

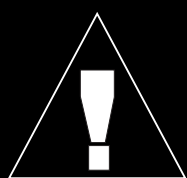
OPERATION & PARTS MANUAL



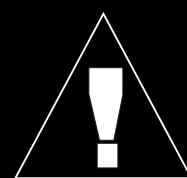
GloBug MODEL GB114BC LIGHTING SYSTEM (FOR USE WITH MQ SERIES GENERATORS)

Revision #2 (02/22/05)

**THIS MANUAL MUST ACCOMPANY
THE EQUIPMENT AT ALL TIMES.**



WARNING



CALIFORNIA — Proposition 65 Warning

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

HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL
NUMBER *ON-HAND* WHEN CALLING

MULTIQUIP CORPORATE OFFICE

18910 Wilmington Ave.

Carson, CA 90746

Email: mq@multiquip.com

Internet: www.multiquip.com

800-421-1244

FAX: 310-537-3927

PARTS DEPARTMENT

800-427-1244

310-537-3700

FAX: 800-672-7877

FAX: 310-637-3284

MAYCO PARTS

800-306-2926

310-537-3700

FAX: 800-672-7877

FAX: 310-637-3284

SERVICE DEPARTMENT

800-478-1244

310-537-3700

FAX: 310-537-4259

TECHNICAL ASSISTANCE

800-478-1244

FAX: 310-631-5032

WARRANTY DEPARTMENT

800-421-1244, EXT. 279

310-537-3700, EXT. 279

FAX: 310-537-1173

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This manual MUST accompany the equipment at all times. This manual is considered a permanent part of the equipment and should remain with the unit if resold.

The information and specifications included in this publication were in effect at the time of approval for printing. Illustrations are based on the *GloBug Lighting System*. Multiquip Inc. reserves the right to discontinue or change specifications, design or the information published in this publication at any time without notice and without incurring any obligations.

To find the latest revision of this
publication, visit our website at:
www.multiquip.com



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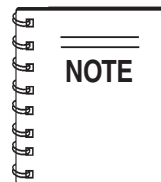
MQ GLOBUG LIGHTING SYSTEM

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***Specification and part number
are subject to change without
notice.***

PARTS ORDERING PROCEDURES

When ordering parts, please supply the following information:

- ☐ Dealer account number
- ☐ Dealer name and address
- ☐ Shipping address (if different than billing address)
- ☐ Return fax number
- ☐ Applicable model number
- ☐ Quantity, part number and description of each part
- ☐ Specify preferred method of shipment:
 - ✓ FedEx or UPS Ground
 - ✓ FedEx or UPS Second Day or Third Day
 - ✓ FedEx or UPS Next Day
 - ✓ Federal Express Priority One
 - ✓ DHL
 - ✓ Truck

Note: Unless otherwise indicated by customer, all orders are treated as "Standard Orders", and will ship within 24 hours. We will make every effort to ship "Air Shipments" the same day that the order is received, if prior to 2PM west coast time. "Stock Orders" must be so noted on fax or web forms.



Here's how to get help...

Please have the model and serial number on hand when calling.

MULTIQUIP CORPORATE OFFICE

18910 Wilmington Ave. 800-421-1244
 Carson, CA 90746 FAX: 310-537-3927
 Email: mq@multiquip.com
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SERVICE DEPARTMENT

800-421-1244 FAX: 310-537-4259
 310-537-3700

TECHNICAL ASSISTANCE

800-478-1244 FAX: 310-631-5032

WARRANTY DEPARTMENT

800-421-1244, EXT. 279 FAX: 310-537-1173
 310-537-3700, EXT. 279

Place Your Parts Order Via Web or Fax For Even More Savings!

(Domestic USA Dealers Only)

Extra Discounts!

All parts orders which include complete part numbers and are received by our automated web parts order system, or by fax qualify for the following extra discounts:

Ordered via	Standard orders	Stock orders (\$750 list and above)
Fax	3%	10%
Web	5%	10%

Special freight allowances when you order 10 or more line items via Web or Fax! **

FedEx Ground Service **at no charge for freight**

No other allowances on freight shipped by any other carrier.

****Common nuts, bolts and washers (all items under \$1.00 list price) do not count towards the 10+ line items.**

NOTE: DISCOUNTS ARE SUBJECT TO CHANGE



MULTIQUIP INC.
 18910 WILMINGTON AVENUE
 POST OFFICE BOX 6254
 CARSON, CALIFORNIA 90749
 310-537-3700 • 800-421-1244
 FAX: 310-537-3927
 E-MAIL: mq@multiquip.com
 INTERNET: www.multiquip.com

Direct TOLL-FREE access to our Parts Department:

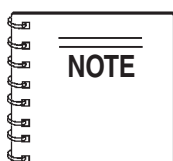
Toll-free nationwide — 800-427-1244

Toll-free FAX — 800-6-PARTS-7 (800/672-7877)

GLOBUG LIGHTING SYSTEM — SAFETY MESSAGE ALERT SYMBOLS

FOR YOUR SAFETY AND THE SAFETY OF OTHERS!

Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the Safety Messages and Operating Instructions could result in injury to yourself and others.



This Owner's Manual has been developed to provide complete instructions for the safe and efficient operation of the **MQ GloBug Lighting System**.

Before using this Lighting System, ensure that the operating individual has read and understands all instructions in this manual.

SAFETY MESSAGE ALERT SYMBOLS

The three (3) Safety Messages shown below will inform you about potential hazards that could injure you or others. The Safety Messages specifically address the level of exposure to the operator, and are preceded by one of three words: **DANGER**, **WARNING**, or **CAUTION**.

DANGER

You **WILL** be **KILLED** or **SERIOUSLY** injured if you **DO NOT** follow directions.

WARNING

You **CAN** be **KILLED** or **SERIOUSLY** injured if you **DO NOT** follow directions.

CAUTION

You **CAN** be **INJURED** if you **DO NOT** follow directions.

Potential hazards associated with the **GloBug Lighting System** operation will be referenced with Hazard Symbols which appear throughout this manual, and will be referenced in conjunction with Safety Message Alert Symbols.

HAZARD SYMBOLS

WARNING - Lethal Exhaust Gasses

Engine exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled. **NEVER** operate this equipment in a confined area or enclosed structure that does not provide ample free flow air.



WARNING - Explosive Fuel

Gasoline fuel is extremely flammable, and its vapors can cause an explosion if ignited. **DO NOT** start the engine near spilled fuel or combustible fluids.



DO NOT fill the fuel tank while the engine is running or hot. **DO NOT** overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system. Store fuel in approved containers, in well-ventilated areas and away from sparks and flames.

WARNING - Burn Hazards

Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operations. Never operate the engine with heat shields or heat guards removed.



CAUTION - Respiratory Hazard

ALWAYS wear approved **respiratory** protection when required.



GLOBUG LIGHTING SYSTEM — SAFETY MESSAGE ALERT SYMBOLS

CAUTION - Rotating Parts

NEVER operate equipment with covers, or guards removed. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury.



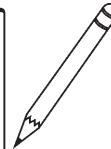
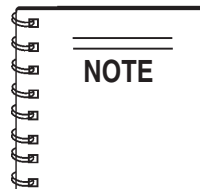
CAUTION - Accidental Starting

ALWAYS place the power source, circuit breakers or **ON/OFF** switch in the **OFF** position, when the generator is not in use, unless connected to transfer switch.



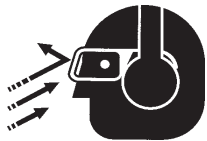
CAUTION - Equipment Damage Messages

Other important messages are provided throughout this manual to help prevent damage to your lighting system, other property, or the surrounding environment.



This lighting system, other property, or the surrounding environment could be damaged if you **do not** follow instructions.

CAUTION - Sight and Hearing Hazards



ALWAYS wear approved eye and hearing protection.

CAUTION - Over-Speed Conditions



NEVER tamper with the factory settings of the engine governor settings. Personal injury and damage to the engine or equipment can result if operating speed ranges above maximum allowable.

GLOBUG LIGHTING SYSTEM — RULES FOR SAFE OPERATION

WARNING - READ THIS MANUAL

Failure to follow instructions in this manual may lead to **Serious Injury** or even **Death**. This equipment is to be operated by trained and qualified personnel only! This equipment is for industrial use only.

The following safety guidelines should always be used when operating the GloBug Lighting System.

The following safety guidelines should always be used when operating the GloBug Lighting System:

GENERAL SAFETY

- **DO NOT** operate or service this equipment before reading this entire manual.



- This equipment should not be operated by persons under 18 years of age.

- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job.



- **NEVER** operate this equipment when not feeling well due to fatigue, illness or taking medicine.



- **NEVER** operate this equipment under the influence of **drugs** or **alcohol**.



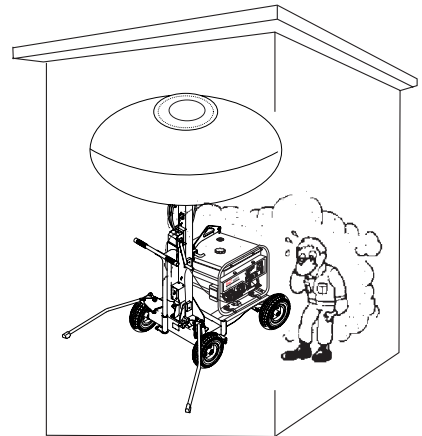
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- Manufacturer does not assume responsibility for any accident due to equipment modifications.
- **NEVER** use accessories or attachments, which are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.

- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing engine or mixer.



- **High Temperatures** – Allow the engine to cool before adding fuel or performing service and maintenance functions. Contact with **hot!** components can cause serious burns.

- The engine of this lighting system/generator requires an adequate free flow of cooling air. **NEVER** operate the generator in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause serious damage to the generator engine and may cause injury to people. Remember the engine of the lighting system/generator gives off **DEADLY** carbon monoxide gas.



- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.

- **ALWAYS** use extreme caution when working with **flammable** liquids. When refueling, **stop the engine** and allow it to cool. **DO NOT smoke** around or near the machine. Fire or explosion could result from fuel vapors, or if fuel is spilled on a hot engine.



- **NEVER** operate the GloBug in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe **bodily harm** or **even death**.

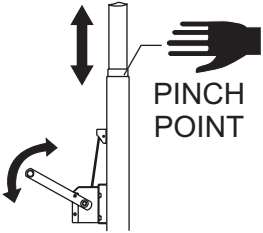


- Topping-off to filler port is dangerous, as it tends to spill fuel. Wipe up any spilled fuel immediately.

GLOBUG LIGHTING SYSTEM — RULES FOR SAFE OPERATION

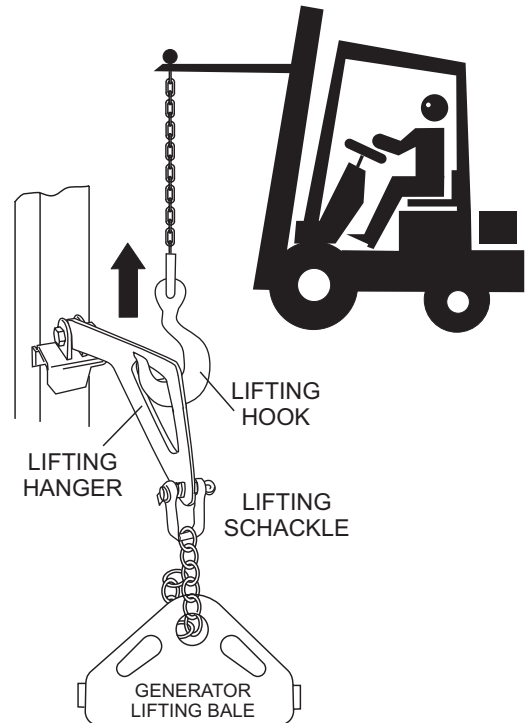
- **ALWAYS** make sure that the GloBug is secure on firm level ground so that it cannot slide or shift around, endangering workers. Also keep the immediate area free of bystanders.
- **ALWAYS** keep area behind GloBug clear of people while raising and lowering mast.
- To prevent the GloBug from overturning, **NEVER** use in winds that exceed 22 mph (10m/s).
- To prevent the GloBug from rolling, **ALWAYS** place the GloBug on a firm flat surface. Surface slant should not exceed 5 degrees.
- To prevent the GloBug from rolling, **ALWAYS** apply the parking brake. For additional safety place chock blocks behind the wheels.
- The GloBug must use a generator that is at least 220 lbs. (100 kg) minimum. This will prevent the GloBug from tipping over.
- The GloBug should only be used in temperatures between 23-104 degrees Fahrenheit (-5 to 40 degrees Celsius). Failure to comply with these operating parameters could cause the lamp to malfunction and shorten the ballast life.
- **NEVER** use the GloBug in *rain, snow* or areas of high humidity that could generate electrical storms.
- Set the GloBug's tire air pressure to 35.5 psi (245kPa). Check daily. Low tire pressure could adversely affect the parking brake.

MAST SAFETY

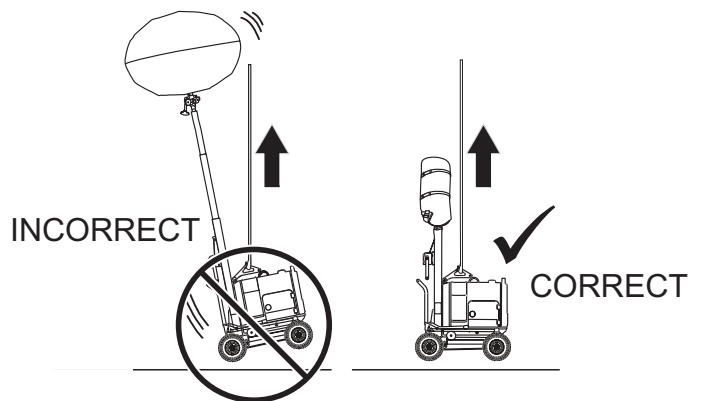
- When raising or lowering the mast, keep hands and fingers clear of the various mast sections, this will prevent hands and fingers from getting pinched.
- 
- When raising the mast and to prevent tipping, **ALWAYS** *deploy outriggers*.
 - **CHECK** the mast and winch cables for wear. If any problem occurs when lower or raising the mast **STOP** immediately! Contact a trained MQ technician for assistance.
 - **NEVER** pivot or retract mast while unit is operating.
 - **NEVER** use the lighting system mast as a crane. **DO NOT** lift anything with the mast.
 - **NEVER** attach anything to the lighting system mast.
 - **ALWAYS** lower the tower when not in use, or if high winds or electrical storms are expected in the area.

LIFTING/TRANSPORTING THE GLOBUG

- **ALWAYS** use the lifting hanger, when lifting of the GloBug is required.



- Use a crane, forklift or suitable lifting device of adequate lifting capability when the lifting of the GloBug is required.
- Make sure the mast is completely lowered before lifting the GloBug.
- When the GloBug is lifted from its correct lifting point, it should lift straight up (not tilted). **DO NOT** attempt to lift the GloBug if its position is tilted while lifting.



GLOBUG LIGHTING SYSTEM — RULES FOR SAFE OPERATION

- When transporting the GloBug over **smooth roads**, place mast in **stow position**. Tighten the lamp adjustment lever and mast adapter set screw firmly to secure the balloon to the mast before transporting. This will prevent the balloon/light assembly from falling down or being damaged during transport.
- When transporting the GloBug over **rough terrain**, remove the balloon/lamp assembly from the mast. To prevent damage to the bulb, place balloon/lamp assembly in a protective foam-lined container. Tie down the protective container to prevent movement. Place GloBug in back of pick-up truck, apply parking brake and tie down securely to prevent movement.
- **NEVER** leave the balloon/lamp exposed during transport. Exposure to excess wind or rain could damage the balloon's nylon cover.
- **ALWAYS** place the balloon inside its protective cover during transport. Be sure the cover is secured tightly around the balloon/lamp assembly.

LAMP SAFETY AND CARE

- **NEVER** leave any grease or oil residue on lamp surface when replacing or removing lamp. This can create hot spots, reducing the service life of the lamp.
- **ALWAYS** make sure the lamp surface is clean and dry.
- **ALWAYS** replace with MQ recommended type lamp. See parts section of this manual.
- **NEVER** use force when installing a lamp. Excessive force could cause the lamp to break causing bodily harm.
- **ALWAYS** make sure the lamp holder (spring loaded) is securely affixed to the top of the lamp. This will prevent the lamp from touching (breakage) the lamp guard or pipe frame.
- **ALWAYS** make sure the lamp guard is installed correctly. **NEVER** deform the lamp guard.
- **NEVER** attempt to replace lamp with the power on. Always un-plug the power cord from the generator when changing the lamp.
- **NEVER** unplug the lamp's AC power cable during operation.
- **ALWAYS** allow a sufficient amount of time for the lamp to **cool** before changing. The possibility exists of severe burns.
- **ALWAYS** have a **trained technician** to install and remove lamp, or replace any damaged fixture wiring.

BALLOON SAFETY AND CARE

- To prevent serious burns, **NEVER** touch or unzip the balloon envelope when the lamp is on.
- To prevent the balloon from deformation, **NEVER** use GloBug in strong winds.
- **DO NOT** place the balloon inside its protective cover until the lamp has had a sufficient amount of time to cool down. This will prevent the balloon's nylon cover from being burned (touching the lamp surface).
- **ALWAYS** place the balloon inside its protective cover after each use. This will prolong the life of the balloon material, keeping it protected from harsh environmental elements.
- **DO NOT** use a damaged balloon. Replace balloon immediately if damaged. In addition, a damaged balloon will not inflate properly, and may become more damaged by touching the hot lamp surface.
- **ALWAYS** keep the balloon away from sharp objects and excessive amounts of heat (**fire!**).
- **DO NOT** use excessive force when zipping and unzipping the balloon. Be gentle with the zipper mechanism. If the zipper is broken the balloon will become unusable.



DANGER - GloBug High Danger Areas

The **DANGER** items listed below and on the next page are considered **High DANGER** areas and should be adhered to. Failing to understand these areas could result in **Bodily Harm, Electrical Shock, Electrocution**, and even **Death!** *Please pay close attention when operating the lighting system.*



DANGER - Grounding the GloBug for Operation

The GloBug lighting system is equipped with a **ground terminal** for your protection. **ALWAYS** complete the **grounding path** from the lighting system to an external grounding source.



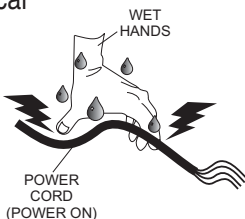
ALWAYS make certain the GloBug is well grounded and securely fastened to a good earth ground (ground rod). The possibility exists of **Electrical Shock, Electrocution, and even Death** if the GloBug is not grounded.

GLOBUG LIGHTING SYSTEM — RULES FOR SAFE OPERATION

! DANGER - GloBug Electric Shock Hazards

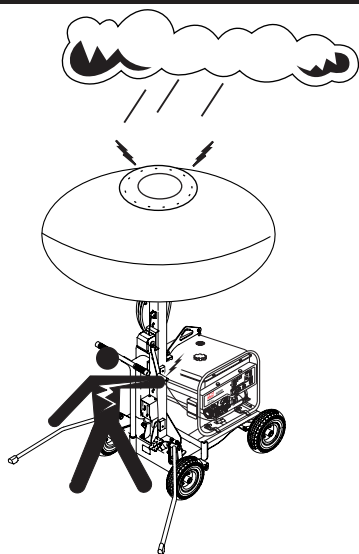
ALWAYS keep electrical cords in good condition. Worn, bare or frayed wiring can cause electrical shock, thus causing **Bodily Harm or even Death**.

NEVER grab or touch a live power cord with wet hands, the possibility exists of **Electrical Shock, Electrocutation, and even Death!**



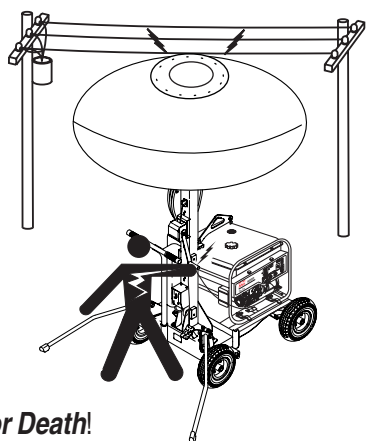
! DANGER - GloBug Electric Shock Hazards

NEVER operate the GloBug or handle any electrical equipment while standing in water, while bare foot, while hands are wet, or in the rain. A dangerous **electrical shock** could occur causing **Severe Bodily Harm or even Death**.



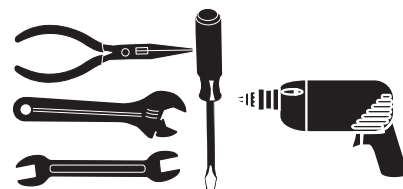
! DANGER - GloBug Overhead Obstructions

ALWAYS make sure the area above GloBug is open and clear of overhead power lines and other obstructions. The tower extends in excess of 16.5 ft. (5 meters). Contact with overhead powerlines or other obstructions could result in equipment damage, **Serious Injury or Death!**



Maintenance Safety

- **NEVER** lubricate components or attempt service on a running GloBug.
- **ALWAYS** allow the GloBug a proper amount of time to cool before servicing.
- Keep the GloBug in proper running condition.
- Fix damage to the GloBug immediately and always replace broken parts.
- **ALWAYS** use the required tool for the job application. Using damaged or worn tools or using tools inappropriate for the required application is very dangerous, and may cause damage to the machine and service personnel. Make sure to use the appropriate tool for the specific job.

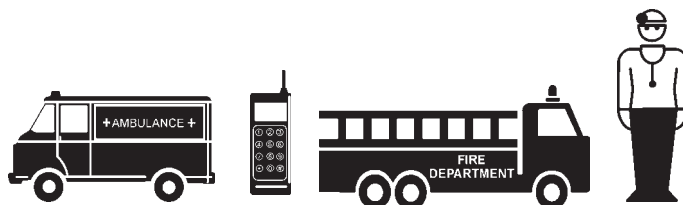


Emergencies

- **ALWAYS** know the location of the nearest **fire extinguisher**.
- **ALWAYS** know the location of the nearest **first aid kit**.



- In emergencies **always** know the location of the nearest phone or **keep a phone on the job site**. Also know the phone numbers of the nearest **ambulance**, **doctor** and **fire department**. This information will be invaluable in the case of an emergency.



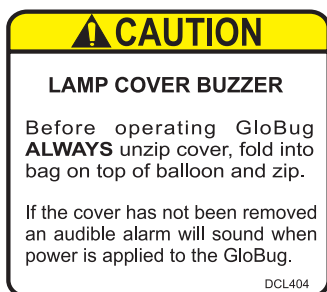
GLOBUG LIGHTING SYSTEM — OPERATION AND SAFETY DECALS

Machine Safety Decals

The GloBug is equipped with a number of safety decals, Figures 1A through 1C. These decals are provided for operator safety and maintenance information. The illustrations below and on the next page show these decals as they appear on the machine. Should any of these decals become unreadable, replacements can be obtained from your dealer.



