

CARTERCOPTER ELECTRIC AIR TAXI

THE NEXT EVOLUTION IN AVIATION

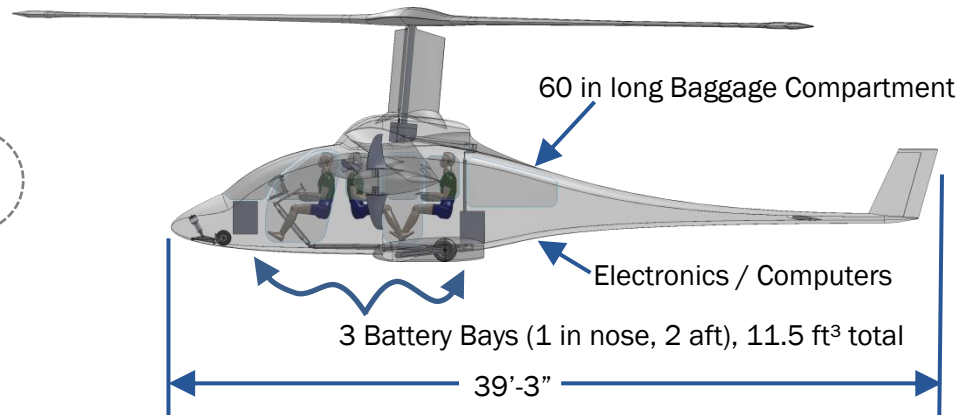
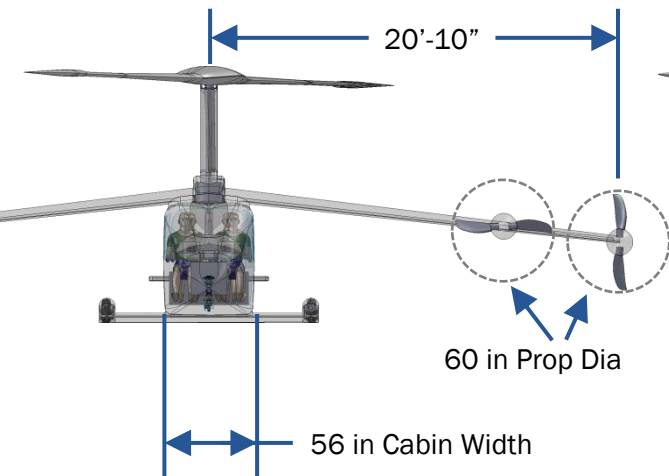


