The MAXI-LITE ML EX Series requires 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.
- Check the hitch assembly and safety tow chains.
- Check the outriggers and jacks to make sure they operate properly.
- Inspect the light fixtures for visible 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!
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This manual provides the information necessary for the safe operation of the Allmand Bros., Inc., MAXI-LITE ML EX V-Series light tower.

The MAXI-LITE ML EX V-Series standard tower configuration is operated by means of a 12-Volt DC hydraulic pump operating a hydraulic cylinder to extend or 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 to insure correct ordering if replacing becomes necessary.
SAFETY AND WARNING DECALS

PART NO. 090158
Location: AC control panel

PART NO. 090166
Location: Inside left hand door panel

PART NO. 090163
Location: On left side wheel well

PART NO. 090165
Location: Inside left hand door panel

PART NO. 090084
Location: AC control panel

PART NO. 090162
Location: On left front enclosure panel

PART NO. 090133
Location: On left side panel below ground lug

PART NO. 090226
Location: Left front panel

PART NO. 090159
Location: On right hand wheel well

PART NO. 090034
Location: Adjacent to fuel tank filler neck

GROUNDING LUG 090133

DIESEL 090034
SAFETY AND WARNING DECALS

PART NO. 090002
Location: On light bar assembly.

PART NO. 090005
Location: Inside left door panel.

PART NO. 090160
Location: On trailer drawbar near reversible hitch assembly.

PART NO. 090179
Location: On fuel tank near filler neck.

PART NO. 100247
Location: Inside left door panel.

PART NO. 101057
Location: On fuel tank near filler neck.

PART NO. 090306
Location: On DC control panel.

PART NO. 090465
Location: Inside left door panel.
DESCRIPTION OF OPERATION

The Allmand MAXI-LITE EX V Series hydraulic lift tower assembly consists of a seven section telescoping mast which can be extended by operating a single hydraulic cylinder. The light bar assembly can be rotated into position by releasing the light bar park pin. To release the park pin, pull the ring and turn it 90 degrees so that the pin remains in the retracted position. The light bar is designed to rotate with enough resistance so that the bar will stay in the desired position once the operator has directed the lights on the work zone. If the light bar rotates too easily or does not stay in position, remove the light bar cover and tighten the nut to achieve the desired resistance and replace the light bar cover.

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.

TO SET UP TOWER AND RAISE LIGHTS

1. Extend the four side outrigger jacks and tongue jack to stabilize and level the trailer.

NOTE: Jacks should be placed only on firm footing.

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. Start engine. (NOTE: Tower may be raised and lowered as needed without engine running.)

4. While the tower is still in the down position, position the light bar and lamps so they are aimed at the work zone and tilted at the approximate angle to get maximum coverage once the tower is raised.

5. Stand clear of the tower when raising and lowering the lights.

SAFETY WARNING!

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.
HYDRAULIC LIFT VERTICAL MAST OPERATION

6. Operate the hydraulic lift switch to the “up” position to raise tower to the desired height.

7. If lights need to be adjusted for better lighting of the work zone after raising the tower, lower the tower using the “down” switch position and make desired adjustments to the light bar and light fixtures. Raise the tower into position. Repeat this step if necessary.

5. Reposition the lamp fixtures for transport by pulling them down into the lowest position and face the fixtures toward the center of the trailer.

6. Remove ground rod from earth. Disconnect wire from ground lug and secure in trailer.

7. Raise jacks and rear stand, retract outriggers and secure for towing.

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

SAFETY WARNING!

VISUALLY INSPECT EQUIPMENT FOR DAMAGE BEFORE OPERATING. ALLOW ADEQUATE CLEARANCE AROUND TRAILER FOR TOWER AND INSURE THAT NO PERSONS ARE STANDING IN UNDER THE LIGHTS WHEN LOWERING.

