INSPECTION CHECK LIST
FOR PREPARING THE MAXI-LITE ML 15/ML 20 FOR DELIVERY OR RENTAL

The MAXI-LITE ML 15/ML 20 require service as well as proper operation in order to provide the performance and safety it has been designed for. Never deliver or put a machine into service with known defects or missing instructions or decals. Always instruct the customer in the proper operation and safety procedures as described in the operator’s manual. Always provide the manual with the equipment for proper and safe operation.

CHECK LIST:
- Visually inspect the equipment to ensure that all instructions and decals are in place and legible.
- Inspect the tower latch and knob assembly which locks the tower in the vertical position for proper operation.
- Check the hitch assembly and safety tow chains.
- Check the outriggers and jacks to make sure they operate properly.
- Inspect the light assemblies for damage and test for proper operation.
- Inspect the electrical wiring for signs of damage.
- Check the ground rod cable and the ground lug. Make sure they are clean, undamaged, and functional.
- Inspect the tires to ensure good condition and proper inflation.
- Check oil, fuel, coolant levels, and hydraulic fluid levels.
- Check to make sure the operator’s manual is with the equipment.
- Inspect the machine physically for damage and repair if necessary.

NOTE: See appropriate section of manual for scheduled maintenance intervals.

After completing the inspection check list, operate the tower through a complete operation cycle, following the operating instructions in the operator’s manual.

⚠️ WARNING
NEVER ALLOW ANYONE TO OPERATE THE EQUIPMENT WITHOUT PROPER TRAINING!
ALWAYS READ THE INSTRUCTIONS FIRST!
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSPECTION CHECK LIST</td>
<td>2</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>3</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>4</td>
</tr>
<tr>
<td>SAFETY SYMBOL INFORMATION</td>
<td>4</td>
</tr>
<tr>
<td>SAFETY AND WARNING DECALS</td>
<td>5-7</td>
</tr>
<tr>
<td>MANUAL WINCH MAST OPERATION</td>
<td>8-9</td>
</tr>
<tr>
<td>ELECTRIC WINCH MAST OPERATION</td>
<td>10-11</td>
</tr>
<tr>
<td>SPECIFICATIONS</td>
<td>12-13</td>
</tr>
<tr>
<td>SERIAL NUMBER LOCATION</td>
<td>14</td>
</tr>
<tr>
<td>SPECIFICATIONS</td>
<td>15-17</td>
</tr>
<tr>
<td>CONTROLS AND COMPONENTS</td>
<td>18-25</td>
</tr>
<tr>
<td>ROUTINE MAINTENANCE SCHEDULE</td>
<td>26</td>
</tr>
<tr>
<td>ISUZU 4LE1</td>
<td></td>
</tr>
<tr>
<td>ROUTINE MAINTENANCE SCHEDULE</td>
<td>27</td>
</tr>
<tr>
<td>KUBOTA V2203 and V2003T</td>
<td></td>
</tr>
<tr>
<td>TROUBLESHOOTING</td>
<td>28</td>
</tr>
<tr>
<td>ASSEMBLY PARTS AND ACCESSORIES</td>
<td>29</td>
</tr>
</tbody>
</table>
This manual provides the information necessary for the safe operation of the Allmand Bros., Inc., MAXI-LITE ML 15/ML 20 light tower.

The MAXI-LITE ML 15/ML 20 standard tower configuration is operated with two manual crank winches or single electric winch used to erect, extend, and lower the tower.

Specific operating instructions and specifications are contained in this publication to familiarize the operator and maintenance personnel with the correct and safe procedures necessary to maintain and operate the equipment.

Take time to read this book thoroughly. If you are uncertain about any of the information presented in the manual, contact the factory or your dealer for clarification before operation.

SAFETY SYMBOLS

The purpose of the SAFETY INFORMATION SYMBOL shown below is to attract your special attention to safety related information contained in the text.

⚠️ DANGER
⚠️ WARNING
⚠️ CAUTION

FAILURE TO UNDERSTAND AND COMPLY WITH SAFETY RELATED INFORMATIONAL INSTRUCTIONS MAY RESULT IN INJURY TO OPERATOR OR OTHERS. IF YOU DO NOT UNDERSTAND ANY PART OF THIS INFORMATION CONTACT YOUR DEALER FOR CLARIFICATION PRIOR TO OPERATING EQUIPMENT.

NOTE

The word NOTE is used to bring your attention to supplementary information in relation to various aspects of proper operation and maintenance.

NOTE: Keep this manual accessible during operation to provide convenient reference.

NOTE: Any reference in this manual to LEFT or RIGHT shall be determined by looking at the trailer from the rear.
SAFETY WARNING

ALWAYS REPLACE ANY SAFETY AND INSTRUCTION DECALS THAT BECOME DAMAGED, PAINTED, OR OTHERWISE ILLEGIBLE.

Refer to these representations of the safety warning decals used on the MAXI-LITE ML 15/ML 20 to insure correct ordering if replacing becomes necessary.

PART NO. 090249 
Location: Inside left hand door panel.

PART NO. 090264 
Location: Inside left hand door panel.

OPERATING INSTRUCTIONS

Read and understand Operator’s Manual before operating machine.

BEFORE STARTING:
1. Check engine oil level.
2. Check battery condition.
3. Check all gaskets, hoses, and clamps.
4. Check all lights, switches, and controls for correct operation.

STARTING:
1. Insert key in ignition switch, hold until the engine stops and then release.
2. Turn key to “start” position until the engine starts. Release key as soon as the engine starts.
3. coast to a stop, remove keys.

