# **OPERATION AND PARTS MANUAL**



# **MODULAR LIGHT TOWER (MLT)**

# **USED WITH THE FOLLOWING GENERATORS/WELDERS: DA7000SS KD-1800 KD-6** Goto **SDW-225**

Revision #5 (08/15/08)



our parts

Search Website by Part Number <b>Discount</b>	Search Manual Library For Parts Manual & Lookup Part Numbers – Purchase or Request Quote	Can't Find Part or Manual? Request Help by Manufacturer, Model & Description
Equipment		Parts Order Form
		1 No.Asc Taic
	Search Manuals	aramates Cranton
	History was participant as a subject of the participant and a source manual to backly an parts	NUC
	1 Incl	Gran
(a) E.D., 2019 (F.D.), 2019	SCOL Bland	
Where Somice Makes The DifferenceIII States of	* Bodd	Nuber 5
матиль слас мональсартия кули силот Солинст		ch
Marchanic Party Technical Party 2010 2010	Sold bit: SoldSorie	DateTorpton
na zvaljejner pr		3042131 (203 ·
Care Seconds and Process	Park Bankes. Enter Park Hender (Not respired)	526.00
An addressed Series 2017	Dianska	4 au *
	Enter Describer Run You Are Locking For	C479.82
		De la
	School Sc	Eral -
		Factoria

Discount-Equipment.com is your online resource for quality parts & equipment.

Florida: 561-964-4949 Outside Florida TOLL FREE: 877-690-3101

### Need parts?

Click on this link: http://www.discount-equipment.com/category/5443-parts/ and choose one of the options to help get the right parts and equipment you are looking for. Please have the machine model and serial number available in order to help us get you the correct parts. If you don't find the part on the website or on one of the online manuals, please fill out the request form and one of our experienced staff members will get back to you with a quote for the right part that your machine needs.

We sell worldwide for the brands: Genie, Terex, JLG, MultiQuip, Mikasa, Essick, Whiteman, Mayco, Toro Stone, Diamond Products, Generac Magnum, Airman, Haulotte, Barreto,
Power Blanket, Nifty Lift, Atlas Copco, Chicago Pneumatic, Allmand, Miller Curber, Skyjack, Lull, Skytrak, Tsurumi, Husquvarna Target, Stow, Wacker, Sakai, Mi-T-M, Sullair, Basic, Dynapac, MBW, Weber, Bartell, Bennar Newman, Haulotte, Ditch Runner, Menegotti, Morrison, Contec, Buddy, Crown, Edco, Wyco, Bomag, Laymor, EZ Trench, Bil-Jax, F.S.
Curtis, Gehl Pavers, Heli, Honda, ICS/PowerGrit, IHI, Partner, Imer, Clipper, MMD, Koshin, Rice, CH&E, General Equipment, Amida, Coleman, NAC, Gradall, Square Shooter, Kent, Stanley, Tamco, Toku, Hatz, Kohler, Robin, Wisconsin, Northrock, Oztec, Toker TK, Rol-Air, APT, Wylie, Ingersoll Rand / Doosan, Innovatech, Con X, Ammann, Mecalac, Makinex, Smith Surface Prep,Small Line, Wanco, Yanmar

# MARNING A

### CALIFORNIA — Proposition 65 Warning

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

# TABLE OF CONTENTS

# **MQ Whiteman Modular Light Tower (MLT)**

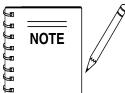
Proposition 65 Warning	
Reporting Safety Defects	
Table Of Contents	4
Parts Ordering Procedures	5
Safety Message Alert Symbols	
Rules For Safe Operation	
Operation and Safety Decals	10-11
Specifications	12
General Information	13
Dimensions	14-15
Components	16
Floodlight Footcandle Plot	17-19
Towing Guidelines	
Trailer Safety Guidelines	22-28
Trauiler Wiring Diagram	
Hrdraulic Brake Troubleshooting	30
Electric Brake Troubleshooting	
T-Bar Installation	32
Tower Mast Pre-Setup	
Engine Pre-Setup	
Operation	
Maintenance	
Preparation For Long Term Storage	
MLT Troubleshooting	
Schematic Diagram	
Ballast Compartment Wiring Diagram	
Electric Fuel Switch Wiring Diagram	
Explanation Of Code In Remarks Column.	
Spare Parts List	

CO to DISCO

# **COMPONENT DRAWINGS**

Name Plate and Decals	46-47
Mast Assembly	
Winch Assembly	
Floodlight Mounting Assembly	
Light Fixture Assembly (Early)	
Light Fixture Assembly (Current)	
Trailer Assembly	
Axle Assembly	60-61
Fuel Tank Assembly	62-63
Optional Electric Fuel Switch Assembly	
Support Stands Assembly	
Generator/Welder Trailer Mounting Assembly	68-69
Coil Cord Assembly	
Power Cable Assembly	72-73
Ballast Compartment Cover Assembly	
Ballast Compartment Assembly	76-77

Terms and Conditions Of Sale — Parts ...... 78



Specification and part number are subject to change without notice.

# ${\sf MODULAR\,LIGHT\,TOWER}-{\sf SAFETY\,MESSAGE\,ALERT\,SYMBOLS}$

### 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.



NOTE

This Owner's Manual has been developed to provide complete instructions for the safe and efficient operation of the *MQ Whiteman Modular Light Tower (MLT)*. <u>Before</u> <u>using this Light Tower, ensure</u> <u>that the operating individual has</u> <u>read and understands all</u> <u>instructions in this manual.</u>

### 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 *MLT Light Tower* 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

### Lethal Exhaust Gases



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.

### Explosive Fuel



**Diesel 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.

### 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.

### **Respiratory Hazard**



ALWAYS wear approved *respiratory* protection when required.

### Rotating Parts



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

# MODULAR LIGHT TOWER — SAFETY MESSAGE ALERT SYMBOLS

### 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.

### **Respiratory Hazard**



wear approved respiratory ALWAYS protection.

### Sight and Hearing hazard



ALWAYS wear approved eye and hearing protection.

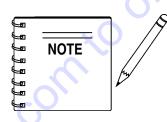
### Equipment Damage Messages

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

### **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.



This light tower, other property, or the surrounding environment could be damaged if you do not follow instructions.

# MODULAR LIGHT TOWER — RULES FOR SAFE OPERATION

# **CAUTION:**



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 light tower/generator:

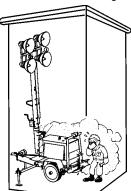
### **GENERAL SAFETY**

- 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, steeltoed 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 or drugs or alcohol.
- 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.
- Manufacture does not assume responsibility for any accident due to equipment modifications.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- ALWAYS check all the bolts on the light tower for tightness.
- NEVER touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing engine or generator.



■ 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 light tower/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 light tower/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<u>smoke</u> 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 light tower/generator 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.
- ALWAYS make sure that the light tower/generator is secure on level ground so that it cannot slide or shift around, endangering workers. Also keep the immediate area free of bystanders.
- ALWAYS use a <u>trained technician</u> to install and remove a floodlight, or replace any damaged fixture wiring.
- NEVER leave any grease or oil residue on glass surface when replacing or removing bulbs. This can create hot spots, reducing the service life of the bulb or causing outer jacket to burst.
- ALWAYS make sure trailer is placed on level ground with outriggers extended before raising tower. Outriggers must remain extended while tower is up.
- NEVER raise, lower or relocate mast while unit is operating!
- ALWAYS keep area behind trailer clear of people while raising and lowering mast.
- NEVER remove safety pin or pull mast locking pin while tower is in an raised position!
- CHECK the mast and winch cables for wear. If any problem occurs when lower or raising the tower STOP immediately!
- NEVER pivot or retract mast while unit is operating.



# MODULAR LIGHT TOWER — RULES FOR SAFE OPERATION

# **DANGER**:



The **6 DANGER** items listed below 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 light tower.** 

### DANGER

This light tower/generator is equipped with a *ground terminal* for your protection. Always complete the *grounding path* from the light tower to an external grounding source. The possibility exists



of *electrical shock*, *electrocution*, and even *death!* if the light tower is not grounded

# DANGER

ALWAYS make certain light tower 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 light tower is not grounded.



## DANGER

**NEVER** operate this light tower/generator, or handle any electrical equipment while standing in *water, while bare foot, while hands are wet, or in the rain.* **Dangerous electrical shock could occur causing severe bodily harm or even death.** 

# DANGER

**ALWAYS** Keep electrical cords in good condition. Worn, bare or frayed wiring can cause electrical shock, thus causing *bodily harm or even death*.



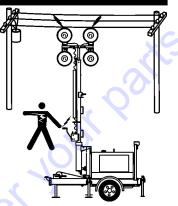
# DANGER

**NEVER** grab or touch a live power cord with wet hands, the possibility exists of **electrical shock**, **electrocution**, and even **death**!



### DANGER

*To prevent serious injury or death*, ALWAYS make sure area above trailer is open and clear of overhead *powerlines* and *obstructions*. The tower extends in excess of 30 ft. (9 meters).



- ALWAYS keep the immediate area surrounding the light tower clean, neat, and free of debris.
- ALWAYS lower the tower when not in use, or if high winds or electrical storms are expected in the area.
- NEVER pivot or retract mast while unit is operating.
- ALWAYS position and operate light tower on a firm, level surface.
- NEVER touch bulbs while in use. Bulbs become extremely hot when in use! Allow bulbs and fixture to cool at least 10-15 minutes before handling.

### Maintenance Safety

- NEVER lubricate components or attempt service on a running light tower/generator.
- ALWAYS allow the light tower/generator a proper amount of time to cool before servicing.
- Keep the light tower/generator in proper running condition.
- Fix damage to the light tower/generator immediately and always replace broken parts.

### 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.

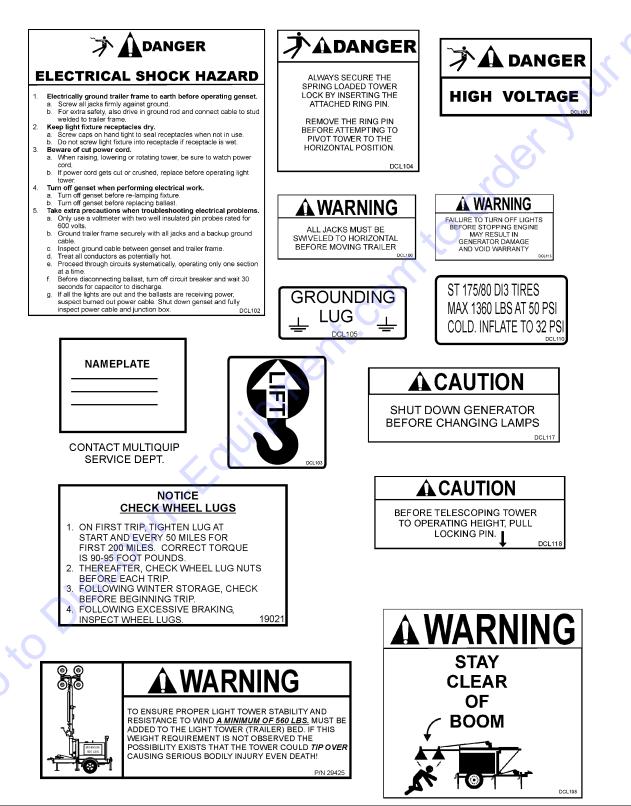


MODULAR LIGHT TOWER — PARTS & OPERATION MANUAL — REV. #5 (08/15/08) — PAGE 9

# MODULAR LIGHT TOWER — OPERATION AND SAFETY DECALS

### **Machine Safety Decals**

This modular light tower is equipped with a number of safety decals. These decals are provided for operator safety and maintenance information. The illustration below and on the next page shows these decals as they appear on the machine. Should any of these decals become unreadable, replacements can be obtained from your dealer.



PAGE 10 — MODULAR LIGHT TOWER — PARTS & OPERATION MANUAL — REV. #5 (08/15/08)

# MODULAR LIGHT TOWER — OPERATION AND SAFETY DECALS

# DANGER

FORKS MUST BE INSERTED INTO FORK POCKETS A MINIMUM OF 24 INCHES. ATTACH FORKLIFT SAFETY CHAIN TO EQUIPMENT BEFORE LIFTING. FAILURE TO DO SO MAY RESULT IN THE EQUIPMENT FALLING OFF THE FORKS. DCI 111

### TOWING INSTRUCTIONS

- READ OPERATORS MANUAL
- CHECK THAT HITCH AND COUPLING DEVICE ARE RATED EQUAL TO OR GREATER THAN TRAILER "GROSS VEHICLE WEIGHT RATING". 2
- CHECK HITCH AND COUPLING DEVICE FOR WORN OR DEFECTIVE PARTS. ENSURE THAT COUPLING DEVICE IS SECURE TO VEHICLE. 3
- CHECK TIRES FOR TREAD WEAR AND INFLATION.

### CONNECT SAFETY CHAINS USING CROSS PATTERN. CONNECT BREAKDOWN CHAIN TO BUMPER OR HITCH. 5.

- TEST BRAKES ON BOTH VEHICLES. CHECK TRAILER LIGHTS FOR PROPER OPERATION. 6
- INSPECT AND GREASE BEARINGS EVERY 1000 MILES OR ONCE A YEAR. CAUTION: TRAILER TO BE LEVEL WHEN TOWING. MAX. TOWING SPEED: 55 MPH (88 KM/H)

DCL112

### **OPERATING INSTRUCTIONS**

### START ENGINE GENERATOR

- Check the levels of the engine oil, fuel and coolant. Make sure all circuit breakers and auxiliary switches are in the OFF position before starting engine. **CAUTION:** Starting generator under load can cause damage. If the engine is fitted with a glow plugs, turn the key to the preheat position and hold
- 3 for 3-5 sec.
- 4 Turn the key to the "START" position and hold until the engine starts, then release. **CAUTION:** If the engine does not start in 20 seconds, release key and repeat steps 3 & 4.

**NOTE:** If unit is equipped with Auto-Shutdown, the system will automatically shut off the fuel supply if oil pressure is not obtained within 30 seconds after key is turned to "ON" position. You must return the key to the "OFF" position to restart the 30 second timer if engine does not start.

### TURN ON THE FLOODLIGHTS

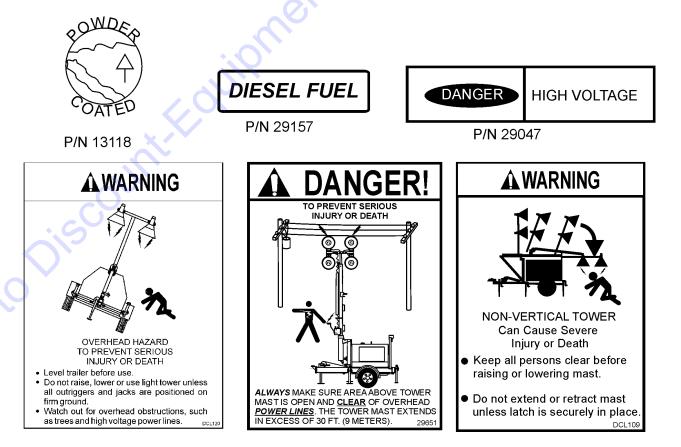
- Once engine achieves operating speed and is running smoothly, turn on each floodlight circuit breaker to the "ON" position.
- NOTE: Floodlights require a warm-up of 5-15 minutes before they reach full output. If shut-down, a 10 minute cool down is required before restarting. DCL119





HOT PARTS can burn skin. Do not touch until the machine has sufficiently cooled.

P/N B9504000304



MODULAR LIGHT TOWER — PARTS & OPERATION MANUAL — REV. #5 (08/15/08) — PAGE 11

# MODULAR LIGHTTOWER — SPECIFICATIONS

		ABLE 1. SPECIFICATI	ONS	
Model	MLT-DA7 Generator	MLT-KD-6/KD1800Generator	MLT-SDW Welder/Generator	MLT (No Generator)
Weight (Dry)	1,588 lbs. (720 kg.)	1,764 lbs. (800 kg.)	1768 lbs. (802 kg.)	1062 lbs. (481 kg.)
Length	173 in. (1,854 mm.)	173 in. (1,854 mm.)	173 in. (1,854 mm.)	173 in. (1,854 mm.)
Height	70 in. (1,778 mm.)	70 in. (1,778 mm.)	70 in. (1,778 mm.)	70 in. (1,778 mm.)
Width	50 in. (1,270 mm,)	50 in. (1,270 m.)	50 in. (1,270 m.)	50 in. (1,270 m.)
Max. Tower Height	30 ft. (9.14 meters)	30 ft. (9.14 meters)	30 ft. (9.14 meters)	30 ft. (9.14 meters)
Support Points	4	4	4	4
Wind Stability with Genset	72 mph (116 kph)	72 mph (116 kph)	72 mph (116 kph)	44 mph 72 mph (71 kpl
Ground Clearance	6.5 in. (165 mm.)	6.5 in. (165 mm.)	6.5 in. (165 mm.)	6.5 in. (165 mm.)
Hitch Type	Adjustable 2" ball	Adjustable 2" ball	Adjustable 2" ball	Adjustable 2" ball
Tire Size	13" (330 mm.)	13" (330 mm.)	13" (330 mm.)	13" (330 mm.)
Winch Capacity	1,500 lbs. (680 kg.)	1,500 lbs. (680 kg.)	1,500 lbs. (680 kg.)	1,500 lbs. (680 kg.)
Winch Rope Wire	3/16"	3/16"	3/16"	3/16"
Floodlights	4-1000 Watt Metal Halide	4-1000 Watt Metal Halide	4-1000 Watt Metal Halide	4-1000 Watt Metal Halic
Lumens	440,000	440,000	440,000	440,000
Light Coverage	5 to 7 acres	5 to 7 acres	5 to 7 acres	5 to 7 acres
Light Termination	4 x 3-pin QD plug	4 x 3-pin QD plug	4 x 3-pin QD plug	4 x 3-pin QD plug
Sound Level @ 23 ft.	65.7 dB	65.7 dB	68.7 dB	N/A
		ipnet		
50 to Dis	6	jipme		

# MODULAR LIGHT TOWER — GENERAL INFORMATION

onto

The Multiquip *modular* light tower is a general purpose floodlight tower intended for emergency and remote lighting conditions.

This *modular light tower* (MLT) can be configured to operate with four different types of power sources: The *DA-7000*, *KD-6*, *KD-1800* generators or the *SDW-225SS* welder/generator. For information regarding the generator or welder sections of the light tower, refer to the following manuals:

- DA7000SS Generator Operation and Parts Manual
- KD-6/KD1800 Generator Operation and Parts Manual
- SDW225 Welder/Generator Operation and Parts Manual

A cross-drilled T-bar allows the lights to be positioned either horizontally or vertically.

