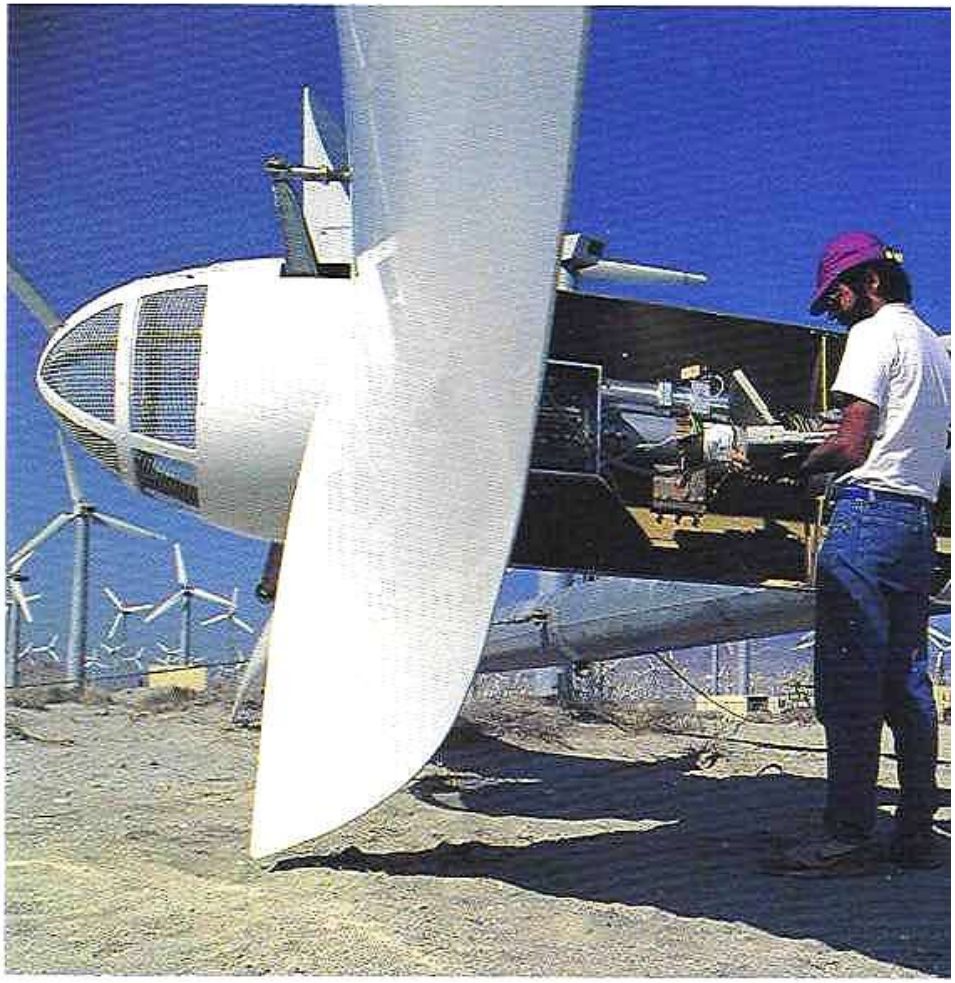
Cannon's Wind Eagle 300 is a lightweight downwind turbine designed for utility electricity production. The objective for the future of wind energy is to compete directly with other conventional sources of energy. The Wind Eagle 300 is designed to meet that challenge. It combines proven aeronautical, mechanical and electronic designs with a cost efficient manufacturing process. The result is a turbine which yields power at costs well below those of competing wind turbines.

The key to the concept is the lightweight, downwind design approach which incorporates aerospace materials. The design has resulted in five US patents.

This uncompromising approach naturally leads to a structure which is flexible and responsive to changes in wind speed and direction. The two bladed rotor adopted for the design incorporates a teetering hinge borrowed from helicopter technology. This feature eliminates many of the loads inherent in other designs and allows weight and cost to be kept to a minimum. Of equal importance, the rotor is designed for optimum aerodynamic efficiency and produces significantly more energy than other rotors of similar size. Each wind turbine is mounted on a slender tower rising fifty meters above the ground. The tower is taller than that of many other turbines. This improves the production of the wind turbine by reaching the swifter winds found at a higher hub height.