STOPPING:
1. Remove key from ignition switch.
2. Testing external lights.
3. Turn switch to “off” position.

A CAUTION

MAKE SURE GROUNDED FENCE WIRE AND LADDER, OUTPLACING AND MAST ARE FULLY RETRACTED AND LOCKED INTO PLACE BEFORE STARTING.

PART NO. D-259
Location: Inside left hand door panel. Manual winch model only.

PART NO. D-262
Location: Inside left hand door panel. Electric winch model only.
SAFETY AND WARNING DECALS

**WARNING**

To Prevent Serious Injury or Death:
- Avoid unsafe operation or maintenance.
- Do not operate or work on this machine without reading and understanding the operator's manual.
- If manual is lost, contact your nearest dealer for a new manual.

**DANGER**

Failure to use ground rod could cause severe injury or death.
- Drive ground rod into earth and attach ground wire to grounding lug on front of trailer.

**WARNING**

Failure to turn off lights before stopping engine may result in generator damage and void warranty.

**DANGER**

Hazardous voltage can cause severe burns or blindness.
- Do not enter electrical compartment while engine is running.
- Close cover before operating.
- Keep components in good repair.

**GROUNDING LUG**

Location: On left side panel below ground lug

**WARNING**

Combustible gas can cause severe burns or blindness.
- Keep sparks and open flame away from batteries.

Location: On right hand wheel well
SAFETY AND WARNING DECALS

**UNLATCHED**

PART NO. D-139
Location: On rear panel under the rear tower support.

**DANGER**

HIGH VOLTAGE

PART NO. D-002
Location: Light bar cover

**WARNING**

To Prevent Injury or Machine Damage
- Pull pin back to release mast from mast support before operating machine.

PART NO. D-263
Location: Inside left hand door panel

**WARNING**

Do not stand in front of Mast or underneath rear of mast when raising or lowering.

PART NO. D-003
Location: Inside left hand door panel

**WARNING**

Non-vertical tower can cause severe injury or death.
Do not lower the tower in the tower assembly at the front of the mast or unless all sections are secure.

PART NO. D-162
Location: Inside left hand door panel

**WARNING**

EXCESSIVE TOWING SPEED
Can Cause Serious Personal Injury or Death
Do NOT Exceed 50 mph (80 km/hr)

PART NO. D-160
Location: On pintle hitch

**WARNING**

NON-VERTICAL TOWER
Can Cause Severe Injury or Death
- Keep all persons clear before raising or lowering mast.
- Do not extend or retract mast unless latch is securely in place.

PART NO. D-164
Location: On mast pivot section

**WARNING**

Proposition 65 Warning
Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

PART NO. D-173
Location: Inside left hand door panel
MANUAL WINCH MAST OPERATION

DESCRIPTION OF OPERATION
The MAXI-LITE ML 15/ML 20 tower assembly consists of a three section telescoping mast which can be raised and extended by operating two hand crank winches. One winch, mounted with the handle extending through the side of the trailer frame, raises and lowers the mast from the horizontal towing position, the vertical position, and back. The second winch mounted on the tower extends the telescopic sections.

The three section mast assembly can be rotated from the ground by loosening a knob and rotating the entire assembly 360° to aim the lights as necessary.

SAFETY WARNING
- ALWAYS CHECK FOR OVERHEAD OBSTRUCTIONS BEFORE RAISING AND LOWERING MAST. ALLOW 35’ CLEARANCE. AVOID ALL OVERHEAD ELECTRICAL WIRES.

- TO PREVENT INSTABILITY AND HELP ENSURE SAFE OPERATION, ALWAYS PROVIDE PROPER GROUND SUPPORT BEFORE RAISING MAST.

- BEFORE RAISING MAST, VISUALLY INSPECT EQUIPMENT FOR DAMAGE OR WEAR. FAMILIARIZE YOURSELF WITH THE LOCATION AND FUNCTION OF ALL OPERATING PARTS BY STUDYING THIS MANUAL. OBSERVE ALL CAUTION DECALS LOCATED ON EQUIPMENT

NOTE: The latch locks the mast in the vertical position and disengages the sections allowing the tower assembly to be rotated to position the lights.

TO ERECT MAST AND RAISE LIGHTS
1. Extend both side outrigger jacks, rear jack and tongue jack to stabilize and level the trailer.

NOTE: Jacks should be placed only on firm footing.

- WHEN EXTENDING REAR JACK, WATCH TO ENSURE YOU ARE CLEAR OF THE OVERHANGING ENDS OF THE MAST BEFORE YOU STAND UP.

- THE SUPPLEMENTAL GROUND ROD IS A SAFETY DEVICE THAT MAY REDUCE THE CHANCE OF PERSONAL INJURY FROM STRAY ELECTRICAL CURRENT. Therefore, Allmand recommends using the ground rod. However, it is the user’s responsibility to determine the requirements and/or applicability of local, state, or national electrical code which governs the use of the ground rod.

2. Attach the ground rod to the grounding lug, and drive the ground rod fully for adequate electrical ground, as required by local, state, or national code.