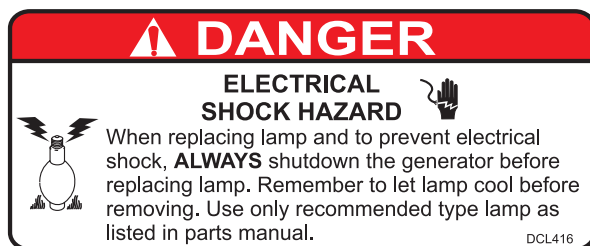
P/N DCL415



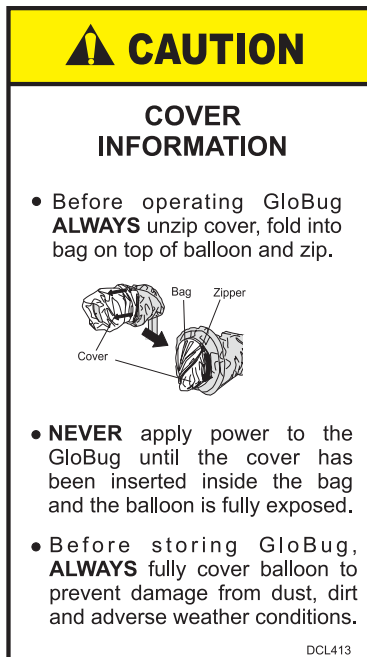
P/N DCL404



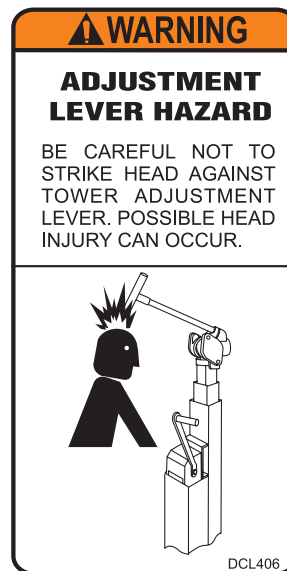
P/N DCL405



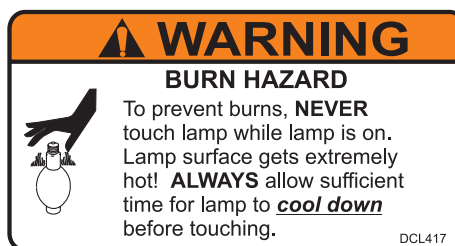
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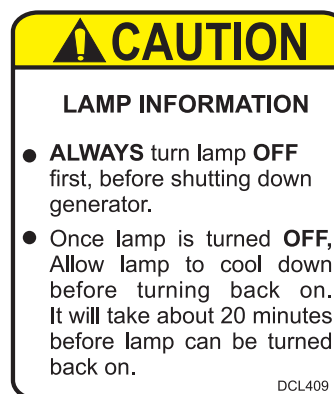
P/N DCL413



P/N DCL406



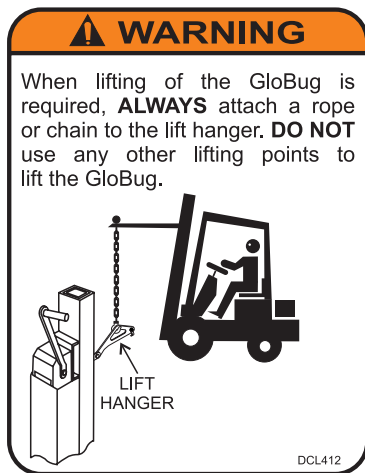
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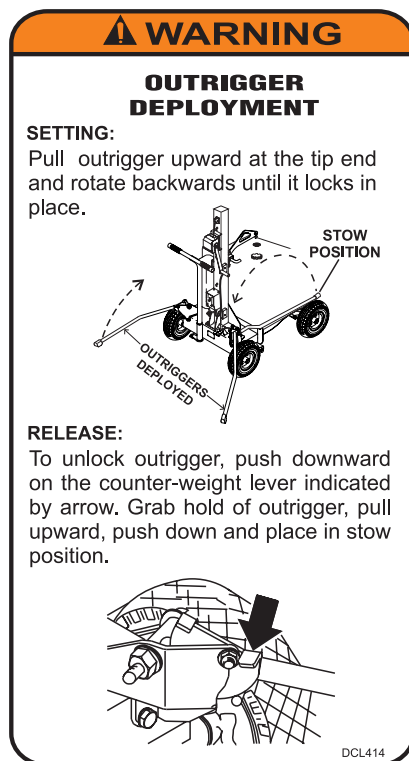
P/N DCL409

Figure 1A. Operation and Safety Decals

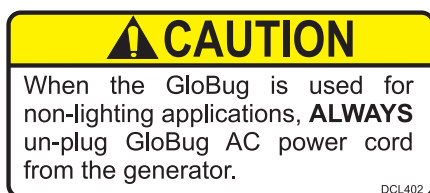
GLOBUG LIGHTING SYSTEM — OPERATION AND SAFETY DECALS



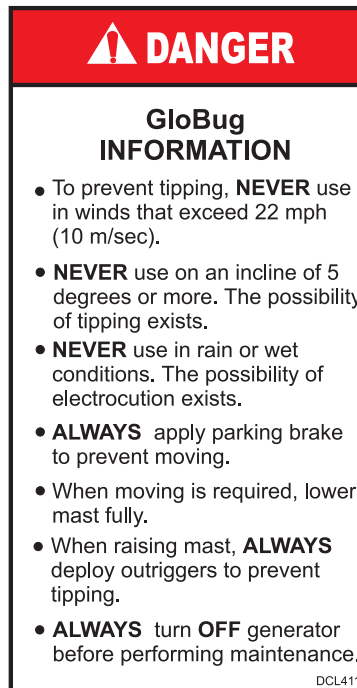
P/N DCL412



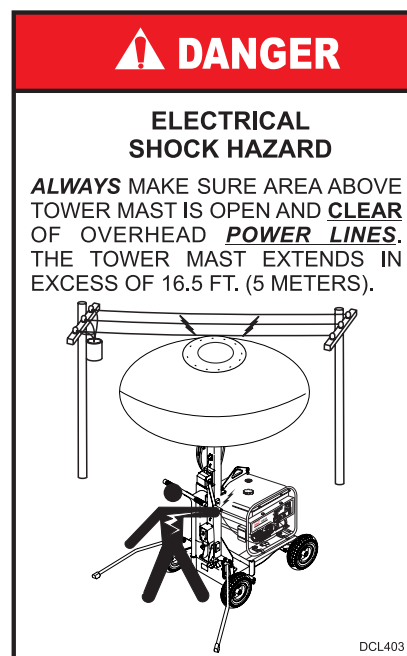
P/N DCL414



P/N DCL402



P/N DCL411



P/N DCL403



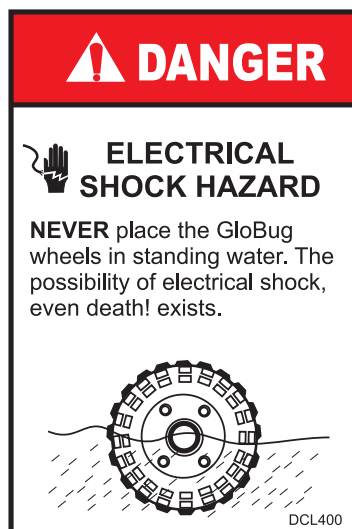
P/N DCL408



P/N DCL401

Figure 1B. Operation and Safety Decals (Continued)

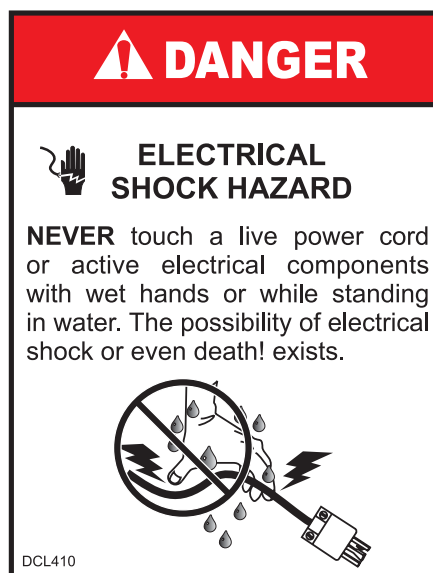
GLOBUG LIGHTING SYSTEM — OPERATION AND SAFETY DECALS



P/N DCL400



P/N DCL407



P/N DCL410



CONTACT
MQ PARTS DEPT.



P/N DCL428



P/N 35137



P/N DCL418

Figure 1C. Operation and Safety Decals (Continued)

GLOBUG LIGHTING SYSTEM — SPECIFICATIONS

Table 1. Specifications

GloBug	
Model	GB114BC
Input Voltage	120 VAC
Frequency	60 Hz Single-Phase
Max. Current	9.5 Amps
Wind Stability with Generator	65 mph (80.46 kph)
Weight (less generator)	243 lbs. (110 kg)
Lamp	
Lamp Type	(1)1000 Watt Metal Halide
Lumens	112,000
Light Coverage (360°)	150 ft. (45.72 meters)
Surface Temperature (Longitudinal)	476.6°F (247°C) Max.
Surface Temperature (Transversal)	417.2°F (214°C) Max.
Fan Motor	
Balloon Fan Motor	115 VAC, 60 Hz
Max. Current	.360 Amps
Pressure	31.26 PSI (215.6 kPA)
Balloon	
Diameter	3.9 FT. (1.1 meters)
Material	Heat Resistant Nylon
Heat Resisting Temperature	320 ~ 356°F (160 ~ 180°C)
Melting Temperature	500°F (260°C)
Internal Temperature of Balloon	126°F (52°C) Average
Water Resistance	1,500 mm H ₂ O
Mast	
Number of Stages	4
Maximum Height	16.5 FT. (5 meters)
Dimensions	See Figure 2, Table 2
Generator	See Specified Generator Manual

GLOBUG LIGHTING SYSTEM — DIMENSIONS

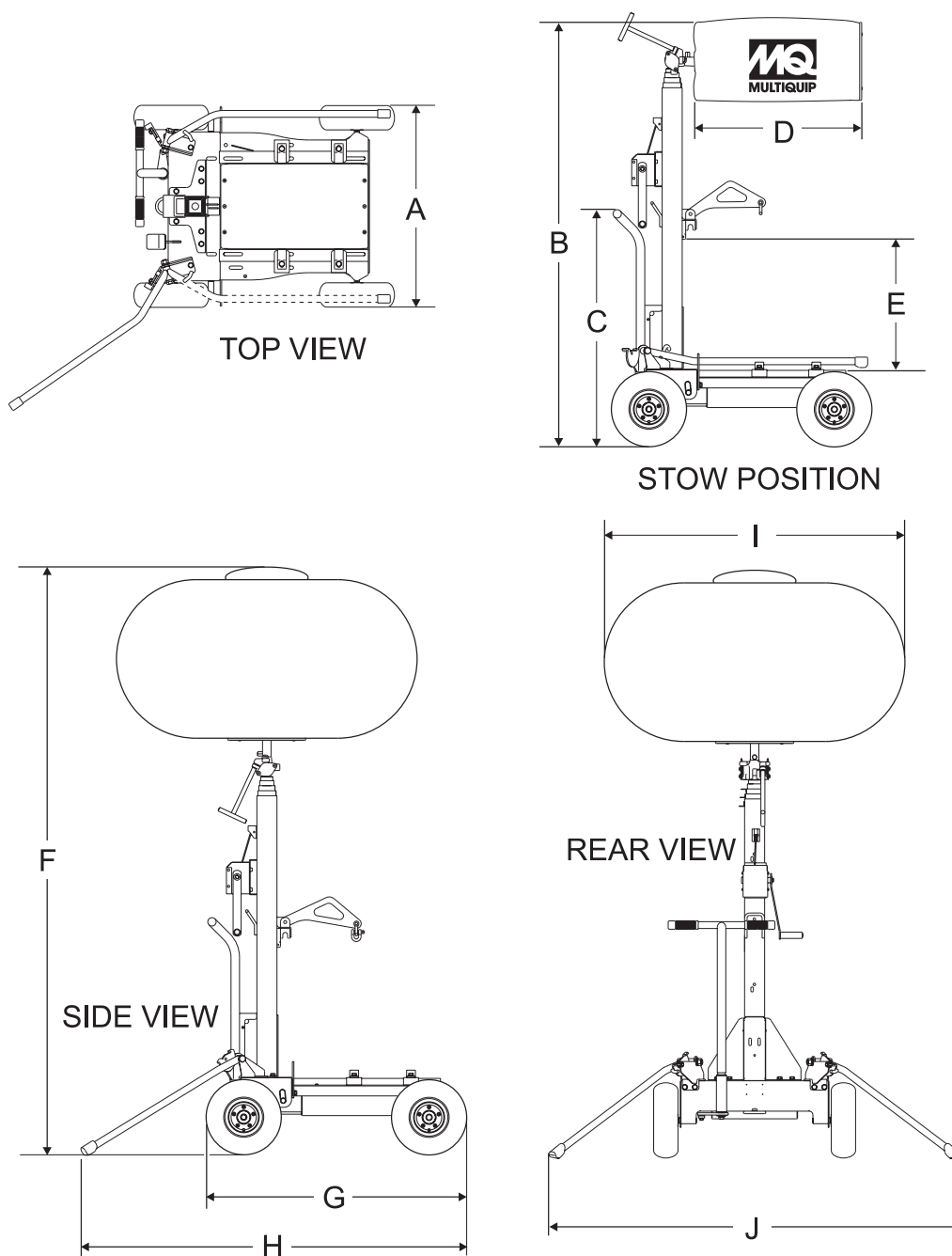


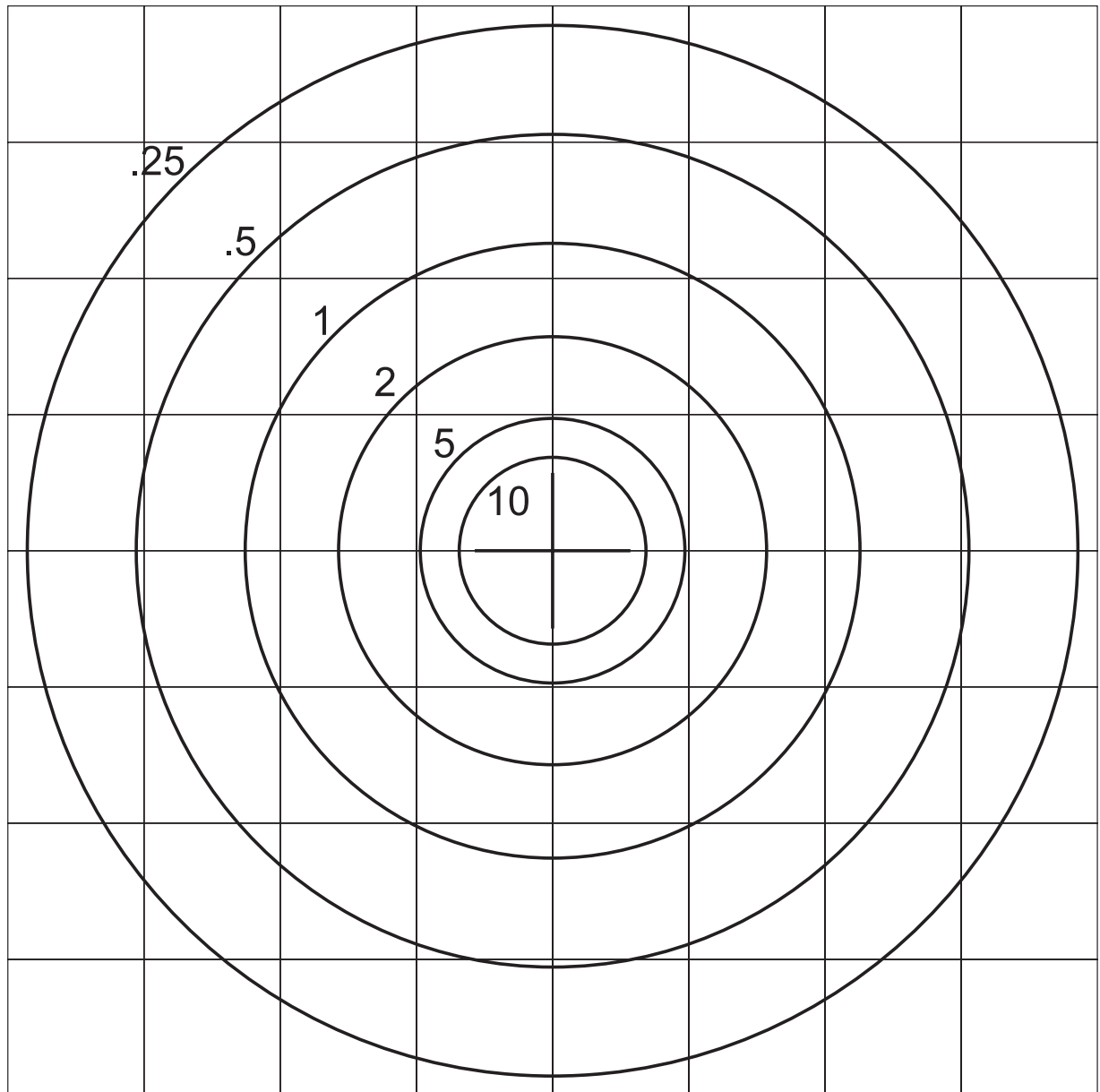
Figure 2. Dimensions

TABLE 2. DIMENSIONS

Reference Letter	Description	Dimension ft. (mm.)	Reference Letter	Description	Dimension ft. (mm.)
A	Wheel Base	2.66 ft. (811 mm.)	F	Max. Height (Mast Deployed Position)	16.41 ft. (5,004 mm.)
B	Height (Mast Stowed Position)	5.5 ft. (1,676 mm.)	G	Length (Front to Rear Wheel)	3.41 ft. (1,041 mm.)
C	Handle Height	2.91 ft. (889 mm.)	H	Length (Front Wheel to Outrigger)	4.83 ft. (1,473 mm.)
D	Balloon Bag Length	2.25 ft. (686 mm.)	I	Balloon Diameter	3.75 ft. (1,143 mm.)
E	Lift Hook to Platform	1.83 ft. (559 mm.)	J	Width (Outriggers Deployed)	4.75 ft. (1,448 mm.)

GLOBUG LIGHTING SYSTEM — FLOODLIGHT FOOTCANDLE PLOT

Based on 360° glare-free coverage.



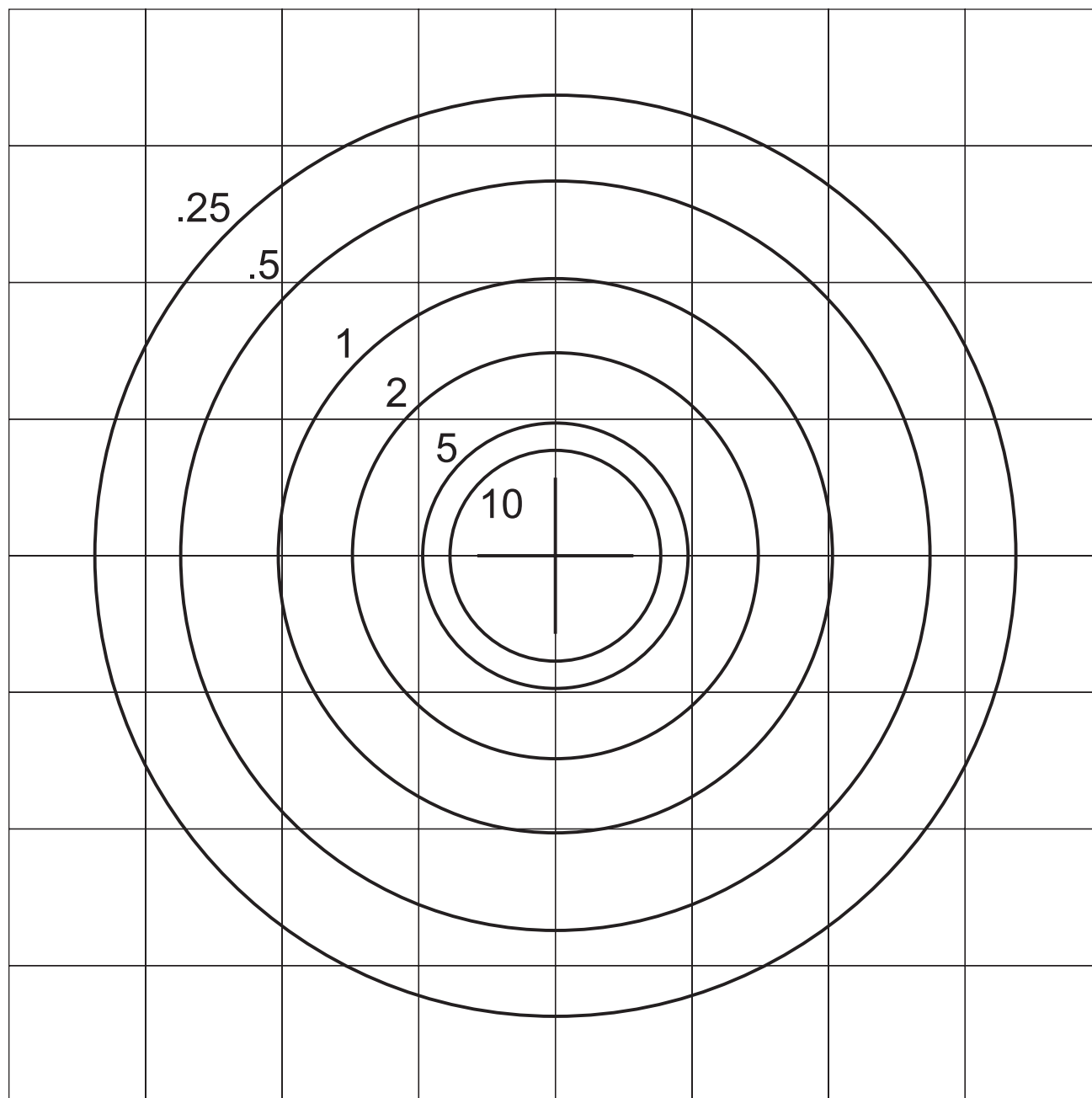
Values listed as footcandles

Scale: .5 IN. = 20 ft.

Figure 3. Floodlight Footcandle Plot (Bal120-Standard)

GLOBUG LIGHTING SYSTEM — FLOODLIGHT FOOTCANDLE PLOT

Based on 360° glare-free coverage.