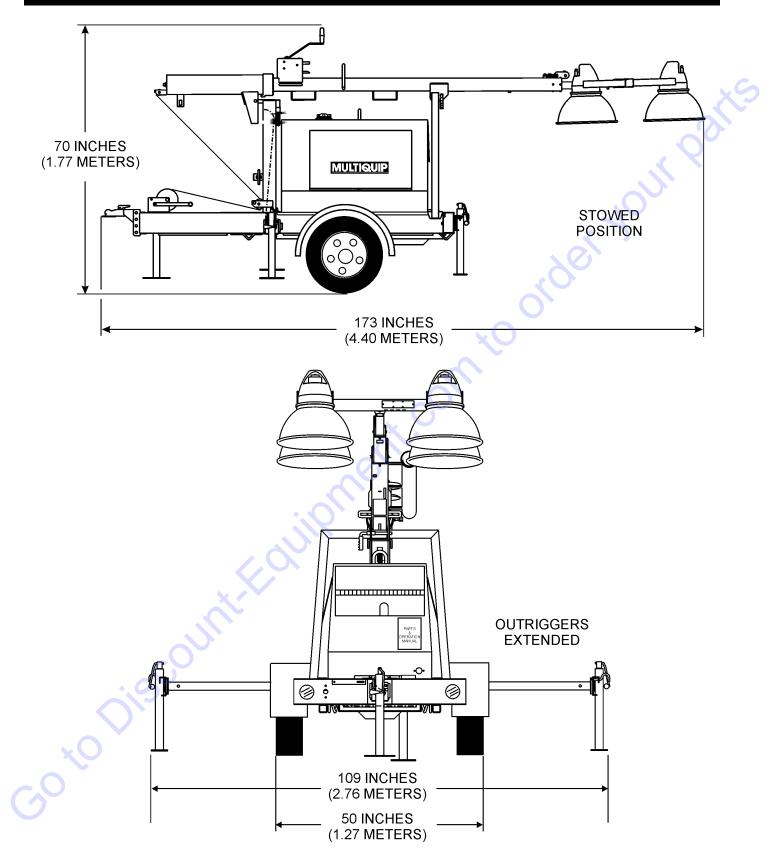
The light tower can be raised vertically in excess of 30 feet (9.0 meters) by means of a manual winch. The tower tensioning system is designed to provide the necessary tension to safely control the pivot of the tower.

The lighting system of Multiquip's modular light tower is comprised of 4 "Metal Halide" 1000 watt lamps. Each lamp has an output of 110,000 lumens yielding a total of 440,000 lumens for all four floodlights. Typical lighting coverage is between 5 to 7 acres.

Each floodlight requires a ballast for starting. Located in the tongue of the trailer is a weather resistant ballast box that the contains the ballast for each floodlight. On the outside of the ballast box there is a light control panel. The panel contains the ON/OFF circuit breakers for each pair of floodlights and a ground stud for proper earth grounding.

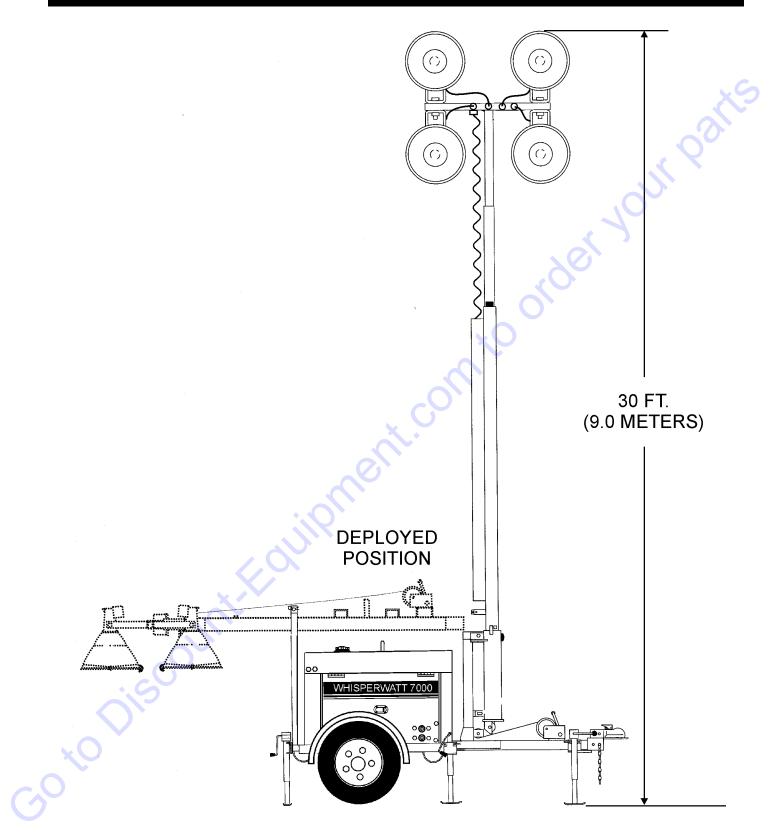
For ease of service or transport, each floodlight is equipped with a quick-disconnect connector that allows the lamp fixture to be removed quickly. This feature is extremely useful during transport of the light tower over rough terrain. It is always best to remove the floodlights and pack them safely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

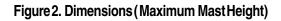
# MODULAR LIGHT TOWER — DIMENSIONS





# MODULAR LIGHT TOWER — DIMENSIONS





### MODULAR LIGHT TOWER - PARTS & OPERATION MANUAL - REV. #5 (08/15/08) - PAGE 15

# MODULAR LIGHT TOWER — COMPONENTS

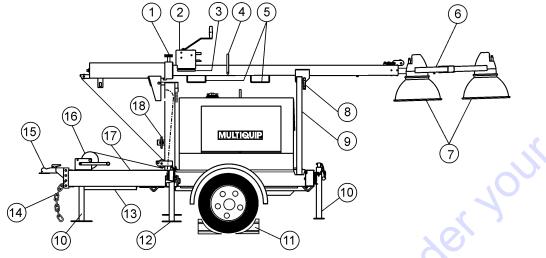


Figure 3. Components

Figure 3 shows the location of the controls and components for the Modular Light Tower. The functions of each control is described below:

- 1. **Mast Rotation Locking Knob** Unscrew this knob to release mast for rotation.
- Vertical Mast Extension Winch Use this winch to extend the mast to the desire height. Maximum height is approximately 30 feet (9 meters).
- Mast Rotation Handle Grip this handle to rotate mast to desired position. To lock mast tighten mast rotation locking knob.
- Lifting Bail When lifting of the light tower by crane is required, use this lifting bail. Note: this lifting bail is balanced for a *fully configured* light tower; removal of any light tower components will un-balance the lifting bail.
- Forklift Pockets When lifting of the light tower is required, use these fork lift pockets to lift the light tower. Remember to insert the forks of the fork lift a minimum of 24 inches into the mast fork lift pockets.
- T-Bar Allows the floodlights to be adjusted vertically or horizontally.
- Flood Light 1000 watt "Metal Halide" type bulb with a 110,000 lumens capacity. Light coverage is typically between 5 to 7 acres.
- 8. **Tower Release Pin** Slide this pin to release tower mast from cradle support stand.
- Mast Cradle Support Stand When towing of the light tower is required, secure the tower mast into the cradle support stand. Make sure tower release pin has been inserted and mast is locked.

- 10. Jack Stands There are two trailer jack stands, which are located at the front and rear of the trailer. Use these 2 jack stands to level and support the light tower.
- 11. Chock Blocks Place these blocks (not included as part of the light tower package) under each trailer wheel to prevent rolling.
- 12. **Outrigger Jacks** Use these 2 outrigger jacks to level and support the light tower.
- 13. **Ballast Compartment –** This compartment contains the ballasts electronics for each floodlight.
- 14. **Safety Chain** Always attach safety chain to the towing vehicle. Never tow the light tower with the safety chain unattached.
- 15. Ball Hitch Coupler Attach this coupler to the towing vehicle. Use only the specified ball diameter as indicated on your coupler. Use of any other ball diameter will create an extremely dangerous condition which can result in separation of the coupler and ball or ball failure.
- Vertical Mast Winch Use this winch to raise the mast the to the vertical position. Once mast is in the full vertical position be sure to insert locking pin.
- 17. Circuit Breaker and Floodlight Switch Panel This panel contains two single-pole 20 amp circuit breakers to protect the unit from overload and a ON/OFF circuit breaker (2) for each pair of floodlights.
- Mast Locking Pin Remove this pin while placing the tower mast in the vertical position. Insert locking pin when tower mast has reached full vertical position.

### PAGE 16 — MODULAR LIGHT TOWER — PARTS & OPERATION MANUAL — REV. #5 (08/15/08)

# MODULAR LIGHT TOWER — FLOODLIGHT FOOTCANDLE PLOT

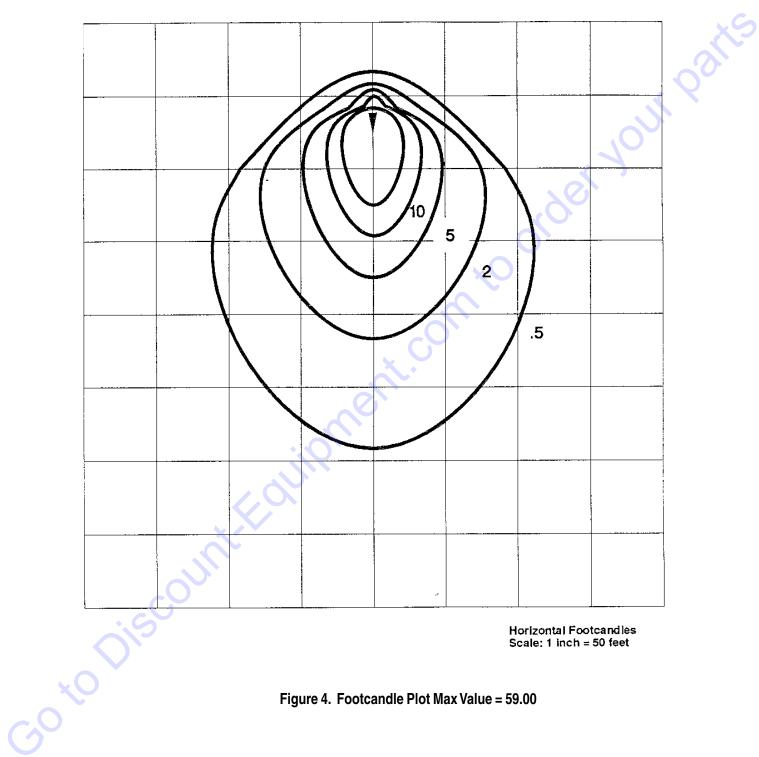
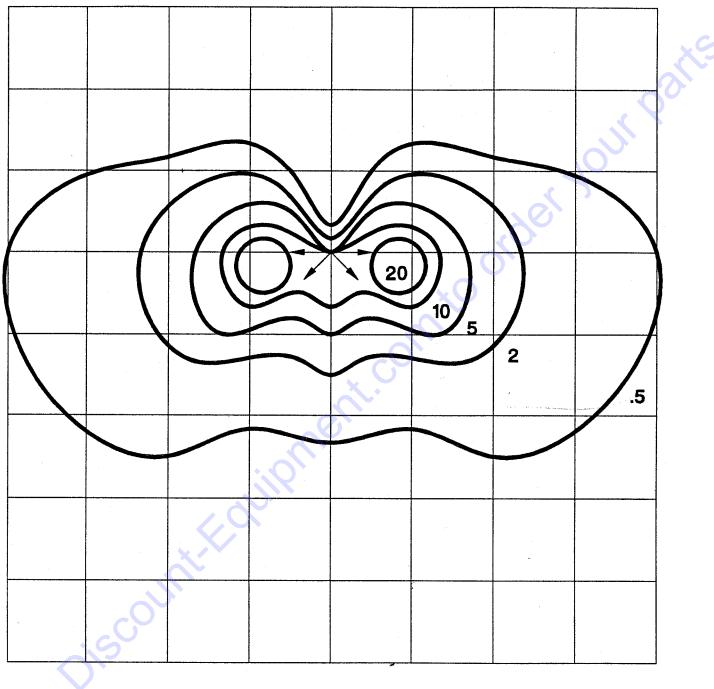


Figure 4. Footcandle Plot Max Value = 59.00

### MODULAR LIGHT TOWER - PARTS & OPERATION MANUAL - REV. #5 (08/15/08) - PAGE 17

# MODULAR LIGHT TOWER — FLOODLIGHT FOOTCANDLE PLOT

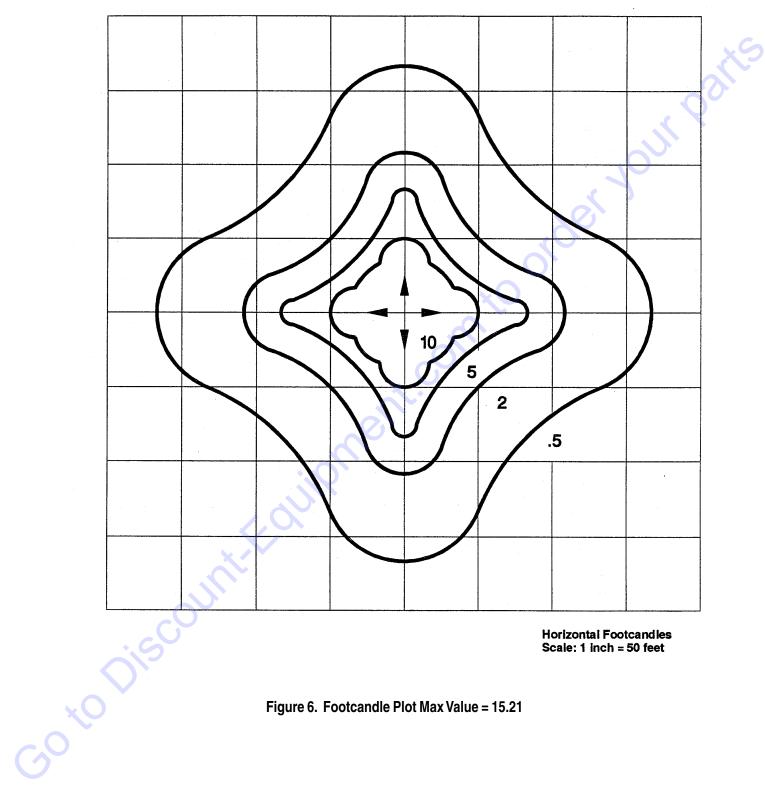


Horizontal Footcandles Scale: 1 inch = 50 feet

Figure 5. Footcandle Plot Max Value = 24.11

×C - 0

# MODULAR LIGHT TOWER — FLOOD LIGHT FOOTCANDLE PLOT



**Horizontal Footcandles** Scale: 1 inch = 50 feet

Figure 6. Footcandle Plot Max Value = 15.21

MODULAR LIGHT TOWER - PARTS & OPERATION MANUAL - REV. #5 (08/15/08) - PAGE 19

# MODULAR LIGHT TOWER — TOWING GUIDELINES

### **Towing Safety Precautions**





Check with your county or state safety towing regulations department before towing your *light tower*.

To reduce the possibility of an accident while transporting the light tower on public roads, always make sure that the trailer and the towing vehicle are in good operating condition and both units are mechanically sound.

The following list of suggestions should be used when towing the light tower:

- Make sure that the hitch and coupling of the towing vehicle are rated equal to, or greater than the trailer "gross vehicle weight rating" (GVWR). See Table 2 (Trailer Specifications/ Application).
- ALWAYS inspect the hitch and coupling for wear. NEVER tow the light tower's trailer with defective hitches, couplings, chains etc.
- CHECK the tire air pressure on both the towing vehicle and the trailer. Also check the tire tread wear on both vehicles.
- ALWAYS make sure the trailer section of the light tower is equipped with a "Safety Chain".
- ALWAYS attach trailer's safety chain to frame of towing vehicle.
- ALWAYS make sure that the vehicle and trailer directional, backup, brake, and trailer lights are connected properly and are working properly.
- Remember in most cases the maximum speed unless otherwise posted for highway towing is 45 MPH, however before towing your light tower, check your local state, and county vehicle towing requirements. Recommended off-road towing is not to exceed **10 MPH** or less depending on type of terrain.
- Place chocked blocks underneath wheel to prevent rolling, while parked.
- Depending on soil conditions and location it may be necessary to place support blocks underneath the trailer's bumper to prevent *tipping*, while parked.
- Inflate tires to correct pressure, inspect tires for cuts, and excessive wear. See Table 3 (Tire Wear Troubleshooting).

- Check wheel mounting lug nuts with a torque wrench. Torque wheel lug nuts as described in the "Lug Nut Torque Requirements", Table 4.
- Make sure brakes are synchronized (electric only) and functioning properly.
- Check tightness of hanger bolt, shackle bolt, and U-blots nuts, torque suspension hardware per Table 5.
- Avoid sudden stops and starts. This can cause skidding, or jackknifing. Smooth, gradual starts and stops will improve gas milage.
- Avoid sharp turns to prevent rolling.
- Remove wheel stand when transporting.
- DO NOT transport light tower with fuel in the welder/generator fuel tank.

# **CAUTION:**



If the trailer coupler is deformed replace entire coupler. **NEVER** tow the light tower with a defective trailer coupler. There exist the possibility of the trailer separating from the towing vehicle.

### Light Tower Trailer Vehicle Connection

- 1. Check the vehicle hitch ball, and trailer coupler for signs of wear or damage. Replace any parts that are worn or damaged before towing.
- 2. Use only the 2-inch ball diameter as indicated on the trailer's coupler. Use of any other ball diameter will create an extremely dangerous condition which can result in separation of the coupler and ball or ball failure.
- 3. Be sure the coupler is secured to the hitch ball and the lock lever is down (locked).
- 4. Attach safety chains as shown in Figure 7. Remember to *cross* the safety chains.
- 5. After towing for about 50 miles recheck the entire towing system for tightness.

### **Recommended Maintenance**

- 1. Smear ball socket and clamp face with chassis grease. Periodically oil pivot points and were surfaces of coupler with SAE 30 W motor oil.
- 2. When parking or storing the light tower, keep the coupler off the ground so dirt and other debris will not build up in the ball socket.

# MODULAR LIGHT TOWER — TOWING GUIDELINES

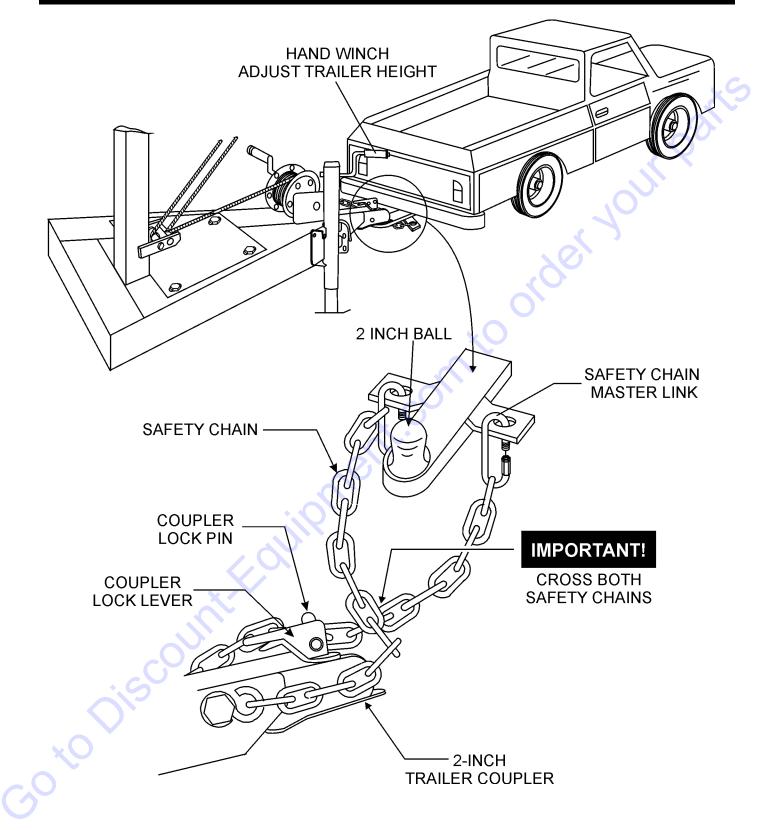


Figure 7. Safety Chains/Trailer Coupler Hook-up

# Trailer Safety Precautions



**ALWAYS** make sure that the trailer is in good operating condition. Check the tires for proper inflation and wear. Also check the wheel lug nuts for proper tightness.