3. Release the pin that secures the mast to the rear mast support.

4. Operate the hand crank on the side of the trailer to raise the mast from horizontal to vertical.

5. Turn black knob counterclockwise and engage latch in strike plate. Retighten black knob.

6. Operate the hand crank winch on the tower clockwise to raise the lights vertically.

7. To rotate the lights, release the black knob and turn the tower assembly with the handles provided.

8. To turn on lights, flip the breaker switches to the up position. (SEE FIG. 1)
SAFETY WARNING

- IF THE TOWER CANNOT BE ROTATED AFTER LOOSENING THE BLACK KNOB, CHECK TO ASSURE THE LOWER LATCH IS ENGAGED IN THE STRIKE PLATE. THIS DOUBLE LATCH FEATURE PREVENTS THE TOWER FROM BEING ROTATED IF THE LATCH IS NOT ENGAGED.

SAFETY WARNING

VISUALLY INSPECT EQUIPMENT FOR DAMAGE BEFORE OPERATING. ALLOW ADEQUATE CLEARANCE AROUND TRAILER FOR TOWER AND INSURE THAT NO PERSONS ARE STANDING IN FRONT OF OR BEHIND UNIT WHEN LOWERING.

TO LOWER MAST AND LIGHTS

1. Turn off lights.
2. Release black knob and rotate tower until winch handle points to the front of the trailer and retighten knob.
3. Operate hand crank winch on tower counterclockwise to lower the lights to the lowest vertical position
4. Operate hand crank winch on side of trailer clockwise to take up any cable slack.
5. Turn the black knob counterclockwise and lift to release the latch from the strike plate. Retighten the knob with the latch disengaged from the strike plate.

NOTE: Ensure the detent pins are properly engaged in the outriggers before towing.

6. Operate the hand crank on the side of the trailer counterclockwise to fold the mast down into the towing position.

NOTE: Sufficient load (75 lb. min) must be applied to the cable to overcome internal resistance and operate the brake properly. Insufficient load will not turn the reel thus continual turning without sufficient load will remove the winch handle from the shaft.

7. Secure light cords into hook on the rear tower support for towing.
8. Secure pin locking mast to rear tower support.
9. Remove ground rod from earth. Disconnect wire from ground lug and secure in trailer.
10. Raise jacks and rear stand, retract outriggers and secure for towing.

NOTE: Visually inspect the flood light mounting yokes for loose hardware. This could prevent a broken fixture during towing.
DESCRIPTION OF OPERATION

The MAXI-LITE ML 15/ML 20 tower assembly consists of a three section telescoping mast which can be raised and extended by operating a single electric winch mounted inside the enclosure. A single three position toggle switch mounted on the control panel is used to raise and lower the mast. The winch and cable are protected by an integral clutch and a circuit breaker. The clutch is designed to slip when the mast reaches full extension. The circuit breaker is a safeguard for the clutch. If the clutch is misadjusted or inoperative the circuit breaker should trip to protect the system from overload. The electric winch operates off the 120 volt circuit breaker along with 120 volt receptacle thus requiring that the 120 volt circuit breaker switch must be on to operate the winch.

The three section mast assembly can be rotated from the ground by loosening a knob and rotating the entire assembly 360° to aim the lights as necessary.

SAFETY WARNING!

- ALWAYS CHECK FOR OVERHEAD OBSTRUCTIONS BEFORE RAISING AND LOWERING MAST. ALLOW 35' CLEARANCE. AVOID ALL OVERHEAD ELECTRICAL WIRES.
- TO PREVENT INSTABILITY AND HELP ENSURE SAFE OPERATION, ALWAYS PROVIDE PROPER GROUND SUPPORT BEFORE RAISING MAST.

NOTE: The latch locks the mast in the vertical position and disengages the sections allowing the tower assembly to be rotated to position the lights

BEFORE RAISING MAST, VISUALLY INSPECT EQUIPMENT FOR DAMAGE OR WEAR. FAMILIARIZE YOURSELF WITH THE LOCATION AND FUNCTION OF ALL OPERATING PARTS BY STUDYING THIS MANUAL. OBSERVE ALL CAUTION DECALS LOCATED ON EQUIPMENT

TO ERECT MAST AND RAISE LIGHTS

1. Extend both side outrigger jacks, rear jack and tongue jack to stabilize and level the trailer.

NOTE: Jacks should be placed only on firm footing.

- WHEN EXTENDING REAR JACK, WATCH TO ENSURE YOU ARE CLEAR OF THE OVERHANGING ENDS OF THE MAST BEFORE YOU STAND UP.

- THE SUPPLEMENTAL GROUND ROD IS A SAFETY DEVICE THAT MAY REDUCE THE CHANCE OF PERSONAL INJURY FROM STRAY ELECTRICAL CURRENT. Therefore, Allmand recommends using the ground rod. However, it is the user's responsibility to determine the requirements and/or applicability of local, state, or national electrical code which governs the use of the ground rod.

2. Attach the ground rod to the grounding lug, and drive the ground rod fully for adequate electrical ground, as required by local, state, or national code.

3. Release the pin that secures the mast to the rear mast support.

4. Operate the hand crank on the side of the trailer to raise the mast from horizontal to vertical.

5. Turn black knob counterclockwise and engage latch in strike plate. Retighten black knob.

6. Operate the hand crank winch on the tower clockwise to raise the lights vertically.

7. To rotate the lights, release the black knob and turn the tower assembly with the handles provided.

8. To turn on lights, flip the breaker switches to the up position. (SEE FIG. 1)
SAFETY WARNING

- IF THE TOWER CANNOT BE ROTATED AFTER LOOSENING THE BLACK KNOB, CHECK TO ASSURE THE LOWER LATCH IS ENGAGED IN THE STRIKE PLATE. THIS DOUBLE LATCH FEATURE PREVENTS THE TOWER FROM BEING ROTATED IF THE LATCH IS NOT ENGAGED.

