carmanah®

WIND CONE SYSTEM

SOLAR LIGHT AND ENGINE POWER SUPPLY

CARMANAH SOLAR LED WIND CONE SYSTEMS PROVIDE A COST-EFFECTIVE, LOW-MAINTENANCE SOLUTION FOR IMPROVING SAFETY AT TEMPORARY, PERMANENT AND EMEGENCY AIRPORTS AND HELIPORTS.

- Internally lit windcone available in L-806 or L-807 designs and powered by a robust Solar Engine Power Supply (SEPS)
- Sealed bearings for precision vaning and true wind direction in all types of weather and wind conditions. Additional bearing covers provided for protection agains dirt and moisture.
- Water-repellent and color-fast nylon sock is resistant to rot and mildew. Available in standard orange with custom colors available on special request.
- Easy installation and re-location: no specialized work crews required. Limited air traffic disruption and functions immediately upon installation
- Optional hand-held wireless control allows for remote operation including mode changes for enhanced visibility in poor weather conditions
- Engineered for reliable performance: Energy Management System (EMS) monitors and adapts the brightness to environmental conditions for consistent operation and long life under the toughest conditions
- Minimum autonomy (operation without solar charging) 7-days. Scalable to meet requirements up to 40 days.
- Battery daily depth of discharge is sized for a minimum of 5 years of service
- Clean, renewable energy source with the lightest environmental footprint

Compliance with Standards

FAA: Designed to meet L-806(L) and L-807(L) AC 150/5345-27 (Current Edition).

CE: Complies with the requirements of the EMC Directive 2004/108/EC

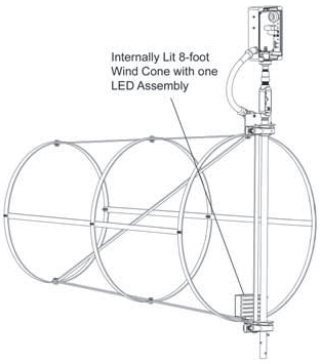
ICAO: Please inquire about ICAO compliant options

Models Available

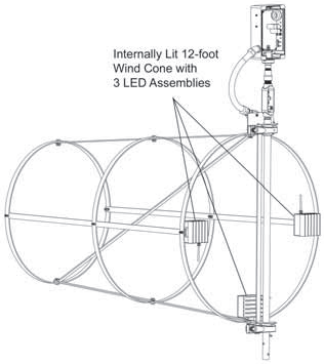
Type	Description
L-806	Low-mass, frangible-designed wind-cone. Eight-foot wind sock, internally lit.
L-807	Non-frangible wind cone. Available with eight- or twelve-foot wind sock, internally lit. 12-foot pole is available with a center hinge or a bottom hinge with swing-out support leg.

Lighting Assembly - LED

The Carmanah wind cone can provide an average illumination on the top and lateral surface of a fully extended windsock of 10- to 30-ft lamberts. The 8-foot wind-cone uses one LED optical assembly and the 12-ft wind cone uses three LED optical assemblies.



8-foot internally lit wind cone has one LED assembly



12-foot internally lit wind cone has three LED assemblies

Operating Conditions

Temperature: -40 °F to +131 °F (-40 °C to +55 °C)
Humidity: 0 to 100%
Wind: Withstands wind velocities up to 300 mph (480 kph)

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Equipment Data

Solar Engine Power Supply (SEPS)	
Installed weight	132 lb (59.8 kg)
Shipping weight	Box 1 (SEPS) - 76 lb (34.4 kg) Box 2 (battery) - 68 lb (30.8 kg)
Installed dimensions*	29.9 H x 42.9 W x 17.4 D in (75.9 H x 108.9 W x 44.1 D cm) * with wireless antenna at 55° tilt
Shipping dimensions	
Box 1 (SEPS) Box 2 (battery)	25.5 H x 46.9 W x 14.0 D in (64.7 H x 119.1 W x 35.56 D cm) 8.3 H x 13.1 W x 7.4 D in (21 H x 33.2 W x 18.8 D cm)
Temperature	
Operating: Storage:	-22 °F to +122 °F (-30 °C to +50 °C) -40 °F to +176 °F (-40 °C to +80 °C)
Chassis	Weather and corrosion-resistant construction of stainless steel and powder coated aluminum
Mounting	Frangible couplings and floor flange mounts
Wind loading	300 mph min. installed at 55° tilt
Tilt	15°, 35°, 55°
Diagnostics	On-board feedback indicators for: Battery Status, System Status, Battery Reverse Polarity, and Solar Panel Reverse Polarity
Certifications	RoHS, WEEE, CE, FCC
Battery	
Power	12 VDC 105 A-hr at C/100 discharge rate
Type	Replaceable and recyclable, absorbent glass mat (AGM) SLA. Standard with one battery.
Charger	Temperature-compensated, maximum power point tracking (TC-MPPT)
LED Driver	
Power	18 – 38 VDC from 0.3 – 1.4 A and 5 – 100 % duty cycle, constant current
Automatic Light Control (ALC)	ALC dynamically reduces brightness in response to unusually low amounts of sunlight to ensure continued autonomous operation.
Control, Autonomous Mode	Dusk-to-dawn, steady on
Load Cabling	22 ft (6.7 m) cable can exit onto the surface or down into a ground pot
PV Panel	
Power	95 W
Type	High Efficiency Monocrystalline, IEC 61215
Lifetime	10 years at 90% output

Wireless (Optional)	
Range	2.5 miles (4km) minimum with 1W wireless hand-held controller
Frequency	900 MHz ISM Band, FHSS
Encryption	256-bit AES
Control, On-demand Mode	- Seamless integration with existing wireless solar products. - Up to 8 independent groups. - Flash Mode, Emergency Mode, Autonomous Mode - On-demand Temporary Mode (High, Medium, and Low) - Configuration Mode, ARCAL