CARTER AVIATION TECHNOLOGIES
An Aerospace Research & Development Company

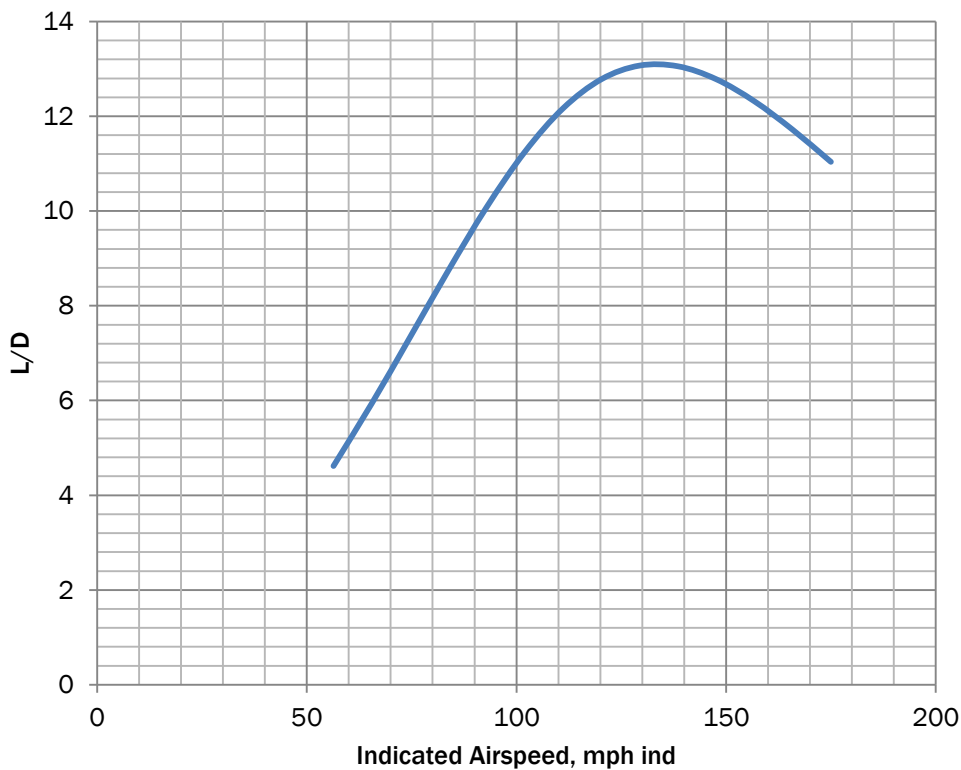
45 ft Rotor Diameter

45 ft Parking Circle

Flat Top on Landing Gear Support for Step into Cabin



Air Taxi L/D vs. IAS

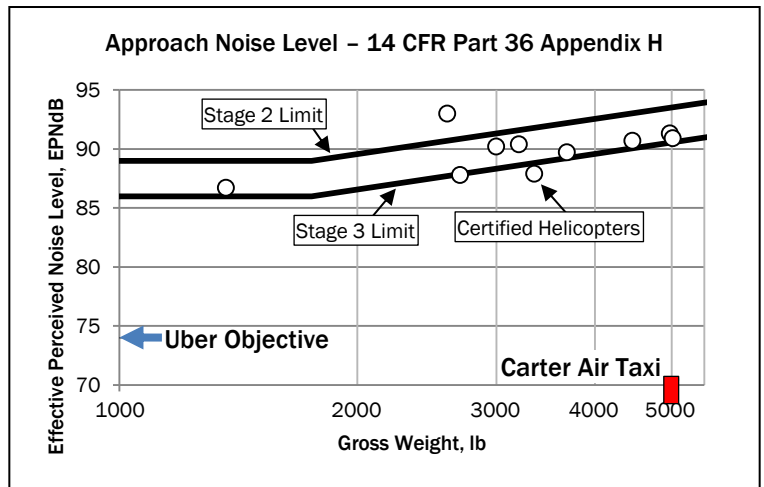
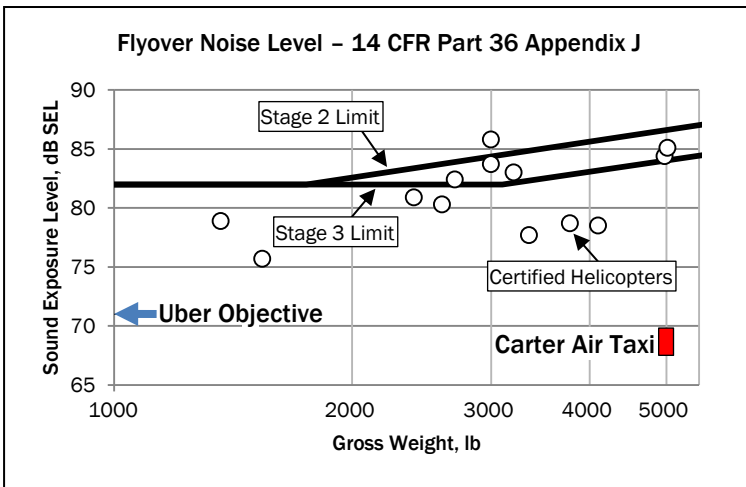
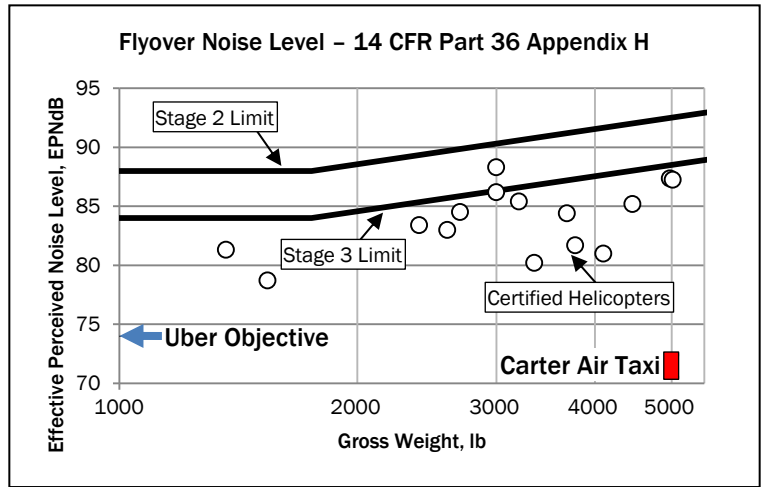
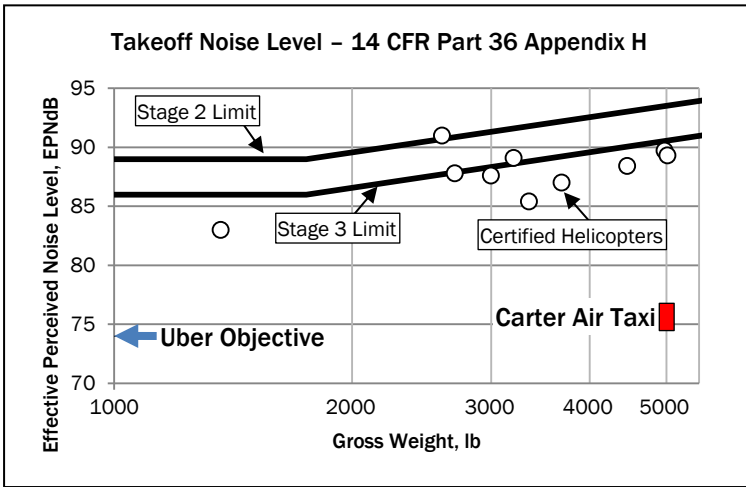


