

OPERATION & PARTS MANUAL



Moonlight SERIES

MODELS

MB150

MB400

MB400B

MB1000

MB1000W

LIGHTING SYSTEM

Revision #0 (10/27/06)

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



THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

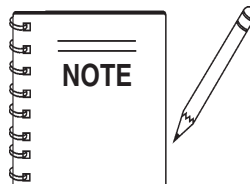
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MOONLIGHT LIGHTING SYSTEM

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Specification and part number are subject to change without notice.

www.multiquip.com

**Ordering parts has never been easier!
Choose from three easy options:**



Order via Internet (Dealers Only):

Order parts on-line using Multiquip's SmartEquip website!

- View Parts Diagrams
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If you have an MQ Account, to obtain a Username and Password, E-mail us at: parts@multiquip.com.

To obtain an MQ Account, contact your District Sales Manager for more information.

Goto www.multiquip.com and click on **Order Parts** to log in and save!

Use the **internet** and qualify for a **5% Discount** on *Standard orders* for all orders which include complete part numbers.*

Note: Discounts Are Subject To Change



Order via Fax (Dealers Only):

All customers are welcome to order parts via Fax.

Domestic (US) Customers dial:
1-800-6-PARTS-7 (800-672-7877)

Fax your order in and qualify for a **2% Discount** on *Standard orders* for all orders which include complete part numbers.*

Note: Discounts Are Subject To Change



Order via Phone: Domestic (US) Dealers Call:
1-800-427-1244

Non-Dealer Customers:

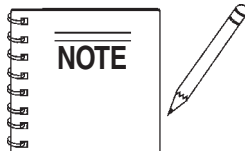
Contact your local Multiquip Dealer for parts or call 800-427-1244 for help in locating a dealer near you.



International Customers should contact their local Multiquip Representatives for Parts Ordering information.

When ordering parts, please supply:

- | | |
|--|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> Dealer Account Number <input type="checkbox"/> Dealer Name and Address <input type="checkbox"/> Shipping Address (if different than billing address) <input type="checkbox"/> Return Fax Number <input type="checkbox"/> Applicable Model Number <input type="checkbox"/> Quantity, Part Number and Description of Each Part | <ul style="list-style-type: none"> <input type="checkbox"/> Specify Preferred Method of Shipment: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> UPS/Fed Ex <input checked="" type="checkbox"/> DHL <input type="checkbox"/> Priority One <input checked="" type="checkbox"/> Truck <input type="checkbox"/> Ground <input type="checkbox"/> Next Day <input type="checkbox"/> Second/Third Day |
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All orders are treated as *Standard Orders* and will ship the same day if received prior to 3PM PST.

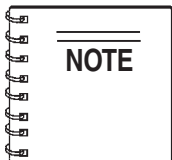
WE ACCEPT ALL MAJOR CREDIT CARDS!



MOONLIGHT 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 manual has been developed to provide complete instructions for the safe and efficient operation of the **MQ MOONLIGHT Lighting System**.

Before using this Lighting System, ensure that the operating individual has read and understood 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 **MOONLIGHT 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.

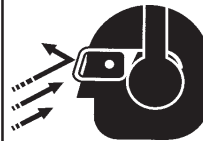
HAZARD SYMBOLS

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.



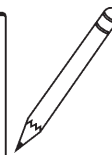
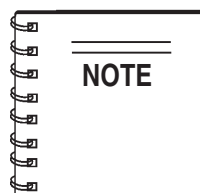
CAUTION - Sight and Hearing Hazards



ALWAYS wear approved eye and hearing protection.

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.

MOONLIGHT 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 MOONLIGHT Lighting System.

The following safety guidelines should always be used when operating the MOONLIGHT 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**.



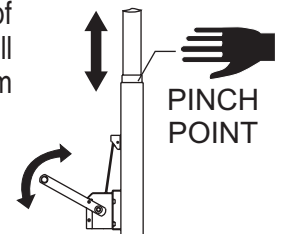
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult to read.
- Manufacturer does not assume responsibility for any accident due to equipment modifications.
- **NEVER** use accessories or attachments, which are not recommended by Multiquip for this equipment.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



- **ALWAYS** make sure that the MOONLIGHT 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 MOONLIGHT clear of people while raising and lowering mast.
- To prevent the MOONLIGHT from overturning, **NEVER** use in winds that exceed 22 mph (10m/s).
- To prevent the MOONLIGHT from rolling, **ALWAYS** place the MOONLIGHT on a firm flat surface. Surface slant should not exceed 5 degrees.
- The MOONLIGHT should only be used in temperatures between 23°-104° Fahrenheit (-5° to 40° Celsius). Failure to comply with these operating parameters could cause the lamp to malfunction.
- **NEVER** use the MOONLIGHT in **rain, snow** or areas of high humidity that could generate electrical storms.
- **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 MOONLIGHT mast as a crane. **DO NOT** lift anything with the mast.
- **NEVER** attach anything to the MOONLIGHT mast.
- **ALWAYS** lower the mast when not in use, or if high winds or electrical storms are expected in the area.

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.



MOONLIGHT LIGHTING SYSTEM — RULES FOR SAFE OPERATION

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 balloon support assembly is secure and the knob tightened.
- **NEVER** attempt to replace lamp with the power on. Always unplug the power cord 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** install and remove lamp, or replace any damaged fixture wiring.
- To prevent the balloon from deformation, **NEVER** use MOONLIGHT in strong winds.
- **DO NOT** place the balloon inside storage case until the lamp has had a sufficient amount of time to cool down.
- **ALWAYS** place the balloon inside its storage case 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.
- **ALWAYS** keep the balloon away from sharp objects and excessive amounts of heat (**fire!**).

TRANSPORTING

- When transporting the MOONLIGHT over rough terrain, remove the lamp and pack it safely so it will not be damaged.



DANGER - MOONLIGHT 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, Electrocuting**, and even **Death!** *Please pay close attention when operating the MOONLIGHT.*



DANGER - Mounting Accessory Tipping

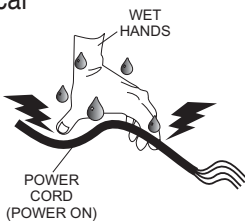
ALWAYS make sure that the mounting pole, cart, stand or tripod is properly secured to prevent tipping! Use sandbags or stakes to secure the mounting accessory as necessary.

MOONLIGHT LIGHTING SYSTEM — RULES FOR SAFE OPERATION

! DANGER - MOONLIGHT Electric Shock Hazards

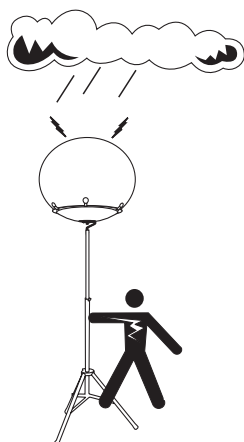
ALWAYS keep electrical cords in good condition. Worn, bare or frayed wiring can cause electrical shock, thus causing **Bodily Harm or even Death**.

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



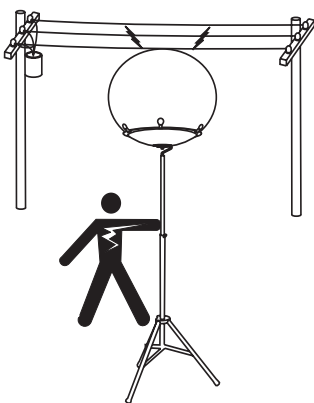
! DANGER - MOONLIGHT Electric Shock Hazards

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



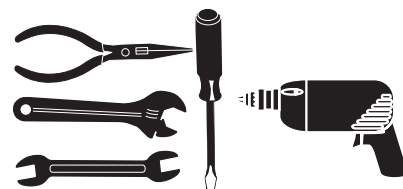
! DANGER - MOONLIGHT Overhead Obstructions

ALWAYS make sure the area above MOONLIGHT is open and clear of overhead power lines and other obstructions. The tower extends in excess of 16 ft. (5 meters). Contact with overhead power lines or other obstructions could result in equipment damage, **Serious Injury or Death!**



Maintenance Safety

- **NEVER** lubricate components or attempt service on a running MOONLIGHT.
- **ALWAYS** allow the MOONLIGHT a proper amount of time to cool before servicing.
- Keep the MOONLIGHT in proper running condition.
- Fix damage to the MOONLIGHT 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.

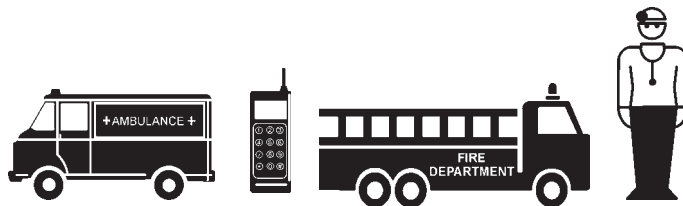


Emergencies

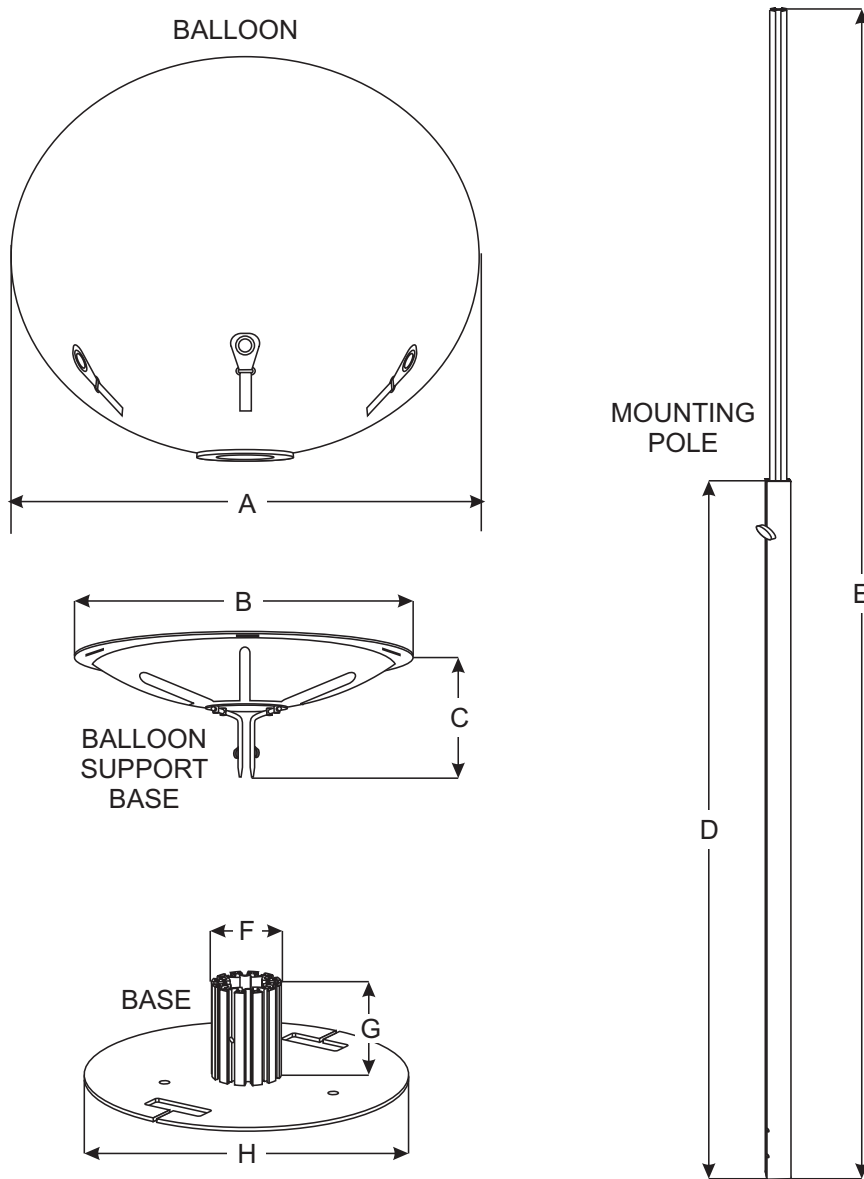
- **ALWAYS** know the location of the nearest **fire extinguisher**.
- **ALWAYS** know the location of the nearest **first aid kit**.



