Bike Racing Helmet

In 1985, industrial designer and bicycling enthusiast Jim Gentes decided to build an aerodynamic bike helmet that would provide a racer an advantage in speed. He formed Giro Sport Design, Inc., Soquel, California and developed a prototype, but a decision that year by the U.S. Cycling Federation (USCF) caused him to change direction. The USCF ruled that all racing bikers must wear helmets that met American National Safety Institute standards.

Suddenly there were 20,000 cyclists who needed helmets, and many of them felt that existing helmets were hot and heavy. There was a solid market for a cool, lightweight, aerodynamic helmet. So Gentes started anew on a second product, the Giro Prolight he is wearing **above**; it was designed with the help of NASA airfoil technology.

Gentes made contact with Raymond M. Hicks, an aerodynamicist at Ames Research Center. Hicks reached a long way back to employ technology from a "NACA 6-series" airfoil section developed during World War II by NASA's predecessor organization, NACA, to reduce fighter aircraft drag. The 6-series was designed for laminar (smooth) flow over a large part of the airfoil, hence low drag.

Hicks helped Gentes adapt the airfoil technology to the helmet application and created an aerodynamic helmet shape specifically designed for bike racers and triathlon participants. Subsequent wind tunnel tests confirmed that the reduced drag offered by the helmet could save one second in each kilometer pedaled, compared with bareheaded racing.

The design features vents in the front and rear of the helmet, arranged to let air flow through the helmet. The air flowing past the rear vents creates a vacuum to pull new air into the helmet; the air exhausted from the helmet smoothes normally turbulent air, making the flow laminar and thus reducing drag. This was a compromise design intended to minimize drag while maximizing cooling ventilation. To make the helmet as light as possible, Gentes made the Prolight of expanded polystyrene foam with a removable Lycra cover instead of a hard plastic shell.

Since its introduction in 1986, the Giro helmet line has undergone considerable evolution and expansion. In 1986, Gentes added to the line by creating a new foam helmet called the Aerohead, advertised as "the most aerodynamic helmet on the market." Later, Giro introduced the Hammerhead, a Prolight with a thin shell. In 1989 the company came out with the Air Attack, the lightest and best ventilated of all the Giro models; Gentes' friend Greg LeMond, world renowned cyclist, wore the Air Attack in his successful bid to win the 1989 Tour de France.

Giro helmets have won high acclaim in the U.S. and abroad, and the flow of orders has transformed Gentes' original one-man-in-a-garage business into a 15,000 square foot facility with 95 employees. ●