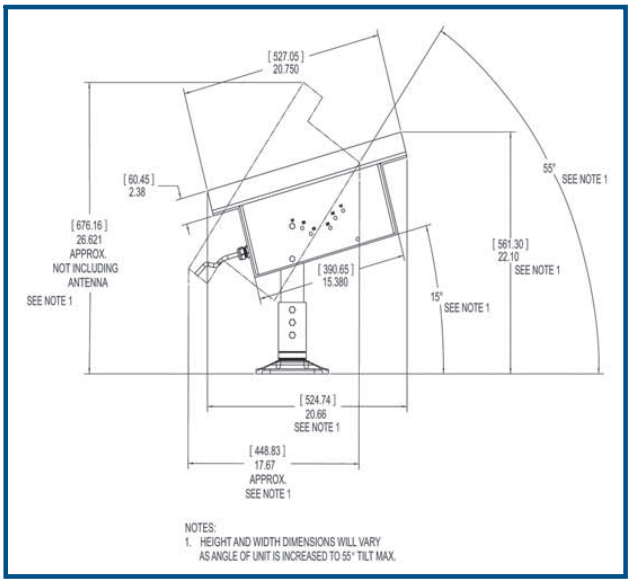


Fig. 1. SEPS Dimensions

Installation

The Wind Cone should be installed according to FAA AC 150/5340-30.

The Solar Engine Power Supply (SEPS) should be installed on a level concrete pad within 20 feet of the SWC. For a temporary application, the wiring between the SEPS and the Wind Cone can be above ground. Both the Wind Cone and the SEPS contain side conduits for cabling access.

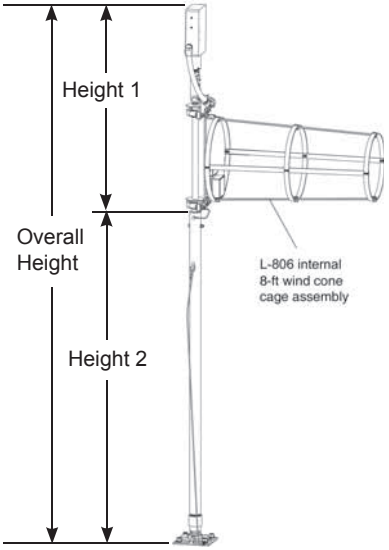
Operation

The operation of the wind cone is entirely dependent on the direction and relative velocity of the surface wind. Movement of the wind through the open throat of the cage and into the sock causes the tail to inflate. The tail of the inflated sock indicates true wind direction for velocities as low as three knots through a 360° circle about the vertical shaft.

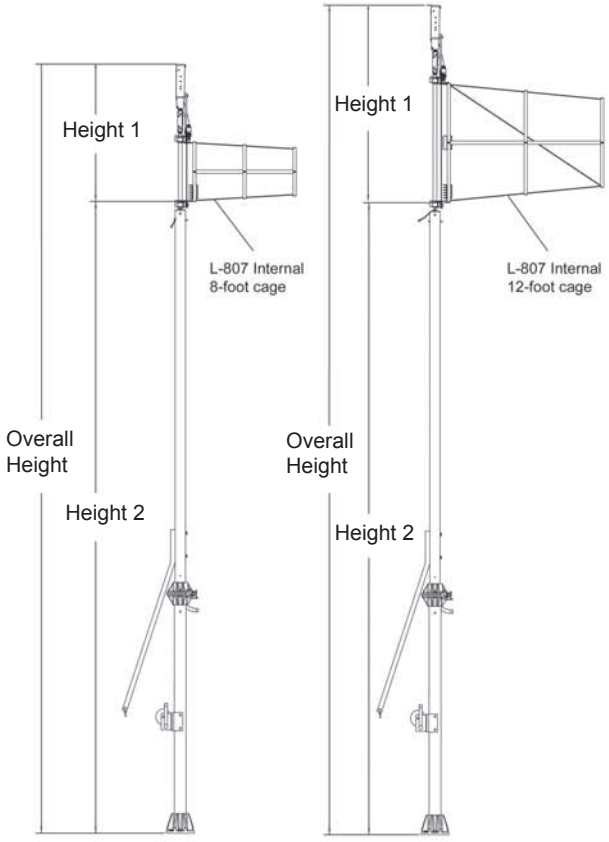
Dimensions - Internally Lighted

Wind Cone Type	Overall Height	Height 1	Height 2
L-806 LED Internal	116.3 in (295.4 cm)	44.3 in (112.5 cm)	72 in (182.9 cm)
L-807 LED 8 ft Internal	233.9 in (622.8 cm)	41.9 in (135.1 cm)	192 in (487.7 cm)
L-807 LED 12 ft Internal	252.1 in (669.0 cm)	60.1 in (181.4 cm)	192 in (487.7 cm)

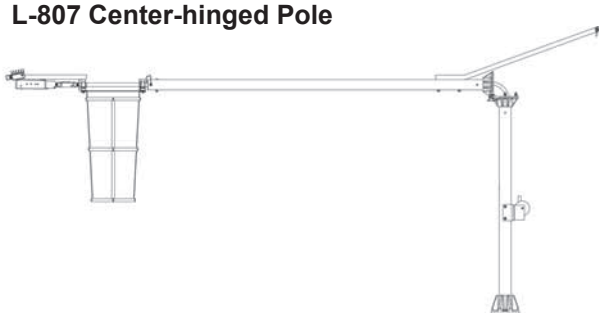
L-806 Dimensions



L-807 Dimensions



L-807 Center-hinged Pole



Document:AVIA_Wind_Cone Spec Sheet_RevA
D-036 RevA