- 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 case of an emergency.



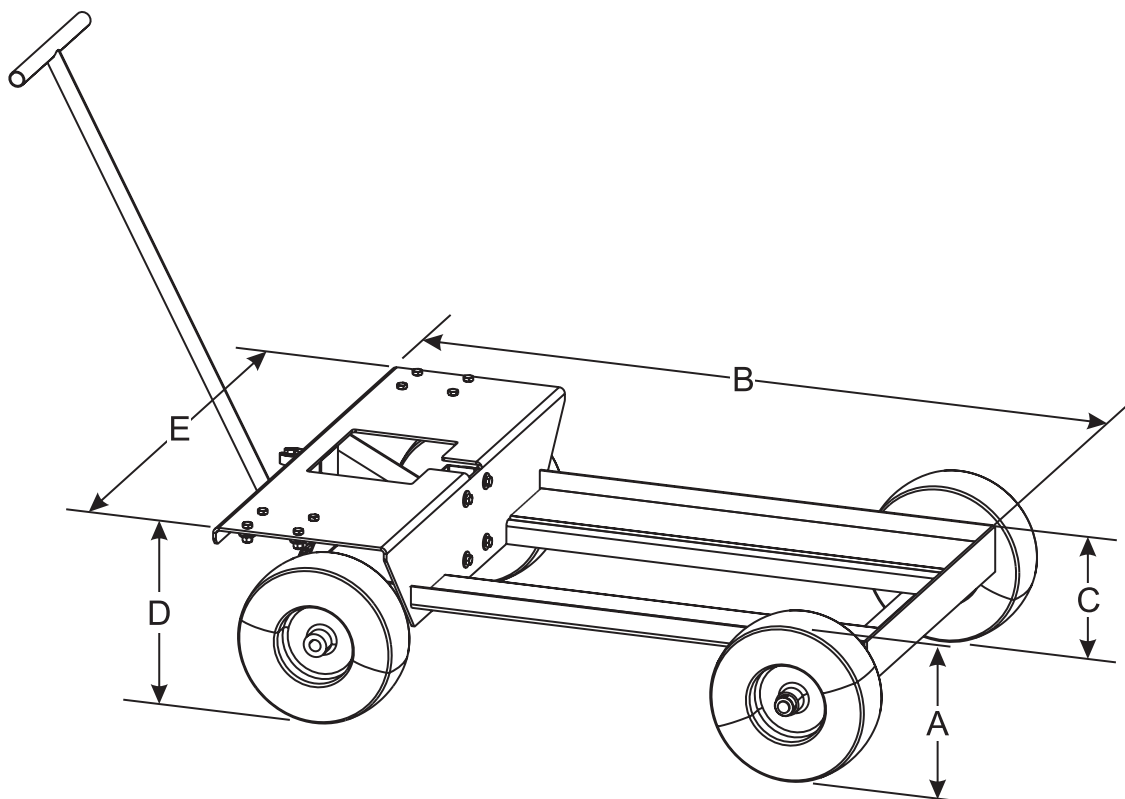
MOONLIGHT LIGHTING SYSTEM — DIMENSIONS



Reference Letter	Dimension in. (mm.)	Reference Letter	Dimension in. (mm.)
A	MB400B/MB100/W - 54 (1372) MB150 - 33.5 (851)	E	118.5 (3010)
B	25 (635)	F	3.5 (89)
C	11 (279)	G	8 (203)
D	67 (1702)	H	21.5 (546)

Figure 1. Balloon Dimensions

MOONLIGHT LIGHTING SYSTEM — DIMENSIONS



Reference Letter	Dimension in. (mm.)	Reference Letter	Dimension in. (mm.)
A	10.5 (267)	D	12 (305)
B	43 (1092)	E	32 (813)
C	8 (203)		

Figure 2. MBC Cart Dimensions

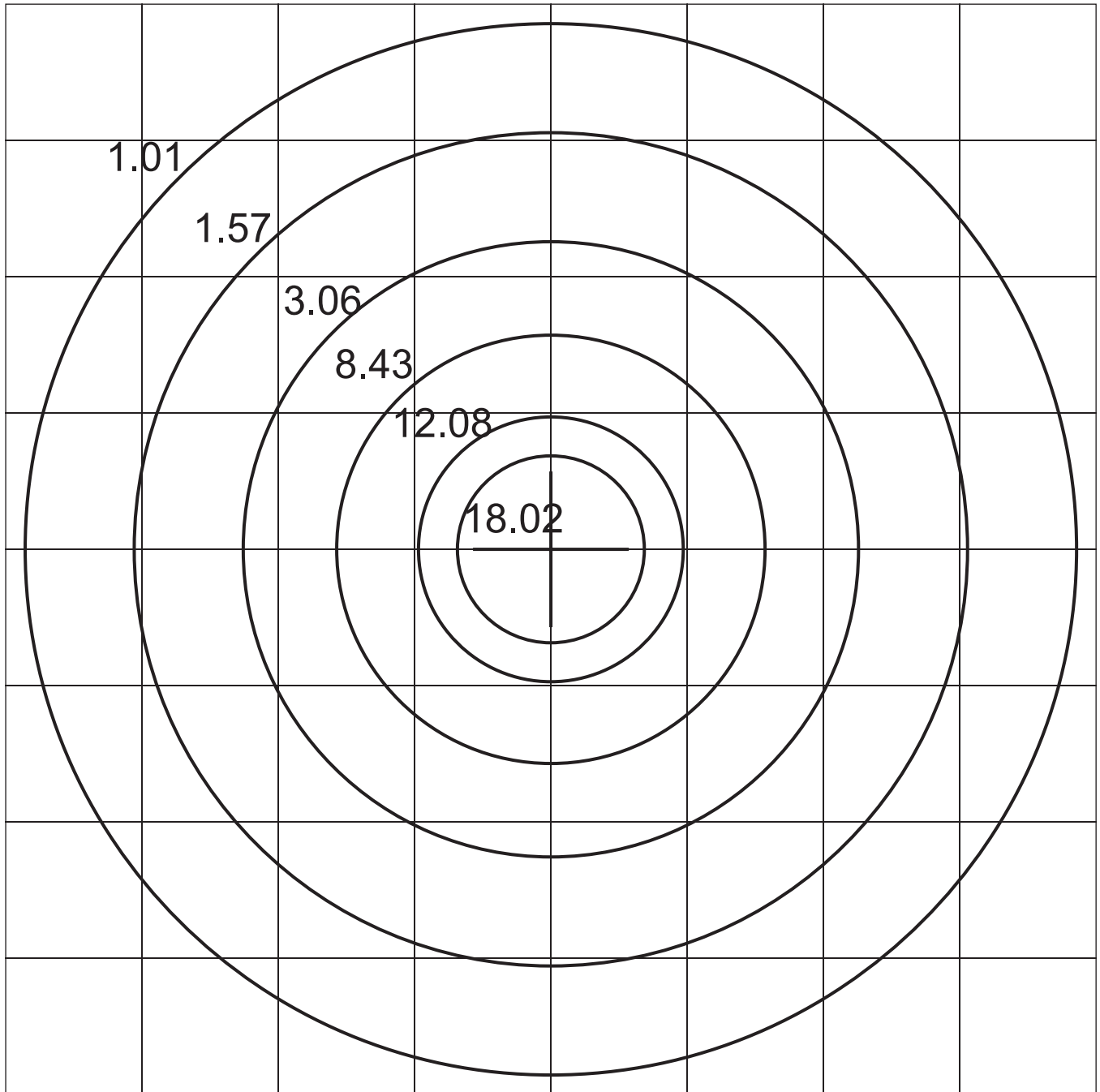
MOONLIGHT LIGHTING SYSTEM — SPECIFICATIONS

Table 1. Specifications

Moonlight			
Model	MB1000/MB1000W	MB400/MB400B	MB150
Input Voltage	110 VAC	110 VAC	110 VAC
Frequency	60 Hz	60 Hz	60 Hz
Max. Current	15 Amps	15 Amps	15 Amps
Wind Stability (when base is secured)	55 mph (88.5 kph)	55 mph (88.5 kph)	55 mph (88.5 kph)
Weight (without mount)	80 lbs. (36 kg)	66 lbs. (30 kg)/74 lbs. (33.5 kg)	49 lbs. (22 kg)
Lamp			
Lamp Type	1000 Watt Metal Halide/ 1000 Watt Tungsten	400 Watt Metal Halide	150 Watt Metal Halide
Lumens	110,000/21,500	42,000	15,000
Light Coverage (360°)	150 ft. (45.72 meters)	100 ft. (30.5 meters)	80 ft. (24.38 meters)
Average Life	12,000 hours/variable	10,000 hours	10,000 hours
Color Temperature	4500° K/3200° K	4500° K	4500° K
Balloon			
Diameter	54 inches (1372 mm)	33.5 inches (851 mm)/ 54 inches (1372 mm)	33.5 inches (851 mm)
Material	Fire Retardant PVC	Fire Retardant PVC	Fire Retardant PVC
Maximum Usage Temperature	158°/176°F (70°/80°C)	158°/176°F (70°/80°C)	158°/176°F (70°/80°C)
Deformation Point	275°/320°F (135°/160°C)	275°/320°F (135°/160°C)	275°/320°F (135°/160°C)
Water Resistance	100 %	100 %	100 %
MBP (option)			
Pole	67 in. (1702 mm) (with 67 in. telescope)	67 in. (1702 mm) (with 67 in. telescope)	67 in. (1702 mm) (with 67 in. telescope)
Maximum Height	10 feet (3 meters)	10 feet (3 meters)	8 feet (2.4 meters)

MOONLIGHT LIGHTING SYSTEM — FLOODLIGHT FOOTCANDLE PLOT

Based on 360° glare-free coverage.