Slowed Rotor Compound (SRC) enables cruise efficiencies comparable to fixed wing airplanes, but with VTOL capability. This efficiency is possible due to the combination of greatly reduced slowed rotor drag and reduced wing area (sized for cruise instead of takeoffs and landings).

Cruise analysis calibrated to [measured flight data](#) for PAV. Inputs were scaled appropriately for the air taxi, including interference and separation drag. Electric air taxi benefits from very low cooling drag compared to internal combustion.

Flight at higher altitudes would shift the curve to the right, improving efficiency and range.

The SRC CarterCopter Electric Air Taxi has the cruise efficiency to meet the Uber mission.

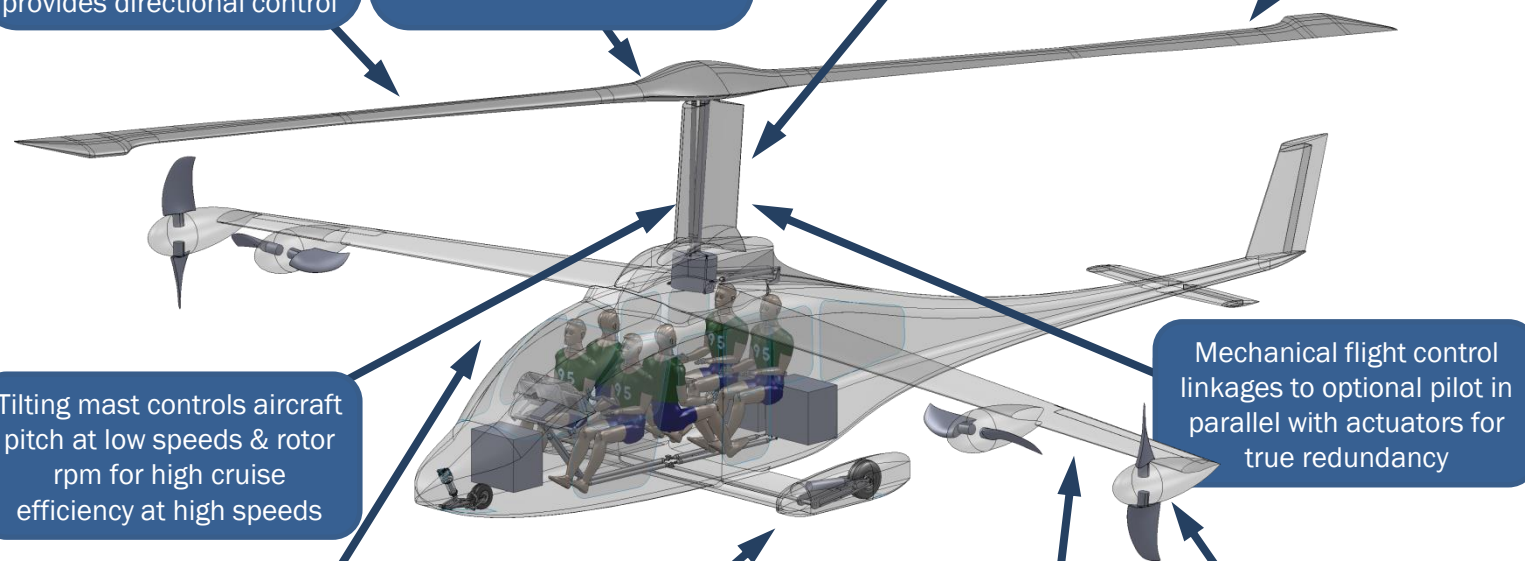


High inertia, low disk loaded rotor acts as built-in parachute, but safer because it works at any altitude / speed, and provides directional control

