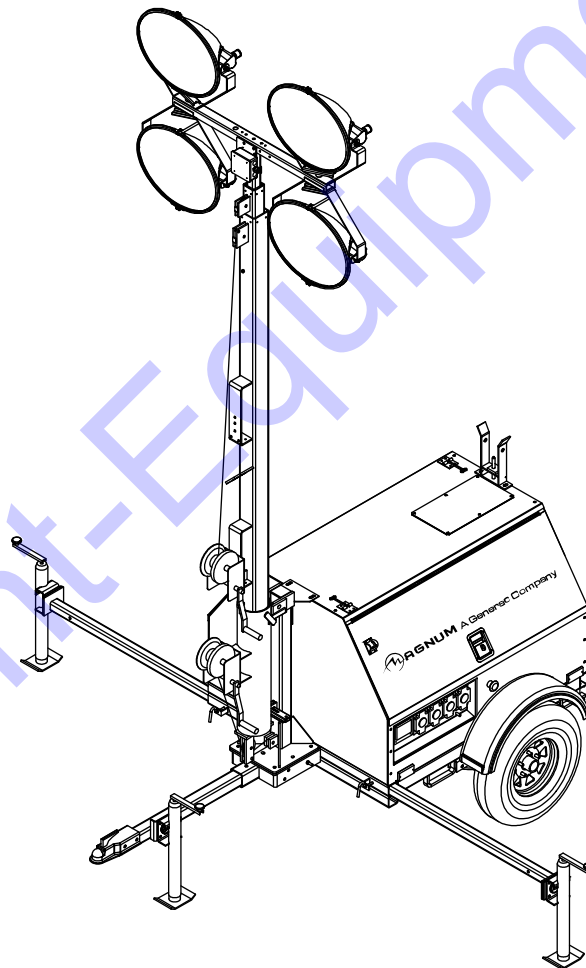


*Owner's Manual*  
*Light Tower*

MLT4250



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---

## Use this page to record important information about your Light Tower

Unit Model Number	
Unit Serial Number	
Engine Model Number	
Engine Serial Number	
Generator Model Number	
Generator Serial Number	

Record the information found on your unit data label on this page. See unit serial number location ([Unit Serial Number Locations](#)). The label plate is affixed to the inside partition, to the left of the control panel console.

Engine and generator serial numbers are located on separate data plates affixed to the engine and generator respectively.

When contacting an Generac Mobile Products Authorized Service Dealer about parts and service, always supply the complete model number and serial number of the unit.

**Operation and Maintenance:** Proper maintenance and care of the Light Tower ensures a minimum number of problems and keeps operating expenses at a minimum. It is the operator's responsibility to perform all safety checks, to verify that all maintenance for safe operation is performed promptly, and to have the equipment checked periodically by a Generac Mobile Products Authorized Service Dealer. Normal maintenance, service and replacement of parts are the responsibility of the owner or operator and, as such, are not considered defects in materials or workmanship within the terms of the warranty. Individual operating habits and usage may contribute to the need for additional maintenance or service.

---

**⚠ WARNING**

California Proposition 65. Engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects, and other reproductive harm. (000004)

---

**⚠ WARNING**

California Proposition 65. This product contains or emits chemicals known to the state of California to cause cancer, birth defects, and other reproductive harm. (000005)

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# Section 1: Introduction and Safety

## Introduction

Thank you for purchasing a Generac Mobile Products LLC product. This unit has been designed to provide high performance, efficient operation, and years of use when maintained properly.

The information in this manual is accurate based on products produced at the time of publication. The manufacturer reserves the right to make technical updates, corrections, and product revisions at any time without notice.

### Read This Manual Thoroughly



#### **WARNING**

Consult Manual. Read and understand manual completely before using product. Failure to completely understand manual and product could result in death or serious injury. (000100a)

The owner is responsible for proper maintenance and safe use of the equipment. Comply with regulations the Occupational Safety and Health Administration (OSHA) has established, or with equivalent standards. Also, verify that the unit is applied, used, and maintained in accordance with the manufacturer's instructions and recommendations. Do nothing that might alter safe application/usage and render the unit in noncompliance with the aforementioned codes, standards, laws, and regulations.

Save these instructions for future reference. This manual contains important instructions for the unit that should be followed during setup, operation and maintenance of the unit and battery. ALWAYS supply this manual to any individual that will use this machine.

### How to Obtain Service

When the unit requires servicing or repairs, contact a Generac Mobile Products Authorized Dealer for assistance. Service technicians are factory-trained and are capable of handling all service needs.

## Safety Rules

The manufacturer cannot anticipate every possible circumstance that might involve a hazard. The warnings in this manual, and on tags and decals affixed to the unit are, therefore, not all inclusive. If using a procedure, work method or operating technique that the manufacturer does not specifically recommend, verify that it is safe for others. Also make sure the procedure, work method or operating technique utilized does not render the equipment unsafe.

Throughout this publication, and on tags and decals affixed to the unit, DANGER, WARNING, CAUTION and NOTE blocks are used to alert personnel to special instructions about a particular operation that may be hazardous if performed incorrectly or carelessly. Observe them carefully. Their definitions are as follows:

#### **DANGER**

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

(000001)

#### **WARNING**

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

(000002)

#### **CAUTION**

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

(000003)

**NOTE:** Notes contain additional information important to a procedure and will be found within the regular text of this manual.

These safety alerts cannot eliminate the hazards that they indicate. Common sense and strict compliance with the special instructions while performing the action or service are essential to preventing accidents.

## General Hazards



**⚠ DANGER**

Asphyxiation. Running engines produce carbon monoxide, a colorless, odorless, poisonous gas. Carbon monoxide, if not avoided, will result in death or serious injury. (000103)



**⚠ WARNING**

Hearing Loss. Hearing protection is recommended when using this machine. Failure to wear hearing protection could result in permanent hearing loss. (000107)



**⚠ WARNING**

Moving Parts. Keep clothing, hair, and appendages away from moving parts. Failure to do so could result in death or serious injury. (000111)



**⚠ WARNING**

Hot Surfaces. When operating machine, do not touch hot surfaces. Keep machine away from combustibles during use. Hot surfaces could result in severe burns or fire. (000108)

**⚠ WARNING**

Risk of injury. Do not operate or service this machine if not fully alert. Fatigue can impair the ability to service this equipment and could result in death or serious injury. (000215)



**⚠ WARNING**

Risk of burns. Allow engine to cool before draining oil or coolant. Failure to do so could result in death or serious injury. (000139)

## Explosion and Fire Hazards



**⚠ DANGER**

Explosion and Fire. Fuel and vapors are extremely flammable and explosive. Add fuel in a well ventilated area. Keep fire and spark away. Failure to do so will result in death or serious injury. (000105)



**⚠ WARNING**

Risk of Fire. Unit must be positioned in a manner that prevents combustible material accumulation underneath. Failure to do so could result in death or serious injury. (000147)



**⚠ WARNING**

Risk of Fire. Hot surfaces could ignite combustibles, resulting in fire. Fire could result in death or serious injury. (000110)

## Trailer Hazards

**⚠ WARNING**

Trailer must be securely coupled to the hitch and the chains correctly attached. Uncoupled or unchained towing could result in death or serious injury. (000233)

**⚠ WARNING**

Do not operate this unit while transporting. Doing so could result in death or serious injury. (000231)

**⚠ WARNING**

Crushing hazard. Verify unit is properly secured and on level ground. An unsecured unit can suddenly roll or move, causing death or serious injury. (000234a)

**⚠ WARNING**

Property or Equipment Damage. Tighten wheel lug nuts after first 50 miles to factory specifications. Failure to do so could result in death, serious injury, property or equipment damage. (000235)

## Electrical Hazards



### ⚠ DANGER

Electrocution. In the event of electrical accident, immediately shut power OFF. Use non-conductive implements to free victim from live conductor. Apply first aid and get medical help. Failure to do so will result in death or serious injury. (000145)



### ⚠ DANGER

Electrocution. Water contact with a power source, if not avoided, will result in death or serious injury.

(000104)



### ⚠ DANGER

Electrocution. Contact with bare wires, terminals, and connections while generator is running will result in death or serious injury.

(000144)



### ⚠ DANGER

Electrocution. Verify electrical system is properly grounded before applying power. Failure to do so will result in death or serious injury.

(000152)



### ⚠ DANGER

Electrocution. Do not wear jewelry while working on this equipment. Doing so will result in death or serious injury.

(000188)



### ⚠ DANGER

Electrocution. DO NOT use the unit if electrical cord is cut or worn through. Doing so will result in death or serious injury.

(000263a)

## Battery Hazards



### ⚠ DANGER

Electrocution. Do not wear jewelry while working on this equipment. Doing so will result in death or serious injury.

(000188)



### ⚠ WARNING

Explosion. Batteries emit explosive gases while charging. Keep fire and spark away. Wear protective gear when working with batteries. Failure to do so could result in death or serious injury.

(000137a)



### ⚠ WARNING

Explosion. Do not dispose of batteries in a fire. Batteries are explosive. Electrolyte solution can cause burns and blindness. If electrolyte contacts skin or eyes, flush with water and seek immediate medical attention.

(000162)



### ⚠ WARNING

Risk of burn. Do not open or mutilate batteries. Batteries contain electrolyte solution which can cause burns and blindness. If electrolyte contacts skin or eyes, flush with water and seek immediate medical attention.

(000163a)

### ⚠ WARNING

Environmental Hazard. Always recycle batteries at an official recycling center in accordance with all local laws and regulations. Failure to do so could result in environmental damage, death or serious injury.

(000228)

Always recycle batteries in accordance with local laws and regulations. Contact your local solid waste collection site or recycling facility to obtain information on local recycling processes. For more information on battery recycling, visit the Battery Council International website at: <http://batteryCouncil.org>



## Fuel Hazards



### ⚠ DANGER

Explosion and fire. Fuel and vapors are extremely flammable and explosive. No leakage of fuel is permitted. Keep fire and spark away. Failure to do so will result in death or serious injury. (000192)



### ⚠ DANGER

Risk of fire. Allow fuel spills to completely dry before starting engine. Failure to do so will result in death or serious injury. (000174)

- **DO NOT** fill fuel tank near an open flame, while smoking, or while engine is running. **DO NOT** fill tank in an enclosed area with poor ventilation.
- **DO NOT** operate with the fuel tank cap loose or missing.

## Engine Safety

Internal combustion engines present special hazards during operation and fueling. Failure to follow the safety guidelines described below could result in severe injury or death. Read and follow all safety alerts described in the engine operator's manual. A copy of this manual was supplied with the unit when it was shipped from the factory.

- **DO NOT** run engine indoors or in an area with poor ventilation. Make sure engine exhaust cannot seep into closed rooms or ventilation equipment.
- **DO NOT** clean air filter with gasoline or other types of low flash point solvents.
- **DO NOT** operate the unit without a functional exhaust system.
- Shut the engine down if any of the following conditions exist during operation:
  - Noticeable change in engine speed.
  - Loss of electrical output.
  - Equipment connected to the unit overheats.
  - Sparking occurs.
  - Engine misfires or there is excessive engine/generator vibration.
  - Protective covers are loose or missing.
  - Ambient air temperature is above 120°F (49°C).

## Operating Safety

### Positioning the Unit



### ⚠ DANGER

High Voltage. Verify area above unit is clear of overhead wires and obstructions. Contact with high-voltage power lines will result in death or serious injury. (000260a)



### ⚠ WARNING

Burn hazard. Never operate lights with a damaged or missing lens cover. Lamps are hot and pressurized while in use. Unprotected lamps can shatter, causing severe injury. (000277)

- The area immediately surrounding the unit should be dry, clean, and free of debris.
- Position and operate the unit on a firm, level surface.
- If the unit is equipped with a frame grounding stud, follow the National Electrical Code (NEC), state, and local regulations when connecting.

### Starting the Unit



### ⚠ DANGER

Electrocution. **DO NOT** use the unit if electrical cord is cut or worn through. Doing so will result in death or serious injury. (000263a)

### ⚠ WARNING

Equipment damage. Do not attempt to start or operate a unit in need of repair or scheduled maintenance. Doing so could result in serious injury, death, or equipment failure or damage. (000291)

## Raising and Lowering the Mast



### ⚠️ WARNING

Electrocution. Do not set up or operate this unit if severe weather is expected. Lightning strikes can kill or cause severe injury even if you are not touching the unit. (000296)



### ⚠️ WARNING

> 60 mph Do not set up the unit if high winds are expected. High winds can cause the unit to tip or fall, causing severe injury or machine damage. (000297)

### ⚠️ WARNING

Personal injury or equipment damage. Do not raise or lower the mast while the unit is operating. Doing so can break the lenses and cause the lamps to shatter. (000279)

### ⚠️ WARNING

Personal Injury. Stop immediately if the mast hangs up or the winch cable develops slack. Excess slack could cause the mast to collapse, resulting in personal injury or equipment damage. (000265)

### ⚠️ WARNING

Tipping hazard. Extend the outriggers and level the unit before raising the mast. Keep the outriggers extended while the mast is up. Failure to do so could cause the unit to tip and fall and could result in death or serious injury. (000266)



### ⚠️ WARNING

Burn hazard. Lamps become extremely hot while in use. Allow 10–15 minutes for cooling before handling or lowering mast. Touching a hot lens or fixture can cause severe burns. (000278)

- Keep area around the unit clear of people while raising and lowering the mast.
- **ALWAYS** lower the mast when not in use.
- The tower extends up to 30 ft (9.14 m). Make sure area above trailer is open and clear of overhead wires and obstructions.
- If for any reason any part of mast hangs up or winch cable develops slack while raising or lowering tower, STOP immediately! Contact a Generac Mobile Products Authorized Service Dealer.
- **NEVER** remove safety pin or pull mast locking pin while tower is up.

## Service Safety

This unit uses high voltage circuits capable of causing serious injury or death. Only a qualified and licensed electrician should troubleshoot or repair problems occurring in this equipment.

- Before servicing the unit, verify the Control Power switch and circuit breakers are in the OFF (O) position, and the negative (-) terminal on the battery is disconnected. **DO NOT** perform even routine service (oil/filter changes, cleaning, etc.) unless all electrical components are shut down.
- **ALWAYS** use extreme caution when servicing this unit in damp conditions. Do not service the unit if your skin or clothing is wet. Do not allow water to collect around the base of the unit.
- **DO NOT** wash the unit with high pressure hoses, power washers, or steam cleaners. Water may collect in the unit, causing damage to electrical parts.
- Replace all missing and hard to read decals. Decals provide important operating instructions and warn of dangers and hazards.
- Wear heavy leather gloves when handling winch cables. Never let cables slip through bare hands.
- Only use mild soap and water to clean the lens covers. Other chemicals may damage the lens covers.
- Make sure slings, chains, hooks, ramps, jacks and other types of lifting devices are attached securely and have enough weight-bearing capacity to lift or hold the equipment safely. Always remain aware of the position of other people around you when lifting the equipment.

## Towing Safety

Towing a trailer requires care. Both the trailer and vehicle must be in good condition and securely fastened to each other to reduce the possibility of an accident. Some states require that large trailers be registered and licensed. Contact your local Department of Transportation office to check on license requirements for your particular unit.

### Hitch and Coupling

- Verify the hitch and coupling on the towing vehicle are rated equal to, or greater than, the trailer's Gross Vehicle Weight Rating (GVWR).
- Verify the trailer hitch and the coupling are compatible. Make sure the coupling is securely fastened to the vehicle.
- **DO NOT** tow trailer using defective parts. Inspect the hitch and coupling for wear or damage.
- Connect safety chains in a crossing pattern under the tongue.
- Before towing the trailer, verify that the weight of the trailer is equal across all tires. On trailers with adjustable height hitches, adjust the angle of the trailer tongue to keep the trailer as level as possible.
- Attach the breakaway cable to the rear bumper of the towing vehicle.

### Running Lights

Verify directional and brake lights on the trailer are connected and working properly

### Wheels and Tires

- Check trailer tires for wear and proper inflation.
- Verify wheel lug nuts are present and tightened to the specified torque.

### Safe Towing Techniques

- Practice turning, stopping and backing up in an area away from heavy traffic prior to transporting the unit.
- Maximum recommended speed for highway towing is 45 mph (72 km/h). Recommended off-road towing speed is 10 mph (16 km/h) or less, depending on terrain.
- When towing, maintain extra space between vehicles and avoid soft shoulders, curbs and sudden lane changes.

## Reporting Trailer Safety Defects

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

If NHTSA receives similar complaints, it may open an investigation; and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in an individual problem between you, your dealer, or Generac Mobile Products LLC.