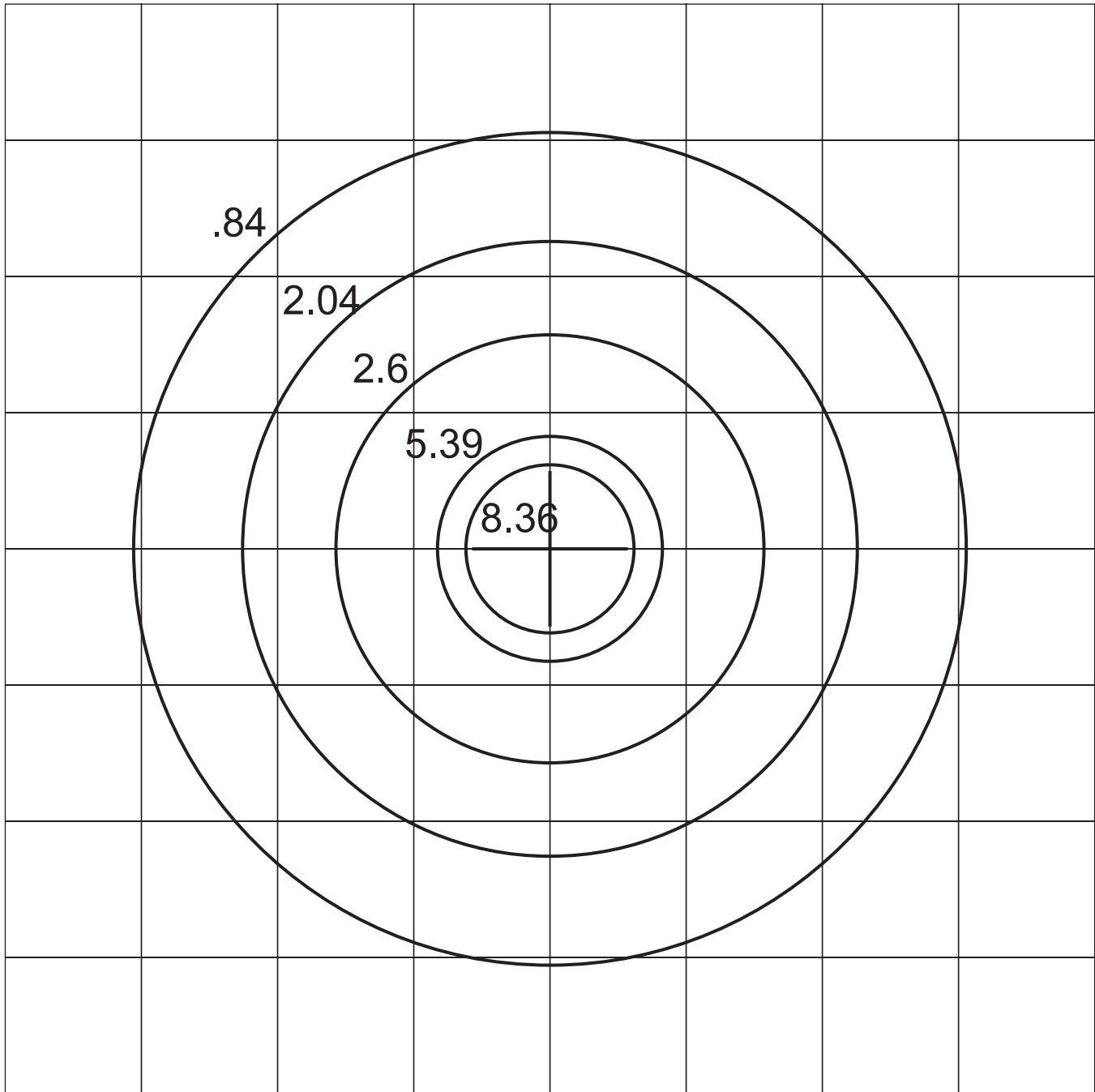
Values listed as footcandles

Scale: .5 IN. = 20 ft.

Figure 3. MB1000 Floodlight Footcandle Plot

MOONLIGHT LIGHTING SYSTEM — FLOODLIGHT FOOTCANDLE PLOT

Based on 360° glare-free coverage.



Values listed as footcandles

Scale: .5 IN. = 10 ft.

Figure 4. MB150 Floodlight Footcandle Plot

MOONLIGHT LIGHTING SYSTEM — GENERAL INFORMATION

The Multiquip MOONLIGHT Lighting System is a general purpose glare-free floodlight intended for applications such as security lighting, traffic control, freeway projects, jobsites, emergency lighting, indoor lighting, corporate functions and backyard parties.

The Moonlight Lighting System provides illumination without the need to constantly inflate the balloon.

The Moonlight Balloon comes in different models:

1000 Series - MB1000, MB1000W

400 Series - MB400, MB400B

150 Series - MB150

These models are shipped in a storage case that includes the following:

- Balloon
- Balloon Support Assembly
- Lamp
- Lamp System with Retainer Clip
- Ballast (Except MB1000W)
- Ballast Cable (Except MB1000W)
- Blower
- Blower Charger Cord

Mounting Accessories

Mounting Accessories are available from the MQ Sales department such as:

MBC - 4-Wheel Generator Cart

MBS - 2-Wheel Transport Stand

MBP - Mounting Pole

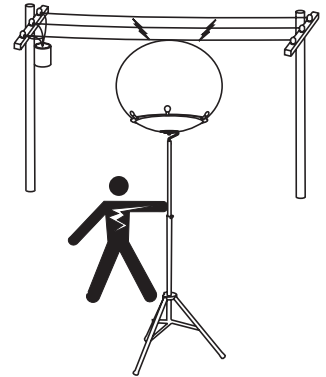
MBT - Tripod (for MB150 and MB400 only)

Balloons

The balloon is made of airtight, fire-retardant, PVC-type material, and once it is inflated, can stay taut for months. The balloon can sustain at least 55 miles/hour winds.

DANGER - MOONLIGHT Overhead Obstructions

ALWAYS make sure the area above MOONLIGHT is open and clear of overhead power lines and other obstructions. The tower extends in excess of 16 ft. (5 meters). Contact with overhead power lines or other obstructions could result in equipment damage, ***Serious Injury or Death!***



Bulbs

The lighting system of Multiquip's MOONLIGHT (MB1000, MB400, MB400B, and MB150) is comprised of one "Metal Halide" lamp. This lamp has no filament (electric arc) therefore vibrations will not cause bulb failure. The bulbs can last up to 10,000 hours. The MB1000W is equipped with a Tungsten Carbide bulb. This bulb uses a filament and is not recommended for use in high vibration areas.

For ease of service or transport, the lamp 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 MOONLIGHT over rough terrain. It is always best to remove the lamp and pack it safely so it will not be damaged.

DANGER - Mounting Accessory Tipping

ALWAYS make sure the mounting stand is properly secured to prevent tipping! Use sandbags or stakes to secure the mounting accessory as necessary.

MOONLIGHT LIGHTING SYSTEM — COMPONENTS

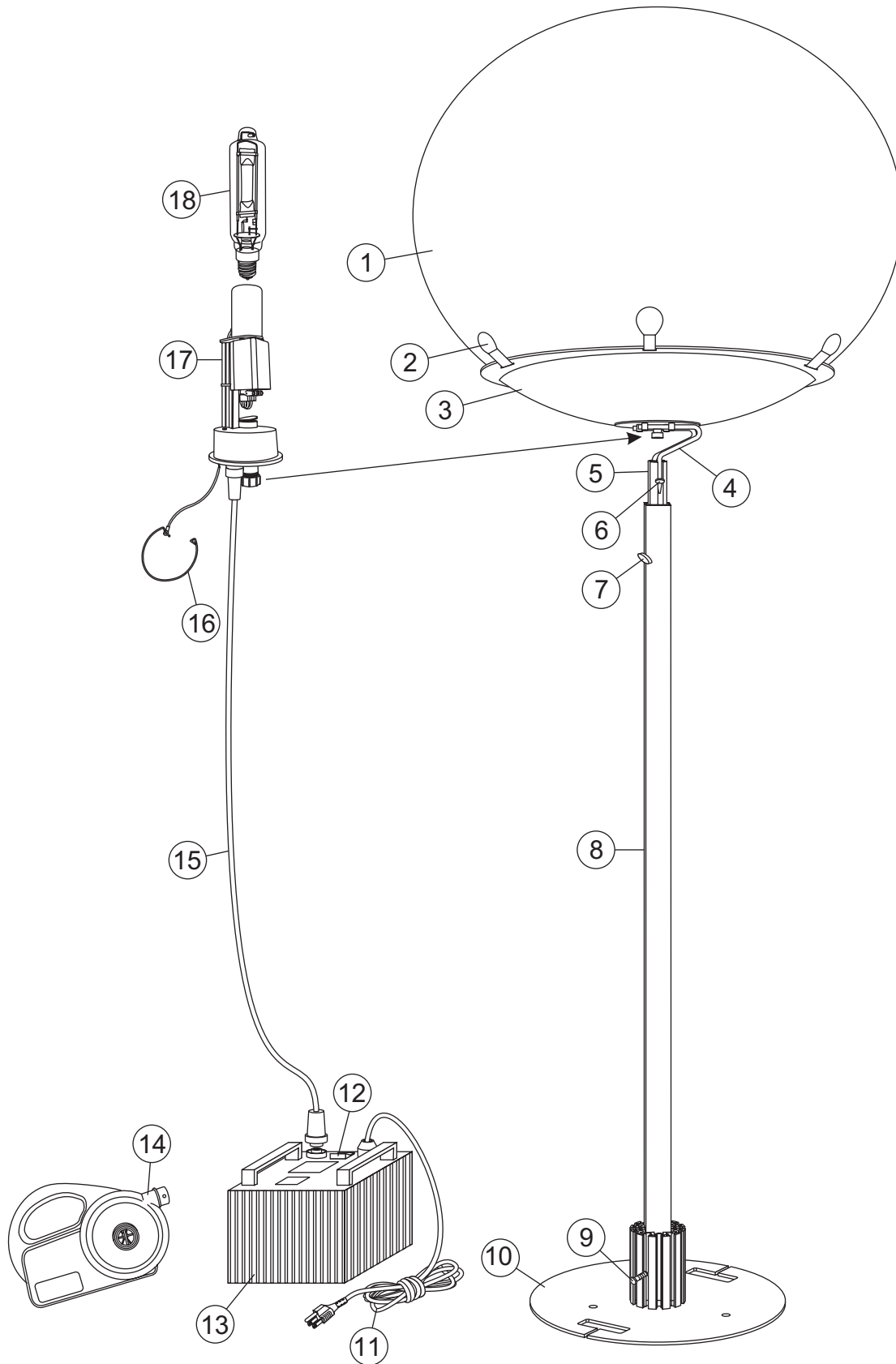
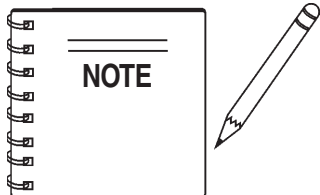


Figure 5. Major Components
(54-inch Balloon with Optional MBP)

MOONLIGHT LIGHTING SYSTEM — COMPONENTS

Figure 5 shows the location of the controls and components for the MOONLIGHT Lighting System. The function of each control is described below:

1. **Balloon** – This balloon is made of airtight PVC material with a diameter of 54 inches (MB400B, MB1000/W) or 33.5 inches (MB150).
2. **Balloon Velcro Straps** – Secures the balloon in place when attached to the support assembly (except 33.5-inch models).
3. **Balloon Support Assembly** – Supports the balloon with the velcro straps in place (except 33.5-inch models).
4. **Mounting Metal Rods** – Used to hold balloon in the stand support adapter. Included with balloon support assembly on 54-inch models and included with balloon on 33.5-inch models.
5. **Stand Support Adapter (with extrusion)** – A pole that connects the balloon support assembly to the stand, to adjust the height of the balloon.
6. **Adapter Bolt Lock** – Secures the stand support adapter to the balloon support assembly when tightened.
7. **Height Adjustment Knob** – Adjusts the height of the pole (stand support adapter). When the pole is at the desired height, tighten lock to secure pole in place.
8. **Stand** – Supports the complete lighting system.
9. **Wing Nut** – Secures the stand into the base. Tighten screw to lock stand in place.
10. **Metal Stand Base** – Keeps the lighting system firmly set on the ground.
11. **AC Power Cable** – Connect this cable to a 120 VAC, 60 Hz power source.
12. **ON/OFF Switch** – Place this switch in the **ON** position to turn on the lamp. To turn off the lamp place in the **OFF** position. Please wait for approximately 10 minutes before attempting to turn the lamp back on.
13. **Ballast** – Provides the necessary electronics to light the lamp.
14. **Blower** – Used to inflate the balloon.
15. **Ballast Cable** – Connects the ballast to the lamp assembly.
16. **Snap Ring** – Ensures a complete seal of the balloon when the lamp is attached.
17. **Lamp Assembly** – Screw lamp into this assembly. If lamp becomes difficult to screw into assembly or assembly is damaged, replace assembly.
18. **Lamp** – 1000-watt, 400-watt, or 150-watt metal-halide type lamp. Replace only with MQ recommended type lamp. Always allow a sufficient amount of time for the lamp to **cool down** before changing.