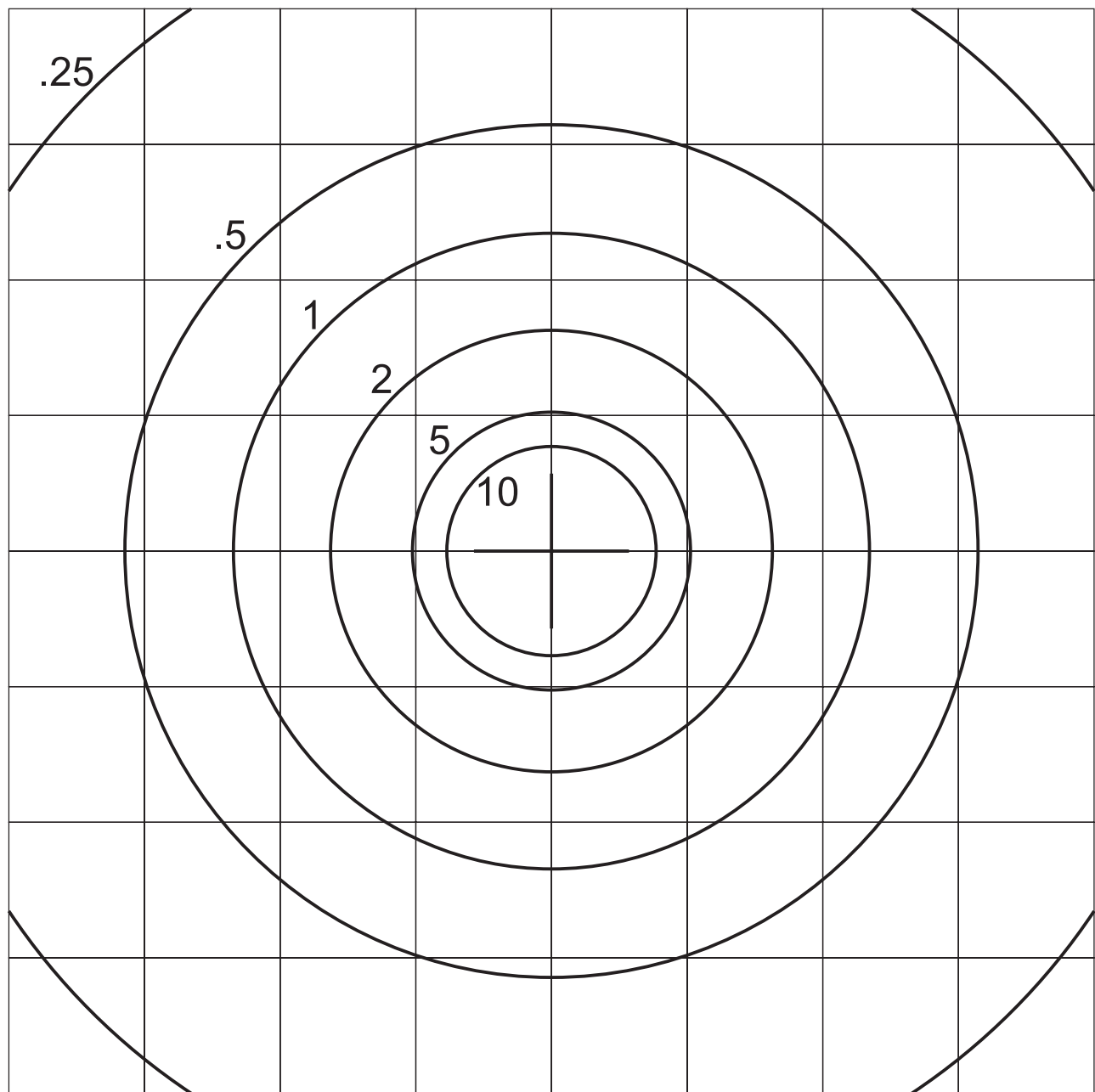
Values listed as footcandles

Scale: .5 IN. = 20 ft.

Figure 4. Floodlight Footcandle Plot (BAL120R-Reflector)

GLOBUG LIGHTING SYSTEM — FLOODLIGHT FOOTCANDLE PLOT

360 degree coverage



Values listed as footcandles

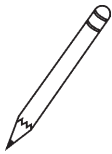
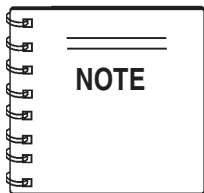
Scale: .5 IN. = 20 ft.

Figure 5. Floodlight Footcandle Plot (BAL-115D-Drum Shaped)

GLOBUG LIGHTING SYSTEM — GENERAL INFORMATION

The Multiquip GloBug Lighting System is a general purpose floodlight tower intended for emergency and remote lighting conditions. The GloBug can be powered by a variety of Multiquip's series generators. Power requirements for running the GloBug are 120 VAC, 60 Hz @ 9.5 amps. The GloBug can be powered by any MQ portable generator with an output of 2.9 kW or greater.

Please read carefully the specified generator manual that will accompany your GloBug lighting system. This manual will explain how to operate and maintain the generator.



All information related to the generator will be referenced in a separate (supplied) "Operation and Parts Manual". Operation and maintenance of the generator **will not** be referenced in this manual.

The lighting system of Multiquip's GloBug Lighting System is comprised of one "Metal Halide" 1000 watt lamp. This lamp has an output of 112,000 lumens. Typical lighting coverage is in excess 150 ft. (45.72 meters) in a 360 degree pattern.

Located underneath the generator support platform is a weather resistant ballast box that contains the ballast for starting the floodlight. The floodlight is activated by an ON/OFF switch located at the base of the mast.

For ease of service or transport, the floodlight is equipped with a quick-disconnect connector that allows the lamp fixture to be removed quickly. This feature is extremely useful during transport of the lighting system over rough terrain. It is always best to remove the floodlight and pack it safely so it will not be damaged.

Balloon Envelopes

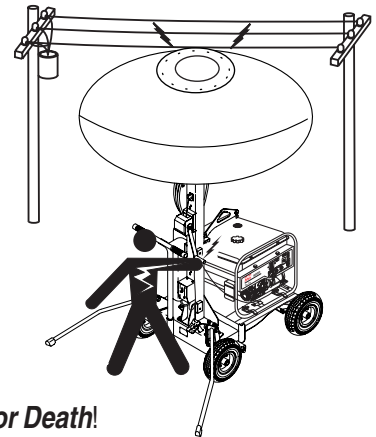
The GloBug can be configured with a variety of balloon envelopes (canopy). Please contact the MQ sales department for the balloon of your choice. The GloBug, Model GB114BC comes with the standard balloon (BAL-120).

The lighting system can be raised vertically in excess of 31.5 feet (9.6 meters) by means of a manual winch. The tower tensioning system is designed to provide the necessary tension to safely control the pivot of the tower. Outriggers must always be deployed prior to raising the mast.



DANGER - GloBug Overhead Obstructions

ALWAYS make sure the area above GloBug is open and clear of overhead power lines and other obstructions. The tower extends in excess of 16.5 ft. (5 meters). Contact with overhead powerlines or other obstructions could result in equipment damage, ***Serious Injury or Death!***



Alarm Buzzer

The GloBug is equipped with a "Balloon Alarm" feature. This alarm will sound if the lamp is on and the balloon attempts to make contact with the **hot!** surface of the lamp. This alarm is intended to inform the operator that a potential burn hazard exists between the lamp surface and the balloon material.

Always allow the lamp to cool down before removing the AC power from the GloBug. In the event the balloon begins to deflate during normal operation, immediately place the GloBug's ON/OFF switch in the OFF position.

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GLOBUG LIGHTING SYSTEM — COMPONENTS

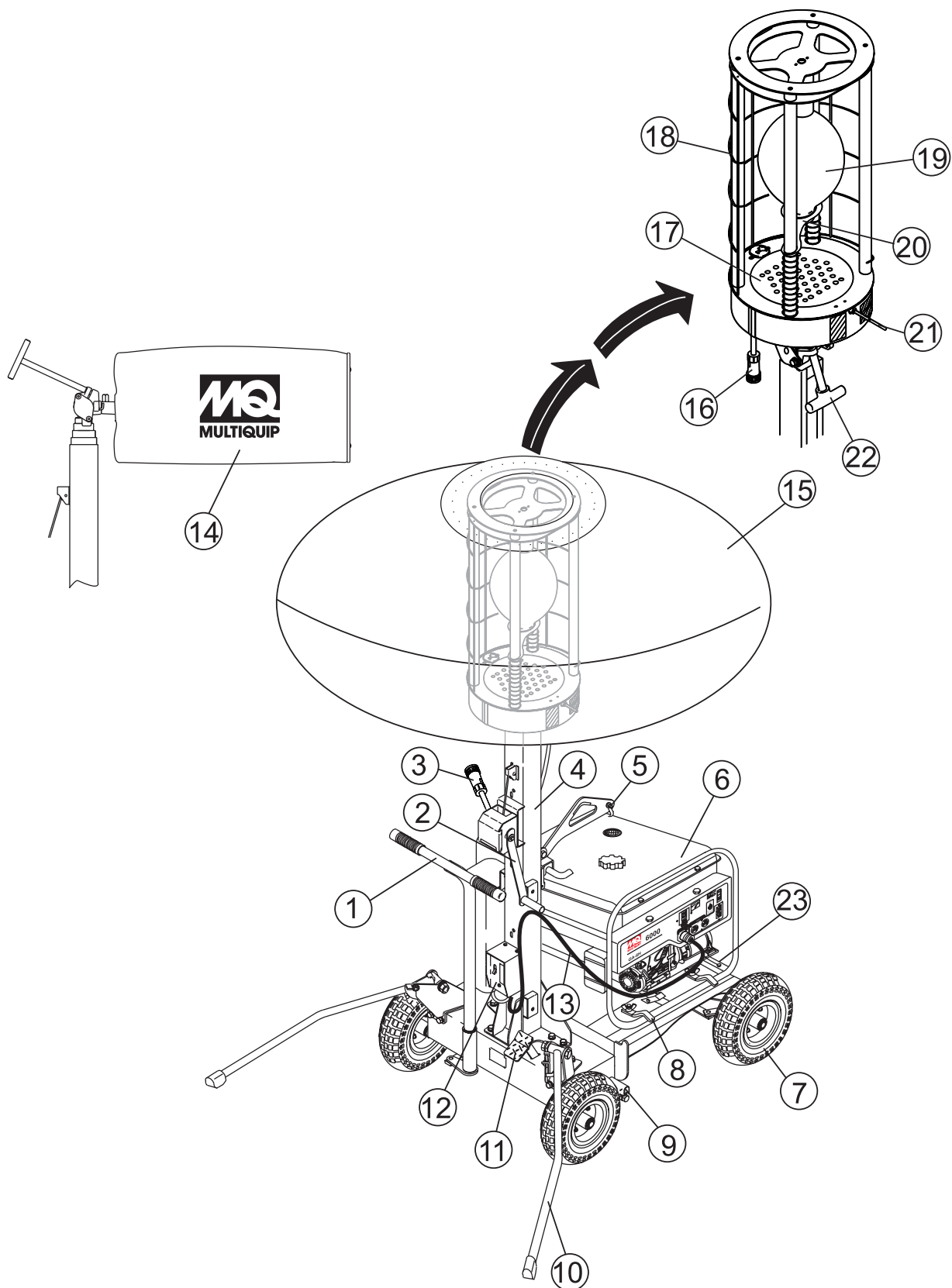


Figure 6. Major Components

GLOBUG LIGHTING SYSTEM — COMPONENTS

Figure 6 shows the location of the controls and components for the GloBug Lighting System. The functions of each control is described below:

1. **Steering Handle** – The GloBug can be moved in either a forward or reverse direction by pulling back or pushing forward on the T-handle. In addition the front wheels are designed to turn in the opposite direction of the T-handle placement thus allowing the GloBug to turn either left or right.
2. **Mast Winch** – Use this mechanical winch to raise and lower the mast. Always be on the lookout for overhead obstructions. Keep immediate area free of bystanders and debris when raising the mast.
3. **Lamp Power Cable (Generator)** – Connect this quick-disconnect cable plug (generator-side) to the lamp power cable plug.
4. **Mast** – This mast is comprised of four separate stages. The mast can be raised in excess of 16.5 ft. (5 meters). Again when raising the mast, always be on the lookout for overhead obstructions.
5. **Lift Hanger** – When lifting of the GloBug is required always use a suitable lifting device of adequate lifting capability. **NEVER** stand underneath the GloBug while it is being lifted.
6. **Generator** – MQ GA-Series type generator. This generator will supply the necessary power to run the GloBug. For operation of generator read generator Operation Manual supplied with GloBug.
7. **Tires** – The GloBug uses 4 pneumatic type tires. Replace with only recommended type tire. **NEVER** allow the **rear** tires to go flat. This could adversely affect the braking system. Inflate tires to 35.5 psi (245kPa).
8. **Locking Clamps** – To secure the generator to the GloBug cart platform, place clamps (4) around the pipe frame of the generator. Tighten securely to prevent movement.
9. **Brake Pad** – When the brake pedal is pressed, this pad will strike and hold the rear tires in place. Make sure rear tires are inflated to the correct air pressure.
10. **Outriggers** – **ALWAYS** deploy the outriggers when raising the mast.
11. **Brake Pedal** – Step on this pedal to apply the brakes. To release the brakes, press down on brake pedal again.
12. **ON/OFF Switch** – Place this switch in the **ON** position to turn on the lamp. To turn off the lamp place in the down position (**OFF**). Please wait for approximately 10 minutes before attempting to turn the lamp back on.
13. **Power Cable** – Connect this cable to a 120 VAC, 60 Hz power source.
14. **Balloon Storage Bag** – Store the balloon in this storage bag when the GloBug is not in use. Allow a sufficient amount of time for the lamp to cool down before placing balloon inside storage bag. Possibility exists of balloon getting burned.
15. **Balloon** – This balloon is made of heat resistant nylon, with a diameter of 3.9 ft. (1,150 mm). The balloon shall be inflated to a pressure of 31.26 psi (215.6 kPa).
16. **Lamp Power Cable (Balloon)** – Connect this quick-disconnect cable plug (balloon-side) to the generator power cable plug.
17. **Fan Motor (Blower)** – This electric motor is responsible for inflating the balloon. It will supply a pressure of 31.26 psi (215.6 kPa). Please note that the balloon will begin to inflate as soon as power is applied to the GloBug. The OFF/ON switch **does not** control the electric fan motor.
18. **Lamp Guard** – This guard (cage) protects the lamp from being hit by objects.
19. **Lamp** – 1000 watt metal-halide type lamp. Replace with only MQ recommended type lamp. Always allow a sufficient amount of time for the lamp to **cool down** before changing.
20. **Lamp Holder** – Screw lamp into this holder. If lamp becomes difficult to screw into holder or holder is damaged, replace holder.
21. **Balloon Alarm Buzzer** – Will sound during normal operation if the balloon attempts to make contact with the lamp's **hot!** surface. If this condition occurs, immediately place the GloBug's ON/OFF switch in the OFF position.
22. **Adjust Lever** – This lever allows the lamp to be positioned up or down. Turn counterclockwise to release lamp and position. Turn clockwise to tighten.
23. **Ballast Compartment** – Provides the necessary electronics to light the lamp. To gain access to the ballast compartment the generator must be removed from the cart platform.

GLOBUG LIGHTING SYSTEM — PRE-SETUP

CAUTION - Read Manual

Please read this entire manual carefully before attempting to operate the GloBug. Failure to read this manual could cause damage to the GloBug and serious injury to the operator.



GloBug Setup

1. Using the T-handle (Figure 7) place the GloBug on a ***firm level surface*** so that it will not slide or turn over.

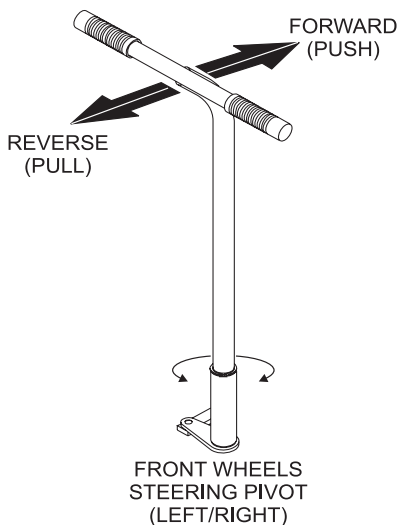


Figure 7. T-Handle (Directional Control)

2. To apply the parking brake (Figure 8), step on the brake pedal and pull back on the T-handle. This will lock the rear wheels. For additional safety use chock blocks to prevent rolling.

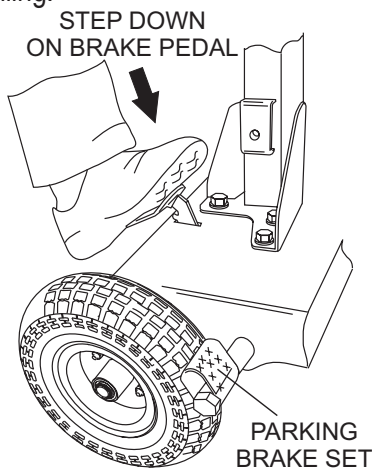


Figure 8. Parking Brake (Set Position)

3. Lift up on each outrigger (2) from its stow position, rotate backwards and place it in the deployed position, as shown in Figure 9. The outriggers will automatically lock in place once they touch the ground,

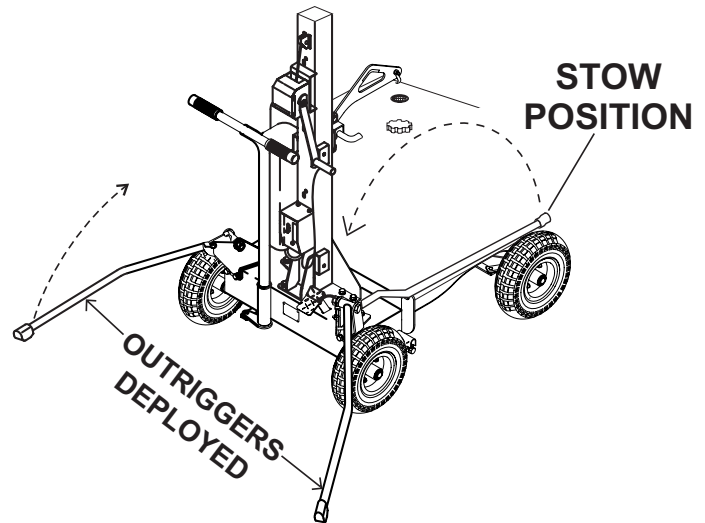


Figure 9. Outriggers (Deployed Position)

4. Expose the balloon by pulling down on the velcro tabs and unzip the protective cover as shown in Figure 10. Next, fold the protective cover into itself and zip.

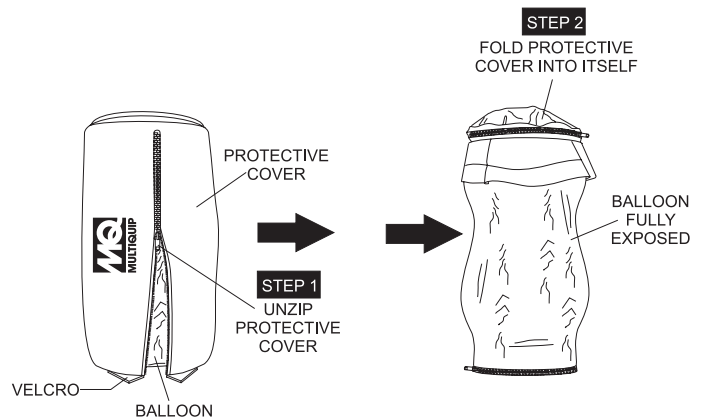


Figure 10. Exposing the Balloon.

GLOBUG LIGHTING SYSTEM — PRE-SETUP

5. To position the balloon, simply loosen the adjustment lever by turning it counter-clockwise and either push down or up on the lever. Pushing **down** on the lever will cause the balloon to rise. Pushing **up** on the lever will allow the balloon to be lowered. See insert A in Figure 11.
- For circular positioning, swing the lever to the desired position. See insert B in Figure 11.

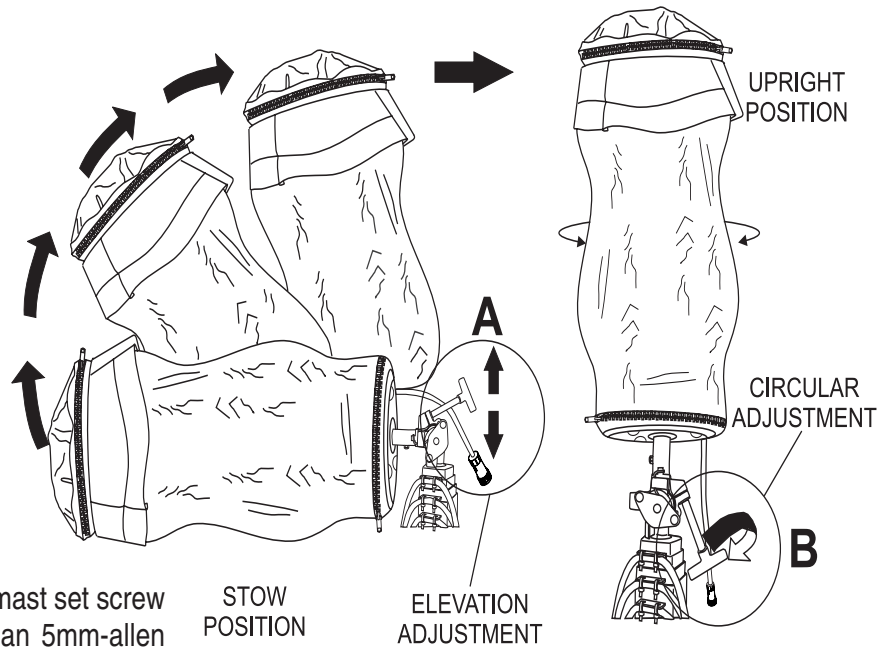


Figure 11. Positioning the Balloon

6. Before raising the mast, make sure the mast set screw (Figure 12) is securely tightened (use an 5mm-allen wrench to tighten). This will prevent the balloon/lamp assembly from falling off. In addition make sure the power cable from the generator is connected to the lamp power cable.