This section is intended to provide the user with trailer service and maintenance information. The service and maintenance guidelines referenced in this section apply to a wide range of trailers. Remember periodic inspection of the trailer will ensure safe towing of the equipment and will prevent damage to the equipment and personal injury.

It is the purpose of this section to cover the major maintenance components of the trailer. The following trailer components will be discussed in this section:

- Brakes
- Tires
- Lug Nut Torquing
- Suspension
- Electrical
- Brake Troubleshooting Tables

Use the following definitions when reading Tables 2.

- 1. **Fuel Cell –** Provides fuel for the equipment in use. Fuel cells must be empty for transport when a common carrier is required.
- Braking System System employed in stopping the trailer. Typical braking systems are electric, surge, hydraulic, hydraulic-surge and air.
- 3. **GVWR** Gross Vehicle Weight Rating (**GVWR**), is the maximum number of pounds the trailer can carry, including the fuel cell (empty).

- 4. **Frame Length** This measurement is from the ball hitch to the rear bumper (reflector).
- Frame Width This measurement is from fender to fender.
- Jack Stand Trailer support device with maximum pound requirement from the tongue of the trailer.
- 7. **Coupler –** Type of hitch used on the trailer for towing.
- Tires Size Indicates the diameter of the tire in inches (10, 12, 13, 14, etc.), and the width in millimeters (175, 185, 205 etc.). The tire diameter must match the diameter of the tire rim.
- 9. **Tires Ply** The tire ply (layers) number is rated in letters; 2-ply, 4-ply, 6-ply, 8-ply, 10-ply etc.
- 10. Wheel Hub The wheel hub is connected to the trailer's axle. See Figure 11.
- 11. **Tire Rim** Tires are mounted on a tire rim. The tire rim must match the size of the tire.
- 12. **Lug Nuts** Used to secure the wheel to the wheel hub. Always use a torque wrench to tighten down the lug nuts. See Table 4 and Figure 10 or lug nut tightening and sequence.
- Axle Indicates the maximum weight the axle can support in pounds, and the diameter of the axle expressed in inches (see Table 2). Please note that some trailers have a double axle. This will be shown as 2-6000 lbs, meaning two axle's with a total weight capacity of 12,000 pounds.
- 14. **Suspension** Protects the trailer chassis from shocks transmitted through the wheels. Types of suspension used are leaf, Q-flex, and air-ride.
- 15. **Electrical** Electrical connectors (looms) are provided with the trailer so that brake lights and turn signal lights can be connected to the towing vehicle. See Figure 12 for proper wiring connections.
- 16. **Application** Indicates which units can be employed on a particular trailer.

MODEL	APPLICATION	FUEL CELL GALLONS	BRAKE SYSTEM	GVWR LBS.	FRAME LENGTH INCHES	FRAME WIDTH INCHES	JACK STAND CAPACITY (LE
TRLR-10-15	TLG-12, DCA15, TLW-300	NO	NO	1900	96	50	800 FULL TILT WHE
TRLR-10X	TLG-12, DCA15, TLW-300	NO	NO	1900	96	50	800 FULL TILT WHE
TRLR-10XF	TLG-12, DCA15, TLW-300	51 GAL	NO	1900	96	50	800 FULL TILT WHE
TRLR-225W	DCA-10	NO	NO	2200	85	42	800 FULL TILT WHE
BLW-400	BLW-400	NO	ELECTRIC	2700	W/MAST 154 W/O 124	55 (78" TALL)	800 FULL TILT WHE
TRLR-15XF	DCA-15	41	NO	2700	124	55	800 FULL TILT WHE
TRLR-50X	DCA-25	NO	NO	2700	124	55	800 FULL TILT WHE
TRLR-50XF	DCA-25	41	NO	2700	124	55	800 FULL TILT WHE
TRLR-25SBT	DCA-25	NO	NO	2990	120	66	800 FULL TILT WHE
TRLR-70W	DCA-45, -60, 70	NO	SURGE	7000	186	77	2000 FLAT PAD
TRLR-70X	DCA-45, -60, 70	OPT	SURGE	7000	138	66	2000 FLAT PAD
TRLR-70XF	DCA-45, -60, 70	53	SURGE	7000	138	66	2000 FLAT PAD
TRLR-100XF	DCA-100, 125	150	HYDRAULIC SURGE	7000	190	76	2000 FLAT PAD
TRLR-85/125	DCA-85, 100, 125	145	HYDRAULIC	10000	186	77	2000 FLAT PAD
TRLR-150XF	DCA-150, 180	200	HYDRAULIC SURGE	11160	204	84	5000 FLAT PAD
TRLR-220XF	DCA-220	250	HYDRAULIC SURGE	14000L	222	83	5000 FLAT PAD
TRLR-300XF	DCA-300	250	HYDRAULIC SURGE	18000	238	83	5000 FLAT PAD
TRLR-400XF	DCA-400	350	ELECTRIC	18000	238	83	5000 FLAT PAD
TRLR-600XF	DCA-600, 800	550	AIR	30000	384	96	5000 FLAT PAD
TRLR-800SX	DCA-600, 800	550	AIR	30000	384	96	5000 FLAT PAD

MODEL	COUPLER	TIRES	RIMS	AXLE	HUBS	SUSPENSION	ELECTRICAL
TRLR-10-15W	2" BALL CLASS 2 ADJUSTABLE	175-13C	13"X4.50"	2200 LBS. 2X2	5 LUG	3 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-10X	2"BALL CLASS 2 ADJUSTABLE	175-13C	13"X4.5"	2200 LBS. 2X2	5 LUG	3 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-10XF	2"BALL CLASS 2 ADJUSTABLE	175-13C	13"X4.5"	220 LBS. 2X2	5 LUG	3 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-225W	2"BALL CLASS 2 ADJUSTABLE	175-13B	13X4.5"	2200 LBS. 2X2	5 LUG	Q FLEX	4 WIRE LOOM RUBBER FLAT
BLW 400	2"BALL CLASS 2 ADJUSTABLE	175-13C	13 X 4.5"	2200 LBS. 2X2	5 LUG	3 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-15XF	2" BALL CLASS	B78-13LRC	13"X4.50"	3500 LBS. 2-1/2"	5 LUG	4 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-50X	2" BALL CLASS	B78-13LRC	13"X4.50"	3500 LBS. 2-13/8"	5 LUG	4 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-50XF	2" BALL CLASS	B78-13LRC	13"X4.50"	3500 LBS. 2-13/8"	5 LUG	4 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-70W	2" BALL CLASS 3" ADJUSTABLE	205-14C BIAS (4)	14"X5"	3500 LBS. 2-13/8"	5 LUG	5 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-70X	2" BALL CLASS 3" ADJUSTABLE	205-14C BIAS (4)	14"X5"	3500 LBS. 3"	5 LUG	5 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-70XF	2" BALL CLASS 3" ADJUSTABLE	205-14C BIAS (4)	14"X5"	3500 LBS. 3"	5 LUG	5 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-100XF	ADJUSTABLE 2-5/6 OPT 3'' EYE	205-15C BIAS (4)	14"X5.5"	3500 LBS. 3"	5 LUG	5 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-85/125	ADJUSTABLE 2-5/6 OPT 3'' EYE	ST225/75R15D RADIAL (4)	14"x6"	2-AXLE 6000 LBS.	6 LUG	7 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-150XF	3" BALL EYE	750-16 E BIAS (4)	16"X7"	2-AXLE 6000 LBS.	8 LUG	7 LEAF	4 WIRE LOOM RUBBER FLAT
TRLR-220XF	3" EYE ADJUSTABLE	ST235/85R16E RADIAL(4)	16"X7"	3-AXLE 10000 LBS.	8 LUG	Q FLEX	4 WIRE LOOM RUBBER FLAT
TRLR-300XF	3" EYE ADJUSTABLE	ST235/85R16E RADIAL(6)	16"X7"	2-AXLE 7000 LBS.	8 LUG	Q FLEX	4 WIRE LOOM RUBBER FLAT
TRLR-400XF	3" EYE ADJUSTABLE	ST235/85R16E RADIAL(6)	16"X7"	3-AXLE 10000 LBS.	8 LUG	Q FLEX	4 WIRE LOOM RUBBER FLAT
TRLR-600XF	5TH WHEEL	ST215/75R17.5H RADIAL (8)	16"X7"	3-AXLE 10000 LBS.	8 LUG	7 LEAF	6 WIRE LOOM
TRLR-800AR	5TH WHEEL	ST215/75R17.5H RADIAL (8)	16"X7"	3-AXLE 10000 LBS.	8 LUG	AIR-RIDE	6 WIRE LOOM

### Brakes

If your trailer has a braking system, the brakes should be inspected the first 200 miles of operation. This will allow the brake shoes and drums to seat properly. After the first 200 mile interval, inspect the brakes every 3,000 miles. If driving over rough terrain inspect brakes more frequently.

### **Electric Brakes**

Electrically actuated brakes (Figure 8) are similar to hydraulic brakes. The basic difference is that hydraulic brakes are actuated by *pressure*, while electric brakes are actuated by an *electromagnet*.

Listed below are some of the advantages that electric brakes have over hydraulic brakes:

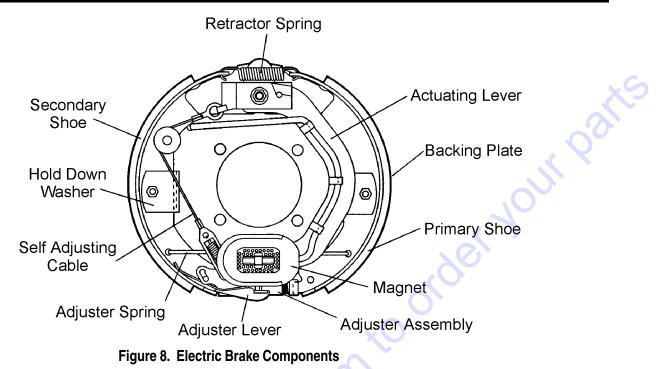
- Brake system can be manually adjusted to provide the corrected braking capability for varying road and load conditions.
- Brake system can be modulated to provide more or less braking force, thus easing the break load on the towing vehicle.
- Brake system has very little <u>lag time</u> between the time the to vehicle's brakes are actuated and the trailer's brakes are actuated.
- Brake system can provide an independent emergency brake system.

Remember in order to properly synchronize the tow vehicle's braking to that of the trailer's braking, can only be accomplished by road testing. Brake lockup, grabbiness or harshness is due to lack of synchronization between the tow vehicle and the trailer being towed or under-adjusted brakes.

Before any brake synchronizations adjustments can be made, the trailer brakes should be burnished-in by applying the brakes 20-30 times with approximately a 20 mph decrease in speed, e.g. 40 mph to 20 mph. Allow ample time for brakes to cool between application. This allows the brake shoes to slightly be seated into the brake drum surface. Figure 8 display's the major electric brake components that will require inspection and maintenance. Please inspect these components as required. Reference Table 7 for electric brake troubleshooting guidelines.

### **Electric Brake Adjustment**

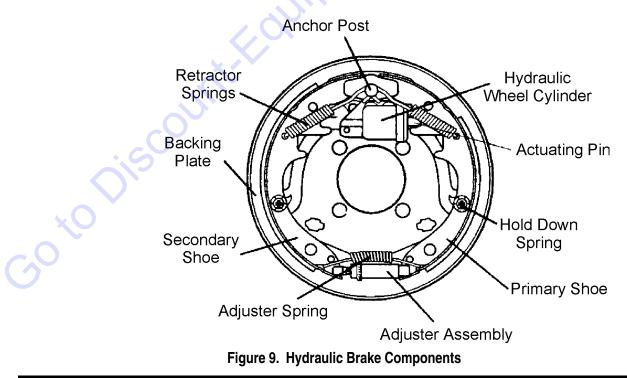
- 1. Place the trailer on jack stands. Make sure that the jack stands are placed on secure level ground.
- 2. Check the wheel and drum for free rotation.
- 3. Remove the adjusting hole cover from the adjusting slot at the bottom brake backing plate.
- 4. With a screwdriver or standard adjusting tool, rotate the star wheel of the adjuster assembly to expand the brake shows.
- 5. Adjust the brake shoes outward until the pressure of the lining against the wheel drum makes the wheel difficult to turn.
- 6. Rotate the star wheel in the opposite direction until the wheel rotates freely with slight lining drag.
- 7. Replace the adjusting hole cover and lower the trailer to the ground.
- 8. Repeat steps 1 through 6 on the remaining brakes.



### Hydraulic/Air/Surge Brakes

Hydraulic brakes (Figure 9) should not require any special attention with the exception of routine maintenance such as shoe and lining replacement. These brakes can be adjusted in the same manner as electric brakes. Brake lines should be periodically checked for cracks, kinks, or blockage.

Figure 9 below display's the major hydraulic/air/surge brake components that will require inspection and maintenance. Please inspect these components as required using steps 1 through 6 as referenced in the electric brake adjustments section. Reference Table 6 for hydraulic brake troubleshooting guidelines.



PAGE 26 — MODULAR LIGHT TOWER — PARTS & OPERATION MANUAL — REV. #5 (08/15/08)

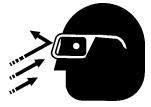
### **Tires/Wheels/Lug Nuts**

Tires and wheels are a very important and critical components of the trailer. When specifying or replacing the trailer wheels it is important the wheels, tires, and axle are properly matched.

# **CAUTION:**

**DO NOT** attempt to repair or modify a wheel. **DO NOT** install an inter-tube to correct a leak through the rim. If

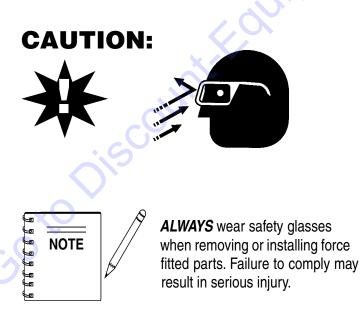
the air pressure in the inter-tube may cause pieces of the rim to explode (break-off) with great force and can cause serious eye or bodily injury.



### **Tires Wear/Inflation**

Tire inflation pressure is the most important factor in tire life. Pressure should be checked cold before operation. **DO NOT** bleed air from tires when they are hot. Check inflation pressure weekly during use to insure the maximum tire life and tread wear.

Table 3 (Tire Wear Troubleshooting) will help pinpoint the causes and solutions of tire wear problems.



ТА	BLE 3 TIRE \	VEAR TROUBL	.ESHOOTING
WEAR	PATTERN	CAUSE	SOLUTION
	Center Wear	Over Inflation	Adjust pressure to particular load per tire manufacturer.
	Edge Wear	Under Inflation	Adjust pressure to particular load per tire manufacturer.
	Side Wear	Loss of chamber or overloading.	Make sure load does not exceed axle rating. Align wheels.
	Toe Wear	Incorrect toe-in	Align wheels.
	Cupping	Out-of balance	Check bearing adjust- ment and balance tires.
	Flat Spots	Wheel lockup & tire skidding.	Avoid sudden stops when possible and adjust brakes.

### Suspension

The leaf suspension springs and associated components (Figure 11) should be visually inspected every 6,000 miles for signs of excessive wear, elongation of bolt holes, and loosening of fasteners. Replace all damaged parts (suspension) immediately. Torqued suspension components as detailed in Table 4.

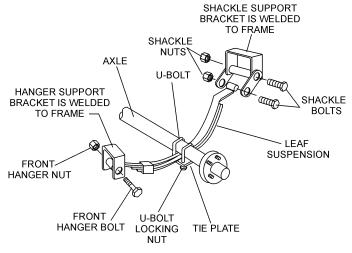
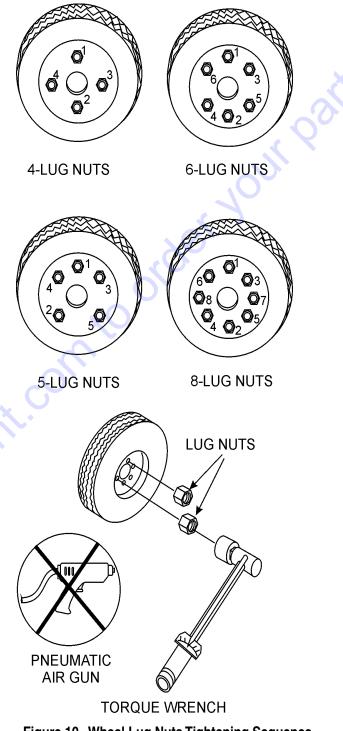


Figure 11. Major Suspension Components

Table 4. Suspension Torque Requirements				
Item	Torque (FtLbs.)			
3/8" U-BOLT	MIN-30 MAX-35			
7/16" U-BOLT	MIN-45 MAX-60			
1/2" U-BOLT	MIN-45 MAX-50			
SHACKLE BOLT SPRING EYE BOLT	SNUG FIT ONLY. PARTS MUST ROTATE FREELY. LOCKING NUTS OR COTTER PINS ARE PROVIDED TO RETAIN NUT-BOLT ASSEMBLY.			
SHOULDER TYPE SHACKLE BOLT	MIN-30 MAX-50			



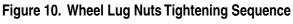
### Lug Nut Torque Requirements

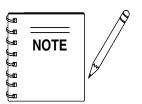
It is extremely important to apply and maintain proper wheel mounting torque on the trailer. Be sure to use only the fasteners matched to the cone angle of the wheel. Proper procedure for attachment of the wheels is as follows:

- 1. Start all wheel lug nuts by hand.
- 2. Torque all lug nuts in sequence. See Figure 10. **DO NOT** torque the wheel lug nuts all the way down. Tighten each lug nut in 3 separate passes as defined by Table 5.