TO LOWER TOWER AND LIGHTS

1. Turn off lights.

2. Operate the hydraulic lift switch in the down position to lower the lights to the lowest vertical position. When tower reaches the bottom, run switch for three additional seconds to ensure that the tower is at it’s lowest possible position.

3. Stop engine.

4. Rotate the light bar into the transport park position (in line with trailer) and engage the park pin by twisting on the park pin ring until the plunger is released and the pin engages the hole in the light bar.
POWER UNIT INSTALLATION & START UP PROCEDURE

Fill the reservoir with automatic transmission fluid or any clean hydraulic fluid having a viscosity index that is suitable for the climatic conditions in which the unit will be operated. Recommended operating temperature range is +20° F to +180° F.

GENERAL START UP INSTRUCTIONS

NOTE: The ports are marked on the casting ‘UP’ and ‘DN’. When facing the power unit with the motor up, plug the right hand, or ‘DN’ port. Jog the motor until oil flows from the left hand, or ‘UP’ port. If oil does not flow from the ‘UP’ port, reverse the wire leads on the motor, and repeat. The pump is now primed. Connect the hose (or tubing) to the ‘UP’ port and tighten. Connect the other hose end to the blind end of a fully retracted hydraulic cylinder. With the hose fitting loose, operate the power unit until oil (and no air) bleeds from the fitting. Tighten the fitting. Refill the reservoir.

HYDRAULIC FLUID SPEC CHART

<table>
<thead>
<tr>
<th>Ambient Temperature</th>
<th>USE ATF Mercon V, Dexron III or equivalent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-30</td>
<td>-20</td>
</tr>
<tr>
<td>-22</td>
<td>-20</td>
</tr>
<tr>
<td>-14</td>
<td>-14</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>50</td>
<td>50</td>
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<tr>
<td>60</td>
<td>60</td>
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<tr>
<td>70</td>
<td>70</td>
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<td>80</td>
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<tr>
<td>94</td>
<td>94</td>
</tr>
<tr>
<td>104</td>
<td>104</td>
</tr>
<tr>
<td>120</td>
<td>120</td>
</tr>
</tbody>
</table>

Note: For extreme cold conditions, use MOBIL Aero HFA (VG10) or equivalent hydraulic fluid.
TOWING INSTRUCTIONS

Before towing the MAXI-LITE EX V-SERIES, 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 and brakes are adjusted and operating properly.
8. Ground rod is removed from earth 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.

LUBRICATING OIL REQUIREMENTS

ENGINE OIL VISCOSITY GRADE - AMBIENT TEMPERATURE
KUBOTA V-3300 and ISUZU 4LE DIESEL ENGINES

<table>
<thead>
<tr>
<th>Ambient Temperature</th>
<th>SAE 10W</th>
<th>SAE 20, 20W</th>
<th>SAE 5W-20</th>
<th>SAE 30</th>
<th>SAE 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>-25°C (-13°F)</td>
<td>SAE 10W</td>
<td>SAE 20, 20W</td>
<td>SAE 10W-30</td>
<td>SAE 15W-40</td>
<td>SAE 40</td>
</tr>
<tr>
<td>-15°C (-5°F)</td>
<td>SAE 20, 20W</td>
<td>SAE 10W</td>
<td>SAE 10W-30</td>
<td>SAE 15W-40</td>
<td>SAE 40</td>
</tr>
<tr>
<td>-5°C (25°F)</td>
<td>SAE 20, 20W</td>
<td>SAE 10W</td>
<td>SAE 10W-30</td>
<td>SAE 15W-40</td>
<td>SAE 40</td>
</tr>
<tr>
<td>0°C (32°F)</td>
<td>SAE 20, 20W</td>
<td>SAE 10W</td>
<td>SAE 10W-30</td>
<td>SAE 15W-40</td>
<td>SAE 40</td>
</tr>
<tr>
<td>15°C (59°F)</td>
<td>SAE 20, 20W</td>
<td>SAE 10W</td>
<td>SAE 10W-30</td>
<td>SAE 15W-40</td>
<td>SAE 40</td>
</tr>
<tr>
<td>25°C (77°F)</td>
<td>SAE 20, 20W</td>
<td>SAE 10W</td>
<td>SAE 10W-30</td>
<td>SAE 15W-40</td>
<td>SAE 40</td>
</tr>
<tr>
<td>30°C (86°F)</td>
<td>SAE 20, 20W</td>
<td>SAE 10W</td>
<td>SAE 10W-30</td>
<td>SAE 15W-40</td>
<td>SAE 40</td>
</tr>
</tbody>
</table>