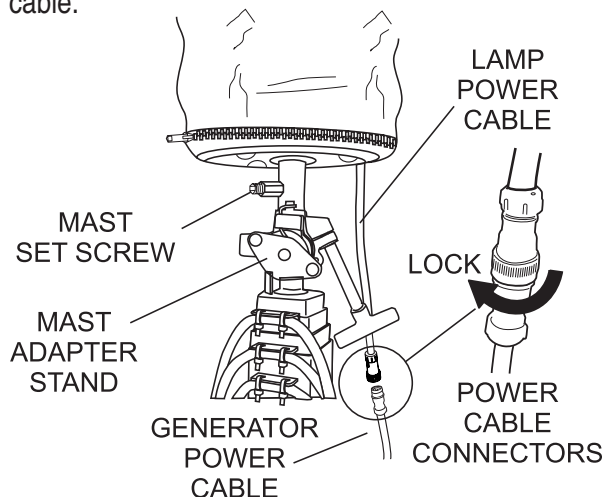


Figure 12. Mast Set Screw/Power Connections

⚠ CAUTION - MAST PINCH POINT

When raising or lowering the mast, keep hands and fingers clear of the various mast sections, this will prevent hands and fingers from getting pinched.

7. Using the mechanical winch (Figure 13), **raise** the mast to the desired height. Turn winch handle clockwise to raise mast.

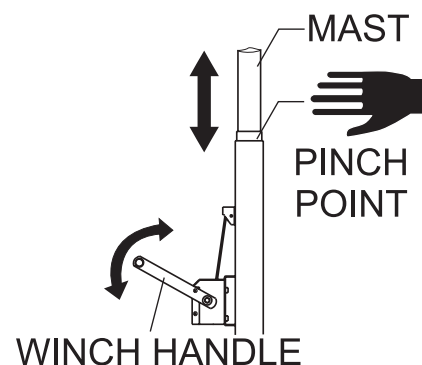


Figure 13. Mechanical Winch Handle

GLOBUG LIGHTING SYSTEM — PRE-SETUP/OPERATION

DANGER - HIGH VOLTAGE POWER LINES

When raising mast, **ALWAYS** be on the lookout for overhead obstructions such as high voltage power lines. The possibility exists of electrocution, even death! if the GloBug comes in contact with **high voltage power lines**.



Applying Power

1. Make sure the power ON/OFF switch (Figure 14) located near the bottom of the mast is in the **OFF** position.

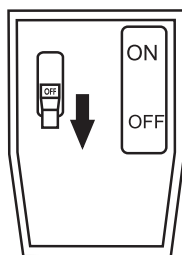


Figure 14. Power OFF/ON Switch (OFF Position)

CAUTION - READ GENERATOR MANUAL

Before attempting to operate the generator, **READ** the entire operation section of the manual. Failure to read manual could cause severe damage to the equipment and bodily harm to the operator.



2. The GloBug has a power requirement of 120 VAC, 60 Hz @ 9.5 amps. Connect the GloBug's AC power cord to the 120 VAC twist-lock receptacle (Figure 15) on the the supplied generator.

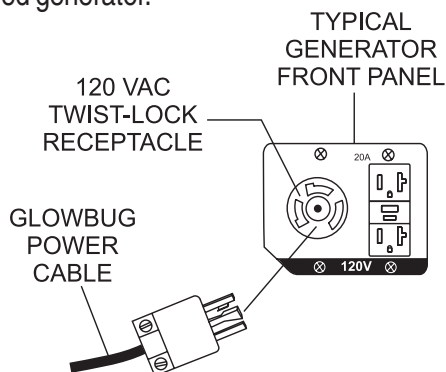


Figure 15. 120 VAC Receptacle

3. Start the generator as referenced in the "Start-up Section" of the supplied generator manual.

4. Notice that the balloon envelope will begin to deploy as soon as power is applied by an active generator. This function **is not** controlled by the power ON/OFF switch.
5. Wait until the balloon is fully deployed before attempting to turn on the lamp. The possibility exists of the balloon getting burned (touching the lamp).
6. If the balloon is fully deployed, place the GloBug's ON/OFF switch in the **ON** position.

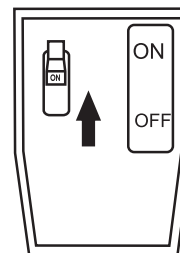


Figure 16. Power OFF/ON Switch (ON Position)

7. The lamp should now be on. If the lamp is not on, check all connections and repeat steps 1 through 6. If the lamp still does not come on contact the MQ service department.

Shutdown

1. Place the power ON/OFF switch (Figure 17) in the **OFF** position.

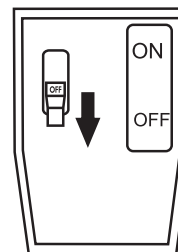


Figure 17. Power OFF/ON Switch (OFF Position)

CAUTION - LAMP COOL DOWN

Allow a sufficient amount of time (15-20 minutes) for the lamp (Figure 18) to **cool down** before turning off generator. The possibility exists of the balloon getting burned (touching the lamp).

2. Disconnect the GloBug's AC power cable from the generator. The balloon should begin to deflate.
3. Shutdown generator as referenced in the "Shutdown Section" of the supplied generator manual.

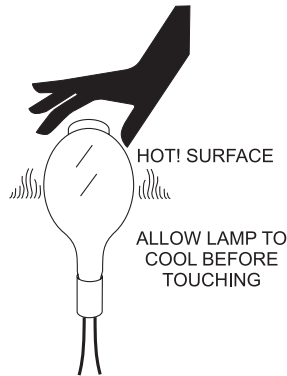


Figure 18. Hot Lamp Surface

4. Using the mechanical winch (Figure 6, item 2), **fully lower** the mast. Turn winch handle counter-clockwise to lower mast.
5. Using the adjustment lever (Figure 6, item 22) place the balloon/lamp assembly in the stow position.
6. Unzip the protective cover as shown in Figure 19, and place cover over balloon/lamp assembly.

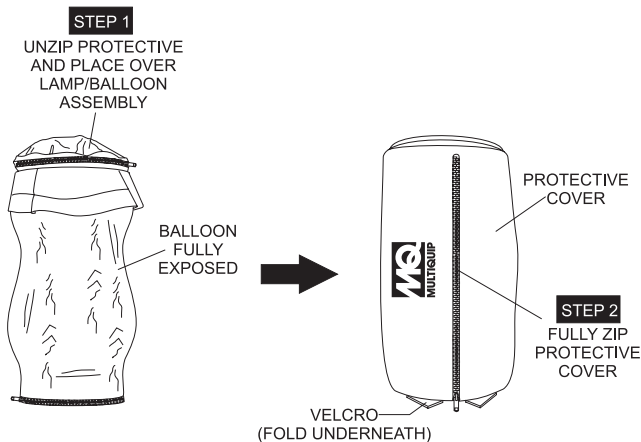


Figure 19. Covering the Lamp/Balloon Assembly

7. To unlock outriggers, push downward on the counter-weight lever indicated by arrow (Figure 20). Grab hold of outrigger, pull upward, push down and place in stow position (Figure 21).

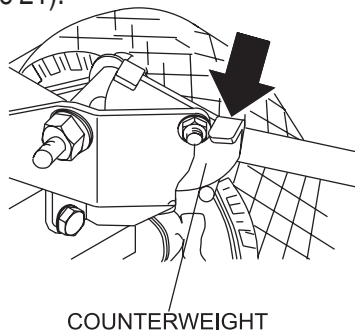


Figure 20. Outriggers (Released)

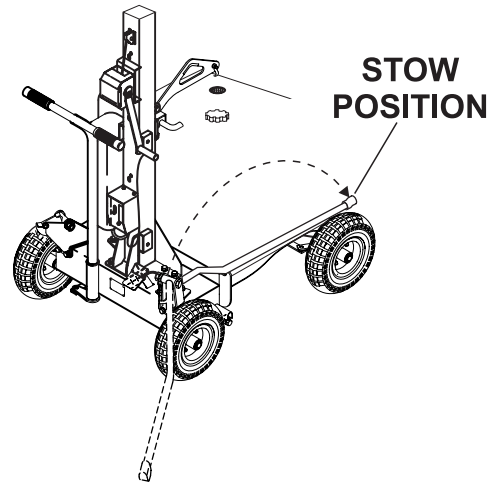


Figure 21. Outriggers (Stow Position)

8. Press down on the top of the brake pedal (Figure 22) and hold, then release. This action will dis-engage the brake mechanism and allow the GloBug to be moved.

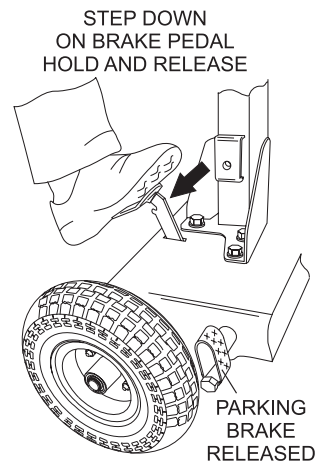


Figure 22. Parking Brake (Release Position)

Storage

1. Wipe and dirt or foreign matter that may have accumulated on the GloBug during operation. Use a mild detergent to clean the unit. **DO NOT** spray the engine with water.
2. Avoid storing the GloBug in areas that can be exposed to rain, harsh elements, and high humidity.
3. Place the GloBug in a clean dry location away from dirt and debris.

GLOBUG LIGHTING SYSTEM — MAINTENANCE

CAUTION - READ SAFETY GUIDELINES

Before performing any maintenance procedures, be sure to **READ** the lamp, balloon, and general safety guidelines in this manual. Failure to **read** and **understand** these safety guidelines could cause severe equipment damage and bodily harm.



CAUTION - BALLOON ZIPPER SAFETY

DO NOT use excessive force when zipping or unzipping the balloon. The possibility exists of the zipper tearing, which would make the balloon unusable.



Removing the Lamp/Balloon Assembly

1. Place the lamp/balloon assembly in the **STOW** position.
2. With a 5 mm allen wrench, loosen the set screw (Figure 23) that secures the lamp to the mast adapter stand.

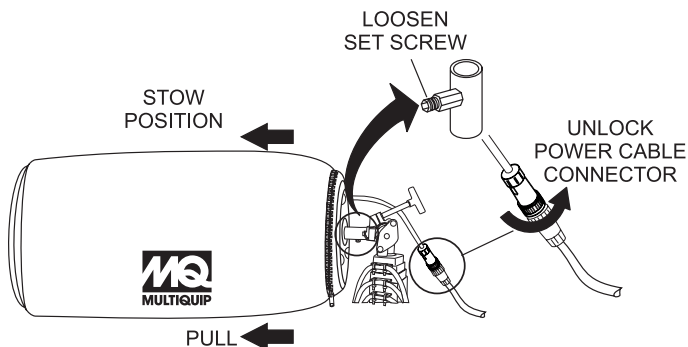


Figure 23. Removing the Balloon/Lamp

3. Disconnect the lamp power cable as shown in Figure 23, and slide the balloon/lamp forward from the mast adapter stand. Place lamp/balloon assembly on a suitable work bench that is free of dirt, and sharp objects that could damage the balloon.

Removing the Lamp

1. Expose the balloon (Figure 24) by pulling down on the velcro tabs and unzip the protective cover as shown in Figure 19. Next, fold the protective cover into itself and zip.

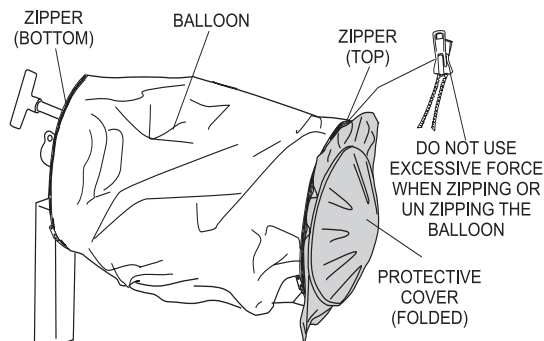


Figure 24. Exposing the Balloon

2. Unzip the zipper (Figure 24) at the bottom of the balloon and roll the balloon envelope upwards to expose the lamp (Figure 25). Remove the lamp guard to gain access to the lamp. **DO NOT** use excessive force when un-zipping the balloon.

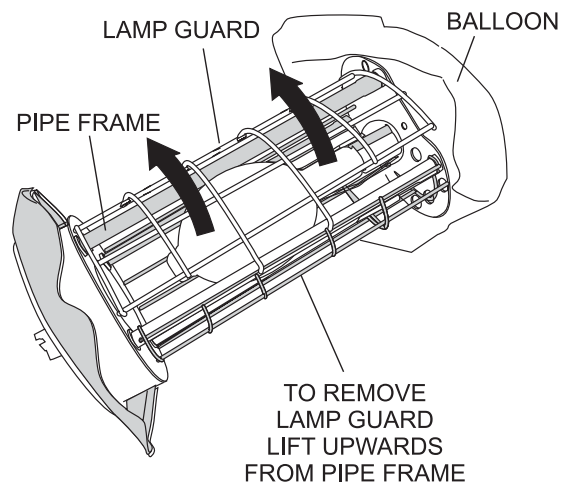


Figure 25. Removing the Lamp Guard

3. Push down and hold the lamp holder (spring loaded) away from the lamp (Figure 26). Unscrew the lamp (turn counter-clockwise) from the lamp socket.

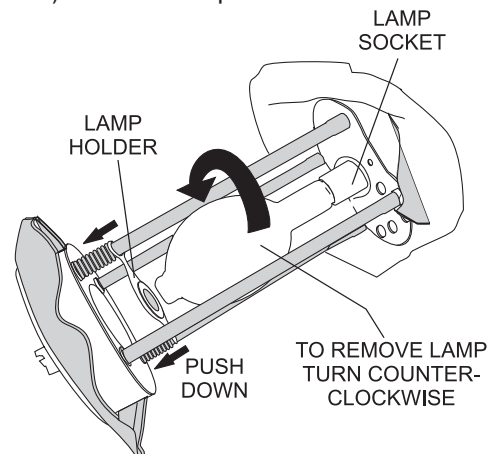


Figure 26. Removing the Lamp

GLOBUG LIGHTING SYSTEM — MAINTENANCE

Installing a New Lamp

1. When installing a new lamp (Figure 27) use only MQ recommended type lamp. See parts section of this manual. Failure to use correct type lamp could adversely affect lighting capability and may cause damage to the equipment.
2. Push down and hold the lamp holder (spring loaded) away from the lamp. Screw the lamp (turn clockwise) into the lamp socket. Gently place the lamp holder firmly over the top of the lamp. This will prevent the lamp from touching the lamp guard or pipe frame.

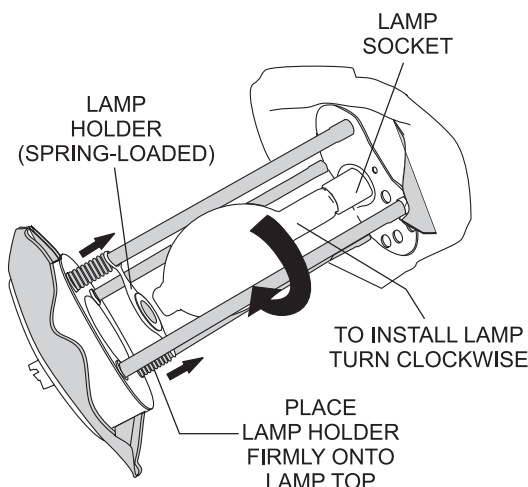


Figure 27. Installing the Lamp

Re-Installing the Lamp/Balloon Assembly

1. Reinstall the lamp guard (Figure 28). Be careful not to install the lamp guard in the wrong direction.

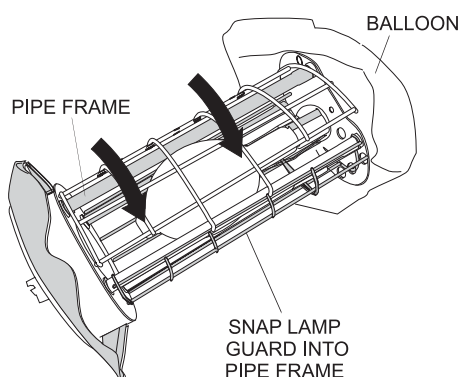


Figure 28. Installing the Lamp Guard

2. Zip up the zipper at the bottom (Figure 24) of the balloon and pull down the balloon envelope to cover the lamp
3. Place the lamp/balloon assembly back onto the mast adapter stand (Figure 23).
4. With a 5 mm allen wrench, tighten the set screw to 28 ~ 38 ft. lbs (38 ~ 51 N-m) to secure the lamp to the mast adapter stand
5. Reinstall the protective cover over the balloon/lamp assembly. Be sure to fold the velcro tabs.
6. Reconnect the power cables.

Replacing the Balloon

1. Follow the procedures as outlined in the "Removing the Balloon Lamp" assembly section.
2. Unzip the zipper at the bottom and top of the balloon. Slide the balloon over the top of the lamp guard as shown in Figure 29.

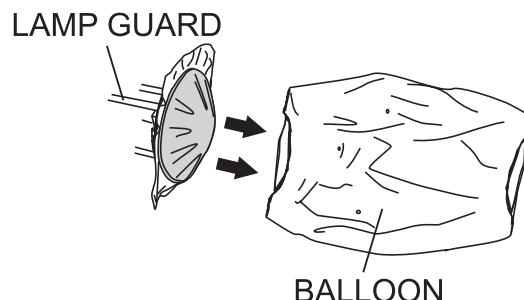


Figure 29. Removing the Balloon

3. Slide the new balloon over the top of the lamp guard as shown in Figure 30. Zip up the zipper at the bottom and top of the balloon.

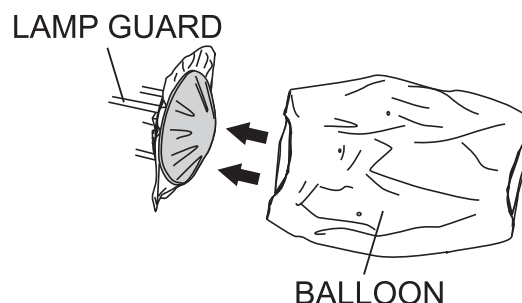


Figure 30. Removing the Balloon

GLOBUG LIGHTING SYSTEM — MAINTENANCE

Check Cable Wear

The wire rope (cable) that raises and extends the mast is a very important part of the GloBug lighting system. Following the procedure below when replacing wire rope (cable).

DANGER - Lighting System Cable System

Wire rope (cable) will fail if it is worn, frayed, misused, crushed, kinked or damaged in any way. **ALWAYS** check the cable and pulley for any abnormalities before use.

DO NOT use it if there is even the slightest cause for concern and replace any damaged cable or pulley **immediately**.

Removing the Lamp/Balloon Assembly

1. Place the lamp/balloon assembly in the **STOW** position.
2. With a 5 mm allen wrench, loosen the set screw (Figure 23) that secures the lamp to the mast adapter stand.
3. Remove the lamp/balloon assembly from the mast adapter stand and set aside in a safe place where it will not get damaged.

Removal of Winch

1. Fully lower the mast to its vertical resting position.
2. Remove the four retaining screws and washers (Figure 31) that secure the winch cover. Remove the winch cover.
3. Loosen the winch cable retaining screw. Pull and remove the winch cable from the locking pin.
4. Remove the three retaining screws and washers that secure the winch to the mast. Remove the winch.

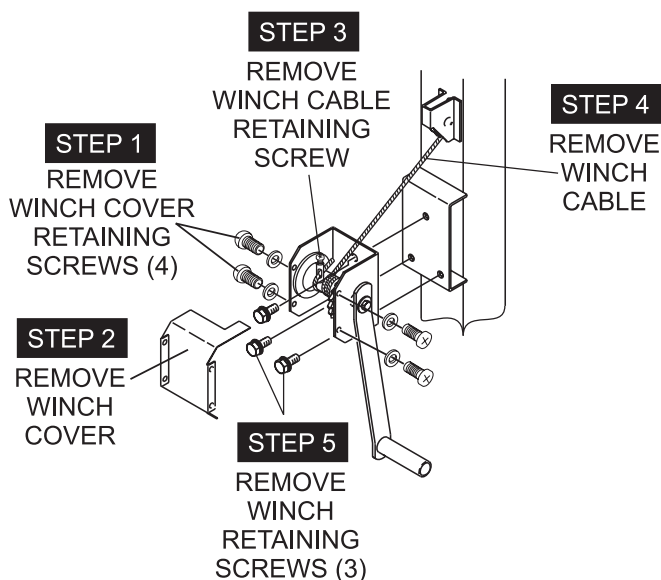


Figure 31. Winch/Cable Removal

Removing the Hanger

1. Remove the M12 x 40 bolt (Figure 32) from the hanger support assembly, then remove the hanger. Set hanger aside in a safe place where it will not get damaged.

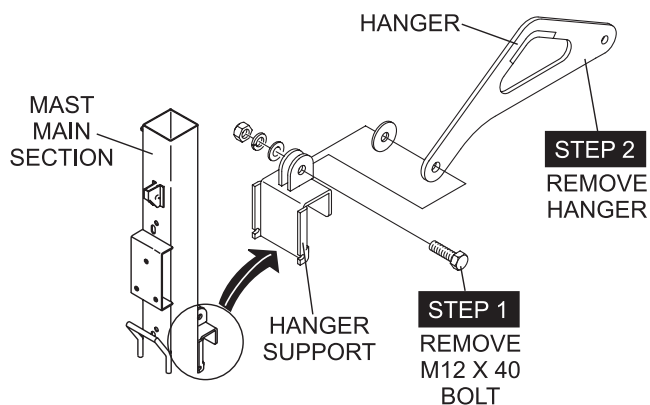


Figure 32. Removing the Hanger

Removing the Lamp Cable

1. Cut all the cable zip ties (Figure 33) that secure the lamp cable to the various mast sections.
2. Remove the lamp cable from the various mast sections and set cable aside in a safe place where it will not get damaged. Mark the order of the cable sections so that they can be placed back in the same order. Make sure cable is laid flat and out of the way so that personnel will not trip over it.

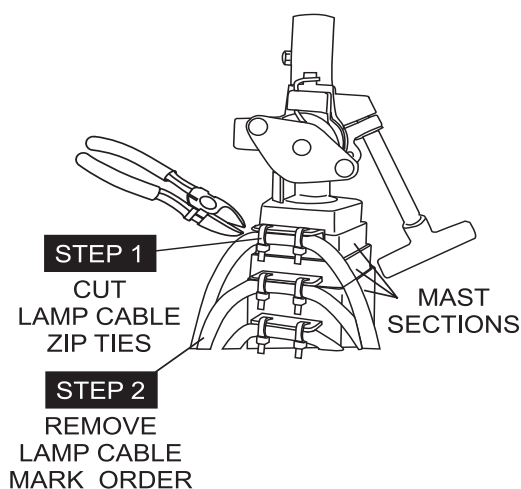


Figure 33. Cutting the Lamp Cable Zip Ties

Pulling-Out the Mast Sections

1. Grab hold of the main mast (Figure 34) and begin pulling the mast sections upwards. Start with second mast, then the third mast and finally the fourth.
2. From the main mast, pull the winch cable wire to release the safety stopper pulley at the second mast.

