TEREX –AMIDA

MODEL AL4000 SPECIFICATIONS

AL4000 LIGHT TOWER

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TEREX-AMIDA MODEL AL4000
AL4000 LIGHT TOWER
SPECIFICATIONS

Terex-Amida's AL4000 Light Tower has been engineered to meet the specific needs of the construction industry and is particularly popular with rental dealers. A full-sized, 30' (9.14m) extended height floodlighting tower that is easy to move by hand, the AL4000 produces enough light to illuminate 7-1/2 acres. The AL4000 is built to exacting standards of safety and structural integrity and can take the punishment, regardless of job or climactic conditions. Besides being simple, available, and cost effective, **The AL4000 is Americas Most Economical Full-Sized Mobile Light Tower.**

DIMENSIONS:

Overall length, travel position w/fixtures and tongue	**179" (455cm)**
Overall length, tower vertical w/tongue and jacks	**124" (315cm)**
Trailer frame length	**70" (178cm)**
Overall height, floodlighting position	**30' (9.14m)**
Overall height, travel position	**68" (173cm)**
Overall width with fenders	**61" (155cm)**
Overall width with outriggers pulled out	**102" (259cm)**
Trailer frame width	**41" (104cm)**
Tongue length	**44" (112cm)**
Wheel size	**15" (38cm)**
Axle rating	**3500 lbs. (1588kg)**
Tongue weight, travel position	**100 lbs. (45kg)**
Total weight, no fuel	**2050 lbs. (930kg)**
Fuel capacity	**30 gal. (114 l)**

*Also see AL4Specs.dwg for dimensions.

TRAILER FRAME CONSTRUCTION:

The trailer frame is made from 2-1/2" square steel tubing and 3" steel channel. The trailer frame is open to allow cooling air to rise within the unit to cool the ballast, engine and generator. The tower support is welded to the front of the trailer frame and is made from 7-gauge (.1793") steel.

Two outriggers extend from the rear of the trailer frame creating a side to side stance of 102" (2590mm). Each outrigger has a 3000 lbs. (1360kg) leveling jack attached that swivels up for travel. An additional 3000 lbs. (1360kg) jack is located on the tongue. The outriggers are made from 2" square steel tubing with a ¼" wall thickness. Spring-loaded lock pins locate the outriggers in the proper position for maximum wind stability. The outriggers are hot dip galvanized after fabrication to resist corrosion.

The tongue extends 44" (1118mm) from the trailer frame and is made from 3" square steel tubing with 3/16" wall thickness. The tongue is removable for storage or shipping purposes but will be bolted into the proper position when shipped from the factory unless the units are crated or racked. The standard towing hitch is a 2" (50.8mm) ball coupler with an 18" (457mm) towing height. The following couplers can be easily bolted to the tongue as options:

1. 2-1/2" (63.5mm) pintle ring.
2. 3" (76.2mm) pintle ring.
3. Combination 2" (500mm) ball and 2-1/2" (63.5mm) pintle ring.
4. Adjustable height 2-1/2" (63.5mm) pintle ring.
5. Adjustable height 3" (76.2mm) pintle ring.

NOTE:
Adjustable height hitches are adjustable from 16" (406mm) to 36" (914mm) in approximately 2" (50.8mm) increments.

Two ¼" safety chains rated at 1750 lbs. (795kg) each are included with all hitches.

The axle is rated at 3500 lbs. (1588kg) with two springs made up of four leaves and rated at 1750 lbs. (795kg) each. The axle hubs are rated for highway speed and are five bolts on a 4-1/2" bolt circle. The wheels are 15" (381mm) automotive types with blackwall tubeless tires load range "B". The fenders are rolled and made from 16-gauge (.0598") steel.

The jacks are rated at 3000 (1362kg) and are swivel type with spring loaded plunger "L" shaped pins and side-wind handles. The gearbox cover is made of 16-gauge (.0598") steel and the jacks are zinc plated.

When the trailer is level, both outriggers extended and all three jacks on firm ground, the light tower will withstand wind gusts up to 62 mph with the 4 light fixtures (MH, MV, HPS) facing into the wind at an elevation of 30' (9.2m). Two additional outriggers added to the front of the trailer frame would allow the tower to withstand wind gusts up to 78 mph.