See the KUBOTA or ISUZU Engine Operator’s Handbook for further information on oil, fuel, and maintenance requirements.
OPERATION AND SPECIFICATIONS

BEFORE STARTING

1. Fill the engine with the proper grade of lubricating oil (see pg. 11) and to correct level (check dipstick).
2. Ensure there is an adequate supply of clean fuel, per appropriate EPA standards.
3. Ensure that the air cleaner is firmly attached, and that the air canister seals and the hose clamps are properly sealed. If the restriction gauge indicates an obstructed air flow, the air cleaner element should be checked and replaced as necessary.
4. Install the ground rod.

DESCRIPTION OF OPERATION

By operating the start 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 switch should 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/KUBOTA AND ISUZU ENGINES

NOTE: The Kubota and Isuzu engines include a glow plug cold start assist system 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 power switch to the ON position. Depress the glow plug button for 3-5 seconds. NOTE: The glow plug indicator lamp remains lit for as long as the button is depressed, indicating that electrical power is being supplied to the glow plugs.
2. Push or rotate (as required) Start switch until the engine starts. Release switch 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 operate 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 starter for more than 20 seconds continuously. Limit engine cranking to 3 attempts with a 2 minute cooldown between each attempt. After 3 attempts allow starting system components to cool to ambient temperature.

STOPPING/KUBOTA AND ISUZU ENGINES

1. Turn the ignition power switch to the OFF position. This immediately breaks the circuit between the battery and the fuel solenoid, allowing the fuel control solenoid to move to the shutoff position.
2. Disconnect the ground rod, and stow within the trailer.
SERIAL NUMBER LOCATION

**Trailer:** All MAXI-LITE EX V-SERIES models have a serial number plate located adjacent to the right taillight on the rear panel.

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

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

- **KUBOTA V2203, V2003T and V3300:** Left side, between manifold and starter.
- **ISUZU 4LE1:** Upper right front corner behind injector pump.

DESCRIPTION OF MODELS AND OPTIONS

The standard MAXI-LITE ML20EX and ML30EX V-Series light towers use four 1250 watt Metal Halide lamps with the exclusive Allmand SHO-HD lighting system to produce a total of 600,000 lumens (150,000 lumens per fixture). Optional reflective visors are available. The lights are mounted on a seven-section telescoping mast, which is raised using a 12-Volt DC hydraulic power unit to actuate a hydraulic lift cylinder. The tower’s power cord is managed by a bi-directional cord reel to prevent tangling or stretching. Optional inside fixture storage is offered on four light models.

The heavy duty trailer assembly forms a fluid containment system, to minimize the environmental impact of a spill or leak. The doors and roof panels are formed from 12-gauge steel. A torsion-flex axle, with 15" load-range D tires and wheels, is equipped with electric brakes. The trailer enclosure has 12 gauge doors and roof panels. The front panels are reversible. The MAXI-LITE ML EX V-Series light towers are powered by either a Kubota V2203, V2003T or V3300, or Isuzu 4LE1 diesel engine mounted on a modular tray assembly. A 20kW (ML20EX) or 30kW (ML30EX) 3-Phase AC generator is mated to the engine. Diesel fuel for the engine is supplied by an integral 135-gallon (nominal) fuel tank.
ELECTRICAL

Hard wired electrical circuits
Easily serviceable componentized ballast assemblies.
Ground rod
Hour meter.
External 120V and 240V outlets and
3-Phase connection box

FLOOD LIGHT ASSEMBLY

Four 1250 watt lamp fixtures sealed for all weather use are standard. Optional configurations include 1000 watt metal halide or high-pressure-sodium (HPS) lamps in the Allmand SHO fixture. UL Listed Luminaires are available.