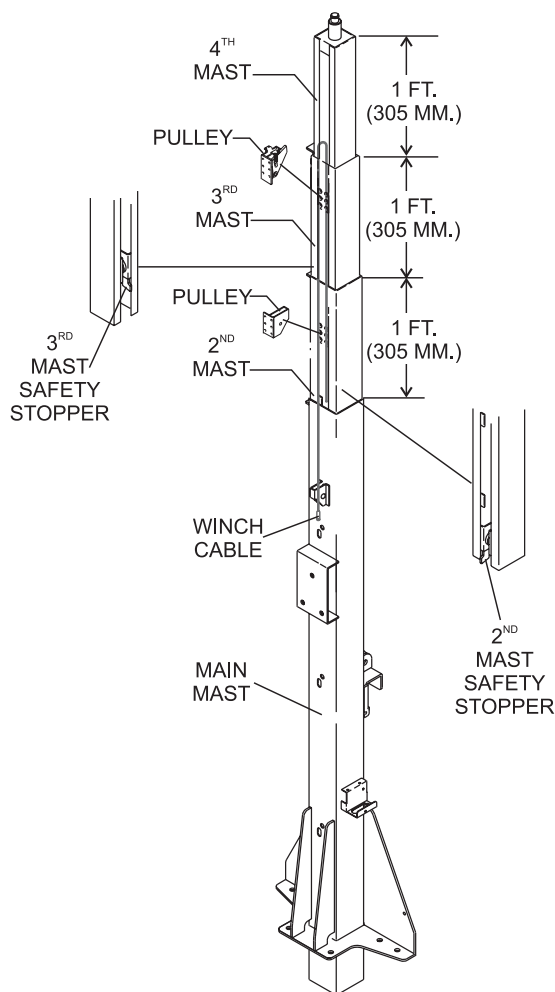
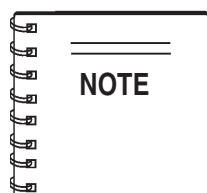


Figure 34. Mast Sections

3. Disconnect the winch cable wire from the fourth mast by pulling it out.
4. Each mast section should be equally spaced about 12-inches from the preceding mast section. See Figure 34.



If the winch cable wire cannot be pulled because of breakage of the wire itself, the **safety stoppers** installed in the second mast will lock automatically at the places indicated by the arrows in Figure 35.

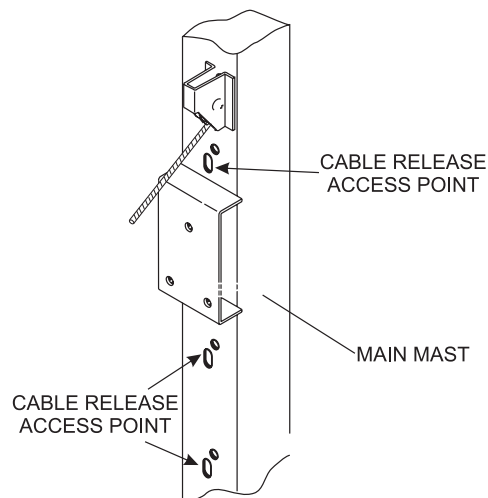


Figure 35. Cable Release Access Point

5. To release the safety stopper without pulling the cable wire when removing the second mast from the first (main mast), insert a screwdriver (Figure 36) nearest the hole where the latch is caught. Press down on the screwdriver to lift the pulley inside the second mast upward. Remove the screwdriver lifting the second mast upwards as the latch is being pulled back. The second mast should now be able to be pulled out from the first mast.

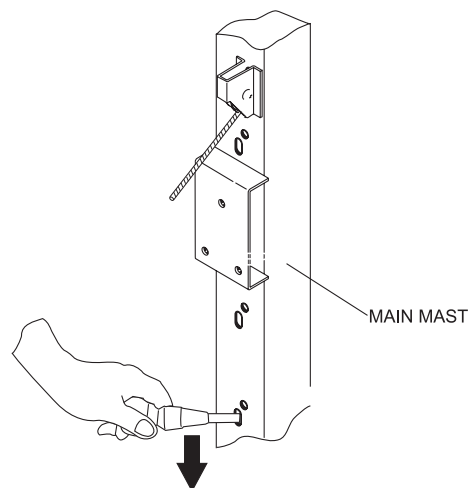


Figure 36. Releasing the Safety Stop Latches



WARNING - Mast Service Safety

The mast sections are heavy and awkward to handle. Use proper lifting devices and procedures when servicing the mast and its components.

GLOBUG LIGHTING SYSTEM — MAINTENANCE

Installation of Winch Cable

1. Route (pass) a new winch cable through the main mast pulley **A** (Figure 37).
2. Route the winch cable around the **upper pulley** **B** of the third mast section from back to front.
3. Next, route the winch cable around the **lower pulley** **C** of the third mast section from back to front.
4. Route the winch cable around the **upper pulley** **D** of the second mast section from back to front.
5. Route the winch cable through the lower bracket of the third mast section
6. Route the winch cable around the **lower pulley** **E** of the second mast from front to back.
7. Continue pulling the cable and slide down the mast, being careful not to activate the cable stop latches.
8. Route the cable around the pulley of the first mast **A**.
9. Place the second mast into the main (first) mast. Next, place the third mast into the second, and finally place the fourth mast into the third.

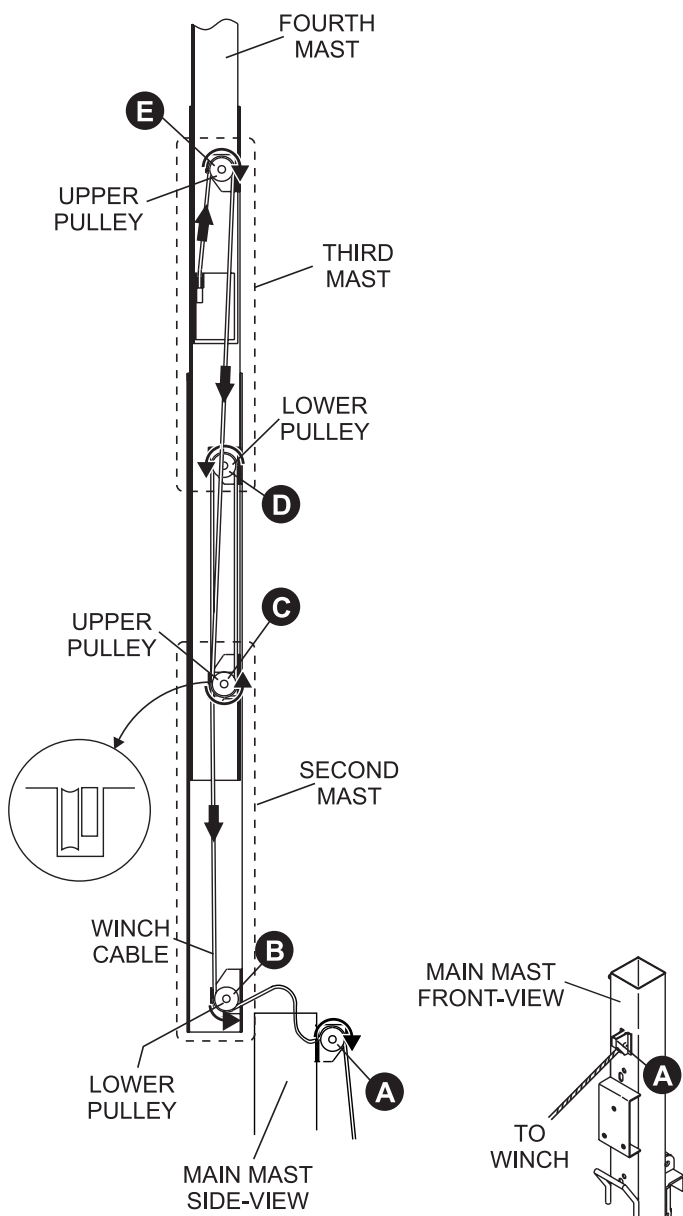


Figure 37. Attaching the Winch Cable

CAUTION - Winch Cable Safety Stopper

When placing the second mast into the main mast (first), pinch (squeeze) the pulley and pin with pliers (Figure 38) to hold the stopper (cable latch). This will keep the cable stop latch from being activated.

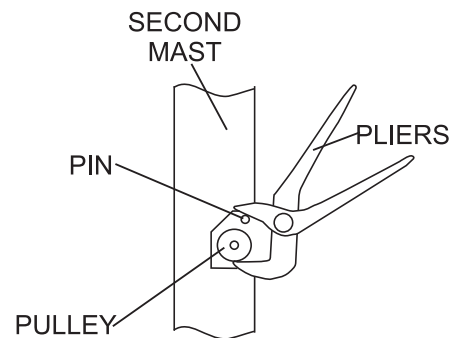


Figure 38. Bypassing Cable Stop Latch

10. Route the tip of the winch cable (Figure 39) through the eyelet retaining stud. Insert cable retaining screw at top of stud and tighten.

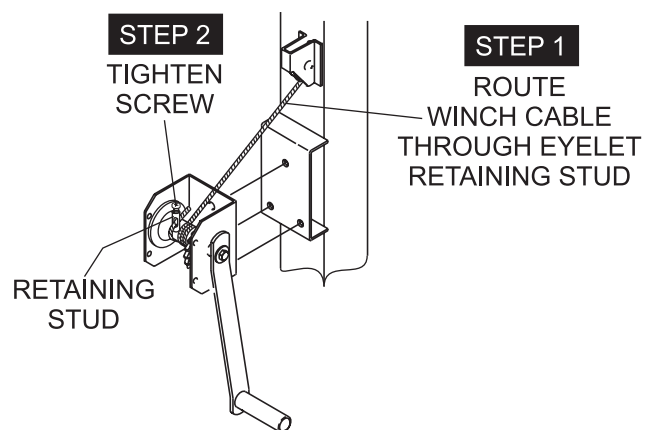


Figure 39. Connecting the Winch Cable to the Winch

GLOBUG LIGHTING SYSTEM — MAINTENANCE

Installation of Winch

1. Reinstall the three retaining screws (Figure 31) and washers that secure the winch to the mast. Tighten screws between 24~ 33 ft-lbs. (33 ~ 45 N-m).
2. Install the four retaining screws and washers (Figure 31) that secure the winch cover. Tighten securely.
3. Turning the winch handle clockwise, wind the cable tightly around the winch shaft.
4. Raise, extend, retract and lower the mast several times to verify correct operation.
5. If the winch malfunctions, such as defective brake mechanism, replace entire winch assembly immediately.

Installing the Hanger

1. Reinstall the M12 x 40 bolt (Figure 32) that supports the hanger onto the main mast. Tighten bolt between 28~ 38 ft-lbs. (38 ~ 51 N-m).

Installing the Lamp Power Cable

1. Check the entire lamp cable for any signs of wear, such as cuts or frays. If the cable is damaged in any way, replace entire cable. **DO NOT** use a worn or damaged cable to operate the GloBug. The possibility exists of shock or electrocution.
2. Using zip ties connect the lamp power cable to the various mast sections as shown in Figure 33. Remember to connect the lamp cables to the mast in the same order that they were removed.
3. Cutoff any excess zip tie material.

Ballast Box Removal



WARNING - HOT SURFACE (BALLAST)

Dangerous conditions exist inside the ballast compartment. Please use extreme caution when performing maintenance on the ballast box.

NEVER touch the ballast or ballast cover while the lamp is on. These components generate an extreme amount of heat, which makes their surfaces very **hot!**

ALWAYS allow the ballast box and cover surface to cool down before servicing.



DANGER - HIGH VOLTAGE (BALLAST)

The electronic components of the ballast generate high voltage conditions. These conditions can be **lethal and cause bodily harm, even death**. When performing maintenance or troubleshooting, have only experienced personnel work on the ballast.



The ballast electronics are located within the cart frame of the GloBug. To gain access to the ballast (Figure 40), remove the 6 retaining screws (M8 X 25) that secure the ballast cover to the cart.

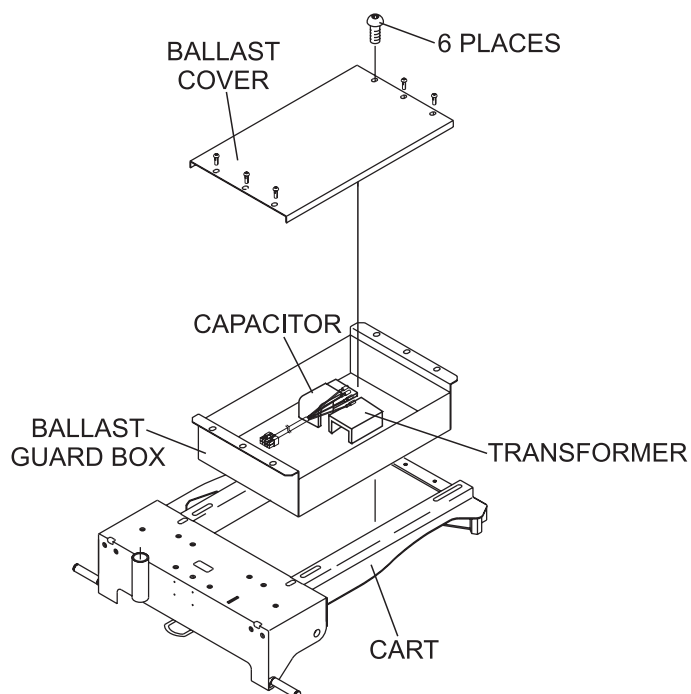


Figure 40. Removing the Ballast

GLOBUG LIGHTING SYSTEM — MAINTENANCE

Filter Replacement

WARNING - HOT SURFACE (LAMP FRAME)

DO NOT replace filter immediately, allow a sufficient amount of time for the lamp assembly to cool down before changing filter.



1. Remove the balloon as described in the "Removing the Lamp/Balloon" section.
2. Disconnect the lamp power cable as shown in Figure 23.
3. Rotate the balloon/lamp base assembly so that the filter is facing upwards. See Figure 41.

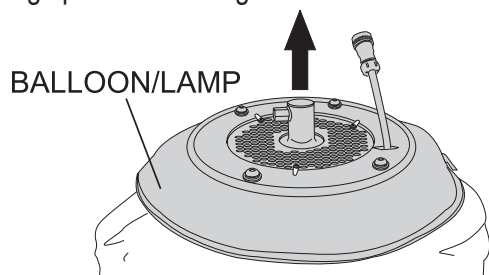


Figure 41. Balloon/Lamp Placement

4. Turn the three locking tabs (Figure 42) inward to release the plate. Remove plate and filter.

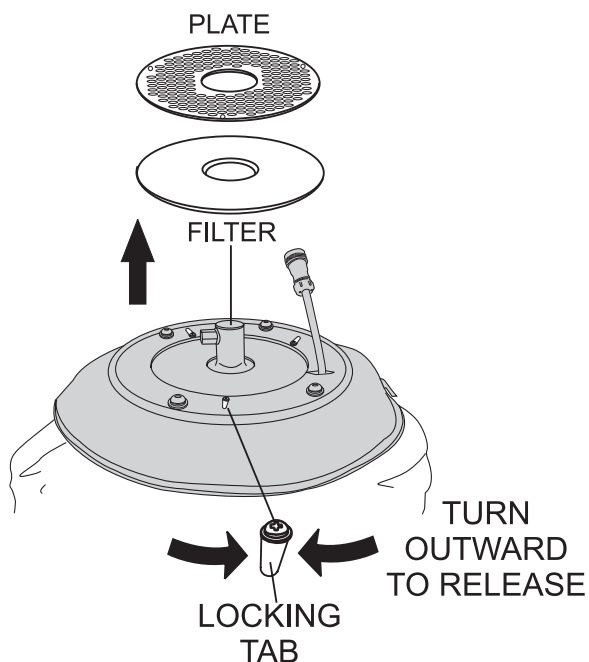


Figure 42. Filter Removal

5. Install a new filter over the brace as shown in Figure 43. Be sure to align the **cut of the filter** over the brace.

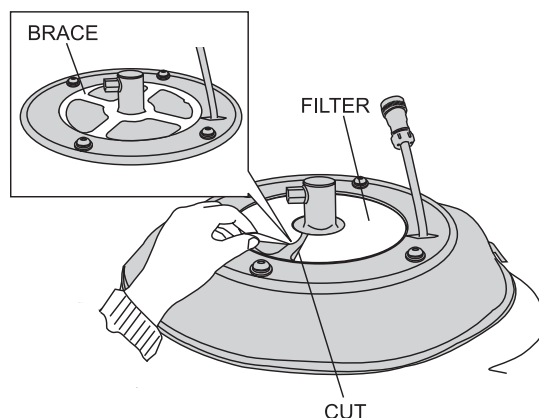


Figure 43. Filter Placement

CAUTION - FILTER ALIGNMENT

When placing the filter element, always align the cut of the filter on top of the brace. This will keep the filter from being dislodged and getting damaged.

6. Turn the three retaining tabs (Figure 44) outward so that they touch the lamp base.

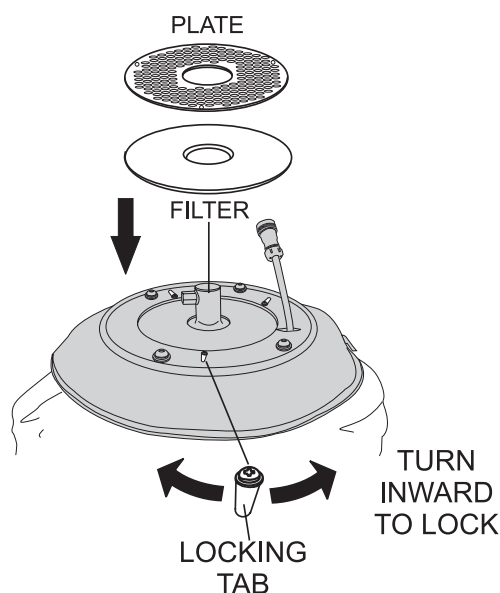
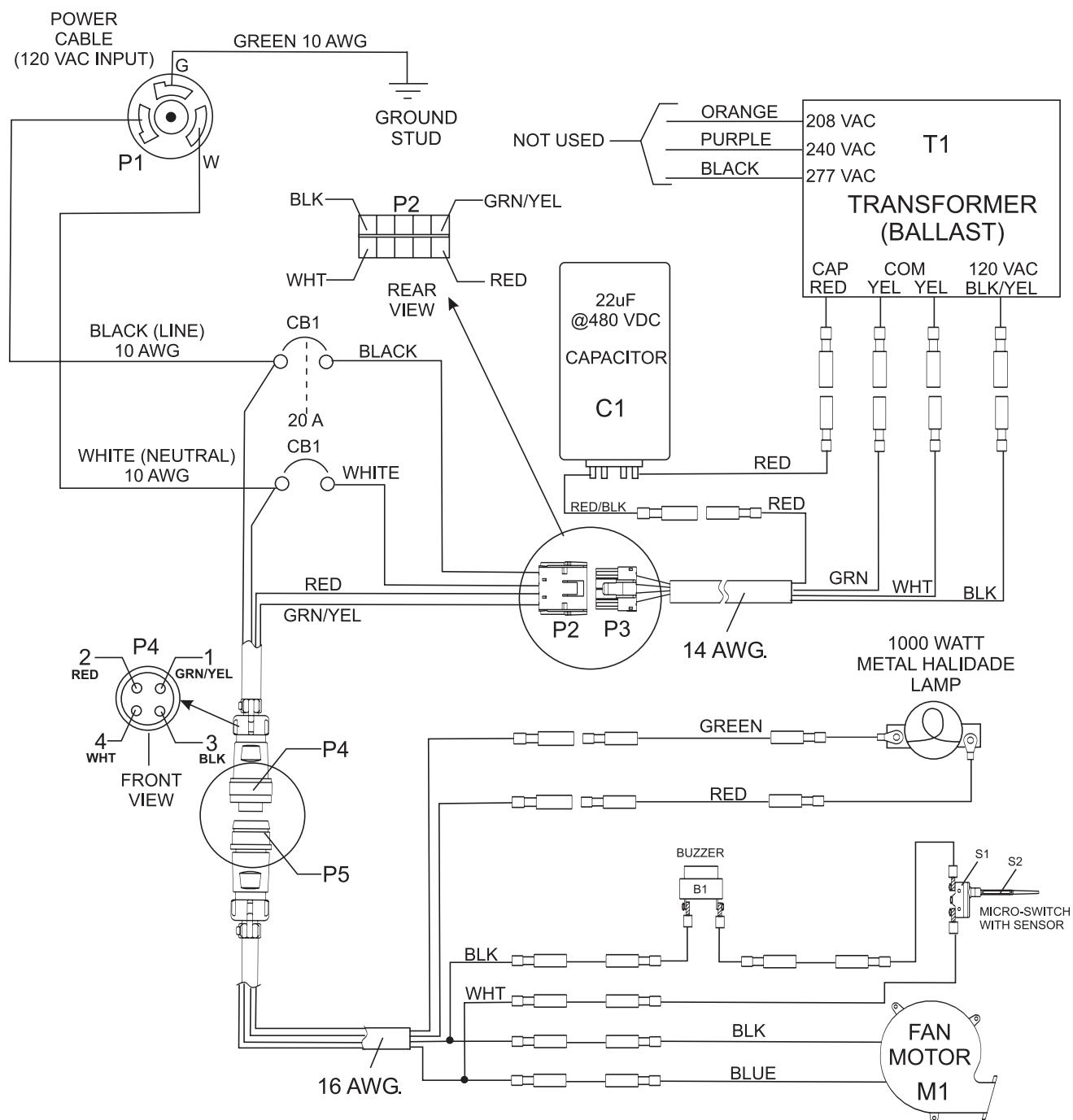


Figure 44. Filter/Plate Install

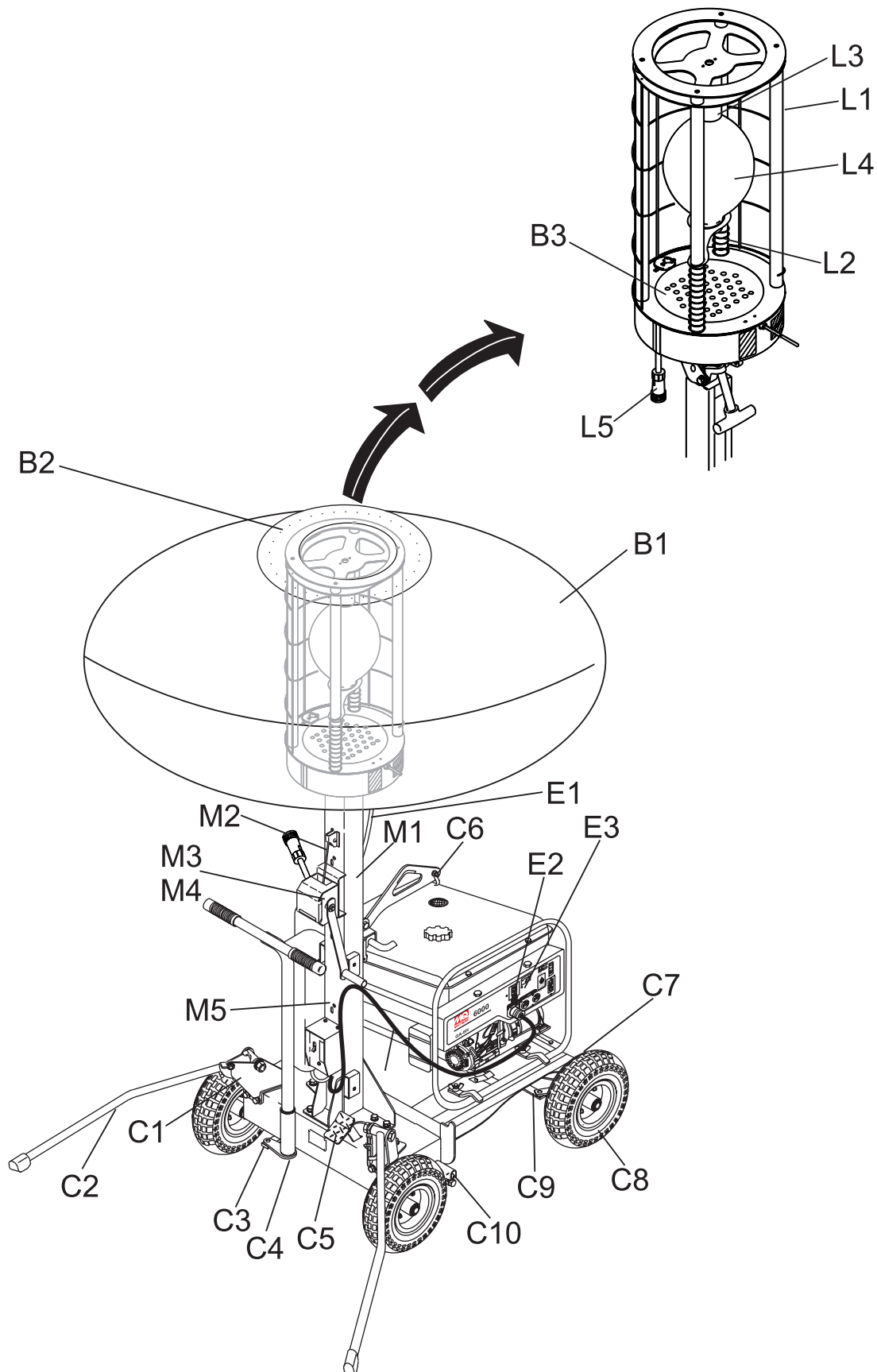
GLOBUG LIGHTING SYSTEM — MAINTENANCE (WIRING DIAGRAM)



REFERENCE DESIGNATIONS					
REF. DESC.	DESCRIPTION	PART NUMBER	REF. DESC.	DESCRIPTION	PART NUMBER
P1	Power Cable Assy. (L5-30P)	A300028800	M1	Fan Motor Assy.	A300033500
P2	Ballast Cable Assy. (From CB1)	A300033700	B1	Buzzer Alarm Balloon	E000010500
P3	Ballast Cable Assy. (To Transformer)	A300035200	S1	Micro-Switch	Z15GNJ55B
P4	Lamp-Fan-Sensor Cable Assy.(Power)	A300033700	S2	Sensor Balloon	1400150210
P5	Lamp-Fan-Sensor Cable Assy.(Power)	A300033600			
P5	Lamp-Fan-Sensor Cable Assy.(Power)	A300033600			
CB1	20 Amp 2-Pole Circuit Breaker	1400200400			
DS1	1000 Watt Metal Halide Lamp	E000009800			
C1	22 uf Capacitor @ 480 VDC	A300033800			
T1	Ballast (Transformer)	A300033800			

Figure 45. Wiring Diagram

GLOBUG LIGHTING SYSTEM — MAINTENANCE



GLOBUG LIGHTING SYSTEM — MAINTENANCE

For a prolonged life cycle an extended quality follow the recommended GloBug service guidelines as referenced in Table 3.

TABLE 3. PERIODIC CHECK AND MAINTENANCE					
FIGURE		PART	CHECK ITEM	SOLUTION	
Lamp	L1	Frame Pipe	Frame pipe skewed?	Replace.	❖
	L2	Lamp Holder	Lamp holder loose?	Tighten or replace.	❖
	L3	Lamp (Base)	Lamp base loose?	Screw in securely.	❖
	L4	Lamp	Defective lamp?	Replace.	❖
	L5	Cable/Connector	Cable disconnected or loose?	Connect securely.	■
Balloon	B1	Balloon (Envelope)	Defective or dirty?	Replace.	❖
	B2	Zipper	Broken?	Replace.	❖
	B3	Fan Motor (Blower)	Working properly?	Repair or replace.	❖
Mast	M1	Mast Sliding Surface	Slides smoothly?	Apply grease.	●
	M2	Wire Rope	Damaged?	Apply grease or replace.	❖
	M3	Wire Rope End	Is wire end damaged (caulking)?	Replace.	❖
	M4	Winch	Defective winch brake ?	Repair or replace.	❖
	M5	Safety Stop	Safety latch defective?	Repair or replace.	▲
Cart	C1	Counter-Weight	Travels smoothly?	Spray grease.	●
	C2	Outriggers	Travels smoothly?	Spray grease.	●
	C3	T-handle and Wheels	Proper movement.	Tighten securely.	■
	C4	Bolt for Handle	Check if bolt is not loose.	Tighten securely.	■
	C5	Brake Pedal	Linkage working correctly.	Check, spray grease	❖
	C5	Brake Pedal	Notch worn-out?	Replace.	❖
	C6	Hanger	Check if the installation is not loose.	Fasten securely.	■
	C7	Front Wheel Pivot	Turns smoothly?	Check, apply grease.	●
	C8	Tires	Tire pressure 35.5 psi (294 kPa)?	Adjust.	❖
	C9	Link for Front Shaft	Linkage moves smoothly?	Spray grease.	●
	C10	Brake	Working properly?	Adjust.	❖
Electric	E1	Power Cable	Defective or worn cable?	Replace.	❖
	E2	Non-load Voltage	Is generator output 125 VAC?	Adjust or replace generator.	●
❖ - Daily Check ■ - Every 20 Hours ● - Every 100 hours ▲ - Every 500 hours					

GLOBUG LIGHTING SYSTEM —TROUBLESHOOTING (LAMPS)

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, please take a remedial action following the diagnosis based on the Lamp Troubleshooting (Table 4) information shown below.

If the problem cannot be remedied, please leave the unit just as it is and consult or company's service department.

TABLE 4. LAMP TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Lamp does not light.	Is plug securely connected?	Plug in correctly.
	Are generator and light tower switched on?	Turn on switch.
	Is lamp loose?	Screw lamp securely into socket.
	Is contactor properly connected?	Connect disconnected contactor.
	Are any other electric appliances (other than light tower) plugged into power source?	Unplug all other appliances.
	Is generator voltage normal (non-load voltage - 120 VAC)?	Repair or replace generator.
	Is model of lamp compatible?	Use genuine MQ lamp.
	Is lamp cool enough to light again? (Interval of 20 to 30 minutes is required before turning on lamp again)	Wait for lamp to cool down.
Lamp only lights for a short time.	Is generator voltage normal (non-load voltage - 120 V)?	Repair or replace generator.
	Is ambient temperature too high (more than 104 °F (40 °C)?	Move lamp where there is proper ventilation.
Balloon does not inflate.	Is fan motor (blower) working properly?	Check or repair fan motor (blower).
	Is balloon envelope defective?	Repair or replace balloon envelope.

GLOBUG LIGHTING SYSTEM —TROUBLESHOOTING (MAST)

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, please take a remedial action following the diagnosis based on the Mast Troubleshooting (Table 5) information shown below.

If the problem cannot be remedied, please leave the unit just as it is and consult or company's service department.

TABLE 5. MAST TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Mast cannot be raised.	Is cable caught in mast?	Set cable free.
	Is end of wire rope disconnected from winch?	Connect wire rope to winch.
	Does surface of mast slide smoothly?	Apply grease to sliding surface of mast.
Mast keeps coming down.	Is winch latch functioning properly?	Replace part if not functioning properly.
	Is drum shaft loose?	Tighten drum shaft and check its operation.
The mast cannot be lowered.	Does surface of mast slide smoothly?	Apply grease to sliding surface of mast.
	Is brake disk of winch held tight?	Holding winch handle securely, remove the latch and lower mast slowly (Repair).
	Does safety stopper work correctly?	Winch up mast a little and lower mast by putting a load on it (Repair).

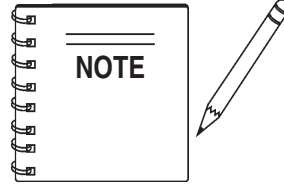
EXPLANATION OF CODE IN REMARKS COLUMN

How to read the marks and remarks used in this parts book.

Items Found In the “Remarks” Column

Serial Numbers-Where indicated, this indicates a serial number range (inclusive) where a particular part is used.

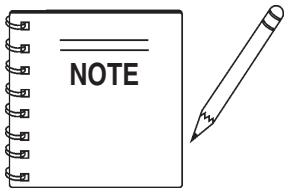
Model Number-Where indicated, this shows that the corresponding part is utilized only with this specific model number or model number variant.



If more than one of the same reference number is listed, the last one listed indicates newest (or latest) part available.

Items Found In the “Items Number” Column

All parts with same symbol in the number column, *, #, +, %, or >, belong to the same assembly or kit.

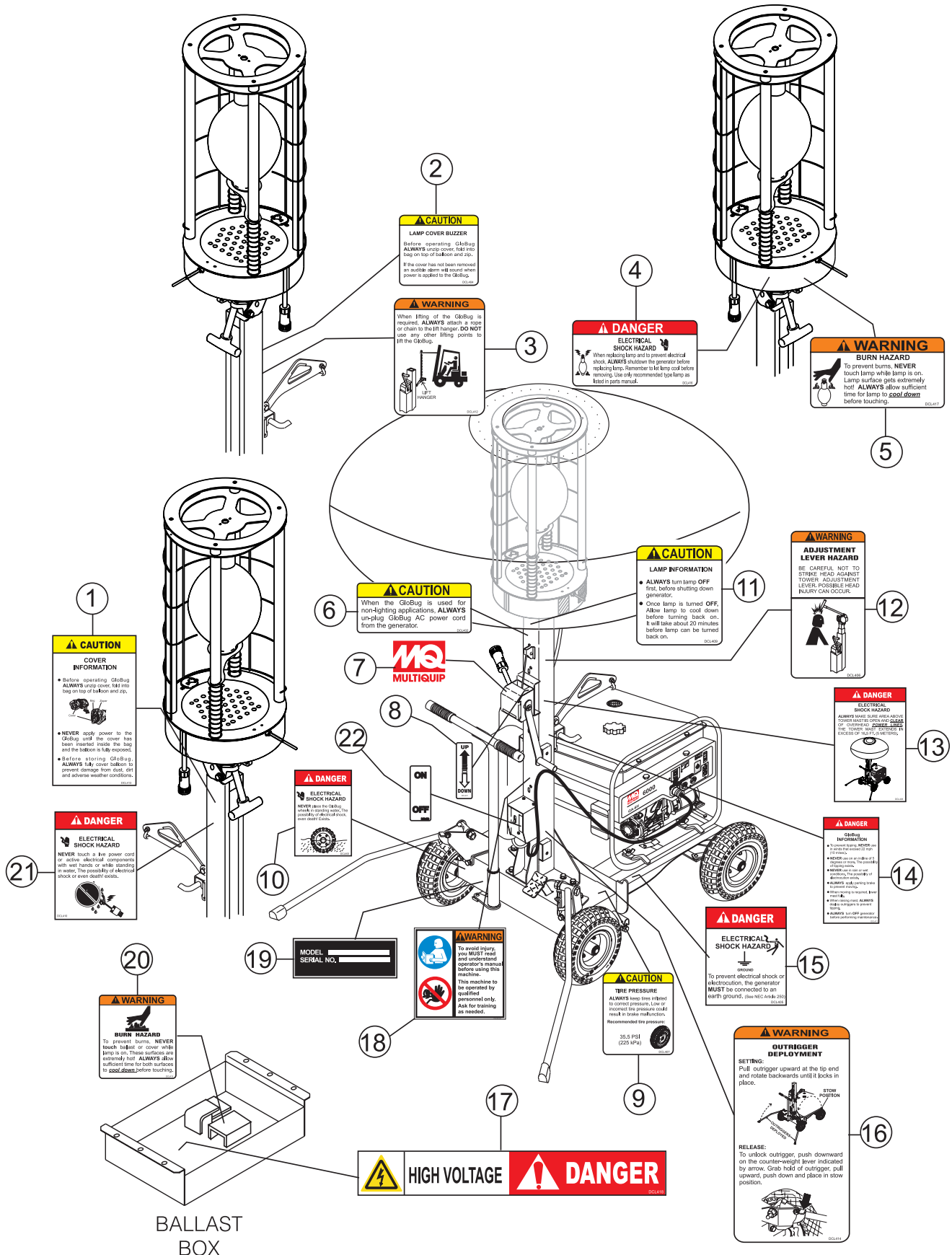


The contents of this parts catalog are subject to change without notice.

GloBug LIGHTING SYSTEM *1 TO 3 UNITS*

<u>Qty.</u>	<u>P/N</u>	<u>Description</u>
2	E000009800	BULB
2	A300033800	BALLAST/TRANSFORMER
2	A300038400	CAPACITOR, 24 μ F @480 VDC
2	1800001200	BALLOON CLOTH
3	A400038300	FILTER 200 (AIR)

GLOBUG LIGHTING SYSTEM — NAMEPLATE AND DECALS



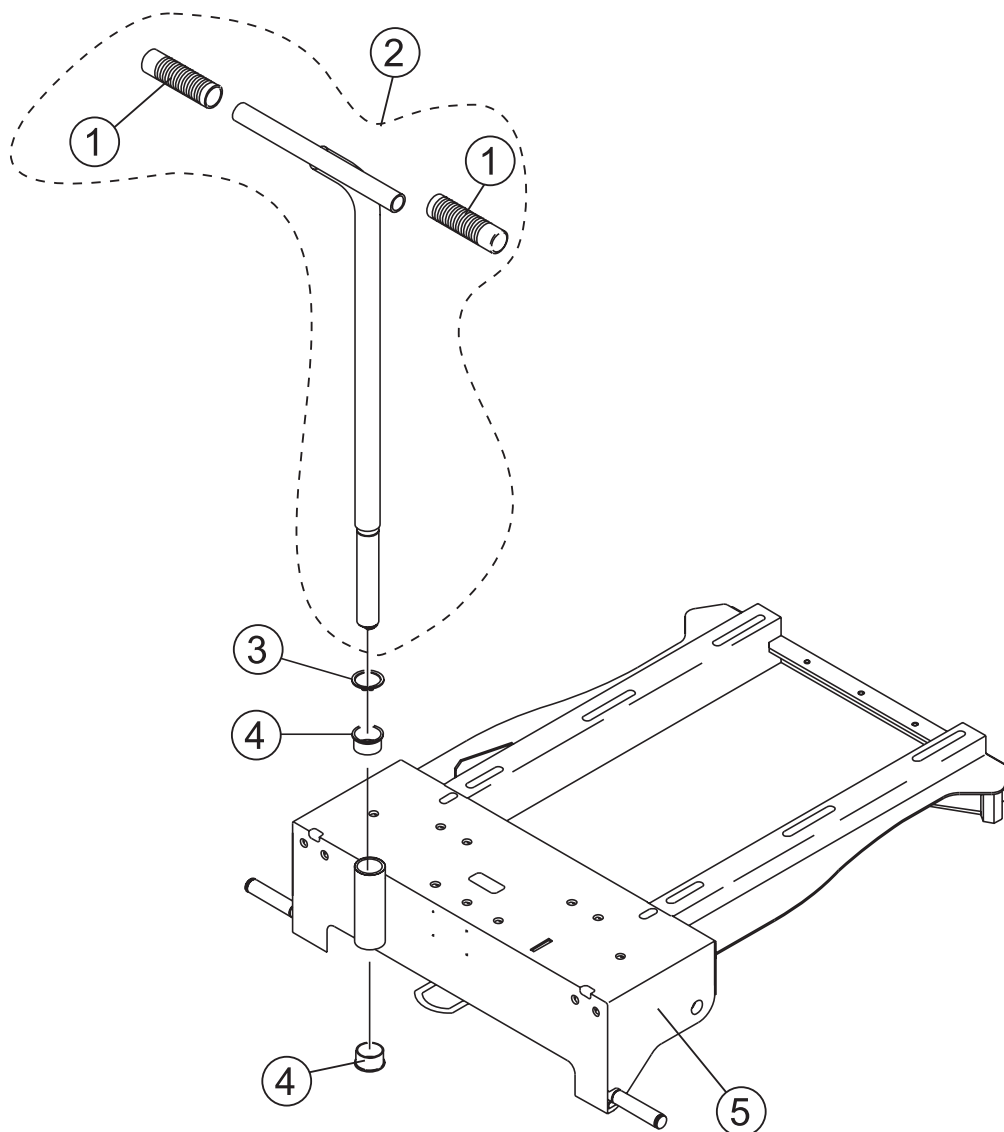
GLOBUG LIGHTING SYSTEM — NAMEPLATE AND DECALS

NAMEPLATE AND DECALS.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	DCL413	DECAL; CAUTION COVER INFORMATION	1	
2	DCL404	DECAL; CAUTION LAMP COVER BUZZER	1	
3	DCL412	DECAL; WARNING, LIFT HANGER	1	
4	DCL416	DECAL; DANGER, ELECTRICAL SHOCK HAZ.	1	
5	DCL417	DECAL; WARNING, BURN HAZARD (LAMP)	1	
6	DCL402	DECAL; CAUTION, REMOVE POWER CORD	1	
7	DCL428	DECAL; MQ LOGO	1	
8	DCL401	DECAL; WINCH UP/DOWN	1	
9	DCL407	DECAL; CAUTION, TIRE PRESSURE	1	
10	DCL400	DECAL; DANGER, ELECTRICAL SHOCK (TIRES)	1	
11	DCL409	DECAL; CAUTION, LAMP INFORMATION	1	
12	DCL406	DECAL; WARNING, ADJ. LEVER HAZARD	1	
13	DCL403	DECAL; DANGER ELECTRIC SHOCK (GLOBUG)	1	
14	DCL411	DECAL; DANGER, GLOBUG INFORMATION	1	
15	DCL405	DECAL; DANGER, ELECTRICAL SHOCK (GND.)	1	
16	DCL414	DECAL; WARNING, OUTRIGGER DEPLOYMENT	1	
17	DCL418	DECAL; DANGER, HIGH VOLTAGE	1	
18	35137	DECAL; WARNING, READ MANUAL	1	
19		NAMEPLATE	1	 CONTACT MQ PARTS DEPT.
20	DCL415	DECAL; BURN HAZARD (BALLAST)	1	
21	DCL410	DECAL; DANGER, ELECTRICAL SHOCK (CORDS)	1	
22	DCL408	DECAL; ON/OFF	1	

GLOBUG LIGHTING SYSTEM — T-HANDLE ASSY.

T-HANDLE ASSY.



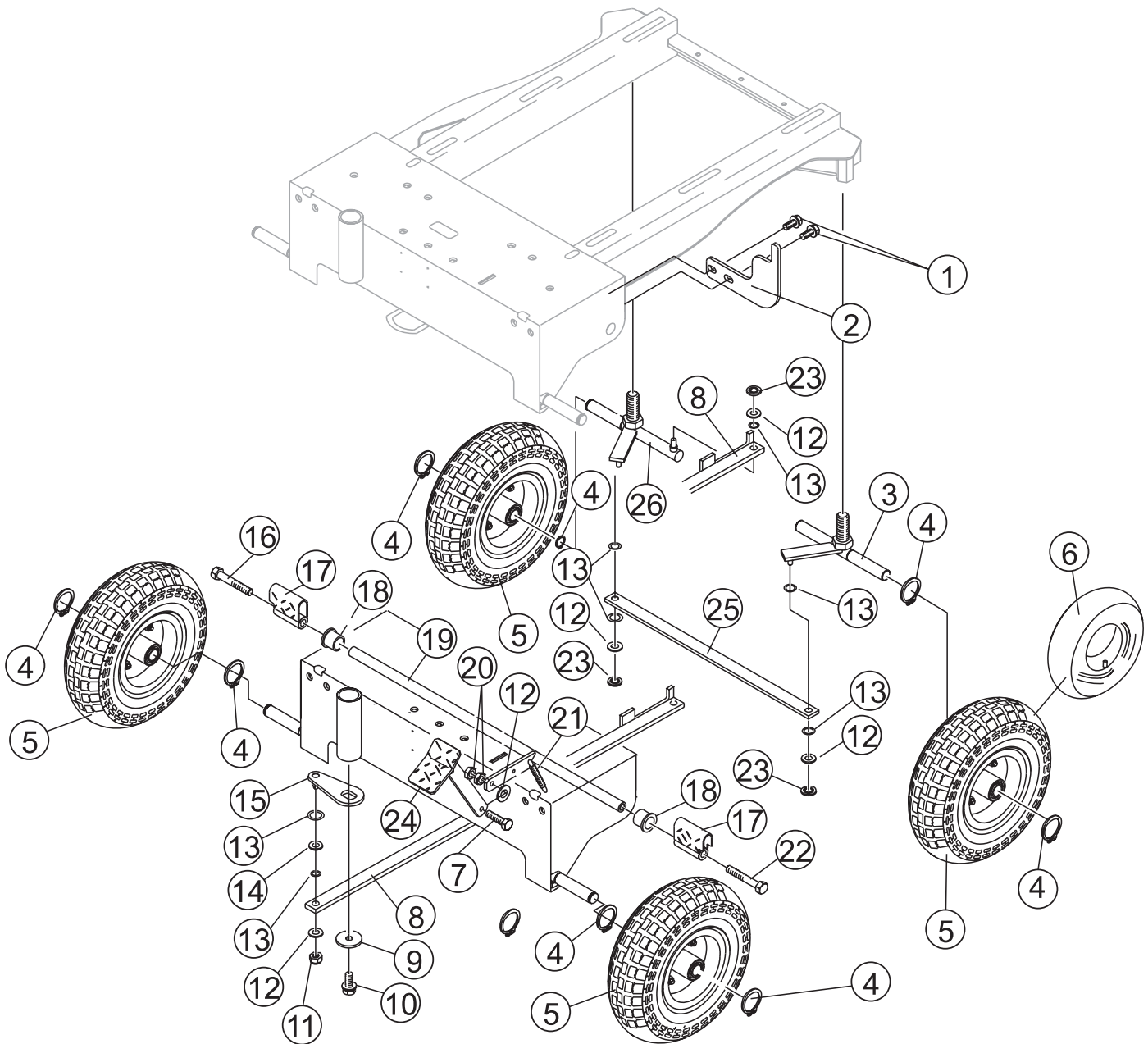
GLOBUG LIGHTING SYSTEM — T-HANDLE ASSY.