Table	e 5. Tire Toro	que Requirem	ients
Wheel Size	First Pass FT-LBS	Second Pass FT-LBS	Third Pass FT-LBS
12"	20-25	35-40	50-65
13"	20-25	35-40	50-65
14"	20-25	50-60	90-120
15"	20-25	50-60	90-120
16"	20-25	50-60	90-120

3. After first road use, retorque all lug nuts in sequence. Check all wheel lug nuts periodically.





**NEVER!** use an pneumatic air gun to tighten wheel lug nuts.

# MODULAR LIGHTTOWER — TRAILER WIRING DIAGRAM

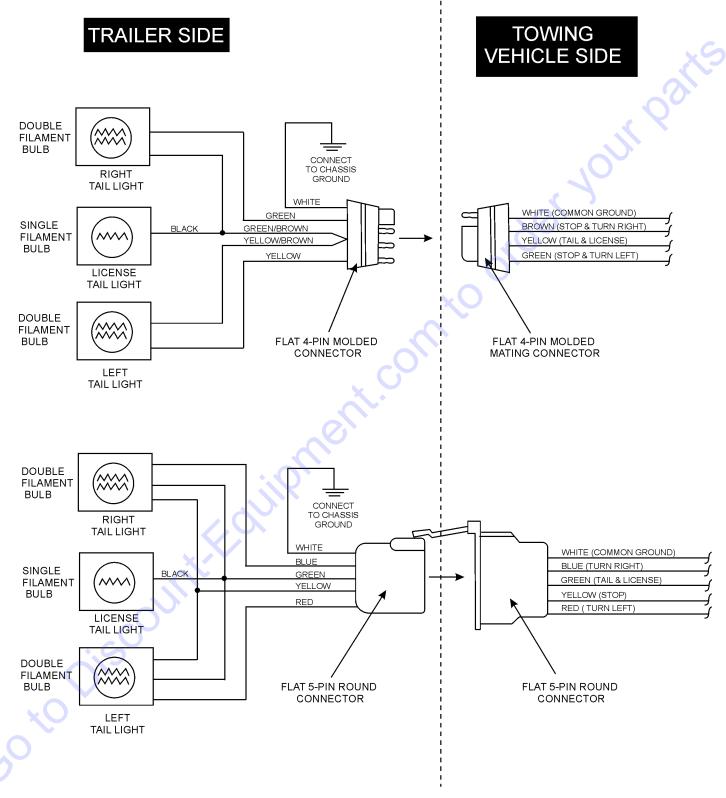


Figure 12. Typical Trailer Wiring Diagram

NOTE: LIGHTS ARE ORIENTED FROM THE DRIVER'S SEAT

### MODULAR LIGHT TOWER — PARTS & OPERATION MANUAL — REV. #5 (08/15/08) — PAGE 29

# MODULAR LIGHTTOWER — TRAILER BRAKES (HYDRAULIC)

SYMPTON	POSSIBLE CAUSE	SOLUTION
No brakes	Is the brake line broken or kinked?	Repair or replace.
	Is the brake lining glazed?	Reburnish or replace
	Is the trailer overloaded?	Correct weight.
Weak brakes or brakes pull to one side.	Are the brake drums scored or grooved?	Machine or replace.
	Is the tire pressure correct?	Inflate all tires equally per manufacturer guidelines.
	Are the tires unmatched on the same axle?	Match tires.
Leeling busines	Are the brake components loose, bent or broken?	Replace components.
Locking brakes.	Are the brake components loose, bent or broken? Are the brake drums out-of-round? Is the brake system lubricated?	Replace.
Nation keeling	Is the brake lining glazed?         Is the trailer overloaded?         Are the brake drums scored or grooved?         Is the tire pressure correct?         Are the tires unmatched on the same axle?         Are the brake components loose, bent or broken?         Are the brake drums out-of-round?	Lubricate.
Noisy brakes.		Replace and correct.
Dragging brakes.		Install new shoes and lining
	Is there enough brake fluid or correct fluid?	Fill with dot 4 fluid.
topiscountr	duillor	

# MODULAR LIGHTTOWER — TRAILER BRAKES (ELECTRIC)

SYMPTOM	POSSIBLE CAUSE	SOLUTION
	Any open circuits or broken wires?	Find and correct.
	Any short circuits?	Find and correct.
No brakes or intermittent brakes.	Faulty controller?	Test and correct.
branoo.	Any loose connections?	Find and repair.
	Is the ground wire secure?	Find and secure.
	Is there grease or oil on the magnets or lining?	Clean or replace.
Weak brakes or brakes pull to one side.	Are the connections corroded?	Clean and correct cause corrosion.
	Are the brake drums scored or groved?	Machine or replace.
	Are the brakes synchronized?	Synchronize brakes.
	Are the brake components loose, bent or broken?	Replace components
Locking brakes.	Are the brake drums out-of round?	Replace.
Naine busine	Is the brake system lubricated ?	Lubricate.
Noisy brakes.	Are the correct brake components installed?	Replace and correct
Dragging brakes.	Are the wheel bearings adjusted correctly?	Adjust.
	Canth	, rojuot.

# MODULAR LIGHT TOWER — T-BAR INSTALLATION

# **CAUTION:**

Pay close attention to ventilation when operating the generator in enclosed areas. The engine exhaust contains noxious elements.

### Indoor Installation

Exhaust gases from gasoline engines are extremely poisonous. Whenever an engine is installed indoors the exhaust fumes must be vented to the outside. The engine should be installed at least two feet from any outside wall. Using an exhaust pipe which is too long or too small can cause excessive back pressure which will cause the engine to heat excessively and possibly burn the valves.

Eliminate the danger of deadly carbon monoxide gas. Remember that exhaust fumes from any gasoline or diesel engine are very poisonous if discharged in a closed area. If the light tower is installed indoors, you must make provisions for venting the engine exhaust to the outside of the building.

### **T-Bar and Floodlight Assembly**

- 1. Install and secure T-Bar assembly as shown in Figure 8 using the supplied hardware.
- 2. Attach and secure the four flood light assemblies to the T-Bar as shown in Figure 13.

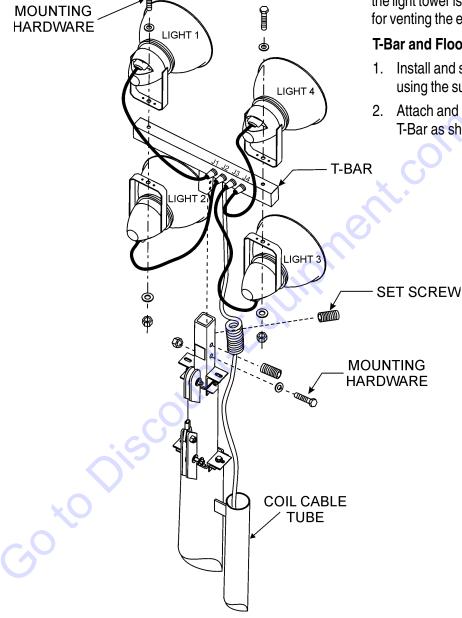


Figure 13. T-Bar Assembly

# WARNING:



**ALWAYS** check overhead for clearance of the mast. **NEVER** raise the mast in the vicinity of power lines! **DO NOT** stand behind the trailer while the mast is being raised or lowered.

### **Outriggers and Support Stands**

- 1. Make sure both outriggers are extended. To extend the outriggers, pull the locking pin on the outrigger and hold while sliding out the outrigger assembly.
- 2. As soon as the pin clears the travel position hole, release it and continue sliding out the outrigger. The pin must snap into the outrigger locking hole in the extended position.
- After extending all outriggers, rotate all trailer *jack stands* into the foot down position, then turn the crank handle on the *jack stands* clockwise to lower it and level the light tower.
- 4. Check behind the light tower and make sure all personnel and objects are clear of the tower mast.

### Mast (Bottom Tower Section)

Follow the steps below to raise the bottom tower mast:

- 1. To release the mast from the support stand locking cradle, **PULL** the large cradle locking pin (see Figure 3, item 8). This will unlock the mast from the horizontal position.
- 2. Remove the bottom mast quick release locking pin (see Figure 3, Item 18, before raising tower to the vertical position.
- 3. To place the mast in the vertical position, **TURN** the vertical winch hand lever (Figure 3, item 16) clockwise until the mast is pointing upwards at 90 degrees.
- 4. Once the mast in the vertical position, insert the quick release locking pin to prevent the mast from falling.

# **DANGER:**



Stay out of the travel path of the tower mast while raising or lowering. **ALWAYS** be careful to check that the mast does not interfere with any obstacles, especially overhead power lines. Contact with high volt-

age power lines could damage the equipment and cause *serious injury or even death to personnel.* 

### Mast (Top and Center Tower Sections)

Once the tower mast has been locked into its vertical position, the top and center tower sections can now be raised. These two tower sections allow the flood lights to be extended upwards in excess of 30 ft. Perform the following steps when extending the floodlights:

- 1. Locate the "vertical mast extension hand winch", see Figure 3, Item 2.
- 2. Turn the vertical mast extension hand winch lever clockwise, and observe that the flood lights begin to climb upward.
- 3. Continue turning the hand winch lever in the clockwise direction until the desired height has been reached.
- 4. Release the hand winch lever, this winch is of the selflocking type. The tension on the cable will keep the mast sections in place.

### Lowering Mast (Top and Center Tower Sections)

- 1. Turn the vertical mast extension hand winch lever counter-clockwise, and observe that the flood lights begin to drop downward.
- 2. Continue turning the hand winch lever counter-clockwise until the top and center mast sections have been fully retracted.

### Lowering Mast (Bottom Section)

- 1. Remove the quick release locking pin to allow the bottom mast section to be lowered to the horizontal section.
- 2. Turn the vertical mast hand winch lever counterclockwise, and observe that bottom tower mast begins to approach the horizontal position.
- 3. Continue turning the vertical hand winch lever in the counter-clockwise direction. As the bottom tower mast approaches the locking cradle, pull the tower release pin to allow the tower mast to rest in the cradle.
- 4. Once the bottom mast is resting in the cradle of the tower support stand, align the hole on the mast with the hole on the cradle and insert locking pin.

# MODULAR LIGHT TOWER — ENGINE PRE-SETUP

# WARNING:



The engine's exhaust contains harmful emissions. **ALWAYS** ventilate the exhaust when operating inside tunnels, excavations or buildings. Direct exhaust away from nearby personnel.

### **Before Starting**

- 1. Be sure to disconnect the electrical load and switch the main circuit breaker to the "OFF" position prior to starting the engine.
- 2. Never start the engine with any circuit breakers in the "ON" position.
- Make sure the light tower/generator is positioned on firm level ground. Check the lubricating oil level prior to starting the engine. The engine oil level must be maintained between two notches on the oil dipstick.
- 4. When there is not enough lubricating oil, fill the crankcase with high grade motor oil. Use a high quality detergent oil classified CC or higher.
- Check the coolant level in the radiator and sub-tank. Replenish with antifreeze as necessary. Always maintain the coolant level between the FULL and LOW markings on the coolant container. Be sure that the radiator cap is fastened securely.

# **CAUTION:**



- Check the fuel level on the fuel gauge. When fuel is low, fill the fuel tank with clean fresh unleaded automotive gasoline or diesel fuel.
- If fuel spillage occurs, completely wipe up the spilled fuel immediately.
- **NEVER** turn the key to the "*START*" position while the engine is running.

### Starting

**NEVER** operate the light tower with the engine compartment doors open. Operation with the doors open may cause insufficient cooling to the unit, and damage may result.



For the starting and operation of the engine and generator of the light tower, refer to the appropriate Operation Manual for your light tower.

### Shutdown

Shut-down the engine as specified in the engine manual provided with the light tower.

# MODULAR LIGHT TOWER — OPERATION

### Operation

Proceed with this section only if the following have been completed:

- Outriggers have been fully extended to prevent the trailer from tipping.
- All tower mast sections have been raised to the desired height.
- Bottom tower mast is locked in place.
- Light tower trailer support stands have been positioned properly and the trailer is level.
- Flood lights have been adjusted to desired position.
- Chocked blocks have been positioned under each wheel to prevent trailer from rolling.
- Engine section of the light tower has been running for at least 3-5 minutes without any abnormal noises.
- Flood lights **DO NOT** interfere with any overhead obstructions.
- Flood light power cables have been plugged into the appropriate receptacles (J1-J4) on the T-Bar assembly.
- Light tower trailer frame has been grounded correctly.

If **ALL** of the above conditions have been met, proceed and turn on the flood lights as follows:

### **Turning On Flood Lights**

- Plug the connector end of the attached power cable into the 120 VAC twist-lock output receptacle on the generator/welder (Figure 14). This cable provides 120 VAC power to the ballast box located near the trailer tongue.
- Set the main circuit breaker on the welder/generator to the ON position. In addition it may be necessary to turn on another breaker if the receptacle is protected. Refer to the Operation Manual for your specified generator or welder.

- 3. Set circuit breaker CB-1 (page 41) on the *ballast box* to the ON position.
- Wait a few minutes for the ballast to activate. Observe that flood lights #1 and #2 are ON.
- 5. Set circuit breaker CB-2 on the **ballast box** to the ON position.
- 6. Wait a few minutes for the ballast to activate. Observe that flood lights #3 and #4 are ON.
- 7. If any of the flood lights are not ON refer to the troubleshooting section of this manual.

### Turning Off Flood Lights

- 1. Set circuit breakers CB-1 and CB-2 on the *ballast box* to the OFF position. Observe that all four flood lights are OFF.
- 2. Allow flood lights to cool (15 minutes) if service or removal of bulb is required.
- 3. Set main circuit breaker on generator or welder to the OFF position.
- 4. Shut-down generator or welder as specified in Operation Manual.
- 5. Lower light tower mast as outlined in the Pre-Setup section of this manual.

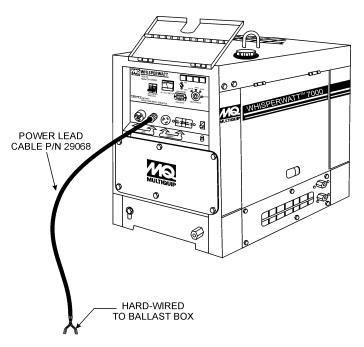


Figure 14. Power cable Connection

# MODULAR LIGHTTOWER — MAINTENANCE

### **Check Cable Wear**

,0<sup>\*0</sup>

The wire rope (cable) that raises and extends the mast is a very important part of the light tower. There is one cable that raises and extends the lower portion of the mast. There is a second cable that serves to extend the top portion of the mast. Wire rope (cable) will fail if it is worn, frayed, misused, crushed, kinked or damaged in any way. Always check the mast cable and pulleys for any abnormalities before use. Do not use it if there is even the slightest cause for concern.

When either cable needs to be replaced, they should both be replaced at the same time. This is most easily done by positioning the mast in the horizontal resting position. Then disassemble the mast by disconnecting the cables form the mast and sliding the sections apart. **WARNING!** The mast sections are heavy and awkward. Use proper lifting devices and procedures. Then the lower cable should be disconnected from the winch. The mast sections, latches, cable clamps, pulleys, etc. should be inspected at this time and repaired or replaced as necessary. There are a total of 4 pulleys. They should be removed, and replaced if worn or damaged, as they can cause premature cable failure if they are in poor condition. Reassemble the cable to the top section of the mast as shown in the diagram and slide it into the middle section of the mast. Reconnect the cable to the top of the middle section of the mast.

Reassemble the cable to the middle of the mast, as shown in the diagram, and slide it into the bottom section of the mast. Route the cable through the 2 pulleys in the mast pivot assembly, as shown in the Figure 15. Then route the cable through the lower pulley located on the trailer, and reattach it to the winch.

Raise, extend, retract and lower the mast several times to verify correct operation.

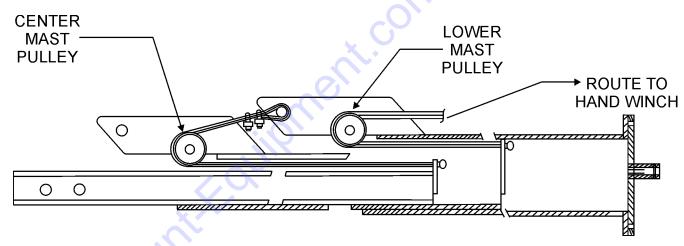


Figure 15. Cable Pulley Routing

# **MODULAR LIGHT TOWER — PREPARATION FOR LONG -TERM STORAGE**

### **Generator Storage**

- Goto Discount Fourier Comto order your parts

Search Website by Part Number <b>Discount</b>	Search Manual Library For Parts Manual & Lookup Part Numbers – Purchase or Request Quote	Can't Find Part or Manual? Request Help by Manufacturer, Model & Description
Equipment		Parts Order Form
		1 No.Asc Taic
	Search Manuals	izante
	Histope scale performant and period speptimetic party and some manuality in scale, and party	NOT.
	theat	Gaar
ni Zapitrami i siya Yoni na kasarata ke tarata di katalari gani yaputanani. Na sali Ina Katalari mu Pani si Akazarata ke tarata da da Kata Alak Ying Katalari katalari Manan di Katan Rajata (Alaman) Katalari katalari padi Katana Raja (Katalari	SCOL Brand	
When Source Mades The DifferenceIII Sectors	* Vold	N(8-1)
Printe universe interest for any posterior in the second s		01
200 2004 tol tourideta for Tableta for	Sond	DaleTegion
a - Phallagran St Dash Dava	bil: Smilheric	ApVara con -
See Second and Areas	Pathatics. Enter Pathate(Sol Septen)	124.10
All data second participations and the second participation of the second participatio		A
Stanton in Stanton	Examples Enter Description from You Are Locking For	CdBac
		70
	Stat	Ermi -

Discount-Equipment.com is your online resource for quality parts & equipment.

Florida: 561-964-4949 Outside Florida TOLL FREE: 877-690-3101

#### Need parts?

Click on this link: http://www.discount-equipment.com/category/5443-parts/ and choose one of the options to help get the right parts and equipment you are looking for. Please have the machine model and serial number available in order to help us get you the correct parts. If you don't find the part on the website or on one of the online manuals, please fill out the request form and one of our experienced staff members will get back to you with a quote for the right part that your machine needs.

