Electric car racing—what a gas!

By Lon Gillas

Electric cars now have the sleek lines of their gas counterparts.

Imagine going the race track for a typical day of auto racing. When you arrive, there is something wrong. There is no blue haze coming from the cars, there isn't even a roar of engines as some of the cars go by at speeds of over one hundred miles per hour. The concessionaires are crying about the lack of earplug sales. None of the cars have decals from auto companies or oil products. Instead, these cars are sponsored by utility and battery companies. As the owner of an electric vehicle (EV) race team, I'd like to welcome you to the world of electric car racing.

Modern electric car racing has been on the track for the last three years. Previously there were some small road rallies sponsored by local (EV) clubs. In December, 1990, an organization called the Solar Electric Racing Association (SERA) announced the inaugural Solar and Electric 500 in Phoenix, Arizona. It was to be held at Phoenix International Raceway on April 5-7, 1991. The idea behind the Solar Electric 500 is the same as the early days of auto racing: to present and test new products at the race track. On the track different electric car technologies could be tried and tested against their contemporaries. Competition is the master of innovation at the race track. In the first year of the Phoenix Solar Electric 500, 13 electric cars in two classes and nine solar cars competed in races. In the electric car class, the highest single lap average speed was 69 miles per hour. The winning car of the two hour endurance race averaged 54 miles per hour, traveling 108 miles.

Two years later, in March, 1993, the Solar Electric 500 hosted 55 electric cars in seven classes and two solar cars. Top speed for a single lap in an electric car was 104 miles per hour. The winning car of the two hour endurance race averaged over 61 miles per hour, traveling 122 miles. Since 1991, additional EV races have been organized, like the Pikes Peak Solar/Electric Challenge in October, 1992, and the Clean Air Grand Prix in Atlanta, Georgia, in May, 1993. EV racing is a great educational medium for the public. Seeing EVs race around the track at speeds of 70 to 100+ miles per hour quickly dispels the old image of EVs being glorified golf carts. The public is also surprised to note that most of these cars look surprisingly like the ones already parked in their driveways, with the exception of the electrical outlet where the gas cap used to be.

E-Motion's entry into the Solar and Electric 500 in Phoenix.

Racing electric cars is still a new sport. The race track stretches the vehicles' limits, and the drivers push that limit at a controlled facility. Racing accentuates many problems that might not be noticed in conventional driving. At the 1992 Phoenix event, a 25 mile sprint race was introduced. Four of the 20 cars had their circuit breakers overheat and open due to the extended stress of high current over an extended period. Tom Sneva, the 1983 Indy 500 winner, burned out his electric motor in the 25 mile sprint race at the 1993 Solar Electric 500. He came back in the two-hour endurance race to place second. While experimentation on the track is frustrating and costly, it is far less trouble than having EV customers experience like problems on our streets.

Rapid technology advancements are being made by EVs on the race track. In some races we see battery changes taking only nine seconds. Let's see an Indy car refuel that fast. Other cars are getting 50% recharges in three to four minutes. In the garage charging area, the electric cars are plugging into modified parking meters that have built-in receptacles for charging something we will see on the street in the next few years.

Presently, most of the major components for EVs are off-the-shelf items. The DC controllers are manufactured by a company that makes a similar product for electric fork lifts. Several aerospace companies are getting involved in the EV industry to help replace their sagging military and commercial aircraft business.

Notably absent at the race track have been cars produced by the traditional auto manufacturers. Representatives have been there in person, and some of the races have been sponsored by auto manufacturers. No one has a definitive answer for the lack of these

vehicles. I have contacted several manufacturers, both American and foreign, for sponsorship, without success. I see the auto manufacturers in a sort of Catch-22 with EV racing. If they race and lose against our small time EV team , everyone will ask them what they have done with the millions of EV research dollars they have spent over the past 30+ years. If they win, everyone will ask why they are stalling in getting EVs out to the public, when they have a superior product.

What is needed to improve EV racing and EV in general? More races, more team, and more sponsor dollars. The lack of EV races in the U.S. doesn't justify professional race teams. Virtually all the EV race team are hobbyists or part-timers enjoying the fun and the challenge and paying their own way. We have raced against a team where the entire race team members are rocket scientists for an aerospace company. Again, not your typical racing experience. Part-time racing with fewer than three races a year, makes it really hard to obtain the sponsors needed to participate and to continuously research and improve new developments in EVs. New batteries are always being introduced with increased performance. The EV industry is still waiting for the "super battery" to arrive. About once a week, people contact me with new ideas about how to improve EV performance. I can't rely on this year's experimentation, because next year's technology is going to win the race.

Sponsors are crucial to the survival of EV racing. Without the sponsorship of materials and money, we cannot do the research and testing that is necessary to improve today's EVs to go faster, farther and safer. We are constantly improving motors, wheels, batteries, charging systems, aerodynamics, brakes, power controls, etc. All of this research is directly related to our consumer EV business.

The largest group of sponsors for EV racing, with the most to gain, are the utility companies. Most EVs are driven during the daylight hours for commuting and running around town. My wife and I plug our cars in at night, when all electric utilities have surplus capacity. EV recharging can be a terrific load leveler, with the potential of being able to charge over 50,000,000 cars in the U.S. tomorrow without building a single new power plant. This means added, unexpected revenue for the utilities, cleaner air for the nation, and lower transportation costs for the car owner. EV technology can also be used on the homestead. There are trail bikes and all-terrain vehicles available with electric power. They could give us silence in the hills, with the batteries being charged by any alternative electric energy source.

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A BHM Writer's Profile

Don Fallick has been writing for *Backwoods Home Magazine* since issue number eight, but he's been reading *BHM* since the first year. He built his own home on his first homestead in western Colorado in 1976. Since then, Fallick has lived in Wisconsin, Washington State, and Utah. His homesteading activities have included owner-built construction, homeschooling, independent energy, horsepower, harvesting wild foods and game, home-based business, cooking, and raising everything but his standard of living.

Fallick and his bride Barbara have 10 children between them. All have been homeschooled. When he is not writing for *BHM*, Fallick works as a surveyor and substitute school teacher. At one time or another, he has also been a carpenter, handyman, nurse aide, factory worker, locksmith, editor, and commercial pilot. He has a wide range of interests, and says that he tries to do everything that interests him. Current projects include a lengthy "how to" book, three books of guitar music, and two children's books.