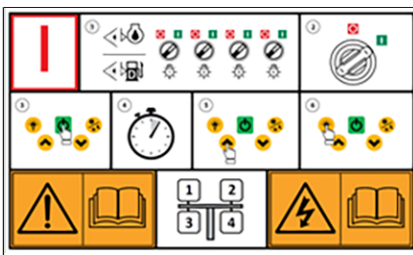


Risk of burns due to hot surface!
Keep back.



Information about operating the machine:

- Risk of suffocation due to exhaust gases!
- Do not operate the machine in closed rooms.
- Read the operator's manual.
- Take the machine out of operation before refelling.
- Fire, open flame and smoking are prohibited.



Machine start quick guide.

Risk of injury! Read the operator's manual.

Danger of electric shock. Read the operator's manual.



Risk of crushing!
Maintain distance!



Caustic injury hazard due to liquids!
Wear protective gloves.



Caustic injury hazard due to battery acid!
Wear protective gloves.



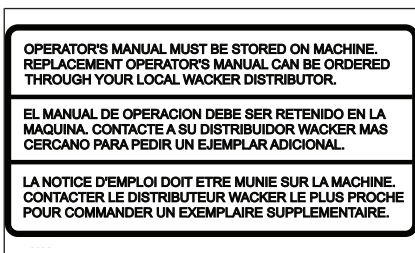
Risk due to hot, pressurized liquids!
Wear protective gloves.



Caution!
Entry prohibited.



Keep the operator's manual in the document box.



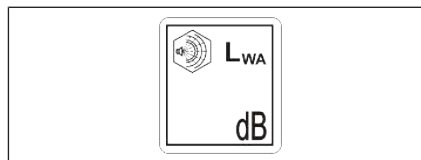
Keep the operator's manual text.



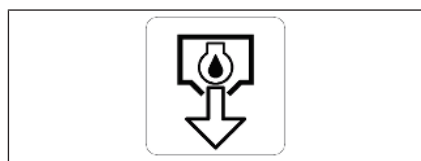
Only lift the machine at the central suspension with tested lifting gear and slinging gear (safety load hook).



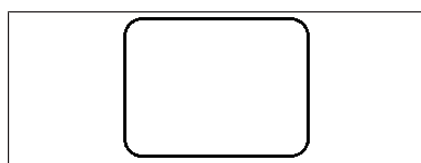
Tie-down points.



Guaranteed sound power level.



Drain engine oil.



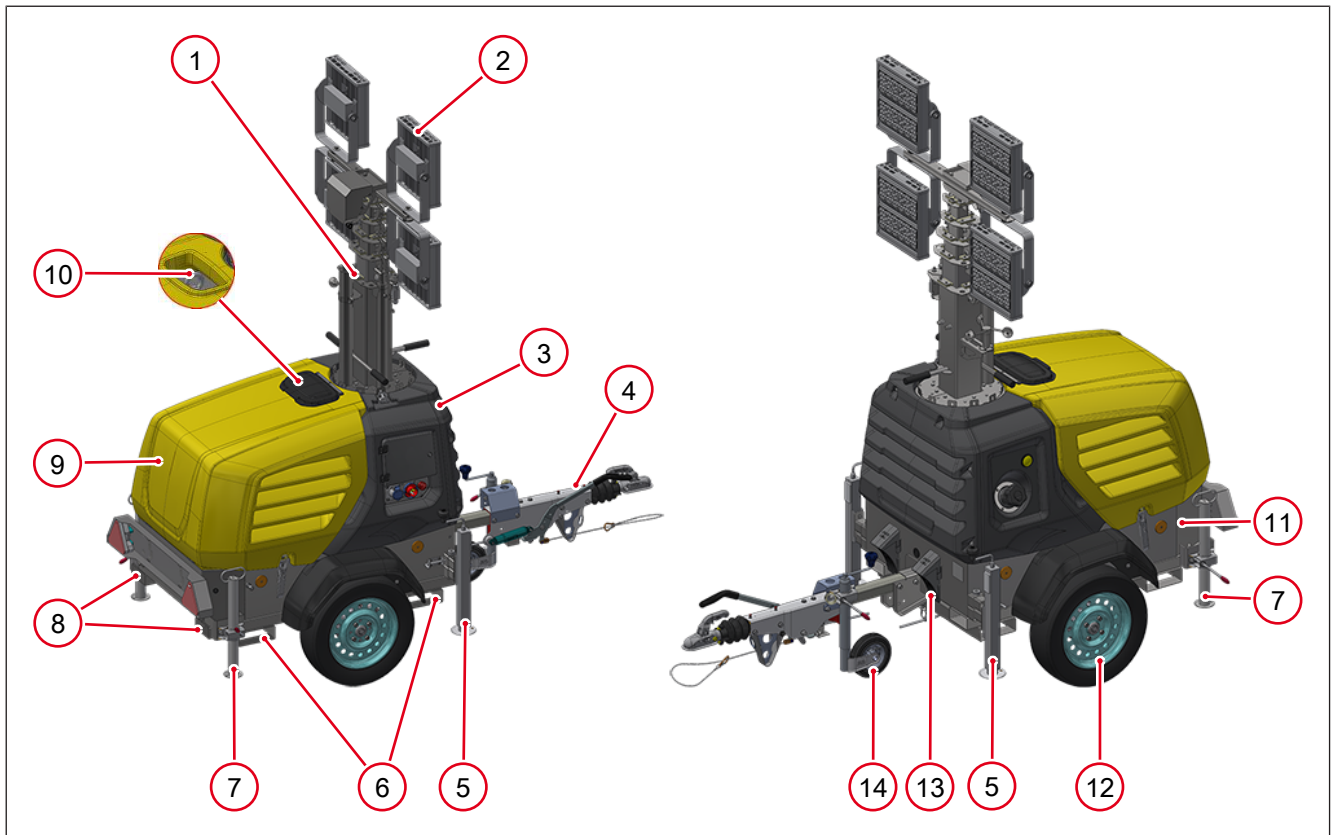
Type label.



Tightening torque.

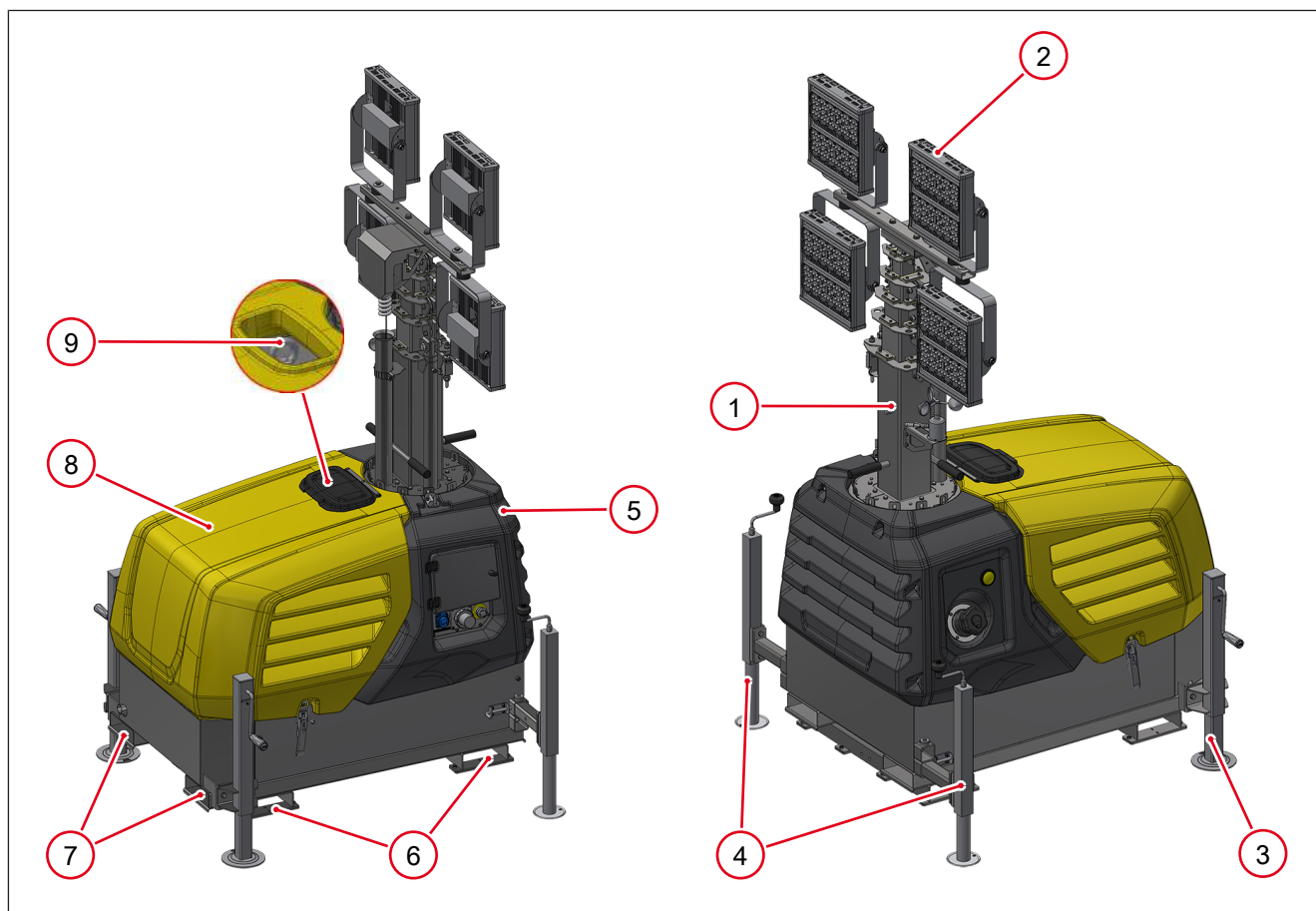
5.3 Components

Machine with trailer



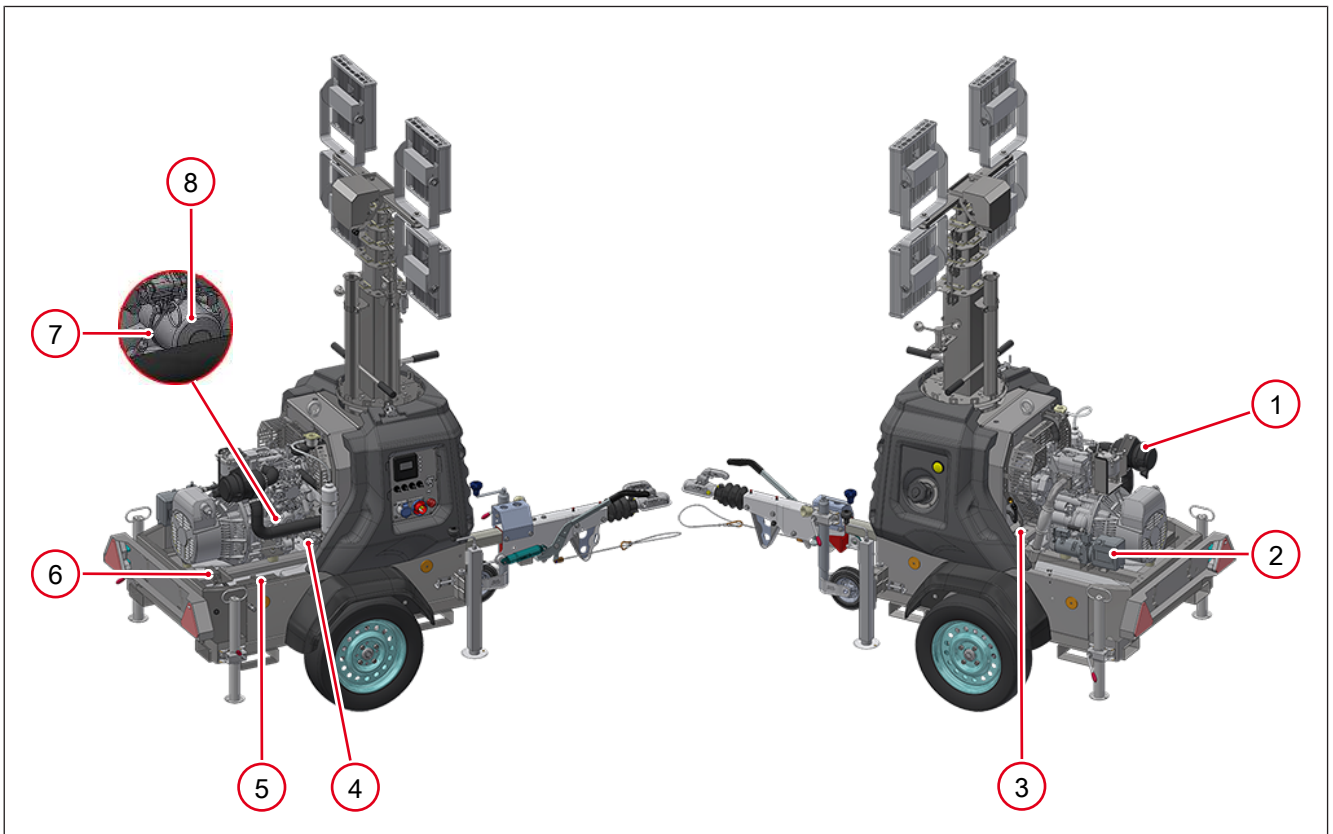
- | | |
|-----------|-------------------------------|
| 1 | Telescopic mast |
| 2 | Lighting elements |
| 3 | Front panel |
| 4 | Tow bar with trailer coupling |
| 5 | Front support legs extendable |
| 6 | Forklift pockets crosswise |
| 7 | Rear support legs |
| 8 | Forklift pockets sideways |
| 9 | Engine hood |
| 10 | Central suspension with cover |
| 11 | Base frame |
| 12 | Under carriage |
| 13 | Chock |
| 14 | Support wheel |

Machine with skid frame



- 1 Telescopic mast
- 2 Lighting elements
- 3 Rear support legs
- 4 Front support legs extendable
- 5 Front panel
- 6 Forklift pockets crosswise
- 7 Forklift pockets sideways
- 8 Engine hood
- 9 Central suspension with cover