EASE OF MAINTENANCE

Access to the main components for on-site assembly and maintenance is simplified by the use



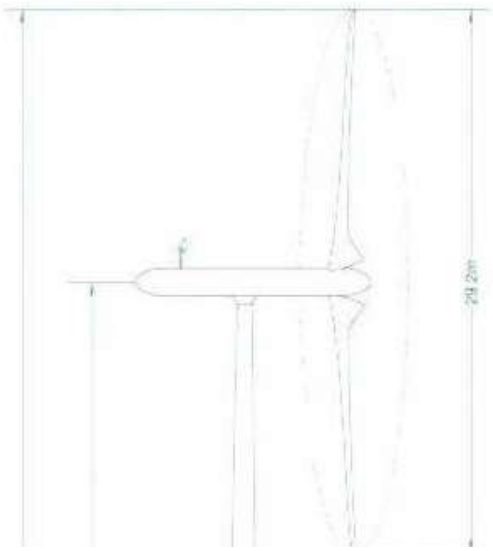
The lightweight downwind design of the Cannon Wind Eagle 300 enables it to operate in environments where upwind turbines would fail to generate electricity cost effectively.

of a tilt down tower. All assembly and maintenance work is carried out at ground level with light vehicles and tools. The turbine and tower are lifted into position using an integral winch. This design feature reduces labor and equipment cost while increasing worker safety. The turbine can even be lowered when predicted storms would threaten turbines left standing.

AEROSPACE TECHNOLOGY

The Wind Eagle design has significant advantages over upwind turbines due to the utilization of aerospace technology. This design concept solved the major technical fatigue pitfalls associated with most wind turbines. For example, there is virtually no tower blade vibration discernible, even though the Wind Eagle is a downwind, free yawing turbine. Stalling is used in the Wind Eagle turbine concept to relieve loading and control torque on the rotor....a valuable aspect of the turbine architecture.

Wind Eagle 300



Material	Fiberglass reinforced epoxy
Maker	Cannon Wind Eagle
Diameter	29.2 m
Swept area	672 m²
Length	14 m

BRAKING SYSTEM

Aerodynamic	Full-blade stall controlled
Mechanical	None
Fail safe	Centrifugal switch

GEAR BOX

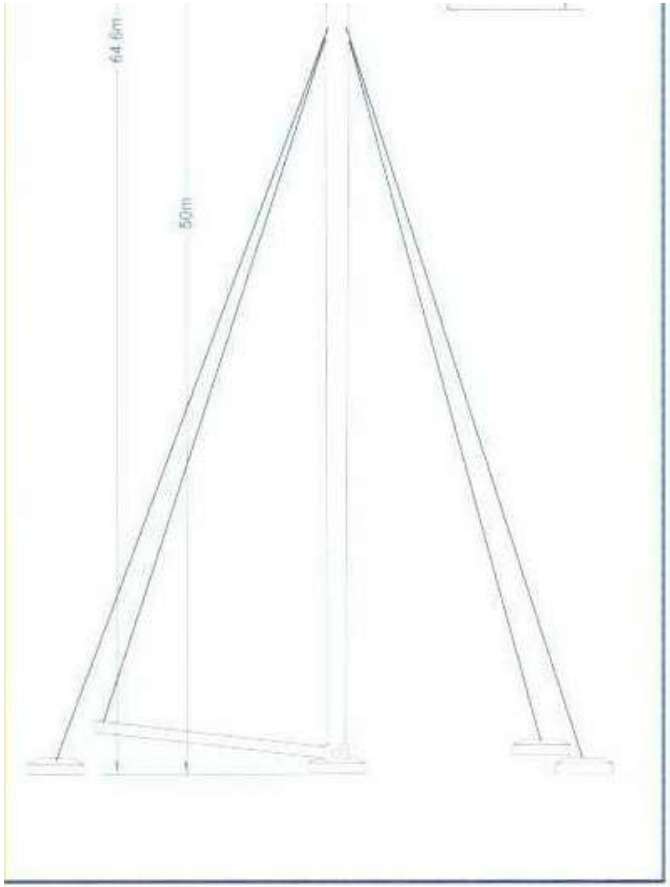
Type	Planetary
Ratio	1:00/1:27.93
Number of steps	2
Power transmission	380 kW
Type	Passive free movement