SHO 1250 FIXTURE - Exclusive Allmand 1250 Watt metal halide BT-37 size lamp with mogul mounting base.
Lumen rating: 150,000 initial lumens
Warm-up time: 2-4 minutes
Restart time: 10-15 minutes

NOTE: Metal Halide lights and High Pressure Sodium (HPS) lights use different ballasts and starters. Therefore, it is not advisable to interchange bulb types.

MAST

Seven-section formed steel tube mast, which can be extended to over 26 feet. The mast extends hydraulically and the mast assembly includes self-lubricating nylon wear guides. The light bar can be rotated nearly 360° for directional coverage.

TRAILER

The complete genset is housed within a lockable enclosure. The unitized frame/enclosure assembly is fabricated from heavy gauge steel, designed to contain fuel or oil spills, and is mounted on a two-wheel torsion-flex axle with electric brakes.

This design enables the trailer to compactly contain the four outriggers. The mast is centered near the middle of a five-point outrigger system for optimum balance and stability. This system was engineered to allow the light plant to remain operational in wind gusts of up to 75 MPH when the mast is extended to full operating height and the outriggers are properly deployed and set up; however, Allmand Bros. Inc. recommends that the tower be fully lowered if sustained winds over 65 MPH are expected.

The trailer drawbar design includes an adjustable-height reversible hitch that features a combination 2" ball and 3" pintle ring (lunette) hitch.

STABILIZERS

Five (5) point outrigger design (including drawbar jack) with tower centrally located.
**MAXI-LITE ML EX V-SERIES**

**DIMENSIONS**

- Height, Mast stowed: 101 in. (2.6 m)
- Height, Mast extended: 26’6” (8.1 m)
- Length: 11’1” (3.6 m)
- Width: 77.25 in. (1.96 m)
- Trailer: Structural steel frame
- Torsion-flex axle with electric brakes
- Wheels & Tires: Six-bolt, 15”-dia. Load Range D

**DOMESTIC SHIPPING WEIGHT**

- Fixtures: 17 lbs. (7.7 kg) (each)
- Trailer and Mast: 4,000 lbs. (1,800 kg) dry
- Total Weight: 4,800 lbs. (2,162 kg) with fuel

**KUBOTA V2203 ENGINE**

- Kubota V2203, indirect injection 4Cylinder
- 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

**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

**KUBOTA V3300 ENGINE**

- Kubota V2003, indirect injection 4Cylinder
- Displacement: 202.5 cu. (3.3 L)
- Bore: 3.86 in. (98 mm)
- Stroke: 4.33 in. (110 mm)
- Power output: 41 hp @ 1800 rpm

**ISUZU 4LE1 ENGINE**

- Isuzu 4LE1, Indirect injection 4 Cylinder
- Displacement: 133 cu. in. (2179 cc)
- Bore: 85 mm
- Stroke: 96 mm
- Power output: 33.9 BHP@ 1800 RPM

**FUEL AND LUBRICATING OIL**

The temperatures noted in the table on page 11 are the ambient temperatures at the time the engine is started. 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.
CONTROLS AND COMPONENTS

NOTE: PHOTOGRAPHS MAY SHOW NON-STANDARD EQUIPMENT AND OPTIONS

FIG. 1. CONTROL PANEL (KUBOTA)
1. Switch, Circuit Breaker (Lights 1 and 2)
2. Switch, Circuit Breaker (Lights 3 and 4)
3. Engine Control and Operation Panel
4. Hydraulic Pump Circuit Breaker
5. Tower UP/DOWN Switch