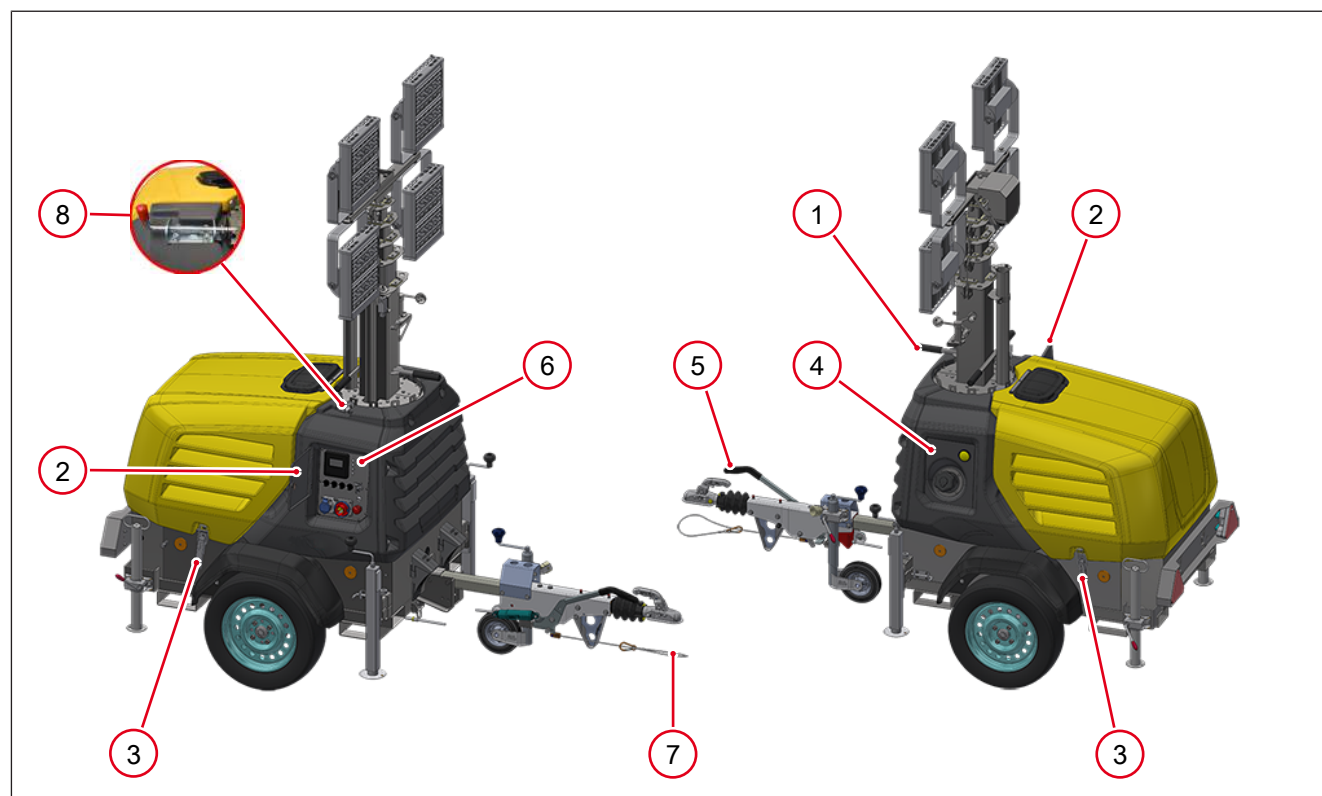
General machine



- | | |
|---|-----------------------------|
| 1 | Air filter |
| 2 | Hydraulic unit |
| 3 | Coolant drain |
| 4 | Fuel filter/water separator |
| 5 | Starter battery |
| 6 | Fuses |
| 7 | Oil dipstick |
| 8 | Oil filter |

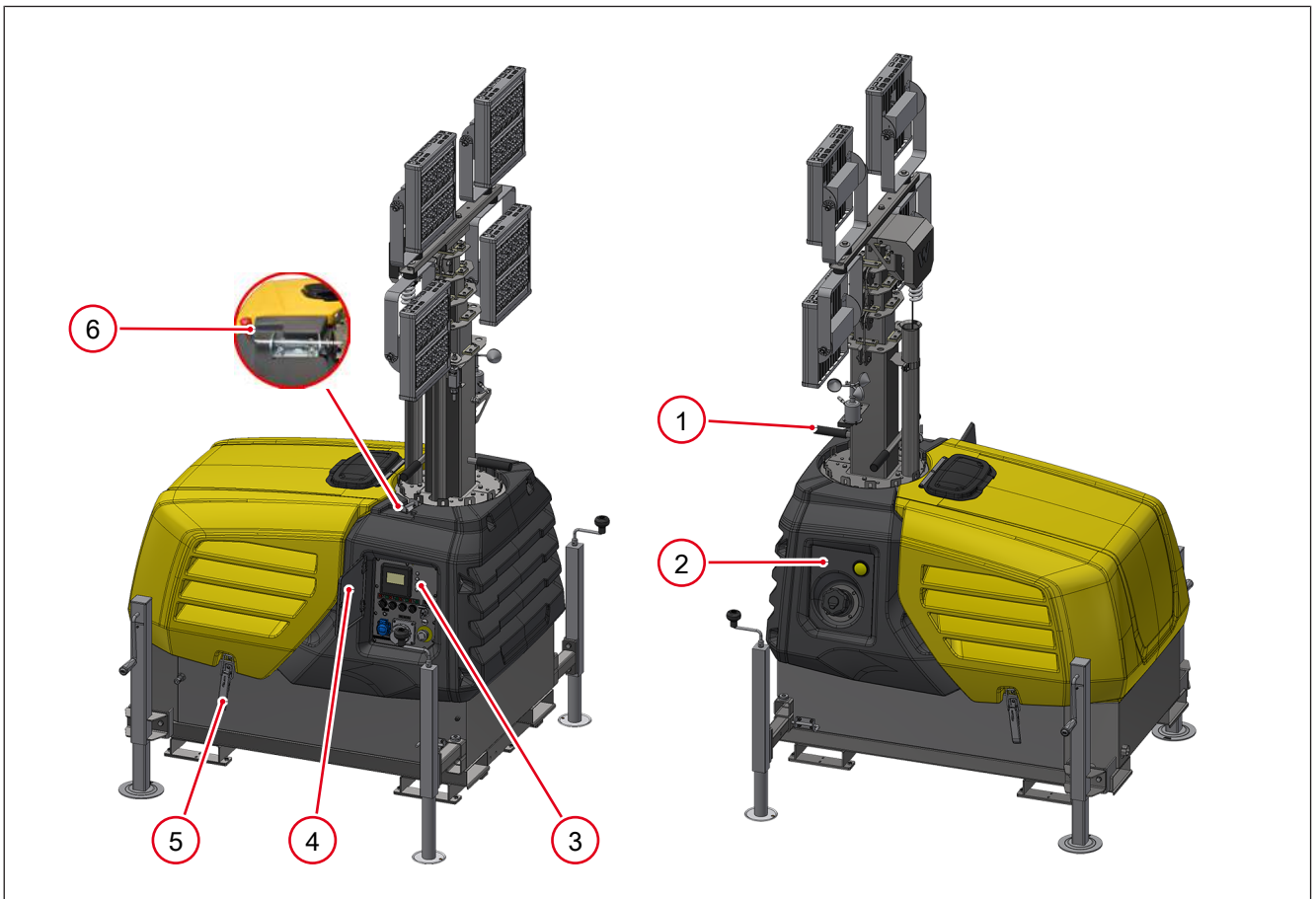
5.4 Control elements

Machine with trailer



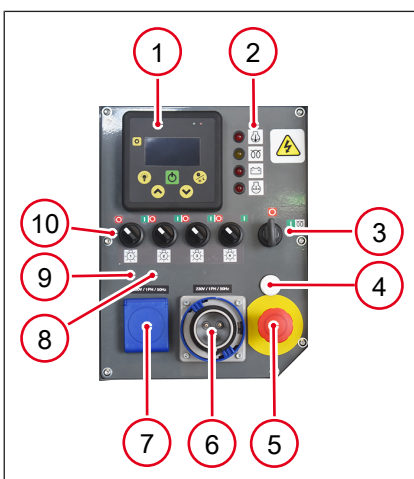
- | | |
|---|------------------------------|
| 1 | Mast rotation handle |
| 2 | Control panel cover lockable |
| 3 | Engine hood interlock |
| 4 | Fuel panel |
| 5 | Parking brake lever |
| 6 | Control panel |
| 7 | Breakaway safety rope |
| 8 | Mast rotation lock |

Machine with skid frame



- | | |
|---|------------------------------|
| 1 | Mast rotation handle |
| 2 | Fuel panel |
| 3 | Control panel |
| 4 | Control panel cover lockable |
| 5 | Engine hood interlock |
| 6 | Mast rotation lock |

Control panel



- | | |
|----|-----------------------------------|
| 1 | Display |
| 2 | Engine status indicator lights |
| 3 | Activation switch |
| 4 | Light sensor |
| 5 | Emergency stop button |
| 6 | Current input |
| 7 | Socket |
| 8 | Switch for isolation test |
| 9 | Insulation status indicator light |
| 10 | Light switch |

6 Transportation

6.1 Safety instructions for transport



⚠ WARNING

Hazard of falling!

The falling machine can cause serious injuries, e.g. by crushing.

- ▶ Only use suitable and tested lifting gear and slings (safety hooks) with sufficient lifting capacity.
- ▶ Only lift the machine by the central suspension.
- ▶ Secure the machine safely to the lifting gear.
- ▶ Leave the danger zone when lifting, do not stand under suspended loads.



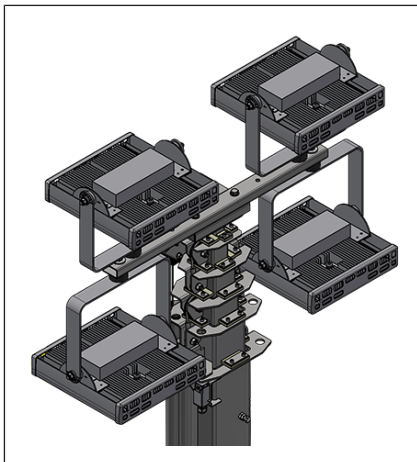
⚠ WARNING

Fire hazard due to fuel!

Leaking fuel can catch fire and cause severe burns.

- ▶ Empty the fuel tank before transport.

6.2 Prerequisites and preparations



- ✓ Machine is switched off and cooled down.
 - ✓ Only suitable lifting equipment with sufficient lifting capacity are used, [see Technical Data on page 83](#).
 - ✓ Only suitable hoists with sufficient lifting capacity are used.
 - ✓ The transport vehicle has a sufficient lift capacity and a suitable loading surface.
1. Lower the mast completely before transportation.
 2. Take into account the higher center of gravity of the machine.
 3. Point the lighting elements horizontally downwards as shown.
 4. Close and secure all covers.
 5. Fully retract the support legs and fix in the transport position.

Machine with height-adjustable drawbar

1. Loosen and remove the mounting screw.
2. Turn the tow bar to the vertical position.
3. Re-attach the fastening screw from behind in the lower hole and tighten it.

6.3 Lifting the machine



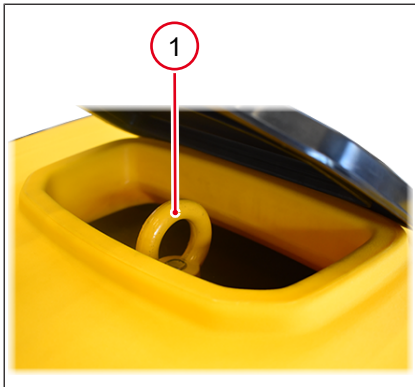
⚠ WARNING

Risk of crushing!

If the machine is unstable, the lifting gear and the hoist may fail and fall down.

- ▶ Check the stability of the lifted machine before continuing work.

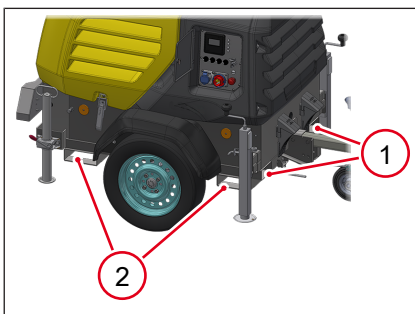
6.3.1 Transport with crane



Requirements and lifting

- ✓ It is ensured that the load capacity of the crane and lifting equipment is suitable for transporting the weight of the machine.
 - ✓ To ensure safe lifting, a competent signaller was appointed.
 - ✓ All lifting operations are carried out by qualified personnel, e.g., crane operators and other specialists for lifting tackle.
 - ✓ Only certified lifting and fastening gear is used.
1. Attach suitable lifting tackle to central suspension **1**. Attach the lifting tackle only at the central suspension.
 2. Do not tilt the machine too much during transport.
 3. Do not stand near or under the load.
 4. Lift the machine only as high as necessary.
 5. Only move the machine slowly when lifting.
 6. Set down the machine at the desired place or load the machine into or onto the transport vehicle. Do not exceed the permissible total height during transport (height of the loading area plus the height of the light pole).

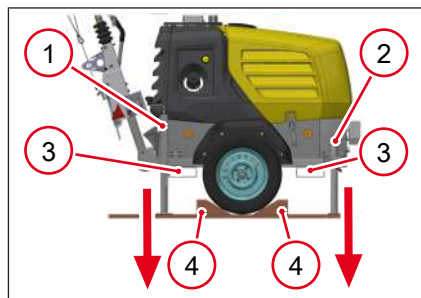
6.3.2 Transport with forklift



Requirements and lifting

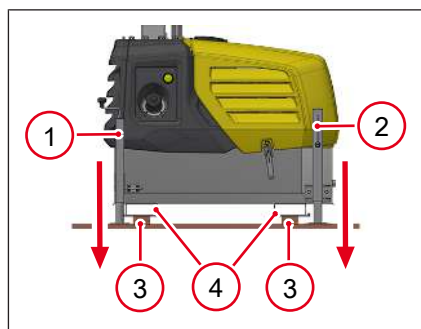
- ✓ It is ensured that the load capacity of the forklift is suitable for transporting the weight of the machine.
 - ✓ All lifting operations must be carried out by qualified personnel.
1. Insert the forks of the forklift into the forklift pockets (longitudinal pockets **1** or transverse pockets **2**).
 2. Lift the machine approximately 10 cm for transporting with the forklift. Lift the machine only as high as necessary for loading.
 3. Transport the machine slowly.
 4. Set down the machine at the desired place or load the machine into or onto the transport vehicle. Do not exceed the permissible total height during transport (height of the loading area plus the height of the light pole).

6.4 Lashing the machine



Machine with trailer

1. Lower front support legs **1** and rear support legs **2** to the ground.
2. Place and fasten (e.g. nail) the chocks **4** in front of and behind the wheels.
3. Only use the lashing points **3** provided for this purpose to secure the machine.



Machine with skid frame

1. Support the machine with beam **3** of at least 100 mm thickness.
2. Lower front support legs **1** and rear support legs **2** to the ground.
3. Only use the lashing points **4** provided for this purpose to secure the machine.



Machine with trailer

- Lash the machine at the lashing points as shown.
 - ⇒ Suitable lashing equipment e.g. lashing strap (1000 daN), chain (6/8 2200 daN).
- ⇒ The machine is secured against unrolling, slipping and tipping over.



Machine with skid frame

- Lash the machine at the lashing points as shown.
 - ⇒ Suitable lashing equipment e.g. lashing strap (1000 daN), chain (6/8 2200 daN).
- ⇒ The machine is secured against unrolling, slipping and tipping over.

6.5 Transport with towing vehicle



⚠ WARNING

Danger of accident when transporting the machine with the towing vehicle!

Unforeseen situations may arise when towing the machine with a towing vehicle. Accidents with serious injuries or death can result.

- ▶ Tow the machine only with an adequately dimensioned trailer hitch.
- ▶ When towing the machine with a towing vehicle, no persons may be present within the operating range of the trailer hitch.
- ▶ After completing the transport, secure the machine against unintentional movement and unauthorized use.

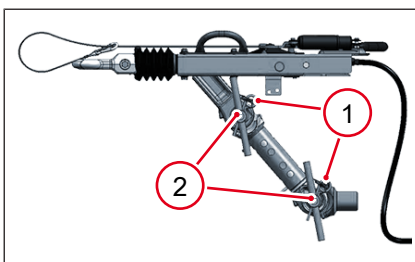
6.5.1 Adjust the height-adjustable drawbar

The height-adjustable drawbar consists of three parts. The front drawbar part (trailer hitch) and the rear drawbar part must remain in one level to ensure proper handling, braking function and lighting function. This can be achieved by the correct selection and adjustment of the towing hook of the vehicle and, in the case of undercarriages with variable height, by adjusting the drawbar.