TOWER

Type	Tubular, guyed, tilt-up
Number of sections	4
Height	50 m (165 feet)
Material	65 ksi yield steel
Assembly	Tapered & telescopin
Ladder type	None - tilt-up/down
Safety system	Tower tilts up & dow
Surface protection	Hot-dip galvanizing

GENERAL DATA

Wind speed at rated output	17 m/s



continuous duty

GENERATOR

Type	SC16 induction
Rated Power	315 kW
Peak Power	417 kW
Voltage	420 volts
Speed	1515 rpm
Number of poles	4
Insulation class	F type or better
Protection	Shunt trip circuit breakers
Coupling	Direct drive
Current Amps	480 Amperes

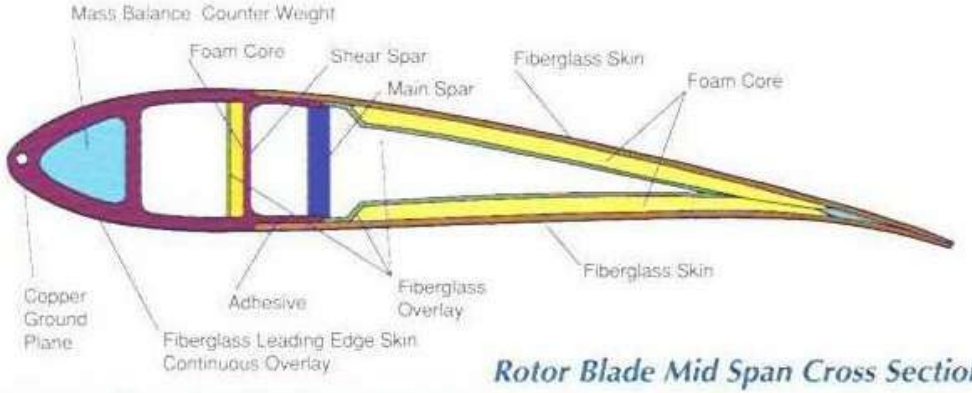
PERFORMANCE

Rated Power	300 kW
Cut-in wind speed	4 m/s(9 mph)
Max. wind speed	55 m/s (120 mph)

Cut-in wind speed	5 m/s
Cut-out wind speed	30 m/s
Tip speed	84.2 m/s
Survival speed	52 m/s
Hub height	50 m
Rotor speed	55 rpm
Nacelle tilt angle (active pitch)	6°
Voltage	420 V
Frequency	50 Hz
Current (Full load @ 300 kW)	480 Amperes
Rated output	315 kW
Type	Wind Eagle 300/30