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

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

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

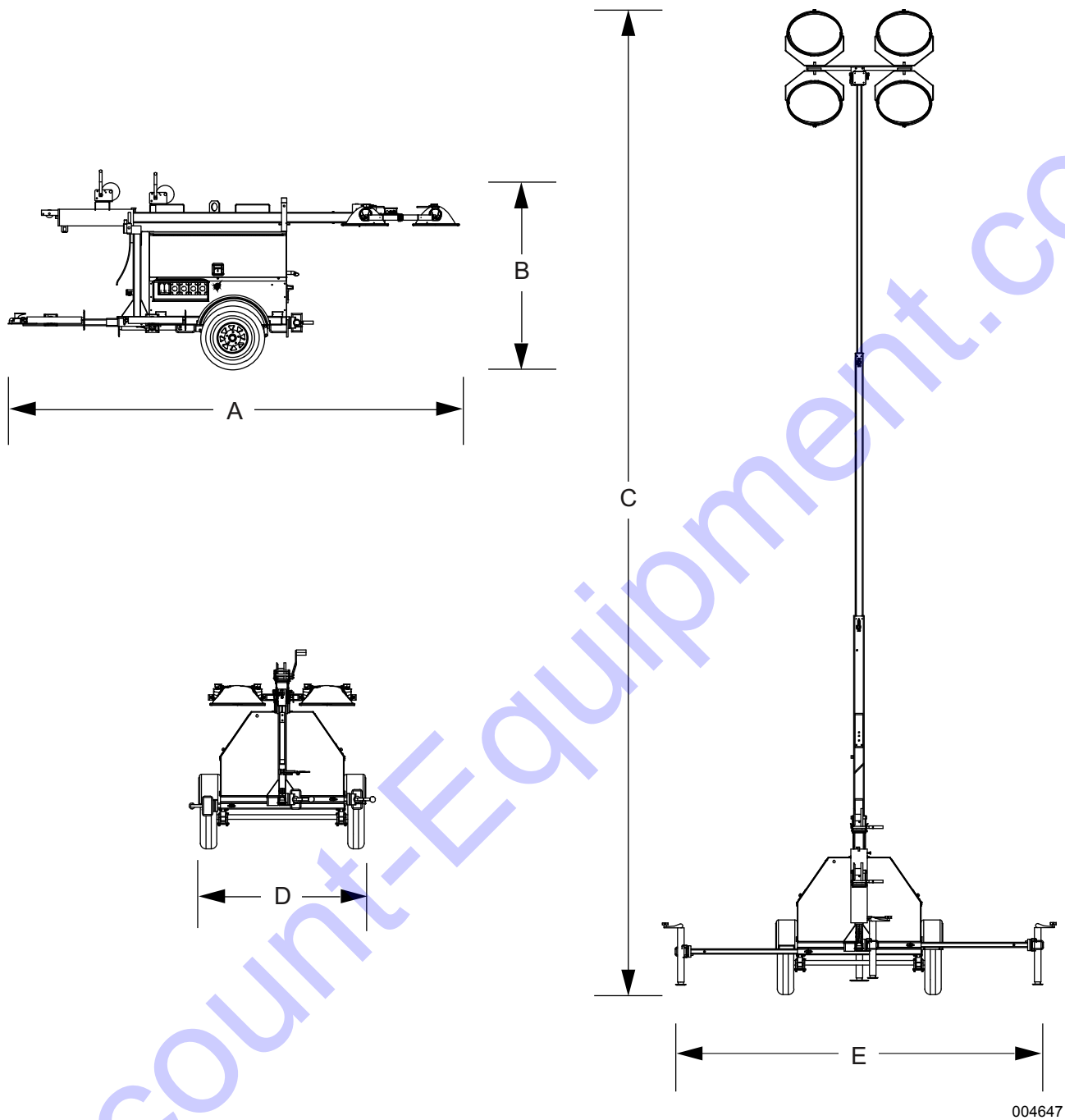
## Section 2: General Information

### Specifications

DESCRIPTION	UNITS	MLT4250
<b>Engine</b>		
Make/Brand	—	Isuzu
Model	—	4LE1NYGV-03 / 4LE1NYGV-03E
EPA Tier	—	4i
Type		Diesel, liquid cooled, 4-stroke
Horsepower - prime	hp (kW)	31.5 (23.5)
Horsepower - standby	hp (kW)	34.5 (25.7)
Operating Speed	rpm	1800
Displacement	in <sup>3</sup> (L)	134.25 (2.20)
Cylinders	qty	4
Fuel Consumption—100% Prime	gph (Lph)	1.80 (6.81)
Battery Type—Group Number	—	24
Battery Voltage	quantity per unit	12V (1)
Battery Rating	CCA-hour	720
<b>Generator</b>		
Make/Brand	—	Marathon Electric
Model	—	282NSL1505
Type, Insulation	—	Brushless, H
3Ø - Standby	kW (kVA)	20.0 (25)
Amps - 3Ø Standby - 480V (208V)	A	30 (69)
3Ø - Prime	kW (kVA)	18 (23)
Amps - 3Ø Prime - 480V (208V)	A	28 (64)
1Ø - Standby	kW (kVA)	16.0 (16.0)
Amps - 1Ø Standby - 240V	A	67
1Ø - Prime	kW (kVA)	15.0 (15.0)
Amps - 1Ø Prime - 240V	A	63
Frequency Hz	Hertz	60
Power Factor	—	1 (1Ø), 0.8 (3Ø)
Sound (23 ft at prime)	dB (A)	70
<b>Weights</b>		
Dry Weight	lbs (kg)	2158 (979)
Operating Weight	lbs (kg)	2556 (1159)
<b>Capacities</b>		
Fuel Tank Volume	gal (L)	56 (212)
Usable Fuel Volume	gal (L)	56 (212)
Coolant (including engine)	qt (L)	11.6 (11.0)
Oil (including filter)	qt (L)	8.6 (8.1)
Maximum Run Time	hours	31
<b>AC Distribution</b>		
Circuit Breaker Size	amperes	90
Voltage Selection		3 Position Switch (lockable)
Voltage Regulation	—	+/-1%
Voltages Available 1Ø	—	120, 139, 208, 220, 240, 277
Voltages Available 3Ø		208, 220, 440, 480
<b>Lighting</b>		
Lighting Type	—	Metal Halide
Ballast Type	—	Coil & Core
Lumens	—	440,000-462,000
Coverage	acres (m <sup>2</sup> )	5 - 7 (20,234 - 28,328)
<b>Trailer</b>		
Number of Axles		1
Capacity - Axle Rating	lbs (kg)	3000 (1361)
Tire Size	in	15
Hitch—Standard	—	2" Ball
Maximum Tire Pressure	psi	50

Specifications are subject to change without notice.

**Unit Dimensions**



004647

**Figure 2-1. Unit Dimensions**

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>MLT4250</b>	170 in (4.32 m)	70 in (1.78 m)	30 ft (9.14 m)	68 in (1.73 m)	140 in (3.56 m)

*Specifications are subject to change without notice.*

## Unit Serial Number Locations

Refer to the illustration to locate the unit ID tag and Vehicle Identification Number (VIN) tag on the unit. Important information, such as the serial number, model number, VIN and tire loading information are found on these tags. Record the information from these tags so it is available if the tags are lost or damaged. When ordering parts or requesting assistance, you may be asked to provide this information.

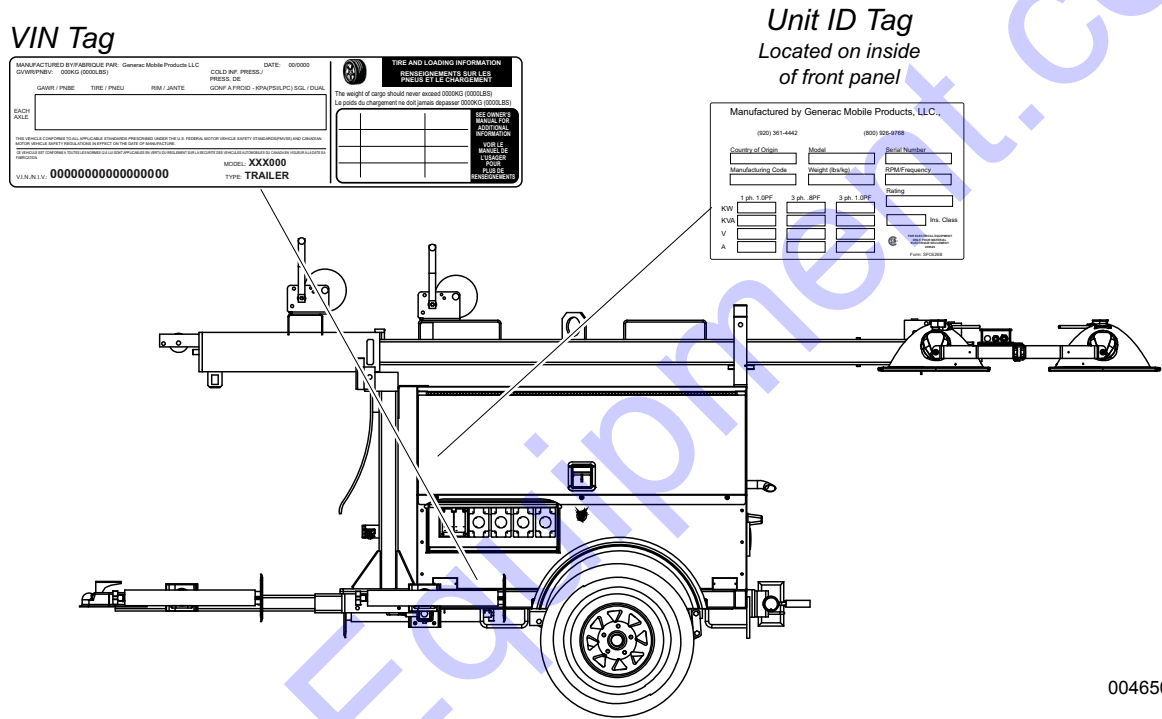
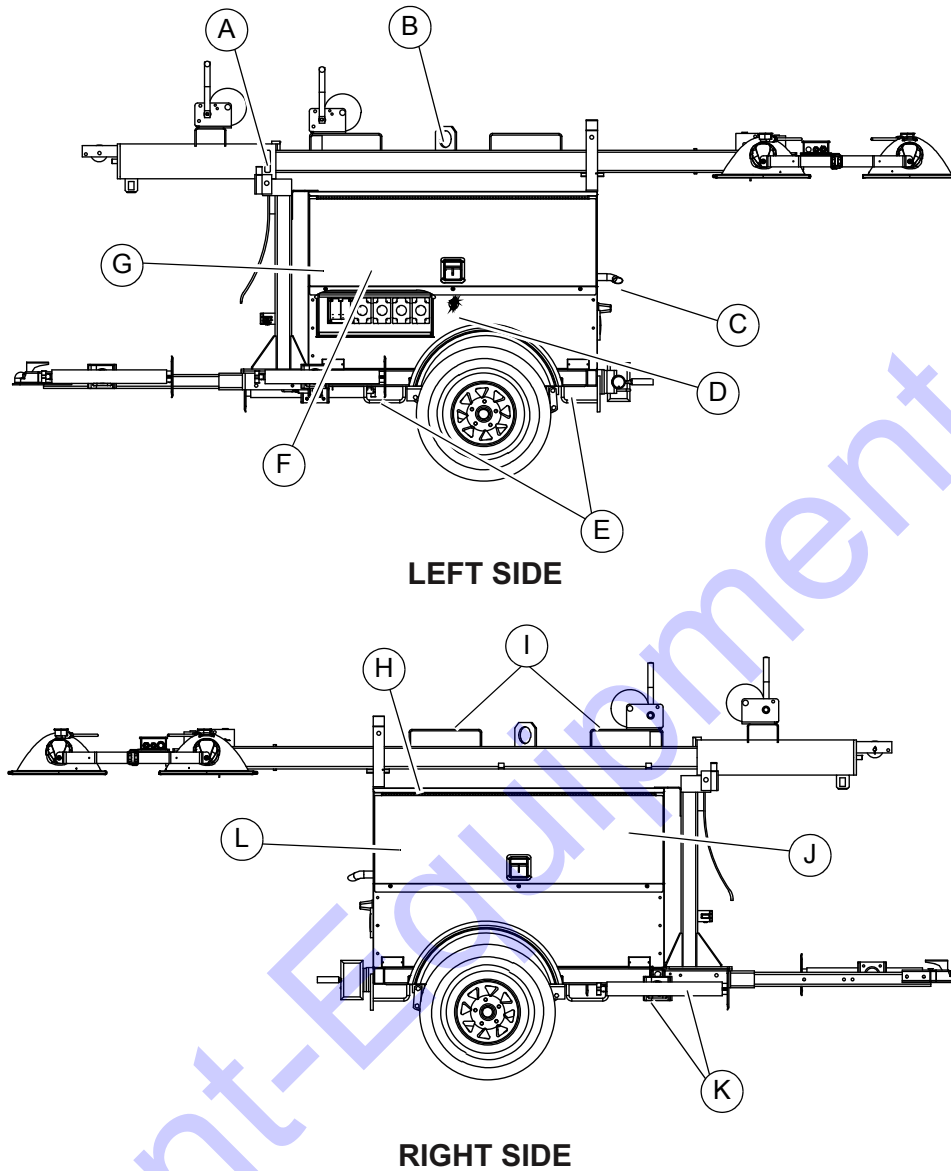


Figure 2-2. Serial Number Locations

004650

## Component Locations

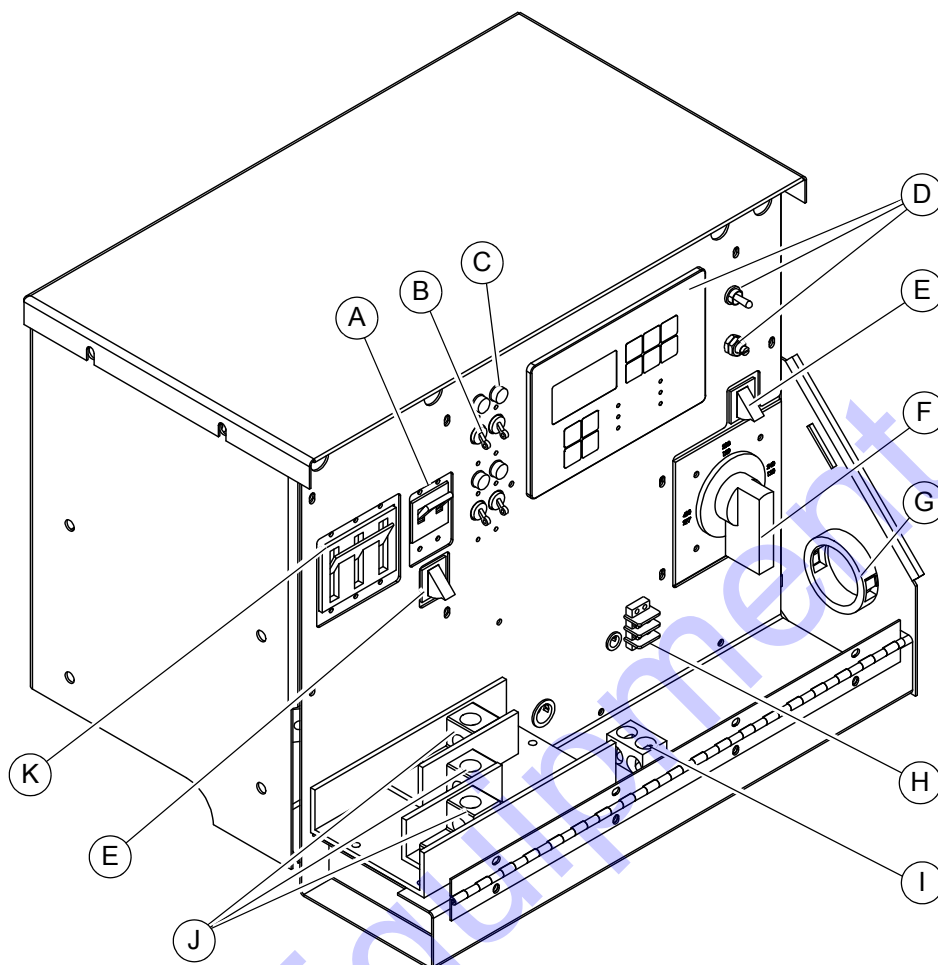


004497

**Figure 2-3. Component Location**

<b>A</b>	Mast rotation knob	<b>E</b>	Lower Forklift pockets	<b>I</b>	Upper forklift pockets
<b>B</b>	Central lifting point	<b>F</b>	Battery	<b>J</b>	Fuel fill
<b>C</b>	Engine exhaust	<b>G</b>	Control box	<b>K</b>	Outriggers
<b>D</b>	Emergency Stop Switch	<b>H</b>	Radiator box	<b>L</b>	Engine access

## Main Control Panel



004678

**Figure 2-4. Control Panel**

**(A) Receptacle Panel Main Circuit Breaker (100A)**

This breaker disconnects power to the receptacle panel.

**(B) Individual Circuit Breaker**

One breaker is supplied for each light.

**(C) Ballast Indicator Lights**

Indicates power from the ballast to each light.

**(D) Engine Control Panel**

Refer to [Magnum Digital Controller \(MDC\) Features and Functions](#).

**(E) Lug Door Safety Switches**

These switches will shut down the unit if the lug door is opened when the unit is running.

**(F) Voltage Selector Switch**

This switch will change the generator output between three phase and single phase power. For more information, refer to [Voltage Selector Switch](#).

**(G) Cable Access**

Allows for entry of load cables to the connection lugs with the lug box door closed.

**(H) Remote Start Terminal Block**

Allows connections for remote starting of the unit.

**(I) Generator Ground Connection Lug**

This is for connecting a good earthen ground per the National Electrical Code (NEC), state, and local regulations before starting the unit.

**(J) Generator Output Connection Lugs**

These allow appropriate loads to be wired directly to the generator.

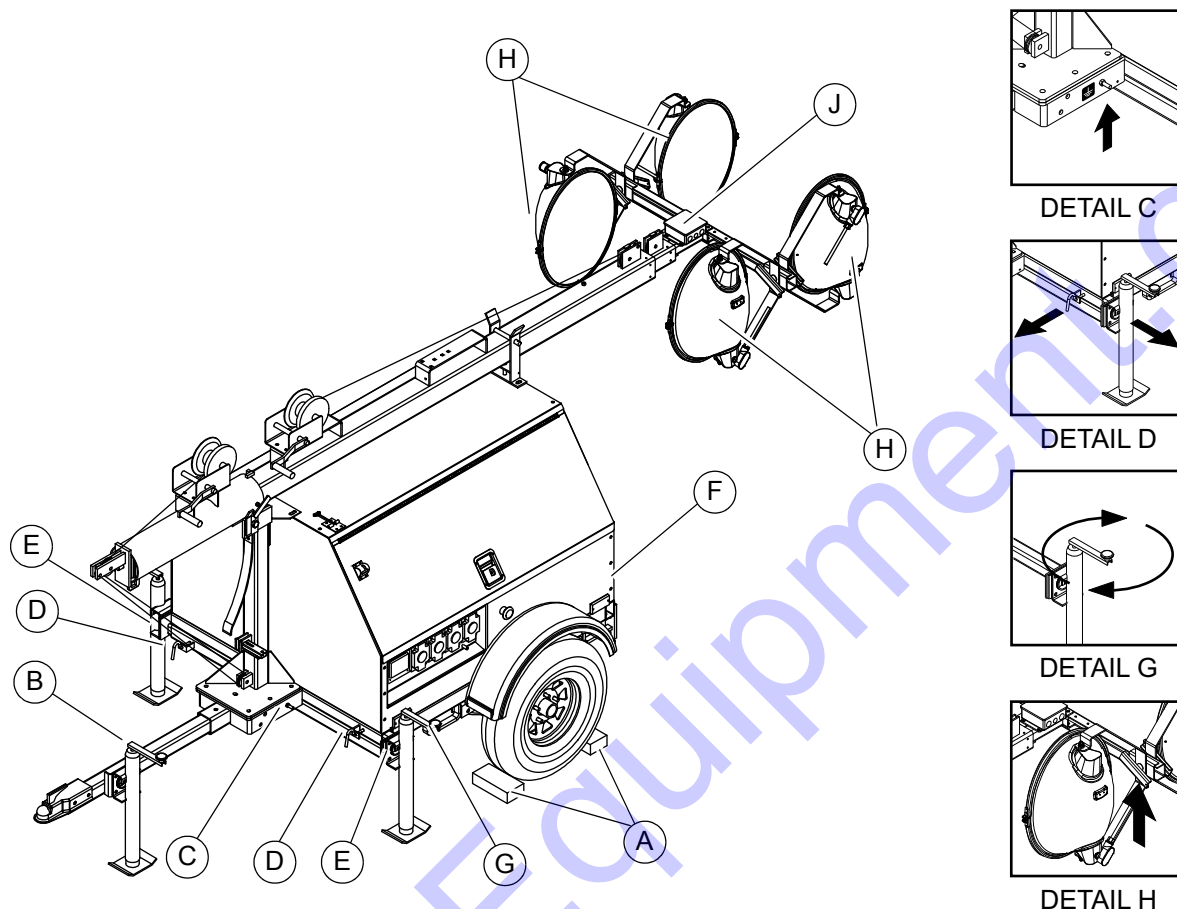
**(K) Main Circuit Breaker (90A)**

This breaker will disconnect power to the connection lugs.