SAFETY WARNING

VISUALLY INSPECT EQUIPMENT FOR DAMAGE BEFORE OPERATING. ALLOW ADEQUATE CLEARANCE AROUND TRAILER FOR TOWER AND INSURE THAT NO PERSONS ARE STANDING IN FRONT OF OR BEHIND UNIT WHEN LOWERING.

TO LOWER MAST AND LIGHTS

1. Turn off lights.
2. Release black knob and rotate tower until winch handle points to the front of the trailer and retighten knob.
3. Operate hand crank winch on tower counterclockwise to lower the lights to the lowest vertical position
4. Operate hand crank winch on side of trailer clockwise to take up any cable slack.
5. Turn the black knob counterclockwise and lift to release the latch from the strike plate. Retighten the knob with the latch disengaged from the strike plate.

NOTE: Sufficient load (75 lb. min) must be applied to the cable to overcome internal resistance and operate the brake properly. Insufficient load will not turn the reel thus continual turning without sufficient load will remove the winch handle from the shaft.

6. Operate the hand crank on the side of the trailer counterclockwise to fold the mast down into the towing position.

NOTE: Visually inspect the flood light mounting yokes for loose hardware. This could prevent a broken fixture during towing.

7. Secure light cords into hook on the rear tower support for towing.
8. Secure pin locking mast to rear tower support.
9. Remove ground rod from earth. Disconnect wire from ground lug and secure in trailer.
10. Raise jacks and rear stand, retract outriggers and secure for towing.

NOTE: Ensure the detent pins are properly engaged in the outriggers before towing.
**LUBRICATING OIL REQUIREMENTS**

**ENGINE OIL VISCOSITY GRADE – AMBIENT TEMPERATURE**

<table>
<thead>
<tr>
<th>Ambient Temperature</th>
<th>SAE 10W-30</th>
<th>SAE 15W-40, 20W-40</th>
</tr>
</thead>
<tbody>
<tr>
<td>-25°C (-13°F)</td>
<td>SAE 10W</td>
<td>SAE 15W-40, 20W-40</td>
</tr>
<tr>
<td>-20°C (-4°F)</td>
<td>SAE 20W</td>
<td></td>
</tr>
<tr>
<td>-15°C (5°F)</td>
<td>SAE 20W, 20W</td>
<td></td>
</tr>
<tr>
<td>0°C (32°F)</td>
<td>SAE 30</td>
<td></td>
</tr>
<tr>
<td>15°C (59°F)</td>
<td>SAE 40</td>
<td></td>
</tr>
<tr>
<td>25°C (77°F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30°C (86°F)</td>
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See the KUBOTA V2203 or V2003T Engine Operators Handbook or the ISUZU Engine Operators Handbook for further information on oil and fuel requirements.

**TOWING INSTRUCTIONS**

Before towing the MAXI-LITE the trailer should be inspected visually to insure that the following operations have been completed.

1. Hitch is securely attached to towing vehicle (safety chain secure).
2. All outriggers and jacks are retracted and secured.
3. Tower is lowered and the rear tower support pin is in place.
4. Light fixtures are positioned for transport.
5. Doors are closed and secure.
6. Check for adequate tire pressure.
7. Taillights are connected and operating (if equipped).
8. Ground rod is removed from ground and secured in the trailer.

**GROUND ROD INSTRUCTIONS**

1. Remove ground rod stowed inside the left door (attached to the lower frame).
2. Unroll the electrical wire lead from the ground rod.
3. Attach the ground rod lead to the grounding lug located near the ballast compartment.
4. Drive the ground rod a minimum of 2 1/2 FT into the earth for adequate electrical grounding. If this is not possible consult your local qualified electrician.
5. AFTER SHUTDOWN OF THE ENGINE: Remove the ground rod from the earth, remove the lead from the trailer ground lug, and store ground rod inside left door.
BEFORE STARTING
1. Fill the engine with the right grade of lubricating oil (see pg. 19) and to correct level (check dipstick).
2. Ensure there is an adequate supply of fuel.
3. Ensure that the air cleaner is firmly attached, the air canister seals and the hose clamps are properly sealed. Air cleaner element should be checked and replaced if necessary.
4. Install the ground rod.

DESCRIPTION OF OPERATION
By depressing the start assist switch, the fuel solenoid is energized. The solenoid plunger is drawn into the coil and activates the fuel control linkage to RUN position. When the engine starts, adequate engine oil pressure at the oil pressure switch will maintain the solenoid in the energized position. The start assist switch can be released as soon as the engine starts. A 10A inline fuse protects the solenoid from electrical damage.

LOW OIL PRESSURE SHUTOFF SYSTEM
Should a low oil pressure condition occur (less than 5 PSI), the pressure sending unit breaks the circuit between the battery and the fuel solenoid, allowing the spring load to immediately move the fuel control to the shutoff position.

HIGH COOLANT TEMPERATURE SHUTOFF SYSTEM
Should a high coolant temperature condition occur, the temperature sending unit breaks the circuit between the battery and the fuel solenoid, allowing the spring load to immediately move the fuel control to the shutoff position.

STARTING/STOPPING INSTRUCTIONS

STARTING THE KUBOTA AND ISUZU ENGINES
NOTE: The Kubota and the Isuzu engines includes a glow plug cold start system controlled by the ignition switch on the control panel. Glow plugs are not needed on a warm engine or if the ambient temperature is above 50 F. Do not use starting fluid or ether.