To ensure the full braking effect, the front part (trailer hitch) must always be adjusted horizontally.

When adjusting the height-adjustable drawbar:

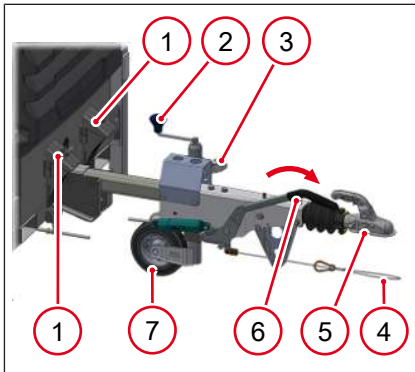
1. Ensure that front drawbar part (trailer coupling) and the rear drawbar part remain in one level.
2. When lifting the trailer hitch, first adjust the rear joint, then the front joint.
3. When lowering the trailer hitch, first adjust the front joint, then the rear joint.



Adjusting the joints:

1. Remove the locking pin **1** at the locking handle **2**.
 2. Loosen the locking handle until the joint can move.
 3. Adjust the joint.
 4. After adjusting each joint, manually tighten the locking handle completely and then continue to tighten until the locking pin can be inserted.
 5. Insert the locking pin at the locking handle again.
- ⇒ The height of the drawbar is thus set.

6.5.2 Coupling



1. Retract the four lateral support legs completely.
2. Latch the coupling **5** into the trailer coupling of the towing vehicle and lock it.
3. Remove the chocks **1** in front and rear of the wheels and insert them into the holder.
4. Release the parking brake **6**.
5. Loosen the support wheel **7** and retract using the crank handle **2**.
6. Fasten the breakaway safety rope **4** at the towing vehicle.
7. Connect the cable **3** of the trailer with the towing vehicle.
8. Check tire condition and tire pressure.
9. Check whether the trailer lights are functioning properly.

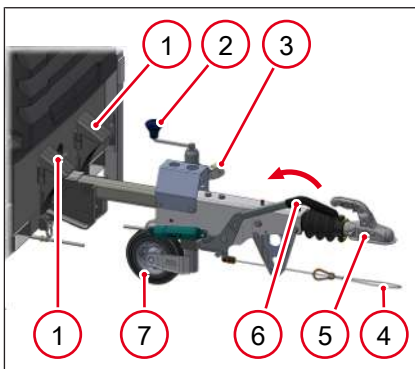
6.5.3 Tow the machine with the towing vehicle

Requirements and towing

Ensure the following points before towing with the towing vehicle:

- ✓ The tires are in flawless condition.
 - ✓ The trailer coupling is in flawless condition.
 - ✓ Brakes and lights of the trailer are functioning properly and comply with the road traffic requirements.
 - ✓ Breakaway ropes/safety chains are connected to the towing vehicle.
 - ✓ All covers are closed and secured.
 - ✓ The mast is completely lowered.
 - ✓ Support legs and drawbar are in driving position and locked.
 - ✓ Lighting elements are directed horizontally downwards.
 - ✓ The towing vehicle, its trailer coupling and power supply are suitable to ensure safe machine towing.
1. Do not exceed the trailer manufacturer's speed limits of 80 km/h.
 2. The maximum recommended towing in the terrain is 15 km/h (lower for uneven terrain).
 3. Avoid soft verges, curbs and sudden lane changes.

6.5.4 Uncoupling



1. Detach breakaway safety rope **4** from the towing vehicle.
2. Detach cable **3** of the trailer from the towing vehicle.
3. Apply parking brake **6**.
4. Loosen support wheel **7** and lower using crank handle **2** until it safely touches the ground.
5. Place chocks **1** in front and rear of the wheels to ensure that the machine cannot move when it is decoupled from the vehicle.
6. Unlock coupling **5** and take it off the trailer coupling of the towing vehicle.



6.6 Selection of the installation site

- The installation site must be level.
- The ground must safely support the weight of the machine. In case of soft substrate, place firm supports with larger area under the support legs.
- Do not set up the machine in the immediate vicinity of elevated cables or power lines.
- Set up the machine at ground level or at a slightly elevated location.

7 Commissioning

7.1 Safety instructions for operation



⚠ WARNING

Hazard of poisoning from exhaust gases.

Exhaust gases contain carbon monoxide. Inhaling exhaust gases can lead to death in a few minutes.

- ▶ Do not inhale exhaust gas.
- ▶ Do not operate machine in an enclosed/partially enclosed or poorly ventilated or vented area.
- ▶ Do not operate machine in an enclosed/partially enclosed, poorly ventilated or vented area.
- ▶ Keep clear of enclosed/partially enclosed, poorly ventilated or vented areas.
- ▶ Particular caution is required when operating in ditches or pits, because a high concentration of carbon monoxide can form there after a short time.
- ▶ Ensure adequate ventilation/exhaustion.



⚠ WARNING

Danger to life due to electric shock.

When the mast is extended, it can touch power lines running above it. People can suffer an electric shock and be seriously injured or killed.

- ▶ Make sure the area above the machine is clear of power lines and other obstructions.



⚠ WARNING

Risk of injury from slipping or tipping over.

Machines placed on hills or slopes can slide, break loose, or tip over.

- ▶ Do not place the machine on a hill or on a slope.



⚠ WARNING

Explosion and fire hazard

Risk of serious injury or death.

- ▶ Do not operate the machine in the presence of flammable vapors, fuels, or combustible materials.



⚠ WARNING

Improper handling may result in injury or serious material damage.

- ▶ Please read and follow all safety instructions in this operator's manual.

7.2 Tests before commissioning



Information

Further information and detailed descriptions, [see Maintenance on page 62](#).

Perform the following checks:

- Check machine and components for damage.
 - Do not put the damaged machine into operation. Damages and defects must be repaired immediately.
- Check level position.
- Check the stability of the machine and, in the event of prolonged use in one place and/or changes in the ambient conditions, e.g. heavy rainfall, check regularly and adjust if necessary.
- Check cable for damage and correct connection.
- Check whether all lighting elements are clean and undamaged.
- Check that all light switches are in the ON position.
- Check grounding.
- Check the fuel level.
- Check fuel lines for leaks.
- Check air filter.
- Check the hydraulic oil level.
- Check engine oil fill level.
- Check coolant level.
- Check to ensure the screw connections are firmly seated.
- Check control elements for functionality.

7.3 Putting into operation

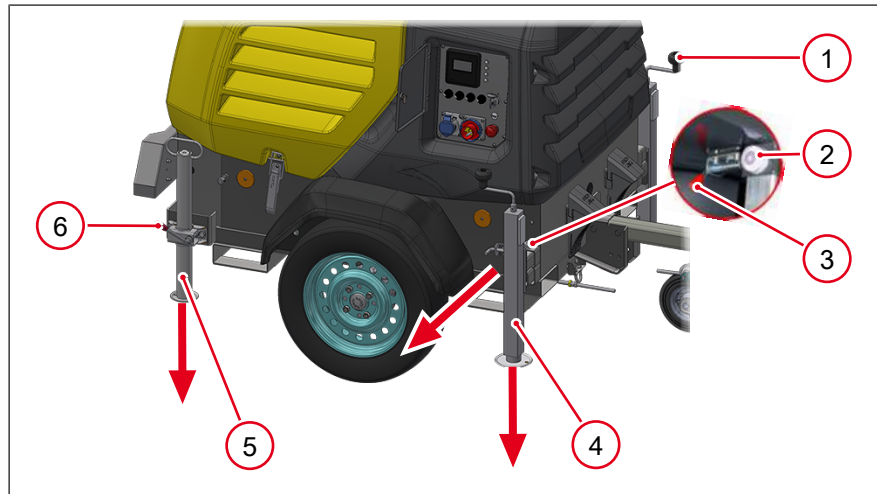
7.3.1 Set up the machine

Pay attention to the following points while positioning the machine:

- The exhaust must not be able to enter nearby structures.
- The machine does not block traffic.
- Do not position the machine in the vicinity of flammable substances or flammable vapors.
- All of the machine's covers must be accessible.
- The illuminated area must be lower or on the same level as the lighting elements.
- Leave adequate space around the machine to extend the supports.

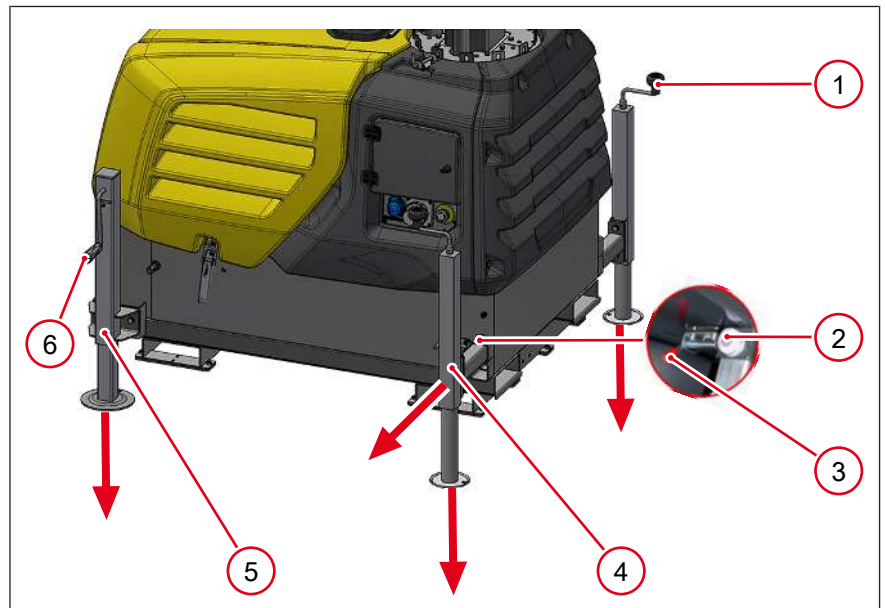
7.3.2 Stabilize the machine

Machine with trailer



1. Pay attention to the load capacity of the substrate. In case of soft substrate, place firm supports with larger area under the support legs.
 2. Unlock locking pin **3** on front support legs **4**.
 3. Pull out front support legs **4** completely.
 4. Lock locking pin **3** on front support legs **4**.
 5. Extend front support legs **4** with crank handle **1** until they rest on the ground.
 6. Align the machine horizontally using front support legs **4** and spirit levels **2**. Note: The wheels of the machine must touch the ground at all times.
 7. Release clamp **6** of rear support legs **5**.
 8. Lower rear support legs **5** to the ground.
 9. Tighten clamp **6** of the rear support legs **5**.
- ⇒ The machine is stabilized and aligned.

Machine with skid frame

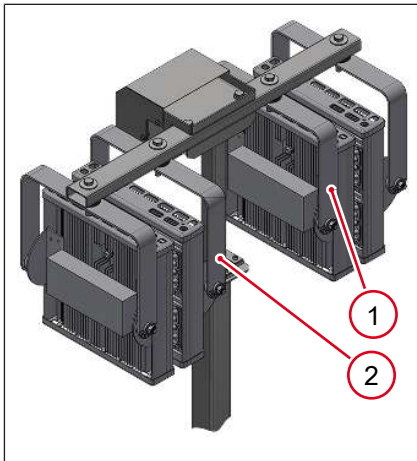


1. Pay attention to the load capacity of the substrate. In case of soft substrate, place firm supports with larger area under the support legs.
 2. Unlock locking pin **3** on front support legs **4**.
 3. Pull out front support legs **4** completely.
 4. Lock locking pin **3** on front support legs **4**.
 5. Extend front support legs **4** with crank handle **1** until they rest on the ground.
 6. Extend rear support legs **5** with crank handle **6** until they rest on the ground.
 7. Align the machine horizontally using front support legs **4**, rear support legs **5** and spirit levels **2**.
- ⇒ The machine is stabilized and aligned.

7.3.3 Preparation of the lighting elements

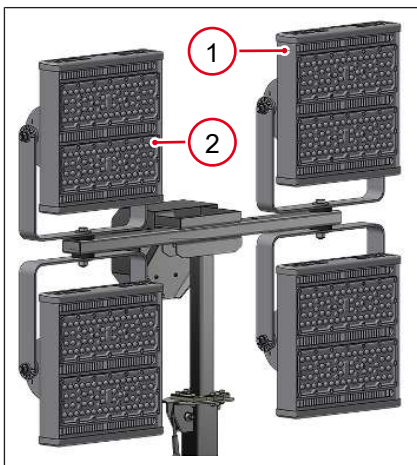
The mast can be rotated manually to align the light as needed. In addition to the mast rotation, each of the lighting elements can be adjusted on two axes. In this way, the lighting elements can be aligned both vertically and horizontally. To be able to reach the lighting elements for adjustment, the mast must be lowered completely.

7.3.4 Correct mounting of the lighting elements



For easier transport, all lighting elements are attached to the underside of the crossbar when the machine is delivered.

1. Before using, dismantle both inner lighting elements **1** and **2**.



2. Attach lighting elements **1** and **2** on the upper side of the crossbar above the external lighting elements.
3. When tightening the screw connections in the new position, make sure that the lighting elements can be turned by hand, but do not turn on their own.
4. Tighten the screw connections of the vertical axis of the lighting elements in the same way.

7.3.5 Adjusting the lighting elements

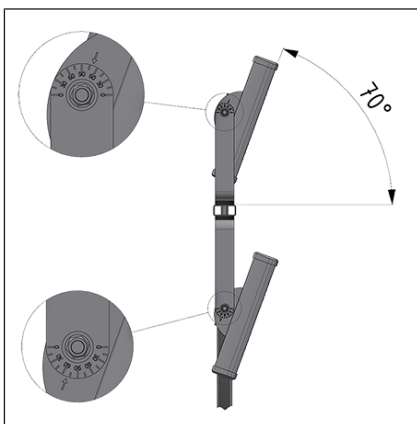


⚠ CAUTION

Risk of burns due to hot lighting elements

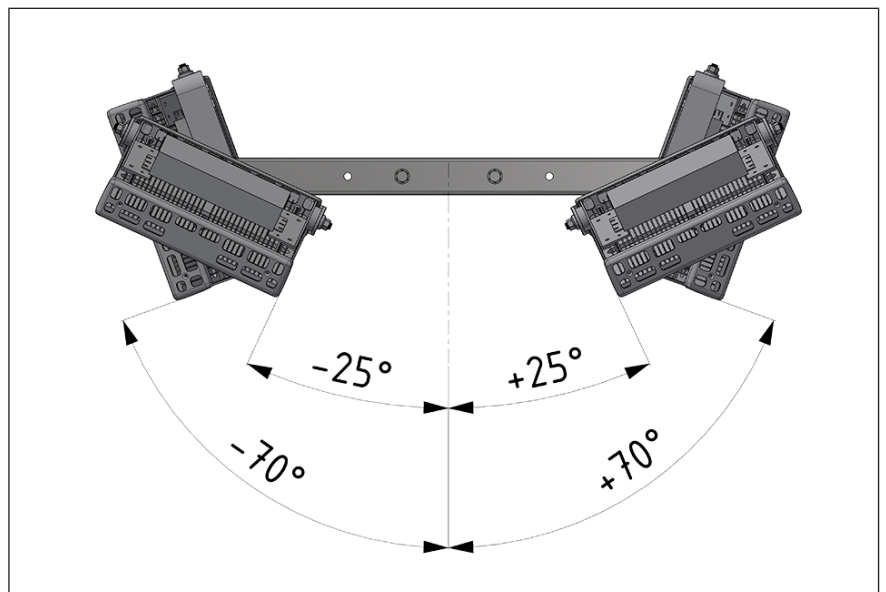
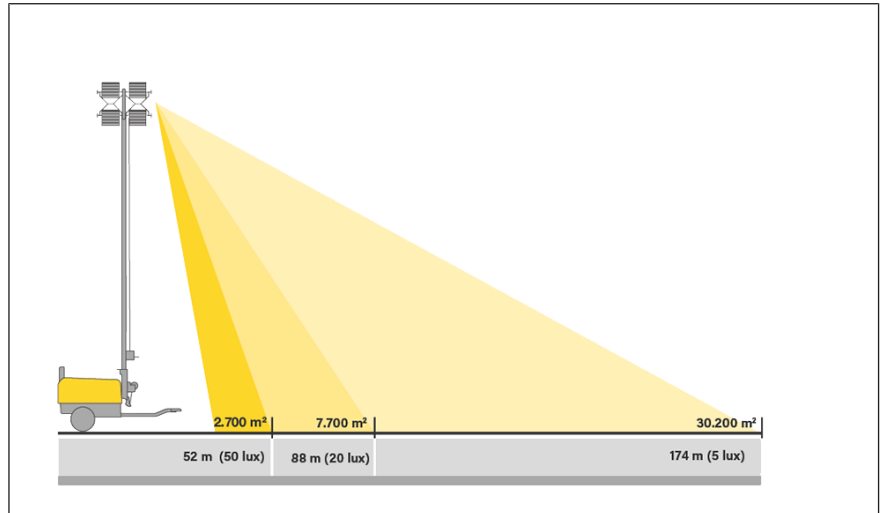
Lighting elements may get excessively hot during operation. Any contact with these may cause burns.