FIG. 1a. ENGINE CONTROL PANEL (ISUZU)
1. Ignition Switch
2. Glow Plug Indicator
3. Engine Fault Indicator Lights
   - Coolant temperature
   - Starting system
   - Oil pressure
4. Hour Meter

FIG. 2 BALLAST PANEL
1. Ballast Capacitors 1 through 4
2. Ballast Transformers 1 through 4
FIG. 3 CONVENIENCE OUTLET PANEL
Includes:
Main Breaker
Breakers and Switches
Outlets and Receptacles
(Content of this panel may vary depending on the specified configuration of the machine.)

FIG. 3a - 3-PHASE CONNECTION BOX
Three-phase load connection terminals are located inside this box.

SAFETY WARNING
HIGH VOLTAGE! Do not attempt to connect loads or test and repair generator and ballast electrical systems unless you understand and are qualified to work on such systems.
FIG. 4 ENGINE (Left Side)
Kubota V3300
1. Oil Filter
2. Radiator Fan
3. Lower Radiator Hose

FIG. 4a ENGINE (Right Side)
Kubota V3300
1. Air Cleaner
2. Muffler
3. Exhaust Manifold
4. Upper Radiator Hose
NOTE: PHOTOGRAPHS MAY SHOW NON-STANDARD EQUIPMENT AND OPTIONS

FIG. 5 ENGINE (Left Side)
Isuzu 4LE1
1. Air Cleaner
2. Radiator Shroud
3. Upper Radiator Hose

FIG. 5a ENGINE (Right Side)
Isuzu 4LE1
1. Air Cleaner
2. Muffler
3. Oil Dipstick
4. Upper Radiator Hose
NOTE: PHOTOGRAPHS MAY SHOW NON-STANDARD EQUIPMENT AND OPTIONS

FIG. 6 OUTRIGGER JACK
1. Pin --Retains outrigger in retracted position for towing
2. Jack Pin--Pull to allow jack to rotate

FIG. 6a OUTRIGGER JACK
3. Outrigger Jack
4. Jack Handle--Crank handle to raise and lower foot of jack to level trailer

FIG. 7 TONGUE ASSEMBLY
1. Taillight Wiring Harness
2. Safety Tow Chains
3. Reversible Hitch (2” Ball and 3” Pintle Ring [lunette] Assembly)
4. Levelling Jack
CONTROLS AND COMPONENTS

NOTE: PHOTOGRAPHS MAY SHOW NON-STANDARD EQUIPMENT AND OPTIONS

FIG. 8 LIFTING EYE
1. Lifting Eye

FIG. 8 FORKLIFT POCKETS
1. Forklift Pockets

FIG. 9 DOOR PROPS
1. Door Props--Holds door panels in open position.
CONTROLS AND COMPONENTS

NOTE: PHOTOGRAPHS MAY SHOW NON-STANDARD EQUIPMENT AND OPTIONS

Fig. 11. Hydraulic Bypass Valve

1. Bypass Valve
   Allows tower to be lowered manually in the event of a failure.

Fig 10. Step Plates

1. Step Plates
   Allows operator to safely adjust and aim the light fixtures before raising the tower.

Fig. 10. Step Plates

1. Step Plates
   Allows operator to safely adjust and aim the light fixtures before raising the tower.

Fig. 11. Hydraulic Bypass Valve

1. Bypass Valve
   Allows tower to be lowered manually in the event of a failure.
Fig 12. Hydraulic Power Unit Assembly

1. Hydraulic Pump
2. Bypass Valve
3. 12 VDC Enclosure  
   Houses 125A fuse and 100A solenoid

FIG. 13 Cord Reel
1. Cord reel — Manages the mast power cable and prevents tangling.
FIG. 14 Light Bar
1. Lamp Connector Lead—Allows lamp fixture power cable to be quickly and securely connected.