1. Turn the ignition switch to the PREHEAT position and hold until the glow plug lamp goes out.
2. Turn the ignition switch to the Start position until the engine starts. Release key as soon as the engine starts.
3. If engine fails to start it may be necessary to cycle the glow plugs again.

NOTE: To prevent equipment damage, DO NOT hold ignition switch for more than 10 seconds in the start position. If the engine does not start in 10 seconds, wait 30 seconds and try the start sequence again. Do not run the cell motor for more than 20 seconds continuously. Limit engine cranking to 3 attempts with a 2 minute cool-down between each. After 3 attempts allow to cool to ambient temperature.

STOPPING THE KUBOTA AND ISUZU ENGINES
1. Turn the ignition switch to the OFF position. This breaks the circuit between the battery and the fuel solenoid, allowing the spring load to immediately move the fuel control to the shutoff position.
2. Disconnect the ground rod.
SERIAL NUMBER LOCATION

**Trailer:** All MAXI-LITE ML 15/ML 20 models have a serial number plate located just below the rear tower support on the rear panel.

**Generator:** Plate attached to the side of the generator housing.

**Engine:** Plate attached to the engine.

- **KUBOTA V2203 and V2003:** Left side, between manifold and starter.
- **ISUZU 4LE1:** Upper right front corner behind injector pump

DESCRIPTION OF MODELS AND OPTIONS

The MAXI-LITE ML 15/ML 20 light tower uses four 1000 Watt Metal Halide lamps with the exclusive Allmand SHO lighting system to produce a total of 334,204 lumens (83,551 lumens per fixture). Optional reflective visors and 6-light units are available. The lights are mounted on either a manual winch or electric winch tower. The manual tower is operated by two hand crank winches. One winch, mounted on the trailer frame, erects the mast from the horizontal towing position to vertical. The second winch, mounted on the tower, extends the mast vertically to the desired height. The second tower is operated by a 120V electric winch located inside the trailer housing. The electric winch erects the mast from horizontal to vertical and by releasing a lock handle extends the mast vertically to the desired height. The tower power cords are available as either straight cord or a cord reel. Inside fixture storage is offered for the 4-light option.

The heavy duty trailer shell has 12 gauge doors and roof panels. The shell houses the 15" wheels and tires inside the side panels. The front panels are rust proof ABS plastic. The MAXI-LITE ML 15/ML 20 light tower is powered by either one of two Kubota water cooled diesel engines, the V2003T or the V2203, or an Isuzu water cooled 4LE1 diesel engine. Each engine mounts to either the 15KW or 20KW generator. The trailer houses a 50 gallon poly fuel tank and an optional sound attenuation package.
**SPECIFICATIONS**

**ELECTRICAL**
- Hard wired electrical circuits
- Easily serviceable componentized ballast assemblies.
- Ground rod.
- Hour meter.
- Voltmeter (optional)
- External 120V and 240V outlets (optional).

**FLOOD LIGHT ASSEMBLY**

Four or six 1000 watt lamp fixtures sealed for all weather use. Lamps can be either the SHO 1000 fixture, 1250 watt fixture or PowerLite fixture.

**SHO 1000 FIXTURE** - BT-37 lamp, Metal Halide, Laboratory rated life is 10,000 hours.
- Lumen rating: 110,000
- Warm-up time: 2-4 minutes
- Restart time: 10-15 minutes

**POWERLITE FIXTURE** - BT-56 1000 watt Multi-Vapor lamp, Metal Halide, Laboratory rated life is 12,000 hours.
- Lumen rating: 110,000
- Warm-up time: 2-4 minutes
- Restart time: 10-15 minutes

**POWERLITE FIXTURE** - E-25 1000 watt High Pressure Sodium lamp (often referred to as H.P.S), Laboratory rated life is 24,000 hours.
- Lumen rating: 140,000
- Warm-up time: 4-6 minutes
- Restart time: 1 minute

**NOTE**: A trailer equipped with Metal Halide lights and a trailer equipped with High Pressure Sodium lights use different ballasts and starters. Therefore, it is not advisable to interchange bulb types.

**MAST**

Three-section steel tube mast, which extends to 30 feet. The mast is extended with either two manual winches or one Dutton-Lainson electric winch. The assembly includes self-lubricating nylon guide rollers and 360° rotating light bar.

**TRAILER**

The complete generator is housed in a lockable enclosure with the frame fabricated from heavy gauge steel mounted on a two-wheel, leaf spring axle.
- The design enables the trailer to contain the outriggers in a simple compact position.

When the mast is in the operating position it is located in the middle of a four point outrigger system for optimum balance and stability. This system was engineered to allow the light plant to remain operational in sustained winds of 65 MPH with the mast extended to full height and the outriggers in position.
- The design includes an adjustable-height reversible hitch, which includes a 2” ball and pintle hook hitch.

**STABILIZERS**

Four (4) point outrigger design. with tower center mounted between two (2) retractable side outriggers, tongue and rear jack.
MAXI-LITE ML 15/ML 20 DIMENSIONS

Height lowered: 6'6" (1.98 m)
Height extended: 30' (9.14 m)
Length: 14'9" (4.49 m)
Width: 6'4" (1.92 m)
Outrigger width: 11'6" (3.5 m)
Trailer: Structural steel frame
          Leaf spring axle
Wheels & tires: 15"

However, if the running ambient temperatures are much higher than the starting temperatures, a compromise must be made and a higher viscosity oil used (provided starting is satisfactory). Multigrade oils overcome the problem, provided they have a suitable specification.