Items 5 to 10 are part of the MBP Mounting Pole. The Moonlight Balloon can also be mounted to the MBC 4-wheel Generator Cart, MBS 2-Wheel Transport Stand, or the MBT Tripod (MB150 and MB400 only).

MOONLIGHT LIGHTING SYSTEM — ASSEMBLY

MBC CART ASSEMBLY

If the Moonlight balloon is to be mounted into the MBC Cart, perform the following assembly procedure before installing the balloon.

1. Step on the ON position of the brake on the wheel of the MBC cart to keep the cart in place during assembly. See Figure 6.

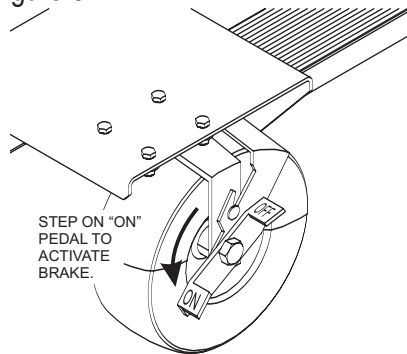


Figure 6. Setting the Brake On

2. Install the T-handle as shown in Figure 7 and tighten the bolt.

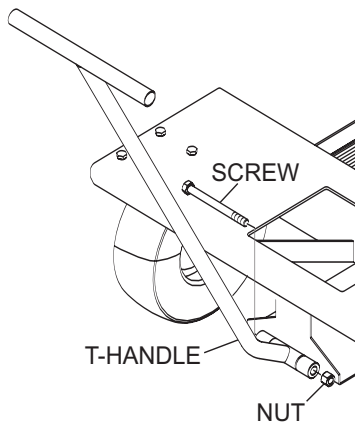


Figure 7. T-Handle Installation

3. Install the clamp as shown in Figure 8 and tighten with bolt. Push handle towards clamp to secure handle in place as shown in Figure 9.

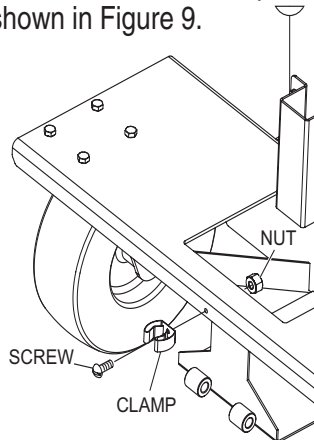


Figure 8. Clamp Installation

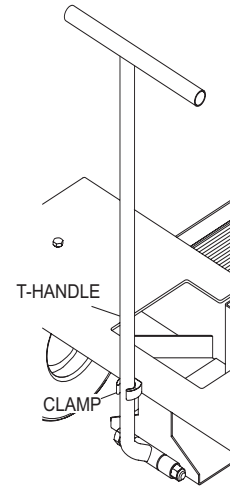


Figure 9. Clamped T-Handle

4. Slide mast into the slot in the cart as shown in Figure 10. Tighten the 4 bolts to keep the mast in place.

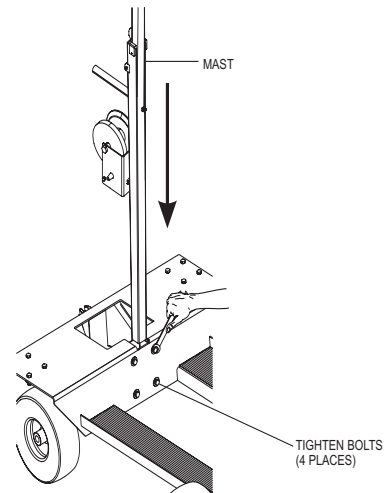


Figure 10. MBC Mast Installation

5. Remove the pin near the top of the mast and insert the extrusion on the top of the mast. Reinsert the pin to hold extrusion in place. See Figure 11.

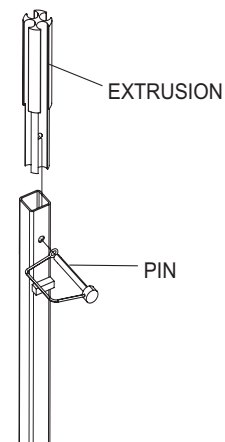


Figure 11. Extrusion Installation

MOONLIGHT LIGHTING SYSTEM — ASSEMBLY

6. Install the winch handle on the mast as shown in Figure 12.
2. Step on the leg lock to release each leg and pull down until it locks in place (see Figure 14).

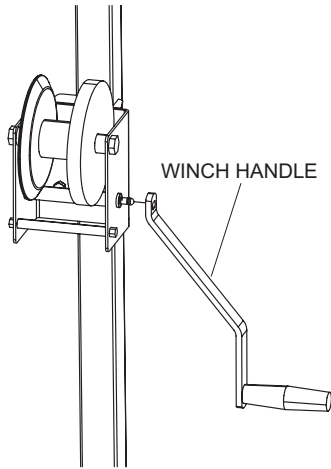
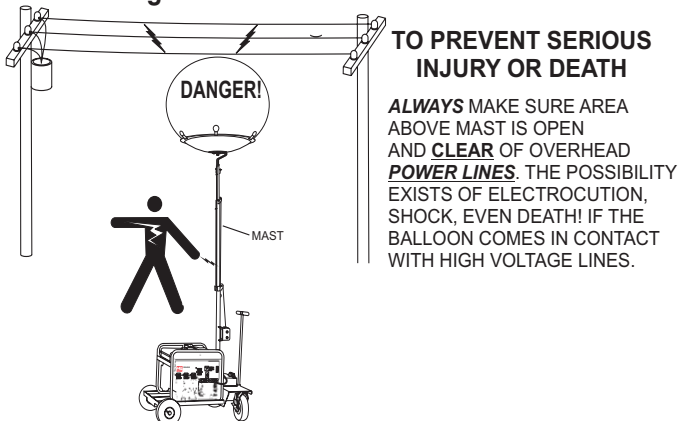


Figure 12. Winch Handle Installation



7. The cart is now ready for the balloon to be installed. Proceed to BALLOON INFLATION section.

MBS STAND ASSEMBLY

If the Moonlight balloon is to be mounted into the MBS Stand, perform the following assembly procedure before installing the balloon.

1. Attach the 4 legs of the stand as shown in Figure 13.

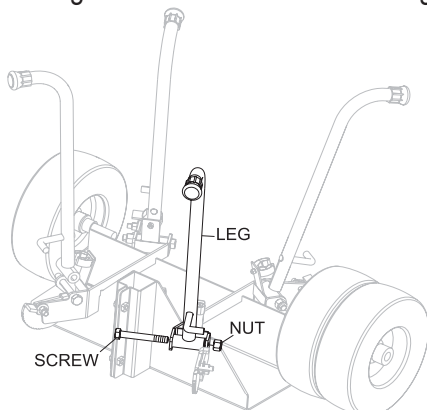


Figure 13. Stand Legs Installation

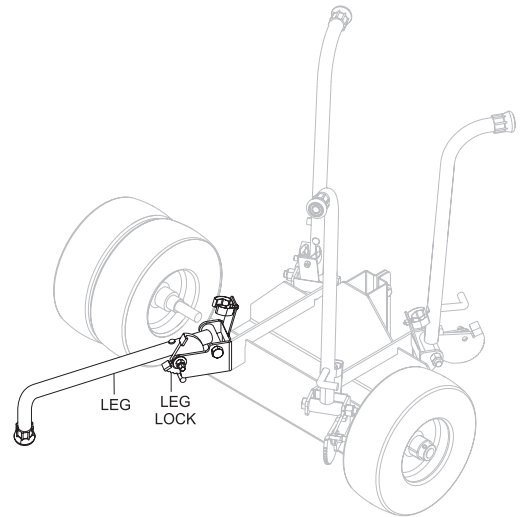


Figure 14. Stand Legs Deployed

3. Slide mast into the stand and tighten the two nuts as shown in Figure 15.

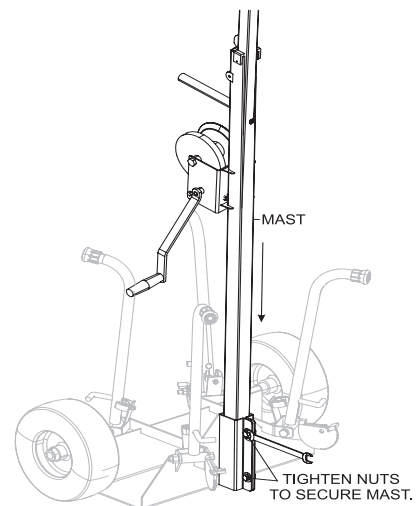
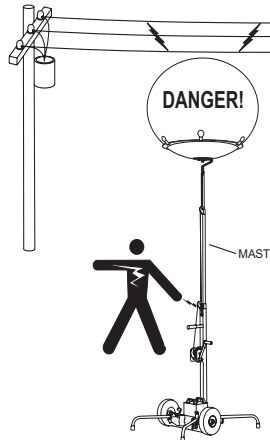


Figure 15. MBS Mast Installation

MOONLIGHT LIGHTING SYSTEM — ASSEMBLY

4. Install the winch handle on the mast as shown in Figure 12.
5. The stand is now ready for the balloon to be installed. Proceed to BALLOON INFLATION section.



TO PREVENT SERIOUS INJURY OR DEATH

ALWAYS MAKE SURE AREA ABOVE MAST IS OPEN AND **CLEAR** OF OVERHEAD **POWER LINES**. THE POSSIBILITY EXISTS OF ELECTROCUTION, SHOCK, EVEN DEATH! IF THE BALLOON COMES IN CONTACT WITH HIGH VOLTAGE LINES.

MBT TRIPOD ASSEMBLY

The MBT Tripod can be used with the MB150 and MB400 Balloons. The MBT Tripod is shipped pre-installed.

1. To secure the legs in place, loosen the knob (see Figure 17), pull the legs out and tighten the knob.

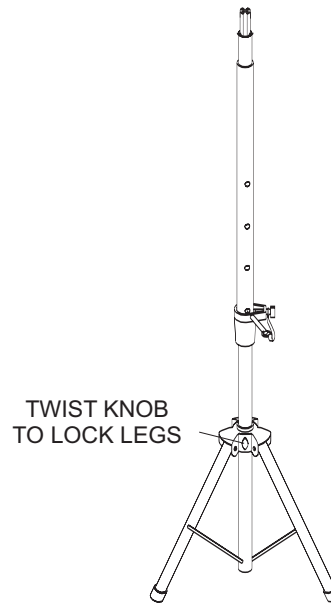


Figure 17. MBT Tripod Adjustments

6. When balloon and mast are removed and stored, the MBS stand legs can be stowed as shown in Figure 16.

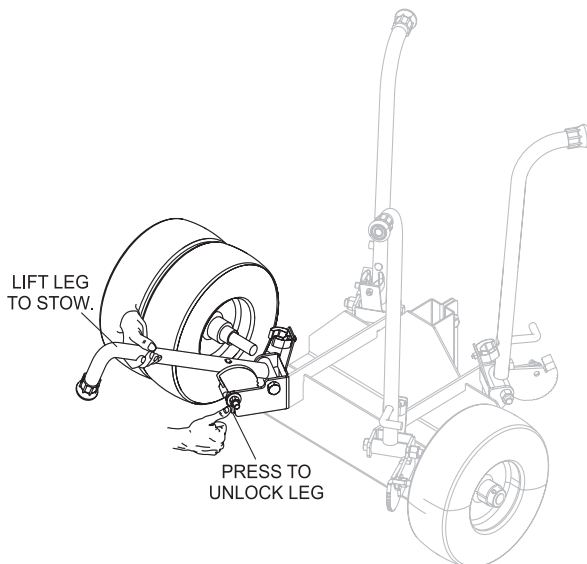
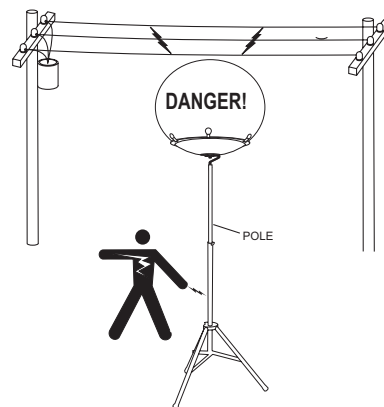


Figure 16. Stand Legs Stored



TO PREVENT SERIOUS INJURY OR DEATH

ALWAYS MAKE SURE AREA ABOVE POLE IS OPEN AND **CLEAR** OF OVERHEAD **POWER LINES**. THE POSSIBILITY EXISTS OF ELECTROCUTION, SHOCK, EVEN DEATH! IF THE BALLOON COMES IN CONTACT WITH HIGH VOLTAGE LINES.