FIG. 15 Vertical Tower
1. Seven Section Vertical Tower
2. Light Mounting Locations—Mount lights here for use during operation
3. Light connector sockets—Attach light leads to light bar at these female receptacles
4. Cord Reel

FIG. 16 Light Bar and Mounting Locations
1. Light Bar
2. Light mounting locations—Mount lamp fixtures here for use
ROUTINE MAINTENANCE SCHEDULE

KUBOTA V2203, V2003T AND V3300

INSPECTION, MAINTENANCE, AND LUBRICATION SCHEDULE

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>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></td>
<td>Coolant</td>
<td>Check level and condition</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>
ISUZU 4LE1

**INSPECTION, MAINTENANCE, AND LUBRICATION SCHEDULE**

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><strong>DAILY OR 10 HOUR</strong></td>
<td><strong>Fuel Level</strong></td>
<td>Check and fill as necessary</td>
</tr>
<tr>
<td></td>
<td><strong>Lubricating Oil</strong></td>
<td>Check level and condition</td>
</tr>
<tr>
<td></td>
<td><strong>Oil Pressure Warning Lamp</strong></td>
<td></td>
</tr>
<tr>
<td><strong>50 HOUR</strong></td>
<td><strong>All 10 Hour Items</strong></td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td><strong>Air Cleaner</strong></td>
<td>Service as required. Service requirements may be accelerated</td>
</tr>
<tr>
<td></td>
<td><strong>Engine Oil</strong></td>
<td>Check engine oil and replace if necessary</td>
</tr>
<tr>
<td></td>
<td><strong>Engine Generator Assembly</strong></td>
<td>Check for fuel and lubricating oil leaks</td>
</tr>
<tr>
<td><strong>250 Hour</strong></td>
<td><strong>All 50 Hour Items</strong></td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td><strong>Engine Oil System</strong></td>
<td>Drain lubricating oil, flush out system, renew filter element and refill with correct grade and type of oil.</td>
</tr>
<tr>
<td></td>
<td><strong>Coolant</strong></td>
<td>Check level and condition</td>
</tr>
<tr>
<td><strong>500 Hour</strong></td>
<td><strong>All 250 Hour Items</strong></td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td><strong>Fuel Filter</strong></td>
<td>Replace with new</td>
</tr>
<tr>
<td></td>
<td><strong>Oil Filter Element</strong></td>
<td>Replace with new</td>
</tr>
<tr>
<td><strong>750 Hour</strong></td>
<td><strong>Engine Oil System</strong></td>
<td>Drain lubricating oil, flush out system, renew filter element and refill with correct grade and type of oil.</td>
</tr>
<tr>
<td></td>
<td><strong>Fan Belt</strong></td>
<td>Check tension and condition</td>
</tr>
<tr>
<td></td>
<td><strong>Radiator</strong></td>
<td>Clean out fins with water or air</td>
</tr>
<tr>
<td><strong>1000 Hour or Yearly</strong></td>
<td><strong>All 750 Hour Items</strong></td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td><strong>Engine Valves</strong></td>
<td>Adjust Clearance</td>
</tr>
<tr>
<td></td>
<td><strong>Check brake operation and brake shoe condition.</strong></td>
<td>Repair or replace as necessary</td>
</tr>
<tr>
<td></td>
<td><strong>Cable pulleys on mast</strong></td>
<td>Inspect for wear. Clean and lubricate</td>
</tr>
<tr>
<td></td>
<td><strong>Axle Wheel Bearings</strong></td>
<td>Clean and repack</td>
</tr>
<tr>
<td></td>
<td><strong>Fuel System</strong></td>
<td>Clean sediment from tank, replace filter element</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. If 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 operation where the temperature of the ballasts falls below -20 degrees F, some means of warming the ballasts 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 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 at the circuit board.</td>
</tr>
<tr>
<td></td>
<td>11. The engine and generator are not running up to speed (1500 RPM)</td>
</tr>
<tr>
<td></td>
<td>12. An incorrect 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>