CABLE TOWER:

The tower is attached to a pivot post that is mounted to the front of the trailer frame. The tower pivots on a 1" diameter plated steel pin. A zinc plated spring loaded, locking pin automatically locks the tower in the vertical position.

The tower is constructed of the following four welded steel tube assemblies:

1. A 6" (152.4mm) round tube encloses the bottom of the tower sections and has a 3/16" wall thickness.

2. A 4" (101.6mm) square tube makes up the bottom section of the tower and has a 3/16" wall thickness.

3. A 3" (79.2mm) square tube makes up the middle section of the tower and has a 1/8" wall thickness.

4. A 2" (50.8mm) square tube makes up the top section of the tower and has a 3/16" wall thickness.

NOTE:
All square tower sections are hot dip galvanized after fabrication.

Each tower section has a self-lubricating plastic guide riveted to the top contact point to enhance the telescoping of the tower sections.

The tower sections rest on a self lubricating plastic bushing located in the bottom of the 6" (152.4mm) round tube. Another self-lubricated plastic bushing is fitted around the top of the 6" (152.4mm) round tube. These two bushings permit the tower sections, with the fixtures attached and at operating height, to be rotated 360 degrees by hand with ease. A "Tee" bolt is provided to lock the tower at any chosen rotated angle. This is a simple and reliable manual rotation which can be done while standing on the ground. A mechanical stop is used to prevent the tower from pivoting in the horizontal position if the tower is not rotated to the proper travel position. The tower sections are held together in the travel position

by a spring loaded telescoping lock pin. The tower sections are locked into the rear tower support for travel by a hand inserted lock pin. A molded rubber bumper supports the tower, in the tower support, during travel to cushion the tower and the light fixtures.

The tower is equipped with forklift pockets and fixture storage brackets to facilitate loading/unloading and travel, respectively. The forklift pockets are located on the underside of the 4" section and can be used in conjunction with safety chains (provided by others) to load and unload the unit from the side. The fixture storage brackets are mounted on the upper side of the 4" section and allow the fixtures to be removed from the crossarm and stored on the tower during travel. This allows greater stability for the fixtures and facilitates more stable towing.

WINCH AND CABLE:

A single hand operated safety winch is provided to pivot and telescope the tower. The winch is mounted inside the generator enclosure (cabinet) to protect it from dirt, environmental conditions, and physical abuse. The winch is rated at 1500 lbs. single line pull with a gear ratio of 5.1:1. A safety brake clutch mechanism retains the load during raising and lowering of the tower so freewheeling cannot develop. The winch is zinc plated throughout and has a drum diameter of 2-1/2" (63.5mm) to prevent excessive cable bending stress.

The cable sheaves are machined from engineering grade cast nylon and are mounted with stainless steel clevis pins. The sheave mount plates are welded to the tower sections before galvanizing. The tower cables are 7x19 galvanized steel construction with a breaking strength of 4600 lb (2608 kg) for the 3/16" diameter, and 7800 lb (3537 kg) for the 1/4" diameter. The cables are internally lubricated. Strength and durability exceed normal commercial standards, and equal the demanding U.S. Military Standard MIL-W-83420E-T1 Comp.A.

A 12-volt electric winch is available as an option.

CROSSARM:

The crossarm is made of 2" (50.8mm) x 4" (104.6mm) x 11 gauge (.1196") rectangular steel tubing and is hot dip galvanized after fabrication. The crossarm is easily removable for storage.

GENERATOR ENCLOSURE:

The generator enclosure is made of 14 gauge (.0747") steel and is reinforced with rectangular steel tubing to support the tower in the travel position. The generator enclosure is of a bolt together design and attached to the trailer frame with two ½" bolts at the rear, four ¼" bolts at the fenders, and two 3/8" bolts at the front to allow for easy removal of enclosure for major repair work to the engine or generator. The rear of the enclosure is vented to permit airflow inside the enclosure to keep the engine, generator, and ballast at an adequate operating temperature. The doors are made of 12 gauge (.1046") steel and are sloped in design. The doors open upward allowing operators greater access to the equipment than provided by the more conventional vertical design doors. The doors are equipped with gas-charged shock absorbers to provide smooth, dependable operation and to hold the doors firmly in the open position.