- Before adjustment, switch off the lighting elements and let them cool down.



The lighting elements can be adjusted by the operator as desired. Depending on the setting, different values for the illuminance and the size of the illuminated area can be achieved.

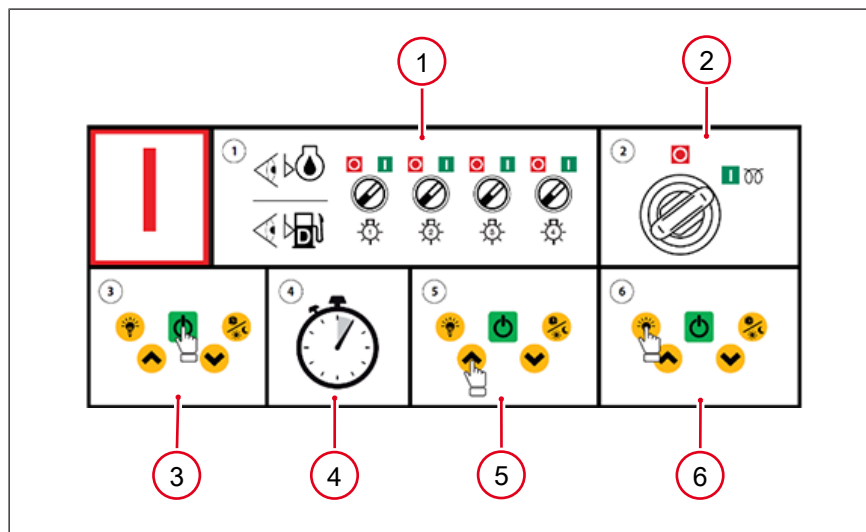
If all the lighting elements are aligned in the same direction, this results in stronger illumination on a smaller area. If the lighting elements are aligned evenly, each with a 90 degree offset, the largest possible area is obtained. The optimum angle with the ground is 70 degrees.



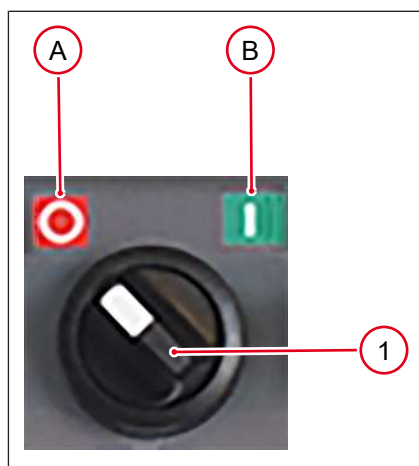
Maximum achievable area illumination [see Technical Data on page 83](#).

7.3.6 Starting with the diesel engine

Symbols in the quick guide

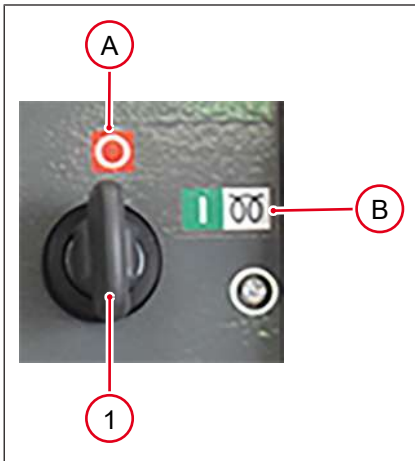


- | | |
|---|---|
| 1 | Step 1 – before starting |
| 2 | Step 2 - switch the machine to the operating mode using the activation switch |
| 3 | Step 3 - engine start |
| 4 | Step 4 - warming up |
| 5 | Step 5 – extend the mast |
| 6 | Step 6 – switch on the light |



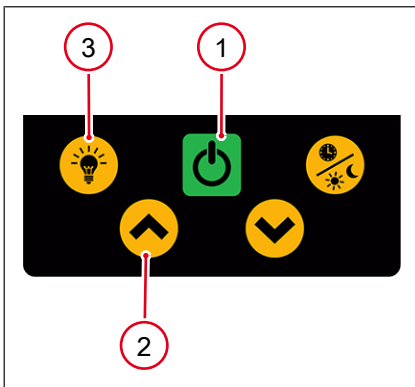
Step 1 – before starting

1. Check the fuel tank's fill level and refill fuel if necessary.
2. Check engine oil level, fill engine oil if necessary.
3. Check the coolant level; refill coolant as necessary.
4. Move all light switches **1** to position **B**.



Step 2 - switch the machine to the operating mode

- Move activation switch **1** to position **B**.
⇒ The display lights up.



Step 3 - engine start

- Start the engine by pressing the On/Off key **1** on the display.
⇒ The controller starts the insulation monitoring test sequence (12 s).
⇒ Then the engine starting sequence (8 s) starts.

Step 4 - warming up

1. Let the engine warm up for a few minutes.
2. Align the lighting elements.

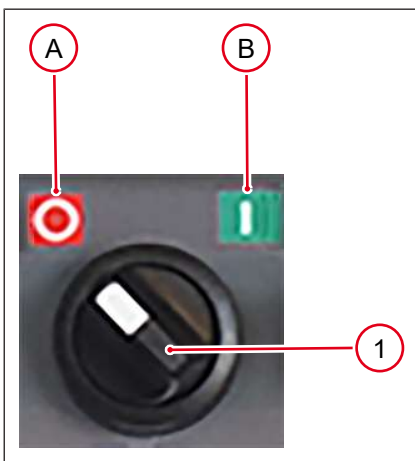
Step 5 – extend the mast

- Extend the mast by pressing key **2** on the display.

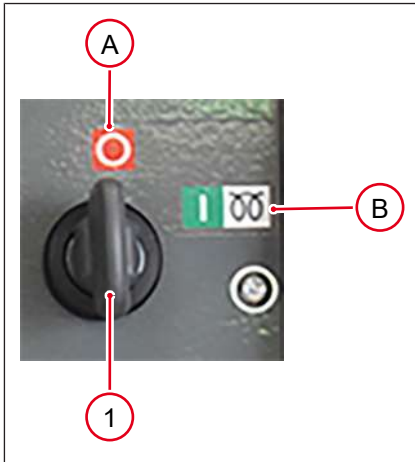
Step 6 – switch on the light

1. Turn the light mast in the desired direction and lock it.
2. Switch on the light by pressing key **3** on the display.

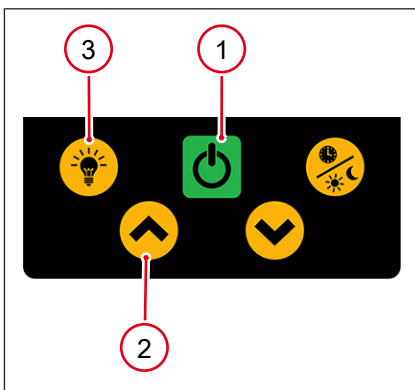
7.3.7 Starting with external power supply



1. Connect external power supply.
2. Move light switch **1** to position **B**.



3. Move activation switch **1** to position **B**.
⇒ The display lights up.
4. Turn the light mast in the desired direction and lock it



5. Extend the mast by pressing key **2**.
6. Switch on the light by pressing the key **3**.

The external power supply can also be connected while the machine is running. The control unit detects that an external power supply is connected and switches off the combustion engine.

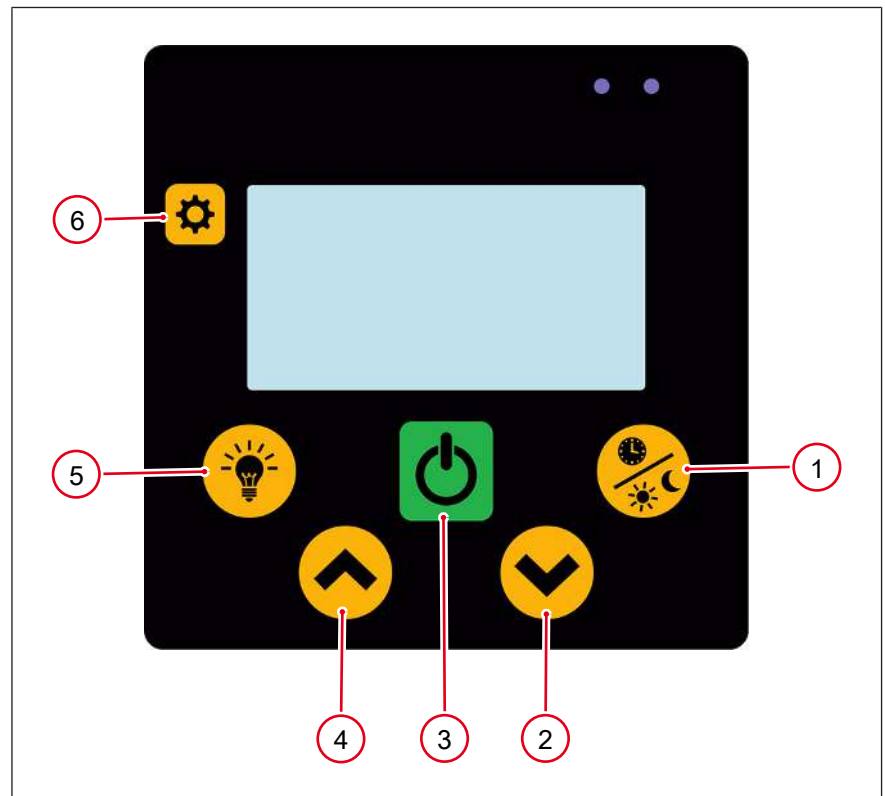
If the machine is in manual mode, the machine will not start automatically after disconnecting the external power supply.

If the machine is in automatic mode and, for example, it is in the time range in which it should illuminate, the machine starts automatically.

8 Operation

8.1 Operate the display

Keys on the display instrument

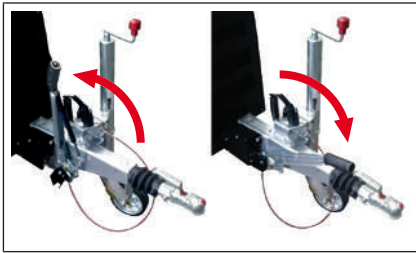


- | | |
|---|---|
| 1 | Mode button - manual / timer / light sensor |
| 2 | Down arrow key |
| 3 | On/off button |
| 4 | Up arrow key |
| 5 | Light on/off button |
| 6 | Settings button |

8.2 Automatic mast securing mode (AMOSS)

AMOSS – Automatic Mast Operation Safety System

The machine is equipped with Automatic Mast Operating Safety System (AMOSS) if desired. This system eliminates possible hazardous situations that would arise from transporting the trailer while the mast is still extended and in the operating position. The system automatically lowers the mast when the trailer parking brake is released and also prevents the mast from raising if the parking brake is not applied.



Parking brake

The trailer parking brake is applied when the lever is in the up position.

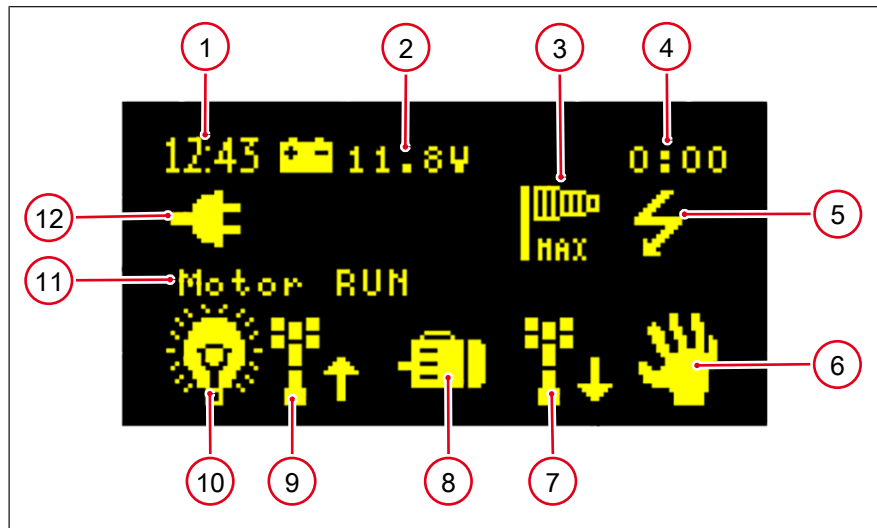
- Apply the parking brake: pull the lever up.
- Release the parking brake: push the lever down.

8.3 Display

The display is used to control the machine, to start and to set all operating modes. It shows basic information about the machine, e.g. what the operator is currently doing and in which operating mode the machine is.

8.3.1 Display symbols

Overview of icons



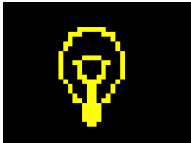
- | | |
|----|--|
| 1 | Current time |
| 2 | Voltage of the starter battery |
| 3 | High wind speed detected (strong wind), mast lowered |
| 4 | Number of operating hours |
| 5 | Insulation monitor has detected insulation fault |
| 6 | Symbol for the mode |
| 7 | Mast is lowered |
| 8 | Alternator condition (working/not working) |
| 9 | Mast is raised |
| 10 | Status of lighting (On/Off) |
| 11 | Machine status information |
| 12 | External power supply connected |



Alternator does not work.



Alternator is working.



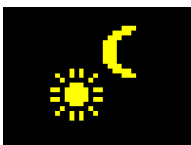
Light off.



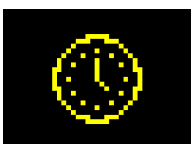
Light on.