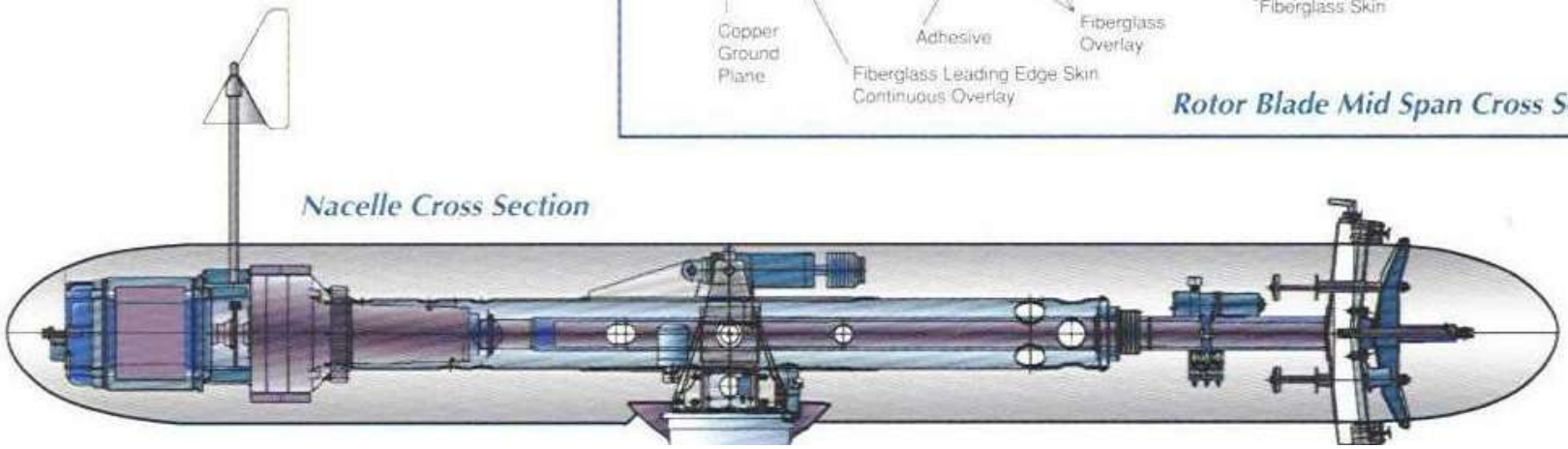
WEIGHT

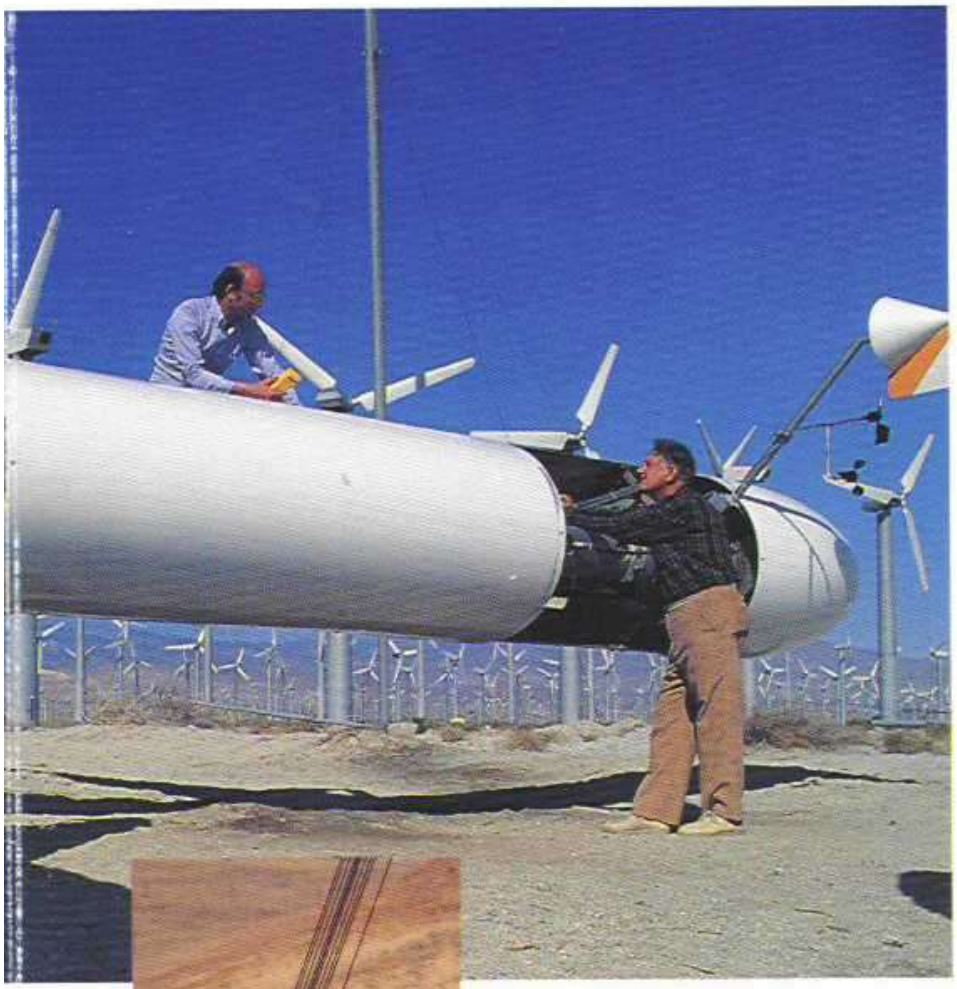
Rotor	855 kG
Tower	8,182 kG
Nacelle	5,000 kG
TOTAL	***14,059 kG***



Rotor Blade Mid Span Cross Section

Nacelle Cross Section





The Wind Eagle is designed for ease of maintenance. The tower tilts the Nacelle to ground level with the use of a small winch *(see inset photo)*. This provides for easy access to vital service areas.