2. The tripod is now ready for the balloon to be installed. Proceed to BALLOON INFLATION section.

MBP POLE ASSEMBLY

If the Moonlight balloon is to be mounted into the MBP Pole, perform the following assembly procedure before installing the balloon.

1. Insert the pole (see Figure 18) into the base and secure by tightening the wing nut on the base.

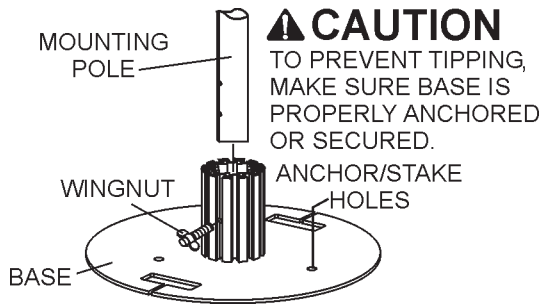


Figure 18. MBP Mounting Pole Assembly

2. The pole is now ready for the balloon to be installed. Proceed to BALLOON INFLATION section.

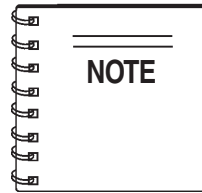
MOONLIGHT LIGHTING SYSTEM — SETUP

CAUTION - READ MANUAL

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



2. Unfold the PVC material of the balloon enough to allow the light fixture to be inserted into the balloon base. If necessary, use the supplied blower to help expand the PVC material as shown in Figure 21.



The rechargeable blower is shipped with a minimal charge. Use AC adapter to charge before use.

BALLOON COMPONENTS

The various components of the balloon are contained in a case. Figure 19 shows all the different parts.

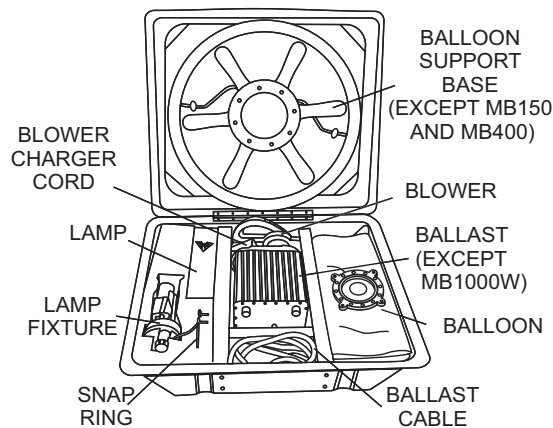


Figure 19. Balloon Components

BALLOON INFLATION

1. Screw the lamp into the lamp fixture as shown in Figure 20.

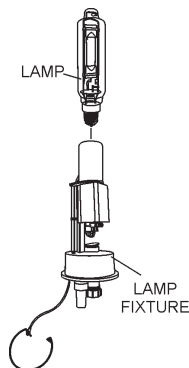


Figure 20. Inserting the Lamp

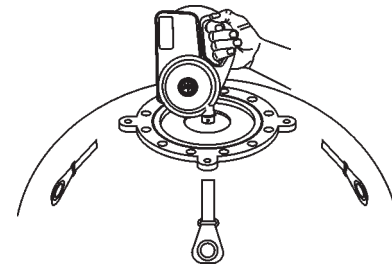


Figure 21. Expanding the Balloon PVC Material

3. Install the lamp fixture into the balloon. Do not force the bulb against the PVC material as this may damage the bulb. Set the snap ring (Figure 22) into the o-ring groove to ensure a complete seal of the balloon.

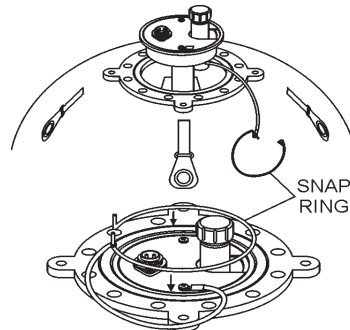


Figure 22. Installing the Lamp Fixture

4. Unscrew the cap (Figure 23) on the lamp fixture and use blower to inflate balloon until it is taut. Screw the cap back on and tighten.

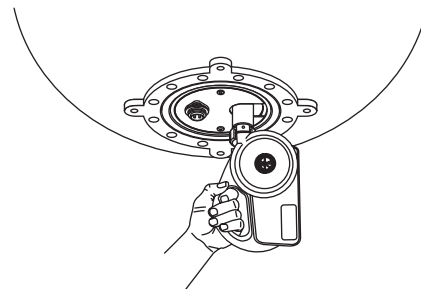


Figure 23. Inflating the Balloon

BALLOON INSTALLATION

MB1000/MB1000W/MB400B (54-inch Balloons)

1. For MB1000/W and MB400B (54-inch balloons), insert the balloon support base metal rods into the extrusion on the mounting accessory (MBP, MBC, or MBS) and tighten the knobs to secure them in place. See Figure 24.

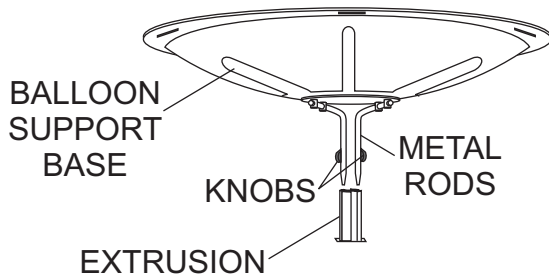


Figure 24. Attaching the Support Base to the Extrusion (MB1000/MB1000W/MB400B- 54-inch Balloons)

2. Slowly invert the balloon and place over the installed balloon support base (Figure 25), making sure lamp fixture is facing down and the Velcro straps are aligned with the holes on the balloon support base. Insert Velcro strips into the holes and fasten securely.

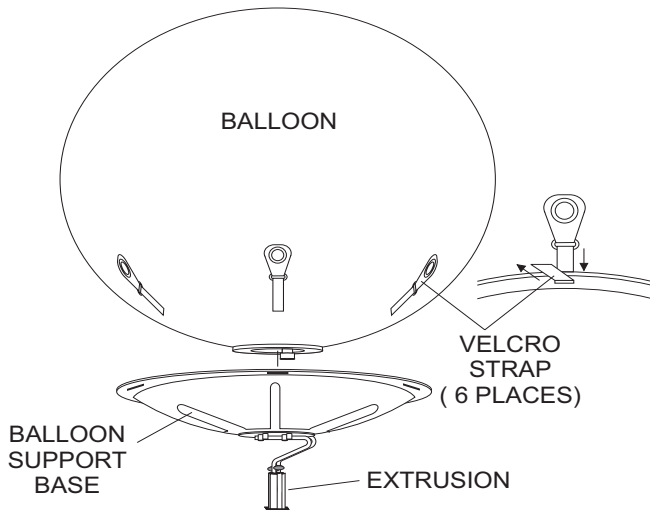


Figure 25. Attaching Balloon to Support Base (MB1000/MB1000W/MB400B- 54-inch Balloons)

MB150/MB400 (33.5-inch Balloons)

1. For MB150 and MB400 (33.5-inch balloons), insert the balloon metal rods into the extrusion on the mounting accessory (MBP, MBC, MBS, or MBT) and tighten the knobs to secure them in place (see Figure 26).

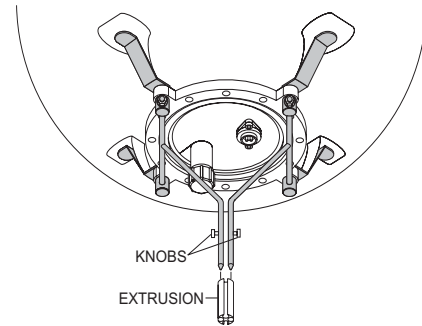


Figure 26. Attaching Balloon to the Extrusion (MB150/MB400 - 33.5-inch Balloons)

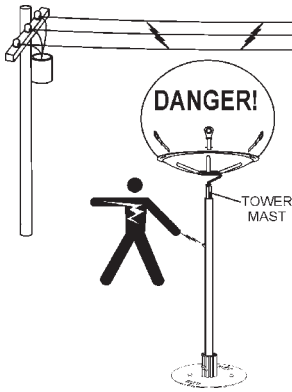
BALLOON DISASSEMBLY

1. To disassemble unit, perform balloon inflation steps in reverse order. Allow the lamp to cool for 15 minutes before attempting to disassemble unit.

MOONLIGHT LIGHTING SYSTEM — SETUP

! DANGER - Mounting Accessory Tipping

ALWAYS make sure that the mounting pole, cart, stand or tripod is properly secured to prevent tipping! Use sandbags or stakes to secure the mounting accessory as necessary.



TO PREVENT SERIOUS INJURY OR DEATH

ALWAYS MAKE SURE AREA ABOVE TOWER MAST IS OPEN AND **CLEAR** OF OVERHEAD **POWER LINES**. THE POSSIBILITY EXISTS OF ELECTROCUTION, SHOCK, EVEN DEATH! IF THE BALLOON COMES IN CONTACT WITH HIGH VOLTAGE LINES.

POLE HEIGHT ADJUSTMENT (MBP)

1. To adjust the height of the pole, loosen the height adjustment knob (see Figure 27) on the MBP mounting pole and slowly pull up the inner pole to the desired height. Tighten the height adjustment knob.

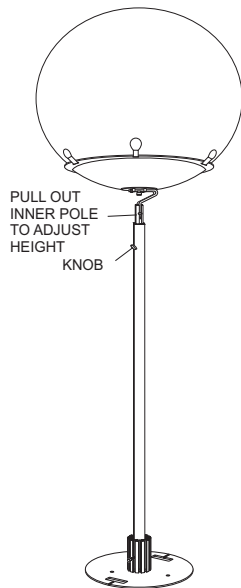


Figure 27. MBP Pole Height Adjustment

! CAUTION - Pole Safety

When raising or lowering the pole, keep hands and fingers clear of the section between the pole and the inner pole. This will prevent hands and fingers from getting pinched.

MAST HEIGHT ADJUSTMENT (MBC and MBS)

1. To adjust the height of the mast on the MBC cart or MBS stand, rotate the winch handle until the mast is at the desired height (see Figure 28).

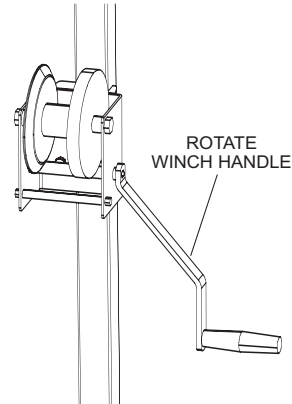


Figure 28. MBC and MBS Mast Height Adjustment

! CAUTION - 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.