FUEL AND LUBRICATING OIL

The temperatures mentioned in the table are the ambient temperatures at the time the engine is started.

DOMESTIC SHIPPING WEIGHT

Fixtures: 15 lbs. ea. = 60 lbs.
Trailer with mast: 2,220 lbs. (1007 kg)
Total weight: 2,280 lbs. (1034.2 kg)
KUBOTA V2203 ENGINE
Kubota V2203, indirect injection 4 Cylinder

Displacement: 134.1 cu. (2.2 L)
Bore: 3.43 in. (87 mm)
Stroke: 3.64 in. (92.4 mm)
Power output: 31.2 @ 1800 rpm
Power output derating: 3.0% for every 1000 ft. altitude (305 m) above 360 ft.
Ambient temp: 1% per 10°F (5.6°C) above 77°F (25°C)
Fuel: Diesel
Starting: Glow plugs needed below 45 F. 12V electric
Oil sump capacity (excluding filter): 10 US qt. (9.5 L)

Low oil pressure shutdown, high engine temp. shutdown, and glow plug cold start assist are standard.

KUBOTA V2003T ENGINE
Kubota V2003T, indirect injection 4 Cylinder

Displacement: 121.9 cu. (1999cc)
Bore: 3.27 in. (83 mm)
Stroke: 3.64 in. (92.4 mm)
Power output: 36.1 @ 1800 rpm
Power output derating: 3.0% for every 1000 ft. altitude (305 m) above 360 ft.
Ambient temp: 1% per 10°F (5.6°C) above 77°F (25°C)
Fuel: Diesel
Starting: Glow plugs needed below 45 F. 12V electric
Oil sump capacity (excluding filter): Fill to correct level

Low oil pressure shutdown, high engine temp. shutdown, and glow plug cold start assist are standard.

ISUZU 4LE1 ENGINE
Isuzu 4LE1, Indirect injection 4 Cylinder

Displacement: 133 cu. in. (2179 cc)
Bore: 85 mm
Stroke: 96 mm
Power output: 3 9 BHP@ 1800 RPM
Power output derating: 3.5% for every 1000 ft. altitude (305 m) above sea level
Fuel: Diesel
Oil sump capacity: Fill to correct level
Starting: 12 volt electric
Air Inlet Temp: 1% per 10°F (5.6°C) above 77° F (25°C)

Low oil pressure shutdown, high engine temp. shutdown, and glow plug cold start assist are standard.
CONTROLS AND COMPONENTS

NOTE: COMPONENTS SHOWN ARE STANDARD. PICTURES MAY VARY WITH DIFFERENT OPTIONS.

FIGURE 1

1. Switch, Circuit Breaker (Lights 1 through 4)
2. Switch, Circuit Breaker (240V Receptacle)
3. Switch, Circuit Breaker (120V Receptacles)

FIGURE 2

4. Voltmeter (optional)
   Indicates charging circuit voltage
5. Hour Meter
   Shows total elapsed hours of engine operation.
6. Momentary Contact Switch (Electric Winch Model)
   Lift up to raise and extend the tower.
   Press down to lower and fold the tower.
7. Ignition ON/OFF Switch
8. Start Assist Switch
   Push to activate fuel solenoid and glow plug prior to and while depressing start switch.
9. Start Switch
   Push to start.
10. 1.5 AMP Circuit Breaker (Electric Winch Model)

FIGURE 2A

4A. Hour Meter
5A. Glow Plug Indicator
6A. Water Temp Indicator
7A. Charge Indicator
8A. Oil Pressure Indicator
9A. Start Switch
NOTE: COMPONENTS SHOWN ARE STANDARD. PICTURES MAY VARY WITH DIFFERENT OPTIONS.

FIG. 3 BALLAST PANEL
1. Ballast, Capacitors 1 through 4
2. Ballast, Transformers 1 through 4

FIG. 4 CONVENIENCE PANEL
1. 30 Amp Breakers
2. 15 Amp Breakers
3. 50 Amp Breaker
4. 70 or 100 Amp Breaker
5. 120/240 volt Receptacles
6. 110/120 Volt Outlet Receptacles (Ground fault)

SAFETY WARNING
FAILURE TO UNDERSTAND AND COMPLY WITH SAFETY RELATED INFORMATION AND INSTRUCTIONS MAY RESULT IN INJURY TO THE OPERATOR OR OTHERS. IF YOU DO NOT UNDERSTAND ANY PART OF THIS CONTACT YOUR DEALER FOR CLARIFICATION PRIOR TO OPERATING EQUIPMENT
NOTE: COMPONENTS SHOWN ARE STANDARD. PICTURES MAY VARY WITH DIFFERENT OPTIONS.

FIG. 5 GROUND ROD
1. Ground Rod

Ground rod should be attached to grounding lug with wire provided and ground rod and then driven fully into the earth for adequate electrical ground, as required by local, state, or national electrical code.

FIG. 6 ENGINE (Left Side)
1. Air Cleaner
2. Fuel Filter
3. Fuel Lift Pump
4. Fuse (10 Amp)
5. Oil Fill
6. Stop Solenoid
7. Oil Filter

FIG. 7 ENGINE (Right Side)
1. Fuel Return Line
2. Fuel Suction Line
3. Starter
4. Glow Plugs
NOTE: COMPONENTS SHOWN ARE STANDARD. PICTURES MAY VARY WITH DIFFERENT OPTIONS.