We sell worldwide for the brands: Genie, Terex, JLG, MultiQuip, Mikasa, Essick, Whiteman, Mayco, Toro Stone, Diamond Products, Generac Magnum, Airman, Haulotte, Barreto,
Power Blanket, Nifty Lift, Atlas Copco, Chicago Pneumatic, Allmand, Miller Curber, Skyjack, Lull, Skytrak, Tsurumi, Husquvarna Target, Stow, Wacker, Sakai, Mi-T-M, Sullair, Basic, Dynapac, MBW, Weber, Bartell, Bennar Newman, Haulotte, Ditch Runner, Menegotti, Morrison, Contec, Buddy, Crown, Edco, Wyco, Bomag, Laymor, EZ Trench, Bil-Jax, F.S.
Curtis, Gehl Pavers, Heli, Honda, ICS/PowerGrit, IHI, Partner, Imer, Clipper, MMD, Koshin, Rice, CH&E, General Equipment, Amida, Coleman, NAC, Gradall, Square Shooter, Kent, Stanley, Tamco, Toku, Hatz, Kohler, Robin, Wisconsin, Northrock, Oztec, Toker TK, Rol-Air, APT, Wylie, Ingersoll Rand / Doosan, Innovatech, Con X, Ammann, Mecalac, Makinex, Smith Surface Prep,Small Line, Wanco, Yanmar

# MODULAR LIGHT TOWER — TROUBLESHOOTING

C

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
	Lamp Burned Out?	Test the lamp in a fixture which is operating properly. Replace as necessary.
	Lamp Loose in Socket?	Inspect lamp base to see if there is arcing at center contact button. Tighten lamp snugly. Check socket for damage. Replace if defective.
	Floodling Plugs Not Tight?	Check plug and receptacle. Tighten if loose.
	Defective Ballast?	Interchange ballast plugs in generator enclosure. if lamp starts, replace ballast. Check ballast wiring against diagram. Check for swollen capacitor, charred wiring, core and coil or other signs of excessive heat.
Lamp will not start.	Low Voltage?	Check line voltage at ballast input. Voltage should be within 10% of name plate rating when operating at normal load. Increase supply voltage or remove external load.
	Improper Ballast?	Proper HID lamps will perform erratically or fail to start on an improper ballast. The ballast name plate data must agree with th line voltage and lamp used. Improper ballast causes lamp failure Note: Mercury lamps of the same wattage will operate properly on Metal Halide ballasts.
	Improper Lamp Opertating Position (Metal Halide only)?	Operating position should agree with teh lamp etch. A BU-HOR lamp can be operated base up vertical to and including the horizontal and a BD can be operated base down vertical to, approaching, but not including the horizontal. A lamp operated beyond teh specified position may not start.
	Lamp has been Operating: Cool Down Time Insufficient?	HID lamps (High Pressure Sodium, Metal Halide, Mercury Vapor) require from 4 to 8 minutes cool-down time before restarting. Switch off breaker and allow lamp to cool.
	Improper Ballast?	Improper ballasting can cause flickering or erratic operation. In the start-up period the lamp may ignite, start to warm-up and the extinguish (cycle).
Lamp flickers and goes out intermittent or cycling.	New Lamp?	Under certain conditions new lamps may "cycle". Usually after 3 tries to start at 30 to 60 second intervals, lamps will stabilize and operate satisfactorily.
		Replace lamp.

# ${\tt MODULAR\,LIGHT\,TOWER-TROUBLESHOOTING}$

TABLE 8. MODULAR LIGHT TOWER TROUBLESHOOTING (C	CONTINUED)
---	------------

SYMPTOM	POSSIBLE PROBLEM	SOLUTION			
Lamp starts slowly (ARC does nt strike when switch is first turned on)	Defective Lamp?	Lamp may glow for extended period of time. Replace after checking voltage and ballast.			
Circuit breaker trips on lamp start-up	Short Circuit or Ground?	Check wiring against diagram. Check for shorts or ground.			
	Normal Lamp Depreciation?	Replace Lamp.			
	Dirty Lamp or Fixture?	Clean lamp and fixture.			
Lamp light output low	Defective Ballast?	Interchange ballast plugs in generator encolsure. If lamp return to normal light output, replace ballast. Check for swollen capacitators, charred wiring, core and coil, or other signs of excessive heat.			
	Wrong Voltage?	Check voltage at ballast input. Voltage should be within 10% of nameplate rating. Check wiring connections for voltage loss. Check socket contact point.			
	Improper Ballast?	Check ballast nameplate against lamp data.			
	Normal Lamp Depreciation?	Lamp output and brightness decreases and color changes sligh as lamps age. Spot replacement with new lamps may cause noticeable differences in lamp colors. Group relacement minimi color differences.			
Lamp colors different.	Dirty Fixture?	Dirty fixtures will cause lamps to appear different in color. Clea fixture.			
	Wrong Lamp?	Check data on lamps whick appear different in color. Replace with correct color lamp.			
ARC tube discolored or swollen.	Over Voltage from Power Supply?	Check boltage at ballast. Check for current or voltage surges. Check for shorted capacitors and replace if defective.			
And tube discolored of swollen.	Improper Ballast?	Lamp operated on ballast designed for higher wattage lamp. Check ballast nameplate against lamp data.			
Short lamp life.	Lamp Damaged?	Check for outer bulb cracks. If air enters outer bulb, arc tube m continue to burn for 100 hours before failure. Check for bulb cracks where glass meets the base due to tightening lamp too firmly in socket or scoring of glass where socket inadvertently touches the lamp bulb. Look for broken arc tube or loose meta parts. Replace lamp. (Bulb leads will cause oxidation of metal parts.)			
· S	Improper Ballast?	Ballast nameplate data should agree with lamp line voltage and lamp use. If improper ballast is used, the lamp life will be shortened. A mismatch may also cause the ballast to fail.			

### MODULAR LIGHT TOWER — TROUBLESHOOTING

parts

#### **TROUBLESHOOTING GUIDE**

Use the following procedure to determine which of the four floodlights is not functioning:

#### **Connections:**

- 1. Make sure that floodlight #1 power cable is plugged into the J1 connector on the T-Bar assembly.
- 2. Make sure that floodlight #2 power cable is plugged into the J2 connector on the T-Bar assembly.
- 3. Make sure that floodlight #3 power cable is plugged into the J3 connector on the T-Bar assembly.
- 4. Make sure that floodlight #4 power cable is plugged into the J4 connector on the T-Bar assembly.
- 5. Make sure that 120 VAC is present at the generator's output receptacle. This can be accomplished by disconnecting the power cable and measuring the voltage across the connector pins with an AC voltmeter.
- 6. With the voltmeter set to the AC position, insert the negative lead of the AC voltmeter into pin **W** (neutral) on the receptacle.
- 7. Insert the positive lead of the voltmeter into pin **X** (hot for CB1 and fan) on the receptacle, and observe that 120 VAC is present.
- 8. Next, insert the positive lead of the voltmeter into pin **Y** (hot for CB2) on the receptacle, and observe that 120 VAC is present.
- 9. If the correct voltages are present at the generator's output receptacle, plug the power cable from the ballast compartment into the 120 VAC twist-lock receptacle on the generator or welder.

#### Starting:

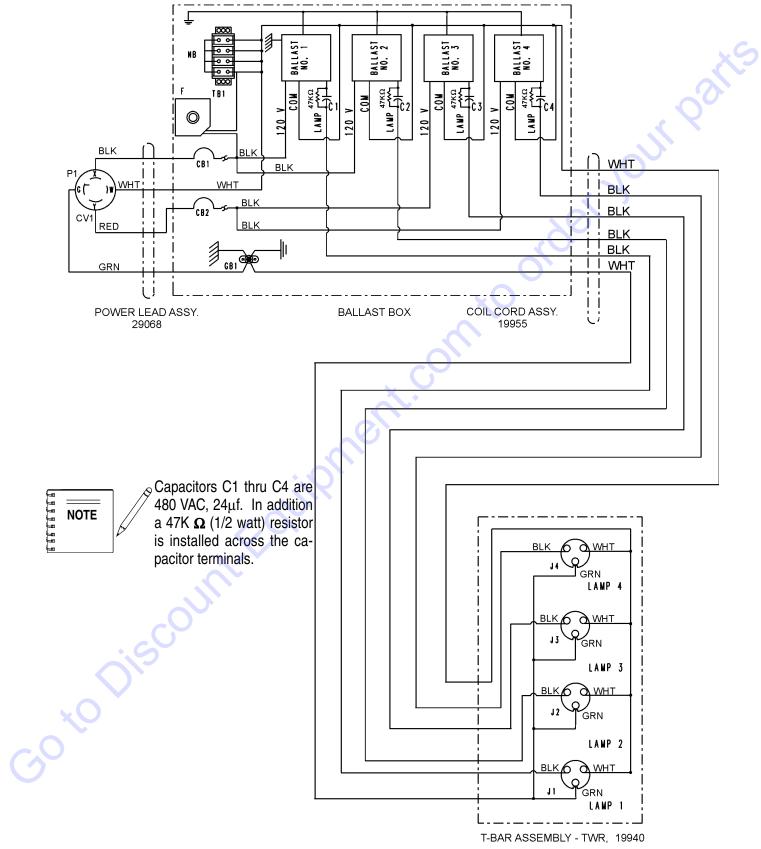
- 1. Start the welder or generator and verify that there are no abnormal sounds.
- 2. Turn both CB1 and CB2 circuit breakers to the ON position.
- 3. Wait a few minutes and determine which flood light is not igniting.
- 4. If one of the floodlights is **OFF**, disconnect its power cable and plug it into a receptacle that is known to be working. **DO NOT** unplug a power cable from the T-Bar while power is being supplied by the generator. Always turn the circuit breaker **OFF** before un-plugging a power cable.
- 5. If the floodlight still does not ignite after plugging it into a working receptacle (120 VAC present), then it can be assumed that the ballast for that flood light is defective. Replace ballast.

#### Ballast Removal:

- 1. Remove the power cable from the generator or welder, and make sure that no voltage is being supplied to the ballast compartment.
- 2. Remove the four screws securing the ballast cover, and remove cover.
- 3. Remove the defective ballast (see Ballast Compartment assembly drawing, page 74), taking care to guard against electrical shock when coming in contact with the ballast and capacitor. The capacitor is known to store an electrical charge, that when discharged could result in a harmful shock.

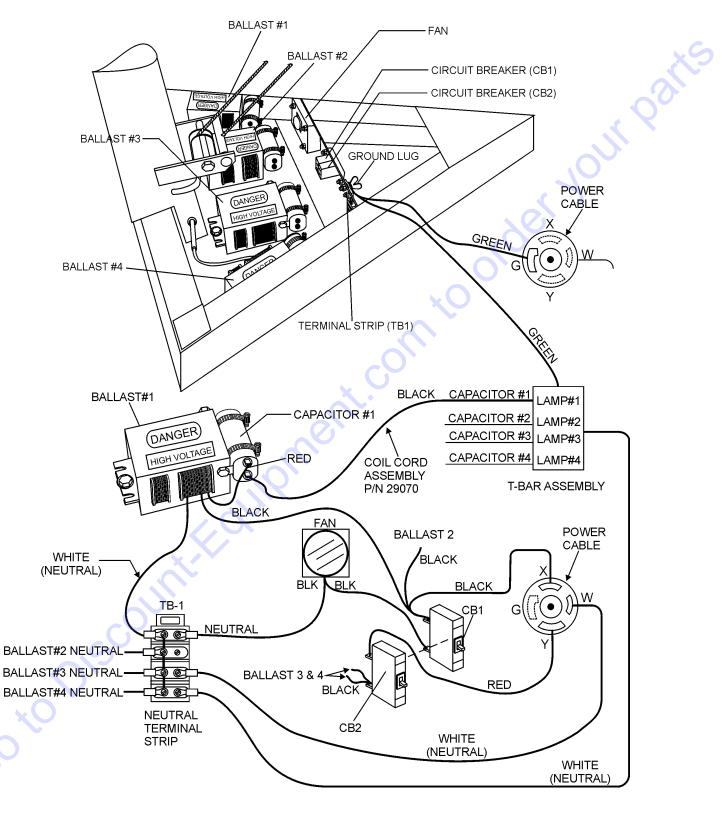
# MODULAR LIGHT TOWER — SCHEMATIC DIAGRAM

#### LIGHT TOWER SCHEMATIC DIAGRAM



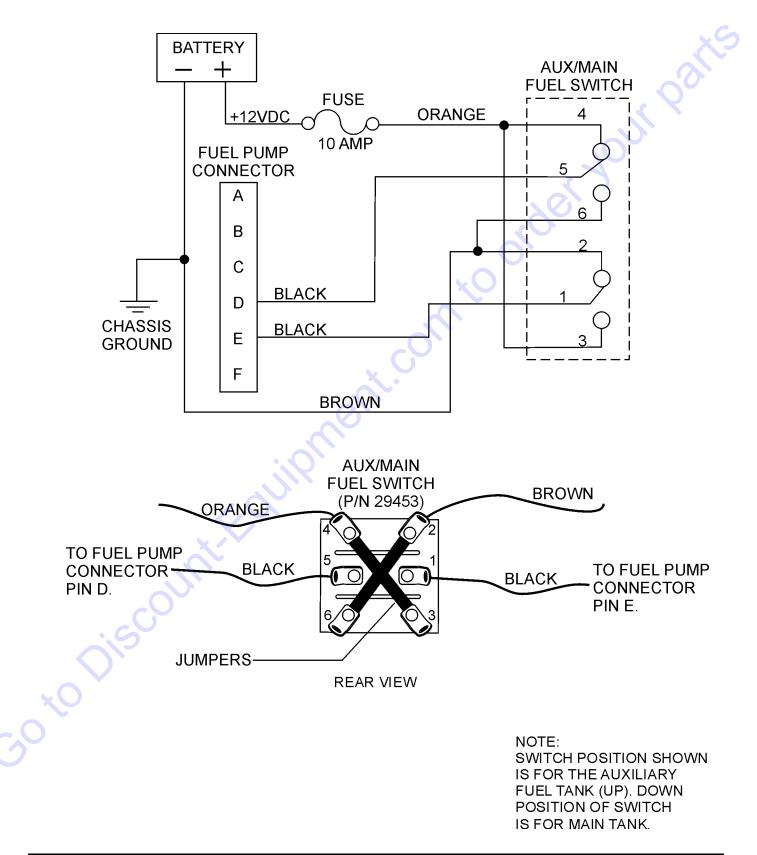
# MODULAR LIGHT TOWER — BALLAST COMPARTMENT WIRING DIAGRAM.

#### BALLAST COMPARTMENT WIRING DIAGRAM



### MODULAR LIGHT TOWER— ELECTRIC SWITCH WIRING DIAGRAM

ELECTRIC FUEL SWITCH WIRING DIAGRAM.



# **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>	PART NO.	PART NAME	QTY.	<b>REMARKS</b>
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.

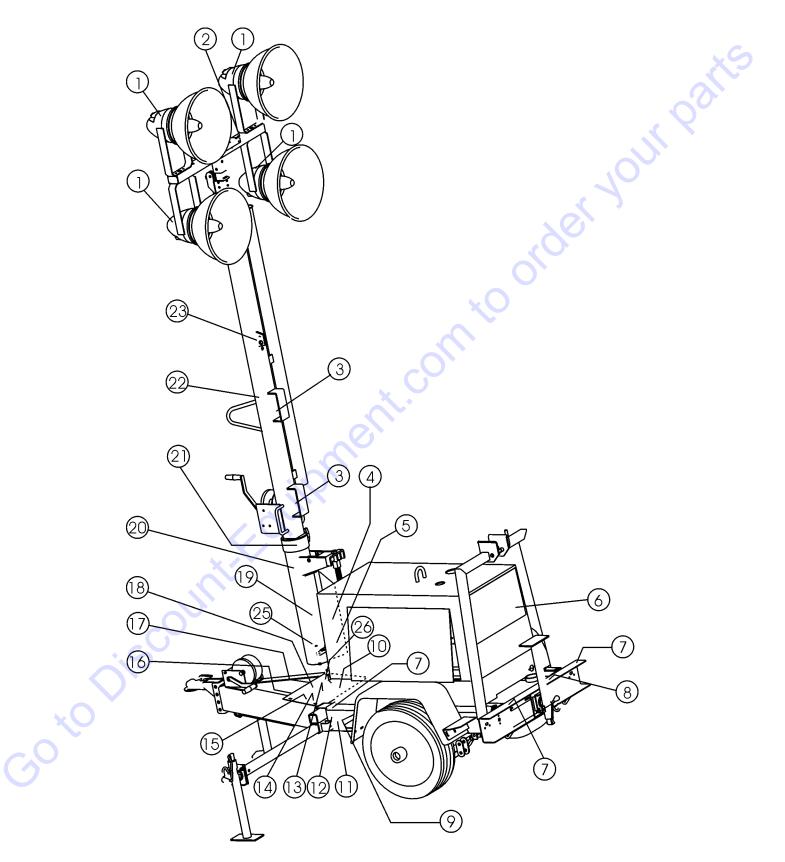
# MODULAR LIGHT TOWER - SPARE PARTS

#### **MODULAR LIGHT TOWER 1 TO 3 UNITS**

	'N	Description				
		CLAMP, LIGHT GASKET, LENS				
2 64	167744	LENS (GLASS)				
	9823 1000U	SUPPORT, TOP LAMP	1000W			
2 C	4403590	REFLECTOR, REAR (C				
		REFLECTOR, -(NEW S SEAL, RUBBER (OLD S				X X
1 29	9156	BALLAST	51122)			
		CAPACITOR CIRCUIT BREAKER				
1 29	9098	FAN ASSY.			\$	
1 36	3181	CORD SET SEAL, GREASE			0	
1 30	3180	BEARING CONE (INNE				
1 19	9976	BEARING CUP (INNER WINCH HANDLE 1500	LB			
				6		
				X		
				$\sim$		
			X	$\tilde{\cdot}$		
			$\sim$			
			oment			
		. Ś	<u>,</u> (2)			
		زمرن	19,			
		Ean	<u>,</u> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
		t-Foli	<u>1</u> 91			
		mirroni	,IQ'			
		Unifold				
		ountrai	,IQ1			
	·S	ountredu				
	OISC OISC	ount-Fou				
	<b>j</b> ISC					
	OISC					
×0	015C	ountrai				
×.0	OISC					
×0	jis <sup>c</sup>					
×.0	OISC					
, <b>*</b> 0	OIS <sup>C</sup>					
×.0	015C					

# MODULAR LIGHT TOWER — NAME PLATE AND DECALS

NAME PLATE AND DECALS



# MODULAR LIGHT TOWER — NAME PLATE AND DECALS

#### NAME PLATE AND DECALS

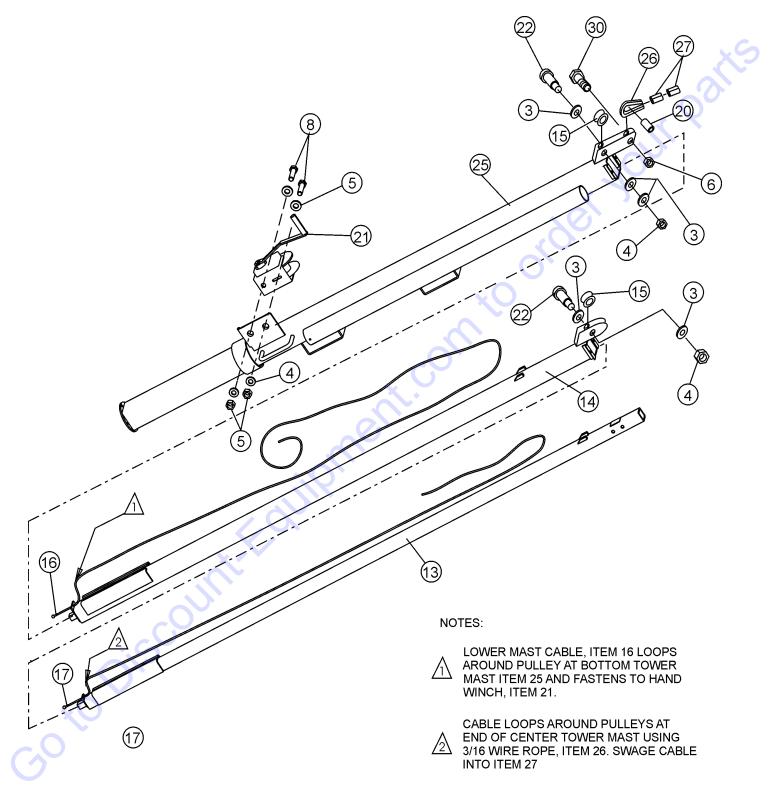
NO 1* 2* 3* 4* 5* 6* 7* 8* 9* 10* 11* 12*	PART NO B9504000304 19655 DCL111 13118 DCL109 DCL104 DCL104 DCL117 DCL106 29157 DCL110 19021 DCL102	PART NAME DECAL: CAUTION HOT PARTS DECAL: DANGER HIGH VOLTAGE DECAL: INSERT FORKS 24" DECAL: POWDER COATED DECAL: WARNING NON VERT. TOWER DECAL: RING PIN DECAL: SHUT-DOWN GENERATOR DECAL: SHUT-DOWN GENERATOR DECAL: SWIVEL JACKS DECAL: DIESEL FUEL DECAL: TIRE PRESSURE DECAL: TIGHTEN LUG NUTS DECAL: ELECTRICAL SHOCK HAZ.	QTY. 4 1 2 1 1 1 4 1 2 2 1	REMARKS B90400030
13		DECAL: NAME PLATE	1	
14* 15* 16* 17* 18* 20* 21* 22* 23* 24* 25* 26* 26	DCL113 DCL119 DCL112 DCL115 DCL105 DCL100 DCL120 DCL108 DCL116 DCL103 DCL118 29651 29425 DCLMLTKIT	DECAL: WARNING TURN OFF LIGHTS DECAL: OPERATING INSTRUCTIONS DECAL: TOWING INSTRUCTIONS DECAL: LIGHT/CONTROL BREAKER DECAL: GROUND LUG DECAL: DANGER HIGH VOLTAGE DECAL: OVERHEAD HAZARD DECAL: OVERHEAD HAZARD DECAL: STAY CLEAR OF BOOM DECAL: LOOSEN TO TURN DECAL: LIFTING HOOK DECAL: PULL LOCKING PIN DECAL: DANGER POWER LINES DECAL: WARNING TOWER STABILITY KIT, DECAL	1 1 1 1 1 1 2 1 1 1 2 1 1 4 1	MODEL AND SERIAL NUMBER.

SEE DECAL ILLUSTRATIONS ON PAGES 9 AND 10.

50 to Discour

# MODULAR LIGHT TOWER — MAST ASSEMBLY

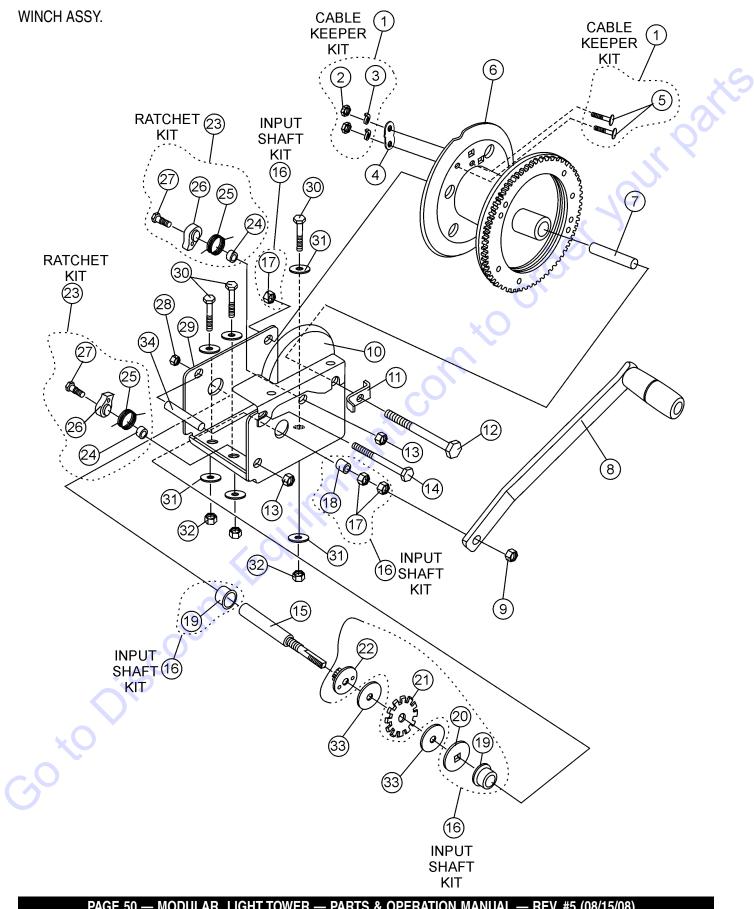
TOWER MAST ASSY.



### **MODULAR LIGHT TOWER — MAST ASSEMBLY**

	ER MAST ASS			DEMADIZO
NO 3 4 6 8 13 15 14 16 17 20 22 21 25 26 27	PART NO 0447 10133 10176 1284 19923 19157 19920 19939 19938 19251 194975 19976 19910 19611 19973	PART NAME WASHER, FLAT 1/2 SAE NUT NYLOC 3/8-16 NUT, NYLOC 1/2-13 SCREW, HHC 3/8-16 x 1-1/2 MAST, TOP TOWER W/A PULLEY, CABLE MAST, CENTER TOWER W/A CABLE, LOWER MAST 231" CABLE UPPER MAST 140" SPACER, 5/8 x 1/2 x 9/16 LONG BOLT SHOULDER 1/2 x 1-1/4 WINCH, HAND 1500 LB MAST, BOTTOM TOWER W/A THIMBLE, WIRE ROPE 3/16 SWAGE, AL, WIRE ROPE 3/16	<u>QTY.</u> 7 8 1 2 1 2 1 1 1 1 1 1 1 1	<u>REMARKS</u>
30	3242	SCREW, HHC 1/2-13 x 1-3/4	1	×OOL
			or	
		0	nt.	
		ilph		
		ountration		
	C	.oun		
	OIS			
,0×	Q			

#### MODULAR LIGHT TOWER — WINCH ASSY.



PAGE 50 - MODULAR LIGHT TOWER - PARTS & OPERATION MANUAL - REV. #5 (08/15/08)

# MODULAR LIGHT TOWER - WINCH ASSY.

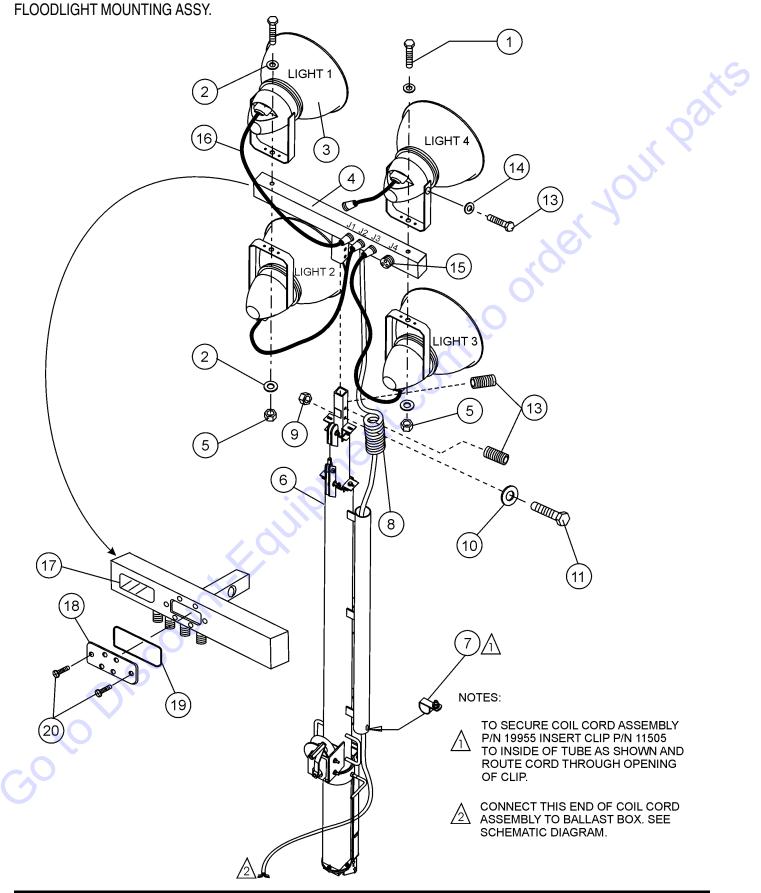
#### WINCH ASSY.

×C

NO	PART NO	PART NAME	<u>QTY.</u>	<u>REMARKS</u>
1	562101	CABLE KEEPER KIT	2	INCLUDES ITEM W/*
2*		NUT	2	
3*		WASHER, LOCK	2	
4*		CABLE CLAMP	1	
5*		CARRIAGE BOLT	2	
6		DRUM ASSY.	1	SEE NOTE 1 BELOW
7		DRUM SPACER		
	29206	HANDLE ASSY.	1	
8 9		LOCK NUT 1/2-13	1	STD. HDW. PURCHASE LOCALLY
10	12124S01	COVED ACCV	1	
11	12121001	BOLT LOCK	1	SEE NOTE 1 BELOW
12		CAP SCREW 1/2-13	1	STD. HDW. PURCHASE LOCALLY
13%			0	
14		CAP SCREW 3/8-16	1	STD. HDW. PURCHASE LOCALLY
15	1564S01		-	
16	1563S01	INPUT SHAFT INPUT SHAFTKIT	i	INCLUDES ITEM W/#
17#	1000001	LOCK NUT 1/2-13	3	
18#		SPACER	ĭ –	
19#		BUSHING	2	
20#		SHAFT BRAKE DISC	1	
21#		RATCHET GEAR		
22#		PINION AND DISC	C i	
23	6730S00	RATCHET KIT		INCLUDES ITEMS W/%
24%	0100000	RATCHET SPACER		
25%		RATCHET SPRING	2 2 2	
26%		RATCHET PAWL	2	
27%		SHOULDER BOLT 5/16-18	2	
28		LOCK NUT 3/8-16	1	STD. HDW. PURCHASE LOCALLY
29		FRAME	i	SEE NOTE 1 BELOW
30	1284	SCREW, HHC 3/8-16 X 1-1/2	3	
31	10136	WASHER, FLAT 3/8 SAE	6	
32	10133	NUT, NYLOC 3/8-16	3	
33	1558S00	FRICTION DISC KIT	2	
34		FRAME SPACER	1	SEE NOTE 1 BELOW
35	19976	HAND WINCH 1200 LBS.		
00	10070			

NOTES: 1. SOLD ONLY AS A COMPLETE ASSEMBLY. USE PART NUMBER 19976 WHEN ORDERING.

# MODULAR LIGHT TOWER — FLOODLIGHT MOUNTING ASSY.

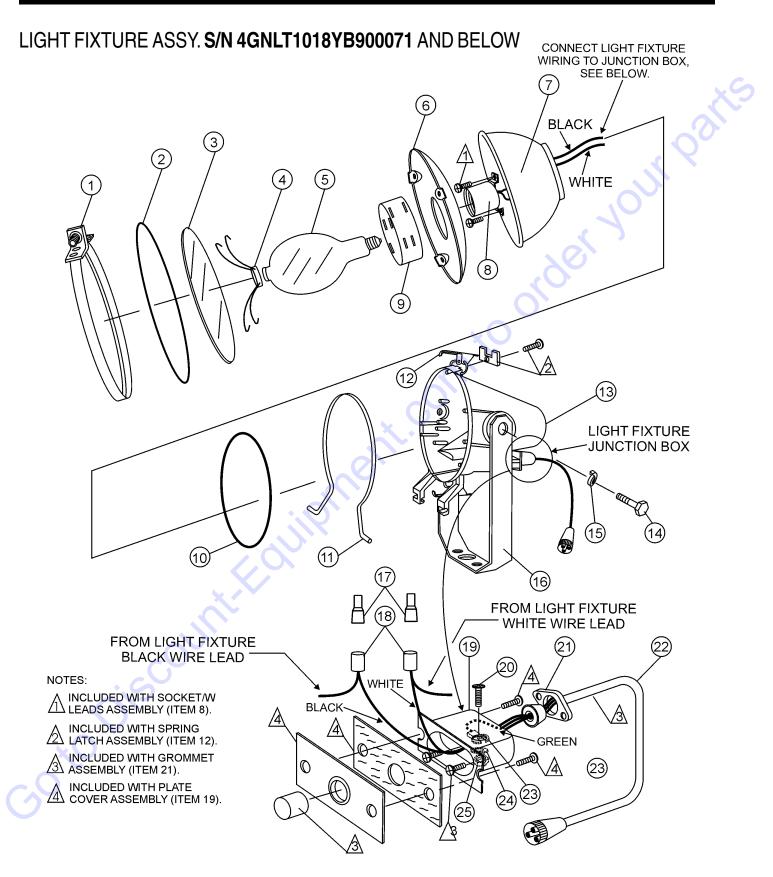


PAGE 52 — MODULAR LIGHT TOWER — PARTS & OPERATION MANUAL — REV. #5 (08/15/08)

### MODULAR LIGHT TOWER — FLOODLIGHT MOUNTING ASSY.

<u>NO</u> 1	<u>PART NO</u> 19249	JNTING ASSY. PART NAME SCREW, HHC 3/4-16 x 4	<u>QTY.</u> 2 4	REMARKS
2 3 4	5079 29174 19940 19250	FLAT WASHER, 3/4 FLOOD LIGHT, ASSY. MOUNT, LIGHT FIXTURE W/A NUT, NYLOC 3/4-16 x 4	4 4 1 2	Å
4 5 6 7 8	19250 19956 11505 19955	TOWER MASTS, ASSY. CLIP, CABLE LEAD ASSY., TOWER WIRING	1 2 1	, r Por
9 10 11	10176 0447 3215	NUT, NYLOC 1/2-13 WASHER, FLAT, 1/2 SAE 2 SCREW, HHC 1/2-13 X 3-1/2	1 2 1	John
12 13 14 15	16786 29161 29162 29042	SCREW, SH 1/2-13 X 3/4 SCREW, HHC 1/2-13 X 1 SS WASHER, HS 1/2 SS RECEPTACLE, FEMALE (J1,J2,J3 & J4)	2 2 2 4	yer'
16 17 18	29169 19972 19945	POWER CORD SET (MALE) REFLECTOR, RED PLATE, COVER	4 1 1	ofe
19 20 21 22	19944 29046 19688 19687	GASKÉT, PLATE COVER SCREW, COVER PLATE INSULATOR, SPLICE CAP PLASTIC COPPER SPLICE CAP	1 1 6	
		×	CO.	
		e (i)		
		ion <sup>n</sup>		
		ountration		
		out		
	is	3		
$\mathbf{O}$				

#### MODULAR LIGHT TOWER — LIGHT FIXTURE ASSY.

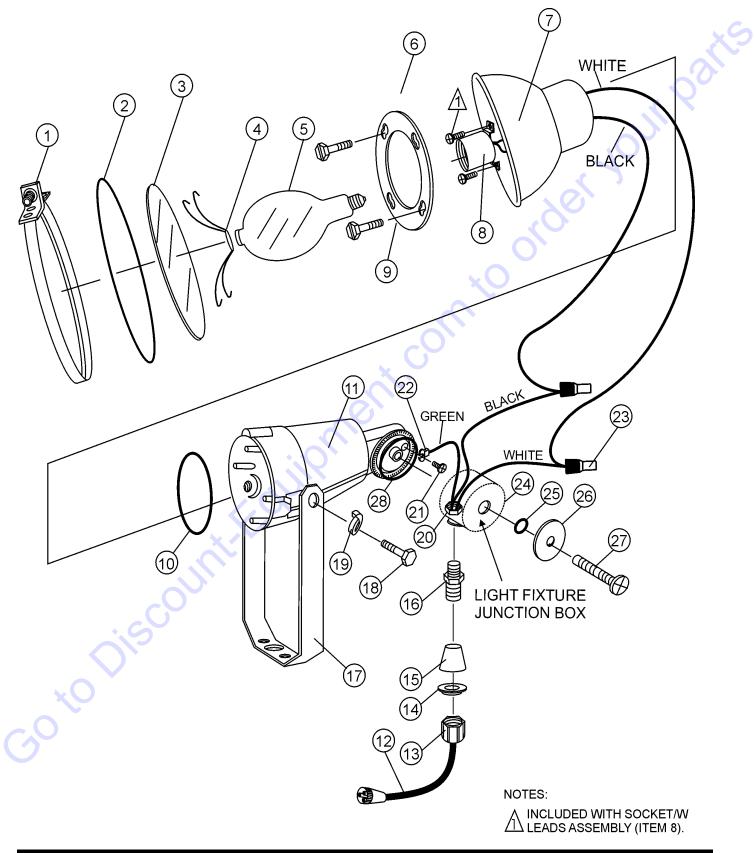


#### LIGHT FIXTURE ASSY. S/N 4GNLT1018YB9000721AND BELOW

NO 1 2 3 4	PART NO 64167441 64167100 64167744 19823	PART NAME CLAMP, LIGHT LENS GASKET LENS SUPPORT, TOP LAMP 1000 WATT	<b><u>QTY.</u> <u>REMARKS</u></b> 4 4 4 4 4 4	ats
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	M1000U C4403590 64167238 A4605079 C4310161 3805208 4402155 94887 B4300015 29161 29162 29163 19688 19687 A4300250 1006MPP188 3805199 29169 1272 10NF88 10237	BULB REFLECTOR, REAR REFLECTOR (WITHOUT GLASS) SOCKET W/LEADS REFLECTOR, SIDE FIXTURE SEAL, RUBBER HOLDER SPRING LATCH ASSEMBLY FIXTURE HOUSING SCREW, HHC 1/2-13 X 1 SS WASHER, HS 1/2 SS TRUNION (YOKE) INSULATOR, SPLICE CAP (PLASTIC) COPPER SPLICE CAP PLATE COVER ASSY. SCREW, 10 X 24 PAN HEAD 3/8 SS GROMMET ASSY. CORD SET MOLDED TERMINAL, SPADE 16-14 #8 INSUL. NUT, HEX 10-24 WASHER, EXT.SHKP. #10 ELOOD LIGHT ASSY.		
26	ŝ		1 This floodlight assembly has Discontinued. Use P/N 29174 W Re-ordering. However compo For the old style flood ligh Still be ordered.	HEN ONENTS
Got	Disco			