# Section 3: Operation

## Light Tower Setup



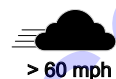
**Figure 3-1. Set Up Outriggers and Jacks**

004659



**⚠ DANGER**

High Voltage. Verify area above unit is clear of overhead wires and obstructions. Contact with high-voltage power lines will result in death or serious injury. (000260a)



**⚠ WARNING**

> 60 mph Do not set up the unit if high winds are expected. High winds can cause the unit to tip or fall, causing severe injury or machine damage. (000297)

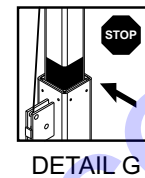
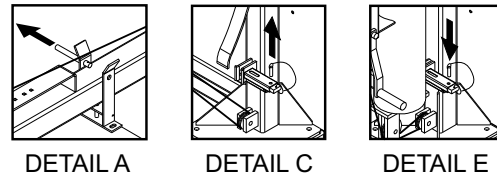
1. For maximum light coverage, position the unit at ground level or in a spot higher than the area being illuminated by the lamps.

**NOTE:** The mast extends up to 30 ft (9.14 m).

2. See **Figure 3-1**. Place the unit on firm ground that is relatively flat (less than 5° slope), and then block the wheels to keep it from moving (A). This will make it easier to level the unit.
3. Pull the locking pin on the tongue jack and rotate the jack 90° until the spring loaded pin snaps back into place (B). Turn the jack handle clockwise to raise the trailer tongue off of the towing vehicle.
4. A grounding stud (C) is located on the frame of the trailer near the trailer tongue. For grounding requirements, follow the National Electrical Code (NEC), state, and local regulations.
5. Pull the locking pins (D) on the outriggers (E) and pull each outrigger out until the spring loaded locking pin snaps back into place. Pull the locking pin on each outrigger jack and rotate each jack 90° so the jack pad is facing down, and the spring loaded pin snaps back into place.
6. Pull the locking pin on the rear jack (F) and rotate the jack 90° until the spring loaded pin snaps back

into place. Turn the jack handle clockwise to start leveling the trailer.

7. Rotate each jack handle clockwise to start leveling the trailer. Adjust all four jacks by rotating their handles clockwise until they are firmly in contact with the ground (G).
8. Before raising the mast, it may be necessary to adjust the lamps. The lamps may be adjusted up, down, left or right by loosening the wing nuts on the trunnion (H) and aiming the lamps in the desired direction. Tighten the hardware completely and make sure the lamps are connected to the junction box (J).



## Raising the Mast



### **⚠ DANGER**

Electrocution. DO NOT use the unit if electrical cord is cut or worn through. Doing so will result in death or serious injury.  
(000263a)

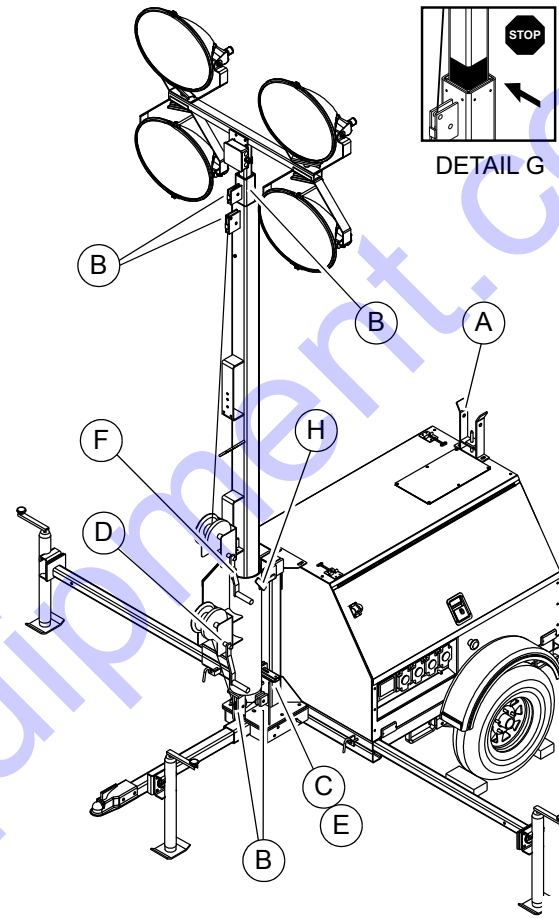
### **⚠ WARNING**

Tipping hazard. Extend the outriggers and level the unit before raising the mast. Keep the outriggers extended while the mast is up. Failure to do so could cause the unit to tip and fall and could result in death or serious injury.  
(000266)

1. Set up and level the unit. See [Light Tower Setup](#).
2. See [Figure 3-2](#). Remove mast cradle locking pin from mast cradle (A).
3. Check mast cables for excessive wear or damage. Verify the cables are properly centered in each pulley (B). Check the electrical cord for damage.
4. Verify the area around the unit is clear before raising the mast to vertical position.
5. Remove the safety pin from the mast lock bar (C). Using the handle for the lower mast winch (D), raise the mast until it is vertical and the tab on the mast is positioned into the mast lock. The mast lock bar should snap into place automatically. Secure the lock with the safety pin (E).
6. After mast is up and locked into place, use upper mast winch (F) to telescope the mast to the desired height. Extend mast slowly, verifying the electrical cord is extending at the top sections of the mast. Do not extend past the colored mark (G).

**IMPORTANT NOTE: Contact a Generac Mobile Products Authorized Service Dealer immediately if the mast hangs up or the winch cable develops slack.**

7. Rotate mast by loosening mast rotation knob at bottom of mast (H). Turn mast until the lights face in the desired direction and then tighten the knob.



**Figure 3-2. Raising the Mast**

### **⚠ WARNING**

Tipping hazard. Do not extend the mast beyond the colored mark on the second mast section. The unit can become unstable and tip or fall, causing injury.

(000262)

### **⚠ WARNING**

Personal Injury. Stop immediately if the mast hangs up or the winch cable develops slack. Excess slack could cause the mast to collapse, resulting in personal injury or equipment damage.

(000265)

### **⚠ WARNING**

Personal injury or equipment damage. Do not raise or lower the mast while the unit is operating. Doing so can break the lenses and cause the lamps to shatter.

(000279)

## Magnum Digital Controller (MDC) Features and Functions

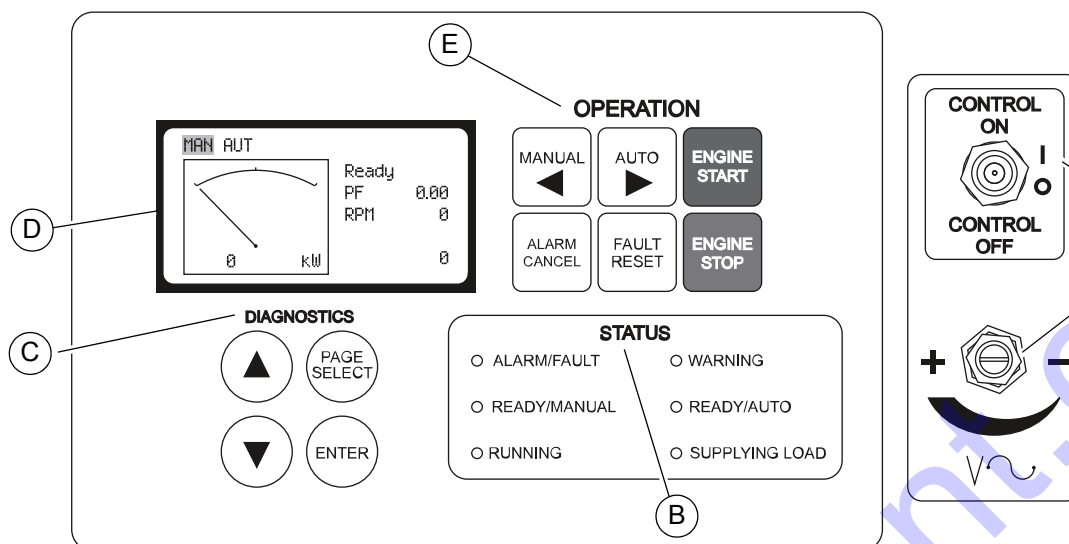


Figure 3-3. Magnum Digital Controller

004679

### (A) Control Power Switch and Fine Voltage Adjustment Screw

- **Control Power Switch:** This toggle switch powers up the control panel.
- **Fine Voltage Adjustment Screw:** This screw may be adjusted to set the generator output voltage after the voltage selector switch has been changed from one phase to another. This adjustment **MUST** be accomplished within 45 seconds of startup, during the “V Detect”, so that the unit does not experience a shutdown alarm for “over or under voltage.” For more information, refer to [Fine Voltage Adjustment](#).

### (B) Status LEDs

One breaker is supplied for each light.

- **Alarm/Fault:** Indicates active or inactive alarms, but not reset shutdown alarms.
- **Warning:** Indicates an active or inactive alarm, or a warning alarm that has not been reset.
- **Ready/Manual:** Indicates the controller is ready to start and in the Manual mode.
- **Ready/Auto:** Indicates the unit is in the Auto mode ready for the remote start signal.
- **Running:** Indicates the unit is running.
- **Supplying Load:** Indicates a load is being applied to the generator.

### (C) Diagnostic Keypad

- **▲:** Press this button to scroll up within the LCD window.
- **▼:** Press this button to scroll down within the LCD window.

- **Page Select:** Pressing this button will select the next display screen.
- **Enter:** Pressing this button will place you inside the particular display to review the unit's preprogrammed setpoints or parameters.

### (D) Liquid Crystal Display (LCD)

Displays screen upon startup of the unit. By viewing these screens, the operator will be able to monitor both the engine and generator status while the unit is running.

### (E) Operation Keypad

- **Engine Start:** The unit must be in the “MAN” mode in the upper left corner of the LCD window and the Ready/Manual LED lit in the Status portion of the controller.
- **Engine Stop:** Press the red Engine Stop button to shut down the unit and start the stop value timer.
- **Manual ◀:** Press this button to change from the Automatic (Remote) mode to Manual mode.
- **Auto ▶:** Press this button to change from Manual mode to Automatic (Remote) mode.
- **Alarm Cancel:** When an alarm is activated, press this button to silence and cancel the alarm.
- **Fault Reset:** Press this button to clear the fault from the LCD window after the fault has been corrected.

## Generator Monitoring

See [Figure 3-4](#). Generator information is shown in a toggling manner with the engine information after the first 60 seconds of operation, then every five seconds. The generator screen will show frequency, line to neutral voltage, line to line voltage and amperage.

**NOTE:** When loading the generator, it is important to observe the amperage to determine the load balance on each line of the generator. Minor load unbalances, usually 10% or less, will not cause any particular problems. Every effort should be made to distribute the load equally between all lines.

- **Hertz:** Displays output frequency.
- **Generator Output Voltage:** Line to Neutral display, single phase (1Ø).
- **Generator Output Voltage:** Line to Line display, 3 phase (3Ø).
- **Amps:** Displays the AC output amperage produced by the generator

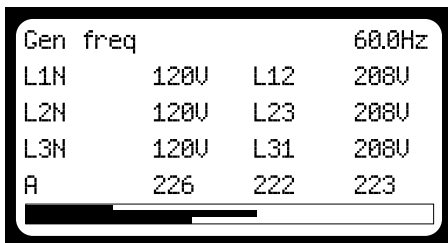


Figure 3-4. Generator Screen

004680

## Engine Monitoring

Engine information is shown in a toggling manner with the generator information after the first 60 seconds of operation and then every five seconds. The engine screen will show oil pressure, engine coolant temperature, and battery voltage.

- **Oil Press:** Displays engine oil pressure. The display registers oil pressure between 0-100 psi (0-689 kPa). Normal operating pressure is between 35-80 psi (241-552 kPa).
- **Engine Temp:** Displays the temperature of the engine's coolant. If the coolant temperature exceeds the maximum water temperature of 230°F (110°C) the engine will automatically shut down. Zero "0" will be displayed until a minimum temperature of 100°F (38°C) is reached.
- **Vbat:** Displays the engine battery voltage. A normal reading is 13-14V on 12 volt systems and 24-26V on 24 volt systems (with the engine running).

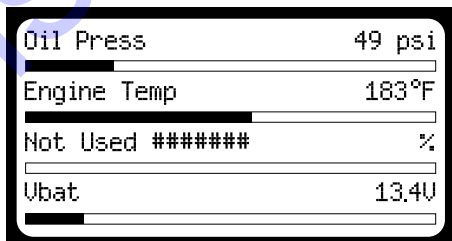
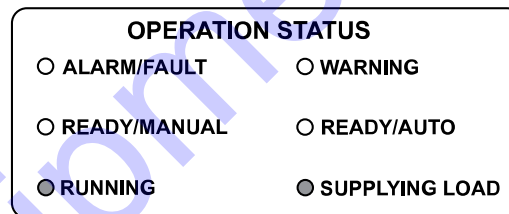
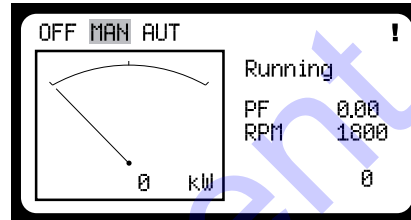


Figure 3-5. Engine Screen

004681

Additional information may be viewed while the unit is in Manual or Auto mode. By pressing the Page Select button, the operator will select one of the following screens: Running, Password, or History. In each of these page selections the operator may press the ▲ or ▼ buttons on the Diagnostics keypad to display additional information as follows:

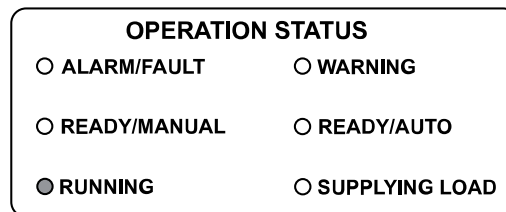
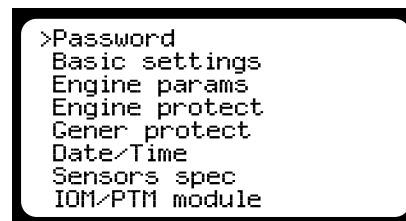
- See **Figure 3-6. Running screen:** Press the ▲ or ▼ buttons on the Diagnostics keypad to display the Alarm List screen, Run Hours screen, engine display screen and generator screen.



004526

Figure 3-6. Running Screen

- See **Figure 3-7. Password screen:** Press the ▲ or ▼ buttons on the Diagnostics keypad to move the (>) cursor up or down a list of text.



004527

Figure 3-7. Password Screen

- See **Figure 3-8. History screen:** Press the ▲ or ▼ buttons to move the (>) cursor up or down a list of recent alarm or shutdown codes. Press Enter at a particular selection to scroll to the right in the LCD window to view the unit's operating parameters at the time of the alarm or shutdown. The history of alarms or codes is saved in the digital controller.

The most recent alarm or code is the first to be listed, with the time/date of the alarm or code at the bottom of the screen. The controller stores up to 117 codes. When full, the controller will automatically remove the oldest file. These codes will not be lost when the control power switch is powered off.

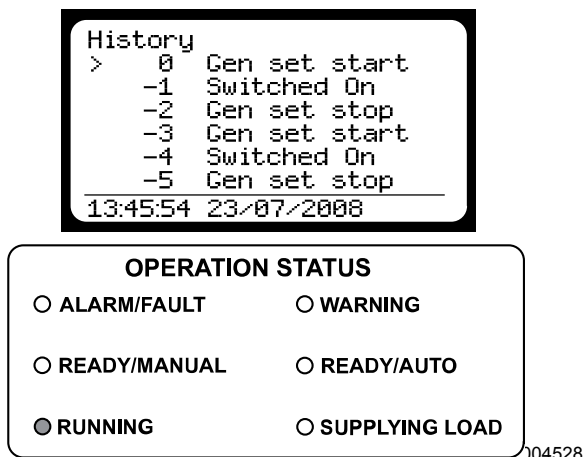


Figure 3-8. History Screen

**NOTE:** To view the display screen longer, push the PAGE SELECT until you reach the Ready screen. Then press the ▲ or ▼ buttons to navigate to the screens you want. The screens will display for approximately 45 seconds.

### MDC Fault Reset

When a fault condition occurs, the engine will shut down automatically and the screen will show the fault that has caused the shutdown. To resume operation, the fault condition must be resolved. To reset the controller and resume operation, press FAULT RESET button.

### MDC Operational Status

No.	Engine State	Description
1	AfterCool	Engine aftercooling, cooling pump output is closed.
2	Cooling	The unit is cooling before stop.
3	Cranking	Engine is cranking.
4	EmergMan	Emergency manual gen-set operation.
5	Init	Autotest during controller power on.
6	Loaded	The unit is running at nominal speed and GCB OPEN/CLOSE is closed.
7	Not Ready	The unit is not ready to start.
8	Pause	Pause between start attempts.

No.	Engine State	Description
9	Prestart	Prestart sequence in process, pre-start output is closed.
10	Ready	The unit is ready to run.
11	Running	The unit is running at nominal speed.
12	Shutdown	Shutdown alarm is activated.
13	Starting	Starting speed is reached and the <i>idle timer</i> is running.
14	Stop	Stop.

No.	Electrical State	Description
1	StabilTO	Stabilization timeout.