POLE HEIGHT ADJUSTMENT (MBT)

1. To adjust the height of the pole on the MBT tripod, remove the pin that holds the pole in place and loosen the knob (see Figure 29). Adjust the pole to the desired height and tighten knob to secure pole. Put back the pin to lock pole in place.

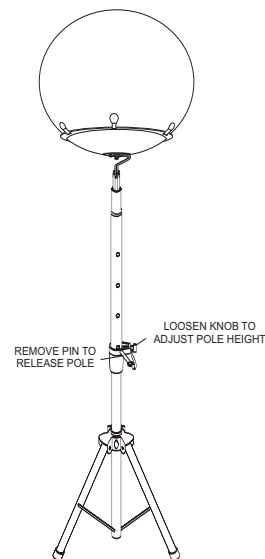


Figure 29. MBT Pole Height Adjustment

MOONLIGHT LIGHTING SYSTEM — OPERATION

ELECTRICAL CONNECTIONS (MB150/MB400/MB400B/MB1000)

1. Insert the female end of the ballast cable (Figure 30) into the connector on the lamp fixture. Insert the male end of the ballast cable into the female connector on the ballast.

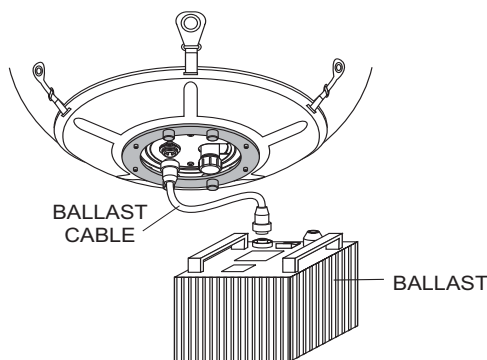


Figure 30. Connecting the Ballast Cable

1. Make sure the power ON/OFF switch (Figure 31) located on the ballast is in the **OFF** position.

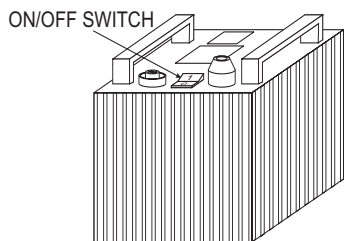


Figure 31. Power OFF/ON Switch

2. Plug the power cable from the ballast to a 110V/60 Hz power source (Figure 32).

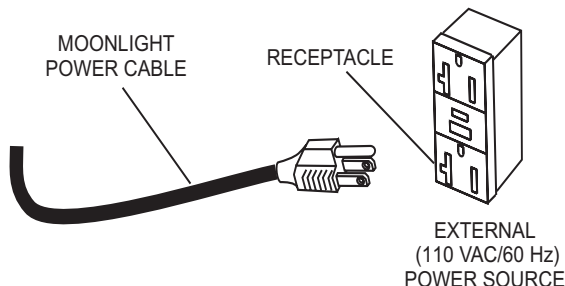
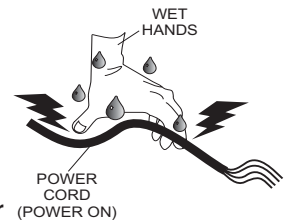


Figure 32. Connecting to 110 VAC Receptacle

⚠ DANGER - 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!**



3. Place the ON/OFF switch to the ON position to turn on lamp. The lamp should flicker for a few minutes as the internal gases warm up. It should reach full power within 4 minutes.

Shutdown

1. Place the power ON/OFF switch (Figure 31) in the **OFF** position.

ELECTRICAL CONNECTIONS (MB1000W)

1. Plug the power cable from the MB1000W directly to a 110V/60 Hz power source (Figure 32). The lamp should automatically light.
2. To turn off lamp, disconnect power cable.

⚠ CAUTION - LAMP COOL DOWN

Allow a sufficient amount of time (15-20 minutes) for the lamp to **cool down** before attempting to disassemble unit.

MOVING THE BALLOON

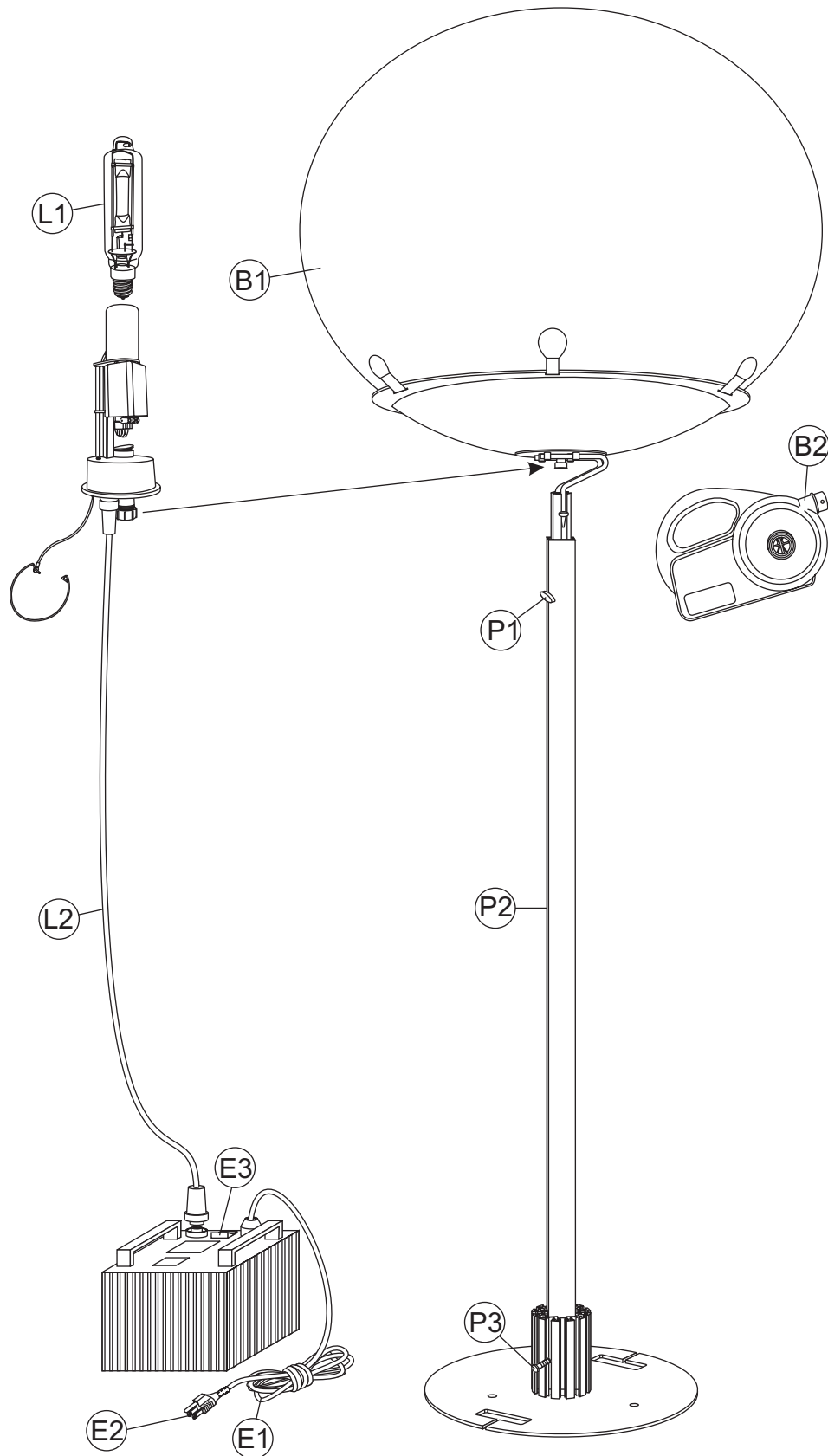
1. When moving balloon around, make sure that the pole or mast is lowered to the shortest height possible and make sure pole or mast is securely fastened.

⚠ DANGER - Overhead Obstructions

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



MOONLIGHT LIGHTING SYSTEM — MAINTENANCE



MOONLIGHT LIGHTING SYSTEM — MAINTENANCE

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

TABLE 2. PERIODIC CHECK AND MAINTENANCE

FIGURE		PART	CHECK ITEM	SOLUTION	
Lamp	L1	Lamp	Defective lamp?	Replace.	❖
	L2	Cable/Connector	Cable disconnected or loose?	Connect securely.	■
Balloon	B1	Balloon	Defective or Worn?	Replace.	❖
	B2	Blower	Not working properly?	Repair or replace.	❖
Pole	P1	Bolt Lock	Bolt loose?	Tighten securely.	■
	P2	Pole	Damaged?	Replace.	❖
	P3	Wing Nut	Nut loose?	Tighten securely.	■
Electric	E1	Power Cable	Defective or worn cable?	Replace.	❖
	E2	Plug	Damaged?	Replace.	❖
	E3	On/Off Switch	Not working properly?	Repair or replace.	❖
❖ - Daily Check ■ - Every 20 Hours					

MOONLIGHT LIGHTING SYSTEM — TROUBLESHOOTING

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 Troubleshooting (Table 3) 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 3. TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Lamp does not light.	Is ballast cable securely connected?	Plug in correctly.
	Are generator and light tower switched on?	Turn on switch.
	Is lamp loose?	Screw lamp securely into socket.
	Are any other electric appliances (other than light tower) plugged into power source?	Unplug all other appliances.
	Is generator voltage normal (non-load voltage - 110 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 - 110 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 blower working properly?	Check or recharge blower.
	Does balloon have a leak?	Repair or replace balloon.

EXPLANATION OF CODE IN REMARKS COLUMN

The following section explains the different symbols and remarks used in the Parts section of this manual. Use the help numbers found on the back page of the manual if there are any questions.

The contents and part numbers listed in the parts section are subject to change **without notice**. Multiquip does not guarantee the availability of the parts listed.

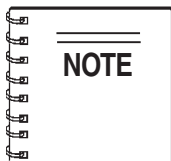
Sample Parts List:

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	12345	BOLT	1	INCLUDES ITEMS W/*
2*		WASHER, 1/4 IN.		NOT SOLD SEPARATELY
2*	12347	WASHER, 3/8 IN.	1	MQ-45T ONLY
3	12348	HOSE	A/R ..	MAKE LOCALLY
4	12349	BEARING	1	S/N 2345B AND ABOVE

NO. Column

Unique Symbols - All items with same unique symbol (*, #, +, %, or >) in the number column belong to the same assembly or kit, which is indicated by a note in the "Remarks" column.

Duplicate Item Numbers - Duplicate numbers indicate multiple part numbers are in effect for the same general item, such as different size saw blade guards in use or a part that has been updated on newer versions of the same machine.



When ordering a part that has more than one item number listed, check the remarks column for help in determining the proper part to order.

PART NO. Column

Numbers Used - Part numbers can be indicated by a number, a blank entry, or TBD.

TBD (To Be Determined) is generally used to show a part that has not been assigned a formal part number at time of publication.

A blank entry generally indicates that the item is not sold separately or is not sold by Multiquip. Other entries will be clarified in the "Remarks" Column.

QTY. Column

Numbers Used - Item quantity can be indicated by a number, a blank entry, or A/R.

A/R (As Required) is generally used for hoses or other parts that are sold in bulk and cut to length.

A blank entry generally indicates that the item is not sold separately. Other entries will be clarified in the "Remarks" Column.

REMARKS Column

Some of the most common notes found in the "Remarks" Column are listed below. Other additional notes needed to describe the item can also be shown.

Assembly/Kit - All items on the parts list with the same unique symbol will be included when this item is purchased.

Indicated by:

"INCLUDES ITEMS W/(unique symbol)"

Serial Number Break - Used to list an effective serial number range where a particular part is used.

Indicated by:

"S/N XXXXX AND BELOW"

"S/N XXXX AND ABOVE"

"S/N XXXX TO S/N XXX"

Specific Model Number Use - Indicates that the part is used only with the specific model number or model number variant listed. It can also be used to show a part is NOT used on a specific model or model number variant.