T-HANDLE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1*	1102700130	HANDLE GRIP	2	
2	A200016500	HANDLE GRIP	2	INCLUDES ITEM W/*
3	0040730000	SNAP RING (30)	1	
4	1503300130	SLEEVE BEARING (30dx34Dx20)	2	
5	A100012500	BASE PLATE	1	

GLOBUG LIGHTING SYSTEM — STEERING ASSY.

STEERING ASSY.



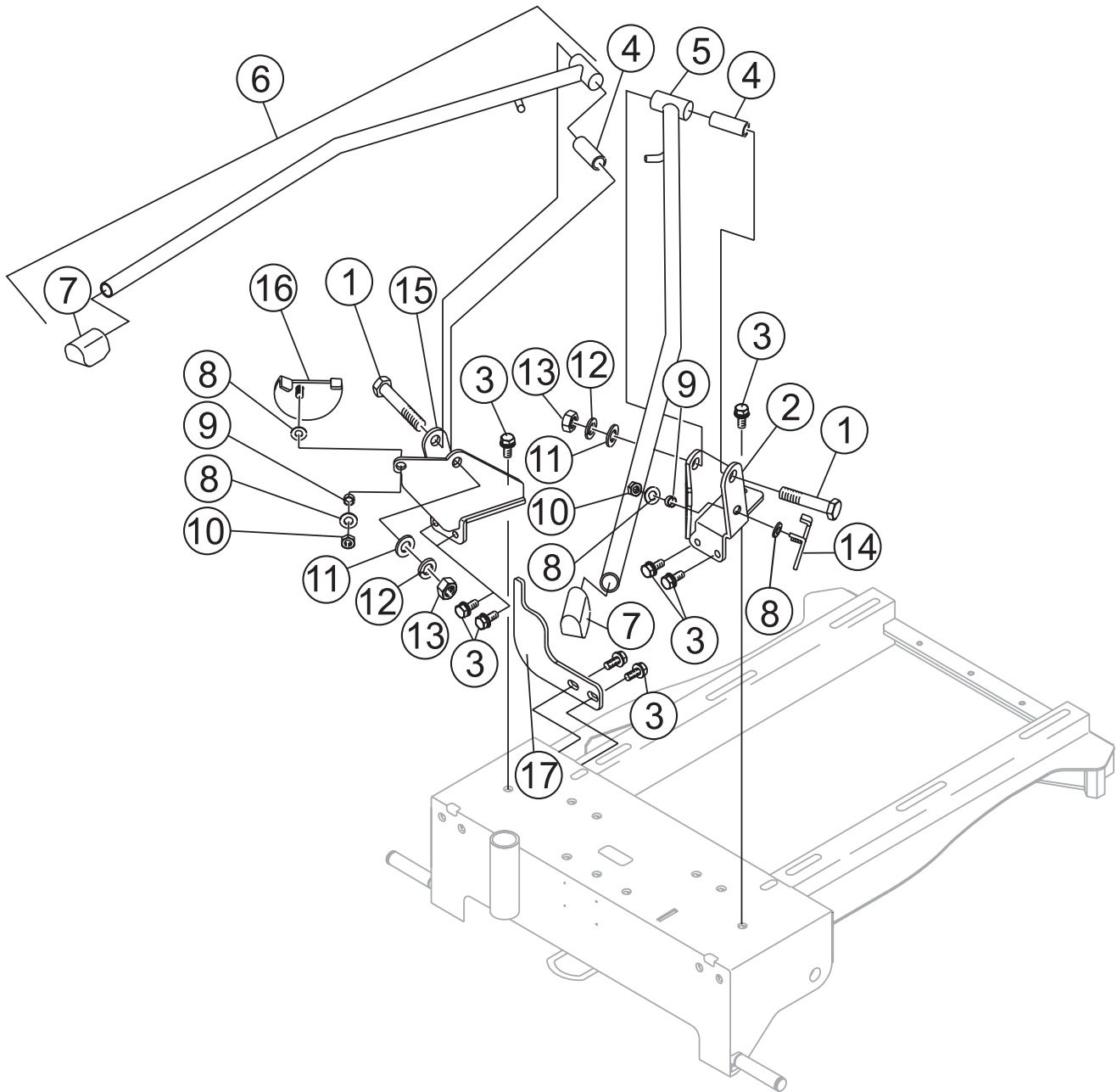
GLOBUG LIGHTING SYSTEM — STEERING ASSY.

STEERING ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	0010510025	BOLT AND WASHER (M10X25)	4	
2	A400033400	CATCHER (OUTRIGGER)	2	
3	A300029800	FRONT SHAFT (R)	1	
4	0040720000	SNAP RING (20)	8	
5	1003000100	TIRE ASSY (4.10/3.50-5)	4	
6	1003000240	TIRE TUBE (4.10/3.50-5)	4	
7	0010308030	BOLT (M8x30) SUS	1	
8	A400034400	LINK (STEERING)	1	
9	0040112041	WASHER (12dx40Dx3.2t)	1	
10	0010512025	BOLT & WASHER (M12x25)	1	
11	0030208000	SELF LOCK NUT (M8)	1	
12	0040108000	WASHER (M8)	5	
13	1504120130	WASHER (12.5dx18Dx0.5t)	8	
14	0040112000	WASHER (M12)	1	
15	2001120310	LINK (HANDLE)	1	
16	1521120130	BOLT (M12x75) LEFT SCREW	1	
17	2071214010	BRAKE	2	
18	1503180130	SLEEVE BEARING (18dx20Dx20)	2	
19	2071213210	BRAKE SHAFT	1	
20	0030108000	NUT (M8)	2	
21	1041000131	SPRING (BRAKE)	1	
22	0010112075	BOLT (M12x75)	1	
23	0030808000	PUSH NUT (8)	3	
24	2001200312	BRAKE PEDAL	1	
25	A300029900	LINK (FRONT SHAFT)	1	
26	A300029701	FRONT SHAFT (L)	1	

GLOBUG LIGHTING SYSTEM — OUTRIGGER ASSY.

OUTRIGGER ASSY.



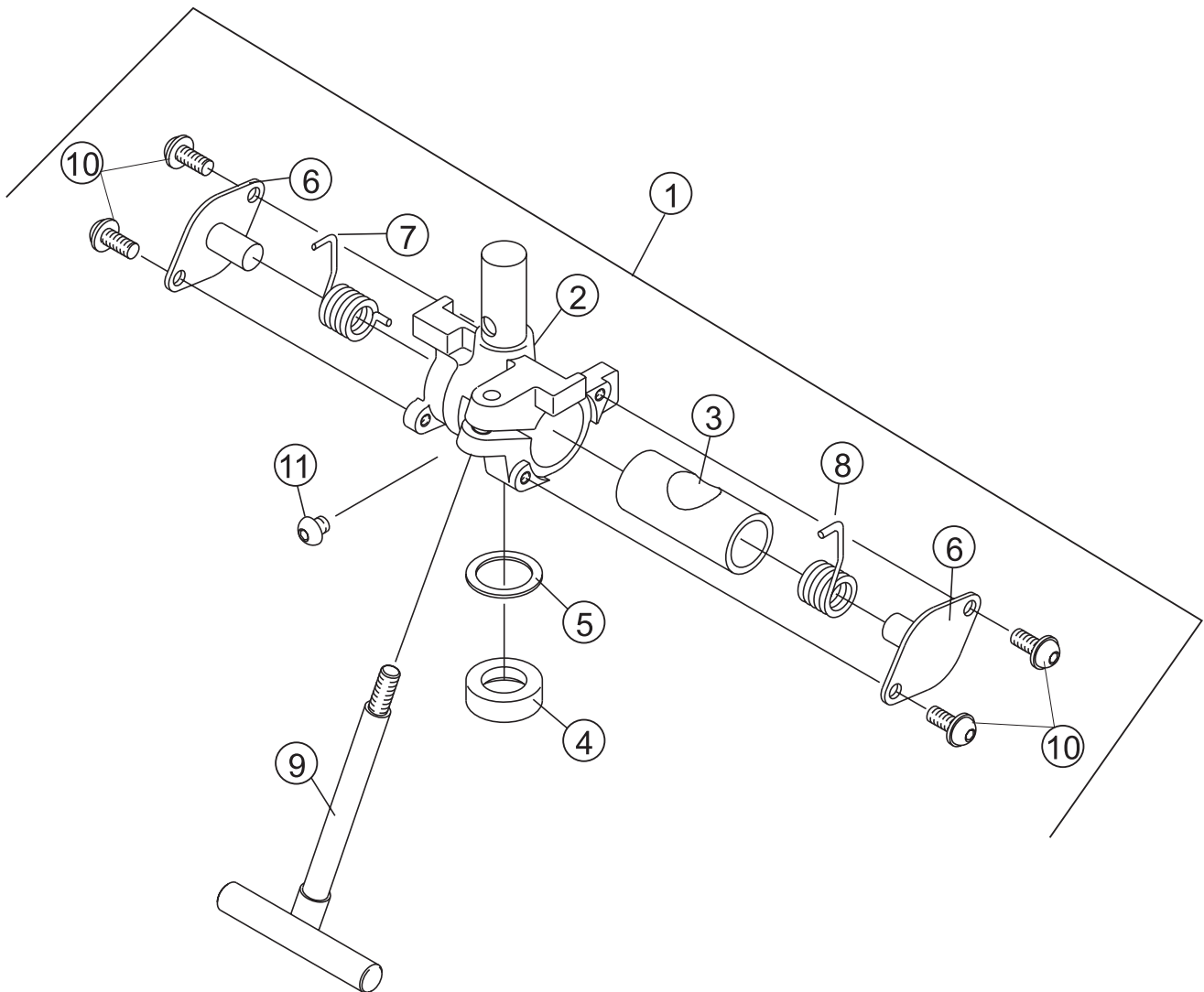
GLOBUG LIGHTING SYSTEM — OUTRIGGER ASSY.

OUTRIGGER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	0010116090	BOLT (M16x90)	2	
2	A100011600	BRACKET (OUT,R) R	1	
3	0010510025	BOLT & WASHER (M10x25)	10	
4	1501160111	SPACER (OUT,R)	2	
5	A200015302	OUTRIGGER R	1	INCLUDES ITEM W/*
6	A200015202	OUTRIGGER L	1	INCLUDES ITEM W/*
7*	1641000330	RUBBER FOOT	2	
8	0040110000	WASHER (M10)	4	
9	1501100430	SPACER (10.2dx13.8Dx6.5L)	2	
10	0030210000	SELF LOCK NUT (M10)	2	
11	0040116000	WASHER (M16)	2	
12	0040216000	SPRING WASHER (M16)	2	
13	0030116000	NUT (M16)	2	
14	2031321113	WEIGHT (OUT,R) R	1	
15	A100011500	BRACKET (OUT,R) L	1	
16	2031320213	WEIGHT (OUT,R) L	1	
17	A400033400	CATCHER (OUTRIGGER)	2	

GLOBUG LIGHTING SYSTEM — MAST ADAPTER ASSY.

MAST ADAPTER ASSY.



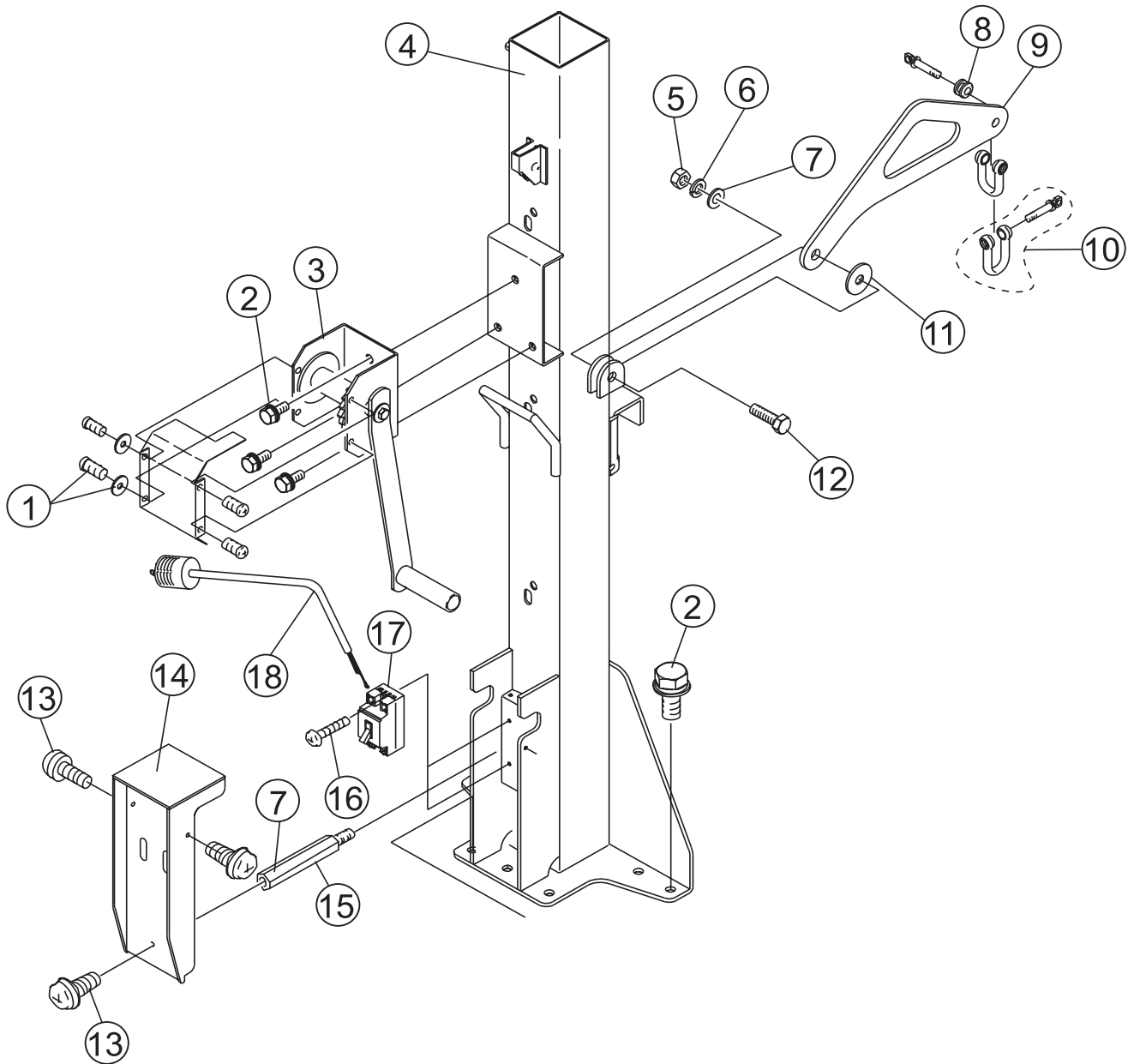
GLOBUG LIGHTING SYSTEM — MAST ADAPTER ASSY.

MAST ADAPTER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	2202390100	STAND ASSY.	1	INCLUDES ITEMS W/*
2*	2202390111	STAND	1	
3*	2202500130	SHAFT (STAND)	1	
4	2202500230	SPACER (STAND)	1	
5	1502280130	WASHER	1	
6*	2202520110	COVER (SPRING)	2	
7*	1043002030	SPRING (STAND) L	1	
8*	1043002130	SPRING (STAND) R	1	
9*	A400038800	GRIP SHAFT	1	
10*	0011808025	BUTTON BOLT & WASHER (M8 X 25)	4	
11*	0011708010	BUTTON BOLT (M8 X10)	1	

GLOBUG LIGHTING SYSTEM — MAIN MAST ASSY.

MAIN MAST ASSY.



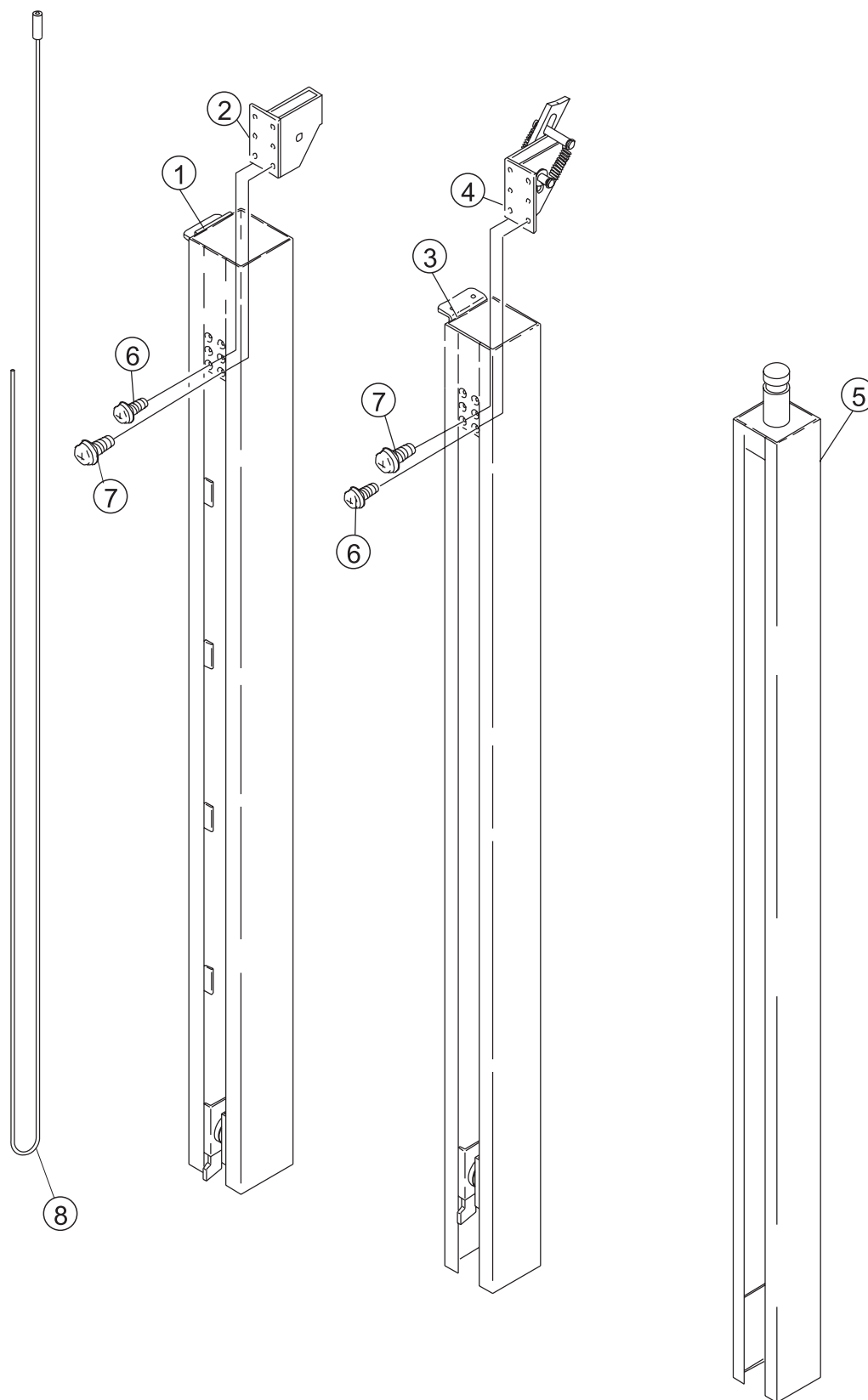
GLOBUG LIGHTING SYSTEM — MAIN MAST ASSY.

MAIN MAST ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	0020305008	SCREW AND WASHER	4	
2	0010510025	BOLT & WASHER (M10x25)	10	
3	1011000701	WINCH HM-G103	1	
4	A100012401	FIRST MAST	1	
5	0030112000	NUT (M12)	1	
6	0040212000	SPRING WASHER (M12)	1	
7	0040112000	WASHER (M12)	1	
8	1642001430	GROMMET	1	
9	1052001710	HANGER	1	
10	1711080130	SHACKLE	2	
11	0040112041	WASHER (12dx40Dx3.2t)	1	
12	GB0010112040	BOLT (M12x40)	1	
13	0020304012	SCREW & WASHER (M4x12)	3	
14	A200016801	SWITCH COVER	1	
15	2002500430	BOLT (SUPPORT) (MK-440)	1	GROUND STUD
16	0020104020	SCREW (M4x20)	2	
17	1400200400	SWITCH	1	
18	A300028800	CABLE, MAIN POWER	1	

GLOBUG LIGHTING SYSTEM — MAST SECTION ASSY.

MAST SECTION ASSY.