### MDC Alarm Management

No.	Type	Description
1	Sensor fail (FLS)	Sensor fail is detected when measured value is 6% out of the selected characteristic. Sensor fail is indicated by ##### symbol instead of measured value.
2	Warning (WRN)	When warning comes up, refer to list of alarms.
3	Shutdown (SD)	When the shutdown alarm comes up, the digital controller opens outputs GCB CLOSE/OPEN, FUEL, SOLENOID, STARTER and PRESTART to stop the engine immediately.

## MDC List of Alarms

No.	Events Specification	Protection Type	Information on Binary Output Available	Description
1	AnInIOM Sd	SD	YES	Shutdown alarm configurable on the input of IG-IOM/IGS-PTM.
2	AnInIOM Wrn	WRN	YES	Warning alarm configurable on the input of IG-IOM/IGS-PTM.
3	Battery Flat (low battery)	SD	YES	If the controller switches off during starting sequence due to bad battery condition, it doesn't try to start again and activates this protection.
4	Binary Input	CONFIG.	YES	Configurable Warning/Shutdown alarms on the inputs of IL-NT.
5	ChrgAlternFail	WRN	YES	Failure of the alternator to charge the battery.
6	EmergencyStop	SD	NO	If the red emergency stop switch is pushed or opened, shutdown is immediately activated.
7	Engine Temp Sd	SD	NO	Water temperature is greater than <i>Sd Water Temp</i> setpoint.
8	Engine Temp Wrn	WRN	YES	Water temperature is greater than <i>Wrn Water Temp</i> setpoint.
9	Fgen<, >	SD	YES	The generator frequency is out of limits given by <i>Gen &gt;f</i> and <i>Gen &lt;f</i> setpoints.
10	Fuel Level Sd	SD	YES	Fuel level is smaller than <i>Sd Fuel Level</i> setpoint (5%). (Not available on MLG, MLT or MTT units.)
11	Fuel Level Wrn	WRN	YES	Fuel level is smaller than <i>Wrn Fuel Level</i> setpoint (15%). (Not available on MLG, MLT or MTT units.)
12	GCB fail	SD	NO	Failure of the generator circuit breaker.
13	Igen unbl	SD	NO	The generator current is unbalanced.
14	Low BackupBatt	WRN	NO	RTC backup battery is flat (low).
15	Oil Press Sd	SD	NO	Oil pressure is smaller than <i>Sd Oil Press</i> setpoint.
16	Oil Press Wrn	WRN	YES	Oil pressure is smaller than <i>Wrn Oil Press</i> setpoint.
17	Overload	SD	YES	The load is greater than the value given by <i>Overload</i> setpoint.
18	Overspeed	SD	YES	The protection comes active if the speed is greater than <i>Overspeed</i> setpoint.
19	ParamFail	NONE	NO	Wrong checksum of parameters. Happens typically after downloading new firmware or changing of the parameter. The controller stays in INIT mode. Check all parameters, write at least one new parameter.
20	PickupFault	SD	NO	Failure of the magnetic pick up sensor for speed measurement.
21	Sd IOM fail	SD	NO	Shutdown alarm in case of lost connection to IOM/IGS-PTM module.
22	SprinklActive	WRN	NO	The protection is active if the output <i>Sprinkler</i> is closed.
23	Start failed	SD	YES	Unit did not start.
24	Stop fail	SD	YES	Unit did not stop.
25	Vbat	WRN	YES	Battery voltage is out of limits given by <i>Batt Undervolt</i> setpoints.
26	Underspeed	SD	YES	During starting of the engine, when the RPM reaches the value of <i>Starting RPM</i> setpoint, the starter is switched off and the speed of the engine can drop under <i>Start RPM</i> again. Then the <i>Underspeed</i> protection becomes active. Protection evaluation starts 5 seconds after startup.
27	Vgen<, >	SD	YES	The generator voltage is out of limits given by <i>Gen &lt;V</i> and <i>Gen &gt;V</i> setpoints.

No.	Events Specification	Protection Type	Information on Binary Output Available	Description
28	Vgen unbal	SD	NO	The generator voltage is unbalanced more than the value of <i>Volt unbal</i> setpoint.
29	Wrn ECU Alarm	WRN	NO	ECU alarm list is not empty. (Not available on MLG, MLT or MTT units.)
30	Wrn RA15 fail	WRN	NO	Warning alarm in case of lost connection to IGL-RA15 module. (Not available on MLG, MLT or MTT units.)
31	WrnMaintenance	WRN	NO	The period for servicing is set by the <i>WrnMaintenance</i> setpoint. The protection comes active if the running hours of the engine reach this value.

## MDC History

No.	Record Structure Abbreviation	Historical Value
1	AIM1	IG-IOM, IGS-PTM analog input 1 value (when configured IG-IOM, IGS-PTM)
2	Date	Date of historical event in format DD/MM/YY
3	OilP	IL-NT analog input 1 value (default: oil pressure)
4	Vg2	Generator voltage L2
5	RPM	Engine speed
6	Ig2	Generator current L2
7	Vbat	Battery voltage
8	EngT	IL-NT analog input 2 value (default: water temperature)

## Adjusting the Backlighting

1. Press and hold ENTER and press ▲ or ▼ to increase or decrease the brightness as needed.
2. Release the ENTER button when the desired brightness is attained.

## Generator Output Connection Lugs

### ⚠ WARNING

Only a trained and licensed electrician should perform wiring and connections to unit. Failure to follow proper installation requirements could result in death, serious injury, and damage to equipment or property. (000155)



### ⚠ DANGER

Electrocution. Before connections are made to the unit, verify the main circuit breaker and battery disconnect switch are OFF. Failure to do so will result in death or serious injury. (000156)



### ⚠ DANGER

Electrocution. Never connect this unit to the electrical system of any building unless a licensed electrician has installed an approved transfer switch. Failure to do so will result in death or serious injury. (000150)

The unit is equipped with connection lugs, located behind a door below the controller face. The lugs provide connection points for attachment of external loads to the generator. A large decal on the inside of the connection lug door details the proper connections for selected voltages.

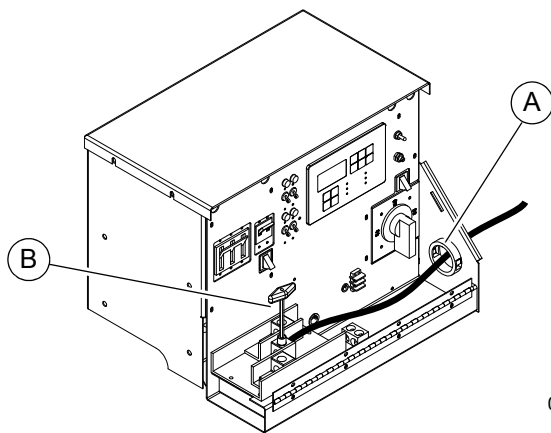
1. See [Figure 3-9](#). To make the connections, run the power cables through the circular plastic bushing (A).

**NOTE: DO NOT** make any connections directly to the lugs without routing the cables through this bushing. The lug door is equipped with safety interlock switches that will automatically trip the main circuit breaker and disable the voltage regulator when the lug door is opened.

2. Use a hex-wrench to tighten the cable connections (B).

**NEVER** attempt to disable or modify the lug door safety switches.

A ground connection is located next to the connection lugs. The unit **MUST** be connected to a good earthen ground for proper operating safety. **INSTALLATION SHOULD BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE, AND LOCAL REGULATIONS.**



004529

Figure 3-9. Connecting Generator Output Lugs

## Voltage Selector Switch

See [Figure 3-10](#). The voltage selector switch mechanically changes the connections between the generator output leads and the connection lugs on the main control panel. Voltage ranges are selected by rotating the handle on the switch to the desired voltage.

**IMPORTANT NOTE: NEVER** change the voltage selector switch while the engine is running or the controller is on. If the engine is running or starts while the setting is changed, severe arcing will occur causing damage to the switch and generator windings.

The voltage selector switch is equipped with a lockout mechanism. Once the proper voltage has been selected, insert a padlock through the lockout hole(s). By locking the handle in place, unauthorized changing of the voltage setting is prevented.

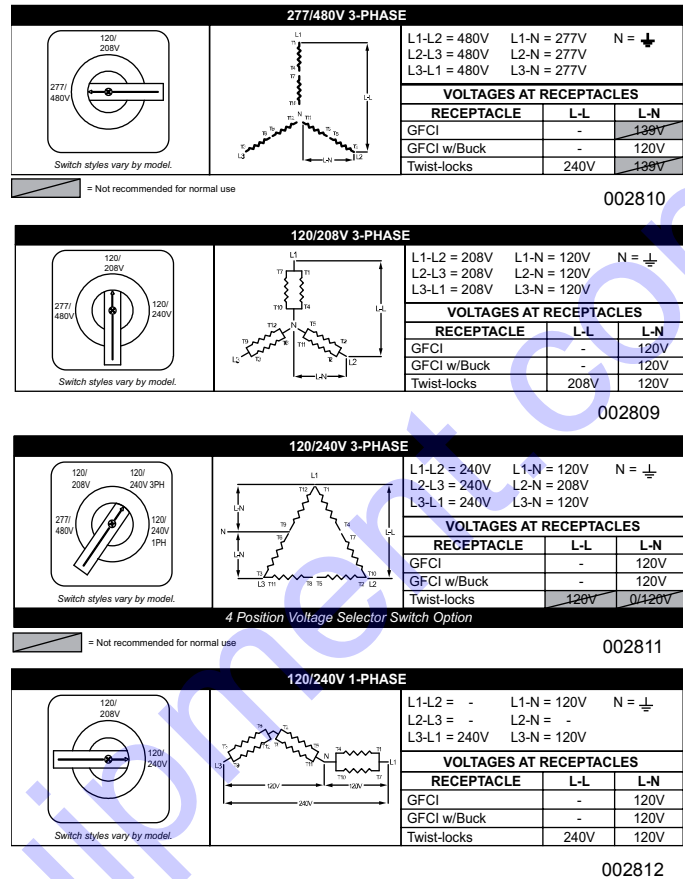


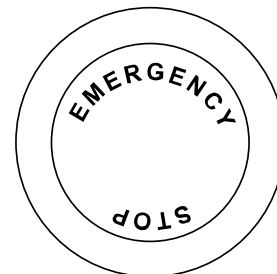
Figure 3-10. Selecting Voltage

## Emergency Stop Switch

The unit is equipped with one emergency stop switch. For location of the emergency stop switch, refer to [Component Locations](#). The red switch is clearly labeled EMERGENCY STOP. The switch can be accessed and activated with all doors closed and locked.

Activate the emergency stop switch by pushing the red button in until it locks down. This will trip the main circuit breaker which will open the contact, disconnecting the load to the connection lugs. This will also open the fuel circuit, shutting down the engine.

The switch will remain closed until it is pulled out.



002393

Figure 3-11. Emergency Stop Switch

**NOTE:** Use the emergency stop switch only when the unit must be shut down immediately. For any other shut down, refer to [Shutting Down the Unit](#).



## Prestart Checklist

Before starting the unit, all items in the prestart checklist must be completed. This checklist applies to both manual and remote starting of the unit.



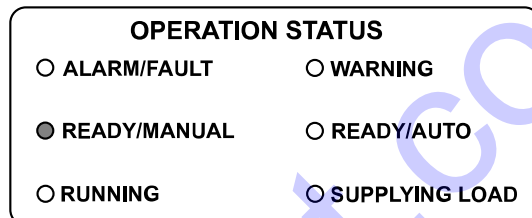
### WARNING

Consult Manual. Read and understand manual completely before using product. Failure to completely understand manual and product could result in death or serious injury. (000100a)

- Verify all maintenance procedures are up to date. For more information, refer to **General Maintenance** and **Basic Maintenance Schedule**.
- The unit must be level.
- The unit must be dry. Look for water inside or near the unit; dry if needed.
- For grounding requirements, follow any local, state, or National Electrical Code (NEC) guidelines.
- Verify the Control Power switch is in the OFF (O) position.
- Verify all circuit breakers are in the OFF (O) position.
- Inspect all electrical cords; repair or replace any that are cut, worn, or bare.
- Verify all winch cables are in good condition and centered on each pulley. Do not use if cables are kinked or beginning to unravel.
- Check oil, coolant, and fuel levels. For more information, refer to **General Maintenance**.
- Verify battery connections are secure.
- Turn the battery disconnect switch on, if equipped.
- Check the engine fan belt tension and condition.
- Check the engine fan belt guard.
- Check the engine exhaust system for loose or rusted components.
- Verify all covers are in place and secure.
- Verify all electrical connections at the connection lugs, if equipped, are tight and wired correctly.
- Verify the voltage selector switch is set to the desired voltage and locked.
- Verify the emergency stop switch is pulled out.

## Starting the Unit—Manually

1. Move the Control Power switch to the ON (I) position.
2. See **Figure 3-12**. The LCD window will quickly display system information, all LEDs will flash.

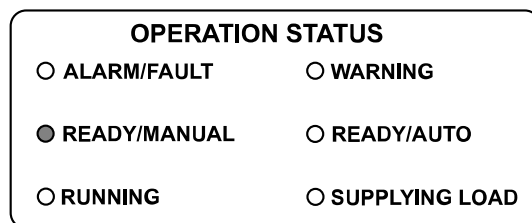
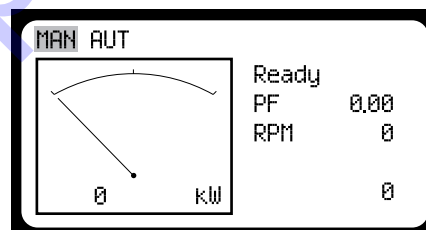


004530

**Figure 3-12. Starting the Machine**

3. See **Figure 3-13**. the Ready screen will be displayed and the LCD window will indicate Manual mode. The Ready/Manual LED will be lit.

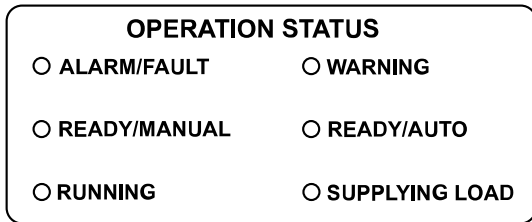
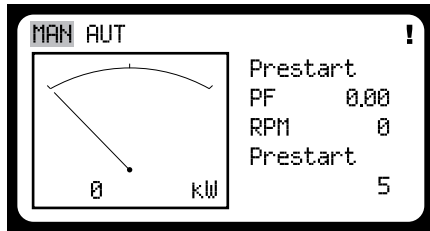
**NOTE:** The unit must be in the Manual mode with the Ready/Manual LED lit to start the unit.



004531

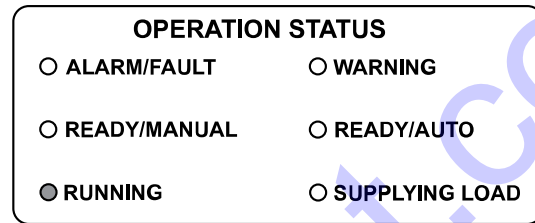
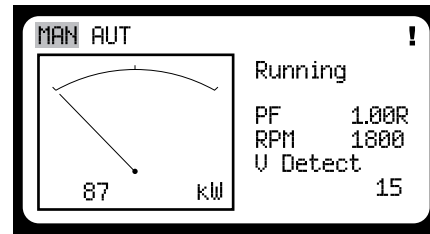
**Figure 3-13. Manual Mode**

4. See **Figure 3-14**. Press ENGINE START. The Prestart screen will be displayed (if equipped) and a countdown will begin from 20 seconds to 0.



004532

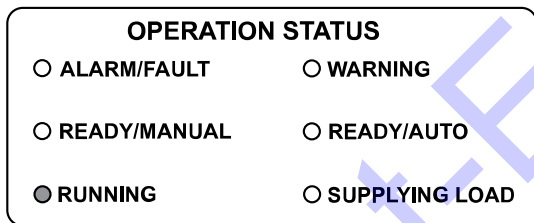
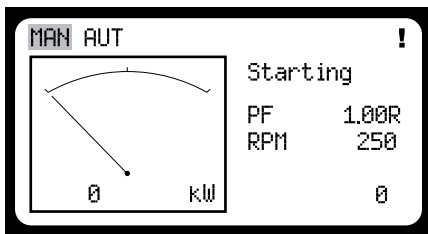
**Figure 3-14. Engine Prestart**



004534

**Figure 3-16. Run Screen**

5. See **Figure 3-15**. The Starting screen will be displayed. The engine will crank and start running.



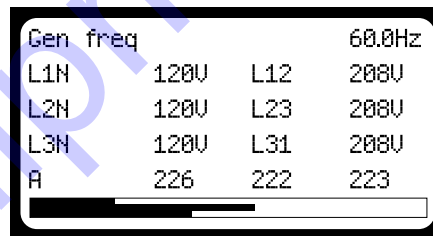
004533

**Figure 3-15. Controller Starting Screen**

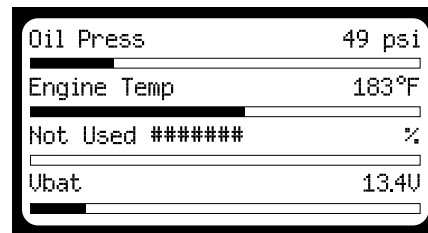
6. See **Figure 3-15**. The Running screen will display.

**NOTE:** It may take a few seconds for the engine to run smoothly and reach its governed operating speed. The 45 second V Detect time delay will start to count down.

7. See **Figure 3-17**. The LCD window will then toggle from the Running screen to the generator screen and then to the engine screen.



004680



004681

**Figure 3-17. Generator/Engine Display Screens**

8. If the engine does not start after the first cranking attempt, the engine will pause for 15 seconds to allow the starter to cool. The LCD window will show PAUSE. The engine will make two more attempts to start, for a total of three crank cycles.
9. Should the engine not start and run within three starting cycles, the LCD window will show SD START FAIL. The starting sequence may be repeated after the starter has had a minimum of two minutes to cool. Press FAULT RESET to clear the controller. To start the unit, press ENGINE START.
10. The LCD window will show a steady operating speed. Temperature will be shown as "0" until the engine temperature is approximately 100°F (38°C).