A hasp and keeper are provided on each door to allow padlocks to be used to secure the equipment.

GENERATOR SET:

A 6.0 kW water-cooled diesel generator set is provided as the standard unit. The engine is a water-cooled 10.5hp, 3 cylinder diesel closely governed at 1800rpm. The engine has a heavy-duty cyclo-pak type air cleaner suitable for dusty environments. It is equipped with high temperature and low oil pressure shutdowns, 12-volt non-resetable hourmeter, and paddle switch operated electric starter. The generator is a single bearing design directly coupled to the engine. The generator is a totally brushless, revolving field generator with class F insulation. It is rated at 120/240-volt single phase 60Hz. The generator set is mounted to the trailer frame on rubber vibration mounts with through bolts to restrain the generator set when traveling over rough terrain. The generator set is exceptionally quiet and vibration free when in operation, and is rated at 6.0 kW at 40 degrees Celsius ambient with 105 degrees Celsius rise at unity power factor. It is capable of operating four 1000 Watt metal halide floodlights at an altitude of up to 5000 feet above sea level.

A 6.0 kW air-cooled diesel generator set is provided as an option. The engine is an air cooled 12.1hp, 3 cylinder diesel closely governed at 1800rpm. The engine has a heavy-duty cyclo-pak air cleaner suitable for dusty environments. It is equipped with high temperature and low oil pressure shutdowns, 12-volt non-resetable hourmeter, and paddle switch operated electric starter. The generator is a single bearing design directly coupled to the engine. The generator is a totally brushless, revolving field generator with class F insulation. It is rated at 120/240-volt single phase 60Hz. The generator set is mounted to the trailer frame on rubber vibration mounts with through bolts to restrain the generator set when traveling over rough terrain. The generator set is quiet and vibration free when in

operation, and is rated 6.0 kW at 40 degrees Celsius ambient with 105 degrees Celsius rise at unity power factor. It is capable of operating four 1000 Watt metal halide floodlights at an altitude of up to 5000 feet above sea level.

FUEL SYSTEM:

A 30-gallon polyethylene fuel tank is mounted beneath the generator set on the trailer frame. The fuel tank is rotationally molded of cross-link polyethylene. The fuel level indicator is built into the fuel cap. The pick-up tube has a strainer built into the tip to help protect the fuel pump and is easily removable to allow cleaning of the strainer when necessary. The fuel tank has a drain plug in the bottom. A fuel water separator can be provided as an option when requested by the customer.

FLOODLIGHTS:

The following Floodlights are available for installation:

1. Metal halide (MH), 1000 watt, 110,000 initial lumens light output, 88,000 mean lumens light output, 10,000 hours rated average life (stationary mounting). The metal halide lamp is a bright white light that gives good color rendition and is the best all around floodlight. Lamp restrike can take up to 20 minutes.

2. High pressure sodium (HPS), 1000 watt, 140,000 initial lumens light output, 126,000 mean lumens light output, 24,000 hours rated average life (stationary mounting). High-pressure sodium is a soft orange light that is low in glare. It is good in dark environments such as coalmines and airports where low glare is very desirable. It has a fast restrike time so is more suitable when lights are to be turned off and on frequently. Poor color rendition results in poor visibility in normal environments.

3. Mercury vapor (MV), 1000 watt, 63,000 initial lumens light output, 48,500 mean lumens light output, 24,000 hours rated average life (stationary mounting). Lamps not as bright as metal halide, but similar in color. Good vibration resistance and fast restrike time.

4. Tungsten halogen (TH), 1500 watt, 35,800 initial lumens light output, 34,730 mean lumens light output, 2,000 hours rated average life (stationary mounting). Lowest initial cost, but takes more power to operate. Natural daylight color gives good color rendition. Instant on makes it the best choice for emergency lighting. Good in snow covered areas where little light output is needed.

The lamps are mounted in either a high intensity discharge fixture or a tungsten halogen fixture as requested.