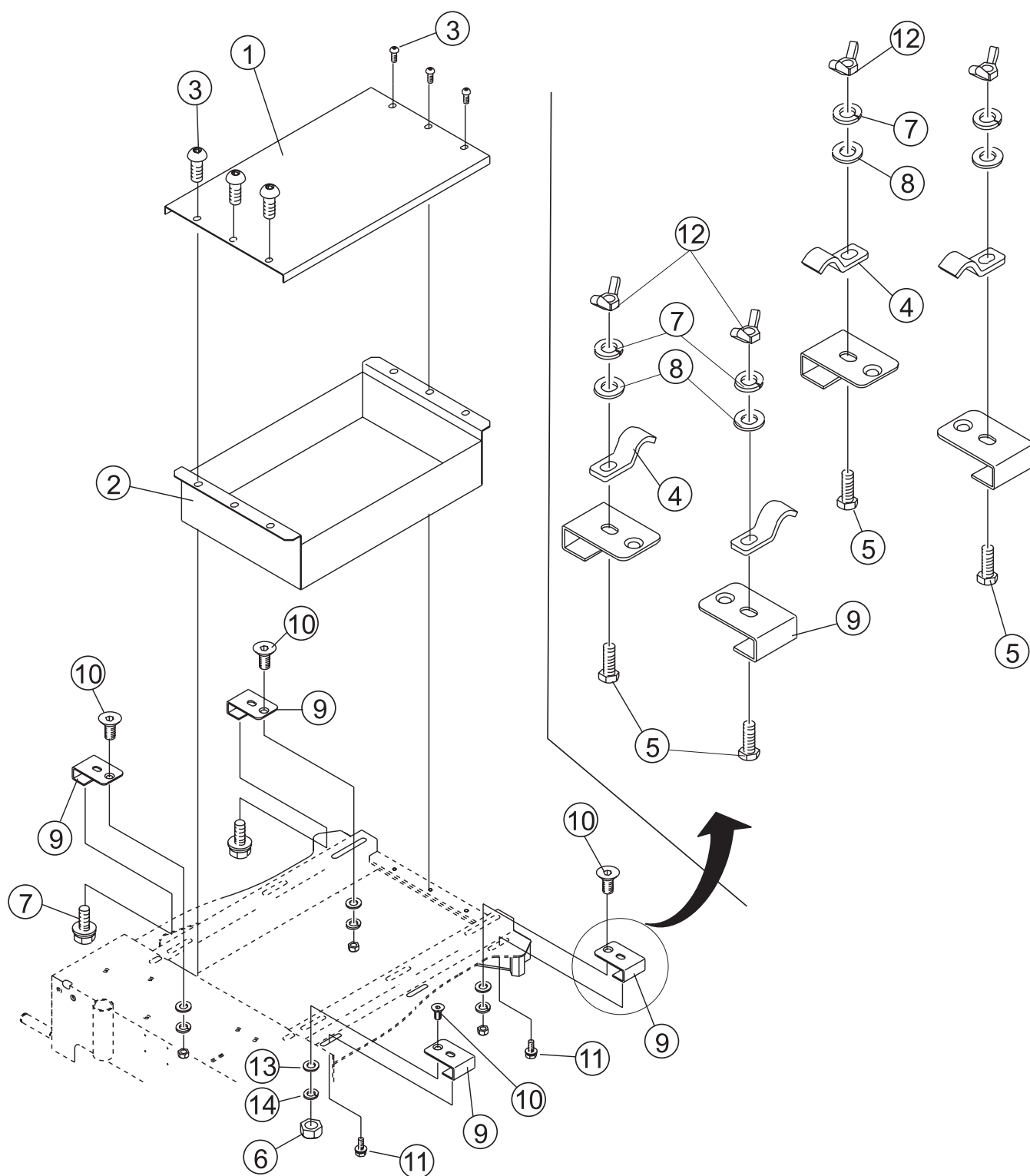
GLOBUG LIGHTING SYSTEM — MAST SECTION ASSY.

MAST SECTION ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	2072050112	SECOND MAST	1	
2	2002262010	BRACKET (PULLEY)	1	MAST SECTION 2
3	2082090112	THIRD MAST	1	
4	2012263010	BRACKET (PULLEY)	1	MAST SECTION 3
5	A300034300	FOURTH MAST	1	
6	0020204006	SCREW (M4x6)	6	
7	0020204010	SCREW (M4x10)	6	
8	1031040211	WIRE (4Dx6300L)	1	

GLOBUG LIGHTING SYSTEM — BASEPLATE COVER ASSY.

BASEPLATE COVER ASSY.



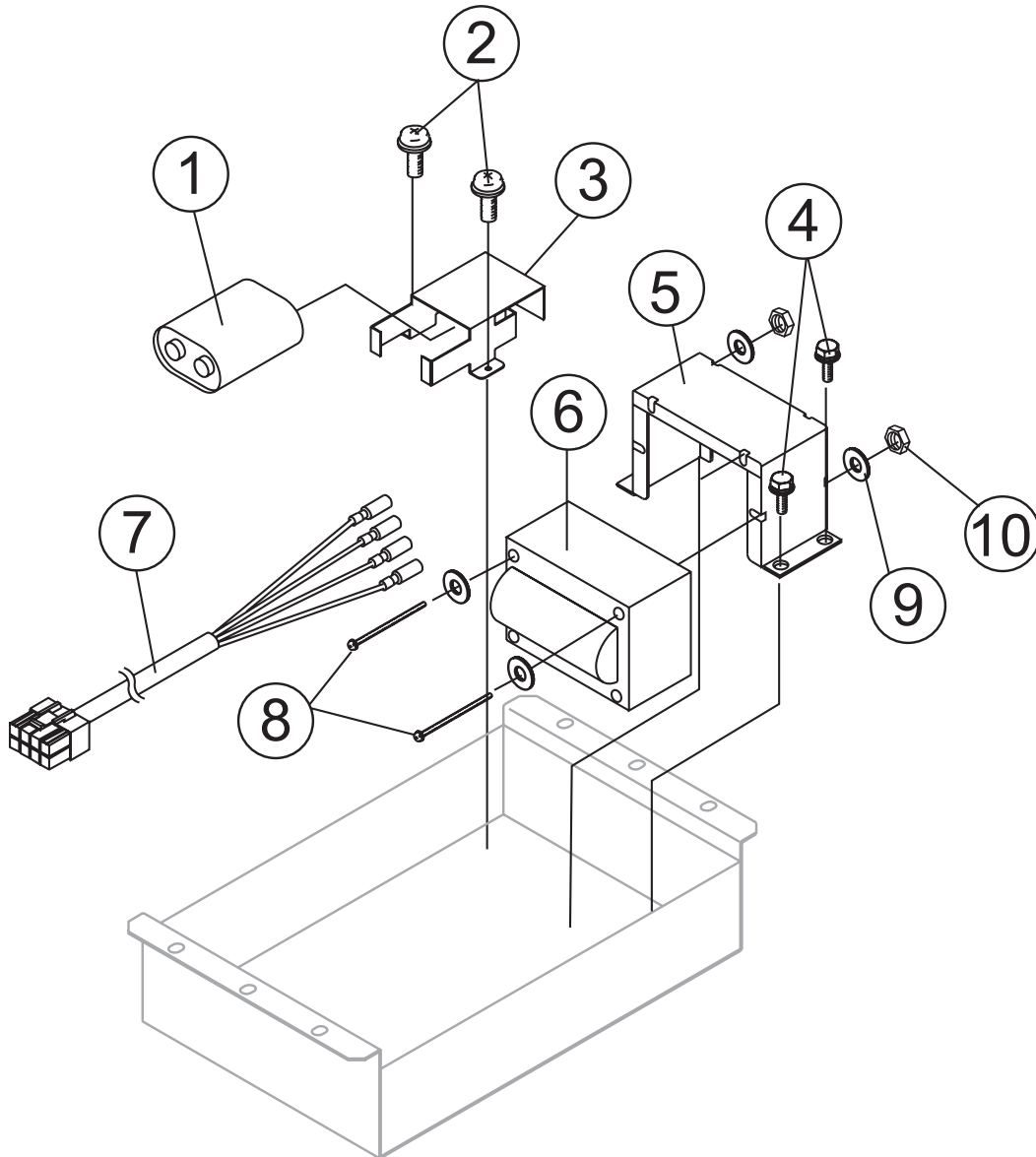
GLOBUG LIGHTING SYSTEM — BASEPLATE COVER ASSY.

BASEPLATE COVER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	A200016100	COVER (BALLAST) CP	1	
2	A200017901	GUARD (BALLAST)	1	
3	0011808025	BUTTON SCREW & WASHER (M8x25)	6	
4	A400041100	STOPPER	4	
5	0010112025	BOLT (M12x25)	4	
6	0030110000	NUT (M10)	4	
7	0040212000	SPRING WASHER (M12)	4	
8	0040112000	WASHER (M12)	4	
9	A300034600	BRACKET CP	4	
10	E000010600	SCREW (M10x25)	4	
11	0010512020	BOLT & WASHER (M12x20)	4	
12	0030152000	WING NUT (M12)	4	
13	0040110000	WASHER (M10)	4	
14	0040210000	SPRING WASHER (M10)	4	

GLOBUG LIGHTING SYSTEM — BALLAST ASSY.

BALLAST ASSY.



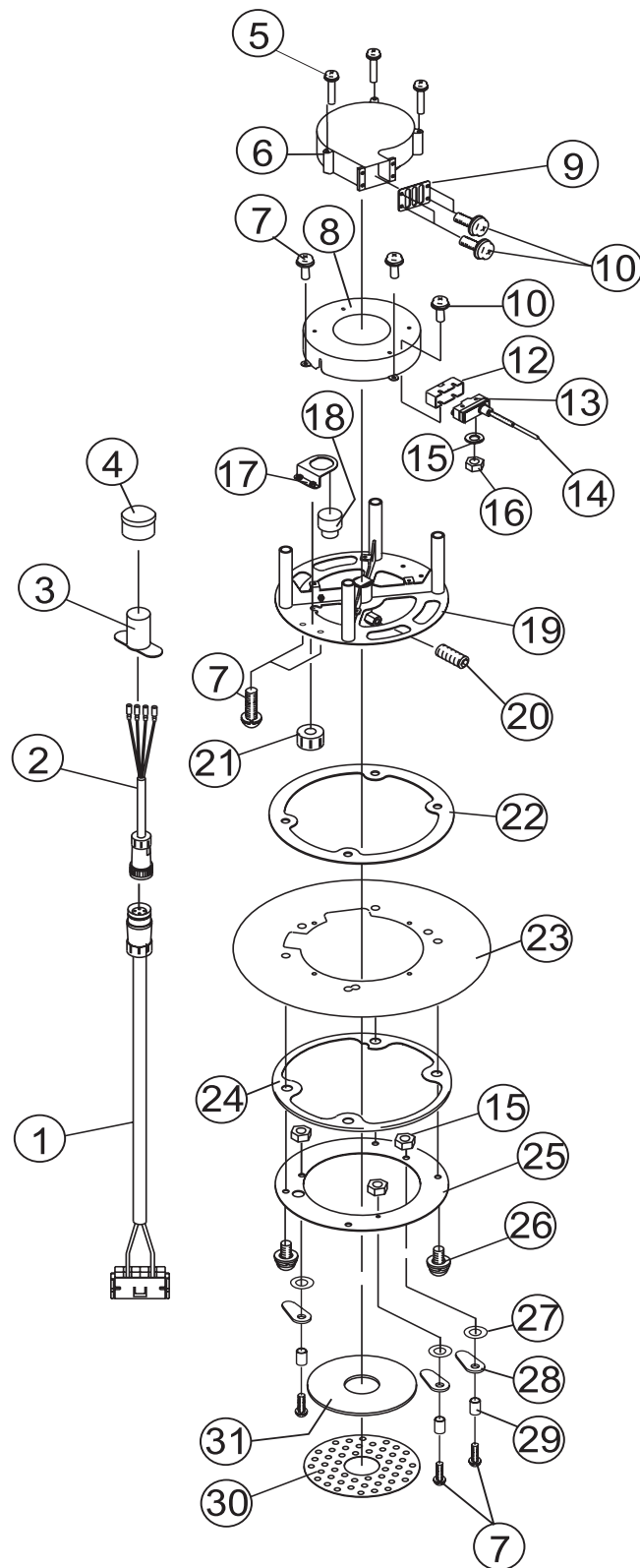
GLOBUG LIGHTING SYSTEM — BALLAST ASSY.

BALLAST ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	A300038400	CAPACITOR, 24 μ F @ 480 VDC	1	
2	0020304012	SCREW & WASHER (M4x12)	2	
3	A200018200	HOLDER	1	
4	0010508025	BOLT & WASHER (M8x25)	4	
5	A300033901	BALLAST HOLDER	1	
6	A300033800	BALLAST (TRANSFORMER) CP	1	
7	A300035200	CABLE (BALLAST) CP	1	
8	0020305090	SCREW (M5x90)	4	
9	0040105000	WASHER	8	
10	0030105000	NUT	4	

GLOBUG LIGHTING SYSTEM — FAN BLOWER/LAMP BASE ASSY.

FAN BLOWER/LAMP BASE ASSY.



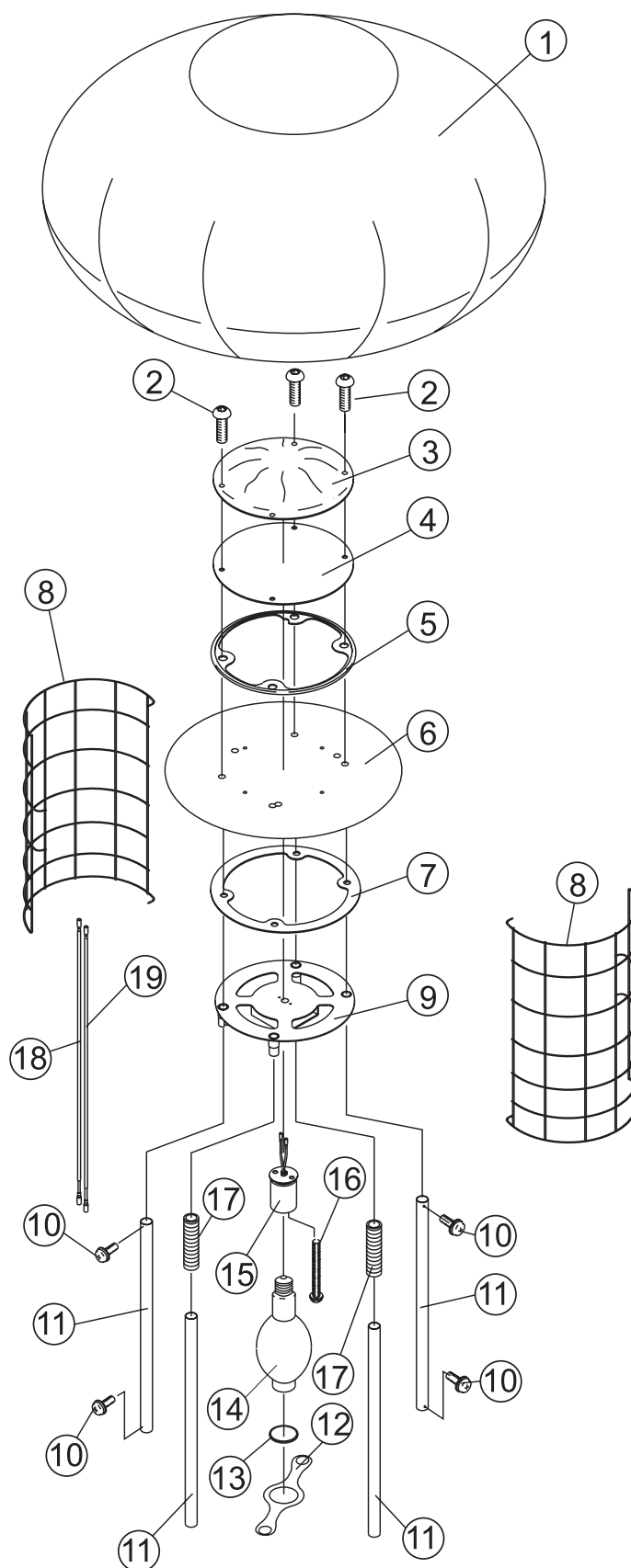
GLOBUG LIGHTING SYSTEM — FAN BLOWER/LAMP BASE ASSY.

FAN BLOWER/LAMP BASE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	A300033700	CABLE 2 (BALLOON) CP	1	
2	A300033600	CABLE 1 (BALLOON) CP	1	
3	A400038900	COVER (WIRE)	1	
4	E000011900	COVER	1	
5	0020305050	SCREW & WASHER (M5x60)	3	
6	A300033500	FAN MOTOR CP	1	
7	0020404008	SCREW (M4x8)	9	
8	A200017702	FAN SUPPORT	1	
9	A400037400	GUARD (FAN)	1	
10	0020405008	SCREW (M5x8)	4	
11	0020204030	SCREW (M4x30)	2	
12	1400150310	MICRO SWITCH COVER	1	
13	1400150210	MICRO SWITCH	1	
14	1400150410	MICRO SWITCH CAP (SENSOR)	1	
15	0040104000	WASHER (M4)	2	
16	0030104000	NUT (M4)	5	
17	E000010500	BUZZER	1	
18	A400038600	BRACKET (BUZZER)	1	
19	A100013301	FLANGE	1	
20	0021710025	SET SCREW (M10x25)	1	
21	E000010400	CABLE CLAMP	1	
22	2204500130	SEAL (NORMAL)	1	
23	1800001100	SHEET (BOTTOM)	1	
24	2204500230	PACKING	1	
25	A300034400	PLATE (BOTTOM)	1	
26	0011808025	BUTTON SCREW & WASHER (M8x25)	8	
27	E000009700	WAVE WASHER (M5)	3	
28	A400030700	STOPPER (FILTER) CP	3	
29	E000009900	SPACER	3	
30	A200018000	PLATE (AIR)	1	
31	A400038300	FILTER 200 (AIR)	1	

GLOBUG LIGHTING SYSTEM — BALLOON/LAMP GUARD ASSY.

BALLOON/LAMP GUARD ASSY.



GLOBUG LIGHTING SYSTEM — BALLOON/LAMP GUARD ASSY.

BALLOON/LAMP GUARD ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	1800001200	BALLOON CLOTH CP	1	
2	0011808025	BUTTON SCREW & WASHER (M8 X 25)	8	
3	A100013400	PRIMARY COVER	1	
4	2204220130	PLATE (CAP)	1	
5	2204500230	PACKING	1	
6	1800001000	SHEET (TOP)	1	
7	2204500130	SEAL NORMAL (TOP)	1	
8	A100010800	LAMP GUARD	2	
9	A300026900	PLATE (LAMP)	1	
10	0021404008	SCREW & WASHER (M4x8)	16	
11	2204400131	FRAME PIPE	4	
12	A300032700	PLATE (LAMP HOLDER)	1	
13	2204231730	RUBBER (LAMP)	1	
14	E000009800	LAMP	1	
15	E000009601	SOCKET ASSY	1	
16	0020304020	SCREW & WASHER (M4x20)	2	
17	2204231530	SPRING (LAMP)	2	
18	A400038400	CABLE (LAMP) 1 R CP	1	
19	A400038500	CABLE (LAMP) 1 G CP	1	

PAYMENT TERMS

Terms of payment for parts are net 10 days.

FREIGHT POLICY

All parts orders will be shipped collect or prepaid with the charges added to the invoice. All shipments are F.O.B. point of origin. Multiquip's responsibility ceases when a signed manifest has been obtained from the carrier, and any claim for shortage or damage must be settled between the consignee and the carrier.

MINIMUM ORDER

The minimum charge for orders from Multiquip is \$15.00 net. Customers will be asked for instructions regarding handling of orders not meeting this requirement.

RETURNED GOODS POLICY

Return shipments will be accepted and credit will be allowed, subject to the following provisions:

1. A Returned Material Authorization must be approved by Multiquip prior to shipment.
2. To obtain a Return Material Authorization, a list must be provided to Multiquip Parts Sales that defines item numbers, quantities, and descriptions of the items to be returned.
 - a. The parts numbers and descriptions must match the current parts price list.
 - b. The list must be typed or computer generated.
 - c. The list must state the reason(s) for the return.
 - d. The list must reference the sales order(s) or invoice(s) under which the items were originally purchased.
 - e. The list must include the name and phone number of the person requesting the RMA.
3. A copy of the Return Material Authorization must accompany the return shipment.
4. Freight is at the sender's expense. All parts must be returned freight prepaid to Multiquip's designated receiving point.

5. Parts must be in new and resalable condition, in the original Multiquip package (if any), and with Multiquip part numbers clearly marked.
6. The following items are not returnable:
 - a. Obsolete parts. (If an item is in the price book and shows as being replaced by another item, it is obsolete.)
 - b. Any parts with a limited shelf life (such as gaskets, seals, "O" rings, and other rubber parts) that were purchased more than six months prior to the return date.
 - c. Any line item with an extended dealer net price of less than \$5.00.
 - d. Special order items.
 - e. Electrical components.
 - f. Paint, chemicals, and lubricants.
 - g. Decals and paper products.
 - h. Items purchased in kits.
7. The sender will be notified of any material received that is not acceptable.
8. Such material will be held for five working days from notification, pending instructions. If a reply is not received within five days, the material will be returned to the sender at his expense.
9. Credit on returned parts will be issued at dealer net price at time of the original purchase, less a 15% restocking charge.
10. In cases where an item is accepted, for which the original purchase document can not be determined, the price will be based on the list price that was effective twelve months prior to the RMA date.
11. Credit issued will be applied to future purchases only.

PRICING AND REBATES

Prices are subject to change without prior notice. Price changes are effective on a specific date and all orders received on or after that date will be billed at the revised price. Rebates for price declines and added charges for price increases will not be made for stock on hand at the time of any price change.

Multiquip reserves the right to quote and sell direct to Government agencies, and to Original Equipment Manufacturer accounts who use our products as integral parts of their own products.

SPECIAL EXPEDITING SERVICE

A \$35.00 surcharge will be added to the invoice for special handling including bus shipments, insured parcel post or in cases where Multiquip must personally deliver the parts to the carrier.

LIMITATIONS OF SELLER'S LIABILITY

Multiquip shall not be liable hereunder for damages in excess of the purchase price of the item with respect to which damages are claimed, and in no event shall Multiquip be liable for loss of profit or good will or for any other special, consequential or incidental damages.

LIMITATION OF WARRANTIES

No warranties, express or implied, are made in connection with the sale of parts or trade accessories nor as to any engine not manufactured by Multiquip. Such warranties made in connection with the sale of new, complete units are made exclusively by a statement of warranty packaged with such units, and Multiquip neither assumes nor authorizes any person to assume for it any other obligation or liability whatever in connection with the sale of its products. Apart from such written statement of warranty, there are no warranties, express, implied or statutory, which extend beyond the description of the products on the face hereof.

[illegible]

OPERATION & PARTS MANUAL

HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL
NUMBER *ON-HAND* WHEN CALLING

MULTIQUIP CORPORATE OFFICE

18910 Wilmington Ave.
Carson, CA 90746

800-421-1244
FAX: 310-537-3927

PARTS DEPARTMENT

800-427-1244
310-537-3700

FAX: 800-672-7877
FAX: 310-637-3284

MAYCO PARTS

800-306-2926
310-537-3700

FAX: 800-672-7877
FAX: 310-637-3284

SERVICE DEPARTMENT

800-478-1244
310-537-3700

FAX: 310-537-4259

TECHNICAL ASSISTANCE

800-478-1244

FAX: 310-631-5032

WARRANTY DEPARTMENT

800-421-1244, EXT. 279
310-537-3700, EXT. 279

FAX: 310-537-1173

Your Local Dealer is:



MULTIQUIP INC.

18910 WILMINGTON AVE.
CARSON, CALIFORNIA 90746
800-421-1244 • 310-537-3700
FAX: 310-537-3927

E-mail: mq@multiquip.com

Internet: multiquip.com

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Montreal, Canada • Manchester, UK
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