11. Check the unit for excessive noise or vibration and any coolant, oil, or fuel leaks before applying any loads.
12. Check that the AC output voltage is correct. The output voltage can be fine adjusted by using the fine voltage adjustment screw (rheostat). Refer to [Fine Voltage Adjustment](#).
13. Check that the frequency (Hz) is correct. With no loads connected to the generator, the frequency should read approximately 60 Hz, depending on the type of engine governing used.
14. If all wiring connections have been attached and secured correctly, switch the main circuit breaker to the ON (I) position, and then add any loads attached to the generator output connection lugs. To supply power to the receptacle panel, the receptacle panel main circuit breaker, then the receptacle circuit breaker, must be in the ON (I) position. You will notice a slight change in engine sound when a load is applied to the unit.

## Starting the Unit—Auto/Remote

The Auto button is used when the unit is started from a location other than the control panel and by using a transfer switch. Auto (remote) start is the normal setting when the unit is being used as a standby power supply. Before putting the unit in the Auto mode, review [Prestart Checklist](#) and [Starting the Unit—Manually](#). Follow all safety warnings and information on isolating the generator with a transfer switch if the unit is to be used as a standby power supply. Refer to [Transfer Switch](#), then continue with the steps described below:

1. Perform a manual start of the unit at least once to verify the engine is operating correctly.
2. To check the remote start circuit, do the following:
  - a. Remove the wires from the remote start terminal block.
  - b. Press Auto. The LCD window should highlight AUT in the upper left corner.
  - c. Attach a jumper wire (minimum 16 gauge) across the two terminals on the remote start terminal block. This applies a ground to the Magnum Digital Controller (MDC) to close the starting circuit contacts. The engine should crank, start, and run.
  - d. Remove the jumper wire from the remote start terminal block and the engine will stop.
  - e. Reconnect any necessary wires from the remote start switch (transfer switch) to the remote start terminal block.
3. Confirm unit is in Auto mode. The LCD window should have AUT highlighted in the upper left corner.
4. Close the main circuit breaker (set to ON (I)).

5. Secure the unit by closing and locking all access doors.
6. The unit is now ready for remote starting.

## Automatic Shutdown

This unit is equipped with a low oil pressure and high coolant temperature automatic shutdown system. This system will automatically shut off the fuel supply to stop the engine if oil pressure drops too low or the engine exceeds normal operating temperature. Return the main circuit breaker to the OFF (O) position to reset the unit after the cause of shutdown has been determined.

## Light Operation

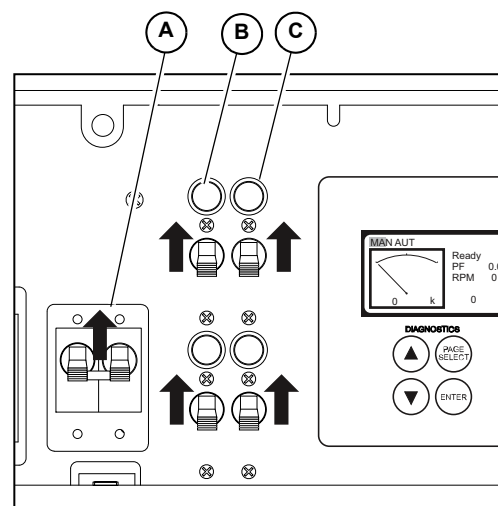


### WARNING

Burn hazard. Never operate lights with a damaged or missing lens cover. Lamps are hot and pressurized while in use. Unprotected lamps can shatter, causing severe injury.

(000277)

1. Verify the unit is on and running smoothly.
2. See [Figure 3-18](#). Switch the main circuit breaker (A) ON (I).
3. Switch the lights and receptacle panel main circuit breaker to the ON (I) position.
4. Switch the individual circuit breakers for the lights (B) ON (I), one at a time.
5. The ballast indicator lights (C) will turn on and continue to get brighter as the lights warm up, and then remain on. This confirms power is coming from the ballasts to the lights.



004537

**Figure 3-18. Light Switches and Breaker**

**NOTE:** If an indicator light does not turn on, see [Troubleshooting](#) or contact a Generac Mobile Products Authorized Service Dealer.

**NOTE:** The lights require a warm up period of 5-15 minutes before they reach full output. If the lights are shut

down, they require a cool down period of approximately ten minutes before they can be switched on again.

**NOTE:** The light tower uses four 1000W or 1050W bulbs. When checking or replacing the bulbs, wipe them with a clean cloth to avoid leaving any grease, oil residue or fingerprints on the glass. Any residue can create a hot spot on the bulb, causing premature bulb failure.



**WARNING**

Burn hazard. Lamps become extremely hot while in use. Allow 10–15 minutes for cooling before handling or lowering mast. Touching a hot lens or fixture can cause severe burns.

(000278)

## Auxiliary Outlets

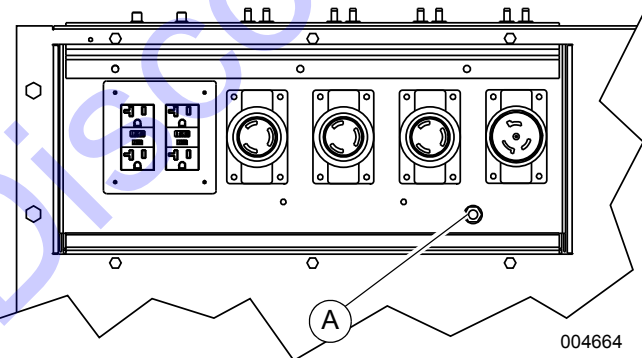
See **Figure 3-19**. The receptacle panel is equipped with six receptacles for running accessories or tools from the generator. Power is supplied to the receptacles any time the engine is running and the main circuit breaker and the receptacle panel main circuit breaker are switched to the ON (I) position.

Should the main breaker, or any of the individual circuit breakers trip, remove some of the load to the receptacles before turning them back on.

Each receptacle has an individual circuit breaker, located inside the cabinet under a flip-up cover. Each circuit breaker correspond with the receptacle directly below it.

With all of the lights off, the full generator output may be used with the receptacles.

**NOTE:** To ensure proper grounding, anytime the generator is providing power to any equipment or load panels that do not have a grounded plug (A), a ground wire **MUST BE** added between the equipment and the grounding stud on the receptacle panel per the National Electrical Code (NEC), state, and local regulations.



**Figure 3-19. Auxiliary Outlets**

## Wet Stacking

The unit is powered by a diesel engine. Diesel engines are susceptible to wet stacking if lightly loaded. Wet stacking occurs when an engine is run at less than 30% of its full load capacity, causing unburned fuel to accumulate in the exhaust system. Wet stacking can be detected by continuous black exhaust when the unit is under a constant load. It can also cause fouling of injectors and buildup on engine valves. Diesel engines operate properly when applied loads are between 30% and 100% capacity. Appropriate generator sizing is determined by the anticipated load. If the unit is in a wet stack condition, load the unit heavily for five hours or until the exhaust is clear.

## Voltage Regulator

Units are equipped with an electronic voltage regulator. The voltage regulator controls the output of the generator by regulating the current into the exciter field. The regulator has three screwdriver adjustable potentiometers that may be adjusted for voltage, stability and voltage roll-off (U/F). The voltage regulator is adjusted before shipment from the factory. Contact Generac Mobile Products LLC for additional information before attempting to adjust the voltage regulator.

## Engine Derating

All units are subject to derating for altitude and temperature; this will reduce the available power for operating tools and accessories connected to the receptacles. Typical reductions in performance are 2-4% for every 1000 ft (305 m) of elevation and 1% per 10°F (5.6°C) increase in ambient air temperature over 72°F (22°C).

## Main Circuit Breaker

The main circuit breaker is located on the main control panel. When the breaker is in the OFF (O) position, power is interrupted between the connection lugs and the generator. Once the connections have been made to the connection lugs and the unit has been started and allowed to reach normal operating temperature, the breaker may be switched to the ON (I) position.

The main circuit breaker will be tripped, disconnecting power to the connection lugs if any of the following items occur while the unit is running:

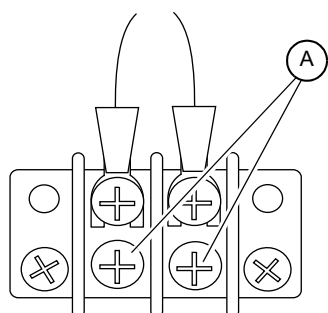
1. Overload of the generator circuits to the connection lugs (208/120V only).
2. The lug box door covering the connection lugs is opened.
3. If the emergency stop switch is activated.

Make sure any problems that caused the main circuit breaker to trip are corrected before returning the switch to the ON (I) position.

**NOTE:** The main circuit breaker interrupts power to the connection lugs only. The receptacle panel has power even if the main circuit breaker is in the OFF (O) position. The receptacle panel main circuit breaker, located next to the main circuit breaker, will disconnect all power to the receptacle panel.

## Remote Start Terminal Block

The remote start terminal block provides a connection for installation of a remote start switch which will allow the unit to be started by a remote dry-contact closure switch. To locate the remote start terminal block, see [Main Control Panel](#).



002806

**Figure 3-20. Remote Start Switch Terminals**

1. Before entering Auto mode, verify that the contacts on any remote switch linked to the unit are **OPEN**. If the contacts on a remote switch are closed, the engine will crank and start when Auto mode is entered.
2. See [Figure 3-20](#). Attach the switch leads to the two unused terminals on the unit's remote start terminal block (A). For additional information, refer to [Starting the Unit—Auto/Remote](#).

## Transfer Switch

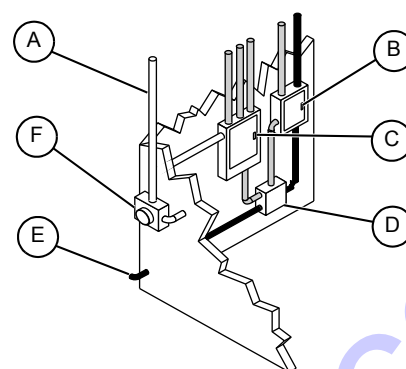
When the unit is used as a standby power supply, it must be equipped with a transfer switch which isolates it from the utility's distribution system. A transfer switch is designed to transfer electrical loads from the normal power source (utility) to the emergency power source (generator) when normal voltage falls below a prescribed level. The transfer switch automatically returns the load back to the normal source when power is restored back to operating levels.



**WARNING**

Phase rotation must be compatible. Incompatible phase rotation could result in equipment damage, death or serious injury.

(000226a)



002807

**Figure 3-21. Transfer Switch Operation**

A	Incoming Utility Power
B	Emergency Distribution Panel (Generator Power)
C	Main Distribution Panel (Utility Power)
D	Transfer Switch
E	Power From Generator
F	Utility Meter
WHITE	Incoming Utility Power
GRAY	Normal Utility Power Circuit
BLACK	Emergency Generator Power Circuit



**DANGER**

Electrocution. Never connect this unit to the electrical system of any building unless a licensed electrician has installed an approved transfer switch. Failure to do so will result in death or serious injury. (000150)

Installation of a transfer switch or other type of remote starting device is the responsibility of the user. Installation of such devices must be performed by following all directions supplied by the manufacturer of the switch. If attaching the unit to a power supply normally serviced by a utility company, notify the utility company and check local and state regulations. Familiarize yourself with all instructions and warning labels supplied with the switch.

**WARNING**

Only a trained and licensed electrician should perform wiring and connections to unit. Failure to follow proper installation requirements could result in death, serious injury, and damage to equipment or property. (000155)

## Auto Exercise Time

Units installed in a standby application should be exercised regularly to maintain operating condition and to ensure responsiveness in an emergency situation. The following procedure demonstrates how to run (exercise) the unit on a time schedule:

1. Press PAGE SELECT until "Password" appears at the top of the screen.
2. Press ▼ until "Date/Time" is selected and press ENTER.
3. Press ▼ until "Timer1 Repeat" is selected and press ENTER.
4. Choose the day or days the unit should run and press ENTER.
5. Press ▼ until "Timer1 ON Time" is selected and press ENTER.
6. Adjust the desired time to start running and press ENTER.
7. Press ▼ button until "Timer1Duration" is selected and press ENTER.
8. Adjust the time period to the length of time the unit should run after starting and press ENTER.
9. Press PAGE SELECT three times to return to the main menu.
10. Press the AUTO button to switch modes to automatic.

**NOTE:** The controller must be in AUTO mode to run at the programmed time. Use a trickle battery charger or solargizer to prevent the controller from draining the battery while in AUTO mode.

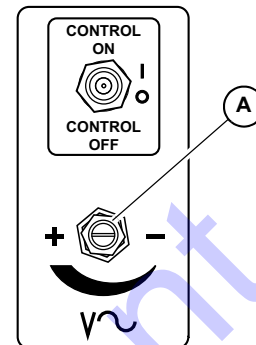
## Fine Voltage Adjustment

Upon startup of the unit, the Running screen will display V Detect and will countdown from 45 seconds to zero. This is a safety feature of the controller to protect the generator from over or under voltage upon startup.

V Detect is a 45 second time delay and countdown process before the MDC records the generator nominal output voltage. This nominal generator voltage is then compared to the current set point voltage of the voltage selector switch. If the nominal voltage recorded by the controller is greater than or lower than the current set point voltage of the voltage selector switch setting by 10% or more, the controller will shut the unit down automatically. The display will read: "Wrn Gen L1 <V", "Wrn Gen L2 <V", "Wrn Gen L3 <V" or "Sd Gen L1 <V", "Sd Gen L2 <V", "Sd Gen L3 <V". This means the controller warned ("WRN") or shutdown ("SD") the unit due to an output voltage irregularity.

The output voltage of the generator may be adjusted after the unit is running by using the fine voltage adjustment screw (A). The adjusting screw is located directly below the Control Power switch on the control

panel. This screw turns a rheostat that will provide an increase (+) or a decrease (-) in the generator output voltage as displayed on the generator display screen on the MDC. If the voltage is increased or decreased too fast or too slow, the unit will automatically shut down. This adjustment needs to be made within the 45 second delay and countdown to zero period.



004542

**Figure 3-22. Fine Voltage Adjustment Screw**

To adjust the output voltage, check the output voltage on the Liquid Crystal Display (LCD) window labeled Gen freq & Hz. Look at the "L1N" voltage or the "L12" voltage on the display. The generator nominal output voltage should be within 10% of the voltage rating on the voltage selector switch.

To adjust the output voltage, use a flat head screwdriver to turn the screw in the desired direction until the required voltage shown on the LCD window matches the stated voltage on the voltage selector switch.

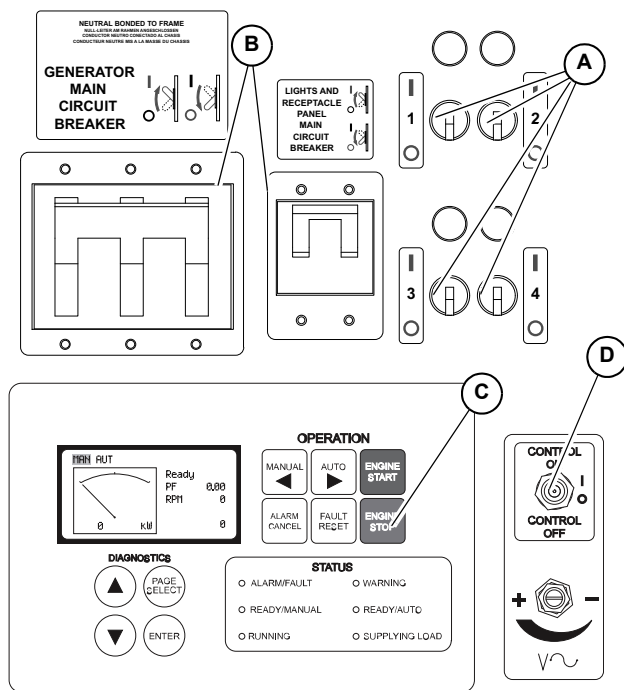
*For Example:* With the voltage selector switch set to 208/120V 3 phase position, the voltage displayed on the screen must be within  $\pm 10\%$  of the 208/120 position (188-228V Line to Line/108-132V Line to Neutral).

**NOTE:** Each time the voltage selector switch is changed from one setting to another, an adjustment will need to be made using the fine voltage adjustment screw.

## Shutting Down the Unit

Check with personnel using power supplied by the unit and let them know the power is going to be turned off. Make sure the power shutdown will not create any hazards by accidentally turning off equipment that needs to remain running (pumps, compressors, lights, etc.).

1. Remove all loads from the outlets.
2. See [Figure 3-23](#). Switch the individual circuit breakers for each light OFF (O) (A).



004544

**Figure 3-23. Shutting Down the Unit**

- Switch the main circuit breaker OFF (O) (B).
- Push the ENGINE STOP (C). Pressing the Engine Stop button will result in the unit going into the shutdown cycle and starting a 15 second shutdown timer called stop value. If the unit does not shutdown within 15 seconds a stop fail alarm will be displayed on the Liquid Crystal Display (LCD) window.
- Move the Control Power switch (D) to the OFF (O) position.

**NOTE:** For extended storage time, disconnect the battery. For extended storage requirements, refer to the engine operator's manual.

## Lowering the Mast



### **WARNING**

Burn hazard. Lamps become extremely hot while in use. Allow 10–15 minutes for cooling before handling or lowering mast. Touching a hot lens or fixture can cause severe burns.

(000278)

- Shut down the lights and engine.
- If the unit is going to be moved, it is recommended that the mast is turned so the lights face the rear of the unit. To rotate the mast:
  - Loosen the mast rotation knob.
  - Rotate the mast until the white arrows are

aligned and the metal stop tabs are touching.

c. Tighten the mast rotation knob.

- Turn the upper mast winch handle counterclockwise to collapse the mast to its lowest position. Verify the coiled electrical cord does not get caught in, or pinched by, the mast while it is being lowered.

### **WARNING**

Personal Injury. Stop immediately if the mast hangs up or the winch cable develops slack. Excess slack could cause the mast to collapse, resulting in personal injury or equipment damage.

(000265)

**IMPORTANT NOTE:** Contact a Generac Mobile Products Authorized Service Dealer immediately if the mast hangs up or the winch cable develops slack.

- Release the mast lock by pulling the safety pin on the mast lock and pulling the lock bar free. Turn the handle of the lower mast winch counterclockwise until the mast rests in the transport cradle.

**NOTE:** If the mast lock bar does not pull free, activate the lower winch slightly to relieve pressure on the mast bar.

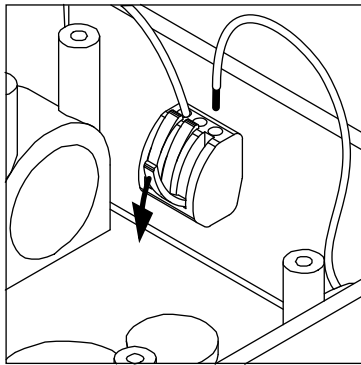
- After the mast is completely down, insert the mast cradle locking pin and secure it with the safety pin.