SAFETY WARNING
WHEN EXTENDING REAR JACK, WATCH TO INSURE YOU ARE CLEAR OF THE OVERHANGING ENDS OF THE MAST BEFORE YOU STAND UP.

FIG. 8 REAR JACK
1. Rear Jack

FIG. 9 OUTRIGGER JACK
1. Pin --Retains outrigger in retracted position for towing
2. Jack Pin--Pull to allow jack to rotate
3. Outrigger Jack
4. Jack Handle--Crank handle to raise and lower foot of jack to level trailer

FIG. 10 REAR TOWER SUPPORT
1. Pin--Locks tower into rear tower support
2. Rear Tower Support
NOTE: COMPONENTS SHOWN ARE STANDARD. PICTURES MAY VARY WITH DIFFERENT OPTIONS.

FIG. 11 TONGUE ASSEMBLY
1. Taillight Wiring Harness
2. Safety Tow Chains
3. Reversible Hitch (2” Ball and Hitch)

FIG. 12 FORKLIFT POCKETS
1. Forklift Pockets
2. Lifting Eye

FIG. 13 DOOR PROP
1. Door Prop—Locks Door Panel in Position
NOTE: COMPONENTS SHOWN ARE STANDARD. PICTURES MAY VARY WITH DIFFERENT OPTIONS.

FIG. 14 KICKOUT SPRING
1. Kickout Spring--Tilts mast off center when folding mast down.

FIG. 15 TOWER LOCKING BAR LATCH
1. Mast Locking Bar Latch --Locks mast in vertical position and allows tower to rotate.

NOTE: Tower must be positioned with the two black triangles on the tower assembly, near the mast handles, pointing at each other. Then the locking bar can be released from the strike plate allowing the tower to rotate toward horizontal towing position.

FIG. 16 MANUAL WINCH HANDLE
1. Winch Handle--Use to raise and fold mast.
NOTE: COMPONENTS SHOWN ARE STANDARD. PICTURES MAY VARY WITH DIFFERENT OPTIONS.

FIG. 17 TOWER CONTROLS
1. Manual Winch — Use to extend and lower mast.
2. Tower Winch Handle
3. Alignment Arrows — Must be aligned to unlock the tower.
4. Lock Knob — Locks tower in position.
5. Mast Handles — Use to rotate tower and lights.

FIG. 18 Cord Reel
1. Cord reel — Available on either Electric or Manual winch models

FIG. 19 LAMP CONNECTORS
1. Lamp Connector Lead — For quick connecting/disconnecting of the lamp fixtures
NOTE: COMPONENTS SHOWN ARE STANDARD. PICTURES MAY VARY WITH DIFFERENT OPTIONS.

FIG. 20 Electric Winch
1. Dutton-Lainson Strong Arm Winch—Used to raise and extend, lower and fold mast.
2. Slack Limit Switch—Shuts off winch when cable slack is sensed by sensor arm.

NOTE: See pages 10-11, Strong Arm Electric Winch Mast Operation, for correct operating procedures.

FIG. 21 Electric Mast
1. Mast Handle—Use to rotate mast.
2. Lock Handle—Pull to unlock tower sections when raising tower.
3. Lock Pin—Prevents accidental release of lock when rotating mast.
Check condition of the steel cable and make sure it is properly secured.

**LUBRICATION GREASE SPECIFICATIONS:**
N.G.L.I. consistency #2, high temperature anti-friction bearing lubricating grease.

Service intervals shown below have been established for operation under normal conditions. Where equipment is operated under severe conditions (very dusty, extreme heat or cold, etc.) affected items should be serviced more frequently.

<table>
<thead>
<tr>
<th>INTERVAL</th>
<th>ITEM</th>
<th>PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily or 10 Hr.</td>
<td>Fuel level</td>
<td>Check and fill as necessary</td>
</tr>
<tr>
<td></td>
<td>Lubricating oil</td>
<td>Check level and condition</td>
</tr>
<tr>
<td></td>
<td>Oil Pressure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Warning Lamp</td>
<td></td>
</tr>
<tr>
<td>50 Hr.</td>
<td>All 10 Hr. items</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td>Air Cleaner</td>
<td>Service as required. Service requirements may be accelerated</td>
</tr>
<tr>
<td></td>
<td>Engine Oil</td>
<td>Check engine oil and replace if necessary</td>
</tr>
<tr>
<td></td>
<td>Engine Generator assembly</td>
<td>Check for fuel and lubricating oil leaks</td>
</tr>
<tr>
<td>250 Hr.</td>
<td>All 50 Hr. items</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td>Engine oil system</td>
<td>Drain lubricating oil, flush out system, renew filter element and refill with correct grade and type oil</td>
</tr>
<tr>
<td></td>
<td>Coolant</td>
<td>Check level and condition</td>
</tr>
<tr>
<td>500 Hr.</td>
<td>All 250 hr. items</td>
<td>As Above</td>
</tr>
<tr>
<td></td>
<td>Fuel Filter</td>
<td>Replace with new</td>
</tr>
<tr>
<td></td>
<td>Oil Filter Element</td>
<td>Replace with new</td>
</tr>
<tr>
<td>750 Hr.</td>
<td>Engine oil system</td>
<td>Drain lubricating oil, flush out system, renew filter element and refill with correct grade and type oil</td>
</tr>
<tr>
<td></td>
<td>Fan belt</td>
<td>Check tension and condition</td>
</tr>
<tr>
<td></td>
<td>Radiator</td>
<td>Clean out fins with water or air</td>
</tr>
<tr>
<td>1000 hr. or yearly</td>
<td>All 750 Hr. items</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td>Engine Valves</td>
<td>Adjust clearance</td>
</tr>
<tr>
<td></td>
<td>Cable pulley at the bottom of the front mast support</td>
<td>Remove, clean, and grease</td>
</tr>
<tr>
<td></td>
<td>Cable pulleys on mast</td>
<td>Inspect for wear. Clean and lubricate</td>
</tr>
<tr>
<td></td>
<td>Axle wheel bearings</td>
<td>Clean and repack</td>
</tr>
<tr>
<td></td>
<td>Fuel System</td>
<td>Clean sediment from tank, replace filter element</td>
</tr>
</tbody>
</table>
Check condition of the steel cable and make sure it is properly secured.

