



One Lap in the Life of the Green Dragon



By: Ryan Smith

[Ed. note: Inspiration for this account comes from Tom Fey's "One Second in the Life of a Racer."]

October 3, 1965 found the Miss Bardahl and driver Ron Musson in fine form. The Rolls-Royce Merlin engine, roaring at peak performance, sent the Green Dragon flying across the waters of Mission Bay in excess of 117 MPH. This one lap competition record on a three mile course took a short one minute thirty-two seconds to complete.

During those roughly ninety seconds the Green Dragon truly roared. To make that defining roar, the Merlin engine consumed 7,740 cubic feet of air; the same volume of air inhaled by a human over thirteen days! The mighty supercharger on the Merlin squeezed this air to four-times atmospheric pressure, while ingesting over eight gallons of high-octane racing fuel. The fuel alone contained enough energy to power an average American household for eleven days.

Further adding to this was 38 pounds, or 5 gallons, of water-alcohol (for detonation suppression) and 30 pounds of Nitrous-Oxide. In addition, 14.3 fluid ounces, or roughly 1.25 soda-pop cans, of oil was either consumed or vented overboard. Thus, during this brief ninety second run, the Dragon consumed over 100 pounds of liquids and 585 pounds of air!

To compress this volatile charge, the supercharger was spinning at an amazing 25,000 RPM, with the impeller tip traveling a distance of twenty-two miles at 890 MPH (or Mach 1.2) and absorbing 1,000 horsepower. Each of the forty-eight valves opened and closed almost three-thousand times during these ninety seconds, resulting in over 140,000 total valve cycles. The magneto points opened a total of 70,200 times, sending high voltage electricity to each of the twenty-four spark plugs, to fire each plug more than 2,900 times! The firing of the plugs created 35,000 sharp, impacting pulses to drive the crankshaft through 5,850 revolutions.

During these 5,850 revolutions, each piston traveled over 1.1 miles at an average speed of 44 MPH with a top speed of 70 MPH. Yet each piston reversed direction 11,700 times (or every six inches), each time throwing 1,000 times its nominal weight onto the connecting rod!

With the engine pumping out a continuous 3,300 horsepower, the venerable Merlin performed enough work to lift the Green Dragon to the top of Mt. McKinley (or consequently lift 75 VW Bugs to the top of the Empire State Building)!

To push the 7,000 pound Miss Bardahl around the San Diego course, the propeller spun through a whopping 17,500 revolutions, with the tips traveling in excess of 450 MPH, thus traversing the equivalent length of 200 football fields. Yet each blade only spent half the time in the water, as once per revolution each blade left the water, sending up the beautiful roostertail, and then violently re-entered (a total of 17,500 times) to push the boat forward.

In that brief minute-and-a-half, the Miss Bardahl traveled three miles and once again proved the amazing engineering, technology, and skill required to make an Unlimited Hydroplane possible.