# MODULAR LIGHT TOWER — LIGHT FIXTURE ASSY.

#### LIGHT FIXTURE ASSY. S/N 4GNLT1018YB900072 AND ABOVE



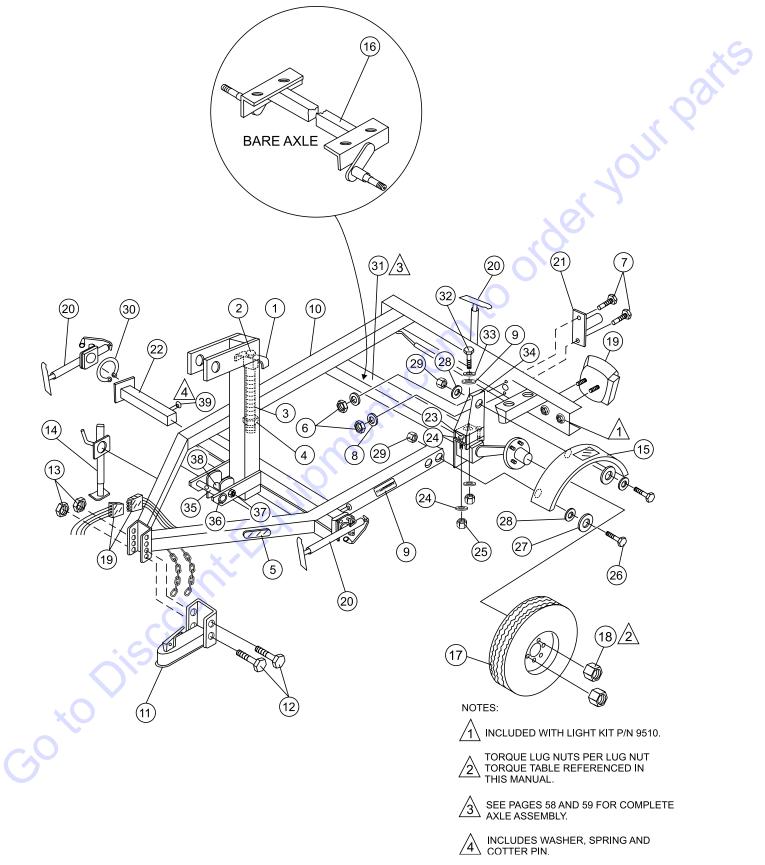
PAGE 56 — MODULAR LIGHT TOWER — PARTS & OPERATION MANUAL — REV. #5 (08/15/08)

#### LIGHT FIXTURE ASSY. S/N 4GNLT1018YB900072 AND ABOVE

-	NO	PART NO	PART NAME	<u>QTY.</u>	REMARKS
	1*	64167441	CLAMP, LIGHT	4	5
	<u>2</u> *	64167100	LENS GASKET	4	
	3*	64167744	LENS (GLASS)	4	
	4*	19823	SUPPORT, TOP LAMP 1000 WATT	4	
	5*	M1000U	BULB	4	s X
	6*	4101024	REINFORCING RING	1	
	7*	4105012	REFLECTOR (WITHOUT GLASS)	4	
-	8*	4605079000	SOCKET 4KV MONGUL LEADS	4	
ç	9*	70463	SCREW, 10-24 X 5/8 BLACK	16	
	10*	2450120	GASKET, HOUSING/REFLECTOR	4	
1	11*	3100056	FIXTURE HOUSING	4	Xe
1	12 *	29169	CORD SET MOLDED	4	
1	13 *	4110624000	WASHER, 1/2 EXT. TOOTH SS	4	
1	14 *	6900446	SEAL RING .755 ID	4	
1	15 *	6900447	STRAIN RELIEF	4	
1	17 *	4101021	TRUNION (YOKE)	4	
1	18 *	63960	SCREW, HHCS 1/2-13 X 1-1/4	4	
1	19 *	29162	WASHER, LOCK HS 1/2 SS	4	
2	<u>20 *</u>	5232GR	STRAIGHT CONNECTOR 1/2"	4	
2	21 *	4107742000	SCREW, 6-32 X 3/8 🛛 🔪 🚬	4	
2	22 *	2856	TERMINAL, SPADE 16-14#8 INSUL	4	REPLACES 1272
2	<u>23 *</u>	19688	INSULATOR, SPLICE CAP (PLASTIC)	4	
2	<u>2</u> 4 *	4100003	CONNECTION BOX	4	
2	25 *	2450121	O-RING .206" X 1.03" SILICON	4	
2	26 *	6351110	WASHER, 1/4 X 1-1/4 OD X .63 GALV.	4	
2	<u>2</u> 7 *	6301045	SCREW, 1/4-20 X 2" PH PH SS	4	
2	<u>28 *</u>	2450119	O-RING, 1.925" ID X 1.03"	4	
2	<u>2</u> 9 *	4106781000	SCREW, 8-32 X 3/8 PH PH	8	
3	30 *	4104021000	POP RIVET 1/8 X 3/16 DOMED AL	8	
3	31 *	4101023	BRACKET, SOCKET	4	
3	32	29174	LIGHT FIXTURE ASSY.	1	INCLUDES ITEMS W/*
		4101023 29174			
	X				
C	J				
$\bigcirc$					

### MODULAR LIGHT TOWER — TRAILER ASSY.

TRAILER ASSY.



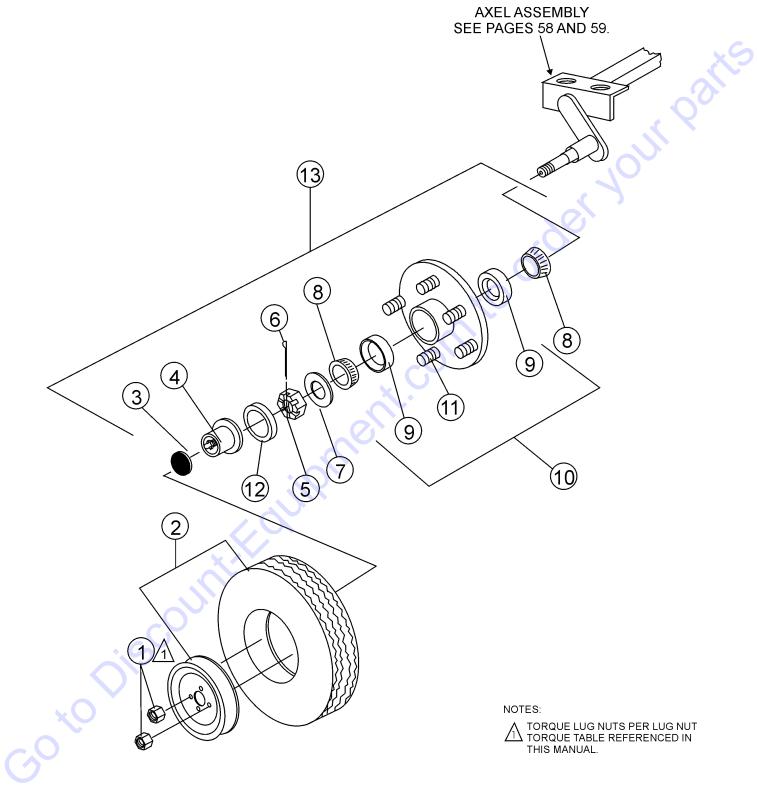
# MODULAR LIGHT TOWER — TRAILER ASSY.

#### TRAILER ASSY.

<u>NO</u> 1 2 3 4 5 6 7 8 9	PART NO. 29020 29077 19989 9503 29158 10024 0730 0948	PART NAME THRUST PLATE - SPRING SCREW, HHC 5/8 - 11 X 91/2 SPRING, TOWER NUT, NYLOC 5/8 - 11 REFLECTOR, AMBER NUT, NYLOC 1/4 - 20 SCREW, HHC 1/4 - 20 X 1 WASHER, FLAT 1/4 SERIAL NUMBER PLATE	<u>QTY.</u> 1 1 1 2 2 2 2 2	REMARKS
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	19904 19102 9502 9503 29095 29074 29212 19045 8115 9510 19525 9514 19948 16524 16630 16629 0205 3233 10136 10133 19527 29067 0131A	FRAME COUPLER SCREW, HHC 5/8 - 11 X 41/2 #8 NUT, NYLOC 5/8 - 11 JACK, SIDEWIND FENDER ASSEMBLY AXLE MLT TORSION (BARE) TIRE & WHEEL ASSEMBLY NUT, WHEEL 1/2 - 20 60 CORE KIT, LIGHT - TRAILER JACK, TOP WIND LIGHT ASSY. LICENSE PLATE OUTRIGGER SCREW, HHC 1/2 - 13 X 1 1/4 GD8 WASHER, FLAT 1/2 SAE HS NUT, NYLOC 1/2 - 13 GD8 SCREW, HHC 3/8 - 16 X 1 WASHER, FENDER 3/8 WASHER, FLAT 3/8 NUT, NYLOC 3/8 - 16 SNAP RING AXLE ASSEMBLY (COMPLETE) SCREW, HHC 1/4-20 X 3/4	1 1 2 2 2 2 2 2 1 2 1 2 10 1 2 10 1 2 1 2	MODEL AND S/NNUMBER
33 34 35 36 37 38 39	0181B 29101 29008 1135 10176 29017 29211	WASHER, LOCK, 1/4 MED BRACKET, SUPPORT FENDER ROLL PIN, CABLE RING, SNAP NUT, NYLOC LOCK 1/2-13 SCREW, HHC 1/2-13 X 5-1/2 PIN ASSY, LATCH	1 1 1 1 1 3	

# MODULAR LIGHT TOWER — AXLE ASSY.





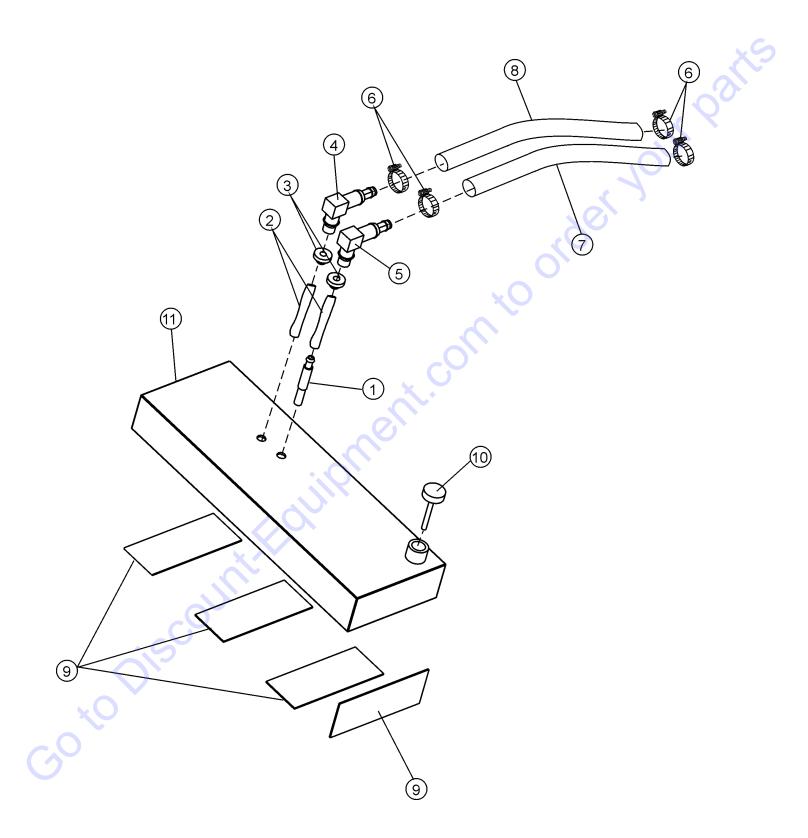
### MODULAR LIGHT TOWER — AXLE ASSY.

#### AXLE ASSY.

<u>NO.</u> 1 2 3# 4# 5# 6# 7# 8# 9* 10 11*# 12#	PART NO. 8115 19045 568067 363277 363257 363258 363259 363259 363180 363913 363188 363908 363275	PART NAME NUT, LUG 1/2 - 20 60° CONE WHEEL & TIRE ASSY. RUBBER PLUG (AG) GREASE CAP (AG) SPINDLE NUT 1"-1/4 COTTER PIN WASHER, SPINDLE BEARING CONE (INNER & OUTER) BEARING CUP (INNER & OUTER) HUB ASSY., IDLER STUD, 1/2"-20 SEAL, GREASE	10 2	NON
13	29067	AXLE ASSY. (COMPLETE)		INCLUDES ITEMS W/#
		, duipment.		
	opisco	unt-t-		
Gox	<b>O</b>			
	MODULAR LI	GHT TOWER — PARTS & OPERATION MAN	NUAL — RE\	/. #5 (08/15/08) — PAGE 61

# MODULAR LIGHT TOWER — FUEL TANK ASSY.

FUEL TANK ASSY.



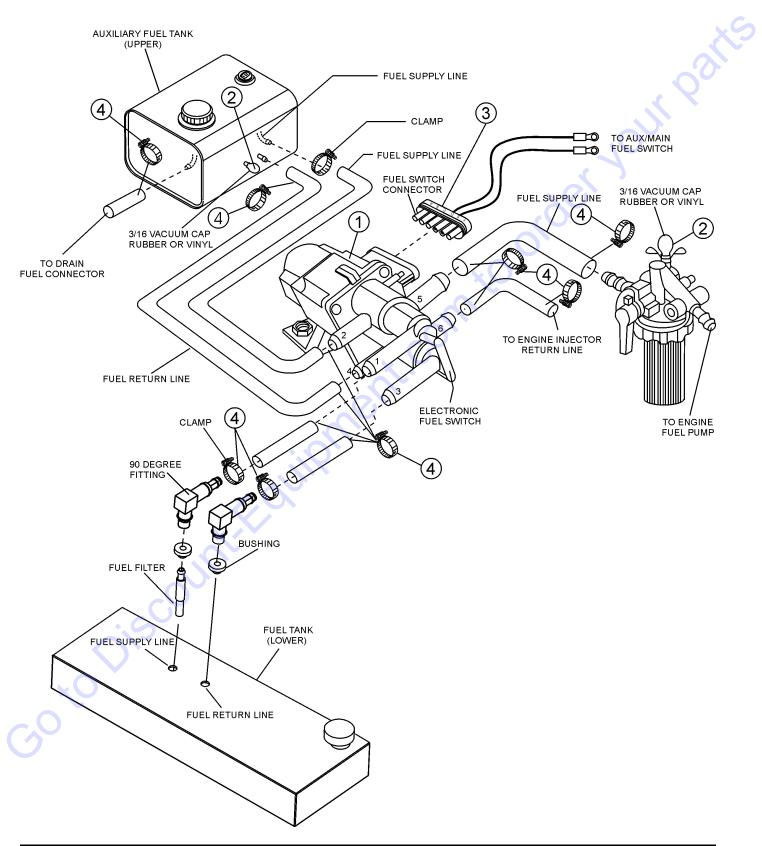
### **MODULAR LIGHT TOWER — FUEL TANK ASSY**

#### FUEL TANK ASSY.

	<u>NO</u> 1	<b>PART NO</b> 12008	<u>PART NAME</u> SCREEN, FILTER	QTY. REMARKS
	2 3 4 5 6 7	60058 19633 12006	HOSE.375 OD X .25 ID PVC FUEL YELLOW, 1.0 FT BUSHING, RUBBER FUEL FITTING, 90 03BARB-4BARB FUEL	1 2 1
	5 6 7	12008 19473 60028	FITTING, 90 FUEL CLAMP, WORM HOSE, #4 (1/4-5/8) HOSE, .312 ID RUBBER FUEL, 1.6 FT. LONG	
	8 9	60058 19094	HOSE, .187 ID HOBBER, 2.25 FT. LONG LINER, FUEL TANK	
	10 11	19984 19983	CAP, FUEL W/GAUGE (5-3/4) TANK, FUEL	
				NO1
			int-Foundation	×O
			off	
			en	
			JULT	
			×	
			ounit	
		~C	, <b>0</b> °	
		O'S		
	×	$\mathbf{D}^{\mathbf{v}}$		
C	O Ì			
		MODULA	R LIGHT TOWER — PARTS & OPERATION MANUAL	— REV. #5 (08/15/08) — PAGE 63

### MODULAR LIGHT TOWER — OPTIONAL ELECTRIC FUEL SWITCH ASSY.

#### OPTIONAL ELECTRIC FUEL SWITCH ASSY. (FUEL TANK)



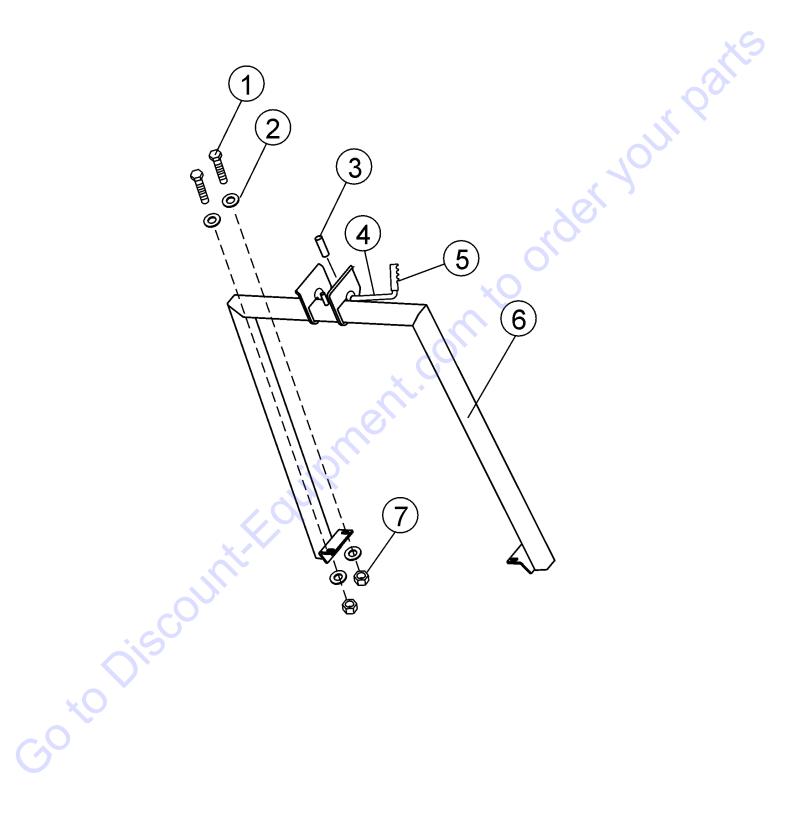
# MODULAR LIGHT TOWER — OPTIONAL ELECTRIC FUEL SWITCH ASSY.

#### **OPTIONAL ELECTRIC FUEL SWITCH ASSY. (FUEL TANK)**

NO PART NO 29164	TRIC FUEL SWITCH ASSY. (FUEL TANK)  PART NAME VALVE, SELECTOR-DC CAP, VACUUM PLUG	QTY. <u>REMARKS</u>	
2 19870 3 29165 4 19473	CAP, VACUUM PLUG CONNECTOR ASSYSWITCH CLAMP, HOSE #4	2 1 7	Ň
			Q.
		10	2,
		×0	
		n	
	X	G <sup>C</sup>	
	Cont		
	mel.		
ic	mel.		
	mel.		
	mel.		
	ountrainproved		

# MODULAR LIGHT TOWER — SUPPORT STANDS ASSY.

SUPPORT STANDS ASSY.