Manual mode



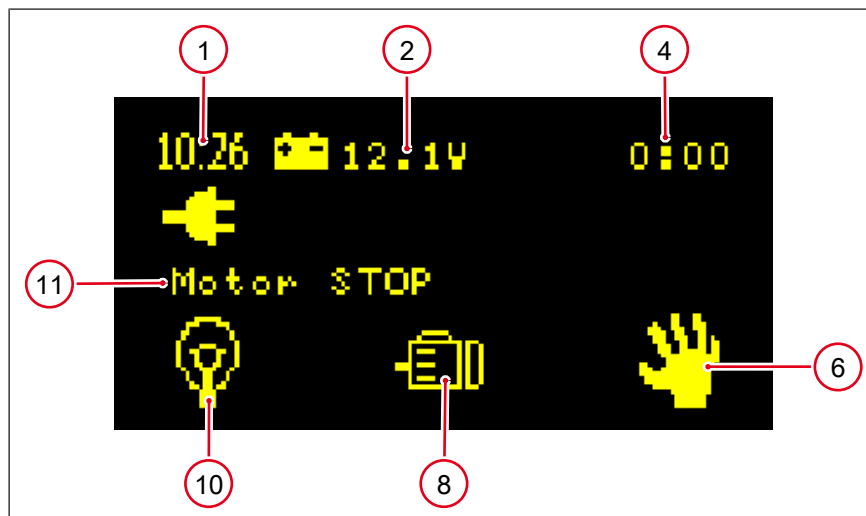
Automatic mode with light sensor



Automatic mode with timer

8.3.2 Start display

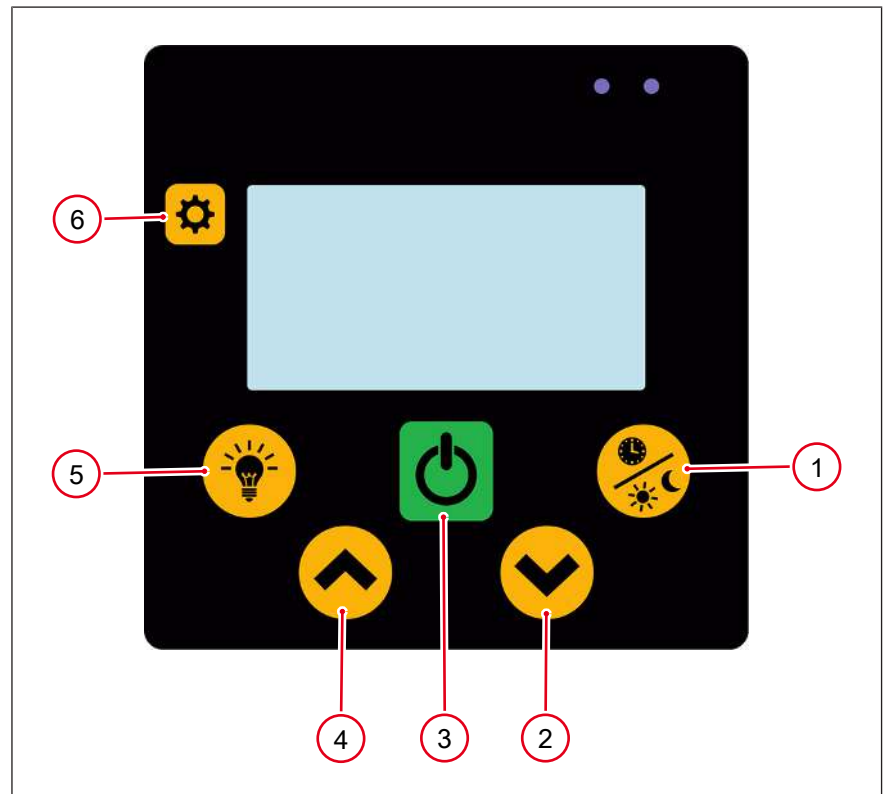
Display at start



- | | |
|----|--|
| 1 | Current time |
| 2 | Voltage of the starter battery |
| 4 | Number of operating hours |
| 6 | Symbol for the mode |
| 8 | Alternator condition (working/not working) |
| 10 | Status of lighting (On/Off) |
| 11 | Machine status information |

8.3.3 Key function in the Start display

Keys on the display instrument



- | | |
|---|---|
| 1 | Mode button - manual / timer / light sensor |
| 2 | Down arrow key |
| 3 | On/off button |
| 4 | Up arrow key |
| 5 | Light on/off button |
| 6 | Settings button |

1 Mode switch - manual / timer / light sensor

Pressing this key changes the operating mode. The selected operating mode is indicated on the display by an icon: a hand icon for manual operation, a sun/moon icon for light sensor operation, a stopwatch for timer operation.

2 Down arrow key - move the mast downwards

Lowens the mast with the lighting elements downwards. The engine does not have to be running to lower the mast. When the button is pressed, the hydraulic valve opens to lower the mast. At the same time, an acoustic warning sounds indicating that the mast is being lowered.

3 Green key - engine

The engine key is used to start and stop the engine in manual mode. Pressing the key starts the starting sequence (pre-heating, start, wait for generated voltage). When the engine is running, pressing the key again will stop it.

4 Up arrow - move the mast upwards

Raises the mast with the lighting elements upwards. The key works only when the engine is running or the machine is connected to an external power source (optional). The mast moves up only while the key is pressed.

5 Key with light bulb - lighting elements

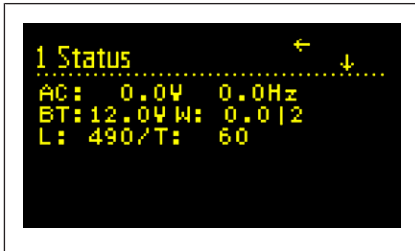
Controls the lighting elements in manual mode. A short press on the key changes the status of the lighting elements (On/Off). In order to switch on the lighting elements, the engine must be running or an external power supply must be connected.

6 Gearwheel key - settings

Calls up the menu for the device settings and the detailed status display.

8.3.4 Status display

1 Status (overview)



- Press the settings key on the start display once (1x).
⇒ The status overview is displayed (basic operating information).

Row 1:

Generated voltage of the generator; generated frequency of the generator.

Row 2:

Voltage of the starter battery; display of the actual wind speed in meters per second [m/s]. The number after the wind - 1 or 2 indicates the type of wind sensor used.

Row 3:

Display of current ambient light intensity 0 - 4096, the higher the number the more light; detected time of day status - D = Day / N = Night.

T: 60 - 60 seconds countdown display. After reaching the required value for changing the machine mode (lights ON/OFF), this value must last for 60 seconds, otherwise the mode will not be changed.

The light sensor provides information about the currently measured ambient light intensity. In the Settings menu (password required), the values can be programmed to be interpreted as day or night respectively. If the light intensity displayed here is defined as "Day", the light is automatically switched off in the "Automatic light" operating mode. If the light intensity displayed here is defined as "Night", the light is automatically switched on in the "Automatic light" operating mode.

8.3.5 Operator settings

- Press the Settings key on the status display once (1x).
⇒ The current setting is displayed.

Overview of the function of the keys in the Operator settings mode:

- Gearwheel (*) = Call up or exit the "Settings" menu.
- Lamp key = Left arrow (←): cursor movement to the left / one step back in the menu.
- Start key = OK: Confirmation of the value or call up the menu
- Mode key = Right arrow (→): cursor movement to the right / one step further in the menu
- Up arrow key (↑) = cursor movement up / number +1
- Down arrow key (↓) = cursor movement down / number -1

The menu is structured so that the ↓ and ↑ keys are used to navigate up and down in the points. The → key is used to jump to the next setting level. The ← key is used to return to the previous or higher-level menu.

For easier orientation, arrows are shown in the upper right corner of the display, indicating the current options for navigating through the menu. The position of the arrows on the display corresponds to the position of the keys on the control panel.

Pressing the ← key or the * gearwheel key repeatedly returns to the "Operator settings" screen.



Information

Access to some menus is protected by a security PIN code to prevent unintentional changes to the settings. The preset Standard PIN is "1000". This can be changed in the menu.

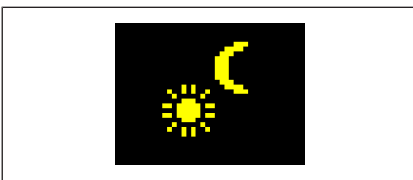
8.4 Operating modes

8.4.1 Manual mode



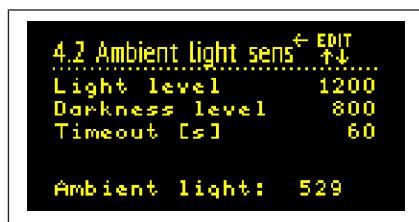
The "Manual mode" status is indicated by a hand icon on the status display. In manual mode, the engine can be started at any time.

8.4.2 Automatic mode with light sensor



Light sensor automatic mode is indicated by a sun-moon icon on the display and is controlled by the ambient lighting.

When darkness sets in, which the light sensor recognizes as "night," the engine start sequence is initiated. After a successful engine start, the lamps are switched on. If the light sensor detects "day," the lamps, electrical system and engine are switched off.



Ambient light sensor setting

The ambient light sensor is set in display menu 4.2.

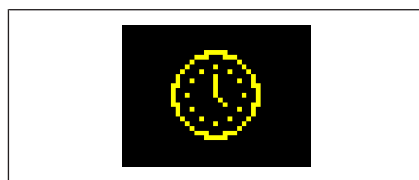
Light level is the level of illumination from which the status is evaluated as "Day."

Darkness level is the level of illumination below which the status is evaluated as "Night."

Timeout [s] is the period of time in which the level of illumination must be above or below the set values for the device to be set to Day or Night.

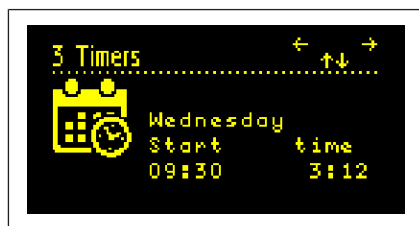
To make setup easier, the sensor's current reading is displayed in the bottom line Ambient light.

8.4.3 Automatic mode with timer



Automatic mode with a timer is indicated by a clock symbol on the display.

After the set time, the engine start sequence is started. After the engine has been started successfully, the light elements light up for the set duration. After that, the lighting elements, contactor and engine are switched off.

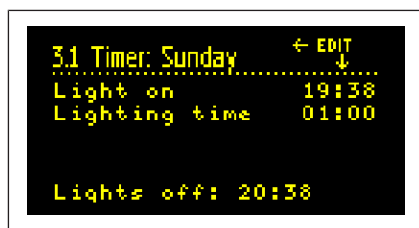


Setting the light-on time - Timer

Time and lighting duration for today are displayed. In the sample screen, the light is turned on at 9:30 a.m. on Wednesday and the remaining light time is 3 hours and 12 minutes.

The start time of the light is set to a specific day of the week; the duration of the light can extend to the next day.

Settings for each day are made in menus 3.1 to 3.7, starting with Sunday.



Light on is the time when you want the light to turn on or when you want the engine to start and the light to turn on. When the external mains is connected, the lights are on without the engine starting.

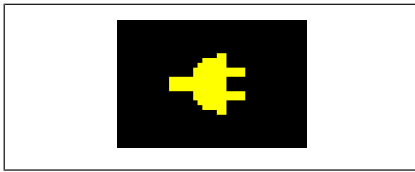
Lighting time is the length of time the light is on.

Lights off is the calculated time when the lights will be turned off.



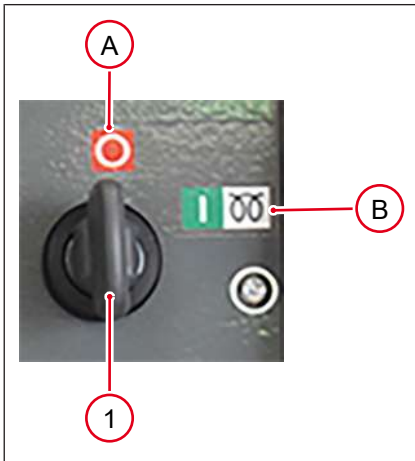
Another example of setting the Timer. The light comes on at 7:32 p.m. on Saturday and stays on for 7 hours. The light then goes out on Sunday at 02:32 in the morning.

8.4.4 Operation with external power supply



An IEC 60309 type adapter cable is required to connect the machine to an external power source (not included in the scope of delivery).

1. Connect one end of the adapter cable to the machine and the other end to a suitable power source.



2. Move activation switch **1** to position **B**.

⇒ Now all operating modes (manual/light sensor/timer) can be used.



Information

If the machine is connected to an external power source, the engine cannot be started. When using the light sensor or timer automatic operating modes, the light is switched on or off at the defined time, but not the engine under any circumstance.

8

8.4.5 Socket

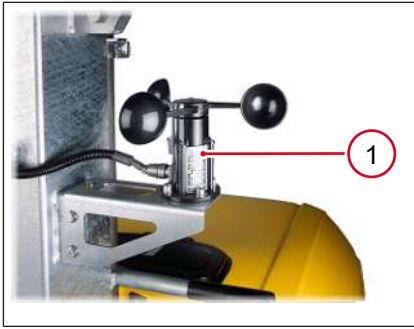
After starting the engine, the socket is automatically switched on. It is switched off before the engine is stopped or if the engine/generator is overloaded. The engine/generator overload is detected when the frequency generated by the voltage falls below 48 Hz. Maximum connectable power [see Technical Data on page 83](#).

If the contactor has switched off the power supply to the socket due to overloading the machine, proceed as follows:

1. Disconnect the load cable from the socket.
 2. Switch off the engine.
 3. Switch on the engine again.
- ⇒ The socket is powered again.

8.5 Taking the machine out of operation

8.4.6 Wind sensor



A wind sensor **1** is attached to the mast of the machine. This is to prevent the machine from tipping over and getting damaged in case of strong wind.



If the wind sensor detects a dangerous gust of wind, the mast is lowered automatically and the strong wind symbol appears on the display.

The operating mode remains unchanged, as does the lighting status. For safety reasons, the mast is not automatically raised again if there are no more gusts of wind with a dangerous speed.



The wind speed (m/s), which the wind sensor interprets as "dangerous gusts of wind," can be set in menu 4.1 (password-protected).

Wind thresho m/s is the value for the wind gust evaluation; it can be set in [m/s].

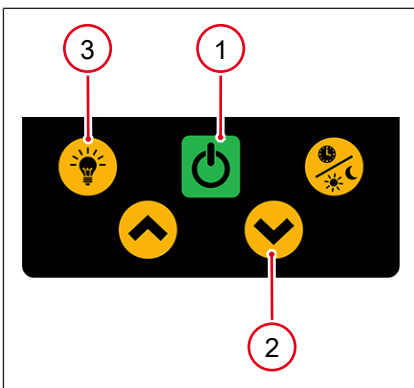
Wind timeout s is the time that the wind value must be higher for the mast to be automatically lowered.

Tower down time is the time when the hydraulic valve is opened and the mast is lowered.

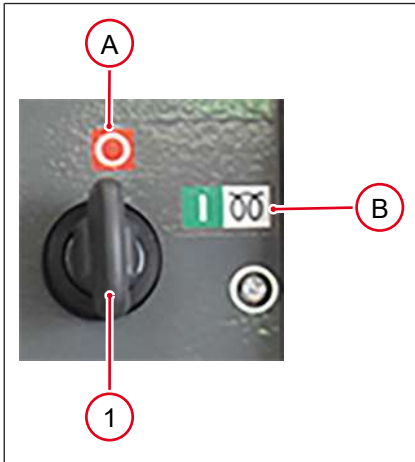
The bottom line shows the currently measured value of the wind speed.

8.5 Taking the machine out of operation

8.5.1 Take out of operation with diesel engine

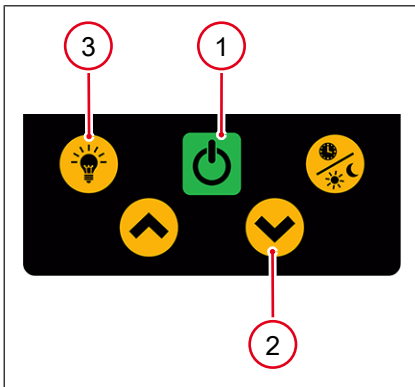


1. Switch off the lighting elements with light switch **3**.
2. Lower the mast completely using key **2**.
3. Set the lighting elements to transport position.
4. Switch off the engine with engine switch **1**.

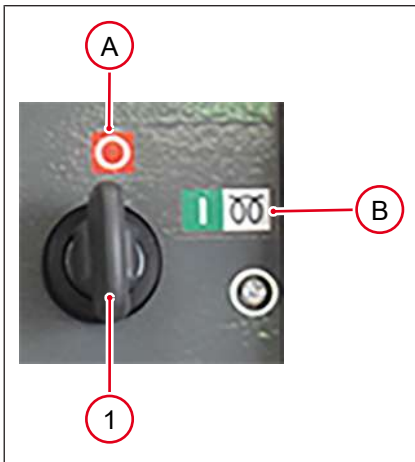


5. Move activation switch **1** to position **A**.
⇒ The engine is switched off.

8.5.2 Shutting down with external power supply



1. Switch off the lighting elements with light switch **3**.
2. Lower the mast completely using key **2**.
3. Set the lighting elements to transport position.



4. Move activation switch **1** to position **A**.
5. Disconnect external power supply.
⇒ Machine is switched off.

9 Maintenance

9.1 Safety instructions for maintenance



⚠ WARNING

Improper handling may result in injury or serious material damage.

- ▶ Please read and follow all safety instructions in this operator's manual.



⚠ WARNING

Hazard of poisoning from exhaust fumes!

Exhaust fumes contain poisonous carbon monoxide, which can lead to unconsciousness or to death.

- ▶ Only perform maintenance work with the engine switched off and the machine decommissioned.



⚠ WARNING

Risk of injury caused by insufficient maintenance!

An insufficiently maintained machine can have malfunctions. People can be injured as a result. Continuous property damage can be caused.

- ▶ Regularly and properly maintain the machine.
- ▶ Have the machine repaired if necessary.



⚠ WARNING

Fire and explosion hazard due to fuel and fuel vapors!

Fuel and fuel vapors can ignite or catch fire and cause serious burns.

- ▶ Do not smoke.
- ▶ Do not refuel near open fire.
- ▶ Switch off the engine and allow it to cool before refueling.



⚠ WARNING

Risk of fire and explosion when using flammable cleaning agents!

- ▶ Do not clean the machine and components with gasoline or other solvents.



⚠ WARNING

Burn hazard due to hot engine oil!

Splashes of hot oil can cause burns to the skin.

- ▶ Switch off the engine and let it cool down.
- ▶ Use protective gloves.



⚠ WARNING

Risk of injury due to missing or non-functioning safety devices!

- ▶ Only operate the machine if the safety devices are correctly installed and functioning.
- ▶ Do not change or remove safety devices.



⚠ WARNING

Hazard from electric current.

Risk of injury from electric shock.

- ▶ Switch off the machine.
- ▶ Disconnecting the starter battery
- ▶ Disconnect external power supply.



⚠ WARNING

Risk of injury due to fluid leakage under pressure!

Hydraulic oil escaping under pressure can penetrate the skin and cause serious injury or death. Hydraulic oil can cause blood poisoning.

- ▶ Do not operate the machine with leaking or damaged hydraulic components.
- ▶ Before working on hydraulic components, de-pressurize the hydraulic system.
- ▶ Wear protective equipment.
- ▶ In case of contact with eyes, immediately rinse with plenty of clean water and consult a doctor.
- ▶ In case of a hydraulic oil injection, consult a doctor immediately.



⚠ CAUTION

Danger of burns due to hot surfaces!

The machine, engine and exhaust can heat up quickly after a short time; that can lead to severe burns in case of contact with skin.

- ▶ Always allow the machine, engine and exhaust to cool down after use.
- ▶ Use heat-resistant protective gloves if the cooling phase cannot be maintained (e.g. due to an emergency).



⚠ CAUTION

Health risk from fuel, lubricants and coolants!

- ▶ Do not inhale vapors.
- ▶ Avoid skin and eye contact.



NOTICE

Engine damage from operating the engine without an air filter!

If the engine is operated without an air filter, there is a risk of rapid engine wear.

- ▶ Do not operate the engine without an air filter or air filter cover.



NOTICE

Generator damage due to ingress of water.

When cleaning the machine with a high-pressure cleaner, too much water can enter the engine compartment through the ventilation slots. This can damage the alternator and other electrical components.

- ▶ Do not clean the machine with a high-pressure cleaner.



Environment

Soil contamination due to oil leaking or overflowing.

- ▶ Line work surface with impermeable foil.
- ▶ Use collecting container for used oil.
- ▶ Dispose of used oil in an environmentally friendly manner in accordance with statutory regulations.



Environment

Avoid damage to the environment!

- ▶ Clean the machine in a suitable place where the dirty waste water can be collected in an environmentally friendly manner.
- ▶ Collect contaminated water and dispose of it in an environmentally friendly manner.

9.2 Maintenance plan



NOTICE

Hazard of engine damage!

- ▶ When commissioning new machines, an oil change must be carried out once after 50 operating hours.

Maintenance work	Daily	Hours ^a	Weekly ^a	Monthly ^a	Before pulling
Clean the machine. • Visual check for completeness. • Visual check for damage. • Visual check for leakages.	•				
Check threaded fittings.	•				

Maintenance work	Daily	Hours ^a	Weekly ^a	Monthly ^a	Before pulling
Check all control elements for ease of movement and function.	•				
Check engine oil fill level	•				
Check the hydraulic oil level.	•				
Check the fuel level.	•				
Visual inspection of fuel tank.	•				
Visual inspection of water drain at the fuel filter.	•				
Check coolant level.	•				
Check the coolant overflow lid for a firm fit.	•				
Check starter battery.	•				
Check insulation of wiring for damage.	•				
Check the lines and hoses for damage.	•				
Check the electrical system for damage.	•				
Check indicator lights, displays, and switches.	•				
Check support legs.	•				
Visual inspection of fan and drive belt of the alternator.			•		
Check tire pressure and tire condition.			•		•
Check the Emergency-stop switch (when the motor is running).			•		
Check the isolation monitoring relay by pressing the Isolation test button (when the motor is running)			•		
Check the breather system.				•	
Check the fasteners, safety devices fit firmly.				•	
Visual inspection of mast ropes and pulleys.				•	
Visual inspection of the mast guides.				•	
Check the under carriage screw connections and wheel nuts for tightness.				•	•
Check the engine protection shutdown system.				•	
Check the fan drive.				•	
Check fuel filter/water separator.				•	
Change engine oil.*		250			
Change the engine oil filter.*		250			
Check injection nozzles.*		500			
Check valve clearance.*		500			



Maintenance work	Daily	Hours ^a	Weekly ^a	Monthly ^a	Before pulling
Check the belt tensioner of the cooling fan.*		500			
Change the fuel/water separator element.*		500			
Change fuel filter element.*		500			
Replace air filter cartridge.		500			
Check the control panel.		500		Every 6 months	
Drain condensates and deposits from the fuel tank.				Every 6 months	
Check coolant antifreeze compound.*				Every 6 months	
Clean the radiator.				Every 12 months	
Change engine fan belt.*		1000			
Change engine coolant.*		2000			
Check the engine fuel hoses and change them if necessary.*		2000			
Replace the hydraulic oil.*				Every 4 years	
Replace hydraulic hoses (adhere to the national regulations).*				Every 4 years	
Check the lights (brakes, running lights and turn signal indicators) on machines with road transport approval.					•
If labels are no longer legible, damaged or missing, they must be replaced.					
^a Depending on whichever interval occurs first.					
* Have this work carried out by a service partner.					

9.3 Maintenance work

Preparations

1. Lower the mast.
2. Take the machine out of operation.
3. Let the machine cool down.
4. Place the machine on a level surface.
5. Cordon off the working area.
6. Disconnect power sources (mains and the starter battery).
7. Secure the machine against unintentional start-up.

During maintenance work that requires the operation of the machine:

1. Ensure that all existing hazards are known.
2. Limit work to whatever is essential for operating the machine.
3. When the safety devices are disabled or removed, limit the work only to those tasks that require operation of the machine with disabled or removed safety devices.
4. Wear personal protective equipment.
5. Keep away loose clothing, jewelry, long hair.

After completing the maintenance work

1. Attach the safety devices again.
2. Check the safety devices.
3. Re-attach the panels.
4. Close the covers.
5. Dispose of collected operating materials properly.

9.3.1 Check the electrical system

1. Check mechanical function of components.
2. Check safety of electrical connections at switches and relays (loose nuts or bolts that may cause local hot-spot oxidation).
3. Check the components and wiring for signs of overheating (discoloration, charring of cables, deformation of parts, acrid odor, and blistering).
4. Check for signs of electric arcing around electrical connections.

9.3.2 Check insulation of wiring

1. Conduct visual inspections to check for loose or frayed cable insulation or cable sheathing.
2. Get the damaged cables replaced immediately by the service partner.

9.3.3 Check starter battery



⚠ WARNING

Explosion hazard due to improper handling of the battery!

Improper handling of the battery can lead to serious injury or death.

- ▶ Wear protective equipment.
- ▶ Fire, open flame and smoking are prohibited.
- ▶ Do not jump start the engine if the battery is defective, frozen or if the battery fluid level is too low.



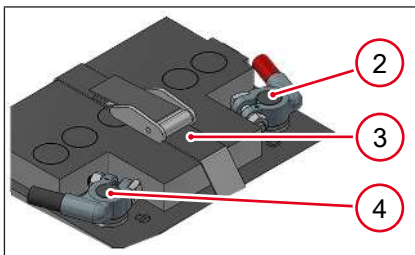
NOTICE

Short-circuit in the electrical system due to incorrect sequence when connecting and disconnecting!

- ▶ Disconnecting: First the negative terminal, and then the positive terminal.
- ▶ Connecting: First the positive terminal, and then the negative terminal.



1. Conduct visual inspections of indicator light **1**. The indicator light lights up at low battery voltage.

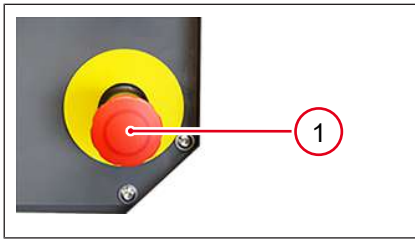


2. Check the battery terminals **2** and **4** and cable terminals.
3. Disconnect the cable and clean the battery terminals and cable terminals if dirty.
4. Apply a light coat of petroleum jelly on the battery terminals **2** and **4** and cable terminals to prevent corrosion.
5. Reconnect the cable.
6. Tighten the bracket clamp **3** until the battery cannot move.

9.3.4 Check indicator lights, displays, and switches

- Check indicator lights, displays, and switches before startup and during operation to ensure proper operation.

9.3.5 Check the emergency stop button



1. Start the engine.
2. Press emergency stop button 1 when the engine is running.
⇒ The engine is switched off.
3. If the engine should not switch off, take the machine out of operation and have it repaired by a service partner.

The emergency stop button must be unlocked by turning before re-commissioning.

9.3.6 Check the control panel

1. Conduct a visual inspection of the control panel when the machine is switched off.
2. Pay attention to the loose connections, dirt, traces of electric arcs and damage to electrical components.

9.3.7 Check mast ropes and pulleys.

1. Inspect ropes on the mast to ensure their ends are securely fastened.
2. Inspect ropes for fraying or other damage and replace them if damaged.
3. Inspect pulleys for unusual wear or damage, replace them if they are excessively worn or damaged.

9.3.8 Check mast guides

1. Check mast guides to ensure they are in good working order.
2. Clean the sliding surfaces.
3. Replace missing or damaged parts before raising the mast.

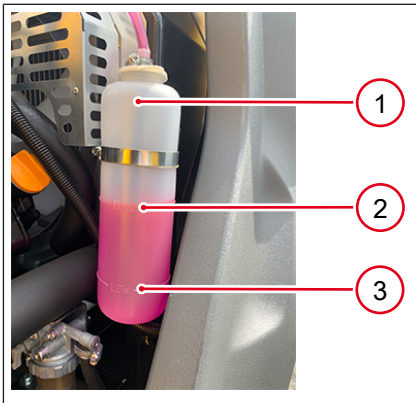
9.3.9 Check the lines

1. Inspect for loose line laying clamps.
2. Clamps must be secure and properly installed.
3. Inspect wiring for wear, tear, and vibration abrasion.

9.3.10 Check support legs

1. Check machine support legs.
2. Replace all missing or damaged parts before raising the mast.

9.3.11 Check coolant level



1. Switch off the machine and let it cool down.
2. Open the engine hood.
3. Check coolant level on coolant recovery reserve tank **1** on the right.
4. The coolant level must be between markings FULL **2** and LOW **3**; refill coolant if necessary.

9.3.12 Clean the radiator

1. Check the radiator exterior for blockages, dirt and deposits. If available, rinse between the sipes with water or compressed air that does not contain flammable solvents contrary to the normal air flow.
2. If the radiator should be blocked from the inside, rectify it by back-wash with a commercially available product and the procedure recommended by the suppliers.

9.3.13 Check the engine protection shutdown system



NOTICE

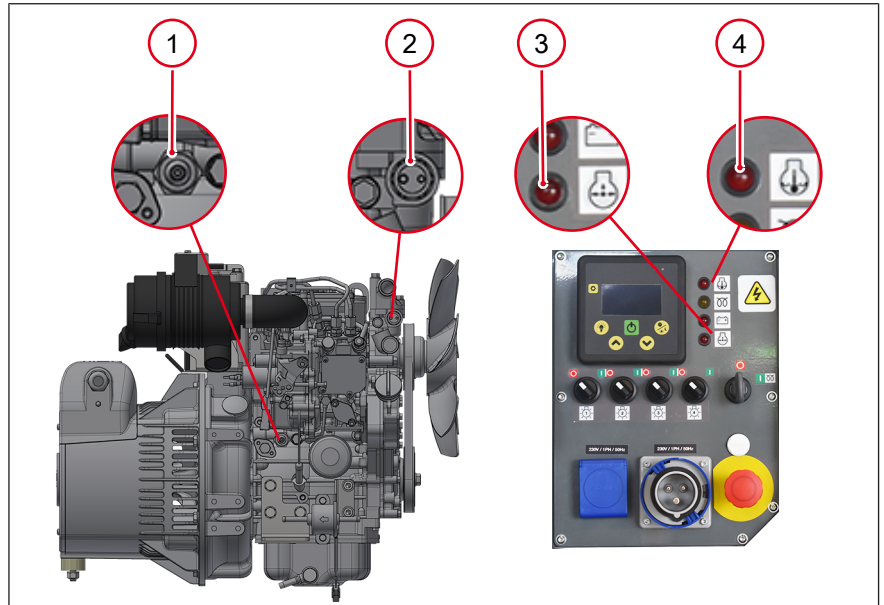
Hazard of engine damage!

A defective engine protection shutdown system can lead to engine damage.

- ▶ Do not operate the machine with a defective safety switch.
- ▶ Do not bypass the safety switch.

Two switches are involved in the engine protection shutdown system:

- The engine coolant high temperature switch.
 - The engine coolant high temperature switch switches at a temperature of approx. 104° C (220° F)
- The engine oil pressure switch.
 - The engine oil switch prevents the engine from running at low oil pressure.



1. Check the engine protection shutdown system once a month.
2. Check the engine protection shutdown system if there is a doubt about proper functioning of the engine.
3. Remove a cable from engine oil pressure switch **1** once a month to check the function.
4. Remove the coolant temperature switch **2** once a year and heat it to 104° C in oil bath to check the function.

9.3.14 Replacing the air filter cartridge

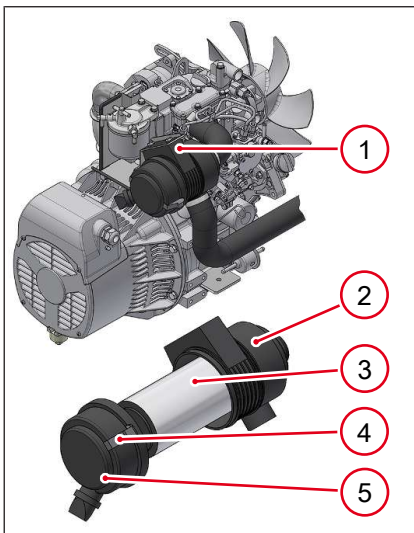


NOTICE

Engine damage from operating the engine without an air filter!

If the engine is operated without an air filter, there is a risk of rapid engine wear.

- Do not operate the engine without an air filter or air filter cover.



- Check the air filter **1** regularly and change the air filter element [see Maintenance plan on page 64](#).

Disassembly

1. Clean the filter housings **2** and **5** from outside.
2. Loosen the fasteners **4** on the air filter cover **5** and remove the cover.
3. Remove the filter element **3**.

Cleaning and inspection

1. Blow with compressed air from the inside through the filter element **3**.
2. Do not brush out, this will force dirt into the fibers.
3. Hold the filter element **3** against a light source and check for damage; change the damaged filter element.
4. Check the seal of the filter element **3** and change it if it is damaged.
5. Clean the filter housings **2** and **5** from inside.

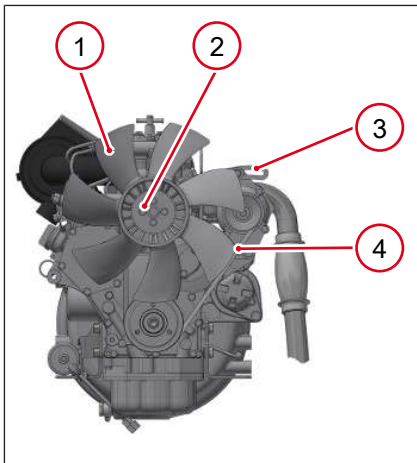
Installation

1. Insert the filter element **3** into the filter housing. Ensure that the seal is seated correctly.
2. Place the air filter cover **5** and close the fasteners **4**.

9.3.15 Check the breather system

- Check air inlets and outlets regularly for dirt, foreign objects, etc.; clean them if necessary.

9.3.16 Check the fan drive



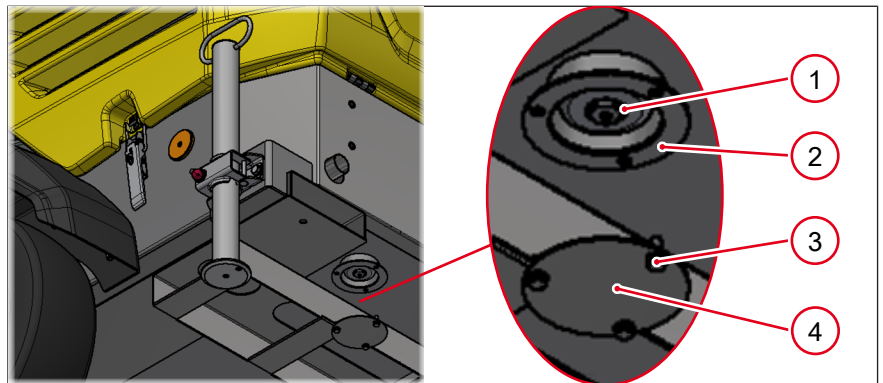
1. Regularly check that mounting screws **2** of fan **1** in the fan hub fit firmly.
2. Apply thread lock substance on the threads before screwing in or tightening the mounting screws **2**.
3. Tighten the mounting screws with the right torque (refer to torque table).
4. Regularly check V-belt **4** for the right tension and wear.

9.3.17 Check the fuel level.



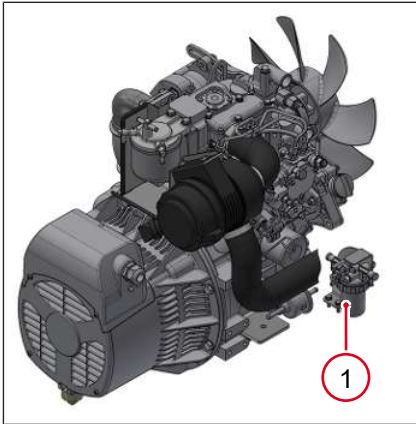
1. Check the fuel level on fuel gauge **1**.
⇒ Fuel gauge **1** is located next to fuel filler neck **2**.
⇒ Fuel gauge **1** is active when the activation key is in position I.
2. Top up with fuel after switching off the machine to minimize condensation in the fuel tank.

9.3.18 Drain condensates and deposits from the fuel tank



1. The tank should be largely empty before draining.
2. Place the collecting container under the fuel drain **1**.
3. Unscrew the mounting screws **3** and remove the cover **4**.
4. Open the fuel drain **1** and drain condensates and deposits from the fuel tank.
5. Close the fuel drain **1** again.
6. Screw on the seal **2** and the cover **4** using mounting screws **3**.
7. Dispose of drained fuel, condensates and deposits in an environmentally friendly manner.

9.3.19 Check fuel filter/water separator

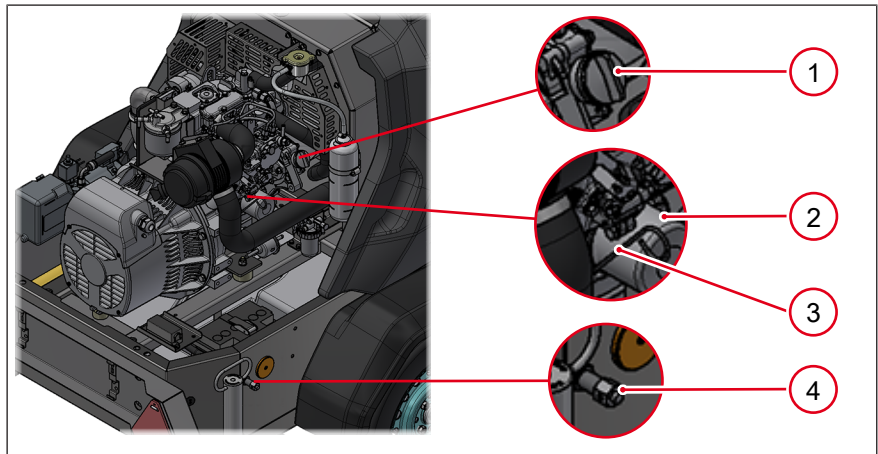


- Regularly check the filter element in water separator of fuel filter 1 and change if necessary [see Maintenance plan on page 64](#).

9.3.20 Check hoses

1. Check all components of the engine cooling system regularly.
2. Regularly inspect intake hoses to the air filter.
3. Inspect all flexible hoses for air, oil and fuel lines regularly.
4. Inspect all pipes for cracks, leaks, and damage; replace them if necessary.
5. Check hydraulic hoses regularly for wear and leaks.
6. Check all hydraulic screw connections regularly for firm seating and leaks.

9.3.21 Check engine oil level

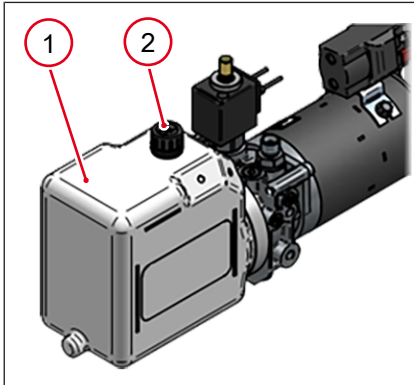


1. Check the engine oil level using the oil dipstick 3 before commissioning.
2. The level must be within the range marked on the oil dipstick.
3. If the level is below the marked range, top up the engine oil.

Fill the engine oil

1. Open the oil tank cover **1**.
2. Fill the engine oil with suitable specifications [see Technical Data on page 83](#).
3. Check engine oil fill level.
4. Close the oil tank cover **1**.
5. Change the engine oil regularly [see Maintenance plan on page 64](#).

9.3.22 Check the hydraulic oil level



1. Lower the mast completely to check the level.
2. The hydraulic oil tank **1** must be filled $\frac{3}{4}$ with hydraulic oil.

Refill hydraulic oil

1. Lower the mast completely to refill hydraulic oil.
2. Clean the area around the closing lid **2**.
3. Unscrew the closing lid of the hydraulic oil tank **1**.
4. Refill hydraulic oil until the hydraulic oil tank is filled $\frac{3}{4}$, [see Technical Data on page 83](#).
5. Screw the closing lid back on the hydraulic oil tank and tighten it by hand.

10 Troubleshooting

10.1 Troubleshooting



⚠ WARNING

Danger to life due to unauthorized troubleshooting!

- ▶ If faults occur on this machine which are not described in this operator's manual, contact the service partner.
- ▶ Do not rectify faults on your own.



⚠ WARNING

Risk of crushing and shearing due to sinking mast!

When working on the raised mast, the mast can lower unintentionally and cause serious injuries.

- ▶ As far as possible, lower the mast before starting work.
- ▶ If lowering is not possible, mechanically secure the extended mast to the crossbar before lowering.

Fault	Possible cause	Remedy
The machine does not start.	Fuel cock is closed.	Open the fuel cock.
	Emergency stop button is pressed.	Unlock the emergency stop button.
	The fuel tank is empty.	Refill with fuel.
	Fuel line is clogged.	Clean the fuel line.*
	Fuel filter is clogged.	Replace fuel filter.*
	Air filter is clogged.	Clean the air filter.
	Low battery charge.	Check the tension of the V-belt, the battery and the cable connections.*
	Poor grounding connection.	Check grounding cable, clean as necessary.
	Loose connection.	Locate the loose connection and tighten it.
The engine starts, but stalls when the switch is returned to position I.	Relay tripped.	Change the relay.*
	Electrical error.	Check the electric circuit.*
	Low engine oil pressure.	Check the oil level and the oil filter.
	Relay tripped.	Check the relay and change it if necessary.*
	Defective activation switch	Check the activation switch and change it if necessary.*

Fault	Possible cause	Remedy
The engine starts, but does not run, or the engine shuts off prematurely.	Electrical error.	Check the electric circuit.*
	Low engine oil pressure.	Check the oil level and the oil filter.
	The safety shutdown system is in operation.	Check safety shutdowns.*
	Fuel shortage.	Check the fuel level and the fuel system components; change the fuel filter if necessary.*
	Switch defective.	Check the switch and change it if necessary.*
	Water in the fuel system.	Check water separator, clean as necessary.
	Relay tripped.	Check the relay and change it if necessary.*
Engine overheats.	Reduced cooling air from the blower.	Check the blower and the drive belts. Check if there is an obstruction in the engine hood.*
Engine speed too high.	Incorrect setting of the throttle control lever.	Check the engine speed setting.*
Engine speed too low.	Incorrect setting of the throttle control lever.	Check the throttle setting.*
	Clogged fuel filter.	Check the fuel filter and change it if necessary.*
	Clogged air filter.	Check the filter element and change it if necessary.*
Excessive vibrations.	Engine speed too low.	See "Engine speed too low".

Fault	Possible cause	Remedy
The mast cannot be raised.	The pump does not function:	
	• The battery is not connected/charged.	Connect/charge the battery.
	• The engine does not run.	Start the engine.
	• Emergency stop button is pressed.	Unlock the emergency stop button.
	• The parking brake is not applied.	Apply the parking brake.
	The pump runs, but the mast does not raise:	
	• The hydraulic oil level is too low.	Add hydraulic oil.
	• The hydraulic hose is defective or leaky.	Check the hydraulic hose and change if necessary.*
	• The hydraulic cylinder is defective or leaky.	Check the hydraulic cylinder and change it if necessary.*
	• The pump is defective.	Change pump.*
	• The electrical connection to the hydraulic valve is damaged.	Check the electrical connection and replace it if necessary.*
	The mast cannot be raised completely:	
	• One of the pulley mounting pins is defective or missing.	Replace the mounting pin of the pulley.*
	• The sheathed cable is damaged.	Replace the sheathed cable.*
	• The hydraulic oil level is too low.	Add hydraulic oil.
The mast lowers automatically.	The hydraulic hose is defective or leaky.	Check the hydraulic hose and change if necessary.*
	The wind speed was too high.	No remedy.
The mast cannot be lowered.	The activation switch is not in position I.	Move the activation key switch to position I.
	The mast is jammed or damaged in the raised position.	Inform the service partner.
	The mast is raised while the machine is not stabilized horizontally.	Stabilize the machine horizontally.
	The hydraulic valve of the hydraulic unit is damaged.	Open the manual override on the hydraulic valve until the mast is lowered.
		Change hydraulic valve.*
	The electrical connection to the hydraulic valve is damaged.	Open the manual override on the hydraulic valve until the mast is lowered.
		Check the electrical connection and replace it if necessary.*
The mast lowers too quickly.	The hydraulic hose is defective or leaky.	Check the hydraulic hose and change if necessary.*
	The sheathed cable is defective.	Change the sheathed cable.*
	Defective pulley.	Change pulley.*
* Have this work carried out by a service partner.		

10.2 Jump starting the machine



⚠ WARNING

Fire and explosion hazard due to improper jump start.

Improper jump start may lead to fire or explosion. Persons may be seriously injured or killed due to this.

- ▶ Keep all arcs, sparks, flames, and lighted tobacco products away from the battery.
- ▶ Do not use the jump start process for a frozen battery.
- ▶ Do not short circuit battery poles.
- ▶ Do not touch the frame or the minus pole and simultaneously work on the plus pole.
- ▶ Wear safety goggles and gloves when connecting the jump start cable.



⚠ WARNING

Risk of injury from electric shock!

Burns or electric shock can result in serious injury or death.

- ▶ The alligator clips of the jump start cable may not touch each other.
- ▶ Make sure that the starter battery and the boosting battery have the same nominal voltage.
- ▶ Use a jump start cable with insulated alligator clips and a cross-section of at least 25 mm².