**NOTE:** Generac Mobile Products strongly recommends that the lights be removed from the mast and stowed for transportation. See [Removing the Lights for Transportation](#).

## Removing the Lights for Transportation

- See [Figure 3-24](#). On units equipped with quick disconnect fittings for the lights, disconnect the power cords from the junction box at the top of the mast.
- Replace the dust caps on the junction box. On other units, remove the junction box cover on the top of the mast and disconnect **ONLY** the mast light wires from the terminal blocks.
- To release the wires from the terminal blocks, flip the locking levers down and pull out the appropriate wires.
- Remove the lights by removing the wing nut that holds the light fixture bracket to the cross tube.
- Attach the lights to the storage brackets (if equipped) located on the mast tube on either side of the central lifting eye.

**NOTE:** When installing the lights, verify the star washer is in place between the trunnion and T-handle before tightening.



004481

**Figure 3-24. Removing Lights for Transportation**

## Towing the Unit

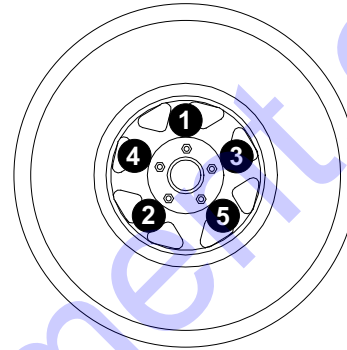
Once the engine is shut down and the mast and lights are properly stowed, follow these steps to prepare the unit for towing.

1. Raise the rear jack completely and release the locking pin to rotate it up into the travel position. Verify the locking pin snaps into place.
2. Raise the outrigger jacks completely and release the jack locking pins to swing the jacks up into the travel position. Verify the locking pins snap into place. Release the outrigger locking pins and slide the outriggers into the trailer frame until the locking pins snap into place.
3. Use the tongue jack to raise or lower the trailer onto the hitch of the towing vehicle. Lock the hitch coupling and attach the safety chains or cables to the vehicle. Remove the jack locking pin and rotate the jack into the travel position. Replace the locking pin.

**NOTE:** A film of grease on the coupler will extend coupler life and eliminate squeaking. Wipe the coupler clean and apply fresh grease each time the unit is towed.

4. To ensure proper operation of the jacks, lubricate the grease fittings located on the leveling jacks. Refer to **Jack Maintenance**. For maintenance interval information, refer to **Basic Maintenance Schedule**.
5. Connect any trailer wiring to the tow vehicle. Check for proper operation of the directional and brake lights.
6. Verify the enclosure is properly latched and the mast cradle lock is in place.
7. Verify the doors are properly latched and the mast pin is in place.

8. If driving over rough ground, remove the bulbs from the light fixtures.
9. Check for proper inflation of the trailer tires. For maximum tire pressures, refer to **Specifications**.
10. See **Figure 3-25**. Check the wheel lugs. Tighten or replace any lugs that are loose or missing. If a tire has been removed for axle service or replaced, tighten the lugs, in the order shown, to the following specifications:



003754

**Figure 3-25. Tightening Wheel Lugs**

- a. Start all lug nuts by hand.
- b. First pass: tighten to 20-25 ft-lbs (27-33 Nm).
- c. Second pass: tighten to 50-60 ft-lbs (67-81 Nm).
- d. Third pass: tighten to 90-120 ft-lbs (122-162 Nm).

**NOTE:** After the first road use, re-torque the lug nuts in sequence.

11. Maximum recommended speed for highway towing is 45 mph (72 km/h). Recommended off-road towing speed is not to exceed 10 mph (16 km/h) or less, depending on the terrain.

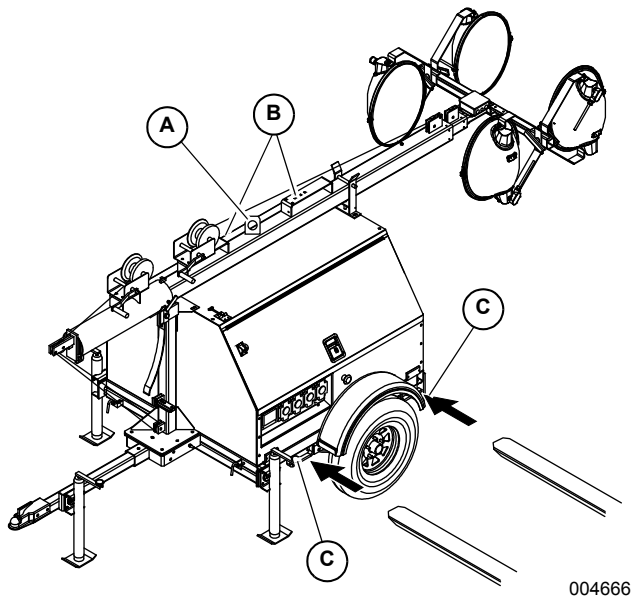
## Lifting the Unit

Follow these steps to prepare the unit for lifting:

1. Verify the equipment being used to lift the unit is in good condition and has sufficient capacity. For approximate weights, refer to **Specifications**.
2. See **Figure 3-26**. Close and lock all hoods and doors and stow the lights as shown.
3. Verify the cradle locking pin is in place.
4. When lifting the light tower and trailer, attach any slings, chains or hooks directly to the central lifting eye (A).
5. Always remain aware of people and objects around the unit while preparing, maneuvering, and lifting the unit.
6. Use the upper (B) or lower forklift pockets (C) with care. Approach the unit as perpendicular as possible to avoid any damage to the unit. Make



sure the mast winch handles or any other obstructions are clear of the forklift tines before lifting.



**Figure 3-26. Lifting Point**

## Section 4: Maintenance

### Emissions Information

For warranty information, please refer to the diesel engine manual supplied with this unit.

### Daily Walk-Around Inspection

Perform a walk-around inspection of the unit every day before starting the unit. Look for conditions that could hinder performance or safety, such as (but not limited to):

- Oil, coolant and fuel leakage
- Blocked vents
- Loose or missing hardware
- Loose or broken electrical connections.

Inspect the fan belt for cracks, fraying, or stretching. Verify the belt is properly seated in the pulley grooves. Replace the belt according to the manufacturer's recommendations.



Equipment Damage. Failure to perform a daily inspection could result in damage to the unit.

(000306)

### General Maintenance

Poorly maintained equipment can become a safety hazard. In order for the equipment to operate safely and properly over a long period of time, periodic maintenance and occasional repairs are necessary. **DO NOT** perform routine service (oil and filter changes, cleaning, etc.) unless all electrical components are shut off.

Regular maintenance will improve performance and extend engine/equipment life. Generac Mobile Products LLC recommends that all maintenance work be performed by a Generac Mobile Products Authorized Service Dealer. Regular maintenance, replacement or repair of the emissions control devices and systems may be performed by any repair shop or person of the owner's choosing. However, to obtain emissions control warranty service free of charge, the work must be performed by a Generac Mobile Products Authorized Service Dealer or authorized engine dealer depending on the repair. See the emissions warranty.

### Preparing for Service

Before servicing the unit, always follow the instructions listed below.

1. Verify the Control Power switch is in the OFF (O) position.
2. Verify the circuit breakers are switched OFF (O).

3. Activate (push in) the Emergency Stop Switch.
4. Disconnect the negative (-) terminal on the battery.
5. Attach a "Do Not Start" sign to the control panel. This will notify everyone that the unit is being serviced and will reduce the chance of someone inadvertently trying to start the unit.

### Cleaning the Unit

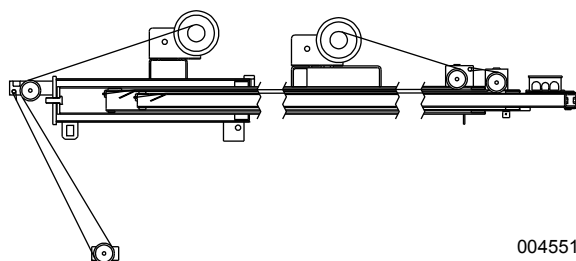
Always clean the Light Tower after each use to remove dust, grease, mud, or spilled fuel or oil. Use soft, clean rags to wipe the cabinet exterior and control panel. Low-pressure compressed air (less than 40 PSI [276 kPa]) can also be used to remove dust and debris from the cabinet interior.

This unit contains sensitive electronic components that can be damaged by high pressure and heat. Therefore:

- Do not wash the unit with a high pressure hose or power washer.
- Do not wash the engine block or fuel tank with a power washer or steam cleaner. Water may enter the cabinet and collect in the generator windings or other electrical parts, causing damage.

### Inspecting the Unit

- If the unit is stored outside, check for water inside the cabinet and generator before each use. If wet, dry the unit thoroughly before starting.
- Inspect condition of electrical cords. **DO NOT** use the unit if insulation is cut or worn through.
- Verify winch cables are in good condition and centered on each pulley. **DO NOT** use a cable that is kinked or starting to unravel.
- Verify the safety pins for the mast lock rod and mast lock bar are present and secured with a chain. Check that the spring located in the mast lock bar is not broken or missing. Check the operation of the mast lock bar.
- See [Figure 4-1](#). Verify correct mast cable routing.



004551

**Figure 4-1. Power Mast Cable Routing**

- Verify the wheel lugs are present and properly tightened. Refer to [Towing Safety](#).
- Check the coolant level daily by inspecting the level in coolant overflow jug located near the radiator. Refer to the engine operator's manual for coolant recommendations and proper mixture. Normal operating level is between the 'full' and 'add' markings on the overflow jug.
- **AFTER ENGINE IS STOPPED AND COMPLETELY COOL**, coolant may be added directly to the coolant overflow jug.
- Check the oil level daily. Refer to the engine operator's manual for the appropriate oil specification. Verify the oil is correct for special operating conditions such as a change in season or climate.
- **DO NOT** start the unit if the engine oil level is below the add mark on the dipstick.
- Normal operating level is in the cross-hatch pattern between the full and add markings on the dipstick.
- Add oil only if the oil level is below the add mark on the bottom of the cross-hatch pattern on the dipstick. **DO NOT OVERFILL** the crankcase.
- Check the fuel level.
- If the unit is connected to a remote start or transfer switch, make sure the remote switch is also off and tagged.

**NOTE:** If the engine was run out of fuel or the fuel tank was drained, it may be necessary to bleed the fuel lines. Refer to the engine operator's manual supplied with the unit.

## Basic Maintenance Schedule

Refer to the original equipment manufacturer's operating manual for a complete list of maintenance requirements. Failure to comply with the procedures as described in the engine operator's manual will nullify the warranty, decrease performance and cause equipment damage or premature equipment failure. Maintenance records may be required to complete a warranty request.

Use the schedule in the following table as a guide for regular maintenance intervals. For additional or replacement copies of the engine operator's manual, contact a Generac Mobile Products Authorized Service Dealer.

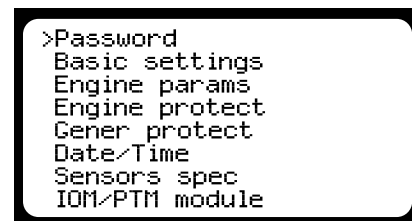
**Table 4-1. Basic Maintenance Guide (Isuzu)**

Item	Daily	250 Hours	500 Hours	1000 Hours
Check Oil Level	◆			
Check Coolant Level	◆			
Check Fuel Level	◆			
Drain Fuel Filter	◆			
Check Tire Pressure	◆			
Check All Electrical Connections	◆			
Clean Battery	◆			
Check Fan Belt Tension (Replace If Necessary)	◆			
Inspect Radiator Fins For Debris, Clean As Required	◆			
Preheating Condition Check	◆			
Check Engine Starting Conditions And Noise Conditions	◆			
Check Exhaust Smoke Condition	◆			
Inspect Light Tower Winch For Proper Operation	◆			
Replace Engine Oil		◆		
Replace Fuel Filter Element		◆		
Clean Water Sedimenter Element		◆		
Electromagnetic Pump Filter Replacement or Cleaning		◆		
Check Fan Belt Tension (Replace If Necessary)			◆	
Oil Filter Element Replacement			◆	
Replace Air Filter Element			◆	
Lubricate Leveling Jacks			◆	
Replace Heated Fuel Filter (If Equipped)				◆
Inspect Engine Starting Battery				◆

## Resetting the “Time to Service” Reminder

The Magnum Digital Controller (MDC) will display “WrnMaintenance” when the unit is due for maintenance or service. The maintenance or service interval is set at 250 hours of engine running time. Once the unit has been serviced, the Time to Service reminder needs to be reset to the 250 hour interval. The following procedure demonstrates how to reset the running hours to 250:

1. With the unit shut down, power up the controller with the Control Power switch. The Initialization screen will be displayed. The controller will toggle automatically to the Ready display screen.
2. Press the PAGE SELECT button. The next screen will display lines of text; starting with Password, which will have a (>) in front of it, then Basic settings, Engine params, Engine protect, etc.
3. Press the ▼ button to move the (>) cursor down to “Engine protect.”



004527

**Figure 4-2. Resetting Service Reminders**

- 4.
5. Press ENTER. “WrnMaintenance” will appear at the top left of the display screen. The current service time hour setting (0) will be one line below it on the right side.
6. Press ENTER. The current run time in hours will now appear on the left side of the display screen, directly under “WrnMaintenance.”
7. Press ▲ and reset the current run time hour setting to 250. If you pass the 250 time interval, use ▼ to get back to the 250 time interval.

8. Press ENTER to save the current run time hour setting.
9. Move the Control Power switch to the OFF (O) position.

## Winch Use, Operation and Maintenance

### Prior to Use

- Inspect rope or cable and replace if damaged.
- Check mounting hardware for proper tightness and re-torque if necessary.
- Gears, ratchet pivot point, and shaft bushings must be kept lubricated with a thin film of oil or grease.

### Operation

#### Raising the Lights:

1. The cable must be securely fastened to the winch drum.
2. Verify the cable and cable attachments are not damaged. Verify there is adequate safety factor of at least three times the maximum load for all components used. Contact Generac Mobile Products to order a replacement cable if necessary.
3. Referring to the “Cable In / Cable Out” decal on the winch, turn handle according to the specified direction to lift. The ratchet MUST make a loud clicking sound while winding the cable.

#### Lowering the Lights:

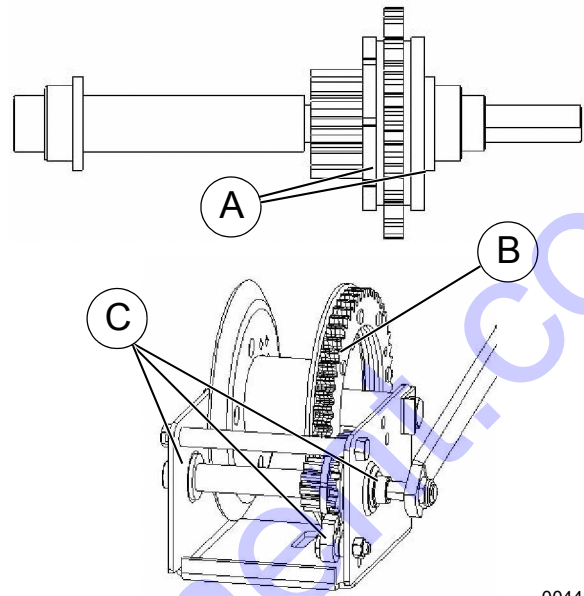
Referring to the “Cable In / Cable Out” decal on the winch, turn handle according to the specified direction to lower. No clicking will be heard because the brake system is activated.

### Maintenance

The following procedures should be performed at least annually:

1. See [Figure 4-3](#). The gears and bushings of the winch must be kept lubricated. Apply a thin film of grease to the gear teeth (B), and oil the bushings as needed (C).
2. The ratchet pawl pivot point must be kept lubricated with a thin oil.

**NOTE:** Do not get oil or grease on the friction discs (A).



004480

**Figure 4-3. Winch Maintenance**

## Optional Lower Radiator Hose Heater Use and Maintenance

The following points should be followed when operating a unit equipped with a lower radiator hose heater.

**IMPORTANT NOTE:** Improper use of the lower radiator hose heater could result in serious personal injury.

- Verify that cooling system is full of a proper mixture of water and engine coolant before each heater use.
- Heater is designed for all-night operation; however, 2-5 hours of heating just prior to starting is usually sufficient for proper engine starting.
- When heater is in operation, unit must be parked in a level position to maintain the proper orientation of the heater.
- Use only an undamaged extension cord, outdoors rated, three-prong grounded 120VAC cord with a minimum amperage rating of 10A. Connect to properly grounded 120VAC, GFCI outlet only.
- Before starting the engine, unplug extension cord from power first; then unplug heater cordset from extension cord.

## Trailer Wheel Bearings

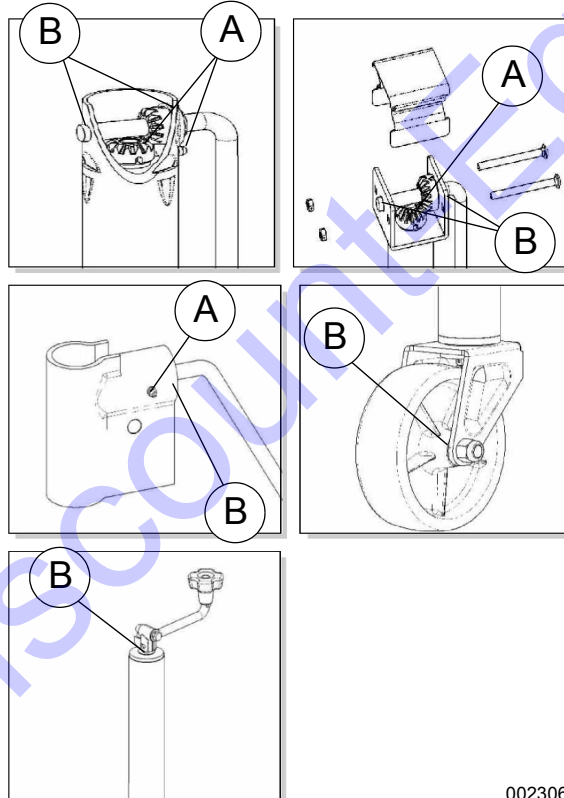
The light tower is equipped with a grease zerk fitting to allow lubrication of the wheel bearings without the need to disassemble the axle hub. To lubricate the axle bearings, remove the small rubber plug on the grease cap, attach a standard grease gun fitting to the grease zerk fitting and pump grease into the fitting until new grease is visible around the nozzle of the grease gun.