**LUBRICATION GREASE SPECIFICATIONS:**
N.G.L.I. consistency #2, high temperature anti-friction bearing lubricating grease.

Service intervals shown below have been established for operation under normal conditions. Where equipment is operated under severe conditions (very dusty, extreme heat or cold, etc.) affected items should be serviced more frequently.

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<tr>
<th>INTERVAL</th>
<th>ITEM</th>
<th>PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily or 10 Hr.</td>
<td>Fuel level</td>
<td>Check and fill as necessary</td>
</tr>
<tr>
<td></td>
<td>Lubricating oil</td>
<td>Check level and condition</td>
</tr>
<tr>
<td>100 Hr.</td>
<td>All 10 Hr. items</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td>Air Cleaner</td>
<td>Service as required. Service requirements may be accelerated</td>
</tr>
<tr>
<td></td>
<td>Battery</td>
<td>Check level of electrolyte</td>
</tr>
<tr>
<td></td>
<td>Engine Generator assembly</td>
<td>Check for fuel and lubricating oil leaks</td>
</tr>
<tr>
<td>200 Hr.</td>
<td>All 100 Hr. items</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td>Engine lubricating oil system</td>
<td>Drain lubricating oil, flush out system, renew filter element and refill with correct grade and type oil</td>
</tr>
<tr>
<td>400 Hr.</td>
<td>Fuel Filter</td>
<td>Replace with new.</td>
</tr>
<tr>
<td>500 Hr.</td>
<td>All 200 Hr. items</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td>Fan belt</td>
<td>Check tension and condition</td>
</tr>
<tr>
<td></td>
<td>Radiator</td>
<td>Clean out fins with water or air</td>
</tr>
<tr>
<td>1000 hr. or yearly</td>
<td>All 500 Hr. Items</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td>Engine Valves</td>
<td>Adjust clearance</td>
</tr>
</tbody>
</table>
**SAFETY WARNING**

**DANGER!**

**HIGH VOLTAGE!** DO NOT ATTEMPT TO TEST AND REPAIR GENERATOR AND BALLAST ELECTRICAL SYSTEMS UNLESS YOU UNDERSTAND AND ARE QUALIFIED TO WORK ON SUCH SYSTEMS.

When one lamp does not light, **TURN OFF THE GENERATOR** and test the lamp by switching leads with a lamp that **DOES** light. **DO NOT WEAR JEWELRY WHILE WORKING WITH ELECTRICITY!** If the following procedures do not solve your problem, have the circuit tested by a licensed electrician. **DO NOT** attempt to test generator voltage or ballast electrical systems unless you are a qualified electrician. Consult the factory for voltage specifications and test procedures.

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE OR MORE LIGHTS DO NOT LIGHT UP.</td>
<td>1. Circuit breakers in the outlet box are not turned on or have tripped.</td>
</tr>
<tr>
<td></td>
<td>2. Lamps are not allowed time to cool after last being lit. You must allow 15 minutes between the time the lights are shut off and the time they are restarted.</td>
</tr>
<tr>
<td></td>
<td>3. The lamp or lamps are burned out or broken.</td>
</tr>
<tr>
<td></td>
<td>4. One or more of the lamps are not screwed in securely.</td>
</tr>
<tr>
<td></td>
<td>5. Plug and socket at light bar not securely pushed together and locked.</td>
</tr>
<tr>
<td></td>
<td>6. The temperature of the ballast is below –20 degrees F. The efficiency of the capacitors in the ballast is not enough to ignite the lamps. For operations where the temperatures of the ballasts falls below –20 degrees F. some means of warming the ballast must be used.</td>
</tr>
<tr>
<td></td>
<td>7. Low electrical system voltage.</td>
</tr>
<tr>
<td></td>
<td>8. A loose connection in the back of the lamp socket in the lamp holder.</td>
</tr>
<tr>
<td></td>
<td>9. A circuit breaker or breakers are defective.</td>
</tr>
<tr>
<td></td>
<td>10. A loose connection on the terminal board.</td>
</tr>
<tr>
<td></td>
<td>11. The engine and generator are not running up to speed (1800 RPM).</td>
</tr>
<tr>
<td></td>
<td>12. A wrong style replacement lamp (requiring a different ballast) has been installed.</td>
</tr>
<tr>
<td></td>
<td>13. Too much power is being drawn from the auxiliary outlets.</td>
</tr>
<tr>
<td></td>
<td>14. Capacitor or transformer have failed.</td>
</tr>
<tr>
<td></td>
<td>15. Corrosion has occurred on the lamp bases.</td>
</tr>
</tbody>
</table>