Lightweight, low profile, streamlined tilting hub greatly reduces drag. No spindle, spindle housing, bearings or lead-lag hinges

Tall, soft mast isolates airframe for fixed-wing smoothness

Slowed rotor enables high speed forward flight, low drag, low tip speed/noise, no retreating blade stall



Tilting mast controls aircraft pitch at low speeds & rotor rpm for high cruise efficiency at high speeds

Mechanical flight control linkages to optional pilot in parallel with actuators for true redundancy

Simple, light, structurally efficient wing with no need for high lift devices

Extreme energy absorbing landing gear adds additional safety above and beyond an already inherently safe design

High aspect ratio wing with area optimized for cruise efficiency

4 propellers for redundant anti-torque and propulsion. Control-by-wire pitch and rpm control

The Carter Air Taxi is a quad propeller electric motor aircraft, consisting of a variable speed rotor, a high aspect ratio wing, with conventional mechanical controls and autopilot, capable of full hover VTOL operations.



Carter Slowed Rotor Compound (SRC) is a **VTOL hybrid fixed-wing rotorcraft** that is able to **take off** and **land** vertically (VTOL – i.e. no runway), hover, and then fly like a fixed-wing airplane.

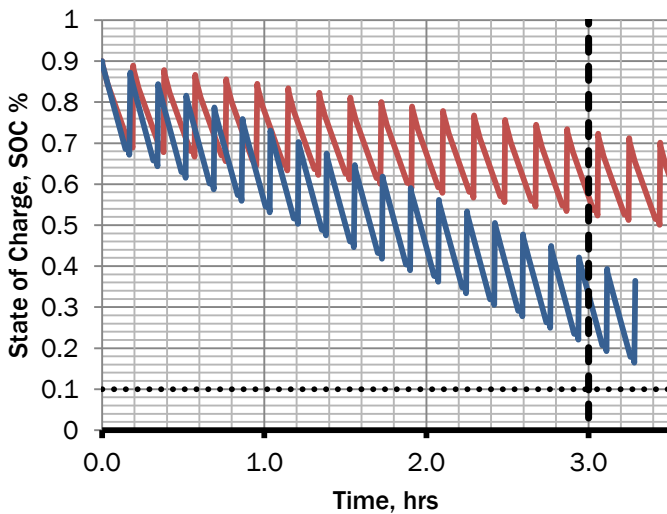
Carter SRC Design has **low rotor disk loading** compared to powered lift approaches. As a result, the hover power can be less, resulting in lower energy consumption in takeoff and landing, and lower motor and controller weight.

Carter lightweight propellers are designed with a **low disk loading** and **high solidity** so they can operate at a resultant tip speed of 450 ft/s for unparalleled quietness.

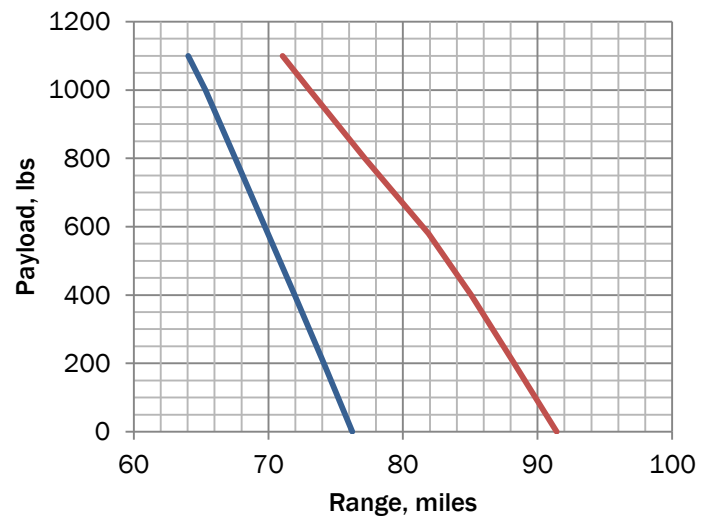
Carter slowed rotor tip speed is at max during hover – the advancing blade tip speed immediately starts to drop below 600 ft/s as forward speed increases due to the **slowing of the rotor rpm**. Disk loading also decreases – unparalleled rotor quietness.

Cruise Speed	175 mph
Gross Weight	5500 lbs
Empty Weight (w/o batteries)	3080 lbs
Battery Weight (300 Wh/kg)	1320 lbs
Useful Load	1100 lbs

SOC vs. Time – 3 hr 'Sprint' Mission



Payload vs. Range – Design Mission



- 150 mph cruise speed
- 175 mph cruise speed
- 3 hr mission threshold
- 10% State of Charge (SOC) threshold