Indicated by:

"XXXXX ONLY"

"NOT USED ON XXXX"

"Make/Obtain Locally" - Indicates that the part can be purchased at any hardware shop or made out of available items. Examples include battery cables, shims, and certain washers and nuts.

"Not Sold Separately" - Indicates that an item cannot be purchased as a separate item and is either part of an assembly/kit that can be purchased, or is not available for sale through Multiquip.

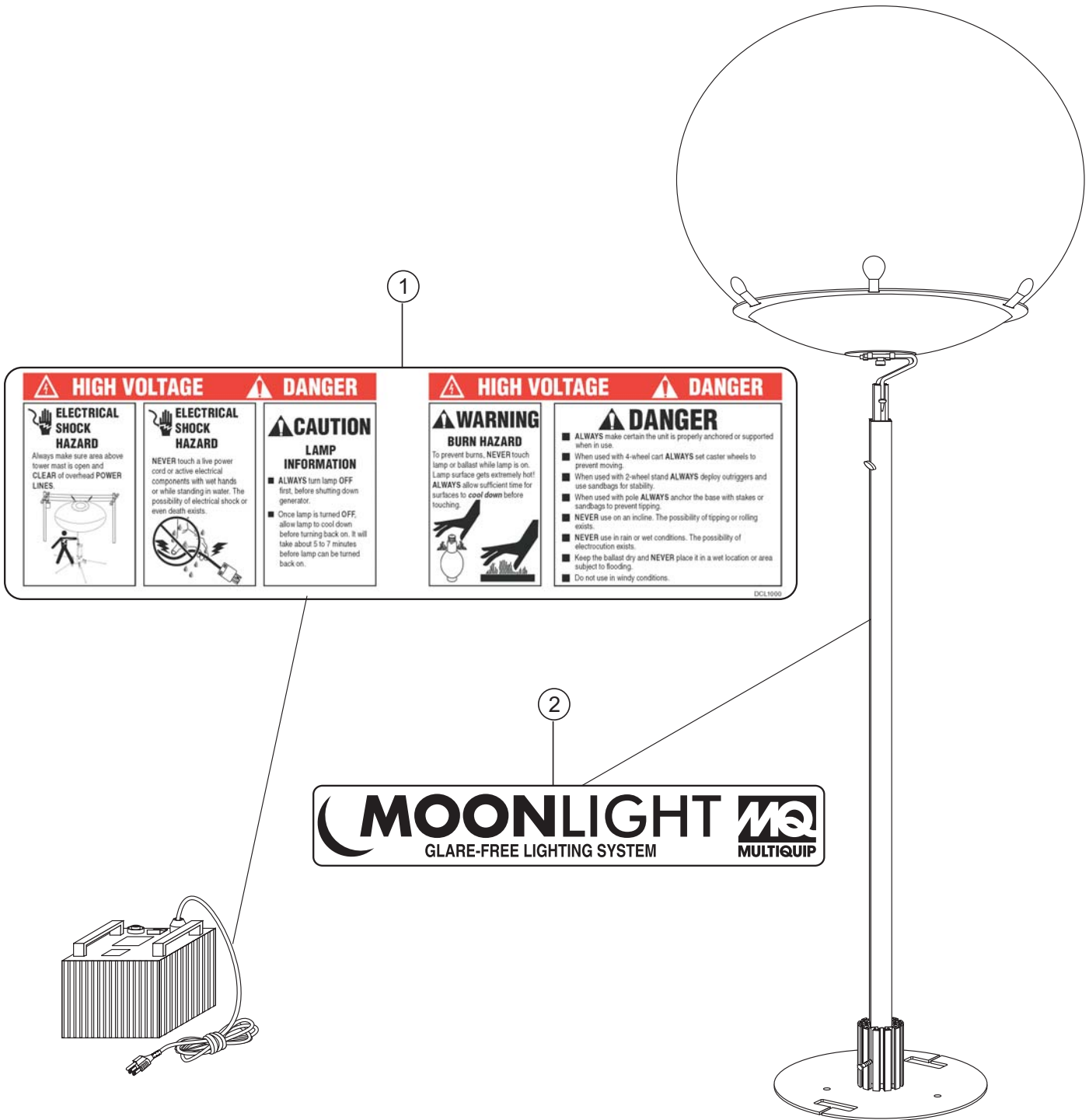
MOONLIGHT LIGHTING SYSTEM — SUGGESTED SPARE PARTS

MOONLIGHT LIGHTING SYSTEM 1 TO 3 UNITS

<u>Qty.</u>	<u>P/N</u>	<u>Description</u>	<u>Remarks</u>
1	04568	RING, SNAP	ALL MODELS
1	04569	CAP, FILL	ALL MODELS
1	29903	MOUNT, LIGHT	ALL MODELS
1	QS1869	PIN, SNAP 1/4"	ALL MODELS
1	MLHIT1000/U/LU/4K	LAMP, 1000 W HID	MB1000
1	MLHIT400/HBU/T15	LAMP, 400 W HID	MB400
1	MLHIT150	LAMP, 150 W HID	MB150
1	19850	TIRE/RIM 410/350 X4 PNEUMATIC	MBC, MBS
1	29920	CASTER, 10" SWIVEL W/BRK	MBC

MOONLIGHT LIGHTING SYSTEM — NAMEPLATE AND DECALS

NAMEPLATE AND DECALS



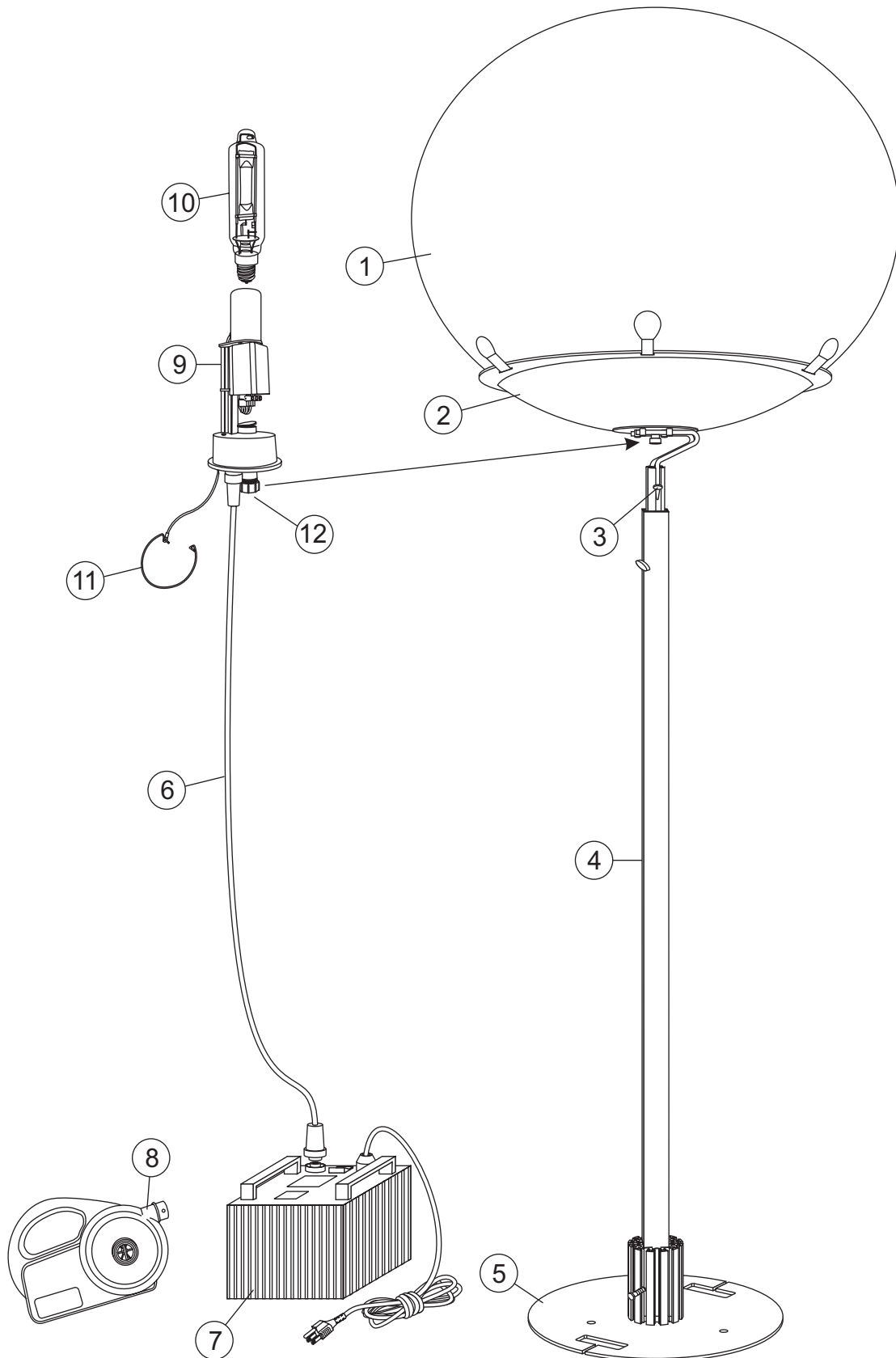
MOONLIGHT LIGHTING SYSTEM — NAMEPLATE AND DECALS

NAMEPLATE AND DECALS

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	DCL1000	DECAL; WARNING LABEL, CORD-WRAP	1	
2	DCL1010	DECAL; MOONLIGHT, POLE	1	

MOONLIGHT LIGHTING SYSTEM — BALLOON (WITH MBP) ASSY.

BALLOON ASSY.



MOONLIGHT LIGHTING SYSTEM — BALLOON (WITH MBP) ASSY.

BALLOON ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	MLMLB54	PVC BALLOON, 54"	1	MB1000, MB1000W, MB400B
1	MLMLB33	PVC BALLOON, 33.5"	1	MB400, MB150
2	MLPC31	PETG PLASTIC SUPPORT BASE	1	MLB54
3	ML780322	INNER TELESCOPIC POLE	1	
4	ML780321	OUTER TELESCOPIC POLE	1	
5	ML0015	PLASMA CUT STEEL BASE	1	
6	MLCA15	15-FT CONNECTOR CABLE	1	
7	MLBAL1000	BALLAST, 1000 W / 110 V	1	
7	MLBAL400	BALLAST, 400 W / 110 V	1	
7	MLBAL150	BALLAST, 150W / 110 V	1	
8	MLC400	BLOWER (INFLATOR)	1	
9	MLLK1000/400	ELECTRICAL SYSTEM (LAMP)	1	FOR 1000 AND 400 W LAMPS
9	MLLK150	ELECTRICAL SYSTEM (LAMP)	1	FOR 150 W LAMP
10	MLHIT1000/U/LU/4K	LAMP, 1000 W HID	1	
10	MLHIT400/HBU/T15	LAMP, 400 W HID	1	
10	MLHIT150	LAMP, 150 W HID	1	
11	ML04568	RING, SNAP	1	
12	ML04569	CAP, FILL	1	