1. The high intensity discharge fixture is suitable for up to 1000 Watt MH, HPS, or MV lamps of. The fixture has a rugged cast aluminum base and a high efficiency spun aluminum reflector. The lens is made of tempered glass for thermal and impact shock resistance to protect the lamp. A silicone gasket provides dust and moisture protection. The beam spread for MH and MV is 45 degrees vertical and horizontal and for HPS is 79 degrees vertical and horizontal. A spring support grips the end of the bulb and supports it from shock encountered during travel. The fixture trunion is made from heavy duty galvanized steel.

2. The tungsten halogen fixture is suitable for 1500 watt tungsten halogen lamps. The fixture is made of rugged cast aluminum housing with deep convection fins over the full back of the fixture. The trunion mount is fabricated from aluminum flat bar. The lens is made from high temperature tempered glass. The beam spread is 14 degrees vertical and 128 degrees horizontal.

The fixtures plug into weatherproof receptacle box located at the top of the tower. The fixture plugs are military type weatherproof circular connectors. The receptacle box at the top of the tower has caps that cover the receptacles when not in use to keep moisture and insects out. The coiled power cord is fastened to the receptacle box and stores into a protective sleeve when the tower is in the travel position.

The tower is equipped with fixture storage brackets, which allow the fixtures to be removed from the crossarm during travel, and stored on the tower. This provides added stability for the fixtures and lamps when moving the unit.

BALLAST:

The ballast are rated for 1000 watts and are the constant voltage autotransformer design with a separate ballast for each lamp. Each ballast is mounted in its own galvanized steel enclosure. The ballast boxes are mounted directly to the trailer frame with an air gap between each box for adequate convection cooling. The ballast are connected to the control box with military type weatherproof circular connectors so that individual ballast can be replaced without disconnecting wiring terminals.

CONTROL BOX:

The control box is located inside the generator enclosure and is made from 16-gauge galvanized steel. The control box contains all the DC engine controls and AC power controls and receptacles. The control box contains the following:

1. Main circuit breaker, 30 amp.
2. One 240-volt, 30 amp NEMA L6-30R twist-lock receptacle (protected by the main breaker).
3. Two ground fault protected, 120-volt, 15 amp NEMA 5-15R receptacles (protected by a 20 amp circuit breaker).
4. Toggle switch circuit breakers to protect and control each MH, MV, or HPS floodlight or each pair of TH floodlights.
5. Hourmeter, 12-volt.
6. Ignition switch.
7. Engine preheat pushbutton.
8. Alternator failure light.
9. Engine shutdown interface relay (12 VDC).

GROUND ROD:

A 5/8" galvanized ground rod is provided for grounding the generator when an extra measure of safety is desired.

BATTERY:

A 12-volt group 24 battery with a minimum of 440cca at zero degrees fahrenheit and a reserve capacity of 75 minutes at 80 degrees fahrenheit is standard. A heavy-duty battery with a minimum of 610cca at zero degrees fahrenheit and a reserve capacity of 120 minutes at 80 degrees fahrenheit is also available as an option.

PAINTING:

All parts (not electroplated or hot dip galvanized) are finished as follows:

1. Clean with detergent to remove all oils.
2. Rinse with cold water.
3. Phosphatize with iron phosphate in a hot dip tank.
4. Rinse with cold water.
5. Rinse with hot neutralizing chemical rinse.
6. Air-dry and inspect.
7. Paint with one coat heavy-duty long life Terex-Amida white polyester powder coat.
8. Bake at 350 degrees fahrenheit for 17 minutes.

The painting process will withstand a 250-hour salt spray test in accordance with ASTM B117-62.

OPERATING SERVICE MANUAL:

One operation and service manual will be furnished for each unit shipped. The manual will include the following:

1. Safety precautions.
2. Checklist for checkout on receipt of unit.
3. Operating procedures.
4. Parts list drawings with part numbers for replacement parts.
5. Wiring diagrams.
6. Disassembly and reassembly procedures for the tower.
7. Troubleshooting guide with symptoms, causes and corrective action.
8. Manuals supplied by vendors including an engine manual and generator manual. **A complete engine workshop manual can be ordered as a separate item if desired.**
9. A statement of manufacture's warranty.