Use only a high quality grease made specifically for lubrication of wheel bearings. Wipe any excess grease from the hub with a clean cloth and replace the rubber plug when finished. The minimum recommended lubrication is every 12 months or 12,000 miles (19,312 km); more frequent lubrication may be required under extremely dusty or damp operating conditions.

## Jack Maintenance

The following procedures should be performed at least annually: For side-wind models, the internal gearing and bushings of the jack must be kept lubricated.

- See [Figure 4-4](#). Apply a small amount of automotive grease (A) to the internal gearing by removing the jack cover, or if equipped, use a needle nose applicator or standard grease gun on the lubrication point found on the side of the jack near the crank. Rotate the jack handle to distribute the grease evenly.
- A lightweight oil (B) must be applied to the handle unit at both sides of the tube for side-wind models.
- If equipped, the axle bolt and nut assembly of the caster wheel must also be lubricated with the same lightweight oil.
- For top-wind models, apply a lightweight oil to the screw stem.



002306

**Figure 4-4. Jack Maintenance**

# Section 5: Troubleshooting

## General Troubleshooting

Some of the more common problems are listed in the table below. This information is intended to be a check or verification that simple causes can be located and fixed. It does not cover all types of problems. Refer to the OEM engine operator's manual for additional troubleshooting information. Procedures that require in-depth knowledge or skills should be referred to a Generac Mobile Products Authorized Service Dealer.



Risk of burns. Allow engine to cool before draining oil or coolant. Failure to do so could result in death or serious injury.

(000139)

**Table 5-1. General Troubleshooting Guide**

Problem	Possible Cause	Solution
Low oil pressure shutdown	Low oil level	Verify oil level on dipstick. Add oil, if needed.
	Oil leaking from engine	Visually inspect the engine for leaks.
	Low oil level pressure	Verify the oil pressure is 5 psi (34 kPa).
	Oil pressure switch failure	Refer to OEM engine operator's manual to identify corrective action.
High coolant temperature shutdown	Low coolant level	Add coolant if needed. Allow engine to cool, then check coolant level in radiator. Restart engine and check coolant temperature. Stop engine immediately if coolant temperature is 210°F (99°C) or more.
	Blockage in radiator	Inspect radiator shroud and ducting for blockage and remove any foreign matter.
	Leakage in coolant hoses, engine block, or water pump	Inspect for visible leaks. Verify tension of water pump serpentine drive belt. Remove load on generator and restart engine. Verify coolant temperature and shut engine down immediately if it starts to overheat. Refer to the OEM engine operator's manual for additional information on engine overheating.
Unit cranks, but will not start	Fuel level low	Check fuel level in tank. Verify fuel pump operation.
	Restricted air filter	Inspect air filter for blockage. Refer to OEM engine operator's manual for additional information.
Overspeed or Underspeed Shutdown	Frequency setting incorrect	Disconnect all loads and restart unit. Read frequency (Hz) in the LCD window on controller. Frequency should read 60 Hz. If frequency is above 60 Hz, engine speed will need to be adjusted. Refer to the engine operator's manual for throttle adjustment information.

## Troubleshooting the Lights



**WARNING**

Burn hazard. Lamps become extremely hot while in use. Allow 10–15 minutes for cooling before handling or lowering mast. Touching a hot lens or fixture can cause severe burns.

(000278)

**IMPORTANT NOTE:** Only a qualified electrician should troubleshoot or repair electrical problems occurring in this equipment.



**WARNING**

Electrocution. Potentially lethal voltages are generated by this equipment. Render the equipment safe before attempting repairs or maintenance. Failure to do so could result in death or serious injury.

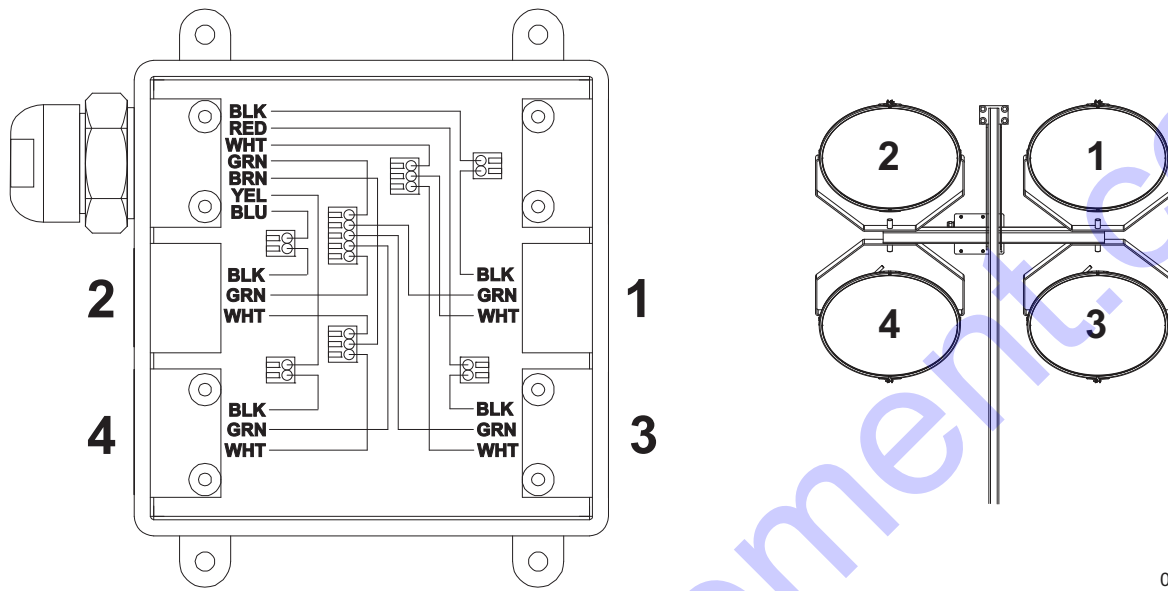
(000187)

Problem	Possible Cause	Solution
Mast Lights Off, but Ballast Indicators on Control Panel are On.	<ul style="list-style-type: none"> <li>Light fixture is too hot.</li> <li>Faulty lamp connection.</li> <li>Lamp broken</li> <li>Loose lighting connections</li> <li>Damaged or loose electrical cord</li> </ul>	<ul style="list-style-type: none"> <li>Allow light to cool 10-15 minutes before restarting.</li> <li>Check that the lamp is tight in the socket.</li> <li>Check for broken arc tube or outer lamp jacket, broken or loose components in lamp envelope, or blackening/deposits inside tube.</li> <li>Check the connections inside the mast junction box and each mast light housing/socket.</li> <li>Check the mast electrical cord for damage and check the cord connections inside the control box.</li> </ul>
Mast Lights Off, and Ballast Indicators on the Control Panel are Off.	<ul style="list-style-type: none"> <li>Loose lighting connections</li> <li>Generator output incorrect.</li> <li>Low transformer output.</li> </ul>	<ul style="list-style-type: none"> <li>Check the connections inside the control box and inside each ballast box.</li> <li>Check the incoming voltage to the ballast by checking the available voltage on the GFCI receptacle. Incoming voltage should be 120V +/- 5V. If voltage is incorrect, the engine speed may need to be adjusted or generator may require service.</li> <li>The voltage from the transformer should read approximately 400VAC as the light "strikes" (induces an arc), then drop and slowly rise back up to stabilize at 240-260VAC. On hard wired models, remove the mast junction box cover and insert the wire probes into the connector blocks for the light and ground. If proper voltage is not achieved, perform capacitor check to determine if the capacitor or coil needs to be replaced.</li> </ul>
Mast Lights On But the Light Output is Low	<ul style="list-style-type: none"> <li>Fixture and/or lens is dirty.</li> <li>Lamp worn due to normal use</li> <li>Damaged or loose electrical connections</li> <li>Generator output incorrect.</li> <li>Low transformer output</li> </ul>	<ul style="list-style-type: none"> <li>Clean reflective surface inside fixture and both inside and outside surface of glass lens. Use mild soap and water to clean lens. Other chemicals may have an adverse effect on the glass.</li> <li>Replace lamp.</li> <li>Check the mast coil cord, mast junction box and mast light connections.</li> <li>Check the incoming voltage to the ballast. Incoming voltage should be 120V +/-5V. If the voltage is incorrect, the engine speed may need to be adjusted or the generator may require service.</li> <li>The voltage from the transformer should read approximately 400VAC as the light "strikes" (induces an arc), then drop and slowly rise back up to stabilize at 240-260VAC. On hard wired models, remove the mast junction box cover and insert the wire probes into the connector blocks for the light and ground. If proper voltage is not achieved, perform capacitor check to determine if the capacitor or coil needs to be replaced.</li> </ul>



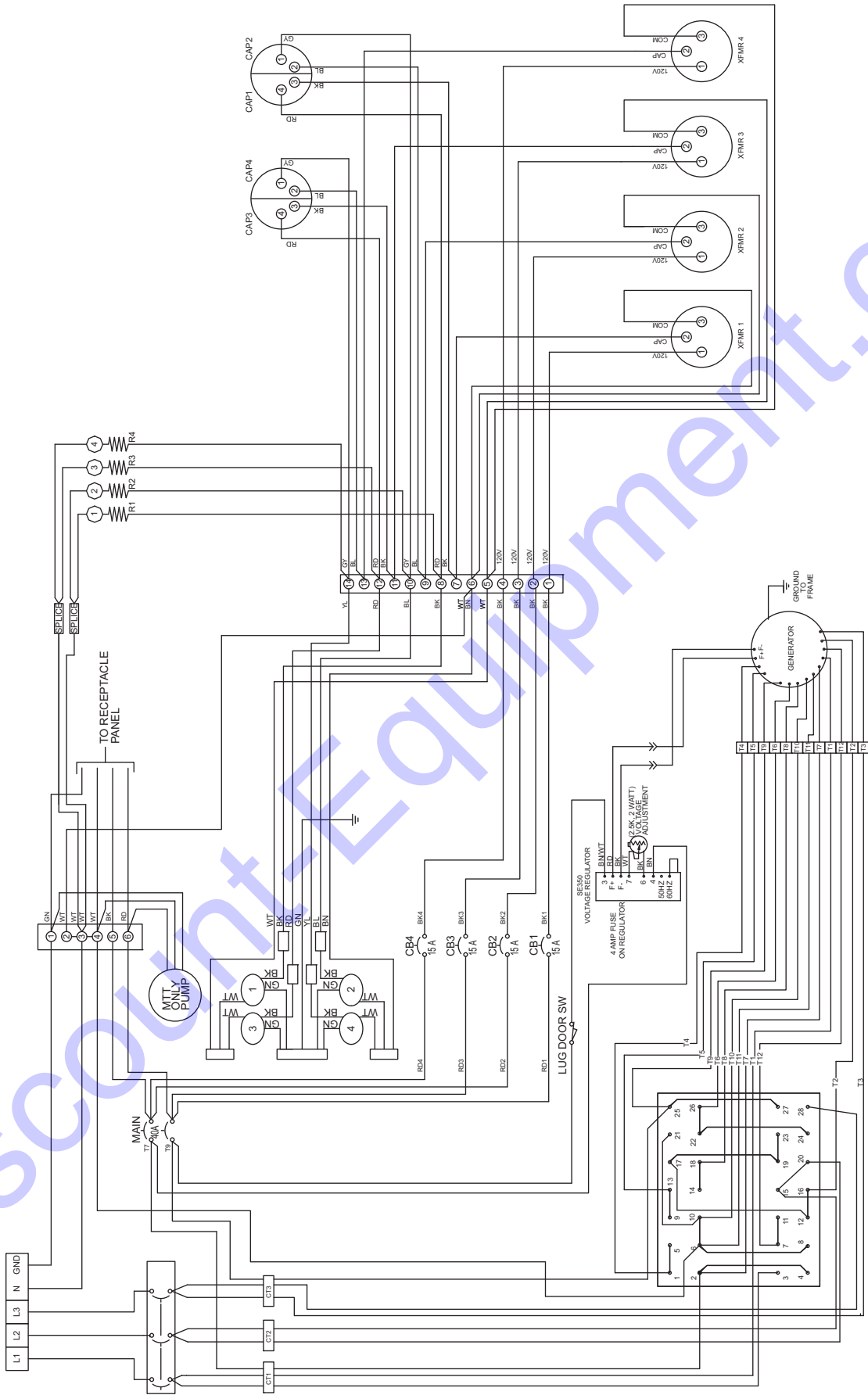
# Section 6: Wiring Diagrams

## Mast Junction Box Wiring and Light Connections



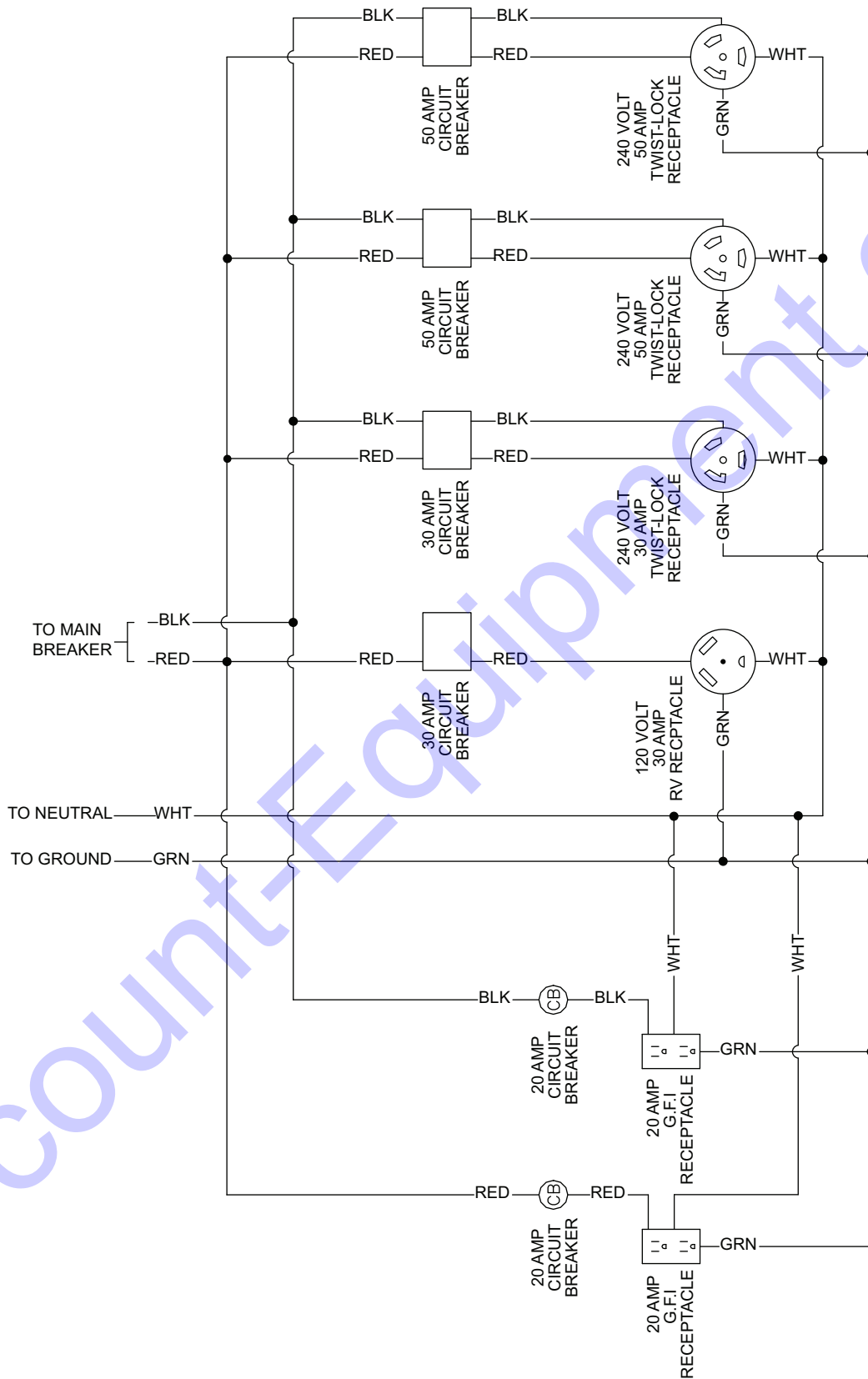
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# AC Wiring Diagram



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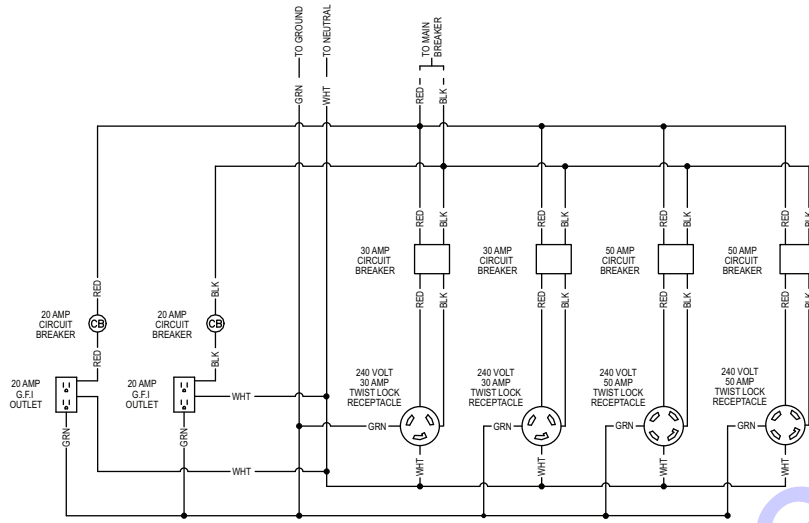
# AC Wiring Diagram—Receptacle Panel



(2x5-20R, 1xTT-30, 1xL14-30R, 2x14-50)