The Wind Eagle can be tilted down in minutes. Turbines can even be lowered to the ground to avoid damage from predicted storms.

LIGHTWEIGHT DOWNWIND DESIGN

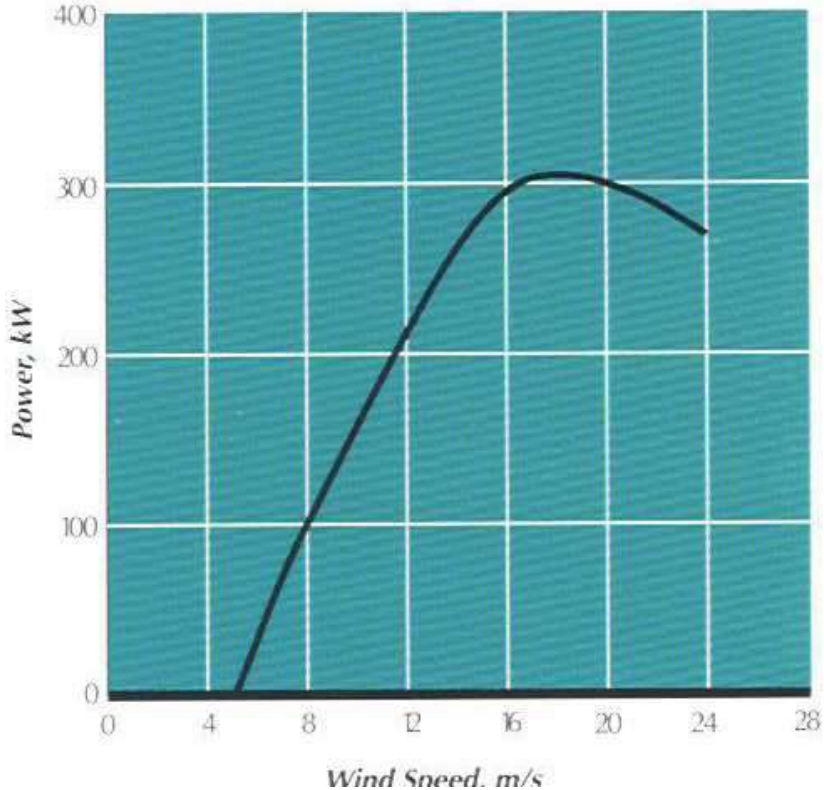
The lightweight downwind design of the Cannon Wind Eagle 300 offers several advantages which make it both cost efficient and easier to maintain.

- Unique tilt down tower system eliminates the risk of injury to maintenance personnel, while substantially reducing maintenance costs.
- The free pitch and yaw operating movement, along with the center-balanced generator head support design, permit a better wind load carrying distribution and dampening capability.
- Because of the full stall aerodynamic breaking design, no additional mechanical breaking systems are required.
- Lightweight, flexible rotor blades shed (bleed-off unequal loads under varying wind conditions. Each rotor blade can flex away from the tower as wind gusts are felt during operation. The unique design of the blade evenly distributes wind force.
- The utilization of lightweight aerospace material and design techniques reduces maintenance costs while increasing efficiency.

The Wind Eagle 300 kW turbine is based on the "center-balanced" design of Jay Carter, Sr. The turbine configuration reduces system loads and structural coupling, featuring flexible blades, a rigid—no teetering—hub, detachable pinned spar joints and hydraulic pitch control.

WIND EAGLE POWER OUTPUT

29.24 m Diameter Rotor



J. Carter Sr.

Progress toward his design of the Cannon Wind Eagle 300 resulted in five US patents.

Wind Eagle 300 Turbine

Wind Eagle 300kw Wind Turbines Call USA Solar & Wind Inc 904 513 1418