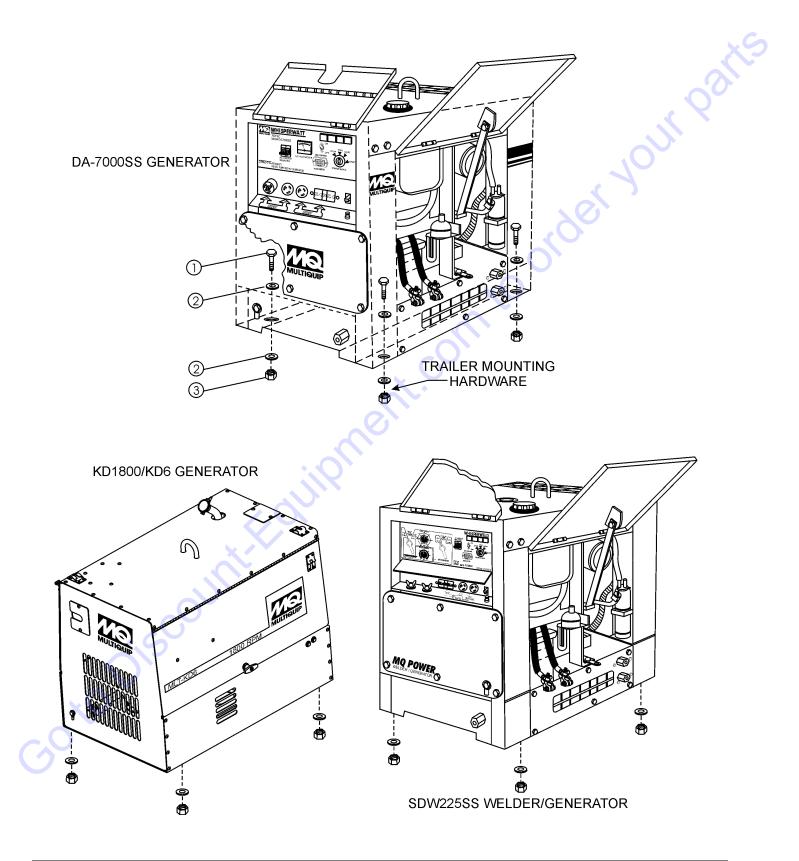
### MODULAR LIGHT TOWER — SUPPORT STANDS ASSY.

#### SUPPORT STANDS ASSY.

<u>NO</u> 1	<u>PART NO</u> 1284	PART NAME SCREW, HHC 3/8-16 X 1-1/2	<u>QTY.</u>	<u>REMARKS</u>
2 3	10136 10133	WASHER, FLAT 3/8 SAE	4 4 4	×
4 5 6	19950 19997 19931	NUT, NYLOC 3/8-16 PIN, LOCK REAR SUPPORT HANDLE, 5/8 X4 RED SUPPORT, REAR TOWER	1 1 1	2
7	4022	ROLL PIN 1/4 X 2	1	to order your par
				100
				ros
				.0
			c,O/ ·	
			X.	
		e la		
			t.com	
		and the		
		int-K		
		ountre		
	is	ountre		
	Dis	ountre		
×	o Disc	ountre		
,0 ,×(	opis	ountr		
,0×(	opis	ountr		
,0 ,	oDis	ountralin		

### MODULAR LIGHT TOWER — GEN/WELDER TRAILER MOUNTING ASSY.

#### GENERATOR/WELDER TRAILER MOUNTING ASSY.



PAGE 68 — MODULAR LIGHT TOWER — PARTS & OPERATION MANUAL — REV. #5 (08/15/08)

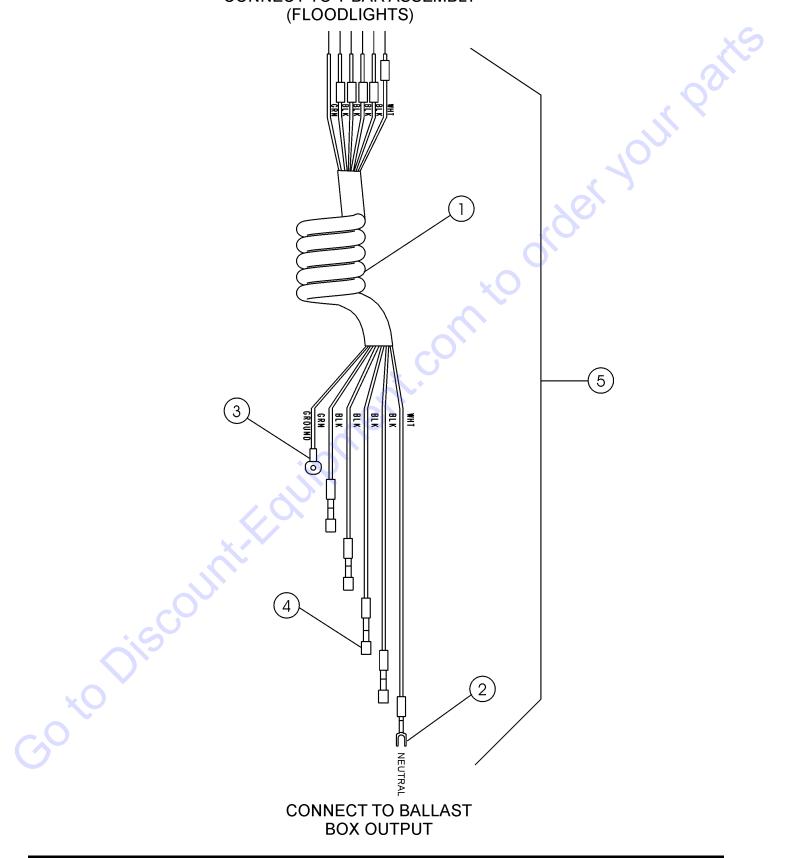
### MODULAR LIGHT TOWER — GEN/WELDER TRAILER MOUNTING ASSY.

#### GENERATOR/WELDER TRAILER MOUNTING ASSY.

	<u>NO</u> 1 2 3	<b>PART NO</b> 5218 0447 10176	PART NAME SCREW, HHC 1/2-13 X1-1/2 WASHER, FLAT 1/2 SAE NUT, NYLOC 1/2-13	<b>QTY.</b> 4 8 4	REMARKS
	3	10176	NOT, NTLOC 1/2-13	4	Ostra
					REMARKS
					der
				*	0
			ipment	on	
			on't		
			uipme		
			ountre		
		O'S			
	~	О <sup>т</sup>			
Ċ					
		MODULA	R LIGHT TOWER — PARTS & OPERATIO	NMANUAL —	- REV. #5 (08/15/08) — PAGE 69

## MODULAR LIGHT TOWER — COIL CORD ASSY.

COIL CORD ASSY.



CONNECT TO T-BAR ASSEMBLY

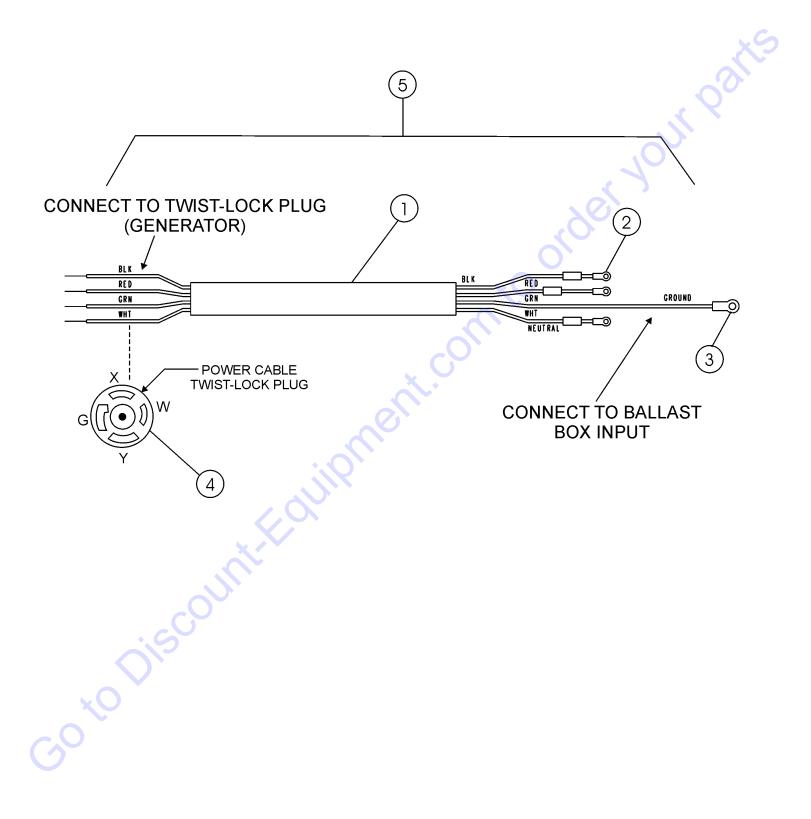
PAGE 70 — MODULAR LIGHT TOWER — PARTS & OPERATION MANUAL — REV. #5 (08/15/08)

# MODULAR LIGHT TOWER — COIL CORD ASSY.

NO	CORD ASSY. PART NO	PART NAME	<u>QTY.</u>	REMARKS
1* 2* 3* 4* 5	19798 10104 3254 11947 19955	Coil Cord Terminal, Spade 12-10, #10 INS Terminal, Ring 16-14 3/8 Terminal, Fem Push, 16-14 Insul Coil Cord Assy.	1 1 1 4	X
				JOURY
				order,
			n,	
		ent	÷	
		dilphi		
		untit		
	.S			
,0 ,0		ountroutin		

## MODULAR LIGHT TOWER — POWER CABLE ASSY.

POWER CABLE ASSY.

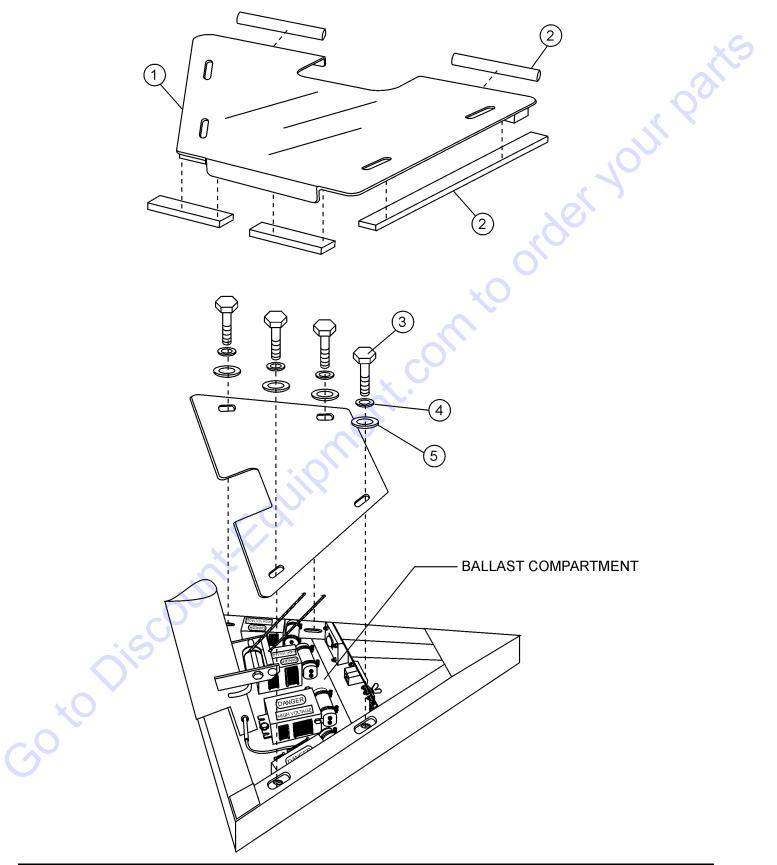


### MODULAR LIGHT TOWER — POWER CABLE ASSY.

<u>NO</u> P	CABLE ASS PART NO	PART NAME	<u>QTY.</u>	REMARKS
1* 1 2* 1	9798 0105	CABLE FLEC 10 AWG X 4	1	COND-600V
4 1	9069 9686	TERMINAL, RING 12-10, #10 INS TERMINAL, RING 10-12AWY X 3/8 IN PLUG, LOCKING LEAD ASSEMBLY, POWER	1 1	P1
5 2	9068	LEAD ASSEMBLY, POWER	1	INCLUDES ITEMS W/*
				No.
				0
			R	
			con	
			con	
		ent	con	
		ment	con	
		ipment	con	
		uipment	con	
		Failburg	com	
		trauipment	con	
		unt-Fouipment	con	
		ount-Fouipment	con	
	isc	ount-Fouipment	conn	
	oisc	ount-Fouipment	con	
×O	OISC	ount-Foundation	conn	
×0	oisc	ount-foundation	conn	
	oisc	ount-Foundation	conn	
	oisc	ountralipment	con	
	oisc	ountrauinen	con	

# MODULAR LIGHT TOWER — BALLAST COMPARTMENT COVER ASSY.

#### BALLAST COMPARTMENT COVER ASSY.

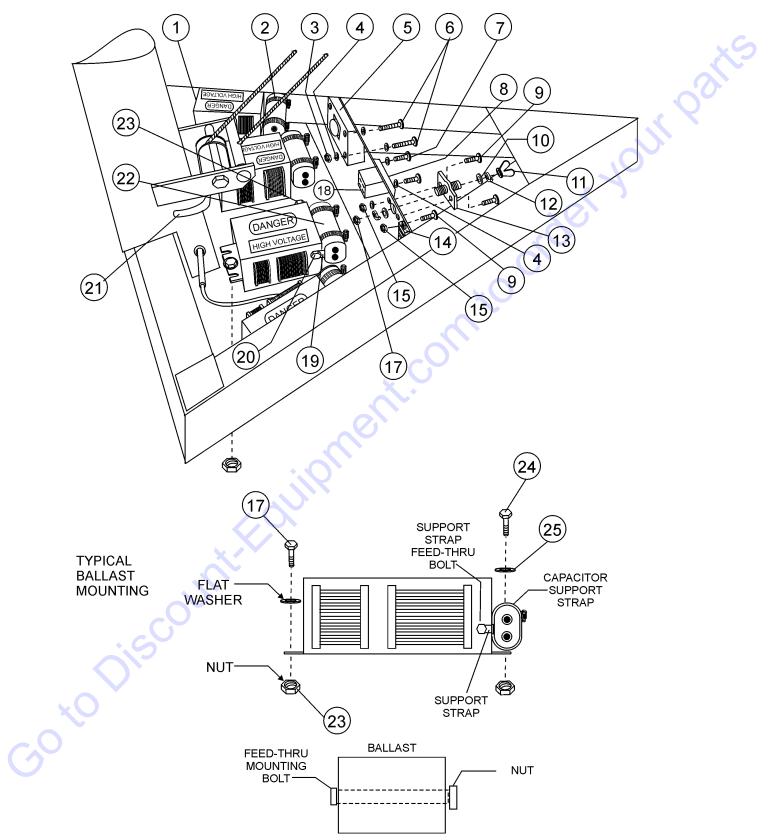


### MODULAR LIGHT TOWER — BALLAST COMPARTMENT COVER ASSY.

NO	PART NO	DER TRAILER MOUNTING ASSY. PART NAME	<u>QTY.</u>	REMARKS
1 2 3 4 5	29000 29093 0202 0161C 0300B	PLATE, COVER GASKET SCREW, HHC 5/16-18 X 1 WASHER, LOCK 5/16 WASHER, FLAT 5/16	1 6 4 4	
				to order your t
		men	L.COL	
	ois	ountralit		
	5			
0				

## MODULAR LIGHTTOWER — BALLAST COMPARTMENT ASSY.

BALLAST COMPARTMENT ASSY.



### MODULAR LIGHTTOWER — BALLAST COMPARTMENT ASSY.

#### BALLAST COMPARTMENT ASSY.

NO 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 17 18 19 20 21 22 23 24	PART NO 29156 10434 11152 1450 29098 29097 8133 29000 8133 10136 1JP104S 0166A 29001 19968 10019 10133 19999 19858 13252 29093 19598 10024 0131A	PART NAME BALLAST 1000W, MH CWA 120 VAC CLAMP, 2-INCH HOSE NUT, NYLOC 6-32 WASHER, FLAT #6 SAE FAN ASSY. SCREW, PHM 6-32 X 1-3/4 SCREW, RHM 10-32 X 3/4 PLATE, COVER SCREW, RHM 10-32 X 3/4 WASHER, FLAT 3/8 SAE NUT, WING 3/8-16 WASHER, HS 3/8 MED JUNCTION BLOCK-GROUND TERMINAL BLOCK NUT, NYLOC 10-32 NUT, NYLOC 10-32 NUT, NYLOC 10-32 NUT, NYLOC 10-32 NUT, NYLOC 3/8-16 CIRCUIT BREAKER BRACKET CAPACITOR SCREW, 1/4-20 X 4 GASKET CAPACITOR, 480 VAC uF	4 4 12 1 4 4 1 8 2 1 2 1 2 1 2 4 4 4 4	REPLACES 29109 TB1
	0948	WASHER, FLAT 1/4 SAE		• REV. #5 (08/15/08) — PAGE 77

Search Website by Part Number <b>Discount</b>	Search Manual Library For Parts Manual & Lookup Part Numbers – Purchase or Request Quote	Can't Find Part or Manual? Request Help by Manufacturer, Model & Description
Equipment		Parts Order Form
		1 No.Asc Taic
	Search Manuals	aramates Cranton
	History was participant as a subject of the participant and a source manual to backly an parts	NUC
	1 Incl	Gran
(a) E.D., 2019 (F.D.), 2019	SCOL Bland	
Where Somice Makes The DifferenceIII States of	* Bodd	Nuber 2
матиль рако мональцартна кули силот Солист		ch
Marchanic Rest 2012 2012	Sold bit: SoldSorie	DateTorpton
na zvaljejner pr		3042131 (203 ·
Care Seconds and Process	Park Bankes. Enter Park Hender (Not respired)	526.00
An addressed Series 2017	Dianska	4 au *
	Enter Describer Run You Are Locking For	C479.82
		De la
	School Sc	Eral -
		Factoria

Discount-Equipment.com is your online resource for quality parts & equipment.

Florida: 561-964-4949 Outside Florida TOLL FREE: 877-690-3101

#### Need parts?

Click on this link: http://www.discount-equipment.com/category/5443-parts/ and choose one of the options to help get the right parts and equipment you are looking for. Please have the machine model and serial number available in order to help us get you the correct parts. If you don't find the part on the website or on one of the online manuals, please fill out the request form and one of our experienced staff members will get back to you with a quote for the right part that your machine needs.

We sell worldwide for the brands: Genie, Terex, JLG, MultiQuip, Mikasa, Essick, Whiteman, Mayco, Toro Stone, Diamond Products, Generac Magnum, Airman, Haulotte, Barreto,
Power Blanket, Nifty Lift, Atlas Copco, Chicago Pneumatic, Allmand, Miller Curber, Skyjack, Lull, Skytrak, Tsurumi, Husquvarna Target, Stow, Wacker, Sakai, Mi-T-M, Sullair, Basic, Dynapac, MBW, Weber, Bartell, Bennar Newman, Haulotte, Ditch Runner, Menegotti, Morrison, Contec, Buddy, Crown, Edco, Wyco, Bomag, Laymor, EZ Trench, Bil-Jax, F.S.
Curtis, Gehl Pavers, Heli, Honda, ICS/PowerGrit, IHI, Partner, Imer, Clipper, MMD, Koshin, Rice, CH&E, General Equipment, Amida, Coleman, NAC, Gradall, Square Shooter, Kent, Stanley, Tamco, Toku, Hatz, Kohler, Robin, Wisconsin, Northrock, Oztec, Toker TK, Rol-Air, APT, Wylie, Ingersoll Rand / Doosan, Innovatech, Con X, Ammann, Mecalac, Makinex, Smith Surface Prep,Small Line, Wanco, Yanmar