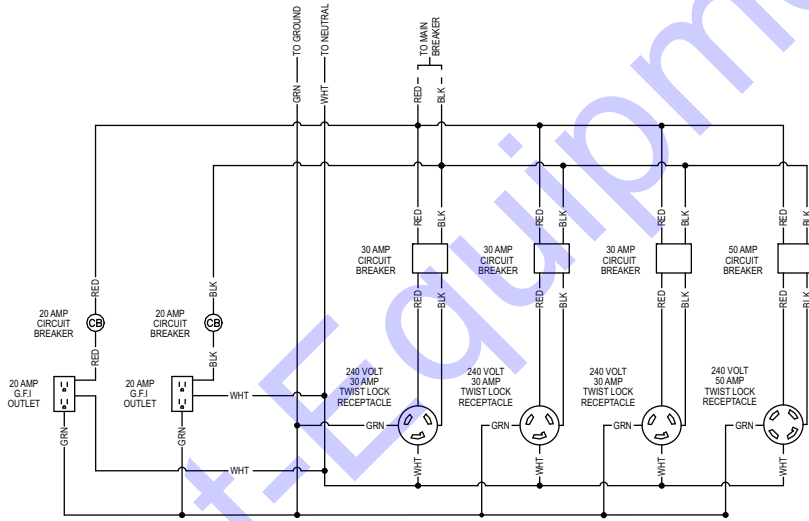
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# AC Wiring Diagram—Receptacle Panel Options (1 of 2)



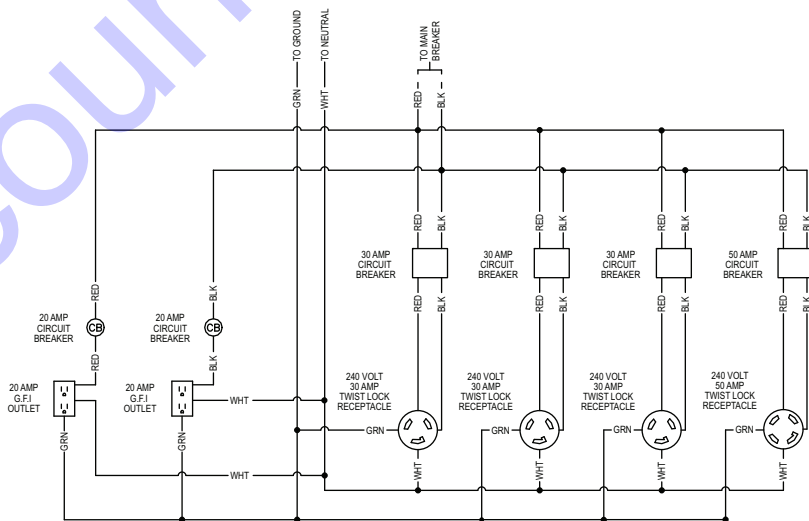
Receptacle Panel (2x5-20R, 2xL6-30R, 2xL14-50)

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Receptacle Panel (2x5-20R, 3xL6-30R, 1xL14-50)

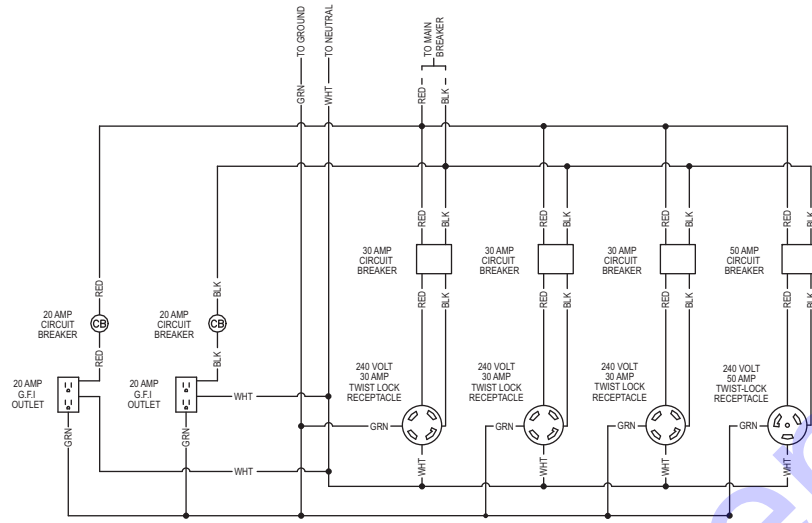
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Receptacle Panel (2x5-20R, 3xL6-30R, 1xL14-50)

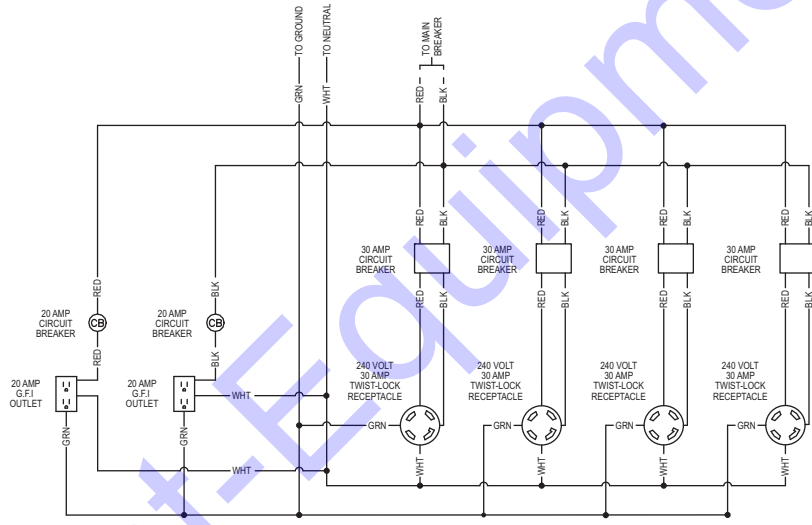
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# AC Wiring Diagram—Receptacle Panel Options (2 of 2)



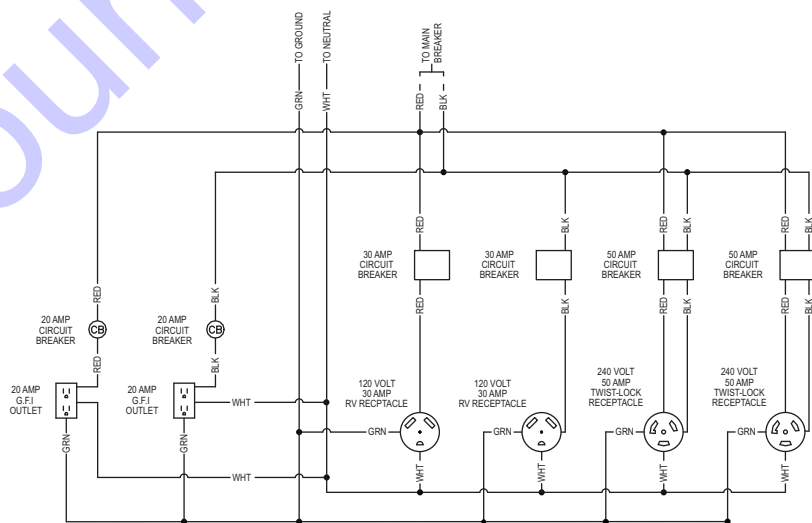
Receptacle Panel (2x5-20R, 3xL14-30R, 1x50A)

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Receptacle Panel (2x5-20R, 4xL14-30R)

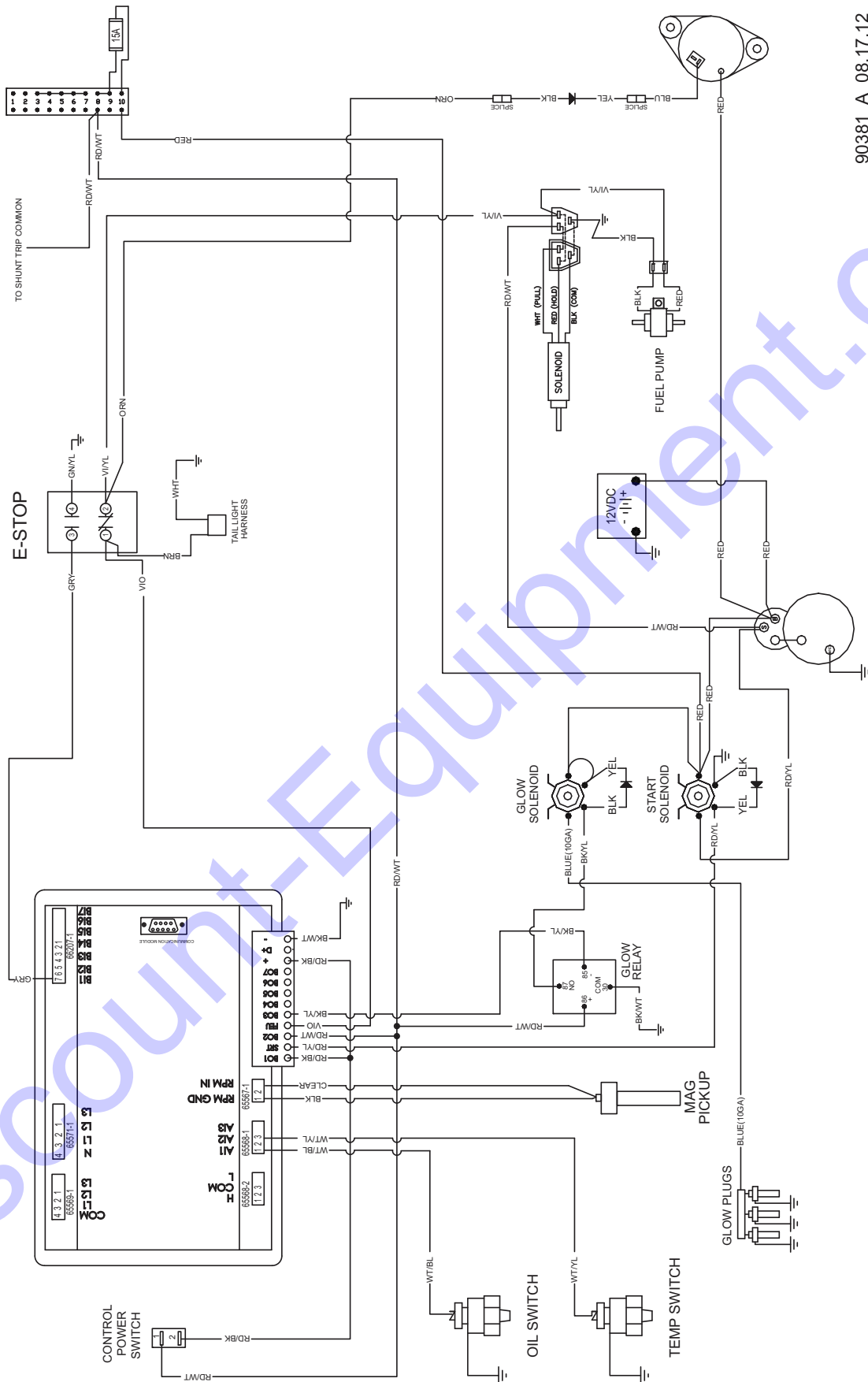
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Receptacle Panel (2x5-20R, 2xTT-30, 2x14-50)

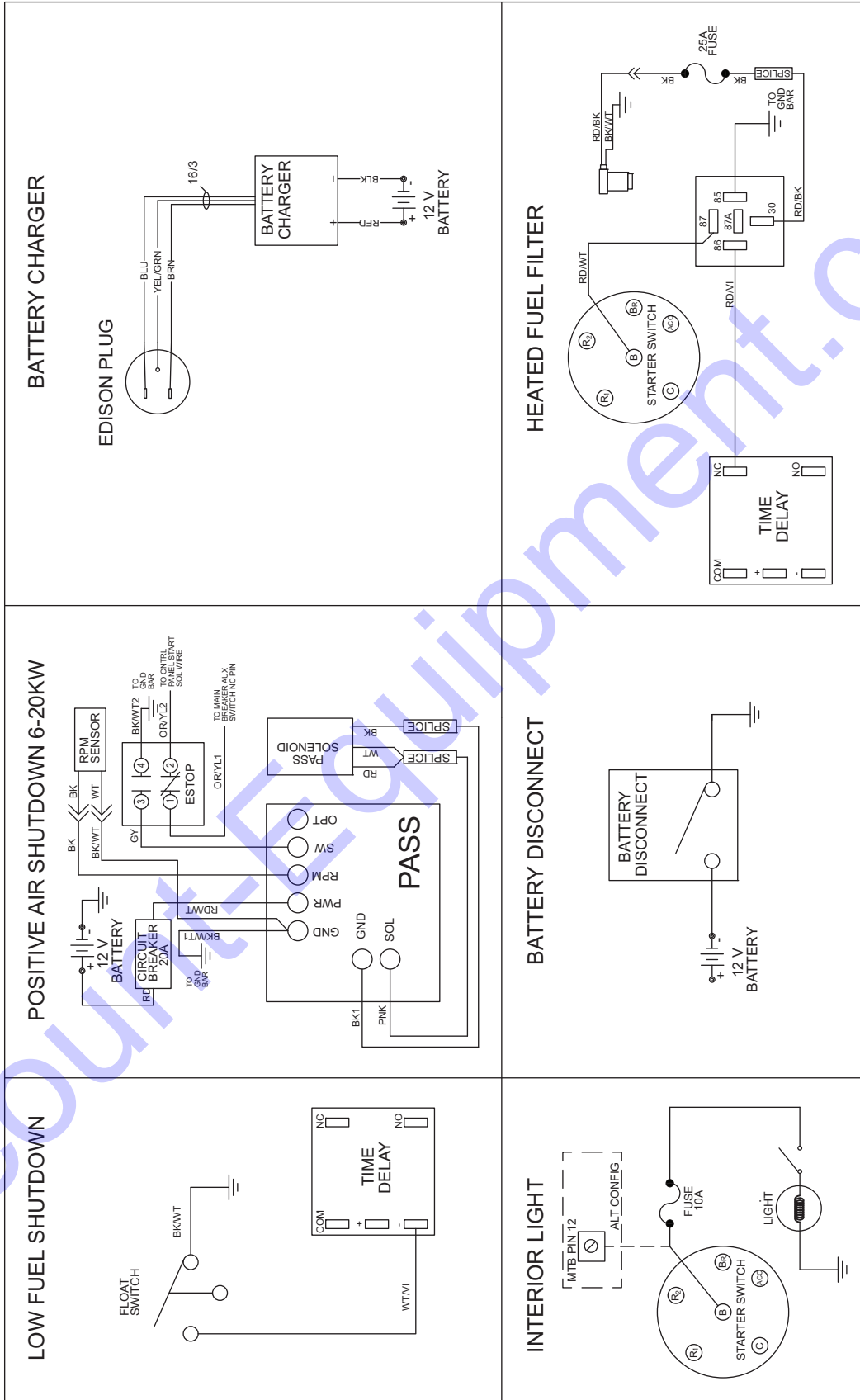
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# DC Wiring Diagram



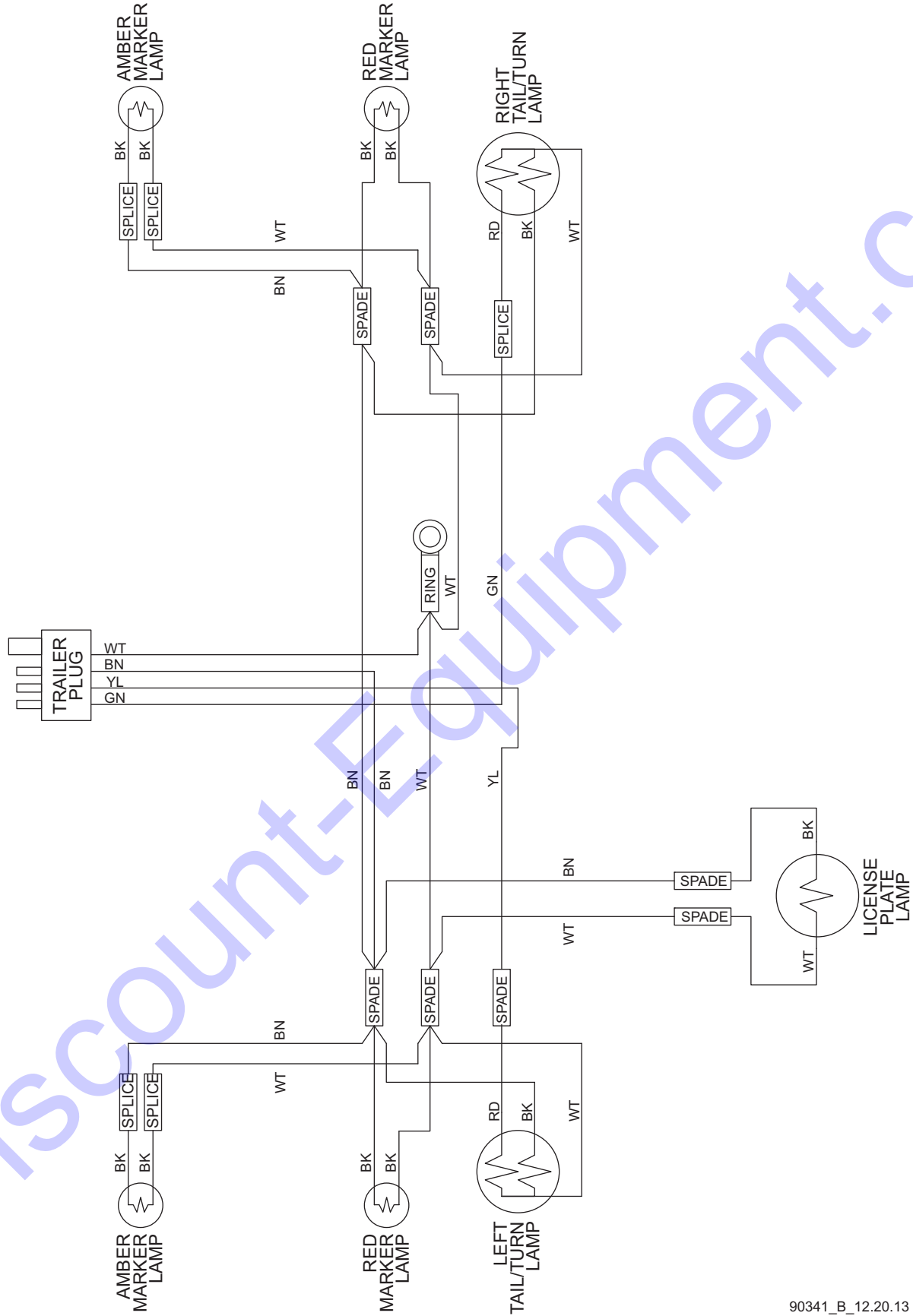
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# DC Wiring Diagram—Optional Equipment



90323\_K\_06.04.14

# Trailer Lights Wiring



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