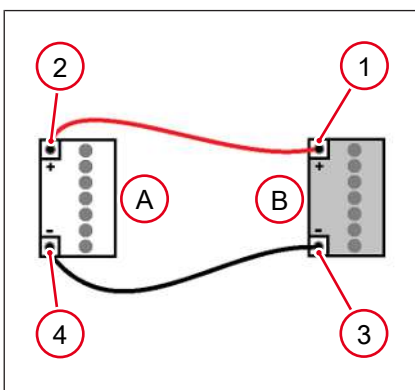
Information

The positive post of a battery is marked with a plus (+).

The negative post of a battery is marked with a minus (-).

An undercharged starter battery cannot provide the starter with sufficient power so that the engine is not able to start. Jump-starting the engine is possible.

Connect jumper cable



1. Remove cover of the starter battery **A** and the post covers of the boosting battery **B**.
2. Connect the alligator clip **1** of the red cable to the positive terminal (+) of the boosting battery.
3. Connect the other alligator clip **2** of the red cable to the positive terminal (+) of the starter battery.
4. Connect the alligator clip **3** of the black cable to the negative terminal (-) of the boosting battery.
5. Connect the other alligator clip **4** of the black cable to the negative terminal (-) of the starter battery.

Carry out jump start

1. Try to start the engine and machine.
2. If the engine does not start after a maximum of 15 seconds, abort the starting process and contract the service partner.
3. Let the engine run for a few minutes.

Disconnect the jumper cable

1. Detach the alligator clip **4** of the black cable at the negative terminal (-) of the starter battery.
2. Detach the other alligator clip **3** of the black cable at the negative terminal (-) of the boosting battery.
3. Detach the alligator clip **2** of the red cable at the positive terminal (+) of the starter battery.
4. Detach the other alligator clip **1** of the red cable at the positive terminal (+) of the boosting battery.
5. Attach the cover of the starter battery **A** and the terminal caps of the boosting battery **B**.

11 Shutdown

11.1 Temporary decommissioning



Information

Further information and detailed descriptions, [see Maintenance on page 62.](#)

Storage requirements

- Store dust-free and dry.
- Do not store outdoors.
- Protect from direct sunlight.
- Store in a locked place that is not accessible to children.

If the machine is stationary for more than 1 month, perform the following measures:

Entire machine	• Clean thoroughly. • If necessary, rectify all defects. • Check for leaks, rectify any defects if necessary.
Fuel tank	Fuel tank: • Refill with fuel.
Engine	• Check engine oil level, fill engine oil if necessary. • Check and clean air filter. • Clean fuel-water separator filter insert. • Check the coolant for the correct mixing ratio.

If the machine is shut down for more than 6 months, contact a service partner.

11.2 Final shutdown

If the machine is no longer in use and is shut down for good, all operating fluids must be drained.

Have the machine professionally dismantled and disposed of by a state-approved recycling company.

Professional disposal of this machine avoids negative effects on human health and the environment, helps with the targeted treatment of pollutants and makes it possible to recycle valuable raw materials.

11.2.1 Disposal of rechargeable batteries and starter batteries

The machine contains one or more batteries or accumulators (hereinafter uniformly referred to as "battery"). Professional disposal of the battery avoids negative effects on human health and the environment, helps with the targeted treatment of pollutants and makes it possible to recycle valuable raw materials.

For customers in EU countries

This battery is subject to the European directive on batteries and used batteries, as well as the relevant national laws. The battery directive provides the framework for an EU-wide treatment of batteries.

The battery is marked with the crossed-out garbage bin symbol. Furthermore, a marking of the pollutants used is included, where "Pb" stands for lead and "Cd" stands for cadmium.

Disposable batteries and rechargeable battery containing lithium can be recognized by the marking "Li" or "Li-Ion" for lithium.

Batteries must not be disposed of with normal household waste! End users must dispose of used batteries exclusively through the manufacturers and retailers or, if necessary, collection points specially set up for this purpose (legal return obligation). Retailers and manufacturers are obliged to take these batteries back and recycle them properly or dispose of them as hazardous waste (legal obligation to take them back).

The general business conditions (GBC) contain further specifications and must be observed.

For customers in other countries

The manufacturer recommends that the battery be disposed of in an environmentally friendly manner in a separate collection rather than in the normal household waste. National laws or regional regulations may also require batteries to be disposed of separately. Disposal of the battery in accordance with national regulations must therefore be ensured.

12 Technical Data

12.1 General instructions



Information

For system technical reasons, empty columns can be displayed in the technical data, and numbers and letters that written in superscript or subscript may be displayed incorrectly, e.g:

- ▶ Sound power level LWA instead of L_{WA}
- ▶ Sound pressure level LpA instead of L_{pA}
- ▶ Vibration total value ahv instead of a_{hv}
- ▶ Carbon dioxide CO2 instead of CO_2
- ▶ Unit m/s2 instead of m/s^2

12.2 Noise information

The noise and vibration data listed have been determined in accordance with the following guidelines for the typical machine operating conditions / special test conditions and using harmonized standards:

- Machinery Directive 2006/42/EC
- Noise Emission Directive 2000/14/EC

During operational use, values may differ depending on the prevailing operating conditions.

Sound pressure level at operator station

- L_{pA} was determined according to EN ISO 11201 and ISO 8528-10.

Guaranteed sound power level

- L_{WA} was determined according to EN ISO 3744 and ISO 8528-10.

12.3 LTN5

Type	LTN5Y SA	LTN5Yp
Material number machine	5100069548	5100069549
Material number engine	5100007082	5100007082
Output current [A]	15,2	15,2
Output voltage [V]	230	230
Output frequency [Hz]	50	50
Phases	1	1
Rated power output [S] [kVA]	1,9	1,9
Aggregate continuous power 1~ (COP) [kW]	3,5	3,5
Length [mm]	2930	2620
Width [mm]	1600	1220
Height [mm]	2545	2700
Maximum light spot height [m]	8,20	8,20
Maximum mast height [m]	8,0	7,8

Type	LTN5Y SA	LTN5Yp
Material number machine	5100069548	5100069549
Mast rotation [°]	350	350
Mast lifting system	Electro-hydraulic	Electro-hydraulic
Wind stability [km/h]	110	110
Operating weight (with trailer) [kg]	850	695
Operating weight [kg]	590	-
Generator manufacturer	Linz Electric	Linz Electric
Generator specifications	ALUMEN SB	ALUMEN SB
Generator type	Single-phase, brushless synchronous generator	Single-phase, brushless synchronous generator
Insulation class	H	H
Output voltage [V]	230	230
Output frequency [Hz]	50	50
Rated power output [kVA]	3,5	3,5
Network type	IT	IT / TN
Main fuse [V]	6	6
Lamps [W]	LED 4x400	LED 4x400
Lamp power [W]	1600	1600
Luminous flux [lm]	224000	224000
Area coverage at 5 lx [m²]	30200	30200
Area coverage at 20 lx [m²]	7700	7700
Area coverage at 50 lx [m²]	2700	2700
Socket type	BS 546 (Typ M) 230V 15A 1~	CEE7/3 (Typ F) 230V 16A 1~
Fuel consumption (only light) [l/h]	0,9	0,9
Runtime (only light) [h]	124	124
Protection class	2	2
Protection class	IP44	IP44
Sound pressure level LpA [dB(A)]	78	78
Sound power level LWA, measured [dB(A)]	89	89
Sound power level LWA, guaranteed [dB(A)]	90	90
Hydraulic oil specifications	HVLP 46	HVLP 46
Operating pressure [bar]	110	110

Type	LTN5Y	LTN5Ypa
Material number machine	5100069550	5100069551
Material number engine	5100007082	5100007082
Output current [A]	15,2	15,2
Output voltage [V]	230	230
Output frequency [Hz]	50	50
Phases	1	1
Rated power output [S] [kVA]	1,9	1,9
Aggregate continuous power 1~ (COP) [kW]	3,5	3,5
Length [mm]	2620	2680

Type	LTN5Y	LTN5Ypa
Material number machine	5100069550	5100069551
Width [mm]	1220	1220
Height [mm]	2700	2700
Maximum light spot height [m]	8,20	8,20
Maximum mast height [m]	7,8	7,8
Mast rotation [°]	350	350
Mast lifting system	Electro-hydraulic	Electro-hydraulic
Wind stability [km/h]	110	110
Operating weight (with trailer) [kg]	695	730
Operating weight [kg]	-	-
Generator manufacturer	Linz Electric	Linz Electric
Generator specifications	ALUMEN SB	ALUMEN SB
Generator type	Single-phase, brushless synchronous generator	Single-phase, brushless synchronous generator
Insulation class	H	H
Output voltage [V]	230	230
Output frequency [Hz]	50	50
Rated power output [kVA]	3,5	3,5
Network type	IT	IT / TN
Main fuse [V]	6	6
Lamps [W]	LED 4x400	LED 4x400
Lamp power [W]	1600	1600
Luminous flux [lm]	224000	224000
Area coverage at 5 lx [m²]	30200	30200
Area coverage at 20 lx [m²]	7700	7700
Area coverage at 50 lx [m²]	2700	2700
Socket type	CEE7/3 (Typ F) 230V 16A 1~	CEE7/3 (Typ F) 230V 16A 1~
Fuel consumption (only light) [l/h]	0,9	0,9
Runtime (only light) [h]	124	124
Protection class	2	2
Protection class	IP44	IP44
Sound pressure level LpA [dB(A)]	78	78
Sound power level LWA, measured [dB(A)]	89	89
Sound power level LWA, guaranteed [dB(A)]	90	90
Hydraulic oil specifications	HVLP 46	HVLP 46
Operating pressure [bar]	110	110

Type	LTN5Y CH	LTN5Y UK
Material number machine	5100069552	5100069553
Material number engine	5100007082	5100007082
Output current [A]	15,2	15,2
Output voltage [V]	230	230
Output frequency [Hz]	50	50

Type	LTN5Y CH	LTN5Y UK
Material number machine	5100069552	5100069553
Phases	1	1
Rated power output [S] [kVA]	1,9	1,9
Aggregate continuous power 1~ (COP) [kW]	3,5	3,5
Length [mm]	2680	2620
Width [mm]	1220	1220
Height [mm]	2700	2700
Maximum light spot height [m]	8,20	8,20
Maximum mast height [m]	7,8	7,8
Mast rotation [°]	350	350
Mast lifting system	Electro-hydraulic	Electro-hydraulic
Wind stability [km/h]	110	110
Operating weight (with trailer) [kg]	730	695
Operating weight [kg]	-	-
Generator manufacturer	Linz Electric	Linz Electric
Generator specifications	ALUMEN SB	ALUMEN SB
Generator type	Single-phase, brushless synchronous generator	Single-phase, brushless synchronous generator
Insulation class	H	H
Output voltage [V]	230	230
Output frequency [Hz]	50	50
Rated power output [kVA]	3,5	3,5
Network type	IT / TN	IT / TN
Main fuse [V]	6	6
Lamps [W]	LED 4x400	LED 4x400
Lamp power [W]	1600	1600
Luminous flux [lm]	224000	224000
Area coverage at 5 lx [m²]	30200	30200
Area coverage at 20 lx [m²]	7700	7700
Area coverage at 50 lx [m²]	2700	2700
Socket type	Typ J (SN441011)	CEE 16A L+N+PE 6h 230V 50Hz
Fuel consumption (only light) [l/h]	0,9	0,9
Runtime (only light) [h]	124	124
Protection class	2	2
Protection class	IP55	IP44
Sound pressure level LpA [dB(A)]	78	78
Sound power level LWA, measured [dB(A)]	89	89
Sound power level LWA, guaranteed [dB(A)]	90	90
Hydraulic oil specifications	HVLP 46	HVLP 46
Operating pressure [bar]	110	110

Type	LTN5Ypk	LTN5Yp HD
Material number machine	5100077880	5100079429
Material number engine	5100007082	5100007082
Output current [A]	15,2	n/a
Output voltage [V]	230	n/a
Output frequency [Hz]	50	n/a
Phases	1	n/a
Rated power output [S] [kVA]	1,9	n/a
Aggregate continuous power 1~ (COP) [kW]	3,5	n/a
Length [mm]	1400	2620
Width [mm]	1220	1220
Height [mm]	2470	2700
Maximum light spot height [m]	8,20	8,20
Maximum mast height [m]	7,8	7,8
Mast rotation [°]	350	350
Mast lifting system	Electro-hydraulic	Electro-hydraulic
Wind stability [km/h]	110	110
Operating weight (with trailer) [kg]	-	695
Operating weight [kg]	612	-
Generator manufacturer	Linz Electric	Linz Electric
Generator specifications	ALUMEN SB	ALUMEN SB
Generator type	Single-phase, brushless synchronous generator	Single-phase, brushless synchronous generator
Insulation class	H	H
Output voltage [V]	230	230
Output frequency [Hz]	50	50
Rated power output [kVA]	3,5	3,5
Network type	IT / TN	IT / TN
Main fuse [V]	6	6
Lamps [W]	LED 4x400	LED 4x400
Lamp power [W]	1600	1600
Luminous flux [lm]	224000	224000
Area coverage at 5 lx [m²]	30200	30200
Area coverage at 20 lx [m²]	7700	7700
Area coverage at 50 lx [m²]	2700	2700
Socket type	CEE7/3 (Typ F) 230V 16A 1~	CEE7/3 (Typ F) 230V 16A 1~
Fuel consumption (only light) [l/h]	0,9	0,9
Runtime (only light) [h]	124	124
Protection class	2	2
Protection class	IP44	IP44
Sound pressure level LpA [dB(A)]	78	78
Sound power level LWA, measured [dB(A)]	89	89
Sound power level LWA, guaranteed [dB(A)]	90	90

Type	LTN5Ypk	LTN5Yp HD
Material number machine	5100077880	5100079429
Hydraulic oil specifications	HVLP 46	HVLP 46
Operating pressure [bar]	110	110

12.4 Combustion engine

Engine manufacturer	Yanmar
Material number engine	5100007082
Engine type	2TNV70
Combustion processes	four-stroke
Cooling	Water
Cylinder	2
Cubic capacity [cm ³]	570
Fuel type	Diesel
Tank volume [l]	105
Oil filling max. [l]	2,2
Oil specification	API-CD, SAE 10W-30
Output max. [kW]	6,1
RPM [1/min]	2000
Standard	SAE J1995
Exhaust-emission level	EU Stage V
CO ₂ emission* [g/kWh]	1172
Starter battery [V]	12

* Determined value of the CO₂ emission during engine certification without consideration of the applications on the machine.

12.5 Conversion table

The following conversion tables enable the conversion of the metric values from the instructions, in particular the technical data, into the imperial.

Conversion table	
Volume units	
1 cm ³	0.061 in ³
1 m ³	35.31 ft ³
1 ml	0.034 US fl.oz.
1 l	0.26 gal.
1 l/min	0.26 gal./min
Length units	
1 mm	0.039 in
1 m	3.28 ft
Weights	
1 kg	2.2 lbs.
1 g	0.035 oz.
Pressure	

Conversion table	
1 bar	14.5 psi
1 kg/cm ²	14.22 lbs/in ²
Force/output	
1 kN	224.81 lbf
1 kW	1.34 hp
1 PS	0.986 hp
Torque	
1 Nm	0.74 ft.lbs
Speed	
1 km/h	0.62 mph
Acceleration	
1 m/s ²	3.28 ft./s ²



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