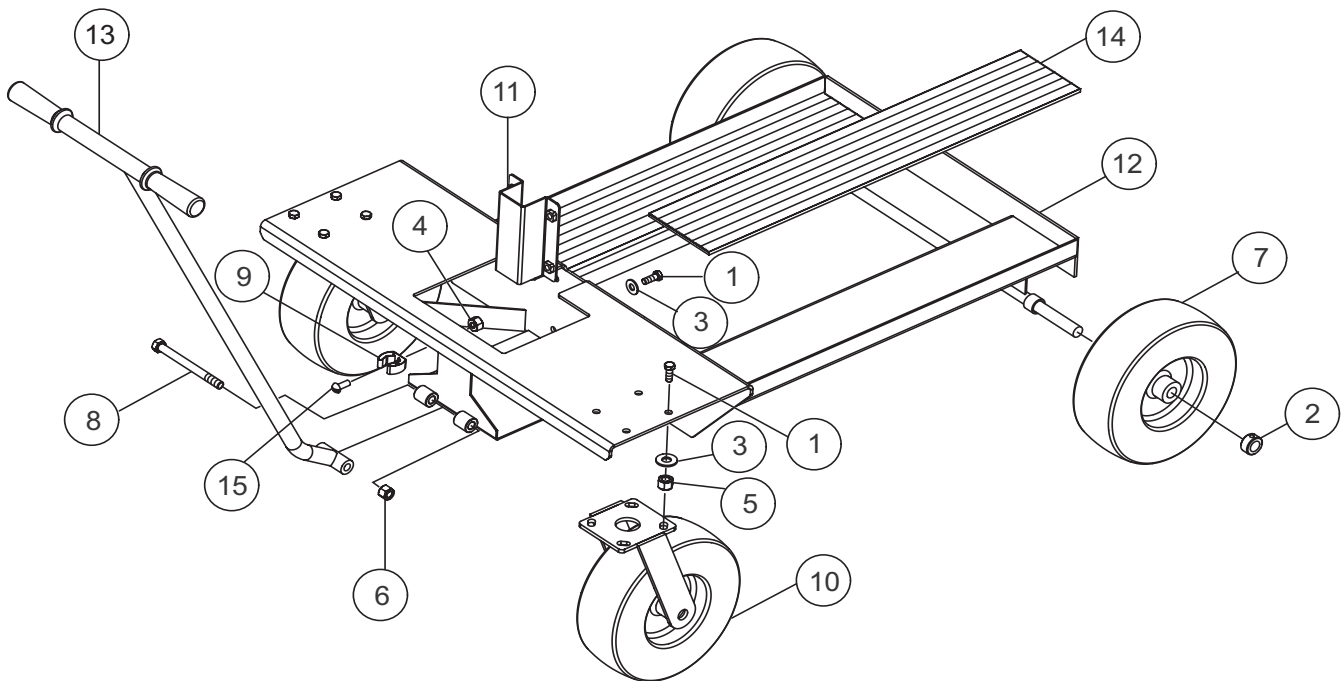
MOONLIGHT LIGHTING SYSTEM — MAST ASSY. (MBC and MBS)

MAST ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	0181 B	WASHER, LOCK 1/4" MED	1	
2	0730	SCREW, HHC 1/4-20 X 1	2	
3	1579	SCREW, HHC 1/4-20 X .5	1	
4	23793-001	WHEEL-CONVEYOR CART, MASONRY SAW	2	
5	4001	WASHER, FLAT USS 3/8 PLD	3	
6	4196	SCREW, HHC 3/8-16 X .75	3	
7	5133	PIN CLEVIS 1/4 X 7/8"	1	
8	10024	NUT, NYLOC 1/4-20	2	
9	29854	MAST W/A, LOWER	1	
10	29891	MAST W/A, UPPER	1	
11	29894	MAST W/A, MIDDLE	1	
12	29902	GUIDE, MAST SLIDE	8	
13	29903	MOUNT, LIGHT	1	
14	29910	WINCH BRACKET, 1500 DL 5149646	1	
15	29915	CABLE, LOWER MAST, 1/8 X 96"	1	
16	29916	CABLE, UPPER, MAST, 3/32 X 57"	1	
17	29919	SWAGE, AL 3/32 X 57"	1	
18	QS1869	PIN, SNAP 1/4"	1	

MOONLIGHT LIGHTING SYSTEM — MBC CART ASSY.

MBC CART ASSY.



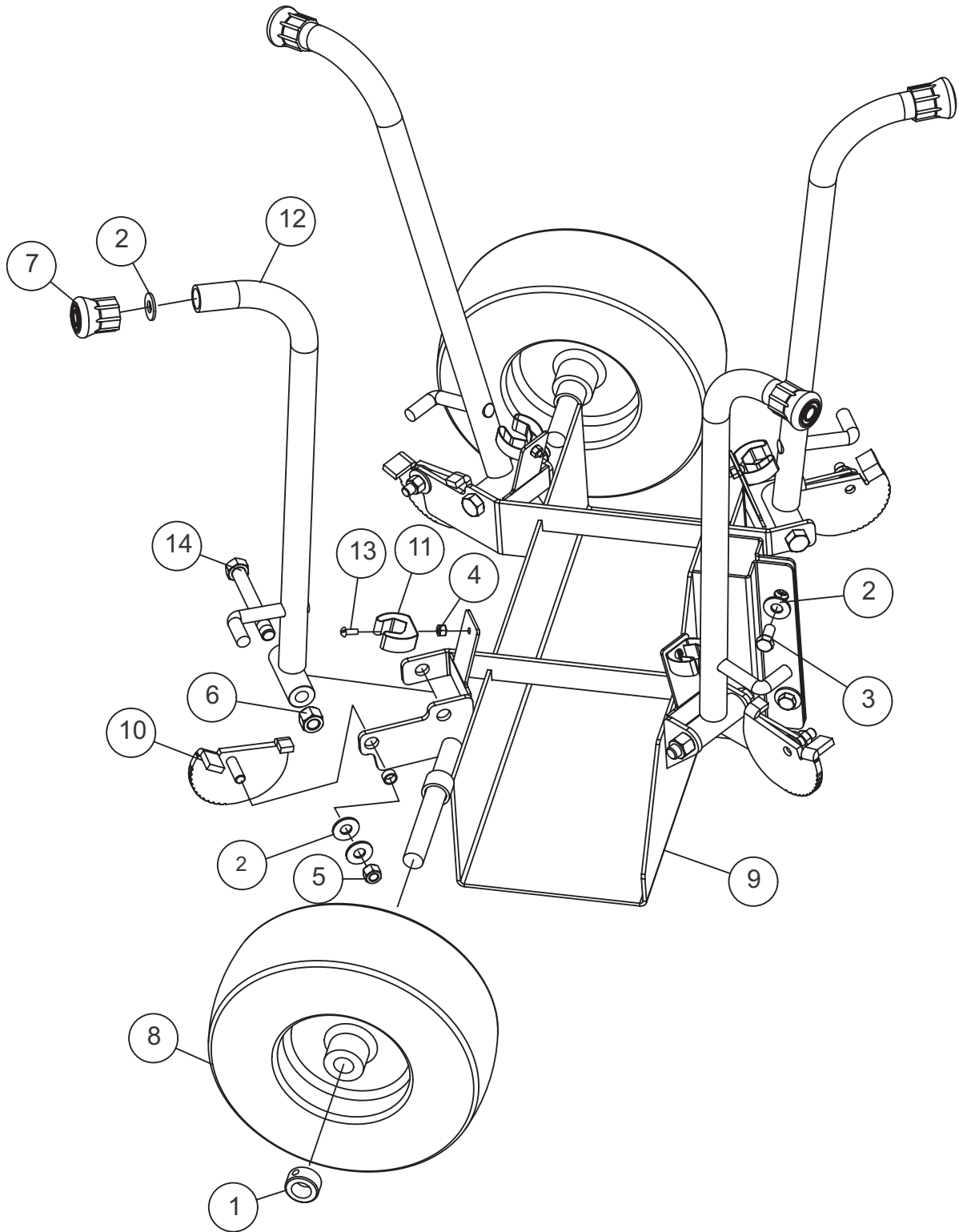
MOONLIGHT LIGHTING SYSTEM — MBC CART ASSY.

MBC CART ASSY.

<u>NO.</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY</u>	<u>REMARKS</u>
1	0205	SCREW, HHC 3/8-16 X 1.0	12	
2	3615	COLLAR, SET 3/4 ID	2	
3	4001	WASHER, FLAT USS 3/8 PLD	12	
4	10019	NUT, NYLOC 10-32	1	
5	10133	NUT, NYLOC 3/8-16	8	
6	10176	NUT, NYLOC 1/2-13	1	
7	19850	TIRE/RIM 410/350 X4 PNEUMATIC	2	
8	29017	SCREW, HHC 1/2-13 X 5-1/2	1	
9	29909	CLIP, 1" SPRING, GIBSON #225-L	1	
10	29920	CASTER, 10" SWIVEL W/BRK	2	
11	29927	CLAMP, MAST W/A, MBC	1	
12	29928	CART BASE, W/A, MBC	1	
13	29933	HANDLE W/A, MBC	1	
14	29934	MAT, RUBBER V RIB, 5.5 X 29.75	2	
15	5065B	SCREW, PHP 10-32 X 1/2	1	

MOONLIGHT LIGHTING SYSTEM — MBS STAND ASSY.

MBS STAND ASSY.



MOONLIGHT LIGHTING SYSTEM — MBS STAND ASSY.

MBS STAND ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY</u>	<u>REMARKS</u>
1	3615	COLLAR, SET 3/4 ID	2	
2	4001	WASHER, FLAT USS 3/8 PLD	14	
3	4196	SCERW, HHC 3/8-16 X.75	2	
4	10019	NUT, NYLOC 10-32	4	
5	10133	NUT, NYLOC 3/8-16	4	
6	10176	NUT, NYLOC 1/2-13	4	
7	19716	CRUTCH TIP	4	
8	19850	TIRE, RIM 410/350 x4 PNEUMATIC	2	
9	29905	BASE W/A	1	
10	29908	RATCHET LOCK W/A	4	
11	29909	CLIP, 1" SPRING, GIBSON #225-L	4	
12	29913	SUPPORT LEG W/A	4	
13	5065 B	SCREW, PHP 10-32 X 1/2	4	
14	06503-030	SCREW, HHC 1/2-13 X 3-3/4	4	

PAYMENT TERMS

Terms of payment for parts are net 30 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.

OPERATION & PARTS MANUAL

HERE'S HOW TO GET HELP

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

UNITED STATES

Multiquip Corporate Office

18910 Wilmington Ave. Tel: (800) 421-1244
Carson, CA 90746 Fax (800) 537-3927
Contact: mq@multiquip.com

Mayco Parts

800-306-2926 Fax: 800-672-7877
310-537-3700 Fax: 310-637-3284

Service Department

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

MQ Parts Department

800-427-1244 Fax: 800-672-7877
310-537-3700 Fax: 310-637-3284

Warranty Department

800-421-1244, Ext. 279 Fax: 310-537-1173
310-537-3700, Ext. 279

Technical Assistance

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

MEXICO

MQ Cipsa

Carr. Fed. Mexico-Puebla KM 126.5 Tel: (52) 222-225-9900
Momoxpan, Cholula, Puebla 72760 Mexico Fax: (52) 222-285-0420
Contact: pmastretta@cipsa.com.mx

CANADA

Multiquip

4110 Industriel Boul. Tel: (450) 625-2244
Laval, Quebec, Canada H7L 6V3 Fax: (450) 625-8664
Contact: jmartin@multiquip.com

UNITED KINGDOM

Multiquip (UK) Limited Head Office

Hanover Mill, Fitzroy Street, Tel: 0161 339 2223
Ashton-under-Lyne, Fax: 0161 339 3226
Lancashire OL7 0TL
Contact: sales@multiquip.co.uk

BRAZIL

Multiquip

Av. Evandro Lins e Silva, 840 - grupo 505 Tel: 011-55-21-3433-9055
Barra de Tijuca - Rio de Janeiro Fax: 011-55-21-3433-9055
Contact: cnavarro@multiquip.com.br, srentes@multiquip.com.br

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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 *Moonlight Lighting System*. Illustrations, descriptions, references and technical data contained in this manual are for guidance only and may not be considered as binding. 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.

Your Local Dealer is:

